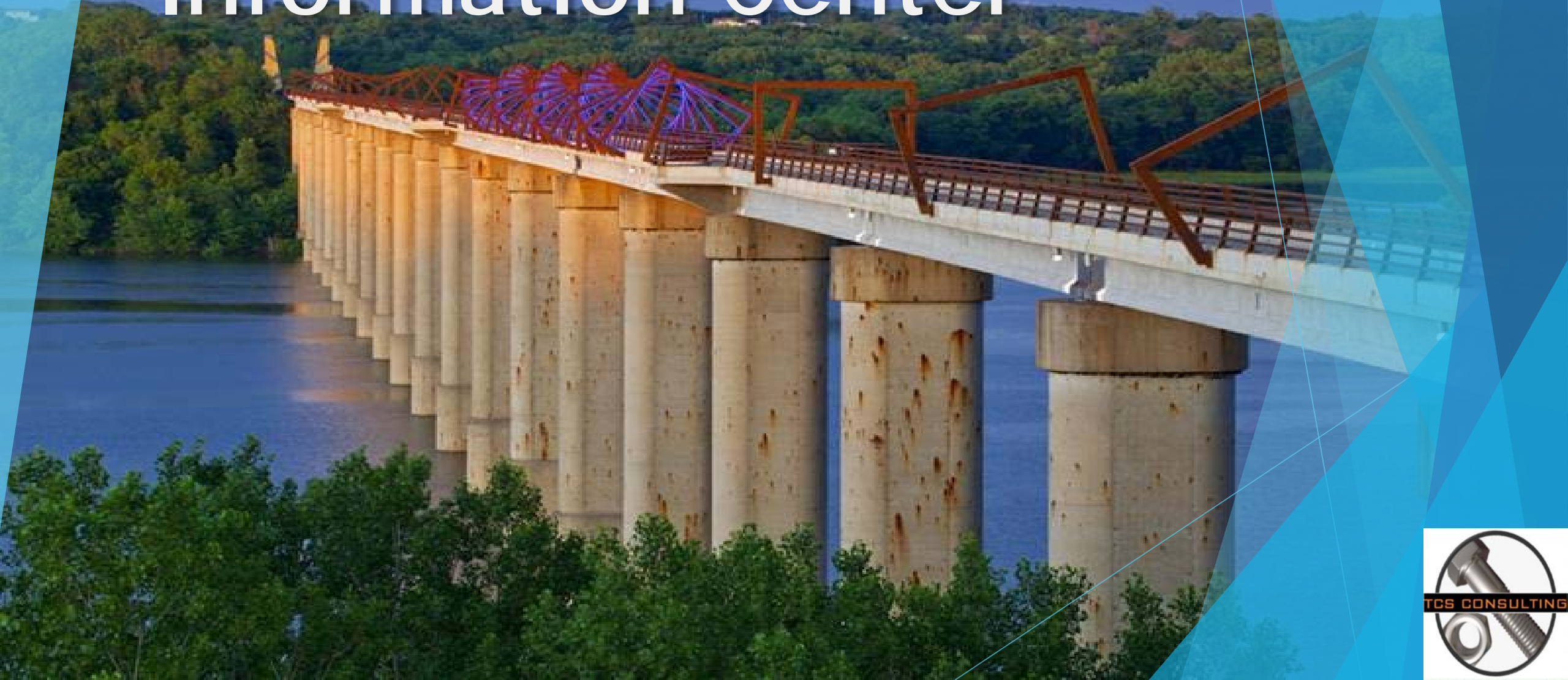


High Trestle Trail Information Center



Today's Outline

TCS Consulting Introductions

Project Scope

Design Methods

Cost Analysis

Questions



TCS Consulting

Team Members

Tom Fales

Project Manager

Structural Design

Sam Hermanas

Site and Structural Design

Conner Danielson

Structural Design



Scope of Work

- Information Center
- Resource Hub
- Pavilion
- Landscaping



Design Methods

Conceptual Design: Google SketchUp

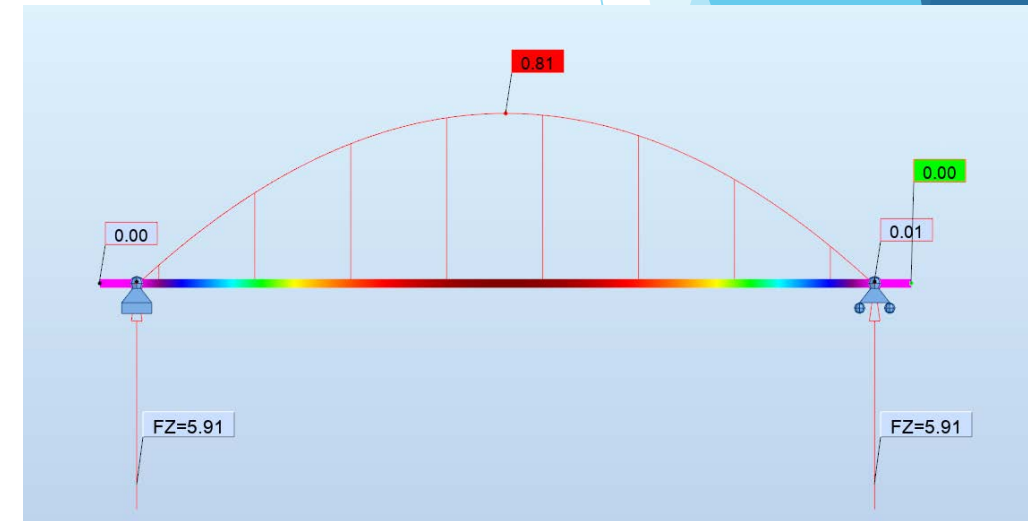
Architectural Design: Autodesk Revit

Structural Analysis: Autodesk Robot Structural Analysis

Site Design: Civil 3D, ArcMap GIS

Applicable Codes

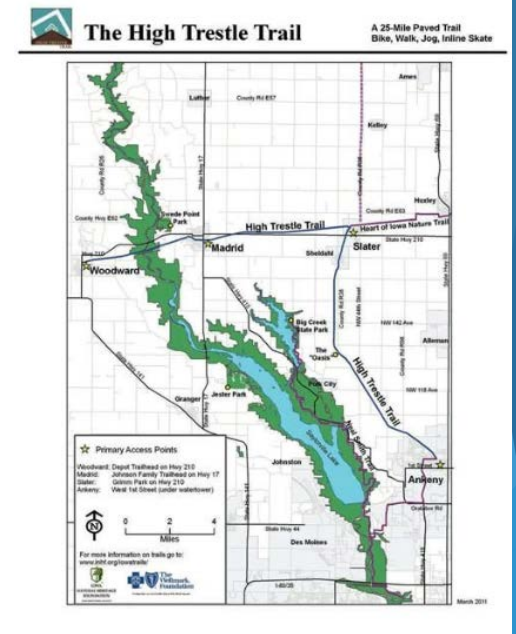
IBC 2015, SUDAS, Iowa DOT, ADA, ACI 318-14, ASCE 7-10, NDS 2015



What is the High Trestle Trail Information Center?



A partially enclosed shelter and trail head providing trail users with a place to rest and engage with the local mining and railroad history of Boone County



Design Constraints and Challenges



Ceremonial mounds

Leach field of the new bathroom facility

Time

Size



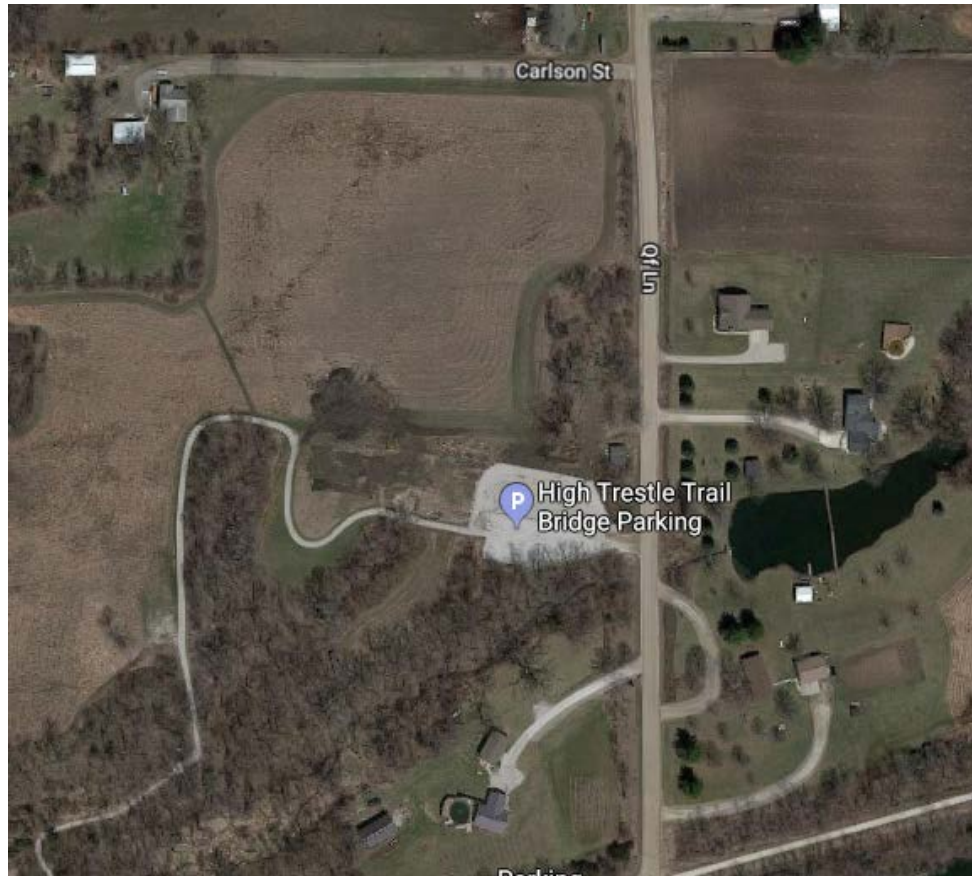
David Dahlquist

Incorporate the cribbing into the design



Social Impacts

Community - Neighbors concerned about privacy and noise



Social Impacts

Traffic - Future parking lot design with two rain gardens

Environment - Native species landscaped to accentuate the existing beauty of the location

General Public - Trail users have a place to congregate and meet along with amenities such as a bike repair station and water bottle filling station.



Design Alternatives

Selection Criteria:

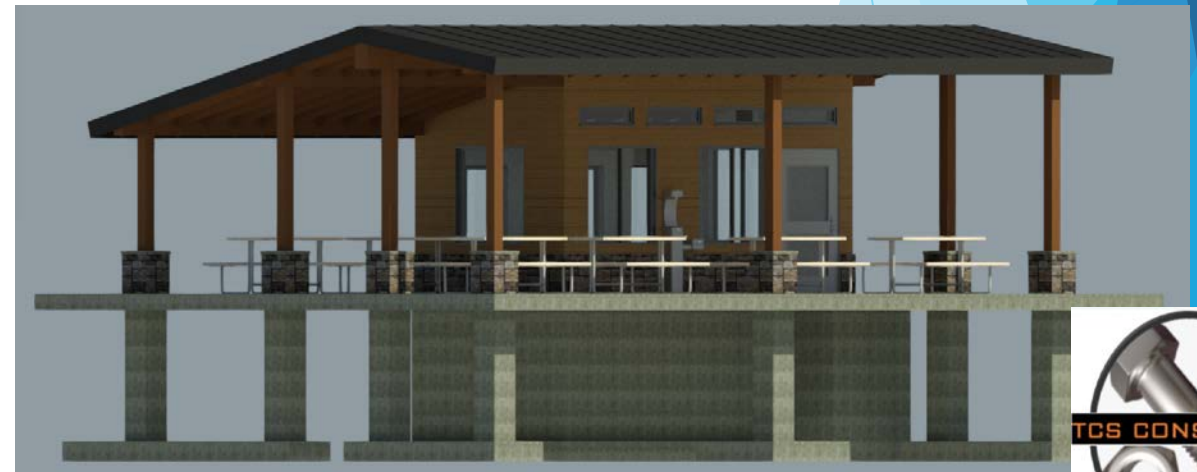
Size

Materials

Architecture



Selected Design



Design of the Wood Structure

Load Analysis

Directional Wind Load Procedure

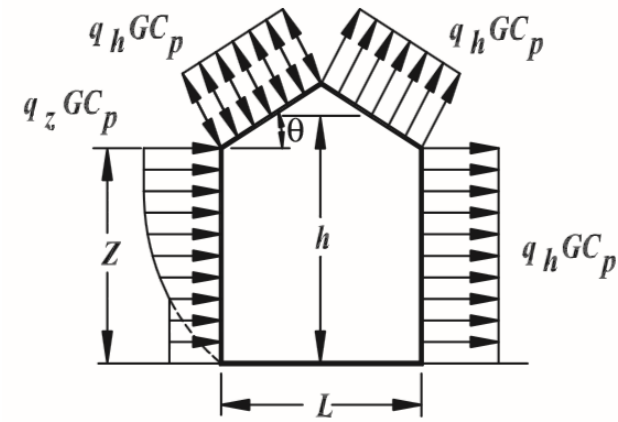
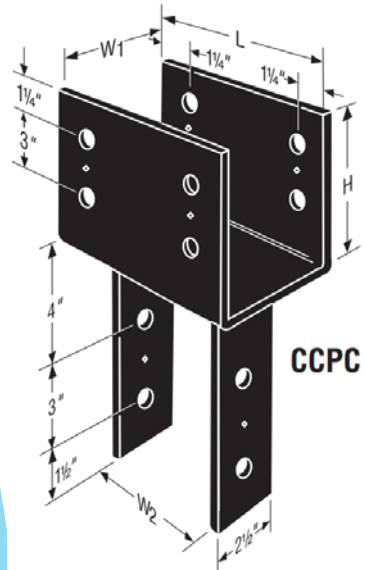
Lateral Force Resistance

Post Frame Design

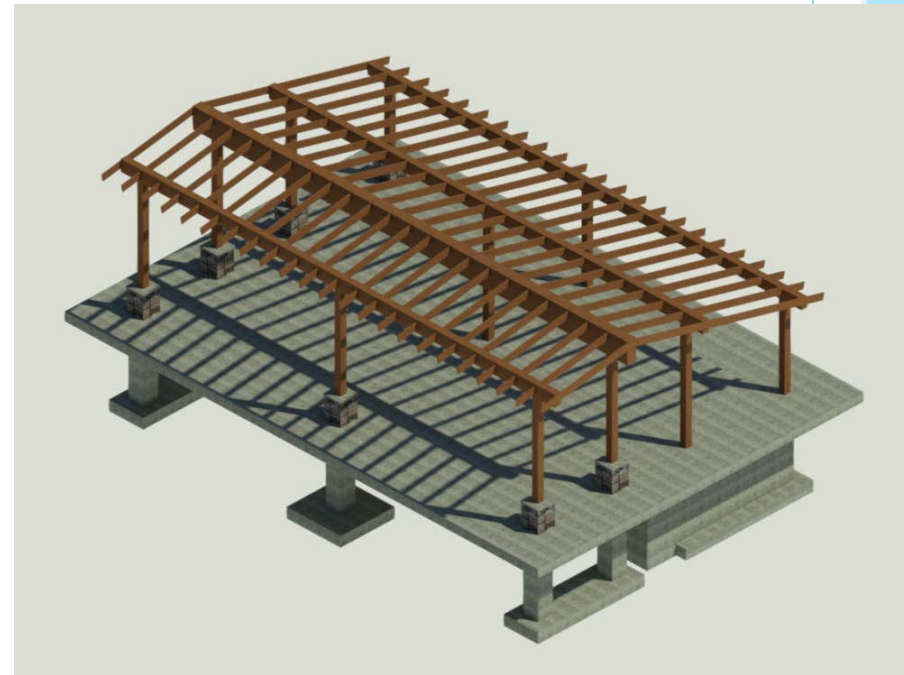
Treated Wood Members

Glue Laminated Ridge Beam

Spread, Wall, and Combination Footings



ELEVATION



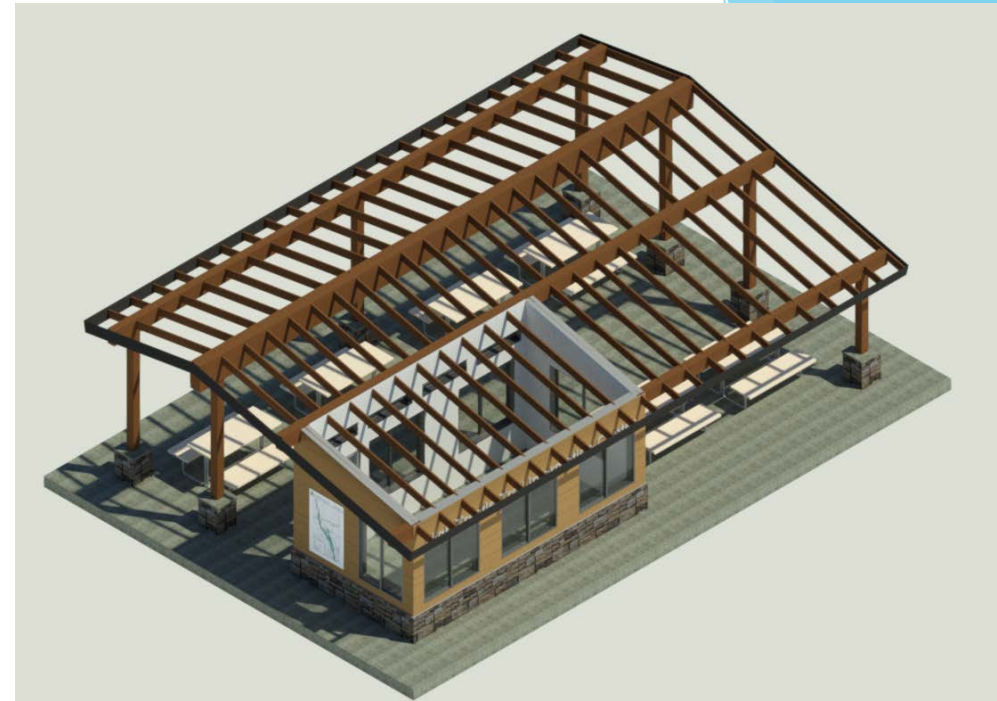
Design of the Roof

Roof Diaphragm

- 1" x 8" boards oriented at 45 degrees
- 2" x 8" Rafters 24" O.C.

Simpson Strong Connectors

- Galvanized Steel
- Black Architectural Finish



Design of the Beams

Timber Beams

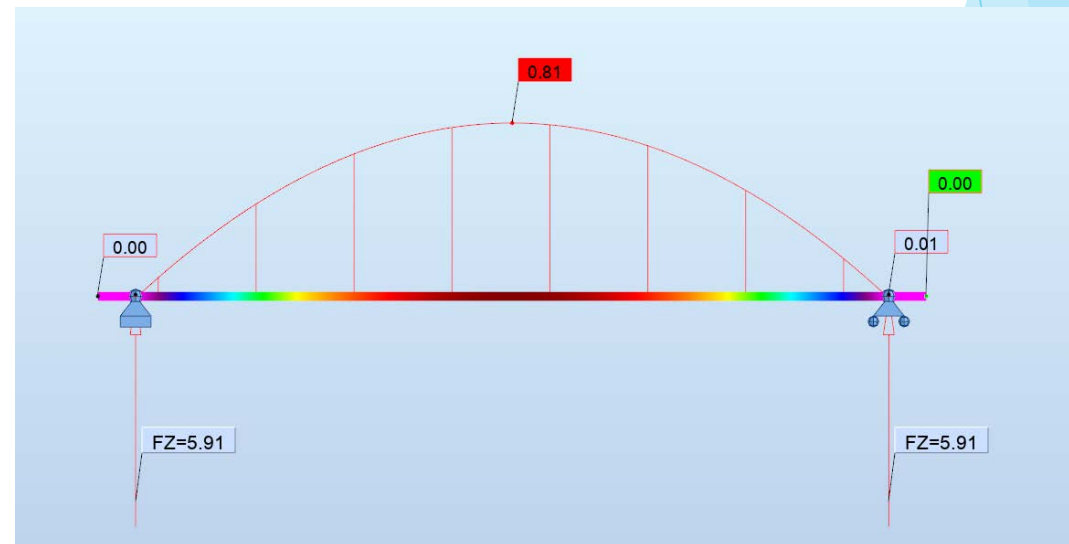
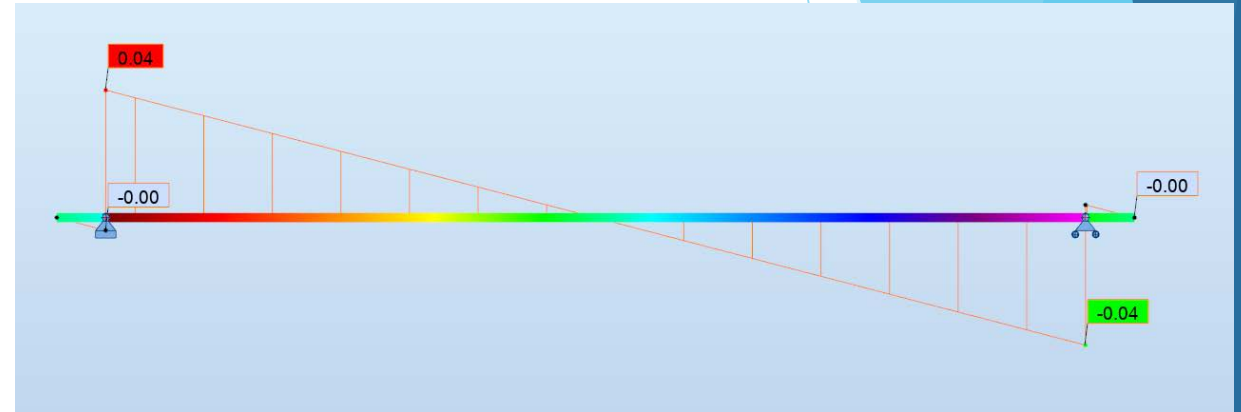
8" x 12"

8" x 14"

20' Span

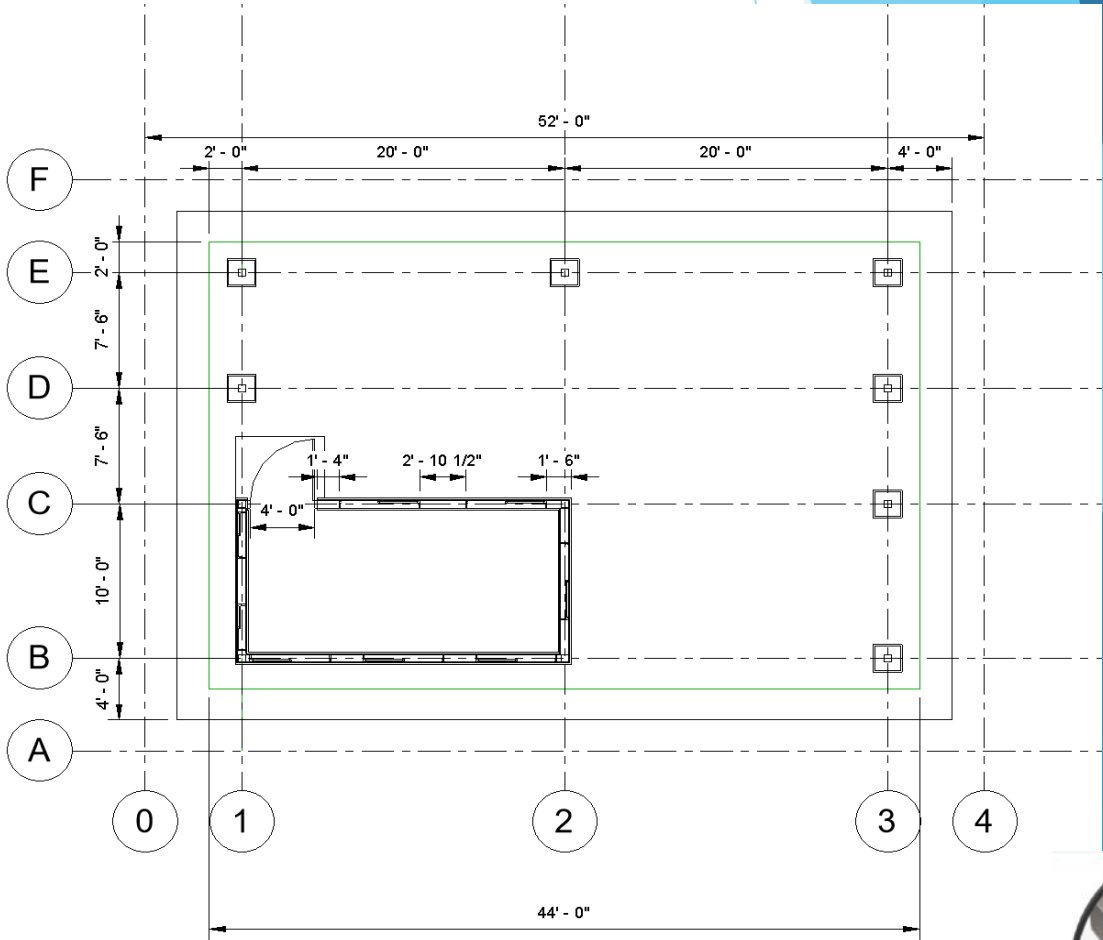
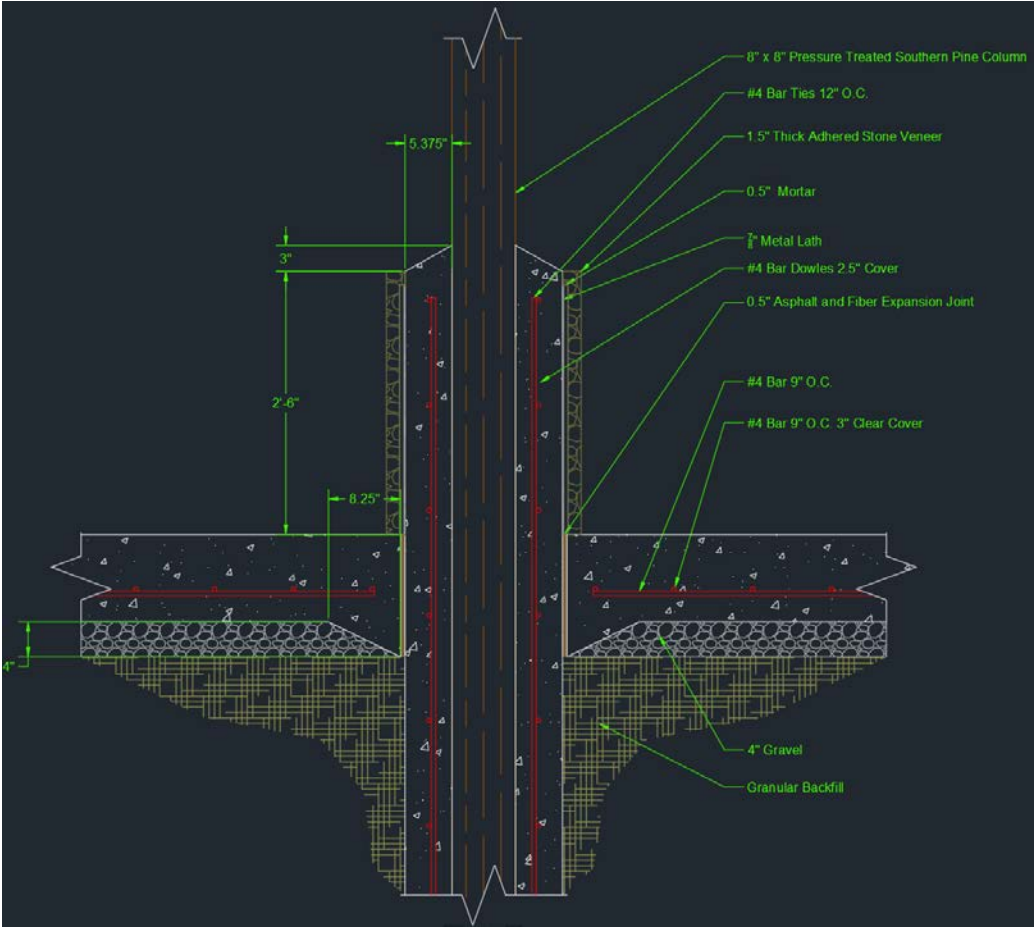
Glue Laminated Ridge Beam 10.75" x 24"

40' Span



Design of the Columns

8" x 8" Timbers

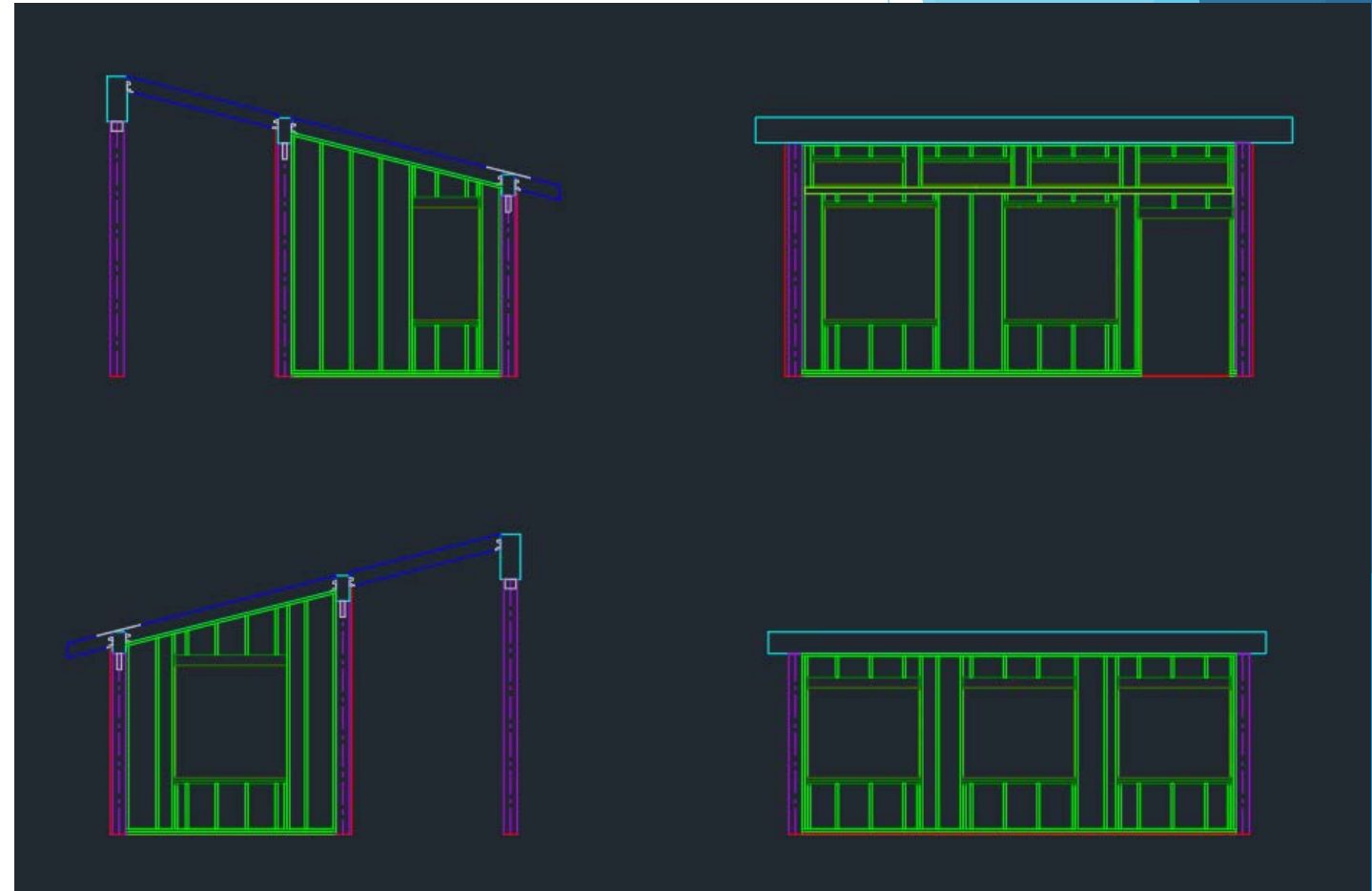
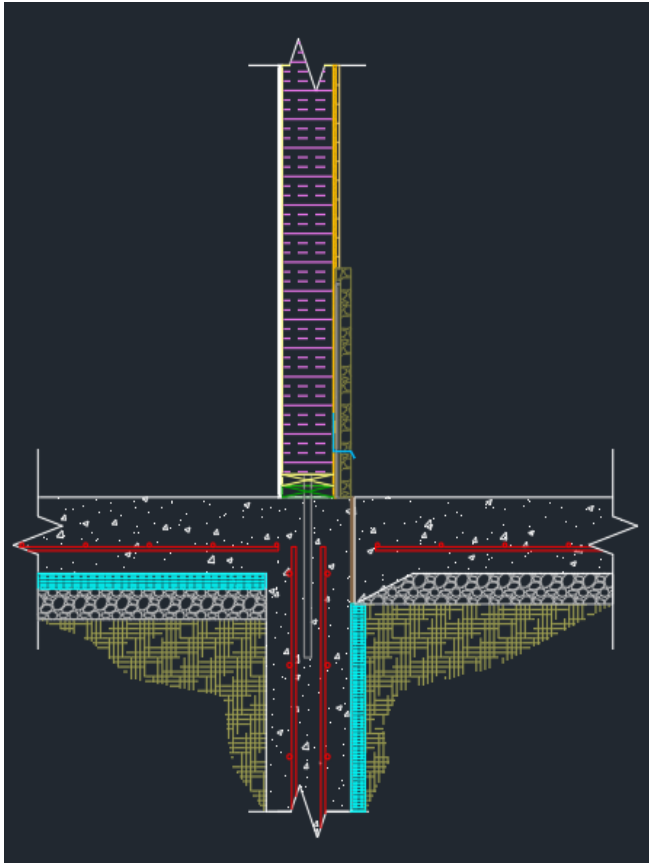


Design of the Enclosure

Natural Lighting

Size Constraints

Hub for trail and historic information for Boone County and the High Trestle Trail



Design of Foundation

3 Combination footings

Continuous Footings around building walls

1 Spread footing



Combination Footing

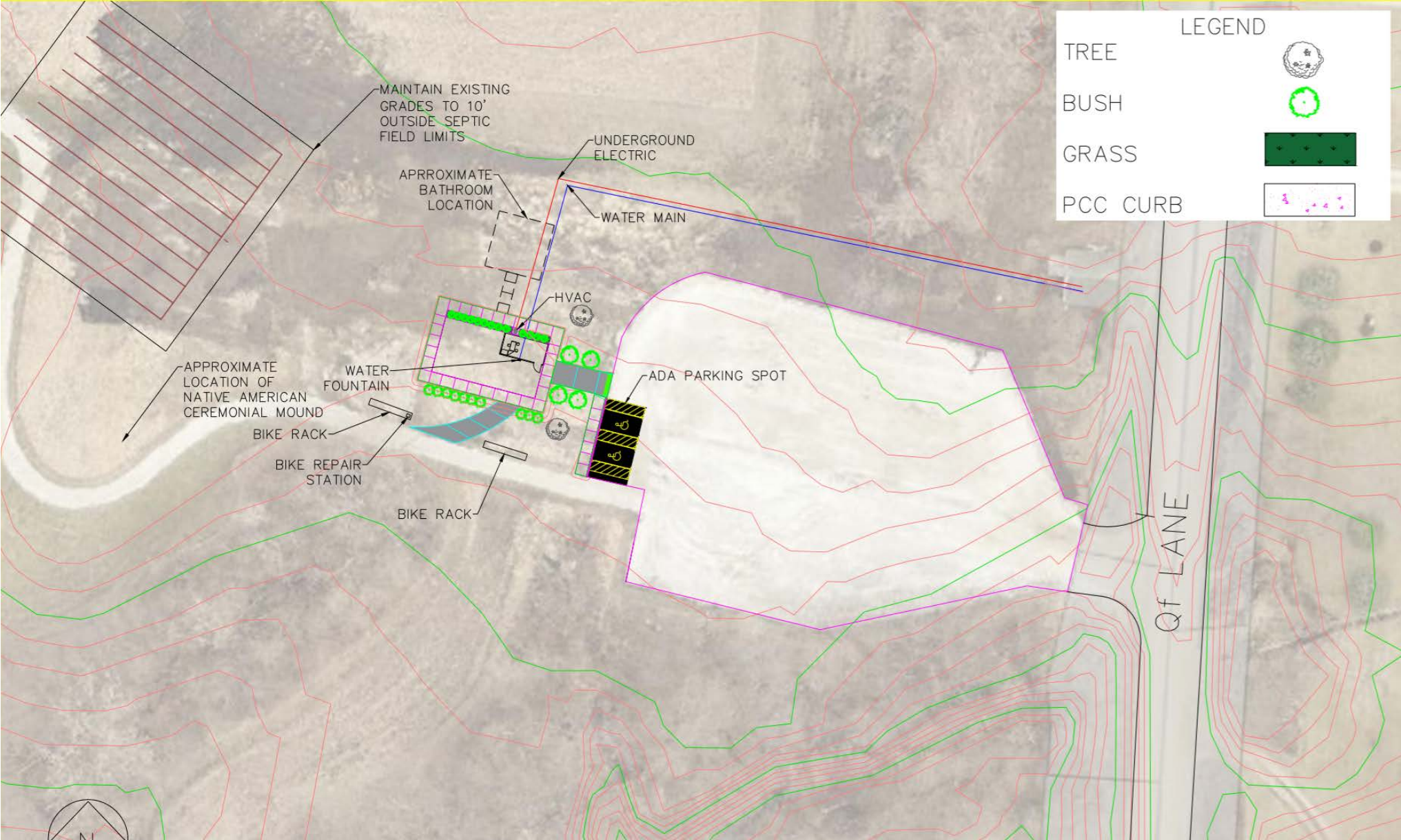
Combination Footings

Spread Footing

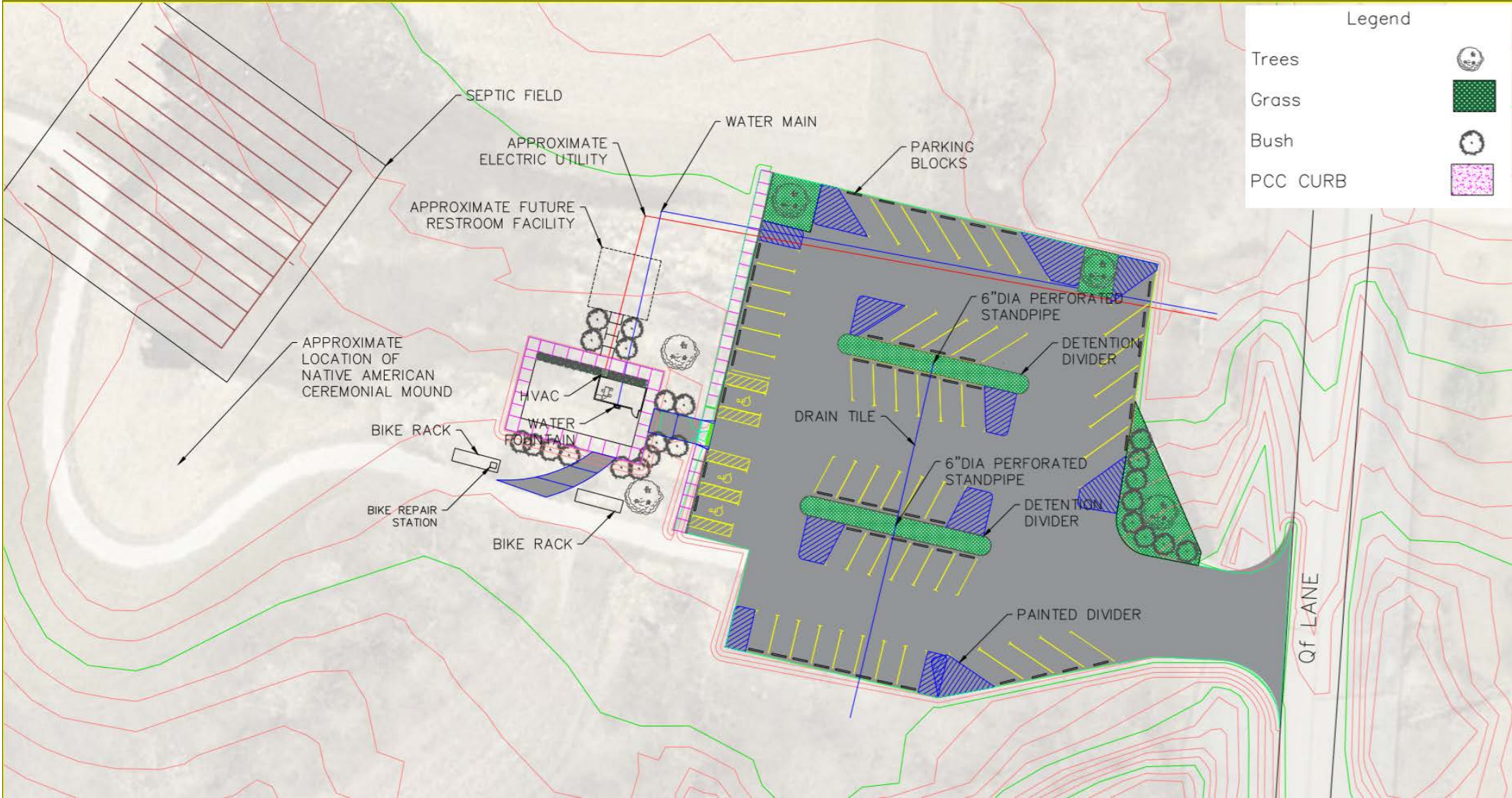
Continuous Footings



Site Design 1



Site Design 2



High Trestle Trail Information Center Amenities



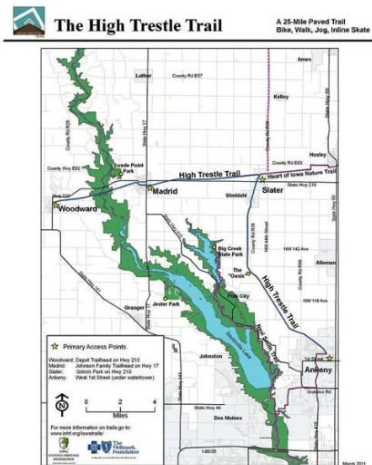
Bike Repair Station



Galvanized Bike Rack



Water Bottle Filling Station



Trail Information



HVAC System



Informational Placards



Landscaping



Bur Oak Tree



Wild Blue Indigo



Prairie Blazing Star



Railroad Ties



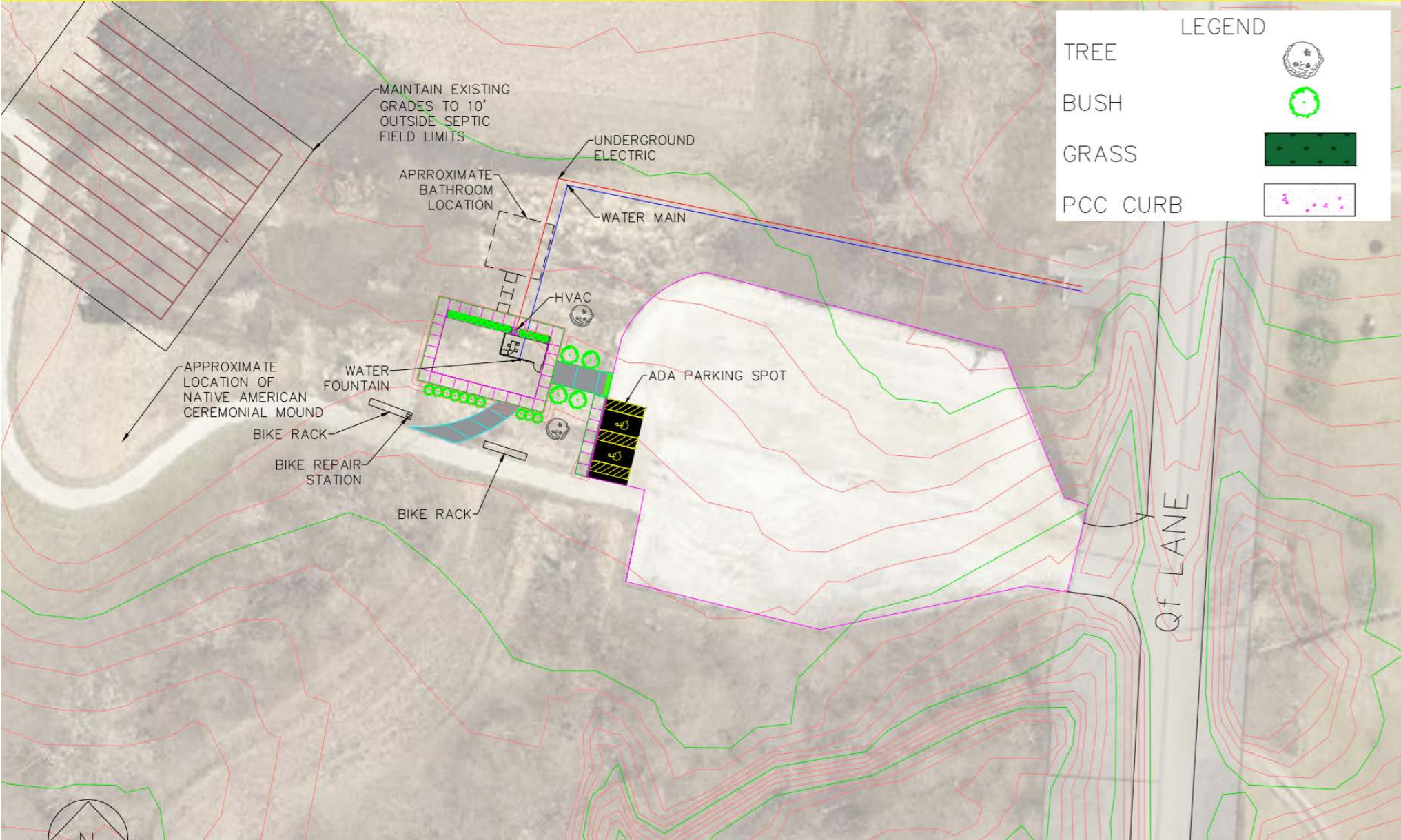
Kentucky Coffeetree



Blue Grama Grass



Site Design 1



Site Design 2



Construction Costs

Table 1. Cost Estimation for Each Site Plan

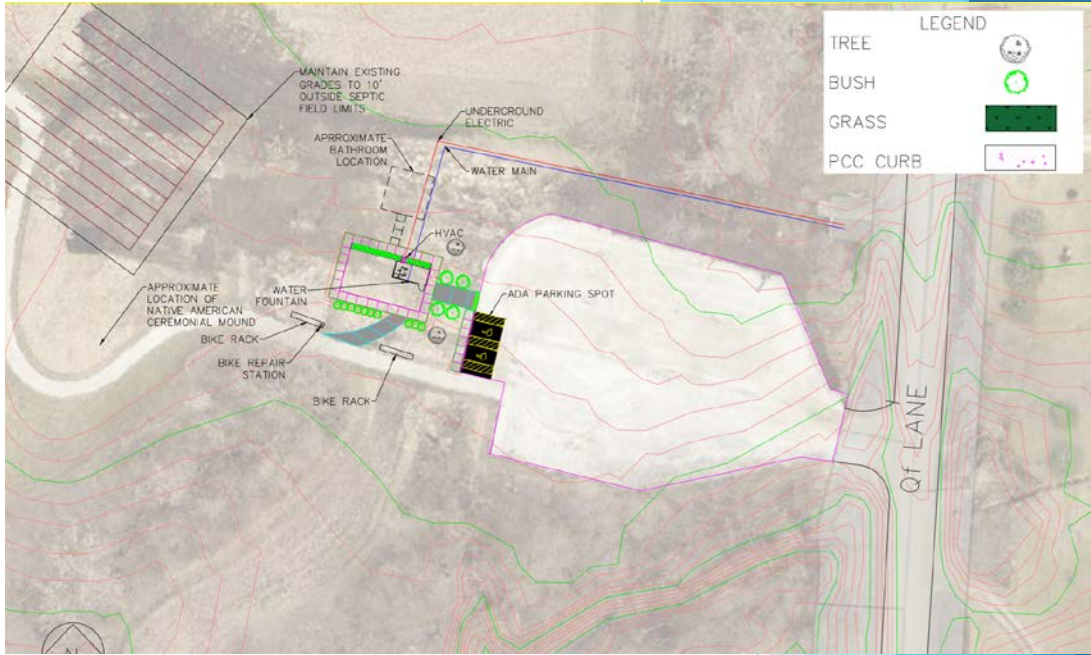
Division of Cost	Site 1	Site 2
General Provisions	\$15,500.00	\$25,500.00
Site Work	\$8,258.00	\$111,663.63
Site Amenities	\$17,350.00	\$17,350.00
Landscaping	\$5,350.00	\$10,000.00
Information Center	\$54,149.00	\$54,149.00
Total (Including Contingencies & Administration)	\$135,000	\$285,000



Final Recommendations



A partially enclosed shelter and trail head providing trail users with a place to rest and engage with the local mining and railroad history of Boone County



Site Plan One with two ADA accessible spots



Reach out to David Dahlquist



Incorporate art



Questions

