



Pipeline Design *for* Installation *by* Horizontal Directional Drilling

*Second
Edition*

Horizontal Directional Drilling
Design Guideline Task Committee

Edited by

Eric R. Skonberg, P.E.
Tennyson M. Muindi, P.E.

ASCE

Pipeline Design for Installation by Horizontal Directional Drilling

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Prepared by
the Horizontal Directional Drilling Design Guideline Task Committee
of the Technical Committee on Trenchless Installation of Pipelines of
the Pipeline Division of the American Society of Civil Engineers

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CONTRIBUTORS

TASK COMMITTEE

Eric R. Skonberg, P.E., Chairman
President
Trenchless Engineering
Corporation
15015 Inverrary Drive
Houston, TX 77095
skonberg@trenchlessengineering.
com

Brad K. Baker, P.E.
Project Manager Engineer
Magellan Midstream Partners,
L.P.
One Williams Center, MD:30
Tulsa, OK 74172
Brad.Baker@magellanlp.com

Ralph Carpenter
Marketing Specialist
American Ductile Iron Pipe
American Spiralweld Pipe
1501 31st Avenue North
Birmingham, AL 35207
rcarpenter@acipco.com

Larry J. Petroff, P.E.
Consultant
lpetroff@charter.net

**Glenn Duyvestyn, Ph.D., P.E.,
P.Eng**
Senior Associate | Principal
Project Manager
Hatch Mott MacDonald
Canal Place
520 South Main Street, Suite 2457
Akron, OH 44311
glenn.duyvestyn@hatchmott.com

Camille George Rubeiz, P.E.
Director of Engineering
Plastics Pipe Institute
105 Decker Court, Suite 825
Irving, TX 75062
crubeiz@plasticspipe.org

Tim McGuire
Vice President of Directional
Crossings
Michels Directional Crossings
A Division of MICHELS
Corporation
P.O. Box 128 | 817 West Main
Street
Brownsville, WI 53006
TMcguire@michels.us

Arvid Veidmark III
 Executive Vice President/Senior
 Estimator
 Specialized Services Co. (SSC)
 2001 W. North Lane, Suite A
 Phoenix, AZ 85021
 arvid@sscboring.com

Mark Woodward, P.E.
 U.S. Army Corps of Engineers
 CEMVN-ED New Orleans
 District
 P.O. Box 60267
 New Orleans, LA 700160-0267
 Mark.L.Woodward@usace.army.
 mil

BLUE RIBBON PANEL REVIEWERS

John D. Hair, P.E.
 President
 J.D. Hair & Associates, Inc.
 2121 South Columbia Avenue,
 Suite 101
 Tulsa, OK 74114-3502
 jhair@jdhair.com

**Samuel T. Ariaratnam, Ph.D.,
 P.E., P.Eng**
 Construction Engineering
 Program Chair
 Arizona State University
 Del E. Webb School of
 Construction
 P.O. Box 870204, Rm 144 Urban
 Systems Engineering Building
 Tempe, AZ 85287-0204
 Samuel.Ariaratnam@asu.edu

Ron Halderman, P.E.
 Director & Senior Engineer, HDD
 Division
 Mears Group, Inc.
 920 Memorial City Way
 Suite 650
 Houston, TX 77024
 Ron.Halderman@Mears.net

TECHNICAL COMMITTEE ON TRENCHLESS INSTALLATION OF PIPELINE SYSTEMS

Tennyson M. Muindi, P.E., Chair
 Lead Associate
 Jacobs Associates
 67 South Bedford Street, Suite
 301E
 Burlington, MA 01803
 muindi@jacobssf.com

**Terry Moy, P.E., ExCom Liaison
 Manager, Program Management
 and Engineering**
 Clayton County Water Authority
 1600 Battle Creek Road
 Morrow, GA 30260
 tmoy@ccwa.us

CHAPTER 1

INTRODUCTION

1.1 SCOPE

This manual of practice addresses the design of major pipeline or duct segments to be installed by horizontal directional drilling (HDD). Generally speaking, major pipeline segments are greater than 500 ft in length and greater than 4 in. in diameter. They are installed by medium to large HDD drilling rigs (midi- to maxi-HDD drilling rigs). The design practices described in this manual are not generally applicable to small trenchless segments of pipe, duct, or cable installed by “mini-HDD” drilling rigs.

Horizontal directional drilling is a trenchless excavation method that is accomplished in three phases. The first phase consists of drilling a small-diameter pilot hole along a designed directional path. The second phase consists of enlarging the pilot hole to a diameter suitable for installation of the pipe. The third phase consists of pulling the pipe into the enlarged hole. Horizontal directional drilling is accomplished using a specialized horizontal drilling rig with ancillary tools and equipment.

This manual has been prepared to serve as a guide for design engineers and presumes that the user has knowledge of the HDD installation process and pipeline design methods. Topics covered are limited to those related to HDD installation. Other sources of information and design methods should be consulted for guidance on designing the pipeline to satisfy service requirements. This manual is not a general design handbook for pipelines, and it is not meant to replace sound engineering judgment. Users of this manual should recognize that HDD installations are complicated civil engineering works and that only experienced professional engineers should undertake their design.