



UNIVERSITY *of the*  
WESTERN CAPE

**Natural science.**

**Earth Science Department.**

**Environmental & Water Sciences.**

**Title of the report: GIS for Water Resources and  
Environmental Management suitability Analysis in  
ArcGIS (The spatial problem)**

**Lecturer in charge: T Dube**

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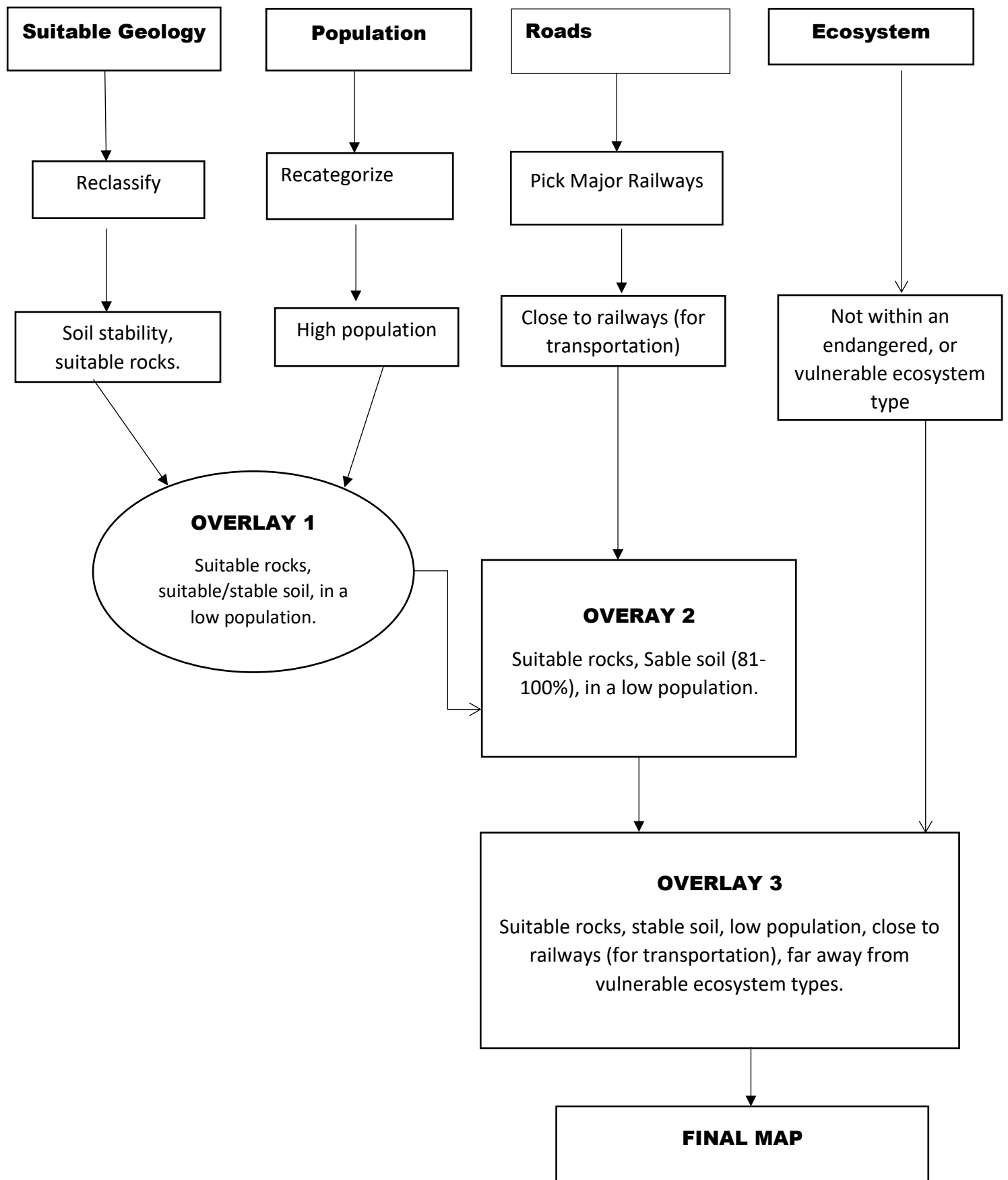
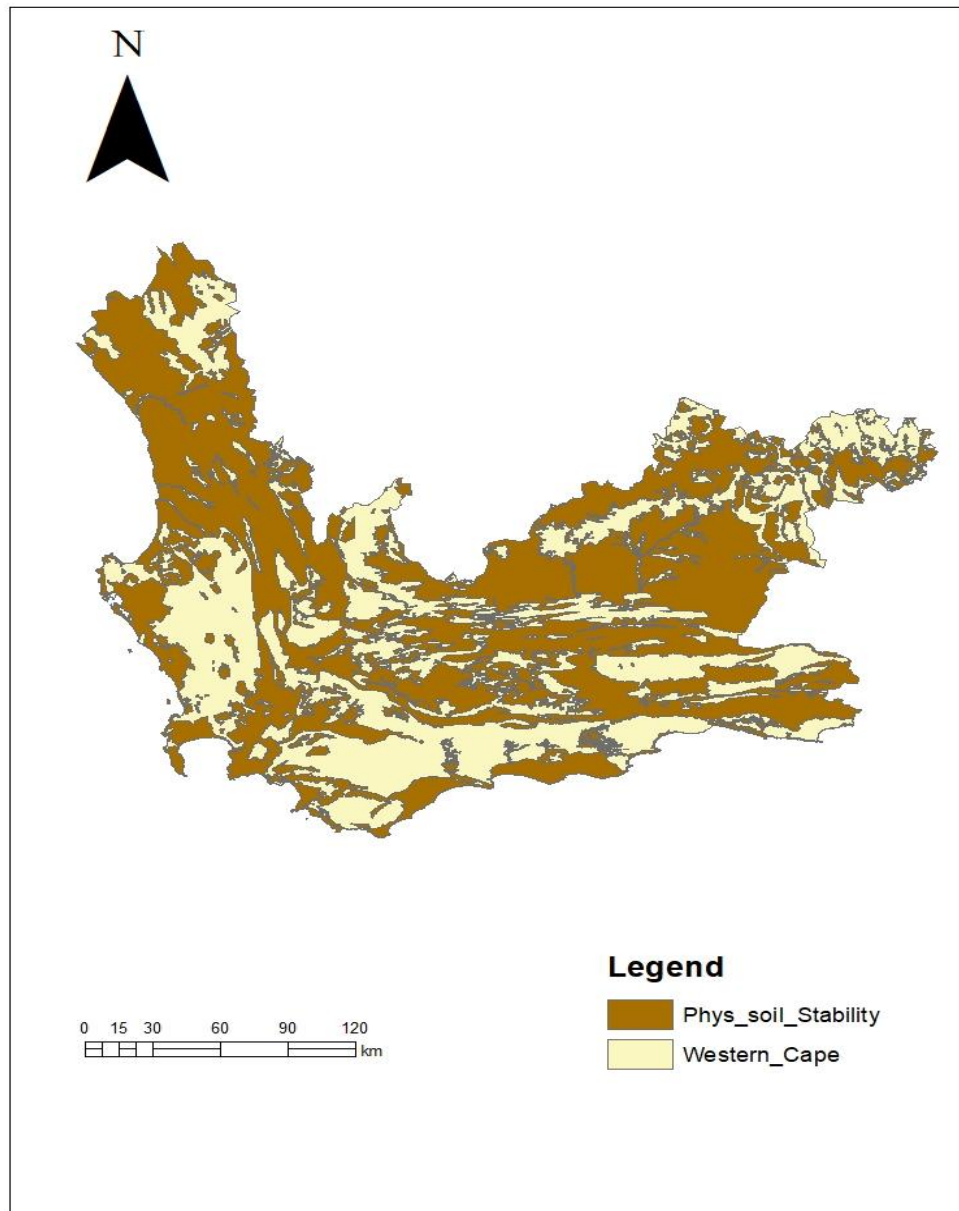
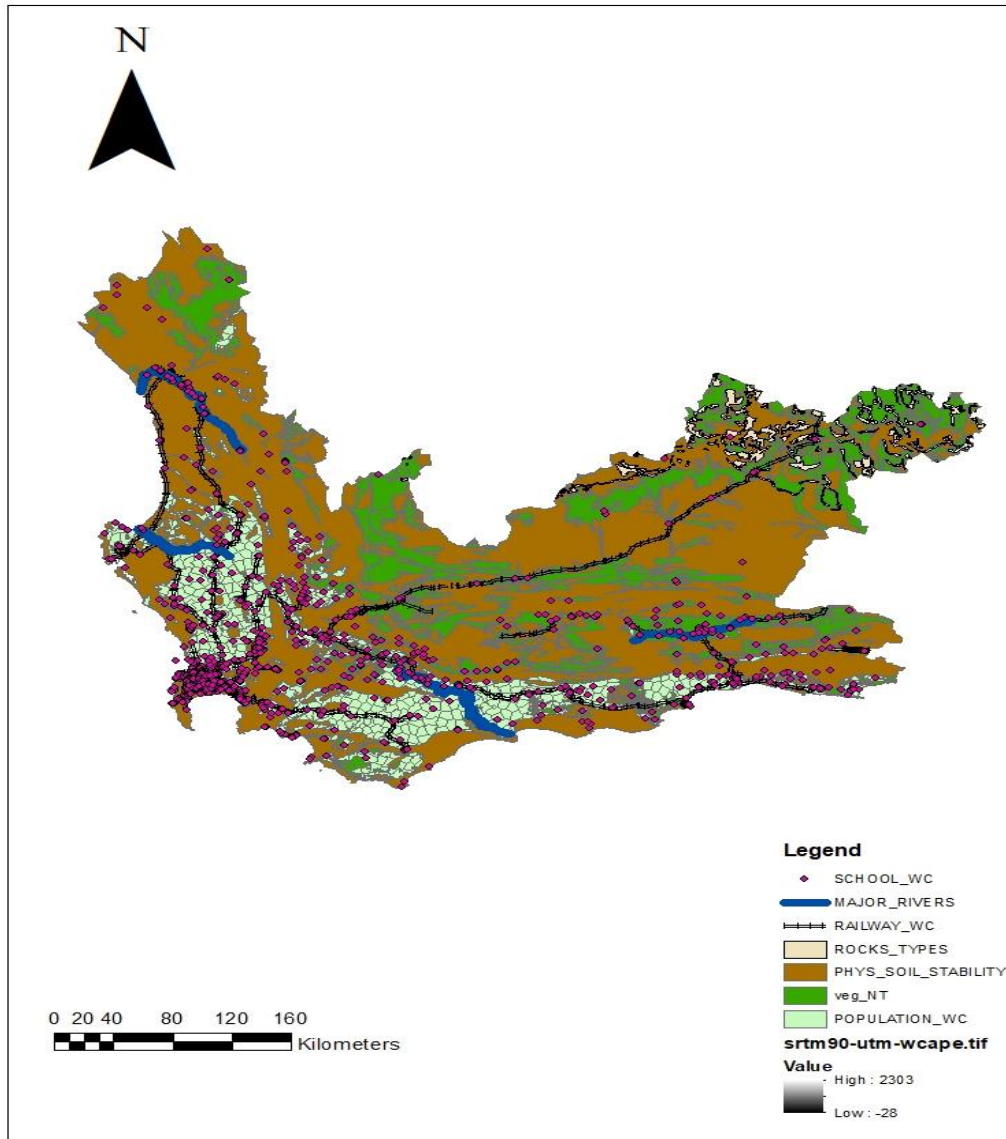


Figure 1: A Decision tree for suitable mapping.



**Figure 2: A map showing physical soil stability overlay**

The map shows the stability of the physical soil, it shows how suitable the soil is for the nuclear waste disposal project. The physical soil stability overlay shown in the figure above is part of the reclassified category. The first step was to reclassify the type of soil suitable for the nuclear waste disposal, the soil structure is better, and organics matters will make the soil particles to bind and form a stable soil aggregate. Since the soil is more stable, it can reduce the potential for surface crusting. I choose the soil stability of 81-100% from the attribute table, followed by exported the data, an overlay was formed.



**Figure 3: A diagram showing a final suitability map.**

The map shows all the aspects and spatial data that need to be considered for the project of developing a nuclear waste disposal. There are schools, major rivers, railways, physical stability of the soil, vegetation that is not threatened, and population in a low density. The map also shows the vegetation that is not threatened. The solution or suggestion for nuclear waste disposal is that It should be done in the north-East side of the western cape where there are no schools, nor major river, and there is a railway for transportation of the nuclear waste, since it is suggested that the disposal has to be close to the railways and far away from rivers and the population where people live, far away from the schools, even though nuclear waste disposal can be done successful in any kind of soil, the most stable soil with a better structure is found at the north-East of the western cape.