

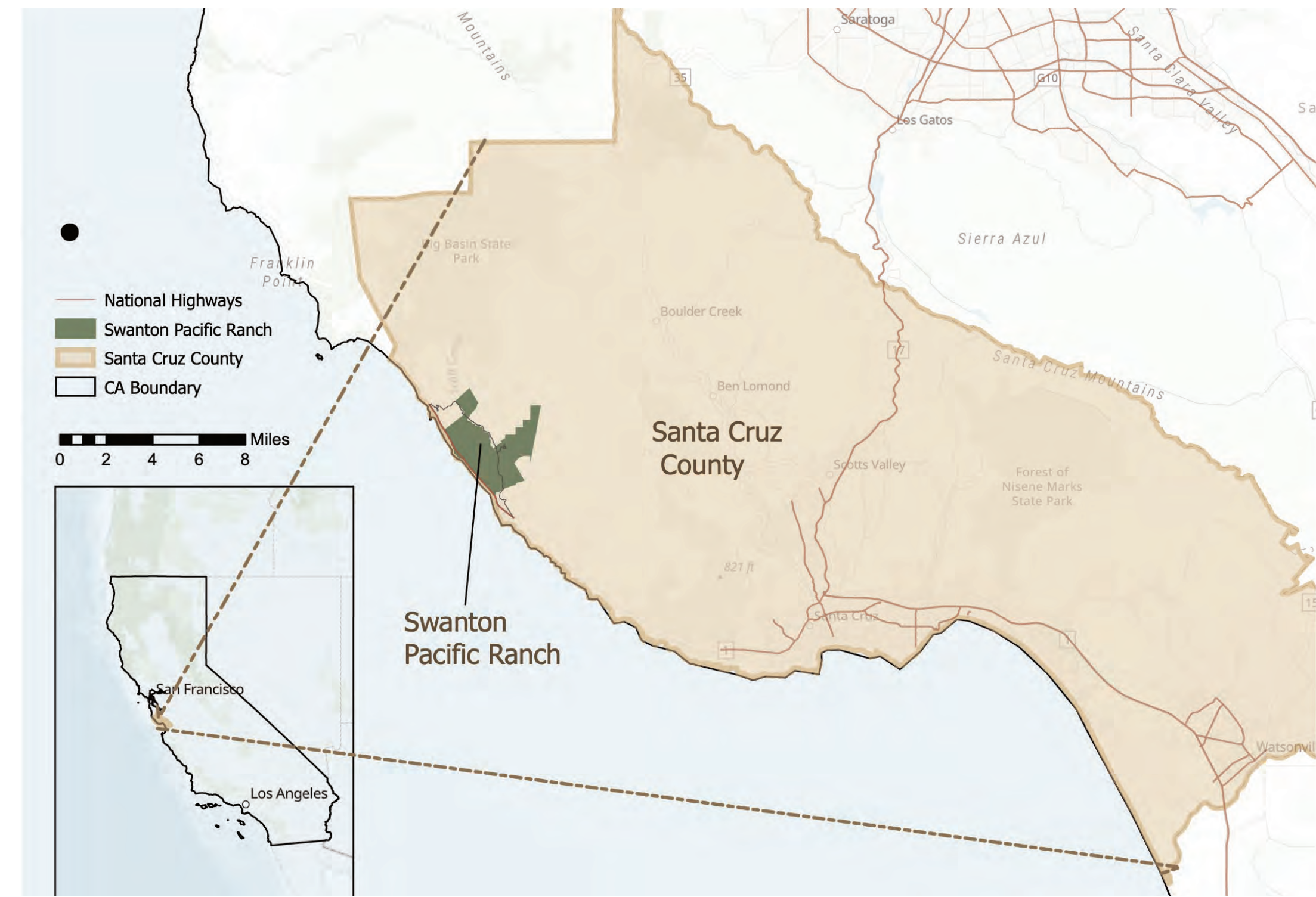
# Swanton Pacific Ranch Adapts

LA 403 | Natural Environments Focus Studio

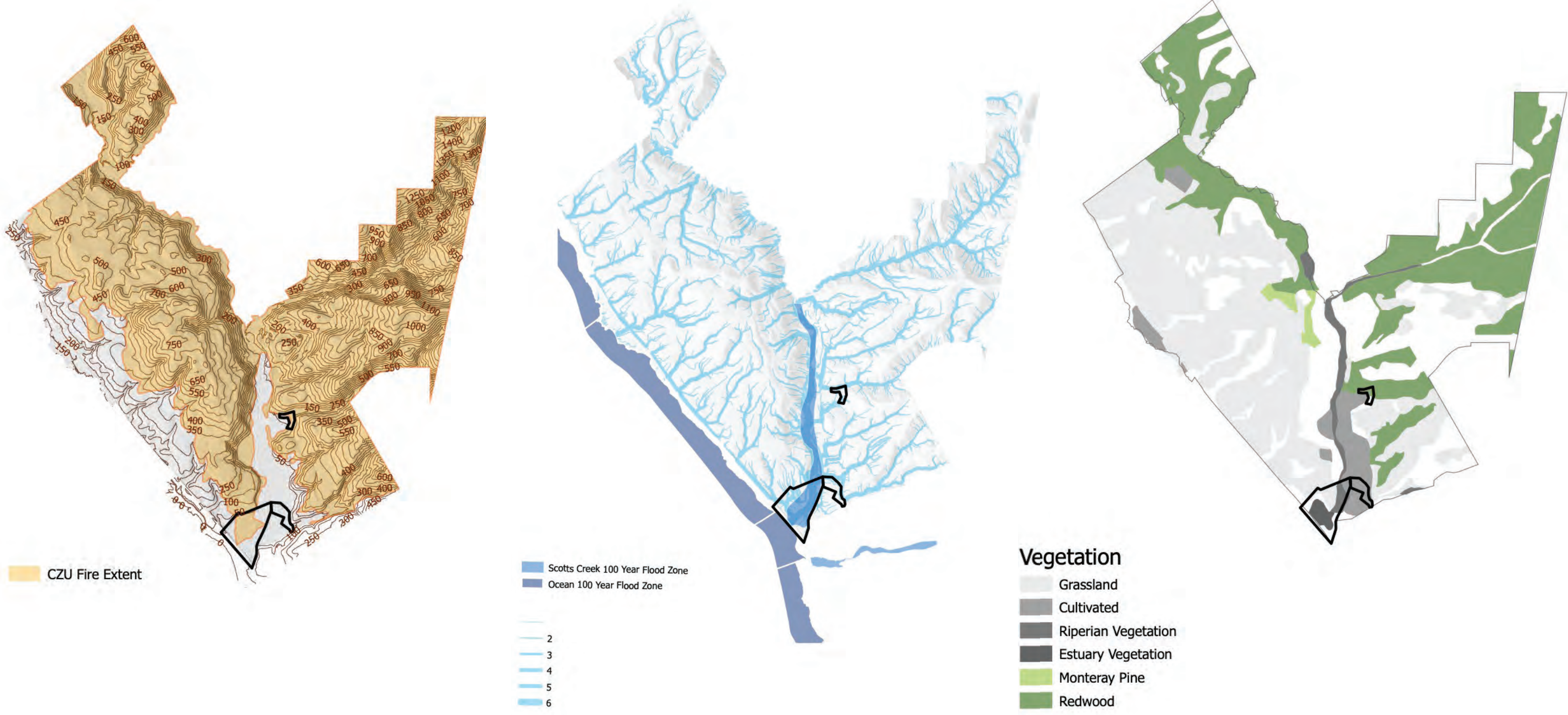
Bradley Atnip, Maya Amyx, Jackie Tang  
The Trifoliate Team



## EXPLORING HOW SWANTON ADAPTS



### Opportunities and Constraints



#### Elevation and the CZU Lightning Complex

The CZU wildfire of 2020 damaged the majority of Swanton land. All proposed designs should be resilient to future fires and able to establish important plant communities to these damaged areas.

#### Hydrology and Flooding

Flood data from FEMA reveals an area around Scotts Creek that could be flooded during 100 year storms. Any creek crossings should be removable or designed to survive flooding. Transportation routes will also be most adaptable if they are outside of this flood zone.

#### Vegetation communities

A look at the ranch's pre-CZU vegetation reveals unique plant communities that should be restored and protected. Some of these communities, such as the Monterey Pines and Redwoods, serve as inspiration during design development.

### WHY adaptation?

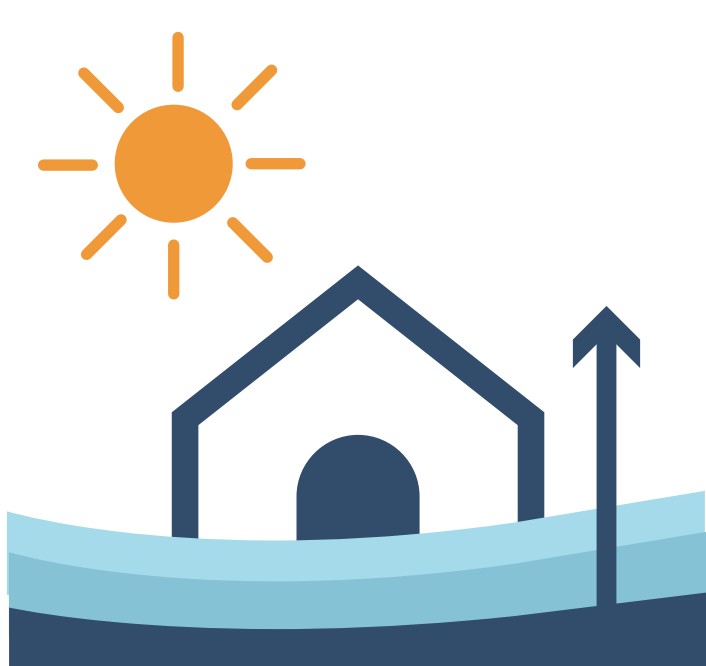
Our theme of adaptation seeks to reveal the constant flux of landscape through time, such as the impact of fire, erosion, and sea level rise.

Adaptation can also refer to how humans interact with their setting, such as Swanton's student interns being introduced to a new learning environment.

### GOALS



Adapt to Natural Disasters



Adapt to Changing Climates



Adapt to Learning in a new setting

### OBJECTIVES

- Design all new buildings that will follow fire standards
- Place new paths outside of flood hazard zone
- Provide estuary habitat for managed retreat from sea level rise
- Plan transportation within Swanton's Core for a net-zero carbon future and have minimized impact on the environment

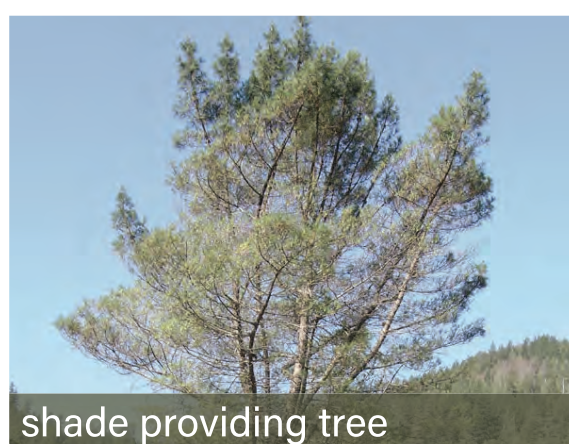
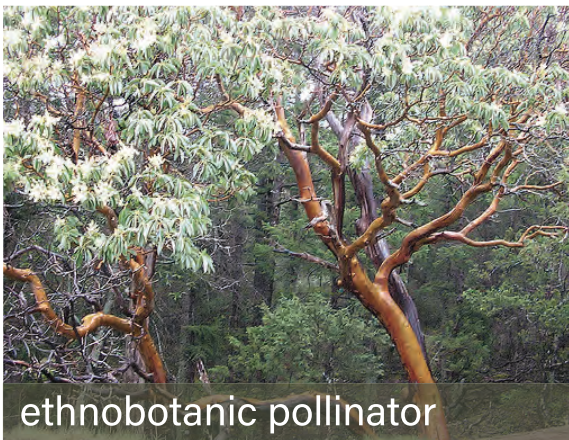
### The Three Objectives

| <b>The Seeds</b>  | <ul style="list-style-type: none"><li>30' buffers around buildings to prevent the spread of fires</li><li>Swales and rain gardens to collect heavy precipitation and protect from flooding</li></ul> | <ul style="list-style-type: none"><li>Rainwater catchment and storage helps buildings adapt to different precipitation patterns</li><li>Greenhouse provides local food and education</li><li>Connection to a low-carbon transportation system</li></ul> | <ul style="list-style-type: none"><li>Private, single-family housing</li><li>Recreation spaces</li><li>Dining hall</li><li>Study spaces</li><li>Classrooms</li></ul>                         |
|-------------------|--|---|--|
| <b>The Lab</b>    | <ul style="list-style-type: none"><li>Shoe brushes to prevent the spread of invasive plants or diseases</li><li>Major structures are built above 100 year flood hazard zone</li></ul>                | <ul style="list-style-type: none"><li>Appropriate habitat for threatened species</li><li>Habitat available after sea rise</li><li>All trails sited above 6' of sea rise</li></ul>   | <ul style="list-style-type: none"><li>Educational trail</li><li>Stations for water quality testing</li><li>Buffer between public beach and restoration site</li></ul>                        |
| <b>The Hearth</b> | <ul style="list-style-type: none"><li>30' buffers around buildings to prevent the spread of fires</li><li>Major structures are built above 100 year flood hazard zone</li></ul>                      | <ul style="list-style-type: none"><li>Connection to a low-carbon transportation system</li><li>Rainwater catchment and storage helps buildings adapt to different precipitation patterns</li></ul>  | <ul style="list-style-type: none"><li>Long term housing for 5-8 people</li><li>Temp. housing for 48 people</li><li>Access to adjacent trails</li><li>Campfire and gathering spaces</li></ul> |

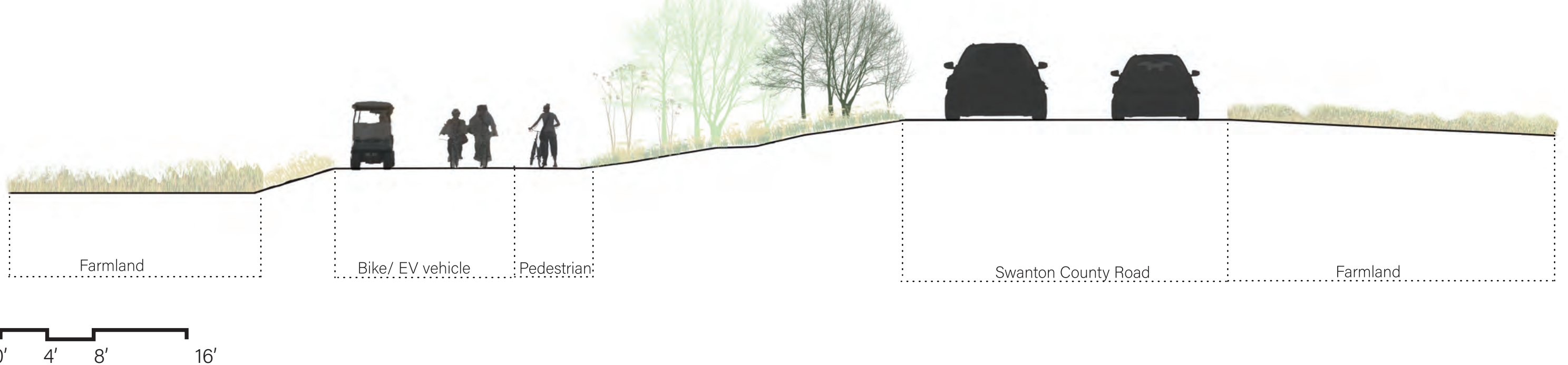
### Plant Palette

Plants in designed spaces (at all three sites) will follow a warmer flower color scheme. The following plant palette focuses on plants native to SPR, and this information will provide a general guide for the three specific

sites in the area. Materials like redwood and recycled plastic have a sustainable emphasis. While colored D.G. and builders hope to add a splash of aesthetic polish that is also fire-resistant



- Bike and NEV Route
- Pedestrian Route
- Parking



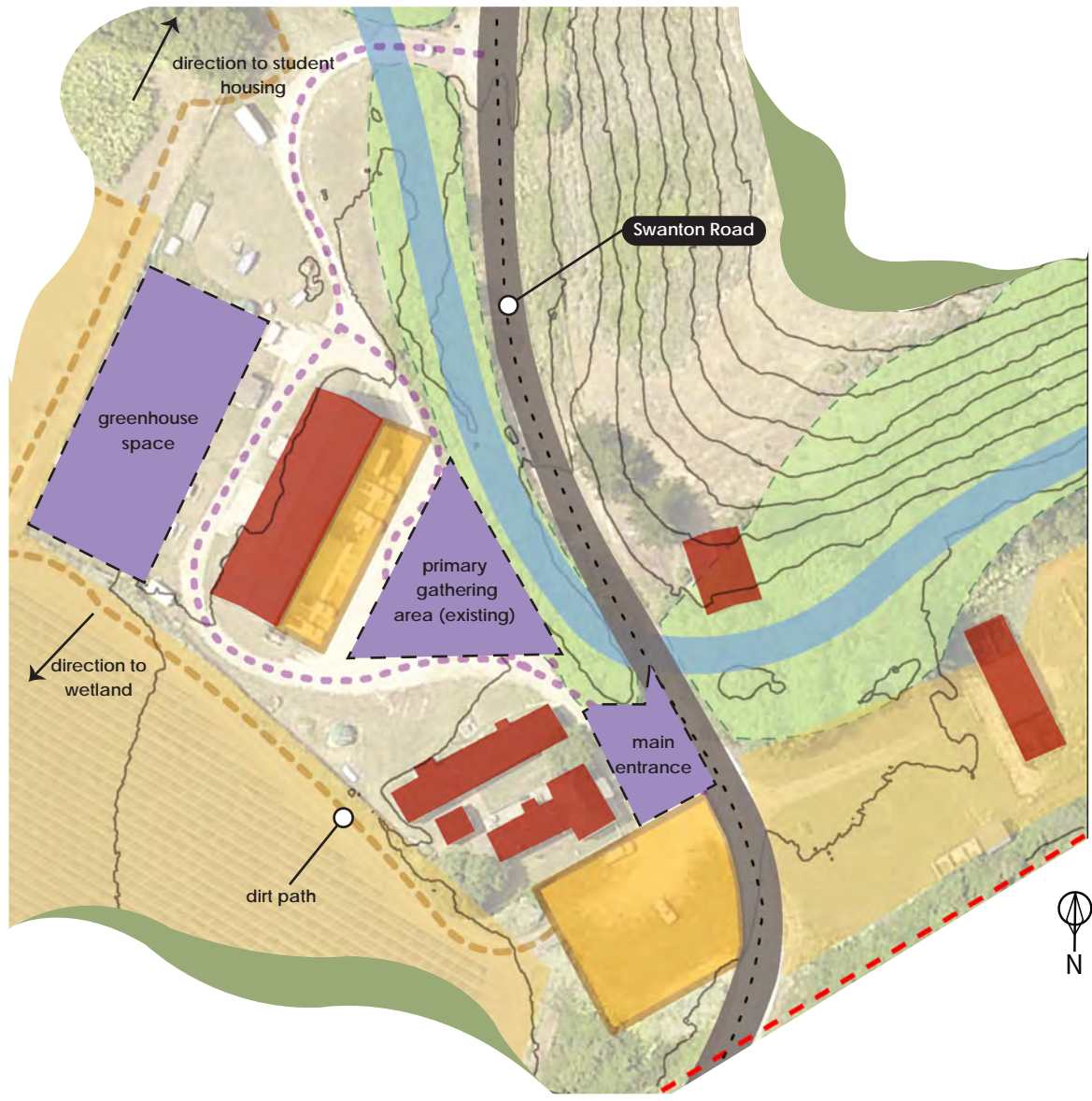




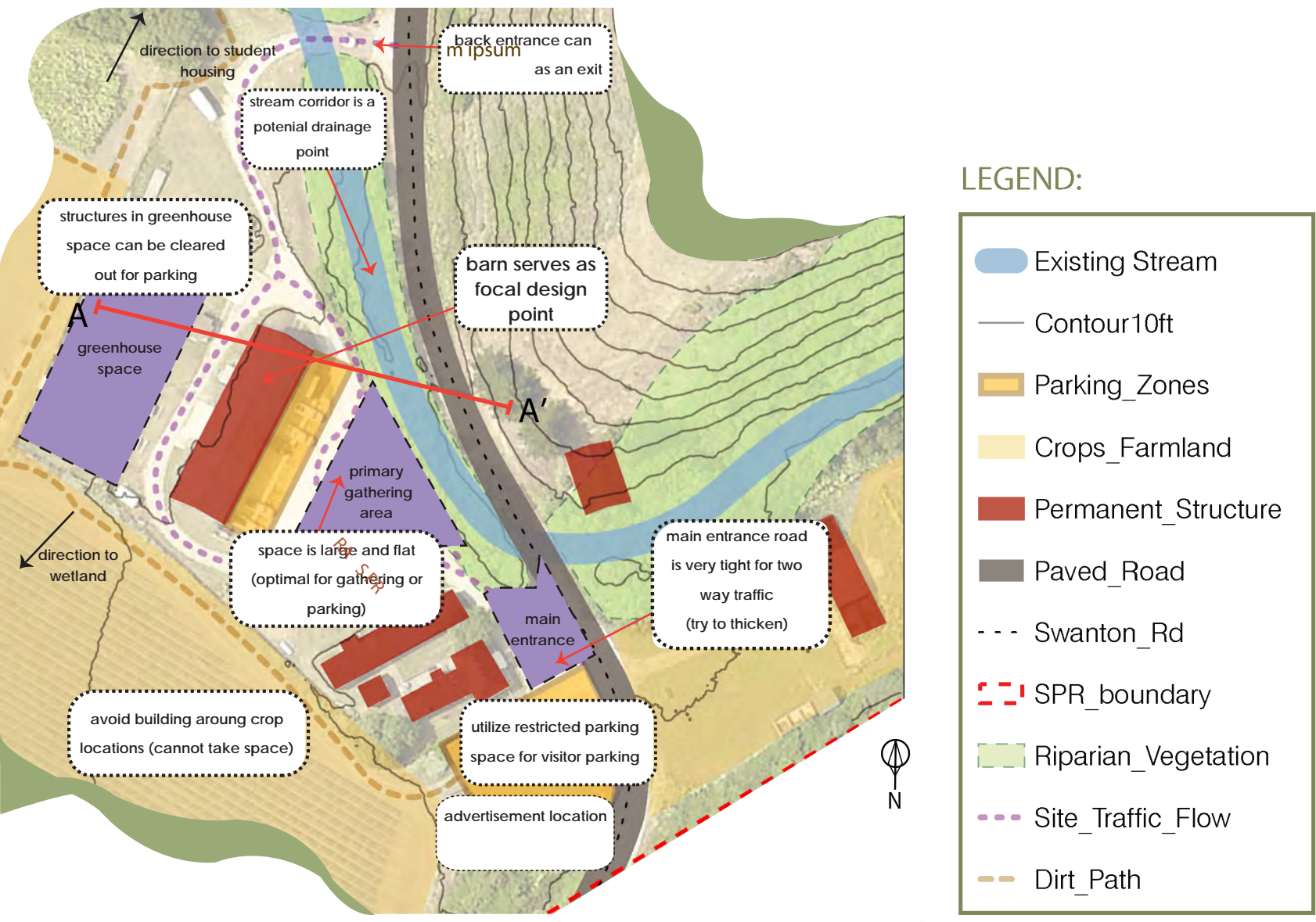


# THE MAIN OFFICE

## Inventory



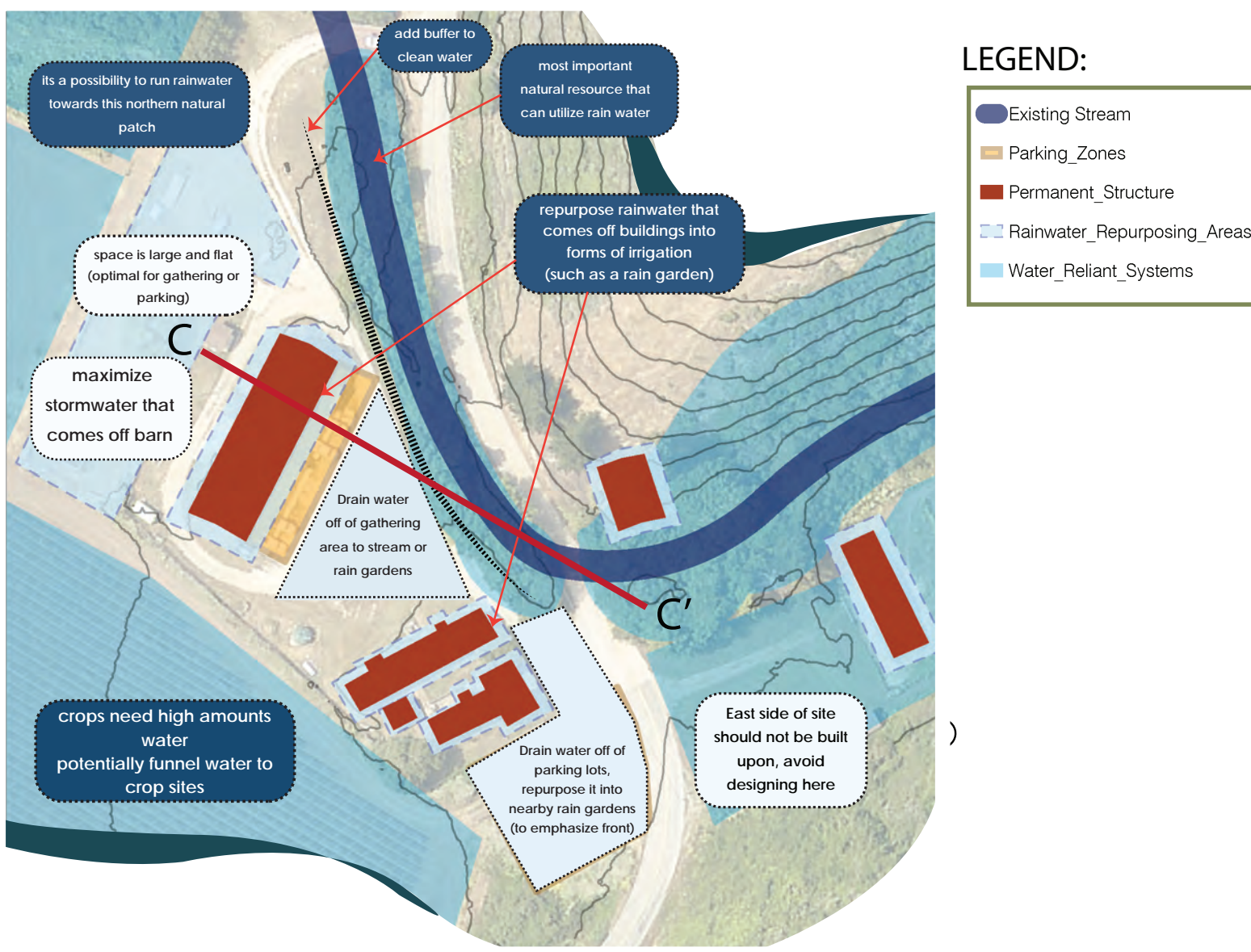
## Analysis



## Fire Sensitivity and Resilience



## Water Circulation and Movement



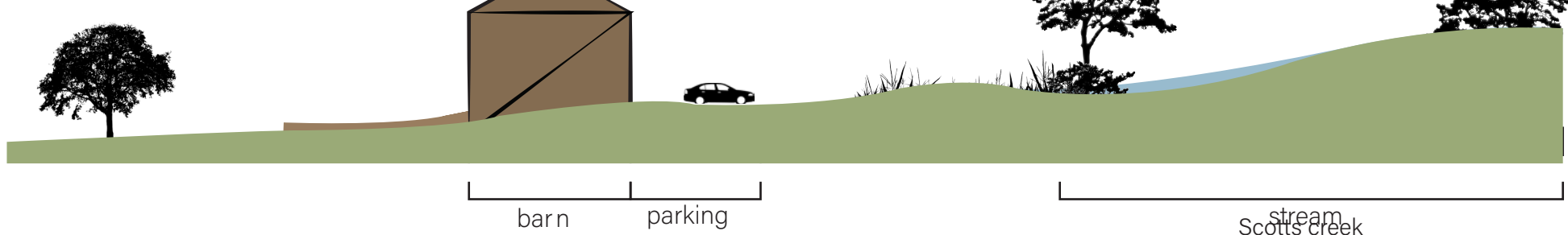
Inventory Summary  
Inventory Summary  
Inventory Summary

Analysis Summary  
The site's barn can serve as a focal point for landscape elements, since the building intends to be multi-use. Also, existing streams can serve as a main reference point for establishing sustainable design (since stormwater can be funneled in that element).

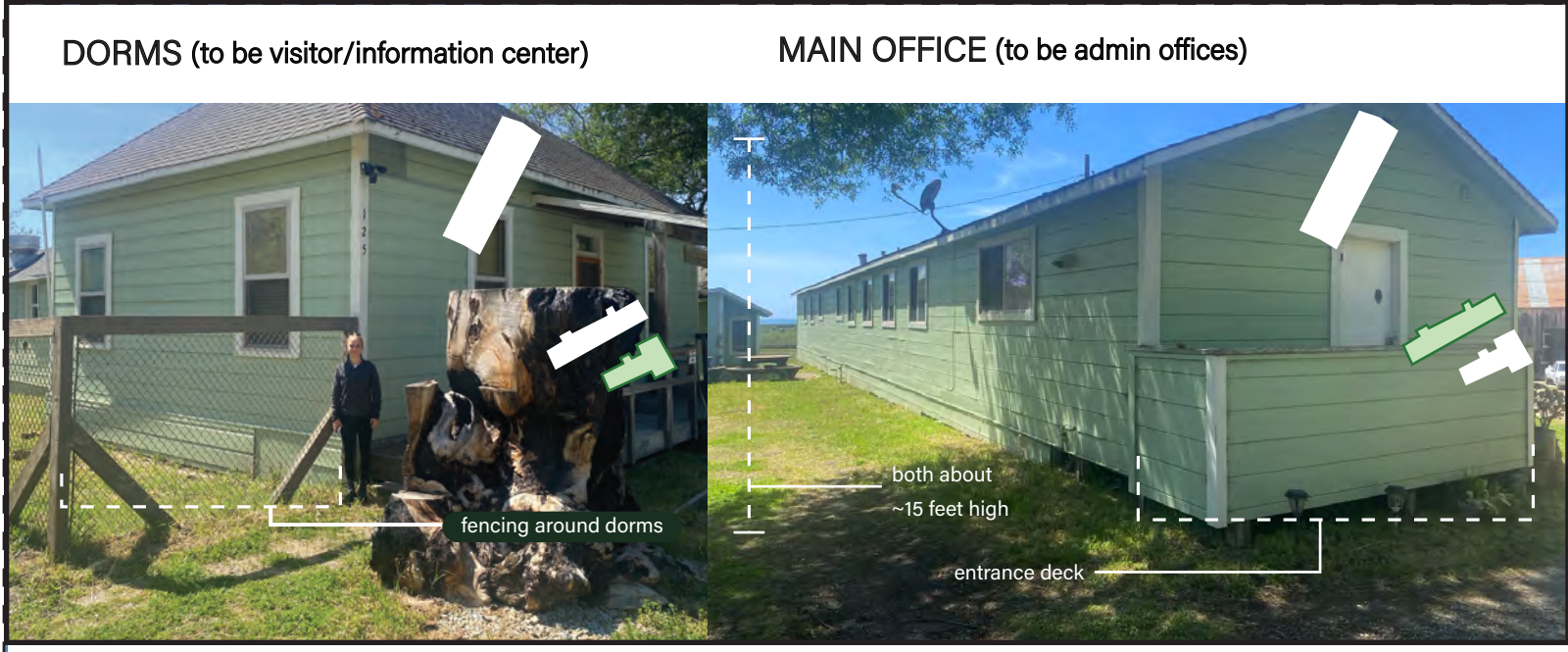
Summary  
Designing around the preservation of natural materials is crucial to maintaining the natural resource the local stream. Also, mitigating vulnerability of the buildings is another focused goal of the main office. Since the material of the buildings can change, there is potential to changing the material of the structures to a fire-resistant substance. Lastly, we plan on designing around the fire buffers, even if it would seem like a limitation.

Summary  
Stormwater usage needs to be maximized. The Santa Cruz rain should be directed to local areas in need of water, but rain gardens can also be used to give purpose to water that runs off buildings.

### SITE SECTION (A-A')



### Three Main Buildings

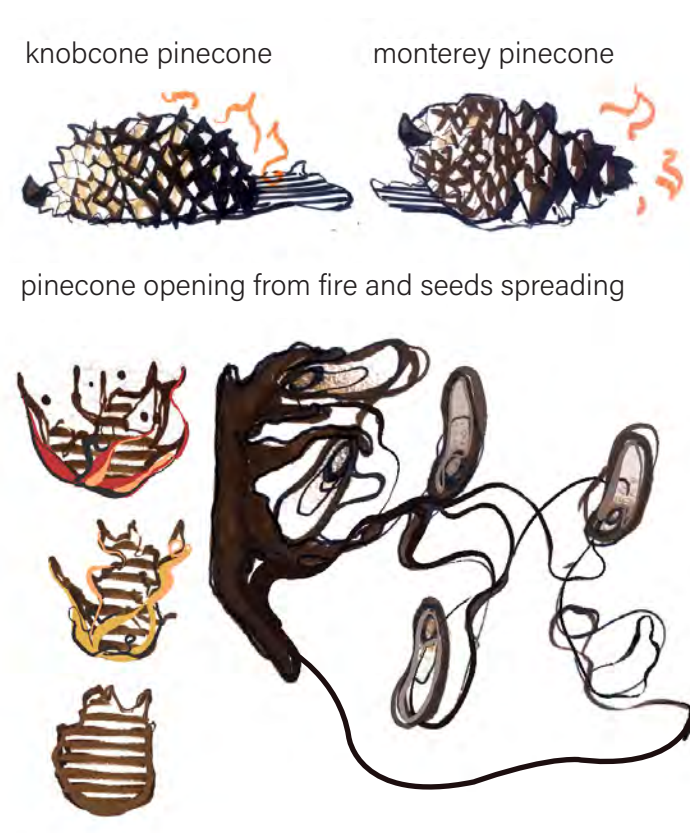


Both the existing dorms and main office will be replaced a building the exact same shape and size, when reconstruction occurs. But, doors and windows can be altered.

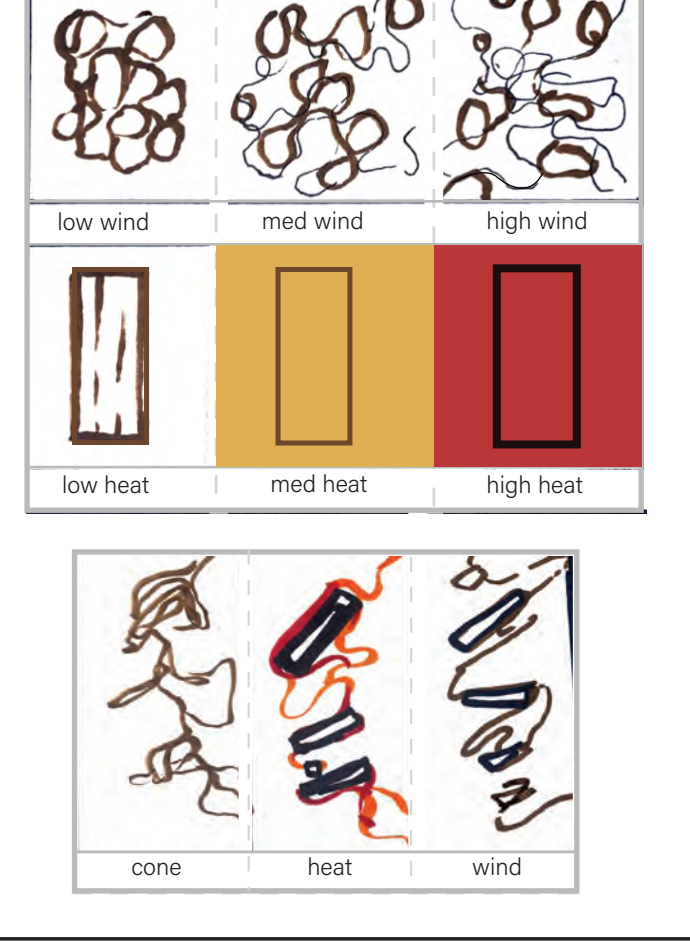


The barn's access points (windows and walls) have been requested by the clients to not become new. Similarly to the dorms and main office, this structure will also become completely replaced. An important aspect to note about the barn is its height; this building serves as a primary focal point.

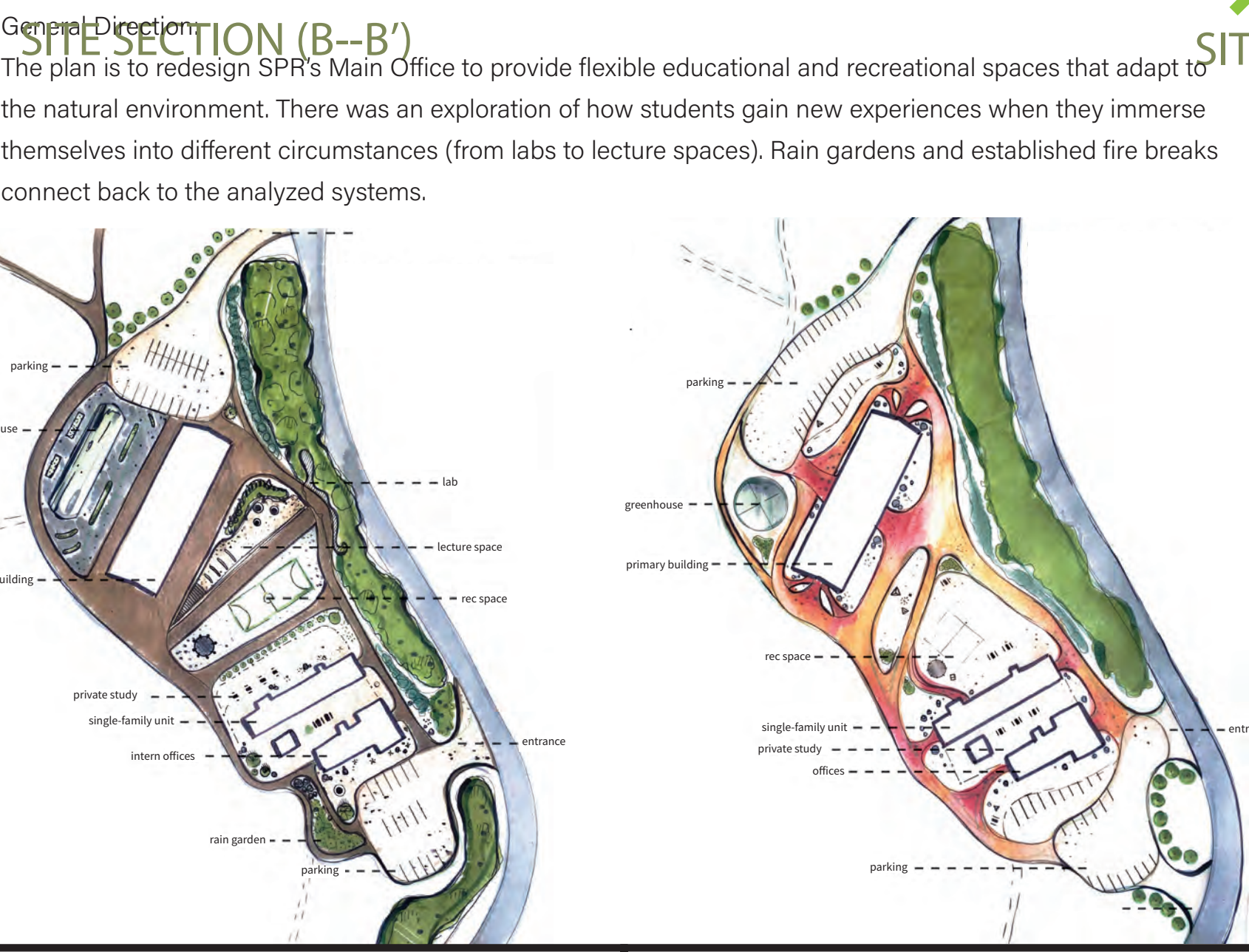
### Inspiration



### Abstractions



### Three Initial Concepts



### SELECTED CONCEPT



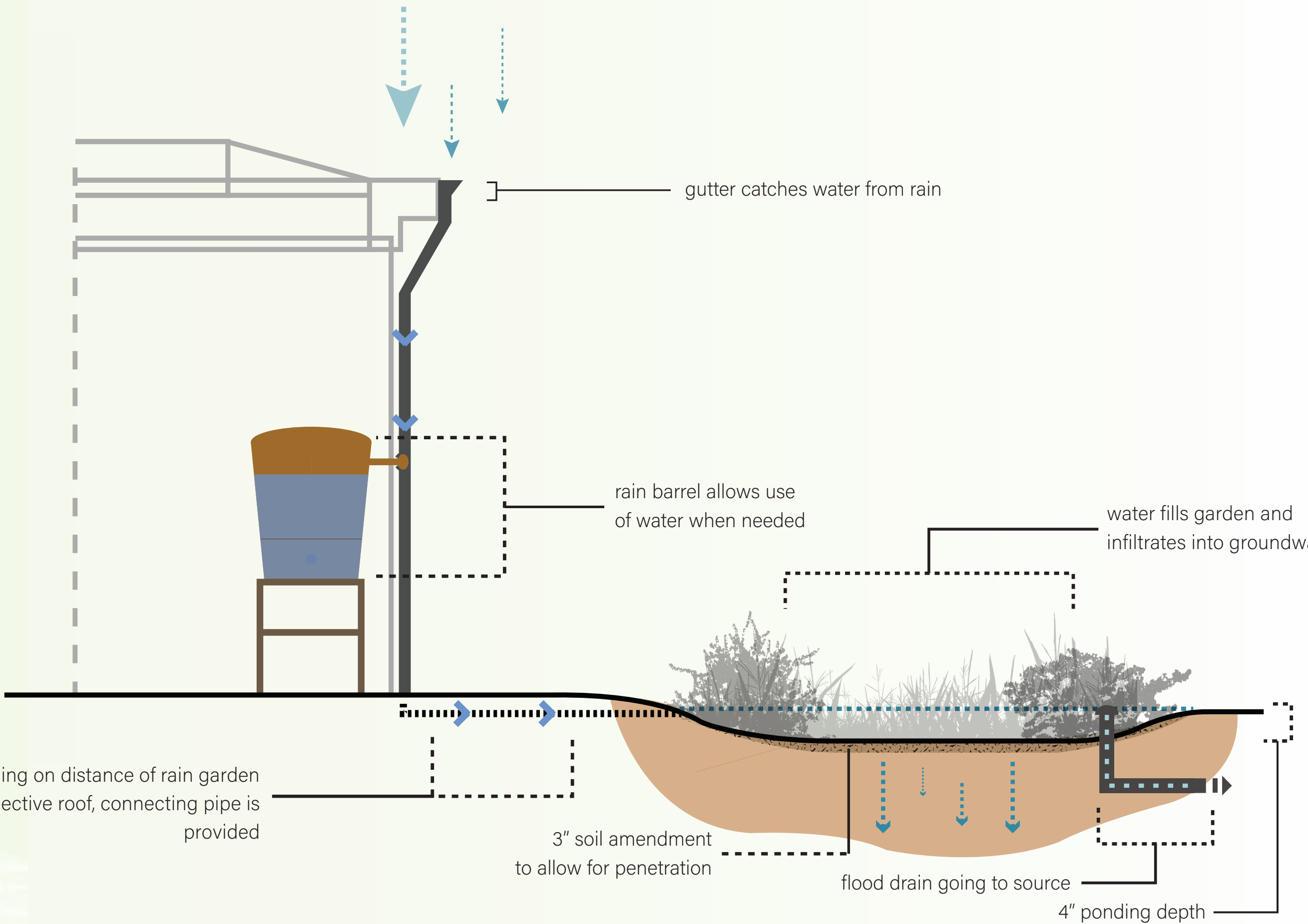
# THE SEEDS

AT SWANTON PACIFIC RANCH

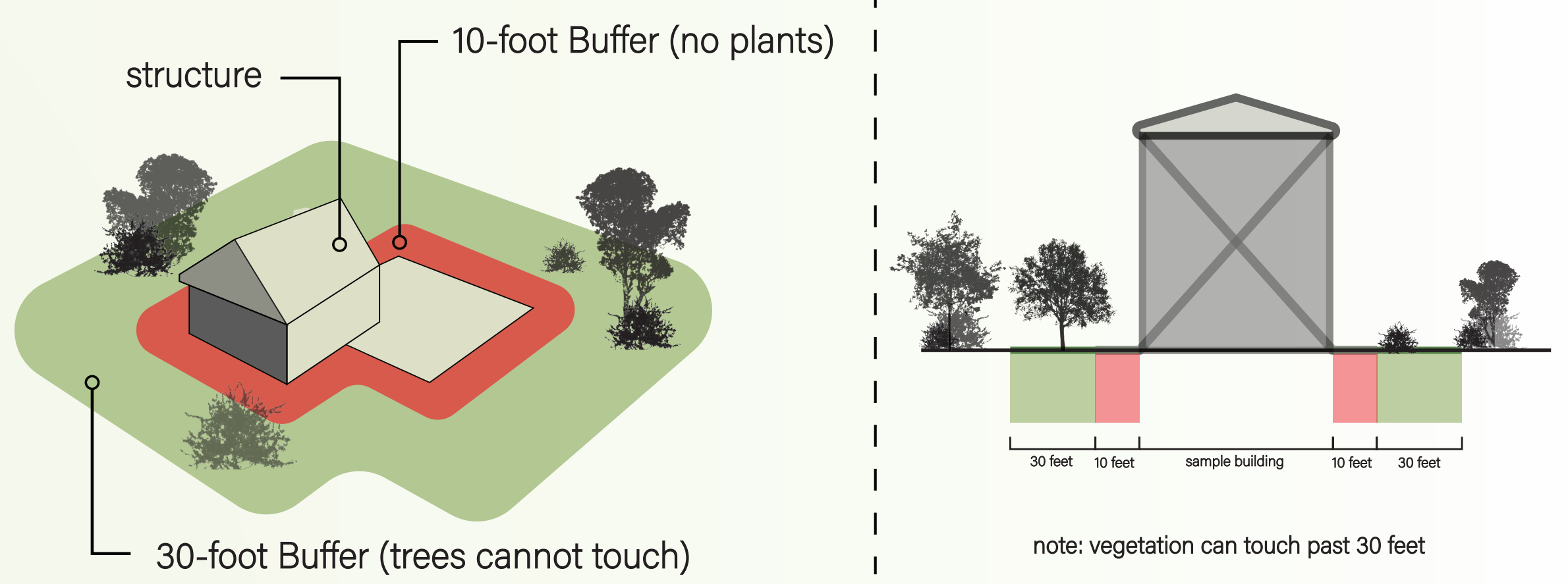


This design highlights the dynamic changes of educational opportunities. The proposal maximizes the student's experience. Spaces of education vary. More formal experiences are connected to an outdoor lecture space, while freer methods to learning relate to the outdoor conversation pits (the orange seating structure in the adjacent perspective) and labs. The design around the fire buffer (or boundary) and implementation of rain gardens connects back to the local systems of SPR.

### RAIN COLLECTION AND GARDEN EXAMPLE



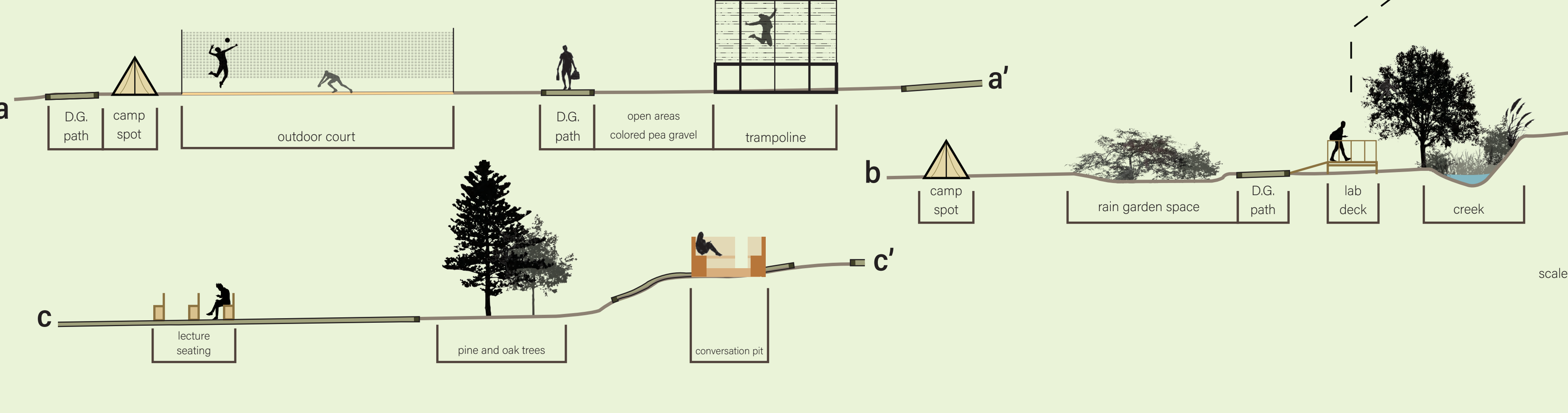
### FIRE BOUNDARY



### LAB OBSERVATION DECK



### CUT THROUGH





# THE TEMPORARY HOUSING



Views



Architecture proposal have been obtained to work with landscape architect's proposal. For more information regarding the work of architectural design, please refer to references\*

Concepts

**Play/ Exploration**  
Student interns are encouraged to explore and venture off into the natural landscape of undisturbed vegetation located in the back.

**Minimizing Impact**  
Since the CZU fire burned up majority of the area, an important consideration when coming up with this concept was to consider and preserve much of the natural and existing landscape

**Learning in a new home**  
As student interns are here to be settled in this new home for up to a quarter or two, it can be a challenging experience for anyone. This concept prioritizes to provide a place where interns can have a easier time adjusting to the change of being far from home.

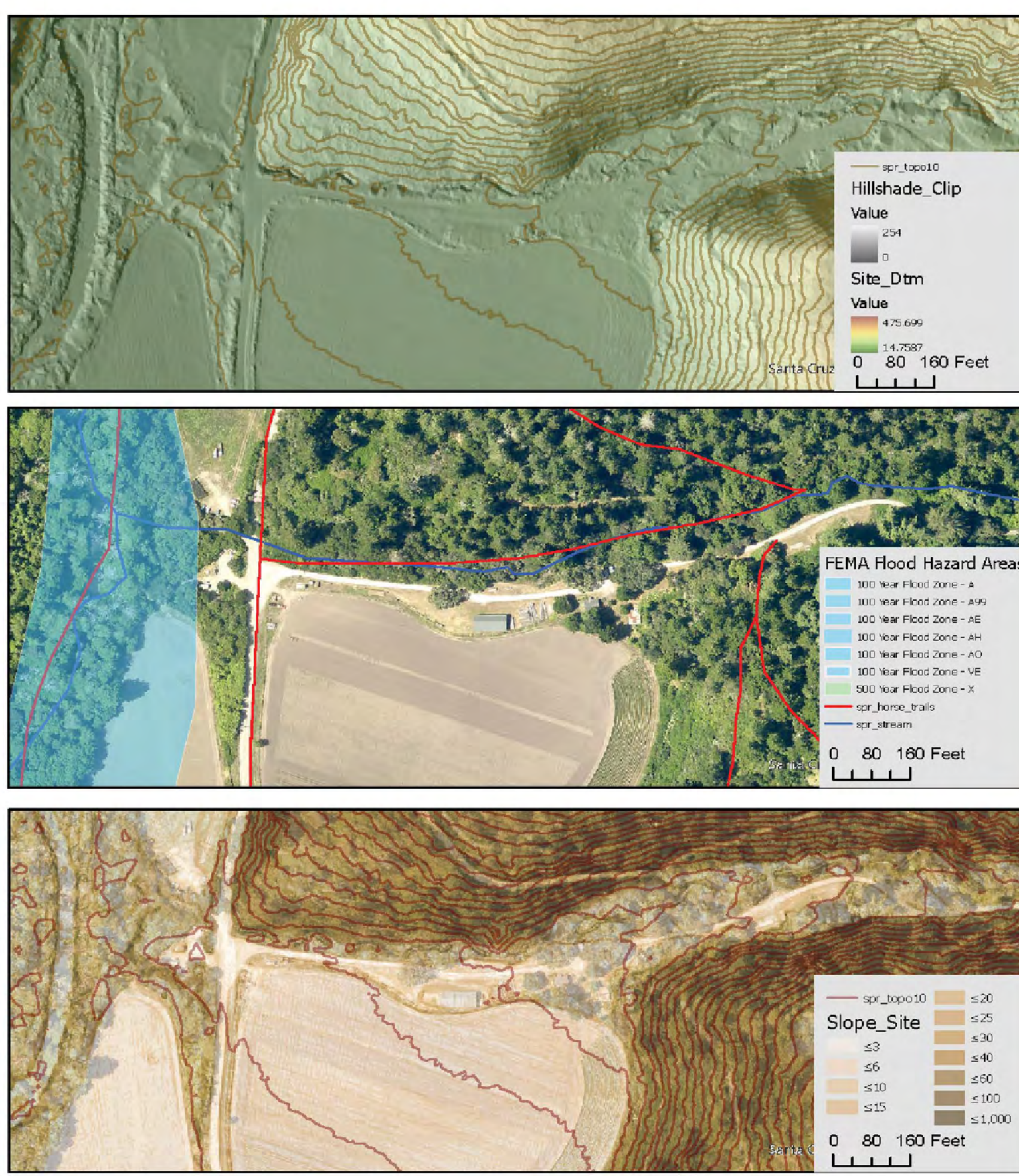
Play and Exploration



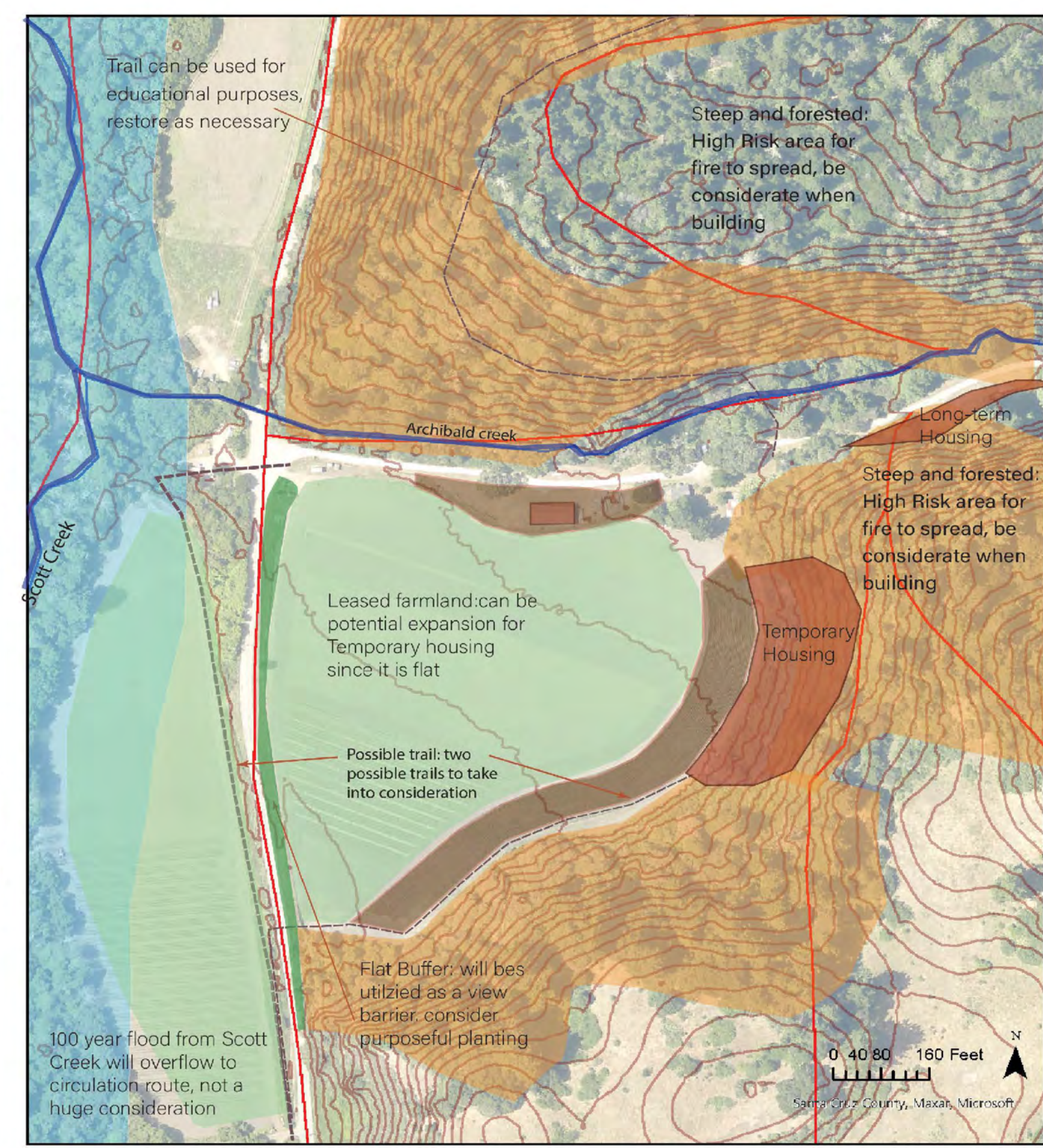
Minimizing Impact



Temporary Housing Inventory



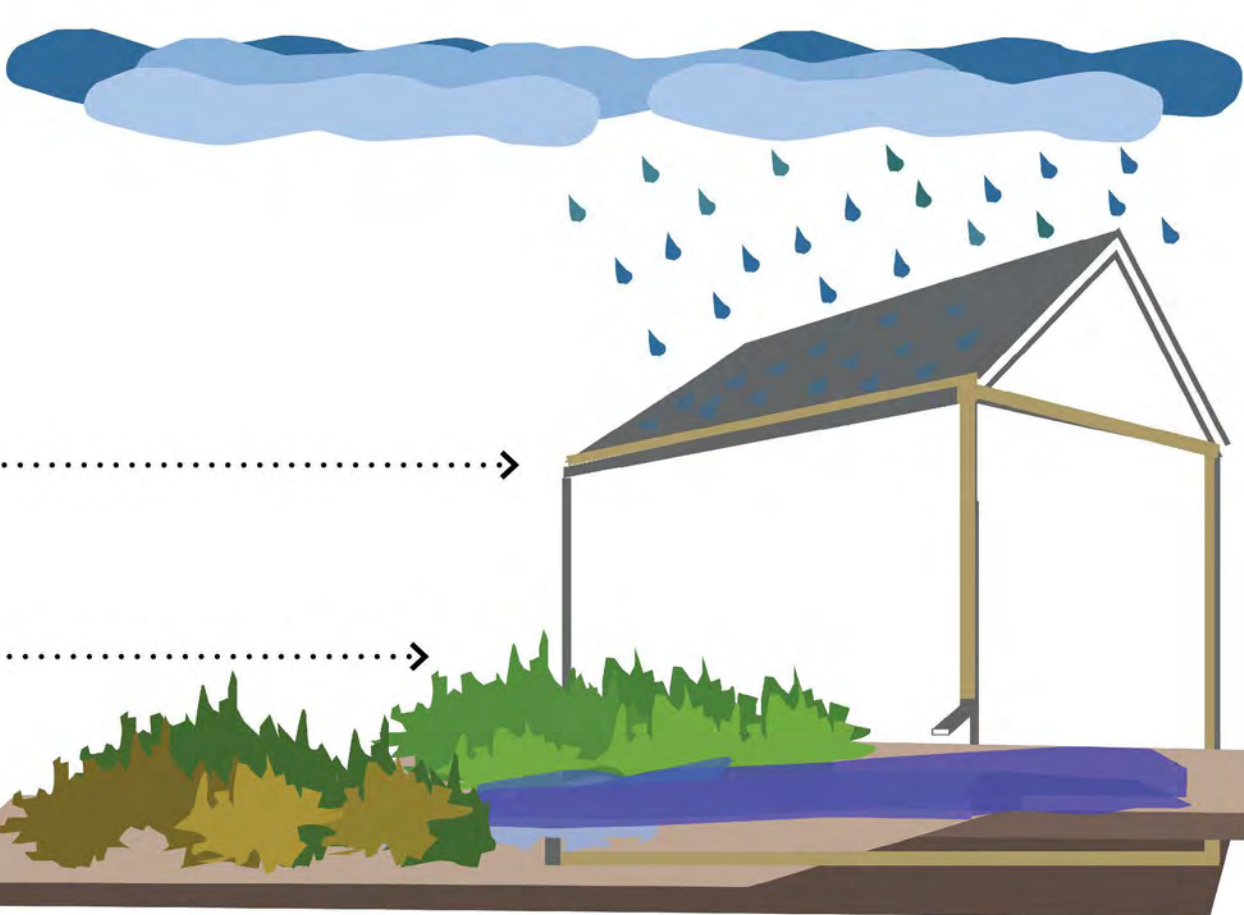
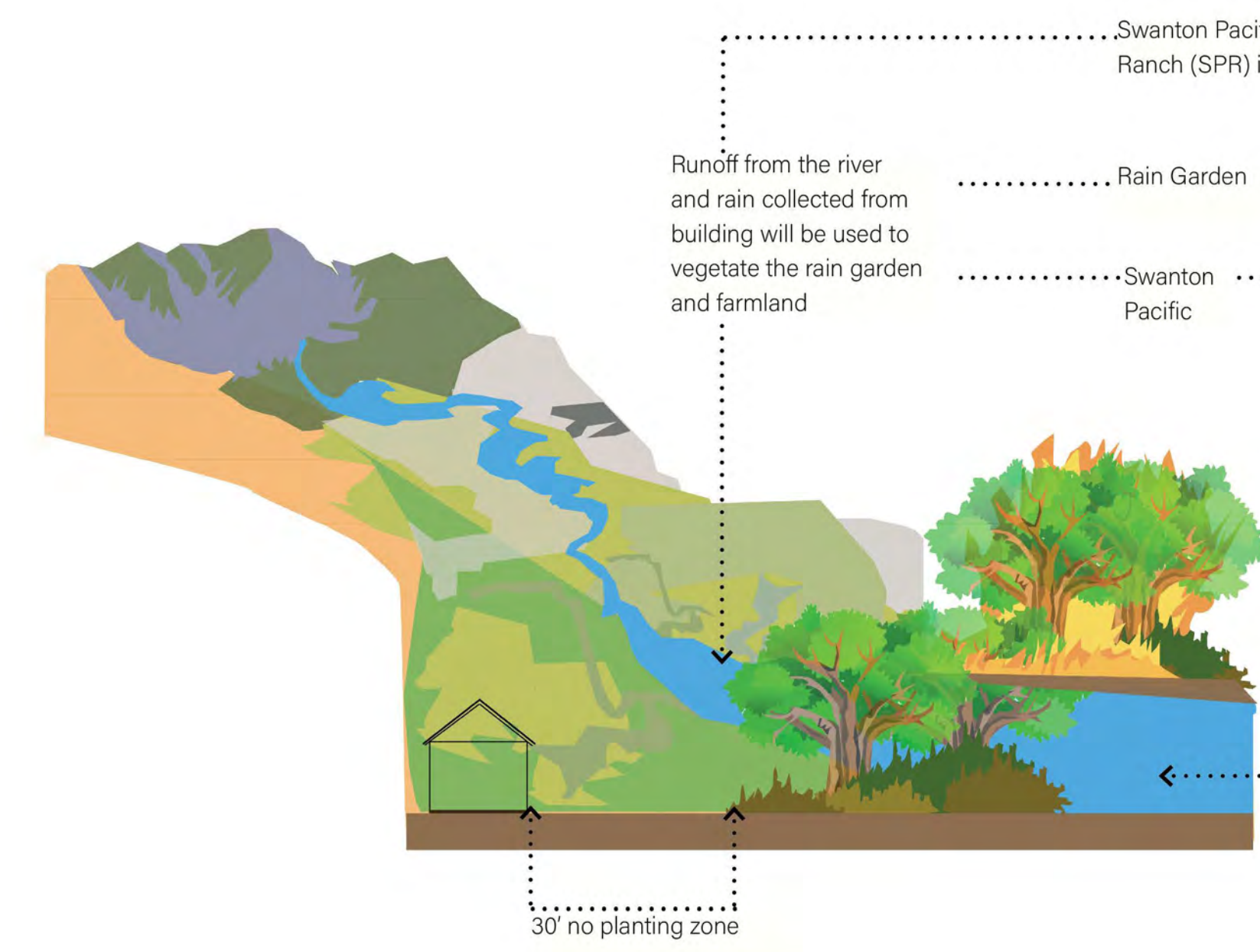
Temporary Housing Inventory



System diagrams

Water collection

The water collector will be used to irrigate the rain garden and the runoff will be used for farmland irrigation. Underground pipes will be used to transport water collected from the buildings to vegetated farmland



Adapting to wildfire

Swanton Pacific Ranch (SPR) is a 3,200 acre property that sits north of Santa Cruz and is managed by California Polytechnic San Luis Obispo. The ranch provides hands-on opportunities to students, professors, and staff.

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# THE HEARTH

AT SWANTON PACIFIC RANCH



The Hearth provides a place for interns to rest and relax after a long day of field work at Swanton Pacific Ranch. The site uses adaptive ways of working with the surrounding landscape to provide a loving place for anyone who visits

