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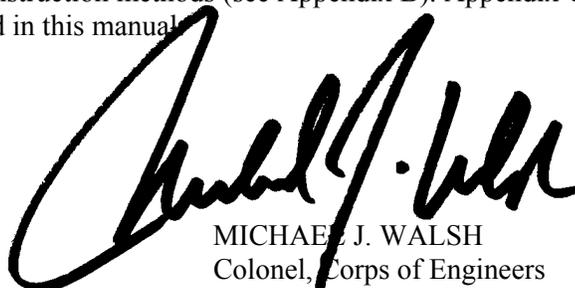
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**Engineering and Design**  
**ENGINEERING FOR PREFABRICATED CONSTRUCTION**  
**OF NAVIGATION PROJECTS**

- 1. Purpose.** This manual provides guidance to help Districts in developing innovative plans to use precast concrete segments and other prefabricated elements for construction of navigation projects. The primary emphasis is on describing engineering activities necessary during the project development process that may differ from those needed for a project using traditional design and construction methods.
- 2. Applicability.** This manual applies to all USACE commands having responsibility for civil works projects.
- 3. Distribution.** Approved for public release; distribution is unlimited.
- 4. Discussion.** Navigation projects have traditionally been constructed within cofferdams, which have often been overtopped during flood events. Also, construction and maintenance of cofferdams have been time consuming and costly. Technology exists, largely practiced in the construction of bridges and offshore oil facilities, that will permit some navigation projects to be constructed without cofferdams. This can be achieved by preparing foundations underwater, precasting/prefabricating the shells of major concrete components offsite, placing these thin precast elements on the prepared foundation, and then filling them with concrete. Other options include the use of floating segments that are delivered to the site afloat and remain afloat such as floating guide walls. Use of this technology can have benefits related to cost savings, rapid completion of construction, fewer delays due to weather or water conditions, less interference with existing traffic, and less environmental impact. Several USACE navigation projects have been or are currently being designed to use these construction methods (see Appendix B). Appendix C contains examples of the types of construction discussed in this manual.

FOR THE COMMANDER:

3 Appendices  
(See Table of Contents)



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