

Overview

Visualizing and Utilizing a Ravine

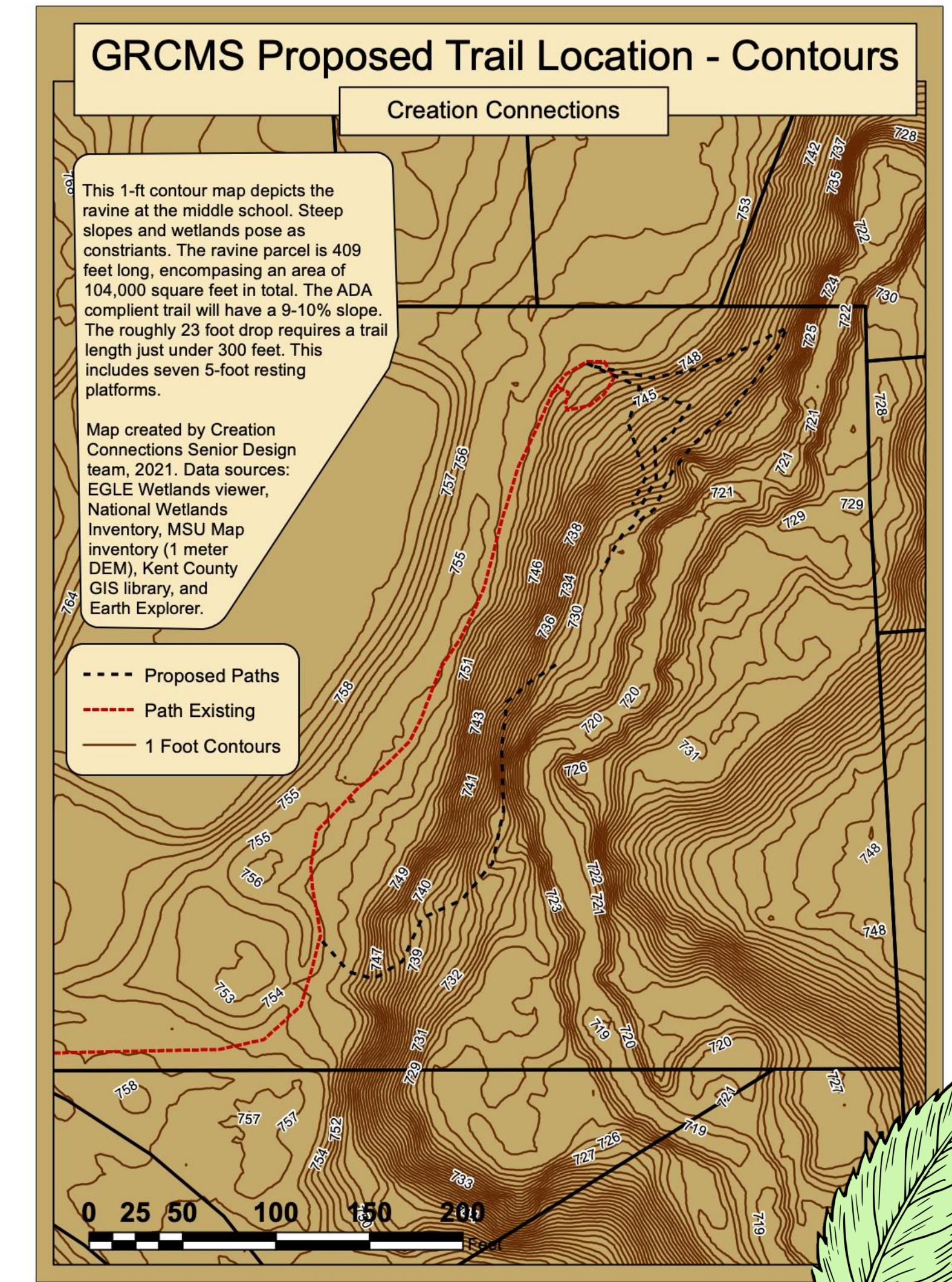
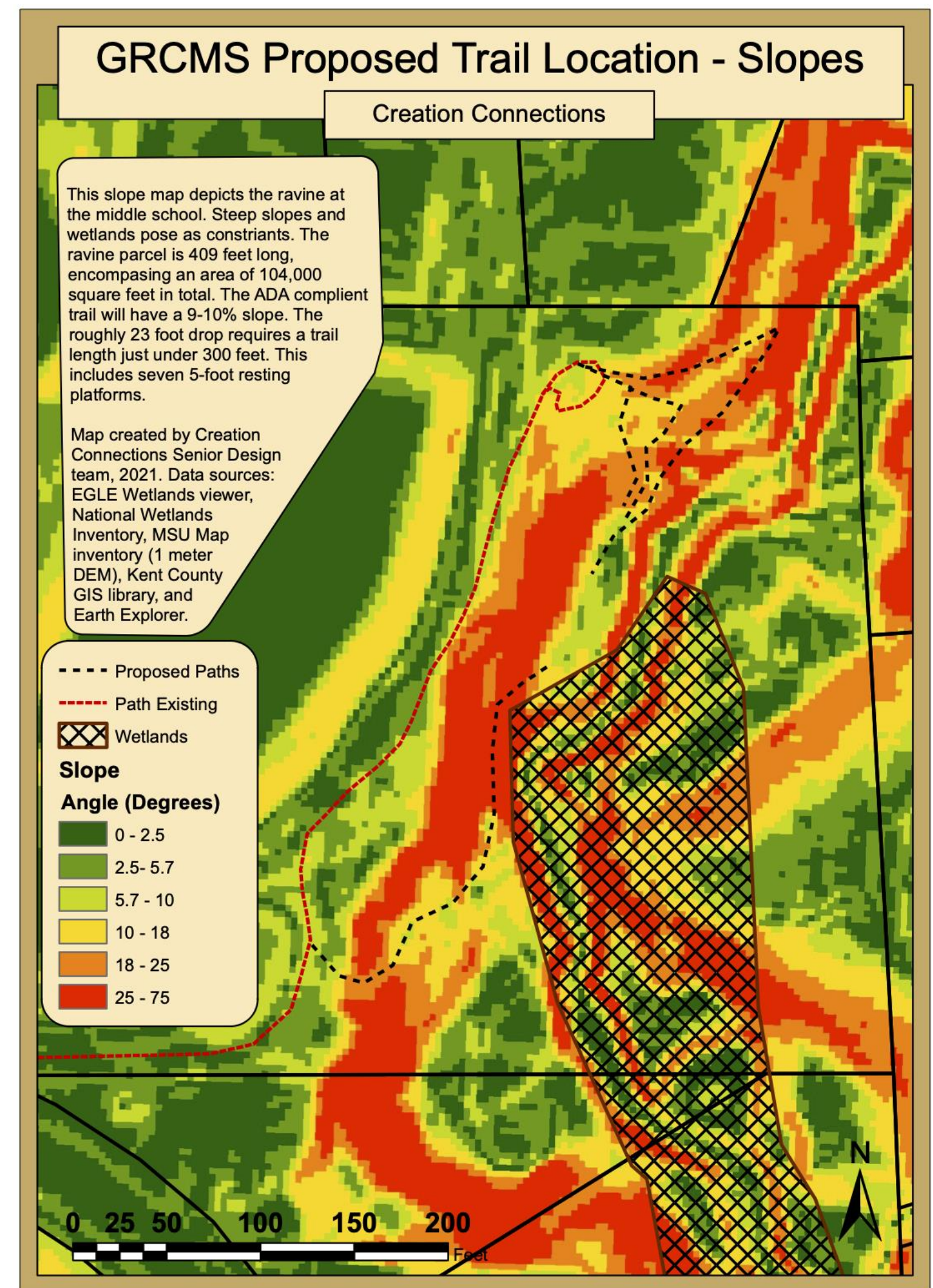
Creation Connections sought to provide access for students of all mobility levels at Grand Rapids Christian Middle School (GRCMS) to outdoor learning spaces through the design of a **20-year masterplan**. The central components are the design of **an accessible trail down the side of a ravine** and **hydraulic modeling** to determine flood plains.



GRCMS

Objectives

1. Connect students in wheelchairs to outdoor learning spaces
2. Organize ideas for the future property
3. Design sustainably and justly. Focus on communication and quality.



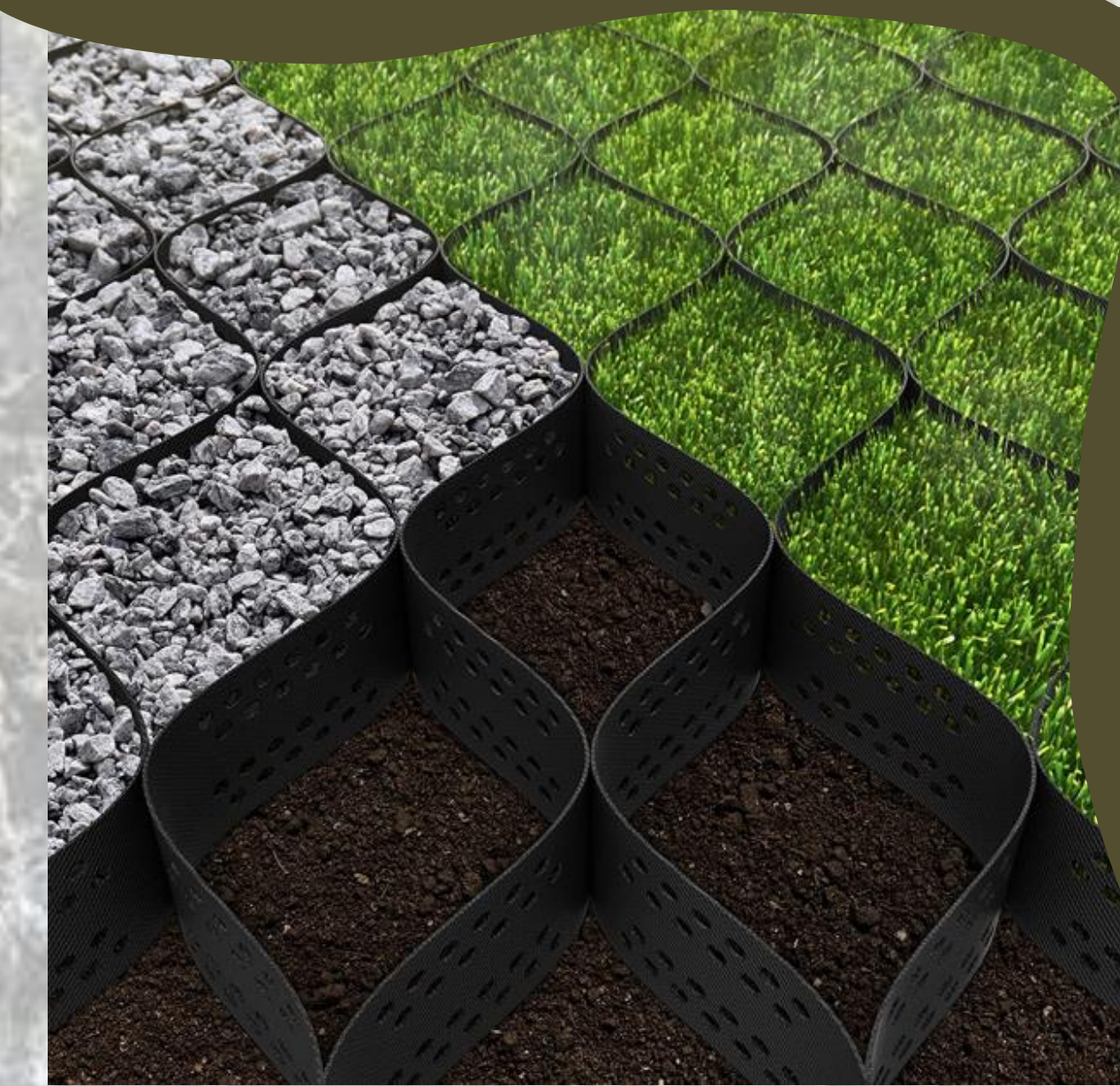
Methods

- Lidar data from USGS 1x1 m resolution (2017)
- Survey 123, DJI Mini 2 drone used for surveying
- Contour creation using geospatial analysis in GIS, route selection and final design in Civil 3D
- Hydraulic Analysis in HEC RAS/HMS to determine the 100-year flood plain
- Physical scale model of ravine created for visualization of the masterplan

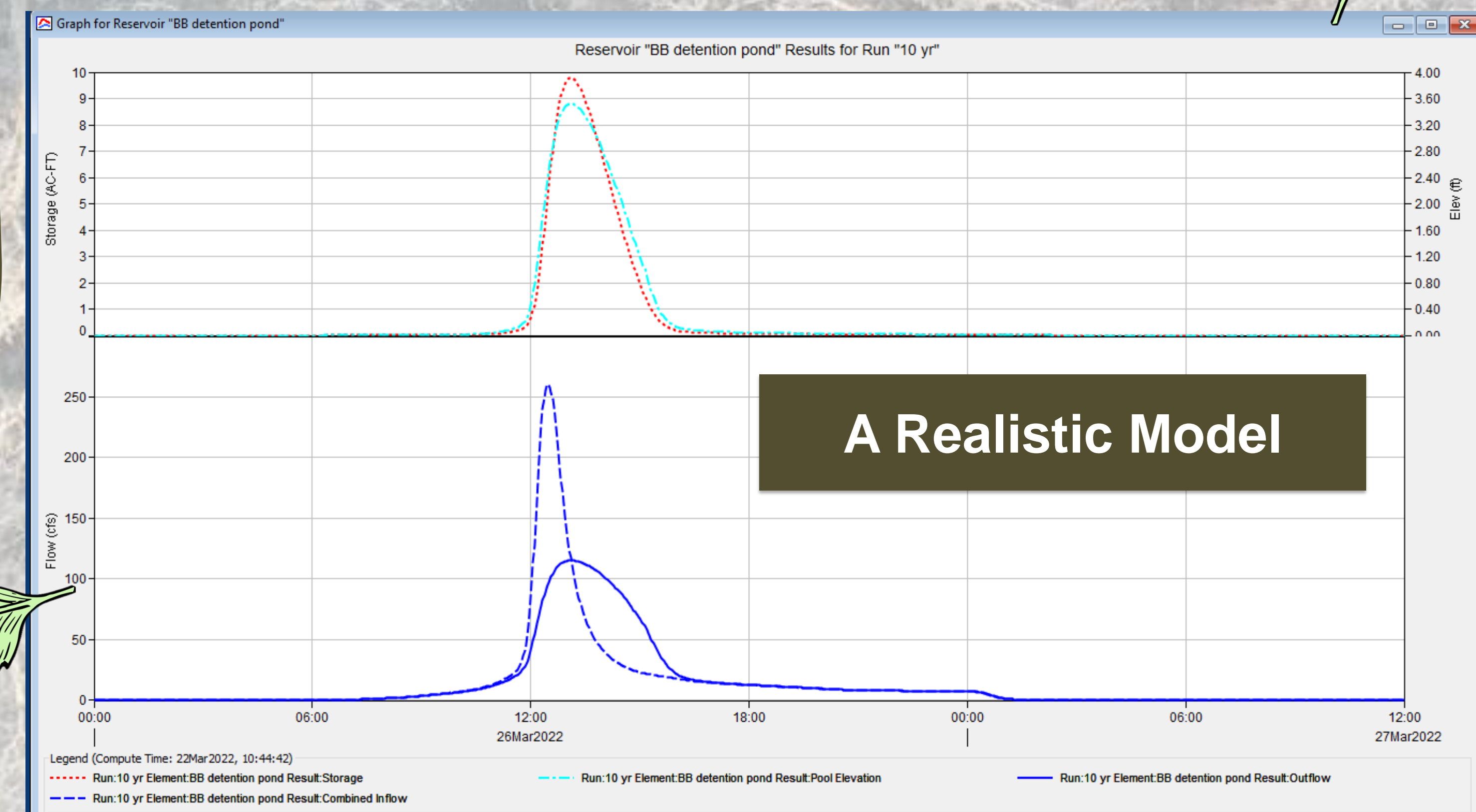
New Trail Specs

A Low Impact, Accessible Connection

- 294 feet long descending portion of the path
- 4 feet wide with one foot clearance on each side
- Wide turns for BOBCAT construction equipment
- Under 1:12 slope
- 2% cross slope for drainage
- One break / stopping area
- Material: crushed stone with geogrid



A Realistic Model



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