mr MELVILLE

Landscape— 146.4 km^2 undulating to rolling hills and mountain sideslopes with extremely complex geology and soils flanking the spine of the Melville Ranges. Local relief 300 m; slopes 3 – 20 %; elevation 320 – 750 m. Predominantly benched to hummocky waning hillslopes characterised by rapid changes in geology. Special site investigation is necessary if soil information is needed for specific development proposals. Woodland and open-woodland, >85% cleared for grazing with some areas of cultivation on lower slopes.

Landscape Variant mrt— transferral variant of alluvial fans and drainage plains that drain some areas of **mr**. Slopes 2 – 12%. Soils are extremely variable from site to site, but more reliably homogenous with individual sites. Special soil or geotechnical site investigation is necessary if soil information is needed for specific development proposals.

Soils— soil variation is too great to represent at this scale of mapping and is related to extremely complex geology. Soils are extremely diverse and variable over tens of metres. Soil type and position in landscape cannot be predicted except on a site-by-site basis due to the high variability of parent materials. Due to high diversity and the unpredictability of soil type, no soil material information or distribution information has been provided for this landscape. Soil types found within this landscape included Black, Grey, Red and Brown Vertosols; Red, Brown and Black Dermosols; Red, Brown and Yellow Kurosols; Red, Brown and Black Chromosols; and sandy Tenosols, Rudosols, Calcarosols, Red Ferrosols and Red, Yellow and Brown Sodosols.

Qualities and Limitations— Complex terrain; complex soils; localised poor drainage; localised engineering hazard; localised groundwater pollution hazard (limestone members); gully erosion risk; inherent erosion risk; localised mass movement risk; permanently high watertables; poor moisture availability; potential recharge area; localised rock outcrop; high run-on; localised shallow soils; sheet erosion risk; localised woody weeds.

LOCATION AND SIGNIFICANCE

Extensive undulating to rolling hills and mountain hillslopes flanking and including areas of highly complex geology in the Melville Ranges. Type location is at Oakey Creek (Grid Reference 268000E, 6559000N).

LANDSCAPE

Geology and Regolith

Extremely variable and complex geologies flanking the main spine of the Melville Ranges. Rocks are of generally Carboniferous origin and include polymictic and tilloid conglomerate, lithic, tuffaceous lithic and quartzose sandstones, acid to intermediate volcanics (including rhyolite and trachyte), chert, cherty argillite, greywacke, siltstone, mudstone, arenite, limestone, pyroxene and hornblende andesite. Many of these geology types are unmapped, and some mapped geological units do not appear to exist on the ground. Frequently these geologies are partially overdraped with Tertiary and Quaternary colluvium and alluvium derived from other lithologies.

All of these geology types are frequently encountered over distances of less than 100 m, particularly in the northern portion of the thrust belt, where geological strata dips nearly vertically. Soil and regolith depths are extremely variable as determined by degree or absence of overdraping with colluvium and site-specific lithology type.

Terrain

Undulating to rolling hills and mountains, with slopes ranging from 3 – 20%. Slope shapes are generally waning with sharp, peaked crests reflecting the near vertical bedding of underlying bedrock. Slopes are typically 200 – 2000 m long; elevation ranges 320 – 750 m; local relief is <300 m. Rock outcrop occurs as unpredictable breaks in slope across the landscape, comprising up to 20% of the landscape. Gilgai microrelief occurs in some relatively undisturbed areas with heavy clay soils. Drainage is unidirectional, erosional and integrated.

Vegetation

Woodland and open-woodland, >80% cleared for grazing.

Dominant tree species include *Eucalyptus albens* (white box), *E. melliodora* (yellow box), *Angophora floribunda* (rough-barked apple), *Callitris glaucophylla* (white cypress pine), *E. crebra* (narrow -leaved ironbark) and *E. blakelyi* (Blakely's red gum). Other trees and shrubs include *Brachychiton populneus* (kurrajong), *Notelaea microcarpa* (native olive), *Alectryon oleifolius* (western rosewood), *Geijera parviflora* (wilga), *Acacia salicina* (cooba), *Acacia decora* (western golden wattle), *Acacia deanei* (green wattle), *Dodonaea viscosa* (*giant hopbush*), *Cassinia laevis* (cough bush), *Beyeria viscosa*, *Hovea lanceolata* and *Senna barclayana* (smooth senna). *Schinus areira* (pepper tree) and *Melia azedarach* (white cedar) are the most common naturalised exotic tree species in this landscape.

Grass species commonly found in this unit include *Bothriochloa ambigua* (red grass), *B. decipiens* (red grass), *Chloris truncata* (windmill grass), *Eragrostis* spp. (love grasses), *Stipa setacea* (corkscrew grass), other *Stipa* spp. (speargrasses), *Danthonia* sp. (wallaby grass), *Sporobolus* sp. (rat's tail grass) and *Digitaria brownii* (cotton panic grass).

Land Use

Predominantly used for grazing, with some lower sloping areas being used for cultivation.

Land Degradation

This landscape is characterised by extensive severe gully erosion caused by high run-on from adjacent steep landscapes in the Melville Ranges. Sheet erosion is common across areas with a history of cultivation.

Landscape Variants

The areas mapped as **mrt** are transferral landscapes on parent materials derived from adjacent **mr.** Soils in this variant are more predictable within each polygon, but are extremely diverse from polygon to polygon as soil parent material is determined by very local conditions.

LANDSCAPE QUALITIES AND LIMITATIONS

Complex terrain; complex soils; localised poor drainage; localised engineering hazard; localised groundwater pollution hazard; gully erosion risk; inherent erosion risk; localised mass movement risk; permanently high watertables; poor moisture availability; potential recharge area; localised rock outcrop; high run-on; localised shallow soils; sheet erosion risk; localised woody weeds.

SOILS **Variation and Distribution**

Soils are extremely diverse and variable over tens of metres. Soil type and position in landscape cannot be predicted except on a site-by-site basis due to the high variability of parent materials. Due to high diversity and unpredictability of soil type, no soil material information or distribution information has been provided for this landscape. Development proposals in this landscape need to consider special purpose site-specific investigations of soil properties.

Soil types found in within this landscape included Black, Grey, Red and Brown Vertosols; Red, Brown and Black Dermosols; Red, Brown and Yellow Kurosols; Red, Brown and Black Chromosols; sandy Tenosols, Rudosols, Calcarosols, Red Ferrosols and Red, Yellow and Brown Sodosols.

Since this soil landscape is too variable and complex to make statements about soil patterns, there is no soil distribution diagram for this landscape.

Rural Capability and Sustainable Land Management Recommendations

Moderate to high limitations for grazing. High limitations for cropping.

Urban Capability

Generally moderate limitations for urban development with some areas of high limitations due to steep slopes.