



GEORGIA BROWNFIELD ASSOCIATION SESSION 1

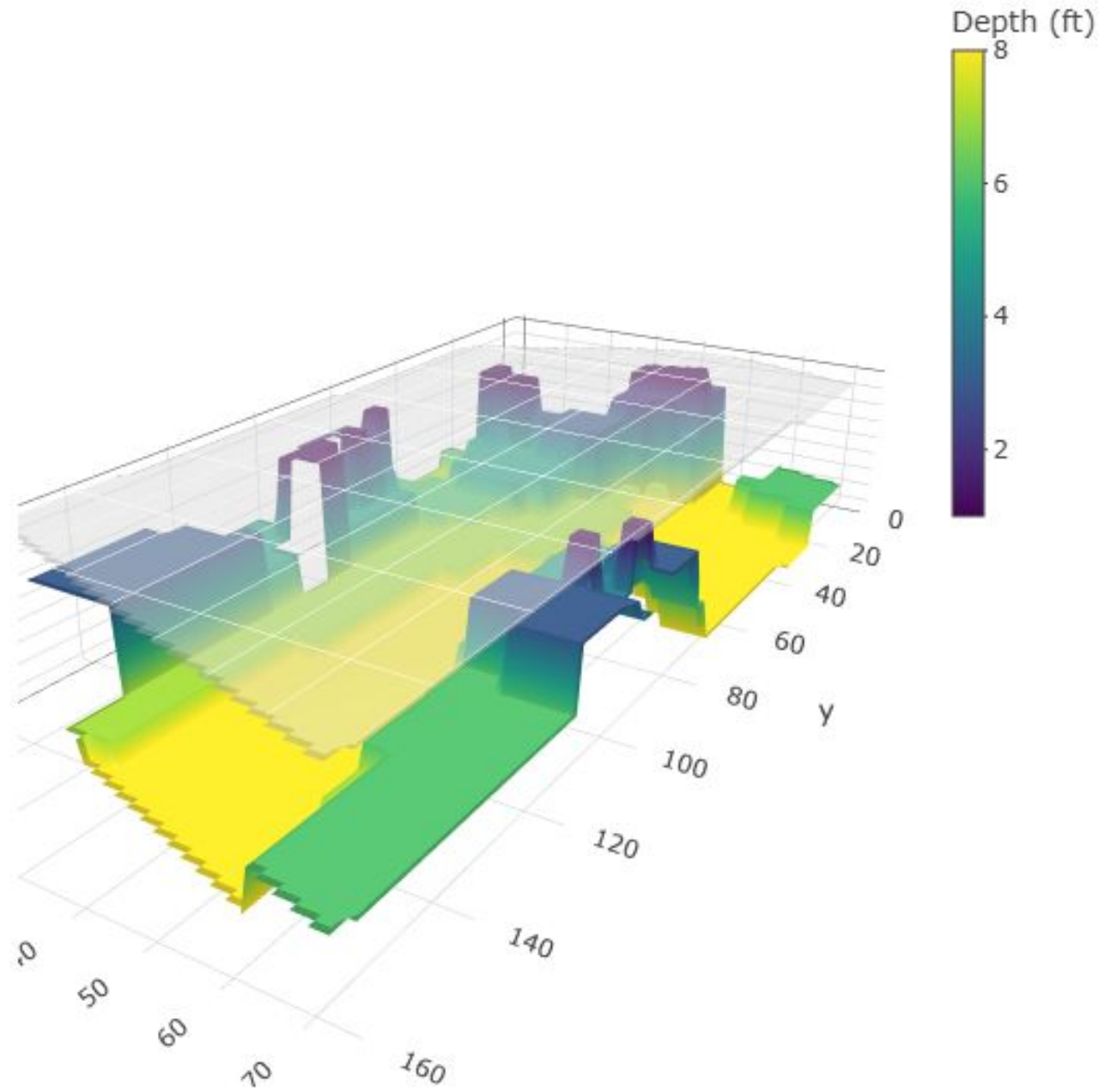
# GenAI Technical Application

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APRIL 16<sup>TH</sup>, 2026

Sustainability is our business

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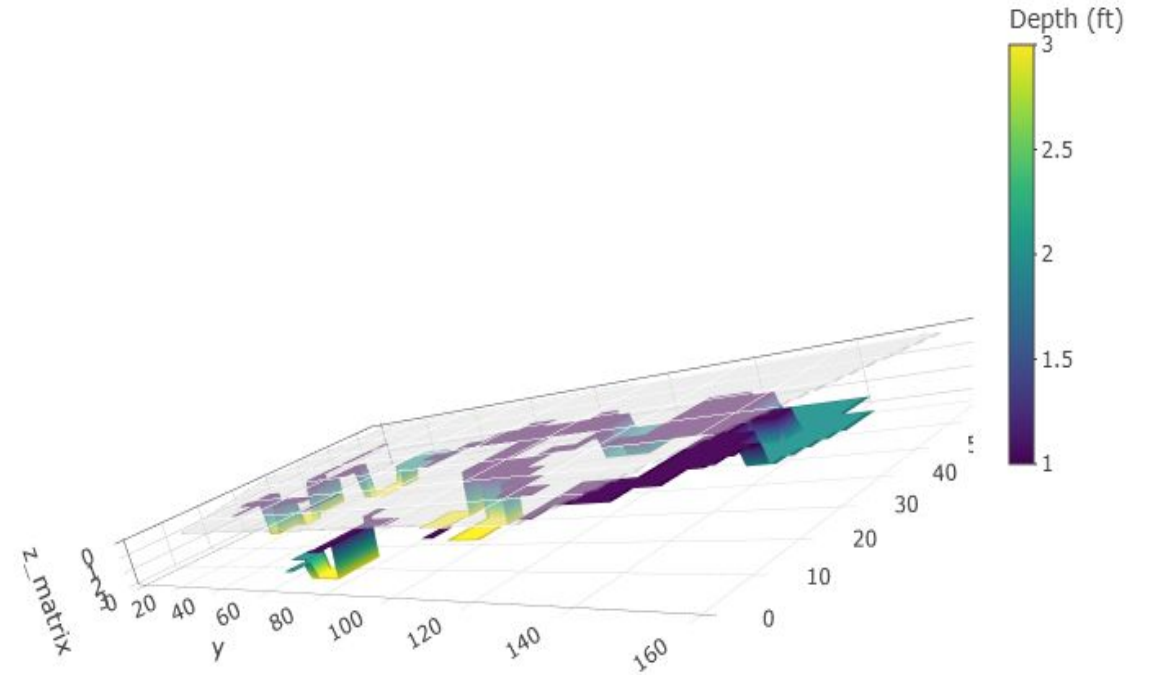
## Agenda/ Contents

- 1 Excavation project overview
- 2 GenAI application and guardrails
- 3 GenAI Benefits/Limitations
- 4 Final Thoughts

# Excavation Project Overview

A summary of project constraints and goals

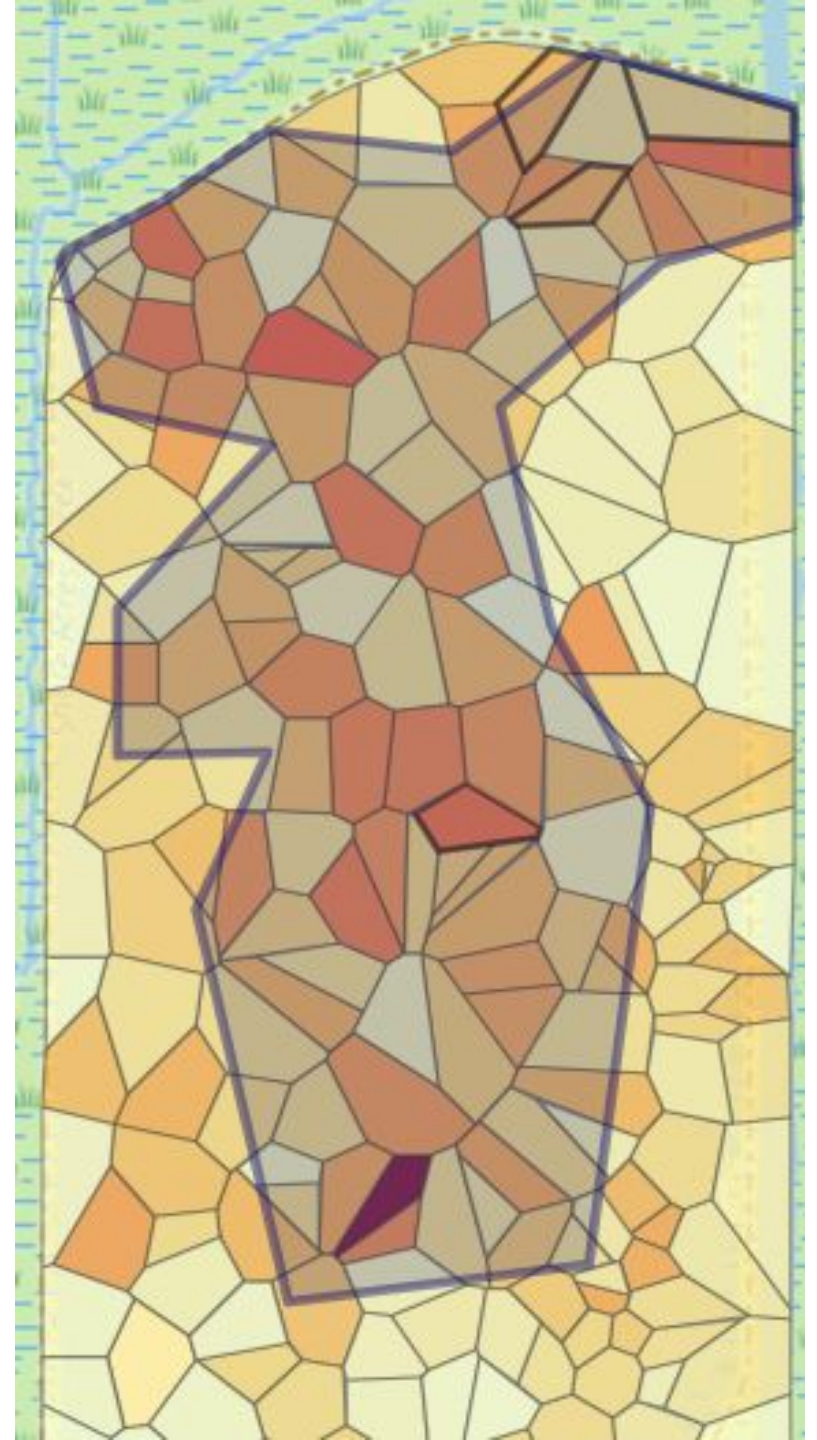
- Goal: generate optimized excavation area footprint for any number of analytes
- Minimize memory and CPU consumption
- Apply merging rules and physical constraints
- Need to thoroughly QC and ensure correctness



# GenAI Application and Guardrails

Summary of usefulness of GenAI systems and limitations with current iterations

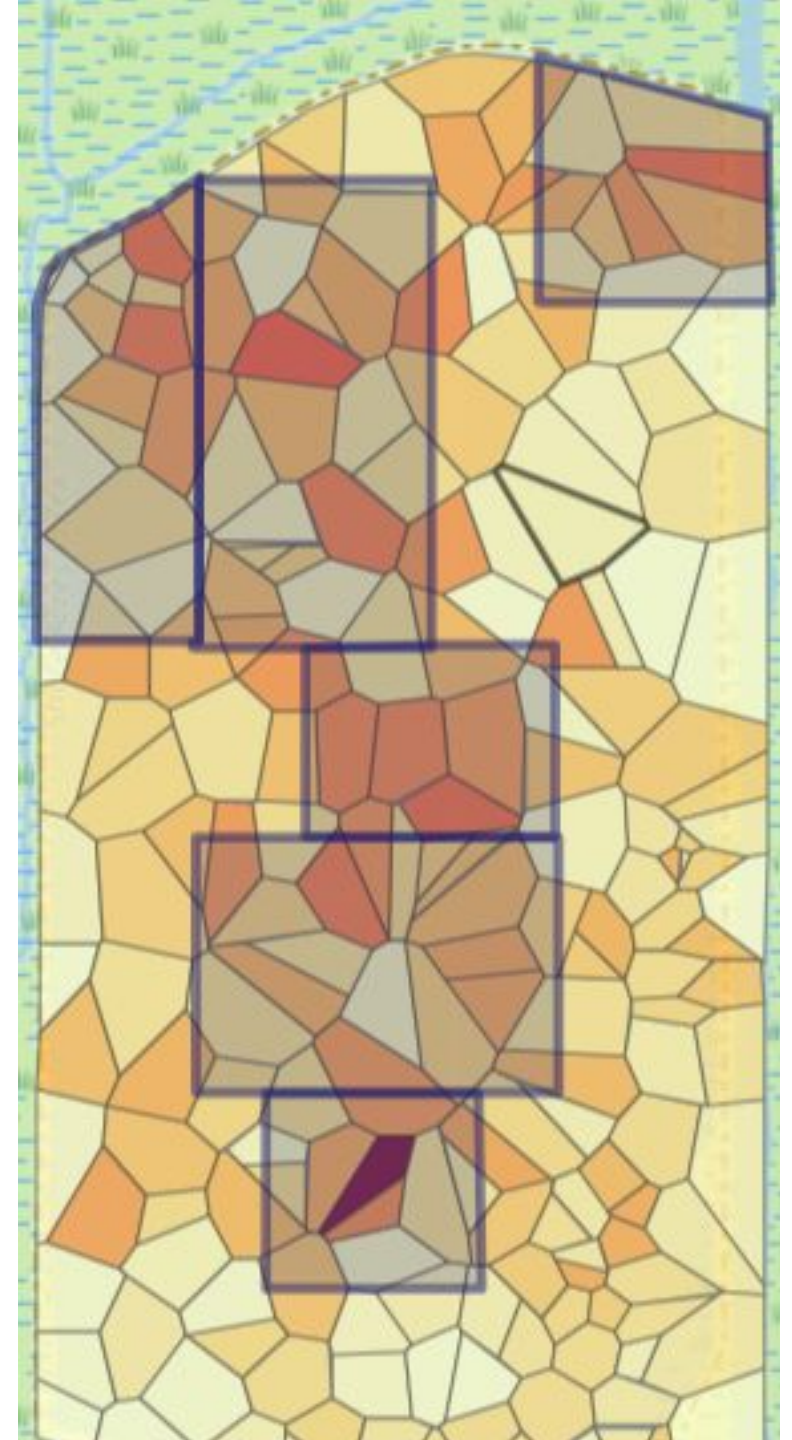
- Application:
  - Generate structure, improve efficiency, and weigh defensibility; without usage need manual process
  - Coding help, for specific questions and interpreting errors, but also for some generation
- QC:
  - Checked code line-by-line; applied expertise
  - Checked physical and computational constraints
  - Optimization efficiency, consistency
  - Output review with over 20 scenarios



# GenAI Benefits/Limitations

Summary of usefulness of GenAI systems and limitations with current iterations

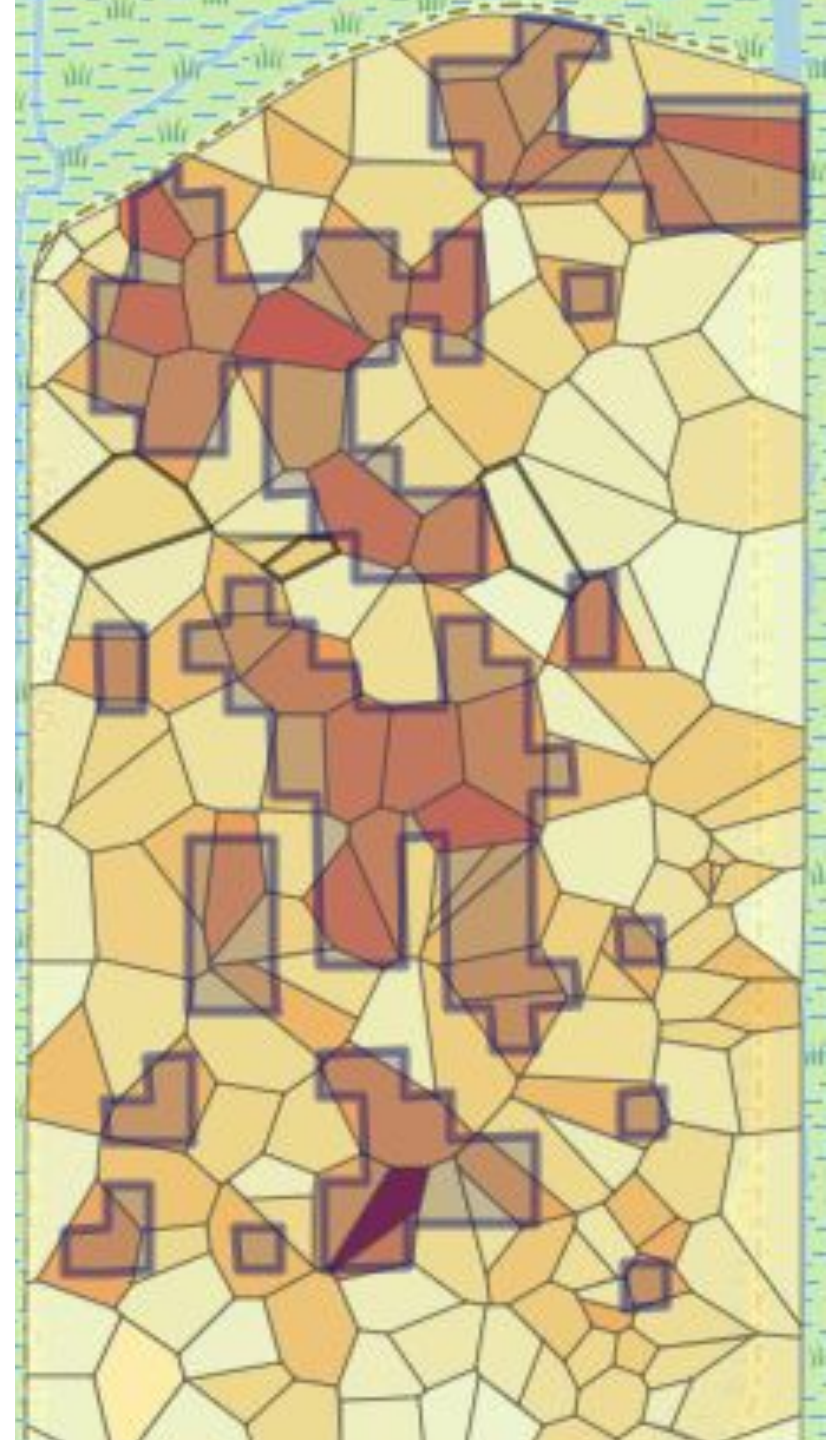
- Benefits:
  - Matches prompting specificity
  - Capable in coding assistance
  - Useful as sounding board
  - Fast and customizable
- Limitations
  - Hallucination and inaccurate solutions
  - Code is buggy and requires review
  - Tends to over-complicate and be overconfident
  - Led to over-excavation and need for large grid size



# Final Thoughts

Summary of project results and GenAI usefulness

- App now reliably fast and accurate
  - Under 2 minutes, most intensive under 10
  - GIS and report-ready deliverables
  - Robust with added complexity
  - Much smaller grid size and more precise
- Gen AI powerful tool, but need thoughtful usage and QC
  - Can be a productivity multiplier when used responsibly
  - Need to understand output for defensible implementation



Thank you

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