# Evaluating MicroStation GeoGraphics GIS

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The Alignment Engineering Group has been evaluating the capabilities of the MicroStation/GeoGraphics package for the creation of a specialized GIS (Geographic Information System) at SLAC. The GeoGraphics package offers high precision in a CAD environment compatible with existing SLAC drawings. The GIS is being studied for future use to organize and maintain site-wide geometric data ranging from large structures such as buildings to smaller physics components. This poster summarizes the effort currently focusing on the inner loop road of SLAC where six general categories have been defined.
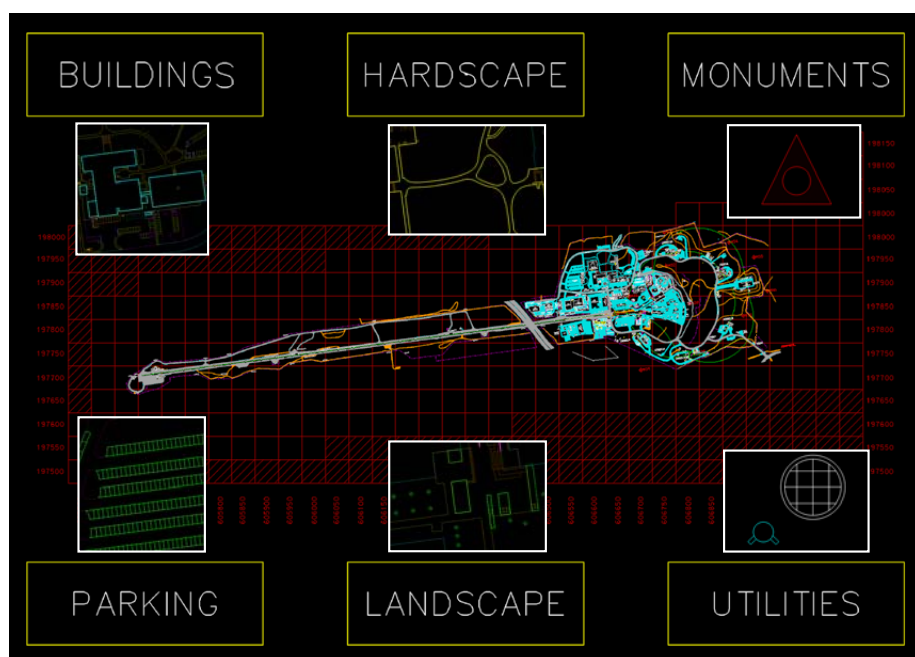
Coordinate System

Datum: NAD83

Projection: CCS83, Zone 3

Unit: Meter

The SLAC Loop Road


Orthophotos created in 2001 Scale: ~1:3500

The SLAC loop road map was drawn from GPS and Total Station survey data in the MicroStation CAD system. Based on the CAD data, geographic features were built into the GeoGraphics GIS system. These features were linked using associated database tables which have attributes specific to each object.


The Six General Category MicroStation/GeoGraphics Design Files

In this evaluation of the GIS, six general categories of map have been created: *buildings, hardscape, monuments, parking, landscape, and utilities*. These categories correspond to a unique CAD file where each represents a specific theme of interest to the SLAC community.
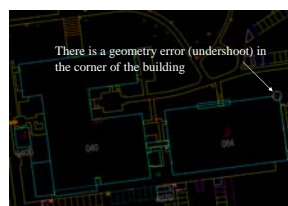
There is a geometry error (undershoot) in the corner of the building
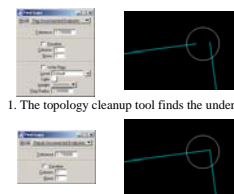
1. The topology cleanup tool finds the undershoot

2. Repairs the undershoot

3. After topology cleanup, the data is ready for GIS analyses.

Topology Cleanup

Before features can be defined and later linked to attribute tables in a relational database, the CAD drawings need to be cleaned up. This means correcting or changing CAD elements so that they will be compatible with feature assignments. For example, unconnected line fragments need to be connected, similar line work removed or in the above example, empty space between elements eliminated.

Entity Diagram

Shows relationships of tables in the database