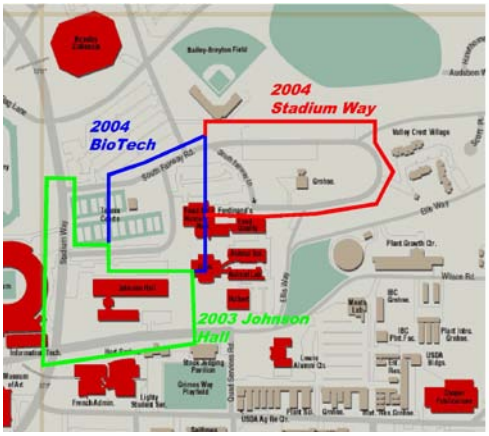
Chiller Plant, Washington State University, Pullman, WA; *KPFF Consulting Engineers for Washington State University*

White Shield supported KPFF and the University with preparation of a site plan of a 400' x 400' area for expansion of WSU Chiller Plant facility between South Fairway Road and Round Top Road. Services included a topographic and utility survey with 1' contours; spot elevations along curbs, sidewalks, road centerline; and building corners, doors, and loading docks. All tree trunks 3' in diameter and larger were located and labeled with size and drip line included on the plan. White Shield used utility location services, WSU base maps, and existing as-built plans to compile the complete utility survey. Utility covers and lids were pulled to obtain or verify depths, sizes, direction, number, and type of material, and elevations were provided at the top and bottom inside tunnels and vaults. Deliverables were provided in AutoCAD 2004 format drawing files with LDD 2005 DTM files.

Library Road Phase III, Washington State University, Pullman, WA; *Washington State University*

Library Road Phase III is a continuation of improvement work begun in 2000. The improvements to the campus infrastructure in the area of Library Road will provide greater service capacity and a more pleasant environment, enhancing pedestrian movement, reducing regular vehicular traffic, and maintaining service access and ADA parking areas. Traffic circulation and pedestrian safety at the transit hub located at the intersection of Campus and Thatuna Streets will also be improved. White Shield supported KPFF Consulting Engineers and the University with a high-density topographic survey of an approximate 8-acre area to facilitate streetscape re-development. The survey included mapping of all above ground structures including building corners and doorways, trees, utilities, signs and curbs. Horizontal and vertical control was established by static GPS observations. Other survey tasks included subsurface utility verification (potholing) to develop an underground utility map.

Biotech/Life Sciences Building, Washington State University, Pullman, WA; *KPFF Consulting Engineers for Washington State University*



White Shield supported Washington State University and KPFF with preparation of a design package for construction of the new Biotech/Life Sciences building located on the Washington State University Pullman campus. The project site is located between the Johnson Hall expansion and Stadium Way Improvement projects that White Shield completed in 2003 and 2004. Survey tasks included development of an existing site plan of approximately a 425'x525' area. An additional underground detail survey was made of the existing steam tunnel located on the site. Site topography of the developed area consisted of campus buildings, tennis courts, WSU IT infrastructure, high/low/chilled pressure waterlines, and standard underground utility infrastructures.

USDA-ARS Plant Biosciences Building, Washington State University; *HDR Engineering for Washington State University*

White Shield prepared a site plan of a 3.5-acre site on the WSU Campus for development of the USDA Agricultural Research Station Biosciences Building 2. This project was a four-story 90,000 GSF Plant Biosciences Research Facility which will house offices, meeting rooms, research laboratories, and core laboratory on the WSU Pullman campus. White Shield provided elevation contours at 1' intervals; identified pavement types and limits; plotted the location of structures above and below ground; man-made and natural features; all floor elevations; and elevations at each entrance of buildings located within the site boundary. Utilities were mapped noting the size, depth, material, and pressure of water and gas mains, central steam and other utilities including irrigation meters, valves and vaults, buried tanks, and septic fields either serving, or on the property. Sanitary sewers, combination sewers, storm drains, catch basins, and manholes were similarly mapped. All other above ground features were mapped, including fire hydrants, power and communication systems, trees, and shrub plantings by perimeter outline. The location, size, and depth of all service tunnels was provided, including all grade breaks and changes in tunnel size, interior floor and ceiling elevations, changes in direction, and at 50' minimum intervals. Ductbank height and width was identified, with number and size of conduits. Final deliverables were made in AutoCAD 2004 with supporting LDD2005 DTM files.