ASCE Manuals and Reports on Engineering Practice No. 130

Waterfront Facilities Inspection and Assessment

Waterfront Facility Inspection Committee

Edited by
Ronald E. Heffr... P.E.

ASCE

ASCE Manuals and Reports on Engineering Practice No. 130

Waterfront Facilities Inspection and Assessment

Waterfront Facility Inspection Committee

Edited by
Ronald E. Heffron, P.E.

Sponsored by
Technical Committee on Ports and Harbors of the
Coasts, Oceans, Ports, and Rivers Institute of the
American Society of Civil Engineers

Library of Congress Cataloging-in-Publication Data

Waterfront facilities inspection and assessment / prepared by the Waterfront Facility Inspection Committee of the Technical Committee on Ports and Harbors of the Coasts, Oceans, Ports, and Rivers Institute of the American Society of Civil Engineers ; edited by Ronald E. Heffron, P.E.
pages cm. — (ASCE manuals and reports on engineering practice ; no. 130)
Includes bibliographical references and index.
ISBN 978-0-7844-1357-9 (print : alk. paper) — ISBN 978-0-7844-7843-1 (PDF) 1. Harbors—Inspection—United States. 2. Hydraulic structures—Inspection—United States. I. Heffron, Ronald E., editor. II. Coasts, Oceans, Ports and Rivers Institute (American Society of Civil Engineers). Waterfront Facility Inspection Committee.
TC223.W38 2015
627′.24—dc23

2014030884

Published by American Society of Civil Engineers
1801 Alexander Bell Drive
Reston, Virginia, 20191-4382
www.asce.org/bookstore | ascelibrary.org

Errata: Errata, if any, can be found at http://dx.doi.org/10.1061/9780784413579

ISBN 978-0-7844-1357-9 (print)
ISBN 978-0-7844-7843-1 (PDF)
Manufactured in the United States of America.

22 21 20 19 18 17 16 15 1 2 3 4 5

MANUALS AND REPORTS ON ENGINEERING PRACTICE

(As developed by the ASCE Technical Procedures Committee, July 1930, and revised March 1935, February 1962, and April 1982)

A manual or report in this series consists of an orderly presentation of facts on a particular subject, supplemented by an analysis of limitations and applications of these facts. It contains information useful to the average engineer in his or her everyday work, rather than findings that may be useful only occasionally or rarely. It is not in any sense a "standard," however; nor is it so elementary or so conclusive as to provide a "rule of thumb" for nonengineers.

Furthermore, material in this series, in distinction from a paper (which expresses only one person's observations or opinions), is the work of a committee or group selected to assemble and express information on a specific topic. As often as practicable the committee is under the direction of one or more of the Technical Divisions and Councils, and the product evolved has been subjected to review by the Executive Committee of the Division or Council. As a step in the process of this review, proposed manuscripts are often brought before the members of the Technical Divisions and Councils for comment, which may serve as the basis for improvement. When published, each work shows the names of the committees by which it was compiled and indicates clearly the several processes through which it has passed in review, so that its merit may be definitely understood.

In February 1962 (and revised in April 1982), the Board of Direction voted to establish a series titled "Manuals and Reports on Engineering Practice," to include the Manuals published and authorized to date, future Manuals of Professional Practice, and Reports on Engineering Practice. All such Manual or Report material of the Society would have been refereed in a manner approved by the Board Committee on Publications and would be bound, with applicable discussion, in books similar to past Manuals. Numbering would be consecutive and would be a continuation of present Manual numbers. In some cases of joint committee reports, bypassing of Journal publications may be authorized.

A list of available Manuals of Practice can be found at http://www.asce.org/bookstore.

This page intentionally left blank

WATERFRONT FACILITY INSPECTION COMMITTEE

Ronald E. Heffron, P.E., D.PE, *Chairman*
Noah Elwood, *Secretary*
Terry Browne
Bill Bruin
Elizabeth Burkhart
Andrew Cairns
Sean Chapman
Steve Curtis
John Daley
Frank Davidson
Anna Dix
Joshua Johnson
Bryan Jones
Ikaika Kincaid
Shawn Lindmark
Matthew Martinez
Todd Mitchell
Bruce Ostbo
Ralph Petereit
Heath Pope
Kirk Riden
Charlie Roberts
Paul Roberts
Craig Sams
Alberto Sanchez
Shelley Sommerfeld
Tom Spencer
Warren Stewart
Erling Vegsund

BLUE RIBBON REVIEW PANEL

Lee Barco, APM Terminals
Richard Jenkins, Port of Seattle
Angel Lim, Port of Los Angeles
William Stahlman, America's Central Port
Philip Vitale, Naval Facilities Engineering Command

This page intentionally left blank

CONTENTS