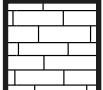
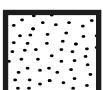


# Legend

## Lithology

	Andesite		Limestone
	Breccia		Mudstone
	Conglomerate		Rhyolite
	Dacite		Sandstone

## Symbols

	Clast (angular)		Lapilli
	Clast (rounded)		Quartz clast/phenocryst
	Fiamme		Shell
	Flow-banding		Shell fragment
	Laminations		Spherulite/lithophysa

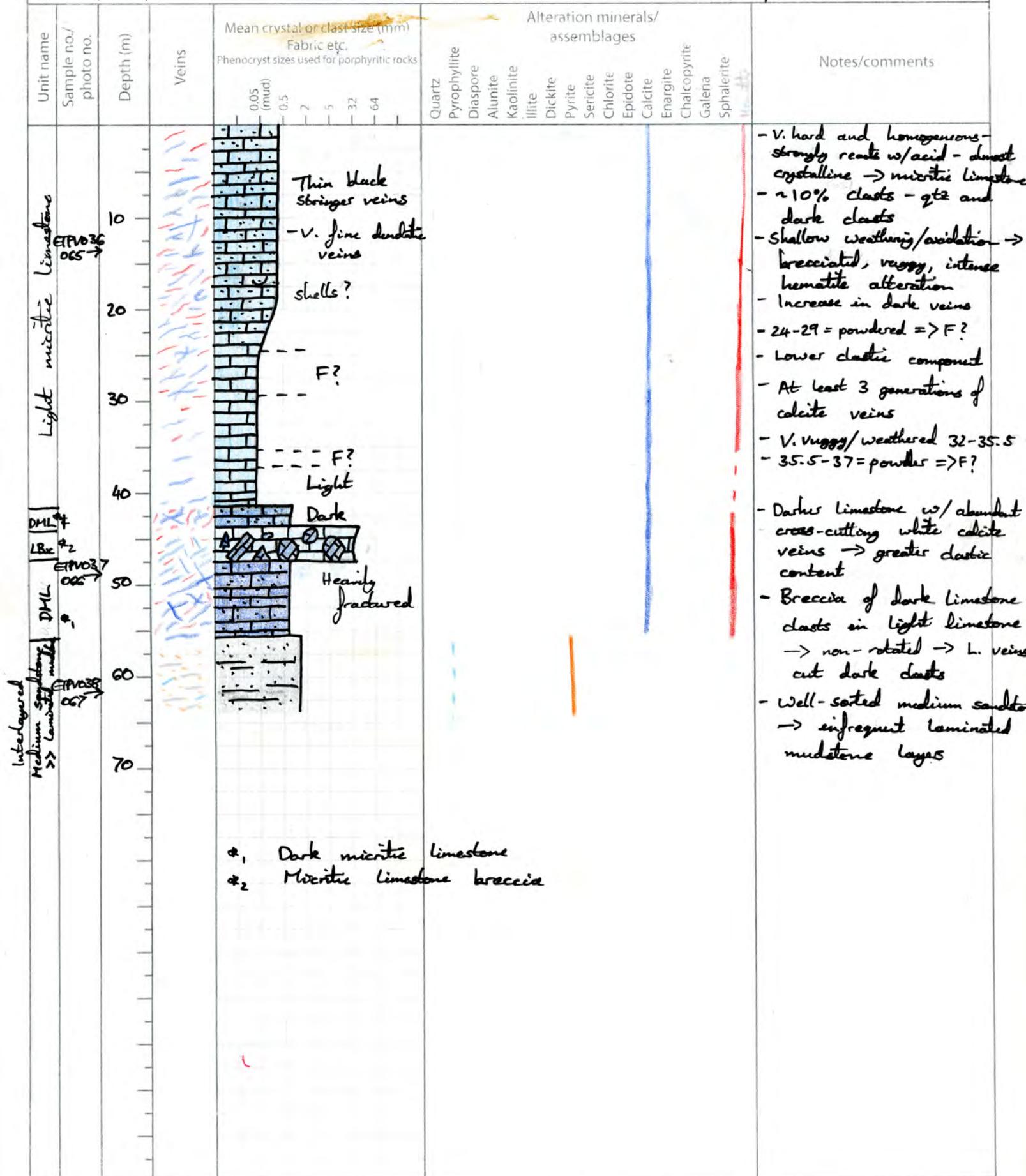
Hole No.: GTDH17-01

Ethan Tonks

Sheet 1 of 1

Date: 29/02/20

Scale: 1:500



Hole No.: DPV07-149 (several boxes missing)

Ethan Tonks

Sheet 1 of 2

Date: 21/02/20

Scale: 1:500

Unit name	Sample no./photo no.	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Depth (m)	Quartz Pyrophyllite Diaspore Alunite Kaolinite illite Dickite Pyrite Sericite Chlomite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite	Alteration minerals/assemblages	Notes/comments
Interlayered blade (laminated) mudstone >> sandstone	No core	13.89 → 18.22	0.05 (mud) 0.5 2 5 32 64	10	?	Quartz	- Rare ~1mm clasts → altered to pyrophyllite - No obvious sulphides may be oxidised or too fine (or not present)
	No core	22.60 → 31.88	0.05 (mud) 0.5 2 5 32 64	20	?	Pyrophyllite	
Interlayered blade (laminated) mudstone - homogeneous	No core	31.88 → 39.07	0.05 (mud) 0.5 2 5 32 64	30	?	Pyrophyllite	- Laminated black mudstone - homogeneous - Mudstone = abundant pyrite ⇒ fine disseminated on lamination planes, blades throughout - Sandstone = pyrite disseminated throughout
Massive, Fine quartz-bearing volcanic (?) sandstone	No core	39.07 → 70.61	0.05 (mud) 0.5 2 5 32 64	40	?	Pyrophyllite	- Non-retorted, in situ breccia horizon ⇒ pyrophyllite matrix - Rare horizons w/ ~3mm quartz clasts
	No core	70.61 → 75.25	0.05 (mud) 0.5 2 5 32 64	50	?	Pyrophyllite	
	No core	75.25 → 80.00	0.05 (mud) 0.5 2 5 32 64	60	?	Pyrophyllite	- Very fine clasts → not tabular ⇒ quartz? - dacitic composition
	No core	80.00 → 100.00	0.05 (mud) 0.5 2 5 32 64	70	?	Pyrophyllite	
	No core	100.00 → 110.00	0.05 (mud) 0.5 2 5 32 64	80	?	Pyrophyllite	
	No core	110.00 → 120.00	0.05 (mud) 0.5 2 5 32 64	90	?	Pyrophyllite	
	No core	120.00 → 130.00	0.05 (mud) 0.5 2 5 32 64	100	?	Pyrophyllite	
	No core	130.00 → 140.00	0.05 (mud) 0.5 2 5 32 64	110	?	Pyrophyllite	
	No core	140.00 → 150.00	0.05 (mud) 0.5 2 5 32 64	120	?	Pyrophyllite	
	No core	150.00 → 160.00	0.05 (mud) 0.5 2 5 32 64	130	?	Pyrophyllite	
	No core	160.00 → 170.00	0.05 (mud) 0.5 2 5 32 64	140	?	Pyrophyllite	
	No core	170.00 → 180.00	0.05 (mud) 0.5 2 5 32 64	150	?	Pyrophyllite	
	No core	180.00 → 190.00	0.05 (mud) 0.5 2 5 32 64	160	?	Pyrophyllite	
	No core	190.00 → 200.00	0.05 (mud) 0.5 2 5 32 64	170	?	Pyrophyllite	
	No core	200.00 → 210.00	0.05 (mud) 0.5 2 5 32 64	180	?	Pyrophyllite	
	No core	210.00 → 220.00	0.05 (mud) 0.5 2 5 32 64	190	?	Pyrophyllite	
	No core	220.00 → 230.00	0.05 (mud) 0.5 2 5 32 64	200	?	Pyrophyllite	
	No core	230.00 → 240.00	0.05 (mud) 0.5 2 5 32 64	210	?	Pyrophyllite	
	No core	240.00 → 250.00	0.05 (mud) 0.5 2 5 32 64	220	?	Pyrophyllite	
	No core	250.00 → 260.00	0.05 (mud) 0.5 2 5 32 64	230	?	Pyrophyllite	
	No core	260.00 → 270.00	0.05 (mud) 0.5 2 5 32 64	240	?	Pyrophyllite	
	No core	270.00 → 280.00	0.05 (mud) 0.5 2 5 32 64	250	?	Pyrophyllite	
	No core	280.00 → 290.00	0.05 (mud) 0.5 2 5 32 64	260	?	Pyrophyllite	
	No core	290.00 → 300.00	0.05 (mud) 0.5 2 5 32 64	270	?	Pyrophyllite	
	No core	300.00 → 310.00	0.05 (mud) 0.5 2 5 32 64	280	?	Pyrophyllite	
	No core	310.00 → 320.00	0.05 (mud) 0.5 2 5 32 64	290	?	Pyrophyllite	
	No core	320.00 → 330.00	0.05 (mud) 0.5 2 5 32 64	300	?	Pyrophyllite	
	No core	330.00 → 340.00	0.05 (mud) 0.5 2 5 32 64	310	?	Pyrophyllite	
	No core	340.00 → 350.00	0.05 (mud) 0.5 2 5 32 64	320	?	Pyrophyllite	
	No core	350.00 → 360.00	0.05 (mud) 0.5 2 5 32 64	330	?	Pyrophyllite	
	No core	360.00 → 370.00	0.05 (mud) 0.5 2 5 32 64	340	?	Pyrophyllite	
	No core	370.00 → 380.00	0.05 (mud) 0.5 2 5 32 64	350	?	Pyrophyllite	
	No core	380.00 → 390.00	0.05 (mud) 0.5 2 5 32 64	360	?	Pyrophyllite	
	No core	390.00 → 400.00	0.05 (mud) 0.5 2 5 32 64	370	?	Pyrophyllite	
	No core	400.00 → 410.00	0.05 (mud) 0.5 2 5 32 64	380	?	Pyrophyllite	
	No core	410.00 → 420.00	0.05 (mud) 0.5 2 5 32 64	390	?	Pyrophyllite	
	No core	420.00 → 430.00	0.05 (mud) 0.5 2 5 32 64	400	?	Pyrophyllite	
	No core	430.00 → 440.00	0.05 (mud) 0.5 2 5 32 64	410	?	Pyrophyllite	
	No core	440.00 → 450.00	0.05 (mud) 0.5 2 5 32 64	420	?	Pyrophyllite	
	No core	450.00 → 460.00	0.05 (mud) 0.5 2 5 32 64	430	?	Pyrophyllite	
	No core	460.00 → 470.00	0.05 (mud) 0.5 2 5 32 64	440	?	Pyrophyllite	
	No core	470.00 → 480.00	0.05 (mud) 0.5 2 5 32 64	450	?	Pyrophyllite	
	No core	480.00 → 490.00	0.05 (mud) 0.5 2 5 32 64	460	?	Pyrophyllite	
	No core	490.00 → 500.00	0.05 (mud) 0.5 2 5 32 64	470	?	Pyrophyllite	
	No core	500.00 → 510.00	0.05 (mud) 0.5 2 5 32 64	480	?	Pyrophyllite	
	No core	510.00 → 520.00	0.05 (mud) 0.5 2 5 32 64	490	?	Pyrophyllite	
	No core	520.00 → 530.00	0.05 (mud) 0.5 2 5 32 64	500	?	Pyrophyllite	
	No core	530.00 → 540.00	0.05 (mud) 0.5 2 5 32 64	510	?	Pyrophyllite	
	No core	540.00 → 550.00	0.05 (mud) 0.5 2 5 32 64	520	?	Pyrophyllite	
	No core	550.00 → 560.00	0.05 (mud) 0.5 2 5 32 64	530	?	Pyrophyllite	
	No core	560.00 → 570.00	0.05 (mud) 0.5 2 5 32 64	540	?	Pyrophyllite	
	No core	570.00 → 580.00	0.05 (mud) 0.5 2 5 32 64	550	?	Pyrophyllite	
	No core	580.00 → 590.00	0.05 (mud) 0.5 2 5 32 64	560	?	Pyrophyllite	
	No core	590.00 → 600.00	0.05 (mud) 0.5 2 5 32 64	570	?	Pyrophyllite	
	No core	600.00 → 610.00	0.05 (mud) 0.5 2 5 32 64	580	?	Pyrophyllite	
	No core	610.00 → 620.00	0.05 (mud) 0.5 2 5 32 64	590	?	Pyrophyllite	
	No core	620.00 → 630.00	0.05 (mud) 0.5 2 5 32 64	600	?	Pyrophyllite	
	No core	630.00 → 640.00	0.05 (mud) 0.5 2 5 32 64	610	?	Pyrophyllite	
	No core	640.00 → 650.00	0.05 (mud) 0.5 2 5 32 64	620	?	Pyrophyllite	
	No core	650.00 → 660.00	0.05 (mud) 0.5 2 5 32 64	630	?	Pyrophyllite	
	No core	660.00 → 670.00	0.05 (mud) 0.5 2 5 32 64	640	?	Pyrophyllite	
	No core	670.00 → 680.00	0.05 (mud) 0.5 2 5 32 64	650	?	Pyrophyllite	
	No core	680.00 → 690.00	0.05 (mud) 0.5 2 5 32 64	660	?	Pyrophyllite	
	No core	690.00 → 700.00	0.05 (mud) 0.5 2 5 32 64	670	?	Pyrophyllite	
	No core	700.00 → 710.00	0.05 (mud) 0.5 2 5 32 64	680	?	Pyrophyllite	
	No core	710.00 → 720.00	0.05 (mud) 0.5 2 5 32 64	690	?	Pyrophyllite	
	No core	720.00 → 730.00	0.05 (mud) 0.5 2 5 32 64	700	?	Pyrophyllite	
	No core	730.00 → 740.00	0.05 (mud) 0.5 2 5 32 64	710	?	Pyrophyllite	
	No core	740.00 → 750.00	0.05 (mud) 0.5 2 5 32 64	720	?	Pyrophyllite	
	No core	750.00 → 760.00	0.05 (mud) 0.5 2 5 32 64	730	?	Pyrophyllite	
	No core	760.00 → 770.00	0.05 (mud) 0.5 2 5 32 64	740	?	Pyrophyllite	
	No core	770.00 → 780.00	0.05 (mud) 0.5 2 5 32 64	750	?	Pyrophyllite	
	No core	780.00 → 790.00	0.05 (mud) 0.5 2 5 32 64	760	?	Pyrophyllite	
	No core	790.00 → 800.00	0.05 (mud) 0.5 2 5 32 64	770	?	Pyrophyllite	
	No core	800.00 → 810.00	0.05 (mud) 0.5 2 5 32 64	780	?	Pyrophyllite	
	No core	810.00 → 820.00	0.05 (mud) 0.5 2 5 32 64	790	?	Pyrophyllite	
	No core	820.00 → 830.00	0.05 (mud) 0.5 2 5 32 64	800	?	Pyrophyllite	
	No core	830.00 → 840.00	0.05 (mud) 0.5 2 5 32 64	810	?	Pyrophyllite	
	No core	840.00 → 850.00	0.05 (mud) 0.5 2 5 32 64	820	?	Pyrophyllite	
	No core	850.00 → 860.00	0.05 (mud) 0.5 2 5 32 64	830	?	Pyrophyllite	
	No core	860.00 → 870.00	0.05 (mud) 0.5 2 5 32 64	840	?	Pyrophyllite	
	No core	870.00 → 880.00	0.05 (mud) 0.5 2 5 32 64	850	?	Pyrophyllite	
	No core	880.00 → 890.00	0.05 (mud) 0.5 2 5 32 64	860	?	Pyrophyllite	
	No core	890.00 → 900.00	0.05 (mud) 0.5 2 5 32 64	870	?	Pyrophyllite	
	No core	900.00 → 910.00	0.05 (mud) 0.5 2 5 32 64	880	?	Pyrophyllite	
	No core	910.00 → 920.00	0.05 (mud) 0.5 2 5 32 64	890	?	Pyrophyllite	
	No core	920.00 → 930.00	0.05 (mud) 0.5 2 5 32 64	900	?	Pyrophyllite	
	No core	930.00 → 940.00	0.05 (mud) 0.5 2 5 32 64	910	?	Pyrophyllite	
	No core	940.00 → 950.00	0.05 (mud) 0.5 2 5 32 64	920	?	Pyrophyllite	
	No core	950.00 → 960.00	0.05 (mud) 0.5 2 5 32 64	930	?	Pyrophyllite	
	No core	960.00 → 970.00	0.05 (mud) 0.5 2 5 32 64	940	?	Pyrophyllite	
	No core	970.00 → 980.00	0.05 (mud) 0.5 2 5 32 64	950	?	Pyrophyllite	
	No core	980.00 → 990.00	0.05 (mud) 0.5 2 5 32 64	960	?	Pyrophyllite	
	No core	990.00 → 1000.00	0.05 (mud) 0.5 2 5 32 64	970	?	Pyrophyllite	
	No core	1000.00 → 1010.00	0.05 (mud) 0.5 2 5 32 64	980	?	Pyrophyllite	
	No core	1010.00 → 1020.00	0.05 (mud) 0.5 2 5 32 64	990	?	Pyrophyllite	
	No core	1020.00 → 1030.00	0.05 (mud) 0.5 2 5 32 64	1000	?	Pyrophyllite	
	No core	1030.00 → 1040.00	0.05 (mud) 0.5 2 5 32 64	1010	?	Pyrophyllite	
	No core	1040.00 → 1050.00	0.05 (mud) 0.5 2 5 32 64	1020	?	Pyrophyllite	
	No core	1050.00 → 1060.00	0.05 (mud) 0.5 2 5 32 64	1030	?	Pyrophyllite	
	No core	1060.00 → 1070.00	0.05 (mud) 0.5 2 5 32 64	1040	?	Pyrophyllite	
	No core	1070.00 → 1080.00	0.05 (mud) 0.5 2 5 32 64	1050	?	Pyrophyllite	
	No core	1080.00 → 1090.00	0.05 (mud) 0.5 2 5 32 64	1060	?	Pyrophyllite	
	No core	1090.00 → 1100.00	0.05 (mud) 0.5 2 5 32 64	1070	?	Pyrophyllite	
	No core	1100.00 → 1110.00	0.05 (mud) 0.5 2 5 32 64	1080	?	Pyrophyllite	
	No core	1110.00 → 1120.00	0.05 (mud) 0.5 2 5 32 64	1090	?	Pyrophyllite	
	No core	1120.00 → 1130.00	0.05 (mud) 0.5 2 5 32 64	1100	?	Pyrophyllite	
	No core	1130.00 → 1140.00	0.05 (mud) 0.5 2 5 32 64	1110	?	Pyrophyllite	
	No core	1140.00 → 1150.00	0.05 (mud) 0.5 2 5 32 64	1120	?	Pyrophyllite	
	No core	1150.00 → 1160.00	0.05 (mud) 0.5 2 5 32 64	1130	?	Pyrophyllite	
	No core	1160.00 → 1170.00	0.05 (mud) 0.5 2 5 32 64	1140	?	Pyrophyllite	
	No core	1170.00 → 1180.00	0.05 (mud) 0.5 2 5 32 64	1150	?	Pyrophyllite	
	No core	1180.00 → 1190.00	0.05 (mud) 0.5 2 5 32 64	1160	?	Pyrophyllite	
	No core	1190.00 → 1200.00	0.05 (mud) 0.5 2 5 32 64	1170	?	Pyrophyllite	
	No core	1200.00 → 1210.00	0.05 (mud) 0.5 2 5 32 64	1180	?	Pyrophyllite	
	No core	1210.00 → 1220.00	0.05 (mud) 0.5 2 5 32 64	1190	?	Pyrophyllite	
	No core	1220.00 → 1230.00	0.05 (mud) 0.5 2 5 32 64	1200	?	Pyrophyllite	
	No core	1230.00 → 1240.00	0.05 (mud) 0.5 2 5 32 64	1210	?	Pyrophyllite	
	No core	1240.00 → 1250.00	0.05 (mud) 0.5 2 5 32 64	1220	?	Pyrophyllite	
	No core	1250.00 → 1260.00	0.05 (mud) 0.5 2 5 32 64	1230	?	Pyrophyllite	
	No core	1260.00 → 1270.00	0.05 (mud) 0.5 2 5 32 64	1240	?	Pyrophyllite	
	No core	1270.00 → 1280.00	0.05 (mud) 0.5 2 5 32 64	1250	?	Pyrophyllite	
	No core	1280.00 → 1290.00	0.05 (mud) 0.5 2 5 32 64	1260	?	Pyrophyllite	

Hole No.: DPV07-149 (several boxes missing)

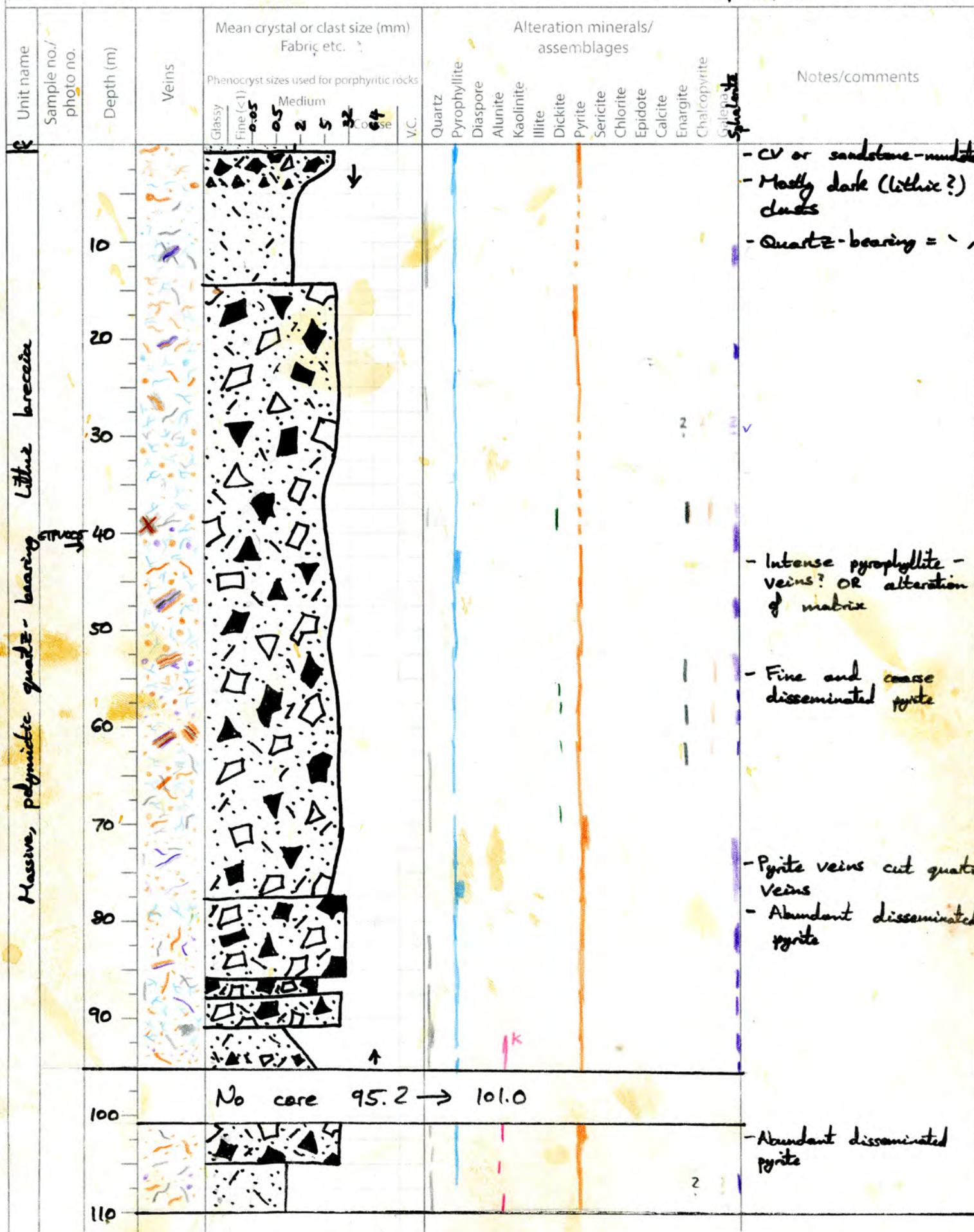
Ethan Tonks

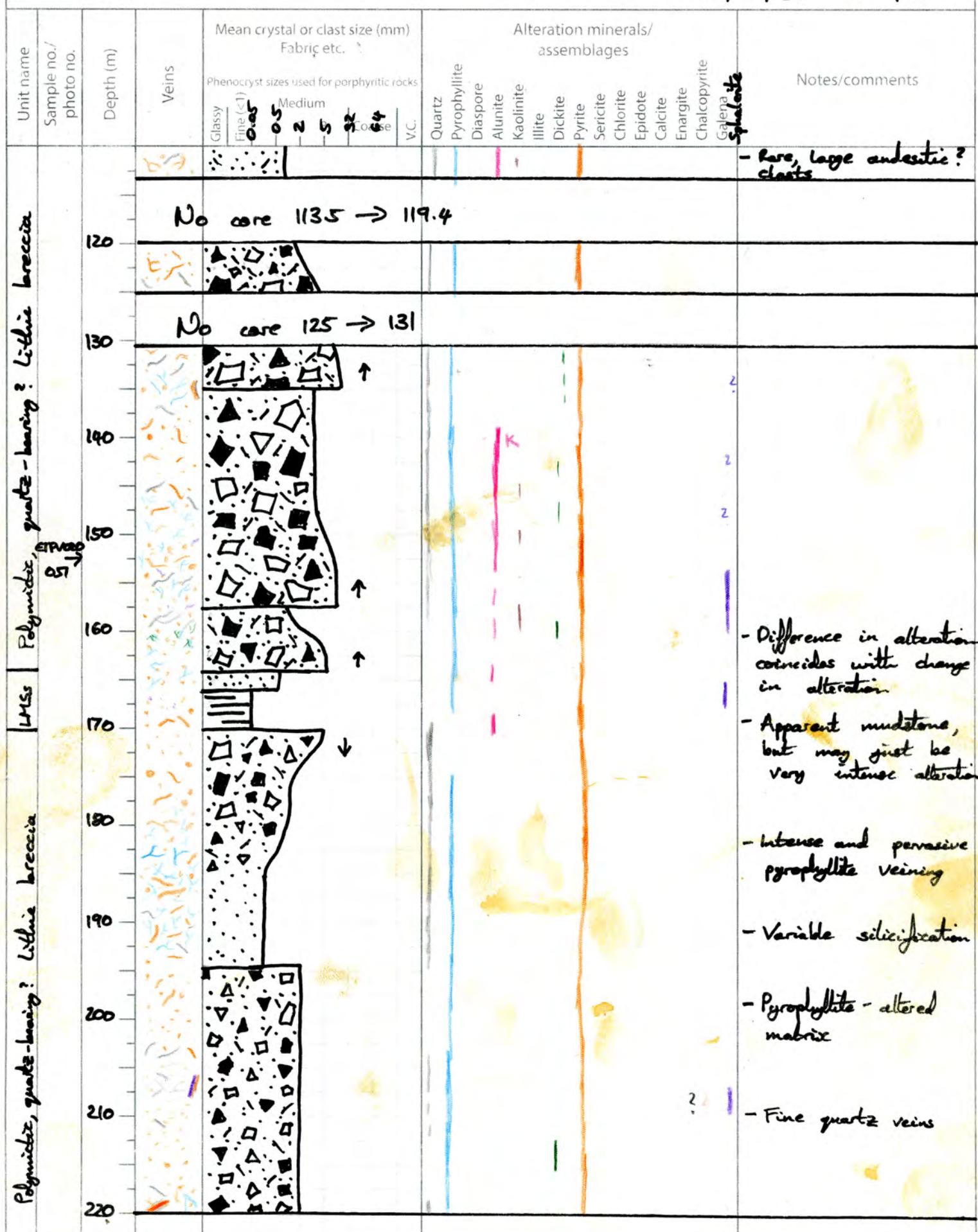
Sheet 2 of 2

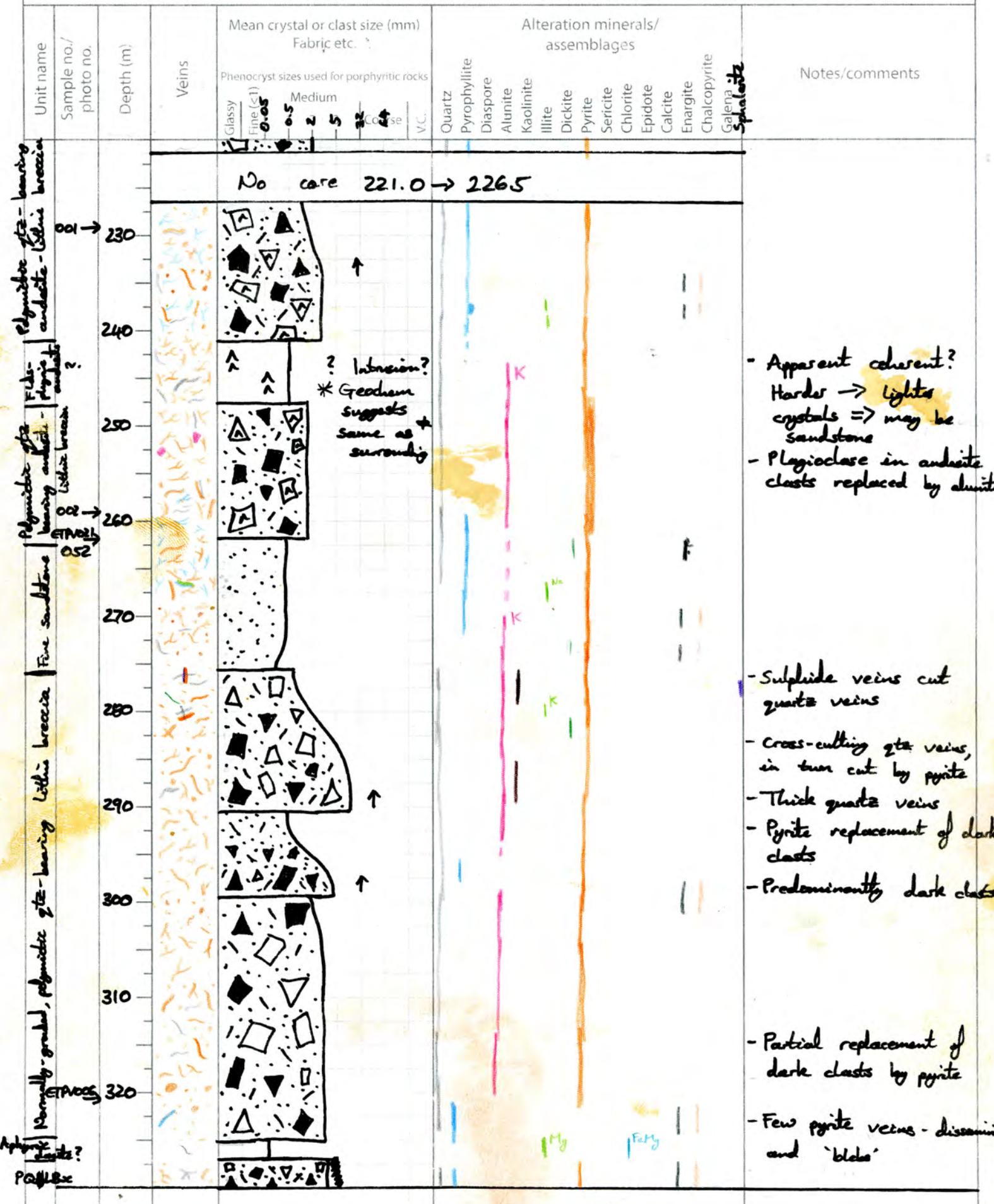
Date: 21/02/20

Scale: 1:500

Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite	Alteration minerals/assemblages	Notes/comments
No core 114.90 → 119.54	120		0.05 (mud) 0.5 2 5 32 64			- Rare, ~1cm rounded clasts → accretionary lapilli? Hard to determine internal texture
No core 137.44 → 168.06	140					
No core 172.70 → 175.77	170	 Yellow Brown				- Large, rounded 'blobs' of fine pyrite - Rounded quartz clasts - V. rare, v. fine pyrite - Contains some fine horizons → graded
No core 188.83 → 193.47	180	 Yellow				- Rare, finely disseminated pyrite
No core 224.64 → 234.77 (end)	200	 X Yellow				- Aphyric coherent → calcite = mid-gray = dacite?







Unit name	Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc	Alteration minerals/assemblages	Notes/comments
				Phenocryst sizes used for porphyritic rocks Glassy 0.05 Fine (<1) 0.5 2 5 Coarse V.C.		
Massive, polymictite-keratoclastite, rounded-grained, grey-brown medium sandstone lithic breccia	003 → 003	340		Medium	Quartz Pyrophyllite Diaspore Alunite Kaolinite Iilitte Dickite Pyrite Sericitic Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite	- Pervasive pyrite and enargite → pyrite overprints enargite
	004 →	350				- Intense silicification → lots of cross-cutting quartz veins
		360	Yellow			- Odd larger clasts, but mostly fine
		370	Brown			- Intense sulphide veining
		380				- Powdered contact
		390				- Similar lithology as breccia below, but much finer → possibly no andesite
		400				- Very little disseminated pyrite
		410	Black/brown			- Apparent clastic - v. difficult to determine due to heavy alteration/weathering
		420				- Very rare, sparse fine pyrite
		430	Yellow			- Transitional change in alteration
		440				- Abundant fine, euhedral pyrite



Hole No.: DPV18-615

Ethan Tonks

Sheet 1 of 3

Date: 18/02/20

Scale: 1:500

Unit name	Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Alteration minerals/assemblages	Notes/comments
031	HSS	0.05 (mud)				- Pyrophyllite alteration of clasts
032		0.5				- Mostly altered to pyrite - v. fine
033		2				
034		5				
ETP014		32				
042		64				
ETP015						- Accretionary lapilli
035						- Quartz- pyrophyllite veins
ETP016						
036						- Interbedded/graded sandstone-mudstone
ETP017						
037						
ETP018						
038						
ETP019						
039						
ETP020						
040						
ETP021						
041						
ETP022						
042						
ETP023						
043						
ETP024						
044						
ETP025						
045						
ETP026						
046						
ETP027						
047						
ETP028						
048						
ETP029						
049						
ETP030						
050						
ETP031						
051						
ETP032						
052						
ETP033						
053						
ETP034						
054						
ETP035						
055						
ETP036						
056						
ETP037						
057						
ETP038						
058						
ETP039						
059						
ETP040						
060						
ETP041						
061						
ETP042						
062						
ETP043						
063						
ETP044						
064						
ETP045						
065						
ETP046						
066						
ETP047						
067						
ETP048						
068						
ETP049						
069						
ETP050						
070						
ETP051						
071						
ETP052						
072						
ETP053						
073						
ETP054						
074						
ETP055						
075						
ETP056						
076						
ETP057						
077						
ETP058						
078						
ETP059						
079						
ETP060						
080						
ETP061						
081						
ETP062						
082						
ETP063						
083						
ETP064						
084						
ETP065						
085						
ETP066						
086						
ETP067						
087						
ETP068						
088						
ETP069						
089						
ETP070						
090						
ETP071						
091						
ETP072						
092						
ETP073						
093						
ETP074						
094						
ETP075						
095						
ETP076						
096						
ETP077						
097						
ETP078						
098						
ETP079						
099						
ETP080						
100						
ETP081						
101						
ETP082						
102						
ETP083						
103						
ETP084						
104						
ETP085						
105						
ETP086						
106						
ETP087						
107						
ETP088						
108						
ETP089						
109						
ETP090						
110						

Hole No.: DPV18-615

Ethan Tonks

Sheet 2 of 3

Date: 18/02/20

Scale: 1:500

Unit name	Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Alteration minerals/assemblages	Notes/comments
Massive, polymictic quartz-bearing rhyolite? - fine sandstone - lithic breccia	038	120		0.05 (mud) 0.5 2 5 32 64	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite	- well-sorted fine sandstone with sharp contacts
		130				- Same as below 155m
		140				
		150				- Whispy dicitte veins → white w/ green-blue tinge
		160				- Interbedded w/ normally graded, well-sorted sandstone
		170				- Pyrophyllite in cross-cutting veins associated with quartz
		180				- Aligned veins
		190				- Rounded quartz clasts = @ shallow depths, phenocrysts start to dissolve → rounding
		200				- Unsure of clast composition below → probably rhyolite (some >10 cm)
		210				
		220				
		230				

Hole No.: DPV18-615

Ethan Tonks

Sheet 3 of 3

Date: 18/02/20

Scale: 1:500

Hole No.: DPV 19-711

Ethan Tonks

Sheet 1 of 2

Date: 20/02/20

Scale: 1:500

Unit name Sample no./ photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Alteration minerals/ assemblages	Notes/comments
Coarse-grained, polymictic granite - bearing little breccia	048 → 110		0.05 (mud) 0.5 2 5 32 64	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcocite Galena Sphalerite	<p>- Cover = mix of lithologies</p> <p>- 1.5 → 58.1 = mostly powdered</p> <p>- Clasts w/ black/dark margins → rounded?</p> <p>- V. fine disseminated pyrite</p> <p>- Some horizons (coarse; more porous?) completely altered by pyrite</p>
Intercalated, laminated black mudstone >> sandstone - breccia	ETP1016 043 → 20				
ETP1016 044 → 30					
ETP1016 045 → 40					
ETP1017 046 → 60					
ETP1017 047 → 80					
ETP1018 048 → 100					
					<ul style="list-style-type: none"> <li>- Abundant fine disseminated pyrite</li> <li>- Pyrophyllite rpl of ~0.5 mm</li> <li>- Intense unzoned pyrite - enargite veins</li> <li>- Cherty/gtz - att clasts</li> <li>- Rounded gtz clasts</li> </ul> <p>- Replacement of clasts by fine enargite</p> <p>- Pervasive pyrophyllite veining</p> <p>- Intense silification w/ pervasive enargite &gt;&gt; pyrite</p> <p>- Carbonate = ankerite</p>

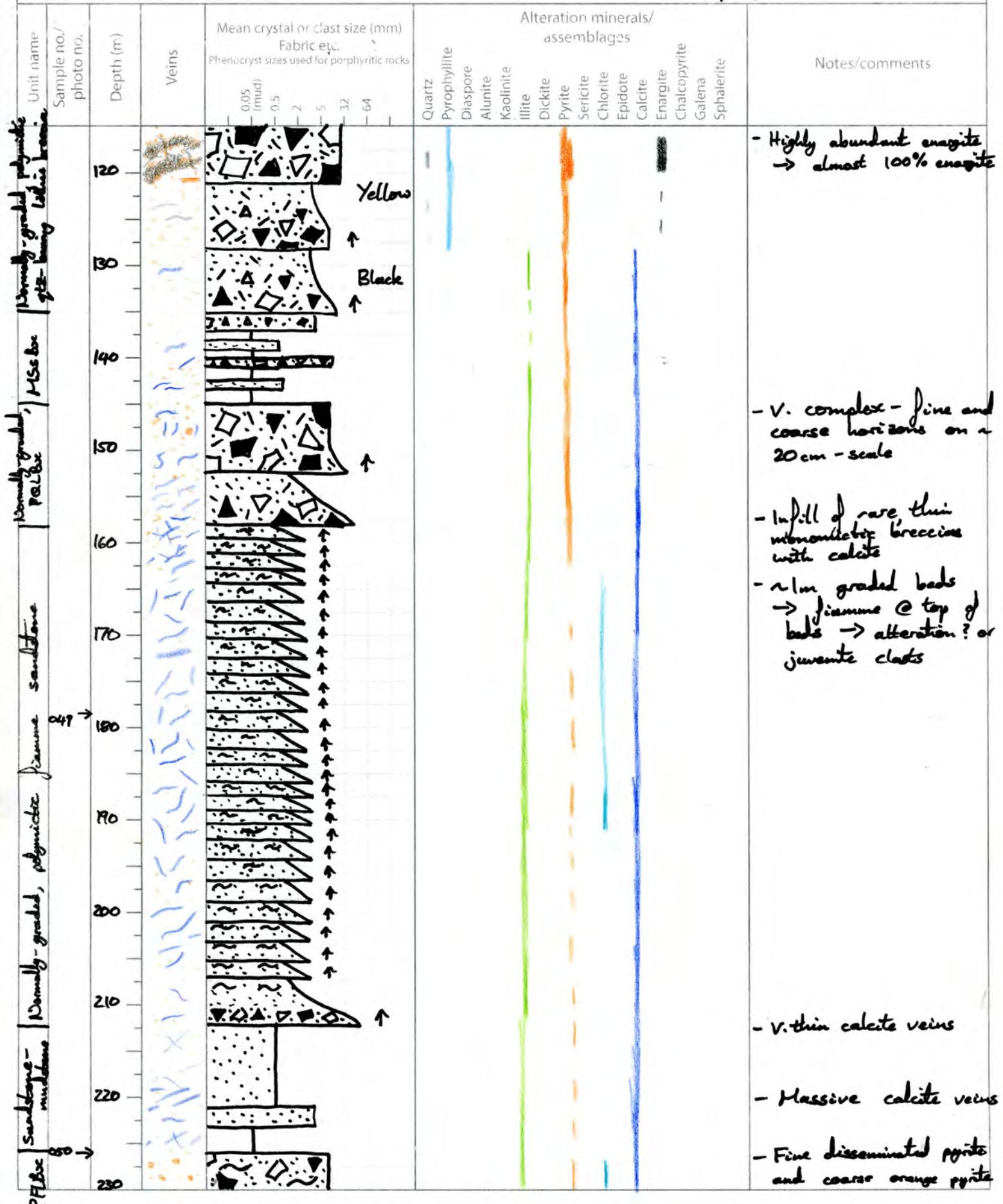
Hole No.: DPV 19-711

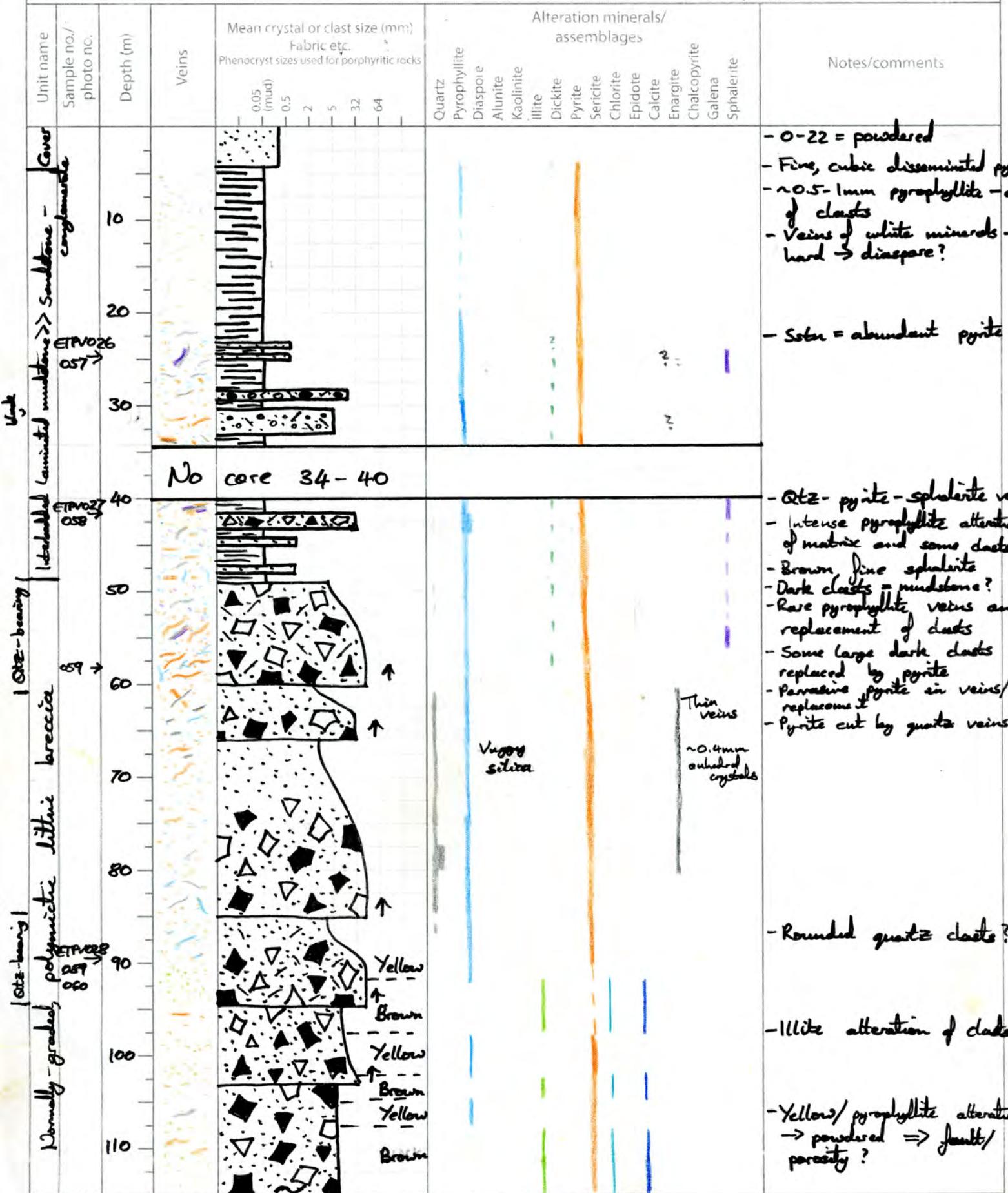
Ethan Tonks

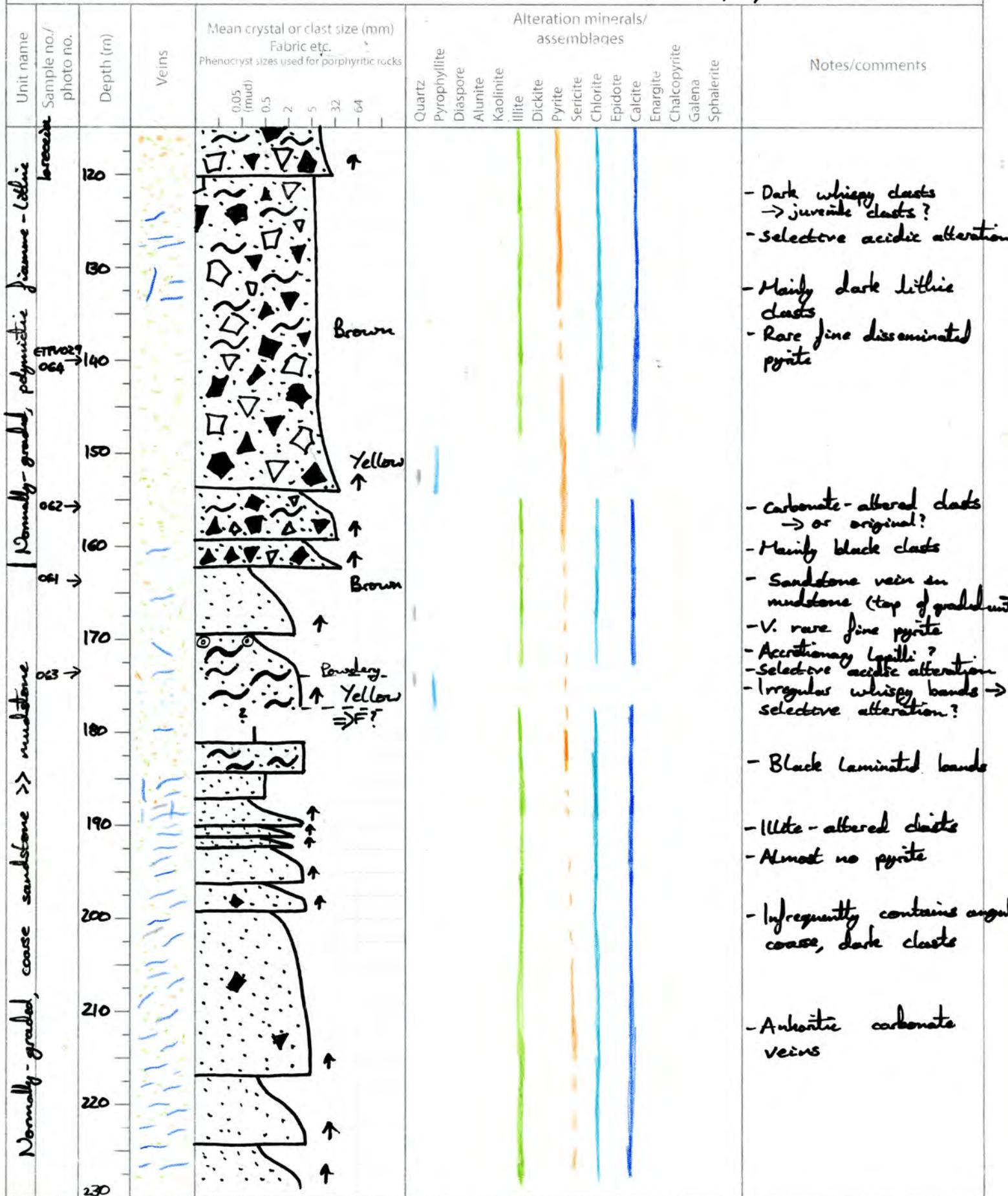
Sheet 2 of 2

Date: 20/02/20

Scale: 1:500







Interval m	Sample no./ photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Quartz	Alteration minerals/ assemblages										Notes/Comments	
						Pyrophyllite	Diaspore	Alunite	Kaolinite	Illite	Dickite	Pyrite	Sericite	Chlorite	Epidote	Calcite	
10 - 20				0.05 (mud) 0.5 2 5 32 64													
20 - 30																	
30 - 40																	
40 - 50																	
50 - 60																	
60 - 70																	
70 - 80																	
80 - 90																	
90 - 100																	
100 - 110																	

**10 - 20 m:** Hand-drawn sketch of a vertical column from 10 to 20 m depth. The top 10 m is labeled "Yellow". Below 10 m, it is labeled "Brown". A dashed line at ~18 m is labeled "Powdery => F?". Another dashed line at ~28 m is labeled "Mudstone rip-up clasts".

**20 - 30 m:** Hand-drawn sketch of a vertical column from 20 to 30 m depth. It shows several horizontal layers with small arrows pointing upwards, indicating flow direction. Labels include "Yellow" and "Brown".

**30 - 40 m:** Hand-drawn sketch of a vertical column from 30 to 40 m depth. It shows several horizontal layers with small arrows pointing upwards, indicating flow direction. Labels include "Yellow" and "Mudstone rip-up clasts".

**40 - 50 m:** Hand-drawn sketch of a vertical column from 40 to 50 m depth. It shows several horizontal layers with small arrows pointing upwards, indicating flow direction. Labels include "Yellow" and "Mudstone rip-up clasts".

**50 - 60 m:** Hand-drawn sketch of a vertical column from 50 to 60 m depth. It shows several horizontal layers with small arrows pointing upwards, indicating flow direction. Labels include "Yellow" and "Mudstone rip-up clasts".

**60 - 70 m:** Hand-drawn sketch of a vertical column from 60 to 70 m depth. It shows several horizontal layers with small arrows pointing upwards, indicating flow direction. Labels include "Yellow" and "Brown".

**70 - 80 m:** Hand-drawn sketch of a vertical column from 70 to 80 m depth. It shows several horizontal layers with small arrows pointing upwards, indicating flow direction. Labels include "Yellow" and "Brown".

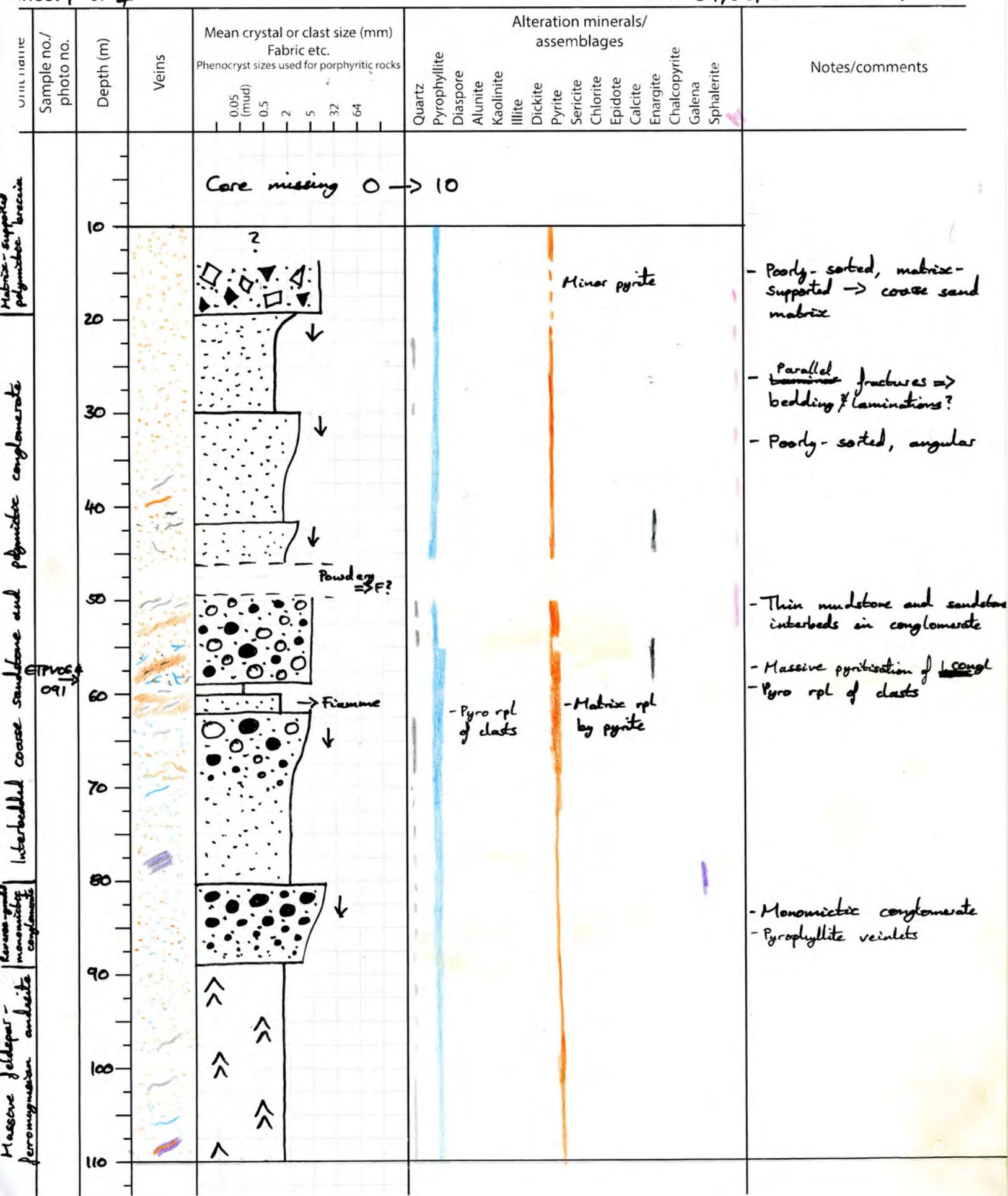
**80 - 90 m:** Hand-drawn sketch of a vertical column from 80 to 90 m depth. It shows several horizontal layers with small arrows pointing upwards, indicating flow direction. Labels include "Yellow" and "Brown".

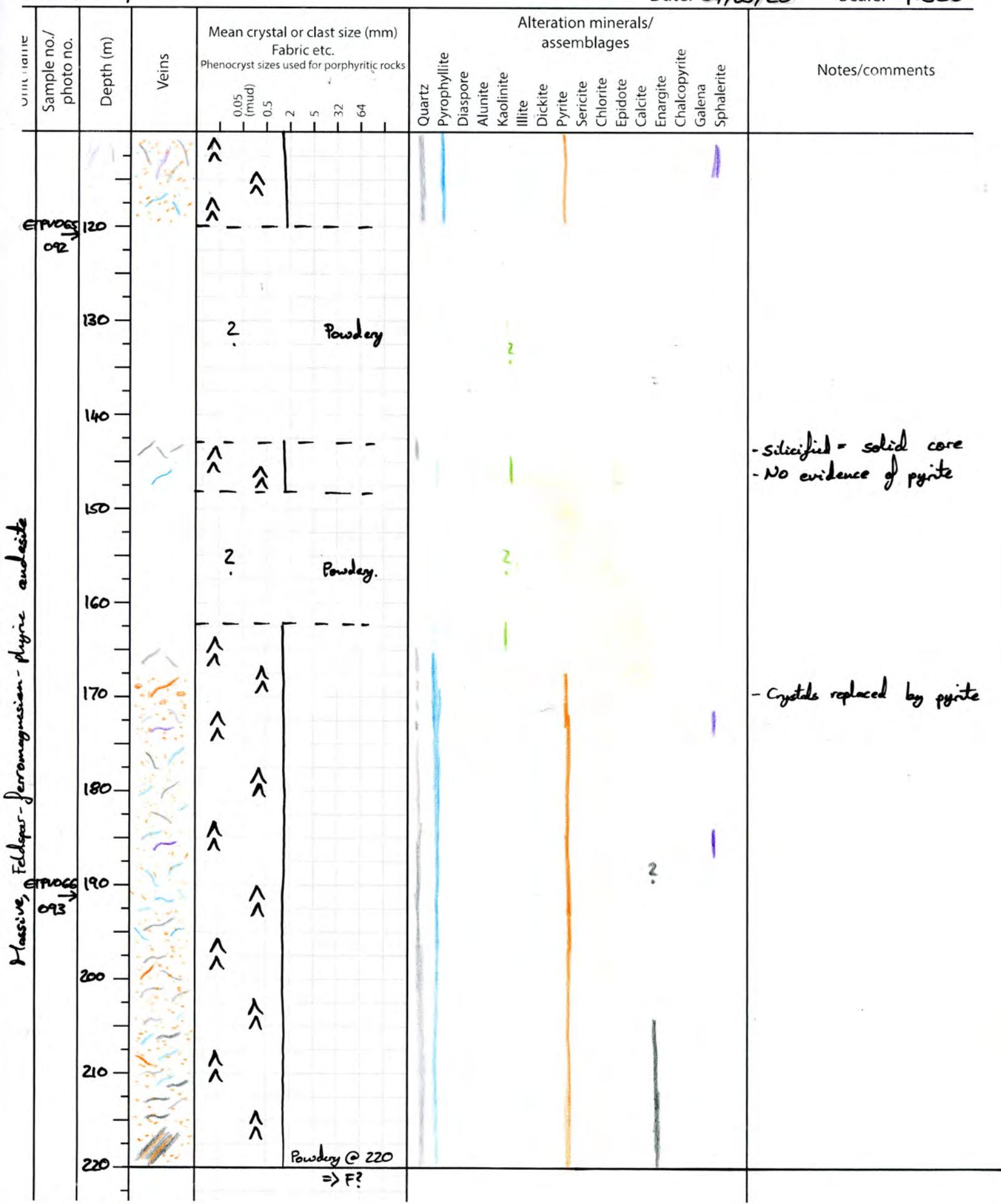
**90 - 100 m:** Hand-drawn sketch of a vertical column from 90 to 100 m depth. It shows several horizontal layers with small arrows pointing upwards, indicating flow direction. Labels include "Yellow" and "Brown".

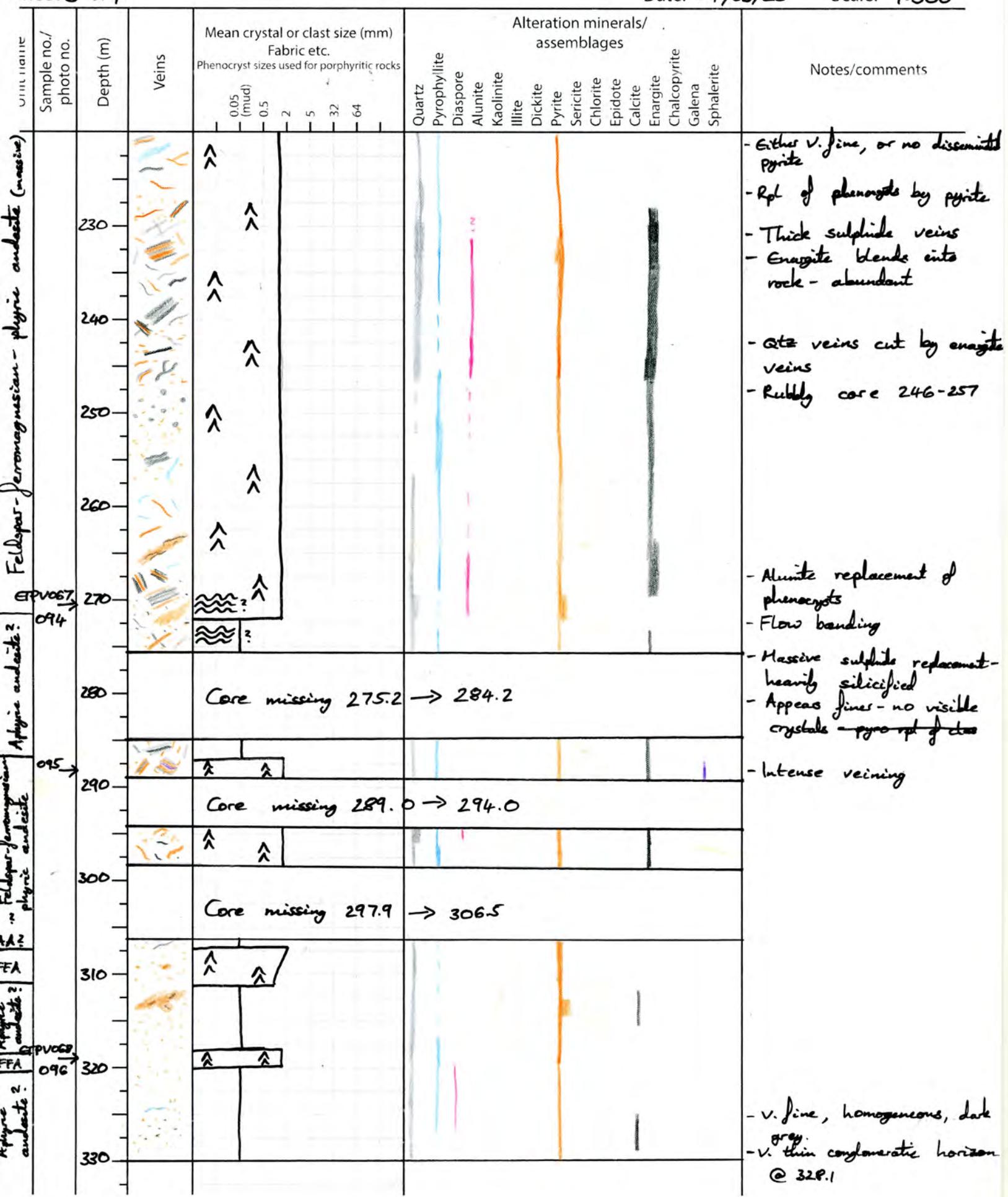
**100 - 110 m:** Hand-drawn sketch of a vertical column from 100 to 110 m depth. It shows several horizontal layers with small arrows pointing upwards, indicating flow direction. Labels include "Yellow" and "Brown".

**Notes/Comments:**

- Moderately sorted sandstone → heavily altered; could be coherent?
- Fine apatite
- Strong fabric picked out by pyrophyllite - difficult to determine litho
- Laminated mudstone with thin coarser layers (w/ syn-sed deform.)
- Flow banding.
- Fault = more intense alt.
- Rounded scoriolites / talus clasts → conglomerate breccia associated with fault → andesite clasts
- Thin red veins = carbonates => andesite

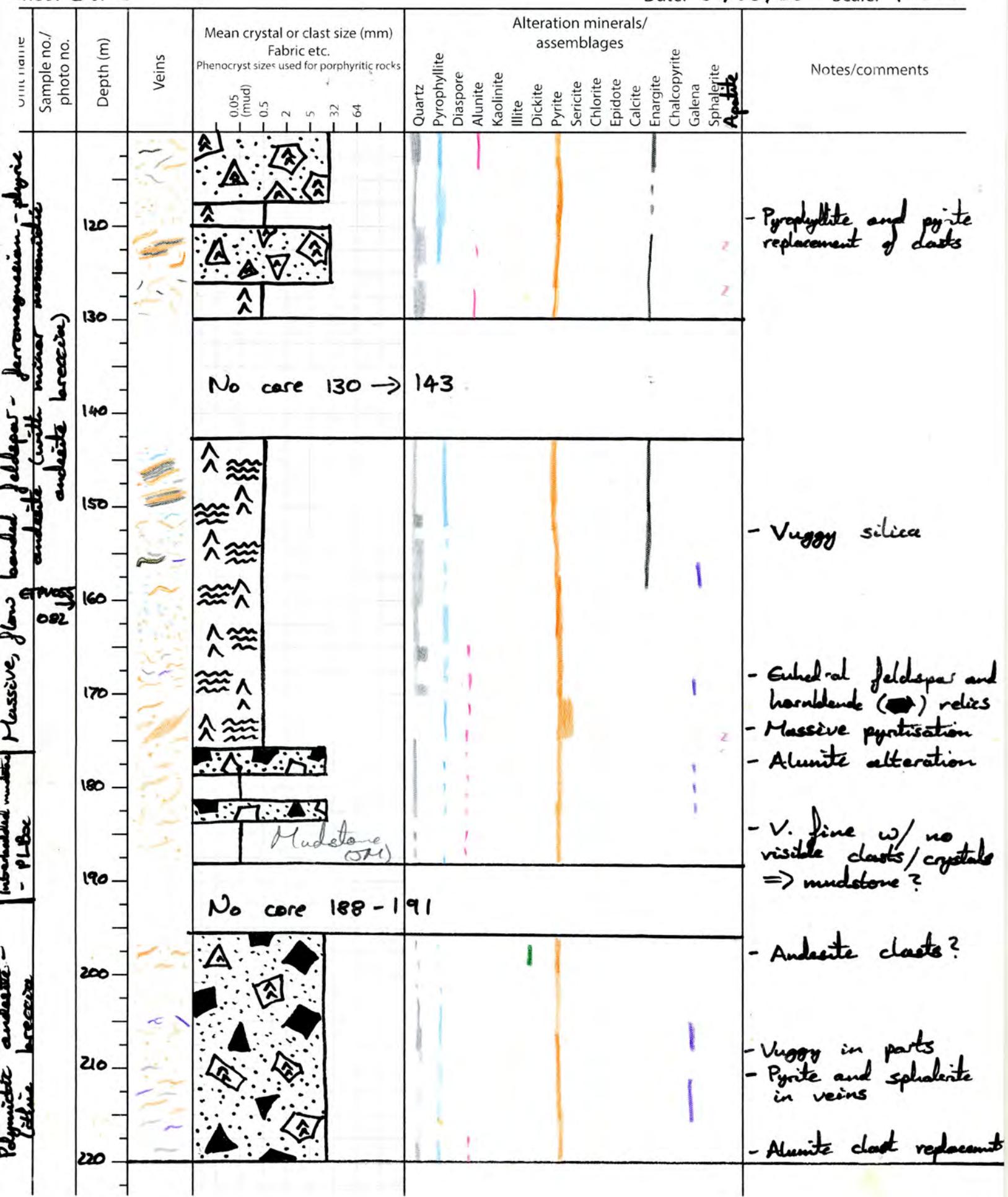




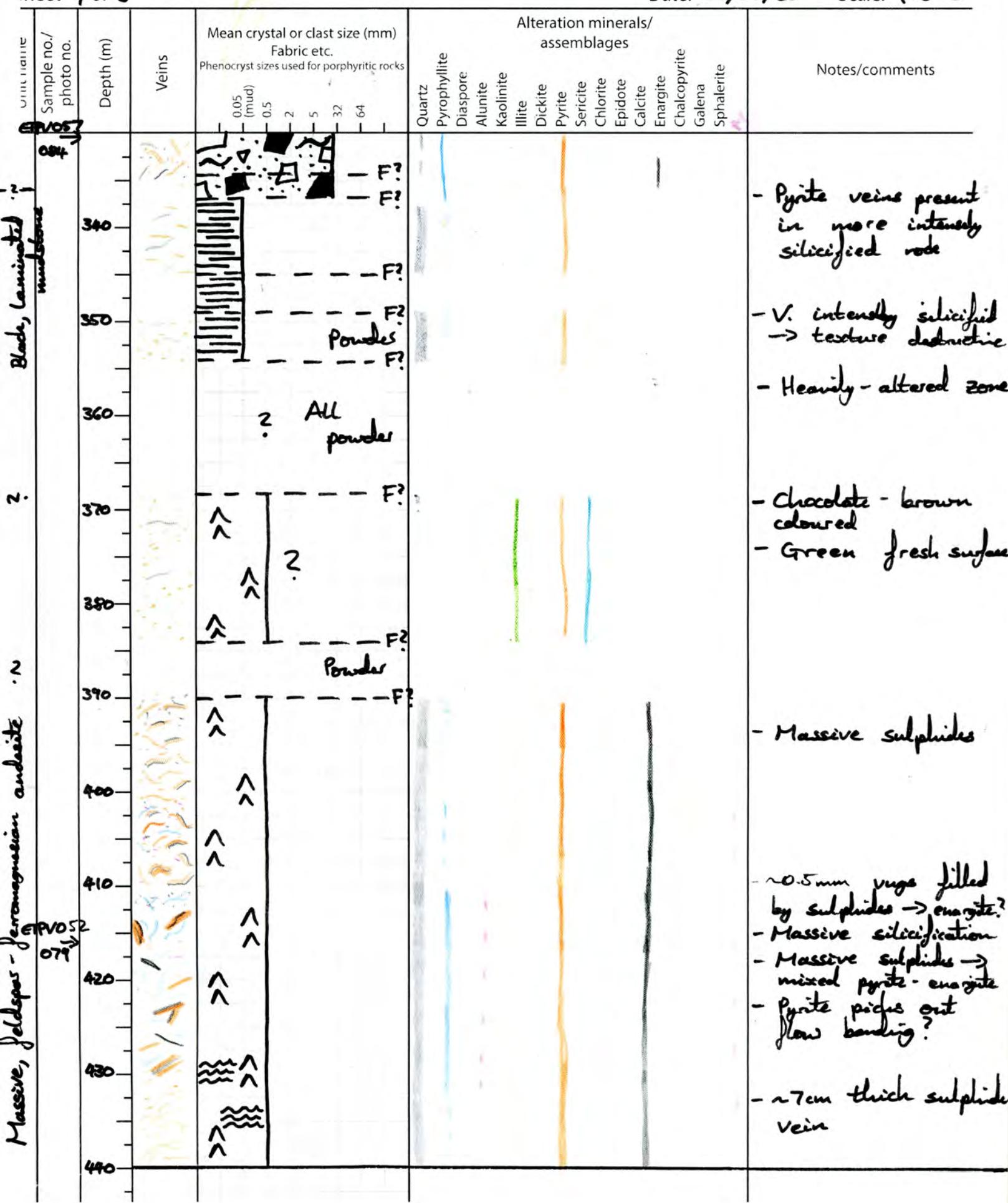








Sample no./ photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Alteration minerals/assemblages								Notes/comments								
				Quartz	Pyrophyllite	Diaspore	Alunite	Kaolinite	Illite	Dickite	Pyrite	Sericite	Chlorite	Epidote	Calcite	Enargite	Chalcopyrite	Galena	Sphalerite	
003	230																			- Decrease in abundance of alunite
003	240																			
003	250	Rubby => F?																		- Chocolate - brown-coloured core - Sharp contact → illito altered; little pyro
003	260																			
003	270																			
003	280	Powdery => F?																		- Decrease in pyrite content
003	290																			
003	300	Powdery => F?																		- Selective pyritisation of clasts
003	310																			
003	320	Powdery => F?																		- Pyrite in matrix - Massive pyrite
003	330																			- Pyrophyllite rpl of clasts - Pyrite picks out/ has replaced fiamme



sheet 5 of 8

Date: 03/02/20

Scale: 1:500

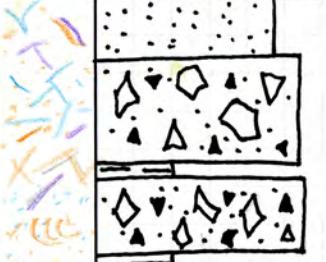
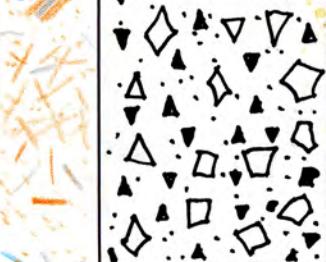
Stratigraphic unit/line	Sample no./ photo no.	Veins	Depth (m)	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Alteration minerals/ assemblages												Notes/comments
					Quartz	Pyrophyllite	Diaspore	Alunite	Kaolinite	Illite	Dickite	Pyrite	Sericite	Chlorite	Epidote	Calcite	Enargite
Fiamme - little breccia	ETPMS3 080	Rubby? => F?	450	0.05 (mud) 0.5 2 5 32 64	-	-	-	-	-	-	-	Pyrite	-	-	-	-	-
Fiamme - little breccia	ETPMS3 080	Rubby? => F?	460	0.05 (mud) 0.5 2 5 32 64	-	-	-	-	-	-	-	Pyrite	-	-	-	-	-
Fiamme - little breccia	ETPMS3 080	Rubby? => F?	470	0.05 (mud) 0.5 2 5 32 64	-	-	-	-	-	-	-	Pyrite	-	-	-	-	-
Fiamme - little breccia	ETPMS3 080	Rubby? => F?	480	0.05 (mud) 0.5 2 5 32 64	-	-	-	-	-	-	-	Pyrite	-	-	-	-	-
Fiamme - little breccia	ETPMS3 080	Rubby? => F?	490	0.05 (mud) 0.5 2 5 32 64	-	-	-	-	-	-	-	Pyrite	-	-	-	-	-
Fiamme - little breccia	ETPMS3 080	Rubby? => F?	500	0.05 (mud) 0.5 2 5 32 64	-	-	-	-	-	-	-	Pyrite	-	-	-	-	-
Fiamme - little breccia	ETPMS3 080	Rubby? => F?	510	0.05 (mud) 0.5 2 5 32 64	-	-	-	-	-	-	-	Pyrite	-	-	-	-	-
Fiamme - little breccia	ETPMS3 080	Rubby? => F?	520	0.05 (mud) 0.5 2 5 32 64	-	-	-	-	-	-	-	Pyrite	-	-	-	-	-
Fiamme - little breccia	ETPMS3 080	Rubby? => F?	530	0.05 (mud) 0.5 2 5 32 64	-	-	-	-	-	-	-	Pyrite	-	-	-	-	-
Fiamme - little breccia	ETPMS3 080	Rubby? => F?	540	0.05 (mud) 0.5 2 5 32 64	-	-	-	-	-	-	-	Pyrite	-	-	-	-	-
Fiamme - little breccia	ETPMS3 080	Rubby? => F?	550	0.05 (mud) 0.5 2 5 32 64	-	-	-	-	-	-	-	Pyrite	-	-	-	-	-





**Massive,** flano -  $\oplus$  banded spherulitic feldspars - quartz - plagioclase dacite?

Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericitic Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite	Alteration minerals/assemblages	Notes/comments
Massive, few - banded spherulitic felsic - quartz-pyrite veins	880		0.05 (mud) 0.5	2 5 32 64		- Massive sulphides don't follow veins → appear to have 'bled out' from vein
	870					- Siliceous altered = can 'see' phenocrysts → rarely can in pyro-altered rock
	860					- Majority = yellow (pyro alt of glassy groundmass) → around <del>veins</del> veins white => gneiss?
EPV063	850					- Sulphides pick out flow banding when present → pyrophyllite does where sulphide content is low
090	840					- Alunite present throughout → V. clearly obscured in silicified rock
	830					- Clear gneiss around sulphide veins → enargite core
	820					- ~30° dip to foliation
	810					
	800					

Feldspar-phryne and andesite	Massive, pyrophytic andesite-lithic breccia	Sample no./ photo no.	Unit name	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Alteration minerals/ assemblages	Notes/comments
	Interbedded black laminated mudstone lithic breccia >> coarse sandstone - pyro breccia	EPV094 127	Hydrothermally-supported polymictic lithic breccia	10		0.05 (mud) 0.5 2 5 32 64	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite	- Abundant pyrophyllite veins - Coarse sandstone interbeds within breccia - Colloform pyrite
		EPV093 126	50	20				- Thin silt interbeds within drawn mudstone packages
		EPV092 125	90	30				- clast rpl or matrix rpl by pyrophyllite
			80	40				- 53. 4 = first Laminated mudstone - breccia between
			70	50				
			60	60				
			50	70				
			40	80				
			30	90				
			20	100				
			10	110				



Sheet 3 of 8

Date: 16/03/20

Scale: 1:500

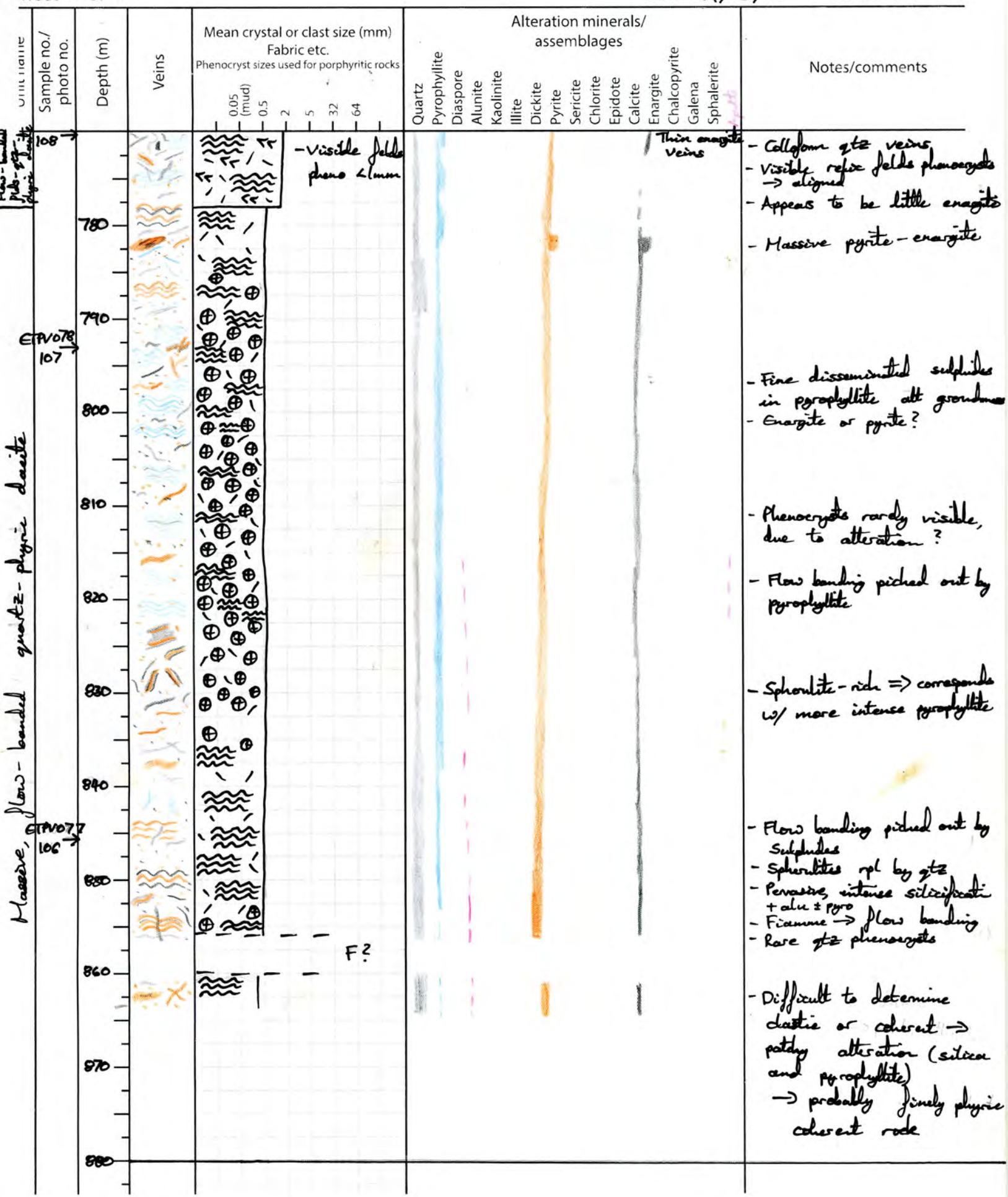
Unit name	Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Alteration minerals/assemblages	Notes/comments
Massive, polymictic fiamme- lithic breccia	STP087	120		0.05 (mud) 0.5 2 5 32 64	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite	- Porphyritic andesite dabs - Fine disseminated pyrite - Thin qtz veins - Shell fragments
	STP088	121				- No fiamme above
		230				- Vuggy silica
		240				
		250				
		260				
		270				
		280				
		290				
		300				
		310				
		320				
		330				



Unit name	Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite	Alteration minerals/assemblages	Notes/comments
Massive, feldspar-banded quartz-pyrite dacite				0.05 (mud) 0.5	2 5 32 64		
Massive, feldspar - ferruginous - pyrite andesite				Chocolate brown Powdery $\Rightarrow$ F? Yellow/white			- Vuggy in parts - Replacement of feldspar phenocrysts by pyrophyllite
		450					- Massive coarse pyrite
		460					- Thick pyrophyllite veins
		470					
		480					
		490					
		500					
		510					
		520					
		530					
		540					
		550					
		117					
		116					
		115					
		114					
		113					
		112					
		111					
		110					
		109					
		108					
		107					
		106					
		105					
		104					
		103					
		102					
		101					
		100					
		99					
		98					
		97					
		96					
		95					
		94					
		93					
		92					
		91					
		90					
		89					
		88					
		87					
		86					
		85					
		84					
		83					
		82					
		81					
		80					
		79					
		78					
		77					
		76					
		75					
		74					
		73					
		72					
		71					
		70					
		69					
		68					
		67					
		66					
		65					
		64					
		63					
		62					
		61					
		60					
		59					
		58					
		57					
		56					
		55					
		54					
		53					
		52					
		51					
		50					
		49					
		48					
		47					
		46					
		45					
		44					
		43					
		42					
		41					
		40					
		39					
		38					
		37					
		36					
		35					
		34					
		33					
		32					
		31					
		30					
		29					
		28					
		27					
		26					
		25					
		24					
		23					
		22					
		21					
		20					
		19					
		18					
		17					
		16					
		15					
		14					
		13					
		12					
		11					
		10					
		9					
		8					
		7					
		6					
		5					
		4					
		3					
		2					
		1					
		0					

Unit name	Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite	Alteration minerals/assemblages	Notes/comments
Massive floro-banded quartz-phryic diorite				0.05 (mud) 0.5	2 5 32 64		
114		580		Spherulitic v. fine, homogeneous			- Lithoophyses and spherulites
113		590					- Abundant qtz - veins at high angle to flow banding
112		600					- Qtz Veins cut pyrite - pl flow-banding
		610					- Massive pyrite w/ minor enargite
		620					- v. intense pervasive silicification
		630					
		640					
		650		Spherulitic			
		660					- sphalerite-rich horizon





Unit name	Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite	Alteration minerals/assemblages	Notes/comments
		10		0.05 (mud) 0.5 2 5 32 64			
		20					
		30					
		40					
		50					
		60					
		70					
		80					
		90					
		100					
		110					

Unit name	Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite	Alteration minerals/assemblages	Notes/comments
Massive, pellicle-felsic-phryre andesite?	Interbedded, polymictic andesite? - lithic breccia - medium sandstone	120		0.05 (mud) 0.5 2 5 32 64			
		130					
		140					
		150					
	No core 149 → 155	160					- Conglomerate / breccia → alt makes it very hard to tell → Could be volcanic, could be metamorphic - Their fine sandy horizons? or large clasts? - Qtz - bearing?
	No core 161 → 165.5	170					- Differential alteration of clasts → abundant pink alunite clasts - Andesite clasts.
		180					
		190					
	No core 196 → 202	200					- Possibly gneiss - phryre → ductile? → alt makes difficult - Apparent coherent → some sections look ductile (mostly polymictic)
		210					
		220					



Unit name	Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite	Alteration minerals/assemblages	Notes/comments
Interbedded black laminated mudstone - sandstone > polymictic breccia				0.05 (mud) 0.5 2 5 32 64			
DPV07-101		10			2		- Heavily powdered core 0 - ~40m
		20			2		- Soft, white alteration mineral (not pyrophyllite) => kao, ill?
		30			2		- May contain sandstone interbeds → powdered now
		40					
		50					- No pyrite, or other sulphides
		60		No core 57 → 65			- Infrequently silicified
		70					- Abundant quartz veins
DPV07-102		73.5	No core 73.5 → 78.0				- Rare disseminated pyrite
		80					- No visible pyrite
		90					- Thin laminated mudstone interbeds in sandstone
		100	No core 101.4 → 106.6				- Thin mudstone interbeds
		110					- No visible sulphides



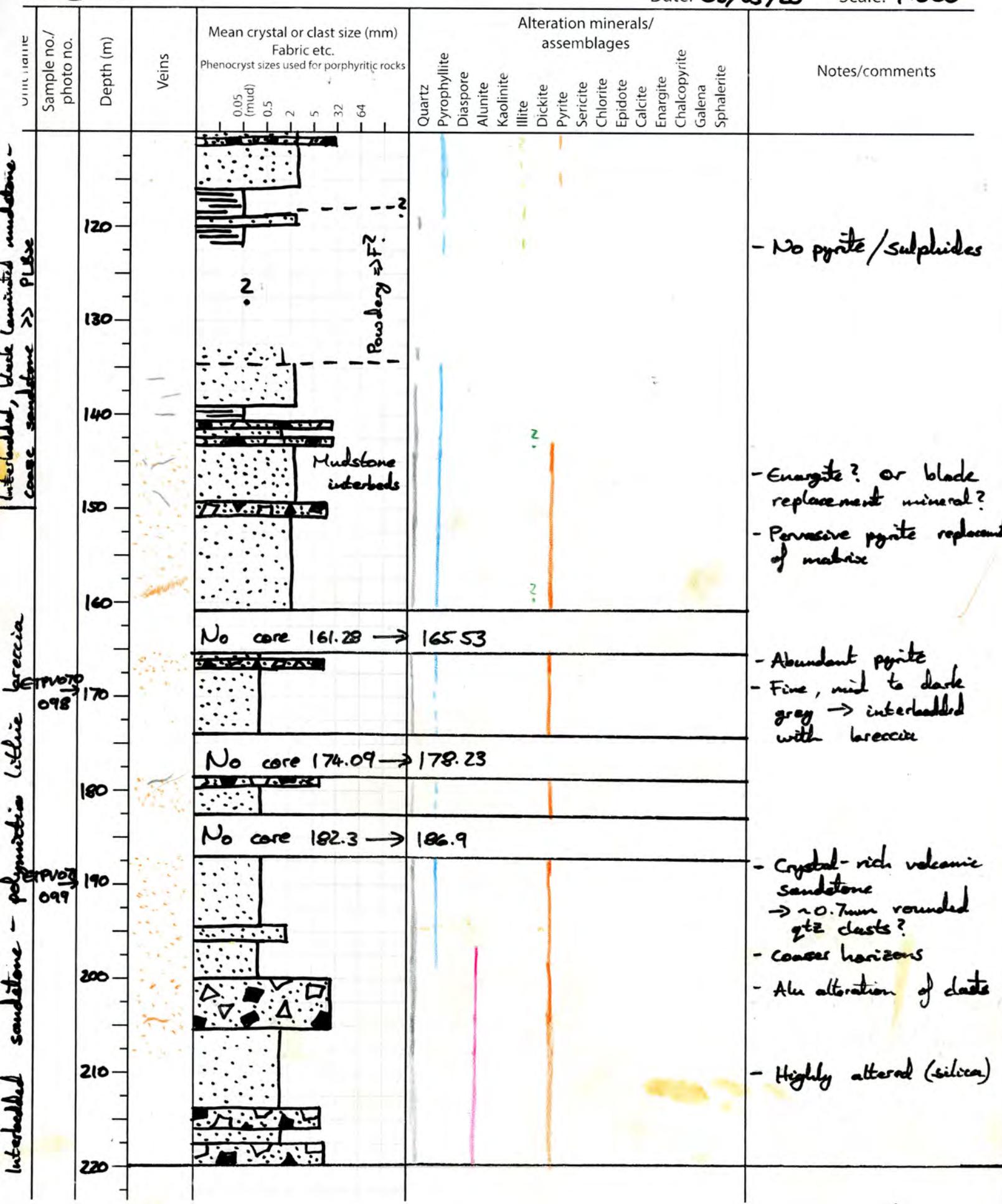
Unit name	Sample no/ photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Alteration minerals/ assemblages	Notes/comments
Massive, feldspar - phryre andesite	FFA	104	Aphyric andesite   Massive, FFA	0.05 (mud) 0.5 2 5 32 64	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite	- Alteration gives a conglomeratic appearance - Sulphide veins cut quartz veins - Qtz crystals, ch due to alteration?
		230				- Fine spots of pyrophyllite
		240				- Sharp alteration contact @ 257
		250				- Intense silicification → Abundant pyrite → Difficult to determine lithology => felsic?
		260				- Rounded quartz? → dacite rather than andesite?
		270				- Rounded quartz?
		280				
		290				
		300				
		310				
		320				
		330				

07/03/20  
Date: 14/03/20

Scale: 1:500

Unit name	Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite	Alteration minerals/assemblages	Notes/comments
Adularia-andalusite	Feldspar - pyrite adalite lithic - friable breccia FA	340		0.05 (mud) 0.5 2 5 32 64			- Massive pyrite - Apparent clastic → BUT patchy alteration → Polymictic - some porphyritic clasts
		350					
		360					
		370					
		380					
		390					
		400					
		410					
		420					

Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite <b>Hematite</b>	Alteration minerals/assemblages	Notes/comments
0069 017	10	No core 0 → 5.5	0.05 (mud) 0.5 2 5 32 64			- Abundant hematite veins - PIMA = Illite + Kaolinite
	20	No core 9.5 → 14.9				
	30					- No evidence of sulphides → oxidised?
	40					
	50					- Red-brown colour
	60					- V. fine disseminated pyrite
	70	Mudstone interbeds				- Bands of red-brown and yellow-grey → same litho
	80					- Lamination - parallel quartz veins
	90	No core 80.4 → 84.9				- Low sulphide content
	100	Sandstone interbeds				
	110	Mudstone interbeds				- V. low abundance of sulphides





Sheet 1 of 3

Date: 17/03/20

Scale: 1:500

Unit name	Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	Alteration minerals/assemblages	Notes/comments
Polymeritic, gts-bearing lithic breccia				0.05 (mud) 0.5 2 5 32 64	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcopyrite Galena Sphalerite Apophyllite	
Interbedded laminated black mudstone and well-sorted medium-to-coarse sandstone				Core Missing 109.0 → 117.9		
						- Core, particularly mudstone horizons, are rubby/powdered
		120		mudstone >> sandstone		
		130		Sandstone >> mudstone		
		140		Sandstone >> mudstone		
		150		mudstone >> sandstone		
		160		mudstone >> sandstone		
		170		Sandstone >> mudstone		
		180		mudstone >> sandstone		
		190		Powdery ⇒ F?		
		200				- Coarse pyrite generally in sandstone layers → disseminated pyrite
		210				- Sandstone contains thin mudstone interbeds
		220				- Hard to determine form of alteration and sulphide minerals in rubby core



Sheet 1 of 6

Date: 06/02/20 Scale: 1:500

Sheet 2 of 6

Date: 06/02/20 Scale: 1:500

Hole No.: DPV17-509

Ethan Tonks

Sheet 3 of 6

Date: 06/02/20 Scale: 1:500

Sheet 4 of 6

Date: 06/02/2020 Scale: 1:500

Sheet 5 of 6

Date: 07/02/20 Scale: 1:500

Sheet 6 of 6

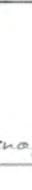
Date: 07/02/20 Scale: 1:500





Sheet 3 of 3.

Date: 12/02/20 Scale: 1:500

Petrographic petrography breccia breccia End@266.5	Interlayered polymictic and fine volcanic sandstone	Unit name	Sample no./ photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	V.C.	Alteration minerals/ assemblages												Notes/comments																																																																																																																																																																																																																																																																																										
								Glassy	Fine (<1)	Medium	1	2	3	Coarse	Quartz	Pyrophyllite	Diaspore	Alunite	Kaolinite	Illite	Dickite	Pyrite	Sericite	Chlorite	Epidote	Calcite	Enargite	Chalcopyrite	Galena																																																																																																																																																																																																																																																																																	
				230																																																																																																																																																																																																																																																																																																										<img alt="Vertical line with small ticks." data-bbox="3325 185 3

Sheet 1 of 2

Date: 13/02/20 Scale: 1:500

Sheet 2 of 2

Date: 13/02/20 Scale: 1:500

Unit name Sample no./ photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks	V.C.	Alteration minerals/ assemblages		Notes/comments
			Glassy 0.06 0.1-1)	Medium 0.5 2 5 32 64	Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcocite Galena		
Light micritic limestone					Sepiolite		<ul style="list-style-type: none"> <li>- Limestone w/ no dolomite component - almost crystalline</li> <li>- Few, fine, black-coloured impurities</li> <li>- No sulphides</li> </ul>
Dark micritic limestone	10						- Locally brecciated limestone
	20						- Darker → contains quartz clasts and less common fine, black, angular clasts
	30						- Abundant shells/shell fragments @ top
	40						- Some calcite veins are laminated
	50						- Rare black 'blobs' → organic matter?
	60						
	65 →						- 55m - first fissure (=> shear fabric)
	70 →						- Intense veining - thick (>1.5cm) linked by thin veins w/ a preferred orientation => dolomite and ankerite
	78 →						
	80 →						
	85 →						
	90 →						
	95 →						
	100 →						
	105 →						
	110 →						
							- ~105 = protomylonitic fabric

Unit name Sample no./photo no.	Depth (m)	Veins	Mean crystal or clast size (mm) Fabric etc. Phenocryst sizes used for porphyritic rocks Glassy Fine <1) Medium 0.5 0.5 2 5 32.04	V.C.	Alteration minerals/assemblages Quartz Pyrophyllite Diaspore Alunite Kaolinite Illite Dickite Pyrite Sericite Chlorite Epidote Calcite Enargite Chalcocite Galena Sphalerite	Notes/comments
Feldspar - Fe-rich - phasic andesite	Interbedded sandstone - polymictic breccia - laminated blade mudstone					
100	100					
110	110					- Parallel calcite veins @ 112
120	120					
130	130					- Mostly qtz, some dark (mudstone or volcanic?)
140	140					- Sulphides cut qtz or qtz rims pyrite veins
150	150	Sandstone >> mudstone				
160	160					- Rare flame → blade ⇒ mudstone clasts?
170	170	Sandstone >> mudstone				
180	180					- Flame => deformed mudstone clasts
190	190					
200	200	Powdery.				- Massive pyrophyllite in laminated mudstone
210	210		Pyro? Kal? veins			- Red-orange-coloured vein?
						- V. soft => increase in intensity of pyrophyllite att.
						- Powdered 199 → 202.5 => F? or alteration intensity
						- Veins of light grey, soft mineral