

Site suitability analysis

Land to the east of Lake George near Canberra has been purchased by a developer. He is keen to subdivide the land into 10 acre lifestyle blocks. He has requested you as a GIS operator to undertake a site suitability analysis for him. There are environmental exclusions that must be applied to his land, so he is interested in knowing how much land is left over to develop. You are to undertake the analysis, and present the developer with:

- A map illustrating areas of exclusion and availability
- An area statement of the area of exclusion and availability
- The value of the land to the developer.
- A map or screen grab of the Estate property overlaid in Google Earth.
- A generalised schematic model of the GIS analysis you undertook. An [example](#) is included for your reference.

You will need to account for the following environmental exclusion zones:

1. All hydrology to be buffered by 100m. This is to ensure water quality impacts are minimised.
2. All roads to be buffered by 100m. This is to ensure noise pollution is minimised.
3. All bores to be buffered by 200m. This is to ensure access to groundwater is maintained.
4. Areas of slope greater than 10° must be avoided.
5. All remnant native vegetation is to be kept.

To calculate the value of the land to the developer, the following assumptions are made:

- 10 acres = 4 hectares (or 40,000 m²)
- After establishment costs the developer expects \$50,000 per 10 acre block

[Download MapInfo data for the assignment.](#)

You should consider breaking the analysis into the following tasks:

- a. Creating a DEM. Remember to use both hydrology and contours as input.
- b. Deriving slope from the DEM and creating a vector dataset of areas greater than 10° slope.
- c. Buffer the vector datasets as specified.
- d. Merging then dissolving the exclusion areas into one layer.
- e. Clipping the exclusion layer to the boundary of the estate.
- f. Unioning the exclusion layer with the estate layer to determine how much land is available for development.
- g. Generating area statements, and then the value of the land to the developer.
- h. Creating a map of the estate showing areas for development and exclusion.

i. Creating a map or screen grab of the estate area overlain in Google Earth.