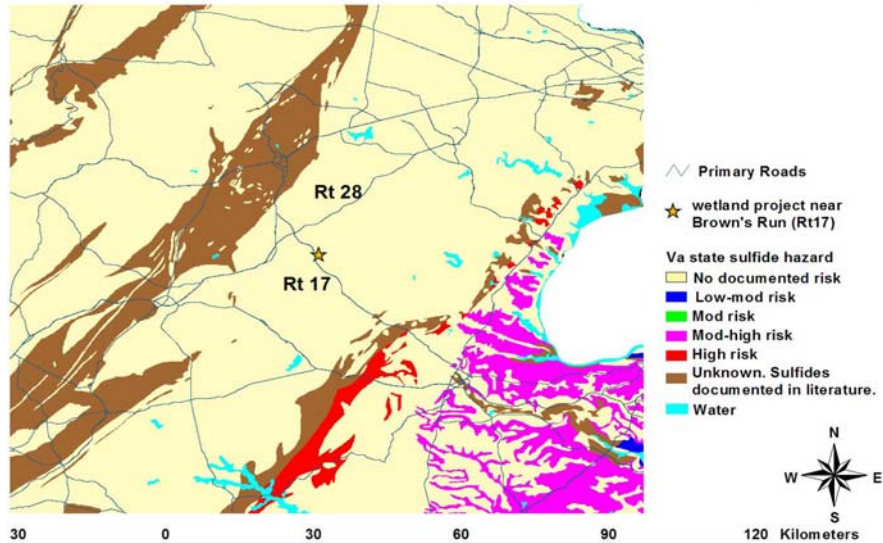


# An Integrated Approach to ID and Remediate Acid Forming Materials

## Evaluate Road Corridor vs. Available Mapping

- Use Orndorff & Daniels' general maps along with local geology maps where available to predict "relative risk".
- Mapping may not be available for all areas, but it's better than "digging blind"!
- We could generate county level mapping, but would need \$ to do so! See next example map.

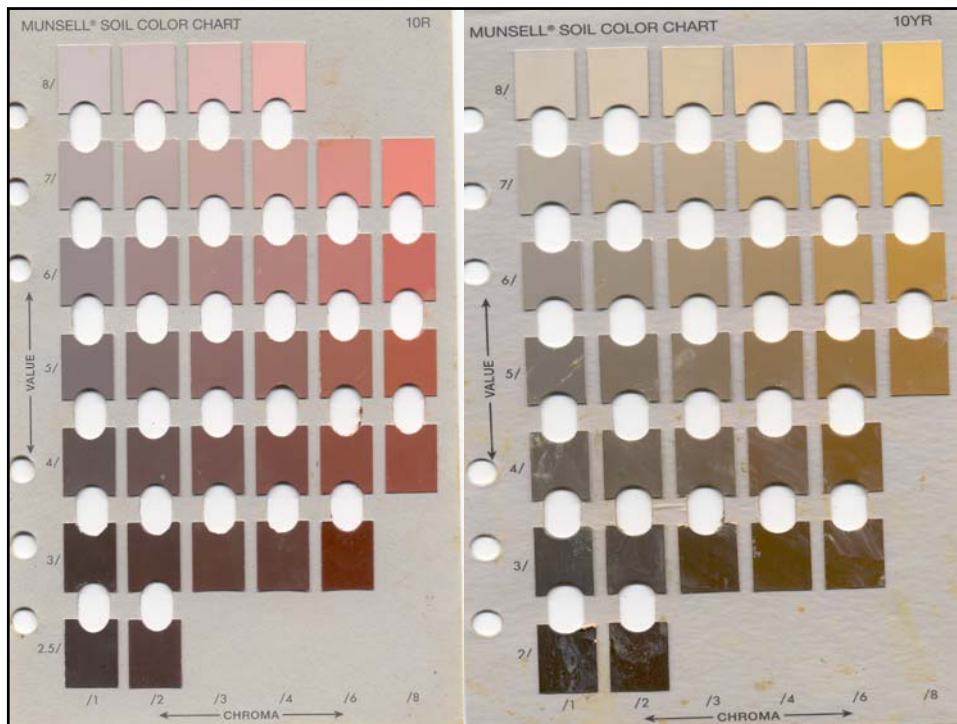
## Wetland Project near Brown's Run/Rt-17 on Virginia State Sulfide Hazard Map



prepared by Zeeb Ormstorf, January 09, 2005

## Sampling Protocol for "Risky Areas"

- Run total S on all intact strata that are gray/dark and/or less than chroma 2 color. This test should also be run on any mixed fill materials, even if brightly colored.
- Sample to determine changes in depth within a given strata. Also need to sort out lateral variance.
- If total-S is  $> 0.25\%$ , run potential acidity.



## Options for Potential Acidity

- Virginia Tech – We run PPA test for \$50
- Commercial Labs – Many commercial labs working with the mining industry run a standard EPA procedure called “acid base accounting” for \$40 to \$100.

## If you've got it, what do you do?

- Avoidance? May not be possible based on corridor location!
- Bulk blend lime with acid forming material upon placement in fills at PPA predicted levels.
- Place ASS below water table or seal from atmosphere – difficult.

## Revegetation

- Immediately place and incorporate lime where possible on exposed cuts. Mining experience has shown that if lime is placed with 48 hours, acid generation is greatly curtailed
- Adopt a soil amendment revegetation strategy for the specific materials, taking low pH, salts, etc., into account.

## Water Treatment?

- Wide variety of options available which also vary widely in cost.
- Chemical treatment is simplest, but has considerable long term maintenance costs.
- Varying wetlands work to varying extents.
- Regardless, you better plan for it!