Chapter 2

• Leveraging a Dynamic Environment
  – Topics
    • Connecting objects and styles
    • Connecting labels and label styles
    • Connecting objects to objects
    • Connecting objects to labels
    • The richness of the 3D model
    • Sharing data in a dynamic environment
Connecting Objects and Styles

• Object: An intelligent piece of your design model that stores information about itself

• Style: A collection of settings controlling the appearance and behavior of a Civil 3D object
Connecting Objects and Styles

• Change the appearance and behavior of an object by assigning a different style to it.

• When a style changes, all objects that reference that style also change.
Labels and Label Styles

- Labels are objects too.
- They are also controlled by styles.
- Styles control how a label looks and what information it contains.
- Styles can be assigned using the AutoCAD Properties window.
Connecting Objects to Objects

• The power of Civil 3D is in the ability of its objects to interact with one another.

• A project is a collection of mini-designs.
• Civil 3D enables these mini-designs to be dynamically connected.
• Editing one mini-design can automatically update others that are related to it.
Connecting Objects to Labels

- Labels also form a dynamic relationship with the objects that they annotate.
- When an object changes, its labels update automatically.
- Labels are important; they are what is used to build the project.
- They must be correct; having them dynamically linked to the design helps ensure that they are.
The Richness of the 3D Model

- In recent years, the industry has slowly evolved from 2D design to 3D design.
- Many people you will work with may still think about design in 2D.
- Civil 3D provides huge opportunities but only if you build and leverage a 3D model.
- The initial design of a 3D model will take more time when compared to “traditional” methods.
- Subsequent designs, redesigns, and adjustments will be much quicker.
- In the long term, 3D design is much more efficient.
The Richness of the 3D Model

– Some common industry practices are not possible without a 3D dynamic model.

  • Building information modeling (BIM): Intelligent models used for design, construction, and facilities management
  • GPS-guided machine control: 3D computer models uploaded to earthmoving machines
  • Construction simulation: Staging and planning of materials and activities
  • Visualization: 3D renderings and animations
Sharing Data

• Data shortcuts are links that can be used to show and use one drawing’s data in another.

• An instance of one drawing’s data in another is called a data reference.

• Data shortcuts and data references allow multiple people to work on different aspects of the same project simultaneously, in a team environment.
Now You Know…

• How the dynamic environment of Civil 3D works
• How Civil 3D objects are related to one another
• How powerful a 3D model can be
• How data can be shared in a collaborative environment
The Essentials and Beyond

• Now that you have a better understanding of the Civil 3D dynamic environment, open the sample drawing and use the instructions to investigate the following:
  – Changing object styles
  – Changing label styles
  – How editing affects linked objects
  – How editing affects linked labels
  – Creating and using data references