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**SECTION 3200**

**BORE AND CONDUIT**

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**SECTION 3200**

**BORE AND CONDUIT**

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**3201 GENERAL REQUIREMENTS**

**3201.1 Description**

This section governs the furnishing of all materials, labor, equipment, tools and other services to construct conduit (casing) pipes beneath streets, highways, and railroads and perform related work necessary to complete the work shown on the plans or specified.

**3201.2 Abbreviations**

Wherever the words, forms, or phrases herein defined or pronouns used in their stead occur in these specifications, in the contract or in the Advertisement of any document or instrument herein contemplated or to which these specifications apply, the intent and mean shall be interpreted as defined in the General Conditions of the Construction Contract.

**3201.3 Permits**

The permits for crossings shall be obtained by the City of Owasso. The contractor shall give notification to the Oklahoma Department of Transportation (ODOT) or railroad company prior to the start of the work. Work shall not commence until all arrangements are completed and permission is given by the City to start the work.

**3201.4 Submittals**

Submittals shall be as specified in the General Conditions and consist of the following:

- A. Manufacturer's Certificate of Compliance certifying compliance with the referenced specifications and standards.
- B. Certified copies of reports of factory tests specified in this section and required by the referenced standards.
- C. Plans and details describing materials and methods proposed by the contractor for use in special crossings.
- D. Detailed design calculations and drawings of support systems proposed for tunnel construction.

**3201.5 General Construction Requirements**

- A. The contractor shall be prepared to attend all meetings and provide any necessary data, reports, information, details, and construction schedules as requested by the City.
- B. The Engineer shall review and modify as necessary the scheduling of any or all construction activities under the highway or railroad right-of-way in order to prevent interruption to traffic. The contractor shall include the cost for such procedures in

his/her bid and shall not be entitled to any change in contract amount on account of such procedures.

- C. All work shall be done in a careful, workmanlike manner to the satisfaction of the proper officials, as well as the Engineer.

**3202 PRODUCTS**

**3202.1 Steel Conduit**

- A. The conduit pipe and joints shall be of steel construction. The conduit pipe and joints shall be capable of withstanding the load of railroad roadbed, track, and traffic or the load of pavement, subgrade, and traffic, as applicable. The conduit pipe and joints shall be constructed to prevent leakage of any matter from the conduit throughout its entire length, except at the ends of the conduit.
- B. The conduit pipe shall be welded steel pipe, new and unused material in accordance with current ASTM Specifications A-139 Grade B for "Electric Fusion of Welded Steel Pipe" with a minimum yield of 35,000 psi. The inside diameter shall conform to Standard Detail BOR-1.
- C. The minimum wall thickness of the conduit pipe shall be as shown in the following table:

<u>Diameter of Casing</u> (Inches)	<u>Minimum Wall Thickness</u>	
	<u>Under Highway</u> (Inches)	<u>Under Railroad</u> (Inches)
Under 14	0.25	0.188
14	0.25	0.219
16	0.25	0.219
18	0.25	0.25
20	0.375	0.281
22	0.375	0.312
24	0.375	0.344
26	0.375	0.375
28	0.5	0.406
30	0.5	0.406
32	0.5	0.438
34	0.5	0.469
36	0.5	0.469
38	0.5	0.5
40	0.5	0.5
42	0.5	0.5

### 3202.2 Execution

#### A. Construction of conduit pipe:

1. Installation of the conduit shall proceed from a bore pit, which shall be excavated so that the nearest cut to the roadway is at least 10 feet from the edge of the pavement or railroad track ballast, and shall be constructed without interruption to roadway or railroad traffic. Bore pits shall be maintained during throughout the construction of the project and shored as necessary. Open trenches shall be properly sheeted and braced when and where necessary to provide safe working conditions and protection for highway, roads, structures, and utilities.
2. The carrier pipe shall be installed inside a conduit pipe of the length shown on the plans. Except as otherwise permitted, the conduit pipe shall be dry bored or jacked into place to satisfactory alignment and grade for its entire length. Wet bores shall not be allowed.
3. The contractor shall remove all excavated material and replace or change existing structures or utilities encountered to the satisfaction of the Engineer.
4. The ends of the conduit shall be sealed a removable neoprene or rubber seal to protect against the entrance of foreign material which might prevent ready removal of the conduit.
5. Top of conduit shall be at least 48 inches below the top of the subgrade and 30 inches below the bottom of the ditches.
6. Conduit shall be vented with 2-inch-minimum diameter welded steel pipe. Conduit shall be vented outside of the right-of-way. Vent pipes shall be installed on each side of the crossing unless traffic or other circumstances prevent the exposure in the particular location. At least one vent pipe shall be installed at least 36 inches above the natural ground.
7. Markers shall be installed on each vent pipe. Markers shall read the following:

CITY OF OWASSO  
WATER (OR SEWER)  
LINE CROSSING  
(918) 272-4959

8. Blasting shall not be permitted adjacent to streets, roadways, highways or railroads for the purpose of boring.

#### B. Jacking or boring alternatives:

1. The installation of the conduit pipe by methods other than the jacking method must be performed in a manner which meets with prior approval of the owner or the railroad.

2. Any expense incurred in connection with the construction of the crossing, removal, replacement, or maintenance resulting from the construction of the conduit and carrier pipe shall be at the expense of the Contractor.

C. Installation of carrier pipe:

1. The carrier pipe designated on the drawings shall be as specified in other Construction Standards sections for the type of pipe, whether water main, gravity sanitary sewer, storm sewer, force main, or electrical conduit.
2. Jointing of the carrier pipe shall be restrained joints for the type of pipe material and fittings used.
3. Carrier pipe shall be placed into and through the steel conduit at locations shown on plans using plastic or rubber skids attached to the pipe in order to protect it during the installation procedure. Wood skids are not acceptable for this use. Methods of pipe installation shall be used to maintain tight joints, to the satisfaction of the Engineer.

END OF SECTION