WESTERN MICHIGAN UNIVERSITY

COLLEGE OF ENGINEERING AND APPLIED SCIENCES

Campus Master Plan

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02 14 2000

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INTRODUCTION

The purpose of the Master Plan is to establish a strong direction for the development of the Western Michigan University College of Engineering and Applied Sciences campus on the 160 acre parcel of land located in the far southwest corner of the city at the intersection of US 131 and Parkview Avenue, known as the Lee Baker Farm.

The engineering campus, consisting of approximately 78 acres, will be the anchor of a business-technology research park (BTR) encompassing most of the remaining acreage and being built out in subsequent stages. The BTR will contain business and research facilities that will maintain independent but close ties with Western Michigan University and the College of Engineering, attracting private spin-off businesses.

Additionally, major portions of the remaining land will be dedicated to a central 20 acre green-space and a generous 70 acre natural landscape buffer between the development and the adjacent high- quality residential neighborhood. An existing historical farm will also be preserved by the University.

Design standards will be developed that will maintain the aesthetic quality and spirit of the entire development and function as practical guidelines for future buildings.

The campus has been designed with several important goals in mind:

- Partnership with the city and community.
- New campus, not an extension of the existing.
- A progressive image.
- A good neighbor.
- Visible presence on US 131.
- Environmentally responsive.
- A visually open environment promoting communication and contact.
- A commuter campus, using parking as an amenity, not a drawback.
- High degree of flexibility.

These and other program guidelines will form the basis of the design.

The main program components of the the new engineering campus will include the following:

1. Academic teaching, lab and support spaces of approximately 350,000 GSF, including the departments of Mechanical & Aeronautical Engineering, Industrial & Manufacturing Engineering, Electrical & Computer Engineering, Civil and Construction Engineering, Materials Engineering and Industrial Design, and Paper & Printing Science / Chemical Engineering.
2. A 50,000 GSF Pilot Plant for Paper Technology.
3. Student and faculty parking decks for approximately 1,000 cars.
4. An Energy Resource Center for the campus including possible utility service for the BTR.
5. Infrastructure and landscape development for the campus and common areas.

The vision for the new campus is an efficient, highly flexible set of structures, building on the relative isolation of the college from the main campus as an opportunity to pioneer, innovate and establish a unique identity for the college and the research campus surrounding it.

PRIMARY LINK TO MAIN CAMPUS & US 131

DRAKE ROAD

PARKVIEW AVENUE

SECONDARY LINK TO MAIN CAMPUS

MAIN VEHICULAR ENTRY

HISTORIC FARM

BTR PARCELS

EXISTING SOCCER FIELDS

EXISTING ORCHARD

BTR PARCELS

BUFFER ZONE

TO GRAND RAPIDS

EXISTING TREE HEDGEROW

EXISTING TREE HEDGEROW

PROPOSED CAMPUS GREENSPACE

VIEW 1

BTR PARCELS

EAST SECONDARY CAMPUS ENTRY

PRIMARY CAMPUS ENTRY

WEST SECONDARY CAMPUS ENTRY

CAMPUS BUILDING ZONE

PROPOSED WATER FEATURE - WATER TO BE TREATED AND CONTINUED INTO NATURAL CREEK OF RESIDENTIAL NEIGHBORHOOD

VIEW 4

EXISTING TREE HEDGEROW

US 131

CAMPUS BUILDING ZONE

300' WIDE GREENBELT BUFFER ZONE

VIEW 3

BUFFER ZONE

PARKVIEW HILLS RESIDENTIAL NEIGHBORHOOD

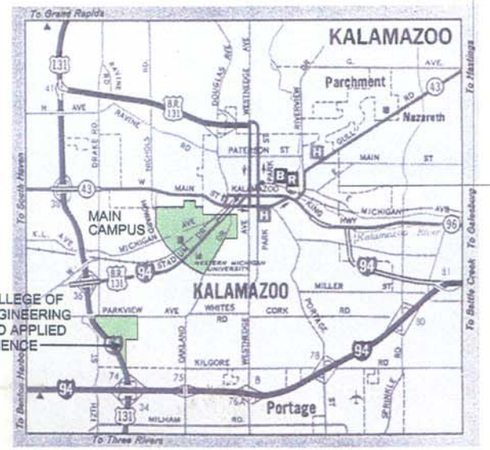
VIEW 2

200' 400'

TO I-94

44°N LATITUDE

SOLAR DIAGRAM



LOCATION MAP

Site Parameters

The development site is located on the east side of US 131, approximately one mile north of I-94, in the extreme south-west corner of the city of Kalamazoo. The Western Michigan University main campus is located about 3 miles north-east of the site.

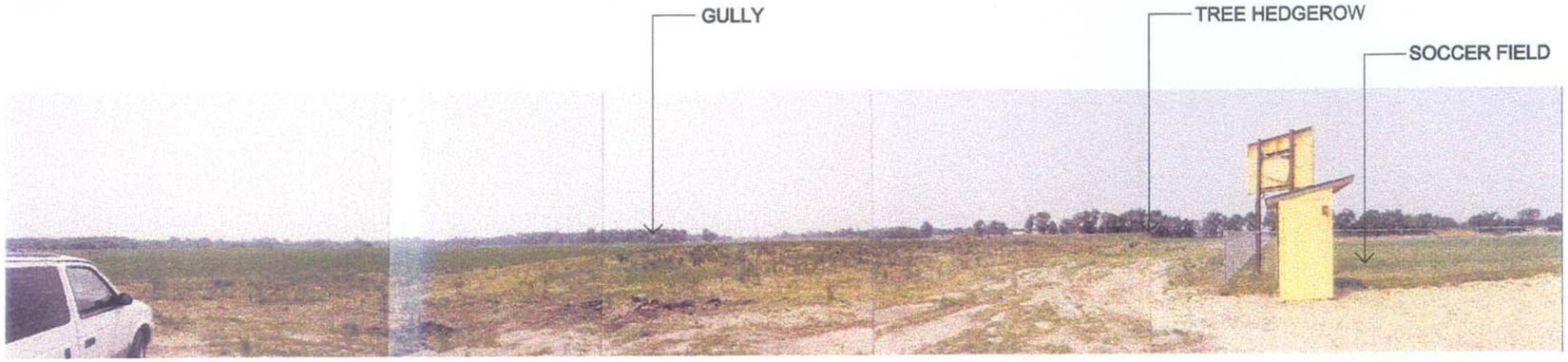
The site is an undeveloped farming tract with little vegetation and little topographical distinction except for the fringes of the site. The major natural site features consist of the remnants of two tree hedgerows, a shallow gully in the south center edge of the site with some mature trees and other mature growth in the north-east and the far south (unbuildable) areas of the site.

An old historical farmstead is located on the center north edge of the property, the assumed home of the first black farmer in the area. Just south of the farmstead some of the land is used by Western Michigan University as a tree nursery. Just west of the farm property Western Michigan University maintains 3 soccer fields for their sprots program, which will be absorbed into the BTR when and if necessary.

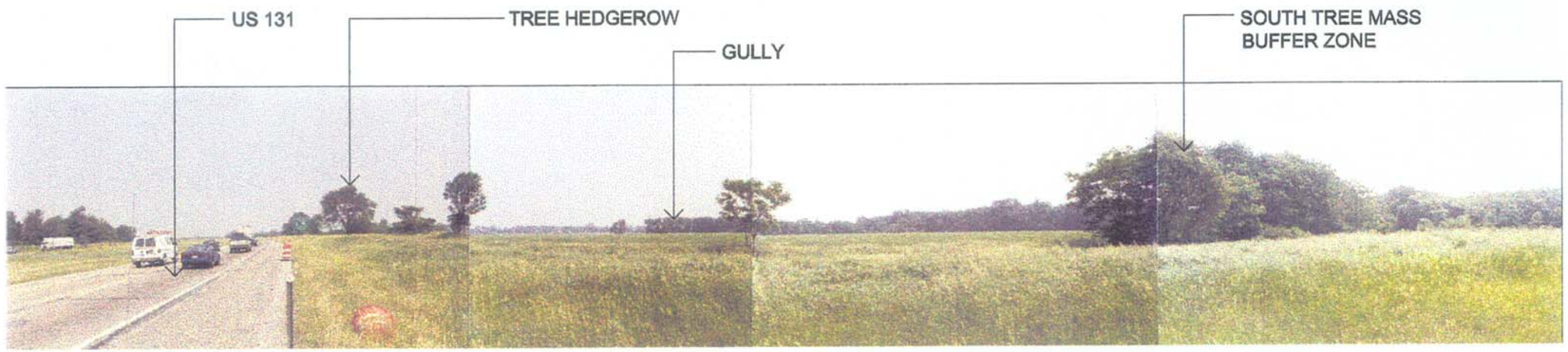
The site is bordered by undeveloped rural land to the north, the upscale Parkview Hills Residential Neighborhood east and south of the property and undeveloped rural farmland west of the site, across US 131.

The first portion of the master plan is being initiated at the present time with the creation of the central landscaped campus greenspace, surrounded by a one way loop road. In addition to being a functional basin for controlling storm water runoff, it is intended to be an ecological centerpiece and the focus of the entire BTR development.

SITE PARAMETERS

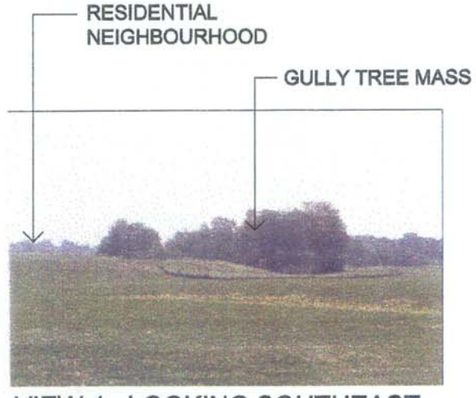


VIEW 1. LOOKING SOUTH FROM SOCCER FIELDS



VIEW 2. LOOKING NORTH FROM US 131

VIEW 3. LOOKING EAST FROM US 131



VIEW 4. LOOKING SOUTHEAST

Site Photos

The photographs show the existing natural setting in mid 1999, prior to any earthwork or infrastructure work beginning on the site.

SITE PHOTOS

Development Master Plan

The master plan for the campus is oriented around the existing natural gully draining the land to the southeast. It is envisioned that this natural feature will be enhanced by a manmade pond connected to the other pond in the central landscaped area within the loop road. Stream flow will be controlled by a man-made waterfall and rapids running under the buildings in the center of the complex. It will be gathered at a dammed area downstream and pumped back up to the pond to be recirculated.

The campus buildings will be oriented in three wings radiating from a central circular "hub" area spanning over the stream. The central hub will be 3 stories high and, in addition to the lobby, will contain centralized service and common areas for students, faculty and the public, providing the linkage between all three wings.

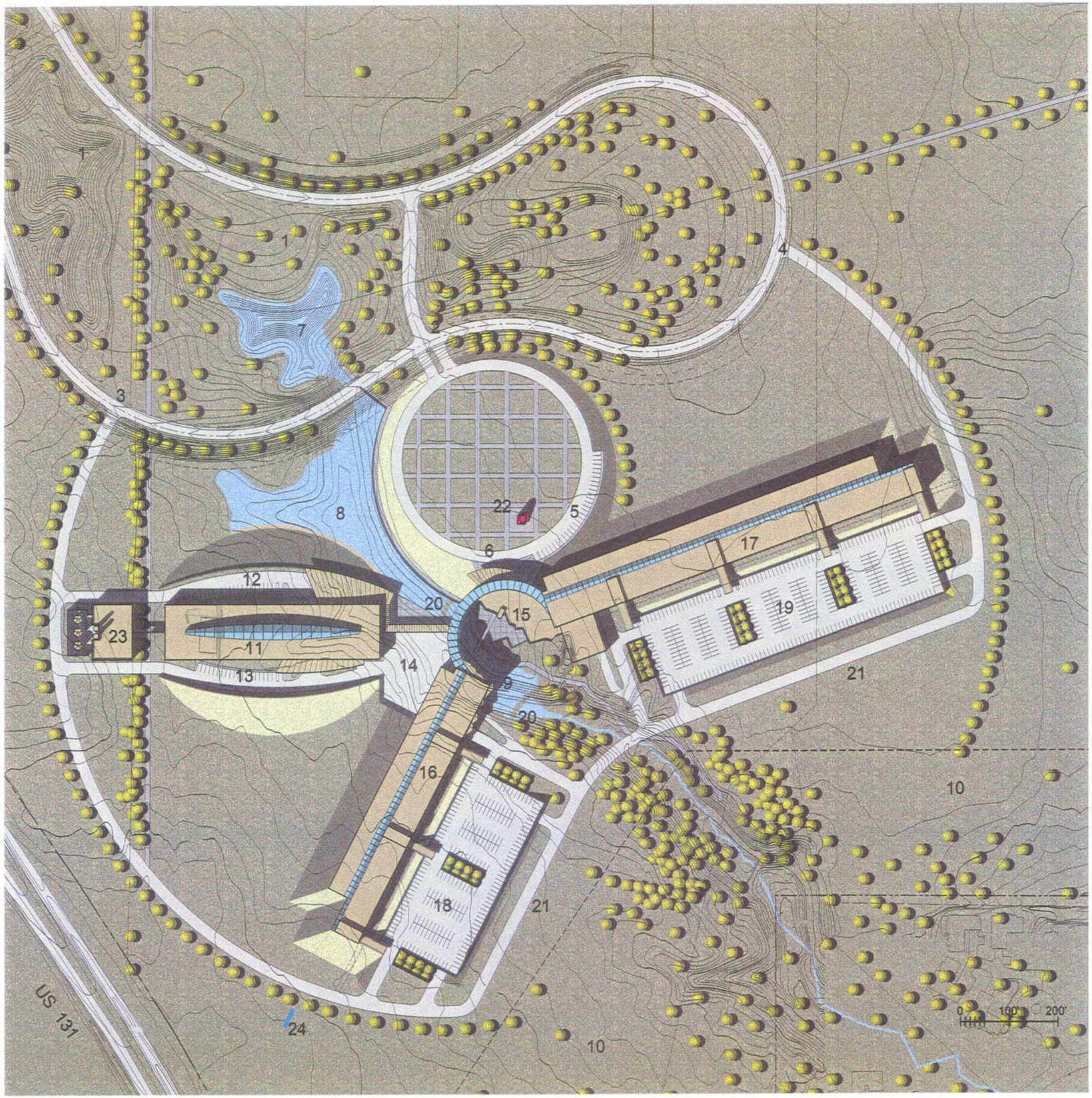
The one-story Pilot Plant for Paper Technology will be located west of the central hub, surrounded by curvilinear landscaped berms on the north and south sides. The Energy Resource Center will be located west of the Pilot Plant, on the other side of the existing tree hedgerow.

Two-story academic buildings will extend roughly south and east from the central hub area, containing teaching areas, offices, meeting rooms and laboratory areas. A service and truck dock area will be located in the crook between the pilot plant and the west academic wing. The main student and faculty parking will be located on two 2-story decks south of the academic wings, half buried in the grade.

The parking will be accessed by the east and west circular access roads from the central loop road. The main campus visitor entrance will be along the circular front drive with approximately 20 visitor parking spaces. Pilot Plant visitor and service traffic will come in on the west access road.

1. ENERGY RESOURCE CENTER
2. CENTRAL LANDSCAPED AREA
3. BTR PARCEL
4. INCUBATOR PARCEL
5. HISTORICAL FARM
6. COLLEGE OF ENGINEERING AND APPLIED SCIENCE
7. 300 FT. WIDE BUFFER ZONE
8. PAPER TECHNOLOGY PILOT PLANT
9. PARKING DECKS
10. EXISTING SOCCER FIELDS - FUTURE BTR PARCELS
11. POND
12. EXISTING GULLY
13. CAMPUS SIGN

DEVELOPMENT MASTER PLAN



1. CENTRAL LANDSCAPED AREA
2. MAIN ENTRY
3. WEST AUTO ENTRY
4. EAST AUTO ENTRY
5. VISITOR PARKING
6. MAIN BUILDING ENTRY
7. UPPER POND
8. MIDDLE POND
9. LOWER POND
10. LANDSCAPE BUFFER
11. PAPER TECHNOLOGY PILOT PLANT
12. PILOT PLANT VISITOR PARKING
13. PILOT PLANT EMPLOYEE PARKING
14. SERVICE YARD
15. LOBBY, LECTURE AND CAFETERIA
16. WEST ACADEMIC WING
17. EAST ACADEMIC WING
18. WEST PARKING DECK
19. EAST PARKING DECK
20. WATER FALL / RAPIDS
21. SOUTHERN ACCESS ROAD
22. CAMPUS ICON
23. ENERGY RESOURCE CENTER
24. CAMPUS SIGN

CAMPUS MASTER PLAN

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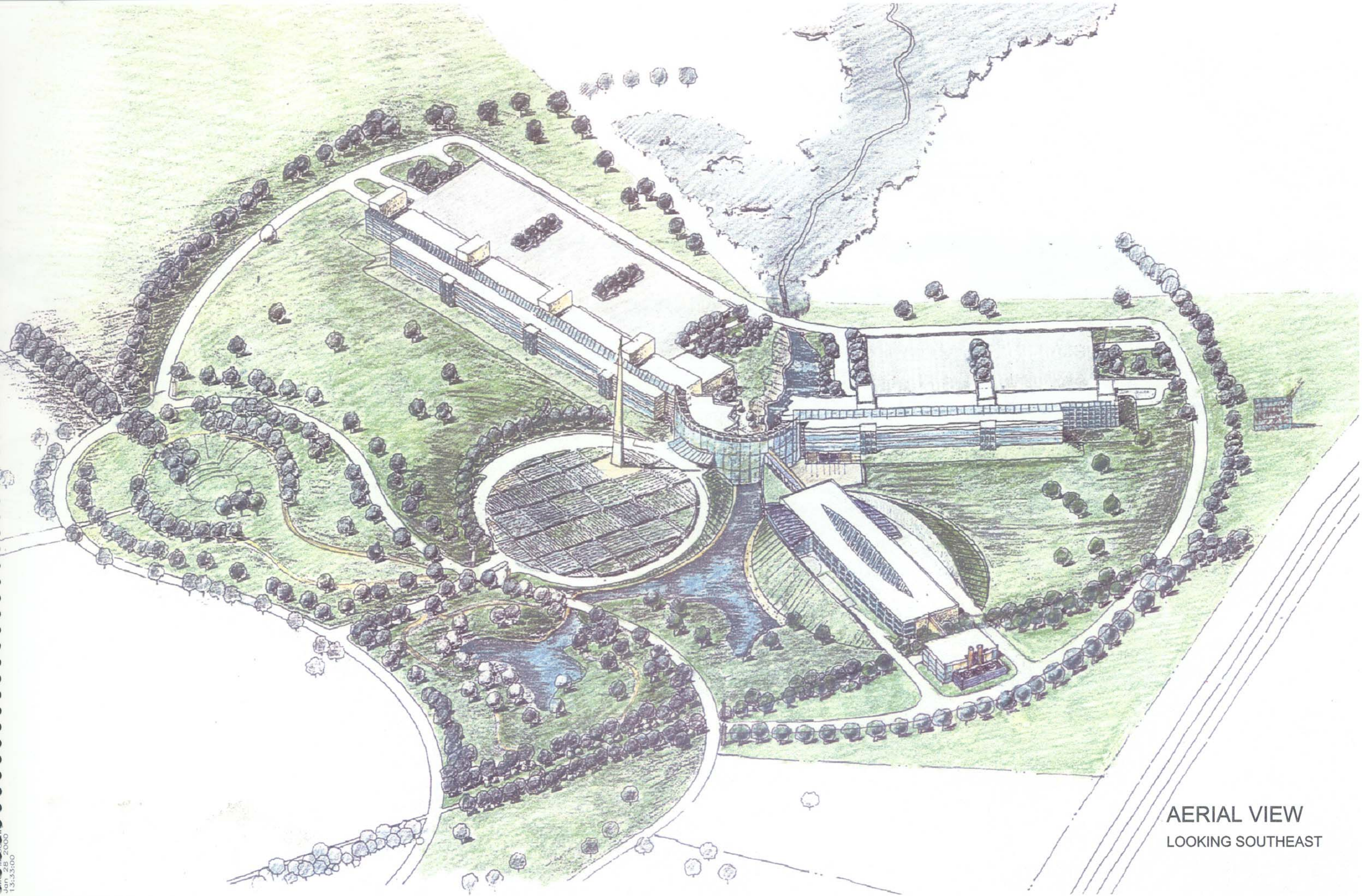

AERIAL VIEW

LOOKING SOUTHEAST

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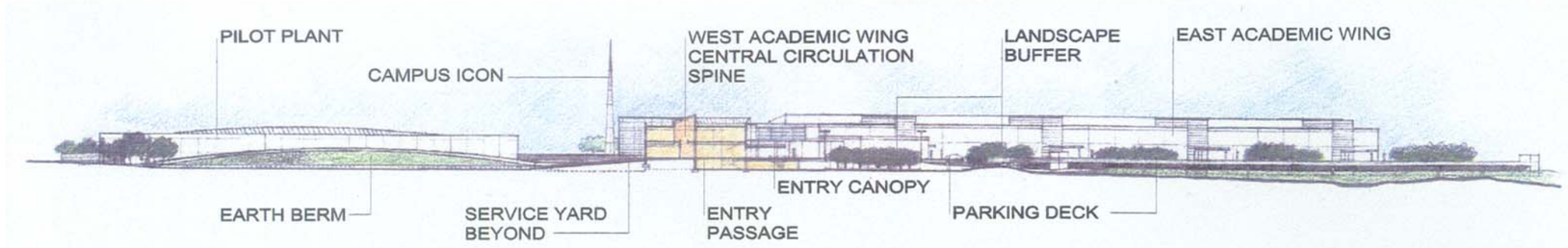
AERIAL VIEW

LOOKING NORTHWEST

Jan 28 2000
15:33:00



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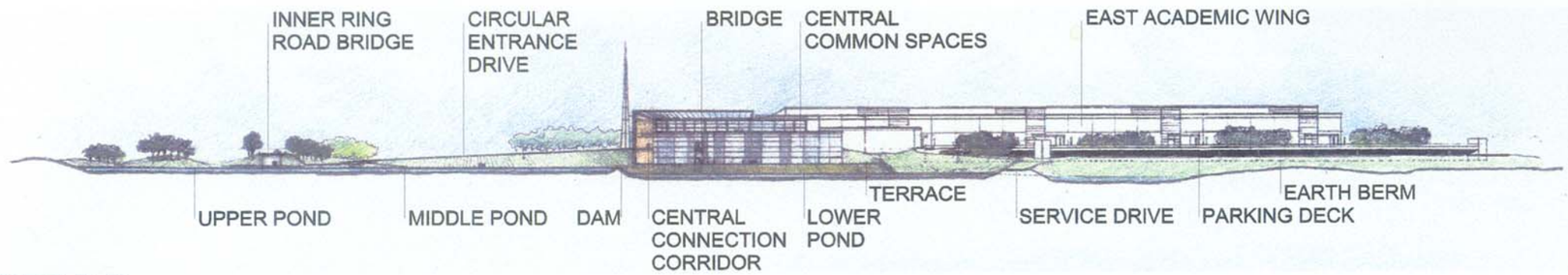

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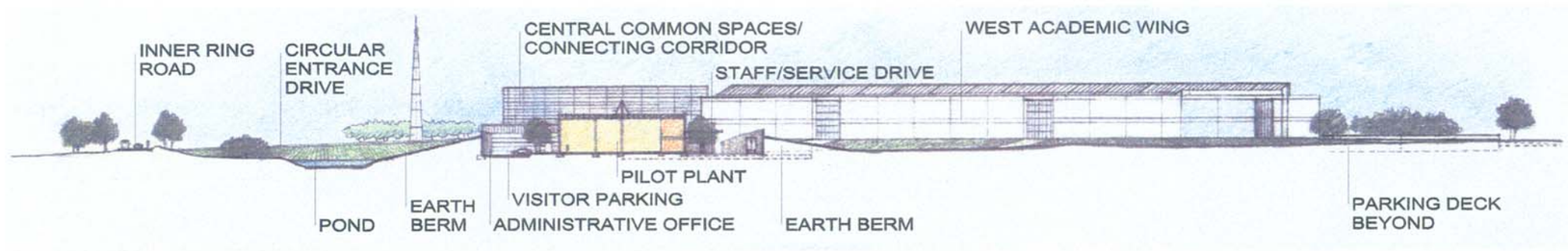

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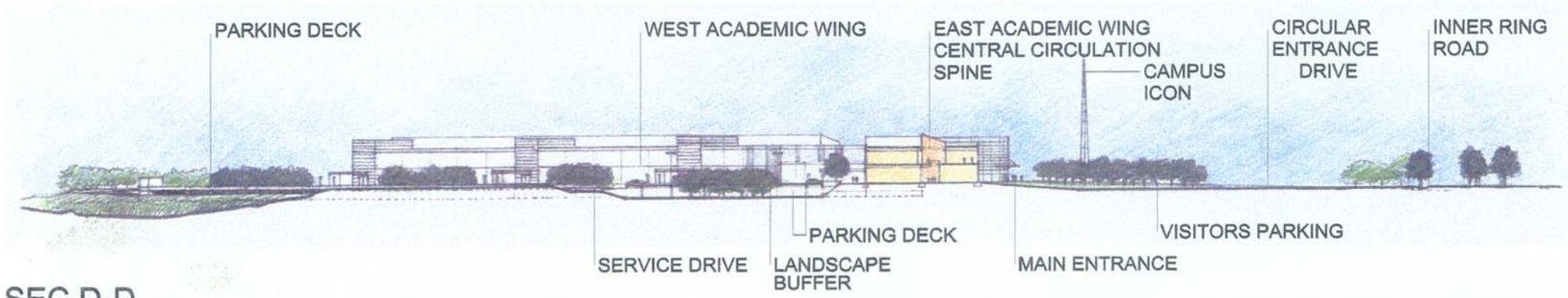


SEC D-D

ELEVATIONS AND SECTIONS

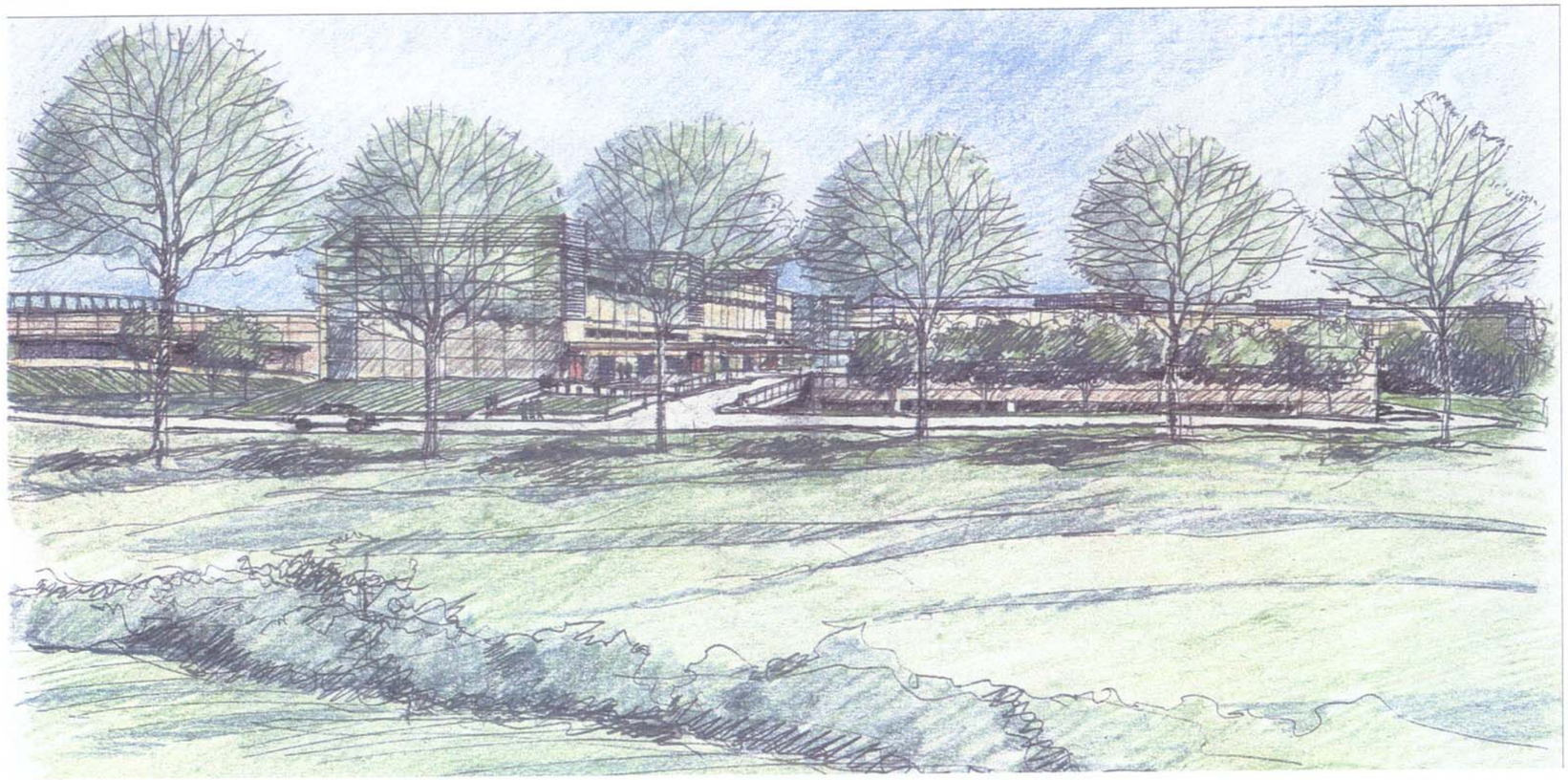
VIEW SOUTHWEST
TOWARD MAIN ENTRANCE

This view overlooks the meadow in front of the east academic wing. The circular connecting link lies beyond, with the campus "icon" and the circular drive in the foreground. The Pilot Plant is just behind the icon.

VIEW SOUTH FROM
CIRCULAR ENTRANCE
DRIVE

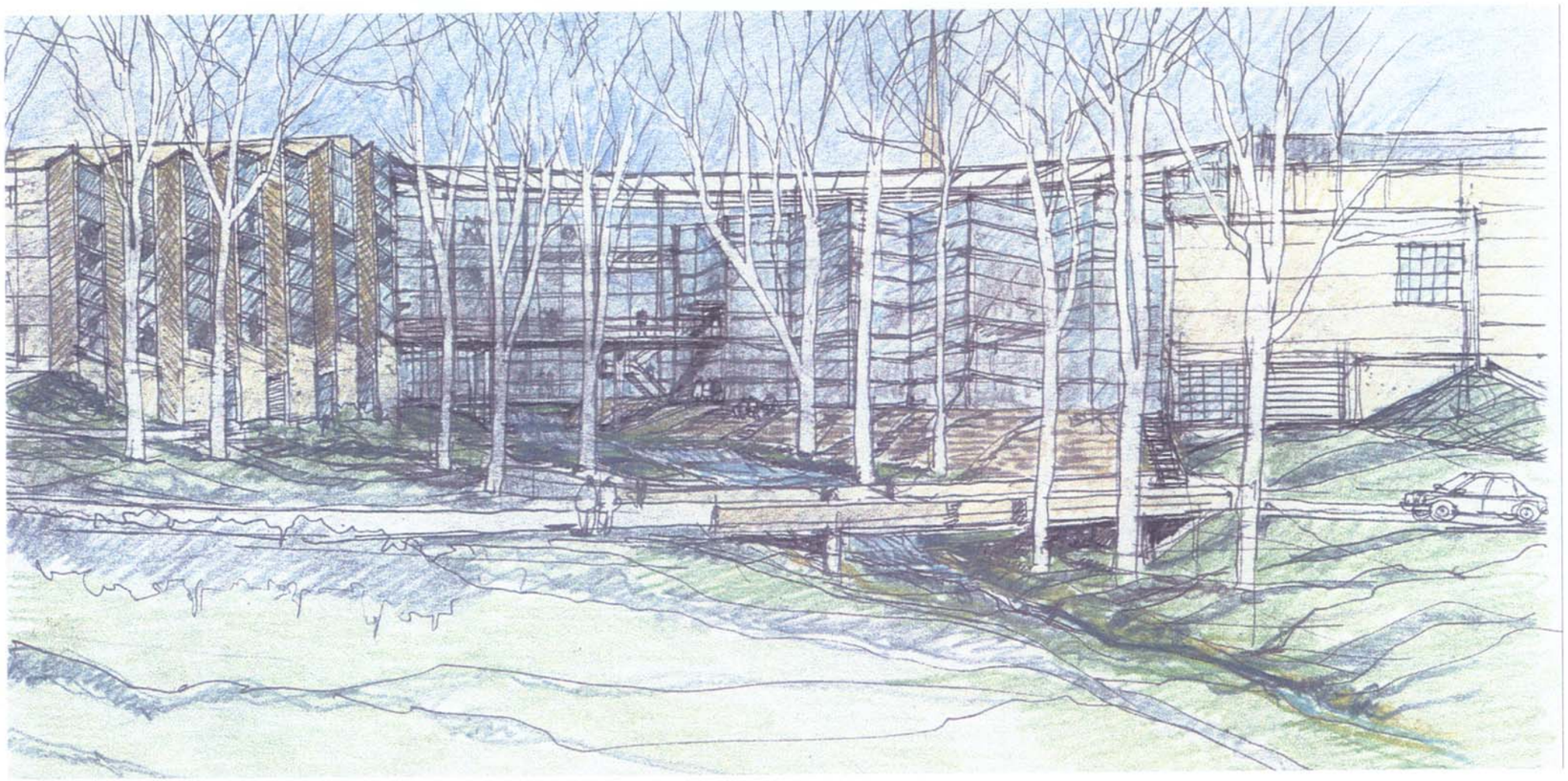
The view overlooks the circular entrance drive and the characteristic geometrical planting concept suggested in the master plan, reminiscent of the farmer's fields that the campus took away, rendered in miniature. The circular connecting link and main building entrance are shown on the left of the icon. The Pilot Plant and the connecting link is on the right.

CHARACTER SKETCHES



VIEW NORTHEAST
TOWARD WEST ACADEMIC
WING

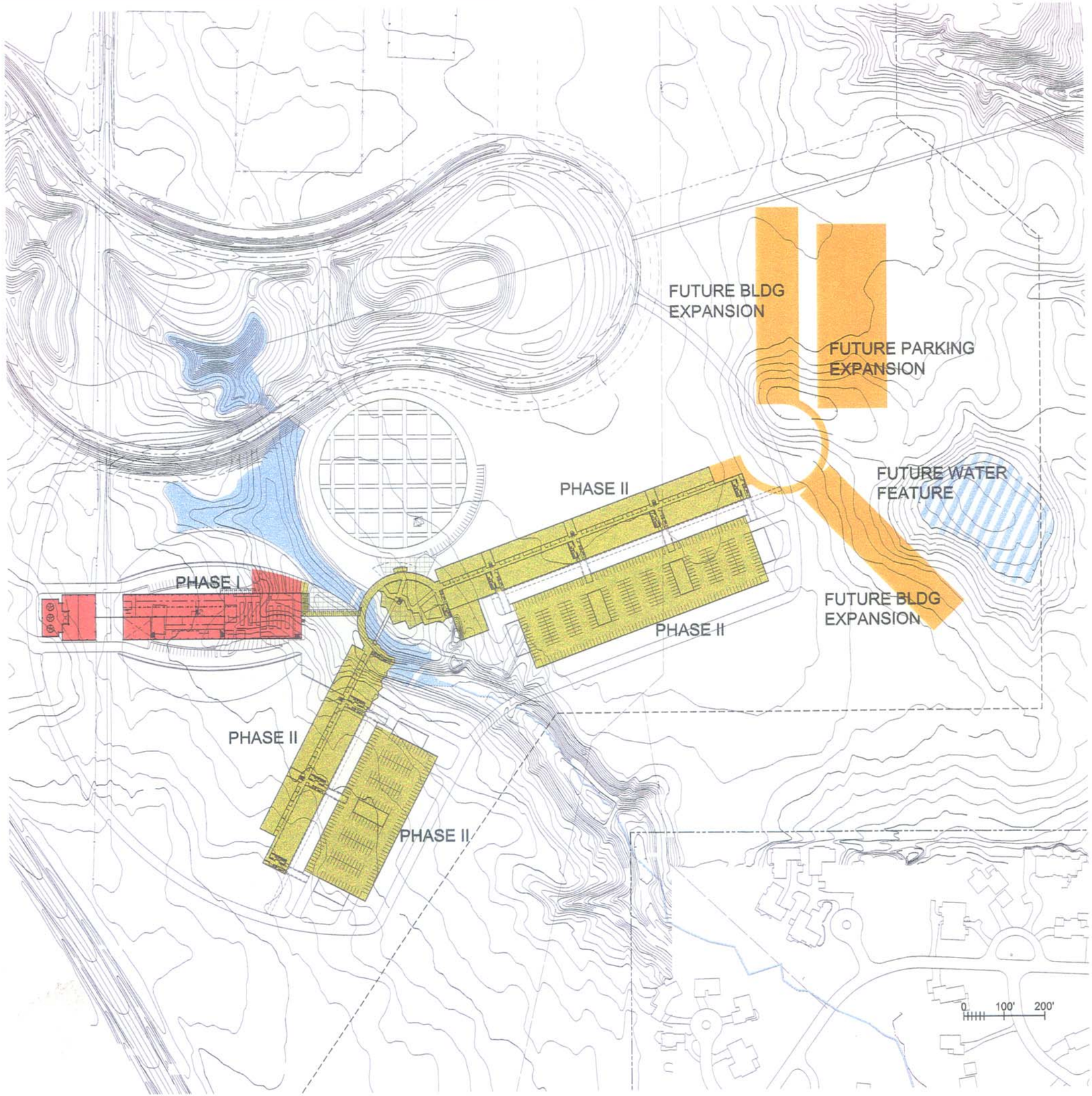
Approximate view from US -131 toward the campus buildings. On the right the top level of the parking structure is visible behind the row of trees. On the far left is the Pilot Plant.



VIEW NORTH
TOWARD CENTRAL COMMON
SPACES

The view shows the 3-story curved element linking the two academic wings. The prismatic glass shape on the right encloses the cafeteria and library on the lower floor and the lecture halls on the second. The south parking access road is shown crossing over the gully in the foreground.

CHARACTER SKETCHES

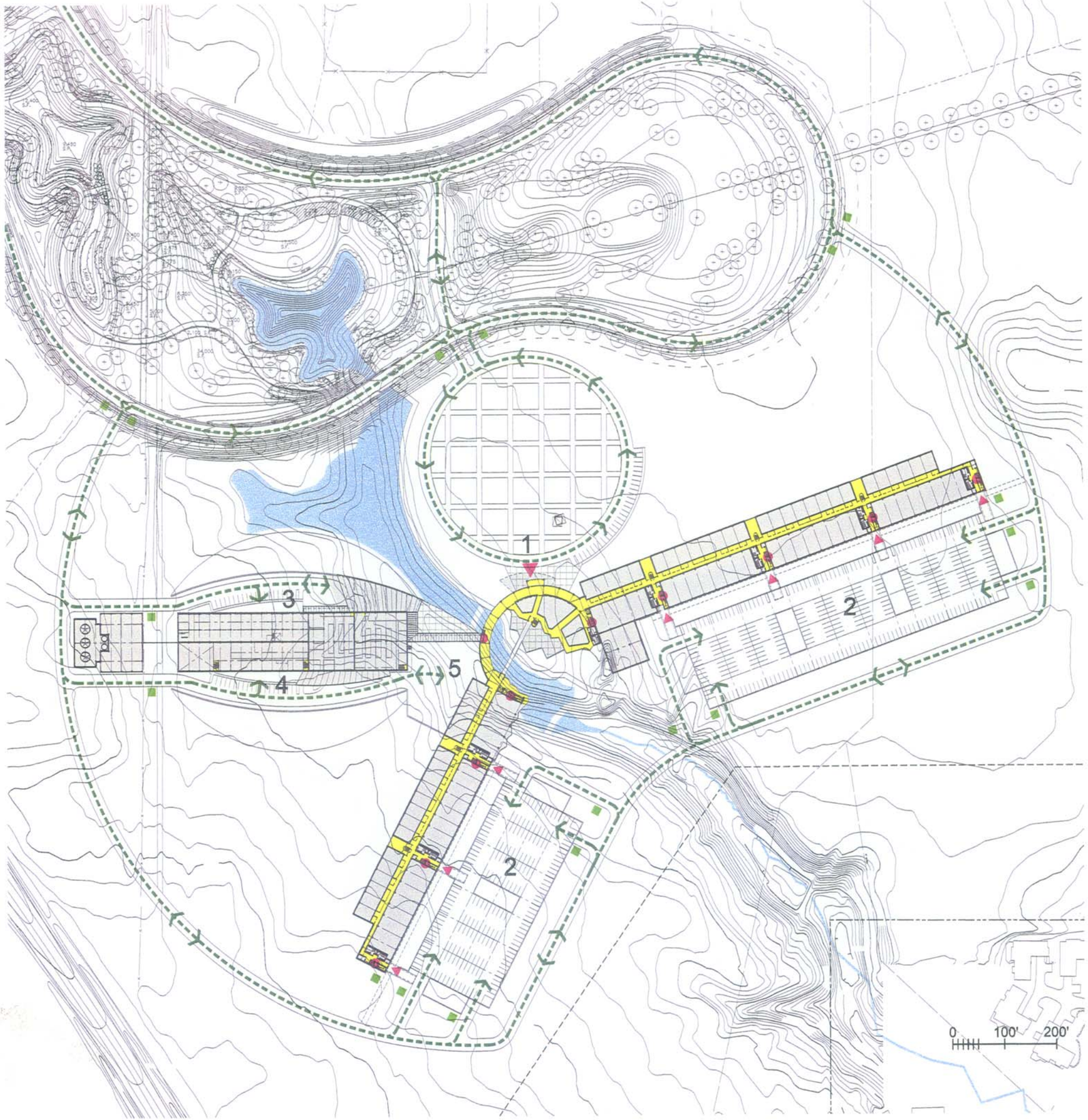


PHASING PLAN

Phasing Plan

A possible configuration for the future expansion of the campus buildings are shown here. This configuration would allow for approximately 250,000 GSF of academic space on two floors with parking for about 500 cars on a two-level deck. Another circular hub is shown as a linking element for the new buildings, overlooking a new water feature on the west edge of the site.

Obviously there could be other forms of building expansion, including more direct extensions of the existing building geometry or even more unique and free-standing building elements. The direction shown here would maintain the existing buildings as foreground elements and not force a competition with the new.



Automobile Circulation

The diagram shows the primary automobile circulation to the parking decks south of the buildings via a linked loop road, allowing direct access on each level at either end of the deck.

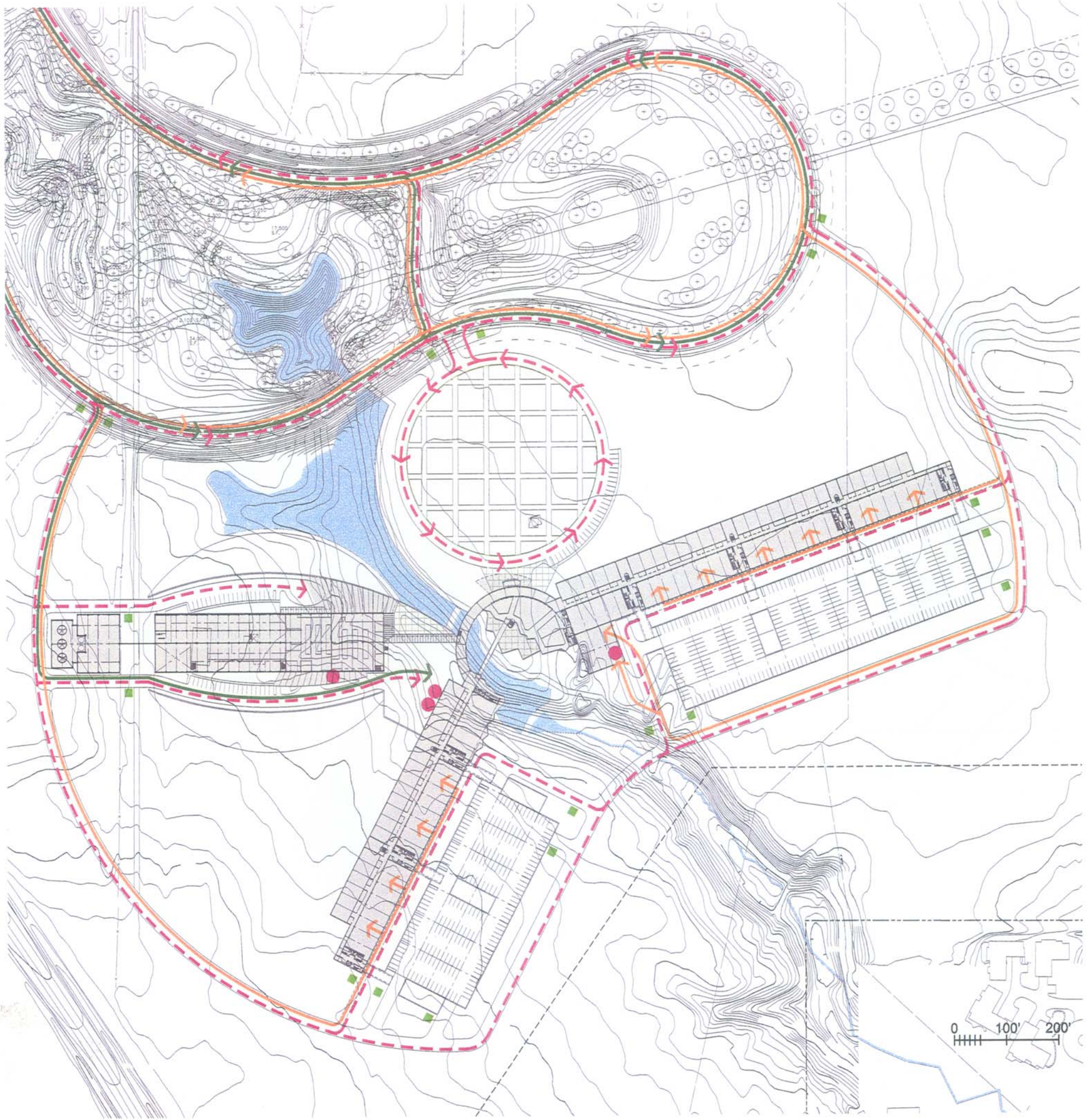
1. MAIN ENTRANCE
2. STUDENT & FACULTY PARKING
3. PILOT PLANT VISITOR PARKING
4. PILOT PLANT EMPLOYEE PARKING
5. MAINTENANCE EMPLOYEE & DELIVERY PARKING

- SIGNAGE/GATES
- PEDESTRIAN ENTRY
- VERTICAL CIRCULATION
- AUTOMOBILE CIRCULATION

AUTOMOBILE CIRCULATION

Service Traffic

This diagram indicates the major service traffic approaching the site from the west secondary entrance and entering the loading and service areas south and east of the pilot plant. Secondary service is indicated along the southern perimeter of the lab buildings on a limited vehicle access road, perhaps paved with a material such as grasscrete or concrete pavers. This would allow limited on-grade access to all ground-floor labs on the south side and student pedestrian use at any time. Emergency vehicle access would be provided to all of the above described areas.



SIGNAGE/ GATES
RECEIVING DOCKS
MAJOR SERVICES
SECONDARY SERVICE TO LABS
EMERGENCY TRAFFIC

SERVICE TRAFFIC

Pedestrian Circulation

Primary pedestrian circulation is shown here, consisting of formal student and faculty entries into the buildings, bike and pedestrian paths paralleling the three vehicular entries to the campus. These pedestrian walks will connect to the casual paths and nature trails winding through the central greenspace and the perimeter landscape buffer. Many of these paths will be designed to Western Michigan University snowplowing standards so that they could be used in wintertime. The main north-south path along the water will cross under the central circular entrance element and under the southern portion of the loop road to connect to the pathways in the central greenspace.

ENCLOSED CIRCULATION

EXTERIOR CIRCULATION

0 100' 200'

PEDESTRIAN CIRCULATION

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11:51:16

Landscaping

The purpose of this diagram is to indicate the conceptual approach to the various segments of the campus landscaping. The landscape is intended to amplify certain geometries of the buildings, enhance their setting and control the amount of "manicured" landscaping for practical purposes. As the setting for an engineering capmus, the landscape is intended to mediate between the manmade and the natural, reflecting on the concept of engineering as laws of nature being gradually revealed to man.

1. GEOMETRICAL LANDSCAPE AREA "THE FIELD"
2. UPPER POND
3. MIDDLE POND
4. WATER DAM
5. LOWER POND
6. MANICURED GRASS BERM
7. EXISTING TREE HEDGEROW
8. "NATURAL" LANDSCAPED BUFFER
9. EXISTING TREE MASS
10. LANDSCAPED PARKING ISLAND
11. CENTRAL LANDSCAPED AREA
12. MEADOW
13. LANDSCAPED BERM

0 100' 200'

LANDSCAPING

Feb 02 2000
17:46:35