

**GSI W-3 Webinar Entitled:
“MSE Wall Remediation and Monitoring”**

Webinar Overview

The GSI data base of failed MSE walls indicates that 44 out of 171 failures with geosynthetic reinforcement were caused by excessive deformation. Of these 44, 25 were remediated before they actually collapsed. This webinar presents methods of mechanical strengthening the deformed walls (using ground anchors, rock bolts or soil nailing) and also the potential of using dewatering methods (using horizontal drains, pumped vertical wells and combined systems).

This webinar then presents details of ten of the remediated walls. All of them were remediated using mechanical strengthening. Within the group were ground anchors (5), soil nails (4) and rebuilding (1). The cost of the remediations varied from 1.05 times the original cost to 3.50 times. The rebuild case history was 4.66 times the original cost.

Monitoring of the original or remediated walls is suggested in the context of standard surveying, lazer/radar/lider methods, slope inclinometers, piezometers and/or continuous deformation gauges. Criteria on suggested wall deformation concludes the webinar.

Learning Objectives

Webinar participants will appreciate that the time between visual observation of a deforming MSE wall and actual collapse is critical insofar as remediation is concerned. A review of ground modification methods will be presented. Ten case histories of wall remediation will be reviewed, all of which were successful except for the high cost. Estimates of the remediation costs vary from 1.05 to 3.50 times the original wall construction costs. Rebuilding is even higher. Since the acceptable amount of wall deformation is subjective, the use of monitoring is recommended. Participants will learn what is available in this regard.

Webinar Benefits

- Participants will learn about deforming walls and the need for remediation before collapse
- A review of ground modification methods of mechanical strengthening and dewatering will be presented.
- Details of ten-case histories of remediated MSE walls will be illustrated
- Reflection on the lack of ground dewatering techniques will be posed
- Participants will learn how much deformation these MSE walls can actually be anticipated (it's large!)
- Types of geotechnical monitoring will be presented along with how they are used in context of MSE walls.

Intended Audiences

Owners of MSE walls, berms and slopes in both the public and private sectors; federal, state and regional geotechnical, transportation, and environmental engineers; engineers from municipal districts and townships; private and municipal land developers, architectural and landscape designers; general civil consulting engineers; testing laboratories servicing these organizations; manufacturers and representatives of geosynthetic materials; contractors and installers of MSE walls, berms and steep soil slopes; academic and research groups; and others desiring technically related information on this important aspect of our constructed infrastructure.

Specific Topics Covered

1. In-Situ Mechanical Strengthening Techniques
2. In-Situ Dewatering Methods
3. Remediation Case Histories
4. Cost of Remediation
5. Monitoring Methods
6. Summary Comments

Webinar Instructor

Dr. Robert M. Koerner's (Professor Emeritus of Civil Engineering at Drexel University and Director Emeritus of the Geosynthetic Institute) interest in geosynthetics spans over thirty years of teaching, research, writing and advising. He holds his Ph.D. in Geotechnical Engineering from Duke University. He is a registered Professional Engineer in Pennsylvania, a Distinguished Member of ASCE, a Diplomate of the GeoInstitute and a member of the National Academy of Engineering. Bob has authored and co-authored about 650 papers on geosynthetics and geotechnical topics in journals and at national and international conferences. His most widely used publication is the sixth edition of the textbook entitled "*Designing with Geosynthetics*". He is the founding director of the Geosynthetic Institute which is a nonprofit research and development organization dedicated to the proper use of geosynthetics in its myriad applications. The institute also provides laboratory accreditation and inspection certification programs.