

Cameco Australia Pty. Ltd.
Myra Kukalak Outcrop Lithology and Physical Properties

Sample Number	Outcrop Description	Formation	Lithology	Sed_structure	Gamma Cps (max)	Maximum Clast Size (mm)	Grain Size	Mag-Sus	Primary Colour	Secondary Colour	Description of sample
KL01C10001	Low outcrop/castellated plateau above lateritic forest flat	Kombolgie Fm.	f. - m. gr. Sandstone	Symmetrical wavy ripple bedded sandstone with intersecting ripple orientations (~60 degree oblique)	35		7. fine sand	0.01	10R5/2 weak red	10R7/4 pale red	
KL01W10001	Low outcrop/castellated plateau above lateritic forest flat	Kombolgie Fm.	f. - m. gr. Sandstone	Symmetrical wavy ripple bedded sandstone with intersecting ripple orientations (~60 degree oblique)	35						Thin QZ/DQZ fractures
KL01C10002	Castellated outcrop plateau with incised valleys	Kombolgie Fm.	f. - m. gr. Sandstone	Assymetrical ripple to trough cross bedded sandstone	33		6. medium sand	0.05	10R5/2 weak red	2.5YR6/4 light reddish brown	
KL01W10002	Castellated outcrop plateau with incised valleys	Kombolgie Fm.	f. - m. gr. Sandstone	Assymetrical ripple to trough cross bedded sandstone	33						Silicified QZ fractures
KL01C10003	Castellated outcrop ridge immediately adjacent to deep narrow valley gorge	Kombolgie Fm.	f. - m. gr. Sandstone	Massive to planar and cross bedded sandstone\	41		6. medium sand	0	10YR5/3 brown	7.5YR6/6 reddish yellow	
KL01C20003	Castellated outcrop ridge immediately adjacent to deep narrow valley gorge	Kombolgie Fm.	f. - m. gr. Sandstone	Massive to planar and cross bedded sandstone\	41		6. medium sand	0.09	2.5YR6/4 light reddish brown	2.5YR8/1 white	Silicified QZ/DQZ breccia
KL01W10003	Castellated outcrop ridge immediately adjacent to deep narrow valley gorge	Kombolgie Fm.	f. - m. gr. Sandstone	Massive to planar and cross bedded sandstone\	41						
KL01W20003	Castellated outcrop ridge immediately adjacent to deep narrow valley gorge	Kombolgie Fm.	f. - m. gr. Sandstone	Massive to planar and cross bedded sandstone\	41						Silicified QZ/DQZ breccia
KL01C10006	Silicified outcrop flat	Kombolgie Fm.	f. - m. gr. Sandstone	Large-scale (20 m) low-angle trough crossbedded sanstone	41		2. Pebbles	0.03	10R4/3 weak red	10R8/1 white	
KL01C10007	Silicified outcrop flat	Kombolgie Fm.	f. - m. gr. Sandstone	Planar bedded to laminated sandstone with abundant mud chips; potentially immediately above Nungbalgarri	130		6. medium sand	0.1	10R4/3 weak red	10R8/3 pink	
KL01C10008	Rubbly outcrop flat ridge	Kombolgie Fm.	f. - m. gr. Sandstone	Planar bedded to ripple bedded sandstone with pits and pock marks potentially due to Oenpelli at depth	31		7. fine sand	0.07	10R3/4 dusky red	5YR7/6 reddish yellow	
KL01W10008	Rubbly outcrop flat ridge	Kombolgie Fm.	f. - m. gr. Sandstone	Planar bedded to ripple bedded sandstone with pits and pock marks potentially due to Oenpelli at depth	31						Thin drusy quartz fractures
KL01C10009	Flat castellated outcrop area	Kombolgie Fm.	m. - c. gr. Sandstone	Bifurcating ripple bedded to laminated sandstone	46		6. medium sand	0.01	10YR8/2 very pale brown	5YR6/8 reddish yellow	
KL01W10009	Flat castellated outcrop area	Kombolgie Fm.	m. - c. gr. Sandstone	Bifurcating ripple bedded to laminated sandstone	46						Silicified drusy quartz fractures
KL01C10010	Castellated flat outcrop	Kombolgie Fm.	v.f. - f. gr. Sandstone	Ripple bedded to planar massive bedded	38		6. medium sand	0	5YR7/6 reddish yellow	5YR8/1 white	
KL01W10010	Castellated flat outcrop	Kombolgie Fm.	v.f. - f. gr. Sandstone	Ripple bedded to planar massive bedded	38						
KL01C10011	Linear gorge valley	Kombolgie Fm.	v.f. gr. Sandstone	Massive planar to trough cross bedded sandstone	34		7. fine sand	0	5YR7/6 reddish yellow	5YR8/2 pinkish white	
KL01C10012	Castellated outcrop plateau	Kombolgie Fm.	f. - v.f. gr. Sandstone	Planar to trough cross bedded and laminated beds with ripples	36		7. fine sand	0.01	2.5YR4/6 red	2.5YR8/1 white	
KL01W10012	Castellated outcrop plateau	Kombolgie Fm.	f. - v.f. gr. Sandstone	Planar to trough cross bedded and laminated beds with ripples	36						Anastomosing DQZ fractures = healed breccia
KL01C10013	Castellated outcrop flat ridge plateau	Kombolgie Fm.	c. gr. Sandstone	Ripple to trough cross bedded sandstone with rare granule beds	34		6. medium sand	0	5YR7/8 reddish yellow	5YR8/1 white	
KL01C10014	Castellated outcrop plateau with low broad valley gorges	Kombolgie Fm.	m. gr. Sandstone	Planar bedded to crossbedded units with erosional scouring at base of channels	37		6. medium sand	0.12	5YR8/1 white	5YR4/2 dark reddish grey	
KL01W10014	Castellated outcrop plateau with low broad valley gorges	Kombolgie Fm.	m. gr. Sandstone	Planar bedded to crossbedded units with erosional scouring at base of channels	37						Silicified drusy quartz fractures
KL01C10015	Castellated outcrop flat area with low ridge plateaus	Kombolgie Fm.	c. gr. Sandstone with v.c. pebbly conglomerate	Large-scale trough crossbedded sandstone	46		5. coarse sand	0.01	2.5YR5/6 red	7.5YR8/3 pink	
KL01W10015	Castellated outcrop flat area with low ridge plateaus	Kombolgie Fm.	c. gr. Sandstone with v.c. pebbly conglomerate	Large-scale trough crossbedded sandstone	46						Silicified alteration/shear band with minor drusy quartz
KL01C10016	Prominent outcrop ridge parallel to reverse Goomadeer Thrust in hanging wall with dip-slip surface	Kombolgie Fm.	m. gr. Sandstone	Trough crossbedded sandstone with ropery weathering surface	36		2. Pebbles	0.01	10YR7/4 very pale brown	10YR4/6 dark yellowish brown	
KL01W10016	Prominent outcrop ridge parallel to reverse Goomadeer Thrust in hanging wall with dip-slip surface	Kombolgie Fm.	m. gr. Sandstone	Trough crossbedded sandstone with ropery weathering surface	36						Goomadeer thrust fault zone
KL01C10017	Prominent outcrop ridge parallel to reverse Goomadeer Thrust in hanging wall with dip-slip surface	Kombolgie Fm.	m. - f. gr. Sandstone	Trough crossbedded sandstone with ropery weathering surface	34		2. Pebbles	0.09	10YR7/2 light grey	10YR6/6 brownish yellow	
KL01W10017	Prominent outcrop ridge parallel to reverse Goomadeer Thrust in hanging wall with dip-slip surface	Kombolgie Fm.	m. - f. gr. Sandstone	Trough crossbedded sandstone with ropery weathering surface	34						Goomadeer thrust fault zone
KL01C10018	Castellated outcrop ridge in footwall of Goomadeer Thrust	Kombolgie Fm.	f. - m. gr. Sandstone	Planar ripple bedded sandstone	55	17	4. very coarse sand	0.07	5YR7/6 reddish yellow	10R5/4 weak red	
KL01W10018	Castellated outcrop ridge in footwall of Goomadeer Thrust	Kombolgie Fm.	f. - m. gr. Sandstone	Planar ripple bedded sandstone	55						> 5 m wide fault breccia
KL01W20018	Castellated outcrop ridge in footwall of Goomadeer Thrust	Kombolgie Fm.	f. - m. gr. Sandstone	Planar ripple bedded sandstone	55						DQZ fractures in immediate hanging wall of fault
KL01C10019	Castellated outcrop ridge area with fault knob	Kombolgie Fm.	f. gr. Sandstone	Planar to ripple bedded sandstone	48		6. medium sand	0.09	5YR5/4 reddish brown	10YR6/8 brownish yellow	
KL01W10019	Castellated outcrop ridge area with fault knob	Kombolgie Fm.	f. gr. Sandstone	Planar to ripple bedded sandstone	48						DQZ fractures perpendicular to fault breccia trend
KL01C10020	High outcrop ridge of sandstone adjacent to valley and lower plateau of granite; sample proximal to the unconformity	Kombolgie Fm.	v.c. gr. Pebbly sandstone	Large-scale trough crossbedded channels	54		4. very coarse sand	0.03	10R6/4 pale red	10R4/8 red	
KL01W10020	High outcrop ridge of sandstone adjacent to valley and lower plateau of granite; sample proximal to the unconformity	Kombolgie Fm.	v.c. gr. Pebbly sandstone	Large-scale trough crossbedded channels	54						Silicified drusy quartz fractures
KL01C10021	Low outcrop flat bordered by moderate flat ridge to the west	Kombolgie Fm.	c. - v.c. gr. Sandstone	Trough crossbedded sandstone	520		2. Pebbles	0.12	7.5YR7/6 reddish yellow	10R3/4 dusky red	
KL01W10021	Low outcrop flat bordered by moderate flat ridge to the west	Kombolgie Fm.	c. - v.c. gr. Sandstone	Trough crossbedded sandstone	520						Silicified drusy quartz fracture with anomalism
KL01C10022	Low outcrop valley flat with 10 metre high castellated ridges	Kombolgie Fm.	m. gr. Sandstone	Planar to trough crossbedded sandstone	47		7. fine sand	0.05	10R4/3 weak red	10R8/1 white	
KL01W10022	Low outcrop valley flat with 10 metre high castellated ridges	Kombolgie Fm.	m. gr. Sandstone	Planar to trough crossbedded sandstone	47						Hematitic silicified drusy quartz fault breccia
KL01C10023	Castellated outcrop flat adjacent to narrow deep valley	Kombolgie Fm.	m. gr. Sandstone	Planar bedded with ripples and minor trough crossbedding	41		6. medium sand	0.09	10R5/6 red	10R8/1 white	
KL01W10023	Castellated outcrop flat adjacent to narrow deep valley	Kombolgie Fm.	m. gr. Sandstone	Planar bedded with ripples and minor trough crossbedding	41						Healed breccia parallel to valley trend
KL01W20023	Castellated outcrop flat adjacent to narrow deep valley	Kombolgie Fm.	m. gr. Sandstone	Planar bedded with ripples and minor trough crossbedding	41						Silicified Joint
KL01C10024	Rubbly castellated outcrop ridge northwest of Ranger Fault extension east of Ferricrete anomaly	Kombolgie Fm.	v.c. gr. Sandstone with pebbles and cobbles	Trough crossbedded sandstone with clasts of Nungbalgarri Volcanics, lower Kombolgie and quartzite	82		6. medium sand	0.05	2.5YR6/6 light red	2.5YR8/1 white	Conglomeratic Gummingaribang with Nungbalgarri and Mamadewerre sandstone clasts
KL01C10200	castellated and sculptured outcrops on flat rock benches		medium grained sandstone	thin beds, trough cross beds	40		6. medium sand	0.01	5YR5/6 yellowish red	5YR8/1 white	
KL01C10201	castellated and sculptured outcrops on flat rock benches		drusy quartz brecciated medium grained sandstone	small torugh cross beds	35		6. medium sand	0.01	2.5YR4/3 reddish brown	10R7/2 pale red	
KL01W10201	castellated and sculptured outcrops on flat rock benches		drusy quartz brecciated medium grained sandstone	small torugh cross beds	35						5cm wide drusy quartz breccia
KL01C10202	large castellated sandstone outcrops and flat rock benches		coarse grained sandstone	thin beds, planar cross beds	45		5. coarse sand	0.03	10R5/2 weak red	10R7/1 light grey	
KL01C10203	castellated and sculptured outcrops with karst weathered pillars and columns prevalent within particular stratigraphic horizons		medium to coarse grained sandstone	trough cross beds	35		6. medium sand	0	10R4/6 red	2.5YR6/8 light red	
KL01C10204	raised outcrops with castellated and sculptured horizons within silicified resistant stratigraphic horizons		medium grained sandstone	thin beds, minor ripples, small trough cross beds	40		6. medium sand	0.01	7.5YR8/1 white	7.5YR7/6 reddish yellow	
KL01C10205	rugged, rounded rocky outcrops with ropery weathered appearance, minor polygonal jointing		desilicified medium to coarse grained sandstone	vague trough cross bedding	40		6. medium sand	0.03	7.5YR7/3 pink	7.5YR8/1 white	
KL01C10206	sheer cliffs with weathered out joints, rounded and minor honeycombed weathering		desilicified medium grained sandstone		30		6. medium sand	0.09	2.5YR5/4 reddish brown	2.5YR8/1 white	
KL01C10207	low rounded castellated rocky outcrops with ropery textured weathering surfaces		drusy quartz fractures within medium grained sands		60						
KL01W10207	low rounded castellated rocky outcrops with ropery textured weathering surfaces		drusy quartz fractures within medium grained sands		60						druy quartz fractures and small vugs
KL01W10208	low rounded castellated rocky outcrops with ropery textured weathering surfaces		drusy quartz vugs and veining		35						large drusy quartz vugs with individual quartz crystals up to 1.5cm long
KL01C10209	flat rock benches and blocky rocky rubbly outcrops		medium grained sandstone	thinly bedded, ripples, minor trough cross beds	35		7. fine sand	0	5YR6/4 light reddish brown	5YR8/1 white	
KL01C10210	silicified flat rock benches, with small cubic/rhombic pocks on weathered surfaces		extremely silicified medium grained sandstone	thinly bedded, minor trough cross beds	60		7. fine sand	0.05	10R4/2 weak red	10R4/1 dark reddish grey	
KL01C10211	spherically pocked outcrop with broad bleached irregular banding across outcrop		medium grained sandstone		40		6. medium sand	0.01	10R5/2 weak red	2.5Y7/8 yellow	
KL01W10211	spherically pocked outcrop with broad bleached irregular banding across outcrop		medium grained sandstone		40						large drusy quartz lined vugs
KL01C10212	close spaced fractured, jointed and rounded low flat outcrops	Kombolgie Fm.	medium to coarse grained sandstone	massive, vague trough cross bedding, minor mud clasts	60		5. coarse sand	0.01	10R3/2 dusky red	10R5/6 red	close spaced fractures and minor siliceous deformation shear bands, bleached alteration halo surrounds joints and siliceous fractures
KL01C10213	low flat outcrop bench	Kombolgie Fm.	medium grained sandstone	thin beds, massive and vague trough cross bedding	60		6. medium sand	0.01	7.5YR6/4 light brown	7.5YR8/2 pinkisk white	
KL01W10213	low flat outcrop bench	Kombolgie Fm.	medium grained sandstone	thin beds, massive and vague trough cross bedding	60						thin shear surface, indurated quartz fault gouge material
KL01C10214	rounded silicified quartz fractured outcrops and small benches	Kombolgie Fm.	medium grained sandstone	common ripples, thin beds	30		6. medium sand	0	5YR7/3 pink	5YR7/6 reddish yellow	
KL01W10214	rounded silicified quartz fractured outcrops and small benches	Kombolgie Fm.	medium grained sandstone	common ripples, thin beds	30						thin siliceous deformation shear band
KL01C10215	flat rock terraces and rounded scree	Kombolgie Fm.	fine to medium grained sandstone	thin beds, minor ripples	40		6. medium sand	0.07	7.5YR7/3 pink	7.5YR6/3 light brown	narrow qtz and drusy qtz veinlets
KL01C10216	4m wide quartzite breccia defining a small linear cliff face	Kombolgie Fm.	quartzite annealed breccia		45		6. medium sand	0.07	7.5YR7/2 pinkish grey	7.5YR7/6 reddish yellow	annealed quartzite breccia

Sample Number	Outcrop Description	Formation	Lithology	Sed_structure	Gamma Cps (max)	Maximum Clast Size (mm)	Grain Size	Mag-Sus	Primary Colour	Secondary Colour	Description of sample
KL01C10217	rounded and spheroidally pitted laterised weathered outcrops	Nungbalgarri Member	basic amygdule rich volcanic		200			3.38	10YR4/3 brown	10YR2/1 black	
KL01C10220	rounded and castellated outcrops resting on extensive flat rock benches	Kombolgie Fm.	medium grained sandstone	common ripples and trough cross beds, liesegang marking on some outcrops	35		7. fine sand	0.05	7.5YR6/1 grey	7.5YR4/1 dark grey	in outcrop, red hematitic sandstone with bleached alteration haloes surrounding fractures
KL01C10222	silicified rubbly blocky outcrop and scree	Kombolgie Fm.	medium grained sandstone		1050		6. medium sand	0.12	10R4/3 weak red	10R7/1 light grey	silicified sandstone, approximately located 10m stratigraphically above
KL01C10223	desilicified rosey textured, jointed rounded outcrops and scree	Kombolgie Fm.	medium grained sandstone	rare ripples, thin beds, and minor trough cross beds	45		6. medium sand	0.07	10YR7/4 very pale brown	10R7/6 light red	
KL01W10223	desilicified rosey textured, jointed rounded outcrops and scree	Kombolgie Fm.	medium grained sandstone	rare ripples, thin beds, and minor trough cross beds	45						minor drusy quartz veins
KL01C10224	chaotically tilted and soft sediment folded pebbly coarse grained, trough cross bedded sandstone	Kombolgie Fm.	coarse grained pebbly sandstone	large channel trough cross beds, loaded bedding, soft sediment deformation	65		6. medium sand	0.16	10YR6/1 grey	10YR7/6 yellow	
KL01C10225	rounded, rubbly and weakly castellated outcrops on flat rock benches	Kombolgie Fm.	medium grained sandstone	channel trough cross bedding, minor ripples	45		6. medium sand	0	10R3/4 dusky red	7.5YR8/3 pink	
KL01W10225	rounded, rubbly and weakly castellated outcrops on flat rock benches	Kombolgie Fm.	medium grained sandstone	channel trough cross bedding, minor ripples	45						siliceous deformation shear bands
KL01C10226	sculptured and castellated outcrops on flat rock benches	Kombolgie Fm.	medium grained sandstone	trough cross beds, thin beds	45		6. medium sand	0.03	10R3/4 dusky red	7.5YR6/4 light brown	
KL01W10226	sculptured and castellated outcrops on flat rock benches	Kombolgie Fm.	medium grained sandstone	trough cross beds, thin beds	45						siliceous deformation shear band
KL01C10227	castellated and honeycombe weathered pancake outcrops	Kombolgie Fm.	fine to medium grained sandstone	trough cross bedding	35						
KL01W10227	castellated and honeycombe weathered pancake outcrops	Kombolgie Fm.	fine to medium grained sandstone	trough cross bedding	35						siliceous deformation shear band
KL01C10228	rounded and castellated rosey weathered steep sided outcrops	Kombolgie Fm.	pebbly granule stone	trough cross beds, sandstone rip-up clasts	50	15	4. very coarse sand	0.01	5YR8/1 white	5YR7/6 reddish yellow	
KL01C10229	rubbly and blocky outcrops on small flat rocky knobs	Kombolgie Fm.	medium grained sandstone		40		5. coarse sand	0.01	5YR6/6 reddish yellow	5YR8/1 white	
KL01C10230	rounded rocky and blocky benches and rosey weathered outcrops	Kombolgie Fm.	drusy quartz fractures within medium grained sands	thin beds, minor ripples	35		6. medium sand	0.03	5YR5/1 grey	5YR7/4 pink	drusy quartz fractured sandstone
KL01W10230	rounded rocky and blocky benches and rosey weathered outcrops	Kombolgie Fm.	drusy quartz fractures within medium grained sands	thin beds, minor ripples	35						drusy quartz fractures
KL01C10231	rubbly and conchoidally broken outcrop and competent rock on steep hill side	Nungbalgarri Member	basic amygdule rich volcanic		2850			0.53	5Y4/2 olive grey	10R3/6 dark red	sample is jointed, with discrete anomalism ~2850cps
KL01W10231	rubbly and conchoidally broken outcrop and competent rock on steep hill side	Nungbalgarri Member	basic amygdule rich volcanic		2850						thin (5mm) anastomosing quartz vein, anomalous radioactivity, 150cps above background - 450cps
KL01W20232	rubbly and conchoidally broken outcrop and competent rock on steep hill side	Nungbalgarri Member	basic amygdule rich volcanic		2850						thin (5mm) anastomosing quartz vein, anomalous radioactivity, 150cps above background
KL01C10232	rounded blocky rosey weathered outcrops, vague suggestion of preferred fabric possibly clay bands	Kombolgie Fm.	very coarse grained pebbly sandstone	trough cross beds	35		6. medium sand	0	10YR8/1 white	10YR8/8 yellow	
KL01C10233	rounded blocky outcrops on rock benches	Kombolgie Fm.	pebbly granule stone	large tough cross bedded channels	65	70	4. very coarse sand	0.01	2.5YR8/1 white	2.5YR5/8 red	
KL01C10234	rounded blocky outcrop	Kombolgie Fm.	granule stone	trough cross beds	60	55	6. medium sand	0.12	5YR8/1 white	5YR7/6 reddish yellow	
KL01C10235	jointed and minor faulted rounded blocky outcrops	Kombolgie Fm.	pebbly granule stone	large scale trough cross beds	60	60	4. very coarse sand	0	5YR8/1 white	5YR6/6 reddish yellow	
KL01W10235	jointed and minor faulted rounded blocky outcrops	Kombolgie Fm.	pebbly granule stone	large scale trough cross beds	60						siliceous deformation shear bands
KL01C10236	small area of altered/weathered subcrop cut by small vein	Nungbalgarri Member	altered / weathered amygdule rich basic volcanic		950			1.84	5Y4/2 olive grey	2.5YR4/6 red	
KL01C20236	small area of altered/weathered subcrop cut by small vein	Nungbalgarri Member	altered / weathered amygdule rich basic volcanic		950						small 5x4x3cm ferricrete nodule, strong hematite (HEB, HS) content; 42000cps total counts Gamma; very high specific gravity
KL01W10236	small area of altered/weathered subcrop cut by small vein	Nungbalgarri Member	altered / weathered amygdule rich basic volcanic		950						5mm wide quartz specular hematite vein
KL01W10237	float material associated with volcanics	Nungbalgarri Member	drusy quartz within basic volcanics		230						drusy quartz float material
KL01C10238	rounded and jointed spotted sandstone, with minor polygonal jointing	Kombolgie Fm.	medium grained sandstone	vague trough cross bedding	35		2. Pebbles	0.05	10R6/4 pale red	10R3/6 dark red	spotted pockmarked outcrops
KL01C10239	linear ridge, steep NE side and planar 45 degree slope to SW, silicified surface on slope	Kombolgie Fm.	medium grained sandstone	minor ripples	35		6. medium sand	0.05	10R7/4 pale red	10R6/3 pale red	
KL01C10240	spotted rock with many silicified joint surfaces	Kombolgie Fm.	medium grained sandstone	minor ripples	35		6. medium sand	0.03	2.5YR6/2 pale red	2.5YR5/8 red	spotted pockmarked outcrops
KL01W10240	spotted rock with many silicified joint surfaces	Kombolgie Fm.	medium grained sandstone	minor ripples	35						drusy quartz lined solution tubes up to 10cm diameter within sandstone
KL01C10241	small rounded subcrop/outcrop	Kombolgie Fm.	medium grained sandstone	trough cross bedding, minor ripples	50		2. Pebbles	0.09	10R7/3 pale red	10R8/1 white	
KL01W10241	small rounded subcrop/outcrop	Kombolgie Fm.	medium grained sandstone	trough cross bedding, minor ripples	50						strong drusy quartz veining and minor hydraulic breccia
KL01C10242	rocky and blocky honeycombed and sculptured weathered outcrop, heavily jointed	Kombolgie Fm.	medium grained sandstone shear	trough cross bedding, minor ripples	35		6. medium sand	0.07	10R7/3 pale red	10R5/4 weak red	
KL01W10242	rocky and blocky honeycombed and sculptured weathered outcrop, heavily jointed	Kombolgie Fm.	medium grained sandstone shear	trough cross bedding, minor ripples	35						20cm sandstone shear zone
KL01C10243	rounded blocky outcrops making small knobs on small flat benches	Kombolgie Fm.	pebbly very coarse sandstone / granule stone	large trough cross beds	47		2. Pebbles	0.07	10R5/4 weak red	10R8/1 white	
KL01W10243	rounded blocky outcrops making small knobs on small flat benches	Kombolgie Fm.	pebbly very coarse sandstone / granule stone	large trough cross beds	47						moderate drusy quartz veining, consistent with veining and brecciation within underlying basement granites
KL01C10250	small jointed blocks and rubbly scree	Kombolgie Fm.	medium grained sandstone	planar cross beds, thin beds, minor ripples	50		2. Pebbles	0.03	5YR7/2 pinkish grey	7.5YR5/8 strong brown	
KL01C10251	flat rocky bottom of gully; heavily jointed with close spaced fractures	Kombolgie Fm.	medium grained sandstone	thin beds, trough cross beds, minor ripples	45		6. medium sand	0.03	5YR7/2 pinkish grey	5YR8/1 white	sampled shear/breccia zone
KL01M10251	flat rocky bottom of gully; heavily jointed with close spaced fractures	Kombolgie Fm.	medium grained sandstone	thin beds, trough cross beds, minor ripples	45						second shear/breccia zone
KL01W10251	flat rocky bottom of gully; heavily jointed with close spaced fractures	Kombolgie Fm.	medium grained sandstone	thin beds, trough cross beds, minor ripples	45						10cm wide shear breccia zone
KL01C10252	honeycombed and castellated rounded blocks and rubble at top of small vertical gorge face	Kombolgie Fm.	medium grained sandstone	trough cross beds	40		6. medium sand	0.1	2.5YR5/4 reddish brown	2.5YR8/1 white	
KL01W10252	honeycombed and castellated rounded blocks and rubble at top of small vertical gorge face	Kombolgie Fm.	medium grained sandstone	trough cross beds	40						quartz vein shear zone 2cm wide
KL01C10253	slightly rounded and weakly honeycombed outcrop with small siliceous shear; shear/breccia outcrop is part of a fallen block; original position is inferred	Kombolgie Fm.	medium grained sandstone / shear	thin beds, trough cross beds, minor ripples	40		6. medium sand	0.1	5YR6/1 light grey	5YR8/1 white	
KL01W10253	slightly rounded and weakly honeycombed outcrop with small siliceous shear; shear/breccia outcrop is part of a fallen block; original position is inferred	Kombolgie Fm.	medium grained sandstone / shear	thin beds, trough cross beds, minor ripples	40						
KL01C10254	rounded and minor sculptured outcrops	Kombolgie Fm.	coarse grained sandstone	large trough cross beds, soft sediment slumping	90		2. Pebbles	0.09	5YR8/1 white	5YR7/6 reddish yellow	
KL01W10254	rounded and minor sculptured outcrops	Kombolgie Fm.	coarse grained sandstone	large trough cross beds, soft sediment slumping	90						narrow resistant quartz vein
KL02C10001	Castellated outcrop ridge between east-west trending valley and north-northwest trending valley	Gumarrimbang Sandstone	c. gr. Pebbly sandstone	Trough crossbedded and predominantly asymmetrical current ripples	53		6. medium sand	0.01	10R8/2	10R6/4	
KL02C10002	Rubbly outcrop ridge on north side of linear valley trending 110 Az with Oenpelli dolerite on southern side	Gumarrimbang Sandstone	m. - c. gr. Sandstone	Low angle cross bedding with symmetrical wave ripples and abundant pitted surface	30		6. medium sand	0	10YR8/4	10YR8/1	
KL02W10002	Rubbly outcrop ridge on north side of linear valley trending 110 Az with Oenpelli dolerite on southern side	Gumarrimbang Sandstone	m. - c. gr. Sandstone	Low angle cross bedding with symmetrical wave ripples and abundant pitted surface	30						drusy quartz fractures
KL02C10003	Rubbly float with minor outcrop on flat red soil plain south of lineament	Oenpelli Dolerite	v.c. gr. Oenpelli dolerite (pegmatitic dolerite)		75						For Fe-oxide study only
KL02C10004	Flat rubbly outcrop on south side of the Ranger Fault	Mamadawerre Sandstone	m. - f. gr. Sandstone	Massive to large-scale trough crossbedded sandstone	45		5. coarse sand	0	5YR7/2	5YR8/1	
KL02W10004	Flat rubbly outcrop on south side of the Ranger Fault	Mamadawerre Sandstone	m. - f. gr. Sandstone	Massive to large-scale trough crossbedded sandstone	45						white drusy quartz fractures and vug lining in fracture zone
KL02C10005	Rubbly, pitted outcrop plateau	Gumarrimbang Sandstone	v.c. pebbly sandstone	Trough cross bedded sequence overlying fluidised soft sediment disrupted sequence	113		2. Pebbles	0.09	10R5/1	10R7/3	
KL02C10006	Relatively flat castellated outcrop plateau with minor ridges. This plateau is lower than the surrounding -Phn and Phr hill to the southeast	Gumarrimbang Sandstone	c. gr. Sandstone	flat planar laminated to rippled sandstone	36		6. medium sand	0.01	10R7/4	10R6/1	
KL02W10006	Relatively flat castellated outcrop plateau with minor ridges. This plateau is lower than the surrounding -Phn and Phr hill to the southeast	Gumarrimbang Sandstone	c. gr. Sandstone	flat planar laminated to rippled sandstone	36						Silicified healed fault
KL02C10007	Low castellated outcrop plateau	Mamadawerre Sandstone	m. - c. gr. Sandstone	Trough cross bedded sandstone	37		6. medium sand	0.1	2.5YR4/6	2.5YR8/1	
KL02W10007	Low castellated outcrop plateau	Mamadawerre Sandstone	m. - c. gr. Sandstone	Trough cross bedded sandstone	37						Silicified fractures with minor DQZ = healed fault
KL02C10008	Low castellated outcrop plateau	Mamadawerre Sandstone	c. gr. Sandstone	Massive bedded to trough crossbedded sequence with symmetrical planar beach/wave ripples	38		5. coarse sand	0.05	2.5YR6/8	2.5YR8/1	
KL02W10008	Low castellated outcrop plateau	Mamadawerre Sandstone	c. gr. Sandstone	Massive bedded to trough crossbedded sequence with symmetrical planar beach/wave ripples	38						Drusy Quartz fractures and along bedding planes
KL02C10009	NNE-SSW trending lineament valley dissecting adjacent outcrop ridges	Gumarrimbang Sandstone	c. gr. Sandstone	Large scale trough crossbedded to massive bedded sandstone	31		6. medium sand	0.03	10R4/6	10R8/1	
KL02W10009	NNE-SSW trending lineament valley dissecting adjacent outcrop ridges	Gumarrimbang Sandstone	c. gr. Sandstone	Large scale trough crossbedded to massive bedded sandstone	31						4-5 m wide sheared breccia zone
KL02C10010	Rubbly outcrop plateau	Nungbalgarri Volcanics	Vesicular amygdaloidal flow banded mafic volcanic	Flow banded	115		7. fine sand	2.04	10YR3/3	2.5YR3/6	
KL02C10011	Rubbly outcrop depression/flat area immediately below Nungbalgarri	Mamadawerre Sandstone	m. - c. gr. Sandstone	Cross bedded sandstone	34		2. Pebbles	0.09	10R8/1		
KL02W10011	Rubbly outcrop depression/flat area immediately below Nungbalgarri	Mamadawerre Sandstone	m. - c. gr. Sandstone	Cross bedded sandstone	34						DQZ and bleached hematitic fractures

Sample Number	Outcrop Description	Formation	Lithology	Sed_structure	Gamma Cps (max)	Maximum Clast Size (mm)	Grain Size	Mag-Sus	Primary Colour	Secondary Colour	Description of sample
KL02C10012	Flat outcrop plateau adjacent to underlying flat plain	Mamadewerre Sandstone	c. gr. Sandstone	Massive to large scale crossbedded sandstone	27		7. fine sand	0.07	10R4/3	10R8/1	
KL02W10012	Flat outcrop plateau adjacent to underlying flat plain	Mamadewerre Sandstone	c. gr. Sandstone	Massive to large scale crossbedded sandstone	27						3-4 m wide shear breccia
KL02C10013	Low outcrop on hill	Mamadewerre Sandstone	f. gr. Sandstone	Ripple bedded sandstone with some trough crossbedding	130		6. medium sand	0.07	10R7/1	10R5/6	
KL02W10013	Low outcrop on hill	Mamadewerre Sandstone	f. gr. Sandstone	Ripple bedded sandstone with some trough crossbedding	130						3.5 metre brittle sheared breccia
KL02C10014	Rubbly castellated ridge in hanging wall of the Goomadeer Thrust overlying Oenpelli dolerite	Mamadewerre Sandstone	v.c. gr. Pebbly granulestone with rare cobbles	Fluvial trough crossbedded granulestone	720		4. very coarse sand	0.14	7.5YR6/4	7.5YR8/1	
KL02W10014	Rubbly castellated ridge in hanging wall of the Goomadeer Thrust overlying Oenpelli dolerite	Mamadewerre Sandstone	v.c. gr. Pebbly granulestone with rare cobbles	Fluvial trough crossbedded granulestone	720						DQZ fractures
KL02C10015	Castellated outcrop ridges	Mamadewerre Sandstone	m. - c. gr. Sandstone	Planar bedded to ripple laminated sandstone	40		7. fine sand	0.05	10R7/4	10R8/1	
KL02W10015	Castellated outcrop ridges	Mamadewerre Sandstone	m. - c. gr. Sandstone	Planar bedded to ripple laminated sandstone	40						DQZ fractures
KL02C10016	Rubbly low rise on hillside	Nungbalgarri Volcanics	aphanitic to amygdaloidal volcanic		97		6. medium sand	0.98	5G3/2	10R5/8	
KL02C10017	Edge of north-northwest trending castellated ridge with rubbly outcrop	Mamadewerre Sandstone	m. gr. Sandstone	Planar massive bedding with minor trough crossbeds	48		7. fine sand	0.1	10R3/4	10R8/1	
KL02W10017	Edge of north-northwest trending castellated ridge with rubbly outcrop	Mamadewerre Sandstone	m. gr. Sandstone	Planar massive bedding with minor trough crossbeds	48						2 metre wide silicified breccia
KL02C10018	Low rubbly outcrop plain below rubbly outcrop ridge	Mamadewerre Sandstone	f. gr. Sandstone	Massive to planar bedded sandstone	106	15	4. very coarse sand	0.14	10R4/6	10R8/2	
KL02C10019	Rubbly granite hill capped by sandstone rubble/float/outcrop	Mamadewerre Sandstone	v.f. gr. Sandstone		197	7	4. very coarse sand	0.1	10Y8/1	10R5/4	
KL02C10021	Historical Uranerz trench on rubbly outcrop hill in footwall of Goomadeer thrust	Nungbalgarri Volcanics	Weathered aphanitic Nungbalgarri Volcanic float		6100		7. fine sand	1.37	2.5YR3/4	2.5YR6/8	
KL02M10022	Bouldery outcrop plateau	Gumarrimbang Sandstone	m. - c. gr. Sandstone	Trough crossbedded sandstone	66						
KL02C10023	Rubbly float in Goomadeer River	Nungbalgarri Volcanics	Nungbalgarri		7300		6. medium sand	0.78	5Y4/3	5YR4/6	
KL02C10024	Edge of flat soil plain. Rubbly outcrop north of Eas trending valley	Mamadewerre Sandstone	f. gr. Sandstone	Planar bedded and ripple laminated sandstone	210		6. medium sand	0.09	5YR6/6	5YR8/2	
KL02C10025	Rubbly hilly basement inlier below escarpment	Nimbuwah Complex	v. c. gr. Porphyritic granite		240	7	4. very coarse sand	0.16	2.5Y5/1	2.5Y8/1	
KL02C10026	Bouldery gorge bottom in Ferricrete Gorge	Gumarrimbang Sandstone	Laterite		2750		7. fine sand	1.04	5YR5/3	5YR6/8	
KL02C10027	Castellated outcrop ridge with rounded bouldery cover	Mamadewerre Sandstone	v.c. pebbly sandstone of granulestone	2-3 m trough crossbedded sandstone	52	10	4. very coarse sand	0.05	7.5YR7/6	10R4/3	
KL02W10027	Castellated outcrop ridge with rounded bouldery cover	Mamadewerre Sandstone	v.c. pebbly sandstone of granulestone	2-3 m trough crossbedded sandstone	52						DQZ fractures and veinlets
KL02C10028	Dome-shaped outcrop hill of uppermost -Phe with -Phn across hill to the east	Mamadewerre Sandstone	f. gr. Sandstone	Thick massive planar bedded sandstone	58		6. medium sand	0.16	10R7/2	10R4/3	
KL02M10029	Dome-shaped outcrop hill of uppermost -Phe with -Phn across hill to the east	Mamadewerre Sandstone	f. gr. Sandstone	Thick massive planar bedded sandstone	58						
KL02M10030	Dome-shaped outcrop hill of uppermost -Phe with -Phn across hill to the east	Mamadewerre Sandstone	f. gr. Sandstone	Thick massive planar bedded sandstone	58						
KL02M10031	Dome-shaped outcrop hill of uppermost -Phe with -Phn across hill to the east	Mamadewerre Sandstone	f. gr. Sandstone	Thick massive planar bedded sandstone	58						
KL02M10032	Dome-shaped outcrop hill of uppermost -Phe with -Phn across hill to the east	Mamadewerre Sandstone	f. gr. Sandstone	Thick massive planar bedded sandstone	58						
KL02M10033	Dome-shaped outcrop hill of uppermost -Phe with -Phn across hill to the east	Mamadewerre Sandstone	f. gr. Sandstone	Thick massive planar bedded sandstone	58						
KL02M10034	Dome-shaped outcrop hill of uppermost -Phe with -Phn across hill to the east	Mamadewerre Sandstone	f. gr. Sandstone	Thick massive planar bedded sandstone	58						
KL02C10200	small rock bench with silicified joints	Gumarrimbang Sandstone	medium grained sandstone	thinly bedded, ripples, trough cross bedding	60		5. coarse sand	0.01	10R6/4	10R4/3	
KL02C10201	small rock bench with closely spaced joints/fractures	Gumarrimbang Sandstone	medium to coarse grained sandstone	trough cross bedding, tinely bedded	55		6. medium sand	0.01	10R7/3	10YR3/3	
KL02C10202	rubbly and broken sst blocks with minor quartz veining on top of flat ridge	Gumarrimbang Sandstone	medium to coarse grained sandstone	trough cross bedded sandstone	30		5. coarse sand	0.07	10YR8/4	5YR4/4	
KL02C10203	pitted and spotted weathering on surface of sandstone block	Gumarrimbang Sandstone	medium to coarse grained sandstone		35		5. coarse sand	0.2	10R6/1	10R6/6	
KL02C10204	rubbly outcrop on side of ridge is silicified with pitted and spotty weathered appearance	Gumarrimbang Sandstone	coase grained sandstone		35		5. coarse sand	0.03	10YR8/1	10YR6/4	loose block on surface
KL02C10205	rounded and silicified sandstone with moderate jointing	Mamadewerre Sandstone	medium grained sandstone	cross bedded	35		6. medium sand	0.05	10R8/1	10R6/4	
KL02C10206	jointed rock bench with minor anastomosing quartz veining	Mamadewerre Sandstone	medium grained sandstone	thinly bedded, cross bedded	25		2. Pebbles	0.09	10R5/4	10R3/4	
KL02W10206	jointed rock bench with minor anastomosing quartz veining	Mamadewerre Sandstone	medium grained sandstone	thinly bedded, cross bedded	25						thin quartz veining
KL02C10207	castellated and honeycombe weathered outcrop, cross beds define wavy and undulating surface	Gumarrimbang Sandstone	pebbly coarse grained sandstone	large trough cross bedded	60		6. medium sand	0.03	10R4/6	10R7/2	
KL02C10208	slightly castellated sandstone bench with narrow siliceous deformation bands	Gumarrimbang Sandstone	medium grained sandstone	thinly bedded, ripples	30		6. medium sand	0.07	10R5/1	10YR7/6	
KL02W10208	slightly castellated sandstone bench with narrow siliceous deformation bands	Gumarrimbang Sandstone	medium grained sandstone	thinly bedded, ripples	30						siliceous deformation bands
KL02C10209	narrow breccia within small rock bench at bottom of gully	Gumarrimbang Sandstone	brecciated medium grained sandstone	thinly bedded, massive units	40		6. medium sand	0.05	10R4/3	10R8/1	
KL02W10209	narrow breccia within small rock bench at bottom of gully	Gumarrimbang Sandstone	brecciated medium grained sandstone	thinly bedded, massive units	40						intense 10cm deformation band / breccia
KL02C10210	pitted spotted sandstone with minor anastomosing drusy quartz veins	Gumarrimbang Sandstone	medium to coarse grained sandstone	thinly bedded, crossbeds	45		5. coarse sand	0.1	10R5/2	10R7/8	
KL02W10210	pitted spotted sandstone with minor anastomosing drusy quartz veins	Gumarrimbang Sandstone	medium to coarse grained sandstone	thinly bedded, crossbeds	45						drusy quartz fractures
KL02C10211	rubbly rounded sandstone blocks with minor drusy quartz veining	Gumarrimbang Sandstone	pebbly coarse grained sandstone	trough cross beds	150		5. coarse sand	0.09	10YR7/6	10YR8/1	
KL02W10211	rubbly rounded sandstone blocks with minor drusy quartz veining	Gumarrimbang Sandstone	pebbly coarse grained sandstone	trough cross beds	150						drusy quartz veins/fractures
KL02C10212	tumbled sandstone blocks with chaotic drusy quartz veining	Gumarrimbang Sandstone	pebbly coarse grained sandstone	trough cross beds	35	6	4. very coarse sand	0.07	10YR5/2	10YR8/1	
KL02C20212	tumbled sandstone blocks with chaotic drusy quartz veining	Gumarrimbang Sandstone	pebbly coarse grained sandstone	trough cross beds	35		5. coarse sand	0.12	10R6/4	10R7/6	weakly anomalous in gamma total counts 150cps
KL02W10212	tumbled sandstone blocks with chaotic drusy quartz veining	Gumarrimbang Sandstone	pebbly coarse grained sandstone	trough cross beds	35						chaotic drusy quartz veining
KL02C10214	jointed sandstone along cliff edge with dip slope of fault structure making cliff face	Mamadewerre Sandstone	medium grained sandstone	thinly bedded	50		6. medium sand	0.14	10R7/1	10R4/2	
KL02C10215	small rubbly broken very silicified sandstone rhombic blocks with limonite altered sulphide? Fractures	Mamadewerre Sandstone	very silicified sandstone "quartzite"	vague bedding	320		5. coarse sand	0.38	5YR6/6	5YR8/1	rhombic blocks of quartzite with limonitic stockwork fractures after sulphides?
KL02C20215	small rubbly broken very silicified sandstone rhombic blocks with limonite altered sulphide? Fractures	Mamadewerre Sandstone	very silicified sandstone "quartzite"	vague bedding	320		7. fine sand	0.38	2.5Y7/2	2.5Y4/1	altered dolerite
KL02W10215	small rubbly broken very silicified sandstone rhombic blocks with limonite altered sulphide? Fractures	Mamadewerre Sandstone	very silicified sandstone "quartzite"	vague bedding	320						limonite fractures within quartzite
KL02W20215	small rubbly broken very silicified sandstone rhombic blocks with limonite altered sulphide? Fractures	Mamadewerre Sandstone	very silicified sandstone "quartzite"	vague bedding	320						gossaneous vug infilled with limonite
KL02C10216	float boulder of amygdule rich Nungbalgarri volcanic with chalcedonic quartz veins and drusy quartz	Nungbalgarri Volcanics	amygdule rich basic volcanic		130		7. fine sand	4.17	2.5Y5/1	2.5Y8/1	loose boulder of amygdule rich volcanic cut with drusy quartz veining and chalcedonic quartz
KL02C10217	rounded and pitted outcrops with moderate anastomosing quartz veining	Mamadewerre Sandstone	pebbly granule stone	trough cross beds\	38	85	6. medium sand		10YR8/6	10R7/6	
KL02C10218	tilted outcrop; rounded and highly castellated outcrop with dominant jointing	Mamadewerre Sandstone	fine grained sandstone	ripples, trough cross beds	40		6. medium sand	0.05	10R8/1	10R8/2	
KL02C10219	prominent "knob" of silicified fault breccia along spur of steep ridge	Mamadewerre Sandstone	silicified fault breccia		40		7. fine sand	0.03	10R7/1	10R8/1	silicified fault breccia
KL02C10221	flat low rounded outcrops with minor fractures and jointing and quartz and drusy quartz veining	Mamadewerre Sandstone	pebbly very coarse grained sandstone	trough cross beds	485	10	4. very coarse sand	0.1	5YR6/1	5YR6/6	
KL02W10221	flat low rounded outcrops with minor fractures and jointing and quartz and drusy quartz veining	Mamadewerre Sandstone	pebbly very coarse grained sandstone	trough cross beds	485						
KL02C10222	silicified breccia located within core of deeply incised gully	Mamadewerre Sandstone	silicified fault breccia		60		4. very coarse sand	0.09	5YR4/1	5YR8/1	45cm wide silicified fault breccia with heavy fracturing over 1.5m
KL02C10223	flat jointed outcrop on edge of gully slope leading into incised gully	Mamadewerre Sandstone	pebbly very coarse grained sandstone	trough cross beds	380	42	4. very coarse sand	0.16	2.5YR5/6	2.5YR8/1	
KL02C10224	moderately jointed outcrop within gully and making part of the gully bank	Mamadewerre Sandstone	coarse to very coarse grained sandstone		6300		4. very coarse sand	0.18	10R5/1	10R8/1	sample records 4500cps
KL02C20224	moderately jointed outcrop within gully and making part of the gully bank	Mamadewerre Sandstone	coarse to very coarse grained sandstone		6300		5. coarse sand	0.07	10R8/1	10R5/6	sample records 900cps
KL02W10224	moderately jointed outcrop within gully and making part of the gully bank	Mamadewerre Sandstone	coarse to very coarse grained sandstone		6300						weakly silicified joint surface within radioactive zone
KL02X10224	moderately jointed outcrop within gully and making part of the gully bank	Mamadewerre Sandstone	coarse to very coarse grained sandstone		6300						10 second count reading
KL02C10225	loose float material on bottom of gorge within small stream bed		ferricrete		15800		6. medium sand	1.57	10R4/2	10R5/8	
KL02W10225	loose float material on bottom of gorge within small stream bed		ferricrete		15800						Sample of hematitic limonitic clay soil in Ferricrete gorge bottom
KL02C10226	loose float material on bottom of gorge within small stream bed		ferricrete		9580		6. medium sand	1.35	10R5/6	10R3/6	
KL02W10226	loose float material on bottom of gorge within small stream bed		ferricrete		9580						sands from bottom of gully
KL02W20226	loose float material on bottom of gorge within small stream bed		ferricrete		9580						weathered clay altered ferrigenous pieces from saprolitic layer beneath sands in gully bottom

Sample Number	Outcrop Description	Formation	Lithology	Sed_structure	Gamma Cps (max)	Maximum Clast Size (mm)	Grain Size	Mag-Sus	Primary Colour	Secondary Colour	Description of sample
KL02W30226	loose float material on bottom of gorge within small stream bed		ferricrete		9580						Limonic hematitic clay laterite with possible yellow U secondaries up to 17800 cps in small pit
KL02X10226	loose float material on bottom of gorge within small stream bed		ferricrete		9580						reading from sands at botom of sediment trap
KL02C10227	loose float material on bottom of gorge within small stream bed		ferricrete		18000		7. fine sand	0.91	10R3/3	10R5/6	
KL02C10228	rounded and castellated rock benches	Gumarrimbang Sandstone	medium to coarse grained sandstone	large trough cross bedding	50		6. medium sand	0.07	10R7/6	10R8/1	
KL02C10229	very rubbly blocks lying on small terraced jointed sandstone benches	Mamadawerre Sandstone	fine to medium grained sandstone	thinly bedded and massive beds	50		6. medium sand	0.03	10R6/6	10R5/8	
KL02C10230	half way down moderately jointed steeply dipping planar cliff face	Mamadawerre Sandstone	medium grained sandstone	tinly bedded, minor trough cross beds	60		6. medium sand	0.03	2.5YR7/3	2.5YR6/4	
KL02C10231	tilted sandstone beds with chaotic drusy quartz veining	Mamadawerre Sandstone	medium grained sandstone	thinly bedded	50		6. medium sand	0.09	2.5YR3/3	2.5YR8/1	
KL02M10232	ripples on tilted steeply dipping bedding face	Mamadawerre Sandstone	medium grained sandstone	ripples, thinly bedded	50						
KL02C10233	insitu sandstone blocks within rubbly scree on steep hill slope	Mamadawerre Sandstone	fine grained sandstone	thinly bedded	40		7. fine sand	0.07	10R6/4	10R8/1	
KL02C10234	rubbly sandstone scree with open dissolution vugs coated with fine DQZ or infilled with fine grained silica	Mamadawerre Sandstone	medium grained sandstone	thinly bedded and small trough cross beds	70		6. medium sand	0.03	10R7/1	10R5/4	
KL02C10235	rounded river washed rocks of Nungbalgarrie Volcanics on rubbly rock bar	Nungbalgarri Volcanics	quartz fractured basic volcanic rock		24100		6. medium sand	0.62	5Y3/1	5Y6/1	allochthonous radioactive volcanic boulder with U secondaries
KL02C10239	vertical cliff face with pieces of sandstone jutting from face	Mamadawerre Sandstone	medium grained sandstone	trough cross beds	140		6. medium sand	0.01	5YR7/6	5YR6/1	
KL02C10240	rounded boulders and outcrop with fracture surfaces and large open vugs filled with dog tooth drusy quartz	Mamadawerre Sandstone	cobbly granule stone	trough cross beds	55	75	4. very coarse sand	0.09	10YR8/6	10YR8/1	
KL02C10241	sheared and heavily fractured sandstone rubbly outcrops	Mamadawerre Sandstone	sheared medium grained sandstone	thin beds, trough cross bedding	40		4. very coarse sand	0.07	10R6/3	10R8/3	
KL02C10242	moderately jointed and silicified sandstone beds	Mamadawerre Sandstone	well sorted fine to medium grained sandstone	trough cross bedding	45		6. medium sand	0.1	10R6/3	10R7/1	
KL02M10243	ripple marked sandstone bedding face warped and folded in appearance of a ski jump slope	Mamadawerre Sandstone	fine to medium grained sandstone	ripples, thin beds, minor cross beddding	45						ripple marked bedding facing
KL02C10244	sheared, silified and heavily fractured sandstone	Mamadawerre Sandstone	medium grained sandstone		30		6. medium sand	0.14	7.5YR6/6	7.5YR4/1	
MR01C10200	rounded blocky and castellated outcrops proximal to chaotic fault breccia	Kombolgie Fm.	pebbly coarse grained sandstone	trough cross beds	55	45	4. very coarse sand	0.12	5YR4/2 dark reddish grey	2.5YR8/1 white	
MR01C10202	rounded castellated outcrop heavily dissected by drusy quartz veining	Kombolgie Fm.	medium to coarse grained sandstone	thinly bedded, minor ripples	50		5. coarse sand	0.12	7.5YR6/6 reddish yellow	10YR5/4 yellowish brown	drusy quartz veining throughout entire outcrop
MR01W10202	rounded castellated outcrop heavily dissected by drusy quartz veining	Kombolgie Fm.	medium to coarse grained sandstone	thinly bedded, minor ripples	50						
MR01C10203	weakly castellated and sculptured outcrops	Kombolgie Fm.	medium grained sandstone	trough cross beds, minor ripples	48		6. medium sand	0.05	10R5/2 weak red	10YR7/8 yellow	
MR01C10204	low flat silicified rock bench	Kombolgie Fm.	fine to medium grained sandstone	trough cross beds	45		6. medium sand	0.2	2.5YR6/8 light red	2.5YR8/1 white	silicified sandstone
MR01C10205	low flat rounded and blocky outcrop	Kombolgie Fm.	medium grained sandstone	thinly bedded, trough cross beds	40		6. medium sand	0.01	2.5YR5/6 red	2.5YR8/2 pinkish white	
MR01C10206	silicified castellated outcrops	Kombolgie Fm.	medium grained sandstone	trough cross beds	45		7. fine sand	0.31	5YR7/6 reddish yellow	5YR4/3 reddish brown	
MR01C10207	rounded and castellated outcrops	Kombolgie Fm.	medium grained sandstone	thinly bedded, trough cross beds	45		7. fine sand	0.14	5YR5/1 grey	5YR8/1 white	sinistral strike slip shear along thin deformation band
MR01C10208	honeycombe weathered, sculptured and castelated rock benches and outcrops	Kombolgie Fm.	medium grained sandstone	thinly bedded, small planar cross beds, ripples	40		6. medium sand	0.01	2.5YR4/3 reddish brown	5YR8/4 pink	
MR01C10209	sculptured and weakly castellated rounded and blocky outcrop	Kombolgie Fm.	medium grained sandstone	variably thick and thin trough cross beds	38		7. fine sand	0.09	5YR6/4 light reddish brown	5YR8/1 white	
MR01C10210	weakly castellated outcrop with knobbled weathering surfaces	Kombolgie Fm.	medium to coarse grained sandstone	ripples, thinly bedded, trough cross beds	40		6. medium sand	0.01	7.5YR7/6 reddish yellow	7.5YR8/1 white	
MR01W10210	weakly castellated outcrop with knobbled weathering surfaces	Kombolgie Fm.	medium to coarse grained sandstone	ripples, thinly bedded, trough cross beds	40						thin silicified deformation band
MR01C10211	weakly castellated outcrops	Kombolgie Fm.	medium to coarse grained sandstone	herring bone trough cross beds, trough cross beds	35		7. fine sand	0.29	5YR7/6 reddish yellow	5YR5/1 grey	
MR01C10212	small flat rounded rock bench	Kombolgie Fm.	medium grained sandstone	thinly bedded, trough cross beds	50		6. medium sand	0.01	5YR6/8 reddish yellow	5YR8/1 white	
MR01C10213	low flat rounded outcrops	Kombolgie Fm.	fine to medium grained sandstone	trough cross beds	50		7. fine sand	0.23	5YR7/3 pink	5YR6/1 light grey	
MR01C10214	rounded and castellated outcrops	Kombolgie Fm.	pebbly v. coarse grained sandstone	large trough cross beds	65	35	5. coarse sand	0.05	7.5YR7/4 pink	10YR8/4 very pale brown	
MR01W10215	weakly castellated and faulted outcrop	Kombolgie Fm.	medium grained sandstone	minor planar cross beds, thinly bedded	45						sample taken from silicified surface of fault plane
MR01C10216	castellated outcrops on flat topped plateaux	Kombolgie Fm.	medium grained sandstone	thinly bedded, trough and planar cross beds, ripples	30		6. medium sand	0.01	5YR7/1 light grey	5YR5/2 reddish grey	
MR01W10217	castellated outcrop cut with silicified deformation bands	Kombolgie Fm.	medium grained sandstone	ripples, thinly bedded, trough cross beds	38						thin silicified deformation band with minor secondary features
MR01C10218	closely spaced fractured castellated and sculptured outcrops	Kombolgie Fm.	medium grained sandstone	trough cross beds	40		6. medium sand	0.07	5YR5/2 reddish grey	10R4/6 red	
MR01C10219	low flat subcrop/outcrop rocky bench	Kombolgie Fm.	medium grained sandstone	trough cross beds	45		6. medium sand	0.03	2.5YR5/8 red	2.5YR8/1 white	
MR01C10220	isolated castellated tall pancake outcrops, sculptured and honeycombe weathering	Kombolgie Fm.	medium to coarse grained sandstone	small stacked trough cross beds	50		6. medium sand	0.1	2.5YR4/6 red	2.5YR4/1 dark reddish grey	
MR01C10221	pancake outcrops on rounded and sculptured castellated rock bench outcrop	Kombolgie Fm.	medium grained sandstone	ripples, thin beds, small	40		6. medium sand	0	7.5YR7/4 pink	7.5YR8/1 white	
MR01C10222	silicified rounded and blocky outcrops	Kombolgie Fm.	medium grained sandstone	trough cross beds	40		6. medium sand	0.03	2.5YR5/4 reddish brown	2.5YR8/2 pinkish white	
MR01C10223	honeycombe weathered pancake outcrop with two intersecting small reverse faults	Kombolgie Fm.	medium grained sandstone	thin beds, ripples	50		7. fine sand	0.1	10R4/2 weak red	5YR7/4 pink	
MR01W10223	honeycombe weathered pancake outcrop with two intersecting small reverse faults	Kombolgie Fm.	medium grained sandstone	thin beds, ripples	50						drusy quartz breccia
MR01W20223	honeycombe weathered pancake outcrop with two intersecting small reverse faults	Kombolgie Fm.	medium grained sandstone	thin beds, ripples	50						fault gouge
MR01W10226	drusy quartz breccia within low rounded outcrops and rocky benches	Kombolgie Fm.	brecciated pebbly granule sandstone	trough cross beds	65	25					sandstone breccia infilled with drusy quartz veins and vugs
MR01C10227	drusy quartz breccia on low flat rubbly outcrops	Kombolgie Fm.	brecciated medium grained sandstone	trough cross beds	65		5. coarse sand	0.05	10R4/3 weak red	10R8/1 white	
MR01W10227	drusy quartz breccia on low flat rubbly outcrops	Kombolgie Fm.	brecciated medium grained sandstone	trough cross beds	65						sandstone breccia with drusy quartz infill approximately 40cm wide
MR01C10228	heavily fractured low flat rounded rock benche	Kombolgie Fm.	fractured medium grained sandstone	trough cross beds	45		7. fine sand	0.05	10R5/4 weak red	10R7/6 light red	closely spaced fractures (~50cm wide zone joints spaced ~2-5cm) minor slickensides
MR01C10229	castellated and sculptured outcrops	Kombolgie Fm.	medium grained sandstone	ripples, trough cross beds	40		6. medium sand	0.09	10R5/2 weak red	10R5/6 red	
MR01C10230	castellated and sculptured low rocky outcrop benches	Kombolgie Fm.	medium grained sandstone	trough cross beds	40		6. medium sand	0.07	2.5YR6/6 light red	2.5YR8/1 white	hematitic spots (~2cm) on weathered surface, possible alteration of pyrite or mud clasts
MR01C10232	rock bench with tilted bedding plane surfaces	Mamadawerre Sandstone	medium grained sandstone	ripples, trough cross beds, sandstone rip-up clasts	40		6. medium sand	0.09	2.5YR5/1 reddish grey	2.5YR6/8 light red	sandstone rip-up clasts on some bedding surfaces
MR02C10001	Castellated outcrop adjacent to north-south trending lineament	Mamadawerre Sandstone	m. - f. gr. Sandstone	Finely laminated asymmetric ripple bedded sandstone woth minor metre-scale trough crossbedding	42		6. medium sand	0.03	10R5/1	10R7/2	
MR02W10001	Castellated outcrop adjacent to north-south trending lineament	Mamadawerre Sandstone	m. - f. gr. Sandstone	Finely laminated asymmetric ripple bedded sandstone woth minor metre-scale trough crossbedding	42						Silicified normal fault
MR02C10002	Low outcrop within grassy treed valley	Mamadawerre Sandstone	m. - f. gr. Sandstone	Massive to trough cross bedded sandstone	30		6. medium sand	0.03	10R4/1	10R7/6	
MR02W10002	Low outcrop within grassy treed valley	Mamadawerre Sandstone	m. - f. gr. Sandstone	Massive to trough cross bedded sandstone	30						silicified DQZ fractures
MR02C10003	Edge of castellated ridge	Mamadawerre Sandstone	c. gr. Sandstone	Trough crossbedded erosional channel overlying planar laminated to ripple bedded sandstone	42		6. medium sand	0.03	2.5YR5/4	10YR7/6	
MR02C10004	Castellated outcrop ridges parallel to 125 Az trending valley	Mamadawerre Sandstone	m. gr. Sandstone	Planar and ripple laminated sandstone	45		2. Pebbles	0.05	5YR3/3	5YR7/3	
MR02C10005	Low undulating basement outcrop northwest of the Kombolgie escarpment	Myra Falls Metamorphics	sericite-hematite-rich, quartz-poor schist		320		6. medium sand	0.07	10R8/1	10R5/1	
MR02W10005	Low undulating basement outcrop northwest of the Kombolgie escarpment	Myra Falls Metamorphics	sericite-hematite-rich, quartz-poor schist		320						sheared fault breccia several metres wide
MR02C10006	Castellated outcrop ridge north of the Myra Falls high Inlier	Mamadawerre Sandstone	M. - c. gr. Sandstone	Planar symmetric ripple and laminated sandstone with minor trough crossbeds	40		5. coarse sand	0.09	10R5/1	10R5/6	
MR02C10007	High castellated outcrop ridge adjacent to deep valley gorge trending 005 Az along trike from Nimbuwah Rock	Mamadawerre Sandstone	m. - c. gr. Sandstone	Assymetric current ripples and planar laminated bedding with minor interference ripples	33		6. medium sand	0.05	10R5/1	10R8/1	
MR02W10007	High castellated outcrop ridge adjacent to deep valley gorge trending 005 Az along trike from Nimbuwah Rock	Mamadawerre Sandstone	m. - c. gr. Sandstone	Assymetric current ripples and planar laminated bedding with minor interference ripples	33						
MR02C10008	Castellated outcrop ridge top surrounded by numerous deep gorges	Mamadawerre Sandstone	m. - c. gr. Sandstone	Trough crossbedded to ripple laminated bedding	33		7. fine sand	0	10R5/1	10R5/6	
MR02W10008	Castellated outcrop ridge top surrounded by numerous deep gorges	Mamadawerre Sandstone	m. - c. gr. Sandstone	Trough crossbedded to ripple laminated bedding	33						Bleached silicified joint
MR02C10009	Low flat outcrop in North-south trending valley	Mamadawerre Sandstone	c. - v.c. gr. Sandstone	Massive to trough crossbedded sandstone	51		6. medium sand	0.03	5YR6/6	5YR8/1	
MR02W10009	Low flat outcrop in North-south trending valley	Mamadawerre Sandstone	c. - v.c. gr. Sandstone	Massive to trough crossbedded sandstone	51						5 mm drusy quartz fractures
MR02C10010	base of sandstone plateau escarpment immediately above the unconformity north of the Myra Falls Inlier	Mamadawerre Sandstone	v.c. sandstone with pebble and cobbles commonn	Trough cross bedded to ripple and planar laminated bedding	65	7	4. very coarse sand	0.12	7.5YR7/8	7.5YR6/1	
MR02M10011	High sandstone escarpment plateau immediately south of the Myra Falls Inlier	Mamadawerre Sandstone	m. gr. Sandstone	Trough crossbedded sandstone with abundant ripple beds	36						
MR02C10013	Low outcrop area located north of sandstone escarpment and south of Kudjumarndi Quartzite ridge	Zamu Dolerite	Amphibolite schist with weak gneissosity	gneissic texture	100		6. medium sand	1.53	N3/1	N8/1	
MR02C10014	Rubbly outcrop ridge slope north of Zamu dolerite sample	Kudjumarndi Quartzite	Quartz-rich arkose to arkosic quartzite	well foliated with muscovitic schistosity and quartz recrystallisation	135		6. medium sand	0.07	5YR4/6	5YR8/1	
MR02M10017	shattered rubbly outcrop on sidehill	Cahill Formation	Amihbole-muscovite gneissic schist								Structural Measurements
MR02M10018	Large sandstone blocks immediately above the unconformity	Mamadawerre Sandstone	v.c. sandstone								tilted bedding measurement
MR02C10030	Undulating lateritic gravel hill	Mamadawerre Sandstone	Fanglomerate float with boulder sized QZIT clasts		157	30	5. coarse sand	0.01	10YR7/6	10R6/4	
MR02C10031	Altered & weathered outcrop in erosion gully	Mount Howship Gneiss	quartzofeldspathic biotite gneiss		1120	14	4. very coarse sand	0.09	5YR7/4	5YR7/1	

Sample Number	Outcrop Description	Formation	Lithology	Sed_structure	Gamma Cps (max)	Maximum Clast Size (mm)	Grain Size	Mag-Sus	Primary Colour	Secondary Colour	Description of sample
MR02W10031	Altered & weathered outcrop in erosion gully	Mount Howship Gneiss	quartzofeldspathic biotite gneiss		1120						Radioactive area 1120 cps max.
MR02M10032	Rubblly latentic plain (with -Pne boulders) with erosional gully exposing basement	Mount Howship Gneiss	quartzofeldspathic biotite gneiss		200						Mt Howship gneiss in gully exposure
MR02M10033	Outcrop on west side of boulder covered hill	Kudjumarndi Quartzite	Quartzite	Planar laminated to foliated with rare ripple marks	185						
MR02C10034	Midway up quartzite hill in undulating basement terrain	Kudjumarndi Quartzite	Hematitic Quartzite breccia		100						
MR02W10200	honeycombe weathered castellated outcrop	Mamadewerre Sandstone	medium grained sandstone	thin bedding, ripples	45						siliceous deformation bands
MR02C10201	honeycombe weathered castellated outcrop	Mamadewerre Sandstone	fine to medium grained sandstone	thin bedding, ripples, possible algal mats	40		6. medium sand	0.05	7.5YR7/4	7.5YR5/3	
MR02W10201	honeycombe weathered castellated outcrop	Mamadewerre Sandstone	fine to medium grained sandstone	thin bedding, ripples, possible algal mats	40						siliceous deformation band
MR02C10203	blocky silicified sandstone layer at top of dissected pinnacle	Mamadewerre Sandstone	fine to medium grained sandstone	thin bedding, ripples	45		7. fine sand	0.03	5YR5/1	5YR6/6	
MR02W10204	low flat blocky jointed outcrop	Mamadewerre Sandstone	fine to medium grained sandstone	thin bedding, ripples, trough cross bedding	45						siliceous deformation band
MR02C10205	small rocky outcrop on top of low flat rock platform	Kombolgie Subgroup	medium grained sandstone	thin bedding, ripples, trough cross bedding	45		7. fine sand	0	2.5YR6/6	2.5YR5/1	
MR02W10205	small rocky outcrop on top of low flat rock platform	Kombolgie Subgroup	medium grained sandstone	thin bedding, ripples, trough cross bedding	45						silicified reverse fault
MR02C10206	rubblly to resistant foliated rock making gully side	Myra Falls Metamorphics	metamorphic quartzite		2750		6. medium sand	0.09	10R7/4	2.5Y5/3	quartzite - sample 2100cps TC Gamma
MR02C20206	rubblly to resistant foliated rock making gully side	Myra Falls Metamorphics	metamorphic quartzite		2750		6. medium sand	0.1	2.5Y5/3	10R7/6	altered / weathered qtz feld gneiss - sample 2750cps TC Gamma
MR02C10207	broken bedding sheets making dip slope of leading escarpment edge	Kombolgie Subgroup	fine to medium grained sandstone	thin bedding, interference ripples	40		6. medium sand	0.05	5YR7/8	5YR8/1	
MR02C10208	castellated and blocky outcrop on top of rock platform	Kombolgie Subgroup	medium to coarse grained sandstone	trough cross beds, thinly bedded, ripples	35		5. coarse sand	0.03	5YR5/1	5YR7/6	
MR02W10208	castellated and blocky outcrop on top of rock platform	Kombolgie Subgroup	medium to coarse grained sandstone	trough cross beds, thinly bedded, ripples	35						silicified joint with shear sense indicators
MR02W10209	castellated and honeycombe weathered rock platforms	Kombolgie Subgroup	medium grained sandstone	ripples, thinly bedded	45						closely spaced fractures / quartz fractures
MR02C10210	prominent outcrop at bottom of gorge, fault plane exposed on underside of overhang	Kombolgie Subgroup	fault gouge within medium grained sandstone	thinly bedded	110						fault gouge material
MR02W10210	prominent outcrop at bottom of gorge, fault plane exposed on underside of overhang	Kombolgie Subgroup	fault gouge within medium grained sandstone	thinly bedded	110						fault gouge material
MR02M10211		Oenpelli Dolerite	amphibolite		103						
MR02M10212		Kudjumarndi Quartzite	coarse grained muscovitic quartzite		88						possible coarse-pebbly grained sandstone protolith
MR02M10214		Kudjumarndi Quartzite	fined grained quartzite		100						muscovitic quartzite
MR02C10216	large blocks and tilted rock platforms making dip slope	Mamadewerre Sandstone	medium grained sandstone	cross bedding, tingly bedded	40		6. medium sand	0.03	10R8/2	10R8/1	
MR02C10217	heavily jointed and castellated, chaotic DQZ veining running through base of pinnacle	Mamadewerre Sandstone	medium grained sandstone	thinly bedded, trough cross beds	40		6. medium sand	0.07	7.5YR6/3	7.5YR8/1	
MR02W10217	heavily jointed and castellated, chaotic DQZ veining running through base of pinnacle	Mamadewerre Sandstone	medium grained sandstone	thinly bedded, trough cross beds	40						chaotic drusy quartz fracturing
MR02C10218	heavily jointed outcrop with chaotic DQZ veining and tilted bedding; minor polygonal jointing developed on some surfaces	Mamadewerre Sandstone	medium grained sandstone	thinly bedded, minor trough cross beds	40		7. fine sand	0.07	7.5YR7/1	7.5YR6/4	
MR02W10218	heavily jointed outcrop with chaotic DQZ veining and tilted bedding; minor polygonal jointing developed on some surfaces	Mamadewerre Sandstone	medium grained sandstone	thinly bedded, minor trough cross beds	40						chaotic drusy quartz veining
MR02C10219	honeycombe weathered and heavily jointed with minot DQZ veining	Mamadewerre Sandstone	medium grained sandstone	thinly bedded, minot trough cross bedding	40		7. fine sand	0.03	10R7/3	10YR4/6	
MR02W10219	honeycombe weathered and heavily jointed with minot DQZ veining	Mamadewerre Sandstone	medium grained sandstone	thinly bedded, minot trough cross bedding	40						chaotic drusy quartz veining
MR02C10220	resistant sdst cobble fault breccia with DQZ veining	Mamadewerre Sandstone	fault breccia; very coarse grained sandstone		80		5. coarse sand	0.05	10R6/1	10R8/1	
MR02C20220	resistant sdst cobble fault breccia with DQZ veining	Mamadewerre Sandstone	fault breccia; very coarse grained sandstone		80		4. very coarse sand	0.05	7.5YR5/2	7.5YR6/6	
MR02W10220	resistant sdst cobble fault breccia with DQZ veining	Mamadewerre Sandstone	fault breccia; very coarse grained sandstone		80						
MR02C10221	castellated outcrop, minor honeycombe weathering; siliceous deformation bands	Mamadewerre Sandstone	fine to medium grained sandstone	thinly bedded, ripples, trough cross beds	40		2. Pebbles	0.07	7.5YR4/1	7.5YR7/6	
MR02M10224		Mount Howship Gneiss	quartz-feldspar-biotite gneiss								
MR02C10227	small boulders of conglomerate float, quartzite clasts with sandy matrix	Mamadewerre Sandstone	clast supported taluss/fan-conglomerate		120		6. medium sand	0.01	10R7/2	10R6/2	
MR02M10228	outcrop in bottom of gully	Kudjumarndi Quartzite	quartzite		120						
MR02C10229	pesolites and rock debris within small hand dug trench on trend and covering quartz hematite breccia	Kudjumarndi Quartzite	pesolites and rock debris		1700						rubblly pesolitic material