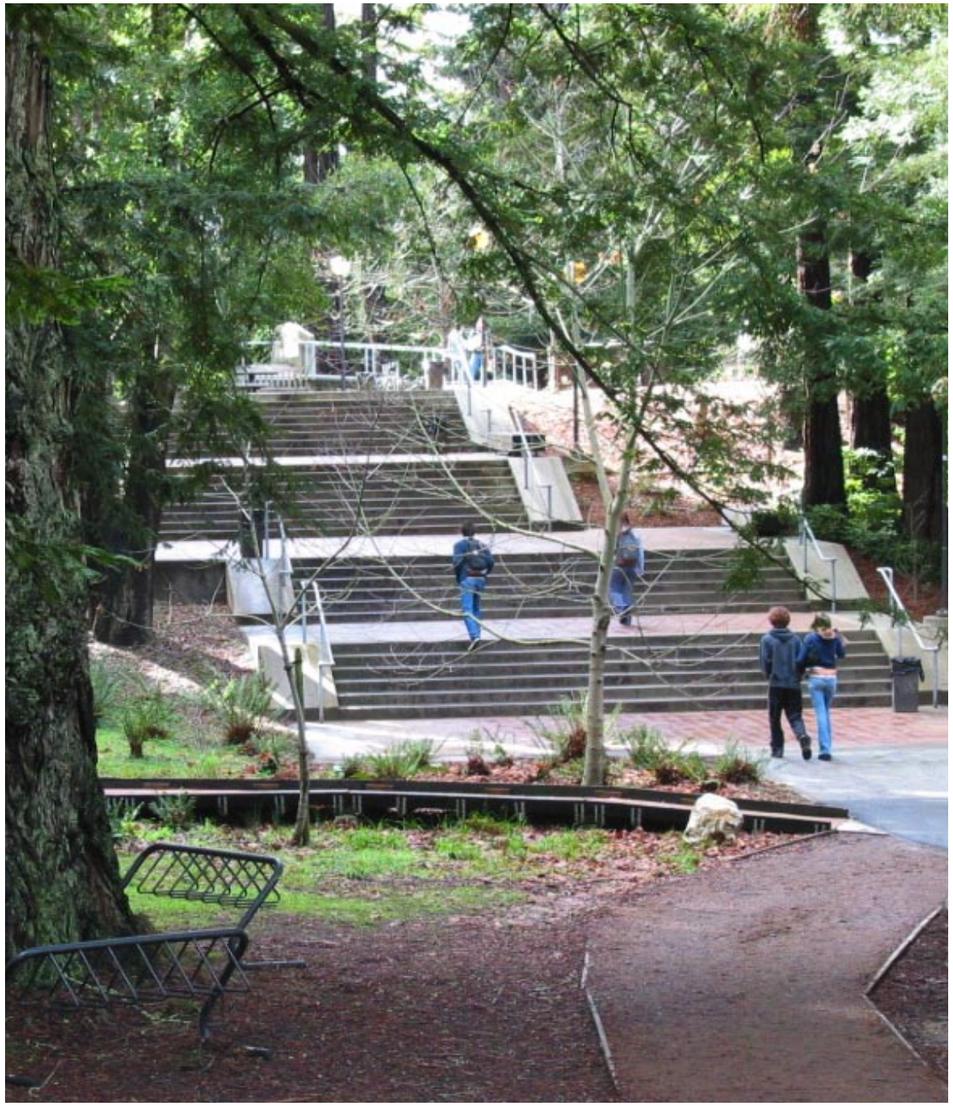
UNIVERSITY OF CALIFORNIA SANTA CRUZ
Science & Engineering Area Plan

Anshen + Allen Los Angeles
Spurlock Poirier

CONTENTS

January 21, 2005



FOREWARD

Background

This study began in March of 2004 as a detailed elaboration of the 2003 Core Capacity Study focused specifically on the north portion of the Campus Core as designated in the 1988 UCSC Long Range Development Plan. The purpose of the study is to develop a flexible physical master plan for future development of buildings, outdoor spaces and circulation systems within this area. At the same time, the work is intended to serve as a background for the 2005-2020 UCSC Long Range Development Plan currently in progress. The timing of the study was also linked to the programming phase of the Biomedical Sciences Facility with the intention of identifying the appropriate site for that building in the context of future development.

Charge

The original charge of the study was to consider evolving programmatic requirements including :
- Divisional and departmental growth and adjacencies
- Interdisciplinary opportunities
- Technical requirements of new facilities
- Program phasing
- Potential new growth initiatives
- Projected ORU growth
- Anticipated needs of Physical Plant operations
- Programs eligible for off-campus locations

At the same time, the study was asked to address broader campus issues related to :
- Science Hill in the context of the whole campus
- Natural resources, landscape and topography
- Developed and undeveloped open space
- Pedestrian, bicycle and vehicular circulation routes
- Parking, service and supporting operational needs
- Improved connections to other parts of the campus
- Sites for a new Environmental Health and Safety Building
- Sites eligible for redevelopment
- Utility and infrastructure capacities

Goals

The 2003 Core Capacity Study identified building sites capable of supporting 435,000 gross square feet of new construction on Science Hill within the framework of the existing infrastructure and the guidelines established by the 1988 LRDP. Interviews with the academic departments identified a need for 600,000 to 700,000 gsf. Further into the study, as a result of the LRDP process, the campus settled on a target enrollment of 21,000 students by the year 2020. The space requirements statistically developed by Capital Planning to serve that level of enrollment indicate the need for roughly 1,000,000 gsf of new space on Science Hill. A breakdown of these projected space requirements is available on page 3.1 Growth Projections / Area Tabulations.

The Science & Engineering Area Plan Advisory Committee, in the context of discussing the balance between maintaining existing campus character and providing buildable area, directed the planning team to identify as much building capacity as possible.

The planning team identified the revised goals for the area plan as follows :
- Accommodate approximately 1,000,000 gsf of new building area
- Develop an open space concept unifying the North and South precincts of Science Hill
- Strengthen the connections to the larger campus
- Define an infrastructure of landscape open spaces and events
- Organize building clusters by programmatic affinity
- Prioritize land and phasing
- Accommodate campus support facilities and parking
- Define guidelines for open spaces and site developments

Process

Data Collection / Site Analysis

The initial phase of the project consisted of documenting the existing conditions on Science Hill. First and foremost, site visits were conducted to familiarize the design team with the campus in general and Science Hill in particular. Interviews were held with the Deans of the Division of Physical & Biological Sciences and the School of Engineering as well as with the Campus Fire Marshall, Transportation & Parking Services, Physical Planning & Construction and the Planning & Budget Office. The documentation of this phase of the process is presented in Section 2 Existing Environment, below.

Program / Strategic Analysis

As the ongoing Long Range Development Plan process refined growth projections for the entire campus, more specific projections were generated, detailing the necessary types and quantities of space to accommodate that growth. This tabulation of spaces was developed into a program for Science Hill to form the basis of the Science and Engineering Area Plan. This information is presented on page 3.1 Growth Projections / Area Tabulations. Based on the analysis of the existing conditions on Science Hill presented in Section 1 Existing Environment, potential building sites were determined. These areas included currently unbuilt areas that met environmental and topographic criteria and provided necessary access and adjacencies, re-use sites currently occupied by existing buildings that could be redeveloped to accommodate more intense use, and existing parking areas. These potential sites are outlined and described in detail on page 3.2 Potential Building Sites.

Area Plan

The proposed Area Plan is shown on page 3.3 and demonstrates an arrangement of building footprints on the potential building sites that meets the capacity goal of an additional 1,000,000 gsf. These footprints are based on reasonable dimensions for their intended use and are organized to either reinforce existing open spaces or define new ones. Major academic buildings are limited to between 100,000 and 120,000 gross square feet, reflecting the current size of average state-funded projects. Although additional height is possible while remaining below the tree line, the building area calculations were based on four stories and a basement. This is not intended as a maximum height limit, but results from determining functionally reasonable and efficient floor plates for buildings less than 120,000 gsf.

The relationship between these building footprints and the existing activities on Science Hill was analyzed to identify a series of thematic groupings that in turn suggested particular uses for the potential sites. These groupings are illustrated on page 3.4 Programmatic Clusters, and the descriptions of the specific buildings and their uses are tabulated on page 3.6 Building Sites / Program. Pages 3.7 through 3.10 investigate alternate scenarios for those locations where multiple strategies were feasible for a particular zone within Science Hill and present options for the siting of specific upcoming projects.

Open Space Plan

This program of built space was in turn supported by the development of an Open Space Plan to provide a coherent framework for the continuing growth and development of Science Hill. As important as programming, locating and orienting future buildings for Science Hill is the establishment of an open space infrastructure to serve as an armature for that future development. In fact, the two were developed concurrently, with each process informing and responding to the other. A series of workshops were held with the Advisory Committee and the Working Group to review this process and develop the Area Plan in all its aspects. A north-south circulation spine is used as a primary organizing device, amplifying existing patterns on Science Hill. A detailed description of the Open Space Plan is presented on page 4.1 Illustrative Plan. This plan is further analyzed according to hierarchy of spaces, main and service entrances, and views on pages 4.2 through 4.4. The topography of Science Hill presents a significant challenge to providing a continuous pathway that complies with accessibility requirements for the length of the circulation spine, but one scenario is presented on page 4.5 Pedestrian Circulation / Accessibility Diagram. Cross-sections through specific points along the circulation spine demonstrate the lateral connections between open spaces, buildings, the surrounding ravines, and the campus beyond on page 4.6 Site Sections.

Issues

In addition to accommodating the programmatic requirements of the projected growth for Science Hill, there are a number of specific issues that bear closer examination. Some of these issues fall within the scope of the current study and are addressed in this document while others overlap the Area Plan and ongoing parallel efforts. These latter issues must be recognized and acknowledged by the Area Plan, but will require future coordination in the ongoing implementation of the Area Plan and other campus development strategies.

Organized Research Units

One component of the 1,000,000 gsf of new space is approximately 160,000 gsf of space for Organized Research Units, or ORU's. These groups have widely varying needs regarding the type and amount of space they require, the extent to which they are connected to or independent of other research activity, and the durations of their projects. Some ORU's need primarily office and conference space while others require laboratory and shop facilities. Some ORU's can simply be a part of a larger academic building, to maximize the connection to other personnel and services, while others need independent facilities and could even be located off-campus. Given that there is a limited amount of space on Science Hill and the difficulty of siting large research buildings, it is imperative that those freestanding ORU's be sited where they will not preclude future development of academic buildings. The Science and Engineering Area Plan has located freestanding ORU facilities at the perimeter of Science Hill, in close proximity to academic buildings existing and proposed, and on sites whose development is limited by geographic features or existing facilities. As development on Science Hill continues, more of the required ORU space may have to be shifted off-campus. Based on meetings with the Science & Engineering Area Plan Advisory Committee, the planning team determined that the total ORU space would be divided evenly between space in larger buildings and freestanding structures ranging in size from 5,000 gsf to 20,000 gsf. A larger freestanding building could also support multiple ORU's, perhaps serving as an "incubator" for smaller ORU's, which could eventually move on to larger facilities as they grew and became more established. Proposed building locations, sizes and programs are shown on page 3.6 Building Area / Program.

Parking

Given the requirement to site 1,000,000 gsf of academic buildings on Science Hill, providing an additional parking structure within the boundaries of the study area is effectively precluded. The desired adjacencies for new facilities and proximity to existing buildings, combined with the limited available space, outweigh the relatively lower use of the land for parking. However, given the increase in the number of students and faculty using Science Hill, provisions must be made to accommodate additional parking and the necessary transit services to provide access to Science Hill. As this will necessitate a larger, campus-wide scope of study, it is more appropriately a part of the 2005-2020 UCSC Long Range Development Plan.

Environmental Health & Safety

A new Environmental Services Facility (ESF) is a part of the ongoing Major Capital Improvement Plan. This building will provide offices for Environmental Health & Safety personnel as well as containment and management of hazardous materials generated on Science Hill. In spite of the high demands and limited space available, the new ESF building is best located on Science Hill, where the materials in question are produced. For a more detailed discussion of the issues pertaining to site selection for the ESF, see page 3.10 Environmental Services Facility Options.

Infrastructure

The expansion of academic space on Science Hill will require the construction of additional boilers and cooling towers to augment the capacity of the Heat Plant. As the University engages in increasing levels of nanotechnological research, there is a concurrent demand for more space conditioned to increasingly tight specifications. While it would be premature to attempt to document this emerging issue in a quantitative form at this point, it is clear that there will be a high demand for additional cooling capacity in this part of campus.
Based on interviews with campus engineers, it was learned that the capacity of the utility piping on Science Hill will become an issue. While there is sufficient existing capacity to support the level of growth outlined in the 2003 Core Capacity Study, the current projections call for more than twice that amount of space, which will exceed the capacity of the existing systems. To accommodate planned growth, there are currently three phases of infrastructure improvements scheduled. Phase One replaces one of the cooling towers located near the Heat Plant north of McLaughlin with a larger tower. Phase Two installs a 600,000-gallon thermal energy storage tank southeast of the Earth & Marine Sciences Building. Phase Three installs a similar tank north of McLaughlin, near the Engineering 2 Building. By locating new utilities remote from the existing Heat Plant, the existing distribution system can remain in place without requiring the installation of new, larger piping to accommodate the increased capacity.

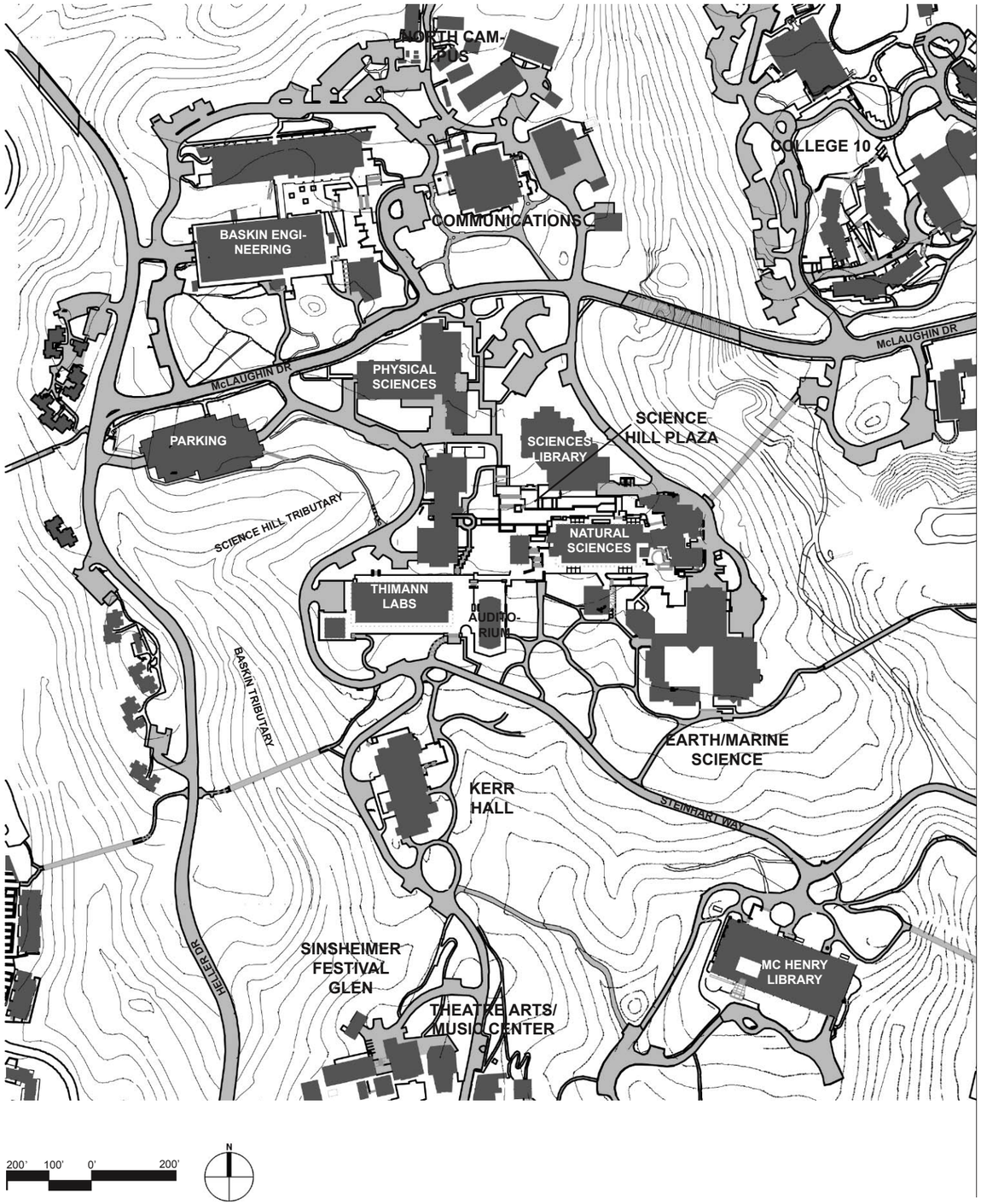
Beyond the planned infrastructure improvements, there will be a demand for additional cooling towers to meet the future needs of Science Hill. One relatively efficient location for these proposed facilities would be lower Kerr Meadow, southwest of McHenry Library. This future infrastructural expansion is currently being studied by Physical Plant and Physical Planning & Construction.

Stormwater management continues to be a critical issue on the UCSC campus. The Moore Creek ravine to the west of Science Hill and Jordan Gulch to the east are both near their capacity for drainage of stormwater runoff at the current level of development on Science Hill. Future projects may have to accommodate this situation by piping stormwater runoff from more- to less-heavily impacted zones, or by constructing retention systems that will allow the controlled release of runoff over time. A campus-wide Stormwater and Drainage Master Plan is currently under development, and any new development on Science Hill will have to address the guidelines established by this plan.

SECTION 2 – EXISTING ENVIRONMENT

SCIENCE HILL STUDY AREA

This study examines the north portion of the campus core known as Science Hill, extending from the boundary of the environmental preserve at the north to Kerr Meadow at the south, and from Heller Drive and Moore Creek at the west to the protected landscape area of Jordan Gulch on the east. The study area includes approximately 56 acres.



Background

The University of California, Santa Cruz has one of the most distinctive campus landscapes in the western United States, if not the world. Its planning has been based on respecting and responding to its unique natural landscape setting. The colleges and the central core are set on wooded ridges and knolls above the City of Santa Cruz and the Pacific coastline. The campus entry, parking, and some support facilities are located in open meadows and fields below the ridges. Clare Cooper Marcus describes the campus as “a unique situation of buildings determined by trees.” Future planning, including this study for Science Hill, must maintain the quality of the setting.

Although an update to the Long Range Development Study is currently underway, this analysis is based primarily on the previous 1988 LRDP, the 2003 Capacity Study and other existing planning documents for the University including the following :

- Landscape Management Program, 1995
- Stormwater Master Plan, Kennedy Jenks Civil Engineers
- UCSC Development Manual, Site Requirements, 1999
- Pedestrian Circulation map provided by Larry Pageler, 2004
- Campus activity and view diagrams provided by Matthew Waxman, 2004
- Science Hill Capacity Study, Sasaki Associates, 2003

Landscape Experience

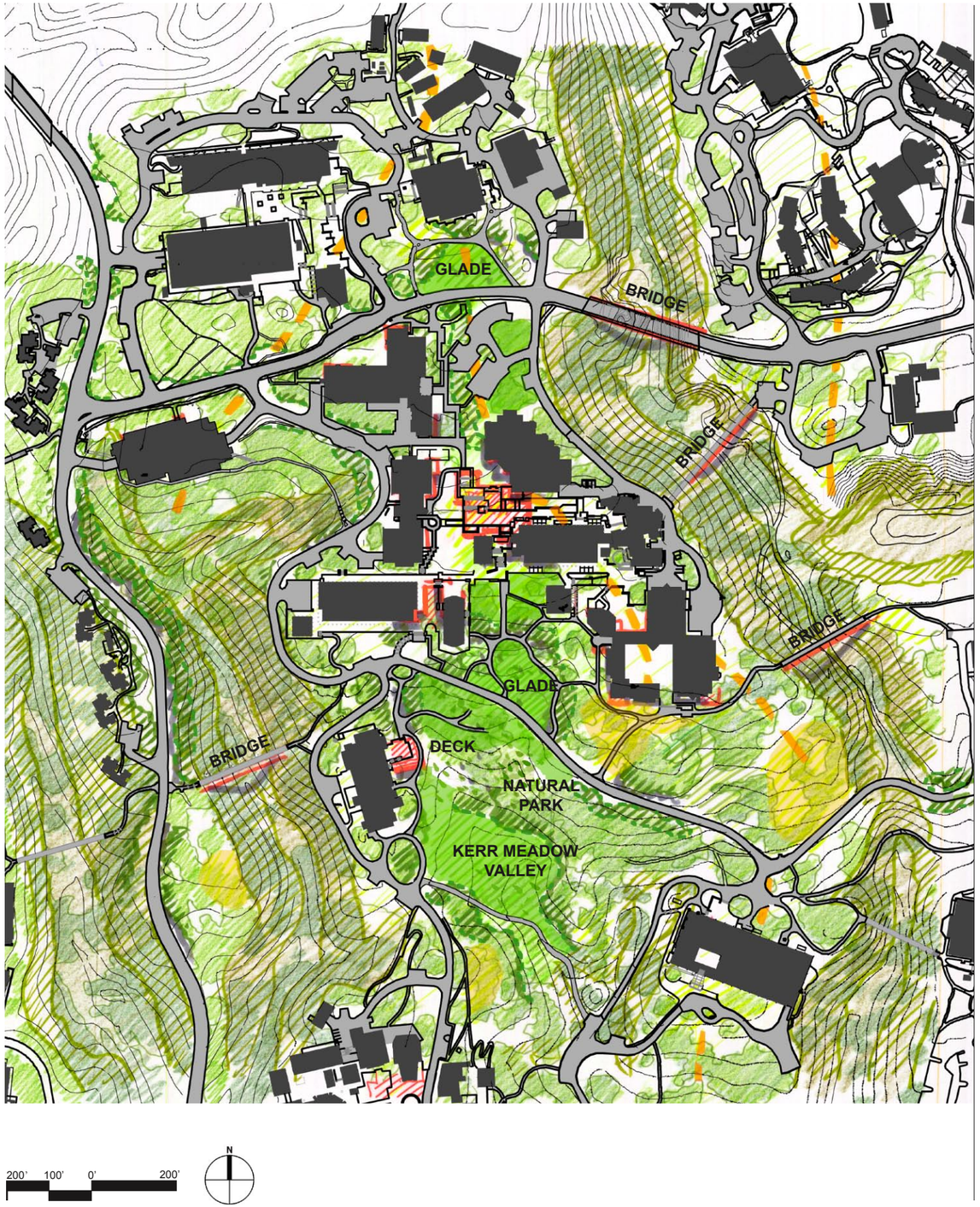
The landscape experience of UCSC works at many levels as a sequence of complex interactions with topography, trees, ocean and the activities of the campus. One of the unique qualities of the campus is the fact that it does not have a strongly defined structure of circulation or man-made spaces. Buildings and building clusters seem inserted among the trees on the ridges and along the edges of a sweeping meadow. In the sequence of arrival at the campus, the openness of the meadows creates a prelude to a tightly woven experience of forests, ravines, groves and knolls above the coastline.

The core is at the center of the campus, yet doesn’t seem to be the focus of the campus. It is located on a north to south ridge and is defined by deep ravines on its east and west. The north area of the core contains science facilities: laboratories, classrooms and lecture halls and a science library, while the south area contains arts: studios, classrooms, galleries, theatre and performance spaces. Support facilities such as the central library, bookstore, health care, administration, offices, the quarry amphitheatre and food service are uniquely dispersed in transitional spaces at the edges of the core.

Auto circulation winds to, around, and through the core, but there is no formal point of arrival. Parking is dispersed at the edges, and although a new parking garage is located off Heller Drive, its relationship to Science Hill is not apparent. Pedestrian circulation originates at transit stops, parking, or at the residential colleges which are located along a rough arc around and above the core. The pedestrian experience of entering the core is dramatic from almost any direction because it requires traversing the forest and often one of the ravines.

This experience is a rich sequence of open and closed spaces, sun and shade, green trees and golden meadow, ridge and ravine as well as the more intimate landscape of courts, walks, lawns, steps, ferns, flowers, buildings and bridges. The landscape provides separation between areas and supports the academic and social structure of the college system. A student described this structure as “village states with a central town.” The density of the redwoods and the topography provide separation and a distinct character for different part of the campus. Adding density to the core could make the central town analogy work better, if the core were better defined, contained more activity, and contained spaces defined by buildings. However, a careful balance between the landscape and development must be preserved.

LANDSCAPE CHARACTER



Observations

Science Hill is currently, and potentially in the future, the geographic climax to a very interesting series of landscape spaces. UCSC is entered from the City of Santa Cruz at the coast by winding through neighborhoods, entering a parkway with overhanging trees and emerging on a vast open meadow. Historic farm buildings at the foot of the meadow define the campus entry. The location of the campus is enigmatic; two roads traverse the meadow and lead to distant redwood shrouded ridges. Either direction climbs dramatically and plunges into deep shade of groves and ravines. All access seems to skirt the core, leading first to the colleges (neighborhoods tucked in the trees) or the theatre, recreation and common facilities (perched in the meadow or parklike areas surveying the views). The campus has the feeling of a mountain village. The core is on a central ridgeline in this village, but is initially unseen, has no formal entry, and must be discovered. Landscape spaces defined by buildings are currently limited to Science Hill Plaza, its flanking terraces and the bridges. The landscape to the north becomes gradually more dense with redwoods while the landscape to the south opens into groves of oaks and pockets of sun. The edges are strongly defined by the density of trees in the ravines and the experience of crossing on the bridges.

Students and visitors, in a sense, arrive in the residential colleges and the park spaces and then converge in the core for academics—but not for activities and social life. So, what should be the landscape character of this teaching and research core? Should it be the center of the village with urban activity spaces, or should it try to remain a quiet and academic precinct in the woods—even at a much higher density?

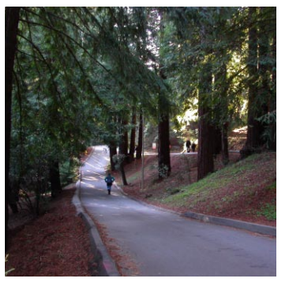
The experience of the landscape is one of contrast along pathways: light and dark, open and closed, vertical and horizontal, active and quiet and so forth. The core area is a microcosm of the campus, since it sits on a ridge between the meadow and forest. The north and south ends of the ridge are very different. The south edge has the feeling of opening out to the meadow and view, while the north end of the ridge ascends and closes into the forest.

The ridgeline along Science Hill is very difficult to perceive, although it is significant because it is central to the campus, has remarkable views and could be further developed as a defined series of spaces along a north/south spine through the center of campus, connecting the Science Hill and the Arts. Currently, Science Hill Plaza is a space framed by buildings and has a sense of place at a high point on the ridge, and has some of the feeling of a square overlooking a vast park. The ravines and the bridge crossings through the trees are the genius loci of the core and should be reinforced as an experience of arrival—perhaps a bridge from parking or transit.

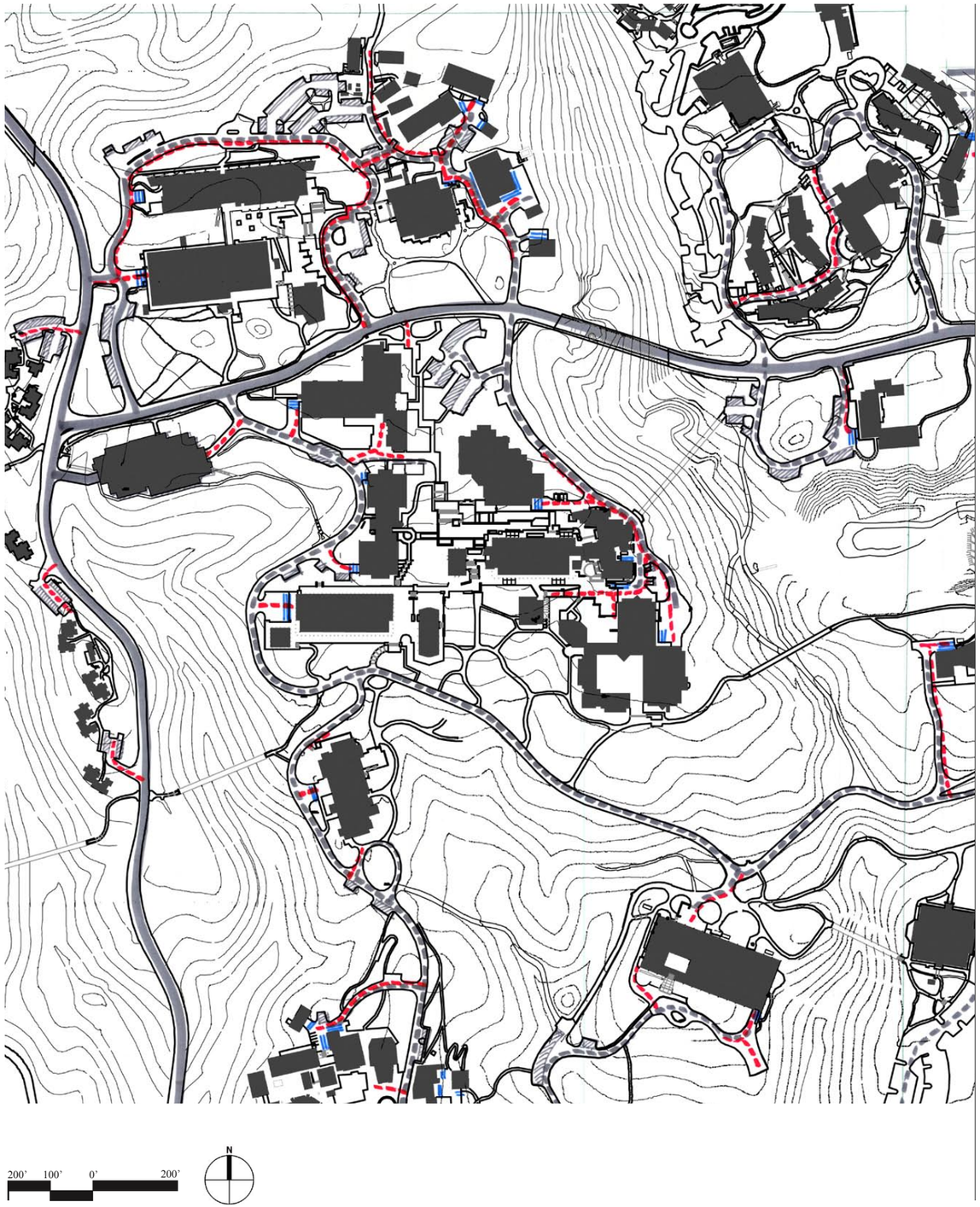
The eccentricity and contrast of surrounding spaces is an important part of the character of the core. Common facilities that might normally by focused are dispersed in the park: quarry amphitheatre, medical facilities, administrative facilities, food and bookstore, McHenry Library. Each one has a unique character.

This begins to suggest a sequence of spaces that define the center north to south axis of the ridgeline. It could be orchestrated to frame gathering areas and arrival points, and to open to the views to the south.

BUILT SPACE
OPEN MEADOW
TREE BORDER
RAVINE
CANOPY
RIDGE
SOUTH KNOLL



AUTO CIRCULATION / SERVICE / FIRE ACCESS



Issues

- University doesn't have a current traffic study—pending LRDP
- Major conflict between vehicle circulation along McLaughlin and north-south pedestrian circulation
- Wayfinding is difficult for drivers, finding parking lots and orienting to the core or colleges
- Transit is effective for students but not visitors
- Core West parking facility is being outgrown per Capacity Study numbers
- Need for close-in parking is increasing with ADA and medical parking requirements

Observations

The indirect auto circulation is a key part of the natural landscape experience of the campus, but it can also be frustrating for visitors. It is possible to wind up either of the entry drives and miss Science Hill entirely. The bookstore seems like an arrival point, but it lacks parking and seems surprisingly distant from the Science Hill. The McLaughlin crossing at the spine is a central arrival point, but parking isn't immediately apparent. When approaching the Core West facility from Heller Drive, there is little indication of arrival prior to the parking entry. The Core West parking facility is convenient to the central part of the core, but pedestrian access is constricted: it creates multiple crossings of McLaughlin to the north and reinforces rear entries through service areas to the south (especially with the addition of the Physical Sciences Building).

Service and emergency access system is relatively clear and at the edges of the core, except at the Environmental Science Building where it overlaps building entries and a primary pedestrian path from the bridge to College 10. Surface parking north and south of McLaughlin conflicts with clear pedestrian connections at McLaughlin. The central parking and service drive area to the north of McLaughlin is an anomaly and also conflicts with pedestrian circulation.

Fire truck access is generally unobtrusive and uses service access drives and loading areas. The topography is a challenge, but UCSC only requires fire truck access to a given building at a point, not along one full side. This access must be 20' wide and is limited to 150' in length if a turnaround is not provided. The hose pull distance is limited to 150' with exceptions made based on the provided sprinkler system.

AUTO / UNRESTRICTED

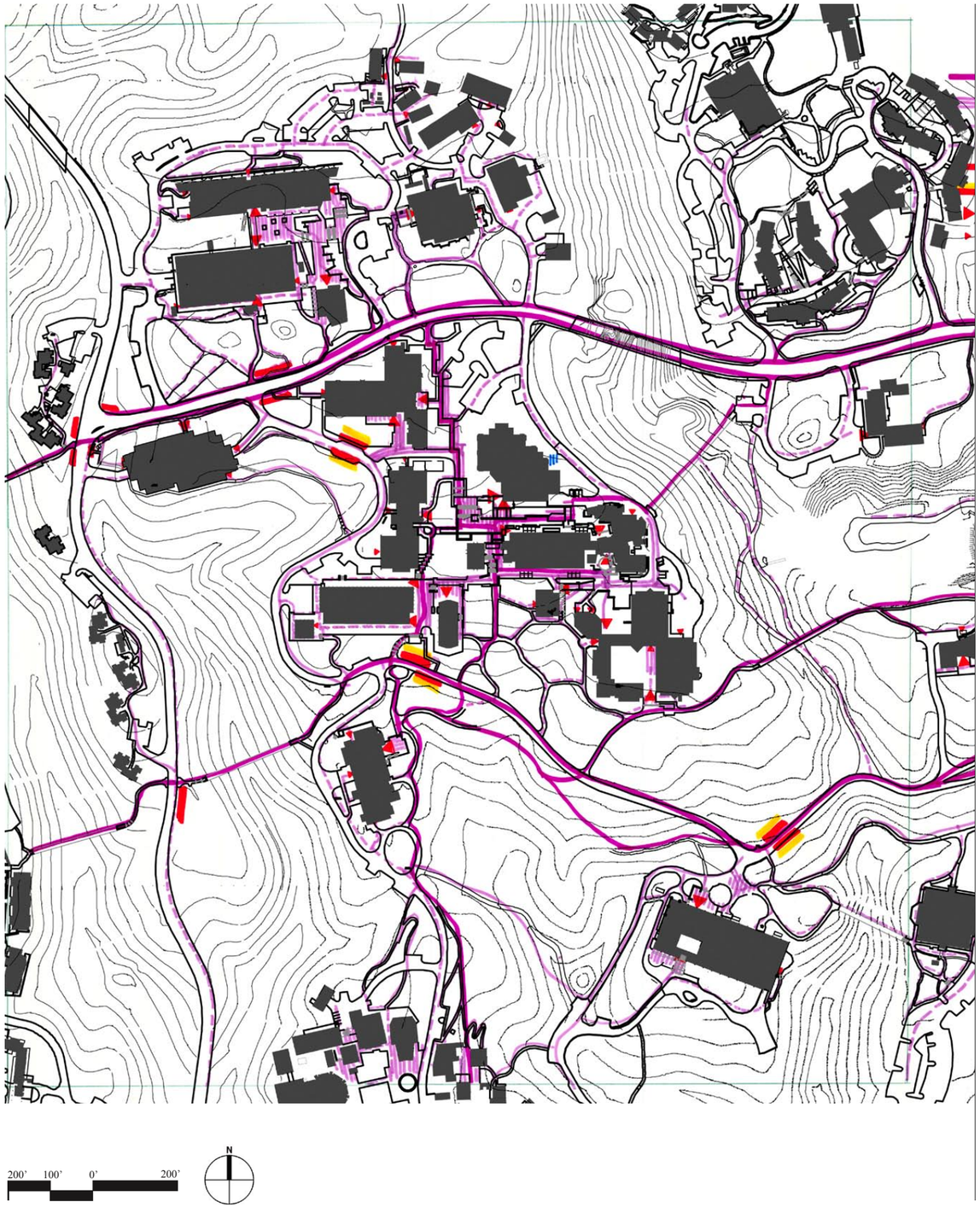
SERVICE / LIMITED AUTO

PARKING

LOADING / SERVICE / TRASH

EMERGENCY / FIRE

PEDESTRIAN / TRANSIT / BICYCLE ACCESS



Observations

Looking at the number of paths to Science Hill, most pedestrian circulation is currently diagonal or east to west—from colleges and across bridges and skirting the edges of the core. Internally, pedestrian circulation tends to occur on east to west terraces that cut across the sloping grade. Future circulation may be more north/south as buildings are added to the north. Kerr Meadow is like a "Central Park," and circulation follows its west edge south to the Arts complex and east to the Bookstore and McHenry Library. The roads which cross the core (McLaughlin and Steinhart) are major pedestrian routes: McLaughlin has narrow sidewalks, but the volume of auto traffic precludes walking in the street and Steinhart is closed to public traffic and serves a shuttle route. Steinhart Way is discussed in the 1988 LRDP as a pedestrian spine, but isn't central to Science Hill unless development is concentrated in Kerr Meadow.

Stops for both the university shuttle (TAPS) and the city system (SCMTD) have well-located stops, but the pedestrian walkways from those stops are poorly developed (narrow sidewalks, lack of amenities, wayfinding).

The area north of McLaughlin uses driveways as circulation. Circulation from south of McLaughlin (from parking, transit or other areas) occurs at approximately seven different crossing points, creating traffic conflicts along McLaughlin.

Major building entries (formal entry, not necessarily the most used entry) generally occur on the east to west terraces or toward the center of the core, however many people use minor entries (often near the service areas), because these are closer to parking or pathways from colleges.

LINKS TO OTHER AREAS

VOLUME / WIDE PAVING

MAJOR PATH

MINOR PATH

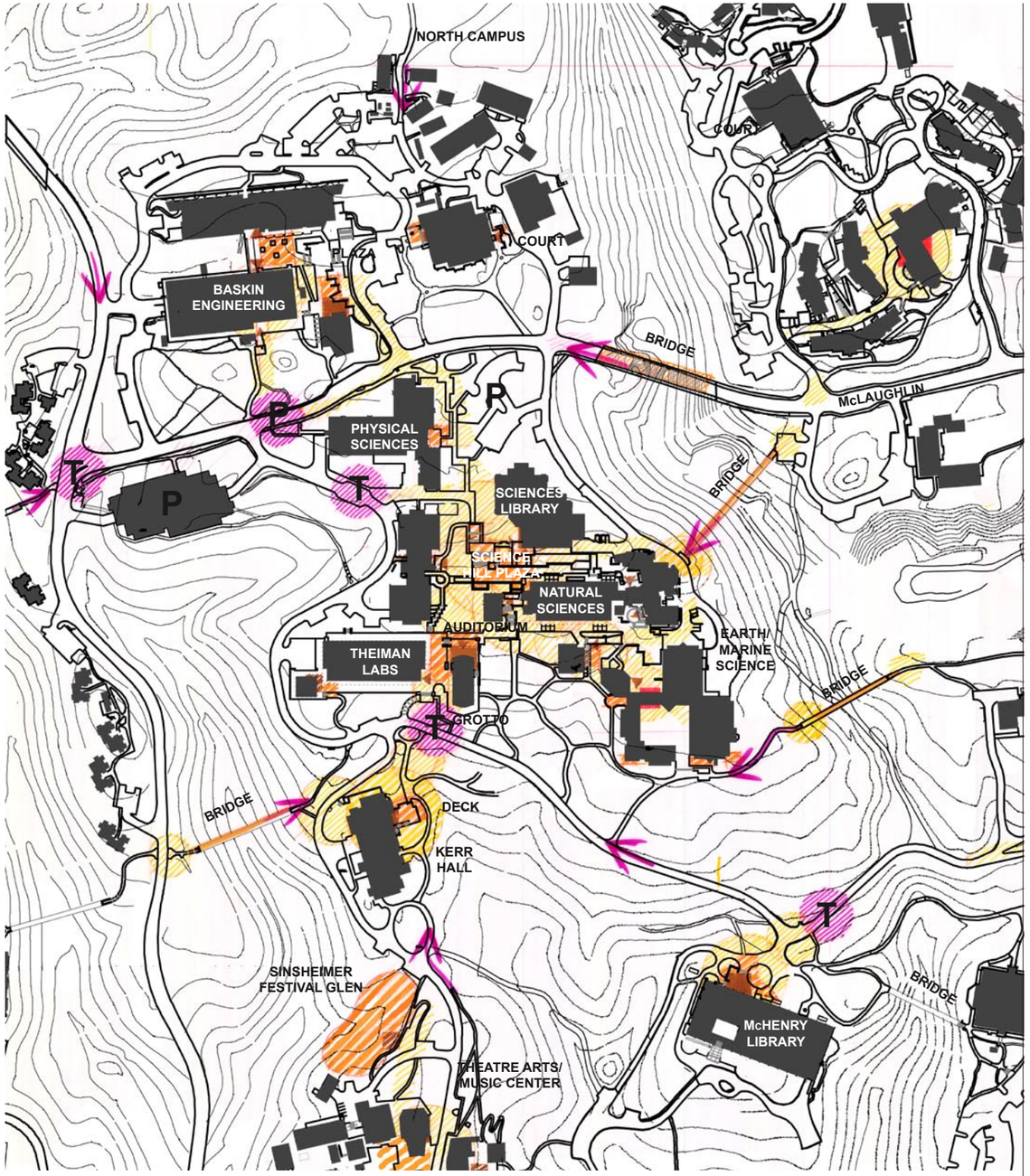
TRANSIT TAPS/ SCMTD

TRANSIT TAPS

MAJOR ENTRY

MINOR ENTRY

NOTE : BICYCLE PARKING NOT IDENTIFIED



Observations

Currently, the level and type of activity in the core is inconsistant with its central location. The core really doesn't act as a central activity area or "town" for the campus, but more as an academic and office complex. Student activities are focused in the colleges and in dispersed areas at the perimeter of the core such as the Bookstore and Grad Student Commons, the Performing Arts Center, the Quarry and the Sinsheimer Festival Glen. The core serves as a major crossing at Red Square for circulation, but that circulation isn't reinforced by gathering spaces or activities such as food, recreation, or convocation spaces. Departmental activity is internal to buildings and even spaces adjacent to buildings are minimally developed to encourage casual interaction while leaving or waiting for classes or lectures.

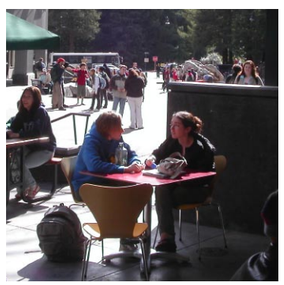
ARRIVAL POINT - TRANSIT / PARKING

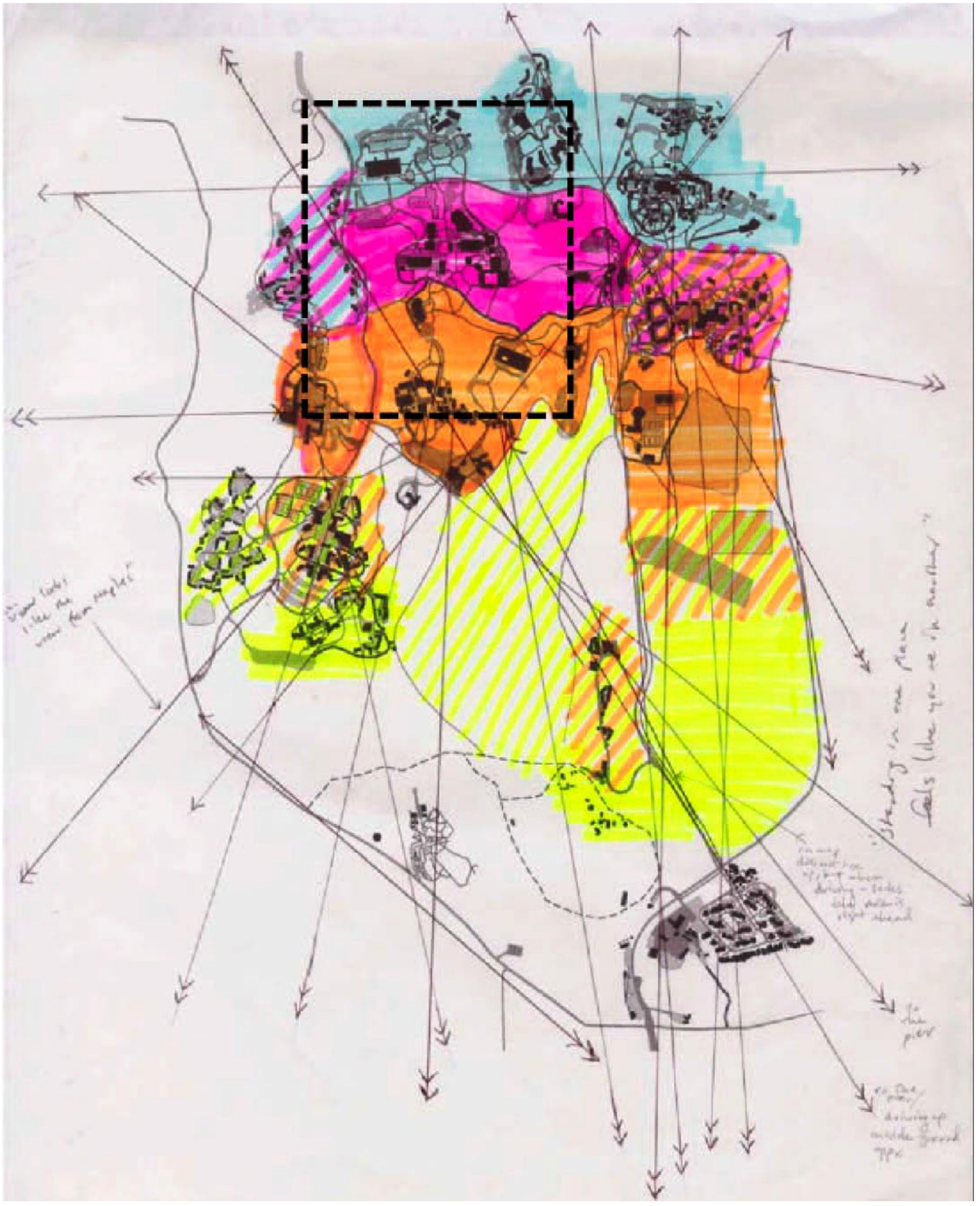
ARRIVAL DIRECTION - WALKING / BIKE / FOOD

SECONDARY DRAW

OUTDOOR SPACE

CONTINUOUS ACTIVITY





Observations

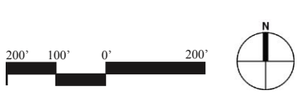
The visual experience of UCSC and the core is dramatic in contrasts from enclosed, intimate views to expansive panoramas of the coast. To generalize, intimacy is heightened by the experience of arrival from the coast below—traversing the open meadow and climbing into the dense woodland—while panorama is the climax of coming back through the woods to the coastal overlooks on the ridges. The most dramatic example of this experience is at Cowell College because of its less obstructed views of the coastline. The core, however, has a potentially dramatic view site and the visual experience can be heightened by the orchestration of built spaces to frame views of the varied topography and ocean beyond. Views from Science Hill to the south are sky and trees while views from the south core are more open to meadow and coastline.

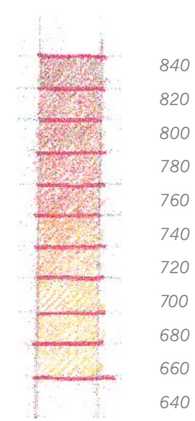
The most unique visual opportunity of the Science Hill portion of the core is the experience of entering by traversing the ravines to the ridge. This experience applies to most pedestrian pathways as well as the eastern auto entry which cross dramatic bridges in the trees. The bridges highlight views of the woodland but also focus linear views into the core.

The view diagram indicates that most open views from the core are to the south from elevations above 780' (the terraces at Thimann and Marine Sciences) and roughly along the upper edge of Kerr Meadow north of Steinhart. Views from Steinhart and Kerr Meadow are internal to the Oak Groves. Views from the knoll elevation at Red Square are restricted by buildings and trees to framed views of sky and glimpses of ocean horizon. The buildings at that elevation (800') have dramatic coastal views to Santa Cruz: the pier, town and coastal landscape. Views in the north part of Science Hill are into redwoods and the ravines, or views from upper floors of buildings to the coast and upper ridges. The edges of the core have interesting forest and ravine views to the east and west.

**Diagram prepared by Matt Waxman*

ELEVATION



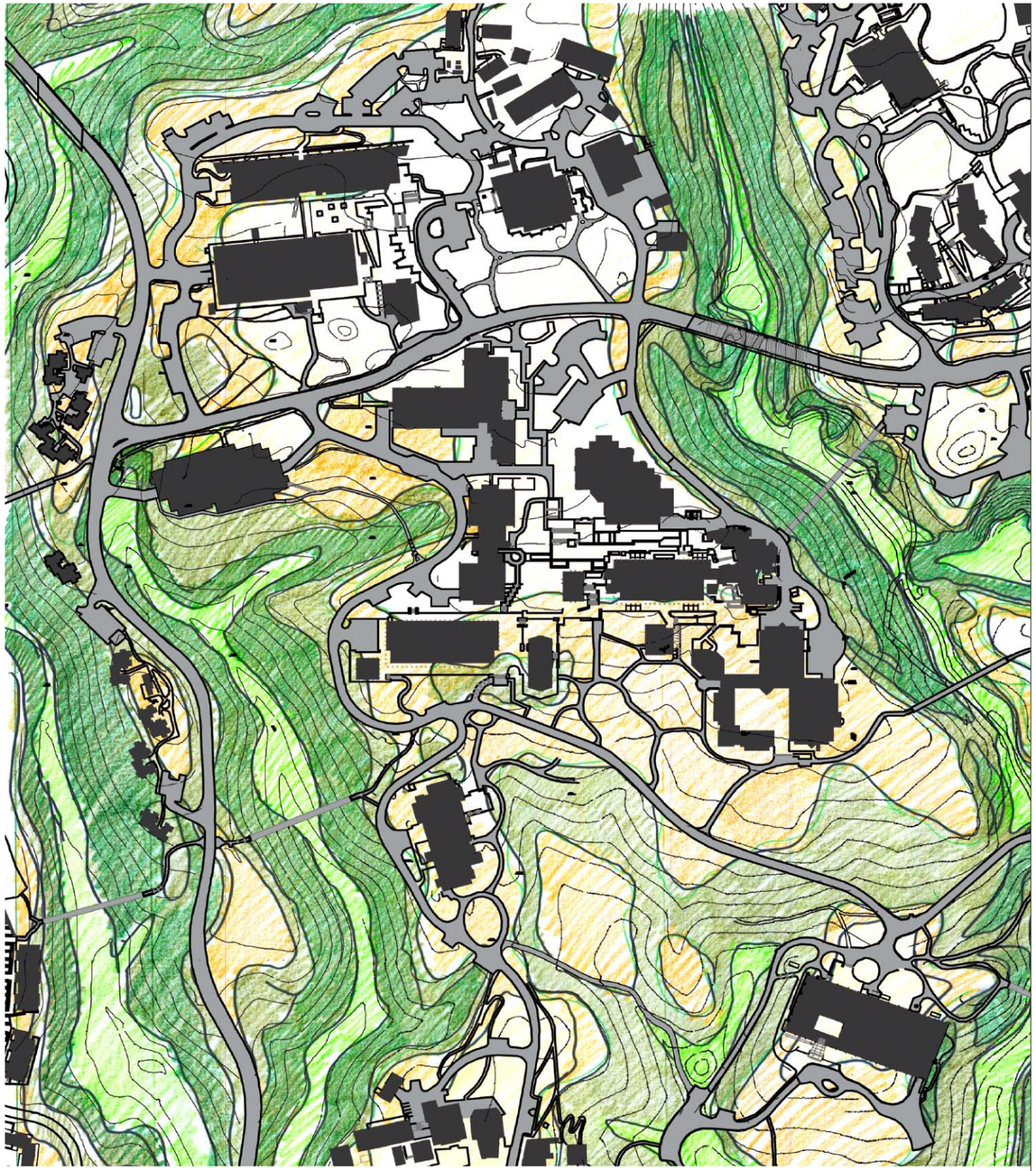


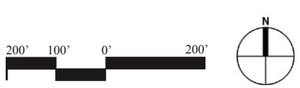
Observations

The topography of Science Hill is one of its defining elements. No matter how intensely it is developed, if the steepness of the ravines is respected, they will define the core and provide a setting and separation from adjacent uses. Science Hill Plaza at the Science Library is the geographic center of the core and is also on a high point of the ridge. It is approximately 60 feet above Steinhart Way to the south and the same elevation at McLaughlin Drive to the north. It is approached by stairs in both directions. The far north edge of Science Hill is 30 feet above Science Hill Plaza.

Elevation changes are highly problematic in providing access, but do offer some some opportunities. Building elevations are currently in rough tiers stepped in one-story increments so that the ground floor of one building relates directly to the second floor of the building below. Buildings are roughly linked east to west along terraces with views. Service can be grade separated at a lower level at the edge of the core. New buildings can be stepped for views.

SLOPE





Observations

Steepness of slope also defines Science Hill. It is a determinant of buildable area and is a major obstacle to pedestrian circulation. Campus development guildelines restrict development on slopes greater than 20%. The buildable area of the core as defined by the steep slopes of the ravines has an hour glass shape. It is pinched in the middle between Jordan Gulch and Moore Creek Ravine, splays out to the ocean on the south and tightens to a point on the ridge to the north. The north to south slope is moderate (5-10%) along the center of the ridge to the north and steeper (15-25%) to the south of Science Hill Plaza, north and south of Steinhart Way at Kerr Meadow. Available building sites are not large enough for the intended program without encroaching onto slopes greater than 20%.

The drainage patterns of the ravines and tributaries into the core, and the seeps and sinkholes are also restricted from development. The ravine pattern is indicated in this diagram.

< 10% *RIPARIAN*

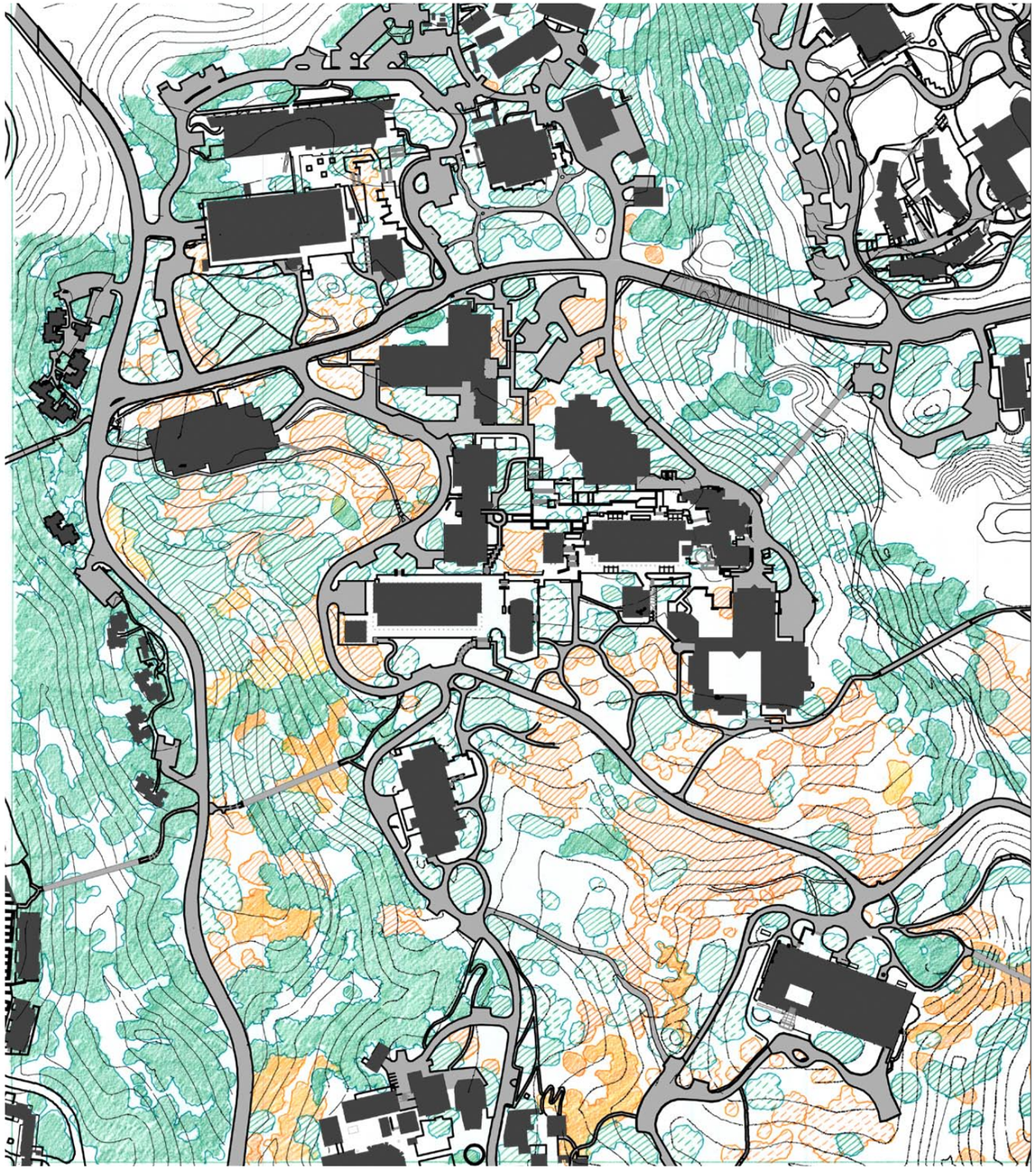
> 40%

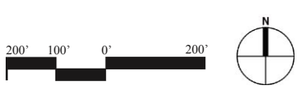
> 20%

< 20%

< 10% *HILLTOP*

TREES / NATURAL RESOURCES





Observations

"Buildings are less important than the trees." (Overheard many times on campus) Currently most buildings are enveloped by trees—either redwoods or mixed species. Trees in the central part of campus have been evaluated according to health and appearance in order to preserve the best quality as indicated in the McBride Tree Ranking Survey. The highest quality trees are for the most part at the edges of the core and not on the buildable sites, as defined by slope. Although the campus is defined by the density of the forest, many people have suggested that the darkness of the setting should be broken more often by pockets of sun. The solid green and gold areas in this diagram are most restricted for development.

Other natural resources in the core, in addition to trees include the Environmental Reserve land with a defined boundary at the north edge of the core. The drainage patterns of the ravines and tributaries into the core, and the seeps and sinkholes.

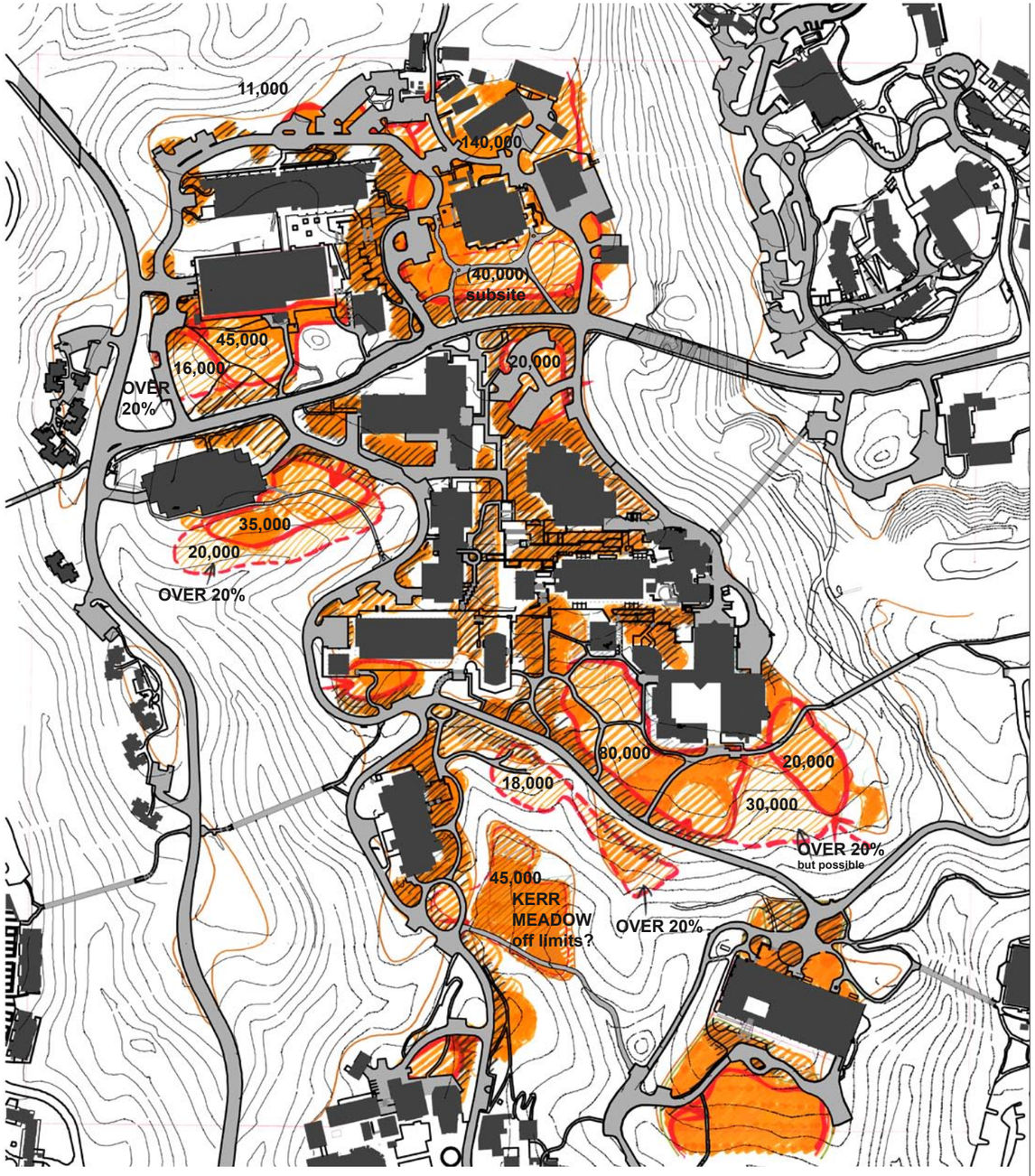
In concept, the ridgeline could be a series of contrasting landscapes with fewer trees (along the central spine) while the native trees could frame the core in the ravines. Trees would open up to the south, below Kerr Meadow, and close in at the north, at the natural reserve north of future development. In addition, in my opinion, redwoods should also come into the central spine in some areas, because redwoods are the identity of the campus.

HIGH QUALITY
- REDWOODS
- MIXED

AVERAGE QUALITY
- REDWOODS
- MIXED

BELOW AVERAGE
- REDWOODS
- MIXED

BUILDABLE AREAS



Observations

The analysis of Buildable Areas is a composite of the diagrams showing Trees, Slope and Natural Resources: these are the factors discussed in the Campus Development Manual as constraints on development. These factors produce some obvious and some not so obvious locations. Other factors will affect the viability of theses sites and the way in which they would be developed. The cross-hatched areas along McLaughlin indicate a possible setback from streets which is not currently required in planning documents.

Three of the possible sites identified are currently occupied by parking. Substantial additional "buildable area" is located in the central corridor or spine of Science Hill, but is too narrow and hemmed in by existing buildings. In general, most locations are at edges of Science Hill : at the south and east, above Kerr Meadow; and at the north near the Environmental Reserve. Several infill sites may also be available near McLaughlin, Core West Parking and Thimann Labs.

Since most of the larger sites are at the north and south edges of the core, its length will almost certainly be extended, and this will reinforce the importance of a north/south circulation spine. A major question is whether buildings should be clustered as tightly as possible to this corridor, creating urban spaces; or should they be located more at the east and west edges to preserve open spaces on the spine.

Given the context of the university, the recommendation is to carefully define a sequence of both more urban and more natural spaces along the spine—and then establish relationships of buildings to their edges. This sequence of spaces will tighten to the north into the trees and open up to the south into Kerr Meadow. "Front doors" of all building sites should be directly linked to this spine.

UNCONSTRAINED : SLOPE/TREES

MODERATELY CONSTRAINED : SLOPE/TREES

OVERLAY CONSTRAINTS : BUFFER/CIRCULATION/BUILDINGS

BUILDING SITES

SERVICE/FIRE ACCESS

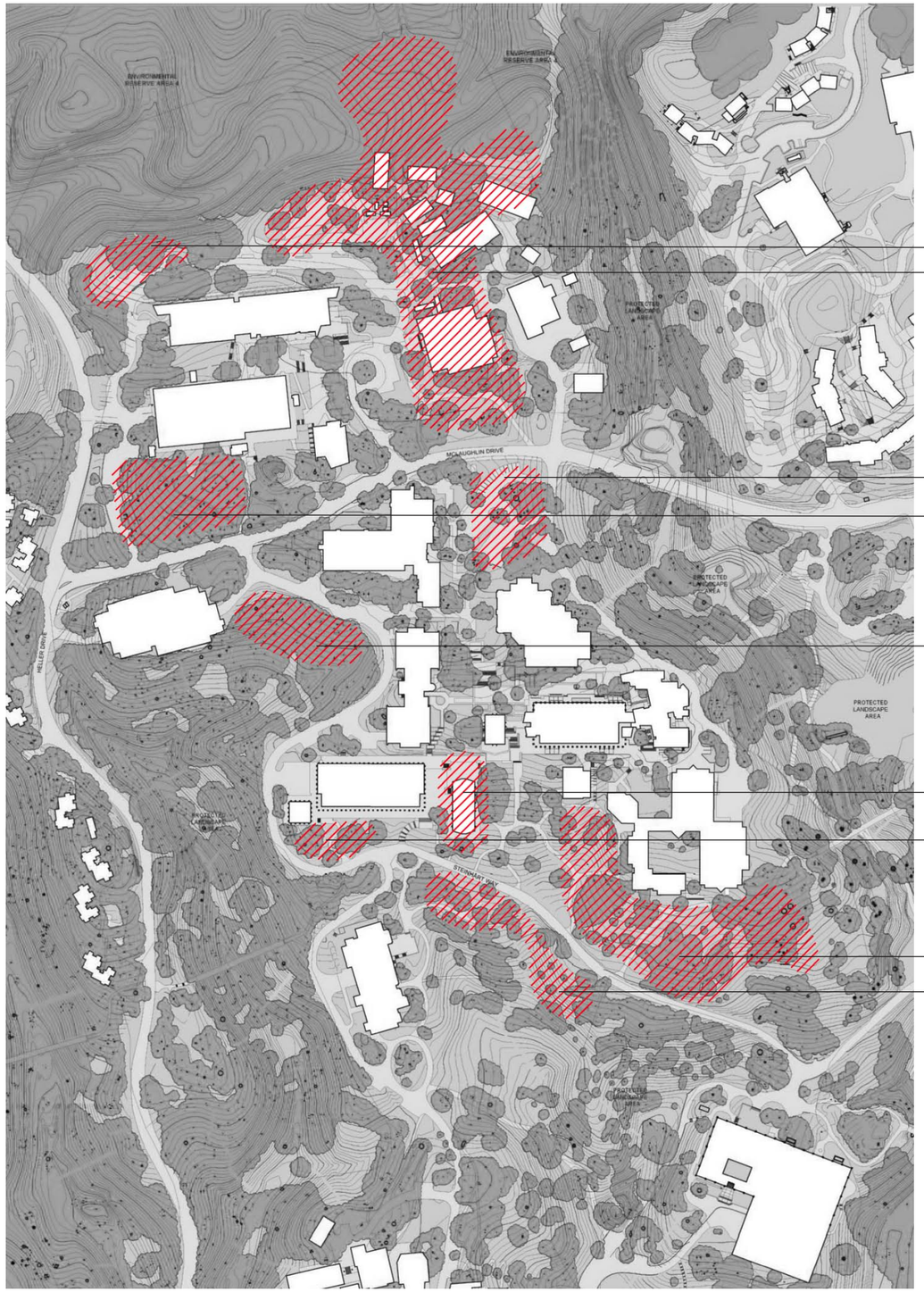
OVER 20% SLOPE BUT STILL CONSIDERED

GROWTH PROJECTIONS / AREA TABULATIONS

As part of the ongoing Long Range Development Plan Process, the University has settled on an enrollment of 21,000 by the year 2020. Based on that growth projection, the following table of new space requirements was generated. These figures are in addition to the existing and approved space on Science Hill, which includes the new Engineering 2 and Physical Science Buildings. The total new space requirement is compared with the space provided by the plan proposed on page 3.3 Area Plan -- Proposed Building Pattern. Both these numbers are substantially in excess of the 439,000 gsf projected by the 2003 Core Capacity Study.

STUDY	SPACE REQUIRED	SUBTOTALS	TOTALS
2005-2020 Long Range Development Plan			
Engineering			
I & R	286,800		
Academic Support	3,800		
Classroom	8,700		
Computer Lab	1,800		
Academic Space Subtotal		301,100	
ORU in Academic Building	25,000		
ORU in Freestanding Building	25,000		
ORU Subtotal		50,000	
Engineering Subtotal		**351,100**	
Physical & Biological Sciences			
I & R	431,100		
Academic Support (Vivaria)	18,800		
Academic Support	16,000		
Classroom	10,875		
Computer Lab	2,250		
Library	52,917		
Academic Space Subtotal		531,942	
ORU in Academic Building	61,100		
ORU in Freestanding Building	50,000		
ORU Subtotal		111,100	
Physical & Biological Sciences Subtotal		**643,042**	
Environmental Health & Safety			
Environmental Services Facility	16,000		
Physical Planning & Construction			
PPC Service Yard	10,000		
Total Gross Square Footage Required			**1,020,142**
Proposed Science and Engineering Area Plan			**985,000**

POTENTIAL BUILDING SITES



Based on the McBride Tree Survey, Slope Analysis and Utility Survey, the hatched areas are considered potential building sites. The single story + basement Communications Building east of Baskin Engineering is recommended as a reuse site, as is the freestanding Thimann Lecture Hall south of Science Hill Plaza.

Building Site 1 *Limited by the boundary of the Natural Reserve and a service road, this site is restricted in size but has the benefit of good service access and limited public visibility. Potential uses include service and ORU.*

Building Sites 2–7 *This is the prime area for academic expansion. Current land use includes parking, the single story Communications Building, the single story Lick Laboratories and a number of other temporary facilities. All existing facilities should be considered as potential reuse sites. Growth to the north, although into a forested area, should be considered on slopes of less than 20%.*

Building Site 8 *Relatively unencumbered, this is a prime building site with good pedestrian and service access. Current use is as a parking lot.*

Building Site 9 *Somewhat encumbered by trees and moderate slopes, this site is directly across the road from the parking structure with good service access and high public visibility.*

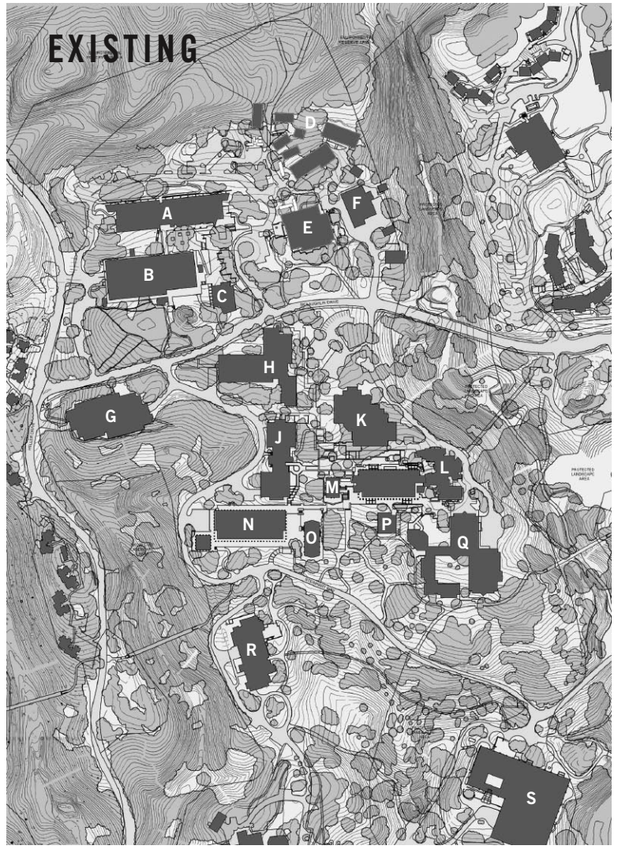
Building Sites 10–11 *This ravine site is encumbered by substantial tree coverage, a moderately steep slope and drainage issues, but has the benefit of close proximity to Physical Sciences and Sinsheimer Labs.*

Building Site 12 *This site is restricted in size but has the benefit of good service access and limited public visibility. Potential uses include service and ORU.*

Building Site 13 *As pressure for denser land use increases, the existing one-story Thimann Lecture Hall site should be considered for reuse.*

Building Site 14 *This narrow strip of land at the edge of Kerr Meadow has a moderate slope and a mix of average quality redwoods and oaks. Potential uses include classrooms, a lecture hall and ORU.*

Building Sites 15–16 *These sites have moderate slopes and tree coverage, and limited pedestrian and service access. Proximity to Earth and Marine Sciences provides the opportunity for the co-location of related programs.*



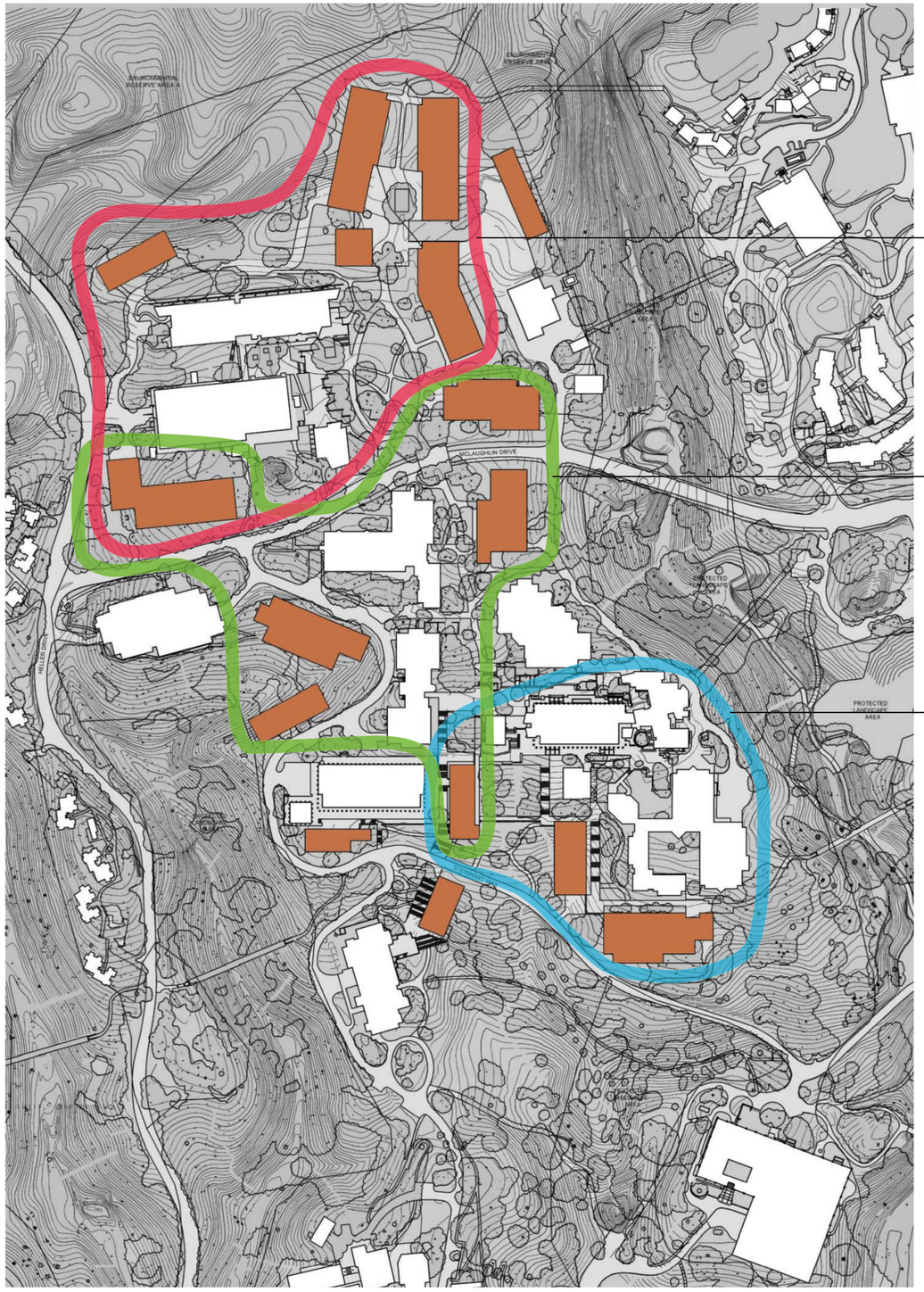
The proposed buildings reinforce and extend a circulation spine that connects Kerr Meadow at the southern end of Science Hill to the Natural Reserve at the north.

The spine is organized as a sequence of distinct spaces in the landscape and is seen as the heart of the Science Hill development (see page 4.1 for a description of the spaces). Primary building entries should be oriented inward toward the circulation spine to reinforce the activity in these spaces. Building sites that are not located directly off the spine are generally to be reserved for non-academic use, with the exceptions of the site directly south of Baskin Engineering and potentially the ravine site east of the Core West parking facility. (See page 3.8 for alternative building footprints for this area). These sites carry the additional responsibility of defining exterior spaces that connect them back to the primary public circulation sequence.

Legend

A. *Engineering 2 Building*
B. *Baskin Engineering Building*
C. *Baskin Lecture Hall*
D. *Lick Laboratories / Temporary Buildings*
E. *Communications Building*
F. *Heat Plant*
G. *Core West Parking Structure*
H. *Physical Sciences Building*
J. *Sinsheimer Laboratories*
K. *Science & Engineering Library*
L. *Natural Sciences 2 / Interdisciplinary Sciences Building*
M. *Natural Sciences 2 Annex*
N. *Thimann Laboratories*
O. *Thimann Lecture Hall*
P. *Center for Adaptive Optics*
Q. *Earth and Marine Sciences*
R. *Kerr Hall*
S. *McHenry Library*

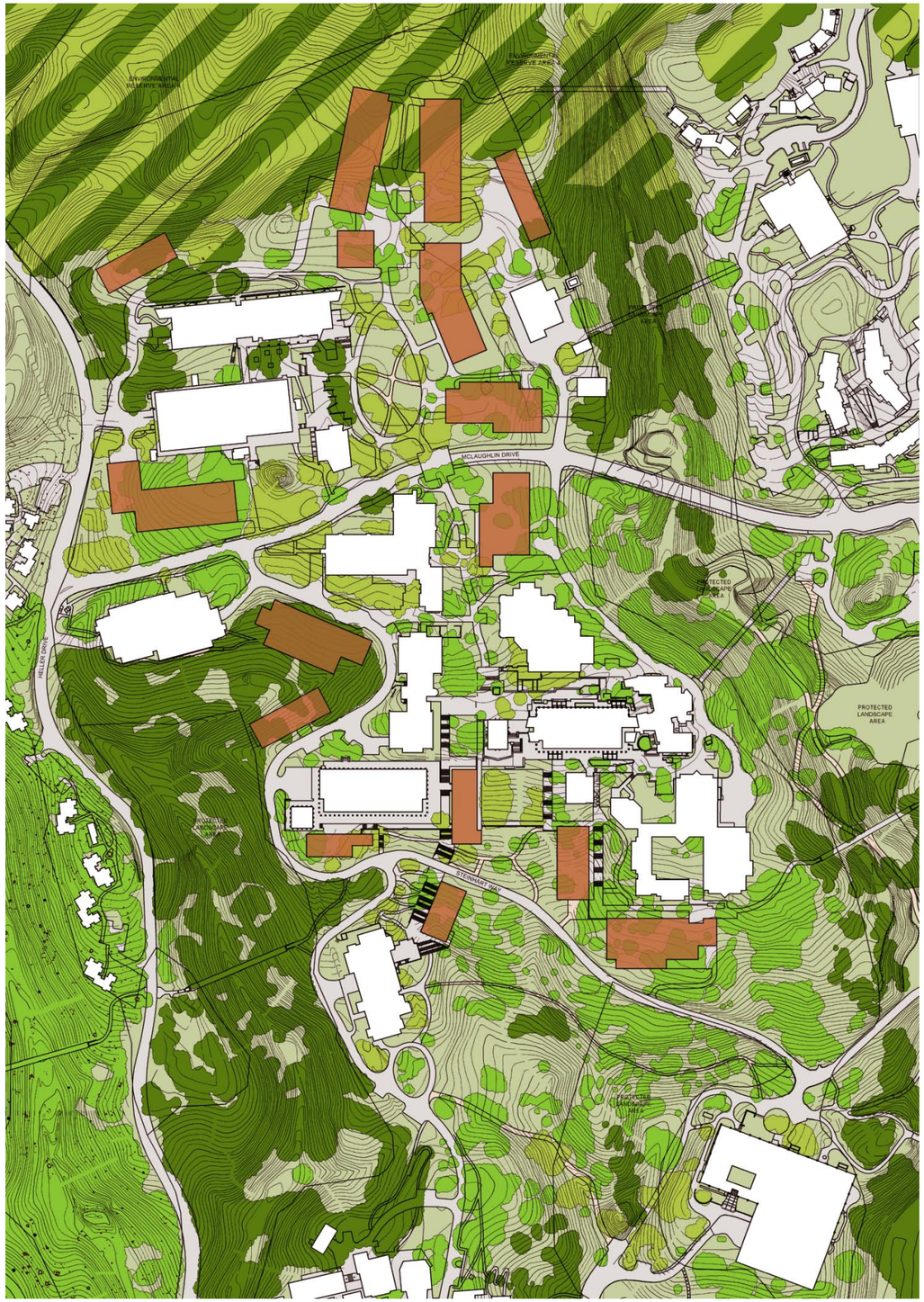
PROGRAMMATIC CLUSTERS



Program growth is anticipated in three primary areas: Engineering and Technical Development, Biomedical Sciences, and Environmental Sciences. Clustering facilities in as close proximity as possible increases opportunities for collaboration and interaction among researchers.

The areas where clusters overlap indicate building sites appropriate for either discipline.

IMPACT ON EXISTING ENVIRONMENT



PRIME

AVERAGE

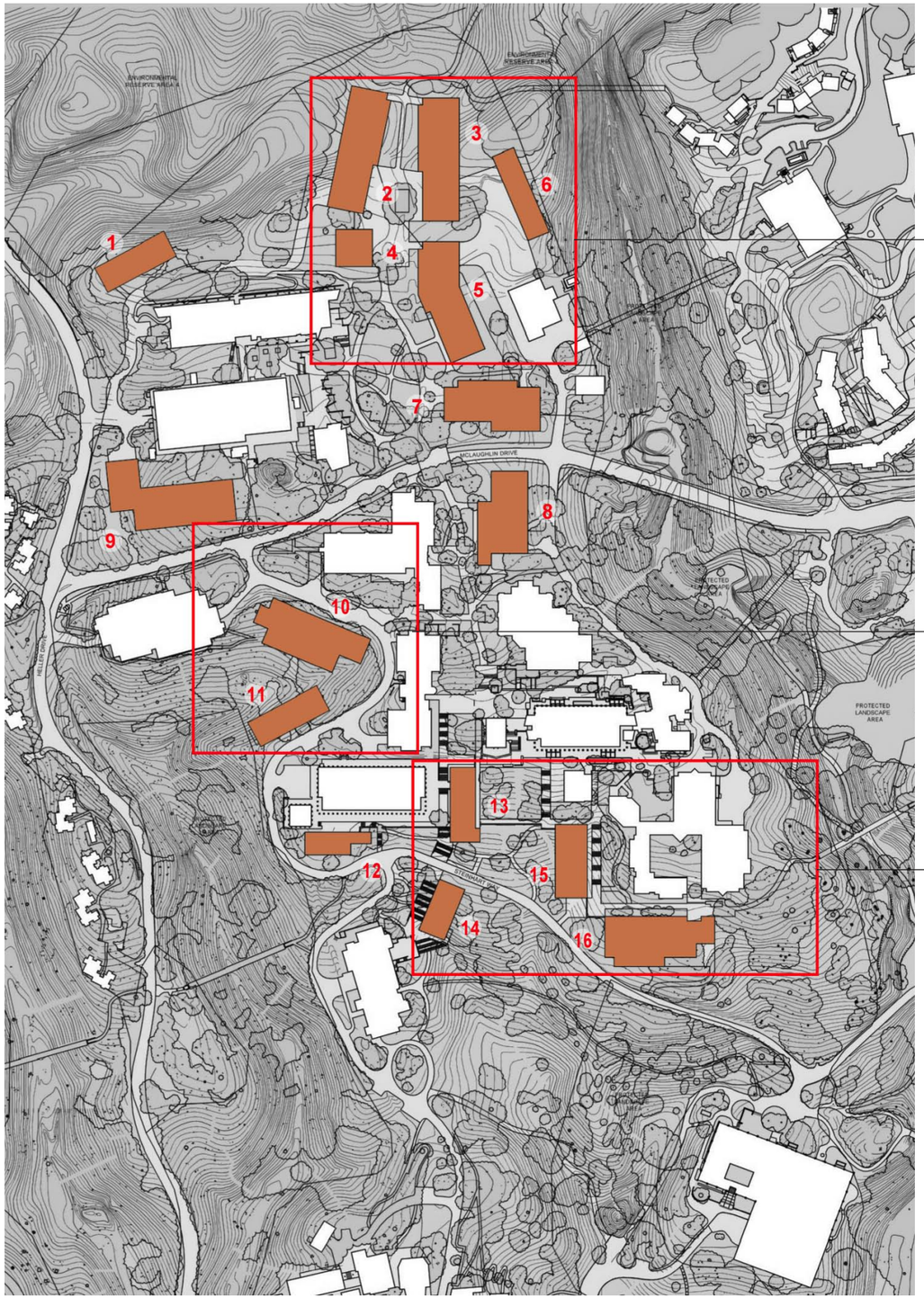
BELOW AVERAGE

UNEVALUATED

PROPOSED BUILDINGS

This diagram demonstrates the impact of the proposed building sites on the existing forest and is based on the McBride Tree Ranking Survey provided by the University. The trees were evaluated according to health and appearance and rated prime, average, or below average. The northern boundary of the survey is roughly at the existing Engineering 2 Building; the quality of the trees to the north has not been evaluated.

BUILDING SITES / PROGRAM



AREA 1
(See pg. 3.7 for alternatives)

AREA 2
(See pg. 3.8 for alternatives)

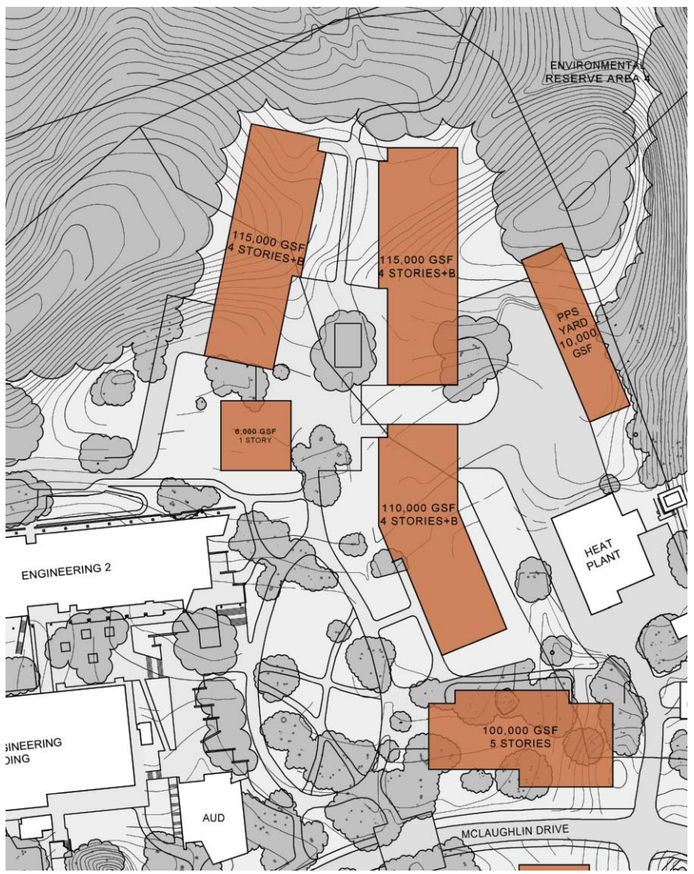
AREA 3
(See pg. 3.9 for alternatives)

The chart below lists the potential gross building area, number of stories and use of each site. Major academic buildings are limited to between 100,000 and 120,000 gross square feet, reflecting the current size of average state-funded projects. The four-story height is not intended as a maximum height limit, but results from determining functionally reasonable and efficient floor plates for buildings of less than 120,000 GSF. Additional stories – and increased capacity – are conceivable on sites 2, 3 & 5.

Site	Area (GSF)	Floors	Total Area (GSF)	Use
1	10,000	2	20,000	Engineering ORU or Environmental Services Facility
2	23,000	4 + B	115,000	Engineering or Physics/Astronomy
3	23,000	4 + B	115,000	Engineering or Physics/Astronomy
4	6,000	1	6,000	Lecture Hall
5	22,000	4 + B	110,000	Engineering or Physics/Astronomy
6	10,000	1	10,000	Physical Planning & Construction Warehouse
7	20,000	4 + B	100,000	Biomedical or Physics/Astronomy
8	20,000	4 + B	100,000	Biomedical or Lecture/Classroom
9	20,000	4	80,000	Biomolecular Engineering or Biomedical
10	20,000	4 + B	100,000	Biomedical of Physical & Biological Sciences ORU
11	11,000	2	22,000	Physical & Biological Sciences ORU
12	6,000	2	12,000	Physical & Biological Sciences or ESF
13	10,000	4	40,000	Classroom, Food, General Use
14	7,500	2	15,000	Classroom, Lecture Hall or ORU
15	10,000	4	40,000	Environmental Sciences or Biomedical
16	25,000	4	100,000	Environmental Sciences
Total Building Area			**985,000**	

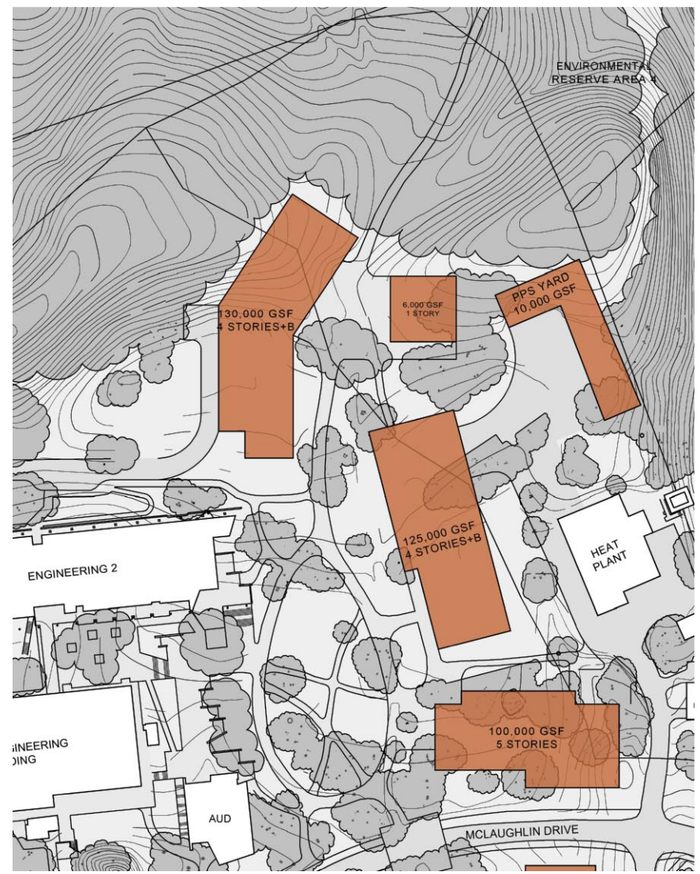
AREA 1 ALTERNATIVES

These alternatives demonstrate different densities and different degrees of penetration into the forest at the north end of Science Hill. The densest version, Option 1, remains 80 feet south of the Environmental Reserve. Construction of a large academic building in the ravine (see page 3.8) would allow Option 2 or 3 without a reduction in the overall built capacity. Option 3 shows the possibility of siting the Environmental Services Facility east of the academic buildings, adjacent to a Service Building and Yard for Physical Planning & Construction. The other options require this facility to be constructed elsewhere. See page 3.10 for a more detailed discussion of the ESF building.



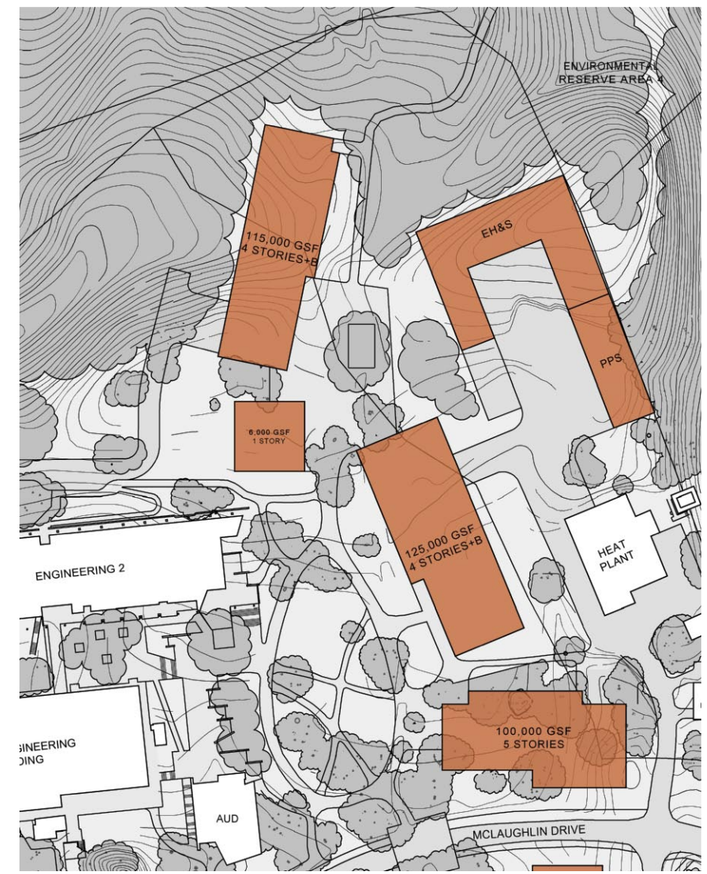
Option 1

- Four major instructional & research buildings of 100,000-130,000 gsf
- Freestanding lecture hall
- PPC services building



Option 2

- Three major instructional & research buildings of 100,000-130,000 gsf
- Freestanding lecture hall
- PPC services building

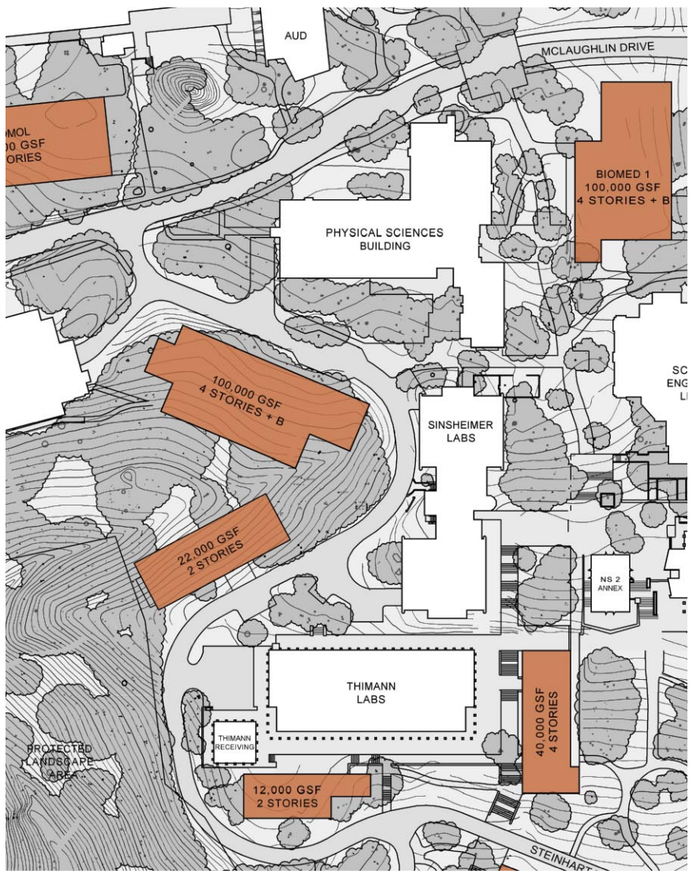


Option 3

- Three major instructional & research buildings of 100,000-130,000 gsf
- Freestanding lecture hall
- PPC services building
- EH&S offices & hazardous materials storage facility

AREA 2 ALTERNATIVES

The development of this area hinges on the programmatic requirements of the future Biomedical facility and the environmental concerns of construction in the ravine between the Core West parking structure and Sinsheimer Labs. The two logical sites for the Biomedical facility are on the surface parking lot to the north of the existing Science & Engineering Library and in the ravine to the west of Sinsheimer Labs. Two factors make the ravine site seem the most logical: As the Biomedical facility will include a vivarium that will be used by occupants of Sinsheimer in addition to the occupants of the new building, the ravine site would keep vivarium-related traffic away from the main circulation spine of Science Hill. Additionally, there is a second Biomedical facility planned for future construction. While the ravine would be a tight fit for the two Biomedical buildings, the site to the north of the Library would not be able to support two 100,000 gsf facilities. However, based on the geotechnical information available, the ravine site has a moderately high potential for sinkholes and contains a seismic fault running east-west past Sinsheimer Labs.



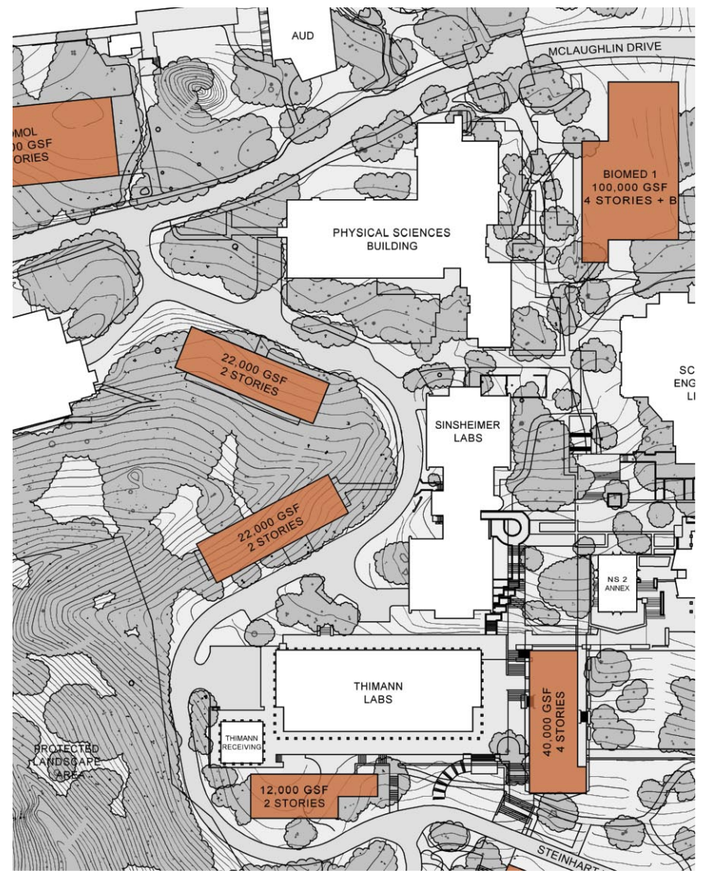
Option 1

- Four story + basement Biomedical facility 100,000 gsf
- Two story ORU 22,000 gsf

Given the potential cost escalation these geotechnical features pose and the severe stormwater runoff issues discussed in Section 1, the site to the north of the Science & Engineering Library is recommended for the Biomedical facility.

If the Biomedical facility is constructed on the site to the north of the existing library, it would effectively curtail any expansion of the library to the north. However, given the relative schedules of the two projects, with the Biomedical facility already being programmed while library expansion is still relatively far out on the planning horizon, the recommended site selection for Biomed still makes the most sense. When the demand arises for additional library space, the Nat Sci 2 Annex and space within Nat Sci 2 would offer potential expansion space in close proximity to the existing Science & Engineering Library.

The planning team recommends building only modestly scaled two-story ORU's in

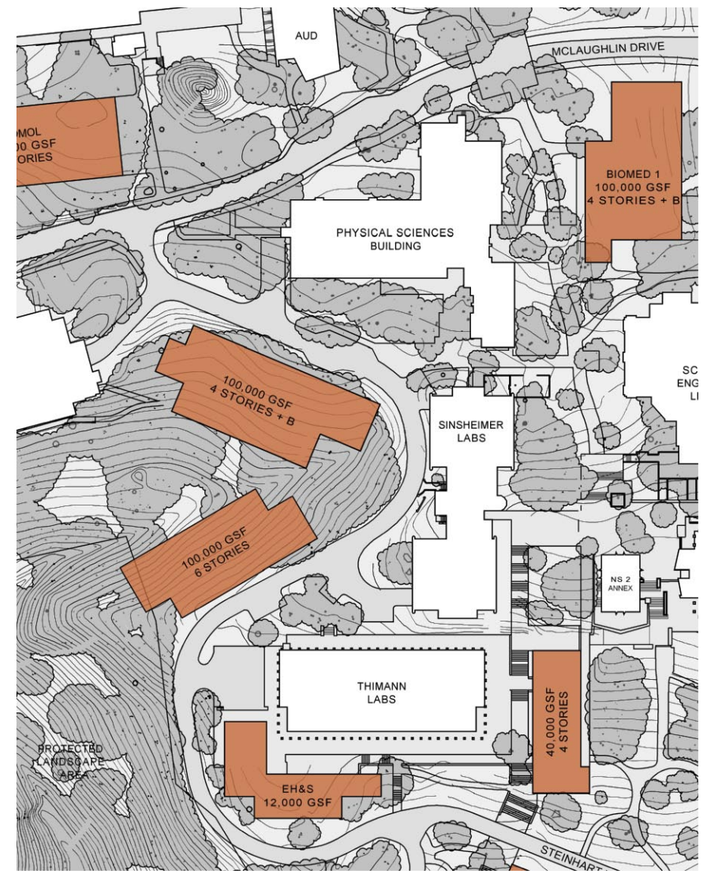


Option 2

- 2 two story ORU's 22,000 gsf each

the ravine west of Sinsheimer Labs, as shown in Option 2. The demands for space on Science Hill suggest that this may not be possible in the long term. Ideally, the north slope of the ravine could be reserved for an academic building in the distant future, and only be utilized should land-use pressures leave no reasonable alternative. The steeper south slope should be left open or used for a light ORU.

Option 1 shows an alternative to locate the Biomedical facility on the northern slope of the ravine, which would leave the site to the north of the Library open for a future academic building or for possible expansion of the existing library. Option 3 shows both the Biomedical facility and a future biomedical facility located in the ravine, as well as showing the Thimann Receiving building as a potential re-use site for the new Environmental Services Facility for Environmental Health & Safety. This site offers good vehicular access, but limited square footage. See page 3.10 for a more detailed discussion of the ESF building.



Option 3

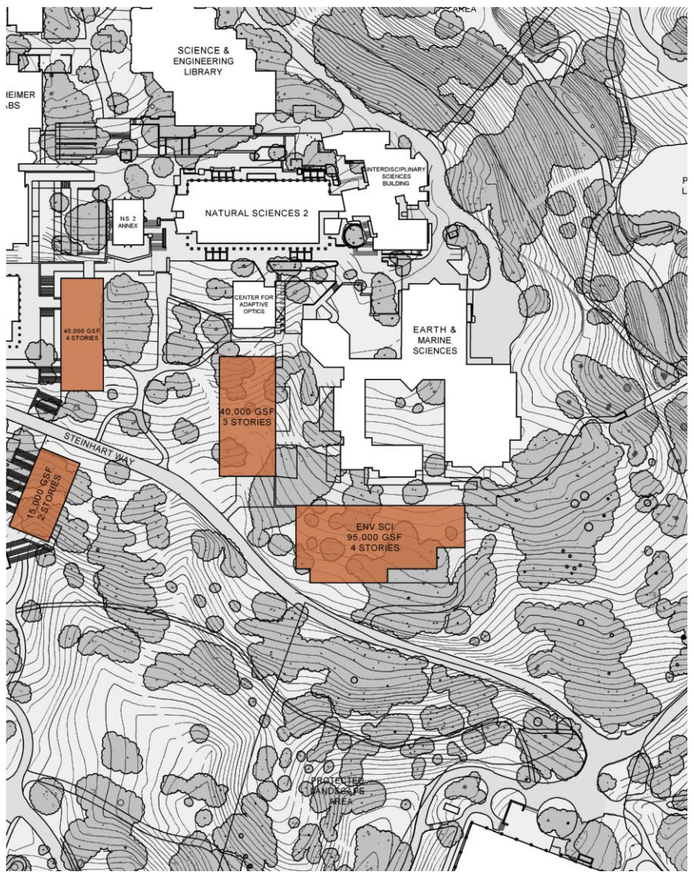
- Four story + basement Biomedical facility 100,000 gsf
- Five story + basement Biomedical facility 100,000 gsf
- ESF 12,000 gsf

Upper Kerr Meadow could evolve in a number of different ways. At one extreme, it could be left open and developed into a park-like open space. At issue is the siting of the future Environmental Sciences Building.

For the meadow is to remain as open as possible, the new facility would push further into the forest to the east (Option 3), where it would be isolated from the circulation spine and essentially without an address other than as an addition to the Earth & Marine Sciences Building.

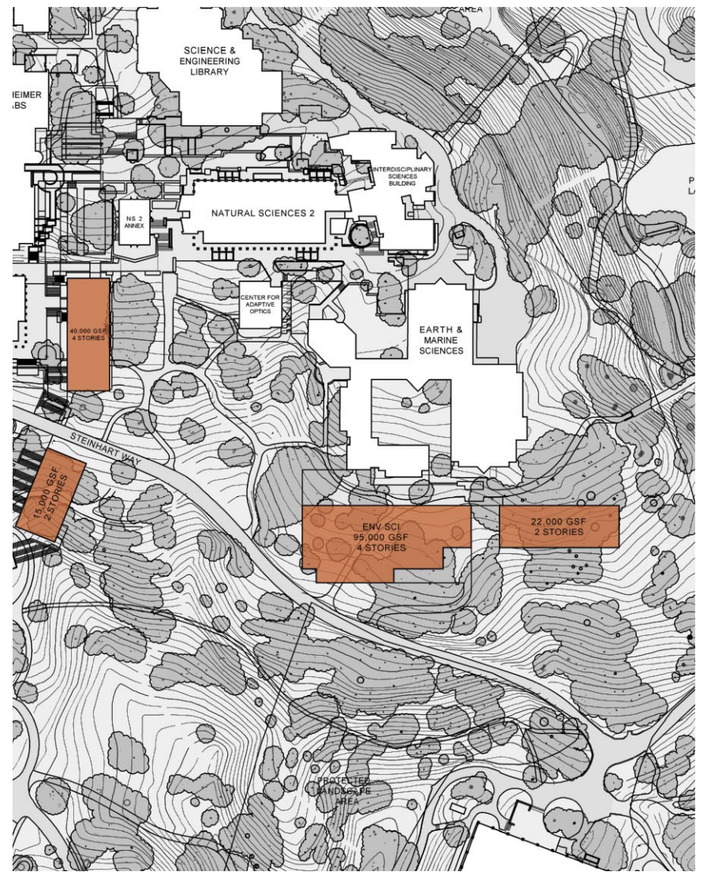
At the other extreme, the new facility could be paired with another academic building or ORU, together wrapping the corner of EMS and forming a new passage way between the buildings that connects back to the spine (Option 1). This is the preferred solution. While the buildings would then have an address off this passage, an accessible path of travel along this route would rely on elevators in the buildings, a solution that is acceptable to the University's ADA Compliance Coordinator. This option also has the advantage of preserving more of the dense redwood growth to the southeast of EMS.

Option 2 shows a median solution, maintaining open meadow to the west, but respecting the forest to the east.



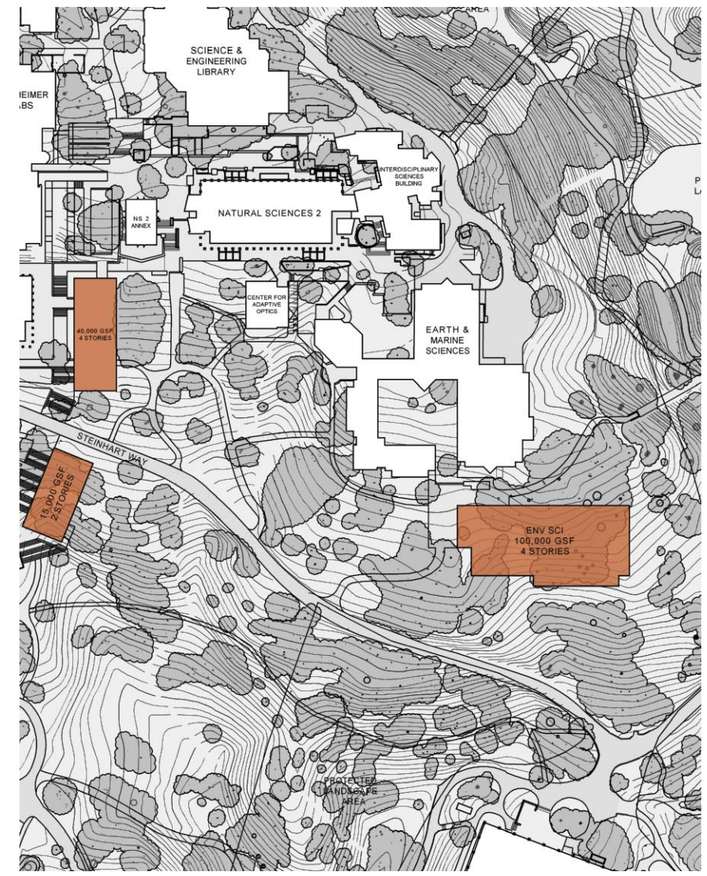
Option 1

- Four story + basement Enviromental Sciences facility 100,000 gsf
- Four story academic building or ORU 40,000 gsf



Option 2

- Four story + basement Enviromental Sciences facility 100,000 gsf
- Two story ORU 22,000 gsf



Option 3

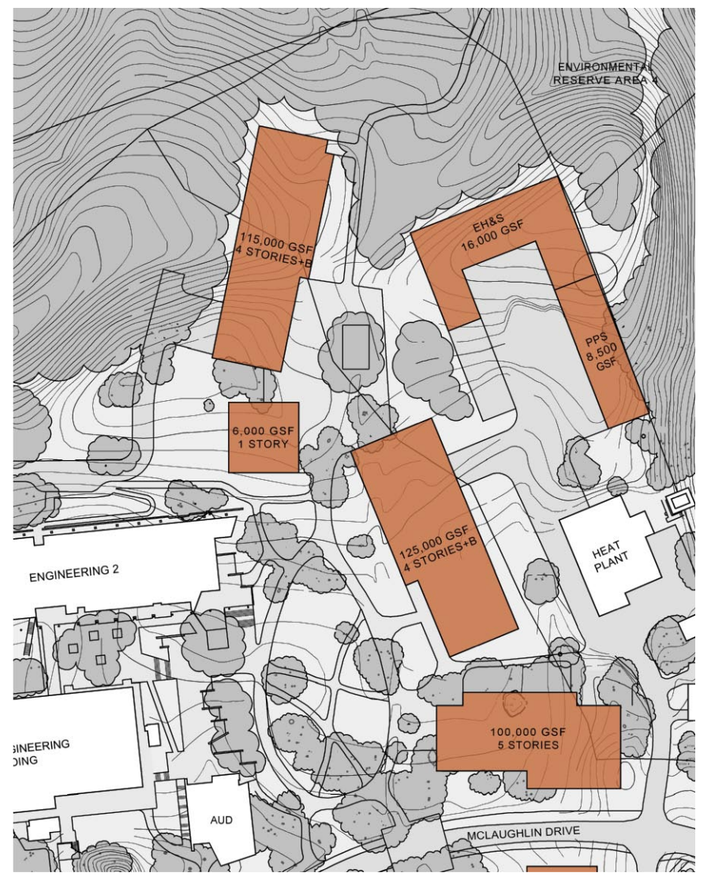
- Four story + basement Enviromental Sciences facility 100,000 gsf

ENVIRONMENTAL SERVICES FACILITY ALTERNATIVES

A new Environmental Services Facility (ESF) is a part of the ongoing Major Capital Improvement Plan. This building, estimated at 16,000 gsf, will provide offices for Environmental Health & Safety personnel as well as containment and management of hazardous materials generated on Science Hill. In spite of the high demands and limited space available, the new ESF building is best located on Science Hill, where the materials in question are produced. The existing ESF location near the Physical Planning & Construction offices is problematic because it is remote from the sources of the hazardous materials, but in close proximity to faculty and public housing and a child care center.

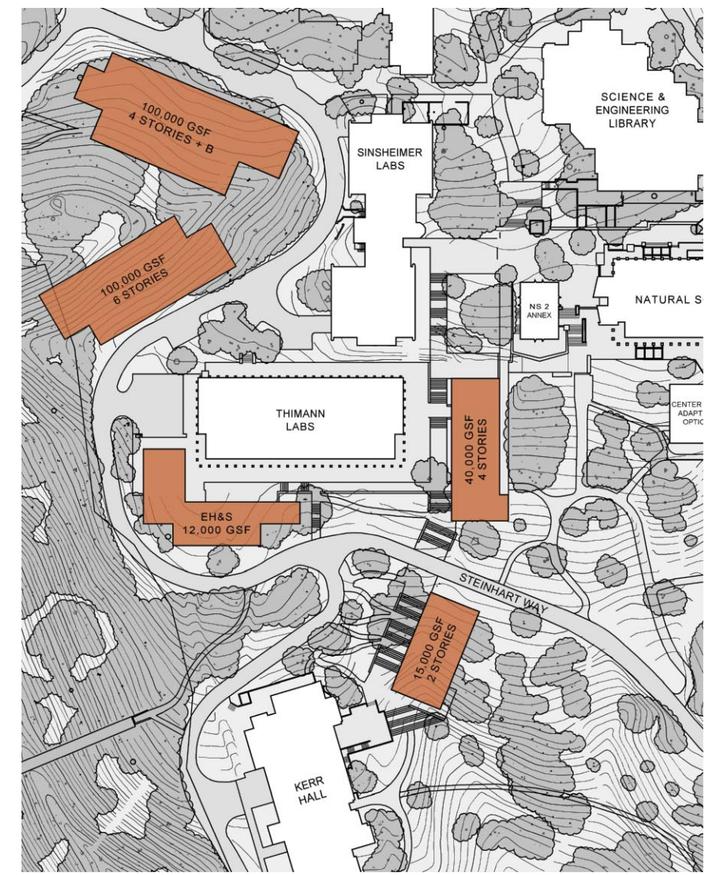
Option 1

The preferred site for the ESF is to the northwest of the Engineering 2 Building. It is located at the periphery of Science Hill, but still within reasonable travel distance of existing and planned facilities. Vehicular access is available from Heller Drive without interfering with Science Hill's north-south circulation spine.



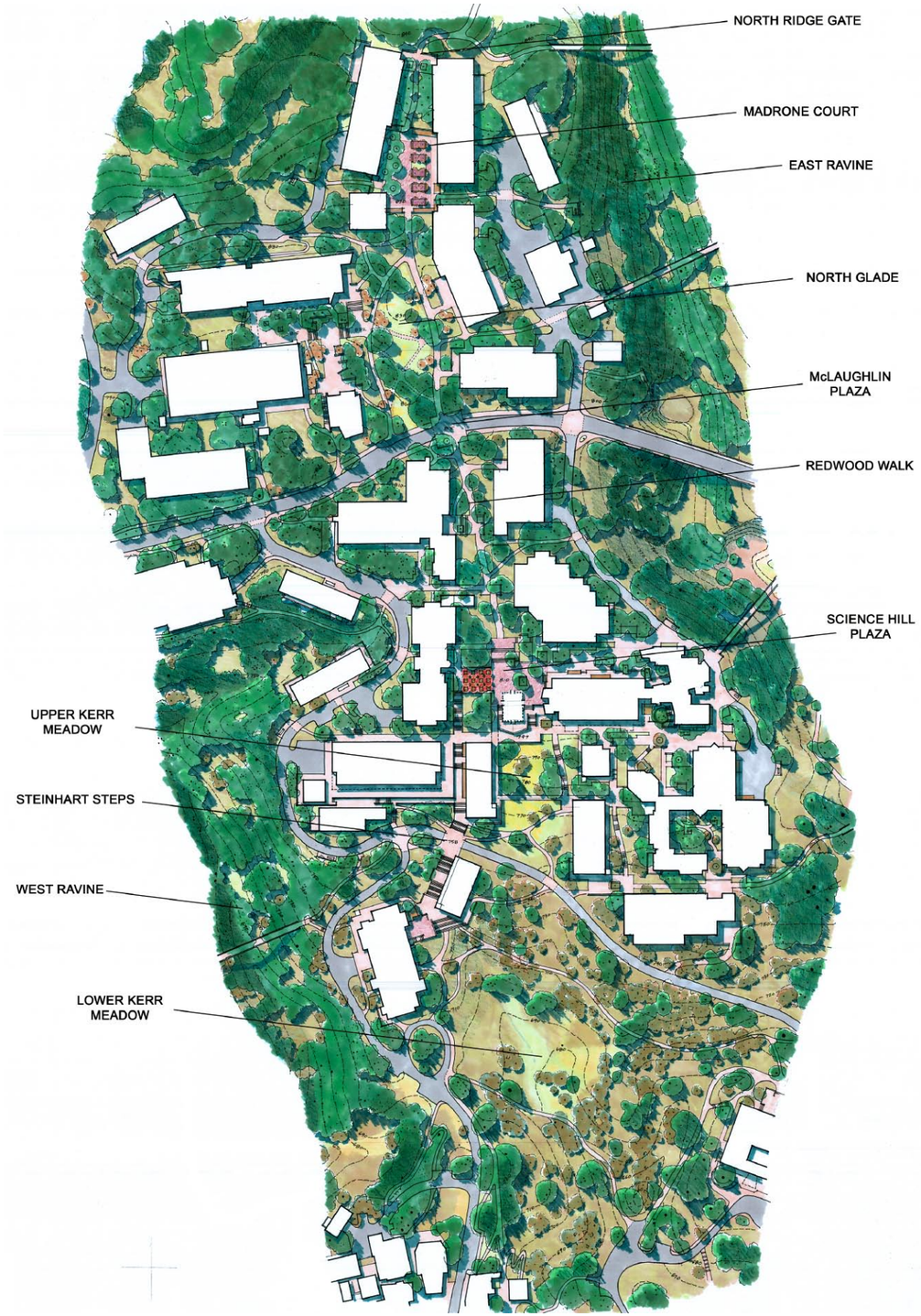
Option 2

A second option would be to co-locate the ESF with other service facilities near the existing Heat Plant. This would limit the academic development at the north end of Science Hill, but would provide close access for ESF, a service yard for Physical Planning & Construction, and expanded Heat Plant facilities.



Option 3

The ESF could be located on the site of the existing Thimann Receiving Building. This has been identified as a potential re-use site, and offers a relatively central location with good vehicular access at the existing loading dock. This site, however, is constrained by Thimann Labs and Steinhart Way.



SECTION 4 – OPEN SPACE PLAN

Open Space Framework

The primary organizational device for the Area Plan is an elaboration of the existing north-south pedestrian circulation spine. The design team proposes a distinct sequence of urban and natural spaces that link the buildings and focus the activities of Science Hill. The pattern of proposed building locations has been developed to reinforce this circulation spine and to engage buildings directly with the specific elements that constitute the spine.

North Ridge Gate

An architectural gate appears out of the forest.
- Shaded arrival
- The gate is silhouetted against backlight
- Framed view of the Madrone Court beyond
- Wayfinding, seating, quiet
- Secondary building entries

Madrone Court

A sunny, framed square in the woods is an activity focus for the north hill.
- Madrone trees frame space
- Lobby and lounge for upper hill, very active
- Café and meeting place
- Daily events
- Public building sitting on square
- Primary building entries face the court
- Views north into the woods

North Glade

The primary image of the north hill is a sunlit opening in the forest.
- Pool of light and destination
- Mostly redwoods with a fringe of redbud understory
- Spectacular in Spring
- Periodic events: graduations, concerts, relaxing on grass
- No furniture
- Major building entries and terraces face the glade

McLaughlin Plaza

The major arrival and orientation plaza is like a bridge.
- Dappled sun through redwoods
- Connects north hill and central hill
- Places to perch : seatwalls
- Orientation point for wayfinding
- Transit structure site at edge

Redwood Walk

A mysterious shaded walkway provides glimpses to the sunny square on the hill beyond.
- Deep shade with shafts of light
- Fern dell along the walk, vertical feeling
- Benches and small seating areas
- Building porches and entries face the walk

Science Hill Plaza

The square is the center of Science Hill and focus of activity.
- Open and sunny
- Major café, kiosks, handbills, student activities
- Pavilion building creates focus
- Tables and seating under small-scale trees
- Overlook to the meadow, steps and redwood walk
- Buildings face square, have public lobbies sand uses

Steinhart Steps

The secondary arrival plaza at Steinhart Way is a landing in a picturesque stair.
- Dappled sun through redwoods and oaks
- Transit stop at central landing
- Orientation to spine, wayfinding
- Slot views and changes of direction
- Sitting and gathering on steps and walls at edges
- Building entries at landings

Upper Kerr Meadow

A park-like meadow is a backyard and event space for Science Hill.
- Sunny, with shade at edges
- Naturalized meadow grass, periodically mowed
- Framed views over trees and to ocean in distance
- Usually quiet and meditative
- Buildings have porches, reading, overlooks at edges

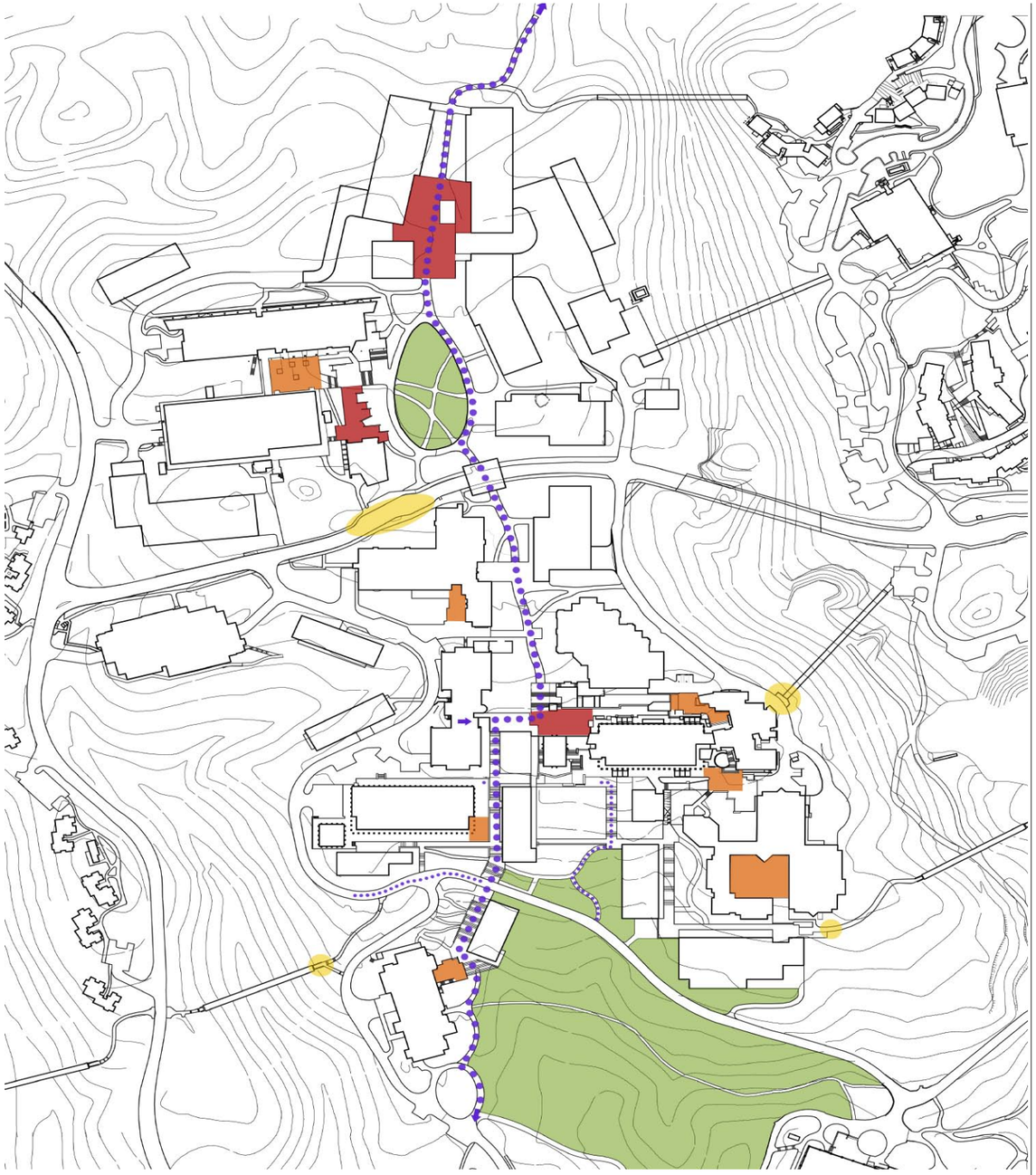
Lower Kerr Meadow

The oak grove and natural meadow create a park and preserve at Science Hill for the entire campus.
- Sun and shade
- Picturesque views of ocean, horizon, forest edges and nature
- Native trees and understory: natural park
- Quiet and meditative
- Broad deck at Kerr Hall and new building

Ravines

The ravines that define Science Hill are one of its greatest assets. They function as the gateway to the Hill from the bridges and provide views to the east and west. The edge of the ravine is the logical place for service.
- East to west walkways and view corridors between buildings.
- “View” side of buildings faces open space.
- Meditative spaces at decks and overlooks on ravine edge.
- Entries to Science Hill at bridges.
- Screening of service with view decks above.

HIERARCHY OF SPACES



This diagram demonstrates the hierarchy of the spaces that make up the open space plan. There are three plazas that would be gathering spaces and focal points for activity for all of Science Hill: the Madrone Court at the north end of the circulation spine, the plaza east of Baskin Engineering, and Science Hill Plaza between the Science & Engineering Library, Nat Sci 2 and Sinsheimer Labs. These spaces all directly engage the circulation spine.

Following these spaces in the hierarchy are a series of department courtyards that would provide outdoor function spaces on a smaller scale than the plazas listed above. These spaces are all located slightly off the circulation spine and are directly related to specific buildings. Examples of these department-scaled spaces are the courtyard in front of Engineering 2, the central court at the Earth & Marine Sciences Building and the deck adjacent to Kerr Hall.

The diagram also indicates arrival points to Science Hill to show their relationship to the circulation spine and other open space elements. This hierarchy also recognizes two large green spaces that are seen as analogous to the larger-scaled plazas in their integration with the circulation spine and potential to support more activity – the North Glade and Lower Kerr Meadow.

Recommendations

1. Do not try to change the core into a major gathering area or mixed-use downtown for the campus.
2. Maintain the rambling dispersion of campus activities.
3. Reinforce the village square/intersection quality of the Central Square with a café, more generous plaza, view overlook and terrace.
4. Create a gathering space as a focus for the north part of Science Hill.
5. Maintain and protect Kerr Meadow as a natural area but also a park at its north edge with open sunny areas of grass.
6. Reinforce the use of the deck at Kerr Hall with furniture and food service.
7. Create and open grassy area as a visual focus for north Science Hill- for casual sports or sitting on the lawn.
8. Develop outdoor gathering spaces to encourage interaction within related facilities and disciplines in courtyards off the spine.
9. Develop front doors as “pre-function” courts (like traditional front steps) that invite sitting and casual interaction between students and teachers.
10. Create view porches and intimate spaces at the rear of buildings for quiet use and views into the landscape.
11. Create intimate seating and view areas along the ravines.
12. Reinforce east-west links and views to ravines from spine and buildings.

CORE-WIDE PLAZAS

DEPARTMENT COURTYARDS

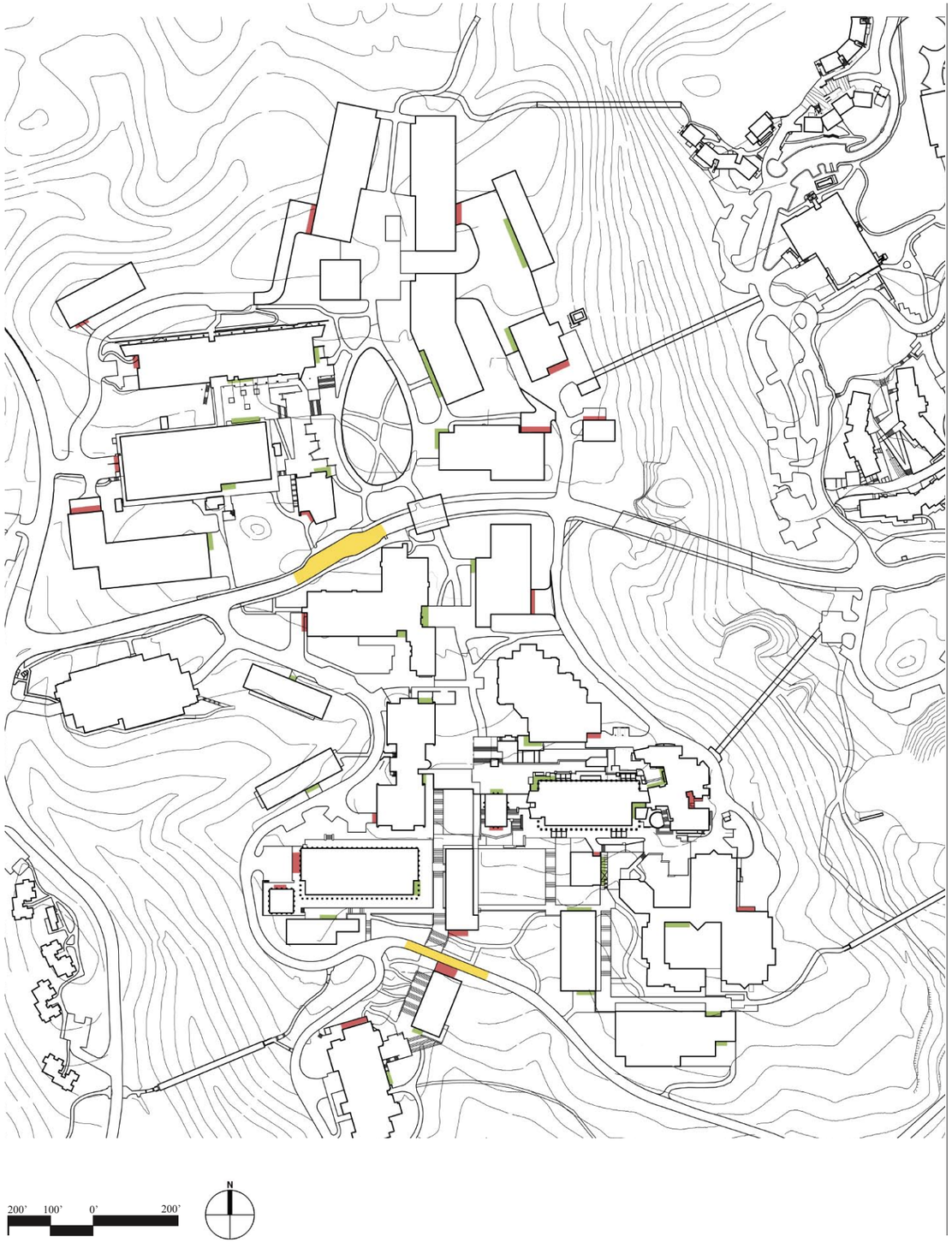
ARRIVAL POINTS

CORE-WIDE GREENSPACES

200’ 100’ 0’ 200’

N

SERVICE & FRONT ENTRIES



Observations

The open space plan for Science Hill calls for primary building entries to address the circulation spine. If a building is located off the spine, it should provide or engage with east-west courts that run perpendicular to and connect with the circulation spine. These front entries should provide gathering and pre-function space for students and faculty.

Service access should follow the existing pattern and be located at the opposite side of buildings from the circulation spine. While this implies that service will be located on the ravine edges of Science Hill, care must be taken to preserve a direct relationship between the buildings and activities of Science Hill and the surrounding environment. The ravines are a great asset and defining feature of Science Hill and should not be thought of as back doors. There is an opportunity to take advantage of the elevation changes along the ravine edges so that buildings and courts look out to the ravines over the service access below.

Recommendations

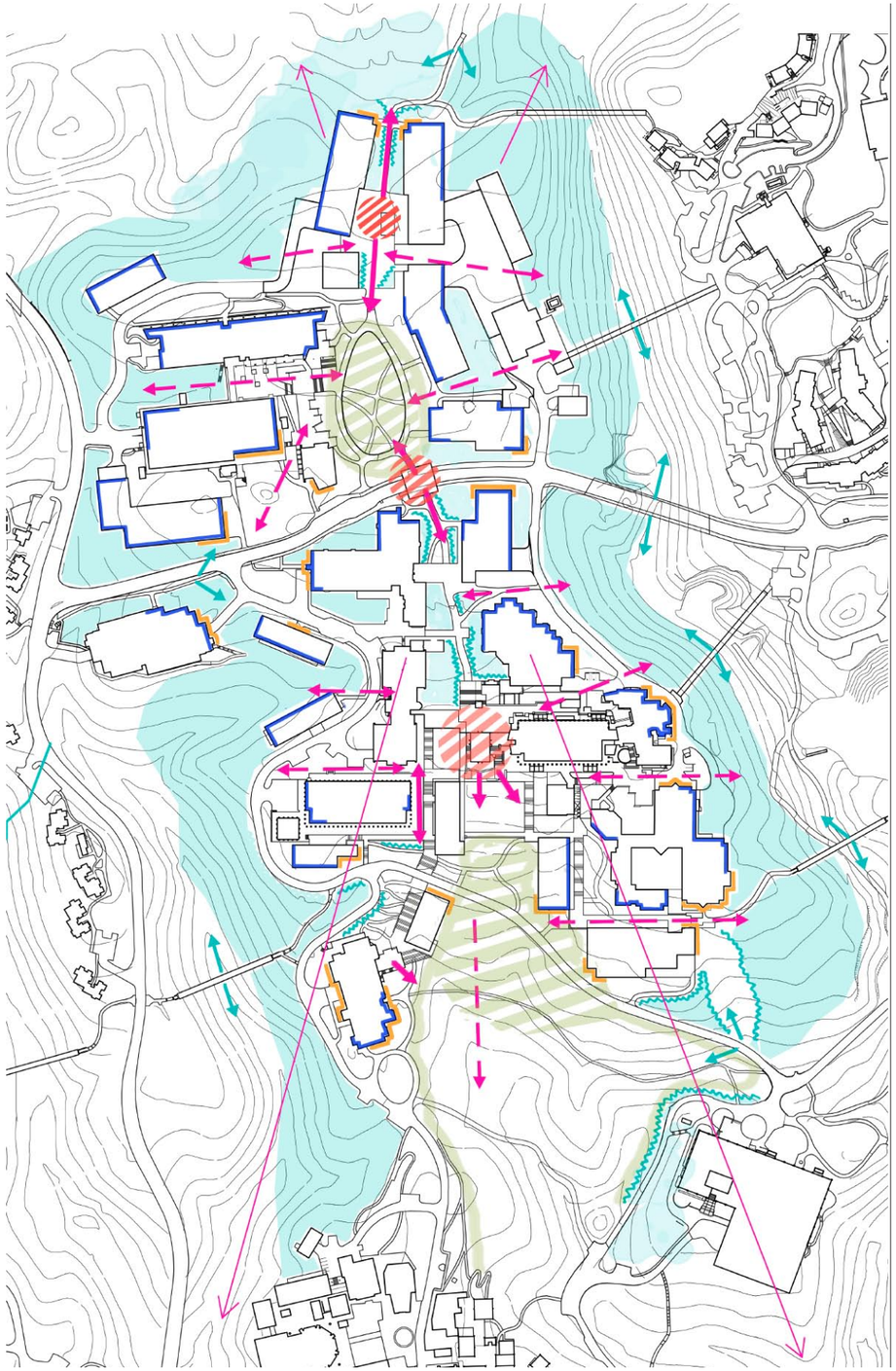
1. Keep service road as narrow as possible; the feel should be more of a widened walkway.
2. Keep service circulation at ravine edges and as separate as possible from pedestrian circulation.
3. Cluster Front entries around the circulation spine and along the lateral courts.
4. Remove surface parking in the center of the core and along the spine.
5. Relocate service road and parking north of McLaughlin.
6. Provide view corridors at lateral courts across service road to ravines beyond.
7. Create places for reflection along service road, for example by creating decks at the second level of service entries.
8. Screen service areas from walkways, view corridors and from above.

SERVICE ENTRY

FRONT ENTRY

ARRIVAL POINTS

VIEW DIAGRAM



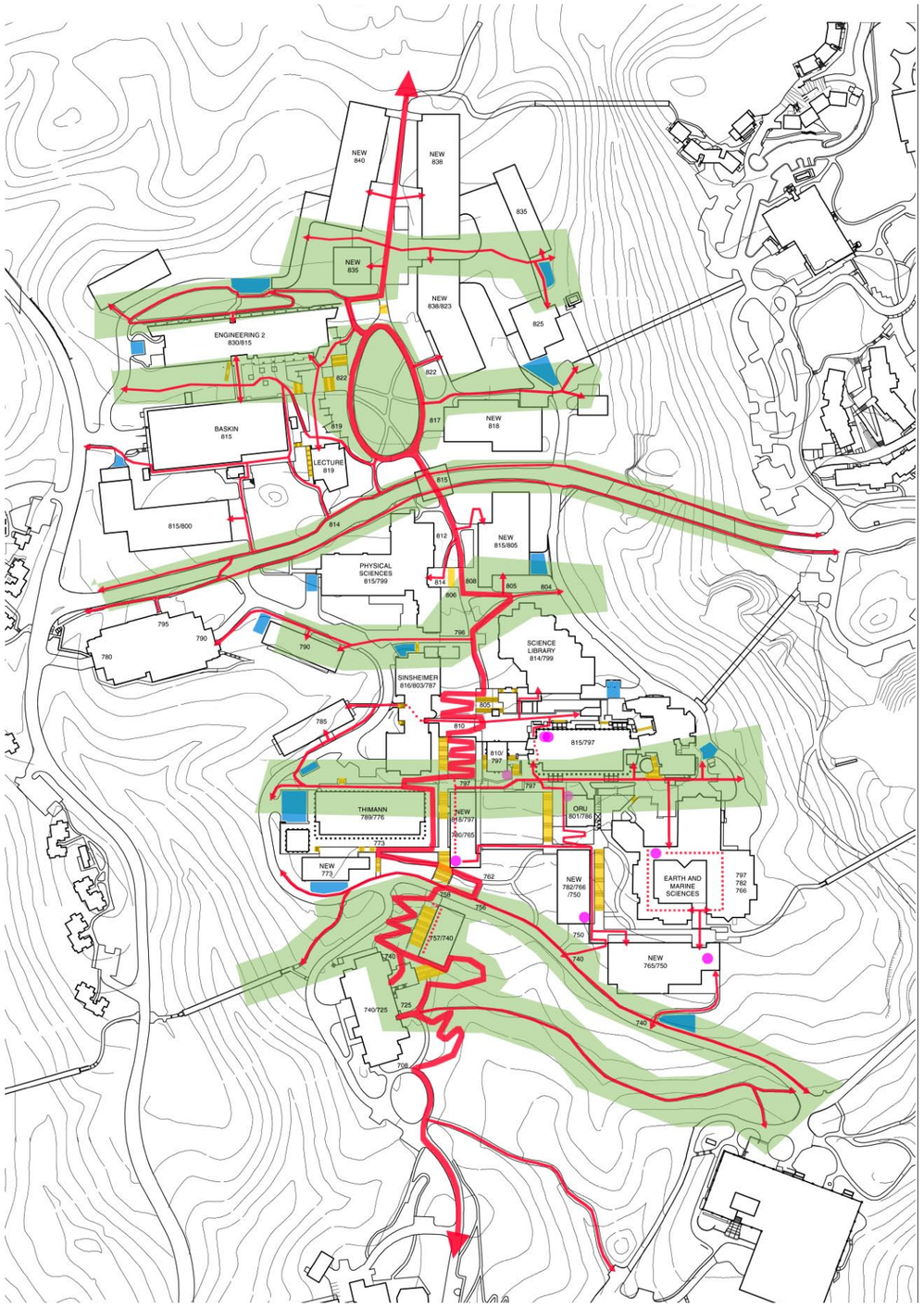
The view diagram indicates that most open views from Science Hill are to the south from elevations above 780' (the terraces at Thimann Labs and Earth & Marine Sciences) and roughly along the upper edge of Kerr Meadow north of Steinhart. Views from Steinhart and Kerr Meadow are internal to the Oak Groves. Views from the knoll elevation at Science Hill Plaza are restricted by buildings and trees to framed views of sky and glimpses of ocean horizon. The buildings at that elevation (800') have dramatic coastal views to Santa Cruz: the pier, town and coastal landscape. Views in the north part of Science Hill are into redwoods and the ravines, or views from upper floors of buildings to the coast and upper ridges. The edges of the core have interesting forest and ravine views to the east and west.

Recommendations

1. Improve the overlook and view experience at Science Hill Plaza.
2. Capitalize on Kerr Meadow and its park-like views with porches and terraces.
3. Reinforce the opening and closing of views as contrasting experiences along a central north-south spine.
4. Create view opportunities at edges into the forest.

ARRIVAL POINTS
ARRIVAL VIEWS
SITE VIEWS OUT
SITE VIEWS IN
OPEN SPACES
DISTINCT PLACES
BUILDING VIEWS
TREE EDGE

PEDESTRIAN CIRCULATION / ACCESSIBILITY DIAGRAM



This diagram identifies an ADA accessible route along the north-south central circulation spine as well as a concept for relatively level east to west accessibility at courts related to building entries. An exterior accessible path along the entire length of the spine is extremely difficult to accomplish, requiring multiple ramps and incursions into the surrounding landscape. However, by using a combination of exterior accessible paths, stairs and elevators at on-grade building entries, an accessible route can be achieved with relative simplicity. The accompanying diagram shows the extent of required ramps if an all-exterior accessible path were provided as well as location of elevators if the "short-cut" strategy were adopted. This path would provide an ADA accessible path at grade from the north end to the Central Plaza; from there on elevators located at building exteriors could provide access south to Kerr, Environmental Sciences and buildings to the south and east.

Recommendations

1. Create relatively level east-west linear courts that group entries at floor levels descending down the hill.
2. Create an exterior accessible north-south path using a combination or ramps/ elevators and sloping walkways.
3. Use elevators at buildings where necessary, i.e. where exterior ramping is an onerous option.
4. Enter buildings at two or more different levels where buildings are on a slope to maximize accessibility and convenience.
5. Accessible parking is convenient to east-west courts, which allows parking to be located at the edges of Science Hill.

EXTERIOR PATH ON GRADE

PRIMARY NORTH / SOUTH PATH ON GRADE

INTERIOR PATH OR DECK

773/767 *FLOOR ELEVATIONS AT GRADE*

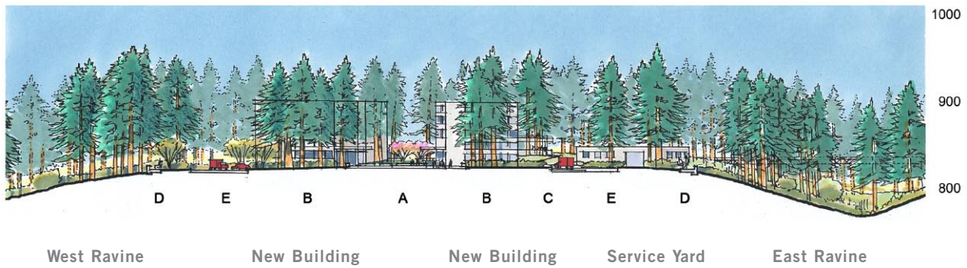
STEPS

MEDICAL / ACCESSIBLE / CONVENIENCE PARKING

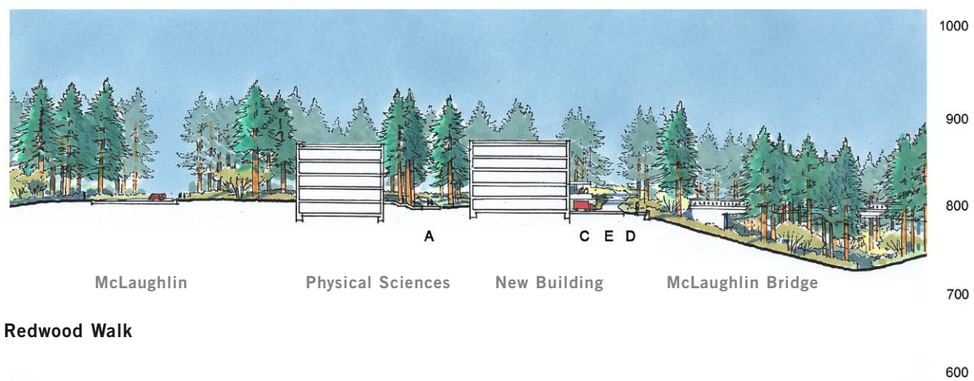
LINEAR COURTS

ELEVATOR

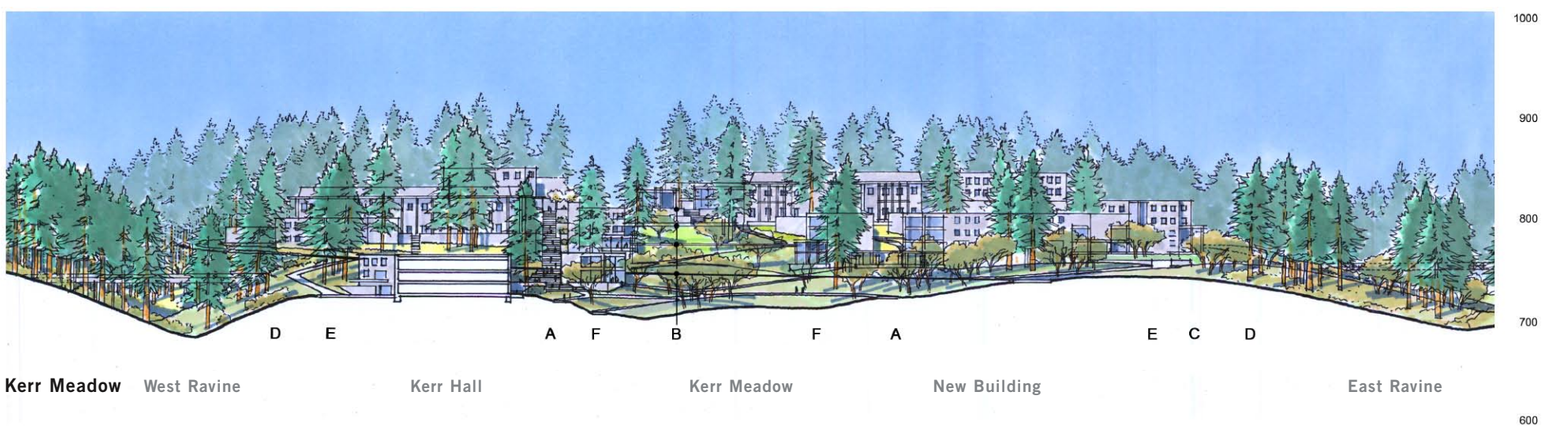
SITE SECTIONS



Madrone Court



Redwood Walk



A. Central Spine
- Activity Spaces
- Front Doors
- Pre-Function
- Casual Interaction
- Major North-South Circulation

B. East to West Terraces
- Views to Ravines
- Level Connections to Buildings
- Bridges and Overlooks and short term/
- Handicap parking

C. View Terraces
- 'Back Patios overlooking Ravines'
- Above Service!

D. Overlooks
- Places for quiet views of ravines

E. Ravine Edge
- Secondary North-South Circulation
- Service Access (screened and tucked into lower levels)

F. Meadow Edge
- Patios and Decks looking over Meadows at
- Central Spine and views to South

These site sections illustrate some of the different conditions along the circulation spine, focusing on the east-west connections between the spine and the ravines. While primary building entries will engage the circulation spine with courts and gathering spaces, the opposite sides of the buildings will relate directly to the ravines and provide informal quiet overlooks and benches.

Madrone Court

Central Spine creates a gateway to the upper ridge and forest.
- Major gathering space north of McLaughlin
- Narrows to north int0 the redwoods
- Terraces up the ridge
- Seat walls, planter walls, square brick paving
- Lighting

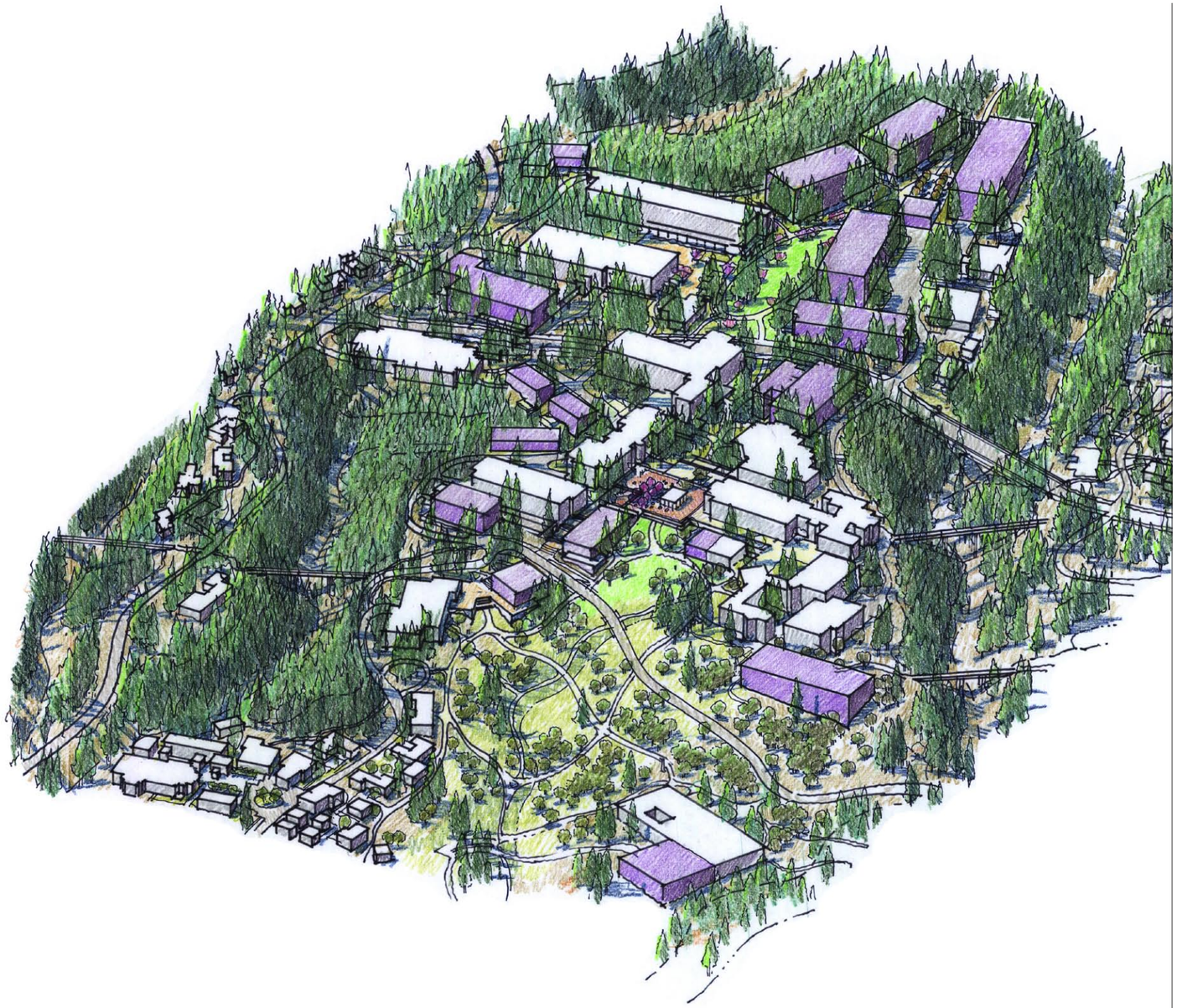
Redwood Walk

Narrow mysterious woodland pathway, between the North Engineering Glade and the Science Hill Plaza.
- Deep shade with shafts of light
- Fern dell along the walk, vertical feeling
- Benches and small seating areas
- Building porches and entries face the walk

Kerr Meadow

A park-like meadow is a yard and event space for Science Hill
- Natural area, oak grove to south, rustic
- Sloping lawn, sun north of Steinhart
- Buildings have porches, overlooks at edges
- Central Spine splits around meadow

SITE AXONOMETRIC



This illustration shows the key idea of the plan—that ravines define the core of Science Hill and the ridge defines the central circulation spine which narrows to the north into trees and expands into meadow to the south. The new buildings reinforce this pattern and articulate the underlying topography.

The following meetings took place as a part of the Science & Engineering Area Plan process :

Advisory Committee
Meeting #1, April 12, 2004
Frank Zwart, UCSC Campus Architect and Assoc. Vice Chancellor
John Barnes, UCSC Physical Planning & Construction
Dan Atwater, UCSC Graduate Student Representative
Ken Bruland, UCSC Division of Physical & Biological Sciences
Margaret FitzSimmons, UCSC Committee on Planning & Budget
Michael Isaacson, UCSC School of Engineering
David Kliger, UCSC Dean of Division of Physical & Biological Sciences
Jocelyn Laney, UCSC Undergraduate Student Representative
Bruce Schumm, UCSC Division of Physical & Biological Sciences
Matt Waxman, UCSC Undergraduate Student Representative
Alan Zahler, UCSC Division of Physical & Biological Sciences
Martin Carver, Coast Plans
Andrew Spurlock, Spurlock Poirier
Dennis McFadden, Anshen + Allen, Los Angeles
Mark Skiles, A + ALA

Meeting #2, May 24, 2004
Frank Zwart, UCSC Campus Architect and Assoc. Vice Chancellor
Ken Bruland, UCSC Division of Physical & Biological Sciences
Doug Carlson, UCSC Division of Physical & Biological Sciences
Robin Draper, UCSC Capital Planning & Space Management
Margaret FitzSimmons, UCSC Committee on Planning & Budget
Michael Isaacson, UCSC School of Engineering
David Kliger, UCSC Dean of Division of Physical & Biological Sciences
Bruce Schumm, UCSC Division of Physical & Biological Sciences
Matt Waxman, UCSC Undergraduate Student Representative
Alan Zahler, UCSC Division of Physical & Biological Sciences
Martin Carver, Coast Plans
Andrew Spurlock, Spurlock Poirier
Dennis McFadden, Anshen + Allen, Los Angeles
Mark Skiles, A + ALA

Meeting #3, June 7, 2004
John Barnes, UCSC Physical Planning & Construction
Ken Bruland, UCSC Division of Physical & Biological Sciences
Doug Carlson, UCSC Division of Physical & Biological Sciences
Michael Isaacson, UCSC School of Engineering
David Kliger, UCSC Dean of Division of Physical & Biological Sciences
Bruce Schumm, UCSC Division of Physical & Biological Sciences
Alan Zahler, UCSC Division of Physical & Biological Sciences
Martin Carver, Coast Plans
Dennis McFadden, Anshen + Allen, Los Angeles
Mark Skiles, A + ALA

Meeting #4, June 22, 2004
John Barnes, UCSC Physical Planning & Construction
Michelle Asire, UCSC Division of Physical & Biological Sciences
Robin Draper, UCSC Capital Planning & Space Management
David Kliger, UCSC Dean of Division of Physical & Biological Sciences
Martin Carver, Coast Plans
Andrew Spurlock, Spurlock Poirier
Dennis McFadden, Anshen + Allen, Los Angeles
Mark Skiles, A + ALA

Working Group
Meeting #1, February 12, 2004
Frank Zwart, UCSC Campus Architect and Assoc. Vice Chancellor
John Barnes, UCSC Physical Planning & Construction
Steve Ayraud, UCSC PP&C
Kerrie McCaffrey, UCSC PP&C
David Cosby, UCSC Basking School of Engineering
Robin Draper, UCSC Capital Planning
Buddy Morris, UCSC Environmental Health & Safety
Ilse Kolbus, UCSC Physical Plant
James Dunne, UCSC Physical Plant
Kathy Jefferds, UCSC Physical & Biological Sciences
Larry Pageler, UCSC Traffic & Parking Services
Maureen McLean, UCO/Lick Observatory
Martin Carver, Coast Plans
Andrew Spurlock, Spurlock Poirier
Dennis McFadden, Anshen + Allen, Los Angeles
Mark Skiles, A + ALA

Meeting #2, June 8, 2004
Frank Zwart, UCSC Campus Architect and Assoc. Vice Chancellor
John Barnes, UCSC Physical Planning & Construction
Michelle Asire, UCSC Division of Physical & Biological Sciences
Adam Bayer, UCSC PP&C
David Cosby, UCSC Basking School of Engineering
Robin Draper, UCSC Capital Planning
Kerrie McCaffrey, UCSC PP&C
Buddy Morris, UCSC Environmental Health & Safety
Larry Pageler, UCSC Traffic & Parking Services
Susan Willats, UCSC ADA Compliance
Martin Carver, Coast Plans
Andrew Spurlock, Spurlock Poirier
Dennis McFadden, Anshen + Allen, Los Angeles
Mark Skiles, A + ALA

Design Advisory Board
Meeting #1, May 25, 2004
Richard Fernau, Design Advisory Board
Virginia Jansen, DAB
Tito Patri, DAB
David Rinehart, DAB
John Barnes, UCSC Physical Planning & Construction
Kay Wiebe, UCSC PP&C
Martin Carver, Coast Plans
Dennis McFadden, Anshen + Allen, Los Angeles

Meeting #2, June 22, 2004
Richard Fernau, Design Advisory Board
Virginia Jansen, DAB
Tito Patri, DAB
David Rinehart, DAB
John Barnes, UCSC Physical Planning & Construction
Dean Fitch, UCSC PP&C
Kay Wiebe, UCSC PP&C
Martin Carver, Coast Plans
Andrew Spurlock, Spurlock Poirier
Dennis McFadden, Anshen + Allen, Los Angeles
Mark Skiles, A + ALA

Interviews
Fire Department
February 12, 2004
Charles Hernandez, UCSC Fire Chief
Andrew Spurlock, Spurlock Poirier
Dennis McFadden, Anshen + Allen, Los Angeles
Mark Skiles, A + ALA

School of Engineering
March 4, 2004
Steve Kang, Dean of the School of Engineering
Jim Genes, UCSC School of Engineering
Dennis McFadden, Anshen + Allen, Los Angeles

March 15, 2004
Jim Genes, UCSC School of Engineering
Dennis McFadden, Anshen + Allen, Los Angeles

Research
March 18, 2004
Robert Miller, Vice Chancellor of Research and Graduate Dean
Dennis McFadden, Anshen + Allen, Los Angeles

Physical Planning & Construction
March 18,2004
Steve Ayraud, UCSC PP&C
Jim Dunne, UCSC PP&C
Martin Carver, Coast Plans
Dennis McFadden, A + ALA

Transportation & Parking Services
March 18, 2004
Larry Pageler, UCSC TAPS
Martin Carver, Coast Plans
Dennis McFadden, Anshen + Allen, Los Angeles

Division of Physical & Biological Sciences
March 18,2004
David Kliger, Dean of the Division of Physical & Biological Sciences
Martin Carver, Coast Plans
Dennis McFadden, Anshen + Allen, Los Angeles

UCO/Lick Observatory
March 19, 2004
Maureen McLean, UCO/Lick Observatory
Dennis McFadden, Anshen + Allen, Los Angeles