

**OFFICE OF STRUCTURES
MANUAL ON HYDROLOGIC AND HYDRAULIC DESIGN**

CHAPTER 3 Appendix B

**PRELIMINARY GUIDELINES FOR
DESIGN-BUILD PROJECTS**



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INTRODUCTION

The Office of Structures, Structures H&H Division, recently has been involved with a number of design-build structures. Some of these projects have been on a fast track schedule where time has been of the essence. The H&H Division has been able to work cooperatively with the design-build hydraulic engineers to enable the work to proceed on schedule with a minimum of delays due to the coordinated H&H reviews. However, there have been occasions where a more efficient design and review process might have been initiated for the benefit of all involved.

Chapter 3 Appendix B has been prepared as an additional guide to Chapter 3 and Appendix A to address specific issues that have arisen in the course of the design-build project development process. The more significant issues are listed in Part 1 below and recommendations for addressing the issues are listed in Part 2.

PART 1: ISSUES

1. The Manual for Hydrologic and Hydraulic Design has grown to a large document addressing the various aspects of H&H design. Further, a number of chapters are inter-related, one with another. A consultant may have difficulty in locating a policy or guideline to answer a specific question that arises in the course of a design.
2. The Office of Structures policies and procedures, as reflected in the H&H Manual, recognize that the judgment of the engineer is important to the development of a reasonable hydraulic design. The design-build consultant is expected to exercise judgment, but still follow the guidance in the Manual. However, in some cases the Manual guidance may be of a general nature, may not apply or may not even address a non-typical design condition on the project.
3. The H&H Manual Chapter 5 specifies certain logical study sequences and time schedules in the development of hydrologic and hydraulic designs. For example, hydrology, geomorphic and hydraulic studies should be completed and submitted to the Structure H&H Division within the specified time periods and prior to submittal of scour reports. In some instances, the design-build teams may not have completed certain reports, but still wish to receive comments on the scour report.

PART 2: RECOMMENDATIONS OF THE STRUCTURE H&H DIVISION

The above discussion identifies three common issues that may arise during the project development process. There may be other issues as well.

The recommended approach to resolving such issues is to develop timely coordination meetings to discuss the overall project development process. This should help to resolve any concerns about the approach to major issues. Such meetings can be augmented with telephone calls and emails to the SHA project coordinator to address specific details about the content of project reports.

It is important that the consultant to be familiar with the policies and guidance in the H&H Manual prior to the commencement of the work. Since the Manual is quite lengthy, the following key chapters, as a minimum, should be reviewed, discussed with SHA, and applied as appropriate. Other chapters should be consulted as questions arise.

- Chapter 3, “Policy and Procedures” and Chapter 3, Appendix A Checklist: provides an overview of SHA policies and guidance as well as the format to be used in writing reports.
- Chapter 5 Project Development: Guidance on the major developmental steps and their sequence in project development. As a rule, SHA prefers not to review study reports out

of sequence, since most studies are based, in part, on the results of previous studies. Exceptions to this process should be requested in writing from the Office of Structures.

- Chapter 8 Hydrology and the latest web version of GISHydro for estimating magnitude and frequencies of flood discharges.
- Chapter 9 Channels,
- Chapter 10 “Bridges” and the latest version of HEC-RAS for guidance on Maryland policies on flood plain management and on current methodologies for developing and evaluating water surface profiles
- Chapter 11, “Evaluating Scour at Bridges” for guidance on the assessment and evaluation of Scour; the ABSCOUR Computer Program and User’s Manual (Chapter 11 Appendix A Parts I and II) for making scour computations This information needs to be reviewed in detail. Our experience has been that the evaluation of scour is one of the more challenging aspects of the project development process. It should be noted that this 2016 update of the Manual includes:
 - Revision of Chapter 11 to incorporate the guidance in the FHWA Manual HEC-18, Evaluating Scour at Bridges, 5th Edition, April 2012.
 - Appendix F which addresses the use of an assessment process instead of the full evaluation process outlined in Appendix A for certain projects.
 - Appendix G which provides guidance on the conduct of stream morphology reports for off-system bridges, primarily for the purpose of scour evaluation.
- Chapter 13 Culverts: Note in particular in Section 3 of this Chapter the discussion of an emerging methodology for evaluating and accommodating passage of wildlife, fish and other aquatic organisms through structures, particularly culverts. The acronym “AOP” has been coined as a descriptor of “Aquatic Organism Passage” to include fish as well as other aquatic species and families. Consideration of AOP passage needs to be a key issue for discussion in early coordination meetings with the Structure H&H Division. See also Chapter 3, Appendix A for a description of various aspects of the project development process where the issue of AOP passage needs to be addressed.