WILDCAT BIKE TRAIL

WILDCAT CANYON REGIONAL PARK
RICHMOND, CALIFORNIA

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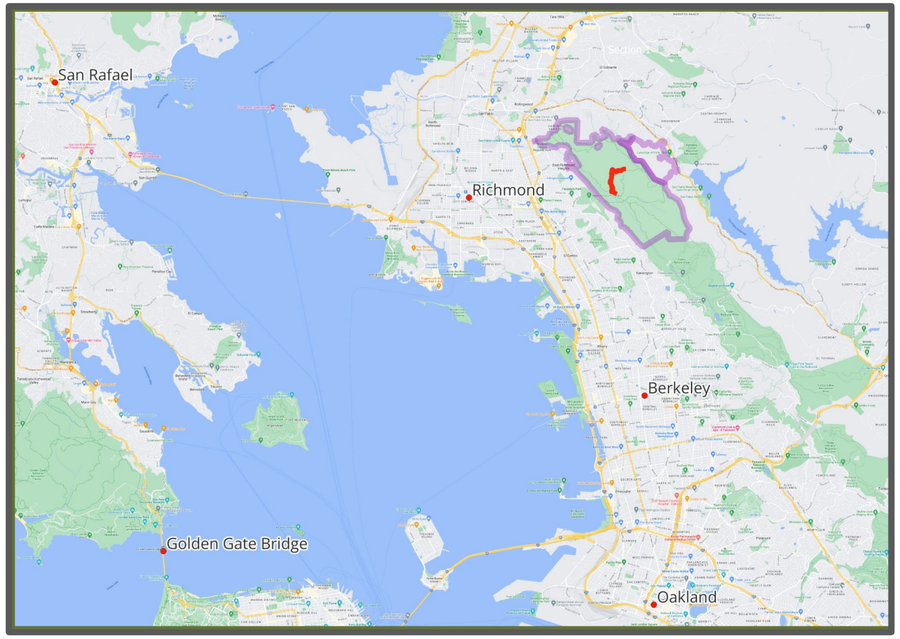

PROJECT LOCATION

LATITUDE: 37°56'07.6"N
LONGITUDE: 122°17'31.9"W

DESIGNED FOR:

East Bay Regional
Park District
2950 Peralta Oaks Court,
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1-888-327-2757
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5/20/24

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WILDCAT CANYON REGIONAL PARK
RICHMOND, CALIFORNIA

COVER SHEET

SHEET NUMBER
CS-1
1 of 32

Wildcat Bike Trail Narrative and Design Details

The project goal is to develop a conceptual plan for a directional, bike optimized, mountain bike trail within an identified corridor at Wildcat Canyon Regional Park near Richmond, CA. This trail aims to relieve pressure on other trails within the Tilden and Wildcat Canyon Parks while providing a fun and challenging trail experience for East Bay cyclists and provide a training area for local National Interscholastic Cycling Association (NICA) High School and Middle School teams.

Project Objectives:
• Develop a conceptual trail design that incorporates a variety of components popular with today's mountain biking community while offering options for riders to progressively build their skills.
• This document will support the California Environmental Quality Act (CEQA) process.
This trail alignment was developed using the best information available at the time. As additional information emerges from technical studies, this alignment will likely evolve and may need to be adjusted.

Project Design Criteria:
• Latest industry practices and trends
• Cost-benefit analysis of alternatives
• Avoidance or minimization of environmental impacts
• Reasonable maintenance burden and operational requirements
• Minimization of conflicts with park operations and other park activities

Trail Design Specifications

Trail Length: Approximately 7,613 ft/ 1.44 miles
Allowed Use: Mountain biking only
Direction of Travel: Downhill only
Desired Trail Experience: Progressive flow trail
Trail User Difficulty Rating: MTB green/blue, beginner/intermediate
Tread Width: 36", +/- 12" if needed
Tread Surface: Compacted natural soil
Corridor Width: At least 48' from centerline of trail tread
Grade: Average trail grade should be 5-7%. Trail grades between 8-15% must have grade reversals spaced 50' apart or less. Trail grades in excess of 15% must be armored with stone.
Elevation Change: Approximately 500 ft
Turns: Flowing, insloped, berm turns unless otherwise noted
Presence of Features: As frequent and often as deemed appropriate
Number of Features: Dependant upon feature type, budget, and final trail alignment and design
Build Cost Estimate: $280,000-390,000 depending on feature type and final trail alignment. Prefab features not included in this estimate. Estimate based off of similar projects of size and scope.
Suggested Labor Source: Experienced professional trail builder, not recommended for volunteers or Youth Corps.
Anticipated Build Difficulty: Moderate. Given this style of trail, various construction techniques will be necessary to achieve finished product. Dirt shaping and feature sculpting skills will be required, dry masonry rock work, carpentry, and construction skills may be necessary depending on final design. All features will need to be field tested to insure a proper spacing and operation.
Suggested Method of Build: Machine build. Due to large amount of dirt work and open project corridor machine build would be ideal, but hand build could be appropriate if builder is highly experienced in hand built bike optimized flow trails.
Known Constraints: Trail must stay within predetermined, approved corridor. Livestock grazing is prevalent in area and must be considered.
General Environmental Description: Generally open hillside with little to no trees, small low shrubs, with ground cover being mostly grasses.
Special Considerations: Any alternate lines that are built should be signed as such with difficulty level. Livestock exclusion fencing may be necessary, see fencing plans for details.

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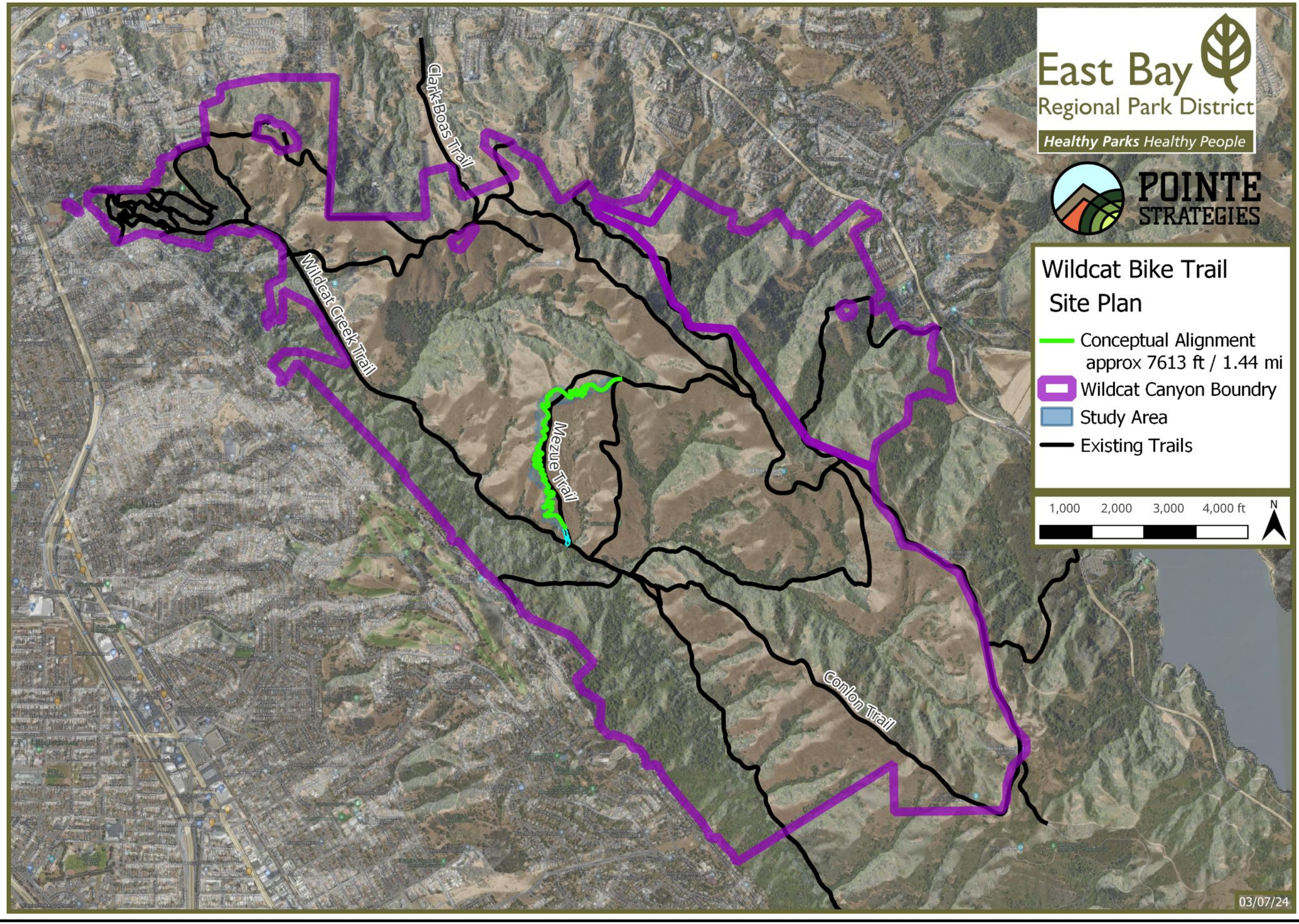
RICHMOND, CALIFORNIA

TRAIL NARRATIVE
DESIGN DETAILS

SHEET NUMBER
GD-1
2 of 32



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POINTE STRATEGIES

Wildcat Bike Trail Site Plan

- Conceptual Alignment approx 7613 ft / 1.44 mi
- Wildcat Canyon Boundry
- Study Area
- Existing Trails

1,000 2,000 3,000 4,000 ft N

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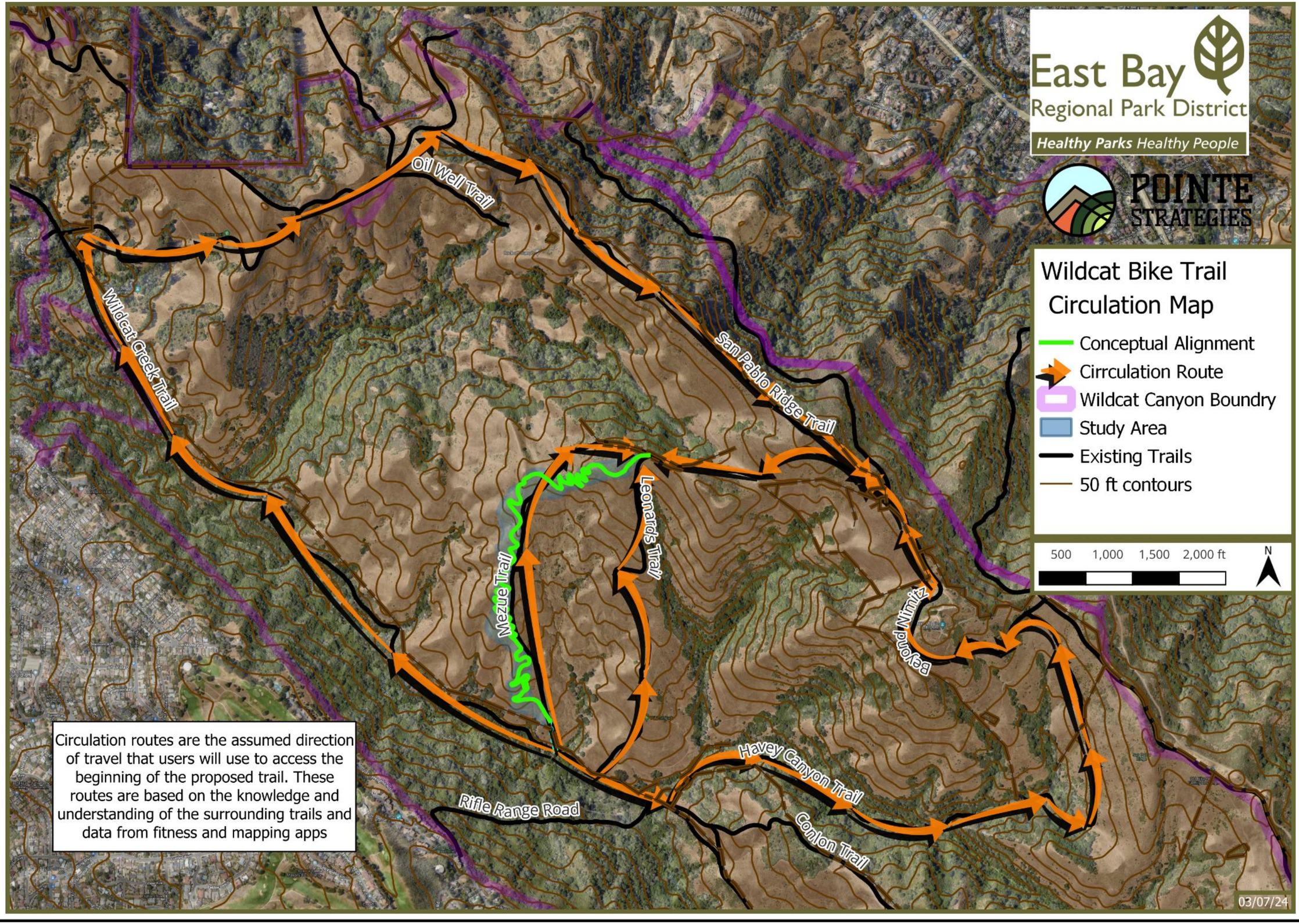
SITE PLAN

SHEET NUMBER
SP-1
3 of 32



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POINTE STRATEGIES

Wildcat Bike Trail Circulation Map

- Conceptual Alignment
- Cirrculation Route
- Wildcat Canyon Boundry
- Study Area
- Existing Trails
- 50 ft contours

500 1,000 1,500 2,000 ft

N

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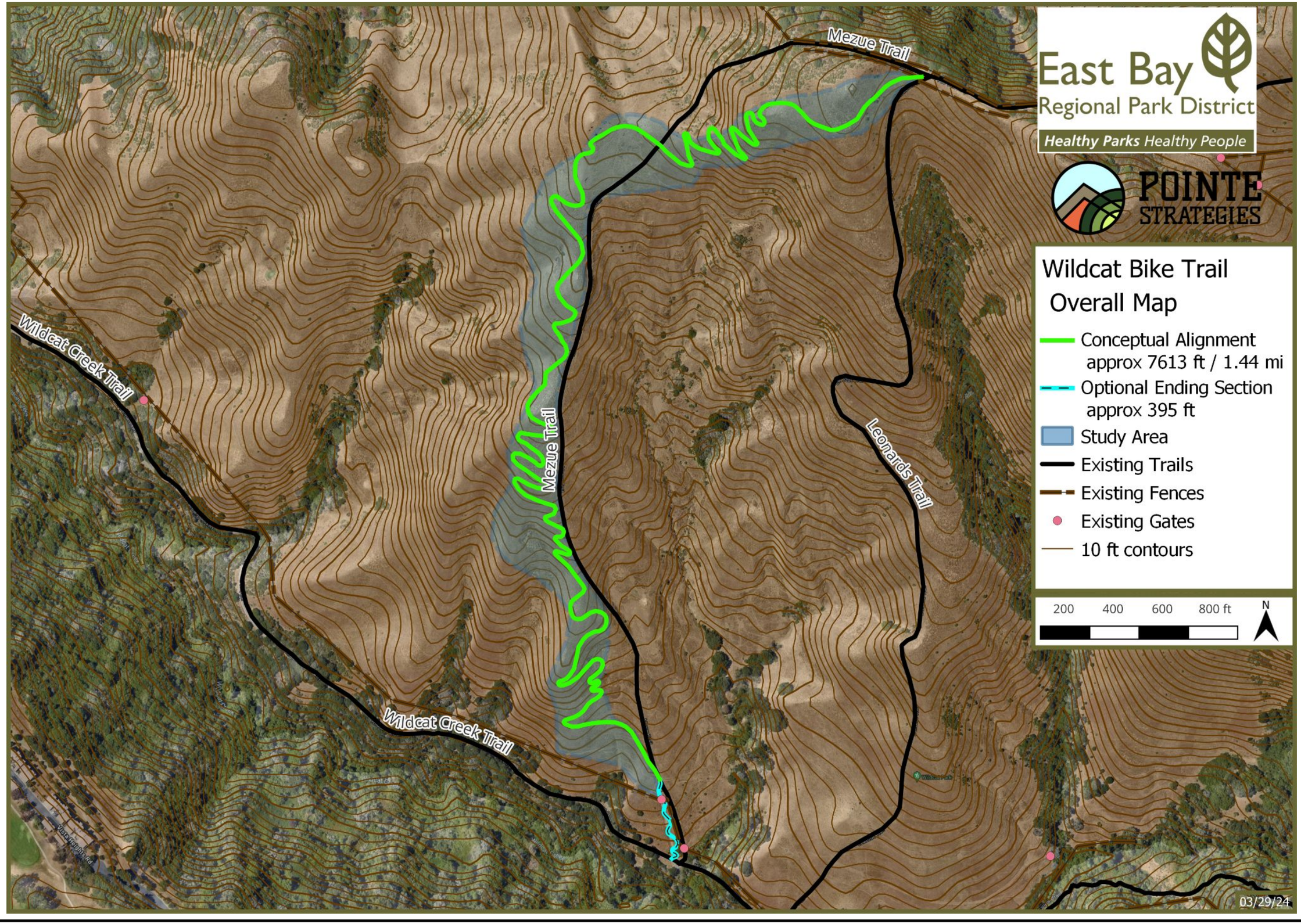
CIRCULATION MAP

SHEET NUMBER

SP-2



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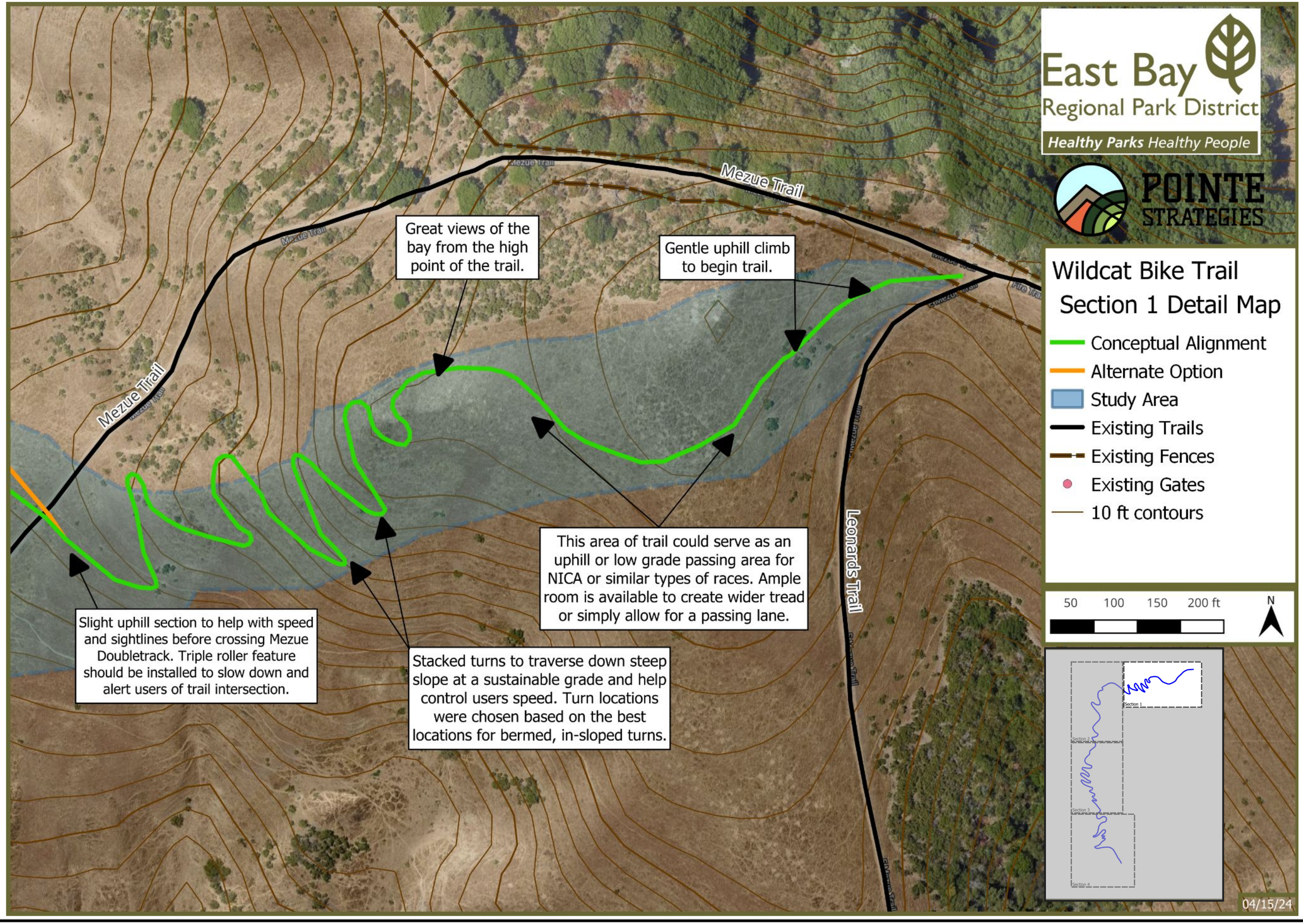
RICHMOND, CALIFORNIA

OVERALL MAP

SHEET NUMBER
TM-1
5 of 32



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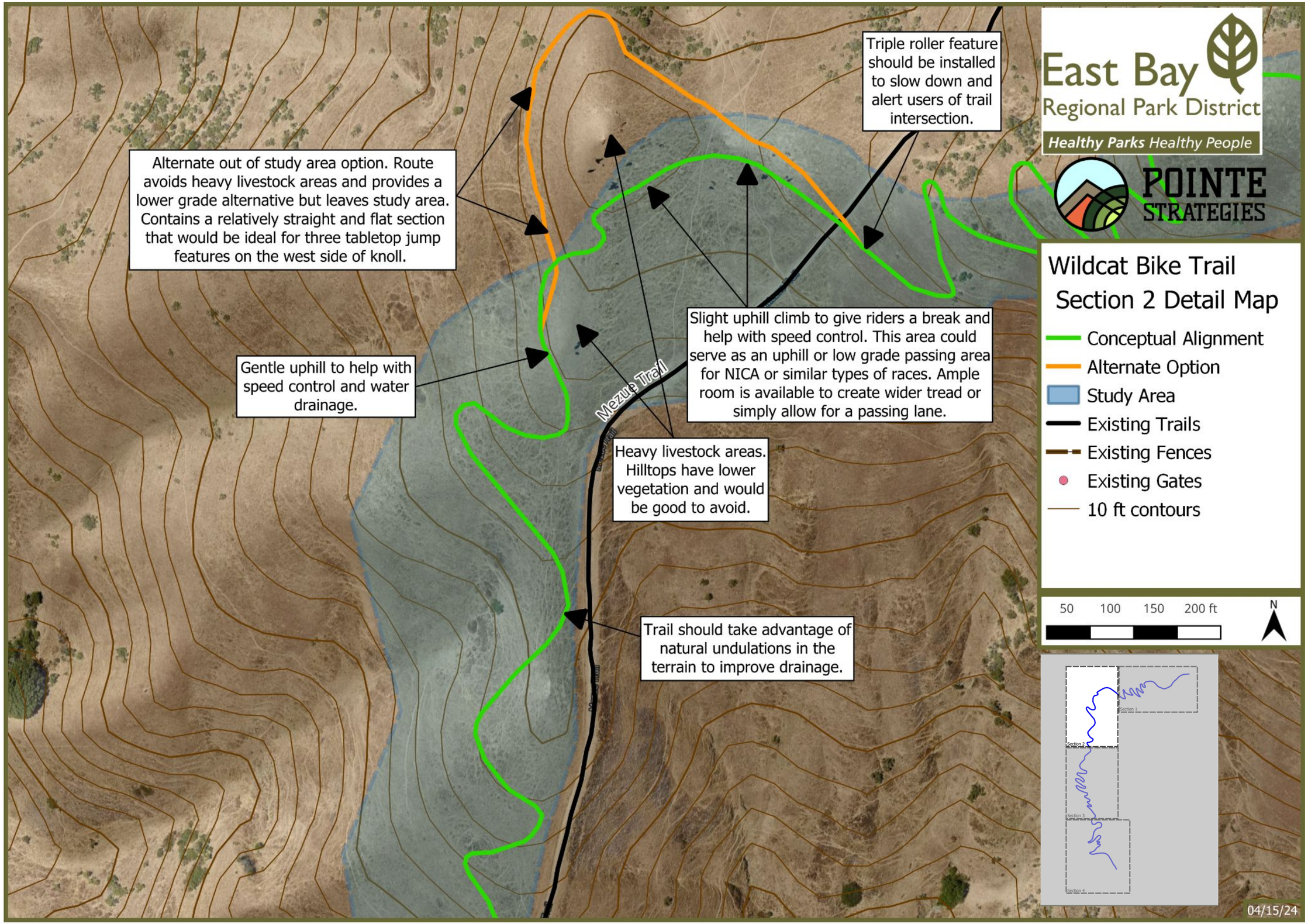
SECTION 1
DETAIL MAP

SHEET NUMBER
TM-2
6 of 32



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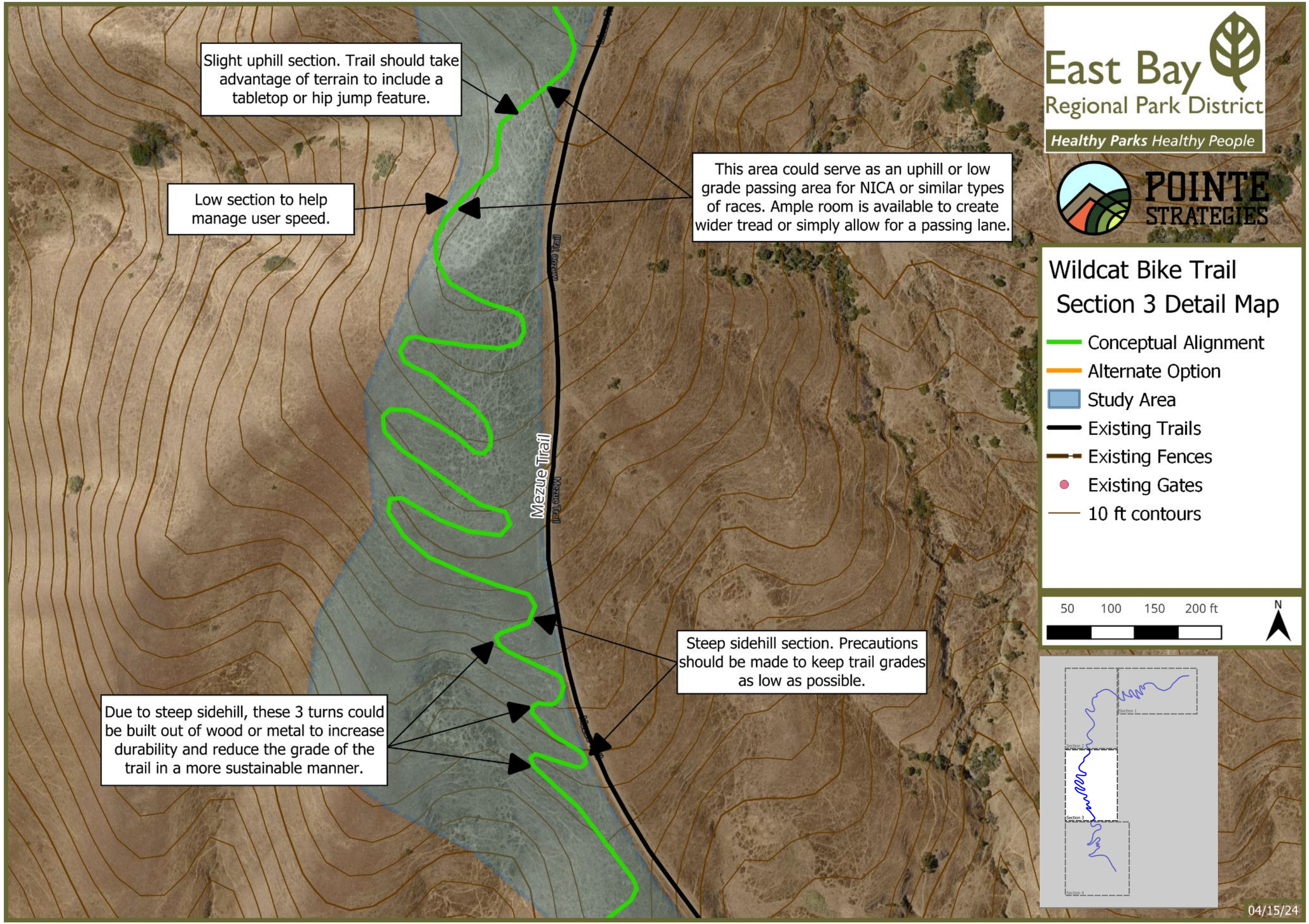
SECTION 2
DETAIL MAP

SHEET NUMBER
TM-3



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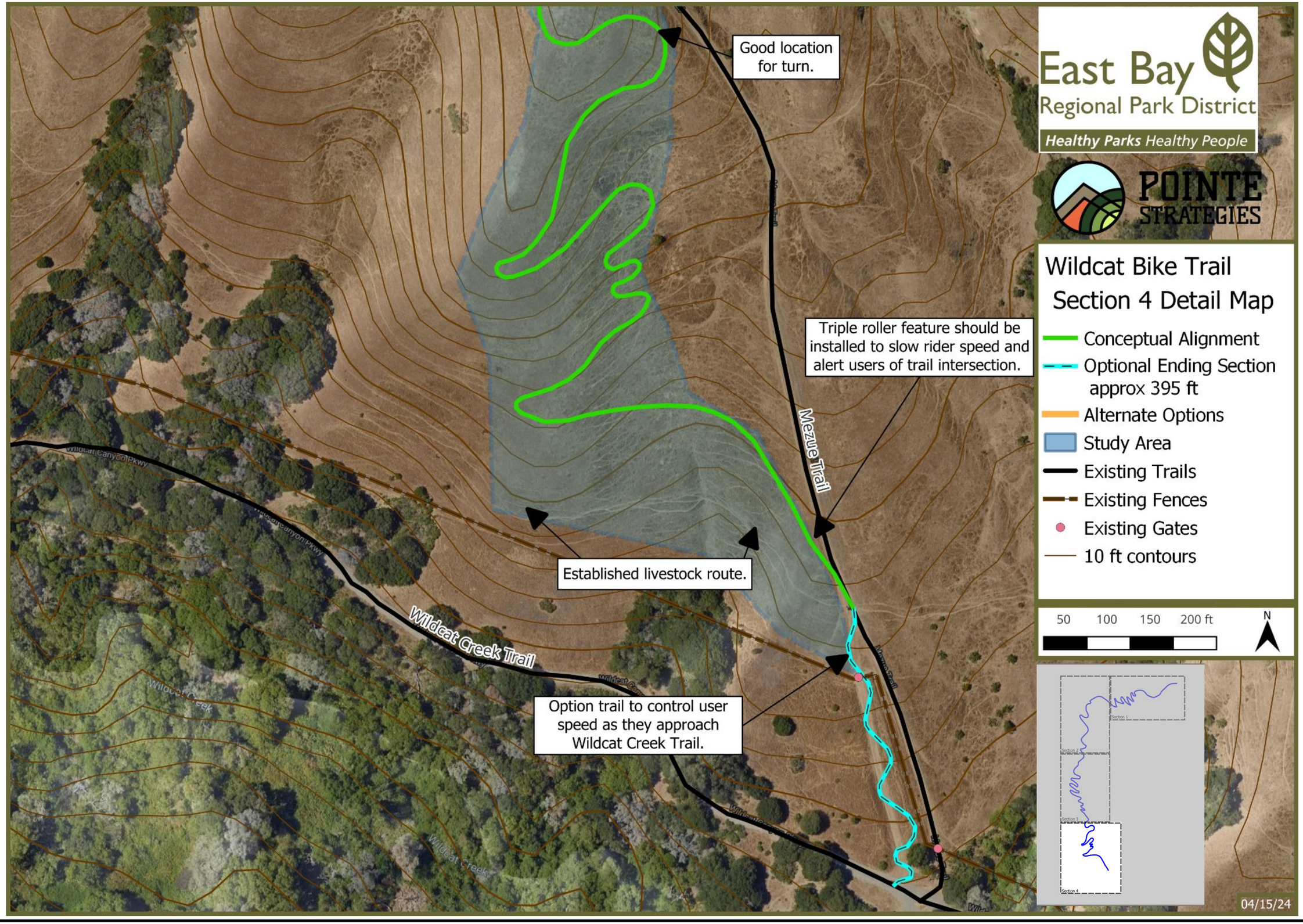
SECTION 3
DETAIL MAP

SHEET NUMBER

TM-4



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POINTE STRATEGIES

Wildcat Bike Trail Section 4 Detail Map

- Conceptual Alignment
- Optional Ending Section approx 395 ft
- Alternate Options
- Study Area
- Existing Trails
- Existing Fences
- Existing Gates
- 10 ft contours

50 100 150 200 ft

N

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SECTION 4
DETAIL MAP

SHEET NUMBER

TM-5

Feature Construction Notes

1. Conceptual trail alignment is diagrammatic and may not reflect an exact final alignment for each trail feature. All trail and feature locations are approximate and subject to on-site placement by selected Contractor.

2. Trail features (rollers, berms, jumps, etc.) shown are diagrammatic and may not reflect exact alignment, location, or dimension of each feature. The selected contractor shall determine the final location and dimension of each feature based upon final trail alignment, slope, trail flow, character and difficulty with final approval of the Owner's Representative.

3. All construction shall comply with the specifications, drawings, requirements, and design intended in the construction documents. Minor field modifications are expected to field fit features and ensure proper flow. However, deviations from construction documents shall be presented by the contractor to the Owner's Representative for approval in writing.

4. Alternate trail options and 'b lines' may be added after the trail is flagged and opportunities for such present themselves. These alternate lines must be approved by the land manager, must follow standard design guidelines, and may not impede the intended use of the main trail. The trail builder shall work with the land manager to determine the location and frequency of these options. All alternate trail options shall be field tested to ensure proper functionality.

5. Contractor is responsible to coordinate delivery, assembly and installation of all materials and furnishings per manufacturer's instructions.

6. Contractor shall designate an experienced Test Rider with expert knowledge of the intended experience to oversee construction of this project. This Test Rider shall thoroughly test ride to ensure the specified riding experience, design, flow, rhythm, character, difficulty, and specifications are met.

7. Imported boulder and rock materials shall be consistent with or match onsite materials. To be approved by Owner's Representative.

8. Trail should be constructed in a progressive nature. In the beginning, the rollers, berms and features should be small and approachable by all users. At the end of the trail, the features should be larger and the most challenging of the trail. This approach allows users to gain comfort and confidence as they travel down the trail. This also helps control the user's speed as they progress down the trail.

9. All trail features should be 'rollable' or able to be ridden without users tires being required to leave the ground. If a feature does require the user to leave the ground, then this feature must be an optional or alternate line and signed accordingly.

10. All bermed turns should have a roller and drain installed directly before and after berm. These rollers must force collected water off of the trail. These roller and drain features also allow users a very slight uphill portion of trail tread to reduce speed to help reduce brake bumps and alert user of a feature.

11. Undulations in the tread surface should be present to create an enhanced user experience and provide adequate, frequent drainage of the trail surface. The up/down and left/right nature of a properly built trail should create a weighting/unweighted feeling similar to a rollercoaster or downhill skiing.

12. The spacing and frequency of features should correspond with the desired trail experience; for an easier trail, features should be smaller in overall size and be spaced further apart allowing users time to prepare for and recover from each feature. For a more challenging trail, features should be larger, frequent, and can be spaced closer together, creating a trail that has very little 'flat' or 'straight' portions.

13. The spacing and frequency of features can also be used to dictate user speed. Features should be used to help slow users down before trail intersections and before bermed turns to help alleviate braking bumps.

14. At any crossing locations, the bike trail should be slightly uphill to slow users down before the crossing. Three roller features should also be installed in succession before the trail crosses to slow users down and alert them of the crossing. This is speed management feature, no less than three rollers should be installed so users cannot mistake for a jump feature.

15. At the end of the trail, before it merges into the Mezue Trail, three roller features should be installed in succession before the trail merge to slow users down and alert them of the crossing. No less than three should be installed so users do not mistake this for a double feature.

16. Any on site rock that can be sourced should be used. If adequate rock is not available on site, rock from a quarry or offsite location will be needed to be brought in. All rock features in the trail tread shall use at least Two Man (200 - 700 lb, 18" - 28") sized rocks with Three Man (700-2,000 lb, 28"-36") sized rocks being ideal for larger rock features to insure durability and stability.

17. Soft surface features should be concentrated to fenced in areas to help protect dirt work from livestock. Hard surface features are acceptable anywhere throughout the trail.

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FEATURE CON NOTES

SHEET NUMBER
FN-1

Soft Surface Bike-Optimized Trail Features

Roller: A trail feature in which the trail tread rises and lowers gradually with no defined lip, takeoff, or landing. For beginner users this is a feature to help teach a 'pumping' motion to create speed without pedaling. Feature can be used as a reversal in grade to be a drainage technique to force water off the trail. Feature is also an effective speed measure to slow and alert users of an intersection or direction change by creating a roller that is taller than longer.
Difficulty rating: Beginner to Intermediate depending on size.
Spacing Guidelines: Feature can be placed most anywhere with few spacing restrictions. It can be spaced 50-100' to increase drainage or add ungulations to a particular section of trail, 10-25' to create more vertical texture for user enjoyment, or be placed in quick succession to help slow down users.
Price: $

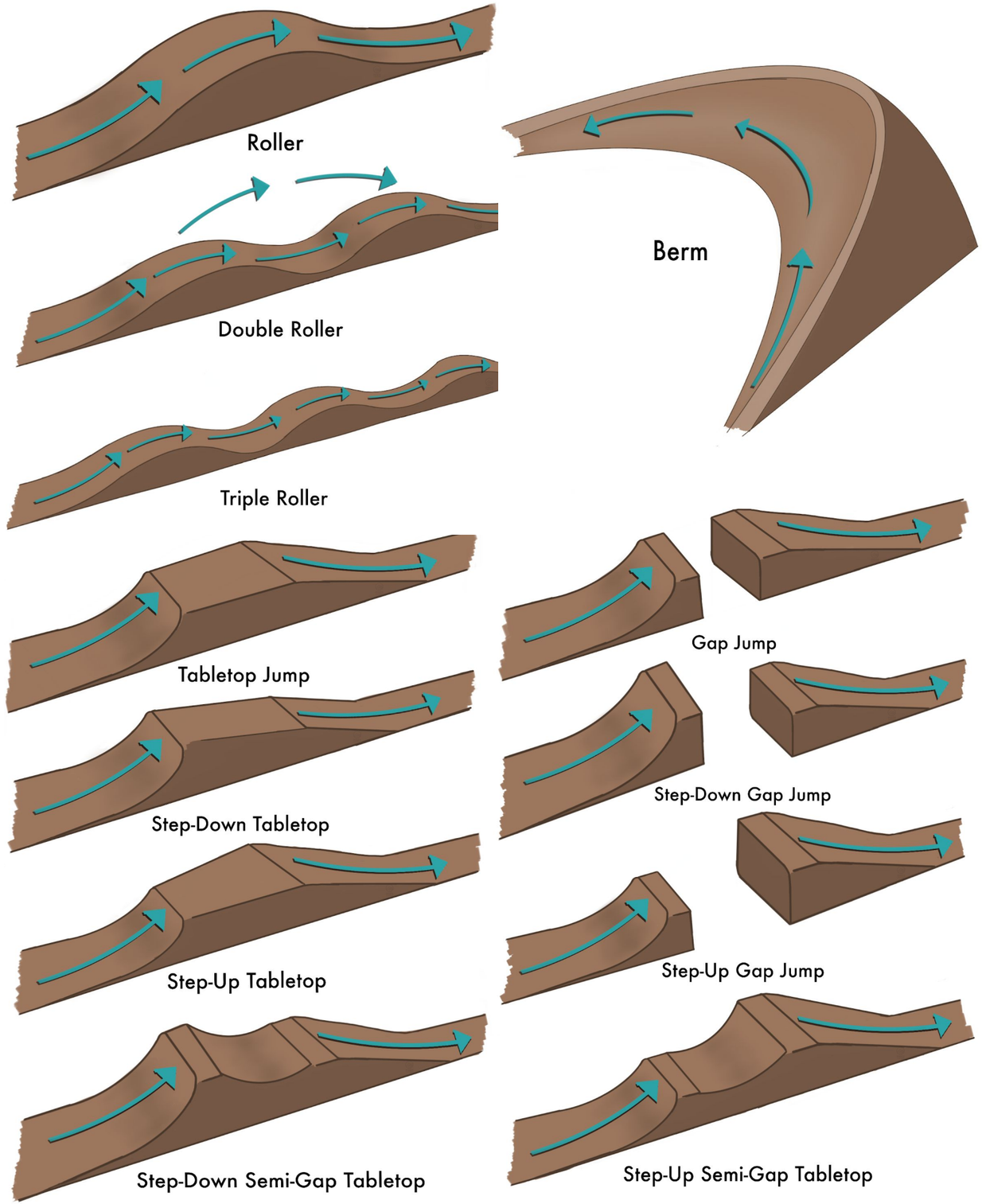
Tabletop Jump: A jump feature that has a defined lip or takeoff and defined landing with a flat surface connecting the two allowing users to ride across the feature without their tires leaving the ground. This feature allows beginner users to ride the trail within their comfort level but promotes progression for frequent users. Advanced users will find this feature exciting and will generally leave the ground to clear the flat section on top.
Difficulty rating: Beginner to Advanced depending on size.
Spacing Guidelines: Adequate space must be left both before and after a feature to allow users time to prepare for the jump and readjust after the jump. Depending on the size of the feature, beginner sized tabletops should have spacing of roughly 15-30', intermediate should be spaced 25'-50' apart and advanced can range from 30-100' depending on the terrain and level of difficulty.
Price: $-$$$

Double or Gap Jump: A jump feature that has a defined lip or takeoff and defined landing but no ridable surface connecting the two. This feature has a mandatory gap that users must clear in order to avoid crashing. This is considered an advanced feature and should only be incorporated into advanced trails.
Difficulty rating: Advanced to Expert.
Spacing Guidelines: Adequate space must be left both before and after a feature to allow users time to prepare for the jump and readjust after the jump. Depending on the size of the feature and gap, spacing can range from 30-100' depending on the terrain and level of difficulty.
Price: $-$$

Step-down Jump: A jump feature in which the landing is lower than the lip or takeoff. This feature can be used to generate speed where needed. This feature can be built in a tabletop or gap jump style, with the tabletop style being more appropriate for most trails and the gap jump style being only appropriate for advanced trails.
Difficulty rating: Intermediate to Advanced depending on size.
Spacing Guidelines: Adequate space must be left both before and after a feature to allow users time to prepare for the jump and readjust after the jump. Depending on the size of the feature, intermediate rated features should be spaced 25'-50' apart and advanced can range from 30-100' depending on the terrain and level of difficulty.
Price: $-$$$

Step-up Jump: A jump feature in which the landing is higher than the lip or takeoff. This feature is generally used to slow users down where needed. This feature can be built in a tabletop or gap jump style, with the tabletop style being more appropriate for most trails and the gap jump style being only appropriate for advanced trails.
Difficulty rating: Intermediate to Advanced depending on size.
Spacing Guidelines: Adequate space must be left both before and after a feature to allow users time to prepare for the jump and readjust after the jump. Depending on the size of the feature, intermediate rated features should be spaced 25'-50' apart and advanced can range from 30-100' depending on the terrain and level of difficulty.
Price: $-$$$

Berm: An trail feature designed to keep a user's speed through a turn and provide a change of direction by using a built up in-sloped tread surface. Bike optimized berms typically are located where a trail is changing direction for more than 90°, with most features carrying users thru a complete 180° change of direction. Typically soil is built up above ground to achieve this feature, but the natural terrain may provide opportunity for partial or fully natural berms in ideal conditions. An in-sloped turn may become a bermed turn with use over time.
Difficulty rating: Beginner to Advanced depending on size.
Spacing Guidelines: Given the special use case of this feature, berms should be placed anywhere the trail turns more than 90°. Spacing therefore coincides with trail design and no spacing requirements are necessary. Two berms can be built in succession creating a feature called a chicane.
Price: $-$$$



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RICHMOND, CALIFORNIA

SOFT SURFACE FEATURES

SHEET NUMBER
FO-1

Hard Surface Bike-Optimized Trail Features

Prefabricated Features

Roller: A prefab feature in which you can rollover the feature and accelerate through it. It can also serve as a small jump for more advanced users. The feature is similar to the soft surface version and does not have a defined lip, takeoff, or landing. For beginner users this is a feature to help teach a 'pumping' motion to create speed without pedaling.
Difficulty rating: Beginner to Intermediate depending on size.
Spacing Guidelines: Feature can be placed most anywhere with few spacing restrictions. It can be spaced 50-100' to add ungulation to a particular section of trail, 10-25' to create more vertical texture for user enjoyment, or be placed in quick succession to help slow down users.
Dimensions: 2' H x 18.7' L x 36" W
Price: $2,507.78 - tax, shipping, and installation not included.

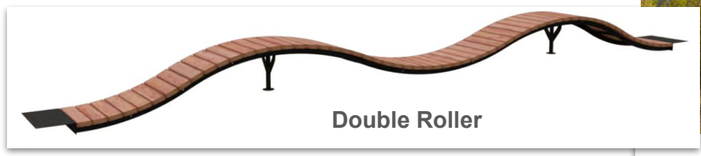

Roller

A-Frame: A prefab feature in which you can rollover the feature and can also serve as a small jump for more advanced users. The feature is similar to the prefab Roller feature but does have a more defined lip, takeoff, and landing.
Difficulty rating: Beginner to intermediate depending on size.
Spacing Guidelines: Feature has relatively low spacing restrictions. It can be spaced 50-100' to add ungulation to a particular section of trail, 10-25' to create more vertical texture for user enjoyment, or be placed in quick succession to help slow down users.
Dimensions: 2' H x 19' L x 36" W
Price: $2,185.00 - tax, shipping, and installation not included.


A-Frame

Straight Ladder: A prefab feature in which you can ride over the feature and may serve as a jump for advanced users. The feature is similar to a Tabletop soft surface feature and does have a defined takeoff, top, and landing.
Difficulty rating: Beginner to Intermediate depending on size.
Spacing Guidelines: Adequate space must be left both before and after a feature to allow users time to prepare for the feature and readjust after. Straight Ladder feature should be spaced roughly 25'-50' from other features other than Rollers, which can be spaced 10-25' if necessary.
Dimensions: 2' H x 22.8' L x 36" W
Price: $2,895.24 - tax, shipping, and installation not included.


Straight Ladder


Double Roller

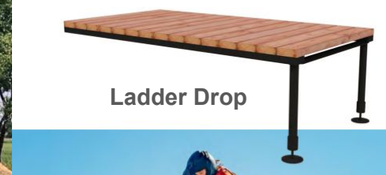
Rollable Sender: A prefab version of a tabletop soft surface feature. This feature that has a defined lip or takeoff and defined landing with a flat surface connecting the two allowing users to ride across the feature without their tires leaving the ground. This feature allows beginner users to ride the trail within their comfort level but promotes progression for frequent users. Advanced users will generally leave the ground to clear the flat section on top.
Difficulty rating: Beginner to Advanced depending on size.
Spacing Guidelines: Adequate space must be left both before and after a feature to allow users time to prepare for the jump and readjust after the jump. Depending on the size of the feature, beginner sized tabletops should have spacing of roughly 15-30', intermediate should be spaced 25'-50' apart and advanced can range from 30-100' depending on the terrain and level of difficulty.
Dimensions: 2' H x 17.8' L x 48" W, 3' H x 21.5' L x 48" W, or 4' H x 28' L x 48" W
Price: 2ft H - $3,525.10, 3ft H - $4,602.06, 4ft H - $6,242.48 - tax, shipping, and installation not included.


Rollable Sender

Kicker Ramp: When paired with a dirt or prefabricated landing, this is a hard surface version of a Double or Gap Jump soft surface feature. This a jump feature that has a defined lip or takeoff and defined landing but no ridable surface connecting the two. This feature has a mandatory gap that users must clear in order to avoid crashing. This is considered an advanced feature and should only be incorporated into advanced trails.
Difficulty rating: Advanced to Expert
Spacing Guidelines: Adequate space must be left both before and after a feature to allow users time to prepare for the jump and readjust after the jump. Depending on the size of the feature and gap, spacing can range from 30-100' depending on the terrain and level of difficulty.
Dimensions: 3' H x 8.3' L x 48" W, 4' H x8.3' L x 48" W, or 5' H x 8.9' L x 48" W
Price: 3ft H - $2,208.04, 4ft H - $2,715.52, 5ft H - $3,164.80 - tax, shipping, and installation not included.


Kicker Ramp

Ladder Drop: When paired with a dirt or prefabricated landing, this becomes a constructed drop feature to replicate what users may find on an intermediate or advanced singletrack trail. This feature requires users to lift up the front wheel of the bike to prepare for landing after 'dropping' off of the ladder. The height of the drop can be adjusted to relatively any height for full customization.
Difficulty rating: Intermediate to Expert depending on height of drop.
Spacing Guidelines: Adequate space must be left both before and after a feature to allow users time to prepare for the drop and readjust after the drop. Depending on the size of the drop, spacing can range from 20-75'.
Dimensions: 1' to 8' H x 8' L x 36" W
Price: 1ft H - $1,208.04, 5ft H - $3,164.80 - tax, shipping, and installation not included.



Ladder Drop

Berm Turn: A prefabricated hard surface version on a Berm. This is a feature designed to keep a user's speed through a turn and provide a change of direction by using a built up curved tread surface. The feature is available in 45° sections, four sections can be put together to complete a 180° change of direction. This feature can be used to create a durable turn for areas where an excessive amount of material may be needed to ensure a durable soft surface turn.
Difficulty rating: Beginner to Intermediate.
Spacing Guidelines: Given the special use case of this feature, berms should be placed anywhere the trail turns more than 90 degrees. Spacing therefore coincides with trail design and no spacing requirements are necessary. Two berms can be built in succession creating a feature called a chicane.
Dimensions: 180° section 3' H x 34'-4" L x 17'-3" W
Price: $18,481.00 - tax, shipping, and installation not included.


Berm Turn

All features spec'd from

Progressive Bike Ramps
601 S. McKinley Ave.
Joplin, MO 64801
855-727-7267
www.progressivebikeramps.com

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WILDCAT BIKE TRAIL
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HARD SURFACE PREFAB FEATURES

SHEET NUMBER
FO-2
12 of 32

Hard Surface Bike-Optimized Trail Features

Rock Features

Rock Roller: A trail feature that can be constructed using a large semi smooth rock to mimic a soft or hard surface Roller feature. Construction consists of a medium to large size rock(s) with at least ⅓ of the rock(s) buried in the ground, oriented in a fashion that allows users to roll over it in a generally smooth manner creating undulations in the terrain. For beginner users this is a feature to help teach a 'pumping' motion to create speed without pedaling and help with body positioning while navigating rock features. This feature may also serve as a jump or drop for more advanced users depending on construction.
Difficulty rating: Beginner to Intermediate depending on size.
Spacing Guidelines: Feature can be placed most anywhere with few spacing restrictions. It can be spaced 50-100' to add ungulation to a particular section of trail, 10-25' to create more vertical texture for user enjoyment, or be placed in quick succession to help slow down users.

Rock Armoring: A series of medium to large sized rocks placed in a fashion to create a protected section of trail that can test users skills or protect sensitive sections of trails. Rocks should to be constructed in a relatively smooth fashion for trail tread, rocks can still create a challenging riding surface but the goal of this feature is to protect steep grades or pour trail conditions. This type of feature would be ideal for sections of trail with heavy livestock activity or where user speed is creating brake bumps to protect trail tread.
Difficulty rating: Beginner to Intermediate depending on size.
Spacing Guidelines: Feature can be placed most anywhere with few spacing restrictions. Adequate space should be left both before and after rock armoring to allow users time to prepare for and readjust after the feature. Depending on the length and smoothness of the aromoring, spacing can range from 5-25' depending on the terrain and level of difficulty.

Rock Garden: A series of medium to large sized rocks placed in a fashion to create a challenging section of trail to test users skills, slow user speed, or protect sensitive sections of trails. Rocks do not need to be constructed in a smooth fashion for trail tread, rocks should create a challenging trail tread but still allow users to pass over without stopping. This type of feature would be ideal for sections of trail with heavy livestock activity to protect trail tread.
Difficulty rating: Beginner to Advanced depending on construction.
Spacing Guidelines: Feature can be placed most anywhere with few spacing restrictions. Adequate space should be left both before and after a rock garden to allow users time to prepare for and readjust after the feature. Depending on the length and smoothness of the rock garden, spacing can range from 10-50' depending on the terrain and level of difficulty.

Rock Kicker Ramp: When paired with a dirt or prefabricated landing, this is a rock version of a Double or Gap Jump soft surface feature. This a jump feature that uses a large rock to create a defined lip or takeoff allowing users to leave the ground and land further down the trail. There is generally no ridable surface connecting the takeoff and the landing, but one can be made to mimic more of a tabletop style jump feature. These types of feature can be used on the side of the trail to create an more advanced option while not impacting the main trail tread.
Difficulty rating: Intermediate to Expert
Spacing Guidelines: Adequate space must be left both before and after a feature to allow users time to prepare for the jump and readjust after the jump. Depending on the size of the feature and gap, spacing can range from 20-50' depending on the terrain and level of difficulty.

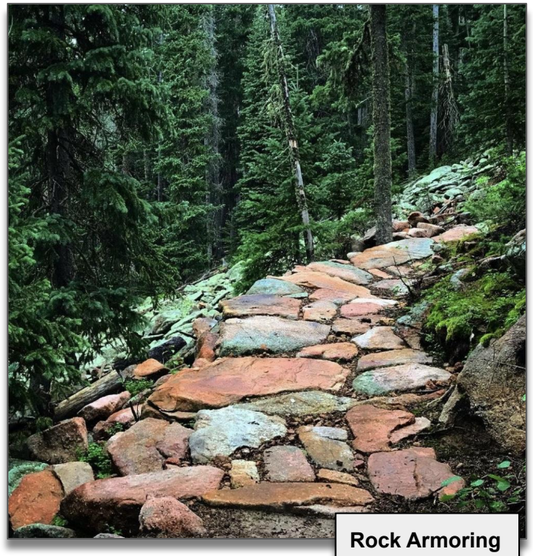
Rock Drop: When paired with a dirt or prefabricated landing, this becomes a constructed drop feature to replicate what users may find on an intermediate or advanced singletrack trail. This feature requires users to lift up the front wheel of the bike to prepare for landing after 'dropping' off of the large rock. The height of the drop can be adjusted to relatively any height for full customization. These types of feature can be used on the side of the trail to create an more advanced option while not impacting the main trail tread.
Difficulty rating: Intermediate to Expert depending on height of drop.
Spacing Guidelines: Adequate space must be left both before and after a feature to allow users time to prepare for the drop and readjust after the drop. Depending on the size of the drop, spacing can range from 20-75'.

Rock Berm: This feature is typical constructed mostly of soil and then capped or finished with large flat rocks to help increase the durability of the berm. The large flat rocks should follow rock armoring guidelines and allow users to ride across the surface relatively smoothly. This type of feature is typical constructed in locations with poor soil conditions, steep grades, or where user speed is creating brake bumps in turn. If the terrain and materials allow, the berm can be built entirely with rock as well. This goal of this feature is to keep a user's speed through a turn and provide a change of direction by using a built up curved tread surface.
Difficulty rating: Beginner to Intermediate.
Spacing Guidelines: Given the special use case of this feature, berms should be placed anywhere the trail turns more than 90 degrees. Spacing therefore coincides with trail design and no spacing requirements are necessary. Two berms can be built in succession creating a feature called a chicane.


Rock Roller


Rock Kicker Ramp


Rock Garden


Rock Armoring


Rock Berm

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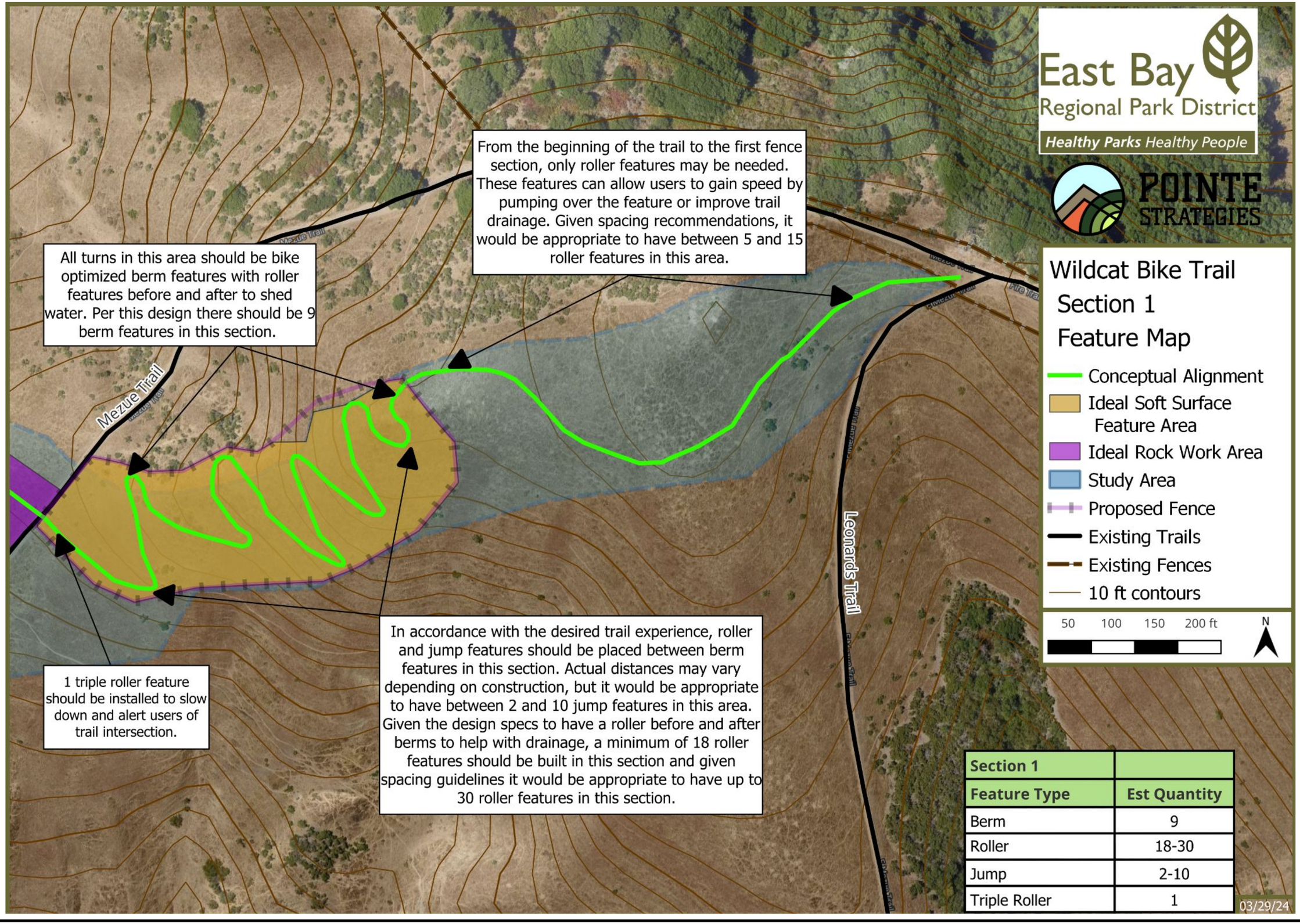
RICHMOND, CALIFORNIA

HARD SURFACE
ROCK FEATURES

SHEET NUMBER
FO-3
13 of 32



Section 1	
Feature Type	**Est Quantity**
Berm	9
Roller	18-30
Jump	2-10
Triple Roller	1

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FEATURE MAP 1

SHEET NUMBER
FM-1

High livestock usage in this area would make this area ideal for rock armoring or rock garden features to help protect trail tread. Actual distances may vary depending on construction, but it would be appropriate to have between 10 and 100 linear feat of rock work in this area.

The uphill nature of this section would not be suitable for jump features. Roller features may be used if desired but would not be necessary as high livestock usage may impact roller features.

Triple roller feature, see Section 1 for details.

Most turns in this area should be bike optimized berm features with roller features before and after to shed water. Per this design there should be at least 6 berm features in this section.

Roller and jump features should be placed between berm features in this section. Actual distances may vary depending on construction, but it would be appropriate to have between 3 and 8 jump features in this area. Given the design specs to have a roller before and after berms to help with drainage, a minimum of 12 roller features should be built in this section and given spacing guidelines it would be appropriate to have up to 35 roller features in this section.

Mezue Trail

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POINTE STRATEGIES

Wildcat Bike Trail Section 2 Feature Map

- Conceptual Alignment
- Ideal Soft Surface Feature Area
- Ideal Rock Work Area
- Study Area
- Proposed Fence
- Existing Trails
- Existing Fences
- 10 ft contours

50 100 150 200 ft

N

Section 2	
Feature Type	**Est Quantity**
Berm	6-7
Roller	12-35
Jump	3-8
Rock Work	10-100 LF

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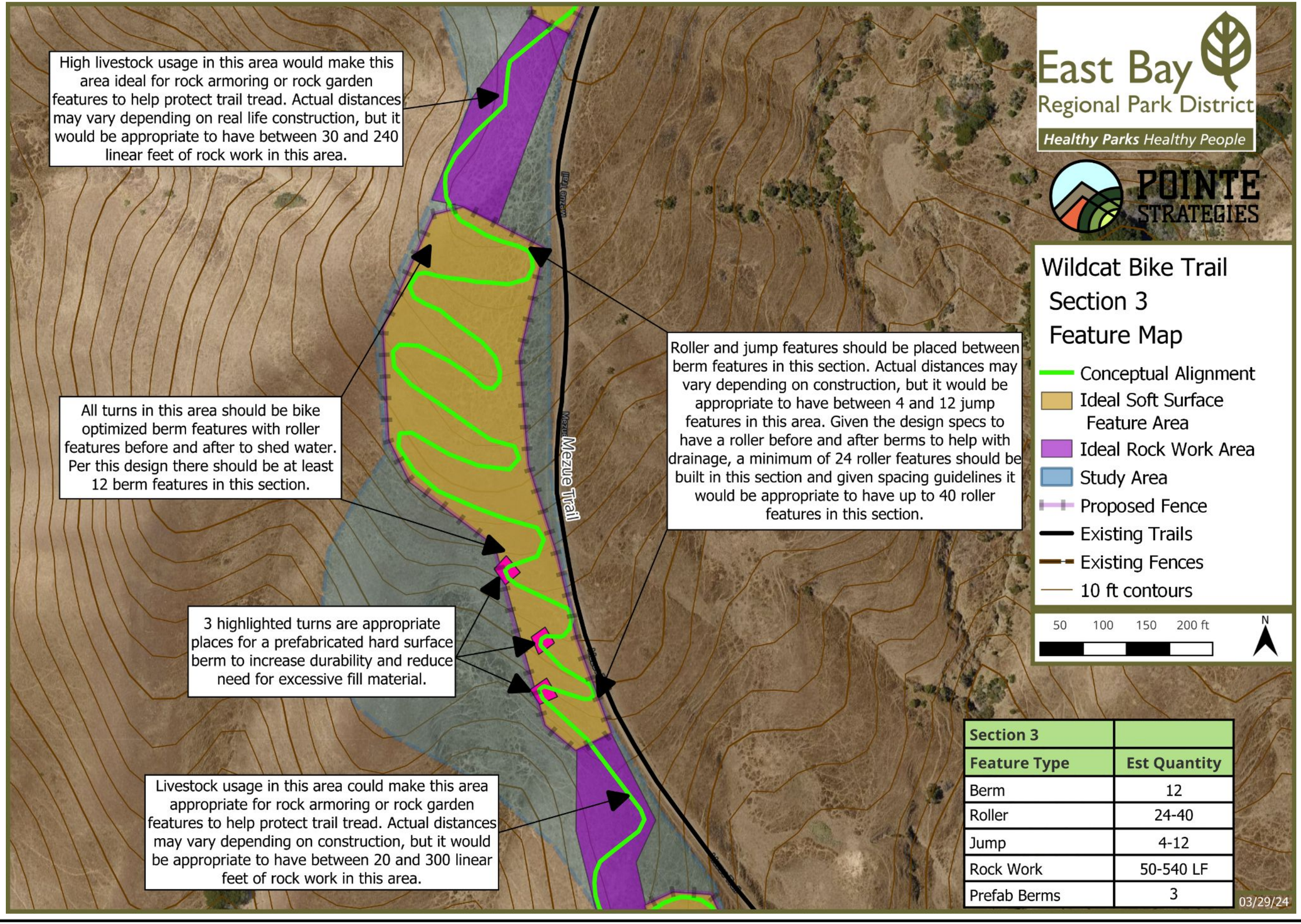
FEATURE MAP 2

SHEET NUMBER

FM-2



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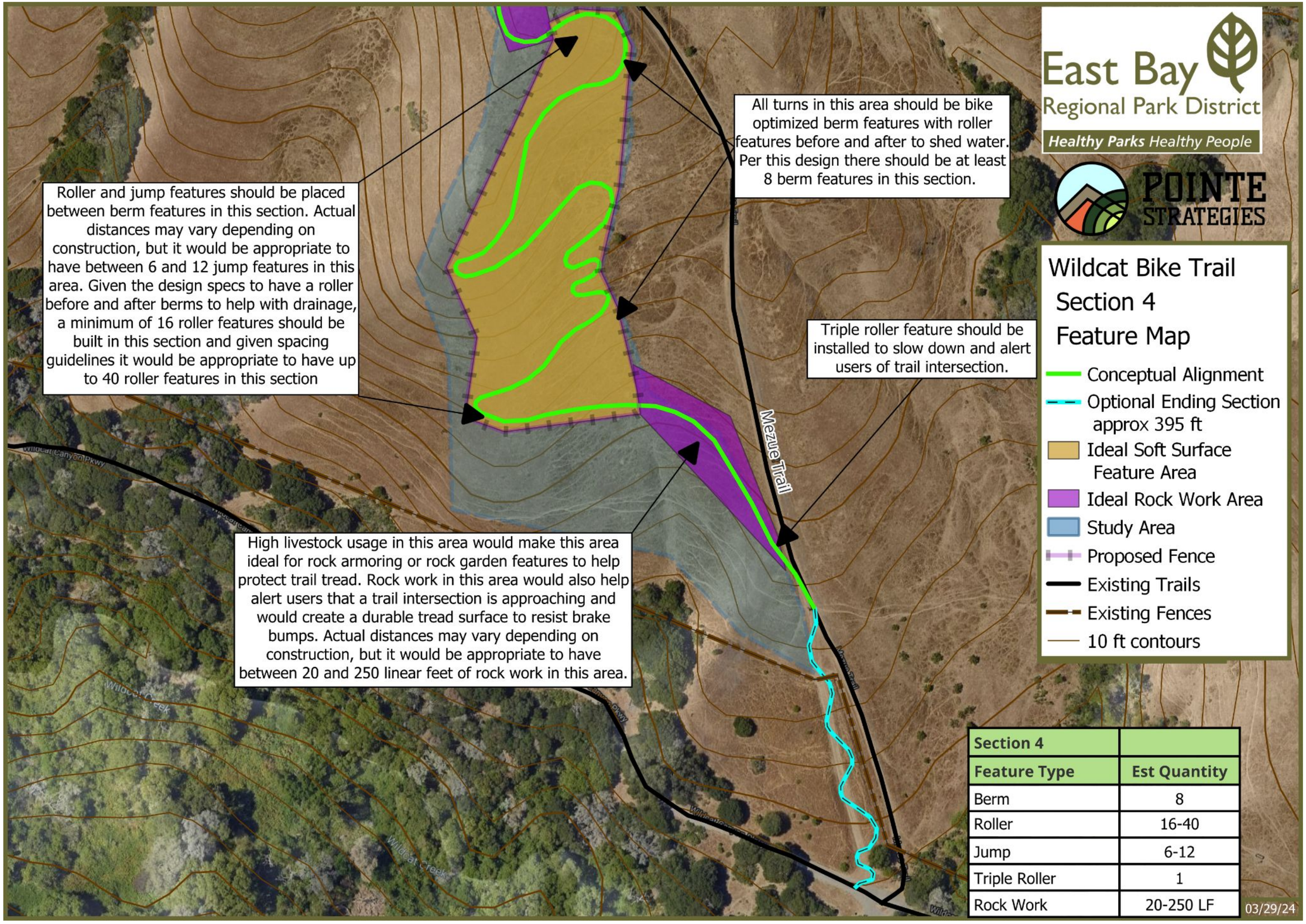
FEATURE MAP 3

SHEET NUMBER
FM-3
16 of 32



Section 4	
Feature Type	**Est Quantity**
Berm	8
Roller	16-40
Jump	6-12
Triple Roller	1
Rock Work	20-250 LF

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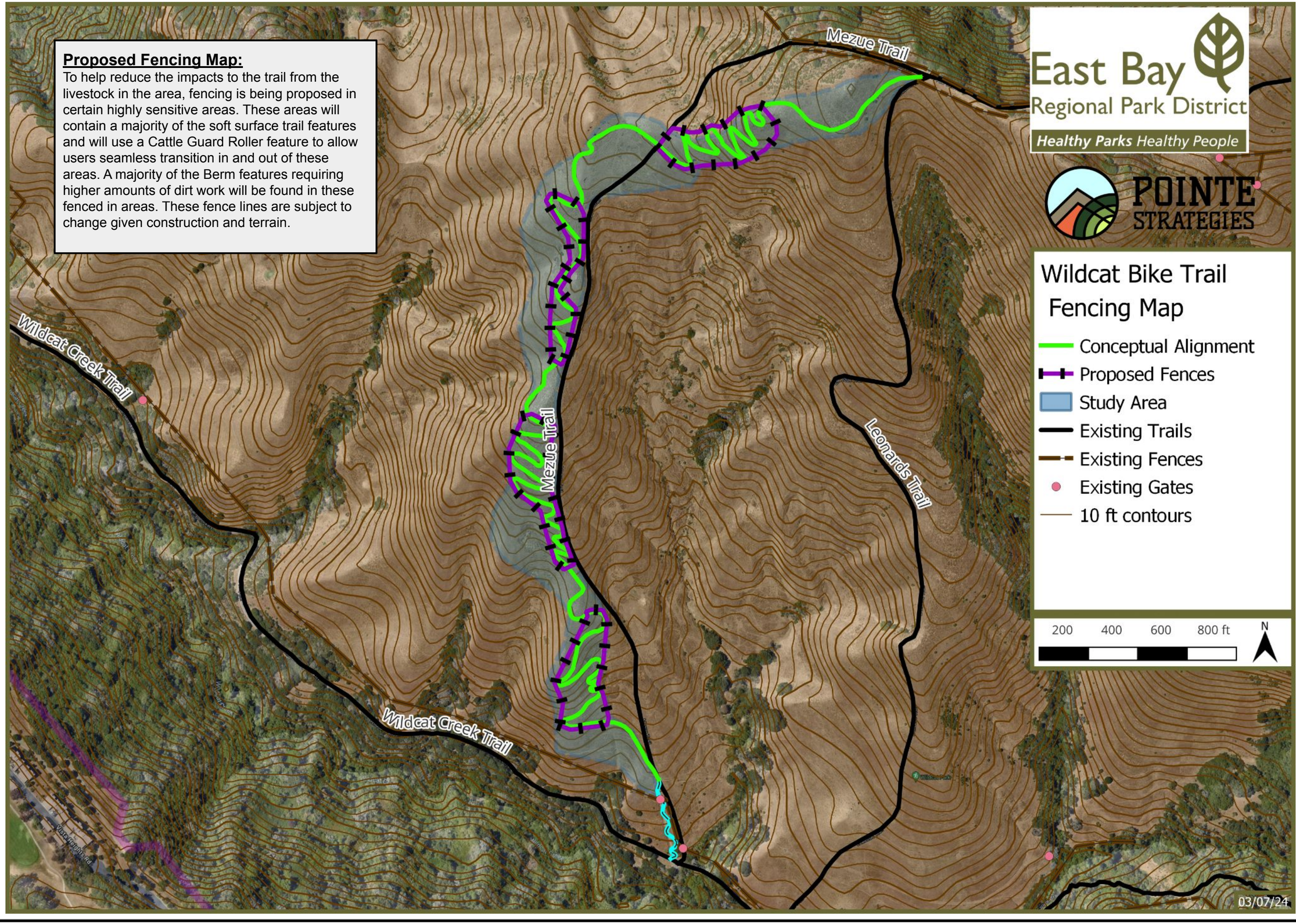
FEATURE MAP 4

SHEET NUMBER
FM-4
17 of 32

Proposed Fencing Map:

To help reduce the impacts to the trail from the livestock in the area, fencing is being proposed in certain highly sensitive areas. These areas will contain a majority of the soft surface trail features and will use a Cattle Guard Roller feature to allow users seamless transition in and out of these areas. A majority of the Berm features requiring higher amounts of dirt work will be found in these fenced in areas. These fence lines are subject to change given construction and terrain.



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POINTE STRATEGIES

Wildcat Bike Trail Fencing Map

- Conceptual Alignment
- Proposed Fences
- Study Area
- Existing Trails
- Existing Fences
- Existing Gates
- 10 ft contours

200 400 600 800 ft

N

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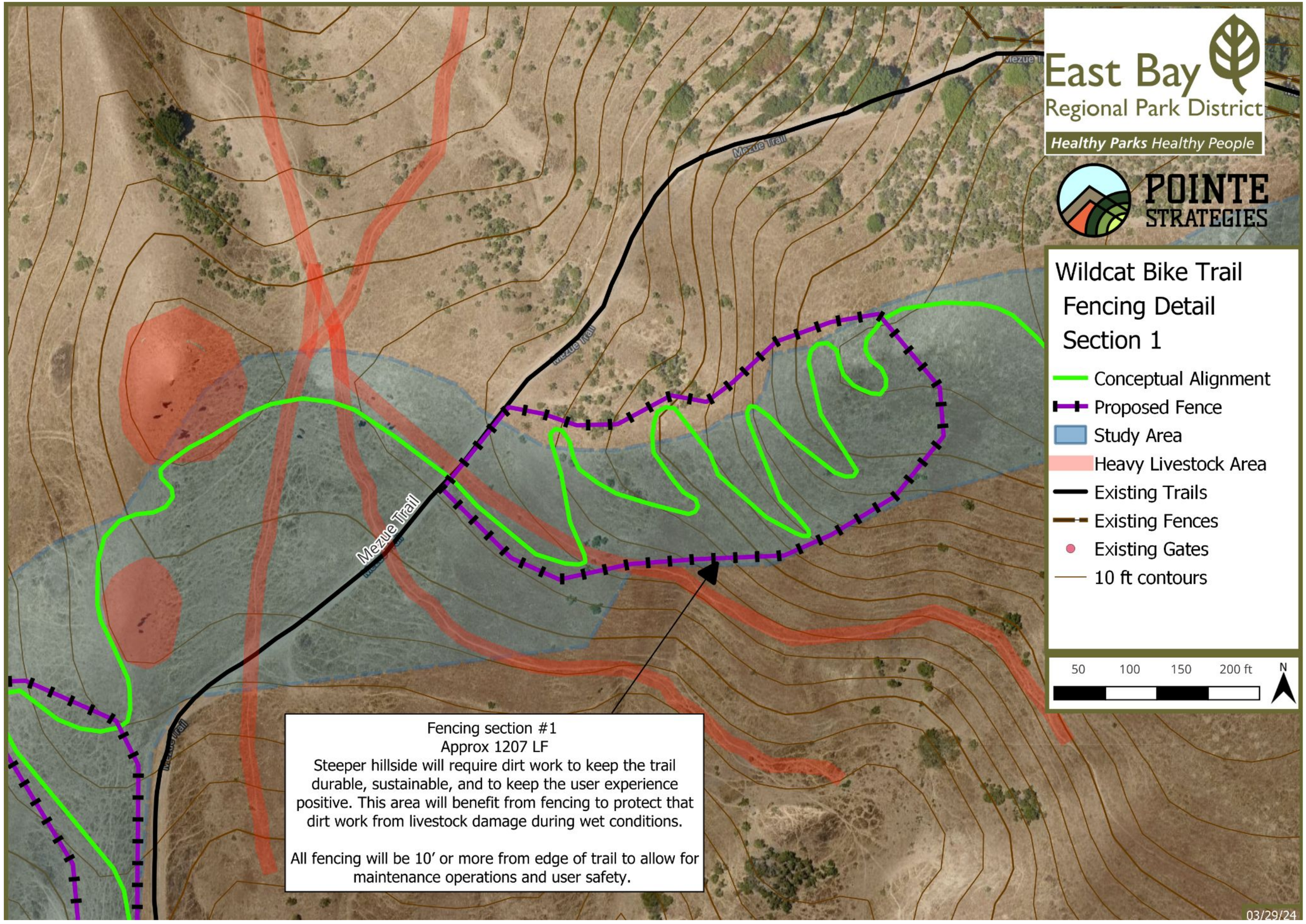
OVERALL FENCING PLAN

SHEET NUMBER

FP-1



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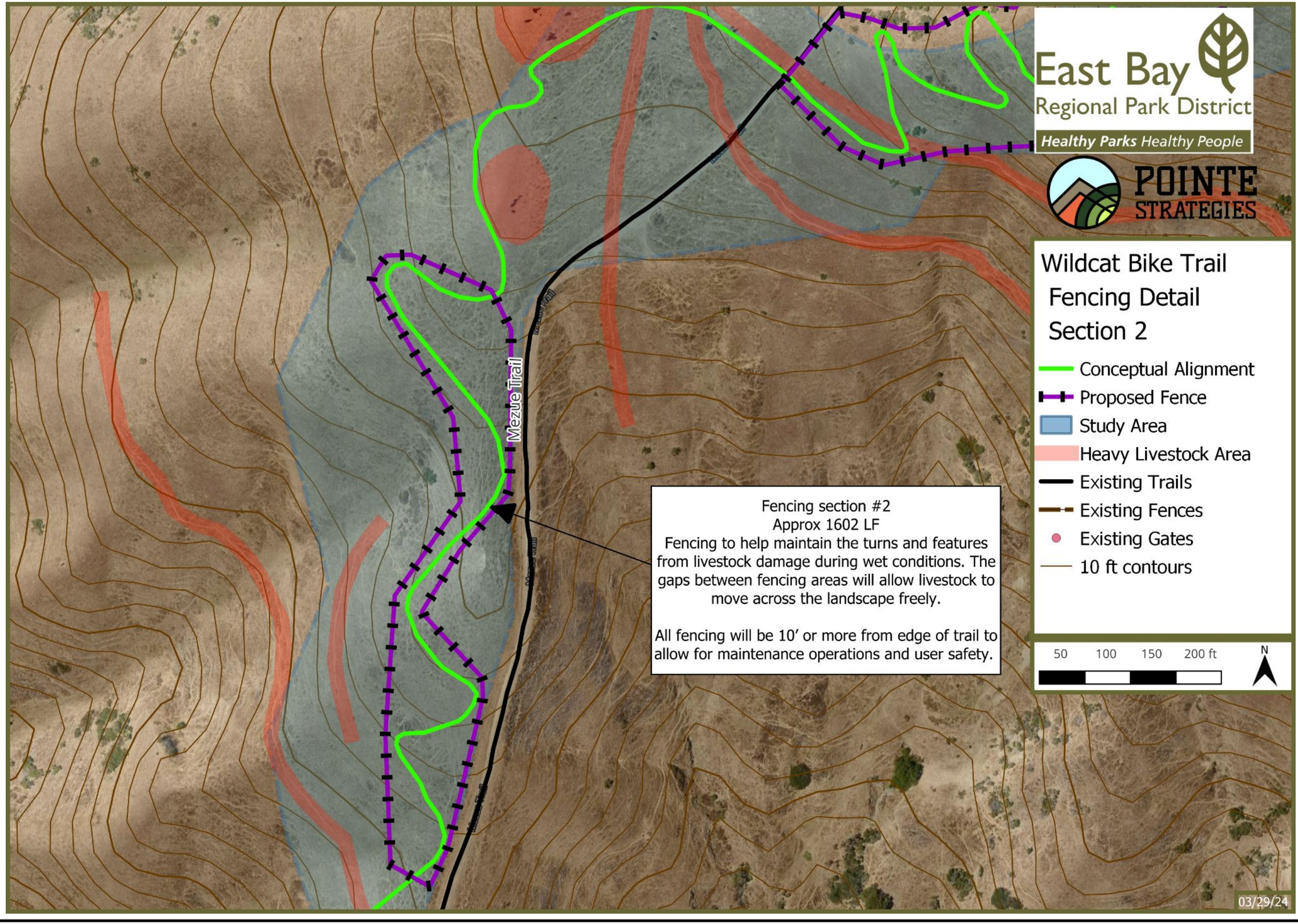
FENCING SECTION MAP 1

SHEET NUMBER

FP-2



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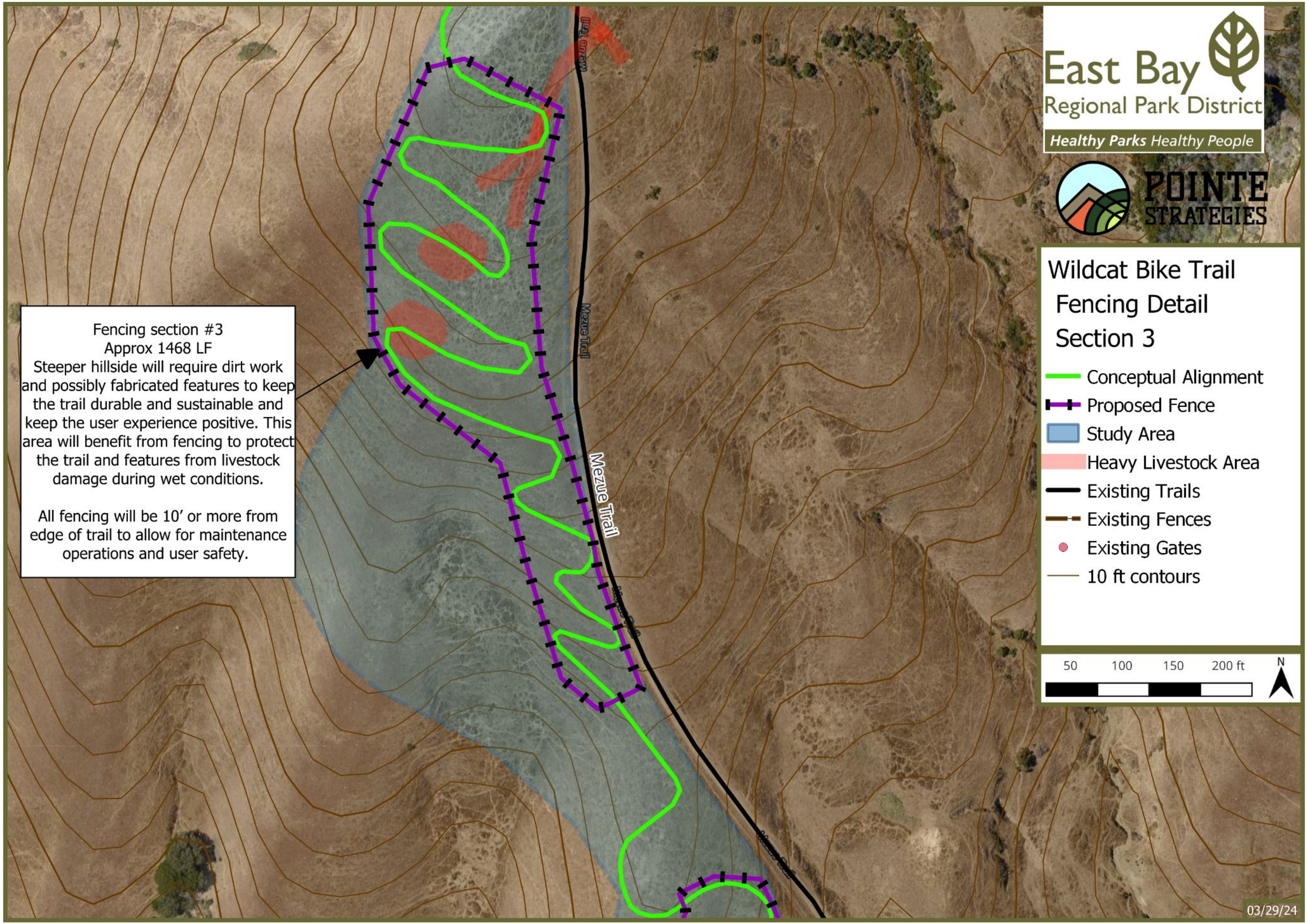
FENCING SECTION MAP 2

SHEET NUMBER
FP-3



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FENCING SECTION MAP 3

SHEET NUMBER
FP-4

Fencing section #4
Approx 1254 LF
Steeper hillside will require dirt work to keep the trail sustainable and keep the user experience positive. This area will benefit from fencing to protect the trail from livestock damage during wet conditions. The current alignment allows for roughly 40-45' passage at the bottom between the existing fence and the proposed new fence.

All fencing will be 10' or more from edge of trail to allow for maintenance operations and user safety.

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POINTE STRATEGIES

Wildcat Bike Trail Fencing Detail Section 4

- Conceptual Alignment
- Proposed Fence
- Study Area
- Heavy Livestock Area
- Existing Trails
- Existing Fences
- Existing Gates
- 10 ft contours

25 50 75 100 125 ft

N

Mezue Trail

Wildcat Creek Trail

Wildcat Canyon Pkwy

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FENCING SECTION MAP 4

SHEET NUMBER
FP-5

Wildcat Canyon Bike Trail

Conceptual Image

Overall

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CONCEPTUAL IMAGE

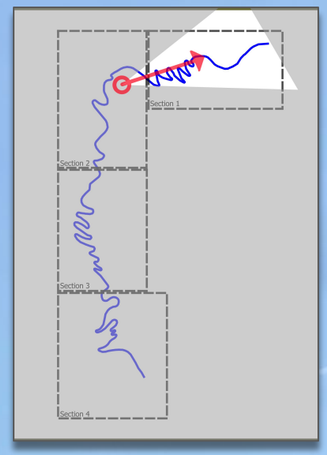
SHEET NUMBER

CI-1

Wildcat Canyon Bike Trail

Conceptual Image

Section 1



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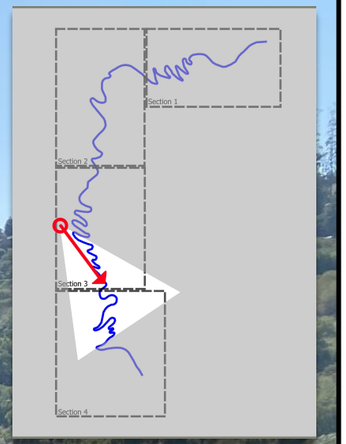
CONCEPTUAL IMAGE

SHEET NUMBER
CI-2

Wildcat Canyon Bike Trail

Conceptual Image

Section 3



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CONCEPTUAL IMAGE

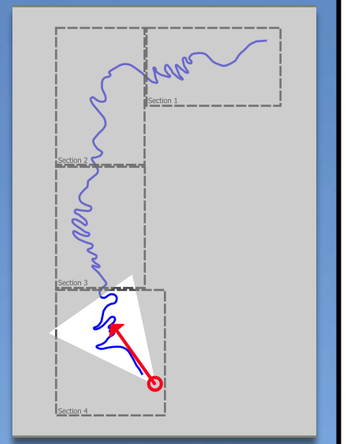
SHEET NUMBER

CI-3

Wildcat Canyon Bike Trail

Conceptual Image

Section 4



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CONCEPTUAL IMAGE

SHEET NUMBER

CI-4

General Construction Notes

1. Trail details convey general trail corridor, tread, and constructed feature attributes. Immediately prior to the construction process flagging will be placed to delineate a specified trail location. Minor field adjustments are likely to occur during the construction process, including alterations to better position trails in relation to large trees and/or other vegetation, to avoid wet soils and/or other negative subsurface conditions, and/or to optimize the desired design characteristics of the particular trail.

2. Contractor is to avoid any site disturbance beyond the necessary limits of construction to the extent possible. Any areas disturbed during construction activities shall be revegetated and restored to professionally finished conditions. Minimize disturbance to existing vegetation.

3. Prior to construction, contractor shall contact all utility companies potentially involved in or having facilities on or near the site. Although the design considered utilities in the area, the contractor is responsible to know the exact location of all utilities. Contractor shall contact for a utility locate or work with the Owner Representative for the equivalent.

4. Construction will be limited to the daily output that can be considered finished work and ready for inspection.

5. Construction access, materials stockpile, and/or borrow pit locations will be coordinated with the designated site representative.

6. All work shall be in accordance with OSHA codes and standards. Nothing indicated in this document shall relieve those providing construction services from complying with any and all appropriate safety regulations.

7. Trail corridors developed in the design process have been cleared for environmental and/or historic/cultural significance. In the event that a previously unidentified resource is found during the construction process, construction shall be immediately suspended and the Owner's Representative contacted, who will provide an evaluation and determination of best procedure in moving ahead with construction.

8. Trail corridor clearing shall be confined to vegetation within four feet (4') of the centerline of the trail. Mature trees greater than six inches (6") dbh and vines greater than two inches (2") dbh will be retained unless permission for removal is secured with the Owner's Representative. Trees within the trail corridor shall be stumped and removed or cut to an elevation below the finished trail tread. All cleared vegetation shall be cut to a maximum length of twenty four-inch (24") lengths, scattered so as not to impede water flow, and butt ends of any cut materials greater than one inch (1") shall be angled away from the trail tread.

9. Trails shall be constructed with frequent grade changes, dips, rollers, etc., to minimize water flow distances along trail surfaces and to minimize erosion.

10. Trail tread shall be full bench cut construction whenever possible, with mineral soil forming the entire width of the tread. Finished trail tread will be mechanically compacted and retain a three-to-eight percent (3-8%) outslope. Tread roughness, protrusions, and obstacles may be left as per trail specifications.

11. Back-slopes shall be graded back to an angle less than the angle of repose for the soil with a three-to-one (3:1) slope being the general condition. Large roots and stumps will be flush cut with the final slope and forest debris (i.e. leaves, needles, duff) will be lightly spread over the slope to aid in stabilization and naturalization.

12. All excavated materials not used in the trail tread or other trail structures shall be stabilized within seven (7) days of the construction. Spoils shall be distributed in a thin layer adjacent to the trail tread not to exceed 4" in depth. Care should be taken to avoid placing spoils in drainages or swales. When possible, spoils should be mulched with native materials to discourage erosion while native seed stocks reestablish.

13. In many locations, small amounts (generally one to five cubic yards) of fill material will be necessary to elevate turns, protect root systems of vegetation, and/or create tread transitions to bridges, boardwalks, and/or constructed technical trail features. It is assumed that the majority of this material will be created through the tread cutting process. If this native material is not readily available, suitable fill should be located near the trail, transported with minimal impact to the surrounding forest, and off-trail tracking shall be naturalized with forest materials following the fill development process. When imported material is necessary, it shall be uncontaminated and free of organic material, trash, and other objects.

14. The Trail Contractor shall be responsible for fine grading and positive drainage away from all trails and trail features. No ponding of surface water shall be on or adjacent to the trail surface. During construction, additional drainage methods may be necessary by the contractor to promote positive site drainage. All drainage methods, devices and locations shall be employed in accordance with professional trail building standards and approval by the Owner's Representative.

15. A turn is defined as a change of direction across the landscape that requires the trail to cross the fall line. Turns will be constructed as traditional rolling crown switchbacks or as insloped, bermed turns as appropriate considering the trail type. Turn radii and grades will be field-fit to maintain optimized flow for bike use. All turns must include an entrance and exit rolling grade dip to minimize down-trail flow during precipitation events.

16. Any portion of trail above the finished trail tread shall be composed of mineral soil. Fill structures shall have a fill slope no steeper than two-to-one (2:1) or the angle of repose of the local soil, whichever is shallower. Fill structures shall be completely stabilized and mechanically compacted at no more than six-inch (6") lifts. Raw faces that are not part of the trail tread shall be stabilized as described above.

17. Mechanized equipment use shall be limited to the trail corridor and approved access routes, as determined by the Owner's Representative. Following construction, all track marks will be raked smooth and affected areas will be finished to have a natural shape (i.e. spoils piles rounded, smoothed and cleared of significant brush, blade edges blended. A spill kit suitable for five gallons of fluid will be maintained onsite and within five hundred feet (500') of mechanized equipment whenever equipment is being operated. Scarring of trees is to be avoided. Machine service and fueling shall not take place within five hundred feet (500') of a wetland or perennial drainage. Machine access is restricted to the trail corridor, except for minimal and restored incursions to access fill materials.

18. It is the intent of the trail design and grading to achieve a balance between earthwork cut and fill. Contractor shall make field adjustments while meeting all required performance specifications for bike trails, technical trail features and grading requirements herein.

19. No abrupt changes in slope and contour will be accepted. Contractor shall take special care to taper graded areas backslopes to match grade at edge of existing landscape.

20. Contractor shall leave trails and adjacent areas in a finished and natural looking condition and minimize disturbance to permanent existing vegetation to the extent possible.

21. All trails and features shall be compacted to 90% density in a manner that will support the intended use.

22. Completed trail shall reflect professional workmanship in appearance, quality, and attention to detail. Trail and trail features shall be well integrated into site, aesthetically pleasing in appearance, and well-shaped, crafted, and finished according to commonly accepted best practices for high quality and sustainable mountain biking trails. Work must be completed to the satisfaction of the Owner's Representative.

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4/25/24

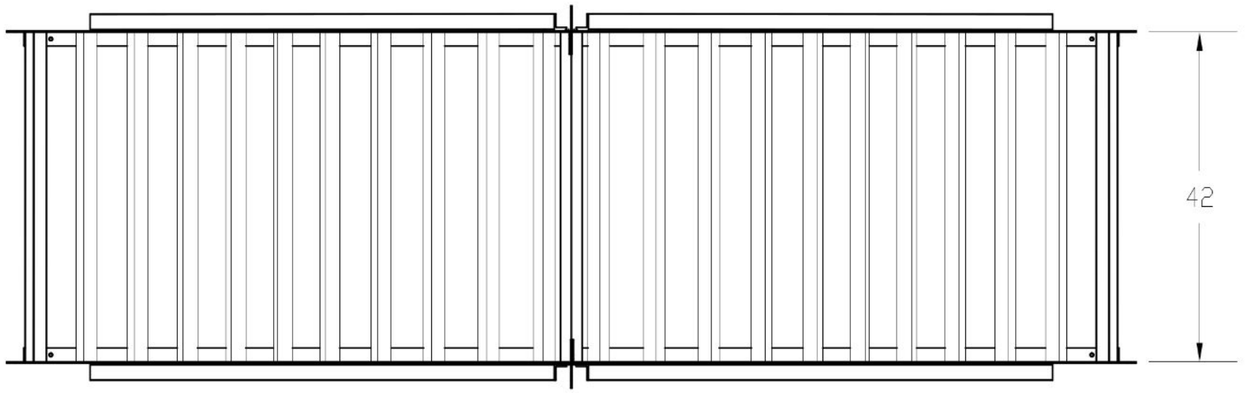
DRAWN BY: EE

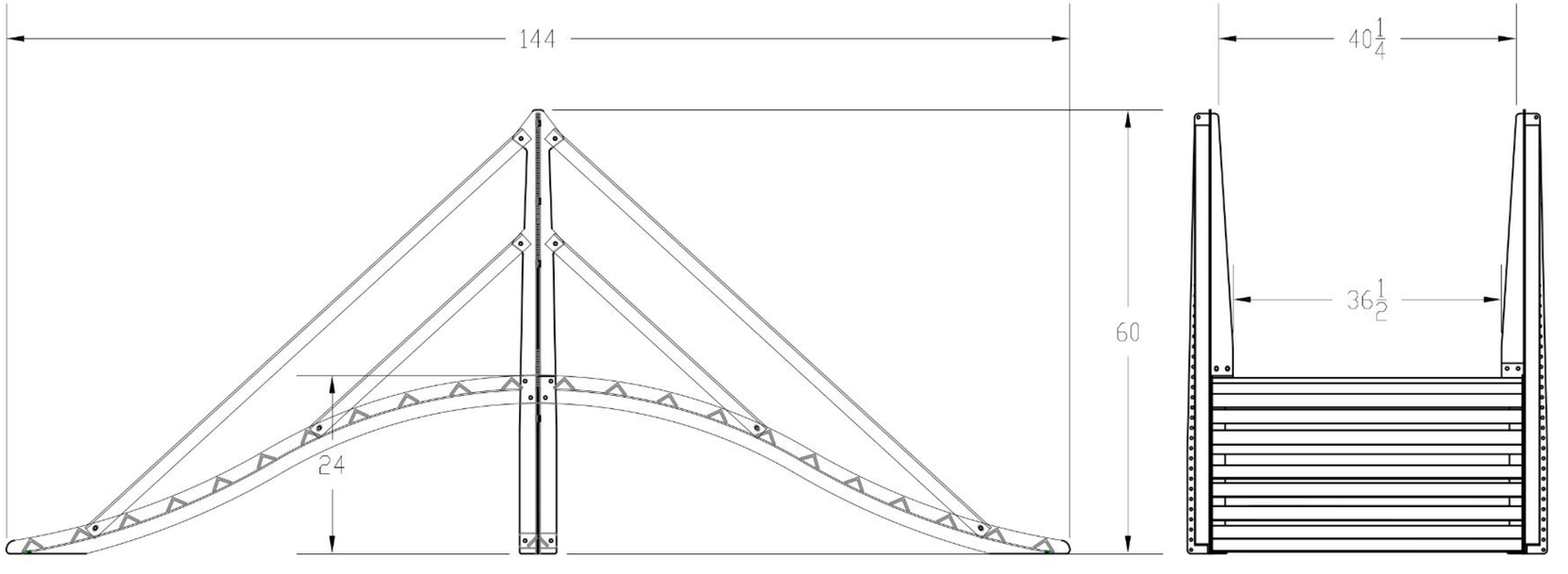
REVISIONS

WILDCAT BIKE TRAIL
WILDCAT CANYON REGIONAL PARK
RICHMOND, CALIFORNIA

GENERAL CON NOTES

SHEET NUMBER
CN-1





Prefabricated Trail Feature Typical

Cattle Guard Roller:
A prefabricated feature that creates a barrier to keep livestock from passing through a fence line while allowing users to navigate through the fence line as desired. Trail users are able to 'roll over' the feature without having to stop to open and close a gate. This feature eliminates the opportunity for a gate to be be left open by being a constant and consistent barrier. Feature by Progressive Bike Ramps or approved alternate

Spacing Guidelines: Any location where the trail crosses a fenceline.
Dimensions: 1' tall x 3' wide x 7' long
Price: $3,650 each. Tax, shipping, and installation not included.

TOLERANCES UNLESS OTHERWISE SPECIFIED			
(X.X) : ±0.125			
(X.XX) : ±0.060			
(X.XXX) : ±0.030			
ANGULAR : ±1.0°			
DIMENSIONS ARE IN INCHES			
DRAWN BY :	R. BOTTS	01/30/18	
RELEASE LEVEL	Concept		

© AMERICAN RAMP COMPANY
601 McKINLEY
JOPLIN, MO. 64801
PHONE: (417) 206-6816
FAX: (417) 206-6888
www.americanrampcompany.com

REVISION LEVEL	CATTLE GUARD ROLLER
--	PROGRESSIVE TRAIL
MASS (POUNDS) 500	DWG NO. CGR-2-12-42

DO NOT SCALE THIS PRINT | SHEET 2 OF 2

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REVISIONS

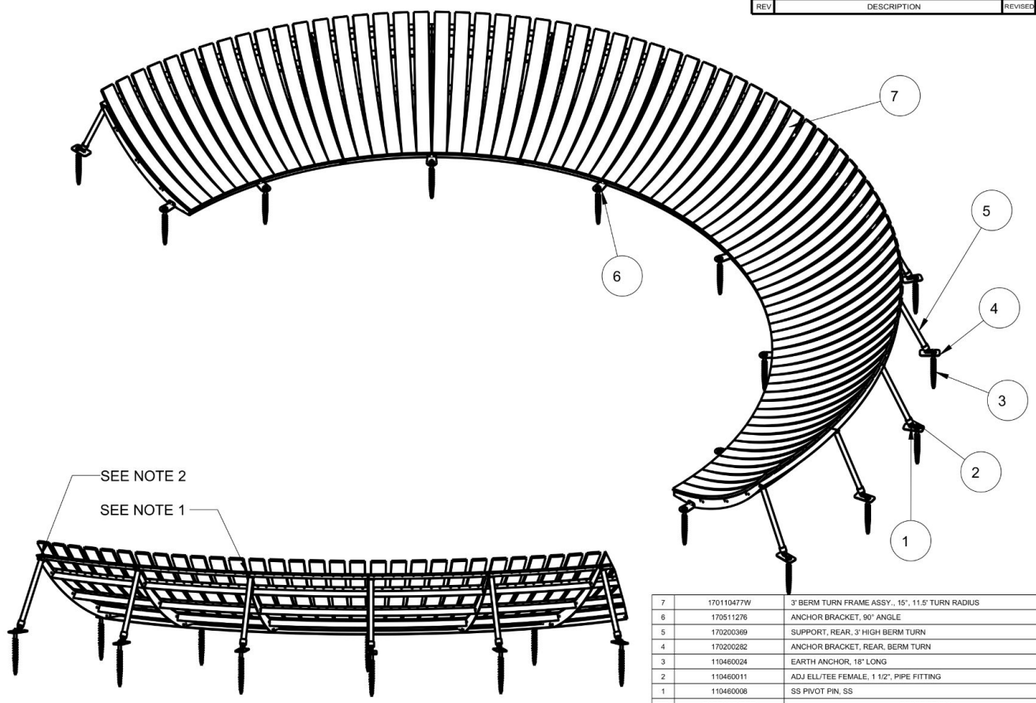
WILDCAT BIKE TRAIL
WILDCAT CANYON REGIONAL PARK
RICHMOND, CALIFORNIA

PREFAB TYPICAL

SHEET NUMBER
PT-1

REVISION HISTORY

REV	DESCRIPTION	REVISED	DATE



ITEM	PART NUMBER	DESCRIPTION	QTY
7	170110477W	3' BERM TURN FRAME ASSY., 15", 11.5' TURN RADIUS	12
6	170511276	ANCHOR BRACKET, 90° ANGLE	8
5	170200369	SUPPORT, REAR, 3' HIGH BERM TURN	13
4	170200282	ANCHOR BRACKET, REAR, BERM TURN	13
3	110460024	EARTH ANCHOR, 18" LONG	21
2	110460011	ADJ ELL/TEE FEMALE, 1 1/2", PIPE FITTING	13
1	110460008	SS PIVOT PIN, SS	13

NOTES:
1. USE 1-1/4" LONG HEX FASTENERS AT INNER SUPPORT MOUNT LOCATIONS.
2. USE 1-1/4" LONG BUTTON HEAD FASTENERS AT OUTER SUPPORT MOUNT LOCATIONS.

TOLERANCES
UNLESS OTHERWISE SPECIFIED
(X.X) : ±0.125
(X.XX) : ±0.060
(X.XXX) : ±0.030
ANGULAR : ±1.0°
DIMENSIONS ARE IN INCHES

DRAWN BY: K.MEIER | May-30-23

RELEASE LEVEL: Design

PROGRESSIVE BIKE RAMPS
601 S. McKINLEY AVE.
JOPLIN, MO 64801-3220
PH: 855-727-7267
www.progressivebikeramps.com

PROPRIETARY
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REVISION LEVEL: -

MASS (POUNDS): 1442

BERM TURN
3' HIGH, 180 DEG, EA

DWG NO.: BRM-31801

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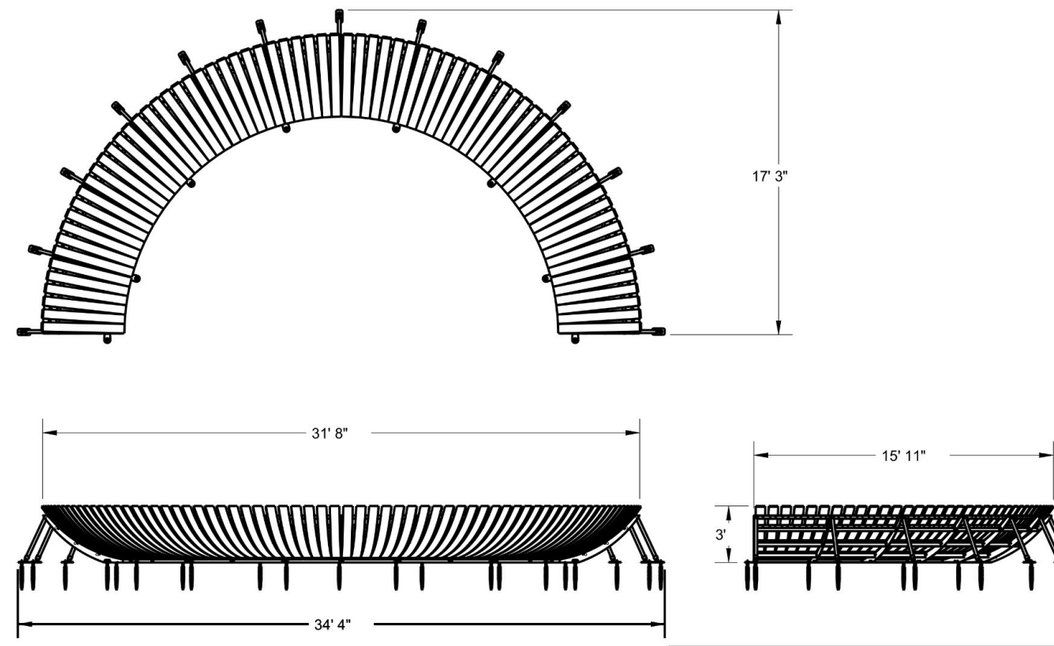
SHEET 1 OF 2

REVISION HISTORY: SEE SHEET 1 FOR REVISIONS



TOLERANCES
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(X.XX) : ±0.060
(X.XXX) : ±0.030
ANGULAR : ±1.0°
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DRAWN BY: K.MEIER | May-31-23

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MASS (POUNDS): 1442

BERM TURN
3' HIGH, 180 DEG, EA

DWG NO.: BRM-31801

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SHEET 2 OF 2

Prefabricated Berm Feature Typical

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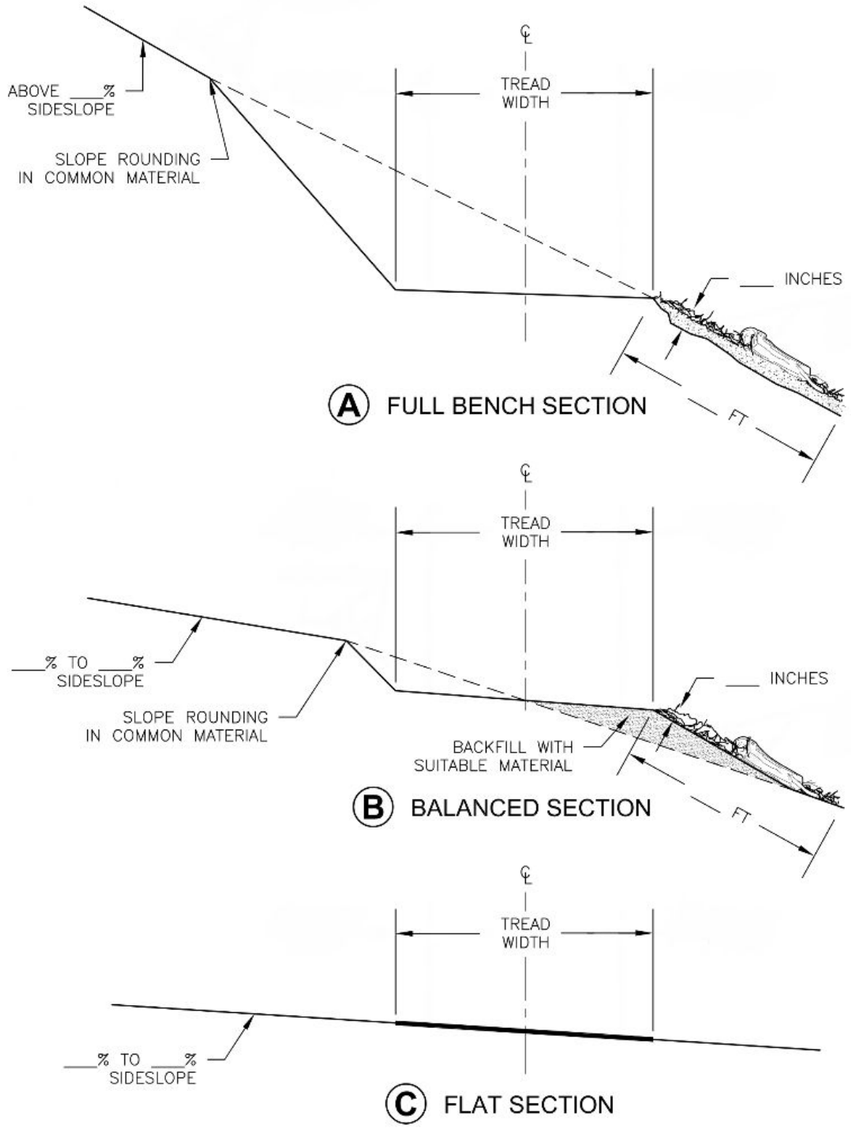
REVISIONS

WILDCAT BIKE TRAIL
WILDCAT CANYON REGIONAL PARK
RICHMOND, CALIFORNIA

PREFAB TYPICAL

SHEET NUMBER
PT-2

TYPICAL TRAIL CROSS SECTIONS

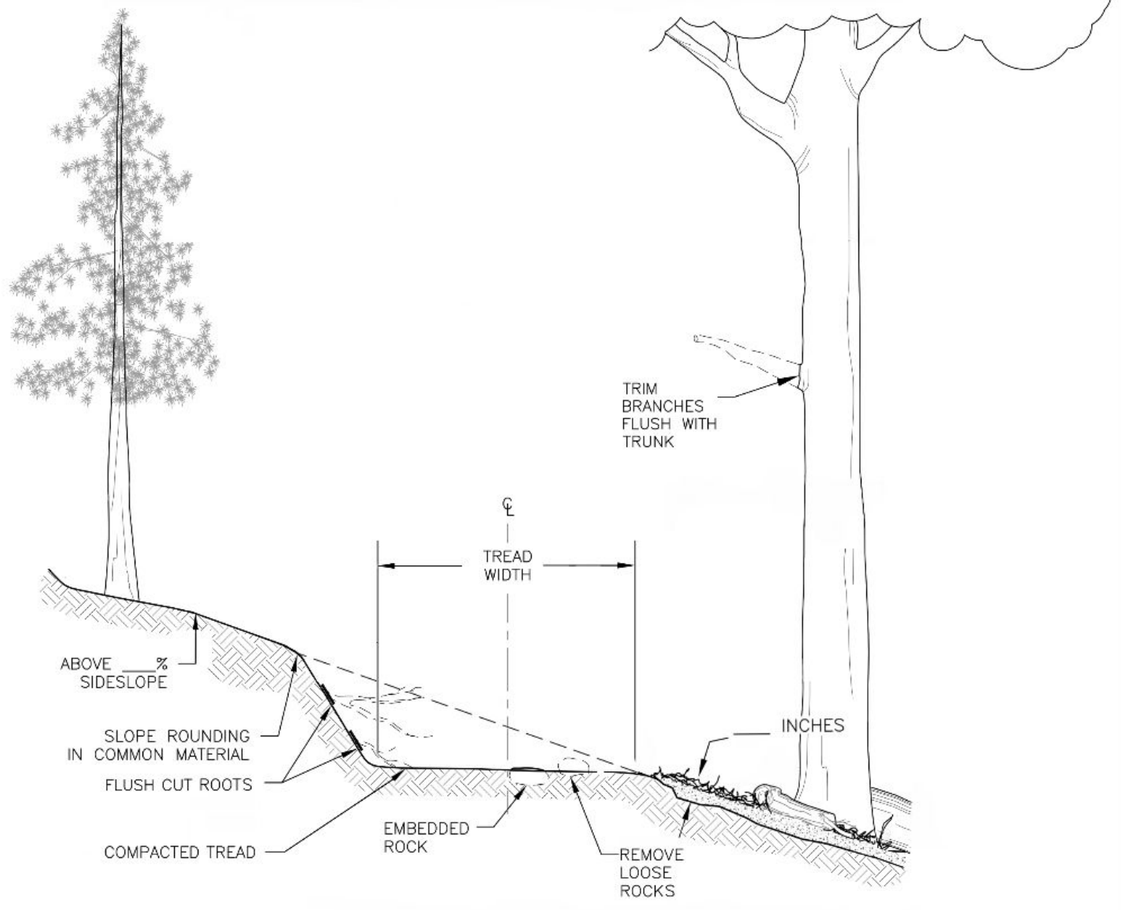


SLOPE FINISH

REMOVE ROOTS THAT PROTRUDE FROM THE BACKSLOPE.

TRAILBED FINISH

REMOVE LOOSE ROCK ON THE TRAILBED.
REMOVE OR REDUCE EMBEDDED ROCK THAT PROTRUDES FROM THE BACKSLOPE AND TRAILBED FINISH.



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WILDCAT BIKE TRAIL

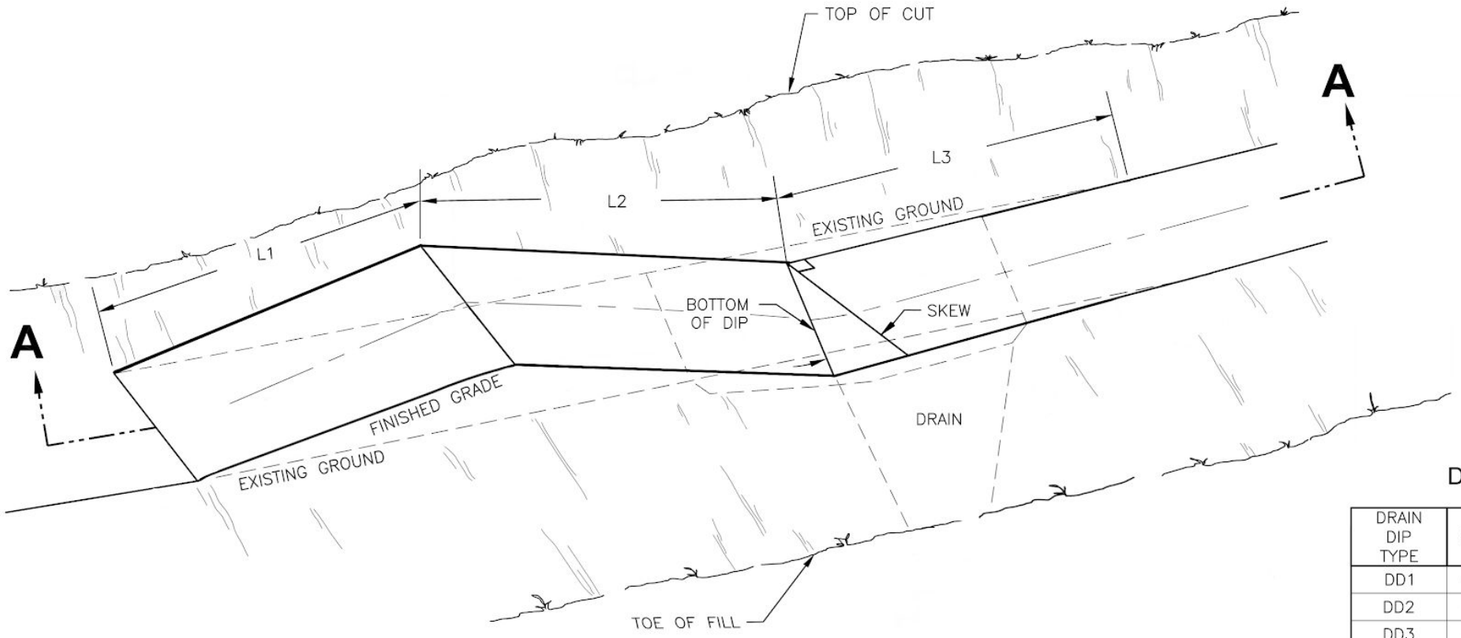
WILDCAT CANYON REGIONAL PARK

RICHMOND, CALIFORNIA

TRAIL TYPICAL

SHEET NUMBER

TT-1

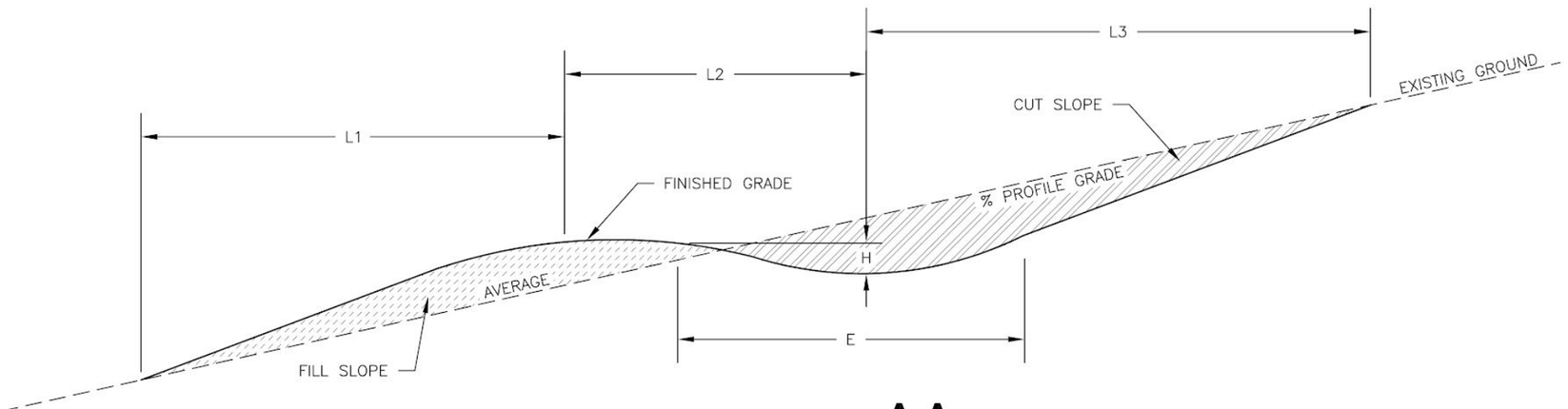


DRAIN DIP

DRAIN DIP CONSTRUCTION DIMENSIONS

DRAIN DIP TYPE	% PROFILE GRADE	L1	L2	L3	(H)	(E)
DD1	0 TO 4					
DD2	5 TO 6					
DD3	7 TO 8					
DD4	9 TO 10					
DD5						

OVER 10% NOT RECOMMENDED



SECTION **A-A**

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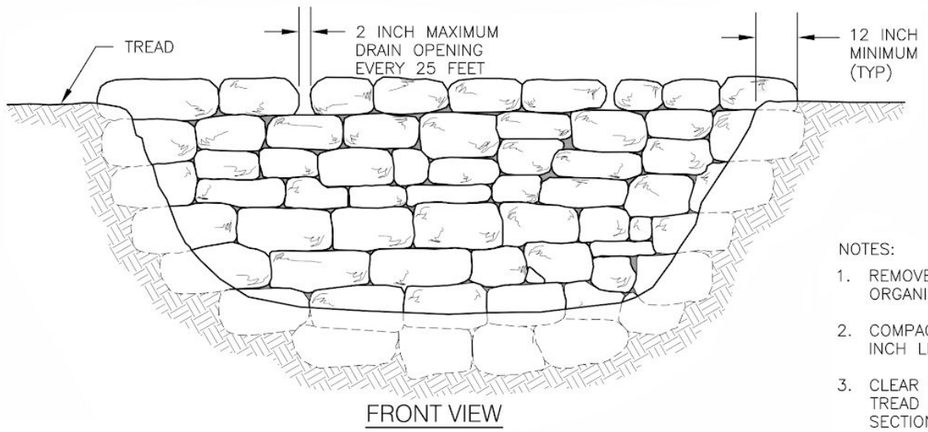
TRAIL TYPICAL

SHEET NUMBER
TT-2
31 of 32



FRONT VIEW

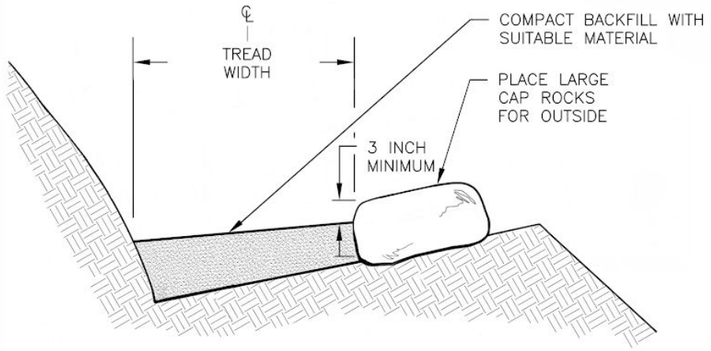
NOTES:

1. REMOVE AND DISPOSE OF DUFF AND TOP ORGANIC LAYERS DOWN TO MINERAL SOIL.
2. COMPACT BACKFILL AND FOUNDATION IN 6 INCH LIFTS UNTIL NO VISUAL DISPLACEMENT.
3. CLEAR WIDTH IS GREATER OR EQUAL TO THE TREAD AND SHOULDER WIDTHS DEFINED IN SECTION 911.

STACKED ROCK RETAINING WALL

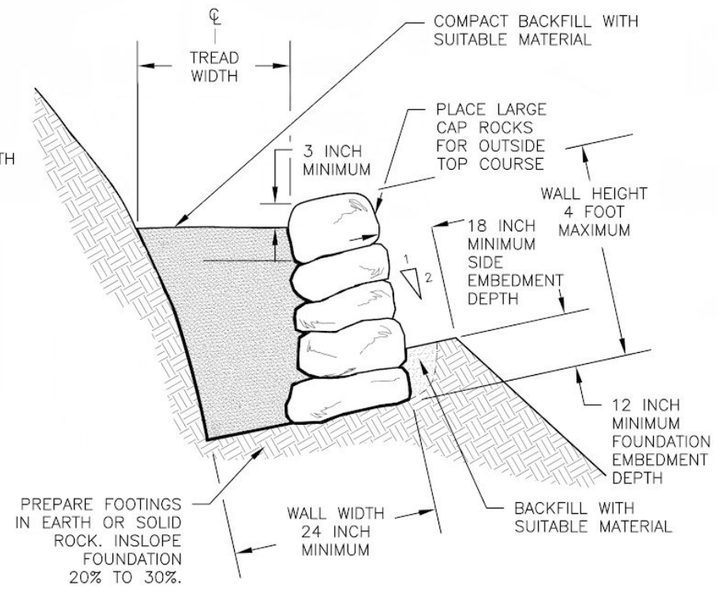
TYPICAL ID	GEOTEXTILE TYPE	EMBEDMENT DEPTH		HEIGHT	COMMENTS
		FOUNDATION	SIDE		
RRW–1					

N/A WHEN NOT APPLICABLE



Ⓑ UNDERTREAD RETAINING WALL SECTION

WALL WIDTH SHALL BE 2 FEET WIDE OR 1/2 THE WALL HEIGHT, WHICHEVER IS GREATER.



Ⓑ UNDERTREAD RETAINING WALL SECTION

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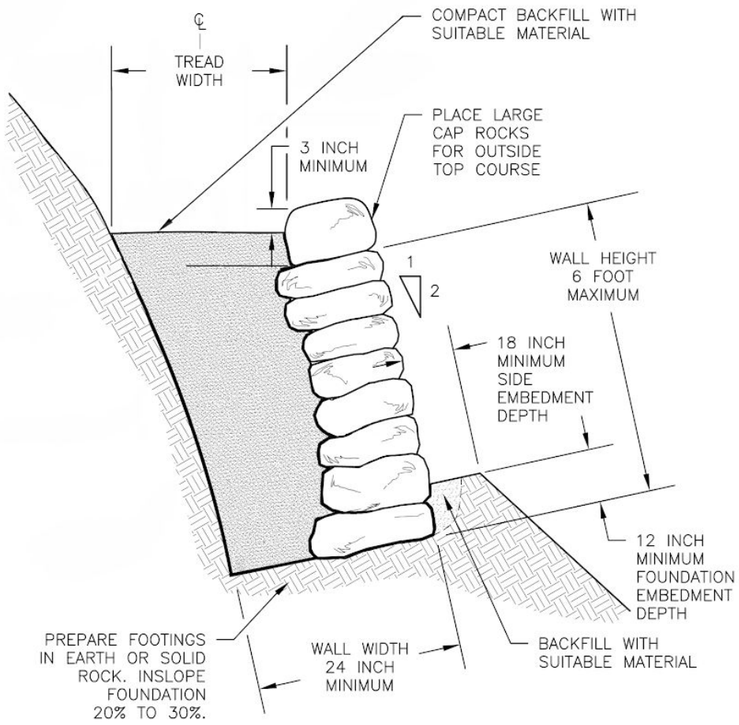

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TRAIL TYPICAL

SHEET NUMBER

TT-3