

Geotechnical Research Progress Report

 <http://www.dot.state.oh.us/Divisions/Planning/SPR/Research/Pages/default.aspx>



Geotechnical Research Progress Report

④ Rockfall Concrete Barrier Evaluation and Design Criteria

- ④ Severe cracking, spalling and splashing of current concrete barriers subjected to rockfall impact loading
- ④ Revised PCB and CIP concrete barrier designs were developed with fiber reinforcement and other changes to the reinforcement details to increase the energy absorption capacity by as much as 100%.



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④ Rockfall Concrete Barrier Evaluation and Design Criteria

- ④ The bounce heights determined using CRSP simulations were found to be greatly underestimated compared to the corresponding test values for the three test slopes.
- ④ The energies delivered from rockfalls as determined from CRSP analysis may be underestimated

Speaking of Rock Fall

<https://www.facebook.com/ODOTDistrict9>



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- ④ Additional Research Projects
 - ④ Assessment and Treatment of Sulfate Bearing Soils (finishing)
 - ④ Soil Plugging Mechanism in Large Diameter Open-Ended Pipe Piles (just getting started)
 - ④ Enhancements to UASlope – UASLOPE 2.2, 2.3, 2.4
 - ④ Allows for $c = 0$
 - ④ Shaft offset automated; generates a graph of load and F.S.
 - ④ Allows consideration of tiebacks and multiple rows of shafts
 - ④ DIGGS Implementation – Ongoing; anticipate time extension



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- ④ Research on Call (ROC) – University of Akron, Ohio
University, Terracon, E.L. Robinson
- ④ Task 1: Effects of Pre-Treatment of High Sulfate Soils with LKD Before Cement Stabilization
 - ④ 3% LKD, +5% of optimum, 7-day mellowing
 - ④ HAN/WOO-IR75-18.92/0.00
 - ④ Sulfate contents ranging from 5,280 to 19,460 ppm.
 - ④ Non-pretreated soils swelled between 8.2 and 19.3 percent
 - ④ Pre-treated soils swelled 4.8 to 17.5 percent
 - ④ Although reduced, still much greater than desired 1.5% maximum



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- ④ Research on Call (ROC)
 - ④ Task 2: Pomeroy-Mason Bridge, Foundation-Slope Instrumentation Update (in progress)
 - ④ Task 3: Cone Penetration Testing (CPT), QA Comparison Soundings (in progress)



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Questions

