

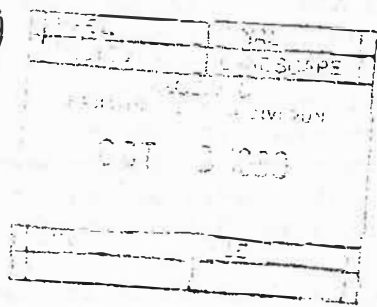
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<p><b>MODIFIED BY EI 88-035 EFFECTIVE 10/27/88 &amp; EI 93-032 EFFECTIVE 10/18/93</b></p> <p><b>SUPERSEDED BY EB 97-039 EFFECTIVE 7/1/97</b></p>	<p align="center"><b>ENGINEERING INSTRUCTION</b></p> <p align="center">NEW YORK STATE DEPARTMENT OF TRANSPORTATION</p> <p>SUBJECT: ANCHOR BOLTS FOR CORRUGATED STRUCTURES</p> <p>Subject Code: 7.27-1-603</p>
<p>Distribution:</p> <p><input checked="" type="checkbox"/> Main Office    <input checked="" type="checkbox"/> Regions    <input checked="" type="checkbox"/> Special</p> <p>APPROVED: <i>R. H. Edwards</i></p> <p>R. H. EDWARDS, Deputy Chief Engineer, Facilities Design Division</p>	<p>Code: <u>83-42</u></p> <p>Date: <u>9-28-83</u></p> <p>Supersedes:</p>

An August, 1971 Instructional Memorandum approved the use of 3/4" x 6" long, ASTM A307-Anchor bolts as a substitute for the traditional 3/4" x 19" hook bolt for securing multi-plate structures to concrete headwalls. This authorization was to continue as long as satisfactory results were being obtained. Documented feedback was to be given this office should any field problems be encountered using the shorter bolts.

Since that time we have no documented evidence of failure of the shorter bolts. It is our understanding from a reliable source that the 19" long hook bolts were developed for use in masonry walls.

The material for the 6" anchor bolts is described in Materials Sub-Section 707-20 Anchor Bolts for Corrugated Culverts. A detail of the 19" hook bolt is attached for your convenience should you have occasion for its use. Please be aware the 19" bolts must be detailed on the plans when you intend to use them. The 6" bolt which is now considered the industry standard need not be detailed on the plans.



## ANCHOR BOLTS FOR CORRUGATED PIPES

MAKE THE FOLLOWING CHANGES TO THE STANDARD SPECIFICATIONS OF JANUARY 2, 1981:

Page 6-1  
In §603-2 Materials

Add subsection 707-20 Anchor Bolts for Corrugated Culverts between "707-17" and "708-04"

Page 6-5

Add "§603-3.09 Anchor Bolts, Unless instructed otherwise, anchor bolts, as specified in Section 707-20 shall be used to anchor the ends of corrugated metal pipes, and sectional plate arches to either reinforced or plain concrete headwalls."

Also, under §603.5.01 General at the end of the fourth paragraph, Add "The cost of anchor bolts, when required, shall be included in the unit bid price for pipe items."

Page 7-67  
Add subsection 707-20 to this page

### 707-20 ANCHOR BOLTS FOR CORRUGATED CULVERTS

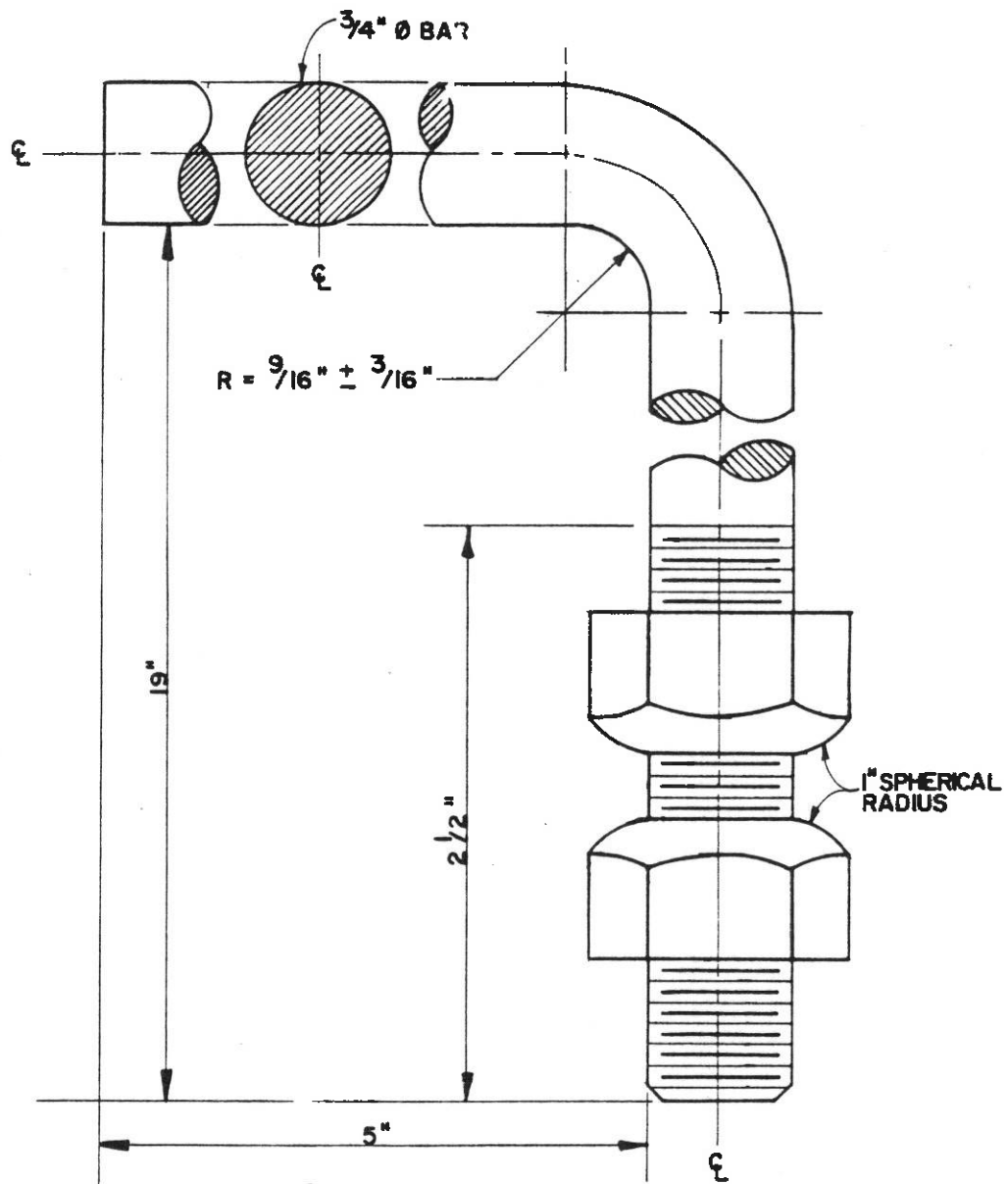
Scope. This specification covers the material details and quality requirements for the anchorage system securing the ends of corrugated metal pipe, arch pipe, and structural plate to reinforced or plain concrete headwalls.

Materials Requirements. Anchor bolts shall be 3/4" diameter heavy hex bolts, ASTM A307. Grip shall be 5-1/2 inches threaded over at least the first 2-1/2". The bolts shall be filled with two nuts, ASTM A563 heavy hex. Nuts shall be chamfered on at least one face using a 1" spherical radii. The nuts and bolts shall be so assembled that in the final assembly, the bolt and one of the nuts is embedded in concrete, that the chamfered faces of the nuts face each other, and secure the pipe between them. Nuts and bolts shall be galvanized as per ASTM A153 after all machining operations are completed. Following galvanization, threads shall be cleaned to produce a free running fit.

When 19" hook bolts are used as anchor bolts they shall be detailed on the plans and shall conform to the requirements of ASTM A36.

Anchor bolts shall be spaced around the periphery of the pipe at intervals not exceeding 1'-6". At least two anchor bolts shall be provided.

Basis of Acceptance. Anchor bolts and nuts for corrugated metal pipes, pipe arches, and structural plate pipe will be accepted based on the Manufacturer's Certification that they conform with these specifications.



HOOK BOLTS AND NUTS