COMMONWEALTH OF AUSTRALIA

1967/96

Copy 3

copy 3

DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS

RECORDS:

1967/96

NOTES ON A FIELD TRIP TO DELAMERE, VICTORIA RIVER DOWNS AND WAVE HILL 1:250,000 SCALE SHEET AREAS, NORTHERN TERRITORY

by

W.J. Perry

NOTES ON A FIELD TRIP TO DELAMERE, VICTORIA RIVER DOWNS AND WAVE HILL 1:250,000 SCALE SHEET AREAS, NORTHERN TERRITORY

by

W.J. Perry

Records 1967/96

CONTENTS

NOTES ON A FIELD TRIP TO DELAMERE, VICTORIA RIVER DOWNS AND WAVE HILL 1:250,000 SCALE SHEET AREAS, NORTHERN TERRITORY

SUMMARY

Field observations made during a check of the photo interpretation of Delamere, Victoria River Downs and Wave Hill 1:250,000 Scale Sheets, Northern Territory, are recorded for the information of parties doing the subsequent geological mapping of the Precambrian part of the region.

INTRODUCTION

During July and August 1966, after completing a photogeological study of the above areas (Perry, 1966), two weeks were spent in a field check of those parts readily accessible from the roads. As a result the photogeological maps were modified where necessary. The field observations made are listed below for the information of the parties doing the subsequent geological mapping of the Precambrian part of the Sheet area.

Localities are identified on the R.A.A.F. air photos of 1:46,000 scale flown in 1948, by a fine needle prick, circled on the back of the photo and referred to by the abbreviated name of the $\frac{1}{4}$ Million Sheet, followed by the run number, photo number and observation point number. On each photo on which observations have been recorded, observation points start at 1 and proceed consecutively up to the total number of recorded points, for example DEL 4/10-1, DEL 4/10-2.

LOCALITIES VISITED

DELAMERE

Observation point: all prefixed DEL	Stratigraphic position on photogeological map	Remarks
15/04-1	"Skull Creek Limestone"	Grey fine crystalline limestone
12/200-1	"	Pale pink chert
12/200-2	"	Chert, probably silicified dolomite fractured into angular pieces cemented by crystalline barite, sample DEL 12/200-2; determined by G. Schmerber (pers. comm.)
10/25-1 -2	Unit Br	Section measured from unit Br predominantly siltstone, through Buja, a cliff-forming sandstone, to unit Buc? mainly siltstone at base grading into sandstone towards top (Plate1)
10/31-1	Bj, Buc	Prominent bed in "Coolibah Formation"; grey brown medium grained silty sandstone with dark brown claystone pellets in places
10/33-1	Bj, Buc	Section through upper part of "Coolibah Formation" to base of "Jasper Gorge Sandstone" (Plate 2)
10/33-2	Buj	Sample DEL 10/33-2 of "Jasper Gorge Sandstone"

VICTORIA RIVER DOWNS

Observation point: all prefixed VRD	Stratigraphic position on photogeological map	Remarks
15/86-1	Bc	Bedded white and pink finely crystalline banded dolomite
15/86-2	Bc "Timber Creek Formation"	Purplish grey fine grained silty sandstone
14/06-1	Be	White fine to medium grained dolomitic sandstone
13/91-1	"Jasper Gorge Sandstone"	Pale brown medium grained quartz sandstone resting disconformably on grey fine crystalline dolomite of "Timber Creek Formation"
12/75-1	"Timber Creek Formation"	Grey dolomite
8/09-1	"Coolibah Formation"	Greenish grey siltstone and grey calcareous sandstone; sample VRD8/09-1
8/08-2	"Jasper Gorge Sandstone"	Light brown fine to medium grained quartz sandstone
7/55-3	"Skull Creek Limestone"	Grey fine crystalline dolomite
6/20-1	"Coolibah Formation"	Mainly red-brown siltstone (Section Plate 3)
7/62-1	"	Grey-green fine grained micaceous sandstone
7/62-2	"	Coarse to very coarse pebbly quartz sandstone
7/60-1	"	Pale brown fine grained quartz sandstone, coarser at top, and with calcareous siltstone and silty brown limestone at base

Observation point; all prefixed VRD	Stratigraphic position on photogeological map	Remarks
7/60-2 -3	"Coolibah Formation"	Brown fine crystalline algal limestone
7/62-3	probably "Coolibah Fm."	Red-brown micaceous siltstone
7/62-4	"Coolibah Fm."	Siltstone of Buc overlain by very weathered Antrim Plateau Volcanics
7/65-1	"Skull Creek Limestone"	Light brown fine to medium grained quartz sandstone probably belonging to "Jasper Gorge Sandstone". Bus is probably exposed in anticline to the south
7/53-1	"Coolibah Fm."	Outcrop of silty sandstone and siltstone in a creek within Czs
7/55-1	"Skull Creek Limestone"	Grey fine crystalline dolomite, bare of vegetation, stromatolitic, marker bed of Laing and Allen (1956)
7/55-2	"Skull Creek Limestone"	Grey fine crystalline dolomite
4/05-1	"	Grey fine crystalline dolomite overlain by red bedded chert
2/31-1	"Coolibah Fm."	Section, mainly siltstone and claystone (Plate 4); sample VRD2/31-1A glauconite sand with chalcedonic cement; glauconite determined by A.R. Jensen (pers. comm.) and confirmed by X-ray diffraction C.D. Branch (pers. comm.)
1/13-1	Bj	White medium grained quartz sandstone very friable; probably part of "Coolibah Formation"
1/09-1	"Coolibah Fm."	Grey silty fine grained quartz sandstone

WAVE HILL

Observation point; all prefixed WH	Stratigraphic position on photogeological map	Remarks
9/16-1	Bu	Silicified fine grained sandstone; micaceous siltstone, sample WH9/16-1
7/10-1	"Wave Hill Beds"	Bedded grey and pink dolomite and interbedded siltstone
4A/72-1	B?	Brown fine grained quartz sandstone silicified, sub-horizontal; may be "Jasper Gorge Sandstone"
5/71-1	B_4	Light brown fine grained silty sandstone
5/71-2	B_2	Brown fine crystalline dolomite
5/71-3	B_4	Grey to pale brown fine grained silty sandstone
5/69-1	B_5	Dark grey dolomitic siltstone
5/69-2	B_6	Red-brown fine crystalline dolomite and pale brown fine grained quartz sandstone
5/69-3	B_7	Bedded fine grained sandstone at foot of scarp, becoming more silicified upwards; at top, ?chert breccia - angular fragments several inches across in an iron-stained clayey matrix.

The estimated thickness in the Farquharson Gap area from the axis of the anticline to the base of unit B_7, assuming an average dip of 5 degrees, is 1450 feet.

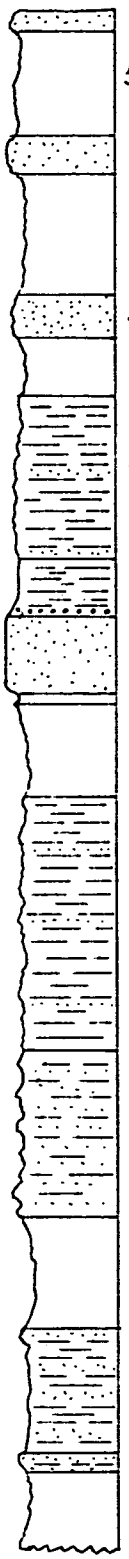
REFERENCES

LAING, A.C.M., and ALLEN, R.J., 1956 - Geology of Victoria River Area, Associated Freney Oil Fields N.L. Permit No. 1 Northern Territory, Mines Administration Pty Ltd, Report No. 1 NT/VR/22 (unpubl.).

PERRY, W.J., 1966 - Photo-interpretation of Wave Hill, Victoria River Downs and Delamere, Northern Territory, Bur. Min. Resour. Aust. Rec. 1966/159 (unpubl.).

Section in Fitzroy Range, Delamere Sheet D 52-16

Plate 1



10 feet Sandstone, quartzose, pale brown, medium grained friable, with pellet impressions

55' poor outcrop, some sandstone, greyish purple, fine grained, thin bedded

20' Sandstone, quartzose, white, medium grained, medium bedded

60' poor outcrop

Unit Puc?

25' Sandstone, white, fine to coarse, poorly sorted, silty, cross-bedded

30' poor outcrop

85' Siltstone, red-brown, micaceous, minor sandstone

30' Siltstone, red-brown & greenish-grey, micaceous 6" pebble conglomerate, not in place; pebbles rounded quartz & quartzite

Unit Puja

40' Sandstone, pale brown, kaolinitic, fine to medium grained; very thick bedded to massive; forms cliff

5' Siltstone, red-brown, micaceous

45' concealed

135' Siltstone, red-brown, micaceous; minor thin shaly sandstone interbeds

Unit Pr

85' Siltstone, red-brown & grey, micaceous, interbedded with sandstone, grey, fine grained, medium bedded

60' poor outcrop, probably mainly siltstone

65' Sandstone, fine to medium grained interbedded with siltstone, red & green, micaceous

10' Sandstone, grey, fine grained & interbedded siltstone red & green, micaceous

40' concealed

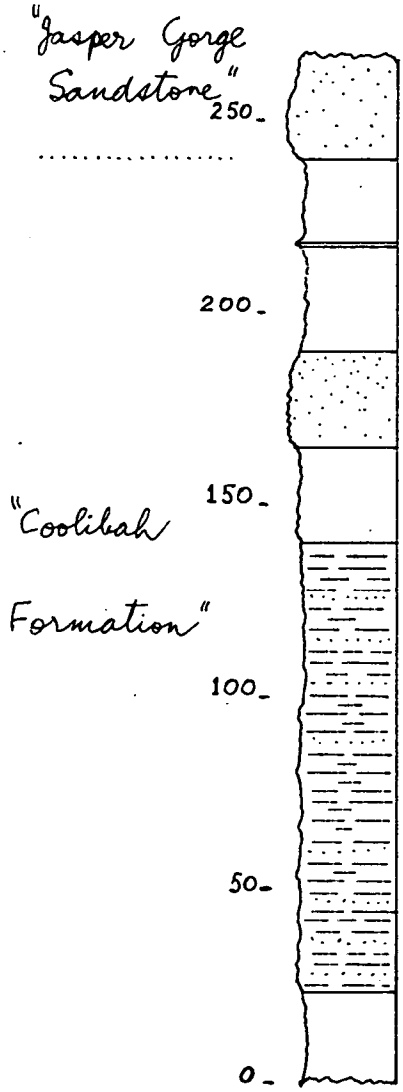
Measured by Aneroid barometer.

Air photo reference DEL 10/25-1 to 2.0

W.H.P. 27.6.67

Plate 2

Section in upper part of "Coolibah Formation," Delamere Sheet D 52-16, 30 miles south-west of Willeroo



Sandstone, white to cream, fine grained, very friable, porous, thick bedded.

22 feet concealed; fragments of sandstone & siltstone

1' Sandstone, purplish grey, fine grained, silty; many pellet impressions on bedding surfaces

27' poor outcrop, mostly sandstone

25' Sandstone, light grey, silty; medium bedded, with probable current ripple mark; cross-bedded

15' Concealed

117' Siltstone, dull purple, micaceous and interbedded Sandstone, quartzose, grey, fine grained, thin bedded.

23' concealed

WJP
27.6.67

Airphoto reference DEL 10/33-1; measured by aneroid barometer

Plate 3

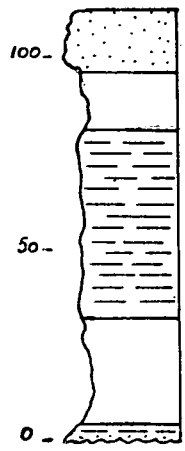
Section through Unit Puc_1, "Coolibah Formation"

Victoria River Downs Sheet E52-4

about 14 miles east by north from VRD Homestead

"Coolibah Formation"

Puc_1



16 feet Sandstone, greyish purple, fine grained, silty; many medium grains well rounded; some very coarse quartz grains & pebbles; medium bedded.

11' concealed

56' Siltstone, reddish brown, minor sandstone

27' concealed, probably siltstone

5' Siltstone, reddish brown, sandy & Sandstone, medium grained, reddish brown, silty

Air photo reference VRD 6/20-1

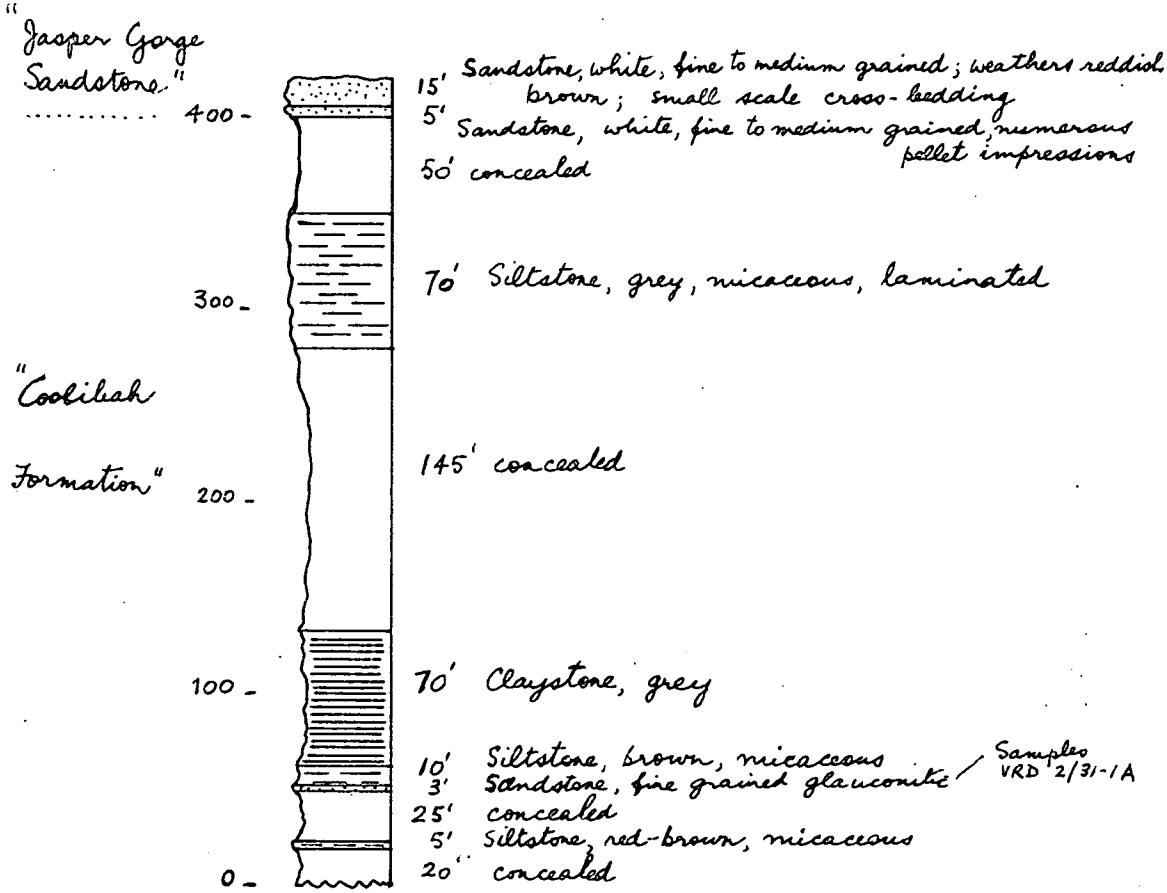
Measured by Abney level

WJ?

25.6.67

Plate 4

Section at north-eastern end of Sundown Hill, Victoria River Downs Sheet E 52-4



Air photo reference VRD 2/31-1 to 2

Measured by Abney level.

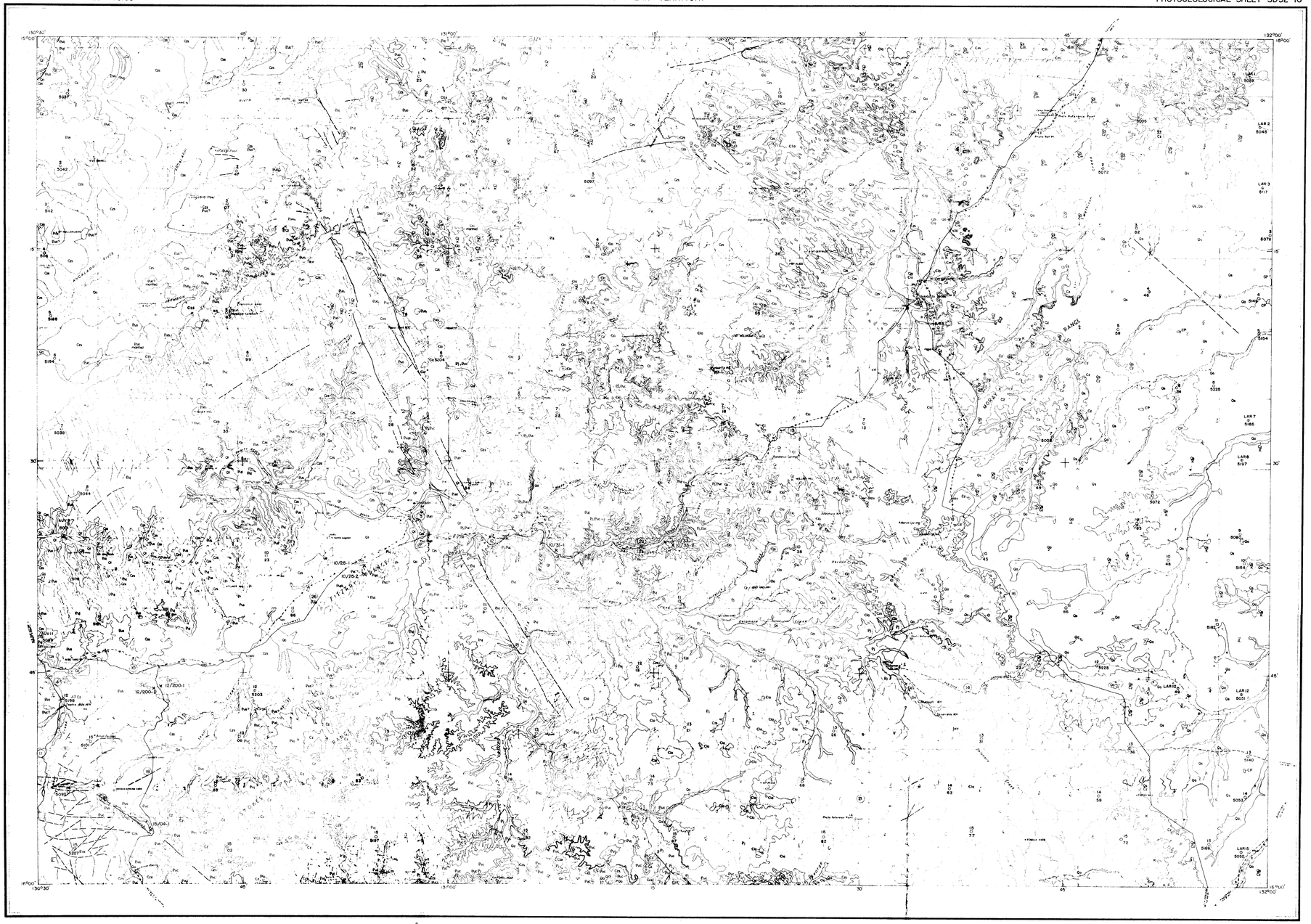
W.J.P.
27.6.61

BUREAU OF MINERAL RESOURCES,
GEOLOGY AND GEOPHYSICS

DELAMERE

NORTHERN TERRITORY

AUSTRALIA 1:250,000
PHOTOGEOLOGICAL SHEET SD52-16



Compiled by the Bureau of Mineral Resources, Geology and Geophysics
Detail adjusted to photoscale compilation prepared by the Division of National Mapping, Department of National Development
Aerial photography by Royal Australian Air Force, complete vertical coverage at 1:46,000 scale
Transverse Mercator Projection

SCALE 1:250,000

5 0 5 10 15 MILES

5 0 5 10 15 20 25 KILOMETRES

INDEX TO ADJOINING SHEETS

PORT KEATS	FERGUSSON RIVER	KATHERINE
AUVERGNE	DELAMERE	LARRIMAH
WATERLOO	VICTORIA RIVER DOWNS	DALY WATERS

Photo-interpretation by the Photogeological Group, Bureau of Mineral Resources, Geology and Geophysics 1965
Interpreted by W.J. Perry, B.M.R., and J.C. Rivereau, Institut Français du Pétrole.

REFERENCE

Photogeological Character		Possible Geological Equivalent		
	Qa	Alluvium	QUATERNARY	CAINOZOIC
	Qs	Sand		
Light grey toned, soft appearance	Qt	Terrace deposits		
	CP	Clay pan		
Medium grey toned	Czs	Sand, soil	UNDIFFERENTIATED	
Medium toned, poorly bedded	Czd	Consolidated detritus		
Dark toned, forms low scarp	Cz	Laterite		
Light toned, soft	K	Mullaman Beds	CRETACEOUS	MESOZOIC
Mottled pattern, flat lying	€m	Daly River Group	MIDDLE CAMBRIAN	PALAEOZOIC
Mottled pattern	€m_2	Montejinni Limestone		
Light to medium toned, smooth surface	€la	Antrim Plateau Volcanics	LOWER CAMBRIAN	
Medium toned, rough surface	€l	Sediments associated with €la?	LOWER CAMBRIAN ?	
Medium toned, bedded, scarp forming	Puy	Yambarra Beds ("Pinkerton Beds")	PROTEROZOIC	PRECAMBRIAN
Light to medium toned, soft, bedded	Pua	Angalarri Siltstone ("Auvergne Shale")		
Light toned, soft	Pua_3			
Dark toned, forms low scarp	Pua_2			
Medium toned, low relief	Pua_1			
Light to medium toned, bedded, well jointed in places, forms prominent scarp	Puj	"Jasper Gorge Sandstone"		
Dark toned, soft, bedding visible in places	Pj	Soft sediments		
	Pj, Puc	where undifferentiated		
Soft, dark toned on steep slopes	Puc	"Coolibah Formation"		
Light to medium toned, bedded, scarp forming	Puja	Sandstone		
Medium toned, soft	Pr	Sediments		
Light toned, thin bedded	Pus	"Skull Creek Limestone"		

Formation names in inverted commas are unpublished names from Laing & Allen, 1966

- Lithological boundary
- Probable lithological boundary
- Anticlinal axis
- Synclinal axis
- Fault
- Probable fault or lineament
- Edge of bed
- Probable edge of bed
- Edge of bed expressed as scarp

Estimated dips

- Horizontal
- Very low
- Low
- Medium
- Steep
- Vertical

- Trend line
- Joint pattern
- Topographic scarp
- Sink holes

- Principal road
- Minor roads and tracks
- position doubtful
- Railway line
- Telephone line
- Fence
- State boundary
- Mine
- Homestead
- Yard
- Windpump
- Airport or Airfield, Landing ground
- Bore
- Tank
- Well
- Spring
- Waterhole
- Dam
- Photo-centre points
- Photo-centre points-adjoining sheet
- Field observation point
- Road mileage

Areas not covered by aerial photographs

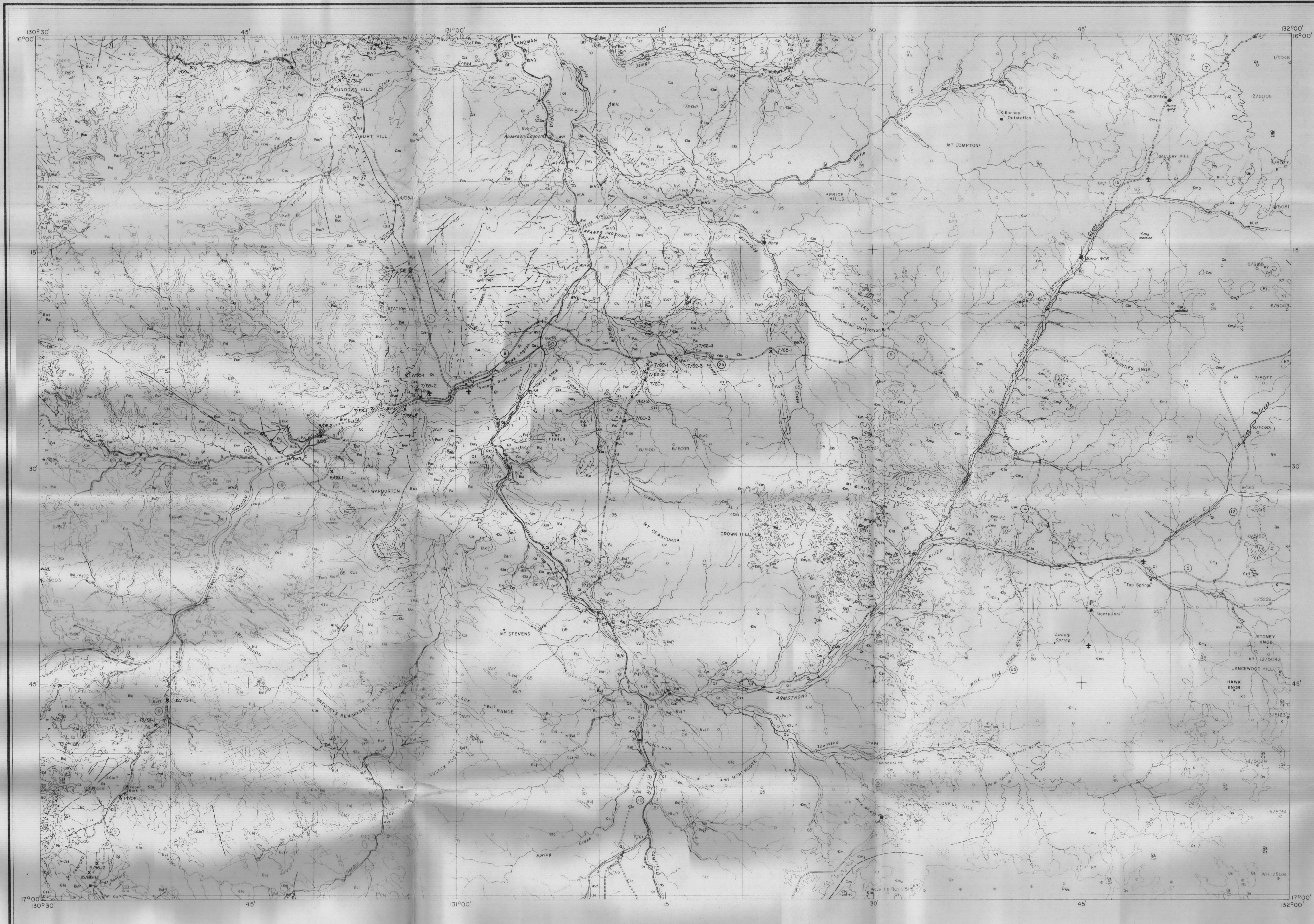
052 / A16 / 1

BUREAU OF MINERAL RESOURCES,
GEOLOGY AND GEOPHYSICS

VICTORIA RIVER DOWNS

NORTHERN TERRITORY

AUSTRALIA 1:250,000
PHOTOGEOLOGICAL SHEET SE52-4



REFERENCE

Photogeological Character	Symbol	Possible Geological Equivalent		
	Qa	Alluvium	QUATERNARY	CAINOZOIC
	Qs	Sand		
Light grey toned, soft appearance	Qt	Terrace deposits		
Medium grey toned	Czs	Soil, sand	UNDIFFERENTIATED	
Dark toned, mesa-form	Cz	Laterite		
Soft, light toned, with white patches	K	Mullaman Beds	CRETACEOUS	MESOZOIC
Light and dark toned, forms low sarp	€m₂	Montejinni Limestone	CAMBRIAN	PALAEOZOIC
Light and dark toned, forms scarp at lower level than €m₂	€m₁	Sediments		
Medium toned, smooth surface	€la	Antrim Plateau Volcanics		
Light to medium toned, bedded; very well jointed in places	Puj	"Jasper Gorge Sandstone"	PROTEROZOIC	PRECAMBRIAN
Medium toned, bedded; soft, with prominent hard bed near base	Pj			
Soft, dark toned on steep slopes	Puc	"Coolibah Formation"		
Dark toned, forms low scarp	Puc₁	Marker bed		
Soft light toned in gently sloping areas				
Light toned, thin bedded	Pus	"Skull Creek Limestone" (Lateral Equivalents)		
Medium to light toned, thin bedded	Put	"Timber Creek Formation" (Lateral Equivalents)		
Dark toned, with smooth surface	Pe			
Dark toned, with dendritic drainage pattern	Pd			
Soft, light toned, well bedded	Pc			
Medium toned, well bedded	Pb			
Medium toned, hard appearance	Pa			

Formation names in inverted commas are unpublished names from Laing & Allen, 1956

- Lithological boundary
- Probable lithological boundary
- Anticlinal axis
- Synclinal axis
- Fault
- Probable fault
- Edge of bed
- Probable edge of bed
- Edge of bed expressed as scarp

Estimated dips

- Horizontal
- Very low
- Low
- Medium
- Steep
- Vertical

- Trend line
- Joint pattern

- Principal road
- Minor roads and tracks
- Railway line (SIDING, STATION)
- Telephone line
- Fence
- State boundary
- Mine
- Homestead
- Yard
- Windpump
- Airport or Airfield, Landing ground
- Bore
- WH Waterhole
- D Dam
- Photo-centre points
- Photo-centre points-adjoining sheet
- (5) Road mileage
- × 1/13-1 Field observation point

Compiled by the Bureau of Mineral Resources, Geology and Geophysics.
Detail adjusted to photoscale compilation prepared by the Division of National Mapping, Department of National Development.
Aerial photography by Royal Australian Air Force; complete vertical coverage at 1:46,000 scale
Transverse Mercator Projection.

SCALE 1:250,000

5 0 5 10 15 MILES

5 0 5 10 15 20 25 KILOMETRES

INDEX TO ADJOINING SHEETS

AUVERGNE	DELAMERE	LARRIMAH
WATERLOO	VICTORIA RIVER DOWNS	DALY WATERS
LIMBUNYA	WAVE HILL	NEWCASTLE WATERS

Photo-interpretation by the Photogeological Group,
Bureau of Mineral Resources, Geology and Geophysics 1966
Interpreted by: W.J. Perry

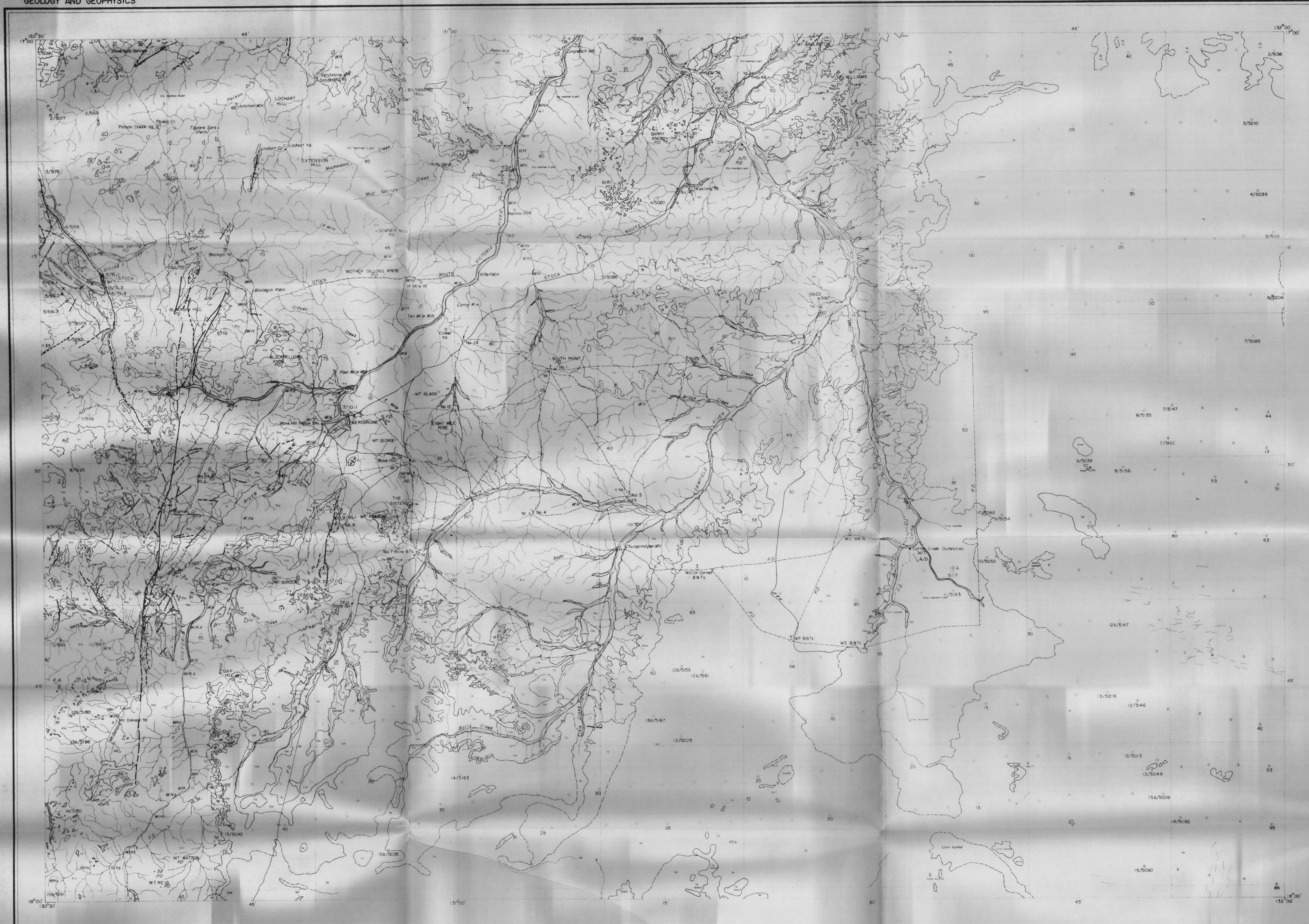
E52/A4/3

BUREAU OF MINERAL RESOURCES,
GEOLOGY AND GEOPHYSICS

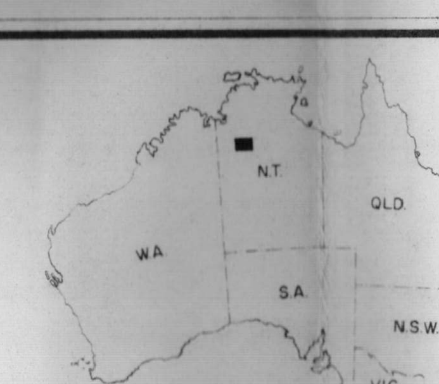
WAVE HILL

NORTHERN TERRITORY

AUSTRALIA 1:250,000
PHOTOGEOLOGICAL SHEET SE52-8



Compiled by the Bureau of Mineral Resources, Geology and Geophysics.
Detail adjusted to photoscale compilation prepared by the Division of National Mapping, Department of National Development.
Aerial photography by Royal Australian Air Force, complete vertical coverage at 1:46,000 scale
Transverse Mercator Projection.



SCALE 1:250,000

5 0 5 10 15 MILES

5 0 5 10 15 20 25 KILOMETRES

INDEX TO ADJOINING SHEETS

WATERLOO	VICTORIA RIVER DOWNS	DALY WATERS
LIMBUNYA	WAVE HILL	NEWCASTLE WATERS
BIRRINDUDU	WINNECKE CREEK	SOUTH LAKE WOODS

Photo-interpretation by the Photogeological Section,
Bureau of Mineral Resources, Geology and Geophysics 1966
Interpreted by: W.J. Perry

REFERENCE

Photogeological Character	Symbol	Possible Geological Equivalent			
	Qa	Alluvium		QUATERNARY	CAINOZOIC
	Qs	Sand		QUATERNARY	CAINOZOIC
Light grey toned, soft appearance	Qt	Terrace deposits		QUATERNARY	CAINOZOIC
Dark toned	Czw	Slope wash		UNDIFFERENTIATED	CAINOZOIC
Medium grey toned	Czs	Soil sand		UNDIFFERENTIATED	CAINOZOIC
Light toned, forms treeless plain	Czb	Older alluvium		UNDIFFERENTIATED	CAINOZOIC
Dark toned, mesa-form	Cz	Laterite		UNDIFFERENTIATED	CAINOZOIC
Light grey toned, forms low scarp	Ꞓme	Merrina Beds	MIDDLE	CAMBRIAN	PALAEOZOIC
Light and dark toned, forms low scarp, jointed in places	Ꞓmm	Montejinni Limestone	MIDDLE	CAMBRIAN	PALAEOZOIC
Dark toned, steep sided small hills surrounded by paler toned areas	Ꞓ	? Silicified sediments		CAMBRIAN	PALAEOZOIC
Medium toned, smooth surface, characteristic mottled texture where soil covered	Ꞓla	Antrim Plateau Volcanics	LOWER	CAMBRIAN	PALAEOZOIC
Medium toned, flat lying	Puu			PROTEROZOIC	PRECAMBRIAN
Light and dark toned interbedded units	Pu9	Wave Hill Beds		PROTEROZOIC	PRECAMBRIAN
	Pu8	Wave Hill Beds		PROTEROZOIC	PRECAMBRIAN
	Pu7	Wave Hill Beds		PROTEROZOIC	PRECAMBRIAN
	Pu6	Wave Hill Beds		PROTEROZOIC	PRECAMBRIAN
Soft light toned, well bedded	Pu5	Wave Hill Beds		PROTEROZOIC	PRECAMBRIAN
Medium to dark toned, bedded; jointed in places	Pu4	Bedded sedimentary rocks		PROTEROZOIC	PRECAMBRIAN
Medium to dark toned, bedded; forms distinctive scarp in places	Pu3	Bedded sedimentary rocks		PROTEROZOIC	PRECAMBRIAN
Medium to dark toned, bedded, jointed	Pu2	Bedded sedimentary rocks		PROTEROZOIC	PRECAMBRIAN
Medium grey toned hard unit	Pu1	Bedded sedimentary rocks		PROTEROZOIC	PRECAMBRIAN
	Pu	Undifferentiated		PROTEROZOIC	PRECAMBRIAN
Scarp forming; dendritic drainage pattern	P7	Bedded sedimentary rocks		PROTEROZOIC	PRECAMBRIAN
Medium to dark toned; more resistant than P5	P6	Bedded sedimentary rocks		PROTEROZOIC	PRECAMBRIAN
Soft light toned massive unit	P5	Bedded sedimentary rocks		PROTEROZOIC	PRECAMBRIAN
Medium grey toned, scarp forming	P4	Bedded sedimentary rocks		PROTEROZOIC	PRECAMBRIAN
Soft light toned unit, bedding not distinct	P3	Bedded sedimentary rocks		PROTEROZOIC	PRECAMBRIAN
Striated pattern with generally lighter tone than P1	P2	Bedded sedimentary rocks		PROTEROZOIC	PRECAMBRIAN
Medium to dark toned, bedded; fairly resistant	P1	Bedded sedimentary rocks		PROTEROZOIC	PRECAMBRIAN
Light to medium toned, bedded; very well jointed in places	Puj	Jasper Gorge Sandstone		PROTEROZOIC	PRECAMBRIAN
Medium toned, bedded, jointed	Put	Timber Creek Formation		PROTEROZOIC	PRECAMBRIAN
Medium toned, low relief	P	Undifferentiated sediments		PROTEROZOIC	PRECAMBRIAN

- Lithological boundary
- Probable lithological boundary
- Anticlinal axis
- Synclinal axis
- Fault
- Probable fault or lineament
- Edge of bed
- Probable edge of bed
- Edge of bed expressed as scarp

Estimated dips

- Horizontal
- Very low
- Low
- Medium
- Steep
- Vertical

- Trend line
- Joint pattern
- Topographic scarp
- Laterite (L), Terrace (T), Scree (S)
- Dyke
- Sink holes

- Principal road
- Minor roads and tracks
- SIDING STATION Railway line
- Telephone line
- Fence
- State boundary
- Mine
- Homestead
- Yard
- Windpump
- Airport or Airfield, Landing ground
- •B Bore
- •T Tank
- •W Well
- •S Spring
- WH Waterhole
- •D Δ Dam
- Photo-centre points
- Photo-centre points - adjoining sheet
- X 5/69-1 Field observation point

E52/A8/2