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SECTION 01025

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SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 LUMP SUM PAYMENT ITEMS

1.1.1 General

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

1.1.2 Lump Sum Item

a. "NOAA Gauge House (Alpena)" [Item No. 0001]

(1) Payment will be made for costs associated with mobilization and demobilization, construction general conditions, and all other work necessary to provide a completed project as defined in contract drawings and specifications.

(2) Unit of measure: Lump Sum.

b. "NOAA Gauge House (West Neebish)" [Item No. 0002]

(1) Payment will be made for costs associated with mobilization and demobilization, construction general conditions, and all other work necessary to provide a completed project as defined in contract drawings and specifications.

(2) Unit of measure: Lump Sum.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01090

SOURCES FOR REFERENCE PUBLICATIONS

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## SECTION 01090

## SOURCES FOR REFERENCE PUBLICATIONS

## PART 1 GENERAL

## 1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the sponsoring organization, e.g. UL 1 (1993; Rev thru Jan 1995) Flexible Metal Conduit. However, when the sponsoring organization has not assigned a number to a document, an identifying number has been assigned for convenience, e.g. UL's unnumbered 1995 edition of their Building Materials Directory is identified as UL-01 (1995) Building Materials Directory. The sponsoring organization number (UL 1) can be distinguished from an assigned identifying number (UL-01) by the lack of a dash mark (-) in the sponsoring organization assigned number.

## 1.2 ORDERING INFORMATION

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

## ACI INTERNATIONAL (ACI)

P.O. Box 9094  
Farmington Hills, MI 48333-9094  
Ph: 248-848-3700  
Fax: 248-848-3801  
Internet: <http://www.aci-int.org>

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

11 West 42nd St  
New York, NY 10036  
Ph: 212-642-4900  
Fax: 212-398-0023  
Internet: [www.ansi.org/](http://www.ansi.org/)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

100 Barr Harbor Drive  
West Conshohocken, PA 19428-2959  
Ph: 610-832-9500  
Fax: 610-832-9555  
Internet: [www.astm.org](http://www.astm.org)

AMERICAN WELDING SOCIETY (AWS)

550 N.W. LeJeune Road  
Miami, FL 33126  
Ph: 305-443-9353  
Fax: 305-443-7559  
Internet: <http://www.amweld.org>

ENGINEERING MANUALS (EM)

USACE Publications Depot  
Attn: CEIM-SP-D  
2803 52nd Avenue  
Hyattsville, MD 20781-1102  
Ph: 301-394-0081  
Internet: <http://www.usace.army.mil/publications>

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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-AOF

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.

#### 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.

#### 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.

### 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 SE (.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 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 Government.

#### 1.4.2 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-HH-W; P.O. Box 1027; Detroit, Michigan 48231.

#### 1.4.3 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.

#### 1.4.4 Vehicular Access

Throughout the period of work on this contract, the Contractor shall maintain an all-weather roadway through or around its work area when work therein would otherwise block an existing roadway. Such permanent or temporary roadways shall be kept open for use by emergency vehicles, as well as residential and commercial traffic at all times.

#### 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 Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper prosecution of the work under this contract. Haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic. The method of dust control shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Contracting Officer. Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads shall be removed unless otherwise approved by the Contracting Officer. Any dirt or mud which is tracked onto paved or surfaced roadways shall be promptly cleaned away.

#### 1.4.6.2 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 available to Government representatives during duty hours, 8 a.m. to 4:30 p.m., on normal working days and shall be available by telephone at other times. The name of the Contractor's representative and the contact 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 Layout of Work and Surveys

##### 1.4.12.1 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).

##### 1.4.12.2 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.

##### 1.4.12.3 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.

##### 1.4.12.4 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 REPORT REQUIREMENTS

### 1.6.1 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.

### 1.6.2 Payrolls and Basic Records

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

### 1.6.3 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 by those with adequate as-built technician's qualifications. The Contractor shall eliminate text that employs future tense instructions and label the principle commercial components by manufacturer, model and size. All drawing details shall be updated to show the installed roof system.

PART 3 EXECUTION (NOT APPLICABLE)

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01101

REAL ESTATE

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PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

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## SECTION 01101

## REAL ESTATE

## PART 1 GENERAL

## 1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only 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

Additional Property Agreements; G-RED.

Copies of any agreements for Contractor-acquired real estate rights for this project shall be furnished before entering thereon.

## 1.2 REGULATORY REQUIREMENTS

## 1.2.1 Real Estate Rights

Rights for the use of the Government-furnished areas have been obtained and the general limits of the areas are shown on the drawings. Conformance to all applicable requirements of the instruments conveying rights is required. Two (2) copies of each instrument will be furnished to the Contractor. All real estate lakeward of the Ordinary High Water Mark (Elevation [581.5] feet) is under Federal jurisdiction and no permit or agreements are necessary for work therein except as specified in SECTION 01100, "SPECIAL PROJECT PROCEDURES", Paragraph, "Additional Work Proposed and Not Authorized". No other real estate rights have been obtained by the Government for this project.

## 1.2.2 Additional Real Estate Rights

Any additional property agreements and/or real estate rights desired by the Contractor shall be obtained by the Contractor at its own expense. Such agreements shall clearly relieve the Government of any responsibility for damages or liability resulting from the Contractor's use of such grounds.

## 1.3 PROJECT/SITE CONDITIONS

### 1.3.1 Location and Verification

It shall be the Contractor's responsibility to accurately locate the limits of all lands utilized under the contract. The corner and angle points of each area for which rights have been obtained shall be marked with semipermanent markers except where there is an approved existing property marker. Temporary markers shall be placed at points on alignment. The points on alignment shall be marked at stations so that intervals between points do not exceed 200 feet.

### 1.3.2 Survey Markers

All markers shall be installed in an area prior to its use and they shall be available for reference during and upon completion of use of the area. Where approved existing property markers are found, a witness stake, as specified in Subparagraph, "Semipermanent Markers" below, shall be provided. If the types of markers specified hereinafter cannot be used, other types, as approved by the Contracting Officer, shall be provided.

#### 1.3.2.1 Semipermanent Markers

The markers shall be a steel rod one-half inch in diameter and four (4) feet long. The steel rod shall be driven vertically into the ground so that the top is flush with the finished ground surface. Each marker shall be witnessed by a 2" x 2" yellow stake extending two (2) feet above the ground surface and driven into the ground until stable, with not less than one (1) foot penetration.

#### 1.3.2.2 Temporary Markers

Markers shall be 2" x 2", red-colored, wood hub stakes driven into the ground until stable (not less than one (1) foot penetration) with two (2) feet projecting above the ground surface. If the period in which temporary markers are to be in place exceeds one (1) construction season, a more permanent type of marker, as approved, shall be provided.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

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SECTION 01102

DIVING

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.

ASSOCIATION OF DIVING CONTRACTORS (ADC)

ADC Manual Manual of Safe Practices in Commercial Diving

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910 Occupational Safety and Health Standards, Subpart T

29 CFR 1910.420 OSHA Safe Practices Manual

ENGINEER MANUAL (EM)

EM 385-1-1 (Nov 2003) Safety and Health Requirements Manual

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

Diving Plan; G-ECD

Submit a diving plan for all diving phases and aspects of the inspection and construction operations to be performed under this contract within 10 calendar days following receipt of Notice to Proceed. The requirements for the diving plan submittal are described in EM 385-1-1. Diving shall not be performed prior to the plan being approved by the Detroit District Dive Coordinator.

SD-07 Certificates

Training, Qualifications and Medical Certificates

All required certification and data described in EM 385-1-1 shall be submitted at least 30 calendar days prior to commencing diving operations.

1.3 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. The most stringent requirements of referenced standards identified and complied with.
- b. All required submittals satisfactorily made and work performed in accordance with approved dive plan.
- c. All diving teams composed of the required numbers of persons of each classification.
- d. Observance of safety regulations, as noted in the ADC Manual, the Manual of Safe Practices in Commercial Diving, 29 CFR 1910.420 of the OSHA Safe Practices Manual, and Subpart T of 29 CFR 1910 of the Occupational Safety and Health Standards.

## PART 2 PRODUCTS (Not Applicable)

## PART 3 EXECUTION

### 3.1 DIVING OPERATIONS

Diving operations are required by the Contractor for all work accomplished underwater and three (3) days advance notice must be given for all diving work. All diving operations shall be conducted in accordance with the most stringent standards specified in this Section and referenced in the Article "REFERENCES" of this Section. (Up-to-date standards take precedence over out-dated standards.) Within EM 385-1-1 those provisions pertaining to contract diving operations apply to this contract. The Contractor shall maintain on-site complete copies of all dive plans, diving standards, manuals, memorandums, training, qualifications and medical certificates for divers, and regulations it is required to comply with and make them accessible during normal working hours to all persons engaged in the work on this contract, including Government and regulatory personnel. Diving operations shall be planned in advance and coordinated with Government On-site representative.

#### 3.1.1 Numbers of Persons for Dive Teams

Every dive team performing under this contract shall be composed of not less than the number of persons of each classification specified in EM 385-1-1.

##### 3.1.1.1 Standby Diver

The required standby diver on every dive team shall, without exception, be a diver at the dive location who is on the surface, out of the water, and available to assist divers in the water. A standby diver must be dressed for immediate entry into the water. A standby diver must not have dived within the previous twelve (12) hours.

### 3.2 DIVING WORK

The unique functions, responsibilities and safety precautions applicable to the dive team for each component of the work shall be described in detail

in the diving plan, the work plan and the Accident Prevention plan for this contract. All diving operations shall be stringently monitored and executed. The Contractor shall be responsible for the safety of the work, the workers and other persons present during all construction operations.

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## SECTION 01130

## ENVIRONMENTAL PROTECTION

## PART 1 GENERAL

## 1.1 REFERENCES

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

## CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 261 Identification and listing of Hazardous Waste

## ENGINEERING MANUALS (EM)

EM 385-1-1 (3 Sept. 1996) U.S. Army Corps of Engineers Safety and Health Requirements Manual

## 1.2 DEFINITIONS

Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents that adversely affect human health or welfare; unfavorably alter ecological balances of plant or animal communities; or degrade the environment from an aesthetic, cultural or historic perspective. Environmental protection is the prevention/control of pollution and habitat disruption that may occur during construction. The control of environmental pollution and damage requires consideration of air, water, land, biological and cultural resources (archaeological and historic resources); and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive materials; and other pollutants.

## 1.3 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

Environmental Protection Plan; G-ECD.

Submit in writing an Environmental Protection Plan within ten (10) calendar days after receipt of Notice to Proceed. See Article titled ENVIRONMENTAL PROTECTION PLAN for details.

Retention Pond Removal Plan; G-ECD.

Submit plan detailing Contractor's procedures for testing retention pond sediment and for removal of the sediment.

#### 1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor shall be knowledgeable of and comply with all applicable Federal, State, and local laws, regulations, permits and licenses concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations. Note any unique requirements for this contract in the environmental pollution control plan. Also see Clauses titled "CLEAN AIR AND WATER" and "PERMITS AND RESPONSIBILITIES." The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction.

##### 1.4.1 Protection of Features

This section supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS. The Contractor shall prepare a list of features requiring protection under the provisions of the contract clause which are not specially identified on the drawings as environmental features requiring protection. The Contractor shall confine its activities to areas defined by the drawings and specifications. The Contractor shall protect those environmental features, indicated specially on the drawings or in the specifications, in spite of interference which their preservation may cause to the Contractor's work under the contract.

##### 1.4.2 Permits

The Contractor shall obtain any necessary permits and licenses that have not been obtained by the Government. This section supplements the Contractor's responsibility under the contract clause PERMITS AND RESPONSIBILITIES to the extent that the Government has already obtained environmental permits. The Contractor shall comply with the terms, and conditions of these permits. The Contractor shall also comply with other environmental commitments made by the Government, including any environmental documents pertaining to the project.

##### 1.4.3 Environmental Assessment of Contract Deviations

The Contract specifications have been prepared to comply with the special conditions and mitigation measures of an environmental nature which were established during the planning and development of this project. The Contractor is advised that deviations from the drawings or specifications (e.g., proposed alternate borrow areas, disposal areas, staging areas, alternate access routes, etc.) could result in the requirement for the Government to reanalyze the project from an environmental standpoint. Deviations from the construction methods and procedures indicated by the plans and specifications which may have an environmental impact will

require a extended review, processing, and approval time by the Government. The Contracting Officer reserves the right to disapprove alternate methods, even if they are more cost effective, if the Contracting Officer determines that the proposed alternate method will have an adverse environmental impact.

#### 1.5 ENVIRONMENTAL PROTECTION PLAN

The Contractor shall submit an Environmental Protection Plan for review and acceptance by the Contracting Officer. The Government will consider an interim plan for the first 30 days of operations. However, the Contractor shall furnish an acceptable final plan not later than 30 calendar days after receipt of the Notice to Proceed. Acceptance is conditional and is predicated upon satisfactory performance during construction. The Government reserves the right to require the Contractor to make changes in the Environmental Protection Plan or operations if the Contracting Officer determines that environmental protection requirements are not being met. The plan shall detail the actions which the Contractor shall take to comply with all applicable Federal, State, and local laws and regulations concerning environmental protection and pollution control and abatement, as well as the additional specific requirements of this contract. The Contractor shall refer to the applicable existing environmental documentation to ensure that the natural, historic, and cultural resources specific or unique to this project are protected. Any necessary coordination with and/or notices to all interested agencies and the public have been made by the Government for environmental documentation prepared by the Government. Copies of the documents are available for review at the offices of the Detroit District, Programs and Project Management Division, Environmental Analysis Branch, 7th Floor, 477 Michigan Avenue, Detroit, MI 48226. No physical work at the site shall begin prior to acceptance of the Contractor's plan or an interim plan covering the work to be performed. The environmental protection plan shall include, but not be limited to, the following:

##### 1.5.1 Federal, State and Local Laws and Regulations

The Contractor shall be knowledgeable of all Federal, State and local environmental laws and regulations which apply to the construction operations under the Contract and shall list any unique requirements applicable to this contract as part of the Environmental Protection Plan.

##### 1.5.2 Spill Control Plan

The Contractor shall include as part of the Environmental Protection Plan, a Spill Control Plan. The plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by the Emergency Response and Community Right-to-Know Act or regulated under State or local laws or regulations. The Spill Control Plan supplements the requirements of EM 385-1-1. This plan shall include as a minimum:

- a. The name of the individual who will be responsible for implementing and supervising the containment and cleanup.
- b. Training requirements for Contractor's personnel and methods of accomplishing the training.

c. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.

d. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency.

e. The methods and procedures to be used for expeditious contaminant cleanup.

f. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the Contracting Officer in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity spill occurs. The plan shall contain a list of the required reporting channels and telephone numbers.

#### 1.5.3 Recycling and Waste Minimization Plan

The Contractor shall submit a Recycling and Waste Minimization Plan as a part of the Environmental Protection Plan. The plan shall detail the Contractor's actions to comply with the following recycling and waste minimization requirements:

a. The Contractor shall participate in State and local government sponsored recycling programs to reduce the volume of solid waste materials at the source.

#### 1.5.4 Contaminant Prevention Plan

As a part of the Environmental Protection Plan, the Contractor shall prepare a contaminant prevention statement identifying potentially hazardous substances to be used on the job site and intended actions to prevent accidental or intentional introduction of such materials into the air, water, or ground. The Contractor shall detail provisions to be taken to meet Federal, State, and local laws and regulations regarding the storage and handling of these materials.

#### 1.5.5 Environmental Monitoring

The Contractor shall include in the plan the details of environmental monitoring requirements under the laws and regulations and a description of how this monitoring will be accomplished, including, but not limited to, monitoring of land, air, and water resources, including noise, odors and vibrations.

### PART 2 PRODUCTS (NOT APPLICABLE)

### PART 3 EXECUTION

#### 3.1 SPECIAL ENVIRONMENTAL PROTECTION REQUIREMENTS

##### 3.1.1 Work Area Limits

Prior to any construction, the Contractor shall mark the areas where the work is to be performed under this contract. Isolated areas within the general work area which are to be saved and protected shall also be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible during darkness. The Contractor shall convey to its personnel the purpose of marking and/or protection of all necessary objects.

### 3.1.2 Protection of Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features to be preserved, indicated and defined on the drawings submitted by the Contractor as a part of the Environmental Protection Plan shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques. Vegetated soil surfaces disturbed by construction activities shall be re-vegetated as soon as practicable after completing operations in the disturbed area.

#### 3.1.2.1 Tree Protection

No ropes, cables, or guys shall be fastened to or attached to any tree(s) for anchorage unless specifically authorized by the Contracting Officer. Where such special use is permitted, the Contractor shall provide effective protection to prevent damage to the tree and other land and vegetative resources. Unless specifically authorized by the Contracting Officer, no construction equipment or materials shall be placed or used within the drip line of trees shown on the drawings to be saved. No excavation or fill shall be permitted within the drip line of trees to be saved except as shown on the drawings.

### 3.1.3 Reduction of Exposure of Unprotected Erodible Soils

Earthwork brought to final grade shall be finished as indicated and specified. Where stormwater/erosion control requirements of the drawings and specifications conflict with those of the NPDES Permit for Stormwater Discharges from Construction Sites (if such permit is required), the NPDES permit requirement will prevail. Side slopes and back slopes shall be protected as soon as practicable upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils. Except in instances where the constructed features obscures borrow areas, quarries and waste material areas, these areas shall not initially be cleared in total. Clearing of such areas shall progress in reasonably sized increments as needed to use the areas developed as approved by the Contracting Officer.

#### 3.1.3.1 Temporary Protection of Disturbed Areas

Such methods as necessary shall be utilized to effectively prevent erosion and control sedimentation.

##### a. Retardation and Control of Runoff

Runoff from the construction site shall be controlled by construction of diversion ditches, benches, and berms to retard

and divert runoff to protected drainage courses, and the Contractor shall also utilize any measure required by area-wide plans approved under Section 208 of the Clean Water Act.

b. Sediment Basins

Sediment from construction areas shall be trapped in temporary or permanent sediment basins in accordance with basin plans shown on the contract drawings. The basins shall accommodate the runoff of a local design year storm. After each storm the basins shall be pumped dry and accumulated sediment shall be removed as necessary to maintain basin effectiveness. Overflow shall be controlled by paved weir or by vertical overflow pipe, draining from the surface. The Contractor shall institute effluent quality monitoring programs as required by State and local environmental control agencies.

3.1.3.2 Erosion and Sedimentation Control Devices

The Contractor shall construct or install all temporary erosion and sedimentation control features as may be required. Temporary erosion and sediment control measures such as berms, dikes, drains, sedimentation basins, plastic sheeting or geotextile over staked straw bales, grassing and mulching shall be maintained until permanent drainage and erosion control facilities are completed and operative.

3.1.4 U.S. Department of Agriculture (USDA) Quarantined Considerations

The Contractor shall thoroughly clean all construction equipment at the prior job site in a manner that ensures all residual soil is removed and that egg deposits from plant pests are not present to prevent the spread of non-indigenous and/or pest species. The Contractor shall consult with the USDA Plant Protection and Quarantine (USDA - PPQ) jurisdictional office for additional cleaning requirements that may be necessary.

3.1.4.1 Control of Non-Indigenous Aquatic Nuisance Species

The Contractor shall conduct diligent watercraft operating practices to prevent the spread of Non-Indigent Aquatic Nuisance Species (ANS). Such practices shall include, but not be limited to, cleaning equipment on-site to prevent the spread of seeds, eggs, larvae, or other dispersal vectors (e.g. do not transport soil and plant matter from one location to another); and discharging or exchanging ballast water or other water from a vessel of any type only at a location where the chances for survival of ANS are minimal, such as at cold, deep regions of Lake Michigan which are far from shore.

3.1.5 Commercial Borrow

Prior to bringing commercially obtained borrow material on site, the Contractor shall provide the Contracting Officer with the location of the pit or pits, the names of the owners and operators, and the types and estimated quantities of materials to be obtained from each source.

3.1.6 Disposal of Waste Materials

Disposal of any materials, waste, effluents, trash, garbage, unsatisfactory excavated materials, oil, grease, chemicals, etc., in areas adjacent to streams, rivers, or lakes and in areas not authorized for waste disposal shall not be permitted. If any waste material is dumped or placed in unauthorized areas, the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area. If necessary, ground which has become contaminated through the fault or negligence of the Contractor shall be excavated, disposed of as directed by the Contracting Officer, and replaced with suitable fill material compacted and finished with topsoil and planted as required to re-establish vegetation, all at the expense of the Contractor. Disposal of waste, trash and other materials off the project site shall be in accordance with all applicable Federal, State, and local laws, rules and regulations. Removed vegetation, including trees, shall be put to beneficial reuse and not placed into landfills.

#### 3.1.6.1 Disposal of Solid Wastes

Solid waste is rubbish, debris, waste materials, garbage, and other discarded solid materials (excluding clearing debris and hazardous waste as defined in following paragraphs). Solid waste shall be placed in containers and disposed of on a regular schedule. All handling and disposal shall be conducted in such a way as to prevent spillage and contamination. The Contractor shall transport and dispose of all solid waste in compliance with Federal, State, and local requirements.

#### 3.1.6.2 Disposal of Chemical Waste

Chemical waste shall be stored in corrosion resistant containers, removed from the work area and disposed of in accordance with Federal, State, and local laws, rules and regulations.

#### 3.1.6.3 Spillages

Special measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, ashes, sawdust, waste washings, herbicides and insecticides, rubbish or sewage, and other pollutants from entering public waters.

#### 3.1.7 Clearing Debris

Clearing debris is trees, tree stumps, tree trimmings, and shrubs, and leaves, vegetative matter, excavated natural materials (e.g., dirt, sand, and rock), and demolition products (e.g., brick, concrete, glass, and metals).

a. The Contractor shall collect trees, tree stumps, tree trimmings, shrubs, leaves, and other vegetative matter; and shall transport from Government property for proper disposal in compliance with Federal, State, and local requirements. The Contractor shall segregate the matter where appropriate for proper disposal. Untreated and unpainted scrap lumber may be disposed of with this debris where appropriate.

b. Excavated natural materials shall be transported from Government

property for proper disposal in compliance with Federal, State, and local requirements.

c. Demolition products shall be transported from Government property for proper disposal in compliance with Federal, State, and local requirements.

### 3.1.8 Disposal of Contractor Generated Hazardous Wastes

Hazardous wastes are hazardous substances as defined in 40 CFR 261, or as defined by applicable State and local regulations. Hazardous waste generated by construction activities shall be removed from the work area and be disposed in compliance with Federal, State, and local requirements. The Contractor shall segregate hazardous waste from other materials and wastes, and shall protect it from the weather by placing it in a safe covered location; precautionary measures against accidental spillage such as berming or other appropriate measures shall be taken. Hazardous waste shall be removed from Government property within 60 days. Hazardous waste shall not be dumped onto the ground, into storm sewers or open water courses, or into the sanitary sewer system. A copy of the manifest shall be provided to the Contracting Officer for any hazardous waste disposed of under this contract.

### 3.1.9 Fuels and Lubricants

Fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants and waste oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with Federal, State, and local laws and regulations.

### 3.1.10 Hydrocarbons, Carbon Monoxide, and Oxides of Nitrogen and Sulfur

Vapor/gaseous emissions of hydrocarbons, carbon monoxide, oxides of nitrogen and sulfur oxides from equipment shall be controlled to Federal and State limits at all times.

### 3.1.11 Odors

Odors from all construction activities, processing and preparation of shall be controlled at all times.

### 3.1.12 Ground Vibrations

Ground vibrations from construction activities shall be controlled at all times.

### 3.1.14 Protection from Sound Intrusions

The Contractor shall keep construction activities under surveillance and control to minimize damage to the environment by noise. Construction equipment shall be fitted with noise control devices.

## 3.2 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

### 3.2.1 Discovered Historic, Archaeological, and Cultural Resources

If, during construction activities, items are observed that may have historic or archaeological value (e.g., human remains or associated

objects, or artifacts are discovered), such items shall be protected in place and the observations shall be reported immediately to the Contracting Officer so that the District Archaeologist may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. The Contractor shall cease all activities that may result in impact to, or the destruction of, these resources. The Contractor shall prevent its employees from trespassing on, removing, or otherwise disturbing such resources.

### 3.3 PROTECTION OF WATER RESOURCES

The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters.

#### 3.3.1 Wastewater

Wastewater occurring as a result of any other construction activities shall not be discharged before being treated to remove pollutants. Wastewater shall not be allowed to enter streams, rivers, or lakes unless it meets Federal and State water quality criteria.

### 3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES

#### 3.4.1 Protection of Fish, Wildlife and Flora

The Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to and damage of fish, wildlife and flora. Species that require specific attention along with measures for their protection shall be listed by the Contractor prior to beginning construction operations. See Subparagraph titled "Environmental Protection Plan."

### 3.5 PROTECTION OF AIR RESOURCES

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

#### 3.5.1 Particulates

Airborne particulates, including dust particles, aerosols, and gaseous by-products from construction activities and processing and preparation of materials, shall be controlled at all times, including weekends, holidays, and hours when work is not in progress. The Contractor shall maintain all excavations, stockpiles, haul roads, permanent and temporary access roads,

plant sites, disposal sites, borrow areas, and all other work areas free from airborne dust which would cause a hazard or nuisance.

### 3.6 INSPECTION

If the Contracting Officer notifies the Contractor in writing of any observed noncompliance with contract requirements or Federal, State, or local laws, regulations, or permits, the Contractor shall inform the Contracting Officer of proposed corrective action and take such action to correct the noncompliance. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action is taken. No time extensions will be granted or costs or damages allowed to the Contractor for any such suspension.

### 3.7 MAINTENANCE OF POLLUTION CONTROL FACILITIES

The Contractor shall maintain all constructed pollution control facilities and portable pollution control devices for the duration of the Contract or for the length of time construction activities create the particular pollutant.

### 3.8 TRAINING OF CONTRACTOR PERSONNEL

Contractor personnel shall be trained in environmental protection and pollution control. The Contractor shall conduct environmental protection/pollution control meetings for all Contractor personnel monthly. The training and meeting agenda shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, installation and care of facilities (vegetative covers, etc.), and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control. Anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants, shall also be discussed. Other items required to be discussed shall include recognition and protection of archaeological sites, artifacts, and historic structures.

### 3.9 POST CONSTRUCTION CLEANUP OR OBLITERATION

The Contractor shall obliterate all signs of temporary facilities such as haul roads, work area, structures, stock piles of excess or waste materials, fencing, buoys, stakes, or other vestiges of construction within the work, storage and access areas or as directed by the Contracting Officer. Except for surfaced areas, the areas shall be restored to near natural conditions which will permit the growth of vegetation thereon. In areas where restoration to near natural conditions is not required, surfaces shall be evenly and smoothly dressed, sloped to drain, and the edges of the restored area graded to be flush with the surrounding existing grade even if original contours are not restored. All damaged non-surfaced areas shall be restored by topsoiling, fertilizing, seeding and mulching, unless otherwise specified or directed. The topsoiling, fertilizing, seeding, and mulching shall be in accordance with the applicable provisions of IDOT 1998, DIVISION 600, Section 621 "Seeding and Sodding".

### 3.10 RESTORATION OF LANDSCAPE

The Contractor shall restore all landscape features damaged or destroyed during construction operations outside the limits of the approved work areas. Such restoration shall be in accordance with the Contractor's

submitted plan, as approved by the Contracting Officer. The work shall be accomplished at the Contractor's expense.

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## SECTION 01312A

## QUALITY CONTROL SYSTEM (QCS)

## 1.1 GENERAL

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

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

## 1.1.1 Correspondence and Electronic Communications

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

## 1.1.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01330, SUBMITTAL PROCEDURES, and Section 01451, CONTRACTOR QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through QCS.

Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

## 1.2 QCS SOFTWARE

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

### 1.3 SYSTEM REQUIREMENTS

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

#### **Hardware**

IBM-compatible PC with 500 MHz Pentium or higher processor  
128+ MB RAM for work station/ 256+MB RAM for server.  
1 GB hard drive disk space for sole use by the QCS system  
3 1/2 inch high-density floppy drive  
Compact disk (CD) Reader 8X speed or higher  
SVGA or higher resolution monitor (1024X768, 256 colors)  
Mouse or other pointing device.  
Windows compatible printer. (Laser printer must have 4 MB+ of RAM)  
Connection to the Internet, minimum 56k BPS

#### **Software**

MS Windows 98, ME, NT, or 2000  
Word Processing software compatible with MS Word 97 or newer  
Latest version of; Netscape Navigator, Microsoft Internet Explorer, or other browser that supports HTML 4.0 or higher  
The Contractor's computer system shall be protected by virus protection software that is regularly upgraded with all issued manufacturer's updates throughout the life of the contract.  
Electronic mail (E-mail) MAPI compatible.

### 1.4 RELATED INFORMATION

#### 1.4.1 QCS User Guide

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

#### 1.4.2 Contractor Quality Control(CQC) Training

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

## 1.5 CONTRACT DATABASE

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

## 1.6 DATABASE MAINTENANCE

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

### 1.6.1 Administration

#### 1.6.1.1 Contractor Information

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

#### 1.6.1.2 Subcontractor Information

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

#### 1.6.1.3 Correspondence

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

#### 1.6.1.4 Equipment

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

#### 1.6.1.5 Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective

of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

## 1.6.2 Finances

### 1.6.2.1 Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

### 1.6.2.2 Payment Requests

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

## 1.6.3 Quality Control (QC)

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

### 1.6.3.1 Daily Contractor Quality Control (CQC) Reports.

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

### 1.6.3.2 Deficiency Tracking.

The Contractor shall use QCS to track deficiencies. Deficiencies

identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

#### 1.6.3.3 Three-Phase Control Meetings

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

#### 1.6.3.4 Accident/Safety Tracking.

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

#### 1.6.3.5 Features of Work

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

#### 1.6.3.6 QC Requirements

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

#### 1.6.4 Submittal Management

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

#### 1.6.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Contract Clause "Schedules for Construction Contracts", as applicable. This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange

Format (SDEF). The updated schedule data shall be included with each pay request submitted by the Contractor.

#### 1.6.6 Import/Export of Data

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

#### 1.7 IMPLEMENTATION

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

#### 1.8 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

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

##### 1.8.1 File Medium

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

##### 1.8.2 Disk or CD-ROM Labels

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

##### 1.8.3 File Names

The Government will provide the file names to be used by the Contractor with the QCS software.

#### 1.9 MONTHLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions. The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an

acceptable QCS export file is received.

1.10 NOTIFICATION OF NONCOMPLIANCE

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

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## SECTION 01330

## SUBMITTAL PROCEDURES

## PART 1 GENERAL

## 1.1 SUMMARY

## 1.1.1 Government-Furnished Information

Submittal register database and submittal management program will be delivered to the contractor, by contracting officer on 3 1/2 inch disk. Register database will have the following fields completed, to the extent that will be required by the Government during subsequent usage.

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

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

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

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

The database and submittal management program will be extractable from the disk furnished to contractor, for operation on contractor's IBM compatible personal computer with 640kb RAM, a hard drive, and 3 1/2 inch high density floppy disk drive.

## 1.2 DEFINITIONS

## 1.2 Submittal

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

## 1.3 Types of Submittals

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

- a. Shop drawings: As used in this section, drawings, schedules, diagrams, and other data prepared specifically for this contract, by contractor or through contractor by way of subcontractor, manufacturer, supplier, distributor, or other lower tier contractor, to illustrate portion of work.
- b. Product data: Preprinted material such as illustrations, standard schedules, performance charts, instructions, brochures, diagrams, manufacturer's descriptive literature, catalog data, and other data to illustrate portion of work, but not prepared exclusively for this contract.
- c. Samples: Physical examples of products, materials, equipment, assemblies, or workmanship that are physically identical to portion of work, illustrating portion of work or establishing standards for evaluating appearance of finished work or both.
- d. Administrative submittals: Data presented for reviews and approval to ensure that administrative requirements of project are adequately met but not to ensure directly that work is in accordance with design concept and in compliance with contract documents.

#### 1.4 Submittal Descriptions (SD)

##### SD-01 Preconstruction Submittals

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

##### SD-02 Shop Drawings

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

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

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

##### SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other

characteristics of materials or equipment for some portion of the work.

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

#### SD-04 Samples

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

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

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

#### SD-05 Design Data

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

#### SD-06 Test Reports

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

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

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

Investigation reports

Daily checklists

Final acceptance test and operational test procedure

#### SD-07 Certificates

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

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

Confined space entry permits.

#### SD-08 Manufacturer's Instructions

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

#### SD-11 Closeout Submittals

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

As-built drawings

Special warranties

Posted operating instructions

Training plan

### 1.5 SUBMITTAL CLASSIFICATION

Submittals are identified with submittal description (SD) numbers and are classified as follows:

#### 1.5.1 Government Approved

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

#### 1.5.2 Designated Reviewers

The organization designated to perform the review for approval for items requiring Government approval (GA) is identified by acronym in the REVIEWER column on the SUBMITTAL REGISTER, ENG FORM 4288 or ENG FORM 4288 (RMS). Following is a list of the acronyms used and their full description:

AOF = The Resident U.S. Army Corps of Engineers Area Office

RED = Real Estate Division, Detroit District, U.S. Army Corps of Engineers

AEN = The Architect/Engineer firm that designed the project

ECD = Engineering and Construction Division, Detroit District, U.S. Army Corps of Engineers

### 1.6 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory

construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

#### 1.7 DISAPPROVED SUBMITTALS

When a submittal is returned to the Contractor and marked "DISAPPROVED" or "APPROVED AS NOTED, REVISE AND RESUBMIT", the Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

#### 1.8 WITHHOLDING OF PAYMENT

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

#### PART 2 PRODUCTS (Not Applicable)

#### PART 3 EXECUTION3.1 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Submittals shall be made in the required number of copies and to the applicable Area Office. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and stamped in accordance with ARTICLE titled STAMPS, and approved by the CQC representative. Each respective transmittal form (ENG FORM 4025) shall be signed and dated by the CQC representative certifying that the accompanying submittal complies with the contract requirements. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

#### 3.2 SUBMITTAL REGISTER (ENG FORM 4288)

In Section 01999, is one set of ENG Form 4288 listing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required. The Contractor will also be given the submittal register as a diskette containing the computerized ENG Form 4288 and instructions on the use of

the diskette. Columns "d" through "r" have been completed by the Government; the Contractor shall complete columns "a" and "s" through "u" and submit the forms (hard copy plus associated electronic file) to the Contracting Officer for approval within 10 calendar days after receipt of the Notice to Proceed. The Contractor shall keep this diskette up-to-date and shall submit it to the Government together with the monthly payment request. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the contract. The submittal register and the progress schedules shall be coordinated.

### 3.2.1 Resident Management System

Reference is made to the RMS specified in PART 3 of SECTION 01451, CONTRACTOR QUALITY CONTROL and the applicable SUBMITTAL INFORMATION form enclosed in SECTION 01999. The Contractor is not required to make duplicate submittals and shall use the RMS form in lieu of ENG FORM 4288. An RMS software module will be supplied to the Contractor for running and utilizing the RMS program.

### 3.3 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 10 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals. An additional 5 calendar days shall be allowed and shown on the register for review and approval of submittals for refrigeration and HVAC control systems.

### 3.4 TRANSMITTAL FORM (ENG FORM 4025)

The sample transmittal form (ENG Form 4025) enclosed in SECTION 01999 shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor, or may be copied from the enclosed form. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

### 3.5 SUBMITTAL PROCEDURE

Submittals shall be made as follows:

#### 3.5.1 Deviations

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

### 3.6 CONTROL OF SUBMITTALS

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

### 3.7 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. The distribution of approved copies will be as specified in the Clause titled "SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION".

### 3.8 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals.

### 3.9 RESERVATION OF RIGHTS

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

3.10 STAMPS

Stamps, approximately 2 inches high by 3 inches wide, and similar to the following, shall be used by the Contractor on the submittal data to validate approval:

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

3.11 ACCIDENT PREVENTION PLAN

The format of the Contractor's Accident Prevention Plan shall be in accordance with APPENDIX A, MINIMUM BASIC OUTLINE FOR ACCIDENT PREVENTION PLAN of the SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385 1-1, 3 Sept 1996. A copy of NCE FORM 129 is included in SECTION 01999 for use in preparing activity hazard analysis documentation.

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## SECTION 01380

## CONSTRUCTION PHOTOGRAPHS

## PART 1 GENERAL

## 1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only 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

Photo Work Plan; G-AOF.

Prior to the taking photographs, submit a plan describing the method to be used in providing the photographs.

## SD-03 Product Data

Compact Disk (CD)

Required CD shall be delivered within fourteen (14) calendar days after the selection from thumbnail sheet is made by the Government.

Video Cassettes

Required video recordings shall be delivered within seven (7) calendar days after taping.

## SD-07 Certificates

Photographer Qualifications; G-AOF.

Prior to the taking of the first photographs, submit the name, location, and qualifications of the firm proposed to be used and samples of its work.

## 1.2 QUALIFICATIONS

## 1.2.1 Photographer Qualifications

The photography work required shall be performed by a firm(s) which has been regularly engaged in this type of service.

## 1.3 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. Scheduling of dates and times at which photographs will be taken.
- b. Quality of photographs.
- c. Observance of safety regulations.

## PART 2 PRODUCTS

### 2.1 MATERIALS

#### 2.1.1 General

Color photographs, including Compact Disk (CD), are required. They are to be taken from both the ground level as specified hereinafter. Each CD shall have a label showing the name and contract number of the project, the name of the construction contractor, and name of the photographer and the date on which the photograph was taken. Each final print furnished shall have a title block showing the name and contract number of the project, the name of the construction contractor, and name of the photographer and the date on which the photograph was taken. The title block shall be in the lower right hand corner of the print using a standard 1-inch by 3-1/2 inch adhesive label or acceptable similar method.

## PART 3 EXECUTION

### 3.1 NUMBER AND TIMING OF PHOTOGRAPHS

#### 3.1.1 Ground Photographs Taken By Digital

Digital photographs of construction are required to the extent necessary to clearly illustrate each sequence of work throughout the life of the project. Photographs shall document each work operation, including mobilization, each piece of equipment in use, pre-work and post work site conditions, and any other views of work items required to adequately document construction.

#### 3.1.2 Photo Work Plan

Prior to beginning work, the Contractor shall submit a brief photo work plan for approval by the Government. The exact dates for taking photographs shall be coordinated with, and subject to the approval of the Contracting Officer.

### 3.2 SELECTION AND PRINTING OF FINAL VIEWS

#### 3.2.1 Photographs Taken By Digital

Construction and aerial photographs shall be submitted on a compact disk (CD) along with thumbnail prints presented on a 8 1/2" x 11" sheets. Each thumbnail print shall contain approximately 12 photographs, each approximately 2 1/4" x 1 3/4". A written description of each photograph shall be submitted, and shall include the location, narrative of what is shown, date photograph was taken and any other pertinent information. In

additional the Contractor shall submit one (1) 8 1/2" x 11" color print of each photograph. The digital photo, thumbnail and description shall all be keyed together.

The CD, thumbnail prints, and descriptions shall be submitted as often as necessary to adequately document construction progress, but not less than once per month. At the end of the project, the Contractor shall furnish three binders, each containing a CD consolidating all of the photos, thumbnail prints and description.

### 3.3 VIDEO RECORDS

Prior to commencing any work at the project site, the Contractor shall produce video tape recordings of the conditions which exist at the project site. After the required work has been completed, a tape of the conditions at the project site shall also be produced. The physical features to be video taped shall be as indicated by the Contracting Officer's Representative at the site. Such physical features shall also include, but are not limited to, the exterior condition of all private property within 100 feet of the southerly boundary of the required work area. The Contractor shall make every effort to obtain permission from each adjacent property owner, whose property may be affected by the construction, to enter upon the premises to make close-up video tape recordings of the exterior and interior of all structures, and upon receiving such permission shall proceed with video taping in accordance therewith. Video tape for the recording shall be of the standard full-size VHS type and shall be run at the standard or normal speed. Required recording will not exceed two two-hour cassettes. Image recording shall be clear and provide sharp details. Every segment of tape footage shall be completely identified with either markers or title cards in the scenes, voice-over on the tape or written notes to be submitted with the tape to the Contracting Officer. Video cassettes, shall be marked with the project name, number, date and general description of the footage.

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## SECTION 01451

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## SECTION 01451

## CONTRACTOR QUALITY CONTROL

## PART 1 GENERAL

## 1.1 REFERENCES

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

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740 (1995) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock Used in Engineering Design and Construction

ASTM E 329 (1995c) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

## 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

Quality Control Plan; G-AOF

At least ten (10) calendar days prior to commencing work submit a Quality Control Plan.

## Preparatory Inspection Checklist

Within 48 hours after any preparatory phase meeting submit the original preparatory inspection checklist.

## Initial Inspection Checklist

Within 48 hours after any preparatory phase meeting submit the original

preparatory inspection checklist.

#### Daily Inspection Reports

Within 24 hours following any previous calendar day submit the original daily inspection report.

CQC System Manager; G-AOF

At least ten (10) calendar days prior to commencing work submit the qualification of the CQC manager.

### PART 2 PRODUCTS (NOT APPLICABLE)

### PART 3 EXECUTION

#### 3.1 GENERAL

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with Clause titled "INSPECTION OF CONSTRUCTION." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both on-site and off-site, and shall be keyed to the proposed construction sequence. The project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The project superintendent in this context shall mean the individual with the responsibility for the overall management of the project including quality and production.

#### 3.2 QUALITY CONTROL PLAN

##### 3.2.1 General

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

##### 3.2.2 Content of the CQC Plan

The CQC plan shall include, as a minimum, the following to cover all construction operations, both on-site and off-site, including work by subcontractors, fabricators, suppliers, and purchasing agents:

- a. Information required in the paragraph titled "IMPLEMENTATION OF GOVERNMENT RESIDENT MANAGEMENT SYSTEM (RMS)" shall be incorporated into the Contractor's Quality Control plan, as applicable.
- b. A description of the quality control organization, including a

chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC system manager who shall report to the project superintendent.

- c. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- d. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities and responsibilities. Copies of these letters shall also be furnished to the Government.
- e. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators suppliers, and purchasing agents. These procedures shall be in accordance with SECTION 01330, "SUBMITTAL PROCEDURES".
- f. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)
- g. Procedures for tracking preparatory, initial, and follow-up control phases, including documentation.
- h. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures will establish verification that identified deficiencies have been corrected.
- i. Reporting procedures, including proposed reporting formats.
- j. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may be generally considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list shall be as agreed upon during the coordination meeting.

### 3.2.3 Acceptance of Plan

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

### 3.2.4 Notification of Changes

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

### 3.3 COORDINATION MEETING

Immediately after adjournment of the required Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the Quality Control Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC plan shall be submitted in draft form for a review a minimum of 3 working days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, administration of the system for both on-site and off-site work, and the interrelationship of the Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting will be prepared by the Government and are to be signed by both the Contractor and the Contracting Officer or the Contracting Officer's Representative. The minutes shall be separate from the Preconstruction Conference minutes and shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

#### 3.3.1 Finalize CQC Plan

Immediately following the Preconstruction Conference, the Contractor shall finalize the CQC plan, taking into account comments made at the conference, and shall formally submit the CQC plan for acceptance. The Contractor shall allow up to 10 calendar days for review and acceptance of the finalized submittal.

### 3.4 QUALITY CONTROL ORGANIZATION

#### 3.4.1 General

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure contract compliance. The Contractor shall provide a CQC organization which shall be at the site at all times during progress of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Contracting Officer.

#### 3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the on site work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. This CQC System Manager shall be a construction person with a minimum of 3 years in related work. This CQC system manager shall be on site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned as System Manager but may have duties as project superintendent in addition to quality control. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for

the alternate shall be the same as for the designated CQC System Manager.

### 3.4.3 CQC Personnel

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

### 3.4.4 Additional Requirements

In addition to the above experience and education requirements the CQC System Manager shall have completed the course titled "Construction Quality Management For Contractors". This course is periodically offered at one or more of the Area Offices within the District. This course is mandatory only if contract bid exceeds one million dollars.

### 3.4.5 Organizational Changes

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

### 3.5 SUBMITTALS

Submittals shall be as specified in SECTION 01330, titled "SUBMITTAL PROCEDURES". The CQC organization shall be responsible for certifying that all submittals are in compliance with the contract requirements.

### 3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors, complies with the requirements of the contract. The controls shall be adequate to cover all construction operations and will be keyed to the proposed construction sequence. The controls shall include at least three phases of control to be conducted by the CQC system manager for all definable features of work, as follows:

#### 3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications.

- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 24 hours in advance of beginning any of the required action of the preparatory control phase. This phase shall include a meeting conducted by the CQC system manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by a completed Preparatory Inspection Checklist and by separate minutes prepared by the CQC system manager and attached to the daily QC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

### 3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of preliminary work to ensure that it is in compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. A completed initial inspection checklist of this phase shall be prepared by the CQC system manager and attached to the daily QC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

g. The initial phase should be repeated for each new crew to work on-site, or any time acceptable specified quality standards are not being met.

### 3.6.3 Follow-up Phase

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

### 3.6.4 Implementation of Government Resident Management System (RMS)

The Contractor shall utilize the Government-furnished CQC Management Report, NCE Form 63 for its daily reports. (Copy enclosed in SECTION 01999 ). Other Contractor desired reporting forms may be used in addition to this form. The Contractor shall use a government-furnished RMS CQC computer module for managing the quality control for this project. On the Government-furnished Input Forms in SECTION 01999 for use with the RMS, the Contractor shall provide the following information:

- (1) Prime Contractor staffing
- (2) letter codes which the Contractor wishes to use in addition to those supplied with the program libraries. A list of current existing codes is provided in SECTION 01999.
- (3) subcontractor information showing trade, name, address, and insurance expiration dates
- (4) Definable features of work from a Government provided dictionary (may be expanded by the Contractor, as approved).
- (5) Pay activity and activity information, including minimum and maximum durations for each activity on a separate listing. The sum of all activity values shall equal the contract amount and, all Bid Items and Additives shall be separately identified, in accordance with the BIDDING SCHEDULE. Bid Items may include multiple activities, but activities may only be assigned to one such Bid Item. All of the data listed in this Subpart 6 shall be provided and the RMS CQC module shall be completed to the satisfaction of the Contracting Officer prior to any contract payments (except payments for bonds, insurance and/or mobilization as approved by the Contracting Officer) and shall be updated as required.
- (6) Required Quality Control tests (as applicable) tied to individual activities. The QC Reports/QC Requirements function of the RMS QC Module will be used to meet the requirements for

tracking of verification and acceptance testing specified in the paragraph titled "Content of the CQC Plan".

(7) Submittal information relating to specification section, bid item number, description, activity number, review period and expected procurement period

(8) User schooling information (as applicable).

The above items shall be incorporated into the required submittal for the Contractor's Quality Control Plan required in the paragraph titled "QUALITY CONTROL PLAN" of this Section.

a. During the course of the contract, the Contractor will receive various Quality Assurance comments from the Government that will reflect corrections needed to Contractor activities or reflect outstanding or future items needing the attention of the Contractor. The Contractor shall acknowledge receipt of these comments by specific number reference on its Daily CQC Report, and will also reflect on his Daily CQC Report when these items are specifically completed or corrected to permit Government verification. The contractor will use the QC COMMENTS function of the RMS QC Module to meet the requirements for tracking construction deficiencies as specified in paragraph titled, "Content of the CQC Plan".

b. The Contractor's schedule system shall include, as specified and separate activities, all Preparatory Phase Meetings (inspections); all O&M Manuals (as applicable) and all Test Plans of Electrical and Mechanical Equipment or Systems that require validation testing or instructions to Contracting Officer Representatives (as applicable).

### 3.6.5 Additional Preparatory and Initial Phases

Additional preparatory and initial phases may be conducted on the same definable features of work as determined by the Government if the quality of on-going work is unacceptable; or if there are changes in the applicable QC staff or in the on-site production supervision or work crew; or if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

## 3.7 TESTS

### 3.7.1 Testing Procedures

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

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.

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

### 3.7.2 Testing Laboratories

#### 3.7.2.1 Capability Check

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

#### 3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of \$3,000.00 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

#### 3.7.3 On-site Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

#### 3.7.4 Furnishing or Transportation of Samples for Testing

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

Waterways Experiment Station  
3909 Halls Ferry Road  
Vicksburg, MS 39180-6199

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

### 3.8 COMPLETION INSPECTION

#### 3.8.1 Punch-Out Inspection

At the completion of all work the CQC system manager shall conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved plans and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph "DOCUMENTATION" below, and shall include the estimated date by which the deficiencies will be corrected. The CQC system manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final Inspection.

#### 3.8.2 Pre-Final Inspection

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

#### 3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at this inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptable complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

### 3.9 DOCUMENTATION

The Contractor shall maintain Daily Inspection Reports of quality control operations, activities, and tests performed, including the work of subcontractors. These records shall be on an acceptable form and shall include factual evidence that required quality control activities and/or tests have been performed, including but not limited to the following:

- a. Contractor/subcontractor and their area of responsibility.

- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed today, giving location, description, and by whom. For dredging projects, the report shall always include the character and types of materials removed. Whenever there is a significant change in the materials, the location of such change shall be included in the reports.
- d. Control activities performed with results and references to specifications/plan requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.
- e. Quantity of materials received at the site, with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Identify submittals reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. List instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that the workmanship complies with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date(s) covered by the report, except that reports need not be submitted for days on which no work is performed. All calendar days shall be accounted for throughout the life of the contract. The first report following a period of no work shall be for that day and all the no-work days since the last reported work day. Reports shall be sequentially numbered for this project, signed and dated by the CQC system manager. The report from the CQC system manager shall include copies of reports prepared by all subordinate quality control personnel.

### 3.10 SAMPLE FORMS

Sample forms for the CQC Management Report, Preparatory Inspection Checklist, Initial Inspection Checklist, and other required reports and plans are enclosed in SECTION 01999. The Contractor shall tailor the checklists to include all reporting and quality control requirements specific to this project.

### 3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected

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

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## SECTION 01580

## CONSTRUCTION PROJECTS AND SAFETY PERFORMANCE SIGNS

## PART 1 GENERAL

## 1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only 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

Sign Layouts; G-AOF.

Submit the proposed layouts before applying lettering.

## 1.2 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. Quality - materials and workmanship.
- b. Overall appearance of signs and site.
- c. Observance of safety regulations.

## PART 2 PRODUCTS

## 2.1 SIGN CONSTRUCTION

The materials to be used and the manner in which they are to be assembled and installed are shown on the sketches enclosed in SECTION 01999.

## 2.1.1 Government-Furnished Materials

The Government will furnish and deliver to the Contractor at the project site one (1) Construction Project sign panel, four (4) feet by six (6) feet by 3/4 inch thick and one (1) Safety Performance sign panel, four (4) feet by four (4) feet by 3/4 inch thick. Each sign panel will have affixed graphics and be lettered except for the project title and the name of the Contractor. Each sign panel will embody six (6) 1/4 inch diameter T-nuts appropriately placed. The Government will retain possession of the removable numbers for the Safety Performance sign and affix them at the appropriate times.

## 2.1.2 Contractor-Furnished Materials

All materials necessary for construction of the signs as described on the sketches except those furnished by the Government, shall be furnished by the Contractor. All wood members shall be of well seasoned, kiln dried, clear redwood, bald cypress, red cedar, Douglas fir, spruce, tulip poplar or white pine. The lumber materials shall be free of splits, wane and loose knots or pitch pockets. Wood materials for posts, braces and stakes shall be preservative treated. All members of the sign shall be fastened with screws or bolts of type, size, number and spacing to provide rigid construction and a neat appearance. The Contractor shall furnish twelve (12) each 1/4 inch diameter by four (4) inches long Allen head bolts, threaded to match the T-nuts.

2.1.2.1 Sign Lettering

In the location provided on each sign panel, the Contractor shall apply the applicable project title, Contractor name. Specific information for sign layouts will be provided by the Contracting Officer's Representative (COR) at the conference specified hereinbefore in clause titled "PRE-CONSTRUCTION CONFERENCE." Lettering shall be black. The materials used for lettering shall be of a type which will adhere to the high density overlay plywood panels under all weather conditions and shall be applied in accordance with the lettering manufacturer's recommendations. Letter size, typeface and maximum line lengths are as follows:

|                              | <u>Construction</u><br><u>Project Sign</u> | <u>Safety</u><br><u>Performance Sign</u> |
|------------------------------|--|--|
| Project Title                |  |  |
| Typeface                     | Helvetica Bold                             | Helvetica Regular                        |
| Letter size (inches)         | 3  | 1.5                                      |
| Maximum line length (inches) | 42   | 42                                       |
| Contractor's Name            |  |  |
| Typeface                     | Helvetica Regular                          | Helvetica Regular                        |
| Letter size (inches)         | 1.25                                       | 1.5                                      |
| Maximum line length (inches) | 21   | 42                                       |
| Architect/Engineer's Name    |  |  |
| Typeface                     | Helvetica Regular                          |  |
| Letter size (inches)         | 1.25                                       | None                                     |
| Maximum line length (inches) | 21   |  |

PART 3 EXECUTION

3.1 INSTALLATION

The Contractor shall affix the panels to the posts with the Allen head bolts prior to erection of the signs, including drilling counter-sunk 1/4 inch diameter holes in the posts to match the T-nut locations. The Contractor shall take all precautions necessary to protect the faces of the signs from damage during assembly and construction. The signs shall be installed upon commencement of the work under this contract. The location in which each sign is to be installed shall be as directed by the Contracting Officer. The site on which the signs are to be installed shall be cleared and leveled to facilitate the installation of, and provide easy visual contact with, the signs. Installation and positioning of the posts,

braces and stakes shall be as indicated on the referenced sketches. Excavation and backfilling of the holes for posts and installation of the posts, braces and stakes shall be such that signs are installed plumb and level.

### 3.2 MAINTENANCE

The Contractor shall maintain the signs in good condition and the sign site in a neat condition throughout the construction period.

### 3.3 REMOVAL

Upon completion of all contract work, the signs shall be removed by the Contractor and turned over to the Contracting Officer's Representative at the site.

-- End of Section --

SECTION TABLE OF CONTENTS

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.

CONSTRUCTION PROJECTS AND SAFETY PERFORMANCE SIGNS

RESIDENT MANAGEMENT SYSTEM FORMS (SAMPLES)

A. CURRENT ACTIVITY SUMMARY (SMPL)

B. INITIAL INSPECTION WORKSHEET

C. PREPARATORY INSPECTION WORKSHEET

D. CONTRACTOR QUALITY CONTROL REPORT (QCR)

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)

BENCHMARKS AND HORIZONTAL CONTROL DATA

PHOTOGRAPHS

GENERAL DECISION NO. MI030003

GENERAL DECISION NO. MI030090

GENERAL DECISION NO. IL030018

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 &amp; 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

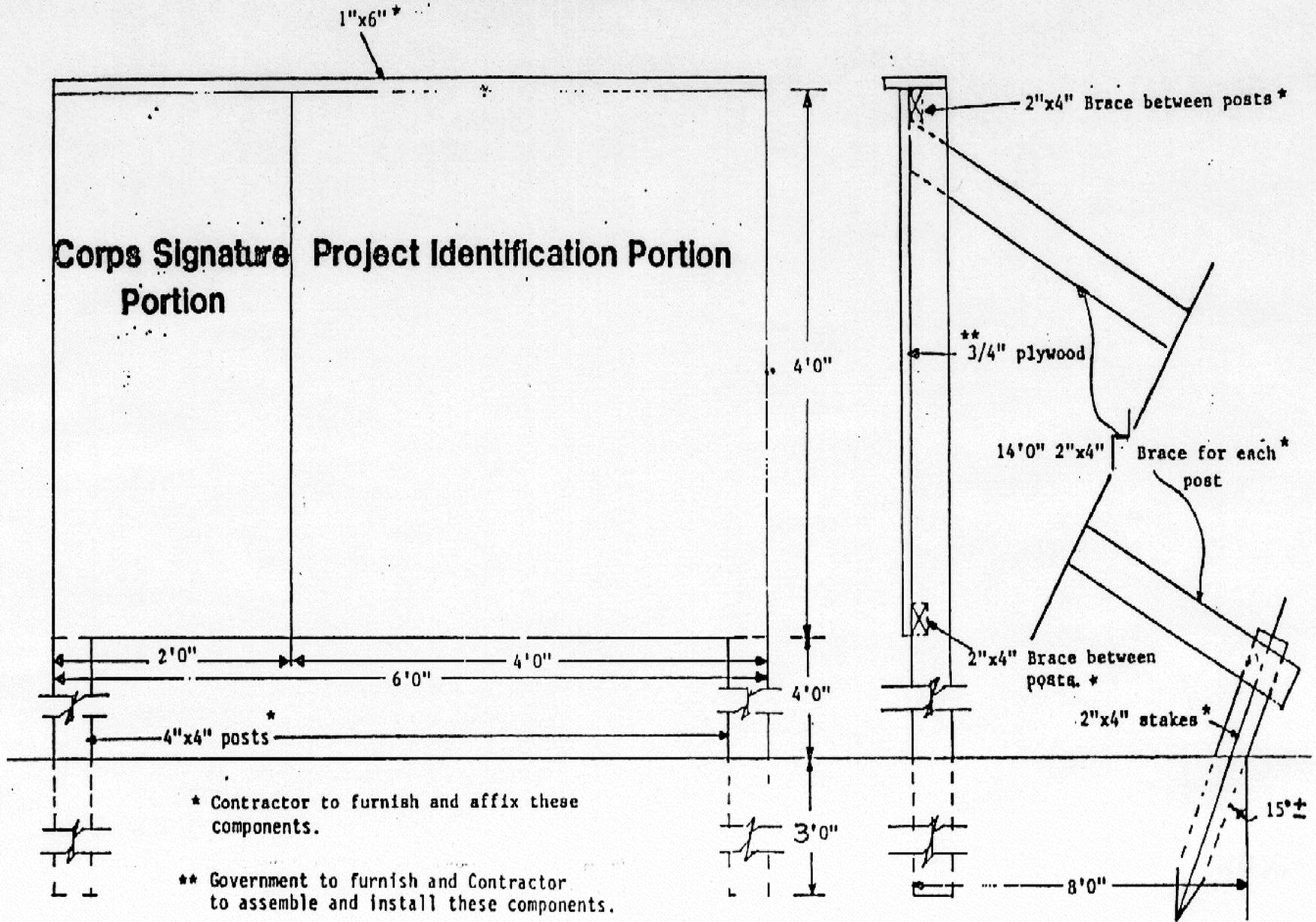
|                 |             |                         |
|-----------------|-------------|-------------------------|
| 1. Contract No. | 2. Project  | 3. Facility             |
| 4. Date         | 5. Location | 6. Estimated Start Date |

| 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) |
|---|--|

# Construction Project Sign



\* Contractor to furnish and affix these components.

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



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

## 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)<br>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:<br>Pumped = 3" - 7" at discharge<br>Maximum of 5" at Mixer if no admixture used<br>Maximum of 7" at mixer if admixture is used<br>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<br>CLASSIFICATIONS | BASIC<br>RATE | FRINGE<br>BENEFITS | PLUS<br>% | TOTAL<br>WAGE/HR |
|--------------------------|---------------|--------------------|-----------|------------------|
| _____                    | _____         | _____              | _____     | _____            |
| _____                    | _____         | _____              | _____     | _____            |
| _____                    | _____         | _____              | _____     | _____            |
| _____                    | _____         | _____              | _____     | _____            |
| _____                    | _____         | _____              | _____     | _____            |

### E. INSPECTION CHECKS -

|   | IN COMPLIANCE<br>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<br>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<br>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

---



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#### 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. | _____ | ___ | ___ | ___ |

| <b>CONTRACTORS QUALITY CONTROL REPORT (QCR)<br/>DAILY LOG OF CONSTRUCTION - CIVIL</b>   |  | REPORT NUMBER<br>92   | Page 1 of 2  |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
|---|--|---|--------------|----------------|----------------------|---------------------|--|----------|--|---|-----------|----------|---------------------|--|-----------|----------|------------|---|-----------|----------|------------|---|-----------|
|   |  | DATE<br>22 Jun 2001 - Friday  |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| PROJECT<br>North & South Pier Repair, Baloney Harbor, MI  |  | CONTRACT NUMBER<br>DACW35-02-C-#### NA  |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| CONTRACTOR<br>ABC Company, Inc. 555 Imagination Road, Fantasy, MI 49494   |  | WEATHER<br>Weather Caused No Delay<br>Temperature Min 80 °F, Max 63 °F; 0.01 IN Precipitation; 10 MPH Wind          |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| <b>QC NARRATIVES</b>  |  |   |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| <p><b>Activities in Progress:</b><br/>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><b>Safety Inspection / Safety Meetings:</b><br/>Weekly Safety Meeting held today - Use of PPE - Hrad hats &amp; Work Vests</p>   |  |   |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| <b>PREP/INITIAL DATES</b> (Preparatory and initial dates held and advance notice)   |  |   |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| <p><b>A preparatory inspection was held today for the following feature:</b><br/>Miscellaneous Steel &amp; Handrail</p> <p><b>An initial inspection was held today for the following feature:</b><br/>Miscellaneous Steel &amp; Handrail</p>  |  |   |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| <b>ACTIVITY START/FINISH</b>  |  |   |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| <p><b>The following activity was started today:</b></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 &amp; Place Fill Stone - 1st 18,000 Tons</td> </tr> </tbody> </table> <p><b>No activities were finished today</b></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 |   |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| <b>QC REQUIREMENTS</b>  |  |   |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| <p><b>The following 4 QC requirements were completed today:</b></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      |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| 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    |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| <b>QA/QC PUNCH LIST</b> (Describe QC Punch List items issued, Report QC and QA Punch List items corrected)  |  |   |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| <p><b>The following QC Punch List item was issued today:</b></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><b>No Punch List items were corrected today</b></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  |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| <b>CONTRACTORS ON SITE</b> (Report first and/or last day contractors were on site)  |  |   |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| <p><b>No contractors had their first or last day on site today</b></p>  |  |   |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| <b>LABOR HOURS</b>  |  |   |              |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |
| <p><b>The following labor hours were Reported today:</b></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         |                |                      |                     |  |          |  |   |           |          |                     |  |           |          |            |   |           |          |            |   |           |

|   |                    |  |                        |     |      |       |     |      |
|---|--------------------|--|------------------------|-----|------|-------|-----|------|
| <b>CONTRACTORS QUALITY CONTROL REPORT (QCR)</b><br><b>DAILY LOG OF CONSTRUCTION - CIVIL</b>   |                    | REPORT NUMBER<br>92 <span style="float: right;">Page 2 of 2</span>   |                        |     |      |       |     |      |
| PROJECT North & South Pier Repair, Baloney Harbor, MI   |                    | DATE<br>22 Jun 2001 - Friday   |                        |     |      |       |     |      |
| ABC Company, Inc.      PILE DRIVER OPERATOR<br>Total hours worked to date: 30.0   |                    | CONTRACT NUMBER<br>DACW35-02-C#####<br><br><table style="width: 100%; border: none;"> <tr> <td style="width: 60%;"></td> <td style="text-align: right; border-top: 1px solid black;">1.0</td> <td style="text-align: right; border-top: 1px solid black;">10.0</td> </tr> <tr> <td style="text-align: right;">Total</td> <td style="text-align: right; border-top: 1px solid black;">6.0</td> <td style="text-align: right; border-top: 1px solid black;">30.0</td> </tr> </table> |                        | 1.0 | 10.0 | Total | 6.0 | 30.0 |
|   | 1.0                | 10.0   |                        |     |      |       |     |      |
| Total   | 6.0                | 30.0   |                        |     |      |       |     |      |
| <b>EQUIPMENT HOURS</b><br><b>The following equipment hours were Reported today:</b>   |                    |  |                        |     |      |       |     |      |
| <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  | 28.0                   |     |      |       |     |      |
| <b>ACCIDENT REPORTING</b> (Describe accidents)<br><b>No accidents reported today</b>  |                    |  |                        |     |      |       |     |      |
|   |                    |  |                        |     |      |       |     |      |
| CONTRACTOR CERTIFICATION <b>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.</b> |                    |  |                        |     |      |       |     |      |
| QC REPRESENTATIVE'S SIGNATURE   | DATE               | SUPERINTENDENT'S INITIALS  | DATE                   |     |      |       |     |      |

|   |                    |                               |
|---|--------------------|-------------------------------|
| <b>TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR<br/>MANUFACTURER'S CERTIFICATES OF COMPLIANCE</b><br><small>(Read instructions on the reverse side prior to initiating this form)</small> | DATE<br>06/06/2002 | TRANSMITTAL NO.<br>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<br>307 South Harbor Street<br>P. O. Box 629<br>Grand Haven, MI 49417 | FROM: ABC Company, Inc<br>555 Imagination Park Road<br>Fantasy, MI 49494 | CONTRACT NO.<br>DACW35-02-C-#### NA | CHECK ONE:<br><input type="checkbox"/> THIS IS A NEW TRANSMITTAL<br><input checked="" type="checkbox"/> THIS IS A RESUBMITTAL OF<br>TRANSMITTAL 02486-37.1 |
|--|--|-------------------------------------|--|

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

| ITEM NO.<br><small>a.</small> | DESCRIPTION OF ITEM SUBMITTED<br><small>(Type size, model number/etc.)</small><br><small>b.</small> | MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO.<br><small>(See instruction no. 8)</small><br><small>c.</small> | NO. OF COPIES<br><small>d.</small> | CONTRACT REFERENCE DOCUMENT          |  | FOR CONTRACTOR USE CODE<br><small>g.</small> | VARIATION<br><small>(See Instruction No. 6)</small><br><small>h.</small> | FOR CE USE CODE<br><small>i.</small> |
|-------------------------------|---|--|------------------------------------|--------------------------------------|--|--|--|--------------------------------------|
|                               |   |  |                                    | SPEC. PARA. NO.<br><small>e.</small> | DRAWING SHEET NO.<br><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;">_____<br/>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 NATURAL RESOURCES |
| 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.

| TITLE AND LOCATION<br>NOAA Gauge Houses- Alpena & West Neebish |                |           |  |           |                            | CONTRACTOR                 |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|--|----------------|-----------|--|-----------|----------------------------|----------------------------|--------------------|--------------------|-------------------|----------------|--|----------------------------|----------------------------|-------------|----------------|---|---------|
| ACTIVITY NO  | TRANSMITTAL NO | SPEC SECT | DESCRIPTION<br>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 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                                     | 1.6.1     |                            |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Payrolls and Basic Records                                   | 1.6.2     |                            |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Progress Chart   | 1.6.3     | G AOF                      |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Non-listed, Non-Commercially Active Stone or Material Source | 2.1.1     | G ECD                      |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Buoy Relocation Position                                     |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Utility Locating Plan  | 1.4.3     | G AOF                      |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Utility Location Findings                                    | 1.4.3     | G AOF                      |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Traffic Control Plan   | 1.4.10    | G AOF                      |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Survey Note Format   | 1.4.12.2  | G AOF                      |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | SD-07 Certificates   |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | As-Built Technician's Qualifications                         | 2.2       |                            |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | As-built Drawings  | 2.2       | G AOF                      |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Survey Information   | 1.4.12.2  |                            |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                | 01101     | SD-01 Preconstruction Submittals                             |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Additional Property Agreements                               | 1.2.2     | G RED                      |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                | 01102     | SD-01 Preconstruction Submittals                             |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Diving Plan  | 3.2       | G ECD                      |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | SD-07 Certificates   |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Training, Qualifications and Medical Certificates            | 3.1       |                            |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                | 01130     | SD-01 Preconstruction Submittals                             |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Environmental Protection Plan                                | 1.5       | G ECD                      |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Retention Pond Removal Plan                                  |           | G ECD                      |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION  
NOAA Gauge Houses- Alpena & West Neebish

CONTRACTOR

| ACTIVITY NO | TRANSMITTAL NO | SPEC SECT | DESCRIPTION<br>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 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)            |
|             |                | 01380     | SD-01 Preconstruction Submittals |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Photo Work Plan                  | 3.1.2     | G AOF                      |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | SD-03 Product Data               |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Compact Disk (CD)                | 2.1.1     |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Video Cassettes                  | 3.3       |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | SD-07 Certificates               |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Photographer Qualifications      | 1.2       | G AOF                      |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                | 01451     | SD-01 Preconstruction Submittals |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Quality Control Plan             | 3.2       | G AOF                      |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Preparatory Inspection Checklist | 3.6.1     |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Initial Inspection Checklist     | 3.6.2     |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Daily Inspection Reports         | 3.9       |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | CQC System Manager               | 3.4.2     | G AOF                      |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | CQC System Manager               | 3.4.2     | G AOF                      |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                | 01580     | SD-02 Shop Drawings              |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Sign Layouts                     | 2.1.2.1   | G AOF                      |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                | 02139     | SD-01 Preconstruction Submittals |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Construction Equipment           |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Work Plan                        |           | G AOF                      |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Fill Material Source             |           | G AOF                      |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Check Survey Records             |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                | 03307a    | SD-03 Product Data               |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Accelerating Admixture           | 2.1.4.2   |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | FIO                              |           |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Curing Materials                 | 2.1.9     |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Reinforcing Steel                | 2.1.6     |                            |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |

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|  |                | 03307a    | Joint Sealants - Field Molded Sealants |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Batching and Mixing Equipment          | 3.1.3.3   |                              |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Conveying and Placing Concrete         | 3.2       |                              |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | SD-06 Test Reports                     |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Concrete Mixture Proportions           | 1.3.2     | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | SD-07 Certificates                     |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Cementitious Materials                 | 2.1.1     | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Aggregates                             | 2.1.3     | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                | 04200     | SD-02 Shop Drawings                    |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Masonry Work                           |           | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | SD-03 Product Data                     |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Clay or Shale Brick                    | 2.2       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Insulation                             | 2.12      | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Flashing                               | 2.13      | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Sealant; G-AOF                         |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Water-Repellant Admixture              | 2.6       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Cold Weather Installation              | 3.1.2     | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | SD-04 Samples                          |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Concrete Masonry Units (CMU)           | 2.3       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Clay or Shale Brick                    | 2.2       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Anchors, Ties, and Bar Positioners     | 2.8       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Expansion-Joint Materials              |           | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Insulation                             | 2.12      | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |
|  |                |           | Portable Panel                         |           | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |                |   |         |

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|             |                |           |                                    |           |                              | 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 |
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|             |                | 04200     | SD-05 Design Data                  |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Pre-mixed Mortar                   | 2.5.4     | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Unit Strength Method               |           | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | SD-07 Certificates                 |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Clay or Shale Brick                | 2.2       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Concrete Brick                     |           | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Concrete Masonry Units (CMU)       | 2.3       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Control Joint Keys                 | 2.10      | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Anchors, Ties, and Bar Positioners | 2.8       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Expansion-Joint Materials          |           | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Joint Reinforcement                | 2.9       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Reinforcing Steel Bars and Rods    |           | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Masonry Cement                     | 2.5.3     | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Mortar Coloring                    |           | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Insulation                         | 2.12      | G G                          |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Insulation                         | 2.12      | G G                          |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Precast Concrete Items             | 2.4       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Admixtures for Masonry Mortar      | 2.5.1     | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Admixtures for Grout               | 2.7.1     | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | SD-08 Manufacturer's Instructions  |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Masonry Cement                     | 2.5.3     | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                | 05500a    | SD-02 Shop Drawings                |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Miscellaneous Metal Items          | 1.6       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                | 07530     | SD-02 Shop Drawings                |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Application of Roofing             |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |

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| ACTIVITY<br>NO   | TRANSMITTAL<br>NO | SPEC<br>SECT | DESCRIPTION<br>ITEM SUBMITTED     | PARAGRAPH | GOVT<br>CLASSIFICATION<br>REV<br>R | CONTRACTOR:<br>SCHEDULE DATES |                          |                          | CONTRACTOR<br>ACTION |                      | APPROVING AUTHORITY                                       |                                  |                                  |                | MAILED<br>TO<br>CONTR/<br>DATE RCD<br>FRM APPR<br>AUTH | REMARKS |                      |
|  |                   |              |                                   |           |                                    | SUBMIT                        | APPROVAL<br>NEEDED<br>BY | MATERIAL<br>NEEDED<br>BY | ACTION<br>CODE       | DATE<br>OF<br>ACTION | DATE FWD<br>TO APPR<br>AUTH/<br>DATE RCD<br>FROM<br>CONTR | DATE FWD<br>TO OTHER<br>REVIEWER | DATE RCD<br>FROM OTH<br>REVIEWER | ACTION<br>CODE |  |         | DATE<br>OF<br>ACTION |
| (a)  | (b)               | (c)          | (d)                               | (e)       | (f)                                | (g)                           | (h)                      | (i)                      | (j)                  | (k)                  | (l)   | (m)                              | (n)                              | (o)            | (p)  | (q)     | (r)                  |
|  |                   | 07530        | Type B Roofing Membranes          |           |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | SD-03 Product Data                |           |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Adhesives                         | 2.1       |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Nails and Fasteners               | 2.2       |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Flashing Membranes                | 2.3       |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Roofing Membranes                 | 2.4       |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | SD-04 Samples                     |           |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Roofing Membranes                 | 2.4       |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | SD-06 Test Reports                |           |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Adhesives                         | 2.1       |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Nails and Fasteners               | 2.2       |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Flashing Membranes                | 2.3       |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Roofing Membranes                 | 2.4       |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | SD-07 Certificates                |           |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Membranes                         |           |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Fasteners                         |           |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Insulation                        | 1.2       |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Adhesives                         | 2.1       |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | SD-08 Manufacturer's Instructions |           |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Roofing                           | 3.3       |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Insulation                        | 1.2       |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Roofing Membranes                 | 2.4       |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Flashings                         |           |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | SD-11 Closeout Submittals         |           |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   |              | Warranty                          |           |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |
|  |                   | 08220        | SD-01 Preconstruction Submittals  |           |                                    |                               |                          |                          |                      |                      |   |                                  |                                  |                |  |         |                      |

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|             |                | 08220     | Door Color; G-AOF                                     |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                | 13120A    | SD-07 Certificates<br>Materials                       |           | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                | 16375A    | SD-02 Shop Drawings<br>Electrical Distribution System |           | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | SD-03 Product Data<br>Protective Device               |           | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | Material and Equipment                                | 2.1       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | General Installation Requirements                     | 3.1       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | SD-07 Certificates<br>Material and Equipment          | 2.1       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                | 16415A    | SD-02 Shop Drawings<br>Interior Electrical Equipment  |           |                              |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | SD-03 Product Data<br>Manufacturer's Catalog          |           | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | As-Built Drawings                                     |           | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |
|             |                |           | SD-07 Certificates<br>Materials and Equipment         | 1.5       | G AOF                        |                            |                    |                    |                   |                |  |                            |                            |             |   |         |                |

|  |      |                 |
|--|------|-----------------|
| <b>TRANSMITTAL OF SHOP DRWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR<br/>MANUFACTURER'S CERTIFICATES OF COMPLIANCE</b><br><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:<br><input type="checkbox"/> THIS IS A NEW TRANSMITTAL<br><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<br><i>(Type size, model number/etc.)</i> | MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO.<br><i>(See instruction no. 8)</i> | NO. OF COPIES | CONTRACT REFERENCE DOCUMENT |                   | FOR CONTRACTOR USE CODE | VARIATION<br><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.<br><br><div style="text-align: right; border-top: 1px solid black; width: 100%;">NAME AND SIGNATURE OF CONTRACTOR</div> |
|---------|---|

**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<br>Refer to attached sheet resubmission required. | FX -- Receipt acknowledged, does not comply<br>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.

# The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.03

1 National Geodetic Survey, Retrieval Date = JULY 14, 2004

QJ0096 \*\*\*\*\*

QJ0096 DESIGNATION - 907 5065 CITY HALL USLS

QJ0096 PID - QJ0096

QJ0096 STATE/COUNTY- MI/ALPENA

QJ0096 USGS QUAD - ALPENA (1971)

QJ0096

\*CURRENT SURVEY CONTROL

QJ0096

|         |               |           |          |            |        |          |
|---------|---------------|-----------|----------|------------|--------|----------|
| QJ0096* | NAD 83(1986)- | 45 03 43. | (N)      | 083 25 49. | (W)    | SCALED   |
| QJ0096* | NAVD 88       | - 180.689 | (meters) | 592.81     | (feet) | ADJUSTED |

QJ0096

|        |               |           |          |        |        |         |
|--------|---------------|-----------|----------|--------|--------|---------|
| QJ0096 | GEOID HEIGHT- | -36.48    | (meters) |        |        | GEOID03 |
| QJ0096 | DYNAMIC HT -  | 180.676   | (meters) | 592.77 | (feet) | COMP    |
| QJ0096 | MODELED GRAV- | 980,544.1 | (mgal)   |        |        | NAVD 88 |

QJ0096

QJ0096

QJ0096

QJ0096 VERT ORDER - FIRST CLASS II

QJ0096

QJ0096.The horizontal coordinates were scaled from a topographic map and have an estimated accuracy of +/- 6 seconds.

QJ0096

QJ0096.The orthometric height was determined by differential leveling and adjusted by the National Geodetic Survey in June 1991.

QJ0096

QJ0096.The geoid height was determined by GEOID03.

QJ0096

QJ0096.The dynamic height is computed by dividing the NAVD 88 geopotential number by the normal gravity value computed on the Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45 degrees latitude (g = 980.6199 gals.).

QJ0096

QJ0096.The modeled gravity was interpolated from observed gravity values.

QJ0096

| QJ0096;         | North      | East       | Units | Estimated Accuracy      |
|-----------------|------------|------------|-------|-------------------------|
| QJ0096;SPC MI C | - 194,360. | 6,073,740. | MT    | (+/- 180 meters Scaled) |

QJ0096

SUPERSEDED SURVEY CONTROL

QJ0096

QJ0096.No superseded survey control is available for this station.

QJ0096

QJ0096\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TLK086927(NAD 83)

QJ0096\_MARKER: DD = SURVEY DISK

QJ0096\_SETTING: 40 = FACE OF BUILDING

QJ0096\_STAMPING: CITY HALL LDK 1941

QJ0096\_MARK LOGO: USLS

QJ0096\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

QJ0096

| QJ0096 | HISTORY | - Date     | Condition  | Report By |
|--------|---------|------------|------------|-----------|
| QJ0096 | HISTORY | - 1941     | MONUMENTED | USLS      |
| QJ0096 | HISTORY | - 1983     | GOOD       | NGS       |
| QJ0096 | HISTORY | - 19970330 | GOOD       | USPSQD    |
| QJ0096 | HISTORY | - 19990515 | GOOD       | USPSQD    |

QJ0096

QJ0096

STATION DESCRIPTION

QJ0096

QJ0096'DESCRIBED BY NATIONAL GEODETIC SURVEY 1983  
 QJ0096'IN ALPENA.  
 QJ0096'IN ALPENA, AT THE CITY HALL BUILDING, SET VERTICALLY IN THE NORTH FACE  
 QJ0096'OF THE BUILDING, 15.70 METERS (51.5 FT) SOUTH OF A FLAGPOLE,  
 QJ0096'6.61 METERS (21.7 FT) WEST OF THE NORTHEAST CORNER OF THE BUILDING,  
 QJ0096'4.57 METERS (15.0 FT) EAST-NORTHEAST OF THE EXTENDED CENTER OF TWO  
 QJ0096'DOORS AT MAIN ENTRANCE ON NORTH SIDE OF BUILDING, AND 3.90 METERS  
 QJ0096'(12.8 FT) SOUTH OF THE SOUTH EDGE OF AN EAST-WEST SIDEWALK.  
 QJ0096'THE MARK IS 1.21 M ABOVE GROUND.

QJ0096  
 QJ0096 STATION RECOVERY (1997)

QJ0096'RECOVERY NOTE BY US POWER SQUADRON 1997  
 QJ0096'RECOVERED IN GOOD CONDITION.

QJ0096  
 QJ0096 STATION RECOVERY (1999)

QJ0096'RECOVERY NOTE BY US POWER SQUADRON 1999  
 QJ0096'RECOVERED IN GOOD CONDITION.

1 National Geodetic Survey, Retrieval Date = JULY 14, 2004

QJ0009 \*\*\*\*\*

QJ0009 DESIGNATION - 907 5065 POST OFFICE USLS  
 QJ0009 PID - QJ0009  
 QJ0009 STATE/COUNTY- MI/ALPENA  
 QJ0009 USGS QUAD - ALPENA (1971)

QJ0009  
 QJ0009 \*CURRENT SURVEY CONTROL

|         |               |           |          |            |        |          |
|---------|---------------|-----------|----------|------------|--------|----------|
| QJ0009* | NAD 83(1986)- | 45 03 44. | (N)      | 083 25 49. | (W)    | SCALED   |
| QJ0009* | NAVD 88       | - 180.166 | (meters) | 591.09     | (feet) | ADJUSTED |

|        |               |           |          |        |        |         |
|--------|---------------|-----------|----------|--------|--------|---------|
| QJ0009 | GEOID HEIGHT- | -36.48    | (meters) |        |        | GEOID03 |
| QJ0009 | DYNAMIC HT -  | 180.154   | (meters) | 591.06 | (feet) | COMP    |
| QJ0009 | MODELED GRAV- | 980,544.1 | (mgal)   |        |        | NAVD 88 |

QJ0009 VERT ORDER - FIRST CLASS II

QJ0009.The horizontal coordinates were scaled from a topographic map and have  
 QJ0009.an estimated accuracy of +/- 6 seconds.

QJ0009.The orthometric height was determined by differential leveling  
 QJ0009.and adjusted by the National Geodetic Survey in June 1991.

QJ0009.The geoid height was determined by GEOID03.

QJ0009.The dynamic height is computed by dividing the NAVD 88  
 QJ0009.geopotential number by the normal gravity value computed on the  
 QJ0009.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 QJ0009.degrees latitude (g = 980.6199 gals.).

QJ0009.The modeled gravity was interpolated from observed gravity values.

|                 |   |          |            |       |                         |
|-----------------|---|----------|------------|-------|-------------------------|
| QJ0009;         |   | North    | East       | Units | Estimated Accuracy      |
| QJ0009;SPC MI C | - | 194,390. | 6,073,740. | MT    | (+/- 180 meters Scaled) |

QJ0009  
 QJ0009 SUPERSEDED SURVEY CONTROL

|        |                    |         |     |        |     |          |     |
|--------|--------------------|---------|-----|--------|-----|----------|-----|
| QJ0009 | NGVD 29 (??/??/92) | 180.325 | (m) | 591.62 | (f) | ADJ UNCH | 1 2 |
|--------|--------------------|---------|-----|--------|-----|----------|-----|

QJ0009.Superseded values are not recommended for survey control.  
 QJ0009.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 QJ0009.See file dsdata.txt to determine how the superseded data were derived.  
 QJ0009

QJ0009\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TLK086927(NAD 83)  
 QJ0009\_MARKER: DD = SURVEY DISK  
 QJ0009\_SETTING: 40 = SET IN A LARGE STRUCTURE WITH DEEP FOUNDATIONS  
 QJ0009\_MARK LOGO: USLS  
 QJ0009\_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD  
 QJ0009+STABILITY: POSITION/ELEVATION WELL

| QJ0009 | HISTORY | - Date     | Condition  | Report By |
|--------|---------|------------|------------|-----------|
| QJ0009 | HISTORY | - UNK      | MONUMENTED | USLS      |
| QJ0009 | HISTORY | - 1934     | GOOD       | NGS       |
| QJ0009 | HISTORY | - 1966     | GOOD       | NGS       |
| QJ0009 | HISTORY | - 1983     | GOOD       | NGS       |
| QJ0009 | HISTORY | - 19990515 | GOOD       | USPSQD    |

QJ0009  
 QJ0009 STATION DESCRIPTION  
 QJ0009

QJ0009'DESCRIBED BY NATIONAL GEODETIC SURVEY 1934  
 QJ0009'AT ALPENA.  
 QJ0009'AT ALPENA, ALPENA COUNTY, IN THE NORTHEAST FACE OF THE POST  
 QJ0009'OFFICE, 28.8 FEET NORTHWEST OF THE NORTHWEST CURB OF FIRST  
 QJ0009'STREET, 10.7 FEET SOUTHWEST OF THE SOUTHWEST CURB OF THE POST  
 QJ0009'OFFICE DRIVE, 1.3 FEET NORTHEAST OF THE EAST CORNER OF THE  
 QJ0009'BUILDING, AND 3.1 FEET ABOVE GROUND. A U.S. LAKE SURVEY  
 QJ0009'STANDARD DISK, SET VERTICALLY.

QJ0009  
 QJ0009 STATION RECOVERY (1966)  
 QJ0009

QJ0009'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1966  
 QJ0009'RECOVERED IN GOOD CONDITION.

QJ0009  
 QJ0009 STATION RECOVERY (1983)  
 QJ0009

QJ0009'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1983  
 QJ0009'RECOVERED IN GOOD CONDITION. NOTE, DELETE U.S. POST OFFICE, ADD  
 QJ0009'FEDERAL BUILDING.

QJ0009  
 QJ0009 STATION RECOVERY (1999)  
 QJ0009

QJ0009'RECOVERY NOTE BY US POWER SQUADRON 1999  
 QJ0009'RECOVERED IN GOOD CONDITION.

1 National Geodetic Survey, Retrieval Date = JULY 14, 2004

QJ0103 \*\*\*\*\*

QJ0103 DESIGNATION - 907 5065 RIVER USE  
 QJ0103 PID - QJ0103  
 QJ0103 STATE/COUNTY- MI/ALPENA  
 QJ0103 USGS QUAD - ALPENA (1971)

QJ0103  
 QJ0103 \*CURRENT SURVEY CONTROL  
 QJ0103

|         |               |           |          |            |        |          |
|---------|---------------|-----------|----------|------------|--------|----------|
| QJ0103* | NAD 83(1986)- | 45 03 48. | (N)      | 083 25 48. | (W)    | SCALED   |
| QJ0103* | NAVD 88       | - 179.054 | (meters) | 587.45     | (feet) | ADJUSTED |

QJ0103  
 QJ0103 GEOID HEIGHT- -36.49 (meters) GEOID03  
 QJ0103 DYNAMIC HT - 179.042 (meters) 587.41 (feet) COMP  
 QJ0103 MODELED GRAV- 980,544.1 (mgal) NAVD 88

QJ0103  
 QJ0103 VERT ORDER - FIRST CLASS II  
 QJ0103

QJ0103.The horizontal coordinates were scaled from a topographic map and have  
 QJ0103.an estimated accuracy of +/- 6 seconds.

QJ0103  
 QJ0103.The orthometric height was determined by differential leveling  
 QJ0103.and adjusted by the National Geodetic Survey in June 1991.

QJ0103

QJ0103.The geoid height was determined by GEOID03.

QJ0103

QJ0103.The dynamic height is computed by dividing the NAVD 88  
 QJ0103.geopotential number by the normal gravity value computed on the  
 QJ0103.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 QJ0103.degrees latitude (g = 980.6199 gals.).

QJ0103

QJ0103.The modeled gravity was interpolated from observed gravity values.

QJ0103

|                 |   |          |            |       |                         |
|-----------------|---|----------|------------|-------|-------------------------|
| QJ0103;         |   | North    | East       | Units | Estimated Accuracy      |
| QJ0103;SPC MI C | - | 194,520. | 6,073,760. | MT    | (+/- 180 meters Scaled) |

QJ0103

QJ0103 SUPERSEDED SURVEY CONTROL

QJ0103

QJ0103.No superseded survey control is available for this station.

QJ0103

QJ0103\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TLK086928(NAD 83)

QJ0103\_MARKER: DD = SURVEY DISK

QJ0103\_SETTING: 37 = ABUTMENT

QJ0103\_STAMPING: RIVER CBF 1963 USLS

QJ0103\_MARK LOGO: USE

QJ0103\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

QJ0103+STABILITY: SURFACE MOTION

QJ0103

|        |         |            |            |           |
|--------|---------|------------|------------|-----------|
| QJ0103 | HISTORY | - Date     | Condition  | Report By |
| QJ0103 | HISTORY | - 1963     | MONUMENTED | USE       |
| QJ0103 | HISTORY | - 1983     | GOOD       | NGS       |
| QJ0103 | HISTORY | - 19990515 | GOOD       | USPSQD    |

QJ0103

QJ0103 STATION DESCRIPTION

QJ0103

QJ0103'DESCRIBED BY NATIONAL GEODETIC SURVEY 1983

QJ0103'IN ALPENA.

QJ0103'IN ALPENA, SET VERTICALLY IN THE SOUTH FACE OF THE SOUTH-SOUTHWEST  
 QJ0103'ABUTMENT OF THE THUNDER BAY BRIDGE, 0.1 KM (0.05 MI) SOUTH-SOUTHWEST  
 QJ0103'ALONG SECOND STREET FROM THE POST OFFICE, 9.05 METERS (29.7 FT)  
 QJ0103'SOUTHEAST OF THE CENTERLINE OF SECOND AVENUE, 1.92 METERS (6.3 FT)  
 QJ0103'BELOW THE TOP OF THE ABUTMENT, 1.52 METERS (5.0 FT) ABOVE BREAKWALL,  
 QJ0103'AND 11.34 METERS (37.2 FT) SOUTHWEST OF A POWERLINE POLE.  
 QJ0103'THE MARK IS 0.82 M BELOW SECOND AVENUE.

QJ0103

QJ0103 STATION RECOVERY (1999)

QJ0103

QJ0103'RECOVERY NOTE BY US POWER SQUADRON 1999

QJ0103'RECOVERED IN GOOD CONDITION.

1 National Geodetic Survey, Retrieval Date = JULY 14, 2004

RJ0186 \*\*\*\*\*

RJ0186 DESIGNATION - DOCK USLS  
 RJ0186 PID - RJ0186  
 RJ0186 STATE/COUNTY- MI/CHIPPEWA  
 RJ0186 USGS QUAD - OAK RIDGE (1976)

RJ0186

RJ0186 \*CURRENT SURVEY CONTROL

RJ0186

|         |               |           |                  |            |        |          |
|---------|---------------|-----------|------------------|------------|--------|----------|
| RJ0186* | NAD 83(1986)- | 46 17 20. | (N)              | 084 12 36. | (W)    | SCALED   |
| RJ0186* | NAVD 88       | -         | 178.070 (meters) | 584.22     | (feet) | ADJUSTED |

RJ0186

|        |               |                  |  |               |  |         |
|--------|---------------|------------------|--|---------------|--|---------|
| RJ0186 | GEOID HEIGHT- | -36.50 (meters)  |  |               |  | GEOID03 |
| RJ0186 | DYNAMIC HT -  | 178.079 (meters) |  | 584.25 (feet) |  | COMP    |
| RJ0186 | MODELED GRAV- | 980,664.7 (mgal) |  |               |  | NAVD 88 |

RJ0186

RJ0186 VERT ORDER - FIRST CLASS 0

RJ0186

RJ0186.The horizontal coordinates were scaled from a topographic map and have  
 RJ0186.an estimated accuracy of +/- 6 seconds.

RJ0186

RJ0186.The orthometric height was determined by differential leveling  
 RJ0186.and adjusted by the National Geodetic Survey in June 1991.

RJ0186

RJ0186.The geoid height was determined by GEOID03.

RJ0186

RJ0186.The dynamic height is computed by dividing the NAVD 88  
 RJ0186.geopotential number by the normal gravity value computed on the  
 RJ0186.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 RJ0186.degrees latitude (g = 980.6199 gals.).

RJ0186

RJ0186.The modeled gravity was interpolated from observed gravity values.

RJ0186

| RJ0186;         |   | North    | East       | Units | Estimated Accuracy      |
|-----------------|---|----------|------------|-------|-------------------------|
| RJ0186;SPC MI N | - | 171,120. | 8,214,930. | MT    | (+/- 180 meters Scaled) |

RJ0186

## SUPERSEDED SURVEY CONTROL

RJ0186

RJ0186 NGVD 29 (??/??/92) 178.144 (m) 584.46 (f) ADJ UNCH 1 0

RJ0186

RJ0186.Superseded values are not recommended for survey control.

RJ0186.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

RJ0186.See file dsdata.txt to determine how the superseded data were derived.

RJ0186

RJ0186\_U.S. NATIONAL GRID SPATIAL ADDRESS: 16TGS149299(NAD 83)

RJ0186\_MARKER: DO = NOT SPECIFIED OR SEE DESCRIPTION

RJ0186\_SETTING: 80 = SET IN A BOULDER

RJ0186\_MARK LOGO: USLS

RJ0186\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

RJ0186+STABILITY: SURFACE MOTION

RJ0186

| RJ0186 | HISTORY | - Date | Condition  | Report By |
|--------|---------|--------|------------|-----------|
| RJ0186 | HISTORY | - 1969 | MONUMENTED | USLS      |
| RJ0186 | HISTORY | - 1969 | GOOD       | USLS      |
| RJ0186 | HISTORY | - 1983 | GOOD       | NGS       |

RJ0186

## STATION DESCRIPTION

RJ0186

RJ0186'DESCRIBED BY US LAKE SURVEY 1969

RJ0186'AT NEEBISH ISLAND.

RJ0186'DOCK IS ON EAST SIDE OF NEEBISH ISLAND, CHIPPEWA COUNTY, MICHIGAN,

RJ0186'ABOUT 265 FEET EAST OF NEEBISH ISLAND FERRY DOCK, 107.7 FEET

RJ0186'SOUTH OF UTILITY POLE USCG NO. 7, 96.3 FEET SOUTH-SOUTHWEST

RJ0186'OF FLAGPOLE IN FRONT OF LAITINEWS GROCERY STORE, 74.9 FEET

RJ0186'WEST-NORTHWEST OF A UTILITY POLE, 46 FEET WEST OF CENTERLINE

RJ0186'OF 15 MILE ROAD, 4.6 FEET WEST OF UTILITY POLE NEZ-5/2, FLUSH

RJ0186'WITH THE GROUND SURFACE, BEING HIGHEST POINT OVER CROSS AT

RJ0186'CENTER OF BRONZE DISC SET INTO BOULDER.

RJ0186

RJ0186

## STATION RECOVERY (1983)

RJ0186

RJ0186'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1983

RJ0186'RECOVERED IN GOOD CONDITION. NEW DESCRIPTION FOLLOWS. IN OAK RIDGE

RJ0186'ON THE WEST SIDE OF NEEBISH ISLAND AT THE NEEBISH ISLAND FERRY LANDING

RJ0186'AREA, ON THE PROPERTY OF MR. TOYBO LAITINEW, SET IN TOP OF A 3 BY 2

RJ0186'FOOT EMBEDDED BOULDER, 14.0 METERS (46.0 FT) SOUTH-SOUTHWEST OF THE

RJ0186'APPROXIMATE CENTER OF 15 MILE ROAD, 32.8 METERS (107.7 FT) SOUTH OF

RJ0186'UTILITY POLE USCG NUMBER 7, 29.4 METERS (96.3 FT) SOUTH-SOUTHWEST OF A

RJ0186'FLAGPOLE IN THE WEST LAWN OF MR. LAITINEWS RESIDENCE, 22.8 METERS

RJ0186'(74.9 FT) WEST-NORTHWEST OF A UTILITY POLE, AND 1.4 METERS (4.6 FT)

RJ0186'WEST OF UTILITY POLE NUMBER NE2 52 WITH TWO GUY WIRES.  
 RJ0186'THE MARK IS ABOVE LEVEL WITH ROAD.

1 National Geodetic Survey, Retrieval Date = JULY 14, 2004

RJ0670 \*\*\*\*\*  
 RJ0670 DESIGNATION - E 297  
 RJ0670 PID - RJ0670  
 RJ0670 STATE/COUNTY- MI/CHIPPEWA  
 RJ0670 USGS QUAD - OAK RIDGE (1976)

RJ0670  
 RJ0670 \*CURRENT SURVEY CONTROL

RJ0670\* NAD 83(1986)- 46 17 20. (N) 084 12 35. (W) SCALED  
 RJ0670\* NAVD 88 - 178.775 (meters) 586.53 (feet) ADJUSTED

RJ0670  
 RJ0670 GEOID HEIGHT- -36.50 (meters) GEOID03  
 RJ0670 DYNAMIC HT - 178.784 (meters) 586.56 (feet) COMP  
 RJ0670 MODELED GRAV- 980,664.7 (mgal) NAVD 88

RJ0670  
 RJ0670 VERT ORDER - FIRST CLASS 0

RJ0670.The horizontal coordinates were scaled from a topographic map and have  
 RJ0670.an estimated accuracy of +/- 6 seconds.

RJ0670  
 RJ0670.The orthometric height was determined by differential leveling  
 RJ0670.and adjusted by the National Geodetic Survey in June 1991.

RJ0670  
 RJ0670.The geoid height was determined by GEOID03.

RJ0670  
 RJ0670.The dynamic height is computed by dividing the NAVD 88  
 RJ0670.geopotential number by the normal gravity value computed on the  
 RJ0670.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 RJ0670.degrees latitude (g = 980.6199 gals.).

RJ0670  
 RJ0670.The modeled gravity was interpolated from observed gravity values.

RJ0670  
 RJ0670;  
 RJ0670;SPC MI N - North East Units Estimated Accuracy  
 171,120. 8,214,950. MT (+/- 180 meters Scaled)

RJ0670  
 RJ0670 SUPERSEDED SURVEY CONTROL

RJ0670  
 RJ0670.No superseded survey control is available for this station.

RJ0670  
 RJ0670\_U.S. NATIONAL GRID SPATIAL ADDRESS: 16TGS149299(NAD 83)

RJ0670\_MARKER: I = METAL ROD  
 RJ0670\_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

RJ0670\_STAMPING: E 297 1983  
 RJ0670\_MARK LOGO: NGS

RJ0670\_PROJECTION: FLUSH  
 RJ0670\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

RJ0670\_ROD/PIPE-DEPTH: 9.5 meters

RJ0670  
 RJ0670 HISTORY - Date Condition Report By  
 RJ0670 HISTORY - 1983 MONUMENTED NGS

RJ0670  
 RJ0670 STATION DESCRIPTION

RJ0670'DESCRIBED BY NATIONAL GEODETIC SURVEY 1983  
 RJ0670'IN OAK RIDGE.  
 RJ0670'IN OAK RIDGE, AT THE NEEBISH ISLAND FERRY LANDING ON THE WEST SIDE OF  
 RJ0670'NEEBISH ISLAND, ABOUT 99.0 METERS (325.0 FT) EAST OF THE FERRY DOCK  
 RJ0670'AND LOCATED IN THE WEST LAWN OF THE PROPERTY OF MR. TY LAITEN,  
 RJ0670'11.3 METERS (43.0 FT) NORTH OF THE APPROXIMATE CENTER OF 15 MILE ROAD,  
 RJ0670'6.3 METERS (20.8 FT) EAST OF THE APPROXIMATE CENTER OF A GRAVEL ROAD,

RJ0670'0.30 METERS (2.0 FT) NORTH OF A WOODEN FLAGPOLE, 2.6 METERS (8.4 FT)  
 RJ0670'WEST OF THE WEST FACE OF A DWELLING, 28.7 METERS (98.3 FT) NORTH OF  
 RJ0670'BENCH MARK DOCK USLS, AND 28.65 METERS (94.0 FT) NORTH OF A POWERLINE  
 RJ0670'POLE WITH A GUY WIRE AND A TRANSFORMER.  
 RJ0670'THE MARK IS 0.31 M ABOVE ROAD.

1 National Geodetic Survey, Retrieval Date = JULY 14, 2004

RJ0669 \*\*\*\*\*

RJ0669 DESIGNATION - F 297  
 RJ0669 PID - RJ0669  
 RJ0669 STATE/COUNTY- MI/CHIPPEWA  
 RJ0669 USGS QUAD - OAK RIDGE (1976)

RJ0669  
 RJ0669 \*CURRENT SURVEY CONTROL

|         |               |           |                  |            |        |          |
|---------|---------------|-----------|------------------|------------|--------|----------|
| RJ0669* | NAD 83(1986)- | 46 17 04. | (N)              | 084 12 45. | (W)    | SCALED   |
| RJ0669* | NAVD 88       | -         | 177.605 (meters) | 582.69     | (feet) | ADJUSTED |

|        |               |                  |  |               |  |         |
|--------|---------------|------------------|--|---------------|--|---------|
| RJ0669 | GEOID HEIGHT- | -36.49 (meters)  |  |               |  | GEOID03 |
| RJ0669 | DYNAMIC HT -  | 177.614 (meters) |  | 582.72 (feet) |  | COMP    |
| RJ0669 | MODELED GRAV- | 980,664.6 (mgal) |  |               |  | NAVD 88 |

RJ0669 VERT ORDER - FIRST CLASS 0

RJ0669.The horizontal coordinates were scaled from a topographic map and have  
 RJ0669.an estimated accuracy of +/- 6 seconds.

RJ0669.The orthometric height was determined by differential leveling  
 RJ0669.and adjusted by the National Geodetic Survey in June 1991.

RJ0669.The geoid height was determined by GEOID03.

RJ0669.The dynamic height is computed by dividing the NAVD 88  
 RJ0669.geopotential number by the normal gravity value computed on the  
 RJ0669.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 RJ0669.degrees latitude (g = 980.6199 gals.).

RJ0669.The modeled gravity was interpolated from observed gravity values.

|                 |   |          |            |       |                         |
|-----------------|---|----------|------------|-------|-------------------------|
| RJ0669;         |   | North    | East       | Units | Estimated Accuracy      |
| RJ0669;SPC MI N | - | 170,620. | 8,214,760. | MT    | (+/- 180 meters Scaled) |

RJ0669  
 RJ0669 SUPERSEDED SURVEY CONTROL

RJ0669.No superseded survey control is available for this station.

RJ0669\_U.S. NATIONAL GRID SPATIAL ADDRESS: 16TGS147294(NAD 83)  
 RJ0669\_MARKER: I = METAL ROD  
 RJ0669\_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)  
 RJ0669\_STAMPING: F 297 1983  
 RJ0669\_MARK LOGO: NGS  
 RJ0669\_PROJECTION: FLUSH  
 RJ0669\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL  
 RJ0669\_ROD/PIPE-DEPTH: 7.0 meters

|        |         |        |            |           |
|--------|---------|--------|------------|-----------|
| RJ0669 | HISTORY | - Date | Condition  | Report By |
| RJ0669 | HISTORY | - 1983 | MONUMENTED | NGS       |

RJ0669  
 RJ0669 STATION DESCRIPTION

RJ0669'DESCRIBED BY NATIONAL GEODETIC SURVEY 1983  
 RJ0669'6.0 KM (3.7 MI) SE FROM BARBEAU.  
 RJ0669'4.5 KM (2.8 MI) EAST ALONG 15 MILE ROAD FROM THE POST OFFICE IN  
 RJ0669'BARBEAU, THENCE 1.1 KM (0.7 MI) SOUTH-SOUTHEAST ALONG AN ASPHALT ROAD

RJ0669' (SCENIC ROAD), THENCE 0.24 KM (0.15 MI) EAST-NORTHEAST ALONG AN  
RJ0669' ASPHALT ROAD, AT THE NEEBISH ISLAND FERRY LANDING, 7.3 METERS  
RJ0669' (24.0 FT) SOUTHEAST OF THE APPROXIMATE CENTER OF THE ASPHALT AND  
RJ0669' GRADED ROAD, 30.5 METERS (100.0 FT) NORTHWEST OF AN OLD ABANDONED  
RJ0669' TEXACO STATION SIGN, 41.2 METERS (135.0 FT) SOUTH-SOUTHWEST OF THE  
RJ0669' SOUTHWEST CORNER OF THE CONCRETE APRON OF THE APPROACH TO THE FERRY  
RJ0669' DOCK, 1.2 METERS (4.0 FT) NORTH-NORTHEAST OF A POWERLINE POLE WITH TWO  
RJ0669' GUY WIRES AND A TRANSFORMER, 1.6 METERS (5.3 FT) WEST-SOUTHWEST OF A  
RJ0669' GUY ANCHOR, AND 10.5 METERS (34.4 FT) NORTH-NORTHEAST OF A 4 BY 4 BY 3  
RJ0669' FOOT BOULDER ALONG SIDE OF THE ROAD.  
RJ0669' THE MARK IS 1.2 METERS NNE FROM A WITNESS POST.  
RJ0669' THE MARK IS ABOVE LEVEL WITH ASPHALT ROAD.

\*\*\* retrieval complete.

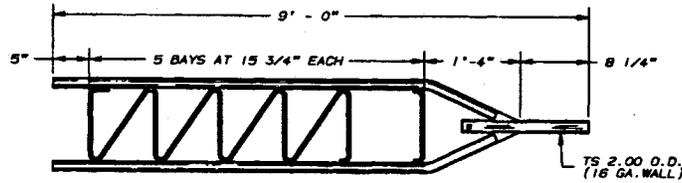
Elapsed Time = 00:00:01

Example of Brick to Match for Alpena Bldg.

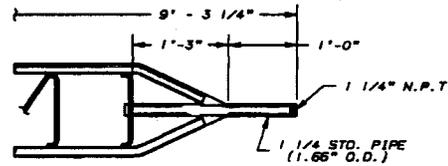


*Example of Brick to Match for Alpena Bldg.*

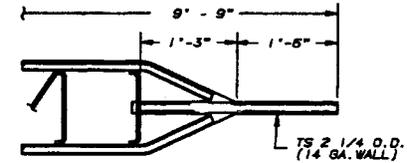




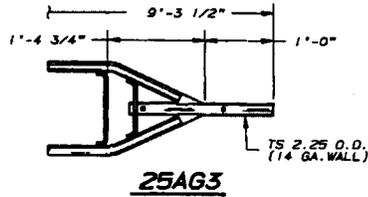
**25AG**



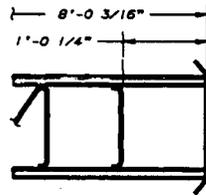
**25AG1**



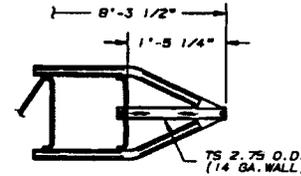
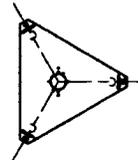
**25AG2**



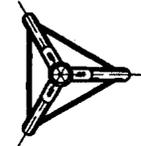
**25AG3**



**25AG4**

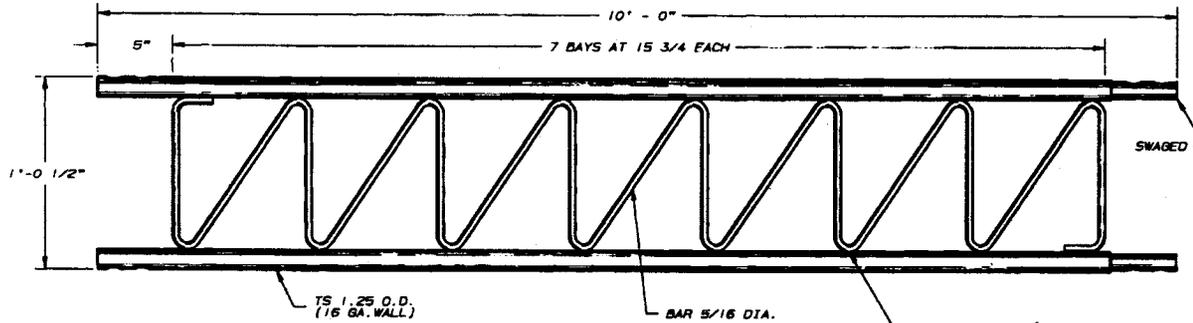


**25AG5**

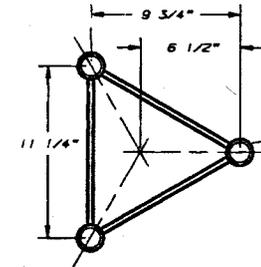


**TYPICAL PLAN VIEW**  
(FOR ALL SECTIONS EXCEPT 25AG4)

NOTE: SPECIFICATIONS OF TOP SECTIONS ARE THE SAME AS SECTION NO. 25G EXCEPT AS NOTED ABOVE.



**P/N 25G SECTION**



SAE GRADE 5 BOLT ASSY'S REQUIRED  
(3) 1/4" DIA. X 1 1/2" LG. (NF BOLTS)  
(3) 5/16" DIA. X 1 1/2" LG. (NF BOLTS)

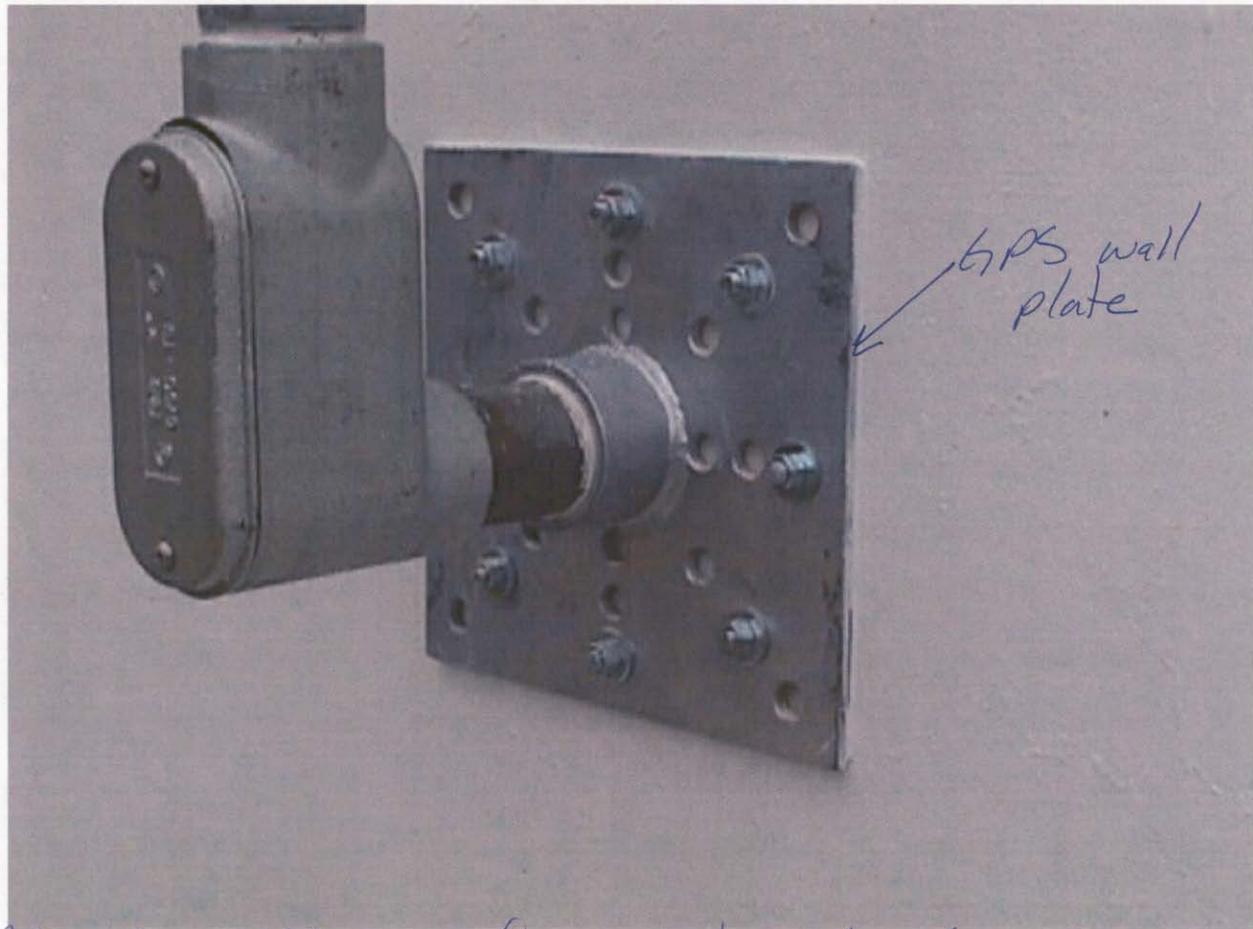
| SEC. >>        | 25G TOWER SECTION PROPERTIES |               |         |
|----------------|------------------------------|---------------|---------|
| ITEM           | LEGS                         | BRACES        | SECTION |
| SIZE           | TS 1.25 ODX. 065 WALL        | BAR 5/16 DIA. | N/A     |
| Fy             | 50.0                         | 36.0          | N/A     |
| A              | 0.2420                       | 0.0770        | 0.726   |
| S              | 0.0692                       | 0.0030        | 2.15    |
| I              | 0.0426                       | 0.00047       | 15.3    |
| r              | 0.4196                       | 0.0781        | 4.59    |
| L              | 15.7500                      | 19.7          | VARIES  |
| K              | 1.0                          | 1.0           | 1.0     |
| KL/r           | 37.5                         | 157.6         | VARIES  |
| C              | 8.43                         | 0.95          | N/A     |
| T              | 8.28                         | N/A           | N/A     |
| M              | N/A                          | N/A           | 6.72    |
| W              | 0.82                         | 0.261         | 4.0     |
| W <sub>s</sub> | 26.0                         | 14.0          | 40.0    |

**NOMENCLATURE**

- A = CROSS SECTIONAL AREA (SQ. INCHES)
- C = COMPRESSION CAPACITY WITH 1/3 INCREASE IN ALLOWABLE STRESS (KIPS)
- I = MOMENT OF INERTIA ABOUT CENTROIDAL AXIS (INCHES<sup>4</sup>)
- Fy = MINIMUM YIELD STRENGTH (KSI)
- K = EFFECTIVE LENGTH FACTOR (DIMENSIONLESS)
- L = UNBRACED LENGTH (INCHES)
- M = MOMENT CAPACITY WITH 1/3 INCREASE IN ALLOWABLE STRESS (FT.-KIPS)
- N/A = NOT APPLICABLE
- S = ELASTIC SECTION MODULUS (INCHES<sup>3</sup>)
- T = TENSION CAPACITY WITH 1/3 INCREASE IN ALLOWABLE STRESS (KIPS)
- r = RADIUS OF GYRATION (INCHES)
- W = WEIGHT PER FOOT (POUNDS)
- W<sub>s</sub> = WEIGHT PER SECTION (POUNDS)

NOTE: CAPACITIES SHOWN ARE BASED ON ANSI/EIA-222-E-1991.

|   |         |         |                             |     |
|---|---------|---------|-----------------------------|-----|
| REV'D EIA-222-D-1988 TO EIA-222-E-1991  | 8-10-91 | RKB     |                             |     |
| REDRAWN AND REVISED   | 6/13/91 | CSP     | RKB                         | TS  |
| REDRAWN AND REVISED SPEC.   | 2/18/90 | OPW     | WOU                         | RAM |
| No. & Revision Description  |         |         |                             |     |
| THIS DRAWING IS THE PROPERTY OF ROHN. IT IS NOT TO BE REPRODUCED, COPIED OR TRACED IN WHOLE OR IN PART WITHOUT OUR WRITTEN CONSENT. |         |         |                             |     |
| <b>ROHN</b>   |         |         |                             |     |
| Scale: NONE   | Dy      | Date    | Title:                      |     |
| Drawn: OPW  |         | 2/16/98 | <b>25G SECTION ASSEMBLY</b> |     |
| Checked: WOU  |         | 2/24/98 |                             |     |
| App. Eng.: RAM  |         | 2/25/98 |                             |     |
| App. Supt.: AE  |         | 2/25/98 |                             |     |
| DRAWING NO.: C630625 R9   |         |         |                             |     |



Note: this plate is furnished by the Government and shall be installed at location indicated on the drawings.

**General Decision Number: MI030003 05/21/2004 MI3**

Superseded General Decision Number: MI020003

State: Michigan

Construction Types: Building and Heavy

Counties: Alpena, Arenac, Gladwin, Midland, Ogemaw and Presque Isle Counties in Michigan.

BUILDING CONSTRUCTION PROJECTS (does not include residential construction consisting of single family homes and apartments up to and including 4 stories); 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       |

ASBE0047-009 07/01/2003

BAY, GENESEE, LAPEER, SAGINAW AND TUSCOLA COUNTIES:

|  | Rates    | Fringes |
|--|----------|---------|
| Insulator/asbestos worker<br>Includes the<br>application of all<br>insulating materials,<br>protective coverings,<br>coatings and finishings<br>to all types of<br>mechanical systems..... | \$ 25.35 | 11.55   |

-----  
BOIL0169-001 07/01/2003

|                  | Rates     | Fringes    |
|------------------|-----------|------------|
| Boilermaker..... | \$ 28.853 | 25% + 5.10 |

-----  
BRMI0007-002 10/01/1997

ARENAC, GLADWIN, MIDLAND AND OGEMAW COUNTIES:

|  | Rates    | Fringes |
|--|----------|---------|
| Base machinist.....                        | \$ 13.07 | 3.52    |
| Marble, terrazzo and tile<br>finisher..... | \$ 12.29 | 3.52    |

Marble, terrazzo and tile  
setter.....\$ 18.10 1.30

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BRMI0009-023 06/01/2003

ARENAC, GLADWIN, MIDLAND AND OGEMAW COUNTIES:

|                   | Rates    | Fringes |
|-------------------|----------|---------|
| Bricklayer.....   | \$ 23.13 | 10.24   |
| Cement Mason..... | \$ 21.39 | 9.56    |

FOOTNOTE:

Paid Holiday: Fourth of July, if the worker is employed by the contractor in any period of seven working days before said holiday within the current calendar year.

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BRMI0010-009 05/01/2001

ALPENA AND PRESQUE ISLE COUNTIES:

|  | Rates    | Fringes |
|--|----------|---------|
| Bricklayer and plasterer.....              | \$ 21.53 | 7.50    |
| Cement Mason.....                          | \$ 19.43 | 7.30    |
| Marble, terrazzo and tile<br>finisher..... | \$ 15.33 | 4.90    |
| Marble, terrazzo and tile<br>setter.....   | \$ 19.67 | 5.45    |

FOOTNOTE:

Paid Holiday: Fourth of July, if the worker was employed by the contractor in any period of seven working days before said holiday within the current calendar year.

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CARP0202-001 05/01/2003

ALPENA AND PRESQUE ISLE COUNTIES:

|                                | Rates    | Fringes |
|--------------------------------|----------|---------|
| Carpenter, Drywall Hanger..... | \$ 19.99 | 7.66    |
| Pile Driver.....               | \$ 20.62 | 7.68    |

FOOTNOTE: Welding: \$.25 per hour additional.

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CARP0706-006 07/17/2003

ARENAC, GLADWIN, MIDLAND AND OGEMAW COUNTIES:

|  | Rates    | Fringes |
|--|----------|---------|
| Carpenter<br>(Including drywall<br>hangers)..... | \$ 23.96 | 9.02    |

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CARP1045-013 05/01/2002

ALPENA AND PRESQUE ISLE COUNTIES:

|             | Rates    | Fringes |
|-------------|----------|---------|
| Lather..... | \$ 20.53 | 6.24    |

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CARP1045-015 07/17/2002

ARENAC, GLADWIN, MIDLAND AND OGEMAW COUNTIES:

|             | Rates    | Fringes |
|-------------|----------|---------|
| Lather..... | \$ 24.67 | 7.18    |

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\* CARP1102-002 06/01/2003

ALPENA, OGEMAW AND PRESQUE ISLE COUNTIES:

|                 | Rates    | Fringes |
|-----------------|----------|---------|
| Millwright..... | \$ 25.53 | 20.49   |

FOOTNOTES: Work on heights over open areas and over fifty  
(50) ft. high: \$.50 per hour additional.

Welding: \$.50 per hour additional.

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CARP1102-009 06/01/2003

ARENAC, GLADWIN AND MIDLAND COUNTIES:

|                 | Rates    | Fringes |
|-----------------|----------|---------|
| Millwright..... | \$ 27.89 | 13.01   |

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\* ELEC0557-003 06/01/2003

MIDLAND COUNTY (Townships of Ingersoll, Jasper, Mt. Haley and  
Porter):

|                  | Rates    | Fringes |
|------------------|----------|---------|
| Electrician..... | \$ 26.57 | 12.88   |

FOOTNOTE:

High work: Electrical work thirty-five feet (35') (to the work) above the ground or permanent floor, where a hazard exists: 15% per hour additional.

-----  
ELEC0692-006 06/01/2003

ALPENa COUNTY; OGEMAW COUNTY (Townships of Foster, Goodar and Rose); AND PRESQUE ISLE COUNTIES:

|                  | Rates    | Fringes  |
|------------------|----------|----------|
| Electrician..... | \$ 24.25 | 5.30+22% |

-----  
ELEC0692-007 06/01/2003

ARENAC AND GLADWIN COUNTIES; MIDLAND COUNTY (except the townships of Ingersoll, Jasper, Mt. Haley and Porter); and OGEMAW COUNTY (except the townships of Foster, Goodar and Rose):

|                  | Rates    | Fringes  |
|------------------|----------|----------|
| Electrician..... | \$ 26.79 | 5.30+22% |

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\* ELEC0876-005 06/01/2003

|   | Rates    | Fringes  |
|---|----------|----------|
| Line Construction:  |          |          |
| Cable splicer.....  | \$ 28.13 | 2.45+22% |
| Ground person.....  | \$ 13.86 | 2.45+22% |
| Light equipment<br>operator/ground<br>person/truck<br>driver/ground person<br>(winch, A-frame,<br>diggers when used for<br>distribution line truck<br>and used for<br>distribution work.<br>Distribution truck<br>driver, 5th wheel type<br>trucks, bucket trucks,<br>ladder trucks and all<br>live boom trucks, all<br>equipment 85 hp or<br>under)..... | \$ 17.79 | 2.45+22% |
| Line technician.....  | \$ 27.00 | 2.45+22% |
| Operator/ground person<br>(digger, tractor and<br>setting rig with tracks<br>or rough terrain<br>vehicle, large<br>bombardier, backhoe  |          |          |

|   |          |          |
|---|----------|----------|
| over 85 hp, hydraulic crane 10 ton or over).....  | \$ 20.31 | 2.45+22% |
| 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.

\* ELEV0085-003 01/01/2004

|                        | Rates     | Fringes |
|------------------------|-----------|---------|
| Elevator Mechanic..... | \$ 34.005 | 10.765  |

FOOTNOTE:

Vacation Pay: 8% with 5 or more years of service, 6% for 6 months to 5 years service.

Paid Holidays: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Friday after, and Christmas Day.

ENGI0324-008 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

\* ENGI0324-015 06/01/2003

|   | Rates    | Fringes |
|---|----------|---------|
| Power Equipment Operators - Steel Erection: |          |         |
| GROUP 1.....                                | \$ 37.59 | 12.30   |
| GROUP 2.....                                | \$ 38.59 | 12.30   |
| GROUP 3.....                                | \$ 36.09 | 12.30   |

|               |          |       |
|---------------|----------|-------|
| GROUP 4.....  | \$ 37.09 | 12.30 |
| GROUP 5.....  | \$ 34.59 | 12.30 |
| GROUP 6.....  | \$ 35.59 | 12.30 |
| GROUP 7.....  | \$ 34.32 | 5.84  |
| GROUP 8.....  | \$ 35.32 | 5.84  |
| GROUP 9.....  | \$ 33.87 | 5.84  |
| GROUP 10..... | \$ 34.87 | 5.84  |
| GROUP 11..... | \$ 33.14 | 5.84  |
| GROUP 12..... | \$ 34.14 | 5.84  |
| GROUP 13..... | \$ 32.78 | 5.84  |
| GROUP 14..... | \$ 33.78 | 5.84  |
| GROUP 15..... | \$ 32.14 | 5.84  |
| GROUP 16..... | \$ 25.33 | 5.84  |
| GROUP 17..... | \$ 23.92 | 5.84  |

FOOTNOTE:

Paid Holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Engineer when operating combination of boom and jib 400' or longer

GROUP 2: Engineer when operating combination of boom and jib 400' or longer on a crane that requires an oiler

GROUP 3: Engineer when operating combination of boom and jib 300' or longer

GROUP 4: Engineer when operating combination of boom and jib 300' or longer on a crane that requires an oiler

GROUP 5: Engineer when operating combination of boom and jib 220' or longer

GROUP 6: Engineer when operating combination of boom and jib 220' or longer on a crane that requires an oiler

GROUP 7: Engineer when operating combination of boom and jib 140' or longer

GROUP 8: Engineer when operating combination of boom and jib 140' or longer on a crane that requires an oiler

GROUP 9: Tower crane and derrick operator (where operator's work station is 50 ft. or more above first sub-level)

GROUP 10: Tower crane and derrick operator (where operator's work station is 50 ft. or more above first sub-level) on a crane that requires an oiler

GROUP 11: Crane operator when operating combination of boom and jib 120' or longer

GROUP 12: Crane operator when operating combination of boom

and jib 120' or longer on a crane that requires an oiler

GROUP 13: Crane operator and job mechanic

GROUP 14: Crane operator on a crane that requires an oiler

GROUP 15: Hoisting operator

GROUP 16: Compressor or welder operator

GROUP 17: Oiler

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\* ENGI0324-016 09/01/2003

|  | Rates    | Fringes |
|--|----------|---------|
| Power equipment operators -<br>underground construction: |          |         |
| GROUP 1.....   | \$ 25.67 | 12.35   |
| GROUP 2.....   | \$ 21.53 | 12.35   |
| GROUP 3.....   | \$ 21.03 | 12.35   |
| GROUP 4.....   | \$ 20.75 | 12.35   |

#### POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Backfiller tamper; Backhoe; Batch plant operator (concrete); Clamshell; Concrete paver (2 drums or larger); Conveyor loader (Euclid type); Crane (crawler, truck type or pile driving); Dozer; Dragline; Elevating grader; Endloader; Gradall (and similar type machine); Grader; Mechanic; Power shovel; Roller (asphalt); Scraper (self-propelled or tractor drawn); Side boom tractor (type D-4 or equivalent and larger); Slip form paver; Slope paver; Trencher (over 8 ft. digging capacity); Well drilling rig; Concrete pump with boom operator

GROUP 2: Boom truck (power swing type boom); Crusher; Hoist; Pump (1 or more-6-in. discharge or larger-gas or diesel-powered or powered by generator of 300 amperes or more-inclusive of generator); Side boom tractor (smaller than type D-4 or equivalent); Sweeper (Wayne type and similar equipment); Tractor (pneu-tired, other than backhoe or front end loader); Trencher (8-ft. digging capacity and smaller)

GROUP 3: Air compressors (600 cfm or larger); Air compressors (2 or more-less than 600 cfm); Boom truck (non-swinging, non-powered type boom); Concrete breaker (self-propelled or truck mounted - includes compressor); Concrete paver (1 drum-1/2 yd. or larger); Elevator (other than passenger); Maintenance person; Pump (2 or more-4-in. up to 6-in. discharge-gas or diesel powered-excluding submersible pumps); Pumpcrete machine (and similar equipment); Wagon drill (multiple); Welding machine or generator (2 or more-300 amp. or larger-gas or diesel powered)

GROUP 4: Boiler; Concrete saw (40 hp or over); Curing machine (self-propelled); Farm tractor (with attachment); Finishing

machine (concrete); Fire person; Hydraulic pipe pushing machine; Mulching equipment; Oiler; Pumps (2 or more up to 4-in. discharge, if used 3 hours or more a day, or gas diesel powered - excluding submersible pumps); Roller (other than asphalt); Stump remover; Trencher (service); Vibrating compaction equipment, self-propelled (6 ft. wide or over); End dump operator

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\* ENGI0324-017 05/01/2003

|                            | Rates    | Fringes |
|----------------------------|----------|---------|
| Power equipment operators: |          |         |
| GROUP 1.....               | \$ 26.71 | 11.25   |
| GROUP 2.....               | \$ 26.46 | 11.25   |
| GROUP 3.....               | \$ 25.36 | 11.25   |
| GROUP 4.....               | \$ 20.86 | 11.25   |
| GROUP 5.....               | \$ 20.26 | 11.25   |
| GROUP 6.....               | \$ 18.01 | 11.25   |
| GROUP 7.....               | \$ 16.31 | 11.25   |

FOOTNOTES: Crane operator with main boom and jib 300' or longer: \$1.50 per hour above the group 1 rate. Crane operator with main boom and jib 400' or longer: \$3.00 per hour above the group 1 rate.

PAID HOLIDAYS: New Year's Day, Decoration Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Crane with main boom and jib 220' or longer

GROUP 2: Crane with main boom and jib 140' or longer, tower crane, gantry crane, whirley derrick

GROUP 3: Regular equipment operator, crane, stiff leg derrick, scraper, dozer, grader, front end loader, hoist, job mechanic

GROUP 4: Air tugger (single drum), material hoist, boiler operator, sweeping machine, winch truck, bobcat and similar equipment, fork truck (over 20' lift)

GROUP 5: Pump 6" or over, well points, freeze systems, boom truck (non-swinging); end dumps and laser/power screed; concrete wire saw (20 h.p. and over)

GROUP 6: Air compressor, welder, generator, conveyor, pump under 6", grease person and fork truck (20' lifting capacity or less when working on masonry work)

GROUP 7: Oiler, fire tender and heater operator

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\* ENGI0325-005 10/01/2003

|  | Rates | Fringes |
|--|-------|---------|
|--|-------|---------|

Power equipment operators -  
hazardous waste removal:

ALPENA, ARENAC,  
GLADWIN, OGEMAW AND  
PRESQUE ISLE COUNTIES:  
LEVEL A:

|   |          |       |
|---|----------|-------|
| Crane operator,<br>mechanic, dragline<br>operator, boom truck<br>operator and concrete<br>pump with boom<br>operator..... | \$ 30.90 | 12.35 |
| Engineer when<br>operating crane with<br>boom and jib or leads<br>140' or longer.....                                     | \$ 32.58 | 12.35 |
| Engineer when<br>operating crane with<br>boom and jib or leads<br>220' or longer.....                                     | \$ 32.88 | 12.35 |
| GROUP 1.....  | \$ 29.93 | 12.35 |
| GROUP 2.....  | \$ 25.95 | 12.35 |

ALPENA, ARENAC,  
GLADWIN, OGEMAW AND  
PRESQUE ISLE COUNTIES:  
LEVEL B AND C:

|   |          |       |
|---|----------|-------|
| Crane operator,<br>mechanic, dragline<br>operator, boom truck<br>operator and concrete<br>pump with boom<br>operator..... | \$ 29.95 | 12.35 |
| Engineer when<br>operating crane with<br>boom and jib or leads<br>140' or longer.....                                     | \$ 31.63 | 12.35 |
| Engineer when<br>operating crane with<br>boom and jib or leads<br>220' or longer.....                                     | \$ 31.93 | 12.35 |
| GROUP 1.....  | \$ 28.98 | 12.35 |
| GROUP 2.....  | \$ 25.00 | 12.35 |

ALPENA, ARENAC,  
GLADWIN, OGEMAW AND  
PRESQUE ISLE COUNTIES:  
LEVEL D WHEN CAPPING  
LANDFILL:

|   |          |       |
|---|----------|-------|
| Crane operator,<br>mechanic, dragline<br>operator, boom truck<br>operator and concrete<br>pump with boom<br>operator..... | \$ 28.65 | 12.35 |
| Engineer when<br>operating crane with<br>boom and jib or leads  |          |       |

|   |       |
|---|-------|
| 140' or longer.....\$ 30.33   | 12.35 |
| Engineer when<br>operating crane with<br>boom and jib or leads  |       |
| 220' or longer.....\$ 30.63   | 12.35 |
| GROUP 1.....\$ 27.43  | 12.35 |
| GROUP 2.....\$ 23.45  | 12.35 |
| ALPENA, ARENAC,<br>GLADWIN, OGEMAW AND<br>PRESQUE ISLE COUNTIES:<br>LEVEL D:  |       |
| Crane operator,<br>mechanic, dragline<br>operator, boom truck<br>operator and concrete<br>pump with boom<br>operator.....\$ 27.78 | 12.35 |
| Engineer when<br>operating crane with<br>boom and jib or leads  |       |
| 140' or longer.....\$ 30.08   | 12.35 |
| Engineer when<br>operating crane with<br>boom and jib or leads  |       |
| 220' or longer.....\$ 30.38   | 12.35 |
| GROUP 1.....\$ 27.68  | 12.35 |
| GROUP 2.....\$ 23.70  | 12.35 |
| MIDLAND COUNTY: LEVEL A:  |       |
| Crane operator,<br>mechanic, dragline<br>operator, boom truck<br>operator and concrete<br>pump with boom<br>operator.....\$ 30.90 | 12.35 |
| Engineer when<br>operating crane with<br>boom and jib or leads  |       |
| 140' or longer.....\$ 32.58   | 12.35 |
| Engineer when<br>operating crane with<br>boom and jib or leads  |       |
| 220' or longer.....\$ 32.88   | 12.35 |
| GROUP 1.....\$ 29.93  | 12.35 |
| GROUP 2.....\$ 25.95  | 12.35 |
| MIDLAND COUNTY: LEVEL B<br>AND C:   |       |
| Crane operator,<br>mechanic, dragline<br>operator, boom truck<br>operator and concrete<br>pump with boom<br>operator.....\$ 29.95 | 12.35 |
| Engineer when<br>operating crane with<br>boom and jib or leads  |       |
| 140' or longe.....\$ 31.63  | 12.35 |
| Engineer when   |       |

|  |          |       |
|--|----------|-------|
| operating crane with boom and jib or leads 220' or longer.....   | \$ 31.93 | 12.35 |
| GROUP 1.....   | \$ 28.98 | 12.35 |
| GROUP 2.....   | \$ 25.00 | 12.35 |
| MIDLAND COUNTY: LEVEL D  |          |       |
| WHEN CAPPING LANDFILL:   |          |       |
| Crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator..... | \$ 27.78 | 12.35 |
| Engineer when operating crane with boom and jib or leads 140' or longer.....                               | \$ 30.08 | 12.35 |
| Engineer when operating crane with boom and jib or leads 220' or longer.....                               | \$ 30.38 | 12.35 |
| GROUP 1.....   | \$ 27.43 | 12.35 |
| GROUP 2.....   | \$ 23.45 | 12.35 |
| MIDLAND COUNTY: LEVEL D:   |          |       |
| Crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator..... | \$ 28.65 | 12.35 |
| Engineer when operating crane with boom and jib or leads 140' or longer.....                               | \$ 30.33 | 12.35 |
| Engineer when operating crane with boom and jib or leads 220' or longer.....                               | \$ 30.63 | 12.35 |
| GROUP 1.....   | \$ 27.68 | 12.35 |
| GROUP 2.....   | \$ 23.70 | 12.35 |

#### 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, sloop 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

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\* ENGI0326-001 05/01/2004

|  | Rates    | Fringes |
|--|----------|---------|
| Power equipment operators -<br>gas distribution and duct<br>installation work: |          |         |
| GROUP 1.....   | \$ 20.43 | 15.16   |
| GROUP 2-A.....   | \$ 20.34 | 15.15   |
| GROUP 2-B.....   | \$ 20.15 | 15.12   |
| GROUP 3.....   | \$ 19.47 | 15.02   |
| GROUP 4.....   | \$ 19.03 | 14.96   |

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

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\* IRON0025-010 04/01/2003

|  | Rates | Fringes |
|--|-------|---------|
|--|-------|---------|

|  |          |       |
|--|----------|-------|
| Ironworker - pre-engineered<br>metal building erector..... | \$ 19.67 | 13.51 |
|--|----------|-------|

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\* IRON0025-022 06/01/2003

|  | Rates    | Fringes |
|--|----------|---------|
| Ironworkers:<br>Machinery mover, rigger<br>and machinery<br>erector..... | \$ 24.09 | 16.95   |

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IRON0026-002 06/01/2001

|   | Rates    | Fringes |
|---|----------|---------|
| Ironworkers:<br>Fence erector.....              | \$ 18.37 | 12.88   |
| Ornamental, structural,<br>precast erector..... | \$ 25.09 | 17.48   |
| Siding & decking.....                           | \$ 20.56 | 15.41   |

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IRON0026-011 06/01/2001

|                                  | Rates    | Fringes |
|----------------------------------|----------|---------|
| Ironworkers:<br>Reinforcing..... | \$ 23.50 | 15.51   |
| Wire mesh.....                   | \$ 19.87 | 14.24   |

-----  
LABO0005-011 10/01/2001

|  | Rates    | Fringes |
|--|----------|---------|
| Laborers - hazardous waste<br>abatement:<br>ALPENA AND PRESQUE ISLE<br>COUNTIES:<br>Level A, B or C.....   | \$ 17.81 | 5.26    |
| Work performed in<br>conjunction with site<br>preparation not<br>requiring the use of<br>personal protective<br>equipment; Also,<br>Level D..... | \$ 16.81 | 5.26    |
| ARENAC, GLADWIN,<br>MIDLAND AND OGEMAW<br>COUNTIES:<br>Level A, B or C.....  | \$ 20.19 | 5.26    |
| Work performed in<br>conjunction with site<br>preparation not  |          |         |

requiring the use of  
 personal protective  
 equipment; Also,  
 Level D.....\$ 19.19 5.26

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 \* LABO0259-005 09/01/2003

|  | Rates    | Fringes |
|--|----------|---------|
| Laborers - tunnel, shaft<br>and caisson: |          |         |
| GROUP 1.....                             | \$ 20.62 | 6.35    |
| GROUP 2.....                             | \$ 20.73 | 6.35    |
| GROUP 3.....                             | \$ 20.85 | 6.35    |
| GROUP 4.....                             | \$ 20.92 | 6.35    |
| GROUP 5.....                             | \$ 21.07 | 6.35    |
| GROUP 6.....                             | \$ 18.37 | 6.35    |
| GROUP 7.....                             | \$ 15.01 | 6.35    |

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

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.

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 \* LABO0260-001 08/01/2003

|  | Rates    | Fringes |
|--|----------|---------|
| Laborer: Asbestos  |          |         |
| 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 | 5.65    |

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 LABO0334-015 07/01/2003

|                   | Rates    | Fringes |
|-------------------|----------|---------|
| Landscape Laborer |          |         |
| GROUP 1.....      | \$ 16.41 | 4.05    |
| GROUP 2.....      | \$ 12.19 | 4.05    |

LANDSCAPE LABORER CLASSIFICATIONS

GROUP 1: Landscape specialist, including air, gas and diesel equipment operator and lawn sprinkler installer

GROUP 2: Laborer, small power tool operator, material mover and truck driver

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 \* LABO0334-023 09/01/2003

|                      | Rates    | Fringes |
|----------------------|----------|---------|
| Laborers - open cut: |          |         |
| GROUP 1.....         | \$ 18.22 | 6.35    |
| GROUP 2.....         | \$ 18.35 | 6.35    |
| GROUP 3.....         | \$ 18.46 | 6.35    |
| GROUP 4.....         | \$ 18.53 | 6.35    |
| GROUP 5.....         | \$ 18.65 | 6.35    |
| GROUP 6.....         | \$ 15.87 | 6.35    |

GROUP 7.....\$ 14.21

6.35

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 appurtuces, 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 also be construed to mean waterfront work, piers, docks, seawalls, breakwalls, marinas and all incidental work. 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.

OPEN CUT 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 & boring person, wagon drill and air track operator and concrete saw operator (under 40 h.p.), windlass and tugger 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.

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LABO1098-004 06/30/2003

ARENAC, GLADWIN, MIDLAND AND OGEMAW COUNTIES:

|              | Rates    | Fringes |
|--------------|----------|---------|
| Laborer      |          |         |
| Group 1..... | \$ 18.90 | 6.25    |
| Group 2..... | \$ 19.40 | 6.25    |
| Group 3..... | \$ 19.90 | 6.25    |

LABORER CLASSIFICATIONS

GROUP 1: All construction laborers except workers falling within specified classifications; Also, pumps with a 3-in. or less discharge and not hooked up in battery, mechanized buggy operator & mortar mixer (when done by hand) and mason tender

GROUP 2: Air or electric driven pavement breakers, concrete vibrator, Tunnel miner, tunnel mucker and tunnel and shaft underpinning contributing to the structural support of buildings

GROUP 3: Driller & blaster, burner & welder; Also, refractory work: Work inside or outside digesters, tanks, lime kilns, chests, boilers and boiler tubes, heat treat ovens, and smoke stacks, including the handling of acid, chlorine, chemicals, epoxies, liquids and cleaning of existing precipitators, hydro blasting, hydro washing, and sandblasting

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LABO1098-005 05/01/2003

ALPENA AND PRESQUE ISLE COUNTIES:

|   | Rates    | Fringes |
|---|----------|---------|
| Laborers:   |          |         |
| GROUP 1.....  | \$ 16.06 | 5.95    |
| GROUP 2.....  | \$ 16.66 | 5.95    |
| Work inside or outside digester, tanks, lime kilns, chests, boilers, and boiler tubes, including the handling of acid, chlorine, chemicals, epoxies, liquids and cleaning of existing precipitators, hydro blasting, hydro washing, sandblasting..... | \$ 17.06 | 5.95    |
| Work on light commercial projects such as churches, funeral homes, restaurants, warehouses (up to 25,000 sq. ft.),  |          |         |

nursing homes (2 story  
and basement or less),  
open-faced shopping  
centers, economy  
hotels, renovation  
work, individual  
buildings (up to 25,000  
sq. ft.),  
pre-engineered metal  
buildings, and pole  
type buildings.....\$ 16.06                      5.95

LABORER CLASSIFICATIONS

GROUP 1: All construction laborers on building and heavy  
construction work, except those in Group 2, mortar mixer,  
mason tender, carpenter tender, material mixer (whether done  
by hand or machine), vibrator operator, operator of concrete  
mixer, chipping hammer, tamping machine (whether run by air,  
electric, or gas), sandblaster, operator of motor-driven  
buggies, plaster mixer, plaster tender, pipe or crock layer,  
caisson work in buildings

GROUP 2: Concrete breaker (90 lb. hammer or less) and cement  
gun nozzle person

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PAIN0826-007 12/15/2002

|              | Rates    | Fringes |
|--------------|----------|---------|
| Glazier..... | \$ 21.73 | 9.31    |

PAID HOLIDAYS: New Years Day, Memorial Day, Fourth of July,  
Labor Day, Thanksgiving Day and Christmas Day.

FOOTNOTES: High pay: Work from any mechanical lift,  
regardless of the height off of the surface: \$0.75 per hour  
additional.

Working from scaffolding shall be paid at the premium rate  
only when the working platform is at twenty (20) feet or  
above. All swing stage work to be paid at the premium rate.  
Working from a ladder at twenty (20) feet or above qualifies  
for the premium rate. Premium pay is only to be paid for the  
actual time worked on the lift device, scaffold, or ladder.

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PAIN1803-004 12/01/2001

|  | Rates    | Fringes |
|--|----------|---------|
| Painters:<br>All other work,<br>including maintenance<br>of industrial plants..... | \$ 17.98 | 7.25    |
| Work performed on<br>water, bridges over<br>water or moving<br>traffic, radio and  |          |         |

powerline towers,  
 elevated tanks,  
 steeples, smoke stacks  
 over 40 ft. of falling  
 heights, recovery of  
 lead-based paints and  
 any work associated  
 with industrial plants,  
 except maintenance of  
 industrial plants.....\$ 19.40                      7.25

FOOTNOTE: Spray painting, sandblasting, blowdown associated  
 with spraying and blasting, water blasting and work involving  
 a swing stage, boatswain chair or spider: \$1.00 per hour  
 additional. All work performed inside tanks, vessels, tank  
 trailers, railroad cars, sewers, smoke stacks, boilers or  
 other spaces having limited egress not including buildings,  
 opentop tanks, pits, etc.: \$1.25 per hour additional. Work  
 involving the installation of wallcoverings: \$0.30 cents per  
 hour additional.

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 PAIN1803-008 08/01/2003

|                       | Rates    | Fringes |
|-----------------------|----------|---------|
| Drywall Finisher..... | \$ 20.80 | 8.75    |

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 \* PLUM0085-001 05/05/2003

ALPENA, OGEMAW AND PRESQUE ISLE COUNTIES:

|                          | Rates    | Fringes |
|--------------------------|----------|---------|
| Plumbers and Pipefitters |          |         |
| All other work.....      | \$ 24.34 | 13.59   |
| Industrial work.....     | \$ 25.83 | 13.59   |

-----  
 \* PLUM0085-008 05/05/2003

ARENAC, GLADWIN AND MIDLAND COUNTIES:

|                          | Rates    | Fringes |
|--------------------------|----------|---------|
| Plumbers and Pipefitters |          |         |
| All other building       |          |         |
| construction.....        | \$ 25.83 | 13.59   |

-----  
 PLUM0190-006 05/01/2003

|                           | Rates    | Fringes |
|---------------------------|----------|---------|
| Gas Distribution Pipeline |          |         |
| All other work.....       | \$ 17.11 | 7.12    |
| Welding in conjunction    |          |         |

with gas distribution  
pipeline work.....\$ 26.25 10.16

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ROOF0149-003 05/01/2002

ALPENA AND PRESQUE ISLE COUNTIES:

|             | Rates    | Fringes |
|-------------|----------|---------|
| Roofer..... | \$ 16.15 | 6.70    |
| Slater..... | \$ 18.15 | 6.70    |

-----  
ROOF0149-005 06/01/2001

ARENAC, GLADWIN, MIDLAND AND OGEMAW COUNTIES:

|             | Rates    | Fringes |
|-------------|----------|---------|
| Roofer..... | \$ 20.16 | 7.50    |

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SFMI0669-008 01/01/2004

|                       | Rates    | Fringes |
|-----------------------|----------|---------|
| Sprinkler Fitter..... | \$ 28.46 | 10.80   |

-----  
SHEE0007-009 05/01/2001

|  | Rates    | Fringes  |
|--|----------|----------|
| Sheet Metal Worker   |          |          |
| All other work.....  | \$ 21.98 | 3%+10.05 |
| Work on any multiple<br>family housing unit<br>over 4 stories where<br>each individual family<br>apartment is<br>individually<br>conditioned by a<br>separate and<br>independent unit or<br>system; Also, work on<br>any single building<br>with single tenant<br>under 600,000 BTU<br>heating and/or 20 ton<br>cooling..... | \$ 16.95 | 4.27     |

-----  
TEAM0007-007 06/01/2002

|  | Rates | Fringes |
|--|-------|---------|
|--|-------|---------|

Truck drivers:

|                             |           |         |
|-----------------------------|-----------|---------|
| Euclids, double bottoms     |           |         |
| and lowboys.....            | \$ 23.045 | .50 + a |
| Trucks under 8 cu. yds..... | \$ 22.795 | .50 + a |
| Trucks, 8 cu. yds. and      |           |         |
| over.....                   | \$ 22.895 | .50 + a |

FOOTNOTE: a. \$265.90 per week.

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

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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.  
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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 05/21/2004 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       |

BOIL0169-005 07/01/2003

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

BRMI0006-002 05/01/2003

|   | Rates    | Fringes |
|---|----------|---------|
| Bricklayer; marble, terrazzo and tile setter..... | \$ 21.89 | 10.01   |
| Cement Mason.....                                 | \$ 21.89 | 10.01   |
| Pointer, caulker and cleaner...\$                 | 20.89    | 10.01   |

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 person<br>winch, A-frame, diggers when used for distribution line truck and used for distribution work.<br>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.

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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.

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\* ENGI0324-012 05/01/2003

|   | Rates    | Fringes |
|---|----------|---------|
| Power Equipment Operator (STEEL ERECTION:)          |          |         |
| Compressor; forklift; welder.....                   | \$ 21.49 | 5.75    |
| Crane operator, main boom & jib 120' or longer..... | \$ 25.24 | 5.75    |
| Crane operator, main boom & jib 140' or longer..... | \$ 25.49 | 5.75    |
| Crane operator, main boom & jib 220' or longer..... | \$ 25.74 | 5.75    |
| Mechanic with truck and tools.....                  | \$ 26.24 | 5.75    |
| Oiler and fire tender.....                          | \$ 20.19 | 5.75    |
| Regular operator.....                               | \$ 24.74 | 5.75    |

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\* ENGI0326-001 05/01/2004

|  | Rates    | Fringes |
|--|----------|---------|
| Power equipment operators - gas distribution and duct installation work: |          |         |
| GROUP 1.....   | \$ 20.43 | 15.16   |
| GROUP 2-A.....   | \$ 20.34 | 15.15   |
| GROUP 2-B.....   | \$ 20.15 | 15.12   |
| GROUP 3.....   | \$ 19.47 | 15.02   |
| GROUP 4.....   | \$ 19.03 | 14.96   |

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

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 ENGI0326-014 05/01/2002

|  | Rates    | Fringes |
|--|----------|---------|
| Power equipment operators<br>(includes underground<br>construction): |          |         |
| Crane operator, main<br>boom & jib           120'                    |          |         |
| or longer.....   | \$ 24.19 | 11.40   |
| Crane operator, main<br>boom & jib           140'                    |          |         |
| or longer.....   | \$ 24.44 | 11.40   |
| Crane operator, main<br>boom & jib           220'                    |          |         |
| or longer.....   | \$ 24.69 | 11.40   |
| GROUP 1.....   | \$ 23.69 | 11.40   |
| GROUP 2.....   | \$ 20.44 | 11.40   |
| GROUP 3.....   | \$ 19.86 | 11.40   |
| GROUP 4.....   | \$ 18.92 | 11.40   |
| Mechanic with truck and<br>tools.....                                | \$ 25.19 | 11.40   |

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.

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

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\* 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

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

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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   |

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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   |

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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 |

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 \* LABO0259-004 09/01/2003

|                                       | Rates    | Fringes |
|---------------------------------------|----------|---------|
| Laborers - tunnel, shaft and caisson: |          |         |
| GROUP 1.....                          | \$ 20.62 | 6.35    |
| GROUP 2.....                          | \$ 20.73 | 6.35    |
| GROUP 3.....                          | \$ 20.85 | 6.35    |
| GROUP 4.....                          | \$ 20.92 | 6.35    |
| GROUP 5.....                          | \$ 21.07 | 6.35    |
| GROUP 6.....                          | \$ 18.37 | 6.35    |
| GROUP 7.....                          | \$ 15.01 | 6.35    |

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.

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\* LABO0260-008 08/01/2003

|  | 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 | 5.65    |

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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 tugger 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.

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LABO1329-002 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

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PLUM0190-006 05/01/2003

|   | Rates    | Fringes |
|---|----------|---------|
| Gas Distribution Pipeline   |          |         |
| All other work.....   | \$ 17.11 | 7.12    |
| Welding in conjunction<br>with gas distribution<br>pipeline work..... | \$ 26.25 | 10.16   |

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PLUM0506-012 06/01/2003

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

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SHEE0007-019 01/01/2000

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

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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.

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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 |
| GROUP 2.....   | \$ 19.77 | 3.76/hr.+ 17 |
| GROUP 3.....   | \$ 19.83 | 3.76/hr.+ 17 |
| GROUP 4.....   | \$ 19.98 | 3.76/hr.+ 17 |

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

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

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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)).

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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.

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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: 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<br>service Truck Driver.....  | \$ 22.51 | 7.61+a+b  |
| Lead Deckhand.....  | \$ 29.68 | 7.61+a+b  |
| Hydraulic Dredging  |          |           |
| LAUNCH OPERATOR -<br>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,<br>Lineman, Oiler,<br>Deckhand, Tankerman.<br>Scowman, (on/or with<br>tugboats, launches, or<br>other self-propelled<br>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,<br>Chautauga, Erie and<br>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,<br>Jefferson, Oswego, and<br>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.  
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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)).  
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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.

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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

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## SECTION 02139

## SITE PREPARATION

## PART 1 GENERAL

This Section pertains to excavation, backfilling, topsoil and seeding.

## 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 (1986) Laboratory Soils Testing

## 1.2 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 01300, entitled "SUBMITTAL DESCRIPTIONS":

## SD-01 Data

## Construction Equipment;

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. All the plant shall be maintained in satisfactory working condition at all times.

## Work Plan; G-AOF

At least 15 calendar days prior to proceeding with the work, submit a work plan for excavation, dewatering, backfilling and filling. The Contractor shall excavate, backfill and fill and use existing materials of satisfactory quality from within the required work area to construct the work as shown and specified. If the quantities of existing materials are insufficient, the Contractor shall obtain satisfactory materials in the amounts necessary from approved commercially-active off-site sources and properly place them in the work, all at no additional cost to the Government.

## Fill Material Source; G-AOF

At least 15 calendar days prior to delivering fill materials to the site, submit the name and location of the commercially-active source.

## SD-18 Records

## Check Survey Records;

A copy of the records of each check survey shall be provided on the next work day following the survey.

## PART 2 PRODUCTS (NOT APPLICABLE)

## PART 3 EXECUTION

## 3.1 SITE CLEARANCE

Only the area for construction of the required gauge house, underground cables, and intake pipe, as shown on the drawings, shall be cleared of vegetation, organic debris and other unsatisfactory materials. Protruding metal items, shall be cut off and removed. Removed vegetation and unsatisfactory and all other materials obtained from clearing operations shall be disposed of as specified in Paragraph "DISPOSAL." Clearing shall consist of the complete removal above ground of down timber, logs, brush, trees, weeds, debris, trash, scrap metal and other items. All work shall be completed in a workmanlike manner subject to approval by the Contracting Officer.

## 3.1.1 Excavation, Filling and Backfilling

## 3.1.1.1 Excavation

The Contractor shall perform all excavation of whatever substance is encountered. Excavation operations shall be conducted with care to prevent undermining and sliding of existing slopes and structures which are to remain. The excavated materials that are suitable for topsoil, backfill or fill shall be stockpiled for reuse, or placed directly in the required position in the work. Material suitable for reuse as backfill and fill is generally defined as any existing granular material free of sod, roots, brush, wood, debris, rubbish, oil, waste material, and lumps of clay or frozen material. Any material not suitable for reuse shall be disposed of as specified herein.

## 3.1.1.2 Backfill and Fill

Backfill and fill shall consist of excavated material satisfactory for reuse as fill or backfill, or supplemental quantities of granular material obtained from an approved commercially-active source, unless otherwise shown or specified. Granular fill or backfill shall be placed in layers of eight (8) inches or less in loose thickness.

## 3.1.1.3 Fill Materials from Off-Site Sources(s)

Supplemental quantities of fill materials, if required, shall be obtained from a commercially-active source approved by the Contracting Officer. Fill from off-site sources are not required to be obtained unless the quantities of satisfactory excavated material are insufficient for the project. Satisfactory fill materials shall include materials classified in ASTM D2487 as SW, SP and SM or combinations thereof and shall be free of roots, brush, frozen lumps, organic matter, contamination and other unsatisfactory materials. All other materials will be considered unsatisfactory. Sand shall not be obtained from sanitary landfill areas or areas exposed to contaminated ground water or other contaminated materials.

## 3.1.1.4 Compaction

Backfill or fill placed in submerged locations does not require compaction. Above-water granular fill and backfill for the gauge house, intake pipe, and sidewalk shall be compacted to ninety-five percent (95%) of maximum

density obtained at optimum moisture content as determined by the Contractor in accordance with EM 1110 2 1906, Standard Compaction Test. A total of three (3) compaction tests shall be performed by the Contractor in locations designated in the field by the Contracting Officer's Representative.

### 3.1.2 Grading

At the completion of backfilling and filling operations, stockpiled topsoil shall be redistributed on the surface to an approximate depth of 3 inches. The ground surfaces shall be graded to create a smooth transition to surrounding surfaces which were not disturbed under this contract. All restored surfaces shall be sloped to drain and not pond water.

### 3.1.3 Slides and Washouts

In the event of the sliding or washout of any part of the required work during construction, the Contractor shall, upon written order of the Contracting Officer, rebuild that portion of the work. If the slide or washout is caused through fault of the Contractor, as determined by the Contracting Officer, the foregoing operations shall be performed without cost to the Government.

### 3.2 CONCRETE SIDEWALK REMOVAL (Alpena only)

Concrete sidewalk is to be removed in areas specified on plans. The edges of the concrete sidewalk to be removed shall be saw cut before removal work begins.

### 3.3 TURF RESTORATION

As backfilling operations and other surface disturbing operations are completed, the Contractor shall grade the surface to a smooth condition and seed the surface with a roadside seed mixture, including topsoiling, mulching and fertilizing, as described in SECTION 01130, ENVIRONMENTAL PROTECTION, ARTICLE titled POST CONSTRUCTION CLEANUP OR OBLITERATION.

#### 3.3.1 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.

#### 3.3.2 QUALITY CONTROL

#### 3.3.3 Check Surveys

The Contractor shall make checks as the work progresses to verify that the placed materials will allow the completed structure to be constructed within the lines, grades and thicknesses established for completed work. At least one (1) check survey as specified below shall be made by the Contractor as soon as practicable after completion of an item of work. Approval of surveyed elevations based on check surveys shall not constitute final acceptance of the work. Additional elevations and soundings shall be taken as the C.O.R. may deem necessary or advisable. The surveys shall be conducted in the presence of an authorized representative of the Government, unless this requirement is waived by the Contracting Officer.

Spot elevations shall be taken and recorded upon completion of work for the following locations:

1. Bottom of Well
2. Intake pipe invert at connection to well and inlet.
3. Top of concrete floor slab.
4. Ground elevation 6 inches from slab.
5. Survey Disk
6. 3 additional spot elevation and sounding locations to be determined by an authorized, on site, government representative.

#### 3.3.3.1 Above Water

Elevation of material above the water surface shall be determined by the use of a leveling instrument and a rod having a base twelve (12) inches in diameter. Other means, if approved by the Contracting Officer, may also be used.

#### 3.3.3.2 Below Water

For portions of the work that are under water, sounding surveys shall be performed either by means of a sounding pole or a sounding basket weighing about 8-1/2 pounds, each of which has a base measuring twelve (12) inches in diameter. Electronic soundings shall not be used on material larger than three (3) inches in any dimension.

-- End of Section --

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## SECTION 03307A

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## SECTION 03307A

## CONCRETE

## PART 1 GENERAL

## 1.1 REFERENCES

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

## ACI INTERNATIONAL (ACI)

- ACI 308 (1992; R 1997) Standard Practice for Curing Concrete
- ACI 318/318R (2002) Building Code Requirements for Structural Concrete and Commentary

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM A 185 (2002) Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
- ASTM A 615/A 615M (2003) Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
- ASTM C 143/C 143M (2003) Slump of Hydraulic Cement Concrete
- ASTM C 150 (2003E) Portland Cement
- ASTM C 171 (1997a) Sheet Materials for Curing Concrete
- ASTM C 172 (1999) Sampling Freshly Mixed Concrete
- ASTM C 231 (2003) Air Content of Freshly Mixed Concrete by the Pressure Method
- ASTM C 260 (2001) Air-Entraining Admixtures for Concrete
- ASTM C 309 (2003) Liquid Membrane-Forming Compounds for Curing Concrete
- ASTM C 39/C 39M (2001) Compressive Strength of Cylindrical Concrete Specimens
- ASTM C 494/C 494M (2003) Chemical Admixtures for Concrete
- ASTM C 685 (2001) Concrete Made by Volumetric Batching and Continuous Mixing
- ASTM D 75 (2003) Sampling Aggregates

ASTM D 98

(1998) Calcium Chloride

## 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-03 Product Data

Accelerating Admixture; FIO

Curing Materials; FIO  
Reinforcing Steel; FIO

Joint Sealants - Field Molded Sealants; FIO

Manufacturer's literature is available from suppliers which demonstrates compliance with applicable specifications for the above materials.

Batching and Mixing Equipment;

Batching and mixing equipment will be accepted on the basis of manufacturer's data which demonstrates compliance with the applicable specifications.

Conveying and Placing Concrete;

The methods and equipment for transporting, handling, depositing, and consolidating the concrete shall be submitted prior to the first concrete placement.

## SD-06 Test Reports

Concrete Mixture Proportions; G-AOF

Ten days prior to placement of concrete, the contractor shall submit the mixture proportions that will produce concrete of the quality required. Applicable test reports shall be submitted to verify that the concrete mixture proportions selected will produce concrete of the quality specified.

## SD-07 Certificates

Cementitious Materials; G-AOF

Certificates of compliance attesting that the concrete materials meet the requirements of the specifications shall be submitted in accordance with the Special Clause "CERTIFICATES OF COMPLIANCE". Cementitious material will be accepted on the basis of a manufacturer's certificate of compliance, accompanied by mill test reports that the material(s) meet the requirements of the specification under which it is furnished.

### Aggregates; G-AOF

Aggregates will be accepted on the basis of certificates of compliance and tests reports that show the material(s) meet the quality and grading requirements of the specifications under which it is furnished.

## 1.3 DESIGN AND PERFORMANCE REQUIREMENTS

The Government will maintain the option to sample and test aggregates and concrete to determine compliance with the specifications. Samples of aggregates will be obtained at the point of batching in accordance with ASTM D 75. Concrete will be sampled in accordance with ASTM C 172. Slump and air content will be determined in accordance with ASTM C 143/C 143M and ASTM C 231, respectively, when cylinders are molded. Compression test specimens will be made, cured, and transported in accordance with ASTM C 31/C 31M. Compression test specimens will be tested in accordance with ASTM C 39/C 39M. Samples for strength tests will be taken not less than once each shift in which concrete is produced. A minimum of three specimens will be made from each sample; two will be tested at 28 days (90 days if pozzolan is used) for acceptance, and one will be tested at 7 days for information.

### 1.3.1 Strength

Acceptance test results will be the average strengths of two specimens tested at 28 days (90 days if pozzolan is used). The strength of the concrete will be considered satisfactory so long as the average of three consecutive acceptance test results equal or exceed the specified compressive strength,  $f'c$ , and no individual acceptance test result falls below  $f'c$  by more than 500 psi.

### 1.3.2 Concrete Mixture Proportions

Concrete mixture proportions shall be the responsibility of the Contractor.

Mixture proportions shall include the dry weights of cementitious material(s); the nominal maximum size of the coarse aggregate; the specific gravities, absorptions, and saturated surface-dry weights of fine and coarse aggregates; the quantities, types, and names of admixtures; and quantity of water per cubic yard of concrete. All materials included in the mixture proportions shall be of the same type and from the same source as will be used on the project. Specified compressive strength  $f'c$  shall be 4,000 psi at 28 days (90 days if pozzolan is used). The maximum nominal size coarse aggregate shall be 1-1/2 inches, in accordance with ACI 318/318R.

The air content shall be between 4.5 and 7.5 percent. The slump shall be between 2 and 5 inches. The maximum water cement ratio shall be 0.44.

## PART 2 PRODUCTS

### 2.1 MATERIALS

#### 2.1.1 Cementitious Materials

Cementitious materials shall conform to the appropriate specifications listed:

##### 2.1.1.1 Portland Cement

ASTM C 150, Type I, IA, or II, .

### 2.1.2 Pre-Cast Concrete

Precast concrete sections shall conform to ASTM C-478 for standard pre-cast reinforcement and ASTM C-443 for concrete joint sealers.

### 2.1.3 Aggregates

Aggregates shall meet the quality and grading requirements of ASTM C 330.

### 2.1.4 Admixtures

Admixtures to be used, when required or approved, shall comply with the appropriate specification listed. Chemical admixtures that have been in storage at the project site for longer than 6 months or that have been subjected to freezing shall be retested at the expense of the contractor at the request of the Contracting Officer and shall be rejected if test results are not satisfactory.

#### 2.1.4.1 Air-Entraining Admixture

Air-entraining admixture shall meet the requirements of ASTM C 260.

#### 2.1.4.2 Accelerating Admixture

Calcium chloride shall meet the requirements of ASTM D 98. Other accelerators shall meet the requirements of ASTM C 494/C 494M, Type C or E.

#### 2.1.4.3 Water-Reducing or Retarding Admixture

Water-reducing or retarding admixture shall meet the requirements of ASTM C 494/C 494M, Type A, B, or D.

### 2.1.5 Water

Water for mixing and curing shall be fresh, clean, potable, and free from injurious amounts of oil, acid, salt, or alkali, except that unpotable water may be used if it meets the requirements of COE CRD-C 400.

### 2.1.6 Reinforcing Steel

Reinforcing steel bar shall conform to the requirements of ASTM A 615/A 615M, Grade 60. Welded steel wire fabric shall conform to the requirements of ASTM A 185. Details of reinforcement not shown shall be in accordance with ACI 318/318R, Chapters 7 and 12. Reinforcing steel shall be cold bent unless otherwise authorized. Bending may be accomplished in the field or at the mill. Bars shall not be bent after embedment in concrete. Bar supports shall be steel. Splices of reinforcement steel shall conform to ACI 318/318R and shall be approved by a government representative.

### 2.1.7 Formwork

The design and engineering of the formwork as well as its construction, shall be the responsibility of the Contractor.

### 2.1.8 Form Coatings

Forms for exposed surfaces shall be coated with a nonstaining form oil, which shall be applied shortly before concrete is placed.

### 2.1.9 Curing Materials

Curing materials shall conform to the following requirements.

#### 2.1.9.1 Impervious Sheet Materials

Impervious sheet materials, ASTM C 171, type optional, except polyethylene film, if used, shall be white opaque.

#### 2.1.9.2 Membrane-Forming Curing Compound

ASTM C 309, Type 1-D or 2.

## PART 3 EXECUTION

### 3.1 PREPARATION

#### 3.1.1 Embedded Items

Reinforcement shall be secured in place; joints, anchors, and other embedded items shall have been positioned. Internal ties shall be arranged so that when the forms are removed the metal part of the tie will be not less than 2 inches from concrete surfaces permanently exposed to view or exposed to water on the finished structures. Embedded items shall be free of oil and other foreign matters such as loose coatings or rust, paint, and scale. The embedding of wood in concrete will be permitted only when specifically authorized or directed. All equipment needed to place, consolidate, protect, and cure the concrete shall be at the placement site and in good operating condition.

#### 3.1.2 Formwork Installation

Forms shall be properly aligned, adequately supported, and mortar-tight. The form surfaces shall be smooth and free from irregularities, dents, sags, or holes when used for permanently exposed faces. All exposed joints and edges shall be chamfered, unless otherwise indicated.

#### 3.1.3 Production of Concrete

##### 3.1.3.1 Ready-Mixed Concrete

Ready-mixed concrete shall conform to ASTM C 94/C 94M except as otherwise specified.

##### 3.1.3.2 Concrete Made by Volumetric Batching and Continuous Mixing

Concrete made by volumetric batching and continuous mixing shall conform to ASTM C 685.

##### 3.1.3.3 Batching and Mixing Equipment

The contractor shall have the option of using an on-site batching and mixing facility. The facility shall provide sufficient batching and mixing equipment capacity to prevent cold joints. The method of measuring materials, batching operation, and mixer shall be submitted for review. [On-site plant shall conform to the requirements of either ASTM C 94/C 94M or ASTM C 685.]

### 3.2 CONVEYING AND PLACING CONCRETE

Conveying and placing concrete shall conform to the following requirements.

#### 3.2.1 General

Concrete placement shall not be permitted when weather conditions prevent proper placement and consolidation without approval. When concrete is mixed and/or transported by a truck mixer, the concrete shall be delivered to the site of the work and discharge shall be completed within 1-1/2 hours or 45 minutes when the placing temperature is 85 degrees F or greater unless a retarding admixture is used. Concrete shall be conveyed from the mixer to the forms as rapidly as practicable by methods which prevent segregation or loss of ingredients. Concrete shall be in place and consolidated within 15 minutes after discharge from the mixer. Concrete shall be deposited as close as possible to its final position in the forms and be so regulated that it may be effectively consolidated in horizontal layers 18 inches or less in thickness with a minimum of lateral movement. The placement shall be carried on at such a rate that the formation of cold joints will be prevented.

##### 3.2.1.1 Pumping

Concrete may be conveyed by positive displacement pump when approved. The pumping equipment shall be piston or squeeze press type. The pipeline shall be rigid steel at least three (3) times the nominal maximum size coarse aggregate in the concrete mixture to be pumped but not less than four (4) inches. The maximum size coarse aggregate shall not be reduced to accommodate the pumps. The distance to be pumped shall not exceed limits recommended by the pump manufacturer. The concrete shall be supplied to the concrete pump continuously. When pumping is completed, concrete remaining in the pipeline shall be ejected without contamination of concrete in place and the environment. After each operation, equipment shall be thoroughly cleaned and flushing water shall be wasted outside of the forms but not discharged to the river.

##### 3.2.2 Consolidation

Each layer of concrete shall be consolidated by internal vibrating equipment. Internal vibration shall be systematically accomplished by inserting the vibrator through the fresh concrete in the layer below at a uniform spacing over the entire area of placement. The distance between insertions shall be approximately 1.5 times the radius of action of the vibrator and overlay the adjacent, just-vibrated area by a few inches. The vibrator shall penetrate rapidly to the bottom of the layer and at least 6 inches into the layer below, if such a layer exists. It shall be held stationary until the concrete is consolidated and then withdrawn slowly at the rate of about 3 inches per second.

##### 3.2.3 Cold-Weather Requirements

No concrete placement shall be made when the ambient temperature is below 35 degrees F or if the ambient temperature is below 40 degrees F and falling. Suitable covering and other means as approved shall be provided for maintaining the concrete at a temperature of at least 50 degrees F for not less than 72 hours after placing and at a temperature above freezing for the remainder of the curing period. Salt, chemicals, or other foreign materials shall not be mixed with the concrete to prevent freezing. Any concrete damaged by freezing shall be removed and replaced at the expense

of the contractor.

### 3.2.4 Hot-Weather Requirements

When the rate of evaporation of surface moisture, as determined by use of Figure 1 of ACI 308, is expected to exceed 0.2 pound per square foot per hour, provisions for windbreaks, shading, fog spraying, or covering with a light-colored material shall be made in advance of placement, and such protective measures shall be taken as quickly as finishing operations will allow.

### 3.3 FORM REMOVAL

Forms shall not be removed before the expiration of 7 days after concrete placement except where otherwise specifically authorized. Supporting forms and shoring shall not be removed until the concrete has cured for at least 7 days.

### 3.4 FINISHING

#### 3.4.1 General

No finishing or repair will be done when either the concrete or the ambient temperature is below 50 degrees F.

#### 3.4.2 Sidewalks

Concrete sidewalks and subgrade to be removed for construction purposes shall be replaced in kind by contractor. Contractor shall match replacement sidewalk with existing sidewalk's dimensions. Maximum size of aggregate shall be 1-1 1/2 inches. Air content percent by volume shall be 5 to 7 percent.

#### 3.4.3 Concrete Finishes For Other Than Floors And Slabs

Honeycombs shall be patched with cement-mortar made with one part cement and two parts fine aggregate. Exposed surfaces shall be given a smooth finish, with fins and rough edges removed.

#### 3.4.4 Well Bottom Grout

Well bottom grout shall be placed in a fillet shape at the junction of the well bottom and the well pipe. Grout shall not contain large aggregate.

##### 3.4.4.1 Outside Finish

Exterior concrete slabs shall be finished by tamping the concrete with special tools to force the coarse aggregate away from the surface, screeding and floating to bring the surface to the required finish level, steel troweling in an even smooth surface, and brooming with a fiber-bristle brush in a direction transverse to that of the main traffic.

##### 3.4.4.2 Placement Of Bronze Bench Mark Disk

Immediately after finishing of exterior concrete slabs, the bronze disk shall be set into the concrete slab in the location shown on the drawings, with the top surface of the disk flush with the finished surface of the

concrete. The bronze disk shall be provided by the Government.

### 3.5 CURING AND PROTECTION

Beginning immediately after placement and continuing for at least 7 days, all concrete shall be cured and protected from premature drying, extremes in temperature, rapid temperature change, freezing, mechanical damage, and exposure to rain or flowing water. All materials and equipment needed for adequate curing and protection shall be available and at the site of the placement prior to the start of concrete placement. Preservation of moisture for concrete surfaces not in contact with forms shall be accomplished by one of the following methods:

- a. Continuous sprinkling or ponding.
- b. Application of absorptive mats or fabrics kept continuously wet.
- c. Application of sand kept continuously wet.
- d. Application of impervious sheet material conforming to ASTM C 171.
- e. Application of membrane-forming curing compound conforming to ASTM C 309, Type 1-D, on surfaces permanently exposed to view and Type 2 on other surfaces shall be accomplished in accordance with manufacturer's instructions.

The preservation of moisture for concrete surfaces placed against wooden forms shall be accomplished by keeping the forms continuously wet for 7 days. If forms are removed prior to end of the required curing period, other curing methods shall be used for the balance of the curing period. During the period of protection removal, the temperature of the air in contact with the concrete shall not be allowed to drop more than 25 degrees F within a 24 hour period.

### 3.6 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 this quality control for all operations performed, including, but not limited to, the following:

- (1) Field work used in a setting alignment, location, size, and elevations
- (2) Composition and quality of materials.
- (3) Placement.
- (4) Finishing, curing, and protection.
- (5) Placement of precast items and embedded items.
- (6) Observance of safety regulations.

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## SECTION 04200

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## SECTION 04200

## MASONRY

## 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 basic designation only.

## ACI INTERNATIONAL (ACI)

|              |  |
|--------------|--|
| ACI 530.1    | (1999) Specifications for Masonry Structures and Related Commentaries    |
| ACI 318/318M | (2002) Building Code Requirements for Structural Concrete and Commentary |
| ACI SP-66    | (1994) ACI Detailing Manual  |

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

|                   |   |
|-------------------|---|
| ASTM A 82         | (2001) Steel Wire, Plain, for Concrete Reinforcement                              |
| ASTM A 153/A 153M | (2001a) Zinc Coating (Hot-Dip) on Iron and Steel Hardware                         |
| ASTM A 167        | (1999) Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip |
| ASTM A 615/A 615M | (2001b) Deformed and Plain Billet-Steel Bars for Concrete Reinforcement           |
| ASTM C 62         | (2001) Building Brick (Solid Masonry Units Made from Clay or Shale)               |
| ASTM C 67         | (2002) Sampling and Testing Brick and Structural Clay Tile                        |
| ASTM C 91         | (2001) Masonry Cement   |
| ASTM C 94/C 94M   | (2000e2) Ready-Mixed Concrete   |
| ASTM C 144        | (1999) Aggregate for Masonry Mortar   |
| ASTM C 150        | (2002) Portland Cement  |
| ASTM C 207        | (1991; R 1997) Hydrated Lime for Masonry Purposes                                 |
| ASTM C 476        | (2001) Grout for Masonry  |

|                   |  |
|-------------------|--|
| ASTM C 494/C 494M | (1999ae1) Chemical Admixtures for Concrete   |
| ASTM C 578        | (2001) Rigid, Cellular Polystyrene Thermal Insulation  |
| ASTM C 744        | (1999) Prefaced Concrete and Calcium Silicate Masonry Units                                  |
| ASTM C 1019       | (2000b) Sampling and Testing Grout   |
| ASTM C 1072       | (2000a) Measurement of Masonry Flexural Bond Strength  |
| ASTM C 1142       | (1995; R 2001) Extended Life Mortar for Unit Masonry   |
| ASTM C 1289       | (2001) Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board                        |
| ASTM D 2000       | (2001) Rubber Products in Automotive Applications  |
| ASTM D 2240       | (2002) Rubber Property - Durometer Hardness  |
| ASTM D 2287       | (1996; R 2001) Nonrigid Vinyl Chloride Polymer and Copolymer Molding and Extrusion Compounds |
| ASTM E 514        | (1990; R 1996e1) Water Penetration and Leakage Through Masonry                               |

## 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-02 Shop Drawings

#### Masonry Work; G-AOF,

Drawings including plans, elevations, and details of wall reinforcement; details of reinforcing bars at corners and wall intersections; offsets; tops, bottoms, and ends of walls; control and expansion joints; lintels; and wall openings. Bar splice locations shall be shown. Bent bars shall be identified on a bending diagram and shall be referenced and located on the drawings. Wall dimensions, bar clearances, and wall openings greater than one masonry unit in area shall be shown. No approval will be given to the shop drawings until the Contractor certifies that all openings, including those for mechanical and electrical service, are shown. If, during construction, additional masonry openings are required, the approved shop drawings shall be resubmitted with the additional openings shown along with the proposed changes. Location of these additional openings shall be

clearly highlighted. The minimum scale for wall elevations shall be 1/4 inch per foot. Reinforcement bending details shall conform to the requirements of ACI SP-66.

#### SD-03 Product Data

Clay or Shale Brick; G-AOF,  
Insulation; G-AOF,  
Flashing; G-AOF  
Sealant; G-AOF  
Water-Repellant Admixture; G-AOF,

Manufacturer's descriptive data.

Cold Weather Installation; G-AOF,

Cold weather construction procedures.

#### SD-04 Samples

Concrete Masonry Units (CMU); G-AOF  
Clay or Shale Brick; G-AOF,

Color samples of three stretcher units and one unit for each type of special shape. Units shall show the full range of color and texture.

Anchors, Ties, and Bar Positioners; G-AOF,

Two of each type used.

Expansion-Joint Materials; G-AOF,

One piece of each type used.

Insulation; G-AOF,

One piece of board type insulation, not less than 16 by 24 inches in size, containing the label indicating the rated permeance and R-values.

Portable Panel; G-AOF,

One panel of clay or shale brick, 2 by 2 feet, containing approximately 24 brick facings to establish range of color and texture.

#### SD-05 Design Data

Pre-mixed Mortar; G-AOF,  
Unit Strength Method; G-AOF,

Pre-mixed mortar composition. Calculations and certifications of masonry unit and mortar strength.

#### SD-07 Certificates

Clay or Shale Brick; G-AOF  
Concrete Brick; G-AOF

Concrete Masonry Units (CMU); G-AOF  
Control Joint Keys; G-AOF  
Anchors, Ties, and Bar Positioners; G-AOF  
Expansion-Joint Materials; G-AOF  
Joint Reinforcement; G-AOF  
Reinforcing Steel Bars and Rods; G-AOF  
Masonry Cement; G-AOF  
Mortar Coloring; G-AOF  
Insulation; G-AOF  
Precast Concrete Items; G-AOF  
Admixtures for Masonry Mortar; G-AOF  
Admixtures for Grout; G-AOF

Certificates of compliance stating that the materials meet the specified requirements.

Insulation; G-AOF

Certificate attesting that the polyurethane or polyisocyanurate insulation furnished for the project contains recovered material, and showing an estimated percent of such recovered material.

#### SD-08 Manufacturer's Instructions

Masonry Cement; G-AOF

When masonry cement is used, submit the manufacturer's printed instructions on proportions of water and aggregates and on mixing to obtain the type of mortar required.

### 1.3 DELIVERY, HANDLING, AND STORAGE

Materials shall be delivered, handled, stored, and protected to avoid chipping, breakage, and contact with soil or contaminating material.

#### 1.3.1 Masonry Units

Concrete masonry units shall be covered or protected from inclement weather. Type II CMU units shall be used and protected from rain and ground water. Prefabricated lintels shall be marked on top sides to show either the lintel schedule number or the number and size of top and bottom bars.

#### 1.3.2 Reinforcement, Anchors, and Ties

Steel reinforcing bars, coated anchors, ties, and joint reinforcement shall be stored above the ground. Steel reinforcing bars and uncoated ties shall be free of loose mill scale and rust.

#### 1.3.3 Cementitious Materials, Sand and Aggregates

Cementitious and other packaged materials shall be delivered in unopened containers, plainly marked and labeled with manufacturers' names and brands. Cementitious material shall be stored in dry, weathertight enclosures or be completely covered. Cement shall be handled in a manner that will prevent the inclusion of foreign materials and damage by water or dampness. Sand and aggregates shall be stored in a manner to prevent contamination or segregation.

## 1.4 QUALITY ASSURANCE

### 1.4.1 Appearance

Bricks shall be manufactured at one time and from the same batch. Blend all brick to produce a uniform appearance when installed. An observable "banding" or "layering" of colors or textures caused by improperly mixed brick is unacceptable.

### 1.4.2 Bracing and Scaffolding

Provide bracing and scaffolding necessary for masonry work. Design bracing to resist wind pressure as required by local code.

## PART 2 PRODUCTS

### 2.1 GENERAL REQUIREMENTS

The source of materials which will affect the appearance of the finished work shall not be changed after the work has started except with Contracting Officer's approval.

### 2.2 CLAY OR SHALE BRICK

Brick shall be clay or shale brick. Color range and texture of clay or shale brick shall match existing, local redish brick buildings and shall conform to the approved sample. Brick shall conform to ASTM C 62; Grade SW shall be used for all brick. Average dimensions of brick shall be 3-5/8 inches thick, 2-1/4 inches high, and 8 inches long (standard) or 4 inches thick, 2-2/3 inches high, and 8 inches long (nominal), subject to the tolerances specified in ASTM C 62. Clay or shale brick units shall be delivered factory-blended to provide a uniform appearance and color range in the completed wall.

### 2.3 CONCRETE MASONRY UNITS (CMU)

Concrete masonry units shall conform to ASTM C 90, Type II, Grade N-I. Maximum linear drying shrinkage shall be 0.065 percent as determined in conformance with ASTM C 426. Aggregate used in making concrete masonry units shall conform to ASTM C 331. Testing of lightweight aggregates for drying shrinkage as stipulated in ASTM C 331 will not be required. Units shall be of modular dimensions and shall include all closers, jamb units, headers, and special shapes and sizes required to complete the work as indicated. Units shall be of the same appearance.

### 2.4 PRECAST CONCRETE ITEMS

Lintels, bond beams, and roof panels shall be factory-made units from a plant regularly engaged in producing precast concrete units. Well foundation may also be precast unless otherwise indicated, concrete shall be 4,000 psi minimum conforming to Section 03307a CONCRETE. Clearance of 3/4 inch shall be maintained between reinforcement and faces of units. Unless precast-concrete items have been subjected during manufacture to saturated-steam pressure of at least 120 psi for at least 5 hours, the items, after casting, shall be either damp-cured for 24 hours or steam-cured and shall then be aged under cover for 28 days or longer.

Cast-concrete members weighing over 80 pounds shall have built-in loops of galvanized wire or other approved provisions for lifting and anchoring. Units shall have beds and joints at right angles to the face, with sharp true arises and shall be cast with drip grooves on the underside where units overhang walls. Exposed-to-view surfaces shall be free of surface voids, spalls, cracks, and chipped or broken edges. Precast units exposed-to-view shall be of uniform appearance and color. Unless otherwise specified, units shall have a smooth dense finish. Prior to use, each item shall be wetted and inspected for crazing. Items showing evidence of dusting, spalling, crazing, or having surfaces treated with a protective coating will be rejected.

#### 2.4.1 Lintels & Bond Beams

Bond beams shall be provided as shown on the drawings. Precast lintels, unless otherwise shown, shall be of a thickness equal to the wall and reinforced with two No. 4 bars for the full length. Top of lintels shall be labeled "TOP" or otherwise identified and each lintel shall be clearly marked to show location in the structure. Lintels shall conform to ACI 318/318M for flexural and shear strength and shall have at least 8 inches bearing at each end. Reinforcement shall conform to ASTM A 615/A 615M Grade 60. Provide top and bottom bars for lintels over 36 inches in length.

#### 2.5 MASONRY MORTAR

Mortar shall comply with the proportion specification for Type N mortar as set forth in ASTM C 270.

##### 2.5.1 Admixtures for Masonry Mortar

In cold weather, a non-chloride based accelerating admixture may be used subject to approval. Accelerating admixture shall be non-corrosive, shall contain less than 0.2 percent chlorides, and shall conform to ASTM C 494/C 494M, Type C.

##### 2.5.2 Hydrated Lime and Alternates

Hydrated lime shall conform to ASTM C 207, Type SA. Lime alternates which have a current ICBO, ICBO Building Code, Evaluation Report number whose findings state it may be used as an alternate to lime for Type M, S, N, and O mortars will be deemed acceptable provided the user follows the manufacturer's proportions and mixing instructions as set forth in ICBO report.

##### 2.5.3 Cement

Portland cement shall conform to ASTM C 150, Type IA. Masonry cement shall conform to ASTM C 91, Type N. Containers shall bear complete instructions for proportioning and mixing to obtain the required types of mortar.

##### 2.5.4 Pre-Mixed Mortar

Pre-mixed mortar shall conform to ASTM C 1142, Type RN.

##### 2.5.5 Sand and Water

Sand shall conform to ASTM C 144. Water shall be clean, potable, and free from substances which could adversely affect the mortar.

## 2.6 WATER-REPELLANT ADMIXTURE

Polymeric type formulated to reduce porosity and water transmission. Construct panels of masonry units conforming to ASTM C 744 and mortar which contain the water-repellant admixture. When tested in accordance with ASTM C 1072, such panels shall have flexural strength not less than that specified or indicated. When tested in accordance with ASTM E 514, panels shall exhibit no water visible on back of test panel and no leaks through the panel after 24 hours, and not more than 25 percent of wall area shall be damp after 72 hours.

## 2.7 GROUT AND READY-MIXED GROUT

Grout shall conform to ASTM C 476, coarse. Cement used in grout shall have a low alkali content. Grout slump shall be between 8 and 11 inches. Minimum grout strength shall be 2000 psi in 28 days, as tested by ASTM C 1019. Grout shall be used subject to the limitations of Table III. Proportions shall not be changed and materials with different physical or chemical characteristics shall not be used in grout for the work unless additional evidence is furnished that the grout meets the specified requirements. Ready-Mixed grout shall conform to ASTM C 94/C 94M.

### 2.7.1 Admixtures for Grout

In cold weather, a non-chloride based accelerating admixture may be used subject to approval; accelerating admixture shall be non-corrosive, shall contain less than 0.2 percent chlorides, and shall conform to ASTM C 494/C 494M, Type C. In general, air-entrainment, anti-freeze or chloride admixtures shall not be used except as approved by the Contracting Officer.

### 2.7.2 Grout Barriers

Grout barriers for vertical cores shall consist of fine mesh wire, fiberglass, or expanded metal.

## 2.8 ANCHORS, TIES, AND BAR POSITIONERS

Anchors and ties shall be fabricated without drips or crimps and shall be zinc-coated in accordance with ASTM A 153/A 153M, Class B-2. Steel wire used for anchors and ties shall be fabricated from steel wire conforming to ASTM A 82. Anchors and ties shall be sized to provide a minimum of 5/8 inch mortar cover from either face.

### 2.8.1 Wall Ties

Wall ties shall be rectangular-shaped or Z-shaped fabricated of 3/16 inch diameter zinc-coated steel wire. Rectangular wall ties shall be no less than 4 inches wide. Wall ties may also be of a continuous type conforming to paragraph JOINT REINFORCEMENT. Adjustable type wall ties, if approved for use, shall consist of two essentially U-shaped elements fabricated of 3/16 inch diameter zinc-coated steel wire. Adjustable ties shall be of the double pintle to eye type and shall allow a maximum of 1/2 inch eccentricity between each element of the tie. Play between pintle and eye opening shall be not more than 1/16 inch. The pintle and eye elements shall be formed so that both can be in the same plane.

## 2.9 JOINT REINFORCEMENT

Joint reinforcement shall be factory fabricated from steel wire conforming to ASTM A 82, welded construction. Tack welding will not be acceptable in reinforcement used for wall ties. Wire shall have zinc coating conforming to ASTM A 153/A 153M, Class B-2. All wires shall be a minimum of 9 gauge. Reinforcement shall be ladder type design, having one longitudinal wire in the mortar bed of each face shell for hollow units and one wire for solid units. Joint reinforcement shall be placed a minimum of 5/8 inch cover from either face. The distance between crosswires shall not exceed 16 inches. Joint reinforcement for straight runs shall be furnished in flat sections not less than 10 feet long. Joint reinforcement shall be provided with factory formed corners and intersections. If approved for use, joint reinforcement may be furnished with adjustable wall tie features.

#### 2.10 CONTROL JOINT KEYS

Control joint keys shall be a factory fabricated solid section of natural or synthetic rubber (or combination thereof) conforming to ASTM D 2000 or polyvinyl chloride conforming to ASTM D 2287. The material shall be resistant to oils and solvents. The control joint key shall be provided with a solid shear section not less than 5/8 inch thick and 3/8 inch thick flanges, with a tolerance of plus or minus 1/16 inch. The control joint key shall fit neatly, but without forcing, in masonry unit jamb sash grooves. The control joint key shall be flexible at a temperature of minus 30 degrees F after five hours exposure, and shall have a durometer hardness of not less than 70 when tested in accordance with ASTM D 2240.

#### 2.11 Expansion Joint

Expansion Joint shall consist of a backer rod and sealant and shall conform with ASTM C 920.

#### 2.12 INSULATION

##### 2.12.1 Rigid Board-Type Insulation

Rigid board-type insulation shall be extruded polystyrene, polyurethane, or polyisocyanurate. Polystyrene shall conform to ASTM C 578. Polyisocyanurate shall conform to ASTM C 1289, Type I, Class 1, faced with aluminum foil on both sides of the foam. The insulation shall be a standard product and shall be marked with not less than the manufacturer's trademark or name, the specification number, the permeance and R-values.

##### 2.12.1.1 Insulation Thickness and Air Space

The cavity space shall allow for a maximum insulation thickness of 1 inch, and a minimum air space of 1 inch.

##### 2.12.1.2 Aged R-Value

The insulation shall provide a minimum aged R-value of 11 for the overall thickness. The aged R-value shall be determined at 75 degrees F in accordance with the appropriate referenced specification. The stated R-value of the insulation shall be certified by an independent testing laboratory or certified by an independent Registered Professional Engineer if tests are conducted in the manufacturer's laboratory.

##### 2.12.2 Insulation Adhesive

Insulation adhesive shall be specifically prepared to adhere the insulation

to the masonry and, where applicable, to the thru-wall flashing. The adhesive shall not deleteriously affect the insulation, and shall have a record of satisfactory and proven performance for the conditions under which to be used.

### 2.13 FLASHING

Flashing shall be as follows

Stainless Steel Flashing: Stainless steel, ASTM A 167, Type 301, 302, 304, or 316, 0.015 inch thick, No. 2D finish. Provide with factory-fabricated deformations that mechanically bond flashing against horizontal movement in all directions. Deformations shall consist of dimples, diagonal corrugations, or a combination of dimples and transverse corrugations.

### 2.14 WEEP HOLE VENTILATORS

Weephole ventilators shall be prefabricated aluminum, plastic or wood blocking sized to form the proper size opening in head joints. Provide aluminum and plastic inserts with grill or screen-type openings designed to allow the passage of moisture from cavities and to prevent the entrance or insects. Ventilators shall be sized to match modular construction with a standard 3/8 inch mortar joint.

## PART 3 EXECUTION

### 3.1 PREPARATION

Prior to start of work, masonry inspector shall verify the applicable conditions as set forth in ACI 530.1, inspection. The Contracting Officer will serve as inspector or will select a masonry inspector.

#### 3.1.1 Hot Weather Installation

The following precautions shall be taken if masonry is erected when the ambient air temperature is more than 99 degrees F in the shade and the relative humidity is less than 50 percent or the ambient air temperature exceeds 90 degrees F and the wind velocity is more than 8 mph. All masonry materials shall be shaded from direct sunlight; mortar beds shall be spread no more than 4 feet ahead of masonry; masonry units shall be set within one minute of spreading mortar; and after erection, masonry shall be protected from direct exposure to wind and sun for 48 hours.

#### 3.1.2 Cold Weather Installation

Before erecting masonry when ambient temperature or mean daily air temperature falls below 40 degrees F or temperature of masonry units is below 40 degrees F, a written statement of proposed cold weather construction procedures shall be submitted for approval. The following precautions shall be taken during all cold weather erection.

##### 3.1.2.1 Protection

Ice or snow formed on the masonry bed shall be thawed by the application of heat. Heat shall be applied carefully until the top surface of the masonry is dry to the touch. Sections of masonry deemed frozen and damaged shall be removed before continuing construction of those sections.

- a. Air Temperature 40 to 32 Degrees F. Sand or mixing water shall be heated to produce mortar temperatures between 40 and 120 degrees F.
- b. Air Temperature 32 to 25 Degrees F. Sand and mixing water shall be heated to produce mortar temperatures between 40 and 120 degrees F. Temperature of mortar on boards shall be maintained above freezing.
- c. Air Temperature 25 to 20 Degrees F. Sand and mixing water shall be heated to provide mortar temperatures between 40 and 120 degrees F. Temperature of mortar on boards shall be maintained above freezing. Sources of heat shall be used on both sides of walls under construction. Windbreaks shall be employed when wind is in excess of 15 mph.
- d. Air Temperature 20 Degrees F and below. Sand and mixing water shall be heated to provide mortar temperatures between 40 and 120 degrees F. Enclosure and auxiliary heat shall be provided to maintain air temperature above 32 degrees F. Temperature of units when laid shall not be less than 20 degrees F.

#### 3.1.2.2 Completed Masonry and Masonry Not Being Worked On

- a. Mean daily air temperature 40 to 32 degrees F. Masonry shall be protected from rain or snow for 24 hours by covering with weather-resistive membrane.
- b. Mean daily air temperature 32 to 25 degrees F. Masonry shall be completely covered with weather-resistant membrane for 24 hours.
- c. Mean Daily Air Temperature 25 to 20 degrees F. Masonry shall be completely covered with insulating blankets or equally protected for 24 hours.
- d. Mean Daily Temperature 20 degrees F and Below. Masonry temperature shall be maintained above 32 degrees F for 24 hours by enclosure and supplementary heat, by electric heating blankets, infrared heat lamps, or other approved methods.

#### 3.1.3 Stains

Protect exposed surfaces from mortar and other stains. When mortar joints are tooled, remove mortar from exposed surfaces with fiber brushes and wooden paddles. Protect base of walls from splash stains by covering adjacent ground with sand, sawdust, or polyethylene.

#### 3.1.4 Loads

Do not apply uniform loads for at least 12 hours or concentrated loads for at least 72 hours after masonry is constructed. Provide temporary bracing as required.

#### 3.1.5 Surfaces

Surfaces on which masonry is to be placed shall be cleaned of laitance, dust, dirt, oil, organic matter, or other foreign materials and shall be slightly roughened to provide a surface texture with a depth of at least 1/8 inch. Sandblasting shall be used, if necessary, to remove laitance from pores and to expose the aggregate.

### 3.2 LAYING MASONRY UNITS

Coordinate masonry work with the work of other trades to accommodate built-in items and to avoid cutting and patching. Masonry units shall be laid in running bond pattern. Facing courses shall be level with back-up courses, unless the use of adjustable ties has been approved in which case the tolerances shall be plus or minus 1/2 inch. Each unit shall be adjusted to its final position while mortar is still soft and plastic. Units that have been disturbed after the mortar has stiffened shall be removed, cleaned, and relaid with fresh mortar. Air spaces, cavities, chases, expansion joints, and spaces to be grouted shall be kept free from mortar and other debris. Units used in exposed masonry surfaces shall be selected from those having the least amount of chipped edges or other imperfections detracting from the appearance of the finished work. Vertical joints shall be kept plumb. Units being laid and surfaces to receive units shall be free of water film and frost. Solid units shall be laid in a nonfurrowed full bed of mortar. Mortar for veneer wythes shall be beveled and sloped toward the center of the wythe from the cavity side. Units shall be shoved into place so that the vertical joints are tight. Vertical joints of brick and the vertical face shells of concrete masonry units, except where indicated at control, expansion, and isolation joints, shall be completely filled with mortar. Mortar will be permitted to protrude up to 1/2 inch into the space or cells to be grouted. Means shall be provided to prevent mortar from dropping into the space below. In double wythe construction, the inner wythe may be brought up not more than 16 inches ahead of the outer wythe. Collar joints shall be filled with mortar or grout during the laying of the facing wythe, and filling shall not lag the laying of the facing wythe by more than 8 inches. Masonry shall be laid plumb true to line, with courses level. Bond pattern shall be kept plumb throughout. Corners shall be square.

#### 3.2.1 Forms and Shores

Provide bracing and scaffolding as required. Design bracing to resist wind pressure as required by local codes. Forms and shores shall be sufficiently rigid to prevent deflections which may result in cracking or other damage to supported masonry and sufficiently tight to prevent leakage of mortar and grout. Supporting forms and shores shall not be removed in less than 10 days.

#### 3.2.2 Concrete Masonry Units

Units in starting courses on footings, lintels, and beams, and where cells are to be filled with grout shall be full bedded in mortar under both face shells and webs. Other units shall be full bedded under both face shells. Head joints shall be filled solidly with mortar for a distance in from the face of the unit not less than the thickness of the face shell. Jamb units shall be of the shapes and sizes to conform with wall units.

#### 3.2.3 Clay or Shale Brick Units

Brick facing shall be laid with the better face exposed. Brick shall be laid in running bond with each course bonded at corners, unless otherwise indicated. Molded brick shall be laid with the frog side down. Brick that is cored, recessed, or has other deformations may be used in sills, treads, soldier courses, except where deformations will be exposed to view.

##### 3.2.3.1 Wetting of Units

Wetting of clay, shale brick, or hollow brick units having an initial rate of absorption of more than 1 gram per minute per square inch of bed surface shall be in conformance with ASTM C 67. The method of wetting shall ensure that each unit is nearly saturated but surface dry when laid. Test clay or shale brick daily on the job, prior to laying, as follows: Using a wax pencil, draw a circle the size of a quarter on five randomly selected bricks. Apply 20 drops of water with a medicine dropper to the surface within the circle on each brick. If the average time that the water is completely absorbed in the five bricks is less than 1-1/2 minutes, wet bricks represented by the five bricks tested.

#### 3.2.3.2 Cavity Walls

Provide a continuous cavity as indicated. Securely tie the two wythes together with horizontal joint reinforcement. Bevel mortar beds away from cavity to prevent projection into cavity when bricks are shoved in place. Keep cavities clear and clean of mortar droppings. At the bottom of cavity walls, in the course immediately above the through-wall flashing, temporarily omit one brick every 4 feet. With a hose and clean water, wash all mortar droppings and debris out of the cavity through the temporary openings at least twice each day masonry is laid, and more often when required to keep the cavities clean. Fill in the openings with bricks and mortar after the wall is complete and the cavity has been inspected and found clean. Provide weep holes of open head joints spaced 24 inches o.c. at base of wall and vertical obstructions (e.g. lintels).

#### 3.2.4 Cutting and Fitting

Full units of the proper size shall be used wherever possible, in lieu of cut units. Cutting and fitting, including that required to accommodate the work of others, shall be done by masonry mechanics using power masonry saws. Concrete masonry units may be wet or dry cut. Wet cut units, before being placed in the work, shall be dried to the same surface-dry appearance as uncut units being laid in the wall. Cut edges shall be clean, true and sharp. Openings in the masonry shall be made carefully so that wall plates, cover plates or escutcheons required by the installation will completely conceal the openings and will have bottoms parallel with the masonry bed joints. Reinforced masonry lintels shall be provided above openings over 12 inches wide for pipes, ducts, cable trays, and other wall penetrations, unless steel sleeves are used.

#### 3.2.5 Jointing

Joints shall be tooled when the mortar is thumbprint hard. Horizontal joints shall be tooled last. Joints shall be brushed to remove all loose and excess mortar. Mortar joints shall be finished as follows:

##### 3.2.5.1 Flush Joints

Joints in concealed masonry surfaces and joints at electrical outlet boxes in wet areas shall be flush cut. Flush cut joints shall be made by cutting off the mortar flush with the face of the wall.

##### 3.2.5.2 Tooled Joints

Joints in exposed exterior and interior masonry surfaces shall be tooled slightly concave. Joints shall be tooled with a jointer slightly larger than the joint width so that complete contact is made along the edges of

the unit. Tooling shall be performed so that the mortar is compressed and the joint surface is sealed. Jointer of sufficient length shall be used to obtain a straight and true mortar joint.

### 3.2.5.3 Door Joints

On the exposed interior side of exterior frames, joints between frames and abutting masonry walls shall be raked to a depth of 3/8 inch. On the exterior side of exterior frames, joints between frames and abutting masonry walls shall be raked to a depth of 3/8 inch.

### 3.2.6 Joint Widths

Joint widths shall be as follows:

#### 3.2.6.1 Concrete Masonry Units

Concrete masonry units shall have 3/8 inch joints, except for prefaced concrete masonry units.

#### 3.2.6.2 Brick

Brick joint widths shall be the difference between the actual and nominal dimensions of the brick in either height or length. Brick expansion joint widths shall be as shown on drawings

### 3.2.7 Embedded Items

Spaces around built-in items shall be filled with mortar. Openings around flush-mount electrical outlet boxes in wet locations shall be pointed with mortar. Anchors, ties, wall plugs, accessories, flashing, pipe sleeves and other items required to be built-in shall be embedded as the masonry work progresses. Anchors, ties and joint reinforcement shall be fully embedded in the mortar. Cells receiving anchor bolts and cells of the first course below bearing plates shall be filled with grout.

### 3.2.8 Unfinished Work

Unfinished work shall be stepped back for joining with new work. Tothing may be resorted to only when specifically approved. Loose mortar shall be removed and the exposed joints shall be thoroughly cleaned before laying new work.

### 3.2.9 Masonry Wall Intersections

Each course shall be masonry bonded at corners and elsewhere as shown. Masonry walls shall be anchored or tied together at corners and intersections with bond beam reinforcement and prefabricated corner or tee pieces of joint reinforcement as shown.

## 3.3 WEEP HOLES

Wherever through-wall flashing occurs, provide weep holes to drain flashing to exterior. Weep holes shall be open head joints. at 24 inches o.c. Weep holes shall be provided not more than 24 inches on centers in mortar joints of the exterior wythe above wall flashing, over foundations, bond beams, and any other horizontal interruptions of the cavity. Weep holes shall be formed by placing short lengths of well-greased No. 10, 5/16 inch nominal diameter, braided cotton sash cord in the mortar and withdrawing the cords

after the wall has been completed. Other approved methods may be used for providing weep holes. Weep holes shall be kept free of mortar and other obstructions.

### 3.4 MORTAR

Mortar shall be mixed in a mechanically operated mortar mixer for at least 3 minutes, but not more than 5 minutes. Measurement of ingredients for mortar shall be by volume. Ingredients not in containers, such as sand, shall be accurately measured by the use of measuring boxes. Water shall be mixed with the dry ingredients in sufficient amount to provide a workable mixture which will adhere to the vertical surfaces of masonry units. Mortar that has stiffened because of loss of water through evaporation shall be retempered by adding water to restore the proper consistency and workability. Mortar that has reached its initial set or that has not been used within 2-1/2 hours after mixing shall be discarded.

### 3.5 REINFORCING STEEL

Reinforcement shall be cleaned of loose, flaky rust, scale, grease, mortar, grout, or other coating which might destroy or reduce its bond prior to placing grout. Bars with kinks or bends not shown on the drawings shall not be used. Reinforcement shall be placed prior to grouting.

#### 3.5.1 Splices

Bars shall be lapped a minimum of 48 diameters of the reinforcement. Welded or mechanical connections shall develop at least 125 percent of the specified yield strength of the reinforcement.

### 3.6 JOINT REINFORCEMENT INSTALLATION

Joint reinforcement shall be installed at 16 inches on center or as indicated. Reinforcement shall be lapped not less than 6 inches. Prefabricated sections shall be installed at corners and wall intersections. The longitudinal wires of joint reinforcement shall be placed to provide not less than 5/8 inch cover to either face of the unit.

### 3.7 PLACING GROUT

Cells containing reinforcing bars shall be filled with grout. All hollow masonry units in walls shall be filled solid with grout. Units other than open end units may require grouting each course to preclude voids in the units. Grout not in place within 1-1/2 hours after water is first added to the batch shall be discarded. Sufficient time shall be allowed between grout lifts to preclude displacement or cracking of face shells of masonry units. If blowouts, flowouts, misalignment, or cracking of face shells should occur during construction, the wall shall be torn down and rebuilt.

#### 3.7.1 Grouting Equipment

##### 3.7.1.1 Grout Pumps

Pumping through aluminum tubes will not be permitted. Pumps shall be operated to produce a continuous stream of grout without air pockets, segregation, or contamination. Upon completion of each day's pumping, waste materials and debris shall be removed from the equipment, and disposed of outside the masonry.

### 3.7.1.2 Vibrators

Internal vibrators shall maintain a speed of not less than 5,000 impulses per minute when submerged in the grout. At least one spare vibrator shall be maintained at the site at all times. Vibrators shall be applied at uniformly spaced points not further apart than the visible effectiveness of the machine. Duration of vibration shall be limited to time necessary to produce satisfactory consolidation without causing segregation.

### 3.7.2 Grout Placement

Masonry shall be laid to the top of a pour before placing grout. Grout shall not be placed in hollow unit masonry until mortar joints have set for at least 24 hours. Grout shall be placed using a hand bucket, concrete hopper, or grout pump to completely fill the grout spaces without segregation of the aggregates. Vibrators shall not be inserted into lower pours that are in a semi-solidified state. Low-lift grout methods may be used on pours up to and including 5 feet in height. High-lift grout methods shall be used on pours exceeding 5 feet in height.

#### 3.7.2.1 Low-Lift Method

Grout shall be placed at a rate that will not cause displacement of the masonry due to hydrostatic pressure of the grout. Mortar protruding more than 1/2 inch into the grout space shall be removed before beginning the grouting operation. Grout pours 12 inches or less in height shall be consolidated by mechanical vibration or by puddling. Grout pours over 12 inches in height shall be consolidated by mechanical vibration and reconsolidated by mechanical vibration after initial water loss and settlement has occurred. Vibrators shall not be inserted into lower pours that are in a semi-solidified state.

### 3.8 BOND BEAMS

Bond beams shall be filled with grout and reinforced as indicated on the drawings. Reinforcement shall be continuous, including around corners, except through control joints or expansion joints, unless otherwise indicated on the drawings. Where splices are required for continuity, reinforcement shall be lapped 48 bar diameters. A minimum clearance of 1/2 inch shall be maintained between reinforcement and interior faces of units.

### 3.9 SHELF ANGLES

Shelf angles shall be adjusted as required to keep the masonry level and at the proper elevation. Shelf angles shall be galvanized. Shelf angles shall be provided in sections not longer than 10 feet and installed with a 1/4 inch gap between sections. Shelf angles shall be mitered and welded at building corners with each angle not shorter than 4 feet, unless limited by wall configuration.

### 3.10 LINTELS

#### 3.10.1 Masonry Lintels

Masonry lintels shall be constructed with lintel units filled solid with grout in all courses and reinforced with a minimum of two No. 4 bars in the bottom course unless otherwise indicated on the drawings. Lintel reinforcement shall extend beyond each side of masonry opening 40 bar diameters or 24 inches, whichever is greater. Reinforcing bars shall be

supported in place prior to grouting and shall be located 1/2 inch above the bottom inside surface of the lintel unit.

### 3.11 SILLS AND COPINGS

Sills and copings shall be set in a full bed of mortar with faces plumb and true.

### 3.12 INSULATION

Anchored veneer walls shall be insulated, where shown, by installing board-type insulation on the cavity side of the inner wythe. Board type insulation shall be applied directly to the masonry or thru-wall flashing with adhesive. Insulation shall be neatly fitted between obstructions without impaling of insulation on ties or anchors. The insulation shall be applied in parallel courses with vertical joints breaking midway over the course below and shall be applied in moderate contact with adjoining units without forcing, and shall be cut to fit neatly against adjoining surfaces.

### 3.13 POINTING AND CLEANING

After mortar joints have attained their initial set, but prior to hardening, mortar and grout daubs or splashings shall be completely removed from masonry-unit surfaces that will be exposed or painted. Before completion of the work, defects in joints of masonry to be exposed or painted shall be raked out as necessary, filled with mortar, and tooled to match existing joints. Immediately after grout work is completed, scum and stains which have percolated through the masonry work shall be removed using a high pressure stream of water and a stiff bristled brush. Masonry surfaces shall not be cleaned, other than removing excess surface mortar, until mortar in joints has hardened. Masonry surfaces shall be left clean, free of mortar daubs, dirt, stain, and discoloration, including scum from cleaning operations, and with tight mortar joints throughout. Metal tools and metal brushes shall not be used for cleaning.

#### 3.13.1 Concrete Masonry Unit Surfaces

Exposed concrete masonry unit surfaces shall be dry-brushed at the end of each day's work and after any required pointing, using stiff-fiber bristled brushes.

#### 3.13.2 Clay or Shale Brick Surfaces

Exposed clay or shale brick masonry surfaces shall be cleaned as necessary to obtain surfaces free of stain, dirt, mortar and grout daubs, efflorescence, and discoloration or scum from cleaning operations.

### 3.14 PROTECTION

Facing materials shall be protected against staining. Top of walls shall be covered with nonstaining waterproof covering or membrane when work is not in progress. Covering of the top of the unfinished walls shall continue until the wall is waterproofed with the complete roof system. Covering shall extend a minimum of 2 feet down on each side of the wall and shall be held securely in place. Before starting or resuming, top surface of masonry in place shall be cleaned of loose mortar and foreign material.

-- 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

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

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

ASTM A 276 (1996) Stainless and Heat-Resisting Steel Bars and Shapes

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

## AMERICAN WELDING SOCIETY (AWS)

AWS D1.1 (2000) Structural Welding Code - Steel

## 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-AOF,

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.

### 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. 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, the surfaces shall be protected with a coating conforming to FSTT-P-664.

### 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 ALUMINUM FINISHES

Unless otherwise specified, aluminum items shall have standard mill finish. The thickness of the coating shall be not less than that specified for protective and decorative type finishes for items used in interior locations or architectural Class I type finish for items used in exterior locations in AA DAF-45. Items to be anodized shall receive a polished

satin finish. Aluminum surfaces to be in contact with plaster or concrete during construction shall be protected with a field coat conforming to CID A-A-344.

#### 1.8 STAINLESS STEEL FINISHES

Stainless steel bars and shapes shall conform to the following as specified or shown:

- a. ASTM A 276, UNS, Condition A, hot-finished or cold-finished, Class C.
- b. ASTM A 564/A 564M, UNS S17400 or S45000, age-hardened heat treatment condition, hot-finished or cold-finished, Class C.

#### 1.9 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 ANCHORS

Anchors, carriage bolts, toggle bolts, and expansion shields, powder-driven stud fasteners, and strap anchors and clip angles shall be provided where required for attachment of miscellaneous metal items and wood members.

#### 2.2 METAL GRAVEL STOP

Gravel stop shall be of 3/32 inch thick extruded aluminum or approved equivalent in bent metal of the size and design shown on drawings. The metal gravel stop shall be attached in accordance with the manufacturer's recommendations. The wood nailer for the gravel stop and the fascia board shall be No. 2 Douglas Fir, or Southern Pine. Wood nailer and fascia board shall be preservative treated with a waterborne type preservative.

#### 2.3 GRATINGS

Gratings shall be of stainless steel, heavy duty welded type with 1 1/2-inch by 1/4-inch bearing bars at 2 3/8-inches on center and cross bars at 4-inches on center. The grating shall be cut to size and placed as shown on the drawings.

#### 2.4 METAL LOUVERS

The louver shall be of the size and design indicated on the drawings and shall be of the adjustable screw type, crank-operated. Blades shall be accurately fitted and firmly secured. The edges of all sheet metal louver blades shall be folded or beaded for rigidity. The louver shall be formed of 0.040 inch thick aluminum sheets or may be of cast or extruded aluminum. Louver shall be provided with an insect screen and a hood as shown on the drawings. The hood shall be sixteen gage aluminum, with angle frames and rivets of aluminum. The hood shall be mounted on the structure with aluminum bolts or cadmium-plated bolts.

## 2.5 INLET PIPE

The inlet pipe shall be six (6) inch nominal diameter steel pipe conforming to ASTM A 53 with a wall thickness of 0.375 inches. The inlet pipe shall have welded, flanged, or other approved joints except that flanged joints are required where indicated. The intake end of the inlet pipe shall have screen covering as shown on the drawings.

## 2.5 GATE VALVE

The gate valve shall be No. 465-1/2 by Crane, 125 lb. rising stem, six inch gate valve, or equal, with extension stem (complete with socket wrench), as shown on the drawings. Provide joint in valve stem extension so that handle and stem extending above floor level may be removed.

## 2.6 STEEL PIPE CLEANOUT AND DOUBLE STRAP SADDLE

Cleanout pipe shall be 2-1/2 inch diameter standard weight stainless steel pipe, conforming to ASTM A 120, with supports, as shown on the drawings. The cleanout pipe shall be connected to intake pipe with a double strap, iron, taper seal saddle with neoprene gaskets.

## 2.7 STAINLESS STEEL LADDER

The stainless steel ladder shall be of size shown on the drawings and of full-welded construction. The ladder shall be anchored to the pipe wall as shown on the drawings or otherwise directed.

## 2.8 STAINLESS STEEL GRAB BARS

Two stainless steel grab bars shall be provided in the masonry wall adjacent to the hinge side of the door for access into the well. The grab bars shall be 3/4 inch diameter and located one foot four inches and two foot eight inches from the finish floor. Anchorage of sixteen inches into masonry shall be accomplished by bending the bars eleven inches into the masonry cells and filling the voids with concrete.

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DIVISION 07 - THERMAL & MOISTURE PROTECTION

SECTION 07530

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SECTION 07530

SINGLE PLY MEMBRANE ROOFING

PART 1 GENERAL

1.1 SUBMITTALS

The following shall be submitted in accordance with Section 01330, "Submittals," in sufficient detail to show full compliance with the specification:

SD-02 Shop Drawings

Installation drawings for elastic sheet roofing shall be in accordance with the paragraph entitled, "Application of Roofing," of this section.

Type B Roofing Membranes

SD-03 Product Data

Manufacturer's catalog data for the following items shall include thermoplastic membrane and materials associated with installation of membrane.

Adhesives  
Nails and Fasteners  
Flashing Membranes  
Roofing Membranes

SD-04 Samples

Contractor shall submit the following samples in accordance with the paragraph entitled, "Samples and Testing," of this section.

Roofing Membranes

SD-06 Test Reports

If approved by the Contractor, certified copies of test reports for test performed within one year of the date to proceed with construction can be submitted. The test report must be from approved laboratories and on materials representative of those proposed for use.

Adhesives  
Nails and Fasteners  
Flashing Membranes  
Roofing Membranes

SD-07 Certificates

Certificates for the following items shall indicate the manufacturer and manufacturer's designation and shall exactly identify each item by the designation that will appear on the

packaging for that item.

Membranes  
Fasteners  
Insulation  
Adhesives

#### SD-08 Manufacturer's Instructions

Manufacturer's instructions shall be submitted for the installation of the following items:

Roofing  
Insulation  
Roofing Membranes  
Flashings

#### SD-11 Closeout Submittals

Warranty

### 1.2 DELIVERY, HANDLING, AND STORAGE

Roofing materials shall be on the project site before work is begun.

Materials shall be delivered to the site in the manufacturer's unbroken, labeled packages. Felt rolls shall be labeled to indicate grade, weight, and type of saturant. Original packaging shall not be disturbed until materials are to be applied. Liquid materials shall be used directly from the fully labeled cans in which they were shipped by the manufacturer. Only approved roofing materials shall be brought to or stored at the site.

Roofing materials shall be stored and protected from contact with soil, rain, or snow. Felt rolls and roll roofing shall be stacked on end and stored in an area maintained at a temperature no lower than 50 degrees F for at least 24 hours before laying.

Not more than a 1-day's supply of insulation or Felt shall be stored on the roof at any time. This 1-day's supply shall be stacked on pallets and completely covered with plastic sheeting whenever work is interrupted or when there is precipitation of any kind. Plastic sheeting shall be securely fastened to the pallets and be completely weathertight. Materials not so protected during inclement weather shall be permanently removed from the site.

### 1.3 PROTECTION OF PROPERTY

Flame-heated equipment shall be located and used so it will not endanger the structure or other materials on the site or adjacent property. Fire extinguishers of an appropriate approved type shall be provided and maintained by the Contractor.

Flame-heated equipment shall not be placed on the roof of any structure.

Before starting work, paving and faces of building walls adjacent to the hoist and kettles shall be protected and the protection maintained for duration of work.

## PART 2 PRODUCTS

## 2.1 ADHESIVES

Adhesives and Mastics shall be the types recommended by the roofing-membrane manufacturer. Adhesives shall have a working temperature range of 20 to 140 degrees F and shall be compatible with membranes and materials to which they are bonded.

## 2.2 NAILS AND FASTENERS

### 2.2.1 General

Fasteners used with flashing membrane shall be made from nonferrous materials. When heads are less than 1 inch in diameter or equivalent area, nails and fasteners shall be driven through metal disks.

### 2.2.2 Mechanical Fasteners

Screws and concrete fasteners shall be a corrosion-resistant metal and shall conform to manufacturers specifications.

### 2.2.3 Powder-Driven Fasteners

Powder-driven fasteners may be used only when approved in writing.

### 2.2.4 Metal Disks

Metal disks shall be flat and in accordance with manufacturer's specifications. Metal disks shall be of nonferrous material compatible with the fasteners.

## 2.3 FLASHING MEMBRANES

Flashing membranes shall be the same material specified for roofing membranes and shall conform to requirements specified on drawings.

## 2.4 ROOFING MEMBRANES

Roofing membranes, described as follows, shall conform to the requirements specified on drawings. Membrane shall consist of a thermoplastic elastomer compound with not less than a 60 Mil thickness.

## PART 3 EXECUTION

### 3.1 PREPARATION OF SURFACES

Entire roof-deck construction of any bay or section of the building shall be completed before roofing work commences. Ambient temperature during applications using heat welding solution shall be not lower than 40 degrees F; using cold adhesive exclusively, not lower than 20 degrees F. Surface on which the roofing or flashing is to be applied shall be smooth and firm, free of projections, ice, frost, moisture, dirt, and foreign materials. Vents and other items penetrating the roof shall be secured in position and properly prepared with manufactured flashings or fittings by tradesmen responsible for the work. Storing, wheeling, or trucking will not be permitted directly on roof surfaces. Smooth, clean, board or plank runways and platforms shall be provided as required. Surfaces shall be inspected and approved immediately prior to the application of roofing.

Before being laid, the base sheet shall be stacked on end and stored for 24 hours in an area maintained at a temperature not less than 50 degrees F.

### 3.2 Insulation

Roofing insulation shall be isocyanurate or equal and shall be approved by roofing manufacture. Insulation shall be pitched as indicated in drawings.

### 3.3 ROOFING

Thermoplastic roofing membranes shall be applied with solid coats of adhesive spread at a rate of not less than 2/3 gallon, 5 pounds, per square. Lap areas of joints shall be cleaned with solvent and lap weld solution applied in accordance with the roofing manufacturer's instructions. Adhesive or welding solution shall be allowed to dry until it does not stick to a dry-finger touch.

Roofing shall be as follows:

Membrane roofing on insulation shall consist of not less than the following quantities for each square of roofing (100 square feet):

| <u>MATERIAL</u>                 | <u>POUNDS</u> |
|---------------------------------|---------------|
| Adhesive, solid application     | 5             |
| 1 ply of Thermoplastic membrane | 38            |

One ply of Thermoplastic membrane shall be laid on all roof surfaces parallel to the direction of roof slope in a solid coating of adhesive using 3-inch edge laps and 6-inch end laps. Laps shall be sealed, and the membrane additionally fastened as specified.

### 3.4 FASTENING

Roofing membrane system shall fully adhere to insulation and shall attach as indicated on drawings. Roofing manufacture shall approve fastening of insulation and membrane.

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SECTION 08220

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## SECTION 08220

## FRP DOORS AND RESIN TRANSFER MOLDED DOOR FRAMES

## PART 1 GENERAL

## 1.1 DESCRIPTION OF WORK

The work under this section includes furnishing all equipment and performing operations, such as, but not limited to, placement of fiberglass reinforced plastic (FRP) doors and resin transfer molded door frames on the required gauge house. All work shall be in accordance with the requirements specified herein, as shown on the contract drawings, and as specified in Section 01025, MEASUREMENT AND PAYMENT.

## 1.2 SUBMITTALS

Submit the following in accordance with Section 01330, "Submittal Procedures."

SD-01 Product Data

Door Color; G-AOF

## 1.3 QUALITY ASSURANCE

## 1.3.1 Manufacturer Qualifications

A company specialized in the manufacture of fiberglass reinforced plastic (FRP) doors and frames as specified herein with a minimum of 25 years documented experience and with a record of successful in-service performance for the applications as required for this project.

## 1.3.2 Installer Qualifications

An experienced installer who has completed fiberglass door and frame installations similar in material, design, and extent to those indicated and whose work has resulted in construction with a record of successful in-service performance.

## 1.4 DELIVER, STORAGE, AND HANDLING

Each door and frame should be delivered individually crated for protection from damage in cardboard containers, clearly marked with project information, and shipping information. Each crate should contain all fasteners necessary for installation as well as complete installation instructions. Doors should be stored in the original container out of inclement weather for protection against the elements. Handle doors pursuant to the manufacturer's recommendations as posted on outside of crate. Replace damaged materials with new.

## 1.5 WARRANTY

The warranty shall include, at a minimum, all fiberglass doors and frames

for a period of 25 years against failure due to corrosion. Additionally, all fiberglass doors and frames on materials and workmanship shall be warrantable for a period of 10 years, including warp, separation or delamination, and expansion of the core.

## PART 2 PRODUCTS

### 2.1 ACCEPTABLE MANUFACTURERS

Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

Chem-Pruf Door Co., Ltd.  
P.O. Box 4560  
Brownsville, Texas 78523  
Phone: 1-800-444-6924  
Fax: 956-544-7943  
Website: [www.chem-pruf.com](http://www.chem-pruf.com)

Substitutions may be considered, provided manufacturer can comply with the specifications as written herein. Requests for substitution must be submitted in writing no less than 10 days prior to bid date.

### 2.2 FRP DOORS

#### 2.2.1 Doors

Doors shall be made of Fiberlass Reinforced Plastic (FRP) using chemically proven resins resistant to contaminants typically found in the environment for which these specifications are written. Doors shall be 1-3/4 inch thick and of flush construction, having no seams or cracks. All doors up to 4'-0" x 8'-0" shall have equal diagonal measurements with a maximum tolerance of +/- 1/32 inch.

#### 2.2.2 Door Plates

Door plates shall be 1/8 inch thick, molded in one continuous piece, starting with a 25 mil gel coat of the color specified, integrally molded with at least two layers of 1.5 ounce per square foot fiberglass mat and one layer of 16 ounce per square yard unidirectional roving. This will yield a plate weight of 0.97 lbs per square foot at a ratio of 30/70 glass to resin.

#### 2.2.3 Stiles and Rails

Stiles and rails shall be constructed starting from the outside toward the inside, of a 25 mil gel coat of the color specified followed by a matrix of at least three layers of 1.5 ounce per square foot of fiberglass mat. The stile and rail shall be molded in one continuous piece to a U-shaped configuration and to the exact dimensions of the door. In this manner there will be no miter joints or disparate materials used to form the one-piece stile and rail.

#### 2.2.4 Core

Core material shall be 2 psf expanded polyurethane foam, which completely fills all voids between the door plates.

#### 2.2.5 Internal Reinforcement

Internal reinforcement shall be firestop of sufficient amount to adequately support required hardware and function of same.

#### 2.2.6 Finish

Finish of door and frame shall be identical in color and texture. At time of manufacture, 25 mil of resin-rich gel coat must be integrally molded into both the door and frame. Secondary painting to achieve color is not acceptable.

### 2.3 FRAMES

#### 2.3.1 Frames

Frames shall be fiberglass and manufactured using the resin transfer method in closed rigid molds to assure uniformity in color and size. Beginning with a minimum 25 mil gel coat and a minimum of two layers continuous strand fiberglass mat saturated with resin, the frame will be of one-piece construction with molded stop. All frame profiles up to 3/4" shall have a core material of 2 psf polyurethane foam. Metal frames or pultruded fiberglass frames will not be accepted.

#### 2.3.2 Jamb/Header

Jamb/header connection shall be coped by CNC for tight fit.

#### 2.3.3 Internal Reinforcement

Internal reinforcement shall be continuous within the structure to allow for mounting of specified hardware. Material shall be completely non-organic with a minimum hinge screw holding value of 656 lbs. Frame screw holding value to accommodate screw shall be minimum of 1,000 lbs per screw. Documented strength of frame screw holding value after third insert must be submitted. Dissimilar materials, such as steel, will be deemed unacceptable as reinforcement for hardware attachment.

#### 2.3.4 Mortises

Mortises for hardware shall be accurately machined by CNC to hold dimensions to +/- 0.010 inch in all three axis.

#### 2.3.5 Hinge Pockets

Hinge pockets shall be accurately machined by CNC to facilitate heavy duty hinges at all hinge locations, using spacers when standard weight hinges are used.

### 2.4 HARDWARE

#### 2.4.1 Door and Frame Hardware

Due to the special nature of the material in this section, all related hardware specified must be furnished and installed by the door and frame manufacturer. Locks shall be furnished by the Government and used by the Contractor

## PART 3 EXECUTION

### 3.1 INSTALLATION CONDITIONS

#### 3.1.1 Verification of Conditions

Openings are correctly prepared to receive doors and frames. Openings are correct size and depth in accordance with the drawings

#### 3.1.2 Installer's Examination

The installer shall examine conditions under which construction activities of this section are to be performed and submit a written report if conditions are unacceptable. Transmit two copies of the installer's report to the Contracting Officer's Representative (COR) within 24 hours of receipt. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.

### 3.2 INSTALLATION

Install door-opening assemblies in accordance with shop drawings and manufacturer's printed installation instructions, using installation methods and materials specified in installation instructions. Field alteration of doors or frames to accommodate field conditions is strictly prohibited. Maintain plumb and level tolerance specified in manufacturer's printed installation instructions.

### 3.3 ADJUSTING

Adjust doors in accordance with door manufacturer's maintenance instructions to swing open and shut without binding and to remain in place at any angle without being moved by gravitational influence. Adjust door hardware to operate correctly in accordance with hardware manufacturer's maintenance instructions.

### 3.4 CLEANING

Clean surfaces of door opening assemblies and exposed door hardware in accordance with respective manufacturer's maintenance instructions.

### 3.5 PROTECTION OF INSTALLED PRODUCTS

Protect door opening assemblies and door hardware from damage by subsequent construction activities until final inspection.

-- End of Section --

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## SECTION 09900

## PAINTS AND COATINGS

## PART 1 GENERAL

## 1.1 CLEANING AND PREPARATION OF SURFACES

## 1.1.1 Submittals

SD-01 Product Data

Paint Chips; G-AOF

## 1.1.2 General

Surfaces to be painted shall be clean before applying paint or surface treatments. Oil and grease shall be removed with clean cloths and cleaning solvents prior to mechanical cleaning.

## 1.1.3 Concrete and Masonry Surfaces

Concrete and masonry surfaces to be painted shall be prepared by removing all efflorescence, dust, dirt, grease, oil, excessive mortar, and mortar droppings, and by roughening to remove glaze. Surface deposits of free iron shall be removed prior to painting.

## 1.1.4 Ferrous Metal Surfaces

Ferrous metal surfaces that have not been shop-coated shall be cleaned and painted with a a coat of zinc-chromate, alkyd type primer, followed by finish coats as specified hereinafter. Abraded or corroded spots on shop-coated surfaces shall be wire-brushed and touched up with the same sort of material as the shop coat. Cut edges of galvanized sheets and exposed threads and cut ends of galvanized piping, electrical conduit, and metal pipe sleeves not to be painted, shall be solvent cleaned and shall be primed with zinc-dust, zinc-oxide metal primer.

## 1.1.5 Aluminum And Aluminum Alloy Surfaces

Aluminum and aluminum alloy surfaces are not to be painted but shall be solvent cleaned.

## 1.1.6 Wood Surfaces

Wood surfaces to be painted shall be cleaned of dirt, oil, and other foreign substances with mineral spirits, scrapers, and/or sandpaper.

## 1.2 PAINT APPLICATION

## 1.2.1 General

The finished surfaces shall be free from runs, drops, ridges, waves, laps, brush marks, and variations in color, texture, and finish. The hiding shall be complete and each coat shall be so applied as to produce film of uniform thickness. Special attention shall be given to insure that all

surfaces including edges, corners, crevices, welds, and rivets receive a film thickness equivalent to adjacent painted surfaces. All painting shall be done by thoroughly experienced workmen. Safety regulations shall be adhered to at all times, including the wearing of respirators by persons engaged or assisting in spray painting. Poorly ventilated spaces shall be ventilated by use of fans or other efficient and approved means. Adjacent areas and installations shall be protected by the use of dropcloths, or other approved precautionary measures. Metal or wood surfaces adjacent to surfaces to receive water-thinned paints shall be primed and/or touched up prior to the application of water-thinned paints.

1.2.2 Coating Progress

Sufficient time shall elapse between successive coats to permit proper drying. This period shall be modified as necessary to suit adverse weather conditions. Oil-base or oleoresinous solvent type paints shall be considered dry for recoating when the paint feels firm, does not deform or feel sticky under moderate pressure of the thumb, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

1.2.3 Storage

At the time of application, paint shall show no signs of hard settling, excessive skinning, livering, or other deterioration. Latex paint shall be protected from exposure to cold weather.

1.3 SURFACES TO BE PAINTED

1.3.1 General

Except as specified under Paragraph 1.4, "SURFACES NOT TO BE PAINTED," the surfaces listed in Subparagraph 1.3.2, "Painting Schedule" shall receive the surface preparation, paints and number of coats prescribed. Explanatory information for use with the Painting Schedule is as follows:

- (1) Surfaces of fabricated and assembled items that are finish painted by the manufacturer, or specified to be finish painted under other Sections of the specifications, are exempted from the following schedule requirements for surface preparation and painting. Shop primed items shall receive preparation and finish painting as required by this Section.
- (2) Colors and tints shall match the respective color specimens selected by the Contracting Officer. All preceding coats shall match approximately the finish coat. Contractor shall submit to the Contracting Officer, for selection of colors to be used, color chips of the paints proposed for use.
- (3) Method of surface preparation and pretreatment shown in the schedule is for identification purposes only. Cleaning and pretreatment of surfaces prior to painting shall be accomplished in accordance with the detailed requirements hereinbefore described.

1.3.2 Painting Schedule

| <u>Surface</u>                         | <u>Prep</u>             | <u>1st Coat</u>    | <u>2nd</u>         | <u>3rd</u> |
|--|-------------------------|--------------------|--------------------|------------|
| Exterior and interior ferrous surfaces | As previously specified | Exterior oil paint | Exterior oil paint | None       |

| <u>Surface</u>  | <u>Prep</u>   | <u>1st Coat</u>                | <u>2nd</u>                      | <u>3rd</u> |
|---|---|--------------------------------|---------------------------------|------------|
| Interior Hardwood   |   | Enamel<br>Undercoat            | Acrylic Enamel                  |            |
| Exposed exterior<br>calking compound  | None  | Aluminum<br>paint              | Same as<br>adjacent<br>surfaces | None       |
| Interior plywood  | As previously specified                             | Floor &<br>deck<br>enamel      | Floor &<br>deck<br>enamel       | None       |
| Interior concrete<br>Masonry Units  | As previously specified                             | Block-<br>Shield<br>(or Equal) | Block-<br>Shield<br>(or Equal)  | None       |
| Electrical conduit<br>runs, metallic<br>tubing, ducts, pipes,<br>pipehangers, in areas<br>having painted<br>adjacent surfaces | As previously specified<br>for each type of surface | Exterior<br>oil paint          | Exterior<br>oil paint           | None       |

#### 1.4 SURFACES NOT TO BE PAINTED

The following listed items will not require painting:

- Concrete floors
- Exterior concrete platform
- Items having factory finishes other than prime coats
- Non-ferrous metals
- Steel inlet pipe
- Electrical conduit in trench
- Concrete roof deck overhang
- Stainless Steel items

#### 1.5 CLEANING

All cloths and cotton waste which might constitute a fire hazard shall be placed in closed metal containers and destroyed at the end of each day. Upon completion of the work, the entire job shall be left clean and acceptable.

### PART 2 PRODUCTS

#### 2.1 MATERIALS

All material shall be of good quality, as approved. Paints shall be delivered to the job in unbroken containers which shall show the designated name, color, manufacturer's directions, and name of manufacturer, all of which shall be plainly legible at the time of use.

### PART 3 EXECUTION

#### 3.1 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 his quality control for all operations performed, including, but not limited to, the following:

- (1) Type and quality of paint.
- (2) Preparation of surfaces.
- (3) Condition of surfaces prior to painting.
- (4) Application of paint.
- (5) Observance of safety regulations.

#### 3.1.1.1 Records

A copy of the records of inspections, as well as records of any corrective action taken, shall be furnished to the Contracting Officer in accordance with Paragraph, "DAILY INSPECTION REPORT AND CONTRACTOR QUALITY CONTROL," of Part I, "SPECIAL PROVISIONS," and as otherwise directed.

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## SECTION 13120A

## NOAA GAUGE HOUSE BUILDING SYSTEMS

## PART 1 GENERAL

This section covers items in the building that are not already covered in other sections of the specification.

## 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 WELDING SOCIETY (AWS)

AWS D1.1 (2000) Structural Welding Code - Steel

## 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-07 Certificates

## Materials; G-AOF

Certifications of compliance shall be submitted from the manufacturer stating that materials and equipment furnished comply with the specified or indicated standards or, if not specified or indicated, other nationally recognized standard.

## 1.3 GENERAL REQUIREMENTS

Orientation and location of the building at the site shall be as indicated on the drawings.

## 1.3.1 Work Included

Fabrication, installation, materials, parts, equipment, or other incidentals necessary to complete the work, even though not specifically indicated on the drawings or specified herein, shall be included.

## PART 2 PRODUCTS

## 2.1 BUILDING COMPONENTS

Each piece or part of the assembly shall be clearly and legibly marked to correspond with the drawings.

## 2.2 Hardwood Plywood

Hardwood Plywood shall meet or exceed the requirements of HPVA HP-1, Grade A, with specialty grade characteristics as specified herein. Hardwood plywood panels shall be Type II bonded with water-resistant adhesives. Moisture content of Hardwood Plywood Paneling shall be certified not to exceed 12 percent at the time of mill shipment. Moisture content shall conform to the rules of the lumber association or the inspection bureau under which the lumber is graded but shall not exceed 15 percent for boards and dimensional lumber 2 inches or less in thickness.

## 2.3 [Enter Appropriate Subpart Title Here] 2.1.2 Stud-Framing Materials

Moisture content shall conform to the rules of the lumber association or the inspection bureau under which the lumber is graded but shall not exceed 15 percent for boards and dimensional lumber 2 inches or less in thickness. Stud-framing materials for 2- by 4-inch studs, 10 feet or less in length, shall conform to the following:

|  |  |
|--|--|
| Southern yellow pine   | KD stud grade,<br>SPIB 1003  |
| Douglas fir, coast region,<br>western larch, western hemlock | West Coast Studs,<br>WCLIB Std 17; No. 2 and<br>better, WWPA-01 Grading<br>Rules |

## 2.4 DOORS

Doors shall conform to the requirements of section 08220.

## 2.5 SHOP PRIMING

Ferrous surfaces shall be cleaned of oil, grease, loose rust, loose mill scale, and other foreign substances and shop primed. Primer coating shall be in accordance with the manufacturer's standard system.

## 2.6 GPS Conduit Plates

Government will supply GPS conduit plate to cover 1-1/4" hole extruding through the exterior wall. Contractor will install plate in accordance with drawings.

## PART 3 EXECUTION

### 3.1 ERECTION

Where dissimilar metals are in contact, protect surfaces with a coating conforming to FSTT-P-664 to prevent galvanic corrosive action. Improper or mislocated drill holes in panels shall be plugged with an oversize screw fastener and gasketed washer; however, panels with an excess of such holes or with such holes in critical locations shall not be used. Exposed surfaces shall be kept clean and free from sealant, metal cuttings, excess material from thermal cutting, and other foreign materials. Exposed surfaces which have been thermally cut shall be finished smooth within a tolerance of 1/8 inch. Stained, discolored or damaged sheets shall be

removed from the site. Welding of steel shall conform to AWS D1.1; welding of aluminum shall conform to AA Design Manual.

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SECTION 16375A

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## SECTION 16375A

## ELECTRICAL DISTRIBUTION SYSTEM, UNDERGROUND

## PART 1 GENERAL

## 1.1 Scope of Work

This section of the specifications covers the installation of direct buried service lateral conductors up to the point of connection to the line side of the meterbase mounted on the outside of the gage well building, including the grounding electrode system.

## 1.2 REFERENCES

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

## AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

|            |   |
|------------|---|
| ANSI C80.1 | (1995) Rigid Steel Conduit - Zinc Coated            |
| ANSI O5.1  | (1992) Specifications and Dimensions for Wood Poles |

## 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 153/A 153M | (2001) Zinc Coating (Hot-Dip) on Iron and Steel Hardware                     |
| ASTM B 8          | (1999) Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft |

## INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

|              |   |
|--------------|---|
| IEEE C2      | (1997) National Electrical Safety Code                              |
| IEEE Std 100 | (1997) IEEE Standard Dictionary of Electrical and Electronics Terms |

## NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

|           |  |
|-----------|--|
| NEMA FB 1 | (1993) Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies |
| NEMA TC 6 | (1990) PVC and ABS Plastic Utilities Duct for Underground Installation                 |

## NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70 (2002) National Electrical Code

## UNDERWRITERS LABORATORIES (UL)

UL 467 (1993; Rev thru Apr 1999) Grounding and Bonding Equipment

UL 514A (1996; Rev Dec 1999) Metallic Outlet Boxes

UL 6 (1997) Rigid Metal Conduit

UL 651 (1995; Rev thru Oct 1998) Schedule 40 and 80 Rigid PVC Conduit

## 1.3 GENERAL REQUIREMENTS

## 1.3.1 Terminology

Terminology used in this specification is as defined in IEEE Std 100.

## 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

Electrical Distribution System; G-AOF

If departures from the contract drawings are deemed necessary by the Contractor, complete details of such departures shall be included with the detail drawings. Approved departures shall be made at no additional cost to the Government.

## SD-03 Product Data

Protective Device; G-AOF,

Catalog cuts, brochures, circulars, specifications, product data, and printed information in sufficient detail and scope to verify compliance with the requirements of the contract documents.

Material and Equipment; G-AOF

General Installation Requirements; G-AOF

## SD-07 Certificates

Material and Equipment; G-AOF

Where materials or equipment are specified to conform to the standards of the Underwriters Laboratories (UL) or to be constructed or tested, or both, in accordance with the standards

of the American National Standards Institute (ANSI), the Institute of Electrical and Electronics Engineers (IEEE), or the National Electrical Manufacturers Association (NEMA), the Contractor shall submit proof that the items provided conform to such requirements.

The label of, or listing by, UL will be acceptable as evidence that the items conform. Either a certification or a published catalog specification data statement, to the effect that the item is in accordance with the referenced ANSI or IEEE standard, will be acceptable as evidence that the item conforms. A similar certification or published catalog specification data statement to the effect that the item is in accordance with the referenced NEMA standard, by a company listed as a member company of NEMA, will be acceptable as evidence that the item conforms. In lieu of such certification or published data, the Contractor may submit a certificate from a recognized testing agency equipped and competent to perform such services, stating that the items have been tested and that they conform to the requirements listed, including methods of testing of the specified agencies. Compliance with above-named requirements does not relieve the Contractor from compliance with any other requirements of the specifications.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

Devices and equipment shall be visually inspected by the Contractor when received and prior to acceptance from conveyance. Stored items shall be protected from the environment in accordance with the manufacturer's published instructions. Damaged items shall be replaced. Oil filled transformers and switches shall be stored in accordance with the manufacturer's requirements. Wood poles held in storage for more than 2 weeks shall be stored in accordance with ANSI O5.1. Handling of wood poles shall be in accordance with ANSI O5.1, except that pointed tools capable of producing indentations more than 1 inch in depth shall not be used. Metal poles shall be handled and stored in accordance with the manufacturer's instructions.

#### 1.6 EXTRA MATERIALS

One additional spare fuse or fuse element for each furnished fuse or fuse element shall be delivered to the contracting officer when the electrical system is accepted. Two complete sets of all special tools required for maintenance shall be provided, complete with a suitable tool box. Special tools are those that only the manufacturer provides, for special purposes (to access compartments, or operate, adjust, or maintain special parts).

### PART 2 PRODUCTS

#### 2.1 STANDARD PRODUCT

Material and equipment shall be the standard product of a manufacturer regularly engaged in the manufacture of the product and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening. Items of the same classification shall be identical including equipment, assemblies, parts, and components.

#### 2.2 CORROSION PROTECTION

##### 2.2.1 Aluminum Materials

Aluminum shall not be used.

## 2.2.2 Ferrous Metal Materials

### 2.2.2.1 Hardware

Ferrous metal hardware shall be hot-dip galvanized in accordance with ASTM A 153/A 153M and ASTM A 123/A 123M. ALL fasteners shall be corrosion resistant, either hot dipped galvanized or stainless steel.

## 2.3 CABLES

## 2.4 CABLE JOINTS, TERMINATIONS, AND CONNECTORS

## 2.5 CONDUIT

### 2.5.1 Metallic Conduit

Rigid galvanized steel conduit shall comply with UL 6 and ANSI C80.1. Metallic conduit fittings and outlets shall comply with UL 514A and NEMA FB 1.

### 2.5.2 Nonmetallic Ducts

#### 2.5.2.1 Direct Burial

UL 651 Schedule 40 and Schedule 80, or NEMA TC 6 Type DB.

### 2.5.3 Conduit Sealing Compound

Compounds for sealing ducts and conduit shall have a putty-like consistency workable with the hands at temperatures as low as 35 degrees F, shall neither slump at a temperature of 300 degrees F, nor harden materially when exposed to the air. Compounds shall adhere to clean surfaces of fiber or plastic ducts; metallic conduits or conduit coatings; concrete, masonry, or lead; any cable sheaths, jackets, covers, or insulation materials; and the common metals. Compounds shall form a seal without dissolving, noticeably changing characteristics, or removing any of the ingredients. Compounds shall have no injurious effect upon the hands of workmen or upon materials.

## 2.6 GROUNDING AND BONDING

### 2.6.1 Driven Ground Rods

Ground rods shall be copper-clad steel conforming to UL 467 not less than 3/4 inch in diameter by 10 feet in length. Sectional type rods may be used.

### 2.6.2 Grounding Conductors

Grounding conductors shall be bare, except where installed in conduit with associated phase conductors. Insulated conductors shall be of the same material as phase conductors and green color-coded, except that conductors shall be rated no more than 600 volts. Bare conductors shall be ASTM B 8 soft-drawn unless otherwise indicated. Aluminum is not acceptable.

## PART 3 EXECUTION

### 3.1 GENERAL INSTALLATION REQUIREMENTS

Equipment and devices shall be installed and energized in accordance with the manufacturer's published instructions. When conduits are installed underground they shall be schedule 40 or schedule 80 PVC, except for fittings that transition from underground to exposed, which shall be galvanized rigid steel. Except as covered herein, excavation, trenching, and backfilling shall conform to the requirements of Section 02316A EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS. Concrete work shall have minimum 3000 psi compressive strength and conform to the requirements of Section 03300 CAST-IN-PLACE STRUCTURAL CONCRETE.

### 3.1.1 Conformance to Codes

The installation shall comply with the requirements and recommendations of NFPA 70 and IEEE C2 as applicable.

### 3.1.2 Verification of Dimensions

The Contractor shall become familiar with details of the work, shall verify dimensions in the field, and shall advise the Contracting Officer of any discrepancy before performing any work.

## 3.2 CONNECTIONS BETWEEN AERIAL AND UNDERGROUND SYSTEMS

Connections between aerial and underground systems shall be made as specified herein. Underground cables shall be extended up poles in conduit to cable terminations. Conduits shall be secured to the poles by 2-hole galvanized steel pipe straps spaced not more than 10 feet apart and with 1 strap not more than 12 inches from any bend or termination. Cable guards shall be secured to poles in accordance with the manufacturer's published procedures. Conduits shall be equipped with bushings to protect cables and minimize water entry. Cables shall be supported by devices separate from the conduit or guard, near their point of exit from the conduit or guard.

## 3.3 CONNECTIONS TO BUILDINGS

Cables shall be extended into the various buildings as indicated, and shall be connected to the first applicable termination point in each building. Interfacing with building interior conduit systems shall be at conduit stubouts terminating 5 feet outside of a building and 2 feet below finished grade. After installation of cables, conduits shall be sealed with caulking compound to prevent entrance of moisture or gases into building.

## 3.4 GROUNDING

A grounding electrode system consisting of bare copper conductors and driven ground rods shall be installed as shown. Equipment frames of metal-enclosed equipment, and other noncurrent-carrying metal parts (such as the frame for the grating over the sump), metallic conduit and receptacles shall be grounded. The sump grating frame shall be grounded using a conductor with equivalent ampacity of #6 AWG. The panelboard shall be connected to the grounding electrode by a grounding electrode conductor sized as required by the NEC.

### 3.4.1 Grounding Electrodes

Grounding electrodes shall be installed as follows:

- a. Driven rod electrodes - Unless otherwise indicated, ground rods

shall be driven into the earth until the tops of the rods are approximately 1 foot below finished grade.

- b. Additional electrodes - When the required ground resistance is not met, additional electrodes shall be provided, interconnected with grounding conductors, to achieve the specified ground resistance. The additional electrodes will be up to three, 8 feet rods spaced a minimum of 10 feet apart, 5/8 inch diameter, driven perpendicular to grade. In high ground resistance, UL listed chemically charged ground rods may be used. If the resultant resistance exceeds 25 ohms measured not less than 48 hours after rainfall, the Contracting Officer shall be notified immediately.

#### 3.4.2 Grounding and Bonding Connections

Connections above grade shall be made by the fusion-welding process or with bolted solderless connectors, in compliance with UL 467, and those below grade shall be made by a fusion-welding process.

#### 3.5 ACCEPTANCE

Final acceptance of the facility will not be given until the Contractor has successfully completed the ground resistance test and after all defects in installation, material or operation have been corrected.

-- End of Section --

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## SECTION 16415A

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## SECTION 16415A

## ELECTRICAL WORK, INTERIOR

## PART 1 GENERAL

## 1.1 Scope of Work

This section of the specification covers all electrical work inside the gage well and gage well building to a point 5 feet outside the building, excluding the service lateral conductors and conduits.

## 1.2 REFERENCES

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

## AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- ANSI C78.1 (1991; C78.1a; R 1996) Fluorescent Lamps - Rapid-Start Types - Dimensional and Electrical Characteristics
- ANSI C82.1 (1997) Specifications for Fluorescent Lamp Ballasts \F\X Addenda D & E

## NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

- NEMA AB 1 (1993) Molded Case Circuit Breakers and Molded Case Switches
- NEMA ICS 6 (1993) Industrial Control and Systems, Enclosures
- NEMA OS 1 (1996) Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports
- NEMA PB 1 (1995) Panelboards
- NEMA TC 2 (1998) Electrical Polyvinyl Chloride (PVC) Tubing (EPT) and Conduit (EPC-40 and EPC-80)
- NEMA WD 1 (1999) General Requirements for Wiring Devices

## NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

- NFPA 101 (2000) Life Safety Code
- NFPA 70 (2002) National Electrical Code

## UNDERWRITERS LABORATORIES (UL)

|         |  |
|---------|--|
| UL 1    | (2000) Flexible Metal Conduit  |
| UL 1570 | (1995; Rev thru Nov 1999) Fluorescent Lighting Fixtures  |
| UL 1660 | (2000) Liquid-Tight Flexible Nonmetallic Conduit   |
| UL 360  | (1996; Rev thru Oct 1997) Liquid-Tight Flexible Steel Conduit  |
| UL 467  | (1993; Rev thru Apr 1999) Grounding and Bonding Equipment  |
| UL 486A | (1997; Rev thru Dec 1998) Wire Connectors and Soldering Lugs for Use with Copper Conductors                  |
| UL 486E | (1994; Rev thru Feb 1997) Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors          |
| UL 489  | (1996; Rev thru Dec 1998) Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures |
| UL 50   | (1995; Rev thru Nov 1999) Enclosures for Electrical Equipment  |
| UL 514A | (1996; Rev Dec 1999) Metallic Outlet Boxes   |
| UL 514B | (1997; Rev Oct 1998) Fittings for Cable and Conduit  |
| UL 542  | (1999) Lampholders, Starters, and Starter Holders for Fluorescent Lamps                                      |
| UL 6    | (1997) Rigid Metal Conduit   |
| UL 651  | (1995; Rev thru Oct 1998) Schedule 40 and 80 Rigid PVC Conduit   |
| UL 651A | (1995; Rev thru Apr 1998) Type EB and A Rigid PVC Conduit and HDPE Conduit                                   |
| UL 67   | (1993; Rev thru Oct 1999) Panelboards  |
| UL 797  | (1993; Rev thru Mar 1997) Electrical Metallic Tubing   |
| UL 83   | (1998; Rev thru Sep 1999) Thermoplastic-Insulated Wires and Cables   |
| UL 854  | (1996; Rev Oct 1999) Service-Entrance Cables   |
| UL 98   | (1994; Rev thru Jun 1998) Enclosed and Dead-Front Switches   |

### 1.3 GENERAL

#### 1.3.1 Rules

The installation shall conform to the requirements of NFPA 70 and NFPA 101, unless more stringent requirements are indicated or shown.

#### 1.3.2 Coordination

The drawings indicate the extent and the general location and arrangement of equipment, conduit, and wiring. The Contractor shall become familiar with all details of the work and verify all dimensions in the field so that the outlets and equipment shall be properly located and readily accessible.

Lighting fixtures, outlets, and other equipment and materials shall be carefully coordinated with mechanical or structural features prior to installation and positioned as shown on the drawings. If any conflicts occur necessitating departures from the drawings, details of and reasons for departures shall be submitted and approved prior to implementing any change. The Contractor shall coordinate the electrical requirements of the mechanical work and provide all power related circuits, wiring, hardware and structural support, even if not shown on the drawings.

#### 1.3.3 Standard Products

Material and equipment shall be a standard product of a manufacturer regularly engaged in the manufacture of the product and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening.

### 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

##### Interior Electrical Equipment;

If departures from the contract drawings are deemed necessary by the Contractor, complete details of such departures, including changes in related portions of the project and the reasons why, shall be submitted with the detail drawings. Approved departures shall be made at no additional cost to the Government.

#### SD-03 Product Data

##### Manufacturer's Catalog; G-AOF.

Data composed of catalog cuts, brochures, circulars, specifications, product data, and printed information in sufficient detail and scope to verify compliance with the requirements of the contract documents.

#### As-Built Drawings; G-AOF.

The as-built drawings shall be a record of the construction as

installed. The drawings shall include all the information shown on the contract drawings, deviations, modifications, and changes from the contract drawings, however minor. The as-built drawings shall be kept at the job site and updated daily. The as-built drawings shall be a full-sized set of prints marked to reflect all deviations, changes, and modifications. The as-built drawings shall be complete and show the location, size, dimensions, part identification, and other information. Additional sheets may be added. The as-built drawings shall be jointly inspected for accuracy and completeness by the Contractor's quality control representative and by the Contracting Officer prior to the submission of each monthly pay estimate. Upon completion of the work, the Contractor shall submit three full sized sets of the marked prints to the Contracting Officer for approval. If upon review, the as-built drawings are found to contain errors and/or omissions, they will be returned to the Contractor for correction.

The Contractor shall correct and return the as-built drawings to the Contracting Officer for approval within ten calendar days from the time the drawings are returned to the Contractor.

#### Guarantee

The following equipment to be furnished under this Section of the specifications shall be guaranteed for a period of one year from the date of accepted thereof, either for beneficial use or final acceptance, whichever is earlier, against defective materials, design, and workmanship:

- (1) Circuit breaker panel
- (2) Electric heater and controls
- (3) Lighting fixtures, except lamps

Upon receipt of notice from the Government of failure of any part of the guaranteed equipment during the guarantee period, new replacement parts shall be furnished and installed promptly by the Contractor at no additional cost to the Government.

#### 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 his quality control for all operations performed, including, but not limited to, the following:

- (1) Quality -- including class, grade, style, type, capacity, and/or rating of electrical equipment, controls, and systems.
- (2) Workmanship -- installation and testing of electrical equipment, controls, and systems.
- (3) Observance of safety regulations.

#### Records

A copy of the records of inspections and tests, as well as

records of any corrective action taken, shall be furnished to the Contracting Officer in accordance with the Paragraph, "DAILY INSPECTION REPORT AND CONTRACTOR QUALITY CONTROL," of Part I, "SPECIAL PROVISIONS," and as otherwise directed.

#### SD-07 Certificates

Materials and Equipment;G-AOF.

The label or listing of the Underwriters Laboratories, Inc., will be accepted as evidence that the materials or equipment conform to the applicable standards of that agency. In lieu of this label or listing, a statement from a nationally recognized, adequately equipped testing agency indicating that the items have been tested in accordance with required procedures and that the materials and equipment comply with all contract requirements will be accepted. However, materials and equipment installed in hazardous locations must bear the UL label unless the data submitted from other testing agency is specifically approved in writing by the Contracting Officer. Items which are required to be listed and labeled in accordance with Underwriters Laboratories must be affixed with a UL label that states that it is UL listed. No exceptions or waivers will be granted to this requirement. Materials and equipment will be approved based on the manufacturer's published data.

For other than equipment and materials specified to conform to UL publications, a manufacturer's statement indicating complete compliance with the applicable standard of the American Society for Testing and Materials, National Electrical Manufacturers Association, or other commercial standard, is acceptable.

#### 1.5 WORKMANSHIP

Materials and equipment shall be installed in accordance with NFPA 70, recommendations of the manufacturer, and as shown.

#### PART 2 PRODUCTS

Products shall conform to the respective publications and other requirements specified below. Materials and equipment not listed below shall be as specified elsewhere in this section. Items of the same classification shall be identical including equipment, assemblies, parts, and components.

##### 2.1 CORROSION PROTECTION

###### 2.1.1 Aluminum Materials

Aluminum may be used only as approved by the contracting officer.

###### 2.1.2 Ferrous Metal Materials

###### 2.1.2.1 Hardware

Ferrous metal hardware shall be hot-dip galvanized in accordance with ASTM A 153/A 153M and ASTM A 123/A 123M. ALL fasteners shall be corrosion resistant, either hot dipped galvanized or stainless steel unless otherwise approved by the Contracting Officer.

## 2.2 SPACE HEATER AND HEAT LAMPS/LAMP HOLDERS

The Contractor shall provide heat lamps and appurtenances for the gage well as shown on the drawings and specified herein. The heat lamps shall be mounted in cast lampholders that will allow aiming of the unit in two directions so that the entire water surface can be heated. The wattage of the heat lamps shall be as shown on the drawings. The lampholders shall be mounted on the plastic or cast boxes as shown on the drawings. The lampholder shall be suitable for use in damp locations. The thermostat for the heat lamps in the gage well shall be equal to Johnson Controls A419-AEC-1C with a temperature sensor length of 9.75 feet equal to Johnson Controls catalog no. A99 BB-300C. The heat lamp thermostat shall be furnished in a NEMA 4X, watertight, corrosion resistant enclosure. The contractor shall furnish and install one 240 volt, single phase, heavy duty ceiling-mounted electric heater as shown on the drawings. The heater shall be rated 3kw and shall be equal to Chromalox catalog no. MUH03-21, complete with mounting bracket to provide the installation shown on the drawings. The contractor shall also furnish and install a thermostat to control the electric heater. The thermostat for the space heater shall be equal to Qmark M602, shall be the line voltage type rated 22A at 240Vac. The thermostat for the space heater shall be mounted approximately 50 inches above the floor or as directed by the Contracting Officer.

## 2.3 CABLES AND WIRES

All conductors shall be stranded. Conductor sizes and ampacities shown are based on copper. All conductors shall be copper.

### 2.3.1 Insulation

Unless indicated otherwise, or required by NFPA 70, power and lighting wires that are installed entirely inside the building shall be 600-volt, Type THWN, THHN, or THW conforming to UL 83. Where lighting fixtures require 90-degree Centigrade (C) conductors, provide only conductors with 90-degree C insulation or better.

### 2.3.2 Service Entrance Cables

Service entrance (SE) and underground service entrance (USE) cables, UL 854.

## 2.4 CIRCUIT BREAKERS

### 2.4.1 MOLDED-CASE CIRCUIT BREAKERS

Molded-case circuit breakers shall conform to NEMA AB 1 and UL 489. Circuit breakers shall be installed as indicated on the drawings.

#### 2.4.1.1 Construction

Circuit breakers shall be suitable for mounting and operating in any position. Lug shall be listed for copper and aluminum conductors in accordance with UL 486E. Single-pole circuit breakers shall be full module size with not more than one pole per module. Multi-pole circuit breakers shall be of the common-trip type having a single operating handle such that an overload or short circuit on any one pole will result in all poles opening simultaneously. Sizes of 100 amperes or less may consist of single-pole breakers permanently factory assembled into a multi-pole unit having an internal, mechanical, nontamperable common-trip mechanism and

external handle ties. All circuit breakers shall have a quick-make, quick-break overcenter toggle-type mechanism, and the handle mechanism shall be trip-free to prevent holding the contacts closed against a short-circuit or sustained overload. All circuit breaker handles shall assume a position between "ON" and "OFF" when tripped automatically. All ratings shall be clearly visible.

#### 2.4.1.2 Ratings

Voltage ratings shall be not less than the applicable circuit voltage. The interrupting rating of the circuit breakers shall be at least equal to the available short-circuit current at the line terminals of the circuit breaker and correspond to the UL listed integrated short-circuit current rating specified for the panelboards and switchboards. Molded-case circuit breakers shall have nominal voltage ratings, maximum continuous-current ratings, and maximum short-circuit interrupting ratings in accordance with NEMA AB 1. The short-circuit interrupting rating of the equipment shall be as specified elsewhere herein..

#### 2.4.1.3 Thermal-Magnetic Trip Elements

Thermal magnetic circuit breakers shall be provided as shown. Automatic operation shall be obtained by means of thermal-magnetic tripping devices located in each pole providing inverse time delay and instantaneous circuit protection.

### 2.5 CONDUIT AND TUBING

#### 2.5.1 General

In view of the extreme humid environment inside the gauge house, all conduit, fittings, device boxes inside the gauge house shall be made of plastic and conform to the applicable requirements below, unless otherwise shown or approved by the contracting officer. Note that standards have been included for steel materials should their use be deemed necessary at some point during the contract.

#### 2.5.2 Electrical, Zinc-Coated Steel Metallic Tubing (EMT)

UL 797

#### 2.5.3 Flexible Conduit, Steel and Plastic

General-purpose type, UL 1; liquid tight, UL 360, and UL 1660.

#### 2.5.4 Rigid Metal Conduit

UL 6.

#### 2.5.5 Rigid Plastic Conduit

NEMA TC 2, UL 651 and UL 651A.

### 2.6 CONDUIT AND DEVICE BOXES AND FITTINGS

#### 2.6.1 Boxes, Metallic Outlet

NEMA OS 1 and UL 514A.

### 2.6.2 Boxes, Switch (Enclosed), Surface-Mounted

UL 98.

### 2.6.3 Fittings for Conduit and Outlet Boxes

UL 514B.

### 2.6.4 Fittings, PVC, for Use with Rigid PVC Conduit and Tubing

UL 514B.

## 2.7 CONNECTORS, WIRE PRESSURE

### 2.7.1 For Use With Copper Conductors

UL 486A.

## 2.8 ELECTRICAL GROUNDING AND BONDING EQUIPMENT

Grounding and bonding equipment shall meet the applicable requirements of UL 467. In addition, a ground bar kit shall be provided and located adjacent to the panelboard. The ground bar kit shall be equal to Tessco # 494056 (1/4" x 4" x 6"). The alloy copper bar shall be provided with a 25 foot long, #2AWG exothermically welded tail for connection to the building grounding electrode. Bar shall have 9 predrilled 7/16" holes. The #2AWG tail shall run through the building wall separately from the power service grounding electrode conductor as shown on the drawings. The annular space between the grounding tail and the sleeve in which it is installed shall be sealed with materials specified herein.

## 2.9 ENCLOSURES

NEMA ICS 6 unless otherwise specified.

### 2.9.1 Cabinets and Boxes

Cabinets and boxes with volume greater than 100 cubic inches shall be in accordance with UL 50, hot-dip, zinc-coated, if sheet steel unless otherwise shown.

### 2.9.2 Circuit Breaker Enclosures

UL 489.

## 2.10 LIGHTING FIXTURES, LAMPS AND BALLASTS

The following specifications are supported and supplemented by information and details on the drawings. Additional fixtures, if shown, shall conform to this specification. Lamps, lampholders, ballasts, transformers, electronic circuitry and other lighting system components shall be constructed according to industry standards. Equipment shall be tested and listed by a recognized independent testing laboratory for the expected installation conditions. Equipment shall conform to the standards listed below.

### 2.10.1 Lamps

Lamps shall be constructed to operate in the specified fixture, and shall

function without derating life or output as listed in published data. Lamps shall meet the requirements of the Energy Policy Act of 1992.

- a. Incandescent lamps shall be designed for 125 volt operation (except for low voltage lamps), shall be rated for minimum life of 2,000 hours.
- b. Fluorescent lamps shall be designed to operate with the ballasts and circuitry of the fixtures in which they will be used. Fluorescent lamps shall comply with ANSI C78.1. Fluorescent tube lamp efficiencies shall meet or exceed the following requirements.

|               |           |             |
|---------------|-----------|-------------|
| T8, 32 watts  | (4' lamp) | 2800 lumens |
| T12, 34 watts | (4' lamp) | 2800 lumens |

(1) Linear fluorescent lamps, unless otherwise indicated, shall be 4 feet long 32 watt T8, 265 mA, with minimum CRI of 75. Lamps shall deliver rated life when operated on rapid start ballasts [as shown].

#### 2.10.2 Ballasts and Transformers

Ballasts or transformers shall be designed to operate the designated lamps within their optimum specifications, without derating the lamps. Lamp and ballast combinations shall be certified as acceptable by the lamp manufacturer.

- b. Fluorescent ballasts shall comply with ANSI C82.1 and shall be mounted integrally within fluorescent fixture housing unless otherwise shown. Ballasts shall have maximum current crest factor of 1.7; high power factor; Class A sound rating; maximum operating case temperature of 77 degrees F above ambient; and shall be rated Class P.

#### 2.10.3 Fixtures

Fixtures shall be in accordance with the size, shape, appearance, finish, and performance shown. Unless otherwise indicated, lighting fixtures shall be provided with housings, junction boxes, wiring, lampholders, mounting supports, trim, hardware and accessories for a complete and operable installation. Plastic lenses shall be 100% virgin acrylic or as shown. Glass lenses shall be tempered.

- b. Fluorescent fixtures shall comply with UL 1570. Fixtures shall be plainly marked for proper lamp and ballast type to identify lamp diameter, wattage, color and start type. Marking shall be readily visible to service personnel, but not visible from normal viewing angles. Integral ballast and wireway compartments shall be easily accessible without the use of special tools. Housings shall be constructed to include grounding necessary to start the lamps. Open fixtures shall be equipped with a sleeve, wire guard, or other positive means to prevent lamps from falling. Medium bi-pin lampholders shall be twist-in type with positive locking position.

#### 2.10.4 Lampholders, Starters, and Starter Holders

UL 542

## 2.11 PANELBOARDS

Dead-front construction, NEMA PB 1 and UL 67.

## 2.12 RECEPTACLES

### 2.12.1 Heavy Duty Grade

NEMA WD 1. Devices shall conform to all requirements for heavy duty receptacles.

## PART 3 EXECUTION

### 3.1 WIRING METHODS

Wiring shall conform to NFPA 70 the contract drawings, and the following specifications. Wiring shall consist of insulated conductors installed in rigid zinc-coated steel conduit or rigid plastic conduit unless otherwise shown.

#### 3.1.1 Conduit and Tubing Systems

Conduit and tubing systems shall be installed as indicated. Conduit sizes shown are based on use of copper conductors with insulation types as described in paragraph WIRING METHODS. Minimum size of raceways shall be 1/2 inch. Bushings, manufactured fittings or boxes providing equivalent means of protection shall be installed on the ends of all conduits and shall be of the insulating type, where required by NFPA 70. Aluminum conduit shall not be used. Raceways shall be installed as shown.

##### 3.1.1.1 Changes in Direction of Runs

Changes in direction of runs shall be made with symmetrical bends or cast-metal fittings. Field-made bends and offsets shall be made with an approved hickey or conduit-bending machine. Crushed or deformed raceways shall not be installed. Trapped raceways will not be acceptable. In damp and wet locations shall be avoided where possible. Lodgment of plaster, dirt, or trash in raceways, boxes, fittings and equipment shall be prevented during the course of construction. Clogged raceways shall be cleared of obstructions or shall be replaced.

##### 3.1.1.2 Supports

Metallic conduits and tubing, and the support system to which they are attached, shall be securely and rigidly fastened in place to prevent vertical and horizontal movement at intervals of not more than 10 feet and within 3 feet of boxes, cabinets, and fittings, with approved pipe straps, wall brackets, conduit clamps, conduit hangers, threaded C-clamps or beam clamps. Attachment shall be by toggle bolts on hollow masonry units; by expansion bolts on concrete or brick; by machine screws, welded threaded studs, heat-treated or spring-steel-tension clamps on steel work. Raceways or pipe straps shall not be welded to steel structures. Holes drilled for support anchors, but not used, shall be filled. Raceways shall not be supported using wire or nylon ties. Raceways shall be independently supported from the structure. Conduits shall be fastened to sheet-metal boxes and cabinets with two locknuts where required by NFPA 70, where insulating bushings are used, and where bushings cannot be brought into firm contact with the box; otherwise, a single locknut and bushing may be used.

### 3.1.2 Cables and Conductors

Installation shall conform to the requirements of NFPA 70.

#### 3.1.2.1 Use of Aluminum Conductors in Lieu of Copper

Aluminum conductors shall not be used.

#### 3.1.2.2 Cable Splicing

Cable splices, other than in branch circuit wiring junction boxes inside the gage house are not acceptable.

### 3.2 BOXES AND SUPPORTS

Boxes shall be provided in the wiring or raceway systems where required by NFPA 70 for pulling of wires, making connections, and mounting of devices or fixtures. Pull boxes shall be furnished with screw-fastened covers. Indicated elevations are approximate, except where minimum mounting heights for hazardous areas are required by NFPA 70. Unless otherwise indicated, boxes for wall switches shall be mounted 48 inches above finished floors. Outlets shall be installed in the location shown on the drawings. The Contractor shall study the general building plans in relation to the spaces surrounding each outlet in order that his work may fit the other work required by these specifications. Boxes installed exposed to walls or ceiling shall be cast metal type having threaded hubs. Boxes shall be installed in a rigid manner with expansion shields. Switch and receptacle outlet boxes shall be not less than four inches apart.

#### 3.2.1 Brackets and Fasteners

Boxes and supports shall be fastened with bolts and metal expansion shields on concrete or brick, with toggle bolts on hollow masonry units, and with machine screw or welded studs on steel work.

### 3.3 DEVICE PLATES

One-piece type device plates shall be provided for all outlets and fittings. Plates on unfinished walls and on fittings shall be of zinc-coated sheet steel or cast-metal. Screws shall be of metal with countersunk heads, in a color to match the finish of the plate. Plaster fillings will not be permitted. Plates shall be installed with an alignment tolerance of 1/16 inch. The use of sectional-type device plates will not be permitted. Plates installed in wet locations shall be gasketed and provided with a hinged, gasketed cover, unless otherwise specified.

### 3.4 RECEPTACLES

### 3.5 SERVICE EQUIPMENT

The Contractor shall install the meter base where indicated for each Gage House. The contractor shall comply with any special grounding or other requirements of either the utility company or City, as applicable. Power service to the gage houses shall be 120/240 volts, single phase, 3 wire. Service-disconnecting means shall be of the enclosed molded-case circuit breaker type with an external handle for manual operation. When service disconnecting means is a part of an assembly, the assembly shall be listed as suitable for service entrance equipment. The service equipment shall be

rated for use with an available short circuit current of 20,000 Amps. Enclosures shall be sheet metal with hinged cover for surface mounting unless otherwise indicated.

### 3.6 PANELBOARDS

#### 3.6.1 Panelboards

Directories shall be typed to indicate loads served by each circuit and mounted in a holder behind a clear protective covering. Busses shall be aluminum.

### 3.7 UNDERGROUND SERVICE

Unless otherwise indicated, interior conduit systems shall be stubbed out 5 feet beyond the building wall and 2 feet below finished grade, for interface with the exterior service lateral conduits and exterior communications conduits. Outside conduit ends shall be bushed when used for direct burial service lateral conductors. Outside conduit ends shall be capped or plugged until connected to exterior conduit systems.

### 3.8 LIGHTING FIXTURES, LAMPS AND BALLASTS

This paragraph shall cover the installation of lamps, lighting fixtures and ballasts in interior or building mounted applications.

#### 3.8.1 Lamps

Lamps of the type, wattage, and voltage rating indicated shall be delivered to the project in the original cartons and installed just prior to project completion. Lamps installed and used for working light during construction shall be replaced prior to turnover to the Government if more than 15% of their rated life has been used. Lamps shall be tested for proper operation prior to turn-over and shall be replaced if necessary with new lamps from the original manufacturer. 10% spare lamps of each type, from the original manufacturer, shall be provided.

#### 3.8.2 Lighting Fixtures

##### 3.8.2.1 Ceiling Fixtures

Ceiling fixtures shall be coordinated with and suitable for installation on the ceiling as shown. Installation and support of fixtures shall be in accordance with NFPA 70 and manufacturer's recommendations.

### 3.9 PAINTING AND FINISHING

Field-applied paint on exposed surfaces shall be provided under Section 09900 PAINTS AND COATINGS.

### 3.10 FIELD TESTING

Field testing shall be performed in the presence of the Contracting Officer. The Contractor shall notify the Contracting Officer 14 days prior to conducting tests. The Contractor shall furnish all materials, labor, and equipment necessary to conduct field tests. The Contractor shall perform all tests and inspection recommended by the manufacturer unless specifically waived by the Contracting Officer.

3.11 ACCEPTANCE

Final acceptance of the facility will not be given until the Contractor has successfully completed all tests and after all defects in installation, material or operation have been corrected.

3.12 PAYMENT

No separate payment will be made for the work required under this Section of the specifications and all costs in connection therewith shall be included in the contract lump-sum prices for the applicable items shown in the "BIDDING SCHEDULE."

-- End of Section --