

Summary

Conceptual trail design commissioned for Broadford Park through the Garrett County NICA team. Site visit, initial use requirement interviews, and conceptual design was conducted in the winter of 2020. Initial purpose of conceptual design is to provide uniform direction to further project solicitation. Conceptual design is to determine initial feasibility, inspect typical conditions, generate site specific ideas, and is for planning purposes only.

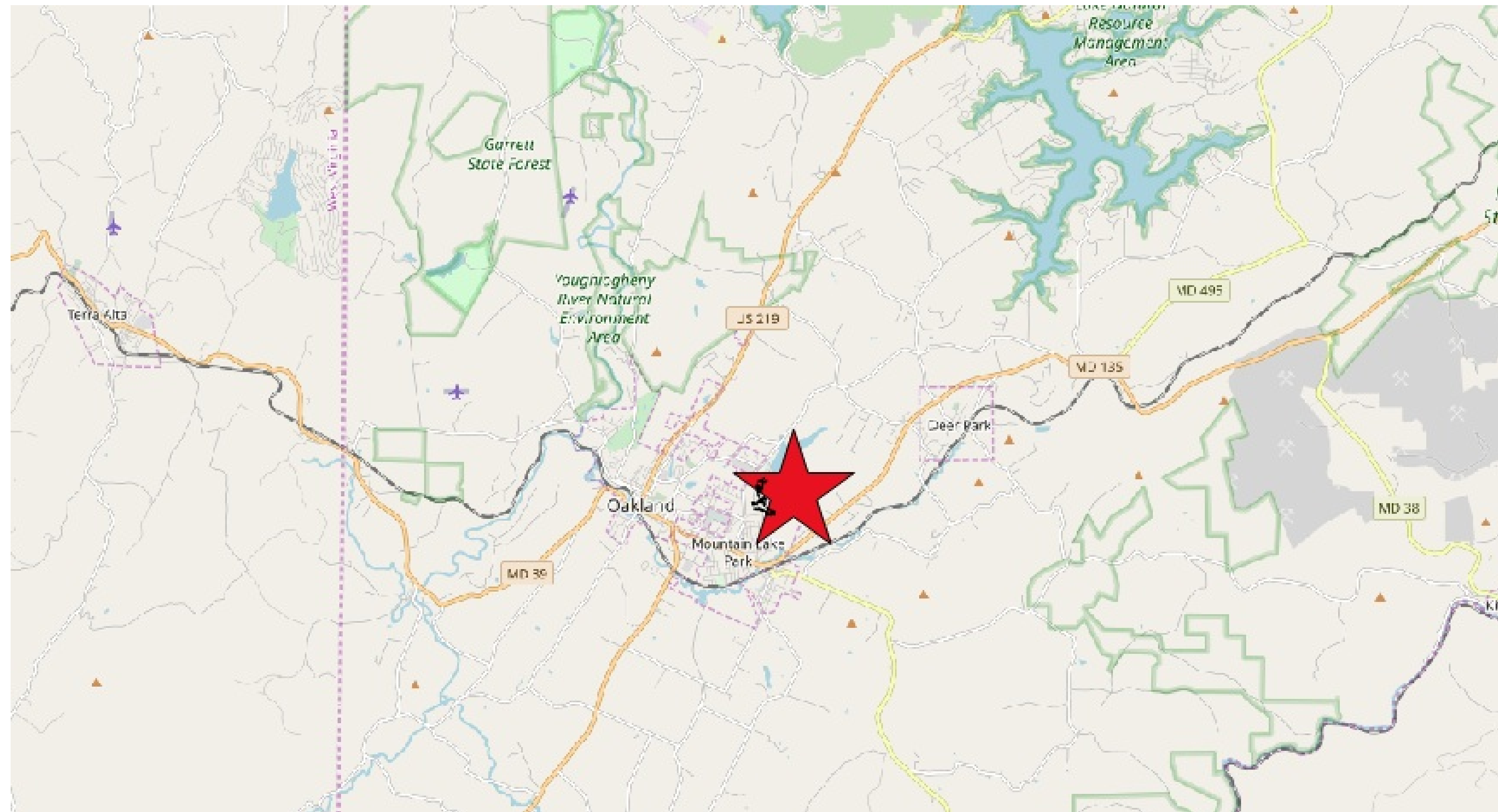
General Notes



Broadford Park Trail System: Conceptual Design

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Designer

Zachary Adams



Project

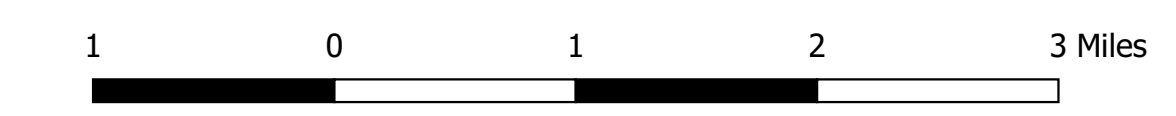
Trail System Conceptual Design
Broadford Park
123 Recreation Lane
Mountain Lake Park, MD 21550
C/O:
Patrick Hudnall
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Date: 1/22/2020

Drawn By: ZDA

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Scale: 1 : 75,000



Drawing Title

Cover Sheet

Summary

From initial assessment, a new trail system installed at Broadford Park could and should provide a single track trail experience with decreased barrier for entry to trail users seeking a beginner to intermediate level trail experience while providing room for progressive development of skills. Initial interest of user groups is to primarily have the system designed with modern mountain bike use in mind, taking care to embrace a flowing trail experience through thoughtful design, curvilinear alignments, gradual changes in trail user speed, technical trail features or alternative line choices, and techniques such as tread insloping of constructed features such as rollers, rollers, and bermed turns. Special consideration should be given to hand-cycle and adaptive cycle capable use of the trails, management techniques for high density user patterns with shared multi-use (Hiker and Biker), as well as locations to stop, rest, and observe the natural setting.

General Notes

Typical site conditions primarily consist of eastern hardwoods forest types, with a high concentration of surface rock, some exposed bedrock, sandy clay soils, and typical side slopes of 0-25% grades. Lift and tilt tread construction will be required on much of the project. Local rock can and should be harnessed as a common but controlled character of the tread and as an aesthetically pleasing way to blend the trail tread into the surrounding terrain. Multiple sites will require boardwalk bridging to cross low, lying wet areas.

Proposed Trail Segments

Segment #	Length (ft)	Section	Sequence
1	3,325	Northern	4
2	2,218	Northern	3
3	1,584	Central	5
4	660	Central	2
5	7,920	Southern	1

15,707 Total

Proposed Boardwalk Bridges

Site #	Length (ft)	Section	MAX Span (ft)
C-1	150	Central	12
S-1	40	Southern	8
S-2	35	Southern	8
S-3	25	Southern	12
S-4	20	Southern	8

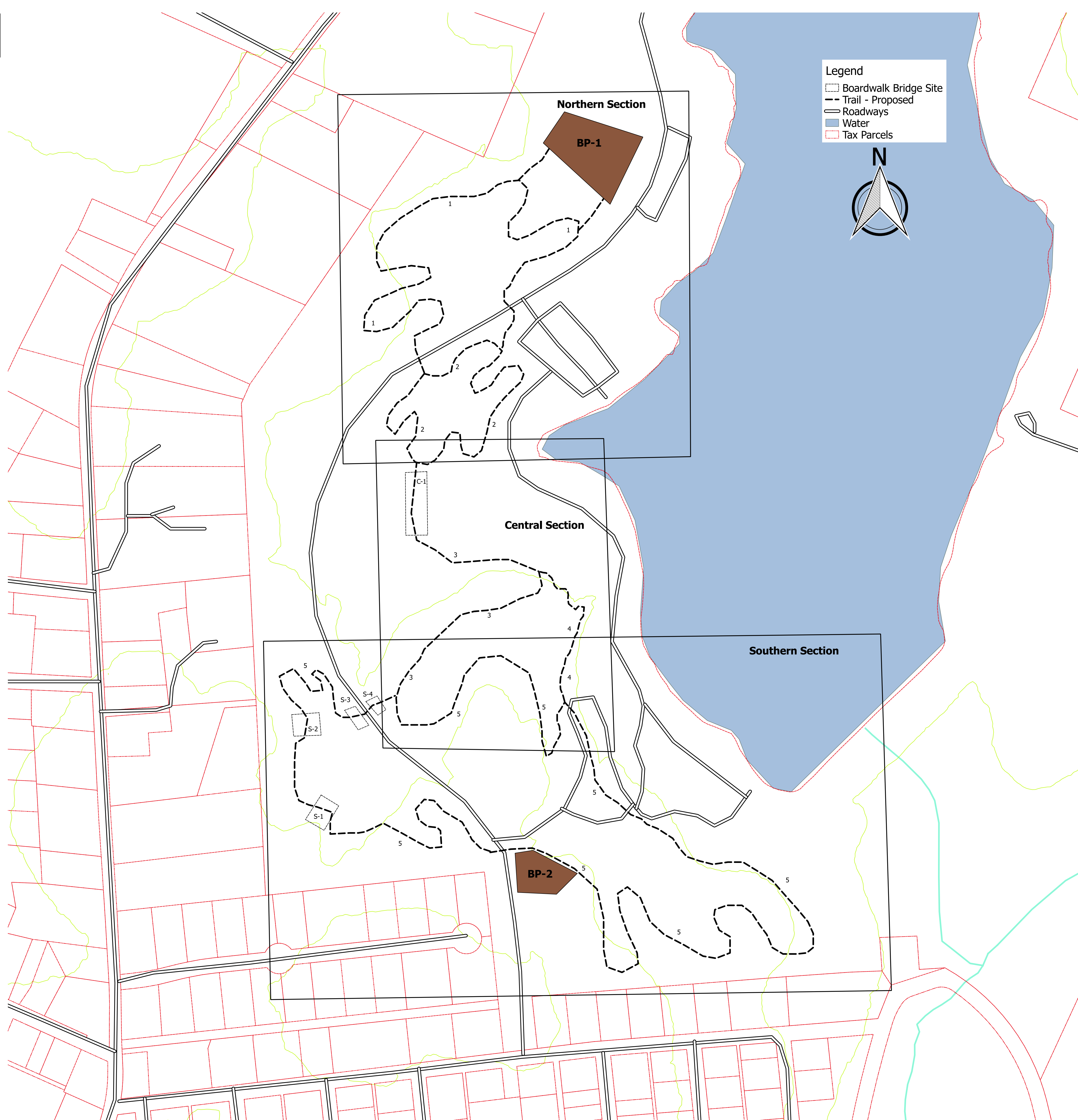
270 Total

Additional Itemized Units

Qty	Item Description
6	Road Crossings
2	Trailhead Kiosks and Infrastructure
10	Signed Intersections
1	Trail Blazing
12	Technical Trail Feature

Potential Skill Development Area Sites

Site	Ability Level	Area (Acres)
BP-1	Beginner	1.75
BP-2	Intermediate	.75



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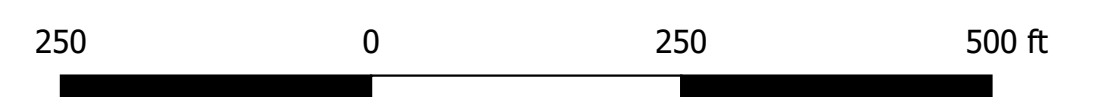
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Date: 1/22/2020

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Scale: 1 : 2,400



Drawing Title

Project Overview

Summary

The Northern Section holds approximately 1 mile of single track trail (Segments 1 and 2, connects to a main trail head location, and connects to potential skills area site BP-1.

General Notes

- Trail Segment 1 and 2 are located primarily on <25% side slope and will require lift and tilt construction of local material to elevate trail tread sufficiently enough to drain and to provide bike optimized features. Both are to be Class 3 Trail.
- Trail Segment 1 is primarily flat terrain and may require installation of choke and corral structures to sufficiently control tread short cutting and limit user defined pathways. Sufficient local rock can be harvested along existing extraction routes throughout park. Integration of pre-constructed technical trail features may be considered as a value added item for both traffic control and user experience in this location.
- Consideration may be given to lightly surfacing the locally harvested soil with 1/2" minus sized aggregate to provide an all weather tread surface.

Proposed Trail Segments

Segment #	Length (ft)	Section	Sequence
1	3,325	Northern	4
2	2,218	Northern	3

5,543 Total

Proposed Boardwalk Bridge

Site #	Length (ft)	Section	MAX Span (ft)

0 Total

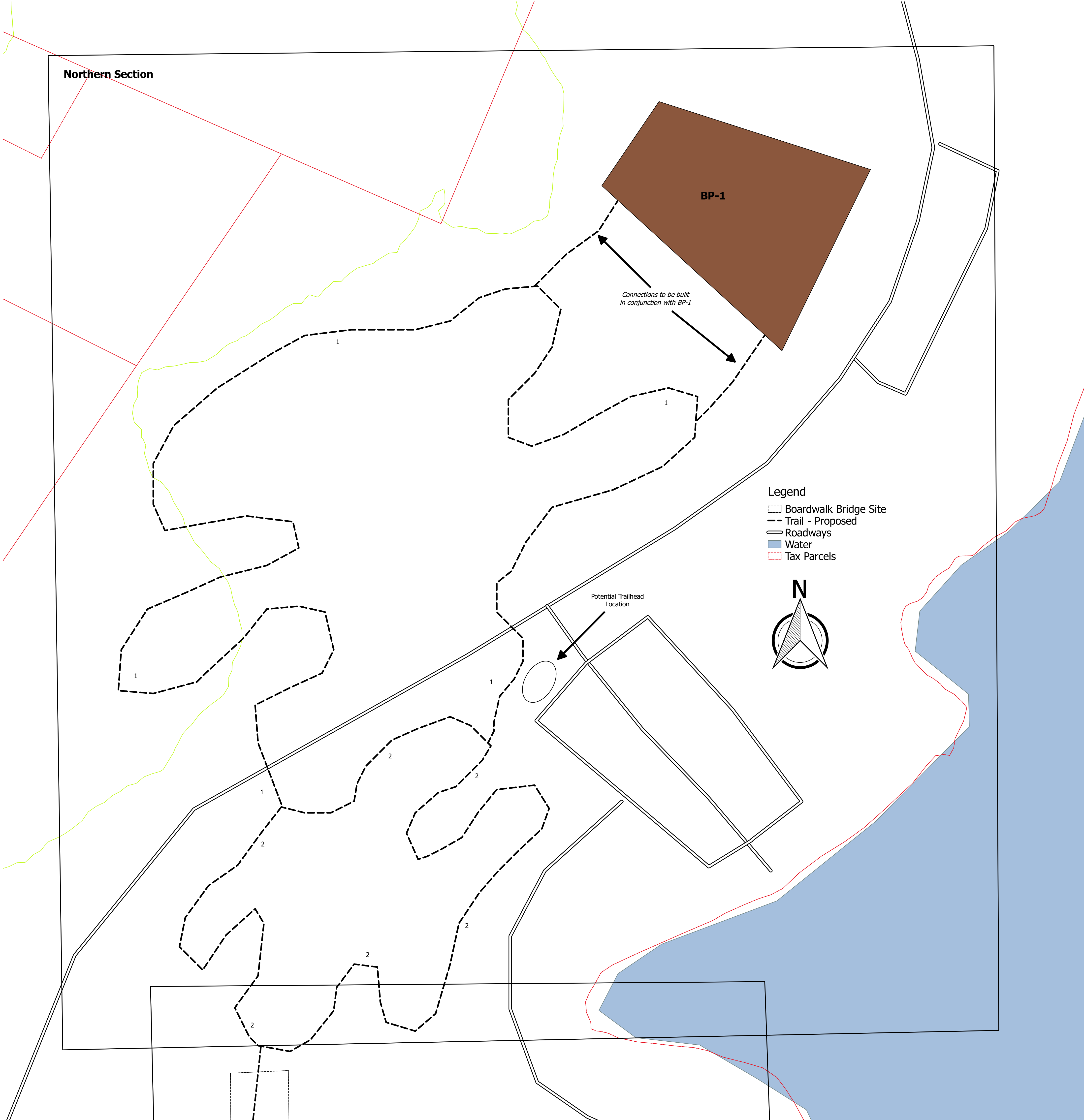
- Formal trail head infrastructure location is highlighted on map for Northern Section and may include an information kiosk structure, map and information panels, bike stands, products similar to the Dero Fix-it Station, trash cans, benches, Trail entrance signs, and or similar amenities.
- Section could be constructed as an independent unit in its own phase of construction or as part of the whole project.
- Section would be best optimized of the project for true hand cycle/adaptive cycle accessible trail.
- Road Crossing Units should contain signage on road and on trail, as well as a painted crossing.

Additional Itemized Units

Qty	Item Description
2	Road Crossings
1	Trailhead Kiosks and Infrastructure
2	Signed Intersections
1	Trail Blazing
8	Technical Trail Feature

Potential Skill Development Area Sites

Site	Ability Level	Area (Acres)
BP-1	Beginner	1.75



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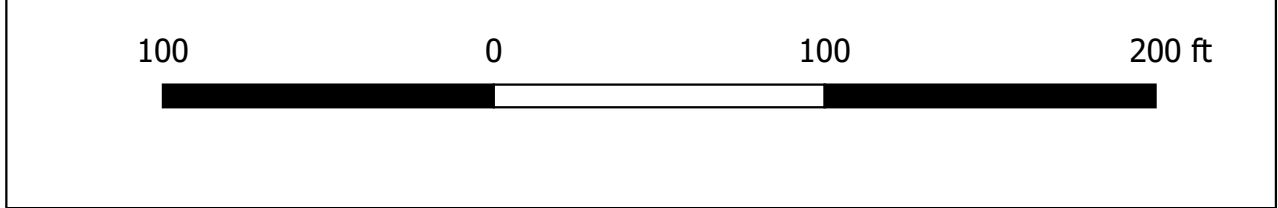
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Scale: 1 : 900



Drawing Title

Northern Section - Detail

Summary

The Central Section holds approximately 1/2 mile of single track trail (Segments 3 and 4, connects the two sides of the proposed system and holds bridge site C-1 to cross the most significant low lying wet area in the project. It also holds the most advanced proposed trail segment in the proposed system.

General Notes

- Trail Segment 3 and 4 are located primarily on <25% side slope and will require lift and tilt construction of local material to elevate trail tread sufficiently enough to drain and to provide bike optimized features. A substantial boardwalk bridging structure is also required.

- Trail Segment 3 is primarily flat terrain with the boardwalk bridge structure C-1 and is the primary connection between sides of the park and the loops provided in this trail concept design. Trail Segment 3 is to be built as Class 3 Trail.

- Trail Segment 4 utilizes the rockiest, most challenging terrain in the park and should reflect that in the character of its tread. It is to provide the highest level of difficulty in the proposed system. It is to be built as Class 2 Trail.

Proposed Trail Segments

Segment #	Length (ft)	Section	Sequence
3	1,584	Central	5
4	660	Central	2
2,244 Total			

Proposed Boardwalk Bridge

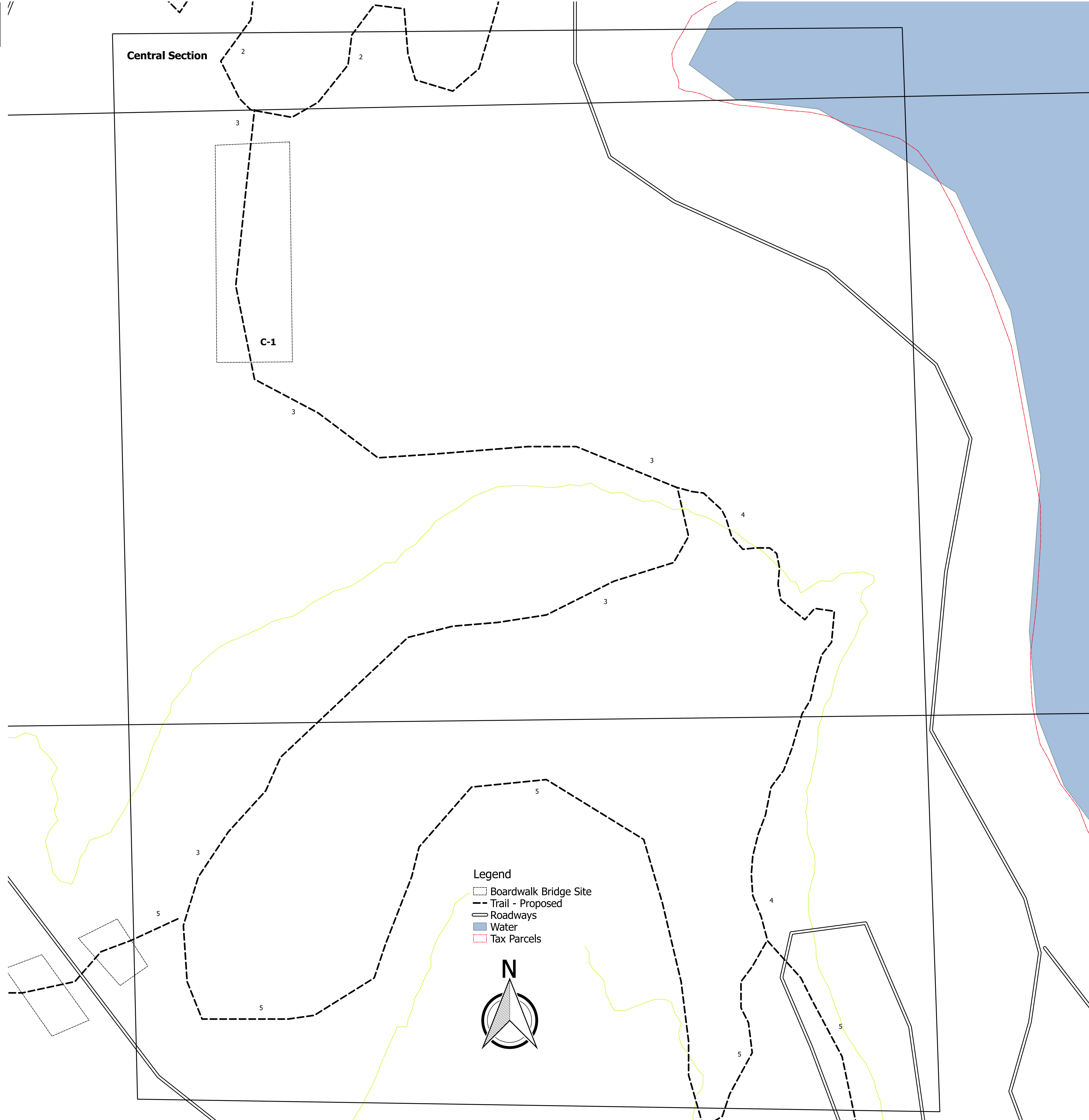
Site #	Length (ft)	Section	MAX Span (ft)
C-1	150	Central	12
150 Total			

Additional Itemized Units

Qty	Item Description
0	Road Crossings
0	Trailhead Kiosks and Infrastructure
4	Signed Intersections
1	Trail Blazing
0	Technical Trail Feature

Potential Skill Development Area Sites

Site	Ability Level	Area (Acres)



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 Scale: 1 : 700

Drawing Title
 Central Section - Detail

Summary

Southern Section holds approximately 1.5 mile of single track trail (Segment 5, connects to a main trail head location, and connects to potential skills area site BP-2.

General Notes

- Trail Segment 5 is located primarily on <25% side slope and will require lift and tilt construction of local material to elevate trail tread sufficiently enough to drain and to provide bike optimized features. Section is to be Class 3 Trail, of a 36" avg width and slightly more aggressive tread character.

- Integration of pre-constructed and local material sourced technical trail features may be considered as a value added item for both traffic control and user experience in this location.

Proposed Trail Segments

Segment #	Length (ft)	Section	Sequence
5	7,920	Southern	1
7,920 Total			

Proposed Boardwalk Bridge

Site #	Length (ft)	Section	MAX Span (ft)
S-1	40	Southern	8
S-2	35	Southern	8
S-3	25	Southern	12
S-4	20	Southern	8
120 Total			

- Formal trail head infrastructure location is highlighted on map for Northern Section and may include an information kiosk structure, map and information panels, bike stands, products similar to the Dero Fix-it Station, trash cans, benches, Trail entrance signs, and or similar amenities.

Additional Itemized Units

Qty	Item Description
4	Road Crossings
1	Trailhead Kiosks and Infrastructure
3	Signed Intersections
1	Trail Blazing
4	Technical Trail Feature

Potential Skill Development Area Sites

Site	Ability Level	Area (Acres)
BP-2	Intermediate	.75

- Section could be constructed as an independent unit in its own phase of construction or as part of the whole project.

- Section would be best optimized of the project for true hand cycle/adaptive cycle accessible trail.

- Road Crossing Units should contain signage on road and on trail, as well as a painted crossing.



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Scale: 1 : 1,500

Drawing Title

Southern Section - Detail

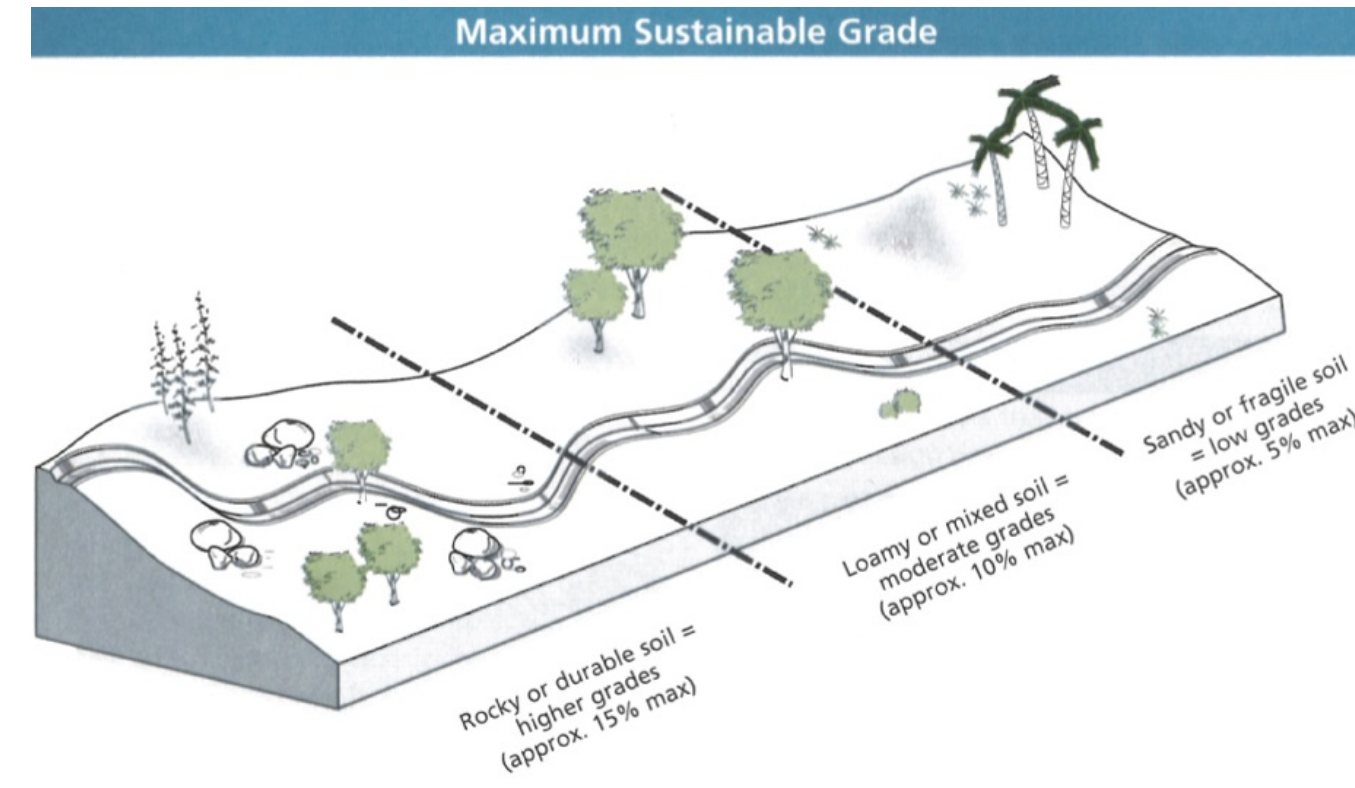
Sheet 5 of 6

Summary

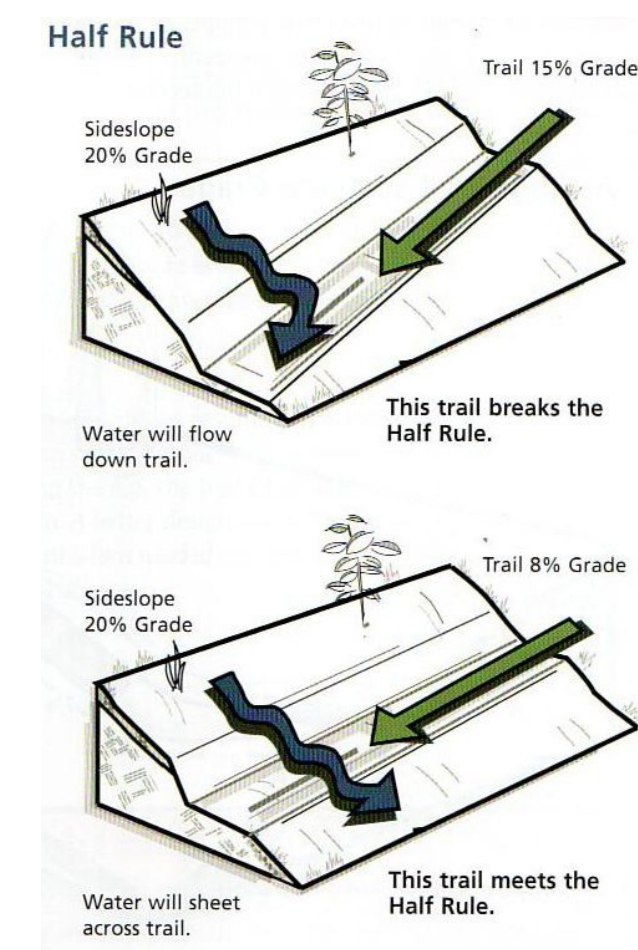
Typical sustainable trail construction techniques for reference. Consult references for more specific and detailed constructions guidelines:

Trail solutions : IMBA's guide to building sweet singletrack. (Vernon Felton; International Mountain Bicycling Association.

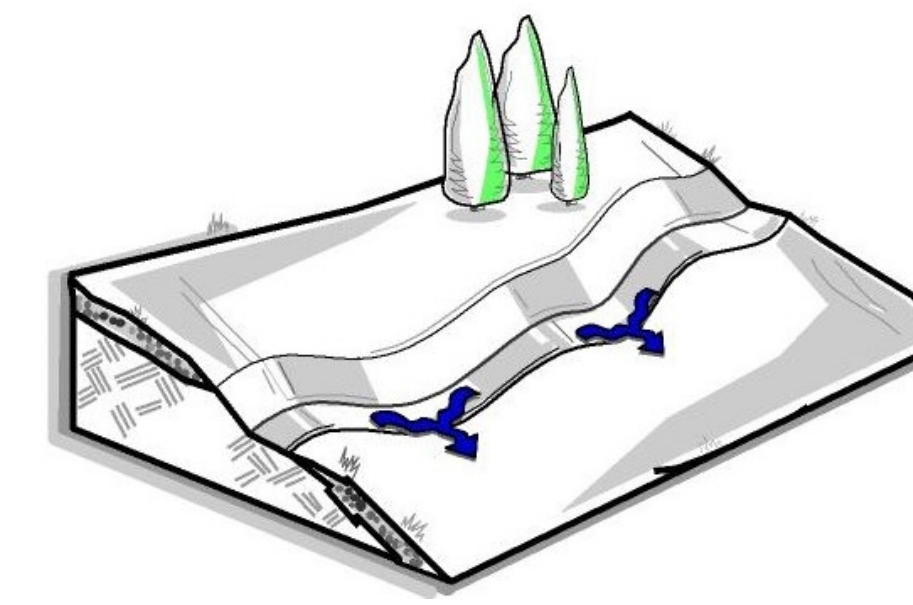
USDA Forest Service. Technology and Development Program. Missoula, MT. 6E62A33—Update Trail Construction and Maintenance Notebook. July 2007.



Drawing 6.1



Drawing 6.2



Drawing 6.3

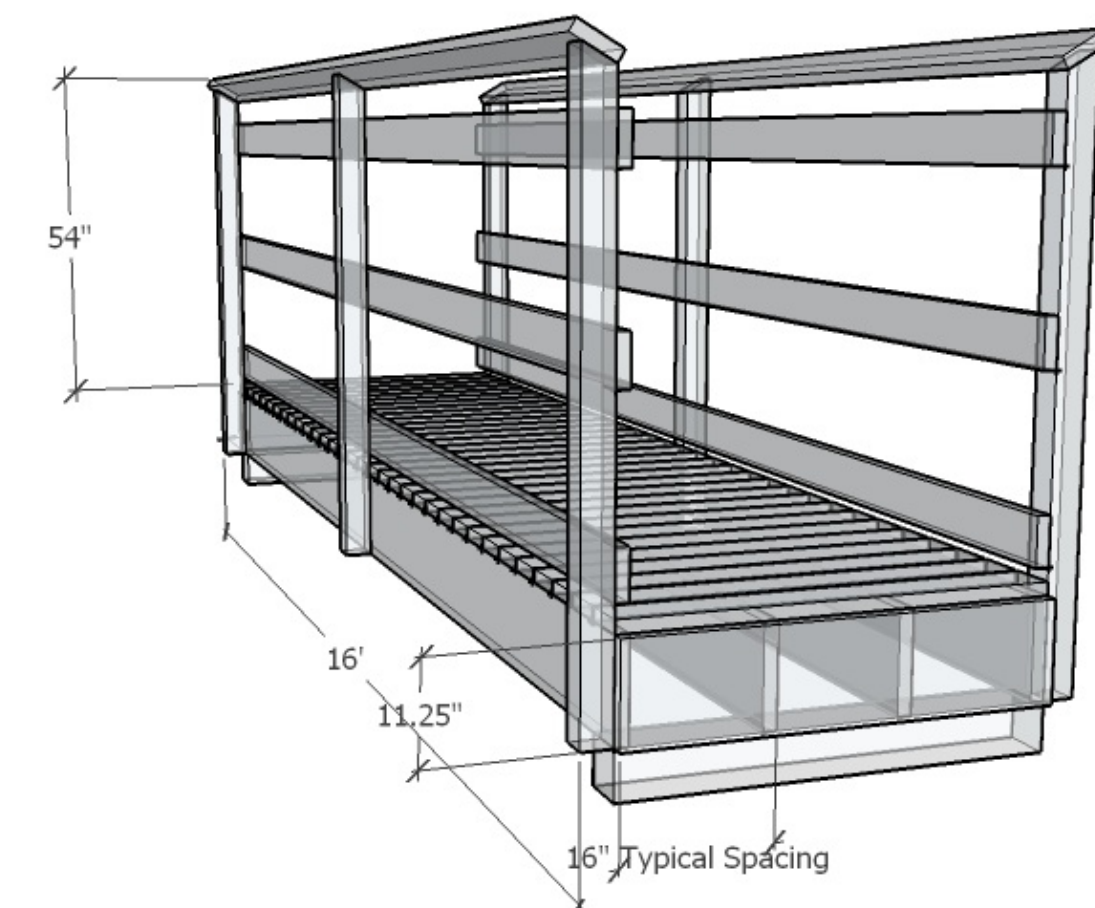
General Notes

Class 2 Trail
Class Description: Back Country Trail
Ability Rating: Intermediate/ Blue Square
Avg Tread Width: 36"
Avg Running Grade: 5-7%

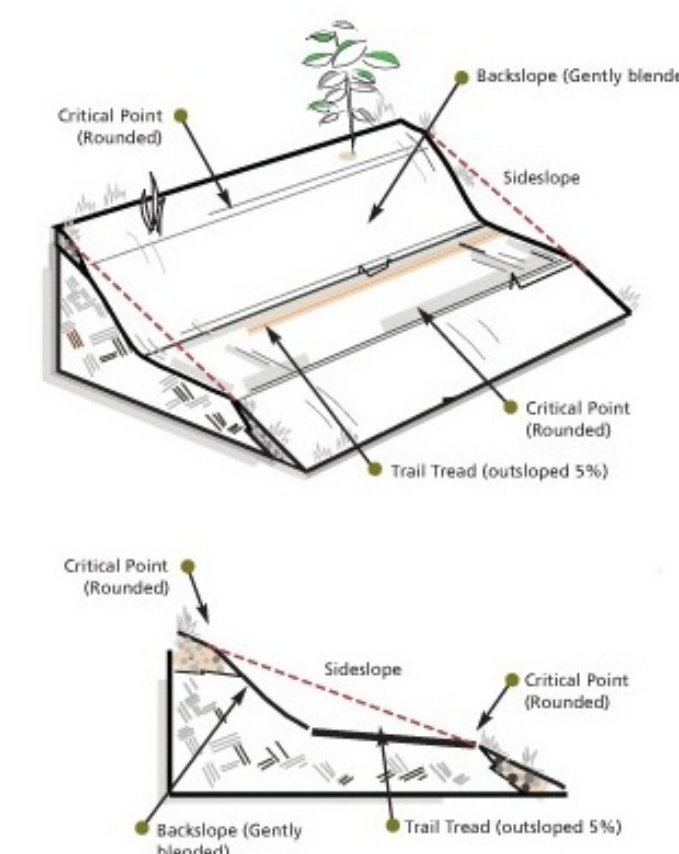
Class 3 Trail
Class Description: Front Country Trail
Ability Rating: Easy/Green Circle
Avg Tread Width: 48"
Avg Running Grade: 3-5%

Drawing Index

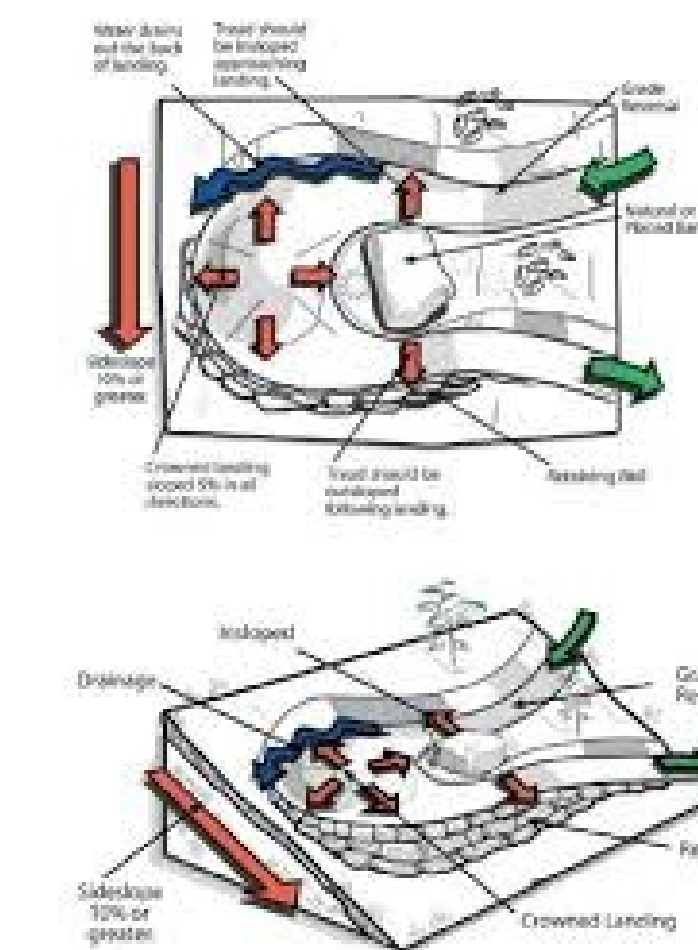
6-1	Maximum Sustainable Grade for Soil Type
6-2	Trail Slope Alignment (Half Rule)
6-3	Grade Reversal- Typical
6-4	Full Bench Cut - Typical
6-5	Switchback Turn - Typical
6-6	Crib Wall - Typical
6-7	Rock Armoring - Typical
6-8	Footbridge with Handrail - Typical
6-9	Board Walk Bridging - Side View - Typical
6-10	Board Walk Bridging - End View - Typical



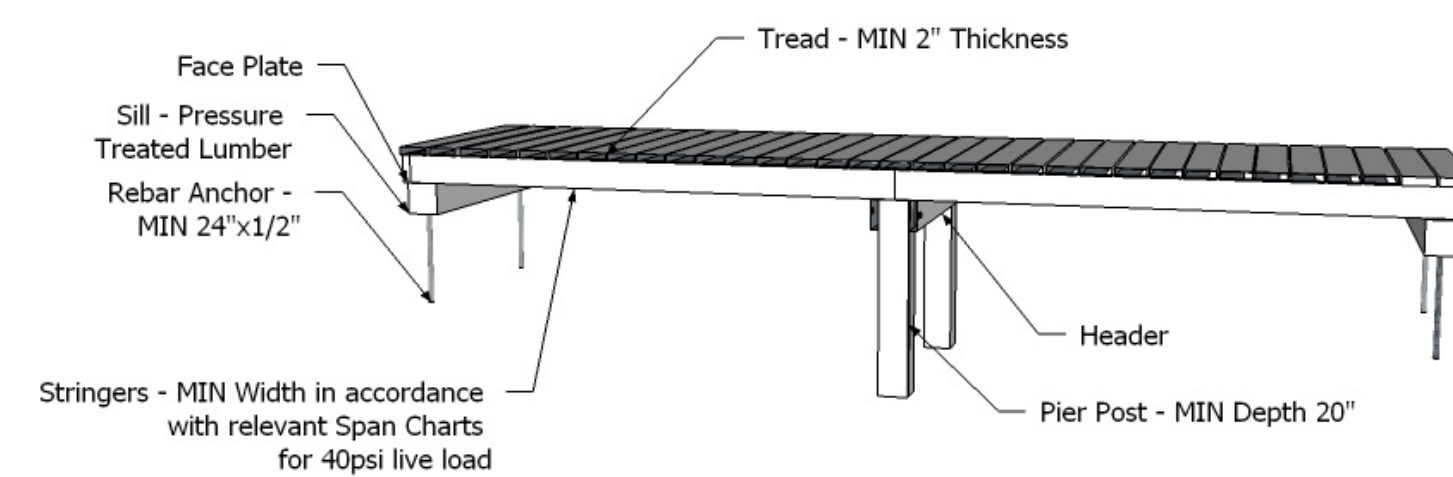
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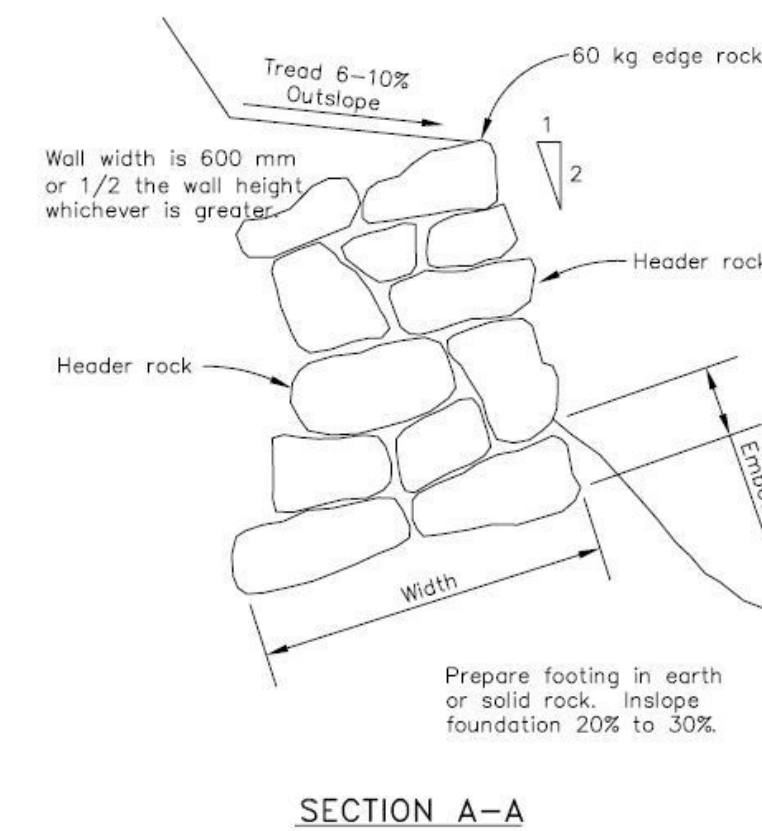
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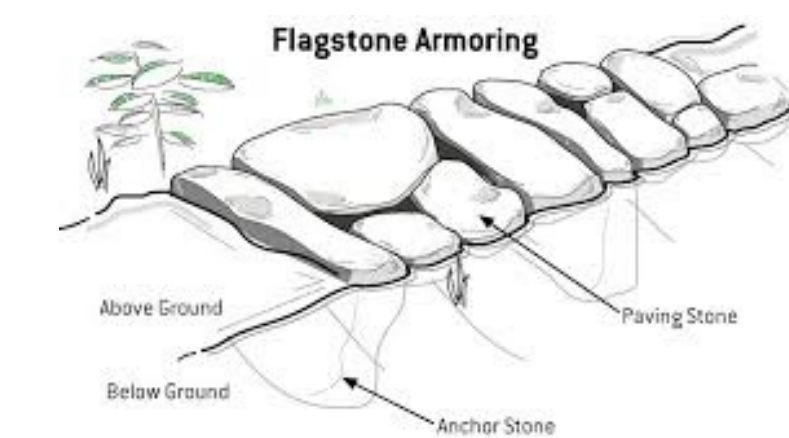
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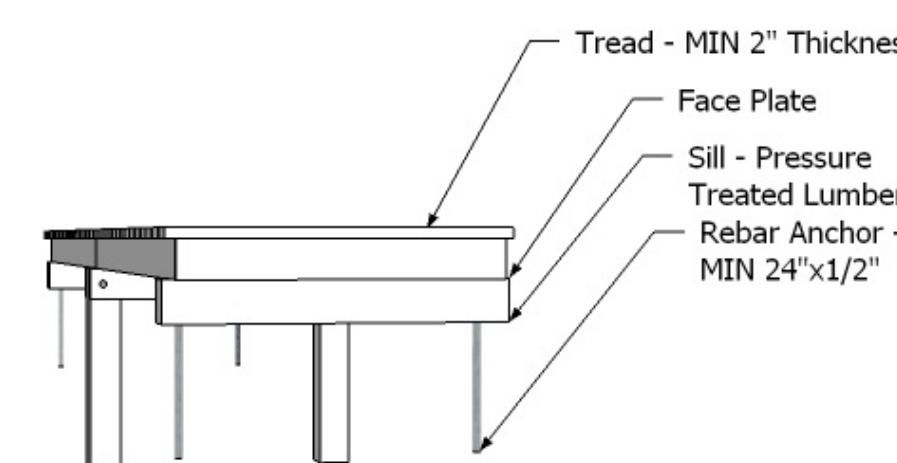
Drawing 6.9



Drawing 6.6



Drawing 6.7



Drawing 6.10



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Date: 1/22/2020

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Scale:

Drawing Title

Sustainable Trail Details