Procedure Log for Assignment 5 – AutoCAD Integration

Problem: Develop a file geodatabase for the NC State University campus containing specified featured classes using data from a CAD file that is not georeferenced.

Procedure Log:

Data: CAD data provided by GIS 520.

NCST_Masterplan05.dwg: 2005 NCSU campus masterplan (CAD)
NCST20.SID: 1999 aerial orthophoto of the NCSU campus (raster)

Display only the specified feature classes from the CAD file.
Target layer: NCST_Masterplan05.dwg polyline
Layer Properties > Drawing Layers
Select only > 2 Streets, 3 Walks – Sidewalks, 4 Water – Rocky Branch
Result: Only specified polyline features are displayed.

Display only the specified feature classes from the CAD file.
Target layer: NCST_Masterplan05.dwg polygon
Layer Properties > Drawing Layers
Select only > 1 Bldg – Existing, 1 Bldg – Future, 4 Water – Lake, 4 Water – Pool, 5 Athletic Fields
Result: Only specified polygon features are displayed.

Improve display by changing symbology.
Target layer: NCST_Masterplan05.dwg polyline & polygon
Layer Properties > Symbology
Show > Categories > Unique Values > Value Field > Layer > Add All Values
Change symbol for each layer to a more informative color.
Result: All water layers are blue, etc.

Set projection.
View > Data Frame Properties > Coordinate System > Projected Coordinate Systems > State Plane > NAD 1983 (US Feet) > NAD 1983 StatePlane North Carolina FIPS 3200 (US Feet)
Result: ArcMap now uses NC NAD 83 Feet projection

Begin georeferencing the polyline layer.
Georeferencing > Fit to Display
Scale > Adjust scale of CAD layer to make similar to orthophoto
Shift > Adjust location of CAD layer to match orthophoto

Add control points
Target layer: NCST_Masterplan05.dwg polygon
Selected two control control points (one in NW corner and one in SE)
Update display

Result: Georeferenced CAD file

Evaluate accuracy of georeferencing.
Target layer: NCST_Masterplan05.dwg polygon
Tool: Measure
Result: Error is 24-30 ft or less, which is acceptable.

Update georeferencing.
Result: NCST_Masterplan05.wld

Export building features.
Target layer: NCST_Masterplan05.dwg polyline
Select by attributes: Create a new selection
Expression: "Layer" = '1 Bldg - Existing' OR "Layer" = '1 Bldg - Future'
Export Data > Selected features > Use the same coordinates as the data frame
Output feature class: Buildlings.shp

Convert open polyline buildings to closed polygons.
Target layer: Buildings.shp
Tool: Feature to Polygon
Input Features: Buildings.shp
Output Feature Class: Buildings_ExistingFuture

Import buildings into the file geodatabase.
Target layer: Buildings_ExistingFuture
Import > Feature Class (Single)
Tool: Feature Class to Feature Class
Output Feature Class: Buildings

Export streets to geodatabase.
Target layer: NCST_Masterplan05.dwg polyline
Select by attributes: Create a new selection
Expression: "Layer" = '2 Streets'
Export Data > Selected features > Use the same coordinates as the data frame
Output feature class: Streets
Save as type: File and Personal Geodatabase feature classes

Export sidewalks to geodatabase.
Target layer: NCST_Masterplan05.dwg polyline
Select by attributes: Create a new selection
Expression: "Layer" = '3 Walks - Sidewalks'
Export Data > Selected features > Use the same coordinates as the data frame
Output feature class: Sidewalks
Save as type: File and Personal Geodatabase feature classes

Export athletic fields to geodatabase.

Target layer: NCST_Masterplan05.dwg polygon
Select by attributes: Create a new selection
Expression: "Layer" = '5 Athletic Fields'
Export Data > Selected features > Use the same coordinates as the data frame
Output feature class: Athletic_Fields
Save as type: File and Personal Geodatabase feature classes

Export streams/creeks to geodatabase.
Target layer: NCST_Masterplan05.dwg polyline
Select by attributes: Create a new selection
Expression: "Layer" = '4 Water - Outline' OR "Layer" = '4 Water - Rocky Branch'
Export Data > Selected features > Use the same coordinates as the data frame
Output feature class: Streams_Creeks
Save as type: File and Personal Geodatabase feature classes

Export lakes/ponds to geodatabase.
Target layer: NCST_Masterplan05.dwg polygon
Select by attributes: Create a new selection
Expression: "Layer" = '4 Water - Lake' OR "Layer" = '4 Water - Outline'
Export Data > Selected features > Use the same coordinates as the data frame
Output feature class: Lakes_Ponds
Save as type: File and Personal Geodatabase feature classes