

HARDY

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WATERPROOF

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R. D. PENHALL LTD.

MADE IN CANADA

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1983



WATERPROOF



R. D. PENHALL LTD.

2685 MAPLE STREET
VANCOUVER, B.C. V6J 3T7
TELEPHONE (604) 736-7271

NATURAL SINES AND COSINES. 0° to 10°

M	0°		1°		2°		3°		4°		M
	Sin.	Cos.	Sin.	Cos.	Sin.	Cos.	Sin.	Cos.	Sin.	Cos.	
0	.00000	1.00000	.01745	.99985	.03490	.99939	.05234	.99863	.06976	.99756	0
1	.00029	1.00000	.01774	.99984	.03519	.99938	.05263	.99861	.07005	.99754	1
2	.00058	1.00000	.01803	.99984	.03548	.99937	.05292	.99860	.07034	.99752	2
3	.00087	1.00000	.01832	.99983	.03577	.99936	.05321	.99858	.07063	.99750	3
4	.00116	1.00000	.01862	.99983	.03606	.99935	.05350	.99857	.07092	.99748	4
5	.00145	1.00000	.01891	.99983	.03635	.99934	.05379	.99855	.07121	.99746	5
6	.00174	1.00000	.01920	.99982	.03664	.99933	.05408	.99854	.07150	.99744	6
7	.00203	1.00000	.01949	.99981	.03693	.99932	.05437	.99852	.07179	.99742	7
8	.00232	1.00000	.01978	.99980	.03722	.99931	.05466	.99851	.07208	.99740	8
9	.00261	1.00000	.02007	.99980	.03751	.99930	.05495	.99849	.07237	.99738	9
10	.00290	1.00000	.02036	.99979	.03780	.99929	.05524	.99847	.07266	.99736	10
11	.00320	.99999	.02065	.99979	.03810	.99927	.05553	.99846	.07295	.99734	11
12	.00349	.99999	.02094	.99978	.03839	.99926	.05582	.99844	.07324	.99731	12
13	.00378	.99999	.02123	.99977	.03868	.99925	.05611	.99842	.07353	.99729	13
14	.00407	.99999	.02152	.99977	.03897	.99924	.05640	.99841	.07382	.99727	14
15	.00436	.99999	.02181	.99976	.03926	.99923	.05669	.99839	.07411	.99725	15
16	.00465	.99999	.02211	.99976	.03955	.99922	.05698	.99838	.07440	.99723	16
17	.00495	.99999	.02240	.99975	.03984	.99921	.05727	.99836	.07469	.99721	17
18	.00524	.99999	.02269	.99974	.04013	.99919	.05756	.99834	.07498	.99719	18
19	.00553	.99998	.02298	.99974	.04042	.99918	.05785	.99833	.07527	.99717	19
20	.00582	.99998	.02327	.99973	.04071	.99917	.05814	.99831	.07556	.99714	20
21	.00611	.99998	.02356	.99972	.04100	.99916	.05844	.99829	.07585	.99712	21
22	.00640	.99998	.02385	.99972	.04129	.99915	.05873	.99827	.07614	.99710	22
23	.00669	.99998	.02414	.99971	.04159	.99914	.05902	.99826	.07643	.99708	23
24	.00698	.99998	.02443	.99970	.04188	.99912	.05931	.99824	.07672	.99705	24
25	.00727	.99997	.02472	.99969	.04217	.99911	.05960	.99822	.07701	.99703	25
26	.00756	.99997	.02501	.99969	.04246	.99910	.05989	.99821	.07730	.99701	26
27	.00785	.99997	.02530	.99968	.04275	.99909	.06018	.99819	.07759	.99699	27
28	.00814	.99997	.02560	.99967	.04304	.99907	.06047	.99817	.07788	.99696	28
29	.00844	.99996	.02589	.99966	.04333	.99906	.06076	.99815	.07817	.99694	29
30	.00873	.99996	.02618	.99966	.04362	.99905	.06105	.99813	.07846	.99692	30
31	.00902	.99996	.02647	.99965	.04391	.99904	.06134	.99812	.07875	.99689	31
32	.00931	.99996	.02676	.99964	.04420	.99902	.06163	.99810	.07904	.99687	32
33	.00960	.99995	.02705	.99963	.04449	.99901	.06192	.99808	.07933	.99685	33
34	.00989	.99995	.02734	.99963	.04478	.99900	.06221	.99806	.07962	.99683	34
35	.01018	.99995	.02763	.99962	.04507	.99898	.06250	.99805	.07991	.99680	35
36	.01047	.99995	.02792	.99961	.04536	.99897	.06279	.99803	.08020	.99678	36
37	.01076	.99994	.02821	.99960	.04565	.99896	.06308	.99801	.08049	.99676	37
38	.01105	.99994	.02850	.99959	.04594	.99894	.06337	.99799	.08078	.99673	38
39	.01134	.99994	.02879	.99959	.04623	.99893	.06366	.99797	.08107	.99671	39
40	.01164	.99993	.02908	.99958	.04653	.99892	.06395	.99795	.08136	.99668	40
41	.01193	.99993	.02938	.99957	.04682	.99890	.06424	.99793	.08165	.99666	41
42	.01222	.99993	.02967	.99956	.04711	.99889	.06453	.99792	.08194	.99664	42
43	.01251	.99992	.02996	.99955	.04740	.99888	.06482	.99790	.08223	.99661	43
44	.01280	.99992	.03025	.99954	.04769	.99886	.06511	.99788	.08252	.99659	44
45	.01309	.99991	.03054	.99953	.04798	.99885	.06540	.99786	.08281	.99657	45
46	.01338	.99991	.03083	.99952	.04827	.99883	.06569	.99784	.08310	.99654	46
47	.01367	.99991	.03112	.99952	.04856	.99882	.06598	.99782	.08339	.99652	47
48	.01396	.99990	.03141	.99951	.04885	.99881	.06627	.99780	.08368	.99649	48
49	.01425	.99990	.03170	.99950	.04914	.99879	.06656	.99778	.08397	.99647	49
50	.01454	.99989	.03199	.99949	.04943	.99878	.06685	.99776	.08426	.99644	50
51	.01483	.99989	.03228	.99948	.04972	.99876	.06714	.99774	.08455	.99642	51
52	.01513	.99989	.03257	.99947	.05001	.99875	.06743	.99772	.08484	.99639	52
53	.01542	.99988	.03286	.99946	.05030	.99873	.06772	.99770	.08513	.99637	53
54	.01571	.99988	.03315	.99945	.05059	.99872	.06801	.99768	.08542	.99634	54
55	.01600	.99987	.03344	.99944	.05088	.99870	.06830	.99766	.08571	.99632	55
56	.01629	.99987	.03373	.99943	.05117	.99869	.06859	.99764	.08600	.99630	56
57	.01658	.99986	.03403	.99942	.05146	.99867	.06888	.99762	.08629	.99627	57
58	.01687	.99986	.03432	.99941	.05175	.99866	.06917	.99760	.08658	.99625	58
59	.01716	.99985	.03461	.99940	.05205	.99864	.06946	.99758	.08687	.99622	59
60	.01745	.99985	.03490	.99939	.05234	.99863	.06975	.99756	.08716	.99619	60

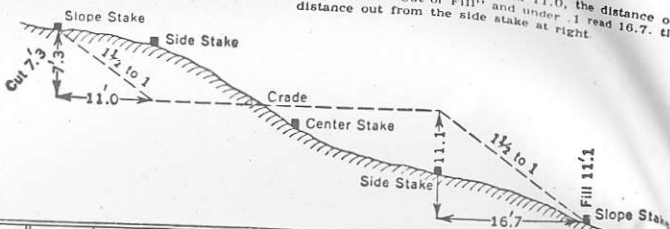
NATURAL SINES AND COSINES. 0° to 10°

M	5°		6°		7°		8°		9°		M
	Sin.	Cos.	Sin.	Cos.	Sin.	Cos.	Sin.	Cos.	Sin.	Cos.	
0	.08716	.99619	.10453	.99452	.12187	.99255	.13917	.99027	.15643	.98769	0
1	.08745	.99617	.10482	.99449	.12216	.99251	.13946	.99023	.15672	.98764	1
2	.08774	.99614	.10511	.99446	.12245	.99248	.13975	.99019	.15701	.98760	2
3	.08803	.99612	.10540	.99443	.12274	.99244	.14004	.99015	.15730	.98755	3
4	.08831	.99610	.10569	.99440	.12302	.99240	.14033	.99011	.15758	.98751	4
5	.08860	.99607	.10597	.99437	.12331	.99237	.14061	.99006	.15787	.98746	5
6	.08889	.99604	.10626	.99434	.12360	.99233	.14090	.99002	.15816	.98741	6
7	.08918	.99602	.10655	.99431	.12389	.99230	.14119	.98998	.15845	.98737	7
8	.08947	.99599	.10684	.99428	.12418	.99226	.14148	.98994	.15873	.98732	8
9	.08976	.99596	.10713	.99424	.12447	.99222	.14177	.98990	.15902	.98728	9
10	.09005	.99594	.10742	.99421	.12476	.99219	.14205	.98986	.15931	.98723	10
11	.09034	.99591	.10771	.99418	.12504	.99215	.14234	.98982	.15959	.98718	11
12	.09063	.99588	.10800	.99415	.12533	.99211	.14263	.98978	.15988	.98714	12
13	.09092	.99586	.10829	.99412	.12562	.99208	.14292	.98973	.16017	.98709	13
14	.09121	.99583	.10858	.99409	.12591	.99204	.14320	.98969	.16046	.98704	14
15	.09150	.99580	.10887	.99406	.12620	.99200	.14349	.98965	.16074	.98700	15
16	.09179	.99578	.10916	.99402	.12649	.99197	.14378	.98961	.16103	.98695	16
17	.09208	.99575	.10945	.99399	.12678	.99193	.14407	.98957	.16132	.98690	17
18	.09237	.99572	.10973	.99396	.12706	.99189	.14436	.98953	.16160	.98686	18
19	.09266	.99570	.11002	.99393	.12735	.99186	.14464	.98949	.16189	.98681	19
20	.09295	.99567	.11031	.99390	.12764	.99182	.14493	.98944	.16218	.98676	20
21	.09324	.99564	.11060	.99386	.12793	.99178	.14522	.98940	.16247	.98671	21
22	.09353	.99562	.11089	.99383	.12822	.99175	.14551	.98936	.16275	.98667	22
23	.09382	.99559	.11118	.99380	.12851	.99171	.14580	.98931	.16304	.98662	23
24	.09411	.99556	.11147	.99377	.12880	.99167	.14608	.98927	.16333	.98657	24
25	.09440	.99553	.11176	.99374	.12908	.99163	.14637	.98923	.16361	.98652	25
26	.09469	.99551	.11205	.99370	.12937	.99160	.14666	.98919	.16390	.98648	26
27	.09498	.99548	.11234	.99367	.12966	.99156	.14695	.98914	.16419	.98643	27
28	.09527	.99545	.11263	.99364	.12995	.99152	.14723	.98910	.16447	.98638	28
29	.09556	.99542	.11291	.99360	.13024	.99148	.14752	.98906	.16476	.98633	29
30	.09585	.99540	.11320	.99357	.13053	.99144	.14781	.98902	.16505	.98629	30
31	.09614	.99537	.11349	.99354	.13081	.99141	.14810	.98897	.16533	.98624	31
32	.09642	.99534	.11378	.99351	.13110	.99137	.14838	.98893	.16562	.98619	32
33	.09671	.99531	.11407	.99347	.13139	.99133	.14867	.98889	.16591	.98614	33
34	.09700	.99528	.11436	.99344	.13168	.99129	.14896	.98884	.16620	.98609	34
35	.09729	.99526	.11465	.99341	.13197	.99125	.14925	.98880	.16648	.98604	35
36	.09758	.99523	.11494	.99337	.13226	.99122	.14954	.98876	.16677	.98600	36
37	.09787	.99520	.11523	.99334	.13254	.99118	.14982	.98871	.16706	.98595	37
38	.09816	.99517	.11552	.99331	.13283	.99114	.15011	.98867	.16734	.98590	38
39	.09845	.99514	.11580	.99327	.13312	.99110	.15040	.98863	.16763	.98585	39
40	.09874	.99511	.11609	.99324	.13341	.99106	.15069	.98858	.16792	.98580	40
41	.09903	.99508	.11638	.99320	.13370	.99102	.15097	.98854	.16820	.98575	41
42	.09932	.99506	.11667	.99317	.13399	.99098	.15126	.98849	.16849	.98570	42
43	.09961	.99503	.11696	.99314	.13427	.99094	.15155	.98845	.16878	.98565	43
44	.09990	.99500	.11725	.99310	.13456	.99091	.15184	.98841	.16906	.98561	44
45	.10019	.99497	.11754	.99307	.13485	.99087	.15212	.98836	.16935	.98556	45
46	.10048	.99494	.11783	.99303	.13514	.99083	.15241	.98832	.16964	.98551	46
47	.10077	.99491	.11812	.99300	.13543	.99079	.15270	.98827	.16992	.98546	47
48	.10106	.99488	.11840	.99297	.13572	.99075	.15299	.98823	.17021	.98541	48
49	.10135	.99485	.11869	.99293	.13600	.99071	.15327	.98818	.17050	.98536	49
50	.10164	.99482	.11898	.99290	.13629	.99067	.15356	.98814	.17078	.98531	50
51	.10192	.99479	.11927	.99286	.13658	.99063	.15385	.98809	.17107	.98526	51
52	.10221	.99476	.11956	.99283	.13687	.99059	.15414	.98805	.17136	.98521	52
53	.10250	.99473	.11985	.99279	.13716	.99055	.15442	.98800	.17164	.98516	53
54	.10279	.99470	.12014	.99276	.13744	.99051	.15471	.98796	.17193	.98511	54
55	.10308	.99467	.12043	.99272	.13773	.99047	.15500	.98791	.17222	.98506	55
56	.10337	.99464	.12071	.99269	.13802	.99043	.15529	.98787	.17250	.98501	56
57	.10366	.99461	.12100	.99265	.13831	.99039	.15557	.98782	.17279	.98496	57
58	.10395	.99458	.12129	.99262	.13860	.99035	.15586	.98778	.17308	.98491	58
59	.10424	.99455	.12158	.99258	.13889	.99031	.15615	.98773	.17336	.98486	59
60	.10453	.99452	.12187	.99255	.13917	.99027	.15643	.98769	.17365	.98481	60

Deg.	0'		10'		20'		30'		40'		50'		Deg.
	Sin.	Cos.	Sin.	Cos.	Sin.	Cos.	Sin.	Cos.	Sin.	Cos.	Sin.	Cos.	
0	.0000	1.0000	.0029	1.0000	.0058	1.0000	.0087	.9999	.0116	.9999	.0145	.9999	89
1	.0175	.9998	.0204	.9998	.0233	.9997	.0262	.9997	.0291	.9996	.0320	.9995	88
2	.0349	.9994	.0378	.9993	.0407	.9992	.0436	.9990	.0465	.9989	.0494	.9988	87
3	.0523	.9986	.0552	.9985	.0581	.9983	.0610	.9981	.0640	.9980	.0669	.9978	86
4	.0698	.9976	.0727	.9974	.0756	.9971	.0785	.9969	.0814	.9967	.0843	.9964	85
5	.0872	.9962	.0901	.9959	.0929	.9957	.0958	.9954	.0987	.9951	.1016	.9948	84
6	.1045	.9945	.1074	.9942	.1103	.9939	.1132	.9936	.1161	.9932	.1190	.9929	83
7	.1219	.9925	.1248	.9922	.1276	.9918	.1305	.9914	.1334	.9911	.1363	.9907	82
8	.1392	.9903	.1421	.9899	.1449	.9894	.1479	.9890	.1507	.9886	.1536	.9881	81
9	.1564	.9877	.1593	.9872	.1622	.9868	.1650	.9863	.1679	.9858	.1708	.9853	80
10	.1736	.9848	.1765	.9843	.1794	.9838	.1822	.9833	.1851	.9827	.1880	.9822	79
11	.1908	.9816	.1937	.9811	.1965	.9805	.1994	.9799	.2022	.9793	.2051	.9787	78
12	.2079	.9781	.2108	.9775	.2136	.9769	.2164	.9763	.2193	.9757	.2221	.9750	77
13	.2250	.9744	.2278	.9737	.2306	.9730	.2334	.9724	.2363	.9717	.2391	.9710	76
14	.2419	.9703	.2447	.9696	.2476	.9689	.2504	.9681	.2532	.9674	.2560	.9667	75
15	.2588	.9659	.2616	.9652	.2644	.9644	.2672	.9636	.2700	.9628	.2728	.9621	74
16	.2756	.9613	.2784	.9605	.2812	.9596	.2840	.9588	.2868	.9580	.2896	.9572	73
17	.2924	.9563	.2952	.9555	.2979	.9546	.3007	.9537	.3035	.9528	.3062	.9520	72
18	.3090	.9511	.3118	.9502	.3145	.9492	.3173	.9483	.3201	.9474	.3228	.9465	71
19	.3256	.9455	.3283	.9446	.3311	.9436	.3338	.9426	.3365	.9417	.3393	.9407	70
20	.3420	.9397	.3448	.9387	.3475	.9377	.3502	.9367	.3529	.9356	.3557	.9346	69
21	.3584	.9336	.3611	.9325	.3638	.9315	.3665	.9304	.3692	.9293	.3719	.9283	68
22	.3746	.9272	.3773	.9261	.3800	.9250	.3827	.9239	.3854	.9228	.3881	.9216	67
23	.3907	.9205	.3934	.9194	.3961	.9182	.3987	.9171	.4014	.9159	.4041	.9147	66
24	.4067	.9135	.4094	.9124	.4120	.9112	.4147	.9100	.4173	.9088	.4200	.9075	65
25	.4226	.9063	.4253	.9051	.4279	.9038	.4305	.9026	.4331	.9013	.4358	.9001	64
26	.4384	.8988	.4410	.8975	.4436	.8962	.4462	.8949	.4488	.8936	.4514	.8923	63
27	.4540	.8910	.4566	.8897	.4592	.8884	.4617	.8870	.4643	.8857	.4669	.8843	62
28	.4695	.8829	.4720	.8816	.4746	.8802	.4772	.8788	.4797	.8774	.4823	.8760	61
29	.4848	.8746	.4874	.8732	.4899	.8718	.4924	.8704	.4950	.8689	.4975	.8675	60
30	.5000	.8660	.5025	.8646	.5050	.8631	.5075	.8616	.5100	.8601	.5125	.8587	59
31	.5150	.8572	.5175	.8557	.5200	.8542	.5225	.8526	.5250	.8511	.5275	.8496	58
32	.5299	.8480	.5324	.8465	.5348	.8450	.5373	.8434	.5398	.8418	.5422	.8403	57
33	.5446	.8387	.5471	.8371	.5495	.8355	.5519	.8339	.5544	.8323	.5568	.8307	56
34	.5592	.8290	.5616	.8274	.5640	.8258	.5664	.8241	.5688	.8225	.5712	.8208	55
35	.5736	.8192	.5760	.8175	.5783	.8158	.5807	.8141	.5831	.8124	.5854	.8107	54
36	.5878	.8090	.5901	.8073	.5925	.8056	.5948	.8039	.5972	.8021	.5995	.8004	53
37	.6018	.7986	.6041	.7969	.6065	.7951	.6088	.7934	.6111	.7916	.6134	.7898	52
38	.6157	.7880	.6180	.7862	.6202	.7844	.6225	.7826	.6248	.7808	.6271	.7790	51
39	.6293	.7771	.6316	.7753	.6338	.7735	.6361	.7716	.6383	.7698	.6406	.7679	50
40	.6428	.7660	.6450	.7642	.6472	.7623	.6494	.7604	.6517	.7585	.6539	.7566	49
41	.6561	.7547	.6583	.7528	.6604	.7509	.6626	.7490	.6648	.7470	.6670	.7451	48
42	.6691	.7431	.6713	.7412	.6734	.7392	.6756	.7373	.6777	.7353	.6799	.7333	47
43	.6820	.7314	.6841	.7294	.6862	.7274	.6884	.7254	.6905	.7234	.6926	.7214	46
44	.6947	.7193	.6967	.7173	.6988	.7153	.7009	.7133	.7030	.7112	.7050	.7092	45
45	.7071	.7071	.7092	.7050	.7112	.7030	.7133	.7009	.7153	.6988	.7173	.6967	44
Deg.	Cos.	Sin.	Cos.	Sin.	Cos.	Sin.	Cos.	Sin.	Cos.	Sin.	Cos.	Sin.	Deg.
	60'		50'		40'		30'		20'		10'		

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING Roadway of any Width. Side Slopes $1\frac{1}{2}$ to 1.

In the figure below: opposite 7 under "Cut or Fill" and under .3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under .1 read 16.7, the distance out from the side stake at right.



Cut or Fill	Distance out from Side or Shoulder Stake										Cut or Fill
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.0	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	0
1	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	1
2	3.0	3.2	3.3	3.5	3.6	3.8	3.9	4.1	4.2	4.4	2
3	4.5	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	3
4	6.0	6.2	6.3	6.5	6.6	6.8	6.9	7.1	7.2	7.4	4
5	7.5	7.7	7.8	8.0	8.1	8.3	8.4	8.6	8.7	8.9	5
6	9.0	9.2	9.3	9.5	9.6	9.8	9.9	10.1	10.2	10.4	6
7	10.5	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9	7
8	12.0	12.2	12.3	12.5	12.6	12.8	12.9	13.1	13.2	13.4	8
9	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.6	14.7	14.9	9
10	15.0	15.2	15.3	15.5	15.6	15.8	15.9	16.1	16.2	16.4	10
11	16.5	16.7	16.8	17.0	17.1	17.3	17.4	17.6	17.7	17.9	11
12	18.0	18.2	18.3	18.5	18.6	18.8	18.9	19.1	19.2	19.4	12
13	19.5	19.7	19.8	20.0	20.1	20.3	20.4	20.6	20.7	20.9	13
14	21.0	21.2	21.3	21.5	21.6	21.8	21.9	22.1	22.2	22.4	14
15	22.5	22.7	22.8	23.0	23.1	23.3	23.4	23.6	23.7	23.9	15
16	24.0	24.2	24.3	24.5	24.6	24.8	24.9	25.1	25.2	25.4	16
17	25.5	25.7	25.8	26.0	26.1	26.3	26.4	26.6	26.7	26.9	17
18	27.0	27.2	27.3	27.5	27.6	27.8	27.9	28.1	28.2	28.4	18
19	28.5	28.7	28.8	29.0	29.1	29.3	29.4	29.6	29.7	29.9	19
20	30.0	30.2	30.3	30.5	30.6	30.8	30.9	31.1	31.2	31.4	20
21	31.5	31.7	31.8	32.0	32.1	32.3	32.4	32.6	32.7	32.9	21
22	33.0	33.2	33.3	33.5	33.6	33.8	33.9	34.1	34.2	34.4	22
23	34.5	34.7	34.8	35.0	35.1	35.3	35.4	35.6	35.7	35.9	23
24	36.0	36.2	36.3	36.5	36.6	36.8	36.9	37.1	37.2	37.4	24
25	37.5	37.7	37.8	38.0	38.1	38.3	38.4	38.6	38.7	38.9	25
26	39.0	39.2	39.3	39.5	39.6	39.8	39.9	40.1	40.2	40.4	26
27	40.5	40.7	40.8	41.0	41.1	41.3	41.4	41.6	41.7	41.9	27
28	42.0	42.2	42.3	42.5	42.6	42.8	42.9	43.1	43.2	43.4	28
29	43.5	43.7	43.8	44.0	44.1	44.3	44.4	44.6	44.7	44.9	29
30	45.0	45.2	45.3	45.5	45.6	45.8	45.9	46.1	46.2	46.4	30
31	46.5	46.7	46.8	47.0	47.1	47.3	47.4	47.6	47.7	47.9	31
32	48.0	48.2	48.3	48.5	48.6	48.8	48.9	49.1	49.2	49.4	32
33	49.5	49.7	49.8	50.0	50.1	50.3	50.4	50.6	50.7	50.9	33
34	51.0	51.2	51.3	51.5	51.6	51.8	51.9	52.1	52.2	52.4	34
35	52.5	52.7	52.8	53.0	53.1	53.3	53.4	53.6	53.7	53.9	35
36	54.0	54.2	54.3	54.5	54.6	54.8	54.9	55.1	55.2	55.4	36
37	55.5	55.7	55.8	56.0	56.1	56.3	56.4	56.6	56.7	56.9	37
38	57.0	57.2	57.3	57.5	57.6	57.8	57.9	58.1	58.2	58.4	38
39	58.5	58.7	58.8	59.0	59.1	59.3	59.4	59.6	59.7	59.9	39
40	60.0	60.2	60.3	60.5	60.6	60.8	60.9	61.1	61.2	61.4	40

May 26/83

Tamibi Creek: Central Traverse

JH1 in trees 1185m

-very friable outcrop with rusty
gouge zones w/o evident sulphides
-andesite

T201 - ~~diabase~~ ^{diabase} - med green, med xline
w. 2-10 mm. plag. laths

10-30% mafics
dacite, v. fr. gr. ^{mod. gr. to brn-grey}, variably
silicified, locally amygdules
-pitted w. chl

-in places fr. intense frag.
-fr. finely disp. py locally

-no reliable bedding
plus intercalated argillites, med
green, v. friable

JH2 1250m

T202 andesite-like "diabase" of
previous but w/2 plag. laths

plus - med green med xline, massive
5-10% ferromag. diss + v. fr.

T203 - rings, v. hard ^{chilled} amygdules

→ I.P. = hornblende diorite

→ patchy silicification + colour Δ

→ lapilli tuff in places

— very altered, cooled outcrop w/
clean weathered surfaces

→ lapilli tuff

Ep veins w Ct in angular
float below + open veinlets

m.o.c

- homog. w. grain/XL boundaries
somewhat indistinct ? alt. dacite

- locally 1-2% fr. xl. py dissemin.
+ irreg. disconter veins

- rarely on weathered surfaces
ang. elongate pale gm., finely xl.ine
siliceous - frag to 1cm.

JH3

probable o.c

200m diameter

115

- dacite, med gm, med xl.ine w.

about mm size chl filled

Tc

203

amygdules, massive

- open + O-filled fractures

- fresher than previous locally
but in places altered w.

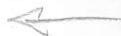
cm-size Ep laths, random,

not trachytic arrangement

JH4

? dacite as above to

clastic or? rhyolite as previously



Tc204

relatively soft in places calcite
→ apple green of vesicles,
patchy alteration
- only vague fragments visible

- locally vesicular → flattened

plus areas of porphyritic darts
irreg. contact between

↔

except to form, siliceous, lacks
vesicles
- ? patchy silicification

FIELD

passes w/o obvious contact
to cherty banded tuff,
bands to ~~lenses~~ of
somewhat more siliceous
material, pale to med green
to red mottled

- abnt mag. Quartz.
- apart from bands, massive
- w abnt mag O veins + chl.
along slickensided surfaces

plus more friable maroon
argillites along base

SH5, 6 + 47m 1100m

5: - mica schist: straightly foliated
green mica w red purplish
spots

5: - O rich lenses elongate
parallel to slightly folded
folia

$\frac{2}{1}$ 206

Plus maroon argillites, massive
as above in lenses

2076:

likely
- plus stuff, v. silic, 1 gsm, v.
fracture

TC
205



also ? rhyolite, 1 pink, v. fr
Xline, v. siliceous, conchoidal
fracture → may be
silicified

- patchy Δ colour; v. fr gm
vesicles appear Δ filled

→ likely Δ gauge v. ang Bx

→ v. finely laminated, slight Δ
colour

SAWED: close-spaced, ←
oxide impregnated,
? finely ground matrix

→ looks like lt, faint frz

But v. fr. conchoidal Fp + dr green
amydules → VC parent

E207

to - mod grn, finely xline
 dacites, lapilli-rich locally to more
 - plus ? pink altered
 ? felsic fragments
 or just v. altered dacite
 (highly D within 1m)

+390m ✓ from JH2

JH7 switch back 1130 (down slope)
 andesite

E208

of maroon w amygdules (v. frag)
 sil and within green amygdular
 andesite (or ? reduction
 spots) (def. D composition)

- locally v. sheared but elsewhere
 massive; minor flow banding
 - appears to contain < 2 cm
 siliceous frags locally →

Lapilli tuff (may be elongate
 subparallel, ? FIAMME → welded)

- faint elongation in matrix
 bends around fragments, (1.4)
 too low for FIAMME)

→ coarsely granular w/ f. l. talc, minor yellowish clay like alterations

→ may be up fault zone th. o/c appeared massive without showing to maroon.

- talc chert, l. green w. w. reg. v. altered patches? mineralization → variable silicification of decite.

- maroon "frog" subord. to irreg. amoeboid, ≤ 1 mm amygdules
- matrix-supported.

→ opposite fragmental w. maroon alteration extending beyond fragments in amoeboid patches

- irreg. H+ alteration (?jaspa) in patches in matrix.

- minor ρ sericitization (green w. evidence v. rapidly vesiculated)

JH8

(TC208)

May 27/83

1110m

at fork

andesite against w. frag.

to 10 cm visible as

weathered surface

- matrix supported, frag often reddish or with (in weathered surface) thin red weathered rim

- Fp amygdules, v. fr vesicles

- may be chlorite alteration with faint laminae bending around frag

- no halph. noted, Orens

- no consistent good int. size

50m → covered interval

TC209

dacite, med. qm, med. fr

exline, v. fr. ? chl-filled vesicles

- charder than previous +

lacking chl. alt.

- may be very fr XLS → XL

tuff but also good flow banding in tuffs

- frog rounded by a lot. to 10cm
- weathered surfaces often white clay-like

→ likely silicified andesite? same what harder than above
→ patchy silicification

→ return to andesite, fragmental
w/o. obvious contact between
but. lapilli (lithic) tuff
→ aggl. (heterog)
VC

JH9

1040m

porphyritic dacite to dacite
lvs c to v fr xl size, light gm.
- Fp laths well defined.

slightly greenish ? variable

B210 saussuritization as laths
in places merge w. one another
- elsewhere mm chl. Hb. xls.
→ xl tuff

- locally v fr gr. distinctly
greener, w v fr yellow green
alteration, relatively soft

- locally homog. lgreen, not
silicified → ? more complex to
alteration

- textures suggest intrusive material
is slightly finer crystalline version
of the diorite

→ but appears to be slight
difference in hardness →
patchy infuscation and/or
alteration as original crystalline
texture obliterated

JH10 BIG HUMP

SE side - unreg. \emptyset veins

lapilli tuff \rightarrow dacite

c.g. granular textured w. sparse
mm Fp laths + Oeyes + alnt

lapilli

Tc211

\rightarrow vesicular (ch) dacite to 5mm

- contact where vesicle undulates

w. end. of shear, steep to NW

- slickensides; local py vesicle

- patchy Δ colour red fill

to green w. obvious change

in hardness tho. locally could
be scoriaceous fragments + well defined
chert frags are present

- lapilli tuff along strike \rightarrow

\uparrow Fp laths, wagne spherical

Fp structures, c.g.

\rightarrow Oeye dacite to rhyodacite

unreg. \emptyset amygdules in

\uparrow vesicified fuzgr.

masson rock w. sparse

Fp laths, wagne lapilli

\rightarrow lapilli dacite

locally chl. isolated

- frog Ht chert to French just locally
(use same samples)

→ locally slightly altered chloritic

→ blocks may be slightly out of place

→ frog crystallized matrix to 10 cm
↳ may be large patches of pervasive
silicification; °° v. silic, v. fine,
contacts may transgress into
matrix + P w. flow banding at
lapilli/dacite contact

to XI full w 20% Fp laths
w. high space & vesiculation

→ sphyrodacte or vesiculation

FIELD

JH VI

E side

? v. frag. dark purple-grey
w. 2mm vesicles Hp +

? light green (causum?)

variably schafed

? date - does not resemble

previous ? broken pieces

hang. dark colour ifn.

gr size

- weathers pink grey with

concentric purple bands

rimming some irregular

areas + Ht material

filling in apparent

interstices

- locally appears to have

close packed frog (grain

support on weathered surface

but elsewhere more like

Lessegang rings

- no such textures visible

on "fresh" surfaces which

all look gungy

→ about v. coarse aggent in talus

- generally soft

→ ? Jasper ~~looked~~ apparent
fragments contains ? bubbles
→ possible rhyolite if
that is true

IP: if rhyolite + devitrified
in glass parts could appear
soft in hand sample

→ ? close pack frags are all
subrounded not at all like
typical hyaloclastite shards

JH 12

Slide before creek

Granite due to visible ↑
chl., opten. chloer sides

- irreg areas of jasper
often w. apparent
subrad. capilli texture

- locally chl. very bright green

- ? andesite likely also has chl. or
dact. about 1/4 fr vesicles chl
dk. maroon

rc213

- weathers slightly lighter
green, but vis soft

→ narrow strip apparently
whealed maroon-dact. w.

→ pale FP + ^(dact) amygdale fill as at
JH 10, w. local FP both
conchoidal flw. →
dact. ps

- bright grn chl along

#12 Slide before work
↑ mafic due to visible ↑
chl, often slickensides

- irreg. areas of jasper
often w. apparent
subvent. capilli texture.

- locally chl. very bright green

- ? andesite likely the pos. chlorite
date about 1/4 fr vesicles chl
dk. maroon

TC213

- weathers slightly lighter
green, but vis soft

→ narrow strip apparently
wheated maroon - date w.

→ pale Fp + ^(dark) ^(soft) amygdale fill as at
#10, w. local Fp paths
conchoidal flur. →
date ps

- bright gm chl. along

→ Zepherules, if this is true
rock is myxolite

- concentric rims, in places
coalescing in matrix golden
goethite

- clude in places + may be
flattened

- often fractures only within
rounded body

↙ extreme dark colour does not
fit w. above model + absent
✓ for oil-filled vesicles

↘ extreme bright red colour = absent
○ amygdals, conchoidal fracture +
often extreme hardness →
subaerial or shallow myxolite

slackerlike surfaces + wsg.
venets
- locally patchy green w.
obvious Δ comp

but Δ \equiv comp. w/o obvious
 Δ alt - except \uparrow green Fp weathers
white clay-like

SH13 just into deep part
washout above, cont o/c

SH14 ^{why date to}
dacite, green to maroon mottled
O - ch. filled amygdulae
COVER

dacitic lapilli duff with some
Fp clasts, well developed
yellow bands show slight
undulation (100/40 SW)
interbedded w green to
maroon dacites

→ grades in same d/c to
pinkish amygdalite ↑
clasts ↓ ⊙ amygdalite
hardness → the shell very
siliceous

- variable silicification

FIELD

? boudins of lighter
grey weathering lapilli →
aggt w. high sil at
bed locally close packed
? fanning - no samples

→ darker grey-maroon dacite
w. sparse chl. amygdules
+ Fo. laths, v. fine line
- var. silicified w. irreg.
patches Jasper

→ v. dark ^{green} fine dacite
w. ~~only~~ sparse laths

↑ apparent chattering →
? gouge zone of lapilli
+ aggt w. elongate clasts
(? eyes or disrupted veins/beds)
aggt. l. green dacite w. sparse
chl. filled amygdules
- v. well silicified

+ lat. med. b. m. grey, v. dark -
texture (No. 1/40 W?)
v. finely banded

→ SLIDE

includes chl + Fp microplankton cl. laths

→ visilicous but w rod frag. resembles
much like those observed previously
in frag. and w $\leq 1 \mu\text{m}$ diameter
to conchoidal fracturing, with
thin Fp laths to arched.

→ 1 green dacite →
1 green var. silicified
dacite (apite tuff N/S)
- minor py

May 28/83

JH 14

TC 215

- snow cover over area of
probable Zn float
- about py + rusty areas

cherty tuff, well banded blocks
white to chert Bx, honey, orange

17°/60° E

- py finely disseminated + as
lenticles to lenses elongate 11 beds to ²⁰cm
+ interbeds of v. pale green
slightly shaly appearing
dacite to ash tuff w py cules

massive, finely granular ^{mm} float at
upper limit of concourse; euhedral
py masses cut by irreg. veins
in relatively soft, deg. weathered
andesite 401

- Also py to cm cubes in close spaced short
Bx, various shades of grey, ang. frag.
py. X cuts by irregular
402

→ close spaced, autogenous,
shaded, v. ang. → well ind. tho
= coarse

- weathered surface mottled grey -
white to be, irregular patches →
? correlates w/ py abundance
tho py imp. as granules
aggregates of 1/2 in cubes and
as discrete cubes

py to 10% of some chert
bands but abundance v.
erratic

- resembles material from
Main Shewing

72216 → amygdaloidal andesite,
varied to med. grn, highly
variable v. l. and py
alteration

- locally blk. lapilli

- py as elongate lenses
to bands - seem somewhat

too coarsely crystalline to be
assigned; py cubes within lapilli + matrix

- ? dk blk sph or chl

408m to road

403

~ 5% amygdules
as irregular disseminations,
granular textured, sometimes w
calcite in areas otherwise
lacking veins
- patches to 10cm diameter
w Px to 50%, subhedral to
euhedral cubes; patches often
elongate || darker green? chloritic
matrix

401

402

JH15

end of upper road
blocked by steep snow
field \Rightarrow last oc
before snow

Tc > 17

andesite, dk green, finely
xln, chl-filled amygdaloids
to 1cm

- massive

- locally unaltered \uparrow chl w.
slidescides

- probably fresh, no py,
no silica

- no hand sample

- variable snow cover down road may
hide snow oc

200 m from end of road to
upper road with no
switchbacks

and 1000 m from JH15
road

JH 16
TC 218

240 m from end
probable outcrop

andesite med gm, finely
xlined, w. chl-filled amygdules
up to 20% locally
- open fractures, likely
shattered due to blasting
- locally v-fn ashiness
variable
- massive, some Δ chl alt

JH 17
TC 219

425 m from end

andesite, med gm, fn xline,
mm amygdules var, typically massive
- sparse amygdules to 1cm
w. lighter green rims



alt v-fn

locally efferves + can see
v-fn ct vesicle fill; also
obvious ct veins
- no other alt

H18

1156 ^{from} end of road, Prob of

TC 220

DIORITE, weathered grey
mod. grn, med gr, definitely
looks intrusive, massive

- sparse Olivs

200

- Ep → saussurite greenish

- waves from fine med to mod
gr. (references Ep + Ct)

→ chloritic andesite, very
soft

- weathered surfaces tend
to give intrusive appearance

→ 1580m trees far end

H19

2016 m end of road
(in trees)

TC 221

- beginning of zone of relatively
continuous of C

- asphillite, brown-grey, platy
locally clay with siltstone
interbeds

→ C andesite
tho. could be v.
altered andesite

- dr. finey diss. pr

"gritty andesite" (IP)

→ n. H₂O embodra (narrow),

- much more coarsely crystalline than is typical of other andesite but only v. locally as large Fp embodra visible

- pr 1-2%

↑ more coarsely crystalline than is typical with diffuse green Fp borders;

locally irregular Chl patches and $\text{Ct} + \text{Ep}$? - lighter appearance like green tuffaceous

- in places 1st nodules, w. gritty appearance → elastic component
Puffaceous

in places finely uniformly
laminated but too shattered
for orientation
- py to 5% locally

↖ ? Cultus. Fm ——— ↗

COVER

JH20

10m down slope

TC322

andesitic lapilli tuff
⇒ agglmt

inc vesic frags sub-^{to 5cm} and
grey clay-like Fp
banked to 5mm

→ andesite / dacite

Q-grn, v. fr. x-lms,
w. sparse chl. amy dull
- typically soft w. obvious
silica

and vesicular areas with
iron ? Gypsum or carbonate

No Fe^{2+} or similar rocks,
elsewhere in section

PENNSYLVANIA
D. M. KSBAX
VANOC
APPO
CAN

SENECA

May 28/83

strikes

175/155

- traverse down from pit to cut
area roughly along strike

from
look at pt

155°/40m

SC-1

andesite, med. gm.
med grained, sparse chl
amygdules + var. almt.

Fp ^{cells}

- relatively fresh, var.
silicification
- locally fragmented

→ ^{above} andesite aggl: well
ind. chl. rich frag, some
showing apparent "etch
or horn" to 8cm,
float in andesitic matrix
w/ fn chl. amygdules

→ up highly silicified
(rings, conchoidal frag)
e.g. (pink) ? dots

Float: massive ^{dk. br} Sp. very finely
crystalline w. discrete bands
of slightly different crystal
size

- numerous cpx at band
interfaced

- open space w. some of

cpx + gypsum blades - ? genesis
SC. 9/14

are almost slightly greenish Fp
microclite

→ 1. green, andesitic, very
friable Fp → clay like
- apparently patchy in distribution

→ andesitic aggrt, heterog
ang tabular frags. easily visible
on weathered surface
- poorly sorted w/ obvious
grading

- med. pr. date, bedded
dust tuff (silicified) frag
to 20 cm

- frag. + matrix colour
highly variable, as is silicification

→ ash tuff, 1. green, well banded
(30/15E) but local
convolutions visible; v. fr
vesicles, rare Fp laths

+ 55m road to NW

PEN-
D. MA
KSAK
WANCO
EPRD
CAN

→ Ξ ? conducted lambada high
GEN 1973 p 128
but 2 others are wropy and
cloths

FIELD

SC2

100m down road

subrounded surface

- weathers l. grey

andesite dk green, ^{pyroxene} matrix w. ^{act} lapilli ^{to blocks} variable

- in several areas

- ^{act} py cubes → reddish oxide coats overall to 5%

- frag poorly sorted, heterog

SC3

contact w. SC2 slightly

irregular sh. sharp

about 90° steep

andesite ^{var.} amy, dk green, weathers med. grn

- subpride-rich lens elongate .25m wide

parallel to apparent contact cubic

PX 1-2% overall, ^{massive} ^{xlite} unit ↑ to 10%

Assay BCS 404 ^{massive} ^{xlite} ^{SP} ^{SP}

RENY
D. M.
SIBIK
WAND
RFD
CAN

→ to light green, some variation in
amt of indicator + alteration

→ exposed to 3m variable
thickness along tube

→ copy minus, sp versus, DE, c. Xline
c. Xline

FIELD

cpy also as very fr. less in
fresh andesite away from sulphide lens

- mostly weathered w embedded

Q crystals

- can't see original textures

thru. towards edges granular
siliceous

- also elongate pink

weathering silica rich lenses

(to 10 cm) w alot fr granular
py cubes

+ 360 m from pit, first o/c
into open area + 381 m.

into bush

3c-4

and → ? 107 m from road

dark, lg green

porphyritic w only slightly
altered Fp

- also previous and ^{but} now rare unbed.
Q eyes (< 10%), often clustered

- weathered lg grey

Fp - 10% variably altered
agst matrix

- sparse v. fr. chl, amygdules
- no siliceous noted

PEN
TO. M.
ISSUE
WANC
ERRPC
CAN

- Note very fine calcification
→ pips. and calc. Sc-5 two Deyes

FIELD

SC 5

andesite, v. green,
w. ^{var. do it} abnt Fp ^{rare} laths

→ aggt. on weathered
surface suggesting var.

frag abundance or lenses

Fp pinkish → 5%

chl. amy → 10%
- weathered lens

→ locally, ^{single} sulphide-rich float
10% py in darker andesite
than below

- massive andesite. →

aggt

- Fp altered to white or pink
clay is subhedral; only v.

sparse chl amygdulae

- clay-like matrix →
altered

- only have more siliceous
patches

- ch. v. fine autopsy

PEN
ID, MA
KSBAN
VANCC
HFFPC
CAN

FIELD

Tamihiti Creek

May 30/83

10:30

- elevation at slide 840m
elev at start of road 1030m
at end 1010m too foggy
to search for road on
opposite side

↓ 421 + 196 m ? outcrop - unlikely
no geolom - chest Bx, shades of black to
BC5045 grey, unspiced. cut by later
V-bottle ? below Bx

- rusty weathering, Bx as
med gr. finely granular, subhedral
masses, < 2% total
exposed surface, and very
finely crystalline disc. in
chest

+337 m fragment
road down to
creek, no oc visible
→ did

JA 22

IC 223

+ 69/4 grain turn off
10.65m

andesite, med grn, w/ med
 xline 10-15% chl-filled
 amygdules, locally flattened
 - vesicles to 1cm, some w/
 lighter green co - ? Ep
 - otherwise fresh, looking
 visible sulphides
 - soft, does not effervesce

JH-23 +945m from turn-off
 TC-24 #1040m

dark pr w. Bx, and grey
 weathered surface, mottled
 maroon to green in fresh, v. fr
 chl-filled vesicles, sparse Ep
 - lath, v. siliceous, in places
 lapilli easily visible
 → dark lapilli w/

Weathered
 surface



lapilli tuff?

pr. dacite
 v. silicified

conclusion ^{porphyritic} due to lapilli

→ clear look → ↑ frag + porphyritic
aspect shows up so well ∴ carchordic
fracture + very silicified

But lapilli do not show up all over
weakened zones, confined to distinct
not dyke-like? features
→ scale of inches, largest frag.
bombs → black size; sparse Fp anhedral
- frag. heterog. angular
(with vesicles, ? adams
diagenetic ? overprint)

Large

FIELD

- sparse open space full Brw
②

- ? bleached variant of
andesite aggr but w locally
abnt. Fp pr. (\rightarrow 0-10%)
flesh

- 1167m \rightarrow main road
at 1030 m elevation

JH24

TC 225

continue on main road
haverside 1030m elev

amygdaloidal andesite,

mod to dark green ^{to green} w chl

amygdules as previously,

weathering l green, in

irregular undulatory

contact w l grey to paler

green andesite w lesser
below

- matrix may tend to be somewhat welded but this varies from place to place
- drag lines maybe prominent

Sanded sample → flow contact

- l. grey vesicular material is a flow atop agglut below
- some soft flow textures near contact, flattened vesicles

- locally capillary to sandy banks wide areas of fragment
- vesicles may show marked flattening
- ① centres replace vesicles
- ② very finely dis. PX

chl. amygdaloids and 1-2%
finely disseminated py,
which weathers brownish
green

Var. < 1% to 3%

- near contact, lighter
andesite, contains very angular
clasts to lenses of darker
green (clasts to 10 cm,
tend to cluster together)

→ below to banded
material like amy. green
andesite above but
→ looks chl. amygdaloids

JH25

TC226

small covered →
areas of andesite
fragmental #47 to #427m
from previous E1020

andesite agglut. dk green
chloritic matrix, variably

impure
- grey material contains
disseminated subhedral
irregular patches of finely
pyritous

Contact Zone ← $\text{K} \rightarrow$
T.C.S.S. from material
below contact which is
banded

banding defined by A colour to
V pale green + finer grain
size
- visible on fresh surfaces

mottled maroon,
w. frag typically maroon
elongate silt //

- lapilli to bomb size
with magnitude exaggerated
by maroon diagenesis plus the
silt matrix

- locally areas of unreg.
jasper silicification,
which may extend slightly
inward beyond Ht into
frag + matrix

- massive, shattered (? blasting)

- maroon siltst → lapilli
tuff interbeds appear
discontinuous unless
aggl. → IDP flattened
lapilli

↓ H26

TC 227

and aggl. w.
interbeds maroon

→ Also this varies from place to place

→ several areas show water weathering?

crash

↳ white filled amygdaloids
to .5cm
- but platy

lapilli tuff

- all beds basically massive
but v. platy

Suggestion of lamination

? shear and some beds

marked ↑ chl out +

others w ↑ chl weather

v. recessively

plus interbedded

massive andesite w

abnt. stringers to vesicles of

chl. → ? may be ash

tuff; appears to be in

distinct beds from agglnt
but cont. trace

JH27

TC228

+10m down slope w.
cover

andesite, somewhat darker

than before → basalt?

- med. green, finely x-line

5-10% chl. amp. to 1cm

elongate and parallel (flattened)

- very hard competent unit

lth. not obviously siliceous

cut by airt. vng. - (Dvns)

- vng. paper patches, some with
crude form texture + \emptyset centres

- irregular H+ mottles,
and H+ staining out from
veins

- aggl. belows before
goes to andesite, v dk red/bm

JH28

TC229

+125m

E1010m

endoc. aggl. variable

& maroon to green but
fmg. always maroon

- locally fmg. v closely

packed (? welded), elongate
sub parallel lth. effect

may be heightened by the
diagenetic colour & to maroon

↑ SiO_2 due to volcanic consolidation
→ ① at some vesicles centers

flattened vesicles \rightarrow 15%
flattened vesicles but also some
 $< 1\%$

→ status but o/c faces show
unequivocal shape

massive w/o obvious grading

+ massive Masbor andesite,
locking ^{opp.} like but hard.
w. conchoidal fr.

- sparse large Mg chlorite
+ ct centres, no flattening

E985m, +540m to road up; station
continues from previous

JH29

E 1090m

TC 230

andesite, dark gray brown
weathering, med gr. - fresh
surface, coarser → xline

- alt → grains not

distinct, Fe cloudy

→ andesite FeP, high L

contact too shattered to be sure
→ mungy and again

JH30

near outcrop +121m

area of abundantly
rusty & ang boulders

→ IPA 'gully - textured' andesite
→ debris
- highly variable alteration
of Fe matrix → Δ grain XL.
size

from previous

FIELD

+ boulder field above

→ chert Bx: v. angular,
close spaced fragments

ASSAY

BC50907

v. abnt py as discrete
mm anheda, v. finely
crystalline aggregate lenses,
up bedding out from veins
impregnating clasts

- some frag as granular? v. fn
tuff

- ? C content

→ rounded? outcrop

BC50906

doctite? chert-Bx/silic.

- 5-15% chert
bleached as goes to green
?ankerite

- py content v. variable, v. fn
v. fine anheda to

coarsely granular aggreg.
- averages < 10%

- abnt v. fr. structure X cont
- frag + matrix
- no evidence of comminution
→ hydraulic or diagenetic
process

- highly variable by exposure
→ subglacial fragments, fine,
granular (comminuted)

- subglacial < 5% overall
but - liand specimens to 40%
- locally crude decomposition by
banding

→ whole rock

- variable rock type, cannot
decipher contacts

UH3
TC231

+150m

E1060m

and ^{ogglint} med gr, med
grn, weathered grn
- as below, no obvious
schistification

→ maroon pr ? dacite,
w. conchoidal fracture
as below on road

- v. coarse slab + Ct
(cores) amygdules, some v.
w/eg
- no contact evident

+137m

- ~~douglas~~ ? fault or contact

118/70 w/eg ← fault
amy. green andesite

→ schist along
contact agz maroon
? dacite / andesite w/ large
chl. amygdules
- alnt w/eg Owens in
later

- no sample of dyke?
- chl rich near contact

→ population of and egg
because locally frogs available

→ to 2cm

FIELD

JH32
TC 232

at final bend in
road above main road
bedded lapilli tuff

96/16 SW

- maroon + green, finer
version of and aggl
above

- locally phreatic

→ nearby "near o/c" and aggl

→ local wheeled appearance →
massive

D PEN...TD, M...NSBA...ERR...R CAN...

FILE

June 1/83
970mE

JH 33
TC 233

195m up from
fork

- near outcrop andesite, → diorite in places, well altered to mod. alt saussurite, chl
- does not effervesce, sparse grey cherty interbeds
- minor interbedded light green tuffs, finely laminated

JH 34
TC 234

at fork downward
?o/c

930E

- andesite, v. altered → chl, saussurite, Ep, Ct (lenses elongate)
- massive, chl along ^{parallel} _{foliation}
- slickensided surfaces w/ (D)
- flowbands in tuff

→ apparently fresh amy. and w. locally well developed flowbands

← ? patchy silicification

in labilli up to 10 cm diameter
places with lesser white
frag w/ dk green vesicles (?)
fill

↓ Sawed sample: flow breccia
of flow bands plus fragments
of andesitic comp
but diff # vesicles, etc

FIELD

+69m → ps. lapilli
andesite w distinct
white flog. w

JH235

+158m

905Em

TC235

- abnt rusty weathered
sheet Bx w. py in venalets
and as at JH30 but no
o/c source visible

and as before, green
w abnt chl filled vesicles
+ slickensides
- abnt Owens

eggint → andesite fragmental
(masoon → green, tolapilli (green))
- minor ^{masoon} whale interbeds

JH 36

+100m

880Em

TC 236

- distinctive yellow brown
seronitic weathering - bt,
med gray, med xline

D. PERHIMPUNAN MUDA MUDA WANGSA WANGSA
JASBAA ERPRC

→ 10Y < 20%

FIE

small ? allochthonous could be
lapilli → limy tuff

- well bdd, laminated

- in places ↑ clastic comp
tuffaceous more coarsely fine

white est

30/155E

→ massive limy siltstones

- total sds exposed 3-4m thick

COVER

JH37

+150m

860mE

TR237

o/c shows evidence of
wedges along which as

wedges 3m across to m
scale folds

- cherty tuff, green to dk
weathers yellow brown, well
banded 5-20cm scale

- coarse w. fn lapilli
visible

- in places limonite
stain on cliffs above

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PSMA EPRIC

+410m

mean

→ some Δ abundance in
various bands

FIELD

✓
- alnt. veins + BixR tectonic

- minor laminated shale
to siltstone interbeds

- trace py dis in buff

- o/c just above slide

JH38

+205m

TC238

825mE

massive agglint andesite, heterog
frag, no grading; massive to
green chloritic

BCS 0408 - whole rock

+50m bulk of dc as

above except for X cutting body
to 4m exposed width
of mottled red to green
clay

↑
Lopedolized frag. VC
↖ chlorite andobsto
(615m) chlorite granite (white)
↳↳ maroon + green
chlorite andobsto

- patchy Jasper inclusions
along fracture

→ Sample sample suggests
Rhyolite / Rhyodacite

FIELD

cutting by isothermic features
of just 2D expression
TC238 of fault.

- upslope 2nd look →
fragmentals upslope/
covered / patchy id-green
andesite w. highly
variable silicification
+ areas of alnt & v. reg.
Quartz → fault
→ downslope from
extremely cherty rock
reworked and frag
interbedded w. maroon
to green variably cherty tuff
to ps. dacite

JH39

+156m

785mE

TC239

- dacite → rhyodacite,
variably porphyritic w. Fp
amydulls as well, patchy maroon
to green

- very siliceous conchoidal, weathers
br. dry, alnt & veins, Jasper patches

+ narrow to green argillite/
with some interbeds

Saved samples → Rhyolite to
Rhyolite w. fiamme, sand buff at
base of unit

✓ flog? clast size → 30cm
is highly embaying as
phenocrysts weathering white,
associated clasts may show
= alteration

✓ vague lapilli visible
in some samples
was 1-2 fine clasts to 5%
clasts

✓ unplexed meg - dk green blebs
? det

+106m to band

75mE

-above band → grey siliceous
mass → rhyolite plus
veg bands
of chl, cuff

-abnt bleaching, Qveins +
areas of shattering

+ limy argillite, granular,
massive to grey mod xline

JH40

+72m

750mE

TR240 andesite, l green, w. saw Q
eyes; → saussurite, chl.
massive, very fr vesicles

JH41

+210m

710mE

CREEK

and, relatively fresh,
except local chloritic
alteration

- Qveins veg. 1-2% fuculopy
+ trau py

w. andesite fragmented in
cliffs above (maroon-green)

- and locally chl-filled
vesicles to 1cm, usually mm
size + grades up to
and lapilli type
0409

Road +62 m off to S 695mE

0442

+150 m

690mE

+70m beginning of large
craggy dc w. creek about
±125m

Andesite, mod green, weathers
mod grn, to brn. grey; relatively
fresh to saussuritized w. chl.
at 5 chl amygdules fill

- approaches chl schists where
shoaled

- in part vesicified w. nodules

BCS 0409

well defined fragments and agglint w.
fragments - flakelets around
+ shards v. thin elongate
flame?
- whole rock; poorly sorted
fragments

+ And Agglint - ~~Sawed samples~~

SAWED Samples →

Rhyolite 2m places w. lapilli;
Rhyodacite etc.

- elsewhere w. very well-defined
eyes

but I'd say could be
silica crystal fragments
→ chert is appropriate
name

FIELD

Saved surface
A → flag

showing complete replacement including
textures - not fragments: \equiv
textures on both sides

+ Andesite Agglimit

- fault X cuts face undulating
contact

↑ SiO₂ as approach fault
plane - andesites more blocky
+ lighter in colour - chest

no obvious → granular @ at contact
vesicles - also chl. schists w Ht
etc - stain at contact
Cung. avo. green? chlorite

JH43

+150m

785mE

TC 241

andesite, med grn. weather
grey brn. ; variably silicified
→ med grey to bright green
- mostly fresh but weathered
sample → Saussure

JH44

+380m

620mE

TC 242

prob argillite, dk grey,
weathers, grey br, does not

sharp contact between
silica-poor + v
siliceous

BGS 0410

andesite, white, non blocky
weathering, mic-siliceous
sh + calcite

BGS 0411 (J1 & 2)

andesite, white, blocky
weathering, conchoidal fractures,
flattened vesicles filled w. chl.
- v. fresh

SiO₂ → chl. vesicles,
column m.p. grey
- variably micritic

Amoeboid form w. fine
fragments surrounding
cooled vesilage

FIELD

effervesce

may be lenses of finer material elongate parallel to bedding

- sparse of nodules
- well dev. fine cleavage + crenulation

JH44

+ 122m

595mE

70/15 SE

n/s

argillite, dk brn to maloon weathering, calc. gray fresh, does not effervesce

- well bedded + laminated
- sparse? flame structures

? TC243

+ Variably weathered andesites up slope

? sample number

JH45

TC244

+ 210 down from JH 545E

andesite, med green, sparse chl amygdules, chl patches + slickensides

- Brk - auto Brk un
- clasts abundant

total amount of ~~logs~~ ^{logs} that could
be a diff. ^{no lab. Q.?}
visible

ceasing

- 5? were these sampled

- 2 precise location maybe slightly

T.P. not sampled.

* fractured; very closely spaced

FIELD

shades of green + matrix
- Variable silicification

+200m Creek to NW

+560m from top landing
area

480m E +677 from fork: gate

+863m from fork, cut off
455m

← End →

AIR PHOTO: 15BC79034
108

→ but elsewhere distinct
B&R w. obvious movement
as elasts can't be put
back together

TD, M... WANC... R, CAN...
KSBW... ERPR

FIELD