

**SECTION 32 05 23
SITE WORK CONCRETE**

PART 1 - GENERAL

1.1 DESCRIPTION

A. UTILITY FOUNDATION SUPPORTS

1.2 THIS SECTION NOT USED

1.3 WEATHER LIMITATIONS

Concrete shall be placed in accordance with the American Concrete Institute (ACI) recommendations and guidelines. Concrete shall not be poured on frozen ground or where temperatures are expected to drop below 32 degrees F within 28 hours of the pour. Concrete shall not be poured on fully saturated soil or on standing water.

1.4 SUBMITTALS

Furnish the following:

Manufacturers' Certificates and Data certifying that the following materials conform to the requirements specified.

1. Plant receipt showing mixture, admixtures, and compressive strength.
2. Curing materials

1.5 APPLICABLE PUBLICATIONS

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

B. American Society for Testing and Materials (ASTM):

C94-95.....Ready-Mixed Concrete

C143(Rev A)-90.....Slump of Hydraulic Cement

PART 2 - PRODUCTS

2.1 GENERAL

Concrete shall be Type D, air-entrained as specified in Section, CAST-IN-PLACE CONCRETE, with the following exceptions:

<u>TYPE</u>	<u>MAXIMUM SLUMP*</u>
Curb & Gutter	75 mm (3")
Pedestrian Pavement	75 mm (3")
Vehicular Pavement	50 mm (2") (Machine Finished) 100 mm (4") (Hand Finished)
Equipment Pad	75 to 100 mm (3" to 4")

* For concrete to be vibrated: Slump as determined by ASTM C143. Tolerances as established by ASTM C94.

Type D concrete shall have the following general characteristics:

A. Minimum 28 day compressive strength: 4,000 PSI

- B. Minimum cement: 570 lbs./c.y.
- C. Maximum water cement ratio: 0.50
- D. Air entrainment volume: 4-8% depending on coarse aggregate size.

2.2 REINFORCEMENT

The type, amount, and locations of steel reinforcement shall be as shown and specified. Welded wire-fabric shall conform to AASHTO M55. Dowels shall be plain steel bars conforming to AASHTO M31 or M42. Tie bars shall be deformed steel bars conforming to AASHTO M31 or M42.

2.3 CONCRETE CURING MATERIALS

Concrete curing materials shall conform to one of the following:

- A. Burlap conforming to AASHTO M182 having a weight of 200 grams (seven ounces) or more per square meter (yard) when dry.
- B. Impervious Sheeting conforming to AASHTO M171.
- C. Liquid Membrane Curing Compound conforming to AASHTO M148, Type 2, and shall be free of paraffin or petroleum.
- D. Concrete in trenches should be cured if in a shallow trench or if dry weather conditions or soil conditions could dry the concrete before fully cured.

PART 3 - EXECUTION

3.1 SUBGRADE PREPARATION

Prepare, construct, and finish the subgrade to be fully compacted or be undisturbed soil to serve as an adequate subgrade support. Maintain the subgrade in a smooth, compacted condition, in conformance with the required section and established grade until the succeeding operation has been accomplished.

3.2 EQUIPMENT

The COTR or Engineer shall approve equipment and tools necessary for handling materials and performing all parts of the work prior to commencement of work. Maintain equipment and tools in satisfactory working condition at all times.

3.3 PLACING REINFORCEMENT

Reinforcement shall be free from dirt, oil, rust, scale or other substances that prevent the bonding of the concrete to the reinforcement. Before the concrete is placed, the COTR or Engineer shall approve the reinforcement which shall be accurately and securely fastened in place with suitable supports and ties. Do not place reinforcement within 50 mm (2 inches) of an exposed surface. The type, amount, and position of the reinforcement shall be as shown.

3.5 PLACING CONCRETE - GENERAL

Remove debris and other foreign material from between the forms before placing concrete. Obtain approval of the COTR or Engineer before placing concrete. Before the concrete is placed, uniformly moisten the subgrade, avoiding puddles of water. Convey concrete from mixer to final place of deposit by a method which will prevent segregation or loss of ingredients. Deposit concrete so that it requires as little handling as possible. Use shovels, not rakes, to do the necessary hand spreading. While being placed, spade or vibrate and compact the concrete with suitable tools to prevent the formation of voids or honeycomb pockets. Spade or vibrate and tamp the concrete especially well against the forms and along all joints. Over-vibration or manipulation causing segregation will not be permitted. Place concrete continuously between joints without bulkheads. Install a construction joint whenever the placing of concrete is suspended for more than 30 minutes and at the end of each day's work. Workmen or construction equipment coated with foreign material shall not be permitted to walk or operate in the concrete during placement and finishing operations. Concrete shall not be loaded with equipment or full intended loading before at least 5 day curing period.

3.6 CLEANING

After completion of the curing period, remove the curing material (other than liquid membrane), sweep the concrete clean to inspect for major cracks.

3.7 PROTECTION

The contractor shall protect the concrete against all damage prior to final acceptance by the Government. Remove concrete containing excessive cracking, fractures, spalling, or other defects and reconstruct the entire section between regularly scheduled joints, when directed by the COTR or Engineer, and at no additional cost to the Government.

3.8 FINAL CLEAN-UP

Remove all debris, rubbish and excess material from the Cemetery.

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