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SECTION 01100

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SECTION 01100

SPECIAL PROJECT PROCEDURES

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. GOVERNMENT CODE OF FEDERAL REGULATIONS (CFR)

33 CFR 320-330	General Regulatory Policies, Permits, Enforcement and Definitions
40 CFR 233	State Program Regulations

1.2 SUBMITTALS

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

SD-01 Preconstruction Submittals

Accident Prevention Plan

Contractor shall provide an accident prevention plan including an activity hazard analysis to the Contracting Officer within 15 calendar days after receipt of award. Plan shall be in accordance with Contract Clause entitled "ACCIDENT PREVENTION (NOV 1991) - ALTERNATE 1.

Payrolls and Basic Records

Contractor shall submit payrolls and basic records in accordance with the CLAUSE entitled "PAYROLLS AND BASIC RECORDS (FEB 1988)".

Progress Chart; G

Contractor shall submit progress chart in accordance with the Contract clause entitled "SCHEDULE FOR CONSTRUCTION CONTRACTS (APR 1984)".

Non-listed, Non-Commercially Active Stone or Material Source; G-ECD.

If after award of a contract, the Contractor proposes to furnish stone, soil, granular or aggregate materials from non-listed, or non-commercially active sources, the following information and data for each non-listed or non-commercially active source of stone, soil, granular or aggregate

material shall be furnished forty-five (45) or more calendar days prior to the date the Contractor is scheduled to obtain materials from such source(s).

- a. Name and address (Property Owner).
- b. Location, site map, and legal description (or appropriate substitute) of the area.
- c. Previous land use information.
- d. A topographic map of the area.
- e. Photographs showing the area proposed for use.
- f. Written permission of the owners of the proposed non-listed or non-commercially active sources(s).
- g. Written permission of the owners of the access properties involved.
- h. All data required to assess potential environmental impacts. This information is required in order to determine the necessity for environmental documentation for any non-commercially active, non-listed source(s).
- i. Documentation of coordination of the use of proposed non-commercially active, non-listed source(s) with Federal, State and local agencies having an interest and furnish written approval of these agencies for use of such source(s).

(1) Field Supervisor, U.S. Fish and Wildlife Service, Ecological Services, 2651 Coolidge Road, East Lansing, Michigan 48823. Phone: 517-351-2555.

(2) Chief, Planning and Assessment Branch (ME-J19), U.S. Environmental Protection Agency, 77 West Jackson Blvd., Chicago, Illinois 60604-3590.

(3) Chief, Land and Water Mgmt. Division, Michigan Department of Environmental Quality, P. O. Box 30458, Lansing, Michigan 48909.

(4) State Historic Preservation Officer, Michigan Bureau of History, 717 W. Allegan, Lansing, Michigan 48918-1800.

(1) Supervisor, Green Bay Field Office, U.S. Fish and Wildlife Service, 1015 Challenger Court, 43 Business Center, Green Bay, Wisconsin 54311.

(2) Chief, Planning and Assessment Branch (ME-J19), U.S. Environmental Protection Agency, 77 West Jackson Blvd., Chicago, Illinois 60604-3590.

(3) Chief, Compliance Section, Historic Preservation Division, State Historical Society of Wisconsin, 816 State Street, Madison, Wisconsin 53706.

(4) Chief, Lake Michigan District, Wisconsin Department of Natural Resources, P.O. Box 10448, Green Bay, Wisconsin 54307-0448.

(5) Chief, Southeast District, Wisconsin Department of Natural Resources, P.O. Box 12436, Milwaukee, Wisconsin 53213.

(6) Chief, Northwest District, Wisconsin Department of Natural Resources, P.O. Box 309, Spooner, Wisconsin 54801.

(1) Chief, Water Quality Division, Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155.

(2) Regional Administrator, Minnesota Department of Natural Resources, 1201 East Highway 2, Grand Rapids, MN 55744.

(3) State Historic Preservation Officer, Minnesota Historical Society, 345 Kellogg Blvd. West, St. Paul, MN 55102.

(4) Supervisor, U.S. Fish and Wildlife Service, Ecological Services, 4101 East 80th St., Bloomington, MN 55425.

(5) Chief, Planning and Assessment Branch (ME-J19), U.S. Environmental Protection Agency, 77 West Jackson Blvd., Chicago, IL 60604-3590.

j. The proposed reduction, if any, in the applicable unit or lump-sum prices in the BIDDING SCHEDULE if the request were to be approved by the Government.

Notice to Mariners

A copy of the completed "NOTICE TO MARINERS" form and a copy of the U.S. Coast Guard's official notice shall be provided prior to the commencement of work.

Buoy Relocation Position

Immediately upon relocating any U.S. Coast Guard buoys the Contractor shall report their position by latitude and longitude in writing.

Utility Locating Plan; G-AOF.

Submit a plan of the proposed procedure for locating existing utilities prior to commencing work at the project site. The plan shall include the local telephone number of MISS DIG, if work includes upland excavation.

Utility Location Findings; G-AOF.

Submit a copy of the utility location findings prior to commencing work on the site.

Traffic Control Plan; G-AOF.

At least fifteen (15) calendar days prior to commencing work at the site, submit a detailed, site specific plan for the control of traffic on the public roadways adjacent to the work area. Coordination of construction traffic with public use of the roadways shall be fully described, including all safety related characteristics.

Survey Note Format; G-AOF.

Submit the proposed survey note format prior to performing any survey work at the work site.

Vibration Monitoring Plan; G-AOF.

Submit the plan to monitor vibrations. The plan shall include the instrument locations and the portion of the work to be performed while the instrument is at each location.

Vibration Monitoring Equipment Description; G-AOF.

Submit the brand name, calibration procedure, characteristics and capabilities of the vibration monitoring equipment to be used at the site at least fifteen (15) calendar days prior to such use.

SD-06 Test Reports

Vibration Monitor Results

Submit daily reports of the results of its vibration monitoring. The reports shall include, as a minimum, time of reading, location of construction, description of construction, equipment being used, recording and monitoring locations, distance from construction to recording location, photographic, graphic or printed record of measurements and a numerical tabulation of particle velocity measurements. A final report shall be prepared and submitted which consolidates and summarizes the findings and results of the effects of the pile driving operations.

SD-07 Certificates

As-Built Technician's Qualifications

Submit the identity and qualifications of the persons assigned to prepare the as-built information at least 10 calendar days in advance of preparing the drawings.

Vibration Monitoring Personnel Credentials; G-AOF.

At least fifteen (15) calendar days prior to commencing vibration monitoring, submit the qualifications of the individual(s) who is (are) to supervise the vibration measurements and prepare the required report.

As-built Drawings; G-AOF.

Within ten (10) calendar days after the substantial completion date as established by the Contracting Officer, submit the as-built details of the work performed under this contract on a set of blue-line prints of the contract drawings marked in red. Following review and approval by the Government, the Contractor shall prepare electronic and mylar copies of as-built drawings for submittal within 15 calendar days following receipt of comments from the Government. Electronic files shall be submitted in Microstation 95 (.dgn) CADD file format, suitable for plotting with Intergraph IPLOT Software. The electronic medium for file transfers shall be agreed to prior to the time of submittal and shall be compatible with current industry standards and hardware configurations.

Survey Information

Upon completion of the contract work, the originals of all field notes, sketches, recordings and computations made by the Contractor in performing the layout work shall be submitted in ring binders.

1.3 REGULATORY REQUIREMENTS

1.3.1 Additional Work Proposed and Not Authorized

1.3.1.1 Work Subject to 33 CFR 320-330

Any additional work (not specifically shown on the plans or delineated in the specifications) proposed by the Contractor in or affecting navigable waters, including wetlands (as defined in 33 CFR 320-330, published in the Federal Register Vol.51, No. 219, Thursday, November 13, 1986) shall not be performed without a Department of the Army Permit. This requirement shall be applicable to all work, permanent or temporary, and/or fill(s). The Department of the Army Permit shall be approved by the District Engineer or Deputy District Engineer in accordance with the laws of the United States and the regulations promulgated thereunder, including, but not limited to, the River and Harbor Act of 1899, the Clean Water Act and the National Environmental Policy Act of 1969, as amended. Corps employees (Contracting Officer's Representatives (COR) or inspectors) are not delegated authority to authorize such work. Information on making application for such permit(s) may be obtained by contacting one of the offices as listed hereinafter. When applying for information or a permit, a copy of any correspondence should be directed to the Contracting Officer of this contract. If a permit is not obtained, the additional work cannot be accomplished. Any delay in processing the permit will not constitute the basis of a claim under this contract. The fact that the Contractor is performing work under a Department of the Army Contract will give the Contractor no greater rights than any other applicant for a Department of the Army Permit.

MICHIGAN-INDIANA

Regulatory Branch
Engineering and Technical Services Division
U.S. Army Engineer District, Detroit
P. O. Box 1027
Detroit, MI 48231
Telephone: 313-226-6813

1.3.1.2 Work Subject to 40 CFR 233

Any additional work (not specifically shown on the plans or included in the specifications), proposed by the Contractor, in or affecting waters of the United States, including wetlands, in the State of Michigan (as defined in 40 CFR 233, published in the Federal Register, Vol. 49 No. 192, Tuesday October 2, 1984) shall not be performed without a State of Michigan regulatory permit. Information on making an application for such permit may be obtained by contacting the office listed hereinafter. When applying for a permit or for information, a copy of any correspondence shall be furnished to the Contracting Officer. If a permit is not obtained, the additional work shall not be performed. Any delay in obtaining or processing the permit will not constitute a basis for a claim under this contract.

STATE OF MICHIGAN

Department of Environmental Quality
Land & Water Management Division
P.O. Box 30458
Stevens T. Mason Building
Lansing, MI 48909
Telephone: 517-373-1950

1.4 PROJECT/SITE CONDITIONS

1.4.1 Condition and Use of Project Site

The drawings indicate soundings and elevations at the project site as found in condition surveys made as stated on the contract drawings. A notification of at least five (5) calendar days shall be given to the Contracting Officer prior to bringing any construction equipment or material upon the work site. The Contractor shall be responsible for damages that may be suffered due to its operations. The Contractor shall note CLAUSE titled "PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS."

1.4.1.1 Physical Conditions

The physical conditions shown on the drawings are indicative of those that prevailed at the time of the site investigations and may be different than those at the time of construction. Significant variations that would require changes to the plans or specification shall be reported to the Contracting Officer immediately. The information shown on the logs of soil borings [enclosed in SECTION 01999] [on the contract drawings] is from borings located within or near the work areas. While the borings are representative of subsurface conditions at their respective locations and for their respective vertical reaches, localized variations of characteristics of the subsurface materials of this region are anticipated.

Field logs of borings taken in the project area, soil samples, and other subsurface information obtained or prepared for this contract are available for examination upon request at the Engineering & Construction Division Design Branch, U.S. Army Corps of Engineers, Detroit District, 477 Michigan Avenue, Detroit, MI 48226.

1.4.1.2 Work and Storage Areas

The Contractor shall locate and procure his own work and storage area with approval by the Contracting Officer.

1.4.2 Notice to Mariners and Navigation Obstructions

The Contractor shall coordinate with the U.S. Coast Guard to assure that a "NOTICE TO MARINERS" is issued prior to its work activity at the project site. A copy of the requisite notice form is enclosed in SECTION 01999. The Contractor is required to conduct its work in such manner as to obstruct navigation as little as possible and, in case the Contractor's plant so obstructs a channel as to make difficult or endanger the passage of vessels, said plant shall be promptly moved on the approach of any vessel to such an extent as may be necessary to afford a practicable passage. Upon completion of the work, the Contractor shall promptly remove its plant, including ranges, buoys, piles, and other marks placed by it under the contract in navigable waters or on shore.

1.4.2.1 Navigation

Information and regulations pertaining to navigation may be obtained from the current issue of the "UNITED STATES COAST PILOT 6," issued annually by the Department of Commerce, National Oceanic and Atmospheric Administration (NOAA). The "UNITED STATES COAST PILOT" may be obtained from National Ocean Survey, NOAA, Distribution Division-C44, Riverdale, Maryland 20840.

1.4.2.2 Traffic

Vessels that may use the waterways at the project site consist of recreational craft and commercial vessels. This traffic may interfere with contract operations and the Contractor shall conduct its work with due regard to and in coordination with the requirements of all navigation. Information regarding the types and amount of passages made by commercial vessels that may use the waterways at the project site may be obtained from the current issue of the "Waterborne Commerce of the United States, Part 3, Waterways and Harbors, Great Lakes," published by the Department of Army, Corps of Engineers. The Department of the Army publication may be obtained at no charge from the following:

District Engineer, U.S. Army Engineer District, New Orleans, Waterborne Commerce Section, P.O. Box 60267, New Orleans, Louisiana 70160. Phone 504-862-1425, FAX 504-862-1091.

1.4.3 Prevailing Lake Levels

Average water levels in Lake Michigan fluctuate above Low Water Datum (LWD). Lake levels as much as two (2) feet or more above LWD may occur during periods of high lake levels and storms. Portions of the work which could be accomplished above water during average years may have to be accomplished under water if lake levels are unusually high. Information on current and anticipated lake levels may be obtained from Detroit District, Corps of Engineers; CELRE-EP-HE; P.O. Box 1027; Detroit, Michigan 48231.

1.4.4 Existing Vegetation, Structures, Equipment, Utilities & Improvements

General locations of applicable existing utilities, vegetation, structures, equipment and improvements, based upon latest information available to the Government have been shown on the drawings. However, it is the Contractor's obligation to establish the exact horizontal and vertical location and size of all existing utility lines which are located within the required work area. The Contractor shall submit a utility locating plan for locating existing utilities and a copy of its utility location findings prior to commencing work on the site. Any utility lines which are not found by the Contractor, but which are known to exist at the project site, shall be reported to the Contracting Officer immediately. The Contracting Officer will have the option of directing commencement of work at the site or requiring the Contractor to submit further plans for locating the utility lines. Once the utilities have been located and marked, the Contractor shall be deemed to have the location made known to it pursuant to CLAUSE titled "PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS." If the Contractor damages any existing utility line, vegetation, structure, equipment or improvement, a report thereof shall be made immediately to the Contracting Officer. In any event, existing utility lines, vegetation, structures, equipment or improvements shall be protected from damage, and if damaged, shall be

repaired by the Contractor at its own expense.

1.4.5 Utility Services

1.4.5.1 Contractor-Furnished Utility Services

The Contractor shall furnish, all water, electric current and other utilities required for its use.

1.4.6 Protection and Maintenance of Traffic

1.4.6.1 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe and public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.4.7 Identification of Employees

The Contractor shall be responsible for requiring each employee engaged on the work to wear a hardhat with labeling as required to identify that the person is an employee of the Contractor or to display other identification as may be approved.

1.4.8 Contract Supervision and Representation

The Contractor's local representative shall be present and available to Government representatives whenever a contractor's crew is working. The name of the Contractor's representative and a 24-hour emergency telephone number shall be furnished to the Government.

1.4.9 Quantity Surveys

The CLAUSE titled "QUANTITY SURVEYS" is applicable other than for measurement of quantities of work performed for stone construction utilizing new stone. Measurement and payment for stone construction is as specified in SECTION 01025, "MEASUREMENT AND PAYMENT" and SECTION 02486, "STONE CONSTRUCTION".

1.4.10 Traffic Control Plan

The Contractor shall control traffic in accordance with its approved plan.

1.4.11 Temporary Lights, Signals and Buoys Required by Coast Guard

All temporary lights, signals and buoys required by the U.S. Coast Guard must be displayed during the required work. Information regarding required signals, lights, buoys and other requirements may be obtained from the Commander (oan), Ninth Coast Guard District, 1240 East Ninth Street, Cleveland, Ohio 44199-2060, Telephone (216) 522-3990.

1.4.12 Navigation Buoys

1.4.12.1 Relocation of Existing Buoys

If the relocation of existing navigation buoys is required to perform the contract work, the Contractor shall request permission for their relocation from the U.S. Coast Guard through the Contracting Officer. Once relocated, a record shall be maintained of the buoy relocation position(s). The request shall be provided to the Contracting Officer not less than three (3) weeks prior to need of the buoy relocation. The Contractor shall be responsible for performing the relocation work, which shall be in accordance with U.S. Coast Guard requirements.

1.4.12.2 Temporary Construction Buoys

In order to distinguish temporary buoys placed and maintained by the Contractor for construction purposes from aids to navigation placed by the U.S. Coast Guard, the Contractor's buoys shall be white and the top two (2) feet shall be light green in color. The Contractor shall remove its temporary buoys at the completion of the work.

1.4.12.3 Buoy Markings

If buoys with special markings are needed to indicate the different sides of the navigable channel, prior arrangements shall be made with the U.S. Coast Guard, through the Contracting Officer.

1.4.13 Layout of Work and Surveys

1.4.13.1 Layout of Work

The following requirements are in addition to the requirements of CLAUSE titled "LAYOUT OF WORK." The Government has established bench marks and horizontal control points at the site of the work. Horizontal control points and descriptions of bench marks are shown on the drawings and on sheets enclosed in SECTION 01999. The elevations of bench marks are referred to mean water level (IGLD 1955).

1.4.13.2 Surveyor Requirements

From these control points and bench marks, the Contractor shall lay out the work by establishing all lines, grades, range markers and gauges at the site as necessary to control the work. The Contractor shall obtain the services of a surveyor registered in the state of Michigan for the layout work. All survey work shall meet the minimum requirements for third-order control in accordance with the American Congress on Surveying and Mapping, 1978 Edition, of "Definition of Surveying and Associated Terms, Appendix D, Tables I, II and III." All additional stakes and markers as may be necessary for control and guidance of the Contractor's construction operations shall be placed and established under the direction of the registered surveyor. All survey information shall be recorded in accordance with standard and approved methods and in the survey note format approved by the Contracting Officer. All field notes, sketches, recordings and computations made by the Contractor in performing the layout work shall be available at all times during the progress of the work for ready examination by the Contracting Officer or his or her duly authorized representative and upon completion of the contract work the originals shall be turned over to the Contracting Officer in ring binders.

1.4.13.3 Suspension

The Contracting Officer may require that work be suspended at any time when

location and limit marks established by the Contractor are not reasonably adequate to permit checking the work. Such suspension will be withdrawn upon satisfactory replacement of location and limit marks. Such suspension shall be at no additional cost to the Government and shall not entitle the Contractor to an extension of time for completing the work.

1.4.13.4 Verification

The Government may make checks as the work progresses to verify lines and grades established by the Contractor and to determine the conformance of the completed work as it progresses with the requirements of contract specifications and drawings. Such checking by the Contracting Officer or his or her representative shall not relieve the Contractor of its responsibility to perform all work in accordance with the contract drawings and specifications and the lines and grades given therein.

1.5 SEQUENCING AND SCHEDULING

1.5.1 Start Work

Evidence that the Contractor has started procurement of materials, preparation and submission of shop drawings, preparation of subcontracts, and other preparatory work will satisfy the requirement that work commence within ten (10) calendar days after receipt of Notice to Proceed. (See Clause titled COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK, FAR 52.212-0003.)

1.6 PROTECTION OF WELLS

The Contractor shall take all precautions necessary to protect any existing wells on private property within the vicinity of the work. The Contractor shall protect against grout intruding into the wells and their underground water source. The wells shall not be physically damaged or have their production rate diminished as a result of the work required under this contract.

1.7 REPORT REQUIREMENTS

1.7.1 Accident Prevention Plan

Contractor shall provide an accident prevention plan including an activity hazard analysis to the Contracting Officer within 15 calendar days after receipt of award. Plan shall be in accordance with Contract Clause entitled "ACCIDENT PREVENTION (NOV 1991) - ALTERNATE 1.

1.7.2 Payrolls and Basic Records

Contractor shall submit payrolls and basic records in accordance with the CLAUSE entitled "PAYROLLS AND BASIC RECORDS (FEB 1988)".

1.7.3 Progress Chart

Contractor shall submit progress chart in accordance with the Contract clause entitled "SCHEDULE FOR CONSTRUCTION CONTRACTS (APR 1984)".

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Use of Materials from Non-Listed, Non-Commercially Active Sources

If after award of the contract, the Contractor proposes to use stone from a source or sources other than approved commercially active sources or the sources listed in SECTION 02486, "STONE CONSTRUCTION", Paragraph, "STONE MATERIALS", Subparagraph, "Sources" or to use soil, granular or aggregate materials for fill from a non-commercially active source or sources, the Contractor shall submit data as required in the Paragraph entitled "SUBMITTALS". The data shall be accompanied by a request for approval. Non-listed, non-commercially active stone or material sources shall not be used unless the proposal and use of the source(s) are approved by the Contracting Officer in accordance with applicable provisions of the contract. All expenses incurred by the Government and the Contractor in connection with the Contractor's request for approval for the use of materials from non-listed, non-commercially active sources shall be borne by the Contractor and all use of such materials and all operations in connection therewith shall be at the Contractor's risk. No extension of the time for completion of the work will be granted as the result of disapproval or approval of the Contractor's request to use a non-listed, non-commercially active source or sources. If not approved, the Contractor shall use materials from the applicable listed or commercially active source(s).

2.2 AS-BUILT DRAWINGS

The as-built drawing details shall be accurate and of professional quality prepared those with adequate as-built technician's qualifications.

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section --

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01999

LISTING OF ENCLOSED DOCUMENTS, EXHIBITS AND OTHER ATTACHEMENT

PART 1 GENERAL

1.1 ENCLOSURES

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section Table of Contents --

SECTION 01999

LISTING OF ENCLOSED DOCUMENTS, EXHIBITS AND OTHER ATTACHEMENT

PART 1 GENERAL

1.1 ENCLOSURES

This Section contains documents referenced in other Sections of the specifications. They are consolidated in this Section for the convenience of the Contractor and the Government. The Contractor may reproduce the enclosed forms for its use or obtain a supply of the forms from the Contracting Officer.

TITLE

CONSTRUCTION QUALITY MANAGEMENT REPORT - NCE FORM 63,
6 MAY 77. (2 Sides)

PREPARATORY INSPECTION CHECKLIST (3 SIDES)

INITIAL INSPECTION CHECKLIST (2 SIDES)

ACCIDENT PREVENTION PROGRAM ACTIVITY HAZARD ANALYSIS-
NCE FORM 129, 6 JUNE 1986.

RESIDENT MANAGEMENT SYSTEM FORMS

A. CURRENT ACTIVITY SUMMARY

B. INITIAL INSPECTION WORKSHEET

C. PREPARATORY INSPECTION WORKSHEET

D. CONTRACTOR QUALITY CONTROL REPORT

E. TRANSMITTAL SHEET (4025-R)

RMS CORRESPONDENCE CODES

SUBMITTAL REGISTER - ENG FORM 4288, MAY 91

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA,
MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATIONS
OF COMPLIANCE ENG FORM 4025, MAY 91 (2 SIDES)

NOTICE TO MARINERS FORM

CONSTRUCTION PROJECT AND SAFETY PERFORMANCE SIGNS

GENERAL DECISION NO.IL030018

GENERAL DECISION NO.MI030090

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section --

CONSTRUCTION QUALITY CONTROL MANAGEMENT

DATE _____ REPORT _____
CONTRACTOR _____ CONTRACT NO. _____
PROJECT NAME _____ LOCATION _____
WEATHER TYPE _____ TEMP. MAX _____ MIN _____ RAINFALL _____ GAGE READING _____
EMPLOYEES: SUPV. _____ SKILLED _____ LABORERS _____ LENGTH OF SHIFT _____ HR _____

WORK RESPONSIBILITY: NAME (PRIME OR SUBCONTRACTOR) AND AREA OF RESPONSIBILITY .

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____

WORK PERFORMED TODAY: (LOCATION, DESCRIPTION, QUANTITY AND RESPONSIBILITY BY LETTER REFERENCE
(Relate to Items on the Progress Chart or CPM)

INSPECTION: (DESCRIPTION OF INSPECTION AND LOCATION. INCLUDE OFF-SITE, MATERIALS AND EQUIPMENT INSPECTION.)

A. PREPARATORY PHASE:

B. INITIAL PHASE:

C. CONTINUOUS PHASE:

RESULTS OF INSPECTION: (INCLUDE FINDINGS, DEFICIENCIES OBSERVED & CORRECTIVE ACTION)

RESULTS OF SURVEILLANCE CONTINUED:

TEST PERFORMED: TYPE, LOCATION, RESULTS INCLUDING FAILURES & REMEDIAL ACTION,
(ATTACH COPY OF TEST REPORT OR NOTATION WHEN IT WILL BE FURNISHED.)

WORK ITEMS BEHIND SCHEDULE: REASON, EFFECT ON PROGRESS SCHEDULE AND ACTION TAKEN.

JOB SAFETY: (REPORT CONDITIONS, DEFICIENCIES, CORRECTIVE ACTION & RESULTS.)

REMARKS: LIST ATTACHMENT AND OTHER MANAGEMENT ACTIONS TAKEN TO ASSURE QUALITY
CONSTRUCTION

IF INSPECTION & RESULTS ARE NOT LISTED THEN IT IS ASSUMED THAT QUALITY CONTROL IS NOT BEING
IMPLEMENTED.
THE ABOVE REPORT IS COMPLETE AND CORRECT AND ALL MATERIALS & SUPPLIES INCORPORATED IN THE
WORK ARE IN COMPLIANCE WITH THE TERMS OF THE CONTRACT EXCEPT AS NOTED:

CONTRACTOR'S APPROVED REPRESENTATIVE SIGNATURE

PREPARATORY INSPECTION CHECKLIST

CONTRACT NO: _____ DATE: _____

TITLE: _____ SPECS. SECTION: _____

MAJOR DEFINABLE SEGMENT OF WORK: _____

A. PERSONNEL PRESENT:

	<u>NAME</u>	<u>POSITION</u>	<u>COMPANY</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____

B. TRANSMITTAL INVOLVED:

	<u>NUMBER & ITEM</u>	<u>CODE</u>	<u>CONTRACTOR OR GOVERNMENT APPROVAL</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____

PREPARATORY INSPECTION CHECKLIST

B-I. Have all items involved been approved Yes _____ No _____

B-II. What item have not been approved?

<u>ITEM</u>	<u>STATUS</u>
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

C. Are all materials on hand? Yes _____ No _____

C-I. Are all materials on hand accordance with approvals? Yes _____ No _____

C-II. Items not on hand or not in accordance with transmittals:

1. _____
2. _____
3. _____
4. _____

D. Test required in accordance with contract requirements:

<u>TEST</u>	<u>PARAGRAPH</u>
1. _____	_____
2. _____	_____
3. _____	_____

PREPARATORY INSPECTION CHECKLIST

E. ACCIDENT PREVENTION PREPLANNING – HAZARD CONTROL MEASURES:

E-1 Applicable Outlines)Attach completed copies):

1. _____
2. _____
3. _____
4. _____
5. _____

E-II Operational Equipment Checklist

ATTACHED FOR:

1. _____
2. _____
3. _____

ON FILE FOR:

1. _____
2. _____
3. _____

QUALITY CONTROL – PRIME CONTRACTOR

Page 3 of 3

INITIAL INSPECTION CHECKLIST

CONTRACT NO: _____ DATE: _____

Description and Location of Work Inspected: _____

_____ Specs. Section: _____

REFERENCE CONTRACT DRAWING:

A. PERSONNEL PRESENT :

	NAME	POSITION	COMPANY
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____

B. MATERIALS BEING USED ARE IN STRICT COMPLIANCE WITH THE CONTRACT PLANS

AND SPECIFICATION: YES _____ NO _____

IF NOT, EXPLAIN: _____

INITIAL INSPECTION CHECKLIST

C. PROCEDURES AND WORK METHODS WITNESSED ARE IN STRICT COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS: YES ____ NO ____
IF NOT, EXPLAIN: _____

D. WORKMANSHIP IS ACCEPTABLE: YES ____ NO ____ STATE AREAS WHERE IMPROVEMENT IS NEEDED: _____

E. SAFETY VIOLATIONS AND CORRECTIVE ACTION TAKEN: _____

QUALITY CONTROL REPRESENTATIVE

ACCIDENT PREVENTION PROGRAM
ACTIVITY HAZARD ANALYSIS

Page of

1. Contract No.	2. Project	3. Facility
4. Date	5. Location	6. Estimated Start Date

7. Item	8. Phase of Work	9. Safety Hazard	10. Precautionary Action Taken

11. Contractor (Signature & Date)

12. Report discussed with contractor/ superintendent on	13. Contracting Officer (Signature & Date)
---	--



US Army Corps
of Engineers

Current Activity Summary

08 Jul 2002

Project Name: Repair of North & South Piers, Baloney Harbor, MI
Contract Number: DACW35-02-C-####

Location Name

Activity Number	Activity Description	QUANTITY	UNIT PRICE	AMOUNT
CLIN 0001	North and South Pier Repairs	1	\$3,437,787.18 / LS	\$3,437,787.18
1001	Bonds			\$49,136.00
1002A	Prepare & Mobilize Equipment			\$94,864.00
1002B	Prepare Site			\$72,500.00
1002C	Office Trailers & Utilities			\$22,500.00
1003A	Demobilize Equipment			\$5,000.00
1003B	Site Restoration			\$2,500.00
1003C	As-Built Drawings			\$2,500.00
1004A	Furnish SSP			\$750,000.00
1004B	Furnish Special Piles			\$50,000.00
1004C	Furnish SSP Pile Shoes			\$30,000.00
1004D	Fabricate Template			\$6,000.00
1004E	Excavate Driving Line			\$100,000.00
1004F	Set & Drive SSP			\$500,000.00
1004G	Backfill Driving Line			\$50,000.00
1004I	South Driving Line Obstruction Removal			\$117,787.18
1005A	Furnish Misc. Steel			\$193,000.00
1005B	Furnish Tie-Rods			\$20,000.00
1005C	Furnish Plate Washers			\$15,000.00
1005D	Furnish Fasteners			\$12,000.00
1005E	Place Misc. Steel			\$280,000.00
1006A	Demo Concrete & Remove (Rubblemound)			\$100,000.00
1006B	Excavate Existing Cribs (Rubblemound Area)			\$185,000.00
1006C	Disposal of Demo Materials (Rubblemound Area)			\$25,000.00
1007A	Furnish H-Pile Materials			\$22,800.00
1007B	Install H-Piles			\$27,200.00
1008A	Furnish Rebar			\$135,000.00
1008B	Place Concrete (2000 CY @ \$250.00/CY)			\$500,000.00
1009A	Furnish Handrails			\$60,000.00
1009B	Place Handrails			\$7,000.00
1009C	Paint Handrails			\$3,000.00
				<u>\$3,437,787.18</u>
CLIN 0002	Fill Stone:	0	\$0.00 / NA	\$0.00
	No Activities Assigned to this Bid Item.			
CLIN 0002AA	First 18,000 tons	18,000	\$22.50 / TN	\$405,000.00
2001	Furnish & Place Fill Stone - 1st 18,000 Tons			\$405,000.00
				<u>\$405,000.00</u>
CLIN 0002AB	Over 10,000 tons	2,000	\$22.50 / TN	\$45,000.00
2101	Furnish & Place Fill Stone - Over 18,000 Tons			\$45,000.00
				<u>\$45,000.00</u>
CLIN 0003	Underlayer Stone:	0	\$0.00 / NA	\$0.00
	No Activities Assigned to this Bid Item.			
CLIN 0003AA	First 4,500 Tons	4,500	\$31.50 / TN	\$141,750.00
3001	Furnish & Place Underlayer Stone - 1st 4,500 Tons			\$141,750.00
				<u>\$141,750.00</u>
CLIN 0003AB	Over 4,500 tons	450	\$31.50 / TN	\$14,175.00
3101	Furnish & Place Underlayer Stone - Over 4,500 Tons			\$14,175.00
				<u>\$14,175.00</u>
CLIN 0004	Scour Stone:	0	\$0.00 / NA	\$0.00



US Army Corps
of Engineers

Current Activity Summary

08 Jul 2002

Project Name: Repair of North & South Piers, Baloney Harbor, MI
Contract Number: DACW35-02-C-####

Location Name

Activity Number	Activity Description	QUANTITY	UNIT PRICE	AMOUNT
CLIN 0004	Scour Stone: (Continued)	0	\$0.00 / NA	\$0.00
No Activities Assigned to this Bid Item.				
CLIN 0004AA	First 3,500 tons	3,500	\$27.50 / TN	\$96,250.00
4001	Furnish & Place Scour Stone - 1st 3,500 Tons			\$96,250.00
				\$96,250.00
CLIN 0004AB	Over 3,500 tons	600	\$27.50 / TN	\$16,500.00
4101	Furnish & Place Scour Stone - Over 3,500 Tons			\$16,500.00
				\$16,500.00
CLIN 0005	Bedding Stone:	0	\$0.00 / NA	\$0.00
No Activities Assigned to this Bid Item.				
CLIN 0005AA	First 3,000 tons	3,000	\$28.00 / TN	\$84,000.00
5001	Furnish & Place Bedding Stone - 1st 3,000 Tons			\$84,000.00
				\$84,000.00
CLIN 0005AB	Over 3,000 tons	600	\$28.00 / TN	\$16,800.00
5101	Furnish & Place Bedding Stone - Over 3,000 Tons			\$16,800.00
				\$16,800.00
CLIN 0006	Armor Stone:	0	\$0.00 / NA	\$0.00
No Activities Assigned to this Bid Item.				
CLIN 0006AA	First 6,000 tons	6,000	\$34.00 / TN	\$204,000.00
6001	Furnish & Place Armor Stone - 1st 6,000 Tons			\$204,000.00
				\$204,000.00
CLIN 0006AB	Over 6,000 tons	825	\$34.00 / TN	\$28,050.00
6101	Furnish & Place Armor Stone - Over 6,000 Tons			\$28,050.00
				\$28,050.00
Sum of CLINs				\$4,489,312.18
Sum of Activities				\$4,489,312.18
Difference				\$0.00

INITIAL INSPECTION WORKSHEET

DEFINABLE FEATURE OF WORK : Site Cast Concrete

A. ACTIVITIES INCLUDED UNDER Site Cast Concrete -

ABC Company, Inc

1008A	Furnish Rebar	\$135,000.00
1008B	Place Concrete (2000 CY @ \$250.00/CY)	\$500,000.00
		\$635,000.00

B. QUALITY CONTROL REQUIREMENTS -

SUBMITTALS REQUIRED -

00700	1	SF 1413 for Subcontracts		Not submitted
03250	1	Expansion Joint Materials	— A	Approved
03307	1	Batching and Mixing Equipment	F	Receipt
03307	2	Conveying and Placement Equipment	F	Receipt
03307	3	Reinforcing Steel (Mat Steel, Bar Steel)	A	Approved
03307	4	Concrete Mixture Proportions;	A	Approved
03307	5	Cementitious Material	A	Approved
03307	6	Aggregates	A	Approved
03307	7	Manufacturer's Literature	A	Approved
03307	8	Batching & Mixing Equipment - Redi-Mix	F	Receipt
03307	9	Conveying & Placing Equipment - Redi-Mix	F	Receipt
03307	10	Concrete Mix Proportions - Redi-Mix	A	Approved
03307	11	Cementitious Material - Redi-Mix	A	Approved
03307	12	Aggregates - Redi Mix	A	Approved
03307	13	Manufacturer's Data; AEA - Redi-Mix	A	Approved
03307	14	Manufacturer's Data; WRA - Redi-Mix	A	Approved
05500	2	Welders	F	Receipt
05552	4	Mill Certs - Ladder Grab Rails	A	Approved

QC TESTS -

CT # 00001	Obtain 1 Cylinder for strength testing at 7 days and 2 Cylinders for 28 days. Minimum of one set per day or 1 set per every 150 CY placed. (ASTM C-94) Required strength at 7 Days = 2,800 p.s.i.; 28 Days = 4,000 p.s.i.		Not Performed
CT # 00002	Check Batch slips for water/cement ratio not to exceed 0.40 by weight		Not Performed
CT # 00003	Check Slump at both mixer and discharge ends: Pumped = 3" - 7" at discharge Maximum of 5" at Mixer if no admixture used Maximum of 7" at mixer if admixture is used 2 checks per shift is minimum required		Not Performed
CT # 00004	2 Air Content tests required per shift. Check approved mix design for maximum and minimum values acceptable.		Not Performed

C. QA/QC PUNCH LIST ITEMS -

INITIAL INSPECTION WORKSHEET

DEFINABLE FEATURE OF WORK : Site Cast Concrete

C. QA/QC PUNCH LIST ITEMS - Cont.

INCLUDE ADDITIONAL COMMENTS ON DAILY REPORT

D. LABOR RATES -

LABOR CLASSIFICATIONS	BASIC RATE	FRINGE BENEFITS	PLUS %	TOTAL WAGE/HR
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

E. INSPECTION CHECKS -

	IN COMPLIANCE Yes/ No/ NA
1. Check rebar for proper bar sizes, per approved shop drawings.	___ ___ ___
2. Check for 3" clearance of rebar from form sides and top surface.	___ ___ ___
3. Check for proper use of concrete vibrators	___ ___ ___
4. Check for correct finish elevations.	___ ___ ___
5. Concrete finish shall meet approval of on-site Government Representative. Make sure all finishers are aware of approved finishing method and degree of brooming.	___ ___ ___
6. Ensure embedded items are not displaced during placement and finishing of the concrete.	___ ___ ___
7. _____	___ ___ ___
8. _____	___ ___ ___
9. _____	___ ___ ___
10. _____	___ ___ ___

F. JOB SITE SAFETY -

	IN COMPLIANCE Yes/ No/ NA
1. All employees working over water are required to wear workvests (PFDs)	___ ___ ___
2. All employees are to wear hard hats.	___ ___ ___
3. Concrete Pump must be shut down prior to cleaning.	___ ___ ___
4. Review Activity Hazard Analysis for Concrete Work prior to performing this work.	___ ___ ___
5. _____	___ ___ ___
6. _____	___ ___ ___
7. _____	___ ___ ___
8. _____	___ ___ ___

G. QA Evaluation Notes -

	DISCUSSED Yes/ No/ NA
1. _____	___ ___ ___
2. _____	___ ___ ___
3. _____	___ ___ ___
4. _____	___ ___ ___

PREPARATORY INSPECTION WORKSHEET

DEFINABLE FEATURE OF WORK : Site Cast Concrete

A. ACTIVITIES INCLUDED UNDER Site Cast Concrete -

ABC Company, Inc.

1008A	Furnish Rebar	\$135,000.00
1008B	Place Concrete (2000 CY @ \$250.00/CY)	\$500,000.00
		\$635,000.00

B. QUALITY CONTROL REQUIREMENTS -

SUBMITTALS REQUIRED -

00700	1	SF 1413 for Subcontracts		Not submitted
03250	1	Expansion Joint Materials	A	Approved
03307	1	Batching and Mixing Equipment	F	Receipt
03307	2	Conveying and Placement Equipment	F	Receipt
03307	3	Reinforcing Steel (Mat Steel, Bar Steel)	A	Approved
03307	4	Concrete Mixture Proportions;	A	Approved
03307	5	Cementitious Material	A	Approved
03307	6	Aggregates	A	Approved
03307	7	Manufacturer's Literature	A	Approved
03307	8	Batching & Mixing Equipment - Redi-Mix	F	Receipt
03307	9	Conveying & Placing Equipment - Redi-Mix	F	Receipt
03307	10	Concrete Mix Proportions - Redi-Mix	A	Approved
03307	11	Cementitious Material - Redi-Mix	A	Approved
03307	12	Aggregates - Redi Mix	A	Approved
03307	13	Manufacturer's Data; AEA - Redi-Mix	A	Approved
03307	14	Manufacturer's Data; WRA - Redi-Mix	A	Approved
05500	2	Welders	F	Receipt
05552	4	Mill Certs - Ladder Grab Rails	A	Approved

C. QA/QC PUNCH LIST ITEMS -

INCLUDE ADDITIONAL COMMENTS ON DAILY REPORT

D. LABOR RATES -

LABOR CLASSIFICATIONS	BASIC RATE	FRINGE BENEFITS	PLUS %	TOTAL WAGE/HR
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

PREPARATORY INSPECTION WORKSHEET

DEFINABLE FEATURE OF WORK : Site Cast Concrete

E. REVIEW CONTRACT DRAWINGS AND SPECIFICATIONS -

DRAWING / SPEC. NO

COMMENTS / CONFLICTS

DRAWING / SPEC. NO	COMMENTS / CONFLICTS
_____	_____
_____	_____
_____	_____

DISCUSSED

Yes/ No/ NA

- | | | | | |
|----|-------|-----|-----|-----|
| 1. | _____ | ___ | ___ | ___ |
| 2. | _____ | ___ | ___ | ___ |
| 3. | _____ | ___ | ___ | ___ |
| 4. | _____ | ___ | ___ | ___ |

F. REPETITIVE DEFICIENCIES FOUND ON PREVIOUS PROJECTS -

DISCUSSED

Yes/ No/ NA

- | | | | | |
|----|-------|-----|-----|-----|
| 1. | _____ | ___ | ___ | ___ |
| 2. | _____ | ___ | ___ | ___ |
| 3. | _____ | ___ | ___ | ___ |
| 4. | _____ | ___ | ___ | ___ |

G. INSPECTION CHECKS -

IN COMPLIANCE

Yes/ No/ NA

- | | | | | |
|----|-------|-----|-----|-----|
| 1. | _____ | ___ | ___ | ___ |
| 2. | _____ | ___ | ___ | ___ |
| 3. | _____ | ___ | ___ | ___ |
| 4. | _____ | ___ | ___ | ___ |

H. JOB SITE SAFETY -

IN COMPLIANCE

Yes/ No/ NA

- | | | | | |
|----|-------|-----|-----|-----|
| 1. | _____ | ___ | ___ | ___ |
| 2. | _____ | ___ | ___ | ___ |
| 3. | _____ | ___ | ___ | ___ |
| 4. | _____ | ___ | ___ | ___ |

I. QUALITY ASSURANCE EVALUATION NOTES -

DISCUSSED

Yes/ No/ NA

- | | | | | |
|----|-------|-----|-----|-----|
| 1. | _____ | ___ | ___ | ___ |
| 2. | _____ | ___ | ___ | ___ |
| 3. | _____ | ___ | ___ | ___ |
| 4. | _____ | ___ | ___ | ___ |

CONTRACTORS QUALITY CONTROL REPORT (QCR) DAILY LOG OF CONSTRUCTION - CIVIL		REPORT NUMBER 92	Page 1 of 2																				
		DATE 22 Jun 2001 - Friday																					
PROJECT North & South Pier Repair, Baloney Harbor, MI		CONTRACT NUMBER DACW35-02-C-#### NA																					
CONTRACTOR ABC Company, Inc. 555 Imagination Road, Fantasy, MI 49494		WEATHER Weather Caused No Delay Temperature Min 80 °F, Max 63 °F; 0.01 IN Precipitation; 10 MPH Wind																					
QC NARRATIVES																							
<p>Activities in Progress: Set and drove 24 sheets of SSP</p> <p>Installing Miscellaneous Steel Waler sections c/s 4+00W to 4+50W</p> <p>123 Tons of Fill stone placed between existing structure and req'd SSP wall from c/s 6+25 W to 6+75W.</p> <p>Safety Inspection / Safety Meetings: Weekly Safety Meeting held today - Use of PPE - Hrad hats & Work Vests</p>																							
PREP/INITIAL DATES (Preparatory and initial dates held and advance notice)																							
<p>A preparatory inspection was held today for the following feature: Miscellaneous Steel & Handrail</p> <p>An initial inspection was held today for the following feature: Miscellaneous Steel & Handrail</p>																							
ACTIVITY START/FINISH																							
<p>The following activity was started today:</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Activity No</th> <th style="text-align: left; border-bottom: 1px solid black;">Description</th> </tr> </thead> <tbody> <tr> <td>2001</td> <td>Furnish & Place Fill Stone - 1st 18,000 Tons</td> </tr> </tbody> </table> <p>No activities were finished today</p>				Activity No	Description	2001	Furnish & Place Fill Stone - 1st 18,000 Tons																
Activity No	Description																						
2001	Furnish & Place Fill Stone - 1st 18,000 Tons																						
QC REQUIREMENTS																							
<p>The following 4 QC requirements were completed today:</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Requirement No</th> <th style="text-align: left; border-bottom: 1px solid black;">Type</th> <th style="text-align: left; border-bottom: 1px solid black;">Description</th> <th style="text-align: left; border-bottom: 1px solid black;">Results</th> </tr> </thead> <tbody> <tr> <td>CT-00001</td> <td>QC Testing</td> <td>Check Plumbness of piles during driving</td> <td>Completed</td> </tr> <tr> <td>CT-00002</td> <td>QC Testing</td> <td>Check horizontal placement of piling (Check for Pile-Walk)</td> <td>Completed</td> </tr> <tr> <td>CT-00003</td> <td>QC Testing</td> <td>Check vibratory hammer driving rate for SSP - 12"/minute is the minimum rate. If exceeded, switch to Impact hammer.</td> <td>Completed</td> </tr> <tr> <td>CT-00004</td> <td>QC Testing</td> <td>Video Tape Interlocks of piling after driving SSP</td> <td>Completed</td> </tr> </tbody> </table>				Requirement No	Type	Description	Results	CT-00001	QC Testing	Check Plumbness of piles during driving	Completed	CT-00002	QC Testing	Check horizontal placement of piling (Check for Pile-Walk)	Completed	CT-00003	QC Testing	Check vibratory hammer driving rate for SSP - 12"/minute is the minimum rate. If exceeded, switch to Impact hammer.	Completed	CT-00004	QC Testing	Video Tape Interlocks of piling after driving SSP	Completed
Requirement No	Type	Description	Results																				
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CT-00004	QC Testing	Video Tape Interlocks of piling after driving SSP	Completed																				
QA/QC PUNCH LIST (Describe QC Punch List items issued, Report QC and QA Punch List items corrected)																							
<p>The following QC Punch List item was issued today:</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Item No</th> <th style="text-align: left; border-bottom: 1px solid black;">Location</th> <th style="text-align: left; border-bottom: 1px solid black;">Description</th> </tr> </thead> <tbody> <tr> <td>QC-00001</td> <td>4+25W</td> <td>Cut-off sheets to finish grade from 4+00W to 4+50W</td> </tr> </tbody> </table> <p>No Punch List items were corrected today</p>				Item No	Location	Description	QC-00001	4+25W	Cut-off sheets to finish grade from 4+00W to 4+50W														
Item No	Location	Description																					
QC-00001	4+25W	Cut-off sheets to finish grade from 4+00W to 4+50W																					
CONTRACTORS ON SITE (Report first and/or last day contractors were on site)																							
<p>No contractors had their first or last day on site today</p>																							
LABOR HOURS																							
<p>The following labor hours were Reported today:</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Employer</th> <th style="text-align: left; border-bottom: 1px solid black;">Labor Classification</th> <th style="text-align: right; border-bottom: 1px solid black;">Number of Employees</th> <th style="text-align: right; border-bottom: 1px solid black;">Hours Worked</th> </tr> </thead> <tbody> <tr> <td></td> <td>IRONWORKER</td> <td style="text-align: right;">3.0</td> <td style="text-align: right;">10.0</td> </tr> <tr> <td></td> <td>PILE DRIVING SETTER</td> <td style="text-align: right;">2.0</td> <td style="text-align: right;">10.0</td> </tr> </tbody> </table>				Employer	Labor Classification	Number of Employees	Hours Worked		IRONWORKER	3.0	10.0		PILE DRIVING SETTER	2.0	10.0								
Employer	Labor Classification	Number of Employees	Hours Worked																				
	IRONWORKER	3.0	10.0																				
	PILE DRIVING SETTER	2.0	10.0																				

CONTRACTORS QUALITY CONTROL REPORT (QCR) DAILY LOG OF CONSTRUCTION - CIVIL		REPORT NUMBER 92	Page 2 of 2
		DATE 22 Jun 2001 - Friday	
PROJECT	North & South Pier Repair, Baloney Harbor, MI	CONTRACT NUMBER DACW35-02-C#####	
ABC Company, Inc.	PILE DRIVER OPERATOR	1.0	10.0
Total hours worked to date:	30.0	Total 6.0	30.0
EQUIPMENT HOURS			
The following equipment hours were Reported today:			
<u>Equipment ID</u>	<u>Description</u>	<u>Standby Hours</u>	<u>Operating Hours</u>
00000002	Vibratory Hammer	0.0	10.0
00000003	Arc Welder	0.0	8.0
00000004	Crane - 100' Boom	0.0	10.0
Total operating hours to date:	28.0	Total 0.0	28.0
ACCIDENT REPORTING (Describe accidents)			
No accidents reported today			
CONTRACTOR CERTIFICATION	On behalf of the contractor, I certify that this Report is complete and correct and all equipment and material used and work performed during this Reporting period are in compliance with the contract plans and specifications, to the best of my knowledge, except as noted above.		
QC REPRESENTATIVE'S SIGNATURE	DATE	SUPERINTENDENT'S INITIALS	DATE

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE <small>(Read instructions on the reverse side prior to initiating this form)</small>	DATE 06/06/2002	TRANSMITTAL NO. 02486-37.2
---	--------------------	-------------------------------

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS (This section will be initiated by the contractor)

TO: Grand Haven Area Office 307 South Harbor Street P. O. Box 629 Grand Haven, MI 49417	FROM: ABC Company, Inc 555 Imagination Park Road Fantasy, MI 49494	CONTRACT NO. DACW35-02-C-#### NA	CHECK ONE: <input type="checkbox"/> THIS IS A NEW TRANSMITTAL <input checked="" type="checkbox"/> THIS IS A RESUBMITTAL OF TRANSMITTAL 02486-37.1
--	--	-------------------------------------	--

SPECIFICATION SEC. NO. (Cover only one section with each transmittal) 02486	PROJECT TITLE AND LOCATION	CHECK ONE: THIS TRANSMITTAL IS FOR <input checked="" type="checkbox"/> FIO <input type="checkbox"/> GOV'T. APPROVAL
--	----------------------------	--

ITEM NO. <small>a.</small>	DESCRIPTION OF ITEM SUBMITTED <small>(Type size, model number/etc.)</small> <small>b.</small>	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. <small>(See instruction no. 8)</small> <small>c.</small>	NO. OF COPIES <small>d.</small>	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE <small>g.</small>	VARIATION <small>(See Instruction No. 6)</small> <small>h.</small>	FOR CE USE CODE <small>i.</small>
				SPEC. PARA. NO. <small>e.</small>	DRAWING SHEET NO. <small>f.</small>			
12	Production Test Results	DATA	3	3.2.3.4				F

REMARKS	<p>I certify that the above submitted items have been reviewed in detail and are correct and in the strict conformance with the contract drawings and specifications except as otherwise stated.</p> <p style="text-align: center;">_____ NAME AND SIGNATURE OF CONTRACTOR</p>
---------	--

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED (List by item No.)	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE

RMS CORRESPONDENCE CODE

CODE	DESCRIPTION
A/E	ARCHITECT/ENGINEER
ASB	AS-BUILT INFORMATION
C	COE LETTER TO CONTRACTOR
EPA	U.S. ENVIRONMENTAL PROTECTION AGENCY
FAX	FACSIMILE TRANSMISSION
FIA	FREEDOM OF INFORMATION REQUEST
H	CONTRACTOR LETTER - FROM HOME OFFICE
LOC	LOCAL GOVERNMENT UNIT
LRE	DETROIT DISTRICT CORPS OF ENGINEERS
MDN	MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
MEM	COE IN-HOUSE MEMORANDUM
MFR	MEMORANDUM FOR RECORDS
MSC	MISCELLANEOUS CORRESPONDENCE
MTN	MINUTES OF MEETINGS
NTP	NOTICE TO PROCEED
PNM	PRICE NEGOTIATION MEMORANDUM
POC	POINTS OF CONTACT LIST
QAR	QUALITY ASSURANCE REPORT
QCR	QUALITY CONTROL REPORT
RFI	CONTRACTOR REQUEST FOR INFORMATION
RFP	COE REQUEST FOR PROPOSAL TO CONTRACTOR
S	CONTRACTOR LETTER - FROM SITE OFFICE
SEG	SNELL ENVIRONMENTAL GROUP
SUB	SUBCONTRACTOR LETTER
TEL	TELEPHONE CONVERSATION RECORDS
VM	VOICE-MAIL

SUBMITTAL REGISTER

CONTRACT NO.
XXXXX

TITLE AND LOCATION Edison Sault Elec. Co. Lamprey Traps						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION REVW	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS	
						SUBMIT	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
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01100	SD-01 Preconstruction Submittals														
			Accident Prevention Plan	1.7.1													
			Payrolls and Basic Records	1.7.2													
			Progress Chart	1.7.3	G												
			Non-listed, Non-Commercially Active Stone or Material Source	2.1.1	G ECD												
			Notice to Mariners	1.4.2													
			Buoy Relocation Position	1.4.12.1													
			Utility Locating Plan	1.4.4	G AOF												
			Utility Location Findings	1.4.4	G AOF												
			Traffic Control Plan	1.4.10	G AOF												
			Survey Note Format	1.4.13.2	G AOF												
			Vibration Monitoring Plan		G AOF												
			Vibration Monitoring Equipment Description		G AOF												
			SD-06 Test Reports														
			Vibration Monitor Results														
			SD-07 Certificates														
			As-Built Technician's Qualifications	2.2													
			Vibration Monitoring Personnel Credentials		G AOF												
			As-built Drawings	2.2	G AOF												
			Survey Information	1.4.13.2													
		02139	SD-01 Preconstruction Submittals														
			Construction Equipment	3.1													

SUBMITTAL REGISTER

CONTRACT NO.
XXXXX

TITLE AND LOCATION Edison Sault Elec. Co. Lamprey Traps						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION REVIEW	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		02139	FIO														
			Work Plan	3.1	G												
		02456A	SD-02 Shop Drawings														
			Fabricated Additions		G												
			Pile Driving	3.1.1	G												
			SD-03 Product Data														
			Equipment	2.2													
			FIO														
			SD-07 Certificates														
			Materials	2.1													
			FIO														
		05055A	SD-02 Shop Drawings														
			Detail Drawings	1.3	G ECD												
			SD-03 Product Data														
			Materials List	2.1.2													
			Shipping Bill	2.1.3													
			SD-06 Test Reports														
			Tests, Inspections, and Verifications	2.3													
			SD-07 Certificates														
			Qualification of Welders and Welding Operators	1.4													
		05120	SD-02 Shop Drawings														
			Erection drawings		G												
			Fabrication drawings	1.5.1	G												
			SD-03 Product Data														

SUBMITTAL REGISTER

CONTRACT NO.
XXXXX

TITLE AND LOCATION
Edison Sault Elec. Co. Lamprey Traps

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION REVIEWER	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS	
						SUBMIT	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
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		05120	Shop primer														
			Load indicator washers	2.2.5													
			Load indicator bolts														
			SD-06 Test Reports														
			Class B coating														
			Bolts, nuts, and washers	2.2													
			SD-07 Certificates														
			Steel	2.1													
			Bolts, nuts, and washers	2.2													
			Shop primer														
			Welding electrodes and rods	2.3.1													
			Nonshrink grout	2.3.2													
			Galvanizing	2.4													
			Pins and rollers	2.3.4													
			AISC Quality Certification														
			Overhead, top running crane rail beam														
			Welding procedures and qualifications	1.5.2.3													
		05500A	SD-02 Shop Drawings														
			Miscellaneous Metal Items	1.6	G												
		14630A	SD-02 Shop Drawings														
			Electric Overhead Cranes	1.3	G												
			SD-03 Product Data														
			Hooks	3.2.1.4	G												
			Electric Overhead Cranes	1.3	G												

TRANSMITTAL OF SHOP DRWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE <i>(Read instructions on the reverse side prior to initiating this form)</i>	DATE	TRANSMITTAL NO.
--	------	-----------------

SECTION I – REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS *(This section will be initiated by the contractor)*

TO:	FROM:	CONTRACT NO:	CHECK ONE: <input type="checkbox"/> THIS IS A NEW TRANSMITTAL <input type="checkbox"/> THIS IS A RESUBMITTAL OF TRANSMITTAL _____
-----	-------	--------------	---

SPECIFICATION SEC. NO <i>(Cover only one section with each transmittal)</i>	PROJECT TITLE AND LOCATION
---	----------------------------

ITEM NO.	DISCRIPTION OF ITEMS SUBMITTED <i>(Type size, model number/etc.)</i>	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. <i>(See instruction no. 8)</i>	NO. OF COPIES	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE	VARIATION <i>(see Instruction No. 6)</i>	FOR CE USE CODE
				SPEC. PARA. NO.	DRAWING SHEET NO.			
a.	b.	c.	d.	e.	f.	g.	h.	i.

REMARKS	I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated. _____ NAME AND SIGNATURE OF CONTRACTOR
---------	--

SECTION II – APPROVAL ACTION

ENCLOSURES RETURNED (List by Item No.)	NAME, TITLE, AND SIGNATURE OF APPROVING AUTHORITY	DATE
--	---	------

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 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 specification -- also, a written statement to that effect shall be included in the space provided for "Remarks".
7. Form is self-transmittal, letter of transmittal is not required.
8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

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

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

NINTH DISTRICT LOCAL NOTICE TO MARINERS
GENERAL NOTICE ENTRY FORM

1. NAME OF COMPANY: _____

2. TYPE OF OPERATION: _____

3. LOCATION: _____

4. COMMENCE DATE: _____ COMPLETE DATE: _____

5. HOURS OF OPERATION: _____ TO: _____

6. DAYS OF OPERATION: _____ TO: _____

7. NAME OF CONTACT VESSEL: _____

8. VHF - FM CHANNELS MONITORED: _____

9. SPECIAL REQUIREMENTS/REMARKS: _____

10. FOR FURTHER INFORMATION CONTACT: _____

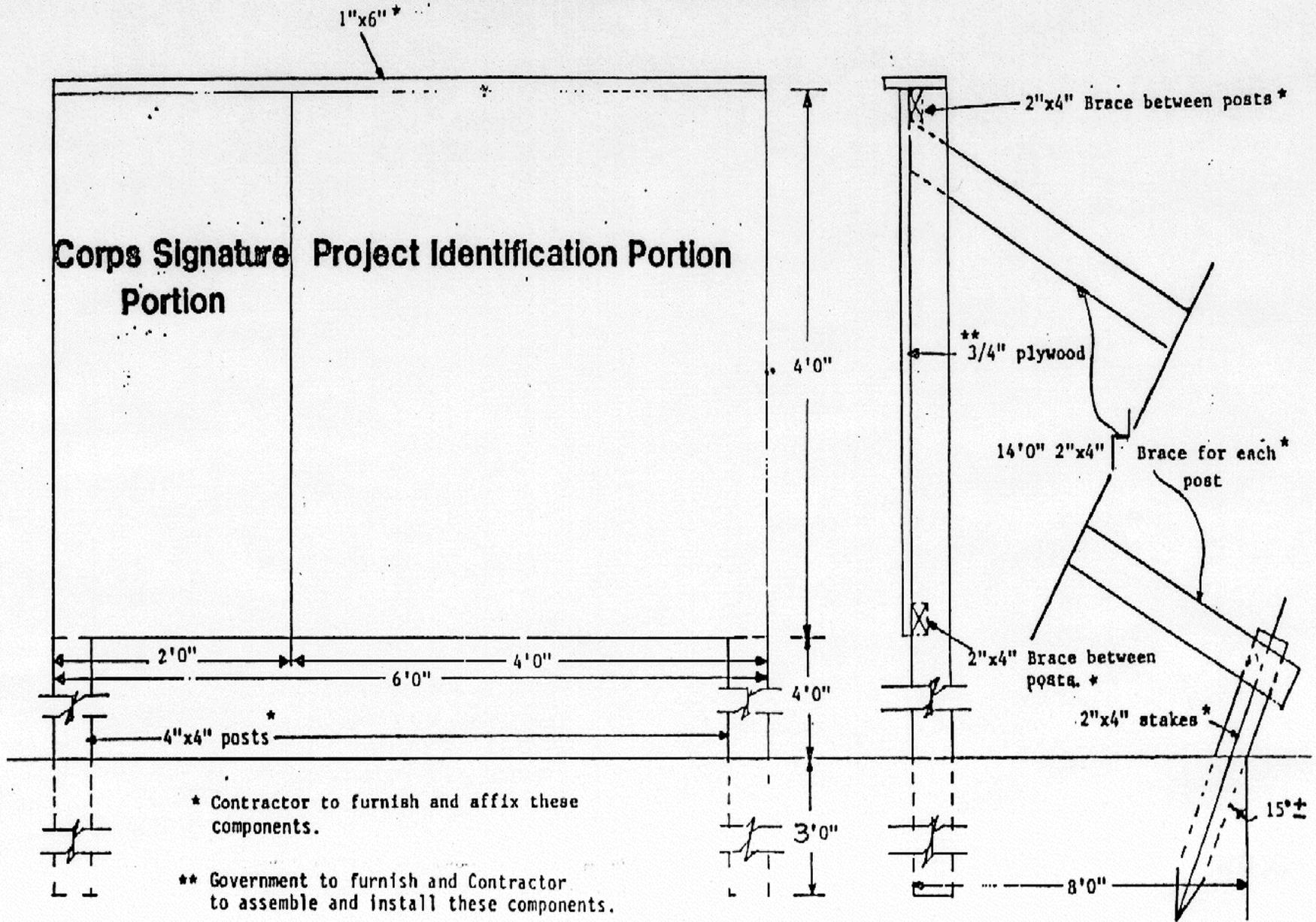
11. TELEPHONE #: _____

12. SIGNATURE: _____ DATE: _____

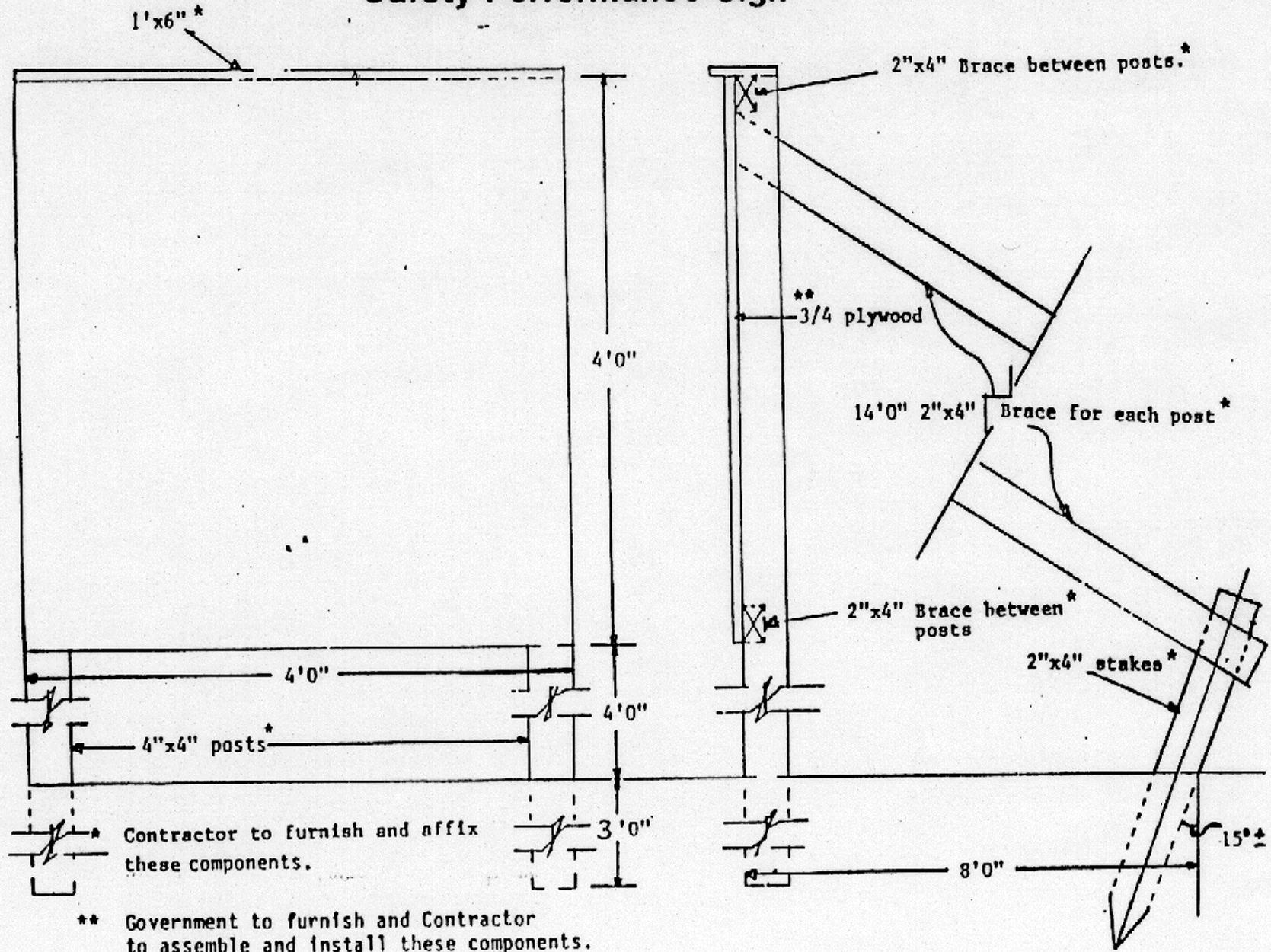
“ NOTE ”

TEMPORARY MOORING BUOYS ARE REQUIRED TO BE WHITE WITH A BLUE HORIZONTAL BAND AROUND THE CIRCUMFERENCE OF THE BUOY AND THE WATER LINE. FOR MORE DETAILS CONCERNING REGULATIONS OF MOORING BUOYS REFER TO 33 CODE OF FEDERAL REGULATION PART 66.10-45. A COLOR DEPICTION OF A MOORING BUOY CAN BE FOUND I THE LIGHT LIST VOL. VII GREAT LAKES 1989 (PLATE 4).

Construction Project Sign



Safety Performance Sign



* Contractor to furnish and affix these components.

** Government to furnish and Contractor to assemble and install these components.

General Decision Number: IL030018 02/27/2004 IL18

Superseded General Decision Number: IL020018

State: Illinois

Construction Types: Heavy (Dredging, and Marine)

Counties: Illinois Statewide.

MECHANICAL DREDGING (CLAMSHELL, DRAGLINE, AND BACKHOE) AND MARINE CONSTRUCTION):

ILLINOIS, INDIANA, MICHIGAN, MINNESOTA, NEW YORK, OHIO, PENNSYLVANIA AND WISCONSIN DREDGING AND MARINE CONSTRUCTION Dredging and Marine Construction Projects: floating/land equipment engaged in clamshell, backhoe and dragline dredging, marine construction, bridges, salvage operations and cranes, loaders, dozers, or other equipment used for disposal of dredge spoils or marine construction materials on land at the slip or dock, at the project site, where the above material/spoils is being handled, and all equipment utilized on breakwall/breakwater structures on the Great Lakes, Islands therein, their connecting and tributary waters, including the Illinois Waterway to the Lock at Lockport, Illinois, the New York State Barge Canal System between Tonawanda, New York and Waterford, New York and Oswego, New York, the Duluth-Superior area to the Fond du Lac Bridge Crossing (Minnesota State Highway 23) on the St. Louis River and on the St. Lawrence River eastward to the International Boundary near St. Regis, New York.

Modification Number	Publication Date
0	06/13/2003
1	02/27/2004

* SUIL2003-001 01/01/2004

MECHANICAL DREDGING (CLAMSHELL, DRAGLINE, AND BACKHOE) AND MARINE CONSTRUCTION):

	Rates	Fringes
Dredging:		
Fireman, Oiler, Deckhand, & Scowman (with dipper, hydraulic or other floating equipment engaged in hydraulic and dipper dredging operations)		
Pipeline men (both afloat & ashore including loading, unloading, maintaining, and handling pipelines for hydraulic dredges and sandboats Rangeman, Tankerman, Sweepman and service Truck Driver.....	\$ 22.51	7.61+a+b
Lead Deckhand.....	\$ 29.68	7.61+a+b

Hydraulic Dredging
LAUNCH OPERATOR -

Vessel 800 Horse- Power		
Or Less.....	\$ 25.15	7.61+a+b
TUG ENGINEER.....	\$ 26.49	7.61+a+b
TUG OPERATOR - Vessel		
Over 800 Horse-Power.....	\$ 26.49	7.61+a+b
TUG WORKERS: Fireman, Lineman, Oiler, Deckhand, Tankerman. Scowman, (on/or with tugboats, launches, or other self-propelled boats).....	\$ 22.51	7.61+a+b
Mechanic		
FLOATING EQUIPMENT:		
Illinois		
Class I.....	\$ 40.50	12.00+b&c
Class II.....	\$ 39.00	12.00+b&c
Class III.....	\$ 34.70	12.00+b&c
Class IV.....	\$ 28.85	12.00+b+c
FLOATING EQUIPMENT:		
Indiana		
Class I.....	\$ 35.75	11.95+b&c
Class II.....	\$ 34.25	11.95+b&c
Class III.....	\$ 30.45	11.95+b&c
Class IV.....	\$ 25.35	11.95+b&c
FLOATING EQUIPMENT:		
Michigan		
Class I.....	\$ 27.50	15.23+b&c
Class II.....	\$ 26.00	15.23+b&c
Class III.....	\$ 23.15	15.23+b&c
Class IV.....	\$ 19.25	15.23+b&c
FLOATING EQUIPMENT:		
Minnesota		
Class I.....	\$ 32.55	9.10+b&c
Class II.....	\$ 31.05	9.10+b&c
Class III.....	\$ 27.65	9.10+b&c
Class IV.....	\$ 23.00	9.10+b&c
FLOATING EQUIPMENT:		
New York:(Cattaraugus, Chautauga, Erie and Orleans Counties)		
Class I.....	\$ 35.00	15.96+b&c
Class II.....	\$ 33.50	15.96+b&c
Class III.....	\$ 29.80	15.96+b&c
Class IV.....	\$ 24.80	15.96+b&c
FLOATING EQUIPMENT:		
New York:(Cayuga, Jefferson, Oswego, and St. Lawrence Counties)		
Class I.....	\$ 29.50	13.10+b&c
Class II.....	\$ 28.00	13.10+b&c
Class III.....	\$ 24.92	13.10+b&c
Class IV.....	\$ 20.72	13.10+b&c
FLOATING EQUIPMENT:		
New York:(Monroe and Wayne Counties and the City of Rochester)		
Class I.....	\$ 27.50	9.00+b&c
Class II.....	\$ 26.00	9.00+b&c
Class III.....	\$ 23.15	9.00+b&c
Class IV.....	\$ 19.25	9.00+b&c
FLOATING EQUIPMENT:		

New York:(Niagara)		
Class I.....	\$ 32.08	14.50+b&c
Class II.....	\$ 30.58	14.50+b&c
Class III.....	\$ 30.84	14.50+b&c
Class IV.....	\$ 22.90	14.50+b&c
FLOATING EQUIPMENT:		
Ohio:(Ashtabula, Cuyahoga, Erie,Lake, and Lorain Counties)		
Class I.....	\$ 32.99	7.60+b&c
Class II.....	\$ 31.49	7.60+b&c
Class III.....	\$ 28.02	7.60+b&c
Class IV.....	\$ 23.30	7.60+b&c
FLOATING EQUIPMENT:		
Ohio:(Lucas, Henry, Ottawa, Wood and Sandusky Counties)		
Class I.....	\$ 31.27	7.60+b&c
Class II.....	\$ 29.77	7.60+b&c
Class III.....	\$ 26.50	7.60+b&c
Class IV.....	\$ 22.30	7.60+b&c
FLOATING EQUIPMENT:		
Pennsylvania:(Erie County):		
Class I.....	\$ 24.80	10.23+b&c
Class II.....	\$ 23.30	10.23+b&c
Class III.....	\$ 20.74	10.23+b&c
Class IV.....	\$ 17.24	10.23+b&c
FLOATING EQUIPMENT:		
Wisconsin:Includes all marine/floating type work on projects in the Superior/Duluth Harbor, Lake Superior.		
Class I.....	\$ 32.00	12.90+b&c
Class II.....	\$ 30.50	12.90+b&c
Class III.....	\$ 27.15	12.90+b&c
Class IV.....	\$ 22.57	12.90+b&c

PAID HOLIDAYS (WHERE APPLICABLE):

- A- NEW YEAR'S DAY
- B- MEMORIAL DAY
- C- INDEPENDENCE DAY
- D- LABOR DAY
- E- THANKSGIVING DAY
- F- CHRISTMAS DAY
- G- PRESIDENT'S DAY
- H- VETERANS' DAY

FOOTNOTES:

- a. \$30.10 per day per employee for medical
- b. Eight paid holidays: A thru H
- c. Hazardous/Toxic Waste Material:
 - *Level A \$2.50 per hour
 - *Level B 2.00 per hour
 - *Level C 1.00 per hour

*Level D 0.50 per hour

Such wages shall be above the classifications of work listed under mechanical dredging and Marine construction of this general wage decision. *Working with Hazardous Waste at this level as defined by the U. S. Enviromental Protection Agency.

CLASSIFICATION DESCRIPTIONS

Class I - Master Mechanic - assist and direct
Class II, Class III, and Class IV, diver/wet tender, engineer (hydraulic dredge)

Class II - Crane/Backhoe Operator and Mechanic/Welder, assistant engineer(hydraulic dredge), leverman (hydraulic dredge), diver/tender

Class III - Deck Equipment Operator (Machineryman) Maintenance of Crane (over 50 ton capacity) or Backhoe (115,000 pounds or more), ug/launch operator, Loader/dozer and like equipment on Barge, breakwater wall, slip/dock, Scow, Deck Machinery, etc.

Class IV - Deck Equipment Operator(Machineryman/Fireman) (Four equipment units or more) and Crane Maintenance 50 ton capacity and under or Backhoe weighing 115,000 pounds or less, assistant tug operator.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial

contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

General Decision Number: MI030090 08/20/2004 MI90

Superseded General Decision Number: MI020090

State: Michigan

Construction Type: Heavy

County: Chippewa County in Michigan.

HEAVY CONSTRUCTION PROJECTS (does not include airport or bridge construction projects, or sewer or water line work if it is incidental to a highway construction project)

Modification Number	Publication Date
0	06/13/2003
1	03/26/2004
2	05/21/2004
3	08/20/2004

BOIL0169-005 07/01/2003

	Rates	Fringes
Boilermaker (Excluding tank building).....	\$ 28.853	25% + 5.10

* BRMI0006-002 05/01/2004

	Rates	Fringes
Bricklayer; marble, terrazzo and tile setter.....	\$ 22.03	10.97
Cement Mason.....	\$ 22.03	10.97
Pointer, caulker and cleaner...	\$ 22.03	10.97

FOOTNOTES: Stacks: Work on industrial and powerhouse stacks shall receive \$2.00 per hour above the journeyman bricklayer rate.

Industrial: Refinishing work on digesters, tanks, lime kilns, chests, boilers, and boiler tubes shall receive \$2.00 per hour above the journeyman bricklayer rate.

CARP1510-002 05/01/2003

	Rates	Fringes
Carpenter (Includes concrete form work).....	\$ 22.97	8.20
Millwright.....	\$ 26.59	8.42
Piledriver.....	\$ 23.17	8.20

FOOTNOTES:
 Waterfront work on the Great Lakes or connecting water navigable to Lake carriers: \$0.20 per hour additional.
 Work on industrial construction, defined as industrial manufacturing and processing plants such as ore plants, paper mills, power houses, foundries, saw mills, wood processing plants, or other industrial complexes: \$.30 per hour additional.

 ELEC0876-004 06/01/2003

	Rates	Fringes
Line Construction: cable splicer.....	\$ 28.13	2.45+22%
Line Construction: light equipment operator/ground person/truck driver/ground pe winch, A-frame, diggers when used for distribution line truck and used for distribution work. Distribution truck driver, 5th wheel type trucks, bucket trucks, ladder trucks and all live boom trucks, all equipment 85 hp or under.....	\$ 17.79	2.45+22%
Line Construction: line technician.....	\$ 27.00	2.45+22%
Line Construction: operator/ground person digger, tractor and setting rig with tracks or rough terrain vehicle, large bombardier, backhoe over 85 hp, hydraulic crane 10 ton or over.....	\$ 20.31	2.45+22%
Line Construction: truck driver/ground person trucks with winch or boom or dump, other than distribution work.....	\$ 16.93	2.45+22%

FOOTNOTE:

Operators of 5/8 yd. rated capacity backhoe or over, and
 operators of 25 ton, rated capacity, crane or over, and
 operators of heavy duty tension or pulling machinery on 345
 KV and above, shall receive the line technician rate of pay.

 ELEC1070-004 06/03/2003

	Rates	Fringes
Electricians: Contracts \$85,000 and under.	\$ 22.84	4% + 10.50
Contracts over \$85,000.....	\$ 24.84	4% + 10.50

FOOTNOTE: Low scale is not applicable on industrial work.

 * ENGI0324-012 05/01/2004

	Rates	Fringes
Power Equipment Operator (STEEL ERECTION): Compressor; forklift; welder	\$ 21.89	12.85
Crane operator, main boom & jib 120' or longer.....	\$ 25.64	12.85
Crane operator, main boom		

& jib 140' or longer.....	\$ 25.89	12.85
Crane operator, main boom		
& jib 220' or longer.....	\$ 26.14	12.85
Mechanic with truck and		
tools.....	\$ 26.64	12.85
Oiler and fire tender.....	\$ 20.59	12.85
Regular operator.....	\$ 25.14	12.85

 * ENGI0326-001 05/01/2004

	Rates	Fringes
Power equipment operators - gas distribution and duct installation work:		
GROUP 1.....	\$ 23.49	13.10
GROUP 2-A.....	\$ 23.39	13.10
GROUP 2-B.....	\$ 23.17	13.10
GROUP 3.....	\$ 22.39	13.10
GROUP 4.....	\$ 21.89	13.10

SCOPE OF WORK:

The construction, installation, treating and reconditioning of pipelines transporting gas vapors within cities, towns, subdivisions, suburban areas, or within private property boundaries, up to and including private meter settings of private industrial, governmental or other premises, more commonly referred to as "distribution work," starting from the first metering station, connection, similar or related facility, of the main or cross country pipeline and including duct installation.

POWER EQUIPMENT - GAS DISTRIBUTION CLASSIFICATIONS

GROUP 1: Mechanic, crane (over 1/2 yd. capacity), backhoe (over 1/2 yd. capacity), grader (Caterpillar 12 equivalent or larger)

GROUP 2-A: Trencher, backhoe (1/2 yd. capacity or less)

GROUP 2-B: Crane (1/2 yd. capacity or less), compressor (2 or more), dozer (D-4 equivalent or larger), endloader (1 yd. capacity or larger), pump (1 or 2 six-inch or larger), side boom (D-4 equivalent or larger)

GROUP 3: Backfiller, boom truck (powered), concrete saw (20 hp or larger), dozer (less than D-4 equivalent), endloader (under 1 yd. capacity), farm tractor (with attachments), pump (2-4 under six-inch capacity), side boom tractor (less than D-4 equivalent), tamper (self-propelled)

GROUP 4: Oiler, grease person

 * ENGI0326-014 05/01/2004

	Rates	Fringes
Power equipment operators (includes underground construction):		
Crane operator, main boom		
& jib 120' or longer.....	\$ 25.24	12.85
Crane operator, main boom		

& jib 140' or longer.....	\$ 25.49	12.85
Crane operator, main boom		
& jib 220' or longer.....	\$ 25.74	12.85
GROUP 1.....	\$ 24.74	12.85
GROUP 2.....	\$ 21.49	12.85
GROUP 3.....	\$ 20.91	12.85
GROUP 4.....	\$ 19.97	12.85
Mechanic with truck and		
tools.....	\$ 26.24	12.85

FOOTNOTES:

Swing boom truck operator over 15 tons: \$.50 per hour additional. Hydraulic crane operator 75 tons and under: \$.75 per hour additional. Hydraulic crane operator over 75 tons: \$1.00 per hour additional. Lattice boom crane operator: \$1.50 per hour additional. Crusher pit, shaft and tunnel workers: \$2.00 per hour additional.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Regular equipment operator, crane, dozer, front end loader, job mechanic, pumpcrete and squeezecrete, welder

GROUP 2: Air track drill, boom truck (non-swing), concrete mixer, material hoist and tugger, pump 6" and over, beltcrete, sweeping machine, trencher, winches, well points and freeze systems

GROUP 3: Air compressor, conveyor, concrete saw, farm tractor (without attachments), fork truck, generator, guard post driver, mulching machine, pumps under 6-in., welding machine and grease person

GROUP 4: Oiler, fire tender and heater operator

ENGI0326-016 10/01/2003

	Rates	Fringes
Power equipment operators -		
sewer relining:		
GROUP 1.....	\$ 24.87	8.90
GROUP 2.....	\$ 23.48	8.90

SEWER RELINING CLASSIFICATIONS

GROUP 1: Operation of audio-visual closed circuit TV system, including remote in-ground cutter and other equipment used in connection with the CCTV system

GROUP 2: Operation of hot water heaters and circulation systems, water jettors and vacuum and mechanical debris removal systems

ENGI0326-017 10/01/2003

	Rates	Fringes
Power equipment operators -		
hazardous waste removal:		
LEVEL A:		
Engineer when operating		
crane with boom and jib		

or leads 140' or longer....\$ 30.87	12.25
Engineer when operating crane with boom and jib or leads 220' or longer....\$ 31.17	12.25
GROUP 1.....\$ 28.22	12.25
GROUP 2.....\$ 24.07	12.25
Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator....\$ 29.19	12.25
LEVEL B AND C:	
Engineer when operating crane with boom and jib or leads 140' or longer....\$ 29.92	12.25
Engineer when operating crane with boom and jib or leads 220' or longer....\$ 29.81	12.25
GROUP 1.....\$ 27.27	12.25
GROUP 2.....\$ 23.13	12.25
Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator....\$ 28.24	12.25
LEVEL D WHEN CAPPING	
LANDFILL:	
Engineer when operating crane with boom and jib or leads 140' or longer....\$ 28.37	12.25
Engineer when operating crane with boom and jib or leads 220' or longer....\$ 28.67	12.25
GROUP 1.....\$ 25.72	12.25
GROUP 2.....\$ 21.58	12.25
Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator....\$ 26.69	12.25
LEVEL D:	
Engineer when operating crane with boom and jib or leads 140' or longer....\$ 28.62	12.25
Engineer when operating crane with boom and jib or leads 220' or longer....\$ 28.92	12.25
GROUP 1.....\$ 25.97	12.25
GROUP 2.....\$ 21.83	12.25
Regular crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator....\$ 26.94	12.25

HAZARDOUS WASTE REMOVAL CLASSIFICATIONS

GROUP 1: Backhoe, batch plant operator, clamshell, concrete breaker when attached to hoe, concrete cleaning decontamination machine operator, concrete pump, concrete paver, crusher, dozer, elevating grader, endloader, farm tractor (90 h.p. and higher), gradall, grader, heavy equipment robotics operator, loader, pug mill, pumpcrete

machines, pump trucks, roller, scraper (self-propelled or tractor drawn), side boom tractor, slip form paver, slop paver, trencher, ultra high pressure waterjet cutting tool system operator, vactors, vacuum blasting machine operator, vertical lifting hoist, vibrating compaction equipment (self-propelled), and well drilling rig

GROUP 2: Air compressor, concrete breaker when not attached to hoe, elevator, end dumps, equipment decontamination operator, farm tractor (less than 90 h.p), forklift, generator, heater, mulcher, pigs (portable reagent storage tanks), power screens, pumps (water), stationary compressed air plant, sweeper, and welding machine

IRON0008-006 05/01/2003

	Rates	Fringes
Ironworker, reinforcing and structural		
General contracts		
\$10,000,000 or greater.....	\$ 25.07	12.51
General contracts less than \$10,000,000.....	\$ 22.50	12.51

IRON0008-009 05/01/2003

	Rates	Fringes
Ironworker - pre-engineered metal building erector		
Contracts \$10,000,000 or greater.....	\$ 25.07	12.51
Contracts less than \$10,000,000.....	\$ 22.50	12.51

LABO0005-021 10/01/2001

	Rates	Fringes
Laborers - hazardous waste abatement:		
Work performed inside the building and up to and including 5 ft. outside the building:		
Level A, B or C.....	\$ 19.75	6.06
Work performed in conjunction with site preparation not requiring the use of personal protective equipment; Also, Level D.....	\$ 18.75	6.06
Work performed over 5 ft. outside the building:		
Level A, B or C.....	\$ 18.93	5.26
Work performed in conjunction with site preparation not requiring the use of personal protective equipment; Also, Level D.....	\$ 17.93	5.26

* LABO0259-004 09/01/2003

	Rates	Fringes
Laborers - tunnel, shaft and caisson:		
GROUP 1.....	\$ 21.37	6.45
GROUP 2.....	\$ 21.46	6.45
GROUP 3.....	\$ 21.56	6.45
GROUP 4.....	\$ 21.72	6.45
GROUP 5.....	\$ 21.98	6.45
GROUP 6.....	\$ 22.29	6.45
GROUP 7.....	\$ 14.56	6.45

TUNNEL LABORER CLASSIFICATIONS

GROUP 1: Tunnel, shaft and caisson laborer, dump, shanty, hog house tender, testing (on gas)

GROUP 2: Manhole, headwall, catch basin builder, bricklayer tender, mortar, material mixer, fence erector and guard rail builder

GROUP 3: Air tool operator (jackhammer, bush hammer and grinder), first bottom, second bottom, cage tender, car pusher, carrier, concrete, concrete form, concrete repair, cement invert laborer, cement finisher, concrete shoveler, conveyor, floor, gasoline and electric tool operator, gunite, grout operator, welder, heading dinky person, inside lock tender, pea gravel operator, pump, outside lock tender, scaffold, top signal person, switch person, track, tugger, utility person, vibrator, winch operator, pipe jacking, wagon drill and air track operator and concrete saw operator (under 40 h.p.)

GROUP 4: Tunnel, shaft and caisson mucker, bracer, liner plate, long haul dinky driver and well point

GROUP 5: Tunnel, shaft and caisson miner, drill runner, key board operator, power knife operator, reinforced steel or mesh (e.g. wire mesh, steel mats, dowel bars, etc.)

GROUP 6: Dynamite and powder

GROUP 7: Restoration laborer, seeding, sodding, planting, cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

SCOPE OF WORK: Tunnel, shaft and caisson work of every type and descripton and all operations incidental thereto, including, but not limited to, shafts and tunnels for sewers, water, subways, transportation, diversion, sewerage, caverns, shelters, aquafers, reservoirs, missile silos and steel sheeting for underground construction.

* LABO0260-008 08/01/2004

	Rates	Fringes
Asbestos Laborer		
Includes removing and disposing of all		

insulation materials from walls, ceilings, floors, columns, and all other non-mechanical surfaces; and removal of insulating materials from mechanical systems that are to be demolished; loading/unloading of bagged and tagged materials at the disposal site (includes lead paint abatement clean-up).....\$ 19.53 7.35

LABO0334-002 09/01/2003

	Rates	Fringes
Laborers - open cut:		
GROUP 1.....	\$ 18.45	6.35
GROUP 2.....	\$ 18.59	6.35
GROUP 3.....	\$ 18.72	6.35
GROUP 4.....	\$ 18.77	6.35
GROUP 5.....	\$ 18.82	6.35
GROUP 6.....	\$ 16.20	6.35
GROUP 7.....	\$ 14.31	6.35

LABORER CLASSIFICATIONS

GROUP 1: Construction laborer

GROUP 2: Mortar and material mixer, concrete form person, signal person, well point person, manhole, headwall and catch basin builder, guard rail builder, headwall, seawall, breakwall, dock builder and fence erector

GROUP 3: Air, gasoline and electric tool operator, vibrator operator, driller, pump person, tar kettle operator, bracer, rodder, reinforced steel or mesh person (e.g., wire mesh, steel mats, dowel bars, etc.), welder, pipe jacking and boring person, wagon drill and air track operator and concrete saw operator (under 40 h.p.), windlass and tigger person and directional boring person

GROUP 4: Trench or excavating grade person

GROUP 5: Pipe layer (including crock, metal pipe, multi-plate or other conduits)

GROUP 6: Grouting person, audio-visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work

GROUP 7: Restoration laborer, seeding, sodding, planting, cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

SCOPE OF WORK:

Open cut construction work shall be construed to mean work which requires the excavation of earth including industrial, commercial and residential building site excavation and preparation, land balancing, demolition and

removal of concrete and underground appurtenances, grading, paving, sewers, utilities and improvements; retention, oxidation, flocculation and irrigation facilities, and also including but not limited to underground piping, conduits, steel sheeting for underground construction, and all work incidental thereto, and general excavation.

Open cut construction work shall not include any structural modifications, alterations, additions and repairs to buildings, or highway work, including roads, streets, bridge construction and parking lots or steel erection work and excavation for the building itself and back filling inside of and within 5 ft. of the building and foundations, footings and piers for the building. Open cut construction work shall not include any work covered under Tunnel, Shaft and Caisson work.

LAB01329-002 05/01/2003

	Rates	Fringes
Laborers:		
General contracts \$15 million and over:		
GROUP 1.....	\$ 19.80	6.85
GROUP 2.....	\$ 19.90	6.85
GROUP 3.....	\$ 20.20	6.85
GROUP 4.....	\$ 20.35	6.85
GROUP 5.....	\$ 20.55	6.85
GROUP 6.....	\$ 21.85	6.85
General contracts less than \$15 million:		
GROUP 1.....	\$ 18.43	6.85
GROUP 2.....	\$ 18.53	6.85
GROUP 3.....	\$ 18.83	6.85
GROUP 4.....	\$ 18.98	6.85
GROUP 5.....	\$ 19.18	6.85
GROUP 6.....	\$ 20.48	6.85

FOOTNOTE: Work on waterfront work (working over water) on the Great Lakes or connecting waters navigable to lake carriers: \$0.75 per hour additional.

LABORER CLASSIFICATIONS

GROUP 1: All construction laborers on building and heavy construction work, storm and sanitary sewers, tool crib attendant, rod person, oxi-gun operator, worker using propane or acetylene cutting torch, motor-driven buggies, chipping hammers, tamping machines, green cutting (whether run by air, electric or gas), and sandblasters

GROUP 2: Mortar mixer, material mixer (whether done by hand or machine), vibrator operator, concrete mixer, laborer with concrete crew, mixer to pour, including pour from trucks

GROUP 3: Cement gun nozzle operator, blaster, miner, driller, buster operator, layer of all non-metallic pipe

GROUP 4: Caisson worker

GROUP 5: Air track

GROUP 6: Digester, tanks & kilns

* PLUM0190-006 05/01/2004

	Rates	Fringes
Gas Distribution Pipeline Welding in conjunction with gas distribution pipeline work.....	\$ 26.35	11.70
All other work.....	\$ 18.66	7.92

PLUM0506-012 06/01/2003

	Rates	Fringes
Pipefitter Hvac contracts \$50,000 or less.....	\$ 20.57	12.05
All other heavy construction	\$ 25.71	12.05

SHEE0007-019 01/01/2000

	Rates	Fringes
Sheet metal worker.....	\$ 22.30	9.87

SUMI2000-008 05/05/2000

	Rates	Fringes
BUILDING CONSTRUCTION		
Tank Builder.....	\$ 19.50	1.04
Laborer: Chain Saw.....	\$ 14.29	
Landscape Laborer.....	\$ 13.20	4.01
Truck drivers:		
Boom Truck.....	\$ 17.40	5.52
Truck Driver - 2 axle.....	\$ 16.41	4.30
Truck driver - 3 axle.....	\$ 16.83	7.44
Well Driller (water well).....	\$ 27.59	.13

FOOTNOTES:

Marble, terrazzo & tile finishers: \$0.25 per hour above the laborer's rate. Same fringe benefit package as the bricklayer.

Stacks: Work on industrial and powerhouse stacks shall receive \$2.00 per hour above the journeyman bricklayer rate.

Industrial: Refinishing work on digesters, tanks, lime kilns, chests, boilers, and boiler tubes shall receive \$2.00 per hour above the journeyman bricklayer rate.

TEAM0328-002 05/01/2003

	Rates	Fringes
Truck drivers (does not include boom truck, or two- or three-axle trucks):		
GROUP 1.....	\$ 19.62	3.76/hr.+ 17.80
GROUP 2.....	\$ 19.77	3.76/hr.+ 17.80

GROUP 3.....\$ 19.83 3.76/hr.+ 17.80
 GROUP 4.....\$ 19.98 3.76/hr.+ 17.80

PAID HOLIDAYS: Memorial Day, Fourth of July, Labor Day and Thanksgiving Day, if the regular work day immediately preceding or following the holiday is either worked or an excused absence.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: All other trucks

GROUP 2: Heavy duty and semi trucks

GROUP 3: Truck repair and maintenance

GROUP 4: Euclid type equipment

 WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
 =====

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

 In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations

Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

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DIVISION 02 - SITE WORK

SECTION 02139

SITE PREPARATION

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- 1.2 PAYMENT
- 1.3 SUBMITTALS

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

- 3.1 Removal of Obstructions
 - 3.1.1 Restrictions
- 3.2 DISPOSAL
- 3.3 QUALITY CONTROL

-- End of Section Table of Contents --

SECTION 02139

SITE PREPARATION

PART 1 GENERAL

1.1 REFERENCES

The following publications of the issues listed below, but referred to thereafter by basic designation only, forms a part of this specification to the extent indicated by reference thereto:

ENGINEER MANUAL (EM)

EM 1110 2 1906 1970 Laboratory Soils Testing

MILITARY STANDARDS (MIL-STD)

MIL STD 619 Unified Soil Classification System for Roads, Airfields, Embankments and Foundations

1.2 PAYMENT

All acceptably completed work required under this Section of the specifications will be paid for at the contract lump-sum price for the payment item, "Site Preparation."

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330, titled "SUBMITTAL PROCEDURES":

SD-01 Data

Construction Equipment; FIO.

Prior to starting work, a list of all equipment, tools and machines, including their sizes, capacities and operating speeds, to be used in the performance of the work, shall be submitted.

Work Plan; G.

At least ten (10) calendar days prior to proceeding with the work, submit a work plan showing the the process for site preparation.

PART 2 PRODUCTS (NOT APPLICABLE)

N/A

PART 3 EXECUTION

3.1 Removal of Obstructions

The existing items which are to be removed to allow for the required construction work shall be as indicated on the drawings and specified herein. The existing boat davit shall be removed prior to construction. The materials obtained from clearing operations shall be disposed of as specified in Paragraph "DISPOSAL." Clearing shall consist of the removal of only the riprap along the pier which will interfere with construction and placement of the structure. All work shall be completed using the approved construction equipment, in a workmanlike manner subject to approval by the Contracting Officer via the submittal of a work plan.

3.1.1 Restrictions

N/A

3.2 DISPOSAL

All waste, excess and unsatisfactory materials resulting from work required under this Section shall be removed from the site unless otherwise specified and directed and upon removal shall become the property of the Contractor. All disposal shall conform to the requirements of SECTION 01130 "ENVIRONMENTAL PROTECTION", including any applicable local requirements.

3.3 QUALITY CONTROL

The Contractor shall establish and maintain a quality control system for all operations performed under this Section to assure compliance with contract requirements and maintain records of its quality control for all operations performed, including, but not limited to, the following:

- a. Removal work.
- b. Protecting existing structures and all appurtenances.
- c. Disposal.
- d. Observance of safety regulations.

-- End of Section --

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DIVISION 02 - SITE WORK

SECTION 02456A

STEEL H-PILES

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 - 1.2.1 Principal Sum
- 1.3 [Enter Appropriate Subpart Title Here]
 - 1.3.1 Splices
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- 1.5 EXPERIENCE
- 1.6 SUBSURFACE DATA

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PART 3 EXECUTION

- 3.1 INSTALLATION
 - 3.1.1 Pile Driving
 - 3.1.2 Pre-Drilling
 - 3.1.3 Splices
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 - 3.1.5 Tolerances in Driving
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 - 3.1.7 Protection
- 3.2 FIELD TESTS AND INSPECTIONS
 - 3.2.1 Safe Design Capacity

-- End of Section Table of Contents --

SECTION 02456A

STEEL H-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 in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 36/A 36M	(1997a) Carbon Structural Steel
ASTM A 572/A 572M	(1999) High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality
ASTM A 588/A 588M	(1994) High-Strength Low-Alloy Structural Steel with 50 ksi (345 MPa) Minimum Yield Point to 4 in. (100 mm) Thick
ASTM A 690/A 690M	(1997) High-Strength Low-Alloy Steel H-Piles and Sheet Piling for Use in Marine Environments
ASTM D 1143	(1981; R 1994e1) Piles Under Static Axial Compressive Load

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M	(1998) Structural Welding Code - Steel
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1.2 BASIS FOR BIDS AND PAYMENT

1.2.1 Principal Sum

The bid price for piling shall be a lump sum bid item.

1.3 [Enter Appropriate Subpart Title Here] 1.3.1 Splices

The Contractor will be paid for work required to make each authorized pile splice at the applicable contract price for "Steel H-Pile Splices."

1.4 SUBMITTALS

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

SD-02 Shop Drawings

Fabricated Additions; G

Detail drawings of required fabricated additions to plain pile, prior to commencing work or ordering materials.

Pile Driving; G

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), size, driven length, embedded length, final elevations of tip and top, pile weight, number of splices and locations, blows required for each foot of penetration throughout the entire length of the pile and for the final 6 inches of penetration, and the total driving time. The record shall also include the type and size of the hammer used, the rate of operation, and the type and dimensions of driving helmet and cushion block used. Any unusual conditions encountered during pile installation shall be recorded and immediately reported to the Contracting Officer.

SD-03 Product Data

Equipment; FIO

Description of pile driving and or augering equipment to be employed in the work, prior to commencement of pile installations; including details of the pile hammer, power plant, leads, cushion material, and helmet.

SD-07 Certificates

Materials; FIO

Certified copies of mill test reports for structural steel prior to commencement of pile installations.

1.5 EXPERIENCE

The work shall be performed by a general contractor or a specialty subcontractor specializing in the specified foundation system and having experience installing the specified foundation system under similar subsurface conditions.

1.6 SUBSURFACE DATA

Subsurface soil data logs are shown on the drawings.

PART 2 PRODUCTS

2.1 MATERIALS

Piles shall be of sections, sizes, materials, and weights indicated. Pile tips as driven shall be square and blunt as received from the mill. Pile tip reinforcements or cast steel points occasionally may be required to obtain the required penetration. Steel shall conform to ASTM A 36/A 36M.

2.2 EQUIPMENT

2.2.1 Pile Hammers

The hammer used shall have a delivered energy suitable for the total weight of the pile, the character of subsurface material to be encountered, and the pile capacity to be developed. The driving energy of the hammer shall be not less than 15,000 foot-pounds.

2.2.2 Driving Helmets and Pile Cushions

A driving helmet or cap, including a pile cushion, shall be used between the top of the pile and the ram to prevent impact damage to the pile. The driving helmet, or cap and pile cushion combination, 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. The driving helmet or cap shall fit loosely around the top of the pile so that the pile is not restrained by the driving cap if the pile tends to rotate during driving. The pile cushion may be made of solid wood or of laminated construction using plywood, softwood, or hardwood boards or other cushion material as approved by the Contracting Officer. The pile cushion shall completely cover the top surface of the pile and shall be retained by the driving helmet. The minimum thickness of the pile cushion shall be 3 inches and the thickness shall be increased so as to be suitable for the size and length of pile, character of subsurface material encountered, hammer characteristics, and required driving resistance.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Pile Driving

Excavation shall be stopped at 1 foot above foundation grade before piles are driven. When pile driving is completed, excavation shall be completed to lines and grades shown. Piles shall be driven to or below the "calculated" tip elevation to reach a driving resistance in accordance with the schedule which the Contracting Officer will prepare from the load test results. The pile hammer used for driving shall be the same type, operated at the same rate and in the same manner, as that used for driving the test piles. Diesel-powered hammers shall be operated at the rate recommended by the manufacturer throughout the entire driving period. Sufficient pressure shall be maintained at the steam hammer so that: [for a double-acting hammer, the number of blows per minute during and at the completion of driving of a pile is equal approximately to that at which the hammer is rated;] [for a single-acting hammer, there is full upward stroke of the ram;] [for a differential type hammer, there is a slight rise of the hammer base during each upward stroke.] A new pile cushion shall be used at the start of driving for each pile and the cushion shall be replaced whenever it has become highly compressed, charred, burned, or deteriorated in any manner during driving. Each pile shall be driven continuously and without interruption until the required depth of penetration and penetration rate per blow have been attained. If a pile fails to reach the "calculated" tip elevation or if a pile reaches the "calculated" tip elevation without reaching the required driving resistance, the Contractor shall notify the Contracting Officer and perform directed corrective measures.

3.1.2 Pre-Drilling

Drilling or augering for placing the pile is required due to close

proximity of support buttress of the powerhouse.

3.1.3 Splices

Field splices shall be avoided for lengths under 60 feet. When authorized by the Contracting Officer, splices shall be of the full penetration butt-weld type. Unless otherwise authorized by the Contracting Officer, only one splice will be permitted per length of pile. Splices shall be designed and constructed to maintain the true alignment and position of the pile sections. Splices shall develop the full strength of the pile in both bearing and bending. Proprietary prefabricated splicer sleeves may be used upon prior approval by the Contracting Officer.

3.1.4 Welding

Shop and field welding, qualification of welding procedures, welders, and welding operators shall be in accordance with AWS D1.1/D1.1M.

3.1.5 Tolerances in Driving

Top of pile at elevation of cut off shall be within 3 inches of the location indicated. Manipulation of piles to force them into position will not be permitted. Piles will be checked for heave. Piles found to have heaved shall be redriven to the required point elevation. Piles damaged or driven outside the above tolerances shall be replaced or additional piles driven at locations specified by the Contracting Officer at no expense to the Government.

3.1.6 Cutting of Piles

Piles shall be cut off at the elevations indicated by a method approved by the Contracting Officer.

3.1.7 Protection

Where indicated, the steel H-piles shall be provided with a corrugated, stone filled pipe protection to the existing tailrace bottom.

3.2 FIELD TESTS AND INSPECTIONS

3.2.1 Safe Design Capacity

Test piles shall be loaded to twice the anticipated working load unless failure occurs first. The safe design capacity of a load test as determined from the results of load tests shall be the lesser of the two values computed according to the following:

- a. One-half the load that causes a net settlement after rebound of not more than 0.01 inch per ton of total test load.
- b. One-half the load that causes a gross settlement of not more than 1 inch provided the load settlement curve shows no sign of failure.

-- End of Section --

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SECTION 05055A

METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS

PART 1 GENERAL

1.1 REFERENCES

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

ALUMINUM ASSOCIATION (AA)

AA SAS-30 (1986) Aluminum Structures Construction Manual Series - Section 1 Specifications for Aluminum Structures

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 123 (1989a) Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

ASTM A 325 (1994) Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength

ASTM A 490 (1993) Heat-Treated Steel Structural Bolts, 150 ksi Minimum Tensile Strength

ASTM A 780 (1993a) Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings

ASTM E 165 (1995) Liquid Penetrant Examination Inspection Method

ASTM E 709 (1995) Magnetic Particle Examination

ASME INTERNATIONAL (ASME)

ASME B4.1 (1967; R 1994) Preferred Limits and Fits for Cylindrical Parts

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M (2002) Structural Welding Code - Steel

AWS D1.2 (1990) Structural Welding Code - Aluminum

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office

that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Detail Drawings; G, ECD

Detail drawings for metalwork and machine work shall be submitted and approved prior to fabrication.

SD-03 Product Data

Materials List

Materials list for fabricated items shall be submitted at the time of submittal of detail drawings.

Shipping Bill

Shipping bill shall be submitted with the delivery of finished pieces to the site.

SD-06 Test Reports

Tests, Inspections, and Verifications

Certified test reports for materials shall be submitted with all materials delivered to the site.

SD-07 Certificates

Qualification of Welders and Welding Operators

Certifications for welders and welding operators shall be submitted prior to commencing fabrication.

1.3 DETAIL DRAWINGS

Detail drawings for metalwork and machine work shall include catalog cuts, templates, fabrication and assembly details and type, grade and class of material as appropriate. Elements of fabricated items inadvertently omitted on contract drawings shall be detailed by the fabricator and indicated on the detail drawings.

1.4 QUALIFICATION OF WELDERS AND WELDING OPERATORS

The Contractor shall certify that the qualification of welders and welding operators and tack welders who will perform structural steel welding have been qualified for the particular type of work to be done in accordance with the requirements of [AWS D1.1/D1.1M, Section 5,] or [ASME BPVC SEC IX, Section IX], prior to commencing fabrication. The certificate shall list the qualified welders by name and shall specify the code and procedures under which qualified and the date of qualification. Prior qualification will be accepted if welders have performed satisfactory work under the code for which qualified within the preceding three months. The Contractor shall require welders to repeat the qualifying tests when their work indicates a reasonable doubt as to proficiency. Those passing the requalification tests will be recertified. Those not passing will be

disqualified until passing. All expenses in connection with qualification and requalification shall be borne by the Contractor.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Materials Orders

The Contractor shall furnish 1 copy of purchase orders, mill orders, shop orders and work orders for all materials orders and items used in the work.

Where mill tests are required purchase orders shall contain the test site address and the name of the testing agency.

2.1.2 Materials List

The Contractor shall furnish a materials list of the materials to be used in the fabrication of each item.

2.1.3 Shipping Bill

The Contractor shall furnish a shipping bill or memorandum of each shipment of finished pieces or members to the project site giving the designation mark and weight of each item, the number of items, the total weight, and the car initial and number if shipped by rail in carload lots. Duplicate copies of shipping bills shall be mailed promptly to AOF.

2.2 FABRICATION

2.2.1 Structural Fabrication

Material must be straight before being laid off or worked. If straightening is necessary it shall be done by methods that will not impair the metal. Sharp kinks or bends shall be cause for rejection of the material. Material with welds will not be accepted except where welding is definitely specified, indicated or otherwise approved. Bends shall be made by approved dies, press brakes or bending rolls. Where heating is required, precautions shall be taken to avoid overheating the metal and it shall be allowed to cool in a manner that will not impair the original properties of the metal. Proposed flame cutting of material other than structural steel shall be subject to approval and shall be indicated on detail drawings. Shearing shall be accurate and all portions of the work shall be neatly finished. Corners shall be square and true unless otherwise shown. Re-entrant cuts shall be filleted to a minimum radius of 3/4 inch unless otherwise approved. Finished members shall be free of twists, bends and open joints. Bolts, nuts and screws shall be tight.

2.2.1.1 Dimensional Tolerances for Structural Work

Dimensions shall be measured by an approved calibrated steel tape of approximately the same temperature as the material being measured. The overall dimensions of an assembled structural unit shall be within the tolerances indicated on the drawings or as specified in the particular section of these specifications for the item of work. Where tolerances are not specified in other sections of these specifications or shown, an allowable variation of 1/32 inch is permissible in the overall length of component members with both ends milled and component members without milled ends shall not deviate from the dimensions shown by not more than 1/16 inch for members 30 feet or less in length and by more than 1/8 inch

for members over 30 feet in length.

2.2.1.2 Structural Steel Fabrication

Structural steel may be cut by mechanically guided or hand-guided torches, provided an accurate profile with a surface that is smooth and free from cracks and notches is obtained. Surfaces and edges to be welded shall be prepared in accordance with AWS D1.1/D1.1M, Subsection 3.2. Where structural steel is not to be welded, chipping or grinding will not be required except as necessary to remove slag and sharp edges of mechanically guided or hand-guided cuts not exposed to view. Hand-guided cuts which are to be exposed or visible shall be chipped, ground or machined to sound metal.

2.2.1.3 Structural Aluminum Fabrication

Laying out and cutting of aluminum shall be in accordance with the AA SAS-30, Section 6.

2.2.2 Welding

2.2.2.1 Welding of Structural Steel

a. Welding Procedures for Structural Steel - Welding procedures for structural steel shall be prequalified as described in AWS D1.1/D1.1M, Subsection 5.1 or shall be qualified by tests as prescribed in AWS D1.1/D1.1M, Section 5. Properly documented evidence of compliance with all requirements of these specifications for previous qualification tests shall establish a welding procedure as prequalified. For welding procedures qualified by tests, the test welding and specimen testing must be witnessed and the test report document signed by the Contracting Officer. Approval of any welding procedure will not relieve the Contractor of the responsibility for producing a finished structure meeting all requirements of these specifications. The Contractor will be directed or authorized to make any changes in previously approved welding procedures that are deemed necessary or desirable by the Contractor Officer. The Contractor shall submit a complete schedule of welding procedures for each steel structure to be welded. The schedule shall conform to the requirements specified in the provisions AWS D1.1/D1.1M, Sections 2, 3, 4, 7 and 9 and applicable provisions of Section 10. The schedule shall provide detailed procedure specifications and tables or diagrams showing the procedures to be used for each required joint. Welding procedures must include filler metal, preheat, interpass temperature and stress-relief heat treatment requirements. Each welding procedure shall be clearly identified as being prequalified or required to be qualified by tests. Welding procedures must show types and locations of welds designated or in the specifications to receive nondestructive examination.

b. Welding Process - Welding of structural steel shall be by an electric arc welding process using a method which excludes the atmosphere from the molten metal and shall conform to the applicable provisions of AWS D1.1/D1.1M, Sections 1 thru 7, 9, 10 and 11. Welding shall be such as to minimize residual stresses, distortion and shrinkage.

c. Welding Technique

(1) Filler Metal - The electrode, electrode-flux combination and

grade of weld metal shall conform to the appropriate AWS specification for the base metal and welding process being used or shall be as shown where a specific choice of AWS specification allowables is required. The AWS designation of the electrodes to be used shall be included in the schedule of welding procedures. Only low hydrogen electrodes shall be used for manual shielded metal-arc welding regardless of the thickness of the steel. A controlled temperature storage oven shall be used at the job site as prescribed by AWS D1.1/D1.1M, Subsection 4.5 to maintain low moisture of low hydrogen electrodes.

(2) Preheat and Interpass Temperature - Preheating shall be performed as required by AWS D1.1/D1.1M, Subsection 4.2 and 4.3 or as otherwise specified except that the temperature of the base metal shall be at least 70 degrees F. The weldments to be preheated shall be slowly and uniformly heated by approved means to the prescribed temperature, held at that temperature until the welding is completed and then permitted to cool slowly in still air.

(3) Stress-Relief Heat Treatment - Where stress relief heat treatment is specified or shown, it shall be in accordance with the requirements of AWS D1.1/D1.1M, Subsection 4.4 unless otherwise authorized or directed.

d. Workmanship - Workmanship for welding shall be in accordance with AWS D1.1/D1.1M, Section 3 and other applicable requirements of these specifications.

(1) Preparation of Base Metal - Prior to welding the Contractor shall inspect surfaces to be welded to assure compliance with AWS D1.1/D1.1M, Subsection 3.2.

(2) Temporary Welds - Temporary welds required for fabrication and erection shall be made under the controlled conditions prescribed for permanent work. Temporary welds shall be made using low-hydrogen welding electrodes and by welders qualified for permanent work as specified in these specifications. Preheating for temporary welds shall be as required by AWS D1.1/D1.1M for permanent welds except that the minimum temperature shall be 120 degrees F in any case. In making temporary welds arcs shall not be struck in other than weld locations. Each temporary weld shall be removed and ground flush with adjacent surfaces after serving its purpose.

(3) Tack Welds - Tacks welds that are to be incorporated into the permanent work shall be subject to the same quality requirements as the permanent welds and shall be cleaned and thoroughly fused with permanent welds. Preheating shall be performed as specified above for temporary welds. Multiple-pass tack welds shall have cascaded ends. Defective tack welds shall be removed before permanent welding.

2.2.2.2 Welding of Steel Castings

Unsound material shall be removed from the surfaces of steel castings to be incorporated into welded connections by chipping, machining, air-arc gouging or grinding. Major connections designed for transfer of stresses shall not be welded if the temperature of the casting is lower than 100 degrees F. Castings containing over 0.35 percent carbon or over 0.75

percent manganese shall be preheated to a temperature not to exceed 450 degrees F and welding shall be accomplished while the castings are maintained at a temperature above 350 degrees F. Welding will not be permitted on castings containing carbon in excess of 0.45 percent except on written authorization. Castings requiring welding repairs after the first annealing and castings involving welding fabrication shall be stress-relieved annealed prior to receiving final machining unless otherwise permitted.

2.2.2.3 Welding of Aluminum

Welding of aluminum shall conform to AA SAS-30 or AWS D1.2, Sections 1 through 7, 9 and 10. The welding process and welding operators shall be prequalified as required by AWS D1.2, Section 5 or AA SAS-30, Subsection 7.2.4 in accordance with the methods described in ASME BPVC SEC IX, Section IX. A certified report giving the results of the qualifying tests shall be furnished for approval. A complete schedule of the welding process for each aluminum fabrication to be welded shall be furnished for approval.

2.2.3 Bolted Connections

2.2.3.1 Bolted Structural Steel Connections

Bolts, nuts and washers shall be of the type specified or indicated. All nuts shall be equipped with washers except for high strength bolts. Beveled washers shall be used where bearing faces have a slope of more than 1:20 with respect to a plane normal to the bolt axis. Where the use of high strength bolts is specified or indicated the materials, workmanship and installation shall conform to the applicable provisions of ASTM A 325 or ASTM A 490.

a. Bolt Holes - Bolt holes shall be accurately located, smooth, perpendicular to the member and cylindrical.

(1) Holes for regular bolts shall be drilled or subdrilled and reamed in the shop and shall not be more than 1/16 inch larger than the diameter of the bolt.

(2) Holes for fitted bolts shall be match-reamed or drilled in the shop. Burrs resulting from reaming shall be removed. The threads of bolts shall be entirely outside of the holes. The body diameter of bolts shall have tolerances as recommended by ASME B4.1 for the class of fit specified. Fitted bolts shall be fitted in reamed holes by selective assembly to provide an LN-2 fit.

(3) Holes for high strength bolts shall have diameters of not more than 1/16 inch larger than bolt diameters. If the thickness of the material is not greater than the diameter of the bolts the holes may be punched. If the thickness of the material is greater than the diameter of the bolts the holes may be drilled full size or subpunched or subdrilled at least 1/8 inch smaller than the diameter of the bolts and then reamed to full size. Poor matching of holes will be cause for rejection. Drifting occurring during assembly shall not distort the metal or enlarge the holes. Reaming to a larger diameter of the next standard size bolt will be allowed for slight mismatching.

2.2.3.2 Bolted Aluminum Connections

Punching, drilling, reaming and bolting for bolted aluminum connections shall conform to the requirements of AA SAS-30, Section 6.

2.2.4 Machine Work

Tolerances, allowances and gauges for metal fits between plain, non-threaded, cylindrical parts shall conform to ASME B4.1 for the class of fit shown or required unless otherwise shown on approved detail drawings. Where fits are not shown they shall be suitable as approved. Tolerances for machine-finished surfaces designated by non-decimal dimensions shall be within 1/64 inch. Sufficient machining stock shall be allowed on placing pads to ensure true surfaces of solid material. Finished contact or bearing surfaces shall be true and exact to secure full contact. Journal surfaces shall be polished and all surfaces shall be finished with sufficient smoothness and accuracy to ensure proper operation when assembled. Parts entering any machine shall be accurately machined and all like parts shall be interchangeable except that parts assembled together for drilling or reaming of holes or machining will not be required to be interchangeable with like parts. All drilled holes bolts shall be accurately located.

2.2.4.1 Finished Surfaces

Surface finishes indicated or specified shall be in accordance with ASME B46.1. Values of required roughness heights are arithmetical average deviations expressed in microinches. These values are maximum. Lesser degrees will be satisfactory unless otherwise indicated. Compliance with surface requirements shall be determined by sense of feel and visual inspection of the work compared to Roughness Comparison Specimens in accordance with the provisions of ASME B46.1. Values of roughness width and waviness height shall be consistent with the general type of finish specified by roughness height. Where the finish is not indicated or specified it shall be that which is most suitable for the particular surface, provide the class of fit required and be indicated on the detail drawings by a symbol which conforms to ASME B46.1 when machine finishing is provided. Flaws such as scratches, ridges, holes, peaks, cracks or checks which will make the part unsuitable for the intended use will be cause for rejection.

2.2.4.2 Unfinished Surfaces

All work shall be laid out to secure proper matching of adjoining unfinished surfaces unless otherwise directed. Where there is a large discrepancy between adjoining unfinished surfaces they shall be chipped and ground smooth or machined to secure proper alignment. Unfinished surfaces shall be true to the lines and dimensions shown and shall be chipped or ground free of all projections and rough spots. Depressions or holes not affecting the strength or usefulness of the parts shall be filled in an approved manner.

2.2.4.3 Pin Holes

Pin holes shall be bored true to gauges, smooth, straight and at right angles to the axis of the member. The boring shall be done after the member is securely fastened in position.

2.2.5 Miscellaneous Provisions

2.2.5.1 Cleaning of Corrosion-Resisting Steel

Oil, paint and other foreign substances shall be removed from corrosion-resisting steel surfaces after fabrication. Cleaning shall be done by vapor degreasing or by the use of cleaners of the alkaline, emulsion or solvent type. After the surfaces have been cleaned they shall be given a final rinsing with clean water followed by a 24 hour period during which the surfaces are intermittently wet with clean water and then allowed to dry for the purpose of inspecting the clean surfaces. The surfaces shall be visually inspected for evidence of paint, oil, grease, welding slag, heat treatment scale, iron rust or other forms of contamination. If evidence of foreign substance exist the surface shall be cleaned in accordance with the applicable provisions of ASTM A 380. The proposed method of treatment shall be furnished for approval. After treatment the surfaces shall be visually reinspected. Brushes used to remove foreign substances shall have only stainless steel or nonmetallic bristles. Any contamination occurring subsequent to the initial cleaning shall be removed by one or more of the methods indicated above.

2.2.5.2 Lubrication

The arrangement and details for lubrication shall be as shown. Before erection or assembly all bearing surfaces shall be thoroughly cleaned and lubricated with an approved lubricant.

2.2.6 Shop Assembly

Each machinery and structural unit furnished shall be assembled in the shop to determine the correctness of the fabrication and matching of the component parts unless otherwise specified. Tolerances shall not exceed those shown. Each unit assembled shall be closely checked to ensure that all necessary clearances have been provided and that binding does not occur in any moving part. Assembly in the shop shall be in the same position as final installation in the field unless otherwise specified. Assembly and disassembly work shall be performed in the presence of the Contracting Officer unless waived in writing. Errors or defects disclosed shall be immediately remedied by the Contractor without cost to the Government. Before disassembly for shipment each piece of a machinery or structural unit shall be match-marked to facilitate erection in the field. The location of match-marks shall be indicated by circling with a ring of white paint after the shop coat of paint has been applied or as otherwise directed.

2.3 TESTS, INSPECTIONS, AND VERIFICATIONS

The Contractor shall have requested material tests and analyses performed and certified by an approved laboratory to demonstrate that materials are in conformity with the specifications. These tests and analyses shall be performed and certified at the Contractor's expense should doubt exist as to the quality or soundness of materials. Tests, inspections, and verifications shall conform to the requirements of the particular sections of these specifications for the respective items of work unless otherwise specified or authorized. Tests shall be conducted in the presence of the Contracting Officer if so required. The Contractor shall furnish specimens and samples for additional independent tests and analyses upon request by the Contracting Officer. Specimens and samples shall be properly labeled and prepared for shipment.

2.3.1 Nondestructive Testing

When doubt exists as to the soundness of any material part such part may be subjected to any form of nondestructive testing determined by the Contracting Officer. This may include ultrasonic, magnaflux, dye penetrant, x-ray, gamma ray or any other test that will thoroughly investigate the part in question. The cost of such investigation will be borne by the Government. Any defects will be cause for rejection and rejected parts shall be replaced and retested at the Contractor's expense.

2.3.2 Tests of Machinery and Structural Units

The details for tests of machinery and structural units shall conform to the requirements of the particular sections of these specifications covering these items. Each complete machinery and structural unit shall be assembled and tested in the shop in the presence of the Contracting Officer unless otherwise directed. Waiving of tests will not relieve the Contractor of responsibility for any fault in operation, workmanship or material that occurs before the completion of the contract or guarantee. After being installed at the site each complete machinery or structural unit shall be operated through a sufficient number of complete cycles to demonstrate to the satisfaction of the Contracting Officer that it meets the specified operational requirements in all respects.

2.3.3 Inspection of Structural Steel Welding

The Contractor shall maintain an approved inspection system and perform required inspections in accordance with Contract Clause CONTRACTOR INSPECTION SYSTEM. Welding shall be subject to inspection to determine conformance with the requirements of AWS D1.1/D1.1M, the approved welding procedures and provisions stated in other sections of these specifications. Nondestructive examination of designated welds will be required. Supplemental examination of any joint or coupon cut from any location in any joint may be required.

2.3.3.1 Visual Examination

All visual examination of completed welds shall be cleaned and carefully examined for insufficient throat or leg sizes, cracks, undercutting, overlap, excessive convexity or reinforcement and other surface defects to ensure compliance with the requirements of AWS D1.1/D1.1M, Section 3 and Section 9, Part D.

2.3.3.2 Test Coupons

The Government reserves the right to require the Contractor to remove coupons from completed work when doubt as to soundness cannot be resolved by nondestructive examination. Should tests of any two coupons cut from the work of any welder show strengths less than that specified for the base metal it will be considered evidence of negligence or incompetence and such welder shall be removed from the work. When coupons are removed from any part of a structure the members cut shall be repaired in a neat manner with joints of the proper type to develop the full strength of the members. Repaired joints shall be peened as approved or directed to relieve residual stress. The expense for removing and testing coupons, repairing cut members and the nondestructive examination of repairs shall be borne by the Government or the Contractor in accordance with the Contract Clauses INSPECTION AND ACCEPTANCE.

2.3.3.3 Supplemental Examination

When the soundness of any weld is suspected of being deficient due to faulty welding or stresses that might occur during shipment or erection the Government reserves the right to perform nondestructive supplemental examinations before final acceptance. The cost of such inspection will be borne by the Government.

2.3.4 Structural Steel Welding Repairs

Defective welds in the structural steel welding repairs shall be repaired in accordance with AWS D1.1/D1.1M, Subsection 3.7. Defective weld metal shall be removed to sound metal by use of air carbon-arc or oxygen gouging.

Oxygen gouging shall not be used on ASTM A 514/A 514M steel. The surfaces shall be thoroughly cleaned before welding. Welds that have been repaired shall be retested by the same methods used in the original inspection. Except for the repair of members cut to remove test coupons and found to have acceptable welds costs of repairs and retesting shall be borne by the Contractor.

2.3.5 Inspection and Testing of Steel Stud Welding

Fabrication and verification inspection and testing of steel stud welding shall conform to the requirements of AWS D1.1/D1.1M, Subsection 7.8 except as otherwise specified. The Contracting Officer will serve as the verification inspector. One stud in every 100 and studs that do not show a full 360 degree weld flash, have been repaired by welding or whose reduction in length due to welding is less than normal shall be bent or torque tested as required by AWS D1.1/D1.1M, Subsection 7.8. If any of these studs fail two additional studs shall be bent or torque tested. If either of the two additional studs fail all of the studs represented by the tests shall be rejected. Studs that crack under testing in either the weld, base metal or shank shall be rejected and replaced by the Contractor at no additional cost.

PART 3 EXECUTION

3.1 INSTALLATION

All parts to be installed shall be thoroughly cleaned. Packing compounds, rust, dirt, grit and other foreign matter shall be removed. Holes and grooves for lubrication shall be cleaned. Enclosed chambers or passages shall be examined to make sure that they are free from damaging materials. Where units or items are shipped as assemblies they will be inspected prior to installation. Disassembly, cleaning and lubrication will not be required except where necessary to place the assembly in a clean and properly lubricated condition. Pipe wrenches, cold chisels or other tools likely to cause damage to the surfaces of rods, nuts or other parts shall not be used for assembling and tightening parts. Bolts and screws shall be tightened firmly and uniformly but care shall be taken not to overstress the threads. When a half nut is used for locking a full nut the half nut shall be placed first and followed by the full nut. Threads of all bolts except high strength bolts, nuts and screws shall be lubricated with an approved lubricant before assembly. Threads of corrosion-resisting steel bolts and nuts shall be coated with an approved antigalling compound. Driving and drifting bolts or keys will not be permitted.

3.1.1 Alignment and Setting

Each machinery or structural unit shall be accurately aligned by the use of steel shims or other approved methods so that no binding in any moving

parts or distortion of any member occurs before it is fastened in place. The alignment of all parts with respect to each other shall be true within the respective tolerances required. Machines shall be set true to the elevations shown.

3.1.2 Blocking and Wedges

All blocking and wedges used during installation for the support of parts to be grouted in foundations shall be removed before final grouting unless otherwise directed. Blocking and wedges left in the foundations with approval shall be of steel or iron.

3.2 PROTECTION OF FINISHED WORK

3.2.1 Machined Surfaces

Machined surfaces shall be thoroughly cleaned of foreign matter. All finished surfaces shall be protected by suitable means. Unassembled pins and bolts shall be oiled and wrapped with moisture resistant paper or protected by other approved means. Finished surfaces of ferrous metals to be in bolted contact shall be washed with an approved rust inhibitor and coated with an approved rust resisting compound for temporary protection during fabrication, shipping and storage periods. Finished surfaces of metals which shall be exposed after installation except corrosion resisting steel or nonferrous metals shall be painted as specified in Section 09965 PAINTING HYDRAULIC STRUCTURES AND APPURTENANT WORKS.

3.2.2 Lubrication After Assembly

After assembly all lubricating systems shall be filled with the lubricant specified and additional lubricant shall be applied at intervals as required to maintain the equipment in satisfactory condition until acceptance of the work.

3.2.3 Aluminum

Aluminum that shall be in contact with grout or concrete shall be protected from galvanic or corrosive action by being given a coat of zinc-chromate primer and a coat of aluminum paint. Aluminum in contact with structural steel shall be protected against galvanic or corrosive action by being given a coat of zinc-chromate primer and a coat of aluminum paint. The zinc-chromate primer shall conform to SAE AMS3110. The aluminum paint shall consist of a aluminum paste conforming to ASTM D 962, spar varnish conforming to SAE AMS3132 and thinner compatible with the varnish. The aluminum paint shall be field mixed in proportion of 2 pounds of paste, not more than one gallon of spar varnish and not more than one pint of thinner.

3.3 TESTS

3.3.1 Workmanship

Workmanship shall be of the highest grade and in accordance with the best modern practices to conform with the specifications for the item of work being furnished.

3.3.2 Production Welding

Production welding shall conform to the requirements of AWS D1.1/D1.1M or AWS D1.2as applicable. Studs on which pre-production testing is to be

performed shall be welded in the same general position as required on production items (flat, vertical, overhead or sloping). Test and production stud welding will be subjected to visual examination or inspection. If the reduction of the length of studs becomes less than normal as they are welded, welding shall be stopped immediately and not resumed until the cause has been corrected.

-- End of Section --

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SECTION 05120

STRUCTURAL STEEL

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)

AASHTO HB-17 (1996; R 1998) Highway Bridges

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC FCD (1995a) Quality Certification Program Description

AISC 810 (1989) Erection Bracing of Low-Rise Structural Steel Frames

AISC 316 (1989) ASD Manual of Steel Construction

AISC 317 (1992; Errata 1994) Connections

AISC 325 LRFD Manual of Steel Construction

AISC 326 (1983) Detailing for Steel Construction

AISC 303 (2000) Steel Buildings and Bridges

AISC 348 (1985) Allowable Stress Design Specification for Structural Joints Using ASTM A325 or A490 Bolts

AISC 348 (1988) Load and Resistance Factor Design Specifications for Structural Joints Using ASTM A325 or A490 Bolts

AISC 335 (1989) Structural Steel Buildings Allowable Stress Design and Plastic Design

AISC S340 (1992) Metric Properties of Structural Shapes with Dimensions According to ASTM A6M

AISC 341 (1992) Seismic Provisions for Structural Steel Buildings

AISC 350 (1993) Load and Resistance Factor Design Specification for Structural Steel

Buildings

AMERICAN RAILWAY ENGINEERING & MAINTENANCE-OF-WAY ASSOCIATION
(AREMA)

AREMA Manual (1996) Manual for Railway Engineering
(Fixed Properties)

ASME INTERNATIONAL (ASME)

ASME B18.21.1 (1994) Lock Washers (Inch Series)

ASME B46.1 (1995) Surface Texture, (Surface
Roughness, Waviness, and Lay)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 6/A 6M (1998a) General Requirements for Rolled
Structural Steel Bars, Plates, Shapes, and
Sheet Piling

ASTM A 36/A 36M (1997; Rev. A) Carbon Structural Steel

ASTM A 53 (1999; Rev. B) Pipe, Steel, Black and
Hot-Dipped, Zinc-Coated Welded and Seamless

ASTM A 108 (1999) Steel Bars, Carbon, Cold Finished,
Standard Quality

ASTM A 123/A 123M (2000) Zinc (Hot-Dip Galvanized) Coatings
on Iron and Steel Products

ASTM A 143 (1974; R 1994) Safeguarding Against
Embrittlement of Hot-Dip Galvanized
Structural Steel Products and Procedure
for Detecting Embrittlement

ASTM A 153/A 153M (1998) Zinc Coating (Hot-Dip) on Iron and
Steel Hardware

ASTM A 242/A 242M (1998) High-Strength Low-Alloy Structural
Steel

ASTM A 307 (1997) Carbon Steel Bolts and Studs,
60,000 psi Tensile Strength

ASTM A 325M (1997) High-Strength Bolts for Structural
Steel Joints (Metric)

ASTM A 325 (1997) Structural Bolts, Steel, Heat
Treated, 120/105 ksi Minimum Tensile
Strength

ASTM A 490M (1993) Heat-Strength Steel Bolts, Classes
10.9 and 10.9.3, for Structural Steel
Joints (Metric)

ASTM A 490 (1997) Heat-Treated Steel Structural
Bolts, 150 ksi Minimum Tensile Strength

ASTM A 500	(1999) Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A 501	(1999) Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
ASTM A 514/A 514M	(1999) High-Yield-Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding
ASTM A 529/A 529M	(1996) High-Strength Carbon-Manganese Steel of Structural Quality.
ASTM A 563M	(1997) Carbon and Alloy Steel Nuts (Metric)
ASTM A 563	(1997) Carbon and Alloy Steel Nuts
ASTM A 572/A 572M	(1999; Rev. B) High-Strength Low-Alloy Columbium-Vanadium of Structural Steel
ASTM A 588/A 588M	(1997; Rev. A) High-Strength Low-Alloy Structural Steel with 50 ksi (345 MPa) Minimum Yield Point to 4 in. (100 mm) Thick
ASTM A 618	(1999) Hot-Formed Welded and Seamless High-Strength Low-Alloy Structural Tubing
ASTM A 668/A 668M	(1996) Steel Forgings, Carbon and Alloy, for General Industrial Use
ASTM A 709/A 709M	(1997a) Carbon and High-Strength Low-Alloy Structural Steel Shapes, Plates, and Bars and Quenched-and-Tempered Alloy Structural Steel Plates for Bridges
ASTM A 780	(1993; Rev. A) Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
ASTM A 852/A 852M	(1997) Quenched and Tempered Low-Alloy Structural Steel Plate with 70 ksi (485 MPa) Minimum Yield Strength to 4 in. (100 mm) Thick
ASTM A 992/A 992M	(1998e1) Steel for Structural Shapes for Use in Building Framing
ASTM B 695	(1991; R 1997) Coatings of Zinc Mechanically Deposited on Iron and Steel
ASTM C 827	(1995; R 1997) Change in Height at Early Ages of Cylindrical Specimens from Cementitious Mixtures
ASTM C 1107	(1999) Packaged Dry, Hydraulic-Cement Grout (Nonshrink)

ASTM F 436M	(1993) Hardened Steel Washers (Metric)
ASTM F 436	(1993) Hardened Steel Washers
ASTM F 844	(1998) Washers, Steel, Plain (Flat), Unhardened for General Use
ASTM F 959M	(1999; Rev. A) Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners (Metric)
ASTM F 959	(1999; Rev. A) Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners

AMERICAN WELDING SOCIETY (AWS)

AWS A2.4	(1998) Standard Symbols for Welding, Brazing and Nondestructive Examination
AWS D1.1/D1.1M	(2000) Structural Welding Code - Steel

CRANE MANUFACTURERS ASSOCIATION OF AMERICA (CMAA)

CMAA 70	(2000) Electric Overhead Traveling Cranes
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STEEL STRUCTURES PAINTING COUNCIL (SSPC)

SSPC SP 3	(1995) Power Tool Cleaning
SSPC SP 6	(1994) Commercial Blast Cleaning
SSPC Paint 25	(1991) Red Iron Oxide, Zinc Oxide, Raw Linseed Oil and Alkyd Primer (Without Lead and Chromate Pigments)
SSPC PA 1	(1991) Shop, Field, and Maintenance Painting
SSPC PS 13.01	(1991) Epoxy-Polyamide Painting System

1.2 SYSTEM DESCRIPTION

Provide the structural steel system, including galvanizing, complete and ready for use. Structural steel systems including design, materials, installation, workmanship, fabrication, assembly, erection, inspection, quality control, and testing shall be provided in accordance with AISC 316 and AISC 317 except as modified in this contract.

1.3 MODIFICATIONS TO REFERENCES

In AISC 316, AISC 317, AISC 335, AISC 303, AISC 348, and AISC S340, except as modified in this section, shall be considered a part of AISC 316 and AISC 317 and is referred to in this section as AISC 316 and AISC 317.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation;

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

SD-02 Shop Drawings

Erection drawings, including description of temporary supports; G

Fabrication drawings, including description of connections; G

SD-03 Product Data

Shop primer

Load indicator washers

Load indicator bolts

Include test report for Class B primer.

SD-06 Test Reports

Class B coating

Bolts, nuts, and washers

Supply the certified manufacturer's mill reports which clearly show the applicable ASTM mechanical and chemical requirements together with the actual test results for the supplied fasteners.

SD-07 Certificates

Steel

Bolts, nuts, and washers

Shop primer

Welding electrodes and rods

Nonshrink grout

Galvanizing

Pins and rollers

AISC Quality Certification

Overhead, top running crane rail beam

Welding procedures and qualifications

1.5 QUALITY ASSURANCE

1.5.1 Drawing Requirements

Submit fabrication drawings for approval prior to fabrication. Prepare in

accordance with AISC 326, AISC 316 and AISC 317. Drawings shall not be reproductions of contract drawings. Include complete information for the fabrication and erection of the structure's components, including the location, type, and size of bolts, welds, member sizes and lengths, connection details, blocks, copes, and cuts. Use AWS standard welding symbols. Shoring and temporary bracing shall be designed and sealed by a registered professional engineer and submitted for record purposes as part of the drawings.

1.5.2 Certifications

1.5.2.1 Overhead, Bridge Crane Rail Beam

Submit written field survey results for overhead, bridge crane rail beam verifying tolerance requirements, area out of tolerance and proposed corrective measures. Tolerances shall be in accordance with requirements of CMAA 70.

1.5.2.2 Erection Plan

Submit for record purposes. Indicate the sequence of erection, temporary shoring and bracing, and a detailed sequence of welding, including each welding procedure required.

1.5.2.3 Welding Procedures and Qualifications

Prior to welding, submit certification for each welder stating the type of welding and positions qualified for, the code and procedure qualified under, date qualified, and the firm and individual certifying the qualification tests. If the qualification date of the welding operator is more than one-year old, the welding operator's qualification certificate shall be accompanied by a current certificate by the welder attesting to the fact that he has been engaged in welding since the date of certification, with no break in welding service greater than 6 months.

PART 2 PRODUCTS

2.1 STEEL

2.1.1 Structural Steel

ASTM A 36/A 36M.

2.1.2 Structural Steel Tubing

ASTM A 500, Grade B; ASTM A 501.

2.1.3 Steel Pipe

ASTM A 53, Type E or S, Grade B, weight class STD (Standard).

2.2 BOLTS, NUTS, AND WASHERS

Provide the following unless indicated otherwise.

2.2.1 Structural Steel

2.2.1.1 Bolts

ASTM A 307, Grade A; ASTM A 325, Type 1. The bolt heads and the nuts of the supplied fasteners must be marked with the manufacturer's identification mark, the strength grade and type specified by ASTM specifications.

2.2.1.2 Nuts

ASTM A 563, Grade and Style for applicable ASTM bolt standard recommended.

2.2.1.3 Washers

ASTM F 844 washers for ASTM A 307 bolts, and ASTM F 436 washers for ASTM A 325 bolts.

2.2.2 High-Strength Structural Steel

2.2.2.1 Bolts

ASTM A 325, Type 1 ASTM A 490, Type 1 or 2.

2.2.2.2 Nuts

ASTM A 563, Grade and Style as specified in the applicable ASTM bolt standard.

2.2.2.3 Washers

ASTM F 436, plain carbon steel.

2.2.3 Weathering Structural Steel

2.2.3.1 Bolts

ASTM A 325, Type 3; ASTM A 490, Type 3.

2.2.3.2 Nuts

ASTM A 563, heavy hex style, Grade DH3, except Grade C3 may be furnished for ASTM A 325 bolts.

2.2.3.3 Washers

ASTM F 436, weathering steel.

2.2.4 Foundation Anchorage

2.2.4.1 Bolts

ASTM A 307.

2.2.4.2 Nuts

ASTM A 563, Grade A, hex style.

2.2.4.3 Washers

ASTM F 844.

2.2.5 Load Indicator Washers

ASTM F 959. Provide ASTM B 695, Class 50, Type 1 galvanizing.

2.3 STRUCTURAL STEEL ACCESSORIES

2.3.1 Welding Electrodes and Rods

AWS D1.1/D1.1M.

2.3.2 Nonshrink Grout

ASTM C 1107, with no ASTM C 827 shrinkage. Grout shall be nonmetallic.

2.3.3 Welded Shear Stud Connectors

AWS D1.1/D1.1M.

2.3.4 Pins and Rollers

ASTM A 668/A 668M, Class C, D, F, or G; ASTM A 108, Grades 1016 to 1030. Provide as specified in AASHTO HB-17, Division II, Sections 10.26 and 10.27, except provide pins in lengths to extend a minimum of 0.25 inch beyond the outside faces of the connected parts.

2.4 GALVANIZING

ASTM A 123/A 123M or ASTM A 153/A 153M, as applicable, unless specified otherwise galvanize after fabrication where practicable.

2.5 OVERHEAD, BRIDGE CRANE RAILS

AISC 316 and AISC 317 , 4000 pound crane rail section and bolted joints. Provide rail fasteners and rail lengths as shown on the drawings. Crane rail splices are prohibited.

2.6 FABRICATION

2.6.1 Markings

Prior to erection, members shall be identified by a painted erection mark. Connecting parts assembled in the shop for reaming holes in field connections shall be match marked with scratch and notch marks. Do not locate erection markings on areas to be welded. Do not locate match markings in areas that will decrease member strength or cause stress concentrations. Affix embossed tags to hot-dipped galvanized members.

2.6.2 Shop Primer

Shop prime structural steel, except as modified herein, in accordance with SSPC PA 1. Do not prime steel surfaces embedded in concrete, galvanized surfaces, or surfaces within 0.5 inch of the toe of the welds prior to welding (except surfaces on which metal decking is to be welded). Slip critical surfaces shall be primed with a Class B coating. Prior to assembly, prime surfaces which will be concealed or inaccessible after assembly. Do not apply primer in foggy or rainy weather; when the ambient temperature is below 45 degrees F or over 95 degrees F; or when the primer may be exposed to temperatures below 40 degrees F within 48 hours after application, unless approved otherwise by the Contracting Officer.

2.6.2.1 Cleaning

SSPC SP 6, except steel exposed in spaces above ceilings, attic spaces, furred spaces, and chases that will be hidden to view in finished construction may be cleaned to SSPC SP 3 when recommended by the shop primer manufacturer. Maintain steel surfaces free from rust, dirt, oil, grease, and other contaminants through final assembly.

2.6.2.2 Primer

Apply primer to a minimum dry film thickness of 2.0 mil except provide the Class B coating for slip critical joints in accordance with the coating manufacturer's recommendations. Repair damaged primed surfaces with an additional coat of primer.

2.6.3 Surface Finishes

ASME B46.1 maximum surface roughness of 125 for pin, pinholes, and sliding bearings, unless indicated otherwise.

PART 3 EXECUTION

3.1 FABRICATION

Fabrication shall be in accordance with the applicable provisions of AISC 316. Fabrication and assembly shall be done in the shop to the greatest extent possible. The fabricating plant shall be certified under the AISC FCD for Category a structural steelwork. Compression joints depending on contact bearing shall have a surface roughness not in excess of 500 micro inches as determined by ASME B46.1, and ends shall be square within the tolerances for milled ends specified in ASTM A 6/A 6M. Structural steelwork, except surfaces of steel to be encased in concrete, surfaces to be field welded, surfaces to be fireproofed, and contact surfaces of friction-type high-strength bolted connections shall be prepared for painting in accordance with endorsement "P" of AISC FCD and primed with the specified paint.

3.2 INSTALLATION

3.2.1 Overhead, Bridge Cranes

Runway rails and beams shall be provided in accordance with AISC 316 and AISC 317 and CMAA 70, except that in case of conflict, the requirements of CMAA 70 shall govern. In addition, provide a maximum vertical difference of 0.03 inch in the elevation between adjacent runway rail tops and adjacent runway beam tops at joints. Provide adjustable runway support connections to allow placement of the crane rails and beams to the tolerances specified. Stagger runway rail joints a minimum of one foot, except that the stagger shall not be the same as the crane wheel spacing.

3.3 ERECTION

- a: Erection of structural steel, except as indicated in item b. below, shall be in accordance with the applicable provisions of AISC 316. Erection plan shall be reviewed, stamped and sealed by a licensed structural engineer.

Provide for drainage in structural steel. After final positioning of steel members, provide full bearing under base plates and bearing plates using nonshrink grout. Place nonshrink grout in accordance with the manufacturer's instructions.

3.3.1 STORAGE

Material shall be stored out of contact with the ground in such manner and location as will minimize deterioration.

3.4 CONNECTIONS

Except as modified in this section, connections not detailed shall be designed in accordance with AISC 335. Build connections into existing work. Do not tighten anchor bolts set in concrete with impact torque wrenches. Punch, subpunch and ream, or drill bolt holes. Bolts, nuts, and washers shall be clean of dirt and rust, and lubricated immediately prior to installation.

3.4.1 Common Grade Bolts

ASTM A 307 bolts shall be tightened to a "snug tight" fit. "Snug tight" is the tightness that exists when plies in a joint are in firm contact. If firm contact of joint plies cannot be obtained with a few impacts of an impact wrench, or the full effort of a man using a spud wrench, contact the Contracting Officer for further instructions.

3.4.2 High-Strength Bolts

ASTM A 325 and ASTM A 490 bolts shall be fully tensioned to 70 percent of their minimum tensile strength. Provide load indicator bolts or washers in all ASTM A 325M or ASTM A 490 bolted connections, except provide only load indicator washers for slip critical connections. Direct tension indicator tightening, or installation of alternate design fasteners, shall be the only acceptable tightening methods. Use only direct tension indicator tightening for slip critical connections. Bolts shall be installed in connection holes and initially brought to a snug tight fit. After the initial tightening procedure, bolts shall then be fully tensioned, progressing from the most rigid part of a connection to the free edges.

3.4.2.1 Installation of Load Indicator Washers (LIW)

ASTM F 959. Where possible, the LIW shall be installed under the bolt head and the nut shall be tightened. If the LIW is installed adjacent to the turned element, provide a flat ASTM F 436 washer between the LIW and nut when the nut is turned for tightening, and between the LIW and bolt head when the bolt head is turned for tightening. In addition to the LIW, provide flat ASTM F 436 washers under both the bolt head and nut when ASTM A 490 bolts are used.

3.5 WELDING

AWS D1.1/D1.1M. Provide AWS D1.1/D1.1M qualified welders, welding operators, and tackers.

The contractor shall develop and submit the Welding Procedure Specifications (WPS) for all welding, including welding done using prequalified procedures. Prequalified procedures may be submitted for information only; however, procedures that are not prequalified shall be submitted for approval.

3.5.1 Removal of Temporary Welds, Run-Off Plates, and Backing Strips

Removal is not required.

3.6 SHOP PRIMER REPAIR

Repair shop primer in accordance with the paint manufacturer's recommendation for surfaces damaged by handling, transporting, cutting, welding, or bolting.

3.6.1 Field Priming

Field priming of steel exposed to the weather, or located in building areas without HVAC for control of relative humidity. After erection, the field bolt heads and nuts, field welds, and any abrasions in the shop coat shall be cleaned and primed with paint of the same quality as that used for the shop coat.

3.7 GALVANIZING REPAIR

Provide as indicated or specified. Galvanize after fabrication where practicable. Repair damage to galvanized coatings using ASTM A 780 zinc rich paint for galvanizing damaged by handling, transporting, cutting, welding, or bolting. Do not heat surfaces to which repair paint has been applied.

3.8 FIELD QUALITY CONTROL

Perform field tests, and provide labor, equipment, and incidentals required for testing. The Contracting Officer shall be notified in writing of defective welds, bolts, nuts, and washers within 7 working days of the date of weld inspection.

3.8.1 Welds

3.8.1.1 Visual Inspection

AWS D1.1/D1.1M. Furnish the services of AWS-certified welding inspectors for fabrication and erection inspection and testing and verification inspections. Welding inspectors shall visually inspect and mark welds, including fillet weld end returns.

3.8.1.2 Nondestructive Testing

AWS D1.1/D1.1M. Should visual inspections determine the need for non-destructive testing, test locations shall be selected by the AWS-certified welding inspector. If more than 20 percent of welds made by a welder contain defects identified by testing, then all welds made by that welder shall be tested by radiographic or ultrasonic testing, as approved by the Contracting Officer. When all welds made by an individual welder are required to be tested, magnetic particle testing shall be used only in areas inaccessible to either radiographic or ultrasonic testing. Retest defective areas after repair.

3.8.2 Load Indicator Washers

3.8.2.1 Load Indicator Washer Compression

Load indicator washers shall be tested in place to verify that they have been compressed sufficiently to provide the 0.015 inch gap when the load indicator washer is placed under the bolt head and the nut is tightened, and to provide the 0.005 inch gap when the load indicator washer is placed under the turned element, as required by ASTM F 959.

3.8.3 Overhead, Top Running Crane Rails and Beams

Runway rails and beams shall be surveyed (horizontally and vertically) after installation to verify compliance with the tolerance requirements of CMAA 70 and the additional tolerance requirements specified in this section. After each survey, submit a written report to the Contracting Officer with the following information: field survey results, tolerance requirements, areas out of tolerance, and proposed corrective measures. Proposed corrective measures shall be approved by the Contracting Officer. Following completion of corrective measures, areas that were previously out of tolerance shall be re-surveyed and another written report shall be furnished to the Contracting Officer. Field surveys shall be performed and sealed by a registered land surveyor.

3.8.4 High-Strength Bolts

3.8.4.1 Testing Bolt, Nut, and Washer Assemblies

Test a minimum of 3 bolt, nut, and washer assemblies from each mill certificate batch in a tension measuring device at the job site prior to the beginning of bolting start-up. Demonstrate that the bolts and nuts, when used together, can develop tension not less than the provisions specified in AISC 348, Table 4, depending on bolt size and grade. The bolt tension shall be developed by tightening the nut. A representative of the manufacturer or supplier shall be present to ensure that the fasteners are properly used, and to demonstrate that the fastener assemblies supplied satisfy the specified requirements.

3.8.4.2 Inspection

Inspection procedures shall be in accordance with AISC 348, Section 9. Confirm and report to the Contracting Officer that the materials meet the project specification and that they are properly stored. Confirm that the faying surfaces have been properly prepared before the connections are assembled. Observe the specified job site testing and calibration, and confirm that the procedure to be used provides the required tension. Monitor the work to ensure the testing procedures are routinely followed on joints that are specified to be fully tensioned.

3.8.5 Testing for Embrittlement

ASTM A 143 for steel products hot-dip galvanized after fabrication.

-- End of Section --

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DIVISION 05 - METALS

SECTION 05500A

MISCELLANEOUS METAL

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SECTION 05500A

MISCELLANEOUS METAL

PART 1 GENERAL

1.1 REFERENCES

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

ALUMINUM ASSOCIATION (AA)

AA DAF-45 (1997) Designation System for Aluminum Finishes

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A14.3 (1992) Ladders - Fixed - Safety Requirements

ANSI MH28.1 (1982) Design, Testing, Utilization, and Application of Industrial Grade Steel Shelving

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 123/A 123M (2001) Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

ASTM A 283/A 283M (2000) Low and Intermediate Tensile Strength Carbon Steel Plates

ASTM A 36/A 36M (2000a) Carbon Structural Steel

ASTM A 467/A 467M (1998) Machine and Coil Chain

ASTM A 475 (1998) Zinc-Coated Steel Wire Strand

ASTM A 500 (1999) Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

ASTM A 53/A 53M (2001) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless

ASTM A 653/A 653M (2000) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

ASTM A 924/A 924M (1999) General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process

ASTM B 221	(2000) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
ASTM B 221M	(2000) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric)
ASTM B 26/B 26M	(1999) Aluminum-Alloy Sand Castings
ASTM B 429	(2000) Aluminum-Alloy Extruded Structural Pipe and Tube
ASTM D 2047	(1999) Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine
ASTM E 814	(2000) Fire Tests of Through-Penetration Fire Stops
ASTM F 1267	(1991; R 1997) Metal, Expanded, Steel
AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)	
ASCE 7	(1998) Minimum Design Loads for Buildings and Other Structures
AMERICAN WELDING SOCIETY (AWS)	
AWS D1.1/D1.1M	(2000) Structural Welding Code - Steel
NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)	
NAAMM MBG 531	(1994) Metal Bar Grating Manual
NAAMM MBG 532	(1994) Heavy Duty Metal Bar Grating Manual
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)	
NFPA 10	(1998; Errata 10-98-1) Portable Fire Extinguishers
NFPA 211	(2000) Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances
U.S. GENERAL SERVICES ADMINISTRATION (GSA)	
CID A-A-344	(Rev B) Lacquer, Clear Gloss, Exterior, Interior

1.2 SUBMITTALS

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

SD-02 Shop Drawings

Miscellaneous Metal Items; G.

Detail drawings indicating material thickness, type, grade, and class; dimensions; and construction details. Drawings shall include catalog cuts, erection details, manufacturer's descriptive data and installation instructions, and templates. Detail drawings for the following items: [_____]

1.3 GENERAL REQUIREMENTS

The Contractor shall verify all measurements and shall take all field measurements necessary before fabrication. Welding to or on structural steel shall be in accordance with AWS D1.1/D1.1M. Items specified to be galvanized, when practicable and not indicated otherwise, shall be hot-dip galvanized after fabrication. Galvanizing shall be in accordance with ASTM A 123/A 123M, ASTM A 653/A 653M, or ASTM A 924/A 924M, as applicable. Exposed fastenings shall be compatible materials, shall generally match in color and finish, and shall harmonize with the material to which fastenings are applied. Materials and parts necessary to complete each item, even though such work is not definitely shown or specified, shall be included. Poor matching of holes for fasteners shall be cause for rejection. Fastenings shall be concealed where practicable. Thickness of metal and details of assembly and supports shall provide strength and stiffness. Joints exposed to the weather shall be formed to exclude water.

1.4 DISSIMILAR MATERIALS

Where dissimilar metals are in contact, or where aluminum is in contact with concrete, mortar, masonry, wet or pressure-treated wood, or absorptive materials subject to wetting, the surfaces shall be protected with a coat of bituminous paint or asphalt varnish.

1.5 WORKMANSHIP

Miscellaneous metalwork shall be well formed to shape and size, with sharp lines and angles and true curves. Drilling and punching shall produce clean true lines and surfaces. Welding shall be continuous along the entire area of contact except where tack welding is permitted. Exposed connections of work in place shall not be tack welded. Exposed welds shall be ground smooth. Exposed surfaces of work in place shall have a smooth finish, and unless otherwise approved, exposed riveting shall be flush. Where tight fits are required, joints shall be milled. Corner joints shall be coped or mitered, well formed, and in true alignment. Work shall be accurately set to established lines and elevations and securely fastened in place. Installation shall be in accordance with manufacturer's installation instructions and approved drawings, cuts, and details.

1.6 ANCHORAGE

Anchorage shall be provided where necessary for fastening miscellaneous metal items securely in place. Anchorage not otherwise specified or indicated shall include slotted inserts made to engage with the anchors, expansion shields, and power-driven fasteners when approved for concrete; toggle bolts and through bolts for masonry; machine and carriage bolts for steel; and lag bolts and screws for wood.

1.7 SHOP PAINTING

Surfaces of ferrous metal except galvanized surfaces, shall be cleaned and shop coated with the manufacturer's standard protective coating unless otherwise specified. Surfaces of items to be embedded in concrete shall not be painted. Items to be finish painted shall be prepared according to manufacturer's recommendations or as specified.

PART 2 PRODUCTS

2.1 FLOOR GRATINGS AND FRAMES

Carbon steel grating shall be designed in accordance with [NAAMM MBG 531] [NAAMM MBG 532] to meet the indicated load requirements. Edges shall be banded with bars 1/4 inch less in height than bearing bars for grating sizes above 3/4 inch. Banding bars shall be flush with the top of bearing grating. Frames shall be of welded steel construction finished to match the grating. Floor gratings and frames shall be galvanized after fabrication.

2.2 HANDRAILS

Handrails shall be designed to resist a concentrated load of 200 pounds in any direction at any point of the top of the rail or 20 pounds per foot applied horizontally to top of the rail, whichever is more severe.

2.3 LADDERS

Ladders shall be steel, fixed rail type in accordance with ANSI A14.3.

2.4 MISCELLANEOUS

Miscellaneous plates and shapes for items that do not form a part of the structural steel framework, such as lintels, sill angles, miscellaneous mountings, and frames, shall be provided to complete the work.

2.5 SAFETY CHAINS

Safety chains shall be galvanized welded steel, proof coil chain tested in accordance with ASTM A 467/A 467M, Class CS. Safety chains shall be straight link style, 3/16 inch diameter, minimum 12 links per foot and with bolt type snap hooks on each end. Eye bolts for attachment of chains shall be galvanized 3/8 inch bolt with 3/4 inch eye, anchored as indicated. Two chains shall be furnished for each guarded opening.

PART 3 EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

All items shall be installed at the locations shown and according to the manufacturer's recommendations. Items listed below require additional procedures as specified.

3.2 ATTACHMENT OF HANDRAILS

Toeboards and brackets shall be installed where indicated. Splices, where required, shall be made at expansion joints. Removable sections shall be installed as indicated.

3.3 MOUNTING OF SAFETY CHAINS

Safety chains shall be mounted 3 feet 6 inches and 2 feet above the floor.

-- End of Section --

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SECTION 14630A

OVERHEAD ELECTRIC CRANES

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN GEAR MANUFACTURERS ASSOCIATION (AGMA)

AGMA 390.03A	(1980; Errata 1983; R 1998) Gear Handbook Gear Classification, Materials and Measuring Methods for Bevel, Hypoid, Fine Pitch Wormgearing and Racks Only as Unassembled Gears (Partially replaced by AGMA 2000-A)
AGMA 2000	(1988; Rev. A) Gear Classification and Inspection Handbook
AGMA 2001	(1995; Rev. C) Fundamental Rating Factors and Calculation Methods for Involute Spur and Helical Gear Teeth
AGMA 6010	(1997; Rev. F) Standard for Spur, Helical, Herringbone and Bevel Enclosed Drives
AGMA 6019	(1989; Rev E) Gearmotors Using Spur, Helical, Herringbone, Straight Bevel, or Spiral Bevel Gears

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC ASD Manual	(1989) Manual of Steel Construction Allowable Stress Design
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AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 159	(1983; R 1993) Automotive Gray Iron Castings
ASTM A 325	(1997) Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM A 668/A 668M	(1996e1) Steel Forgings, Carbon and Alloy, for General Industrial Use
ASTM B 438	(1995ae1) Sintered Bronze Bearings (Oil-Impregnated)

ASTM B 439	(1995) Iron-Base Sintered Bearings (Oil-Impregnated)
ASTM B 612	(1996) Iron Bronze Sintered Bearings (Oil-Impregnated)
ASTM B 633	(1985; R 1998) Electrodeposited Coatings of Zinc on Iron and Steel
ASTM E 125	(1963; R 1993) Magnetic Particle Indications on Ferrous Castings
AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)	
ASHRAE 90.1	(1989; 90.1b; 90.1c; 90.1d; 90.1e; 90.1g; 90.1i 90.11-1995; 90.1m-1995; 90.1n-1997) Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings
ASME INTERNATIONAL (ASME)	
ASME B30.2	(1996) Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist)
ASME B30.16	(1998)Overhead Hoist (Underhung)
ASME B30.17	(1998) Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist)
ASME HST-1M	(1989; R 1995) Electric Chain Hoists
ASME HST-2M	(1989; R 1995) Hand Chain Manually Operated Chain Hoists
ASME HST-3M	(1991, R 1996) Manually Lever Operated Chain Hoists
ASME HST-4M	(1991; R 1996) Performance Standard for Overhead Electric Wire Rope Hoists
ASME HST-5M	(1991; R 1996) Air Chain Hoists
ASME HST-6M	(1986; R 1995) Air Wire Rope Hoists
ASME NOG-1	(1995) Rules for Construction of Overhead and Gantry Cranes (Top Running Bridge, Multiple Girder)
AMERICAN WELDING SOCIETY (AWS)	
AWS D14.1	(1997) Industrial and Mill Cranes and Other Material Handling Equipment
MATERIAL HANDLING INDUSTRY OF AMERICA (MHI)	
MHI CMAA 70	(1994) Electric Overhead Traveling Cranes

MHI CMAA 74 (1994) Top Running & Under Running Single Girder Electric Overhead Traveling Cranes Utilizing Under Running Trolley Hoist

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA ICS 2 (1993) Industrial Control and Systems, Controllers, Contactors, and Overload Relays Rated Not More Than 2,000 Volts AC or 750 Volts DC

NEMA ICS 6 (1993) Industrial Control and Systems, Enclosures

NEMA MG 1 (1993; Rev 1; Rev 2; Rev 3; Rev 4) Motors and Generators

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70 (1999) National Electrical Code

UNDERWRITERS LABORATORIES (UL)

UL 50 (1995; Rev thru Oct 1997) Enclosures for Electrical Equipment

UL 489 (1996; Rev thru Dec 1998) Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures

UL 943 (1993; Rev thru May 1998) Ground-Fault Circuit-Interrupters

UL 1449 (1985; Errata Apr 1986; Rev Oct 1998) Transient Voltage Surge Suppressors

1.2 SUBMITTALS

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

SD-02 Shop Drawings

Electric Overhead Cranes; G

Detail drawings containing complete wiring and schematic diagrams. Diagrams shall indicate each numbered wire, where wire initiates, where wire terminates, and any other details required to demonstrate that the system has been coordinated and will properly function as a unit. Drawings shall show layout and anchorage of equipment and appurtenances, and equipment relationship to other parts of the work including clearances for maintenance and operation.

SD-03 Product Data

Hooks; G

Hook material and any heat treatment performed, stamped on the hook shank or documented in certification papers furnished with the hooks. Crane test data recorded on appropriate test record forms suitable for retention for the life of the crane.

Electric Overhead Cranes; G

A complete list of equipment and materials, including manufacturer's descriptive data and technical literature, performance charts and curves, catalog cuts, and installation instructions.

Spare Parts;

Spare parts data for each different item of material and equipment specified, after approval of the detail drawings and not later than 1 month prior to the date of beneficial occupancy. The data shall include a complete list of parts and supplies, with current unit prices and source of supply.

Framed Instructions; G

Diagrams, instructions and safety requirements.

SD-06 Test Reports

Acceptance Testing; G

Test reports in booklet form showing all field tests performed to adjust each component and all field tests performed to prove compliance with the specified performance criteria, upon completion and testing of the installed system. The report shall include the information as required by paragraph ACCEPTANCE TESTING.

SD-10 Operation and Maintenance Data

Electric Overhead Cranes; G

Six copies of operation and six copies of maintenance manuals for the equipment furnished. One complete set prior to performance testing and the remainder upon acceptance. Operation manuals shall detail the step-by-step procedures required for system startup, operation and shutdown. Operation manuals shall include the manufacturer's name, model number, parts list, and brief description of all equipment and basic operating features. Maintenance manuals shall list routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guides. Maintenance manuals shall include piping and equipment layout and simplified wiring and control diagrams of the system as installed. Operation and maintenance manuals shall be approved prior to the field training course.

1.3 QUALIFICATION

Electric overhead cranes shall be designed and manufactured by a company

with a minimum of 10 years of specialized experience in designing and manufacturing the type of overhead crane required to meet requirements of the Contract Documents.

1.4 TESTING AND INSPECTIONS

1.4.1 Pre-Delivery Inspections

Contractor shall be responsible for performance of quality control inspections, testing and documentation of steel castings, and hook assembly as follows.

1.4.2 Inspection of Steel Castings

Load-carrying steel castings shall be visually inspected and tested using the magnetic-particle inspection method. Allowable degree of discontinuities shall be referenced to ASTM E 125, and shall be related to service loads and stresses, critical configuration, location and type. Methods of repairing the discontinuities shall be subject to review by the Contracting Officer.

1.4.3 Inspection of Hook Assembly

Hook and nut shall be inspected by a magnetic-particle type inspection or X-rayed prior to delivery. Documentation of hook inspection shall be furnished to Contracting Officer at the field operational testing. As part of the acceptance standard, linear indications will not be allowed. Welding repairs of hook will not be permitted. A hook showing linear indications, damage or deformation will not be accepted, and shall be replaced.

1.5 DESIGN CRITERIA

Cranes shall operate in the given spaces and shall match the runway dimensions and rails indicated. Hook coverage, hook vertical travel, clear hook height, lifting capacity, and load test weight shall not be less than that indicated.

1.5.1 Classification

Crane shall be designed and constructed to MHI CMAA 70 Class A, Standby or Infrequent service requirements for operation in hazardous environment with hoist in accordance with ASME HST-1M .

1.5.2 Rated Capacity and Speeds

Rated capacity of crane shall be 2 tons. Lower load block or assembly of hook, swivel bearing sheaves, pins and frame suspended by the hoisting ropes shall not be considered part of the rated capacity. Rated speeds (in feet per minute) for the hoist shall be as follows:

Description	Rated Speeds	
	Minimum	Maximum
Main Hoist	5	10

1.6 DELIVERY AND STORAGE

Equipment delivered and placed in storage shall be stored with protection from the weather, humidity and temperature variations, dirt and dust, and other contaminants.

1.7 FIELD MEASUREMENTS

Before performing any work, Contractor shall become familiar with all details of the work, verify all dimensions in the field, and submit a letter describing the results of this verification including discrepancies to the Contracting Officer and crane manufacture.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 General

Materials and equipment shall be standard products of manufacturers regularly engaged in the fabrication of complete and totally functional cranes including necessary ancillary equipment.

2.1.2 Nameplates

Nameplates shall be secured to each major component of equipment with the manufacturer's name, address, type or style, model or catalog number, and serial number.

2.1.3 Use of Asbestos Products

Materials and products required for designing and manufacturing cranes shall not contain asbestos.

2.1.4 Capacity Plates

Two capacity plates indicating the crane capacity in tons are required, one secured to each side of bridge. Each capacity plate shall be fabricated of a steel backing plate and exterior quality/fade-resistant stick-on labels with letters large enough to be easily read from the floor. Capacity plates shall be placed in a location visible to pendant operator's position after the crane has been installed.

2.1.5 Safety Warnings

Readable warning labels shall be affixed to each lift block or control pendant in a readable position in accordance with ASME B30.16, ASME B30.2 and ASME B30.17. The word "WARNING" or other legend shall be designed to bring the label to the attention of the operator. Warning labels shall be durable type and display the following information concerning safe-operating procedures: Cautionary language against lifting more than the rated load; operating the hoist when the hook is not centered under the hoist; operating hoist with twisted, kinked or damaged rope; operating damaged or malfunctioning hoist; operating a rope hoist with a rope that is not properly seated in its hoist drum groove; lifting people; lifting loads over people; and removing or obscuring the warning label.

2.1.5.1 Directional Arrows

To avoid operation of crane in the wrong direction, the words "FORWARD" and "REVERSE" and accompanying directional arrows shall be affixed in a

location on the trolley and bridge which are visible and readable to the operator from pendant station. The words "FORWARD" and "REVERSE" shall agree with the markings on control pendant. Directional arrows shall not be indicated on control pendant.

2.2 STRUCTURAL MATERIALS

2.2.1 Bolts, Nuts and Washers

High-strength bolted connections shall utilize SAE Grade 5 bolts with corresponding lockwashers, nuts, etc., conforming to requirements of AISC ASD Manual bolts. Bolts, nuts and washers shall conform to ASTM A 325 bolts. Galvanized bolts are not acceptable.

2.2.2 Bridge Girders or Girders

Bridge girders shall be wide flange beams as indicated in the plans.

2.2.3 Bridge End Trucks

End trucks shall be the rotating or fixed axle type fabricated of structural tubes or from structural steel to provide a rigid box section structure. Jacking pads shall be provided for removal of wheel assemblies.

2.2.4 Trolley Frame

Trolley frame shall be as indicated in the contract drawings. Pads shall be provided for the use of jacks or wedges when changing truck wheels. All trolley yokes and load bars shall be of drop forged, cast or rolled steel.

2.2.5 Stops and Bumpers

Crane runways and bridge girders shall be fitted with structural steel end stops. Bridge end trucks and trolley frames shall be fitted with shock-absorbing type bumpers capable of decelerating and stopping the bridge and/or trolley within the limits stated by OSHA and MHI CMAA. Trolley end stops shall be of sufficient strength to withstand the impact of a fully loaded trolley moving at 50 percent of maximum rated travel speed.

2.2.6 Runway Rails

The runway rail size shall be as specified by the contract drawings.

2.2.7 Additional Provisions for Outside Service

Welded structural members on outdoor cranes shall be seal welded. Crane bridges shall be provided with parking brakes which will sufficiently hold the crane against a wind pressure of 5 psf for in-service conditions. Crane bridges shall be provided with manually-operated pin locks at each rail, designed to securely anchor the crane against a wind pressure of 30 psf for out-of-service conditions.

2.3 MECHANICAL EQUIPMENT

2.3.1 Load Blocks

2.3.1.1 Hoist Load Blocks

Load blocks shall be of welded steel construction. Load blocks shall be provided with hot-rolled or forged steel fixed crosshead separate from the sheave pin with swivel mounting for forged steel hook. Each lubrication fitting for sheave pins shall be an independent type recessed within the sheave pin or adequately guarded to prevent damage. The pitch diameter of the sheaves shall be not less than 16 times the rope diameter. Sheaves shall be supported by roller type bearings on steel sheave pins. Provisions for external lubrication shall be provided to allow pressure relief and purging of old grease. Sheave blocks shall be constructed to provide maximum personnel safety and to prevent the hoist rope from leaving the sheaves under normal operating condition.

2.3.1.2 Hook Assembly

Hooks shall be single barbed and shall be made of forged steel complying with ASTM A 668/A 668M. Hooks shall be fitted with safety latches designed to preclude inadvertent displacement of slings from the hook saddle. Painting or welding shall not be performed on the hook. Hook nut shall be secured with a removable type set screw or other similar fastener, but shall not be welded. Hooks shall be designed and commercially rated with safety factors in accordance with MHI CMAA. The hook shall be free to rotate through 360 degrees when supporting the rated load.

2.3.2 Hoisting Ropes

Hoisting ropes shall be regular lay, preformed, uncoated, improved plow steel, 6 by 37 construction, with independent wire rope core. Ropes shall be suited to meet the service requirements. Rope socketing or U-bolt clip connections shall be made in accordance with clip or rope manufacturer's recommendation, and shall be equal to or greater than the rope strength. Hoisting ropes shall be the rated capacity load plus the load block weight divided by the number of rope parts, and shall not exceed 20 percent of the certified breaking strength of rope. Hoisting ropes shall be secured to hoist drum so that no less than two wraps of rope remain at each anchorage of hoist drum at the extreme low position (limit switch stop).

2.3.3 Sheaves

Sheaves shall be of cast, forged, rolled, or welded structural steel. Sheave grooves shall be accurately machined, smoothly finished and free of surface defects.

2.3.4 Hoist Drums

Hoist drums shall be of welded rolled structural steel, cast steel, or seamless steel pipe. Drums shall be machined and provided with right-hand and left-hand grooves to take the full run of cable for the required lift without overlapping, plus a minimum of two full wraps of cable when load is on floor. At least one groove shall remain unused when hook is at the highest position. Drum grooves shall be cut from solid stock and have sufficient depth for size of cable required. Drum flanges shall be guarded so that the cable cannot wedge between drum flange and hoist frame.

2.3.5 Brakes

Brakes shall be of the shoe, disc, or conical type with thermal capacity suitable for class and service specified in this section. Shoe, disc, and conical brakes shall be spring-set or electrically-released by a continuously rated direct acting magnet. Brakes shall be self-aligning and

provide for easy adjustment for torque setting and lining wear. Brake lining material shall be asbestos free. Brake wheels shall be cast iron conforming to ASTM A 159 or shall be the manufacturer's standard high-strength ductile cast-iron, provided that the material exhibits wear characteristics in the form of powdered wear particles and is resistant to heat-checking. Disc brakes shall be totally enclosed and have multiple discs with stationary releasing magnets. Brake torque shall be easily adjustable over a 2:1 torque range.

2.3.5.1 Hoist Holding Brakes

Each hoist shall be equipped with at least 2 holding brakes. Holding brake shall be disc, shoe, or conical design, applied to one of the following: motor shaft or gear reducer shaft or rope drum. Braking system shall be designed to have zero hook lowering motion when a raise motion is initiated. Primary brake shall be a spring-set, electrically-released, disc, shoe, or conical type brake. Brake shall have a minimum torque rating of 150 percent of motor torque. Brake shall be capable of holding the rated load with zero hook drift. Primary brake shall be automatically set when controls are released or when power is interrupted. Provisions shall be made to facilitate easy brake adjustment. Hoists shall be furnished with mechanical-control braking or a power-control braking system. Typical power means include dynamic lowering, eddy-current braking, counter-torque, regenerative braking, variable frequency, and adjustable or variable voltage.

2.3.6 Wheels

Wheels shall be manufactured of rolled or forged steel. Bridge and trolley wheels shall be double-flanged. Trolley wheels shall have straight treads. Bridge wheels shall have straight treads. Wheels shall be equipped with self-aligning double-row spherical roller-bearings of capacity as recommended by bearing manufacturer for design load of trolley or bridge.

2.3.7 Bearings

Bearings shall be antifriction type, except bearings which are subject only to small rocker motion. Equalizer sheaves shall be equipped with sintered oil-impregnated type bushings in accordance with ASTM B 438, ASTM B 439, or ASTM B 612.

2.3.8 Anti-Drip Provisions

Cranes shall be designed to preclude leakage of lubricants onto the lifted loads or the floor. Equipment and components which cannot be made leak-proof shall be fitted with suitable drip pans. Drip pans shall be manufactured of steel and designed to permit removal of collected lubricant.

2.4 ELECTRICAL COMPONENTS

2.4.1 Power Sources

2.4.1.1 System Supply Voltage

Cranes shall be designed to be operated from a 230/460 volt system power source. Energy isolating devices for such machine or equipment shall be designed to accept a lockout device in accordance with NFPA 70.

2.4.1.2 Transformers

Transformers shall be dry type suitable for the application.

2.4.2 Motors

2.4.2.1 Main Hoist Motor

Hoist motor shall be single-speed; single-winding, two-speed; two-winding, NEMA design D squirrel cage ac type, wound-rotor type ac type, or ac squirrel cage type for use in ac adjustable frequency control systems.

2.4.3 Electric Brakes

2.4.3.1 Hoist Brake Time Delay

One of the hoist holding brakes shall be provided with a time-delay setting (from 1 to 3 seconds). The time-delay shall be initiated upon releasing the control pushbutton or returning the master switch to OFF. Operation of mainline POWER-OFF pushbutton or power failure shall result in each hoist brake's setting without any time-delay.

2.4.4 Protection

2.4.4.1 Main Line Disconnect

A main line disconnect consisting of a combination circuit breaker (50,000 AIC) and non-reversing starter, starter without overloads (mainline contactor) shall be provided. Mainline disconnect shall be controlled by a control circuit so that all crane motions will be stopped upon mainline undervoltage, overload, control circuit fuse failure, or operation of POWER OFF pushbutton. Mainline disconnect shall be equipped with energy isolating devices designed to accept lockout devices.

2.4.4.2 Isolation Transformer

The isolation transformer shall be an SCR drive type specifically designed for cranes, with a continuous rating which will exceed that required of the sum of rated full-load full-speed KVA of hoist plus 50 percent of rated full-load full-speed KVA of trolley and bridge motors plus the rated KVA of controls. Total KVA is then multiplied by 1.05 (efficiency factor). The isolation transformer shall be connected to load side of mainline disconnect of the transformer.

2.4.4.3 Surge Protection

Surge suppressors shall meet the requirements of UL 1449. Three metal oxide varistors shall be provided on the line side of each SCR drive isolation transformer to provide transient over-voltage protection.

2.4.4.4 Circuit Breakers

Circuit breakers shall meet the requirements of UL 489.

2.4.4.5 Overloads

Alternating current circuit overload relays shall be of the ambient compensated, automatic reset, inverse time type located in all phases individual motor circuits. Overload relays shall be arranged to de-energize the associated motor on an overload condition.

2.4.5 Wiring

Wires shall be numbered or tagged at connection points. Splices shall be made in boxes or panels on terminals boards or standoff insulators. Motor loop, branch circuit and brake conductor selection shall be based on NFPA 70 for 90 degree C conductor rating on indoor cranes, and for 75 degree C conductor rating on outdoor cranes. Wire insulation shall be Type XHHW. Conductors in the vicinity of resistors and conductors connected to resistors shall be Type 5RML.

2.4.6 Electrification

2.4.6.1 Main Power Electrification

Main power electrification system shall provide power to crane starter/disconnect circuit breaker.

2.4.6.2 Pendant Festoon System

Pendant festoon system shall consist of, cables, junction boxes, cable cars and accessories. Cable loops shall not drop below the hook high position. Pendant control car shall be provided with NEMA Type 1, 3R, or 12 junction box. Pendant festoon shall be towed by trolley. Outdoor crane pendant festoon system hardware shall be corrosion resistant.

2.4.7 Special Requirements

2.4.7.1 Accessory Power

Three-phase 208Y/120 volt ac power supplied via a circuit breaker and isolation transformer from the line side of the main line disconnect shall be used for any accessory circuits on the platform. The enclosure shall have provisions to lock the breaker in the OFF position. Each circuit breaker pole shall have individual thermal and magnetic trip elements, and the enclosure cover shall be complete with a button for mechanically tripping the circuit breaker. A three-phase 480 volt delta primary and 208Y/120 volt wye secondary general lighting transformer shall be supplied from the accessory circuit breaker and shall feed a 208Y/120 volt UL listed circuit breaker panelboard and a heater circuit breaker/combination starter. The panelboard shall supply branch circuits for utilization of receptacles.

2.4.7.2 Receptacles

Receptacles shall be single-phase, 120-volt 15-amp, grounded, duplex types complete with metal weather-proof enclosure with self-closing weatherproof receptacle cover. Receptacles shall be installed at locations shown in contract drawings. Breakers used to protect circuits supplying the receptacles for outside cranes shall incorporate ground fault current interruption feature and meet the requirements of UL 943.

PART 3 EXECUTION

3.1 ERECTION

The entire hoist erection shall be performed in accordance with manufacturer's instructions under the full-time supervision of the manufacturer's representative. Contractor shall provide a written

certificate from crane manufacturer indicating the hoist is erected in accordance with manufacturer's recommendations before testing the completed installation.

3.1.1 Shop Assembly

Major crane components shall be shop assembled as completely as possible. Disassembled parts shall be match marked and electrical connections tagged after complete no-load shop testing. Parts and equipment at site shall be protected from weather, damage, abuse and loss of identification. Erection procedures shall ensure that the crane is erected without initial stresses, forced or improvised fits, misalignments, nicks of high-strength structural steel components, stress-raising welds and rough burrs. Damaged painted surfaces shall be cleaned and repainted after crane is erected.

3.1.2 Mechanical Alignment

Motors, couplings, brakes, gear boxes and drive components shall be aligned when reinstalled in accordance with manufacturer's instructions.

3.1.3 Electrical Alignment

Control system shall be aligned in accordance with manufacturer's instructions. A copy of the final alignment data shall be stored in control panel door and shall include but not be limited to timer settings, resistor tap settings, potentiometer settings, test-point voltages, supply voltages, motor voltages, motor currents and test conditions such as ambient temperature, motor load, date performed and person performing the alignment.

3.1.4 Welding

Welders, welding operations and welding procedures shall be qualified or prequalified in accordance with AWS D14.1. Welding shall be performed indoors and the surface of parts to be welded shall be free from rust, scale, paint, grease or other foreign matter. Minimum preheat and interpass temperatures shall conform to the requirements of AWS D14.1. Welding shall be performed in accordance with written procedures which specify the Contractor's standard dimensional tolerances for deviation from camber and sweep. Such tolerances shall not exceed those specified in accordance with AWS D14.1. Allowable stress ranges shall be in accordance with MHI CMAA 70. Welding of girders and beams shall conform with AWS D14.1.

3.1.5 Field Painting

Painting required for surfaces not otherwise specified, and finish painting of items only primed at the facility, shall be as specified in Section 09900 PAINTING, GENERAL. Bridge crane including bridge, trolley, hoist and all attached items shall be painted in accordance with the manufacturer's standard practice. The complete crane shall be of one color. Bridge rail, supports and bracing shall be painted in accordance with Section 09900 PAINTING, GENERAL. Items such as surfaces in contact with the rail wheels, wheel tread, hooks, wire rope, surfaces on the electrical collector bars in contact with the collector shoes and nameplates shall not be painted. The requirements of explosion proof cables shall be coordinated with cable manufacturer.

3.2 ACCEPTANCE TESTING

3.2.1 General

Contractor shall provide all personnel necessary to conduct the required testing which shall include but not be limited to riggers, rigging gear and test weights. Testing shall be performed in the presence of Contracting Officer or his designated representative. Contractor shall notify Contracting Officer 7 days prior to testing operations. Contractor shall operate all equipment and make all necessary corrections and adjustments prior to the testing operations witnessed by Contracting Officer. A representative of the Contractor responsible for procuring and installing hoist equipment shall be present to direct the field testing. Test loads shall be compact and permit a minimum of 50 percent of vertical lift. Test loads shall be minus 0 percent to plus 5 percent of the required weight, and shall be verified prior to testing. Test weights required are 500 pounds, 2000 pounds and 2500 pounds. Three copies of all test reports shall be furnished to Contracting Officer.

3.2.1.1 Test Sequence

Hoist shall be tested in accordance with applicable paragraphs of this procedure in the sequence provided.

3.2.1.2 Test Data

Operating and startup current measurements shall be recorded for hoist using the appropriate instrumentation. Speed measurements shall be recorded as required by facility evaluation tests (normally at 100 percent load). Recorded values shall be compared with design specifications or manufacturer's recommended values and the abnormal differences shall be justified in the remarks or appropriate adjustments performed. The high temperatures or abnormal operation of any equipment or machinery shall be noted, investigated and corrected. Hoist speeds shall be recorded during each test cycle.

3.2.1.3 Equipment Monitoring

Improper operation or poor condition of safety devices, electrical components, mechanical equipment and structural assemblies shall be monitored during the load test. Defects observed to be critical during the testing period shall be reported immediately to the Contracting Officer and the testing operations shall be suspended until the defects are corrected. During each load test and immediately following each load test, the following inspections shall be made:

- a. Inspect for evidence of bending, warping, permanent deformation, cracking or malfunction of structural components.
- b. Inspect for evidence of slippage in wire rope sockets and fittings.
- c. Check for overheating in brake operation; check for proper stopping. All safety devices including emergency stop switches and POWER-OFF pushbuttons shall be tested and inspected separately to verify proper operation of the brakes. When provided, safety accessories including warning horn, lighting, gauges, warning lights and accuracy of wind indicating device and alarm shall be inspected.
- d. Check for abnormal noise or vibration and overheating in machinery drive components.

- e. Check wire rope sheaves and drum spooling for proper reeving and operation, freedom of movement, abnormal noise or vibration.
- f. Check electrical drive components for proper operation, freedom from chatter, noise, overheating, and lockout/tagout devices for energy isolation.
- g. Inspect gears for abnormal wear patterns, damage, or inadequate lubrication.
- h. Verify that locations of crane capacity plates are visible from pendant operator's position.

3.2.1.4 Hooks

Hooks shall be measured for hook throat spread before and after load test. A throat dimension base measurement shall be established by installing two tram points and measuring the distance between the tram points to within 1/64 inch. This base dimension shall be recorded. Distance between tram points shall be measured before and after load test. An increase in throat opening by more than 1 percent from base measurement shall be cause for rejection.

3.2.2 No-Load Testing

3.2.2.1 Hoist Operating and Limit Switch Test

Load hook shall be raised and lowered through the full range of normal travel at rated speed and other crane speeds. Load hook shall be stopped below the geared limit-switch upper setting. The test shall be repeated a sufficient number of times (minimum of 3) to demonstrate proper operation. Brake action shall be tested in each direction. Proper time-delay shall be verified between the actuation of dual brakes.

3.2.2.2 Trolley Travel

Trolley shall be operated the full distance of bridge rails.

3.2.2.3 Bridge Travel

Bridge shall be operated in each direction the full distance of runway.

3.2.2.4 Hoist Loss of Power No-Load Test

Using the primary drive, hooks shall be raised to a height of approximately 12 feet or less. While slowly lowering the hook the main power source shall be disconnected, verifying that the hook will not lower and that both brakes will set. Test shall be repeated using micro-drive controls.

3.2.3 Load Test

3.2.3.1 Hoist

Unless otherwise indicated, the following tests shall be performed using a test load of 125 percent (plus 5 percent, minus 0 percent) of rated load.

- a. Hoist Static Load Test: Holding brakes and hoisting components shall be tested by raising the test load approximately 1 foot and

manually releasing one of the holding brakes. Load shall be held for 10 minutes. First holding brake shall be reapplied and second holding brake released. Load shall be held for 10 minutes. Any lowering that may occur indicates a malfunction of brakes or lowering components.

- b. Dynamic Load Test: Test load shall be raised and lowered through the full range operating in each speed. Machinery shall be completely stopped at least once in each direction to ensure proper brake operation.
- c. Hoist Mechanical Load Brake: With test load raised approximately 5 feet and with the hoist controller in the neutral position, holding brake shall be released. Mechanical load brake shall be capable of holding the test load. With holding brake in released position, test load shall be lowered (first point) and the controller shall be returned to OFF position as the test load lowers. Mechanical load brake shall prevent the test load from accelerating.
- d. Hoist Loss of Power Test: After raising test load to approximately 8 feet, slowly lowering the test load, the main power source and control pushbutton shall be released verifying that the test load will not lower and that both brakes will set.
- e. Trolley Dynamic Load Test: While operating the trolley the full distance of bridge rails in each direction with test load on the hook (one cycle).
- f. Bridge Dynamic Load Test: With test load on hook, bridge shall be operated for the full length of runway in both directions with trolley at each extreme end of bridge.

3.2.4 Overload Tests

After the operational tests, bridge crane system and all functions of bridge crane shall be tested at 125 percent of rated load.

3.2.5 Grounding Test

Hoist shall be tested to determine that the hoist, including hook and pendant, are grounded to building during all phases of hoist operation. The grounding of bridge and trolley shall be tested with approximately 10 percent of rated load on hook. Grounding shall be tested between hoist hook and the structure's grounding system.

3.2.6 Adjustments and Repairs

Adjustments and repairs shall be performed by Contractor under the direction of the Contracting Officer at no additional cost to the Government, until satisfactory conditions are maintained, and contract compliance is affected. After adjustments are made to assure correct functioning of the components, pertinent testing shall be repeated.

3.3 SCHEMATIC DIAGRAMS

Schematic diagrams for equipment shall be stored where indicated on drawings.

3.4 MANUFACTURER'S FIELD SERVICE REPRESENTATIVE

Contractor shall furnish a qualified experienced manufacturer's field service representative to supervise the crane installation, assist in the performance of the on site testing, and instruct personnel in the operational and maintenance features of the equipment.

3.5 FIELD TRAINING

Contractor shall conduct a training course for the operating staff. Training period shall start after the system is functionally completed but prior to final acceptance. Course instructions shall cover pertinent points involved in operating, starting, stopping, and servicing the equipment, including all major elements of operation and maintenance manual. Course instructions shall demonstrate all routine maintenance operations such as lubrication, and general inspection. Contracting Officer shall be given at least 2 weeks advance notice of field training.

-- End of Section --