

## 4.0 SITE ANALYSIS

### 4.1 Campus Planning Context

The proposed site for Engineering Building Unit 2 (EBU2) is on Parking Lot 16 located on the east side of Bourns Hall. The site is surrounded on the south by the Geology Building, the southeast by the Physics Building, and the north by Campus Drive, the Arroyo and residence halls.

Currently, the proposed site is located within the 100-year flood plain as described by FEMA (Federal Emergency Management Agency). It is anticipated that the University Arroyo Restoration and Storm Drain/Flood Control Plan, currently undergoing conceptual design, will mitigate the 100-year flood impacts on the site prior to the construction of EBU2. A "Letter of Map Revisions" (LOMR) will be submitted by UCR to FEMA to remove the proposed site and surrounding area from the flood plain.



## 4.2 Long Range Development Plan Goals (LRDP)



LRDP, UC Riverside map

Building proposals must be consistent with the LRDP land use patterns and must be individually approved after appropriate review by the Chancellor, the UC Office of the President, and the Regents.

A summary of the LRDP goals impacting the EBU2 include the following:

- Continue to develop a theme of entering main campus areas and buildings through arcades, porticos, vestibules, courtyards, and terraces
- Maintain a cohesive framework of landscape malls and walkways to tie together campus land uses and academic precincts
- Provide for bicycle access and parking
- Separate service and utility areas from major entries

The LRDP identifies the site as within the College of Engineering Precinct. The proposed project is in compliance with the LRDP land use designation for the site.

Bourns Hall was constructed after the LRDP was implemented, therefore the LRDP document does not reflect changes that occurred from the construction of Bourns Hall.

## 4.3 Landscape



LRDP, Landscape Framework

The LRDP shows a plaza or courtyard at the northwest corner of the site, between Bourns Hall and the proposed EBU2. This is identified as "Engineering Plaza" and will be located at the end of Aberdeen walk and the center of the "Engineering Precinct." The existing open space at the northeast corner of the BCOE should be retained and enhanced to serve this function.

Eucalyptus trees planted six years ago are located on the slope between the south fire lane and the proposed building. Eucalyptus trees of varying age and condition are located in the existing parking lot and Brisbane Box trees presently line the street. The sidewalk is approximately 8' wide, paved with asphalt. The parking lot is approximately 5' lower in elevation than Bourns Hall and slopes down from west to east.

### Irrigation

The irrigation system for Bourns Hall is a standard spray system with stub lines and wires located at the north and southeastern extremities of that project. There is a Solar Wind automatic controller system on the north face of Pierce Hall. A campus-wide back flow prevention unit treats water for all of the campus. There is an automatic controller at the southeast corner of the Physics Annex with 16 stations presently available for use.

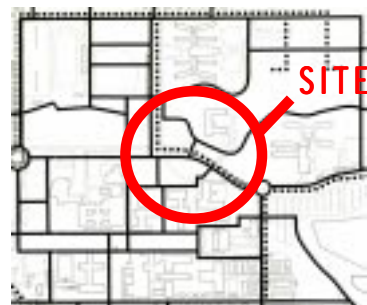
#### 4.4 Vehicular Circulation



LRDP, Vehicular Circulation

The LRDP Vehicular Circulation Map shows North Campus Drive between Aberdeen Drive and Big Springs Road as limited access. Only campus shuttle, emergency services and service vehicles will be permitted. This is in consort with a proposed traffic mitigation plan currently in draft stages that might reroute access to the Health Center from North Campus Drive to Linden on the north and close North Campus Drive per the LRDP. Confirmation on the status or acceptance of the draft plan should be made at the next phase of development.

#### 4.5 Pedestrian Circulation & Parking

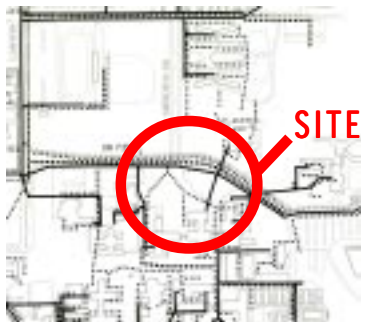


LRDP, Pedestrian and Bicycle Circulation

The LRDP Pedestrian Circulation Map identifies important pedestrian walkways surrounding the site. Pedestrian traffic has been increasing in that area due to higher activity levels experienced with the opening of the new Science Library and increased enrollment. In addition, new residence halls at the northeast corner of the campus will add another 1,000 students to the area. North Campus Drive between Aberdeen and Big Springs Drive is currently experiencing grid lock at peak periods.

EBU2 provides an opportunity to emphasize the north-south pedestrian access between the Geology and Physics buildings toward the residence halls to the north.

#### 4.6 Utilities



LRDP, Sanitary Sewer & Storm Drain Distribution

Required services for the Engineering Building Unit 2 will include natural gas, potable water, sanitary and storm-sewers, fire protection, electric power, telephone; data/communication, chilled water, steam, and steam condensate. To the extent possible, all utilities should come from existing campus supply sources.

Criteria used on the design of the sewer, storm drain and water facilities should correspond to the Uniform Plumbing Code, Riverside County Fire Department Standards, State Marshal Standards, Campus Fire Marshal, and any state and federal requirements and be coordinated with the Office of Design and Construction.

All existing buildings such as Bourns Hall, Geology Building, Physics Building and all other buildings in the vicinity will remain operational during demolition, removal, relocation and installation of all new site utilities. The construction of utility relocations and tie-ins will be closely coordinated with UCR Planning, and the Office of Design and Construction.

### Site Sewer System

There is an existing 6-inch line that extends north from the Geology Building that will need to be relocated as a part of the project. The relocated line will be located to the west of the proposed Engineering Building 2 and tie-in to the existing 15-inch main located in North Campus Drive. The sanitary sewer connection for the Engineering Building 2 will tie-in to the relocated line. Piping material for the new sewer laterals shall be PVC SDR 35, consistent with Campus Design and Construction practice.

### Site Storm Water

The Engineering Building 2 site is located adjacent to the University Wash, which is within the FEMA 100-year flood plain. Major drainage improvements within the area of the wash are being accomplished as a part of the Arroyo project, which has among its objectives the goal of enlarging the University's building land through redefinition of the FEMA 100-year flood plain. There is an existing 72-inch storm drain line that runs westerly in North Campus Drive just north of the proposed building. Runoff from the building and associated site development will be conveyed to this system. Storm drain piping material shall be PVC SDR 35 consistent with Campus Design and Construction practice.

### Domestic and Fire Water

There is an existing combined domestic and fire water loop on campus that includes an 8-inch main in North Campus Drive. Water supply for the Engineering Building 2 will come from this line. Site water piping shall be PVC SDR 14, consistent with Campus Design and Construction practice. Both the domestic and fire laterals will require back flow preventors in accordance with UCR list of approved back flow devices.

### Utility Tunnel

Most buildings on campus are supplied chilled water supply and return, steam, steam condensate, natural gas, telecommunication via a tunnel, which runs from the campus central plant. It is our understanding that the existing central plant is at or near capacity and that the University is studying alternatives such a satellite or secondary plant. To supply the Engineering Building 2, the existing tunnel located between the Geology Building and the Physics Building will need to be extended to the north. The extension of the utility tunnel will be accomplished by the University as a separate project and is not a part of the Engineering Building 2 project. Refer to the Utility plan at the end of this section for additional detail.

## 4.7 Soils and Grading

A specific geotechnical investigation has been prepared for the proposed site. The report is dated 1992. The data and recommendations of the report should be confirmed during the design phase. For the purpose of this DPP, the report has been reviewed and included for consideration of soil conditions and foundation recommendations. The report was prepared by: KLEINFELDER, Inc.

11731 Sterling Avenue, Suite E  
Riverside, CA 92503  
Contact: Allen Evans

## 4.8 Campus Workgroup Issues

During the development of the DPP, the following Campus Workgroups were invited to participate in the process to define issues from each of their areas of responsibility. As these issues were raised, solutions were discussed and are included in the scope of the DPP document.

### Physical Plant & Utilities

Systems shall follow the UCR Guidelines. Access should be maintained to major mechanical and electrical equipment. The design should maintain flexibility to accommodate changes in the use of the building. Utility maps are included in the LRDP; however, changes have occurred since the LRDP was published in 1990. Utilities locations and sizes should be checked with the Office of Design and Construction or the Physical Plant.

The design should be coordinated with current plans by UCR to expand the central plant for the addition of EBU2 as well as several other campus expansion projects. For the purpose of this DPP, it is assumed that chilled water will be provided by a source to be determined by the University. The existing Bourns Hall emergency generator must be relocated. Additional information on the emergency generator is provided in Appendix C. There is an existing sanitary sewer line that runs through the site which will require relocation.

### Materials Management

BCOE currently receives specialty gas deliveries each day. There are deliveries by tractor trailer approximately once a month. The machine shop on the ground level of the existing Bourns Hall receives large deliveries. Access must be maintained for service and deliveries.

Door widths from the dock to the building, and building corridors, should be wide enough to accommodate large pieces of equipment. Loading docks should be suitable height and access to accommodate a 70 foot tractor trailer for delivery of large equipment.



### Communications

Design and planning standards for communications will include adequate data outlets in the research and teaching labs. Both fiber optic and category 6 cable will be provided throughout the facility. Wireless communication systems will also be used throughout.

### Emergency Vehicle Access

An approved Plan for emergency vehicle access has been developed by the campus. The proposed site has a designated emergency vehicle access route that must be maintained. This lane is illustrated on the site analysis diagram in 4.9.



Science Library

### **Parking and Circulation**

Service and handicap parking will be included in this DPP, however, replacement parking for the existing Lot #16 is not included. The University will assess parking inventory and determine appropriate measures for the provision of parking facilities. The proposed building and sitework will eliminate approximately 109 parking stalls.

North Campus Drive is currently undergoing a study for alternatives to alleviate vehicular and pedestrian congestion. The pedestrian flow of students from the residence halls to the campus has caused traffic delays on Campus Drive. The traffic mitigation measures are not available at the time of this DPP, however, they should be reviewed in the next phase.

### **Special Services (Disabled Students and Staff)**

Accessibility standards are to be met for this project. The Americans with Disabilities Act provides the standard guidelines used by the campus for accessibility. Design solutions for the site and building must follow guideline requirements for accessibility. A provision for three accessible parking stalls including a van stall should be made on the site.

### **Security**

Provisions for security cameras and monitoring are addressed in this DPP. In addition to monitoring, EBU2 will use the Campus Standard for swipe card access throughout the facility.

### **Environmental Health and Safety**

As designed, this building has no facility for the use of hazardous materials. It is understood that this is what the users desire. No work with hazardous materials can be allowed in this facility without substantial ventilation and facility changes.

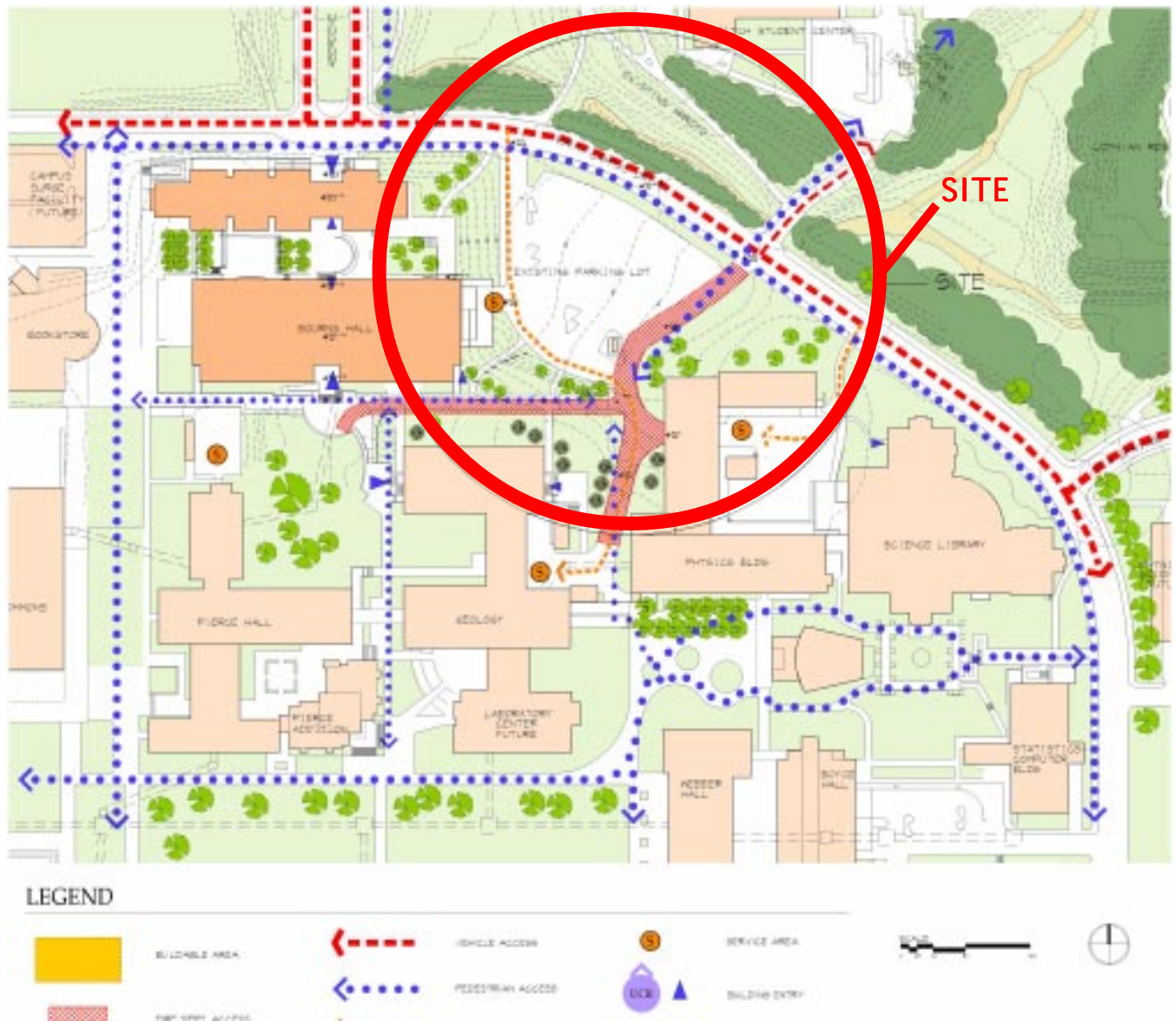
The proposed location for delivery of materials to both the existing Bourns Hall and EBU2 will be along the northeast corner of the site. As hazardous materials are routinely used in the existing Bourns Hall, these hazardous materials must pass through the new EBU2 on the first floor in transit to Bourns Hall. This will result in materials taken along the corridors also used by faculty and students. It is recommended that accommodations for the delivery of materials to Bourns Hall be made to preclude flammable, toxic and reactive chemicals passing through the teaching lab and general assignment instructional spaces.

All emergency vehicle access routes are to be kept open during and after construction.

View looking west from Lot 16 to  
Bourns Hall

### 4.9 Existing Site Analysis

Comments from this section including vehicular circulation, pedestrian circulation, service and emergency vehicle access are shown on this site analysis diagram.



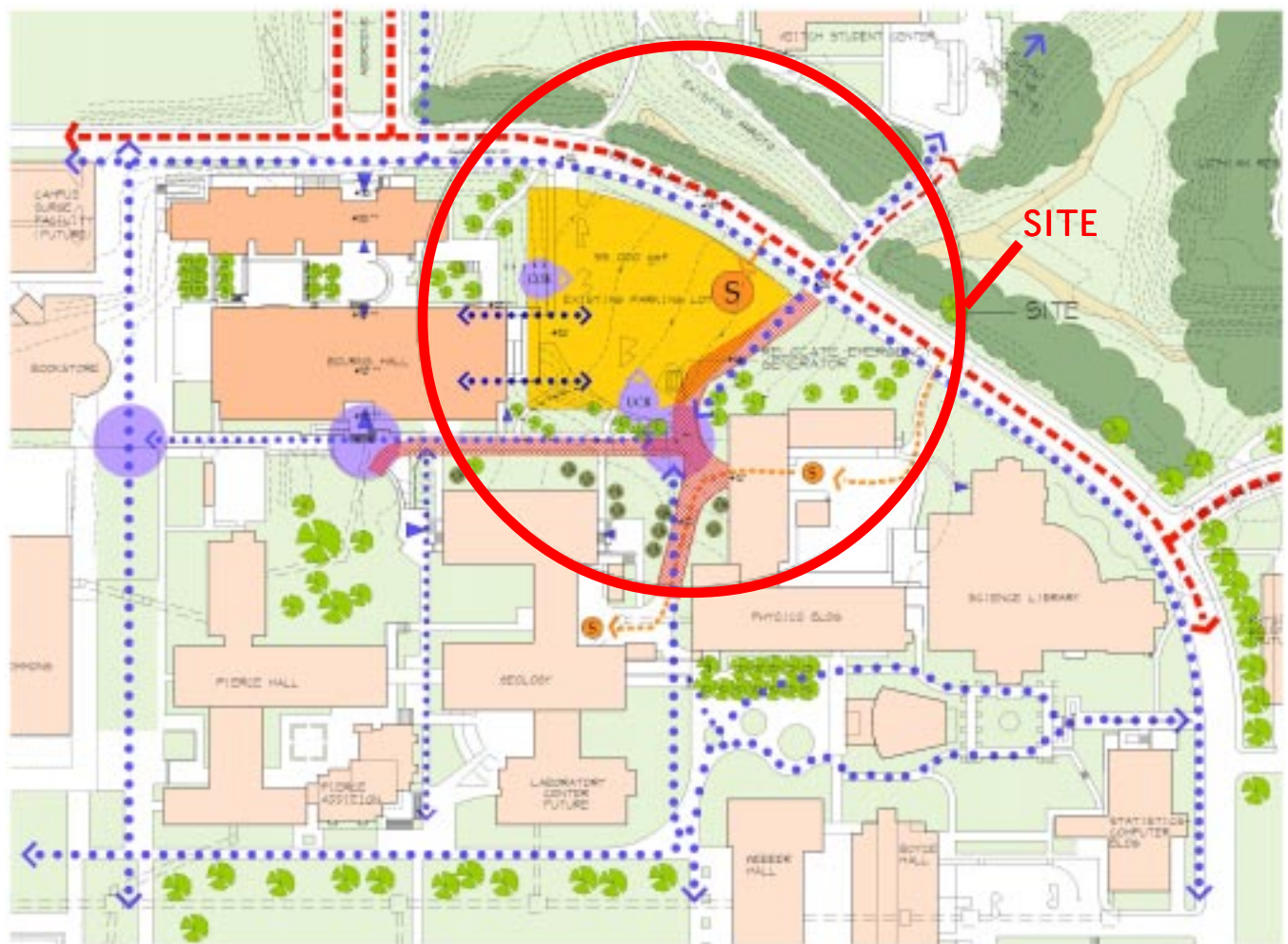
### 4.10 Site Planning Principles

There are several key site planning principles that have been identified throughout the DPP process. These principles are illustrated on the site plan below.

1. Pedestrian Access:

General University pedestrian circulation will be directed to the south of the Engineering Precinct. This will encourage pedestrian traffic between the new Surge Building and the general instructional space in EBU2 as well as pedestrian traffic from the residence halls to the northeast of the proposed site. This circulation route creates opportunities for courtyard, plazas and focal points as shown on the plan below.

General University pedestrian traffic will be discouraged through the internal courtyards of the Engineering Precinct. These open spaces will be maintained as interactive, meditative and contemplative space for the students and faculty of BCOE.



LEGEND

	BUILDABLE AREA		VEHICLE ACCESS		SERVICE AREA		
	FIRE DEPT. ACCESS		PEDESTRIAN ACCESS		BUILDING ENTRY		
			SERVICE ACCESS				



### 2. Engineering Building Unit 2 Entries:

There will be two distinct entrances into EBU2. The main entrance will face the BCOE courtyard and serve as the “hearth” and the focal point of the Engineering Precinct. The second entrance will serve the general assignment instructional spaces and will be located on the main campus pedestrian circulation route located south of Bourns Hall and EBU2.

### 3. Connections:

There will be a physical connection between the existing Bourns Hall and the EBU2. This connection will occur on both the second and third floor levels to Bourns Hall’s south wing. Bourns Hall has an existing bridge connection on level two connecting the north and south wings.

### 4. Service:

Service will be relocated for Bourns Hall and consolidated with EBU2. This opens up the space between the buildings for courtyards and landscape and allows for the natural pedestrian connection between the two buildings on ground level. This will also maintain an attractive view of the building at the service entry.

### 5. Buffers & Expansion:

The small portion of site located north of the existing Physics building will be left undeveloped to allow for future expansion of the Physics building. In addition, the building should maintain a 40’ setback from all buildings to reduce exterior wall and rated opening requirements.

## 4.11 Site Section



East-West Section



North-South Section

### 4.12 Utility Plan

