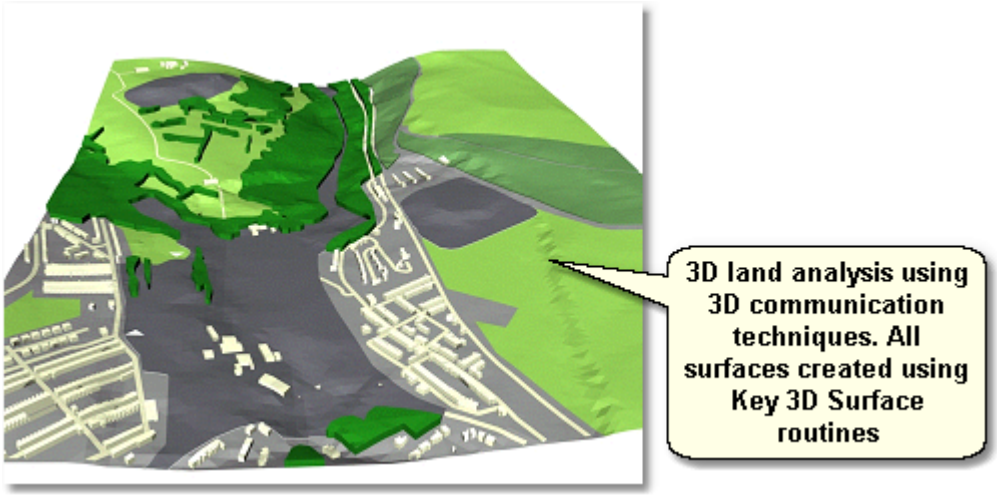
SURFACING MODULE

Quickscape's Surface routines create three dimensional seamless surfaces for roads, hardstandings and landscaped areas that accurately represent 2D planning and design drawings in 3D. **Quickscape Interpolator**, **Surfaces** and **Relief** are used to create 3D spline models, terrains and separate, seamless 3D surfaces. Contours and terrains can also be quickly created using **Quickscape Points to Terrain**, **Contours** or the **Quickscape Terrain Modeller**. Landforms can be analysed using the **3D Section** routine and surface meshes are optimised and improved using **Quickscape Simplify Mesh Edge** and **Simplify Mesh**

1



Strategy for creating surfaces

Infrastructure and landscape surfaces range from level hard paved, ramped or stepped surfaces to soft verges, planting beds and less detailed context surfaces. The technique for modelling each type of surface needs to be understood

Firstly, a 'Spline Model' is created using a mixture of 3D polylines (strings) delineating the edge of roads and pavements, top and bottom of embankments etc and contours for soft landscaped areas and context landform. One landform mesh is then created from this spline model in MAX/VIZ using the Terrain Compound Object. Surfaces also need to be drawn as a seamless matrix of closed boundaries in AutoCAD ie each surface has its own boundary and this butts up to the adjacent surface (two lines, not one line). The 2D surface boundaries are then used to cut the prepared 3D landform mesh and create separate distinct surfaces for all areas. Quickscape Surfaces routine is used for this stage. Refer to: 'AutoCAD 2D to 3D Scene' tutorial on CADTutor Web Support

Generally, surfaces fall into five categories:

- **Level** (or flat) - car park / public hard space / paved area / house platform etc. Level surface boundaries are put to the correct height and included in the spline model. Other stepped, gradient or amorphous surfaces are used to connect to these level (or ramped - see below) surfaces

- **Ramp** - a surface that joins two surfaces at a consistent gradient. Examples include a winding path at a uniform gradient, an area of paving connecting two level surfaces or a road at a uniform gradient. Paths that change gradient along their length tend to do so in stages, one section of path having a different uniform gradient to the next. These sections need to be represented by separate 2D closed boundaries in AutoCAD

- **Stepped** - steps or terraces in any shape or form used to connect two surfaces. Again, these features must be represented by separate closed boundaries in AutoCAD. Extrusions are often used to create 3D steps or terraces, however, due to material mapping considerations, lofts may be used instead. Brick or flag textures will then follow the curves of the stepped features. In any event, the initial 2D data can be drawn as closed boundaries

- **Gradient** - a surface that changes gradient non-uniformly. A hump-backed bridge, a path or road over rolling landscape are good examples. Contours can be used within the spline model to cater for this type of surface

- **Amorphous** - planting beds, areas of grass between hard surfaces and more general context landscape are good examples. These surfaces are mainly represented by contours