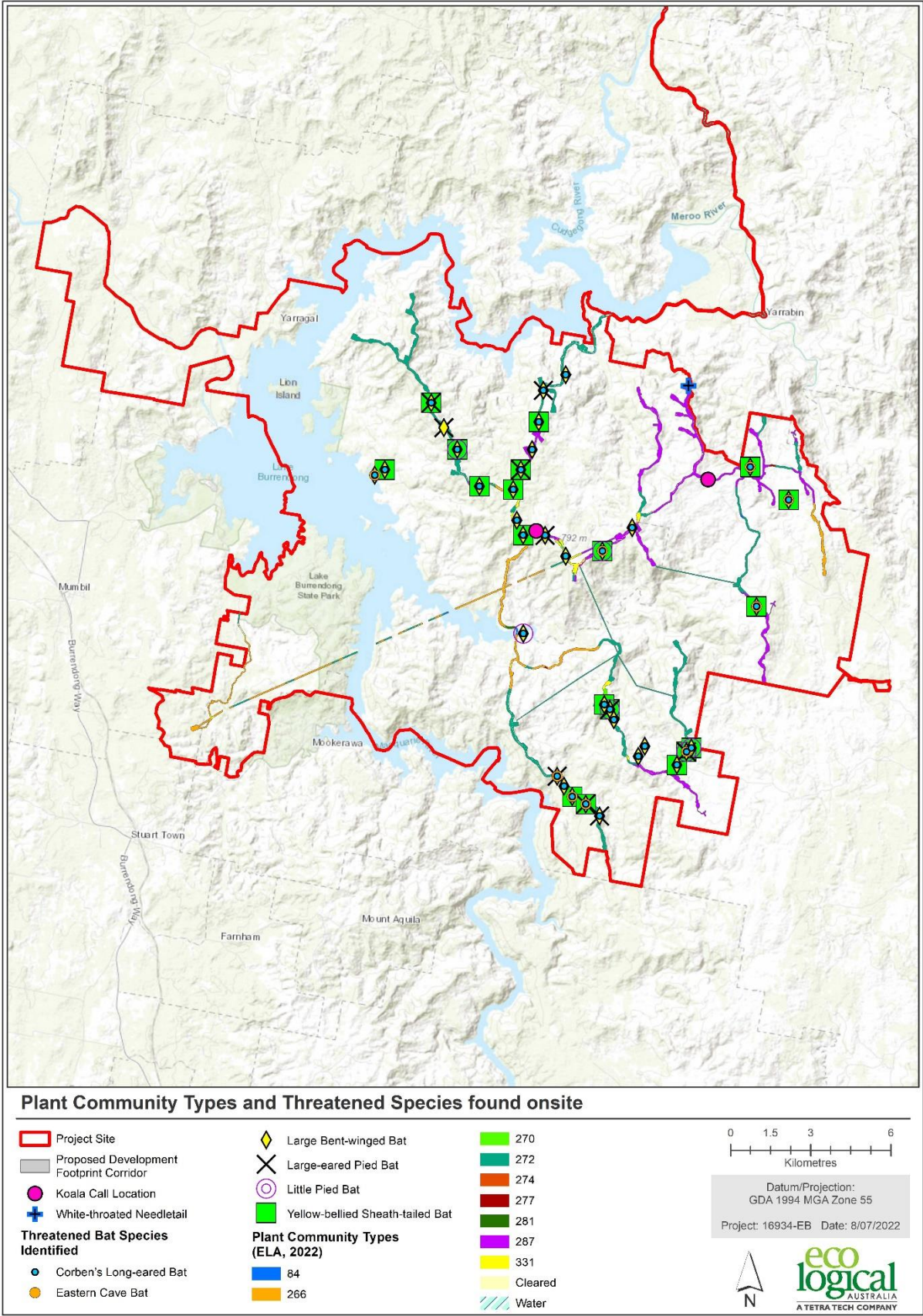


Appendix B Biodiversity Mapping



Appendix C Soil Landscape Types and Classifications

Table C-1: Soils landscapes by area within the Development Corridor

Soil Landscape	Total area (ha)	Great Soil Ground (equivalent Australian Soil Classification Soil Order)
Mookerawa	860	Landscape – undulating to rolling low hills and hills often strewn with quartz gravel. Slate, grey-wacke, shale, acid/siliceous volcanics. Relief 50-140m; slopes 8-30%. Yellow Soloths and Solodic Soils on lower slopes and drainage depressions. Red Podzolic Soils on upper slopes and crests. Some shallow, brown loams and sandy loams also occur on some crests. Australian Soil Classification – Yellow Sodosols, Red Chromosols, Lithic Rudosols. Limitations – moderate to low fertility; sodic subsoils common on lower slopes; high to very high erosion hazard under cultivation.
Burrendong	230	Landscape – rolling to steep hills. Slate, greywacke, shale. Relief 40-200m with elevations up to 1000m; slopes 20-50%. Rock outcrop is common. Mainly shallow loams and sands. Shallow red podzolic soil mid-slope and soloths or yellow solodic soils along drainage lines. Isolated areas of Yellow Earths on lower slopes. Australian Soil Classification – lithic rudosols (shallow loams and sands) red chromosols, yellow sodosols, yellow kandosols. Limitations – steep slopes; very low fertility; rock outcrop; low water holding capacity
Mullion creek	9	Landscape – undulating low hills often strewn with quartz gravel. Slate, grey-wacke, shale, acidic volcanics. Relief 40-80m; slopes 3-12%. Mainly Red Podzolic Soils on crests and upper slopes. Yellow Soloths and yellow Solodic Soils on mid to lower slopes and in drainage lines. Australian Soil Classification – Red Chromosols, Yellow Sodosols Limitations – low fertility; seasonal waterlogging; sodic subsoils on lower slopes; high erosion hazard under cultivation; acidic surface soils; salinity common on lower slopes; low permeability.
Erudgerie	5	Landscape – undulating low hills. Shale, sandstone. Relief 20-40m; slopes 3-8%. Yellow and Red Podzolic Soils on mid and lower slopes, with shallow Non-calcic Brown Soils on upper and mid-slopes. Some Yellow Podzolic-Solodic Soils occur on long, gentle footslopes and drainage lines. Alluvial loams on broad flats. Large amounts of ironstone sometimes present on the surface and within A2 horizons. Australian Soil Classification – Yellow Chromosols, Red Chromosols. Stratic Rudosols. Limitations – low fertility; moderate available water holding capacity; seasonal waterlogging on lower slopes; moderate to high erosion hazard under cultivation.

Soil Landscape	Total area (ha)	Great Soil Ground (equivalent Australian Soil Classification Soil Order)
Red Hill	4	Landscape – rolling hills. Andesite, tuff, shales, greywacke, limestone. Relief 40-80m; slopes 5-20%. Non-calcic Brown soils with some Euchrozems. Shallow soils and Red Podzolic Soils on stony hillocks. Rock outcrop common. Australian Soil Classification – Red Chromosols, Red Dermosols, Lithic Rudosols. Limitations – moderate to low fertility; areas of rock outcrop and shallow soils; weakly structured surface soils; moderate to low available water holding capacity; high to very high erosion hazard under cultivation.
Macquarie-Dubbo	3	Landscape – alluvial plains and terraces of the Macquarie and Lower Talbragar Rivers. Relief to 10m; slopes 0-3%. Lower terraces of alluvial sands, loams, Prairie Soils and Chernozems with small areas of Black Earths. Higher, older terraces have Red Earths, Red-brown Earths and Yellow Podzolic-Solodic Soils. Australian Soil Classification – Fluvial Stratic Rudosols, Black Dermosols, Black Vertosols, Red Kandosols, Red Chromosols, Yellow Chromosols. Limitations – moderate fertility; moderate to high available water holding capacity; weakly structured surface soils; streambank erosion; flood hazard.
Nanima	2	Landscape – rolling low hills. Andesite, hornfels, shale, tuff and limestone. Relief 80 - 150 m; slopes 5 - 20%. Euchrozems and Non-calcic Brown Soils with shallow loams on crests. Small pockets of Terra Rossa Soils on limestone. Australian Soil Classification –Chromosols, Dermosols, Ferrosols, Kurosols (natric), Sodosols, Vertosols Limitations – Moderate fertility; friable surface soils; steep slopes often with rock outcrop; moderate to high available waterholding capacity; very high erosion hazard under cultivation; moderate to high shrink-swell potential; aggregated clays may leak in earthworks.
Collingwood	2	Landscape – rolling low hills and hills. Permian sandstone, siltstone, shale and conglomerate. Relief 60-100m; slopes 10-15%. Red Podzolic Soils on upper and mid-slopes. Yellow Podzolic Soils on lower slopes. Non-calcic Brown Soils on some crests. Prairie Soils in drainage lines. Grey-brown Podzolic Soils and Yellow Podzolic-Solodic Soils on flats. Australian Soil Classification – Red Chromosols, Yellow Chromosols. Brown Chromosols, Black Dermosols. Limitations – moderate fertility; moderate available water holding capacity; very high erosion hazard under cultivation; seasonal waterlogging on lower slopes.

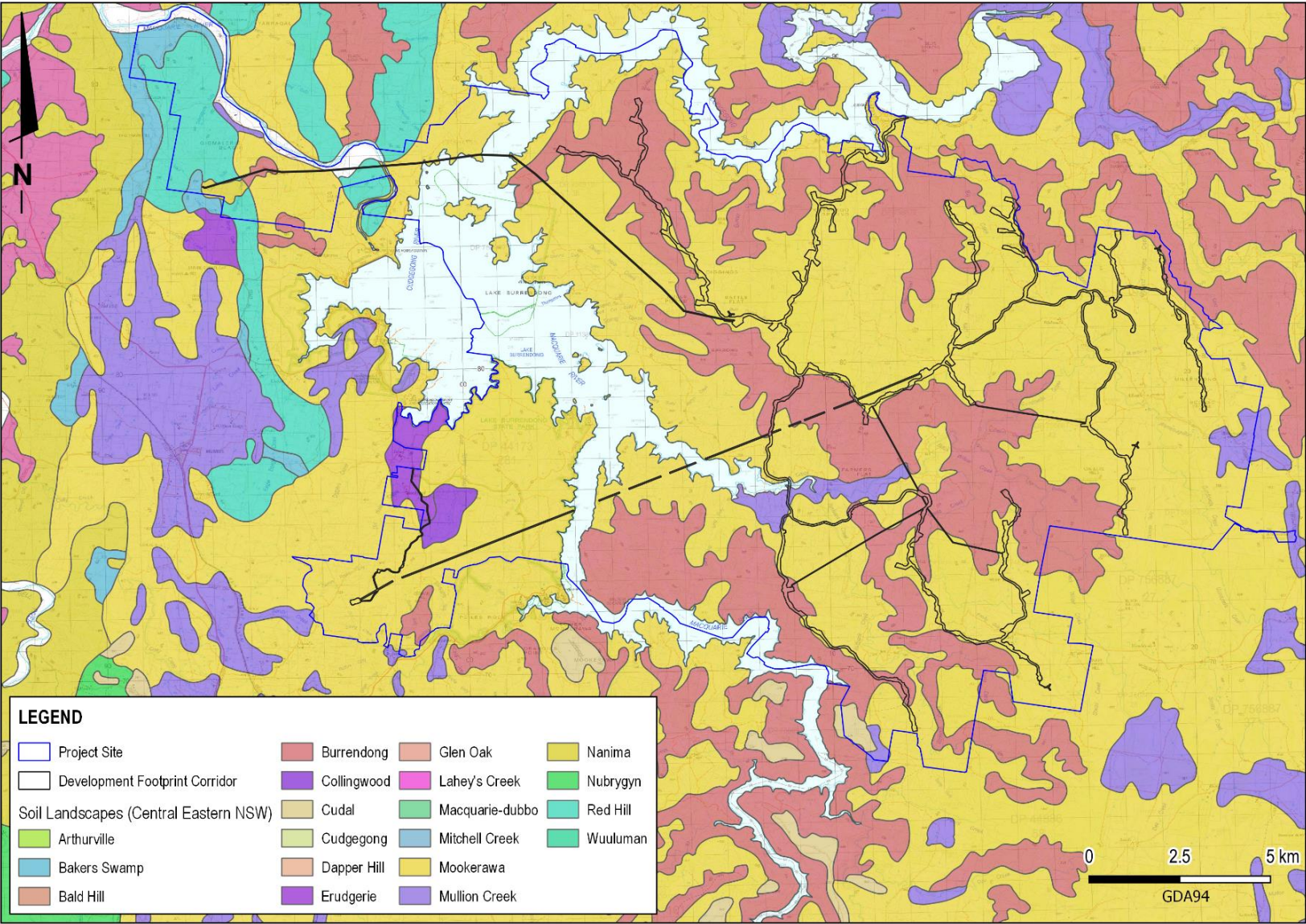


Figure C-1: Soil landscapes class within the Project Site

Table C-2: Land Soil Capability Class by area within the Development Corridor

Land Soil Capability Class	Description	Total area (ha)
3	Moderate limitations. Land capable of sustaining high impact land uses using more intensive, readily available and accepted management practices.	3
4	Moderate to severe limitations. Land generally not capable of sustaining high impact land uses unless using specialised management practices with high level of knowledge, expertise, inputs, investment and technology. Limitations are more easily managed for lower impact land uses (e.g. grazing).	2
5	Severe limitations. Land not capable of sustaining high impact land uses except where resources allow for highly specialised land management practices to overcome limitations (e.g. high value crops). Lower impact land uses (e.g. grazing) can be managed by readily available practices.	13
6	Very severe limitations. Land incapable of sustaining many land use practices (e.g. cultivation, moderate to high intensity grazing and horticulture). Highly specialised practices can overcome some limitations for some high value products. Land often used for low intensity land uses (low intensity grazing).	825
7	Extremely severe limitations. Land incapable of sustaining most land uses. Limitations cannot be overcome.	224

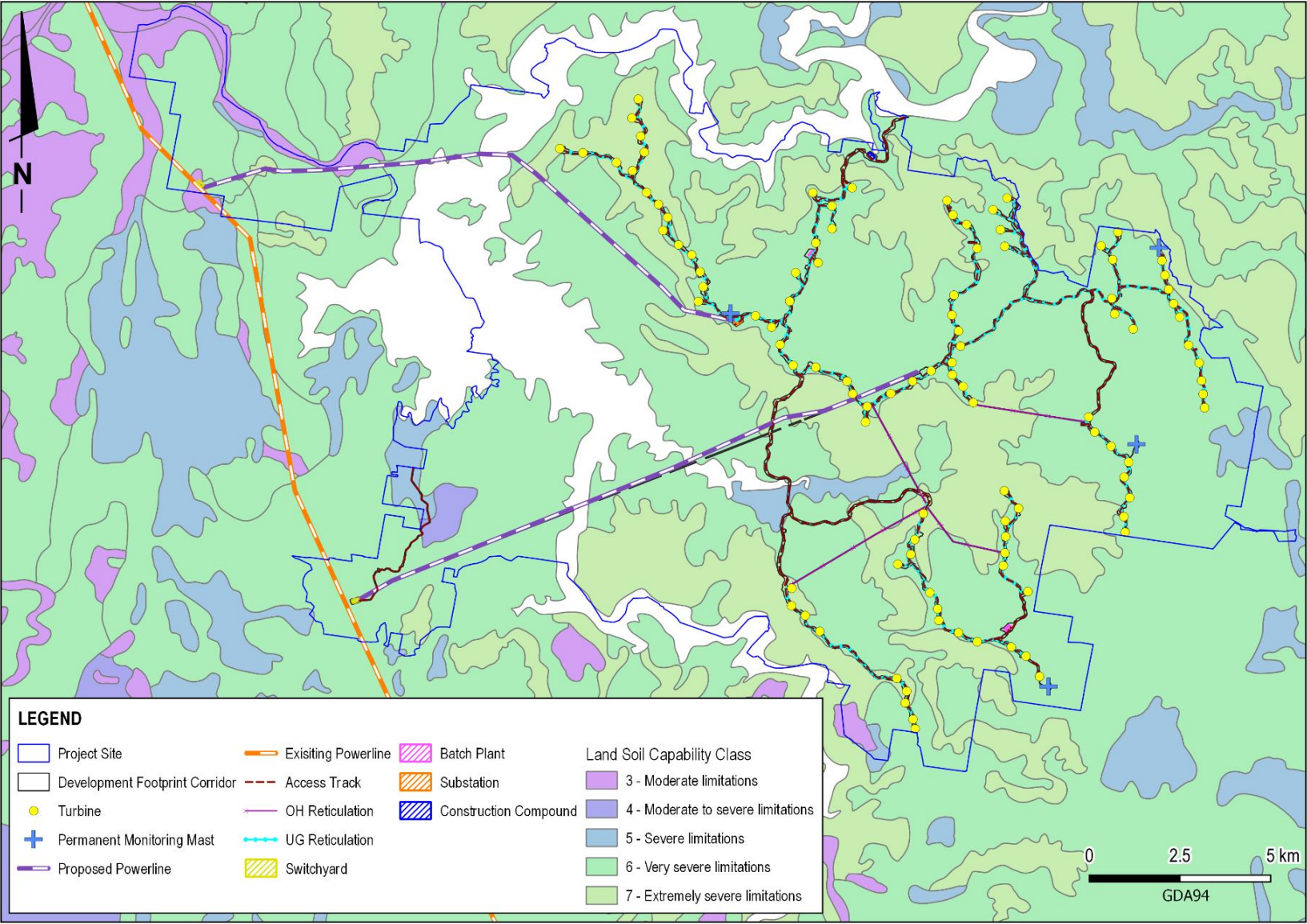


Figure C-2: Soil capability class within the Project Site

