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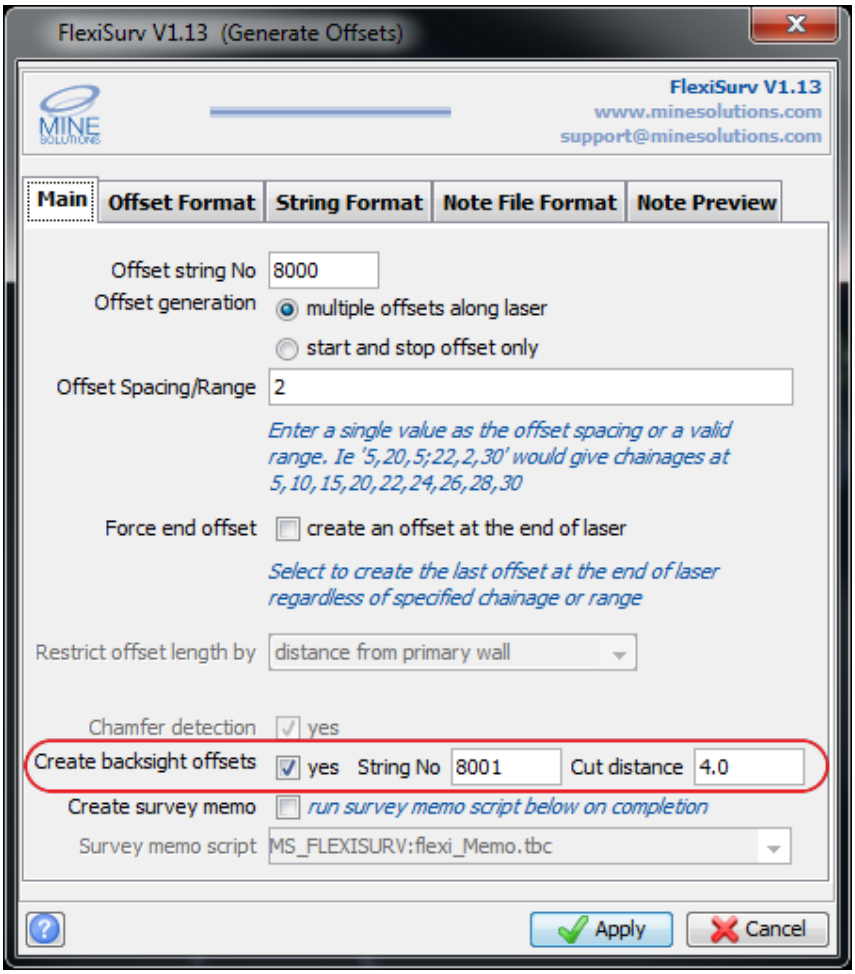
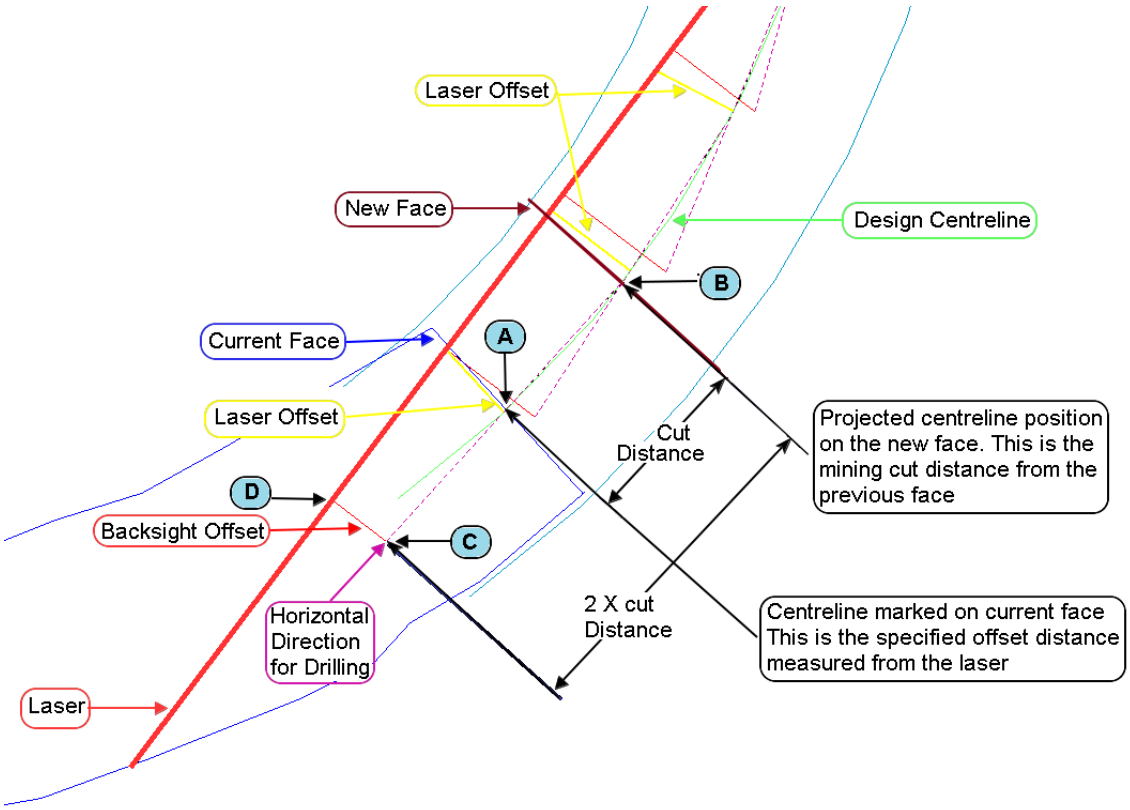
FlexiSurv

# Backsight Offsets

Backsight offsets are used to orientate the drill rig when developing curves. They are generally used when centreline laser offsets are generated but can also be used when generating wall to wall laser offsets.






## How is a backsight offset calculated?

1. At a particular chainage, point A is located on the centreline at the given offset distance from the laser.

2. Point B is then determined by projecting where the next intersection on the centreline would be using the cut distance (drilling length) of the rig.

3. Point C is then found by projecting a line from point B back through point A at two times the cut distance. This line represents the horizontal direction to align the rig to.

4. Finally the backsight offset distance is determined by projecting a line from point C to point D on the laser which must be at a 90 degree angle from the laser.

Example offset table showing centreline laser offsets and backsight offsets.

LASER OFFSETS

| Dist From Laser | Dist To Centreline | Backsight Offset |
|---|---|---|
| 10.0 | 1.5 R | 0.7 R |
| **12.0** | **1.9 R** | **1.5 R** |
| 14.0 | 2.2 R | 2.1 R |
| 16.0 | 2.3 R | 2.5 R |
| 18.0 | 2.2 R | 2.8 R |
| 20.0 | 2.0 R | 2.9 R |
| 22.0 | 1.5 R | 2.7 R |
| 24.0 | 1.0 R | 2.3 R |
| 26.0 | 0.3 R | 1.7 R |
| 28.0 | 0.4 L | 1.1 R |
| 30.0 | 1.2 L | 0.4 R |

How are backsight offsets used?

1. At a given chainage/distance along the laser, the laser offset distance is used to locate the position of the centreline on the current face. This point is marked on the face (point A).

   *Using the information for the offset at 12m from the table above; 12m is measured along the laser, from this point 1.9m is measured to the right of the laser to locate and mark the centreline point on the current face.*

2. The backsight position is then located by measuring the cut distance back from this mark (point A) at the specified backsight offset distance from the laser at right angles (point D) to give point C.

   *Again using the information for offset at 12m; assuming a cut distance of 4m the backsight point is found by measuring approximately 4m back and then measuring 1.5m from the right of the laser at 90 degrees to the laser.*

3. A paint line can then be created on the floor or backs (roof) from point C to point A to define the correct horizontal orientation of the rig.

   *Now the backsight point is found a paint line can be marked from this position to the centreline point on the current face to define the horizontal direction to drill.*