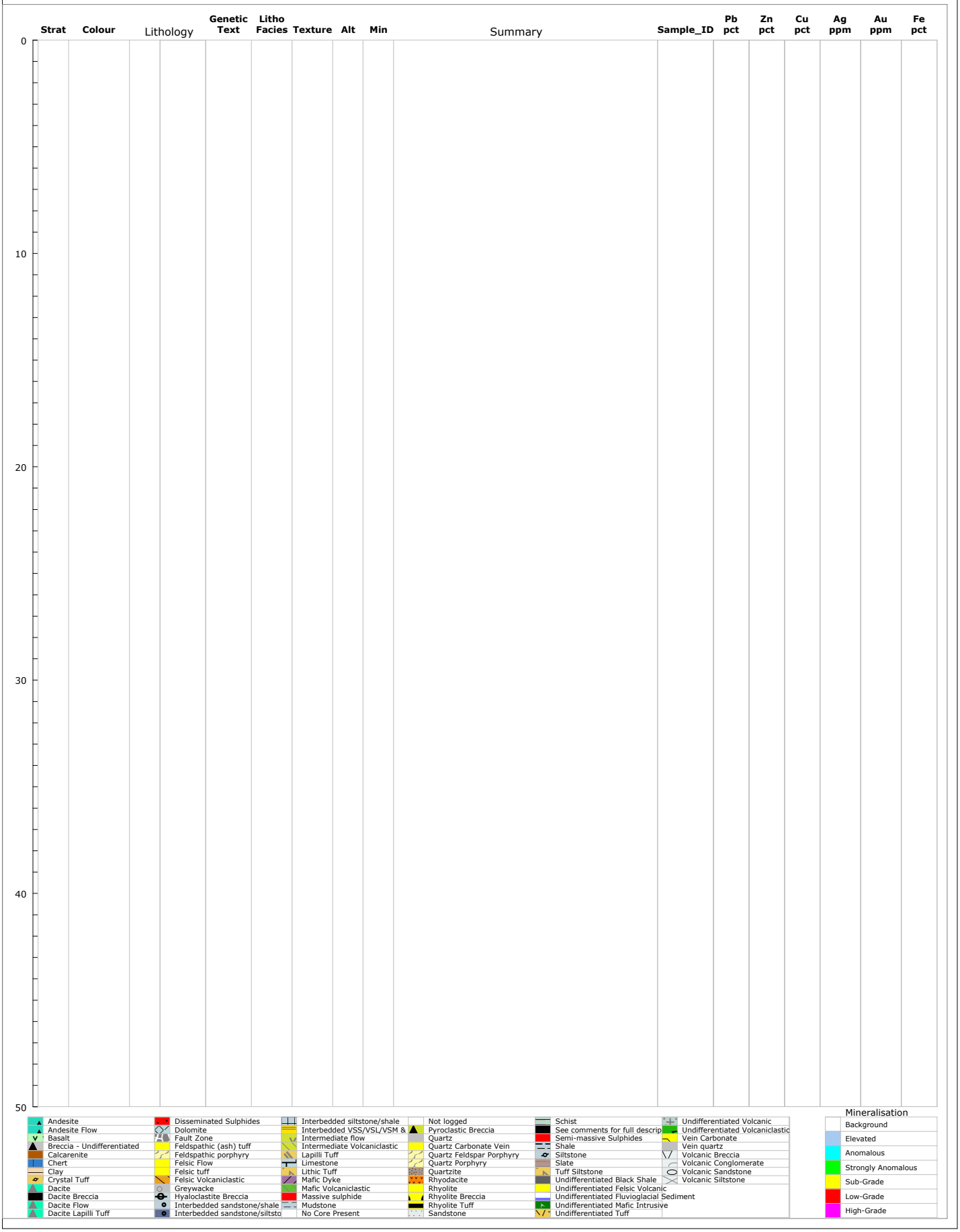
ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D1

Project: ROS Rosebery

Prospect: NRL North Lake Rosebery

Northing:	5378392.8 mN	**Dip:**	-86.00
Easting:	379741.8 mE	**MAG_Azim:**	66.00
RL:	386.5 mRL	**Total Depth:**	1459.6 m
CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY



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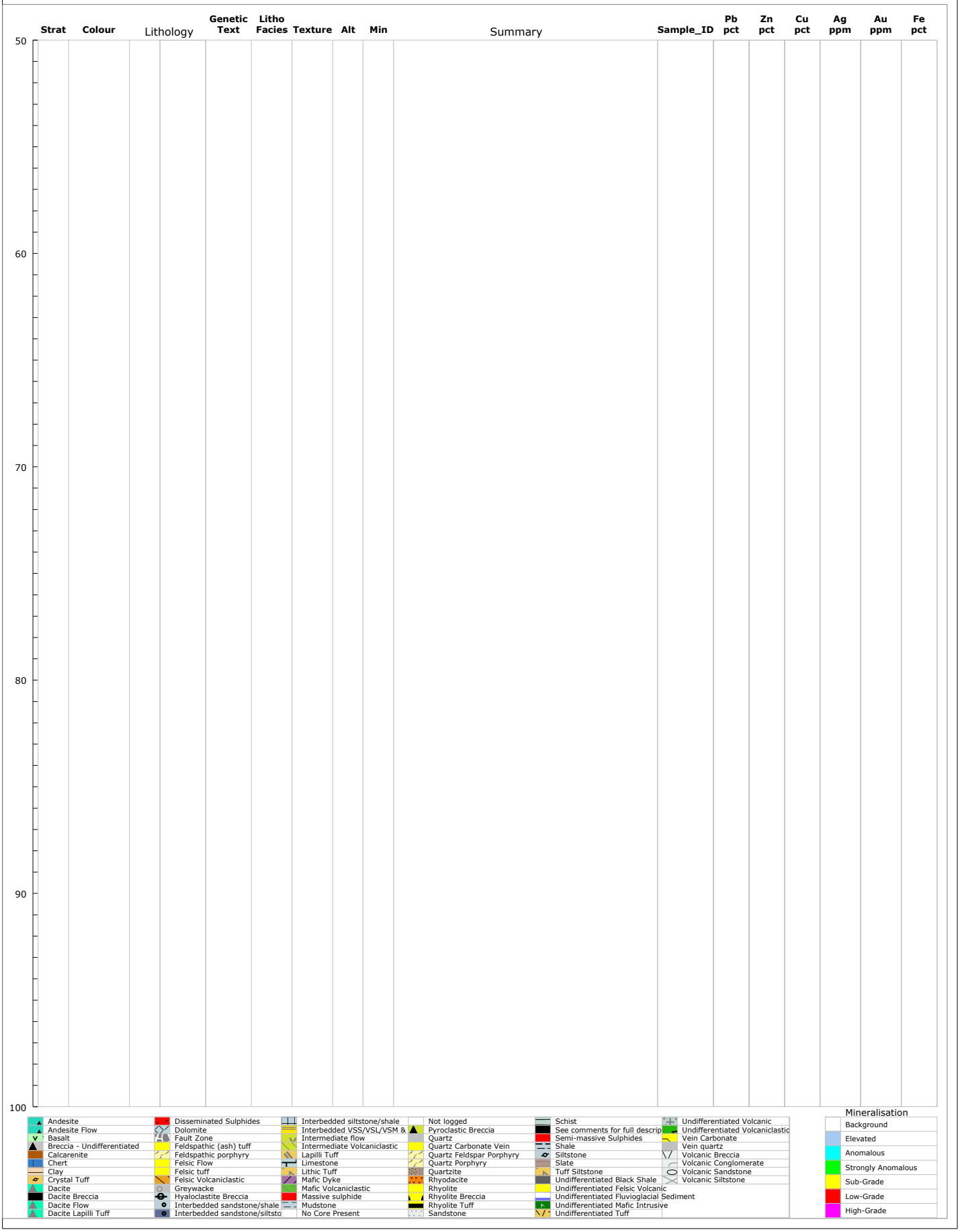

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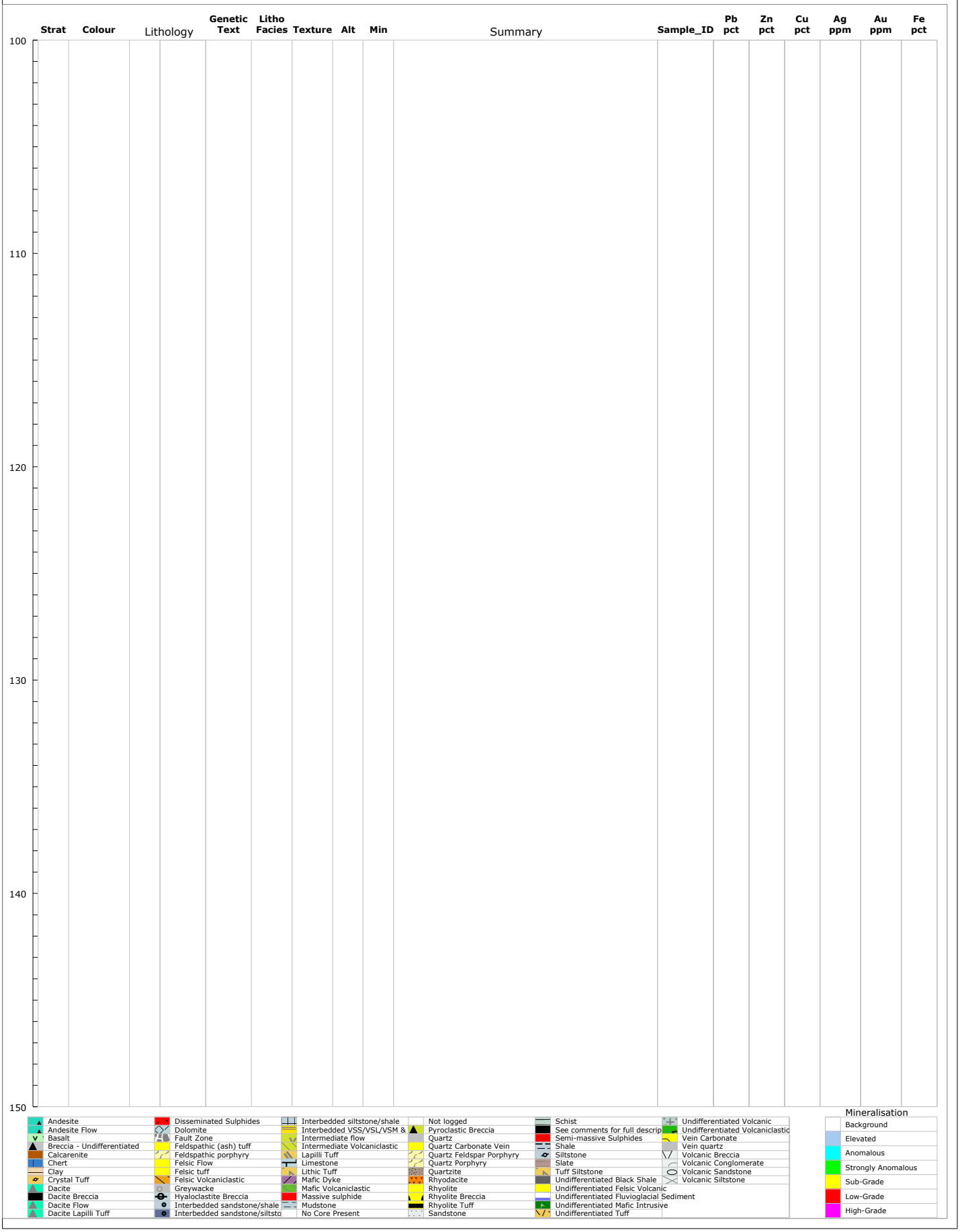

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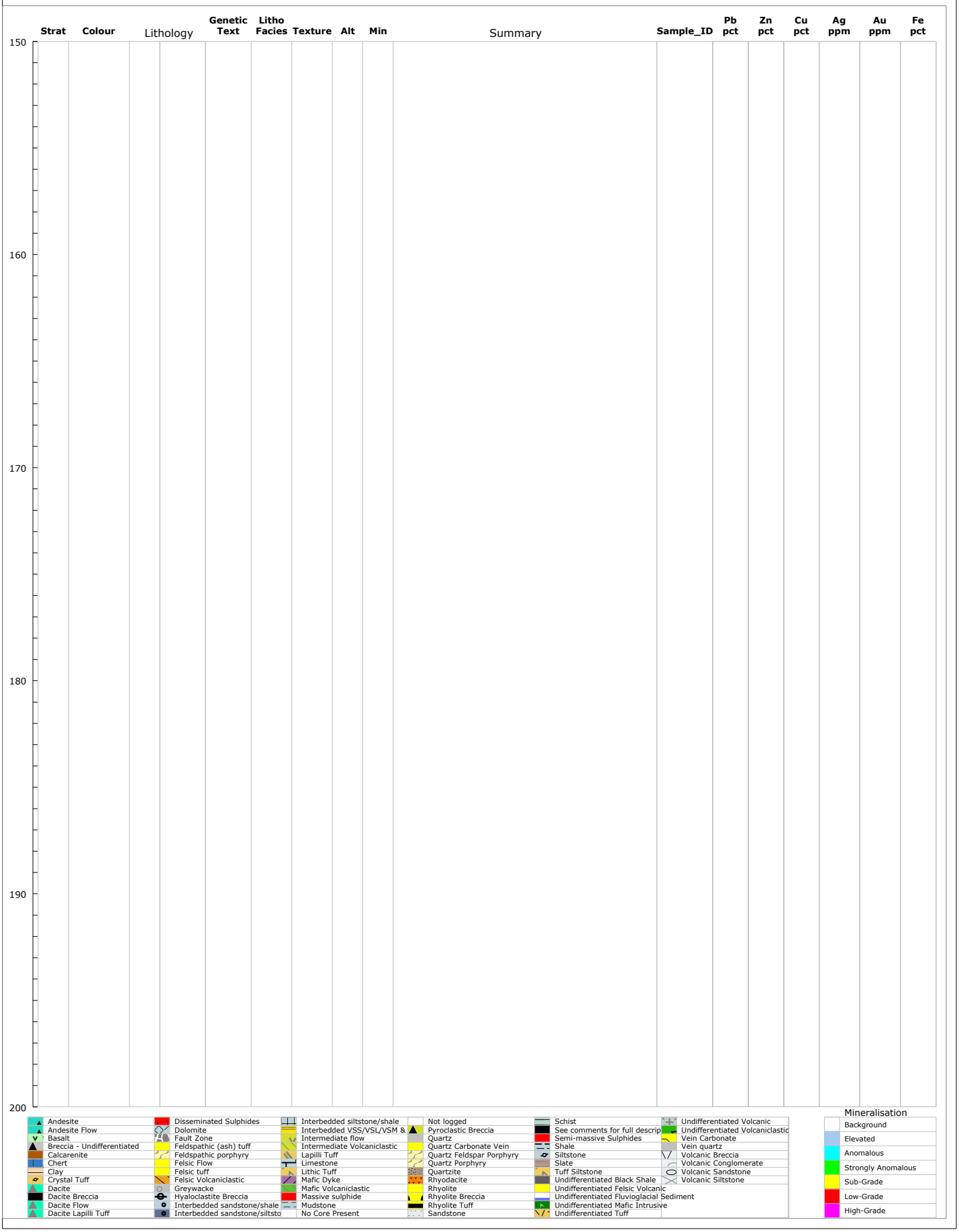

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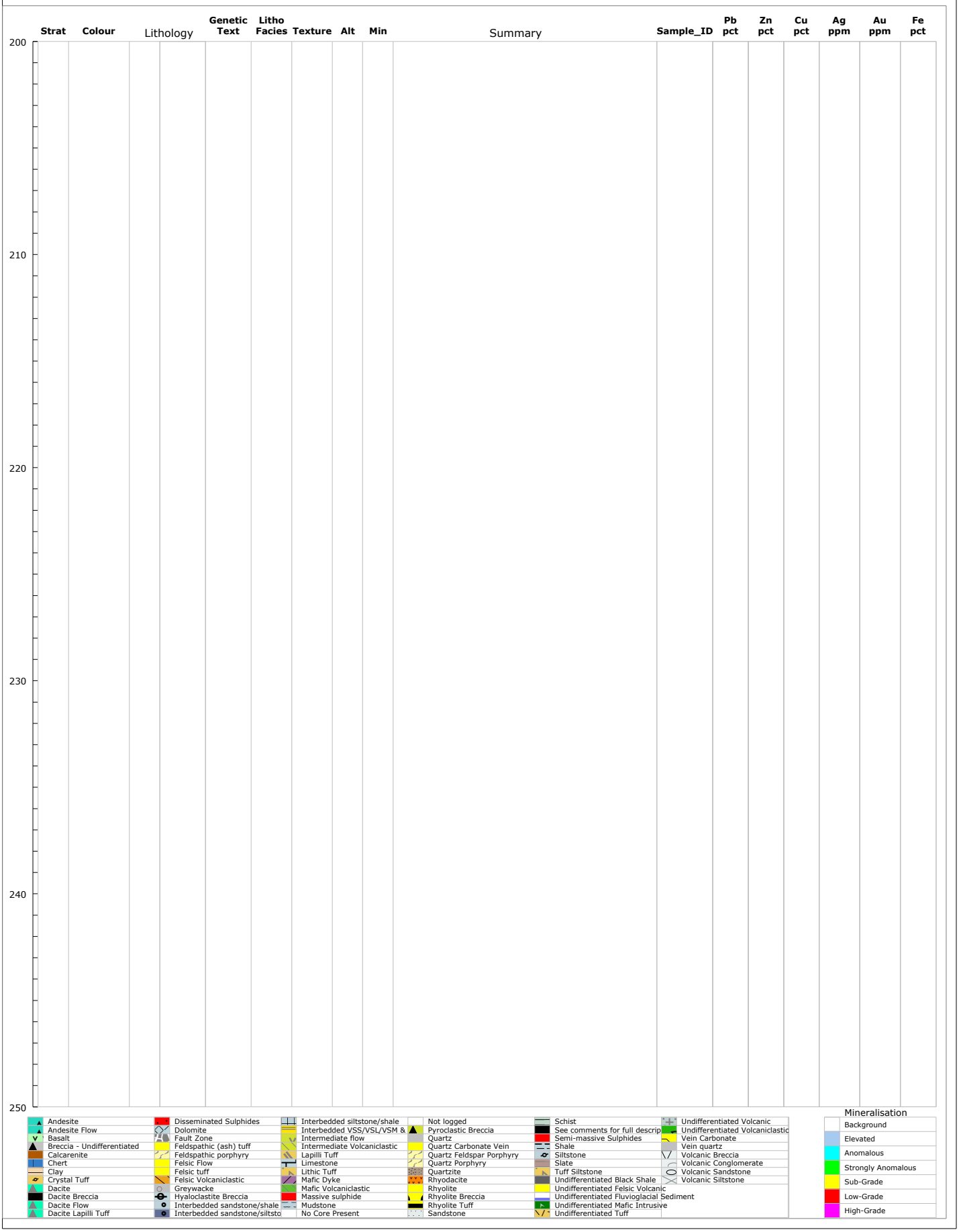

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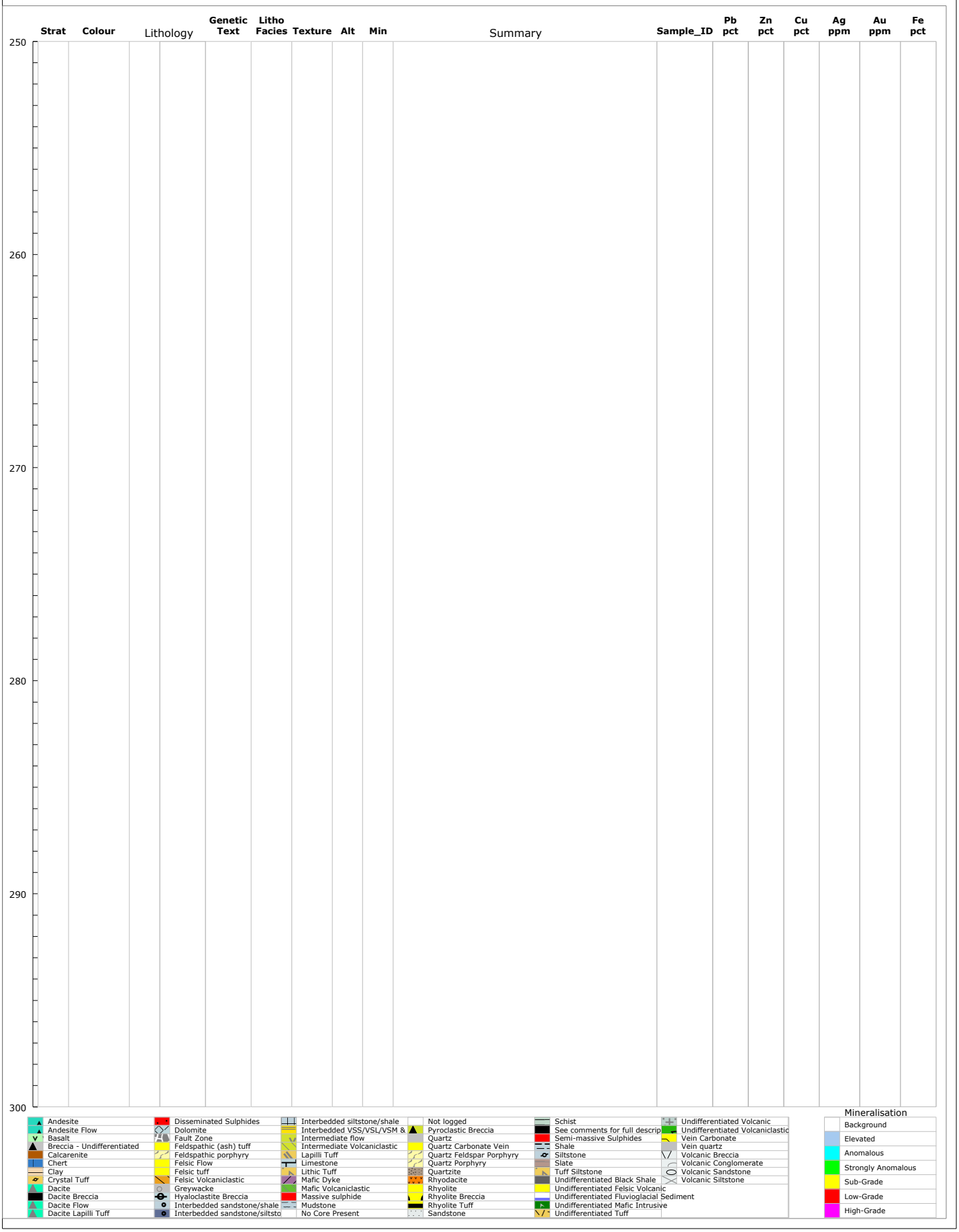

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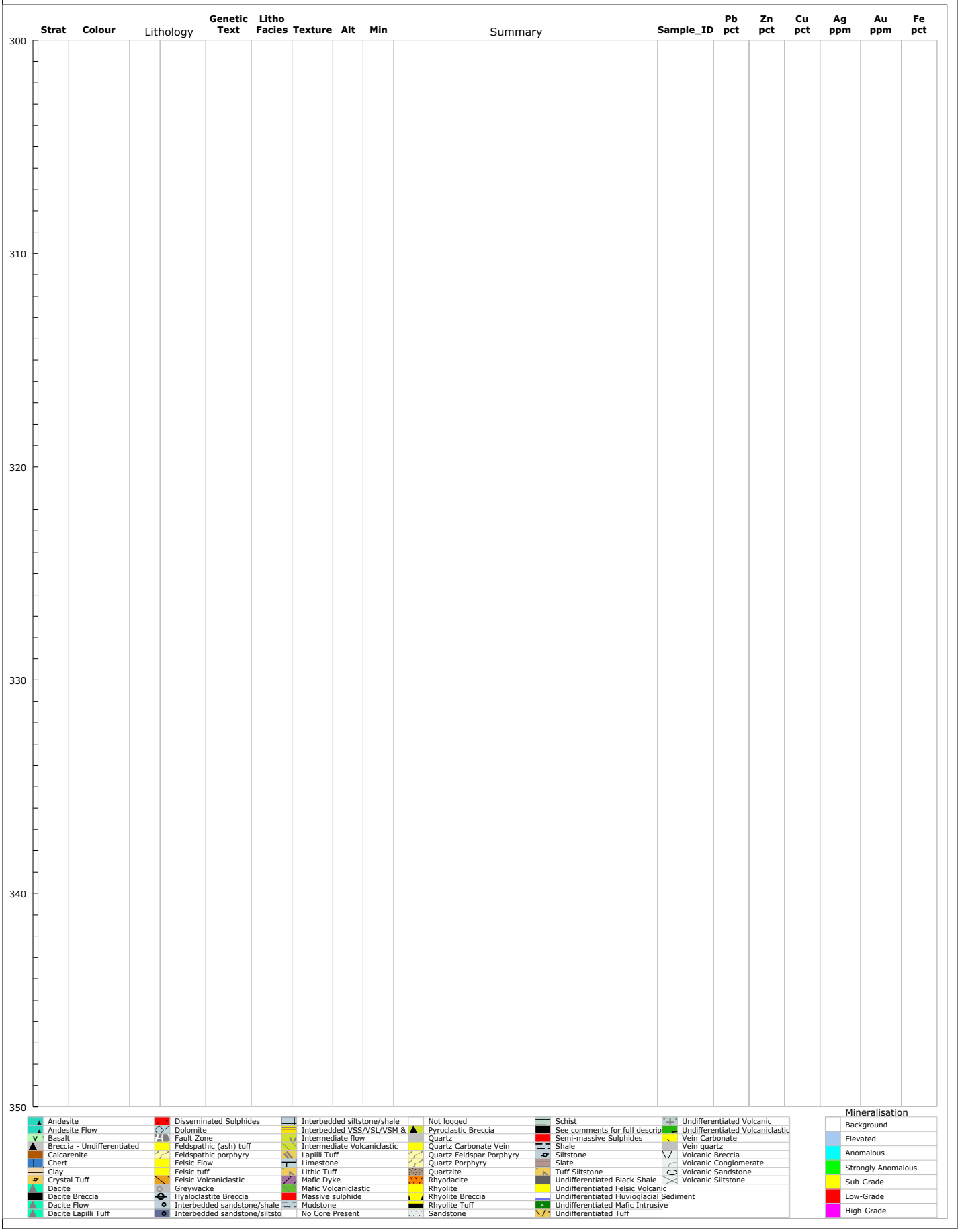

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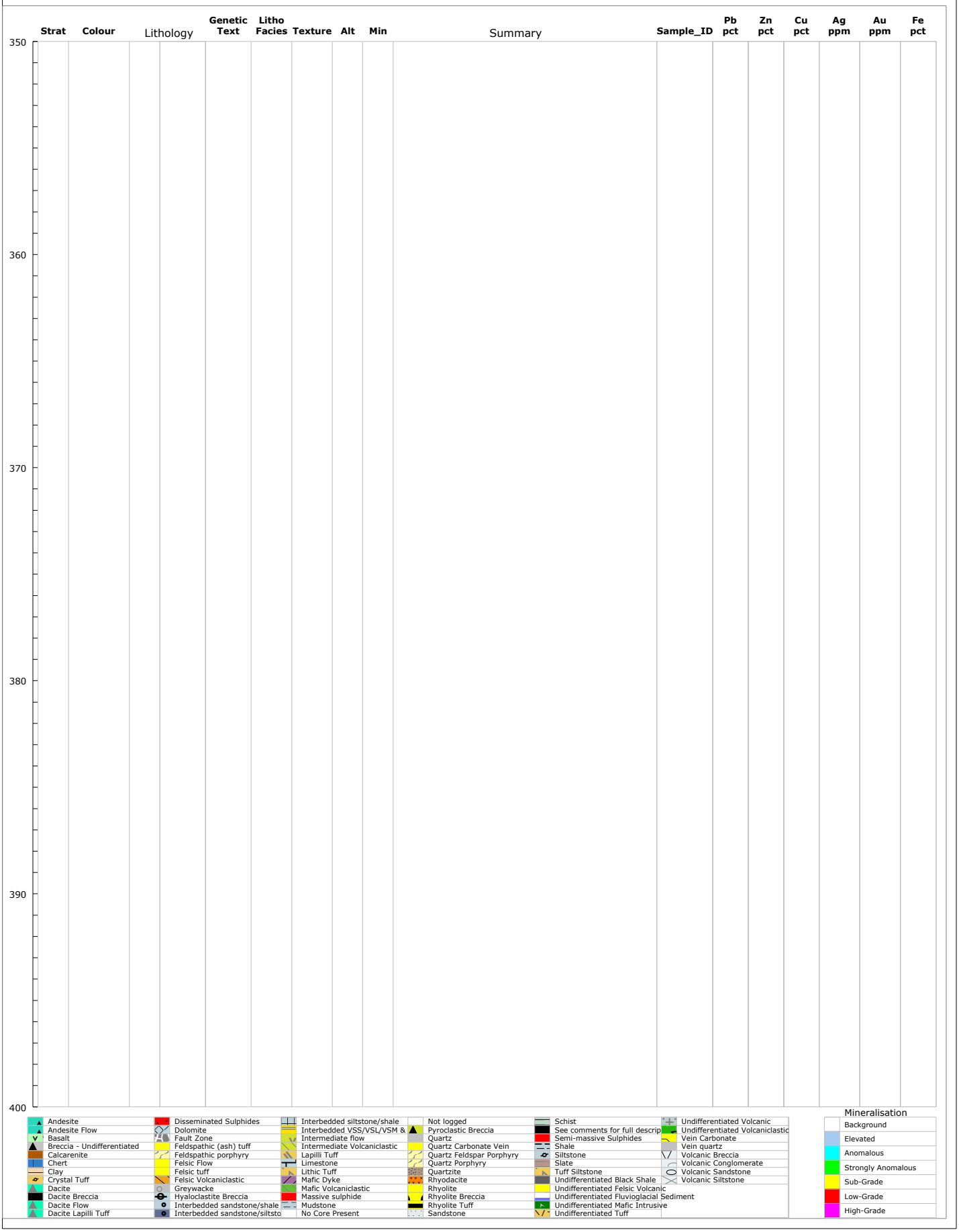

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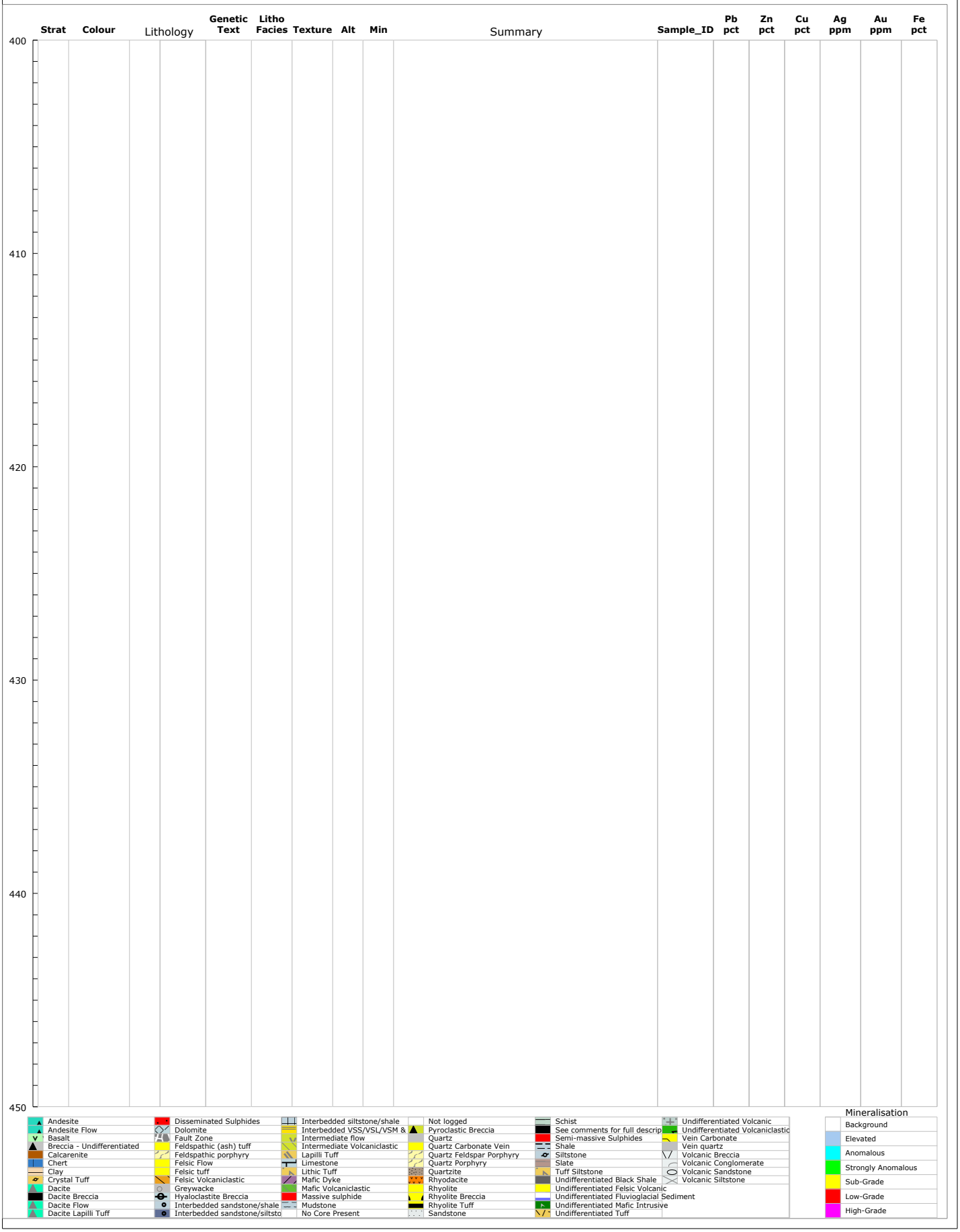

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Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary
MBV	GRN-GRY	VSL			gra	si ch	py	Moderate grey-green; moderately foliated; weakly silica-chlorite altered; fine grained to medium grained volcaniclastic siltstone to sandstone with commonly annealed fracture veins containing quartz carbonate; uncommon >2mm disseminated pyrite; broken core 5 bpm.
MBV	GRN-CRM	VSS		mas		si cb ch	py	Dark grey green to cream green; moderately foliated; silica-carbonate-chlorite altered with weak inconsitent hematite alteration; massive medium grained volcaniclastic sandstone with common spotting consisting of pyritic nuclei with carbonate and outer chlorite haloes up to 6mm in overall size uphole; common 1 -4mm planar quartz arbonate veinlets; trace disseminated pyrite.
MBV	GRN-GRY	IMK		mas	aph	ch	py	Dark grey green; chlorite altered massive aphanitic BASALTIC DYKE with common 1-3mm carbonate filled amygdales; common 1-10mm planar quartz carbonate veins with associated disseminated pyrite.

Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct

Andesite, Andesite Flow, Basalt, Breccia - Undifferentiated, Calcarenite, Chert, Clay, Crystal Tuff, Dacite, Dacite Breccia, Dacite Flow, Dacite Lapilli Tuff, Disseminated Sulphides, Dolomite, Fault Zone, Feldspathic (ash) tuff, Feldspathic porphyry, Felsic Flow, Felsic tuff, Felsic Volcaniclastic, Greywacke, Hyaloclastite Breccia, Interbedded sandstone/shale, Interbedded sandstone/siltsto, Interbedded siltstone/shale, Interbedded VSS/VSL/VSM &, Intermediate flow, Intermediate Volcaniclastic, Lapilli Tuff, Limestone, Lithic Tuff, Mafic Dyke, Mafic Volcaniclastic, Massive sulphide, Mudstone, No Core Present, Not logged, Pyroclastic Breccia, Quartz, Quartz Carbonate Vein, Quartz Feldspar Porphyry, Quartz Porphyry, Quartzite, Rhyodacite, Rhyolite, Rhyolite Breccia, Rhyolite Tuff, Sandstone, Schist, See comments for full descrip, Semi-massive Sulphides, Shale, Siltstone, Slate, Tuff Siltstone, Undifferentiated Black Shale, Undifferentiated Felsic Volcanic, Undifferentiated Fluvioglacial Sediment, Undifferentiated Mafic Intrusive, Undifferentiated Tuff, Undifferentiated Volcanic, Undifferentiated Volcaniclastic, Vein Carbonate, Vein quartz, Volcanic Breccia, Volcanic Conglomerate, Volcanic Sandstone, Volcanic Siltstone

Mineralisation: Background, Elevated, Anomalous, Strongly Anomalous, Sub-Grade, Low-Grade, High-Grade

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MBV	GRY	VSS		mas		si		Grey; foliated; weakly silica altered; common carbonate spotting; medium grained volcaniclastic sandstone with common cream carbonate? Pseudo clasts? May be devitrification textures; common 1-5mm planar quartz carbonate veins; feldspars increasing in abundance in last 25m of interval; competent core.							

500
510
520
530
540
550

Andesite
Andesite Flow
Basalt
Breccia - Undifferentiated
Calcarenite
Chert
Clay
Crystal Tuff
Dacite
Dacite Breccia
Dacite Flow
Dacite Lapilli Tuff
Disseminated Sulphides
Dolomite
Fault Zone
Feldspathic (ash) tuff
Feldspathic porphyry
Felsic Flow
Felsic tuff
Felsic Volcaniclastic
Greywacke
Hyaloclastite Breccia
Interbedded sandstone/shale
Interbedded sandstone/siltsto
Interbedded siltstone/shale
Interbedded VSS/VSL/VSM &
Intermediate flow
Intermediate Volcaniclastic
Lapilli Tuff
Limestone
Lithic Tuff
Mafic Dyke
Mafic Volcaniclastic
Massive sulphide
Mudstone
No Core Present
Not logged
Pyroclastic Breccia
Quartz
Quartz Carbonate Vein
Quartz Feldspar Porphyry
Quartz Porphyry
Quartzite
Rhyodacite
Rhyolite
Rhyolite Breccia
Rhyolite Tuff
Sandstone
Schist
See comments for full descrip
Semi-massive Sulphides
Shale
Siltstone
Slate
Tuff Siltstone
Undifferentiated Black Shale
Undifferentiated Felsic Volcanic
Undifferentiated Fluvioglacial Sediment
Undifferentiated Mafic Intrusive
Undifferentiated Tuff
Undifferentiated Volcanic
Undifferentiated Volcaniclastic
Vein Carbonate
Vein quartz
Volcanic Breccia
Volcanic Conglomerate
Volcanic Sandstone
Volcanic Siltstone

Mineralisation
Background
Elevated
Anomalous
Strongly Anomalous
Sub-Grade
Low-Grade
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550
560
570
580
590
600

Andesite
Andesite Flow
Basalt
Breccia - Undifferentiated
Calcarenite
Chert
Clay
Crystal Tuff
Dacite
Dacite Breccia
Dacite Flow
Dacite Lapilli Tuff
Disseminated Sulphides
Dolomite
Fault Zone
Feldspathic (ash) tuff
Feldspathic porphyry
Felsic Flow
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Felsic Volcaniclastic
Greywacke
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Interbedded sandstone/shale
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Interbedded siltstone/shale
Interbedded VSS/VSL/VSM &
Intermediate flow
Intermediate Volcaniclastic
Lapilli Tuff
Limestone
Lithic Tuff
Mafic Dyke
Mafic Volcaniclastic
Massive sulphide
Mudstone
No Core Present
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Pyroclastic Breccia
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Quartz Porphyry
Quartzite
Rhyodacite
Rhyolite
Rhyolite Breccia
Rhyolite Tuff
Sandstone
Schist
See comments for full descrip
Semi-massive Sulphides
Shale
Siltstone
Slate
Tuff Siltstone
Undifferentiated Black Shale
Undifferentiated Felsic Volcanic
Undifferentiated Fluvioglacial Sediment
Undifferentiated Mafic Intrusive
Undifferentiated Tuff
Undifferentiated Volcanic
Undifferentiated Volcaniclastic
Vein Carbonate
Vein quartz
Volcanic Breccia
Volcanic Conglomerate
Volcanic Sandstone
Volcanic Siltstone

Mineralisation
Background
Elevated
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MBV	GRY	VSS		mas		si		Grey; foliated; weakly silica altered; common carbonate spotting; medium grained volcaniclastic sandstone with common cream carbonate? Pseudo clasts? May be devitrification textures; common 1 -5mm planar quartz carbonate veins; feldspars increasing in abundance in last 25m of interval; competent core.							
DK	GRN	IMK		mas	amy	ch		Dark green; strongly chlorite altered BASALTIC DYKE? Possible >2;; amygdales; strongly deformed with abundant post dating 5-20mm irregular quartz carbonate veins.							
MBV	GRY	VIF		pso		si	py	Moderate grey weakly silica altered; massive; fine to medium grained volcaniclastic MASS FLOW with abundant 1 -10cm pumice breccia?/Rhyolite clasts throughout; common >1mm subrounded feldspars; trace disseminated pyrite; common 1-3mm planar quartz carbonate veins.							
MBV	GRY	VSS		pso		si ch		Moderate grey; strongly silica - moderately chlorite altered; weakly foliated; quartz-feldspar volcaniclastic sandstone MASS FLOW with abundant 1-8cm pumice breccia with infilling feldspars; abundant lithics/Dacite clasts increasing in abundance and size downhole up to 10cm with distinct >2mm almost planar veining running perpindicular to longest axis of the clasts; competent core; sharp contacts.							

600 610 620 630 640 650

Andesite
Andesite Flow
Basalt
Breccia - Undifferentiated
Calcarenite
Chert
Clay
Crystal Tuff
Dacite
Dacite Breccia
Dacite Flow
Dacite Lapilli Tuff
Disseminated Sulphides
Dolomite
Fault Zone
Feldspathic (ash) tuff
Feldspathic porphyry
Felsic Flow
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Felsic Volcaniclastic
Greywacke
Hyaloclastite Breccia
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Intermediate flow
Intermediate Volcaniclastic
Lapilli Tuff
Limestone
Lithic Tuff
Mafic Dyke
Mafic Volcaniclastic
Massive sulphide
Mudstone
No Core Present
Not logged
Pyroclastic Breccia
Quartz
Quartz Carbonate Vein
Quartz Feldspar Porphyry
Quartz Porphyry
Quartzite
Rhyodacite
Rhyolite
Rhyolite Breccia
Rhyolite Tuff
Sandstone
Schist
See comments for full descrip
Semi-massive Sulphides
Shale
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Undifferentiated Volcaniclastic
Vein Carbonate
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Volcanic Breccia
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MBV	GRY	VSS		mas	gra	si ch		Moderate grey weak silica-chlorite altered; foliated; massive; fine grained to medium grained volcaniclastic sandstone with common 1-6mm planar quartz carbonate veins.							
								Dark grey green; chlorite altered; aphanitic basaltic dyke with common 1-10mm planar quartz carbonate veins; competent core.							
DK	GRY-GRN	IMK		mas	aph	ch		Moderte grey; silica-chlorite-moderately carbonate altered medium to coarse grained volcaniclastic sandstone massflow with common lithic/silstone clasts up 20cm throughout; abundant >2mm irregular quartz carbonate veining; gradational contact and competent core.							
MBV	GRY	VSS		pso		si cl cb									

700 710 720 730 740 750

Andesite, Andesite Flow, Basalt, Breccia - Undifferentiated, Calcarenite, Chert, Clay, Crystal Tuff, Dacite, Dacite Breccia, Dacite Flow, Dacite Lapilli Tuff

Disseminated Sulphides, Dolomite, Fault Zone, Feldspathic (ash) tuff, Feldspathic porphyry, Felsic Flow, Felsic tuff, Felsic Volcaniclastic, Greywacke, Hyaloclastite Breccia, Interbedded sandstone/shale, Interbedded sandstone/siltsto

Interbedded siltstone/shale, Interbedded VSS/VSL/VSM &, Intermediate flow, Intermediate Volcaniclastic, Lapilli Tuff, Limestone, Lithic Tuff, Mafic Dyke, Mafic Volcaniclastic, Massive sulphide, Mudstone, No Core Present

Not logged, Pyroclastic Breccia, Quartz, Quartz Carbonate Vein, Quartz Feldspar Porphyry, Quartz Porphyry, Quartzite, Rhyodacite, Rhyolite, Rhyolite Breccia, Rhyolite Tuff, Sandstone

Schist, See comments for full descrip, Semi-massive Sulphides, Shale, Siltstone, Slate, Tuff Siltstone, Undifferentiated Black Shale, Undifferentiated Felsic Volcanic, Undifferentiated Fluvioglacial Sediment, Undifferentiated Mafic Intrusive, Undifferentiated Tuff

Undifferentiated Volcanic, Undifferentiated Volcaniclastic, Vein Carbonate, Vein quartz, Volcanic Breccia, Volcanic Conglomerate, Volcanic Sandstone, Volcanic Siltstone

Mineralisation

- Background
- Elevated
- Anomalous
- Strongly Anomalous
- Sub-Grade
- Low-Grade
- High-Grade

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Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
MBV	GRY	VSS		pso		si cl cb		Moderte grey; silica-chlorite-moderately carbonate altered medium to coarse grained volcaniclastic sandstone massflow with common lithic/silstone clasts up 20cm throughout; abundant >2mm irregular quartz carbonate veining; gradational contact and competent core.							
MBV	GRY-CRM	VSS			gra	si ch		Light grey cream to moderate grey green; foliated; weakly silica-chlorite altered; fine grained to medium grained volcaniclastic siltstone to sandstone with rare trace pyrite; common 1-5mm planar and irregular quartz carbonate veins; gradational downhole contact; competent core.							
MBV	GRN-GRY	VDR		brc	abx	si cb	py	Grey green to moderate grey; moderately foliated; silica-carbonate altered to weak silica-patchy albite altered Dacite autobreccia with 1-2mm subhedral feldspars; uncommon 1-15mm planar quartz carbonate veins; minor trace pyrite; sharp contact; competent core.							

750 760 770 780 790 800

Andesite
Andesite Flow
Basalt
Breccia - Undifferentiated
Calcarenite
Chert
Clay
Crystal Tuff
Dacite
Dacite Breccia
Dacite Flow
Dacite Lapilli Tuff
Disseminated Sulphides
Dolomite
Fault Zone
Feldspathic (ash) tuff
Feldspathic porphyry
Felsic Flow
Felsic tuff
Felsic Volcaniclastic
Greywacke
Hyaloclastite Breccia
Interbedded sandstone/shale
Interbedded sandstone/siltsto
Interbedded siltstone/shale
Interbedded VSS/VSL/VSM &
Intermediate flow
Intermediate Volcaniclastic
Lapilli Tuff
Limestone
Lithic Tuff
Mafic Dyke
Mafic Volcaniclastic
Massive sulphide
Mudstone
No Core Present
Not logged
Pyroclastic Breccia
Quartz
Quartz Carbonate Vein
Quartz Feldspar Porphyry
Quartz Porphyry
Quartzite
Rhyodacite
Rhyolite
Rhyolite Breccia
Rhyolite Tuff
Sandstone
Schist
See comments for full descrip
Semi-massive Sulphides
Shale
Siltstone
Slate
Tuff Siltstone
Undifferentiated Black Shale
Undifferentiated Felsic Volcanic
Undifferentiated Fluvioglacial Sediment
Undifferentiated Mafic Intrusive
Undifferentiated Tuff
Undifferentiated Volcanic
Undifferentiated Volcaniclastic
Vein Carbonate
Vein quartz
Volcanic Breccia
Volcanic Conglomerate
Volcanic Sandstone
Volcanic Siltstone

Mineralisation
Background
Elevated
Anomalous
Strongly Anomalous
Sub-Grade
Low-Grade
High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D1

Project: ROS Rosebery

Prospect: NRL North Lake Rosebery

Northing:	5378392.8 mN	**Dip:**	-86.00
Easting:	379741.8 mE	**MAG_Azim:**	66.00
RL:	386.5 mRL	**Total Depth:**	1459.6 m
CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
MBV	GRN-GRY	VDR		brc	abx	si cb	py	Grey green to moderate grey; moderately foliated; silica-carbonate altered to weak silica-patchy albite altered Dacite autobreccia with 1-2mm subhedral feldspars; uncommon 1-15mm planar quartz carbonate veins; minor trace pyrite; sharp contact; competent core.							
DK	GRN	IMK		mas	amy	ch		Dark green; strongly chlorite altered massive Basaltic Dyke with minor >1mm carbonate filled amygdales; one prominent 1cm planar quartz chlorite vein; sharp contacts; competent core.							
MBV	GRY-GRN	VDR		brc	abx	ab cb ch	py	Grey green to moderate grey; moderately foliated; silica-carbonate altered to weak silica-patchy albite altered Dacite autobreccia with 1-2mm subhedral feldspars; common 1-10mm planar quartz carbonate veins; minor trace pyrite; sharp contact; competent core.							

800 810 820 830 840 850

Andesite
Andesite Flow
Basalt
Breccia - Undifferentiated
Calcarenite
Chert
Clay
Crystal Tuff
Dacite
Dacite Breccia
Dacite Flow
Dacite Lapilli Tuff
Disseminated Sulphides
Dolomite
Fault Zone
Feldspathic (ash) tuff
Feldspathic porphyry
Felsic Flow
Felsic tuff
Felsic Volcaniclastic
Greywacke
Hyaloclastite Breccia
Interbedded sandstone/shale
Interbedded sandstone/siltsto
Interbedded siltstone/shale
Interbedded VSS/VSL/VSM &
Intermediate flow
Intermediate Volcaniclastic
Lapilli Tuff
Limestone
Lithic Tuff
Mafic Dyke
Mafic Volcaniclastic
Massive sulphide
Mudstone
No Core Present
Not logged
Pyroclastic Breccia
Quartz
Quartz Carbonate Vein
Quartz Feldspar Porphyry
Quartz Porphyry
Quartzite
Rhyodacite
Rhyolite
Rhyolite Breccia
Rhyolite Tuff
Sandstone
Schist
See comments for full descrip
Semi-massive Sulphides
Shale
Slate
Tuff Siltstone
Undifferentiated Black Shale
Undifferentiated Felsic Volcanic
Undifferentiated Fluvioglacial Sediment
Undifferentiated Mafic Intrusive
Undifferentiated Tuff
Undifferentiated Volcanic
Undifferentiated Volcaniclastic
Vein Carbonate
Vein quartz
Volcanic Breccia
Volcanic Conglomerate
Volcanic Sandstone
Volcanic Siltstone

Mineralisation
Background
Elevated
Anomalous
Strongly Anomalous
Sub-Grade
Low-Grade
High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D1

Project: ROS Rosebery

Prospect: NRL North Lake Rosebery

Northing:	5378392.8 mN	**Dip:**	-86.00
Easting:	379741.8 mE	**MAG_Azim:**	66.00
RL:	386.5 mRL	**Total Depth:**	1459.6 m
CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
MBV	GRY-GRN	VDR		brc	abx	ab cb ch	py	Grey green to moderate grey; moderately foliated; silica-carbonate altered to weak silica-patchy albite altered Dacite autobreccia with 1-2mm subhedral feldspars; common 1-10mm planar quartz carbonate veins; minor trace pyrite; sharp contact; competent core.							
MBV	GRY	VDA		mas		si cb ab	py	Light grey to dark grey; weakly foliated; variably weak-moderately albite-carbonate-chlorite-silica altered coherent rhylotite-dacite lava with common 1-2mm subhedral feldspar phenocrysts; abundant stockwork like planar 1-8mm quartz-carbonate veins throughout; rare trace pyrite; competent core; sharp downhole contact.							

850 860 870 880 890 900

Andesite
Andesite Flow
Basalt
Breccia - Undifferentiated
Calcarenite
Chert
Clay
Crystal Tuff
Dacite
Dacite Breccia
Dacite Flow
Dacite Lapilli Tuff
Disseminated Sulphides
Dolomite
Fault Zone
Feldspathic (ash) tuff
Feldspathic porphyry
Felsic Flow
Felsic tuff
Felsic Volcaniclastic
Greywacke
Hyaloclastite Breccia
Interbedded sandstone/shale
Interbedded sandstone/siltsto
Interbedded siltstone/shale
Interbedded VSS/VSL/VSM &
Intermediate flow
Intermediate Volcaniclastic
Lapilli Tuff
Limestone
Lithic Tuff
Mafic Dyke
Mafic Volcaniclastic
Massive sulphide
Mudstone
No Core Present
Not logged
Pyroclastic Breccia
Quartz
Quartz Carbonate Vein
Quartz Feldspar Porphyry
Quartz Porphyry
Quartzite
Rhyodacite
Rhyolite
Rhyolite Breccia
Rhyolite Tuff
Sandstone
Schist
See comments for full descrip
Semi-massive Sulphides
Shale
Slate
Tuff Siltstone
Undifferentiated Black Shale
Undifferentiated Felsic Volcanic
Undifferentiated Fluvioglacial Sediment
Undifferentiated Mafic Intrusive
Undifferentiated Tuff
Undifferentiated Volcanic
Undifferentiated Volcaniclastic
Vein Carbonate
Vein quartz
Volcanic Breccia
Volcanic Conglomerate
Volcanic Sandstone
Volcanic Siltstone

Mineralisation
Background
Elevated
Anomalous
Strongly Anomalous
Sub-Grade
Low-Grade
High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D1

Project: ROS Rosebery

Prospect: NRL North Lake Rosebery

Northing:	5378392.8 mN	**Dip:**	-86.00
Easting:	379741.8 mE	**MAG_Azim:**	66.00
RL:	386.5 mRL	**Total Depth:**	1459.6 m
CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
MBV	GRY	VDA		mas		si cb ab	py	Light grey to dark grey; weakly foliated; variably weak-moderately albite-carbonate-chlorite-silica altered coherent rhylotite-dacite lava with common 1-2mm subhedral feldspar phenocrysts; abundant stockwork like planar 1-8mm quartz-carbonate veins throughout; rare trace pyrite; competent core; sharp downhole contact.							
MBV	GRY	VSS		mas				Light grey medium grained volcaniclastic sandstone. (logged quickly)							

900 910 920 930 940 950

Andesite
Andesite Flow
Basalt
Breccia - Undifferentiated
Calcarenite
Chert
Clay
Crystal Tuff
Dacite
Dacite Breccia
Dacite Flow
Dacite Lapilli Tuff
Disseminated Sulphides
Dolomite
Fault Zone
Feldspathic (ash) tuff
Feldspathic porphyry
Felsic Flow
Felsic tuff
Felsic Volcaniclastic
Greywacke
Hyaloclastite Breccia
Interbedded sandstone/shale
Interbedded sandstone/siltsto
Interbedded siltstone/shale
Interbedded VSS/VSL/VSM &
Intermediate flow
Intermediate Volcaniclastic
Lapilli Tuff
Limestone
Lithic Tuff
Mafic Dyke
Mafic Volcaniclastic
Massive sulphide
Mudstone
No Core Present
Not logged
Pyroclastic Breccia
Quartz
Quartz Carbonate Vein
Quartz Feldspar Porphyry
Quartz Porphyry
Quartzite
Rhyodacite
Rhyolite
Rhyolite Breccia
Rhyolite Tuff
Sandstone
Schist
See comments for full descrip
Semi-massive Sulphides
Shale
Siltstone
Slate
Tuff Siltstone
Undifferentiated Black Shale
Undifferentiated Felsic Volcanic
Undifferentiated Fluvioglacial Sediment
Undifferentiated Mafic Intrusive
Undifferentiated Tuff
Undifferentiated Volcanic
Undifferentiated Volcaniclastic
Vein Carbonate
Vein quartz
Volcanic Breccia
Volcanic Conglomerate
Volcanic Sandstone
Volcanic Siltstone

Mineralisation
Background
Elevated
Anomalous
Strongly Anomalous
Sub-Grade
Low-Grade
High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D1

Project: ROS Rosebery

Prospect: NRL North Lake Rosebery

Northing:	5378392.8 mN	**Dip:**	-86.00
Easting:	379741.8 mE	**MAG_Azim:**	66.00
RL:	386.5 mRL	**Total Depth:**	1459.6 m
CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
MBV	GRY	VSS		mas				Light grey medium grained volcaniclastic sandstone. (logged quickly)							
DK	GRN	IMK		mas	aph			Dark green basaltic dyke. (logged quickly)							
MBV	GRY	BRE		brc	abx			Dark grey mildly autobrecciated but mostly coherent lava with abundant >4mm planar quartz carbonate veins. (logged quickly)							

950 960 970 980 990 1000

Andesite, Andesite Flow, Basalt, Breccia - Undifferentiated, Calcarenite, Chert, Clay, Crystal Tuff, Dacite, Dacite Breccia, Dacite Flow, Dacite Lapilli Tuff

Disseminated Sulphides, Dolomite, Fault Zone, Feldspathic (ash) tuff, Feldspathic porphyry, Felsic Flow, Felsic tuff, Felsic Volcaniclastic, Greywacke, Hyaloclastite Breccia, Interbedded sandstone/shale, Interbedded sandstone/siltsto

Interbedded siltstone/shale, Interbedded VSS/VSL/VSM &, Intermediate flow, Intermediate Volcaniclastic, Lapilli Tuff, Limestone, Lithic Tuff, Mafic Dyke, Mafic Volcaniclastic, Massive sulphide, Mudstone, No Core Present

Not logged, Pyroclastic Breccia, Quartz, Quartz Carbonate Vein, Quartz Feldspar Porphyry, Quartz Porphyry, Quartzite, Rhyodacite, Rhyolite, Rhyolite Breccia, Rhyolite Tuff, Sandstone

Schist, See comments for full descrip, Semi-massive Sulphides, Shale, Siltstone, Slate, Tuff Siltstone, Undifferentiated Black Shale, Undifferentiated Felsic Volcanic, Undifferentiated Fluvioglacial Sediment, Undifferentiated Mafic Intrusive, Undifferentiated Tuff

Undifferentiated Volcanic, Undifferentiated Volcaniclastic, Vein Carbonate, Vein quartz, Volcanic Breccia, Volcanic Conglomerate, Volcanic Sandstone, Volcanic Siltstone

Mineralisation

Background, Elevated, Anomalous, Strongly Anomalous, Sub-Grade, Low-Grade, High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D1

Project: ROS Rosebery

Prospect: NRL North Lake Rosebery

Northing:	5378392.8 mN	**Dip:**	-86.00
Easting:	379741.8 mE	**MAG_Azim:**	66.00
RL:	386.5 mRL	**Total Depth:**	1459.6 m
CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
MBV	GRY	BRE		brc	abx			Dark grey mildly autobrecciated but mostly coherent lava with abundant >4mm planar quartz carbonate veins. (logged quickly)							

1000
1010
1020
1030
1040
1050

Andesite
Andesite Flow
Basalt
Breccia - Undifferentiated
Calcarenite
Chert
Clay
Crystal Tuff
Dacite
Dacite Breccia
Dacite Flow
Dacite Lapilli Tuff
Disseminated Sulphides
Dolomite
Fault Zone
Feldspathic (ash) tuff
Feldspathic porphyry
Felsic Flow
Felsic tuff
Felsic Volcaniclastic
Greywacke
Hyaloclastite Breccia
Interbedded sandstone/shale
Interbedded sandstone/siltsto
Interbedded siltstone/shale
Interbedded VSS/VSL/VSM &
Intermediate flow
Intermediate Volcaniclastic
Lapilli Tuff
Limestone
Lithic Tuff
Mafic Dyke
Mafic Volcaniclastic
Massive sulphide
Mudstone
No Core Present
Not logged
Pyroclastic Breccia
Quartz
Quartz Carbonate Vein
Quartz Feldspar Porphyry
Quartz Porphyry
Quartzite
Rhyodacite
Rhyolite
Rhyolite Breccia
Rhyolite Tuff
Sandstone
Schist
See comments for full descrip
Semi-massive Sulphides
Shale
Siltstone
Slate
Tuff Siltstone
Undifferentiated Black Shale
Undifferentiated Felsic Volcanic
Undifferentiated Fluvioglacial Sediment
Undifferentiated Mafic Intrusive
Undifferentiated Tuff
Undifferentiated Volcanic
Undifferentiated Volcaniclastic
Vein Carbonate
Vein quartz
Volcanic Breccia
Volcanic Conglomerate
Volcanic Sandstone
Volcanic Siltstone

Mineralisation
Background
Elevated
Anomalous
Strongly Anomalous
Sub-Grade
Low-Grade
High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D1

Project: ROS Rosebery

Prospect: NRL North Lake Rosebery

Northing:	5378392.8 mN	**Dip:**	-86.00
Easting:	379741.8 mE	**MAG_Azim:**	66.00
RL:	386.5 mRL	**Total Depth:**	1459.6 m
CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
MBV	GRY	BRE		brc	abx			Dark grey mildly autobrecciated but mostly coherent lava with abundant >4mm planar quartz carbonate veins. (logged quickly)							

1050
1060
1070
1080
1090
1100

Andesite
Andesite Flow
Basalt
Breccia - Undifferentiated
Calcarenite
Chert
Clay
Crystal Tuff
Dacite
Dacite Breccia
Dacite Flow
Dacite Lapilli Tuff
Disseminated Sulphides
Dolomite
Fault Zone
Feldspathic (ash) tuff
Feldspathic porphyry
Felsic Flow
Felsic tuff
Felsic Volcaniclastic
Greywacke
Hyaloclastite Breccia
Interbedded sandstone/shale
Interbedded sandstone/siltsto
Interbedded siltstone/shale
Interbedded VSS/VSL/VSM &
Intermediate flow
Intermediate Volcaniclastic
Lapilli Tuff
Limestone
Lithic Tuff
Mafic Dyke
Mafic Volcaniclastic
Massive sulphide
Mudstone
No Core Present
Not logged
Pyroclastic Breccia
Quartz
Quartz Carbonate Vein
Quartz Feldspar Porphyry
Quartz Porphyry
Quartzite
Rhyodacite
Rhyolite
Rhyolite Breccia
Rhyolite Tuff
Sandstone
Schist
See comments for full descrip
Semi-massive Sulphides
Shale
Siltstone
Slate
Tuff Siltstone
Undifferentiated Black Shale
Undifferentiated Felsic Volcanic
Undifferentiated Fluvioglacial Sediment
Undifferentiated Mafic Intrusive
Undifferentiated Tuff
Undifferentiated Volcanic
Undifferentiated Volcaniclastic
Vein Carbonate
Vein quartz
Volcanic Breccia
Volcanic Conglomerate
Volcanic Sandstone
Volcanic Siltstone

Mineralisation
Background
Elevated
Anomalous
Strongly Anomalous
Sub-Grade
Low-Grade
High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D1

Project: ROS Rosebery

Prospect: NRL North Lake Rosebery

Northing:	5378392.8 mN	**Dip:**	-86.00
Easting:	379741.8 mE	**MAG_Azim:**	66.00
RL:	386.5 mRL	**Total Depth:**	1459.6 m
CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
MBV	GRY	BRE		brc	abx			Dark grey mildly autobrecciated but mostly coherent lava with abundant >4mm planar quartz carbonate veins. (logged quickly)	D1395101	0.0	0.0	0.0	0.07		2.9
									D1395102	0.0	0.0	0.0	0.06		2.0
									D1395103	0.0	0.0	0.0	0.10		7.5
									D1395104	0.0	0.0	0.0	0.12		2.3
									D1395105	0.0	0.0	0.0	0.08		3.1

1100 1110 1120 1130 1140 1150

Andesite, Andesite Flow, Basalt, Breccia - Undifferentiated, Calcarenite, Chert, Clay, Crystal Tuff, Dacite, Dacite Breccia, Dacite Flow, Dacite Lapilli Tuff

Disseminated Sulphides, Dolomite, Fault Zone, Feldspathic (ash) tuff, Feldspathic porphyry, Felsic Flow, Felsic tuff, Felsic Volcaniclastic, Greywacke, Hyaloclastite Breccia, Interbedded sandstone/shale, Interbedded sandstone/siltsto

Interbedded siltstone/shale, Interbedded VSS/VSL/VSM &, Intermediate flow, Intermediate Volcaniclastic, Lapilli Tuff, Limestone, Lithic Tuff, Mafic Dyke, Mafic Volcaniclastic, Massive sulphide, Mudstone, No Core Present

Not logged, Pyroclastic Breccia, Quartz, Quartz Carbonate Vein, Quartz Feldspar Porphyry, Quartz Porphyry, Quartzite, Rhyodacite, Rhyolite, Rhyolite Breccia, Rhyolite Tuff, Sandstone

Schist, See comments for full descrip, Semi-massive Sulphides, Shale, Siltstone, Slate, Tuff Siltstone, Undifferentiated Black Shale, Undifferentiated Felsic Volcanic, Undifferentiated Fluvioglacial Sediment, Undifferentiated Mafic Intrusive, Undifferentiated Tuff

Undifferentiated Volcanic, Undifferentiated Volcaniclastic, Vein Carbonate, Vein quartz, Volcanic Breccia, Volcanic Conglomerate, Volcanic Sandstone, Volcanic Siltstone

Mineralisation

Background, Elevated, Anomalous, Strongly Anomalous, Sub-Grade, Low-Grade, High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D1

Project: ROS Rosebery

Prospect: NRL North Lake Rosebery

Northing:	5378392.8 mN	**Dip:**	-86.00
Easting:	379741.8 mE	**MAG_Azim:**	66.00
RL:	386.5 mRL	**Total Depth:**	1459.6 m
CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
MBV	GRY	BRE		brc	abx			Dark grey mildly autobrecciated but mostly coherent lava with abundant >4mm planar quartz carbonate veins. (logged quickly)	D1395106	0.0	0.0	0.0	0.20		2.9
									D1395107	0.0	0.0	0.0	0.09		3.8
									D1395108	0.0	0.0	0.0	0.09		4.1
									D1395109	0.0	0.0	0.0	0.08		4.5
									D1395110	0.0	0.0	0.0	0.10		9.9

1150 1160 1170 1180 1190 1200

Andesite, Andesite Flow, Basalt, Breccia - Undifferentiated, Calcarenite, Chert, Clay, Crystal Tuff, Dacite, Dacite Breccia, Dacite Flow, Dacite Lapilli Tuff

Disseminated Sulphides, Dolomite, Fault Zone, Feldspathic (ash) tuff, Feldspathic porphyry, Felsic Flow, Felsic tuff, Felsic Volcaniclastic, Greywacke, Hyaloclastite Breccia, Interbedded sandstone/shale, Interbedded sandstone/siltsto

Interbedded siltstone/shale, Interbedded VSS/VSL/VSM &, Intermediate flow, Intermediate Volcaniclastic, Lapilli Tuff, Limestone, Lithic Tuff, Mafic Dyke, Mafic Volcaniclastic, Massive sulphide, Mudstone, No Core Present

Not logged, Pyroclastic Breccia, Quartz, Quartz Carbonate Vein, Quartz Feldspar Porphyry, Quartz Porphyry, Quartzite, Rhyodacite, Rhyolite, Rhyolite Breccia, Rhyolite Tuff, Sandstone

Schist, See comments for full descrip, Semi-massive Sulphides, Shale, Siltstone, Slate, Tuff Siltstone, Undifferentiated Black Shale, Undifferentiated Felsic Volcanic, Undifferentiated Fluvioglacial Sediment, Undifferentiated Mafic Intrusive, Undifferentiated Tuff

Undifferentiated Volcanic, Undifferentiated Volcaniclastic, Vein Carbonate, Vein quartz, Volcanic Breccia, Volcanic Conglomerate, Volcanic Sandstone, Volcanic Siltstone

Mineralisation

- Background
- Elevated
- Anomalous
- Strongly Anomalous
- Sub-Grade
- Low-Grade
- High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D1

Project: ROS Rosebery

Prospect: NRL North Lake Rosebery

Northing:	5378392.8 mN	**Dip:**	-86.00
Easting:	379741.8 mE	**MAG_Azim:**	66.00
RL:	386.5 mRL	**Total Depth:**	1459.6 m
CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
MBV	GRY	BRE		brc	abx			Dark grey mildly autobrecciated but mostly coherent lava with abundant >4mm planar quartz carbonate veins. (logged quickly)	D1395111	0.0	0.0	0.0	0.08		11.6
HW	CRM-YEL	VSS		ftz	gra	si h m cb		MT BLACK FAULT. Creamy yellow; weakly brecciated; medium to coarse grained volcaniclastic sandstone with prominent alteration change from 1206.6 from silica-chlorite-weak hematite to strongly silica-carbonate-weakly chlorite; Mt Black fault may be at 1206.8 where a discrete 1cm zone of tourmaline has infilled a zone containing >25% angular country rock; common disseminated >1mm pyrite.							
HW	YEL-GRY	VSS				si cb ch		Light straw yellow-grey; strongly silica-moderately carbonate-weakly chlorite altered; foliated; medium to coarse (1-4mm quartz) volcaniclastic sandstone with minor subrounded lithics up to 6cm (Dacite and rhyolitic clasts); alteration appears somewhat domainal which gives an almost "stripey" effect; minor 1-8mm planar quartz carbonate veins; sharp contacts; competent core.	D1395112	0.0	0.0	0.0	0.72		1.5
									D1395113	0.0	0.0	0.0	0.25		3.5
HW	GRY-GRN	VSS			gra	si ch		Moderate grey green; weakly foliated; silica-moderately chlorite altered; fine grading to medium grained quartz phyric volcaniclastic sandstone with common planar and discontinuous crackle like 1-8mm quartz and lessor chlorite veins; sharp contacts; competent core.							
									D1395114	0.0	0.0	0.0	0.12		1.9
HW	GRY	VSM		mas		si		Moderate to light grey; silica altered; foliated; massive volcaniclastic ash unit with what appears to be 4 discrete pumice rafts? Varying from 1-10cm in size; visible >2mm feldspar within the rafts; common 1-5mm planar quartz minor carbonte veins; gradational lower contact; competent core.							
HW	GRN-GRY	VSS			gra	si ch		Moderate green grey; moderately silica-chlorite altered; weakly foliated; medium to coarse grained volcaniclastic sandstone mass flow unit with common 1-4cm polymict lithics comprising of fine grained chert; and medium grained volcaniclastic sandstone clasts; sandstone appears more angular than the subrounded chert/siltstone clasts; common 4-10mm planar quartz carbonate veins; abundant >3mm chlorite veinlets throughout; minor >10cm zones of carbonate alteration; sharp contacts; competent core.	D1395115	0.0	0.0	0.0	0.11		1.6

1200 1210 1220 1230 1240 1250

Andesite, Andesite Flow, Basalt, Breccia - Undifferentiated, Calcarenite, Chert, Clay, Crystal Tuff, Dacite, Dacite Breccia, Dacite Flow, Dacite Lapilli Tuff

Disseminated Sulphides, Dolomite, Fault Zone, Feldspathic (ash) tuff, Feldspathic porphyry, Felsic Flow, Felsic tuff, Felsic Volcaniclastic, Greywacke, Hyaloclastite Breccia, Interbedded sandstone/shale, Interbedded sandstone/siltsto

Interbedded siltstone/shale, Interbedded VSS/VSL/VSM &, Intermediate flow, Intermediate Volcaniclastic, Lapilli Tuff, Limestone, Lithic Tuff, Mafic Dyke, Mafic Volcaniclastic, Massive sulphide, Mudstone, No Core Present

Not logged, Pyroclastic Breccia, Quartz, Quartz Carbonate Vein, Quartz Feldspar Porphyry, Quartz Porphyry, Quartzite, Rhyodacite, Rhyolite, Rhyolite Breccia, Rhyolite Tuff, Sandstone

Schist, See comments for full descrip, Semi-massive Sulphides, Shale, Siltstone, Slate, Tuff Siltstone, Undifferentiated Black Shale, Undifferentiated Felsic Volcanic, Undifferentiated Fluvioglacial Sediment, Undifferentiated Mafic Intrusive, Undifferentiated Tuff

Undifferentiated Volcanic, Undifferentiated Volcaniclastic, Vein Carbonate, Vein quartz, Volcanic Breccia, Volcanic Conglomerate, Volcanic Sandstone, Volcanic Siltstone

Mineralisation

Background, Elevated, Anomalous, Strongly Anomalous, Sub-Grade, Low-Grade, High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D1

Project: ROS Rosebery

Prospect: NRL North Lake Rosebery

Northing:	5378392.8 mN	**Dip:**	-86.00
Easting:	379741.8 mE	**MAG_Azim:**	66.00
RL:	386.5 mRL	**Total Depth:**	1459.6 m
CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
HW	GRN-GRY	VSS			gra	si ch		Moderate green grey; moderately silica-chlorite altered; weakly foliated; medium to coarse grained volcaniclastic sandstone mass flow unit with common 1-4cm polymict lithics comprising of fine grained chert; and medium grained volcaniclastic sandstone clasts; sandstone appears more angular than the subrounded chert/siltstone clasts; common 4-10mm planar quartz carbonate veins; abundant >3mm chlorite veinlets throughout; minor >10cm zones of carbonate alteration; sharp contacts; competent core.	D1395116	0.0	0.1	0.0	1.14		1.4
									D1395117	0.0	0.0	0.0	0.19		1.4
									D1395118	0.0	0.0	0.0	0.07		1.5
HW	GRY	VSM		mas		si ch		Light to moderate grey; weakly silica-weakly chlorite altered volcanic ash unit; common 1-8mm planar quartz carbonate veins; abundant >2mm chlorite veinlets; competent core; sharp contacts.							
HW	GRN-GRY	VSS		pso		si ch		Light to moderate green grey; weakly foliated; moderately silica-weakly chlorite-localised carbonate altered; medium grained volcaniclastic sandstone which at ~1300m becomes a volcaniclastic sandstone mass flow with abundant lithics; 1303.2m may be the base of the unit but is ambiguous; 1303.2m would appear to correlate with the base of the unit in the 411R parent hole and is characterised by two ~10cm dark brown grey/orange porphyritic rhyolite or sandstone?? clasts appear to be dominated by 1-4cm subrounded chert/siltstone and at 1302m appear to become dominated by Dacite/rhyolite clasts which are quite light grey in colour and have prominent 1-2mm milky white feldspars; clasts are up to 15cm in size; quartz is abundant throughout the interval and reaches up to 4mm in size; the upper sandstone unit has abundant >2mm planar chlorite veinlets; with lessor chlorite veining below 1300m; minor >5mm crackle like quartz carbonate veins; sharp contacts; competent core.	D1395119	0.0	0.0	0.0	0.06		1.3
									D1395120	0.0	0.0	0.0	0.04		1.7

1250 1260 1270 1280 1290 1300

Andesite, Andesite Flow, Basalt, Breccia - Undifferentiated, Calcarenite, Chert, Clay, Crystal Tuff, Dacite, Dacite Breccia, Dacite Flow, Dacite Lapilli Tuff

Disseminated Sulphides, Dolomite, Fault Zone, Feldspathic (ash) tuff, Feldspathic porphyry, Felsic Flow, Felsic tuff, Felsic Volcaniclastic, Greywacke, Hyaloclastite Breccia, Interbedded sandstone/shale, Interbedded sandstone/siltsto

Interbedded siltstone/shale, Interbedded VSS/VSL/VSM &, Intermediate flow, Intermediate Volcaniclastic, Lapilli Tuff, Limestone, Lithic Tuff, Mafic Dyke, Mafic Volcaniclastic, Massive sulphide, Mudstone, No Core Present

Not logged, Pyroclastic Breccia, Quartz, Quartz Carbonate Vein, Quartz Feldspar Porphyry, Quartz Porphyry, Quartzite, Rhyodacite, Rhyolite, Rhyolite Breccia, Rhyolite Tuff, Sandstone

Schist, See comments for full descrip, Semi-massive Sulphides, Shale, Siltstone, Slate, Tuff Siltstone, Undifferentiated Black Shale, Undifferentiated Felsic Volcanic, Undifferentiated Fluvioglacial Sediment, Undifferentiated Mafic Intrusive, Undifferentiated Tuff

Undifferentiated Volcanic, Undifferentiated Volcaniclastic, Vein Carbonate, Vein quartz, Volcanic Breccia, Volcanic Conglomerate, Volcanic Sandstone, Volcanic Siltstone

Mineralisation

Background, Elevated, Anomalous, Strongly Anomalous, Sub-Grade, Low-Grade, High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D1

Project: ROS Rosebery

Prospect: NRL North Lake Rosebery

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RL:	386.5 mRL	**Total Depth:**	1459.6 m
CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary
HW	GRN-GRY	VSS		pso		si ch		Light to moderate green grey; weakly foliated; moderately silica-weakly chlorite-localised carbonate altered; medium grained volcaniclastic sandstone which at ~1300m becomes a volcaniclastic sandstone mass flow with abundant lithics; 1303.2m may be the base of the unit but is ambiguous; 1303.2m would appear to correlate with the base of the unit in the 411R parent hole and is characterised by two ~10cm dark brown grey/orange porphyritic rhyolite or sandstone?? clasts appear to be dominated by 1-4cm subrounded chert/siltstone and at 1302m appear to become dominated by Dacite/rhyolite clasts which are quite light grey in colour and have prominent 1-2mm milky white feldspars; clasts are up to 15cm in size; quartz is abundant throughout the interval and reaches up to 4mm in size; the upper sandstone unit has abundant >2mm planar chlorite veinlets; with lessor chlorite veining below 1300m; minor >5mm crackle like quartz carbonate veins; sharp contacts; competent core.
								Light grey green; weakly foliated; weakly silica-weakly chlorite altered; top of unit grades from fine grained volcanic ash to medium grained volcaniclastic sandstone with the last 2m of the unit comprising of a lithic volcaniclastic sandstone mass flow unit; clasts comprise ~20% of the last two metres; dominated by 1-4cm subrounded siltstone; and lessor up to 8cm pale grey; rhyolitic clasts with prominent milky white feldspars; at 1327.7 there is a >1cm vein of semi massive pyrrhotite with rare >1mm chalcopyrite blebs within the vein?; common >5mm planar quartz carbonate veins with rare pyrrhotite and very rare sphalerite; competent core; sharp contacts.
HW	GRY-GRN	VSM			gra	si ch		Light grey green; weakly silica-weakly chlorite altered; weakly foliated; fine grained volcanic ash grading to medium grained quartz volcaniclastic sandstone which after 3m becomes a volcaniclastic sandstone mass flow unit; clasts consist of pale grey 1-20cm porphyritic rhyoloite clasts with >2mm milky white feldpars; common >3mm planar and irregular quartz carbonate veinlets with associated pyrrhotite and rare sphalerite; competent core; sharp contacts.
								Grey; weakly silica altered; massive volcaniclastic sandstone with minor deformation; rare quartz carbonate veins >5mm; ~20bpm incompetent core; gradational lower contact.
HW	GRY-GRN	VSM			gra	si ch	po sp	BLACK SLATE; bears striking resemblence to mine sequence unit; 10+ quartz carbonate veinlets per 1cm of core; with abundant associated pyrrohitite and pyrite throughout;
HW	GRY	VSS		mas		si		Light grey green to grey; weakly silica-chlorite altered; fine to medium grained >1mm quartz phyric and lessor milky white >2mm feldpathic volcaniclastic sandstone with common 2-10mm planar and irregular quartz carbonate veins with minor associated coarse grained sphalerite; galena; pyrite and pyrrhotite; minor >1mm planar chlorite veinlets; last 1m of interval contains >3cm pale grey volcanic ash rip clasts from the underlying distinctive volcanic ash + pumice raft unit (Unit 3d?) at 1350.9 there is at least 10cm of deformation where bedding and cleavage appear to be folded and may represent a small scale fault zone;
BS	BLK	SSH		lam	fgr		po py	
HW	GRY-GRN	VSS			gra	si ch		

Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
D1395121	0.0	0.0	0.0	0.05		1.4
D1395122	0.0	0.0	0.0	0.14		1.5
D1395123	0.0	0.0	0.0	0.06		1.0
D1395124	0.0	0.1	0.0	0.11		2.9
D1395125	0.0	0.0	0.0	0.13		1.3

Andesite, Andesite Flow, Basalt, Breccia - Undifferentiated, Calcarenite, Chert, Clay, Crystal Tuff, Dacite, Dacite Breccia, Dacite Flow, Dacite Lapilli Tuff

Disseminated Sulphides, Dolomite, Fault Zone, Feldspathic (ash) tuff, Feldspathic porphyry, Felsic Flow, Felsic tuff, Felsic Volcaniclastic, Greywacke, Hyaloclastite Breccia, Interbedded sandstone/shale, Interbedded sandstone/siltsto

Interbedded siltstone/shale, Interbedded VSS/VSL/VSM &, Intermediate flow, Intermediate Volcaniclastic, Lapilli Tuff, Limestone, Lithic Tuff, Mafic Dyke, Mafic Volcaniclastic, Massive sulphide, Mudstone, No Core Present

Not logged, Pyroclastic Breccia, Quartz, Quartz Carbonate Vein, Quartz Feldspar Porphyry, Quartz Porphyry, Quartzite, Rhyodacite, Rhyolite, Rhyolite Breccia, Rhyolite Tuff, Sandstone

Schist, See comments for full descrip, Semi-massive Sulphides, Shale, Siltstone, Slate, Tuff Siltstone, Undifferentiated Black Shale, Undifferentiated Felsic Volcanic, Undifferentiated Fluvioglacial Sediment, Undifferentiated Mafic Intrusive, Undifferentiated Tuff

Undifferentiated Volcanic, Undifferentiated Volcaniclastic, Vein Carbonate, Vein quartz, Volcanic Breccia, Volcanic Conglomerate, Volcanic Sandstone, Volcanic Siltstone

Mineralisation: Background, Elevated, Anomalous, Strongly Anomalous, Sub-Grade, Low-Grade, High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D1

Project: ROS Rosebery

Prospect: NRL North Lake Rosebery

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Easting:	379741.8 mE	**MAG_Azim:**	66.00
RL:	386.5 mRL	**Total Depth:**	1459.6 m
CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary
HW	GRY-GRN	VSS			gra	si ch		Light grey green to grey; weakly silica-chlorite altered; fine to medium grained >1mm quartz phyric and lessor milky white >2mm feldpathic volcaniclastic sandstone with common 2-10mm planar and irregular quartz carbonate veins with minor associated coarse grained sphalerite; galena; pyrite and pyrrhotite; minor >1mm planar chlorite veinlets; last 1m of interval contains >3cm pale grey volcanic ash rip clasts from the underlying distinctive volcanic ash + pumice raft unit (Unit 3d?) at 1350.9 there is at least 10cm of deformation where bedding and cleavage appear to be folded and may represent a small scale fault zone;
HW	GRY	VSM			fgr	si cb		Unit 3d? Light grey; weakly silica-weakly carbonate altered; very fine grained volcanic ash with three prominent 2-6cm pumice rafts with visible pumice tubes and infilling 1-2mm feldspars; lessor ~1cm pumice rafts in the upper portion of the interval; common >4mm planar quartz carbonate dominated veins with associated coarse grained galena and lessor sphalerite; gradational lower contact; competent core.
HW	GRY	VSS			gra	si		Light grey to moderate grey; weakly foliated; weakly silica altered; medium to coarse grained quartz rich volcaniclastic sandstone with uncommon >2cm siltstone lithics in last 3m of interval; common planar and irregular 1-4mm quartz carbonate veins with associated minor sphalerite; pyrite and chalcopyrite; distinctive >10mm dark grey zones which are mostly likely alteration but appear to be pseudo pumice clasts? competent core; sharp contacts.
HW	GRY	VSM		mas	gra	si		Moderate grey; weakly silica altered; weakly foliated; fine grained volcanic ash grading to medium grained volcaniclastic sandstone; common planar >2mm quartz carbonate veinlets with associated epidote; coarse grained sphalerite; galena and lessor epidote;
HW	GRY	VSS		mas	gra	si	sp po	Light to moderate grey; massive to weakly graded; weakly if at all foliated; weakly silica altered; fine to medium grained volcaniclastic sandstone with a sharp contact ar 1383.2m which denotes a change from medium grained volcaniclastic sandstone to quartz rich 1-2mm volcaniclastic sandstone and black shale epiclastics that have been ripped up from the downhole unit ~1-7mm in size; last metre of the unit in the epiclastic has ~1% sphalerite as red brown and wispy; common 1-2mm planar quartz veinlets throughout with minor carbonate and rare pyrrhotite; sharp contacts; competent core.
HW	GRY-GRN	VSM		mas	gra	si cb se	sp py	
HW	GRY-GRN	VSS		mas	gra	si cb ch	sp	Light to moderate grey green; weakly silica-weakly carbonate- weakly sericite? Altered; weakly foliated; top 1.5m of unit consists of fine grained volcaniclastic ash unit which quickly goes from medium grained volcaniclastic sandstone to 1-2mm rounded quartz coarse volcaniclastic sandstone with ~~3-4% of total volume consisting of clastic siltstone clasts; clasts consist of 1-5cm rounded siltstone clasts and two prominent 1-5cm quartz veins with minor brown sphalerite occur at 1386.9m; uncommon trace wispy sphalerite; pyrite throughout; common 1-2mm planar quartz-carbonate and lessor chlorite veinlets with minor associated sphalerite and pyrrhotite; competent core; intermediate boundary.

Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
D1395126	0.0	0.0	0.0	0.07		1.7
D1395127	0.0	0.0	0.0	0.09		2.1
D1395128	0.0	0.0	0.0	0.11		1.7
D242351	0.0	0.2	0.0	1.00	-0.01	2.5
D242352	0.0	0.1	0.0	1.00	-0.01	1.9
D242353	0.0	0.1	0.0	-1.00	-0.01	2.5
D242354	0.0	0.2	0.0	-1.00	-0.01	2.4
D1395129	0.0	0.0	0.0	0.12		1.2
D242355	0.0	0.3	0.0	1.00	-0.01	2.4
D242357	0.0	0.1	0.0	1.00	-0.01	2.4
D242358	0.0	0.0	0.0	1.00	-0.01	2.2
D242359	0.0	0.1	0.0	-1.00	-0.01	1.9
D242360	0.0	0.2	0.0	1.00	-0.01	2.0
D1395130	0.0	0.0	0.0	0.04		1.8

Andesite, Andesite Flow, Basalt, Breccia - Undifferentiated, Calcarenite, Chert, Clay, Crystal Tuff, Dacite, Dacite Breccia, Dacite Flow, Dacite Lapilli Tuff

Disseminated Sulphides, Dolomite, Fault Zone, Feldspathic (ash) tuff, Feldspathic porphyry, Felsic Flow, Felsic tuff, Felsic Volcaniclastic, Greywacke, Hyaloclastite Breccia, Interbedded sandstone/shale, Interbedded sandstone/siltsto

Interbedded siltstone/shale, Interbedded VSS/VSL/VSM &, Intermediate flow, Intermediate Volcaniclastic, Lapilli Tuff, Limestone, Lithic Tuff, Mafic Dyke, Mafic Volcaniclastic, Massive sulphide, Mudstone, No Core Present

Not logged, Pyroclastic Breccia, Quartz, Quartz Carbonate Vein, Quartz Feldspar Porphyry, Quartz Porphyry, Quartzite, Rhyodacite, Rhyolite, Rhyolite Breccia, Rhyolite Tuff, Sandstone

Schist, See comments for full descrip, Semi-massive Sulphides, Shale, Siltstone, Slate, Tuff Siltstone, Undifferentiated Black Shale, Undifferentiated Felsic Volcanic, Undifferentiated Fluvioglacial Sediment, Undifferentiated Mafic Intrusive, Undifferentiated Tuff

Undifferentiated Volcanic, Undifferentiated Volcaniclastic, Vein Carbonate, Vein quartz, Volcanic Breccia, Volcanic Conglomerate, Volcanic Sandstone, Volcanic Siltstone

Mineralisation: Background, Elevated, Anomalous, Strongly Anomalous, Sub-Grade, Low-Grade, High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D1

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Prospect: NRL North Lake Rosebery

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CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary
HW	GRY-GRN	VSS		mas	gra	si cb ch	sp	Moderate grey green; weakly silica-weakly carbonate-weakly chlorite altered; weakly graded; medium to coarse grained 1-3mm rounded quartz volcaniclastic sandstone with well define localised stronger silica alteration within ~10-15cm zones often associated with veining; common 1-20mm planar quaetz carbonate with varying chlorite; small veins >4mm tend to have common coarse grained brown sphalerite with minor galena and pyrite; competent core; contact appears somewhat ambiguous within +/- 30cm where it was placed.
HW	GRY	VSS		mas	gra	si	sp py	
HW	GRY-BRN	VSS		mas	aug	si		Light grey; weakly silica to moderately silica altered; medium to coarse grained quartz rich volcaniclastic sandstone with numerous ~5-20mm dark grey volcaniclastic ash rup up clasts; basal ~15cm of unit contains a pebbly ~5-15mm subrounded siltstone/volcanic ash rounded pebbles with common blebby and veinlet sphalerite mineralisation; two bands of 2-4cm trace to disseminated sphalerite within volcaniclastic sandstone occur at 1407.1m; common planar and irregular 1-3mm quartz veinlets with minor associated pyrite; competent core; sharp contacts.
HW	GRY-BRN	VSS		mas	aug	si		
HW	GRY-BRN	VSS		mas	gra	si cb		Moderate grey brown; weak to moderately domain silica altered that appears somewhat augen; moderately foliated; medium grained quartz volcaniclastic sandstone with common >2mm planar quartz carbonate veinlets; competent core sharp contacts.
F	GRN	VSS		ftz	fgr	se	ba	
HOSM	GRY	VST		bed		se si ch	sp	Moderate grey brown; weak to moderately domain silica altered that appears somewhat augen; moderately foliated; medium grained quartz volcaniclastic sandstone with common >2mm planar quartz carbonate veinlets; competent core sharp contacts.
								Moderate grey brown; weakly to moderately silica-weakly carbonate altered; fine to medium grained volcaniclastic sandstone with common >1mm planar and irregular quartz carbonate veinlets; rare epidote seen in veins; incompetent core last 80cm and the contact is with the inferred ROSEBERY FAULT; broken core is ~1-3cm pieces.
								ROSEBERY FAULT; 10cm of dark grey pug with minor pyrite; 10cm preceding this is composed of broken >3mm strongly sericite altered fine grained; volcaniclastic sandstone with infilling pug/silification in parts.
								Light grey; strong to moderate sericite-silica-weakly chlorite altered; strongly foliated; fine grained volcaniclastic siltstone which at the upper contact has been strongly deformed with very tight folding; 1422.9 to 1432.5 consists of semi massive to massive barite rich; honey brown sphalerite; galena and pyrite throughout; common 1-10mm planar quartz carbonate veins with moderate to weak associated coarse grained pyrite; galena and lessor sphalerite; sharp lower contact; ~6-7 breaks per metre.
HO	GRY	VSS		mas	gra	si se	py sp	Moderate grey; very weak silica-weak to moderate sericite altered; storngly foliated; fine to medium grained quartz >1mm volcaniclastic sandstone with distinct isolated disseminations of pyrite ~1-3mm; pyrite appears quite ubiqutous throughout the unit; common 1-3mm planar quartz carbonate veins with minor associated coarse grained pyrite and rare sphalerite;

Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
D242360	0.0	0.2	0.0	1.00	-0.01	2.0
D1395131	0.0	0.0	0.0	0.03		2.0
D1395132	0.0	0.0	0.0	0.05		1.5
D1395133	0.0	0.0	0.0	0.04		1.4
D1392722	0.0	0.0	0.0	-0.50		
D1392723	0.0	0.0	0.0	1.10		
D1392724	1.0	1.0	0.2	100.10		
D1392725	1.0	1.0	0.1	100.10		
D1392726	0.6	1.0	0.0	100.10		
D1392727	1.0	1.0	0.2	100.10		
D1392729	0.1	0.2	0.0	8.30		
D1392730	1.0	1.0	0.3	100.10		
D1392731	1.0	1.0	0.4	100.10		
D1392732	1.0	1.0	0.6	100.10		
D1392733	1.0	1.0	0.8	100.10		
D1392735	1.0	1.0	0.3	100.10		
D1392736	1.0	1.0	0.1	100.10		
D1392737	1.0	1.0	0.2	100.10		
D1392738	1.0	1.0	0.2	100.10		
D1392739	0.0	0.1	0.0	9.60		
D1392740	0.0	0.0	0.0	2.40		
D1392741	0.0	0.0	0.0	1.60		
D1392742	0.0	0.1	0.0	2.70		
D1395134	0.0	0.0	0.0	0.53		1.1

Andesite, Andesite Flow, Basalt, Breccia - Undifferentiated, Calcarenite, Chert, Clay, Crystal Tuff, Dacite, Dacite Breccia, Dacite Flow, Dacite Lapilli Tuff, Disseminated Sulphides, Dolomite, Fault Zone, Feldspathic (ash) tuff, Feldspathic porphyry, Felsic Flow, Felsic tuff, Felsic Volcaniclastic, Greywacke, Hyaloclastite Breccia, Interbedded sandstone/shale, Interbedded sandstone/siltsto, Interbedded siltstone/shale, Interbedded VSS/VSL/VSM &, Intermediate flow, Intermediate Volcaniclastic, Lapilli Tuff, Limestone, Lithic Tuff, Mafic Dyke, Mafic Volcaniclastic, Massive sulphide, Mudstone, No Core Present, Not logged, Pyroclastic Breccia, Quartz, Quartz Carbonate Vein, Quartz Feldspar Porphyry, Quartz Porphyry, Quartzite, Rhyodacite, Rhyolite, Rhyolite Breccia, Rhyolite Tuff, Sandstone, Schist, See comments for full descrip, Semi-massive Sulphides, Shale, Siltstone, Slate, Tuff Siltstone, Undifferentiated Black Shale, Undifferentiated Felsic Volcanic, Undifferentiated Fluvioglacial Sediment, Undifferentiated Mafic Intrusive, Undifferentiated Tuff, Undifferentiated Volcanic, Undifferentiated Volcaniclastic, Vein Carbonate, Vein quartz, Volcanic Breccia, Volcanic Conglomerate, Volcanic Sandstone, Volcanic Siltstone

Mineralisation: Background, Elevated, Anomalous, Strongly Anomalous, Sub-Grade, Low-Grade, High-Grade

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Hole ID: 411R-D1

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Prospect: NRL North Lake Rosebery

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CoordSys:	MGA55 (GDA94)	**DrillCompany:**	BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary
HO	GRY	VSS		mas	gra	si se	py sp	Moderate grey; very weak silica-weak to moderate sericite altered; storngly foliated; fine to medium grained quartz >1mm volcaniclastic sandstone with distinct isolated disseminations of pyrite ~1-3mm; pyrite appears quite ubiqutous throughout the unit; common 1-3mm planar quartz carbonate veins with minor associated coarse grained pyrite and rare sphalerite; mostly competent core; last 2m of interval is incompetent.

Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
D1395135	0.0	0.0	0.0	0.08		1.0

1450
1460
1470
1480
1490
1500

Andesite
Andesite Flow
Basalt
Breccia - Undifferentiated
Calcarenite
Chert
Clay
Crystal Tuff
Dacite
Dacite Breccia
Dacite Flow
Dacite Lapilli Tuff
Disseminated Sulphides
Dolomite
Fault Zone
Feldspathic (ash) tuff
Feldspathic porphyry
Felsic Flow
Felsic tuff
Felsic Volcaniclastic
Greywacke
Hyaloclastite Breccia
Interbedded sandstone/shale
Interbedded sandstone/siltsto
Interbedded siltstone/shale
Interbedded VSS/VSL/VSM &
Intermediate flow
Intermediate Volcaniclastic
Lapilli Tuff
Limestone
Lithic Tuff
Mafic Dyke
Mafic Volcaniclastic
Massive sulphide
Mudstone
No Core Present
Not logged
Pyroclastic Breccia
Quartz
Quartz Carbonate Vein
Quartz Feldspar Porphyry
Quartz Porphyry
Quartzite
Rhyodacite
Rhyolite
Rhyolite Breccia
Rhyolite Tuff
Sandstone
Schist
See comments for full descrip
Semi-massive Sulphides
Shale
Siltstone
Slate
Tuff Siltstone
Undifferentiated Black Shale
Undifferentiated Felsic Volcanic
Undifferentiated Fluvioglacial Sediment
Undifferentiated Mafic Intrusive
Undifferentiated Tuff
Undifferentiated Volcanic
Undifferentiated Volcaniclastic
Vein Carbonate
Vein quartz
Volcanic Breccia
Volcanic Conglomerate
Volcanic Sandstone
Volcanic Siltstone

Mineralisation
Background
Elevated
Anomalous
Strongly Anomalous
Sub-Grade
Low-Grade
High-Grade