MAITLAND SPECIAL

GEOLOGICAL SURVEY OF SOUTH AUSTRALIA
DEPARTMENT OF PRIMARY INDUSTRIES AND RESOURCES SA

SECOND EDITION 2003

SECTION B - B'
SECTION D - D'
SECTION C - C'
SECTION A - A'

PALAEOPROTEROZOIC– MESOPROTEROZOIC ROCK RELATION DIAGRAM

NEOPROTEROZOIC– QUATERNARY ROCK RELATIONSHIP DIAGRAM

Undifferentiated Palaeoproterozoic– Mesoproterozoic

BOUGUER GRAVITY ANOMALY IMAGE

The Bouguer Gravity Anomaly Image has been compiled using gravity data from the Department of Primary Industries and Resources SA State Gravity Database.
The image has been merged, gridded and image processed by the Mineral Resources Group of the PIRSA Division of Minerals and Energy.

TOTAL MAGNETIC INTENSITY IMAGE

The Total Magnetic Intensity Image has been compiled using aeromagnetic data from the Department of Primary Industries and Resources SA.
Aeromagnetic data has been merged, gridded and image processed by the Mineral Resources Group of the PIRSA Division of Minerals and Energy.

SOLID GEOLOGY INTERPRETATION

KALKULA MYLONITE ZONE

Cambrian Stansbury Basin
Spilsby Suite, ~1510 Ma
Hillaba Suite (Tickera and Arthurton Granites), 1588–1575 Ma
Curramulka Gabbronorite, 1583 Ma
Renowden Metabasalt Member (Matta Fm)
Moonta Porphyry Member (Wealdale Fm), 1760 Ma
Wardang Volcanics Member (Wealdale Fm), 1758 Ma
Wallaroo Group ~1770–1740 Ma
New Cornwall Member (Wandearah Fm)
Doora Member (Wandearah Fm), 1741 Ma
Aagot Member (Wandearah Fm)
Tournefort Metadiorite
Royston Granite, ~1850 Ma
Augen orthogneiss, ~1850 Ma
Gleesons Landing Granite or Donington Suite, ~1855 Ma
Corny Point Paragneiss, 2000–1845 Ma
Fault - Observed
Fault - Inferred
Trend of layering

Copies of this map can be obtained from the Department of Primary Industries and Resources SA, Adelaide, or Geoscience Australia, Canberra, ACT.
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The Honourable Paul Holloway, MLC,
Minister for Agriculture, Food and Fisheries,
Minister for Mineral Resources Development.

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MAITLAND SPECIAL map sheet. South Australia. Geological Survey. Geological Atlas 1:250 000 Series, sheet SI53-12 & portion SI53-16.

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Grey numbered lines indicate the 10000 metre Map Grid

Transverse Mercator Projection, Geocentric Datum Australia, 1994.

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REFERENCE

ADELAIDE GEOSYNCLINE

TAPLEY HILL FORMATION: Grey, thin-bedded to laminated shale and dolomitic shale with thin silty dolomite. Locally thin, fine-grained sandstone. Basal sandstone with rip-up siltstone clasts. Deep marine shelf deposit, Acritarchs. Sturtian age only.

STURT TILLITE: Glacial diamictite of massive green-grey claystone with rare dropstones. Contains clasts of metamorphic rocks, granite, quartzite and chert. Sturtian age only.

RHYNIE SANDSTONE: Fluvial sandstone and conglomerate with thin, red-brown siltstone interlayers. Sturtian age only.

GAWLER CRATON

SPILSBY SUITE: Granite. Interpreted to intrude the Donington Suite in Spencer Gulf. ~1510±12 Ma. (UNCOLN)

HILTABA SUITE: Granitoid intrusives in the Gawler Craton, ~1600–1590 Ma.

ARTHURTON GRANITE: Pink, coarse-grained, K-type adamellite with quartz, microcline, plagioclase, mica, sphene, magnetite and chlorite. Undeformed to foliated. Often pegmatitic or miarolitic. 1588±2 Ma.

TICKERA GRANITE: Red-brown, medium-grained, I-type monzonite to quartz monzonite with quartz, microcline, plagioclase, biotite, chlorite and magnetite. Undeformed to foliated. 1588±2–1575±7 Ma.

CURRAMULKA GABBRONORITE: Medium to coarse-grained gabbronorite with plagioclase, clinopyroxene (augite), orthopyroxene, hornblende, biotite, quartz or orthoclase. Intrudes Aagot Member and intruded by Arthurton Granite. Subsurface only. 1583±3 Ma.

BUTE METADIOLERITE: Dolerite and diorite intrusives in the Bute region. Mainly medium, fine-grained plagioclase and hornblende, minor quartz, biotite, epidote, chlorite and opaques. Occasionally ophitic textures. Subsurface only.

OORLANO METASOMATITE: Metasomatic rocks of albite, scapolite, diopside, hematite, epidote, carbonate, quartz, mica, magnetite, Pmbdth unknown. Subsurface only. Latest metasomatism Hiltaba Suite age.

WALLAROO GROUP: Low-grade (greenschist to lower amphibolite facies) metasediments and metavolcanics in the eastern Gawler Craton, ~1770–1740 Ma.

MATTA FORMATION: All mafic volcanics or intrusives in the Wallaroo Group. Intrudes both Wandearah and Weetulta Formations.

RENOWDEN METABASALT MEMBER: Fine-grained, massive, foliated basalt with hornblende, plagioclase, clinopyroxene and biotite. Quartz-rich vesicles suggest a formerly scoriaceous texture. Intrudes Wardang Volcanics. ~1750 Ma.

WEETULTA FORMATION: All felsic volcanics and intrusives in the Wallaroo Group, felsitic or intersperved with metasediments.

MOONTA PORPHYRY MEMBER: Massive, fine-grained to porphyritic rhyolite, rhyodacite to dacite (orthoclase, plagioclase, quartz, minor chlorite, biotite and sericite). Extrusive to intrusive. K-type, Intrusive age constrained to 1760±2 Ma.

WARDANG VOLCANICS MEMBER: Rhyolite, porphyritic rhyolite rhyodacite, dacite to latite, mainly K-feldspar, quartz, plagioclase, biotite, opaques (ilmenite and magnetite), hornblende, pyroxenes, chlorite, epidote and accessory zircon, apatite, carbonate and scapolite. Shallow intrusive and extrusive. K-type. Tuffaceous. 1758±2 Ma.

WANDEARAH FORMATION: All metasediments in the Wallaroo Group on Yorke Peninsula. Including metasandstone, argillite, siltstone, carbonate, calcsilicate and occasional conglomerate, ranging from shelfal, deltaic, lacustrine to fluvial setting.

NEW CORNWALL MEMBER: Carbonate-dominated unit. Layered limestone, dolomite, siltstone, calcareous argillite, calcsilicate, graphitic schist, locally sandstone, conglomerate and skillitic. Mixed carbonate and siliciclastic platform setting. Greenschist facies.

DOORA MEMBER: Biotite schist-dominated unit. Layered, foliated biotite-rich schist or psammitic, argillaceous, calcsilicate, iron-rich, graphitic and minor skillitic meta-sediments. Siliciclastic platform setting. 1741±9 Ma (from Intercalated acid volcanics).

AAGOT MEMBER: Metasandstone-dominated unit. Layered metasandstone, sandy argillite, minor conglomerate, calcsilicate and skillitic rocks. Siliciclastic platform sediments, with local evidence of primary mineral banding. Aeolian–fluvial to shallow limestone and shelf setting. Foliated. ~1756 Ma (from Intercalated Wardang Volcanics Member).

Undifferentiated Palaeoproterozoic Intrusives: Granitoid and mafic intrusive complex, emplaced during the middle Palaeoproterozoic NeB Event and late Palaeoproterozoic Kimban Orogeny. ~1855–1700 Ma.

TOURNEFORT METADOLERITE: Undifferentiated dolerite, metadolerite and amphibolite dykes, with plagioclase, hornblende, clinopyroxene, biotite, sphene and opaques. Altered, occasionally foliated, Ophitic texture. ~1900 Ma.

Pegmatite, granite and aplite dykes: Undifferentiated, Mainly quartz, microcline, plagioclase, mica, sphene and opaques. Graphic texture. Four phases recognised on Yorke Peninsula. ~1855–1820 Ma.

DONNINGTON SUITE: Quartz-plagioclase-microcline, hyperthene gneissic granite, syenogranite, adamellite, granodiorite, tonalite, megacrystic granitoid gneiss. 1855–1820 Ma.

ROYSTON GRANITE: Adamellite to syenogranite, with microcline, quartz, plagioclase, biotite, hornblende, apatite and metamict zircon. Foliated to undeformed. Intruding Gleesons Landing Granite and intruded by Tournefort Metadolerite. 1850±12–1845±11 Ma.

JUSSIEU METADOLERITE: Composed of hornblende, plagioclase, sphene and minor quartz. Foliated. Intrudes Gleesons Landing Granite with back-welting texture.

GLEESONS LANDING GRANITE: massive to banded K-type granitoid pluton or sill complex.

Syenogranite: Red-brown, fine to medium-grained alkali-feldspar-rich granite, with microcline, quartz, plagioclase and biotite–hornblende. Foliated and layered. ~1855–1850 Ma. Possibly equivalent to Lulu on UNCOLN.

Adamellite: Pink to pink-brown, containing quartz, microcline, plagioclase, biotite and magnetite, accessory hornblende, sphene, apatite and zircon. Foliated. Intercalated with syenogranite.

Granodiorite: Grey, green-grey to dark grey with quartz, plagioclase, biotite, hornblende, microcline and sphene, accessory apatite, allanite, clinopyroxene and biotite. Transitional to tonalite. Foliated. Intrudes Corny Point Paragneiss. 1839±18 Ma (RB=91). Possibly equivalent to Lulp on UNCOLN.

Augen orthogneiss: White-grey to pink-brown, strongly deformed. megacrystic microcline-perthite granitoid gneiss. Consisting of microcline, quartz, plagioclase, biotite and hornblende. 1850±5 Ma. Possibly equivalent to Lulw on UNCOLN.

Hornblende micro-adamellite: Grey, layered, foliated, fine-grained hornblende-biotite adamellite with microcline, plagioclase, quartz, hornblende, biotite, sphene and opaques. Intruded by Royston Granite.

Biotite schist: Layered, mafic rock containing dominantly biotite with some quartz and plagioclase, with accessory apatite and zircon.

CORNY POINT PARAGNEISS: Migmatitic layered paragneiss, dark grey to whitegrey, with coarse-grained quartz, plagioclase, biotite, alkali feldspar, garnet, sillimanite, gorthopyroxene, ±clinopyroxene, ±zoisite, ±spinel, ±corundum, Protolith possibly Hutchison Group equivalent, deposition ~1900–1860 Ma. Metamorphic age 1845±6 Ma.

Note: Geochronological dates are U-Pb ages on zircon (unless otherwise stated).

GEOLOGICAL BOUNDARY
OBSERVED
APPROXIMATE
UNCONFORMITY
INFERRED
LIMIT OF BRIDGEWATER FORMATION (Qpbb)
FAULT
OBSERVED
APPROXIMATE
BEDDING
INCLINED — 50
TECTONIC FOLIATIONS
LINEATIONS
INCLINED — 80
EXPLORATION DRILLHOLE — Q-DLD Topo 14.6
STRATA SEQUENCE (THICKNESS IN METRES) — DDH 207
DIAMOND DRILL HOLE (For additional information please refer to PIRSA's Drillhole Database) — A A'
GEOLOGICAL SECTION
MINE
ABANDONED
MAJOR
MAJOR OPEN CUT
MINOR OPEN CUT
PROSPECT
PROSPECT ABANDONED
HIGHWAY
SECONDARY
MINOR ROAD
VEHICLE TRACK
ADMINISTRATIVE BOUNDARY
LANDING GROUND
HOMESTEAD — "Cockwood"
BUILDING, BEACON
IDENTIFIED POINT (ELEVATION IN METRES) — 25
TRIANGULATION STATION (ELEVATION IN METRES) — 129
TOPOGRAPHIC CONTOUR (INTERVAL 50 METRES) — 250
SAND DUNE
CLIFF
LIGHTHOUSE
ROCKS, BARE OR AWASH
BATHYMETRIC CONTOUR (INTERVAL 10 METRES) — 40
TANK OR DAM
EPHEMERAL STREAM
CLAYPAN, SALTPAN, LAKE
SWAMP

INDEX TO ADJOINING SHEETS

Magnetic Declination 2000

KIMBA, WHYALLA, BURRA, LINCOLN, MAITLAND, ADELAIDE, NEPTUNE, KINGSCOTE, BARMERA

Annual Variation = 1.4 minutes

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ALTHORPE 6227	COONARIE 6327	EDITHBURGH 6427

MINERALS & ENERGY
Government of South Australia

MAITLAND
SI 53-12 & PORTION SI 53-16

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