Underground Trenches

Objective:

By the end of this session, you will be able to:

- Route underground trenches using "Zero-Specs" cableways

Overview:

In this exercise you will be routing underground trenches by using the **Route Cableway** command in Unit **U07**. Use the offset reference to define the top elevation of the trenches. The trenches configuration will resemble as shown in Figure 1.

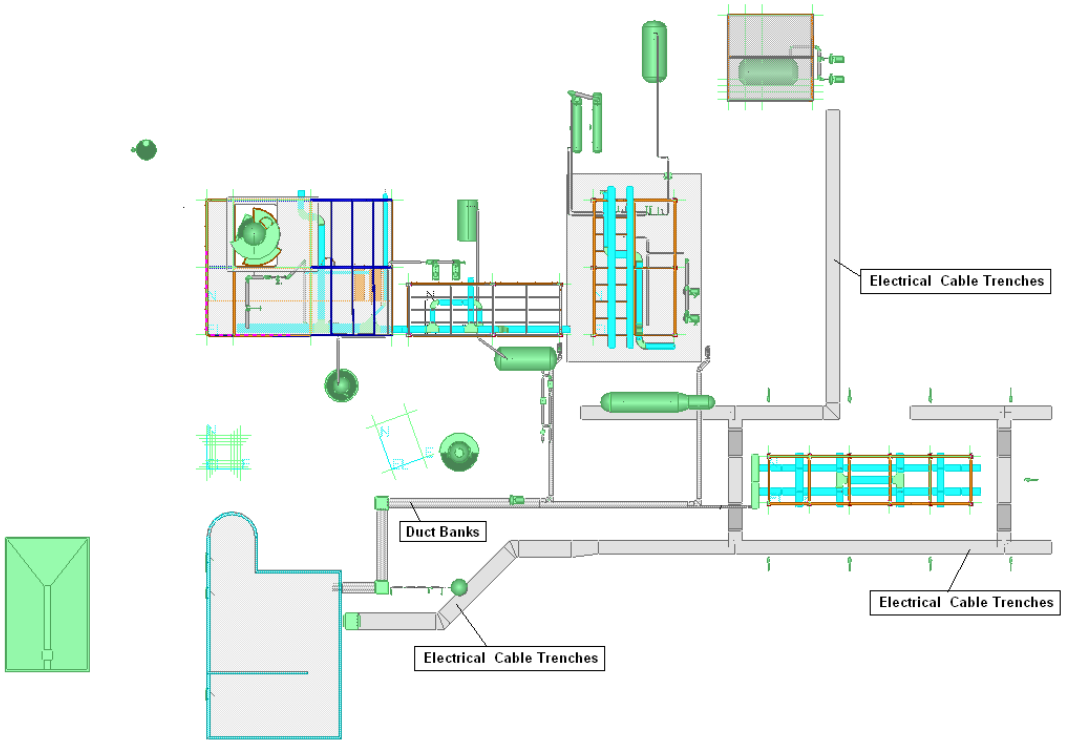

Figure 1: Routed trenches

Creating underground trenches:

Create trenches by routing the cableways using Zero Specs. Use the **Set Offset Reference** option to set the Top of Trench (TOT) while routing a cableway.

Before you start routing the trenches define your workspace to show Unit **U07**.

1. If you are not in the **Electrical** task, select the **Tasks > Electrical** command.
2. Make sure the Active Permission Group is set to **Electrical**.
3. Activate the **PinPoint** ribbon and set the active coordinate system to **U07 CS** on the **PinPoint** ribbon.
4. Click the **Set Target to Origin** option on the **PinPoint** ribbon, to move the target to the origin of the current coordinate system.
5. Click the **Place Equipment** button on the vertical toolbar.
6. In the Select Equipment dialog box, expand the folder **\Equipment\Electrical\Electrical Transformer\Electrical Transformer** until you see the part **ElectricalTransformer01**. Select the part and click **OK**.
7. The Equipment Properties dialog box appears as soon as you select **ElectricalTransformer01**.
8. Key-in **TR-01** in the Name field.
9. Click the System field and select the **More**.. option to specify the system to which the equipment belongs.
10. Select **CT System** under **A2->U07->Electrical->Low Voltage.** Then, click **OK**.
11. To define the position of the object, select the **Position and Orientation** category in the Category drop-down list.
12. Key in the followings properties:

    East: -124 ft
    North: -35 ft
    Elevation: 0 ft

13. Switch to the **Equipment Dimension** category in the Category drop-down list.
14. Change the dimensions as shown below:

    Electrical Equipment Height: 5 ft
    Electrical Equipment Width: 4 ft
    Electrical Equipment Length : 5 ft

15. Click **OK** on the Equipment Properties dialog box to place the TR-01 in the model.

Figure 2: Equipment – TR-01

16. Select the **View -> Fit** command.

17. Click the **Route Cableway** button on the vertical toolbar.

18. Key in the following coordinates on the **PinPoint** ribbon and click in the graphic view to accept the starting point:

    E: -122 ft 6 in
    N: -35 ft
    El: -3 ft 11 in

19. The **New Cableway** dialog box appears. Select the **More …** option in the **System** drop-down list of the dialog box to specify the system where you want to place the cableway.

20. In the **Select System** dialog box, select **A2 > U07 > Electrical > Low Voltage > CT** and click **OK.**

21. In the **New Cableway** dialog box, verify the following cableway specifications:

    System: CT
    Name Rule: DefaultNameRule
    Specification: cws-0

22. Select the **Cable Fill** option in the **Category** drop-down list and verify the following specifications:

    Fill Efficiency: 60%
    Signal Type 1: Power

23. Set the offset reference by **Cardinal Point** and set to Top of Trench (**TOT**) in the **Offset** drop-down list in **the Set Offset Reference** dialog box.

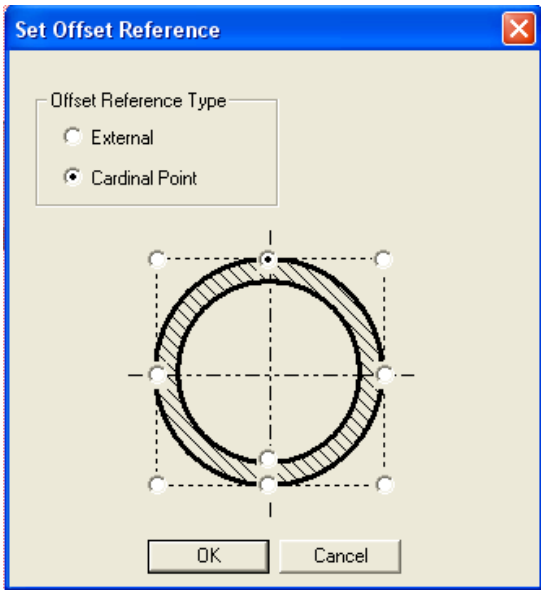

Figure 3: Set Offset Reference Dialog

24. Select the **Rectangle** shape in the **Shapes** drop-down list and key in the following specifications on the **Route Cableway** ribbon to specify the width and depth of the cross section:

    Width: 5 ft
    Depth: 1 ft

25. Change the view of the model to **"Looking Plan"** by using the Common Views dialog.
26. Select the **Plan Plane** option in the **Plane** drop-down list on the **Route Cableway** ribbon.
27. On the **Route Cableway** ribbon, key in **25 ft** in the **Length** box.
28. Position the cursor in the east **E** direction and click to define the end point to place **25 ft** cableway, as shown in Figure 4.

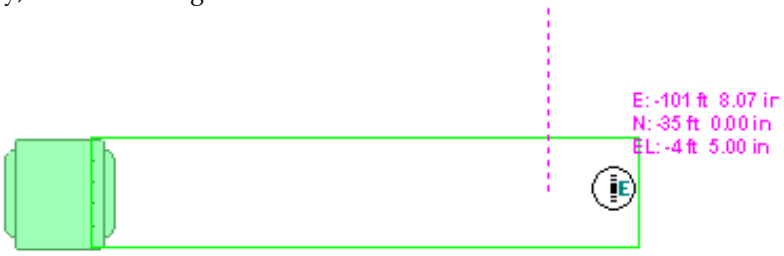

Figure 4: Plan View

29. Continue to route the trenches with the following configuration. This is the plan view of the model to give better perspective of the extent of the trenches.

Note

- When a segment size change is required, a transition piece connects the two segments. Use the Insert transition command to place the transition from 5 ft width to 4 ft width.

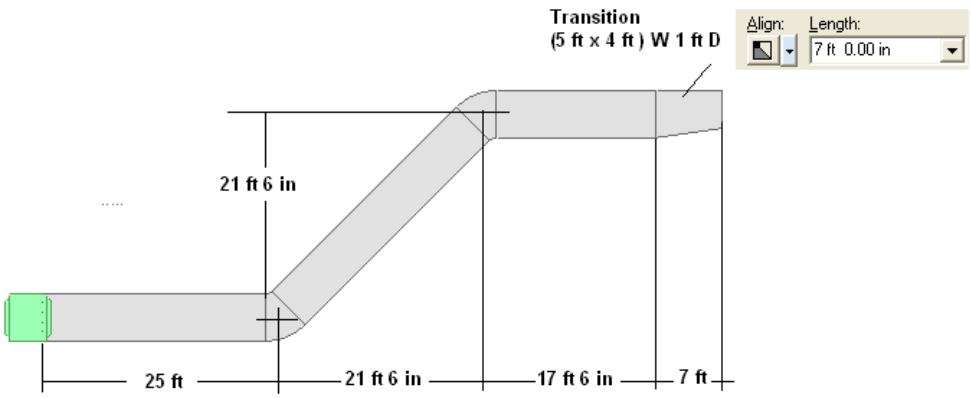

Figure 5: Plan View

30. Select the End of the transition and continue routing the trenches in the east **E** direction as shown in Figure 6.

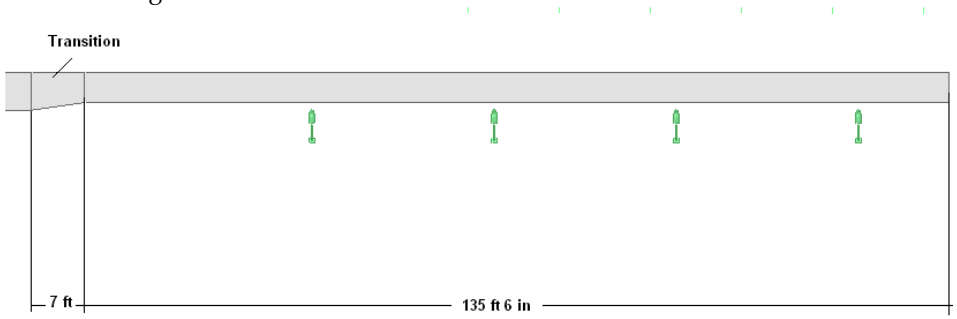

Figure 6: Plan View

31. Continue to route the trenches with the following configuration.

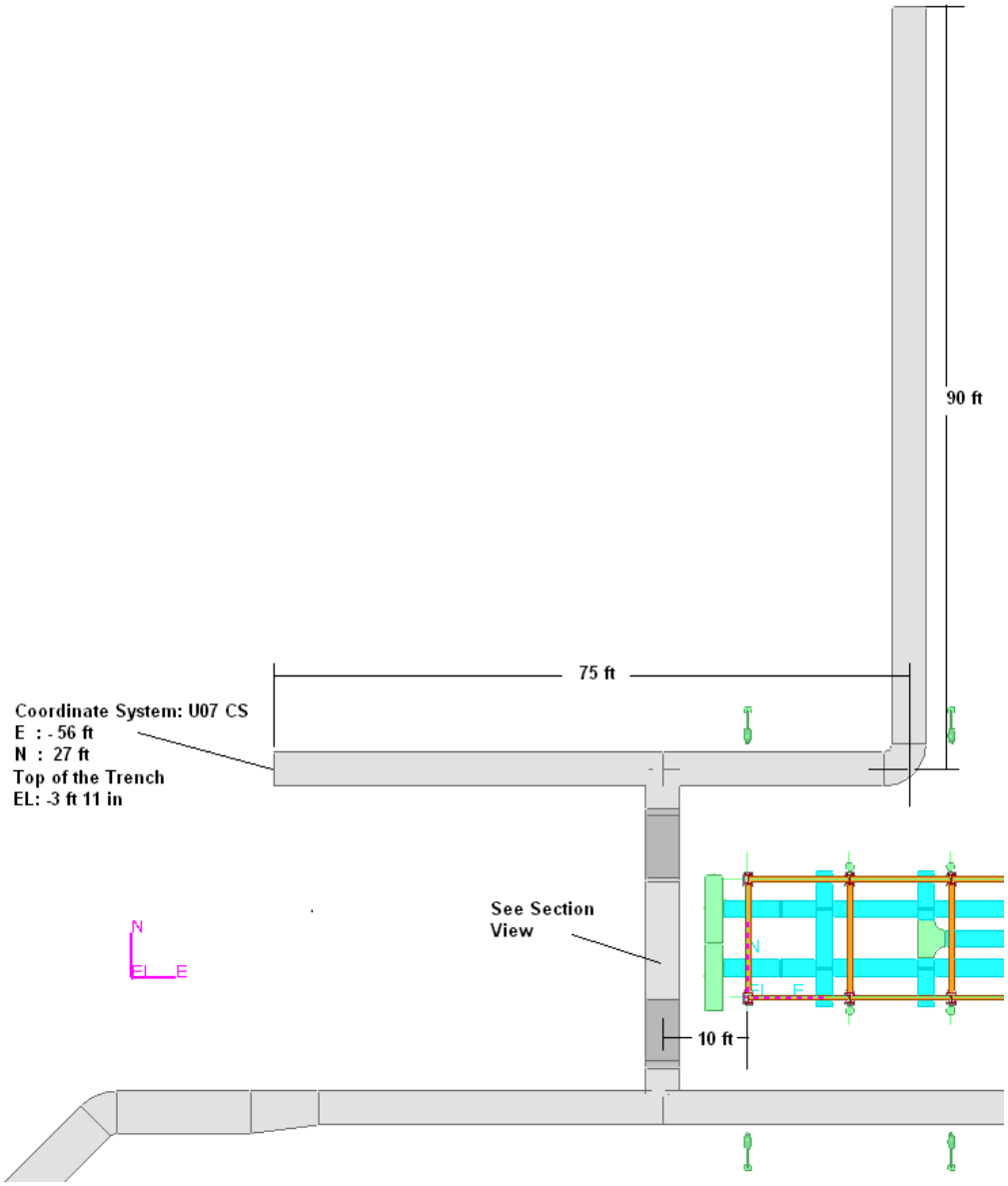

Figure 7: Plan View

32. Below is the section view of the elevation change between the trenches segments.

Note

- When routing the drop, use any angle to meet the exact drop to Elevation – 7 ft 6 inches (Top of Trench). Also, do not worry about the actual length of the segments for now, just route it almost symmetrically.

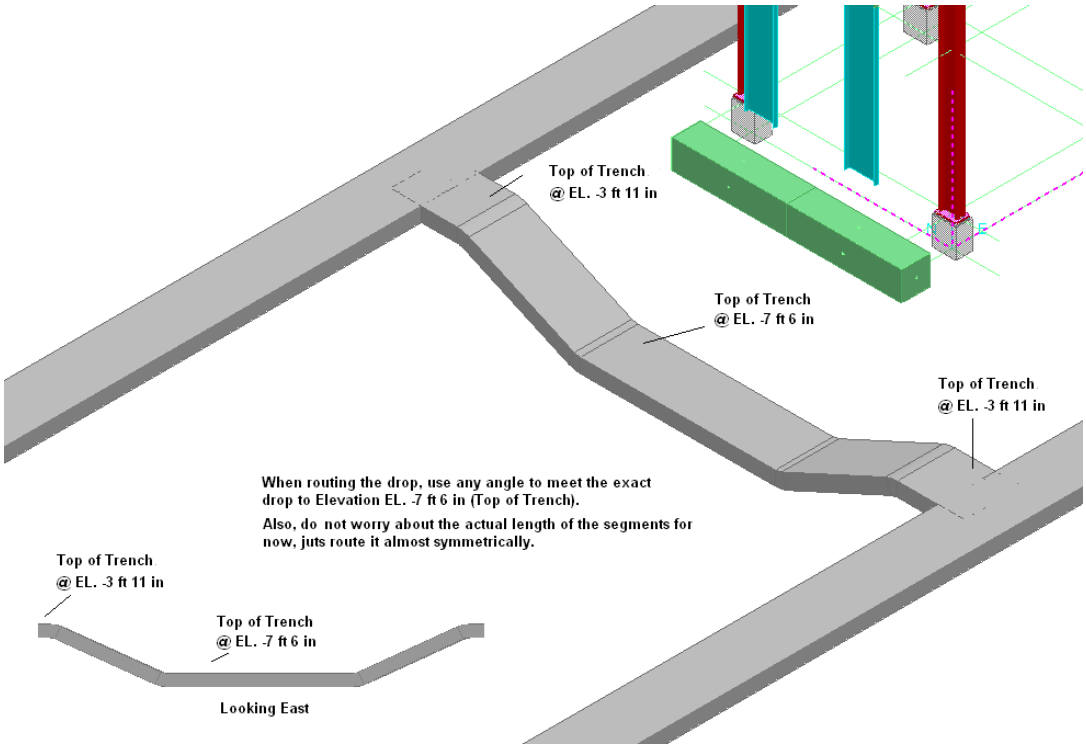

Figure 8: Plan View

33. Continue to route the trenches with the following configuration.

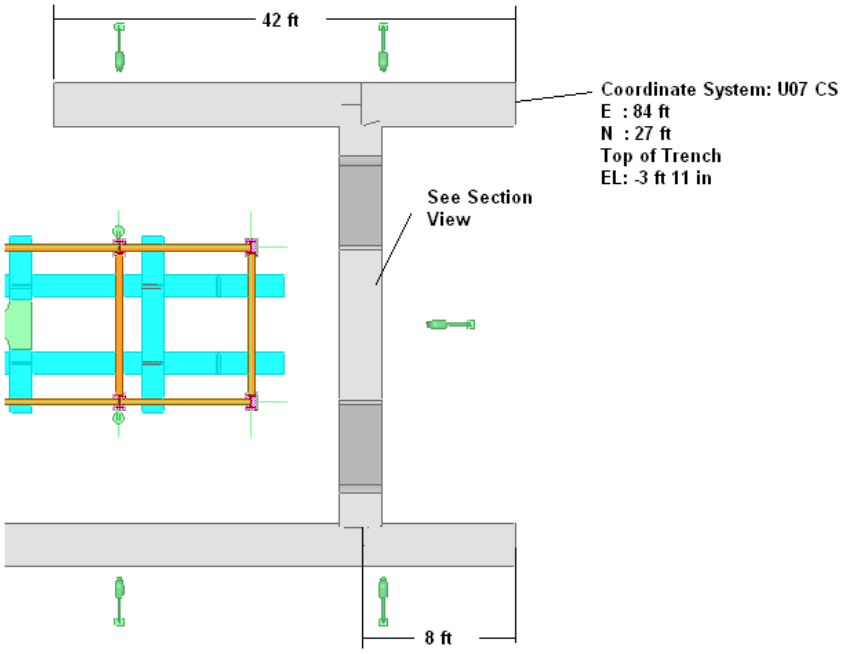

Figure 9: Plan View

Notes

- Disable the Top of the trench (TOT) offset will help branching into the header trench.
- When routing the drop, use any angle to meet the exact drop to Elevation EL. – 7 ft 6 inches (Top of Trench). Also, do not worry about the actual length of the segments for now, just route it almost symmetrically.

34. Below is the section view of the elevation change between the trenches segments.

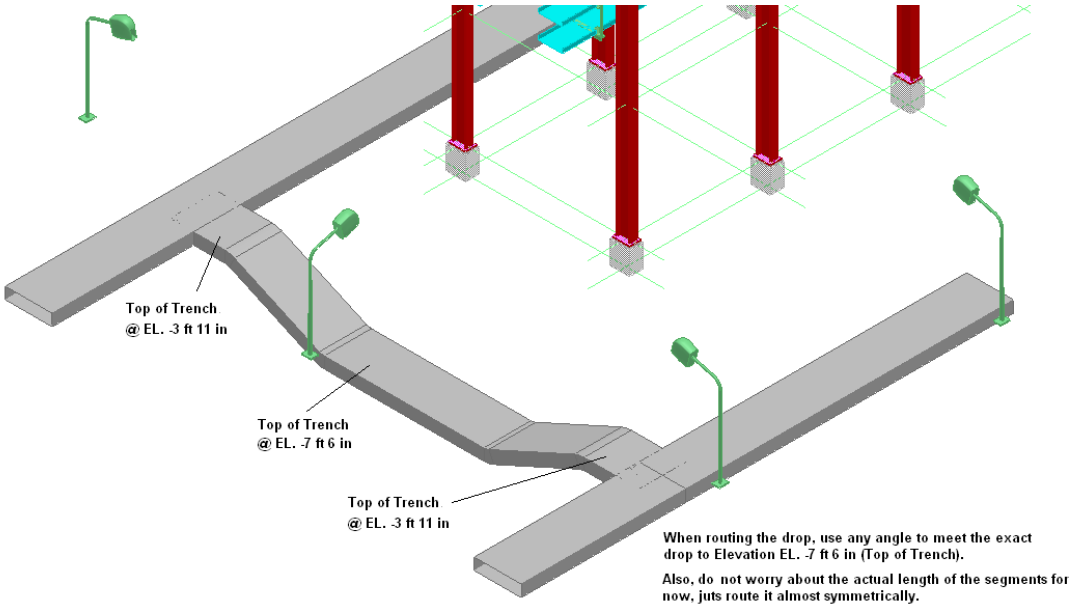

Figure 10: Plan View

35. Change all bends to Miter with one cut using the edit ribbon as shown below.

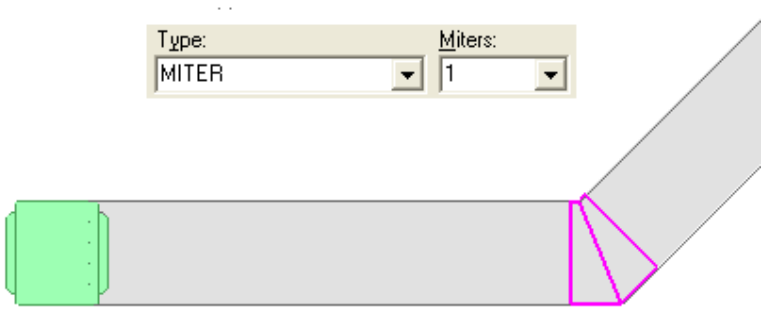

Figure 11: Miter Turn