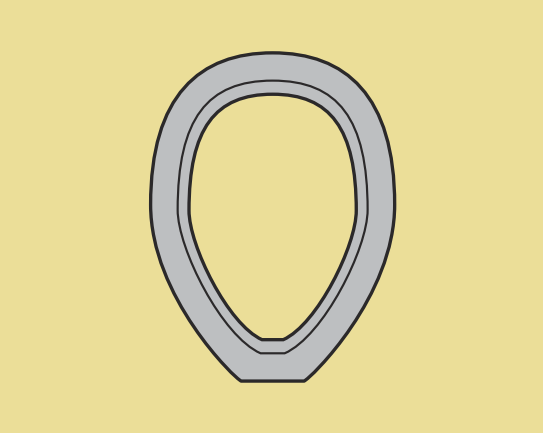
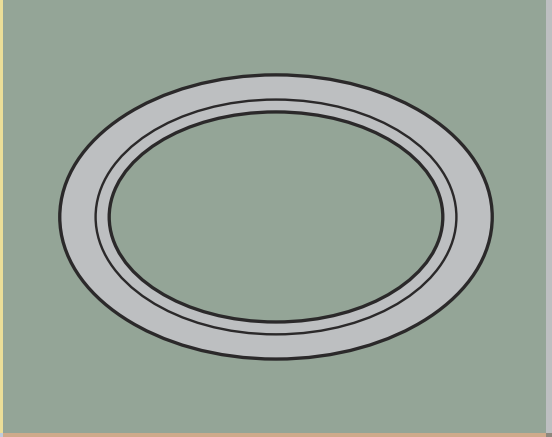
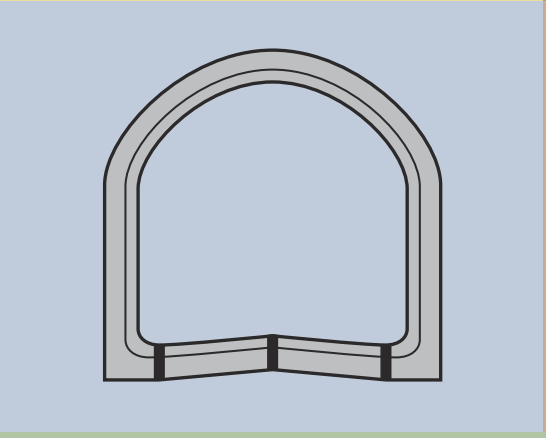
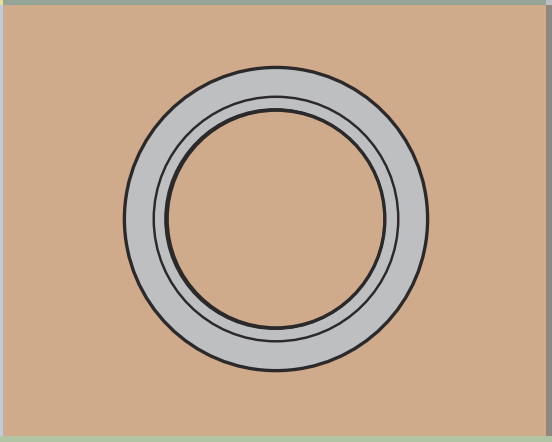
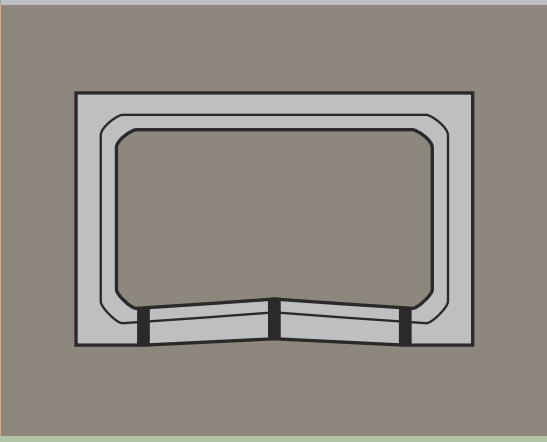

ASCE Manuals of Reports on Engineering Practice No. **145**

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Pipeline Infrastructure Committee

Edited by
Norman E. "Ed" Kampbell, P.E.
Jadranka Simicevic

ASCE

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Prepared by
Pipeline Infrastructure Committee of the
Pipeline Division of the
American Society of Civil Engineers

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Published by the American Society of Civil Engineers

Library of Congress Cataloging-in-Publication Data

Names: Kampbell, Norman E., editor. | Simicevic, Jadranka, editor.
Title: Design of close-fit liners for the rehabilitation of gravity pipes / edited by Norman E. "Ed" Kampbell, P.E., Jadranka Simicevic.
Description: Reston, Viginia : American Society of Civil Engineers, [2021] | Series: ASCE manual and reports on engineering practice ; no. 145 | "Prepared by the Pipeline Infrastructure Committee of UESI." | Includes bibliographical references and index. | Summary: "MOP 145 provides a comprehensive explanation of the design of flexible, close-fit linings for the renewal or rehabilitation of pipes designed for gravity flow such as sanitary sewers, culverts, and storm sewers"-- Provided by publisher.
Identifiers: LCCN 2021015568 | ISBN 9780784415801 (print) | ISBN 9780784483558 (ebook)
Subjects: LCSH: Water-pipes--Linings--Design and construction. | Sewage lagoons--Linings--Design and construction. | Sewer-pipe--Maintenance and repair.
Classification: LCC TD491 .D47 2021 | DDC 628/.24--dc23
LC record available at https://lccn.loc.gov/2021015568

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 https://doi.org/10.1061/9780784415801.**

ISBN 978-0-7844-1580-1 (print)
ISBN 978-0-7844-8355-8 (PDF)

Manufactured in the United States of America.

27 26 25 24 23 22 21 1 2 3 4 5

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CONTENTS

PREFACE

This Manual of Practice is intended to be a comprehensive and useful source of information for the design of flexible, close-fit linings for the renewal and/or rehabilitation of pipes designed for gravity flow, such as sanitary sewers, culverts, and storm sewers. This manual with its adoption by ASCE supersedes the use of "Appendix X1 Design Considerations" presented in the nonmandatory section of the ASTM Standard F-1216, which has been the default design method for circular pipes with no more than 10%ovality since its first publication in 1989. The design solution prescribed herein can be used for circular and noncircular geometries such as pipe-arch shapes and egg shapes (of all the various rise-to-span ratios), for elliptical-shaped pipes (horizontal and vertical) and box-shaped pipes (rectangular and square), and for other undefined site-specific shapes.

This manual is written in such a manner as to guide the design engineer in assessing the existing soil–structure interaction system, estimating the state of the stresses in that system, and designing the wall thickness of a close-fit flexible liner that will need to be installed to efficiently carry the loads that will likely come onto it after it is installed.

The contents of this manual represent the collected background and experience of many learned professionals active throughout the world in the evaluation and rehabilitation of the existing buried pipe structures.

This manual was produced under the guidance of Norman E. "Ed" Kampbell, task group chair. The authors are

Brian Dorwart
Norman E. "Ed" Kampbell
David Kozman
Lynn E. Osborn
Jadranka Simicevic

ACKNOWLEDGMENTS

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NASSCO

NASSCO is honored to co-publish this Manual of Practice with UESI and ASCE. This effort began many years ago within NASSCO when Ed Kampbell, P.E., who had developed new design procedures for cured-in-place pipe (CIPP), suggested that NASSCO produce a CIPP design manual. After much discussion, it was agreed that ASCE would be a more appropriate organization to undertake this initiative.

Discussions with ASCE began even prior to UESI becoming ASCE's ninth institute. A work effort was started within the Pipeline Division's Trenchless Installation of Pipelines (TIPs) Committee, and after several years of writing, reviewing, and conversing, this Manual of Practice has become a reality.

NASSCO is currently collaborating with UESI and ASCE on more manuals for copublishing. Based on the success of this Manual of Practice, we see future opportunities for developing additional educational resources with UESI and ASCE and appreciate the opportunity to partner with UESI and ASCE to set standards for the assessment, maintenance, and rehabilitation of underground infrastructure.

Sheila Joy
Executive Director
NASSCO, Inc.