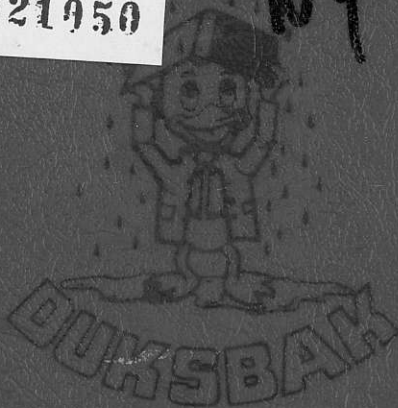


ALBINO

NFI

821950



WATERPROOF  
WL 7 LEVEL

R. D. PENHALL LTD.  
MADE IN CANADA



**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 | .01512 | .99989  | .03257 | .99947 | .05001 | .99875 | .06743 | .99772 | .08484 | .99639 | 52 |
| 53 | .01542 | .99988  | .03286 | .99946 | .05030 | .99873 | .06773 | .99770 | .08513 | .99637 | 53 |
| 54 | .01571 | .99988  | .03316 | .99945 | .05059 | .99872 | .06802 | .99768 | .08542 | .99635 | 54 |
| 55 | .01600 | .99987  | .03345 | .99944 | .05088 | .99870 | .06831 | .99766 | .08571 | .99632 | 55 |
| 56 | .01629 | .99987  | .03374 | .99943 | .05117 | .99869 | .06860 | .99764 | .08600 | .99630 | 56 |
| 57 | .01658 | .99986  | .03403 | .99942 | .05146 | .99867 | .06889 | .99762 | .08629 | .99627 | 57 |
| 58 | .01687 | .99986  | .03432 | .99941 | .05175 | .99866 | .06918 | .99760 | .08658 | .99625 | 58 |
| 59 | .01716 | .99985  | .03461 | .99940 | .05205 | .99864 | .06947 | .99758 | .08687 | .99622 | 59 |
| 60 | .01745 | .99985  | .03490 | .99939 | .05234 | .99863 | .06976 | .99756 | .08716 | .99619 | 60 |

NATURAL SINES AND COSINES. 0° to 10°

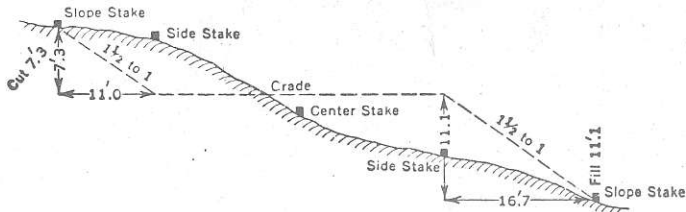
| M  | 5°     |        | 6°     |        | 7°     |        | 8°     |        | 9°     |        | M  |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|
|    | Sin.   | Cos.   | Sin.   | Cos.   | Sin.   | Cos.   | Sin.   | Cos.   | Sin.   | Cos.   |    |
| 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 | .98948 | .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   |
|      | Cos.  | Sin.   | Cos.  | Sin.   | Cos.  | Sin.   | Cos.  | Sin.  | Cos.  | Sin.  | Cos.  | Sin.  |      |
| Deg. | 60'   |        | 50'   |        | 40'   |        | 30'   |       | 20'   |       | 10'   |       | Deg. |

## DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

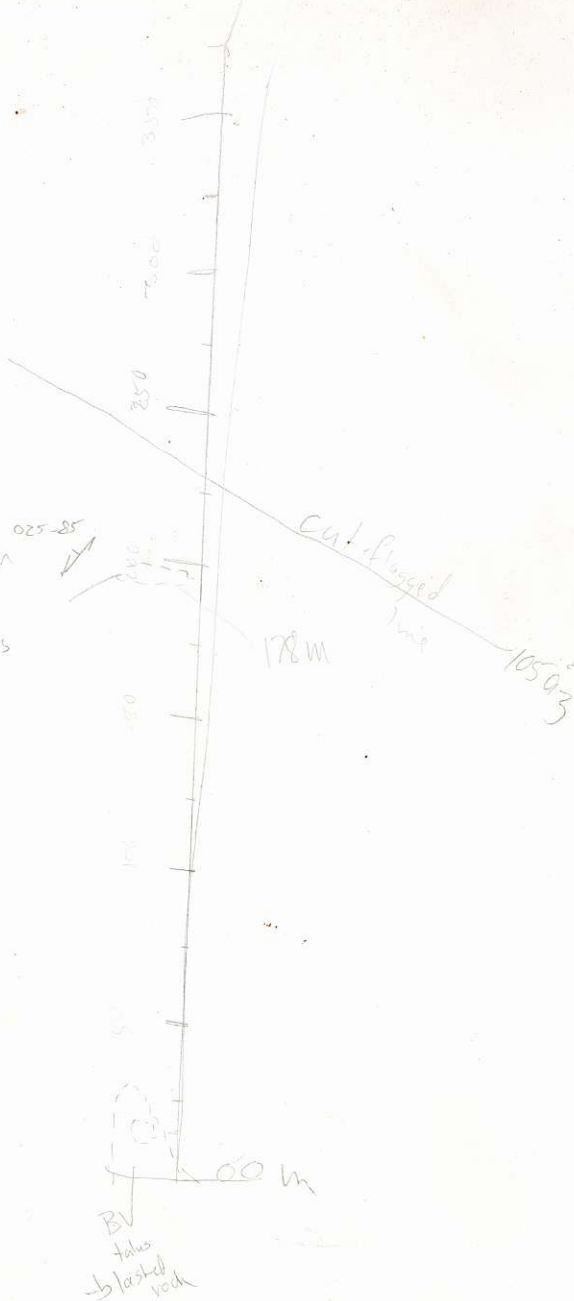
Roadway of any Width. Side Slopes  $1\frac{1}{2}$  to 1.

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 | 0  | .1   | .2   | .3   | .4   | .5   | .6   | .7   | .8   | .9   | Cut or Fill |
|-------------|--|------|------|------|------|------|------|------|------|------|-------------|
|             | Distance out from Side or Shoulder Stake |      |      |      |      |      |      |      |      |      |             |
| 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          |

WFO52  
pying dk gn  
mod sch  
cht-a ct-hb-fs  
greenstone/B



Aug 14

092H/15

- traverse filling in on property
- starting on spur heading down clear-cut

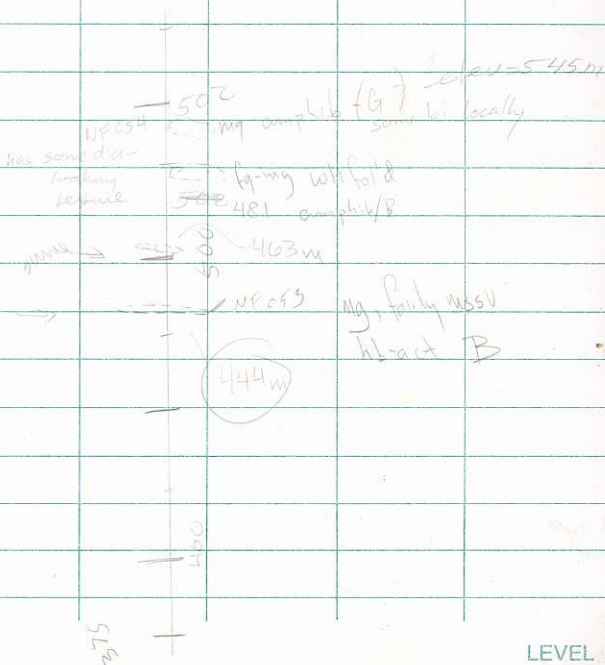
8-14-1

start of traverse

- going 145° az. down hill

100m = track = road

dir = 735° <sup>100</sup>m



LEVEL



145



- hit junction of creeks  
= 68 m - 410 m elev

- big creek is sh zone  
- see miring of BV, chert, MTS  
↑

blocks  
- UTM float but none seen in c/c

- BV's b/d

- plastic def. foll<sup>n</sup> w.  
much chert // shearing

- more ge. seen just above  
big c/c

c/c in little creek

was all  
sheared BV's

shearing in big c/c = 010-72

- bedding (ct's) transposed  
//

- Going upstream  
on big CV

@ 1000 m a good one  
on the side CV

of ... good ...  
axis = 135. 38  
Palm

- water table BU + MTS (hard to)

highly

NE 57

- foliation & bedding highly  
variable

continuing @ 80-100m  
see evidence

of unit shearing  
- tectonic interbedding of  
3v chert, UM, G, SS, C + MTS  
shears  
= 010-030 ± 90

near 170  
300m  
- rusty - weath  
MTS - hto - hb  
- w m m a p o  
S. (= so.?)  
= 020-70

from 200-230m  
- rhythmically interbedded  
bi-hs-a  
graph. bi-a melageng  
Q-sen-at  
with odd mts etc?  
red-thick bdd  
B or beds banded

locally ...  
near that family

- body ... 200-500

traverse up hill ...  
start ... 1500 ...  
(1000 ...)

F ENHA ID. M. N VAN VER. DA  
BOOKS BAR W/TER PHOTO

~~road~~

325°

NF058

500

590

300

355 ± 90

Med-well fol

mg (fy) cut-bb-fs

semi-schist

Bas

200

150

100

50

00

5000

110 (slope dist) was @ 505m

15760m

Very sig-30k  
initially @ 2000

then 2700

- maybe will

anal 325

Creek - elev = 435

LEVEL

schist B115

sed

hit road

@ 615 m elev

= 350 m slope dist

- road

5 m

W of WF032

Aug 15 183

- U.S. Ruby Cr. Promp  
the (Power Line) road  
x'ing

Photo = 74171-199

8-15-1 1st o/c at bridge

- good o/c

are rhythmically bedded  
dk grey/black quartz (granite?)  
and blk arg

- cut by white buff sericitic  
dike - boudinaged

- dr - dr  $S_0 = 005-X0$

- some soft-wood folds



Aug 16 ↓

heli-drop  
+ ridge walk

- ridge top + down spur  
to ~4400' elev = Di, some  
QD (Gd, G - minor) - rarely  
some Gc veins

- last 100-150m before it  
have ore strivers of W'd  
ore → gone to foliated  
amphiboles  
Pg-mg, ore mg-ig

(@ 4-16-1  
NE-260

- some nodding seen  
- some mag, play-19-14

8-16-2

@ wh. 135' elev  
just above lowest pt  
of gap  
NE 061

- are hfs'd B's (?)  
amphibolitic and some  
chloritic (antiferditic)  
- + veins + dikes of  
Di + G

too mssv. no attitude

8-16-3

starting up knob

NE 062

Pg (mg) blk/wh

wkly fold amphibolite

hb-play

S. = wk = R95-80

C-16-4

NF 063

- highest pt. (±) on tit.

- mod fol'd

black amphib

S = 355-65

= P?

- some met diff't

- some quartz // gel play streaks

occ o/c 3-4 is amphib  
no occ Di like

8-10-55

mg(-cal) mod fol'd amphib

blk - wht salt & pepper

- ass. m. P.

NF 064

- 4-5 mostly o/c; all

is similar, mostly Pg  
amphib

8-16-6

NE 065

~~v. similar to above~~ but  
getting more fg  
- mod well cal'd  
= 015 - 90

Just east

Get

MT

in - 0 - ls (cut)

gt sh

well banded

thin bedded

S<sub>0</sub> = S<sub>1</sub> = 015 - 90

also act - hb - gt - dln BT?

8-16-17

3900' elev

rx ay fs-hb-bi

schist  
or gnt

Moher BT

maybe see

MT 066

16-17 rx ay

mosk

mosk M-15

+BY

-some gw (?)

grey Q-fs-bi-hb

semi schist

8-16-17

3900' elev

rx on fs - hb - bi  
schist <sup>or g</sup>

Met on BT  
maybe see

MF 066

16-17 rx on

mosk  
mosk M-15  
+BY

-somegw (?)

grey - Q - fs - bi - hb  
semi schist

8-16-8

lg sugary quartzite / chert

- ~15m behind 16-8 same

7-8 Mostly no of c

Just past 7 still MIS

down to @ least 3555

still chert

00-15

6-16-9

o/c's in the bottom  
of draw

(on W side)  
2 // vldg's

rx au chlor - bi - fs fact  
± Q

semischist  
some fairly lge guls

NF067

- some schistose/chloritic

shearing ??



8-16-10

just on E side draw

- mixed B (BT)

mg act/hb - fs + chlor

+ chlor

+ bi - Q MTS

+ bi - ser - Q MTS

8-16-11

higher upon E side of draw

N = 568

E mg occ eg amphib

wt. blk hb

and/or vegetation

near chlor.

eg. is as breaks

August 18/83

in clear cut between Tok  
& Cogburn creeks

photo 80004-256

1st sample will be  
NF069

8-18-1

large op @ top of clear-cut  
- lt-med green

actin-chlor-carb schist  
-sheared G

possibly some pyrite-wkly  
mag. mag tremolite

- mostly Non-mag

- green or brown

with carb-rich  
is tan/brown

8-18-2

S = 330-80

rx are contacted / folded  
+ br + d  
chert + biot + rich MTS  
graph?

18-3

- chert + biotitic metabeds  
- less deformed down the road

S<sub>0</sub> S<sub>1</sub> = 160-85

E end of c IS beautiful  
talc schist

- shears appear to be 00-90

talc is to the W of the sed  
Gsh'd G is to the E

sed = flt sliver

18-4

mg-cg melano-G  
- pretty much mssv  
undeformed

diag. chloritic

\* - after seeing next  
etc may be fs-d B  
mssv - mod fol'd

8-18-5

NF 069

- same rx as 4, but  
looking like B mssv  
diag. in fg. with v2-  
fs (play) pheno's  
+ occ carb I gts - filled  
amyg. (?)

- some fg gph + some  
salt + pepper

- look. like B in core  
near MG

- vaguely pilloid

sd 335-90

18-6

- metabasals

bottle - Q - ls. sch

chert in bro

bi-sch - Q

rusty-weather

$$345 - 80 = S_1$$

$$= S_0(?)$$

- some graphitic

---

18-7 small op

biot rich Mt<sub>2</sub>

$$S_1 = 335 - 190$$

- some graphitic phyllonite

- chert chert pseudo

18-8

rd nearby // schistose

- v. y. / all sds

- biotitic dom occ. Chert

+ black silt. sds

- some graph. phyll.

355-80 = S<sub>1</sub>

= // S<sub>0</sub>

- cherts / ribbon cherts

+

N/B - sequence looks quite

+

similar to minz's

+

sequence + 75' from shale

R. CAI  
ANCC  
MADI  
DUNSBANK  
WATERPROOF  
HALL  
R. D.

8-18-9

- still sds, same as above

biotitic, rarely sericitic, + Q

schistose

bi-graph - Q, phyll. Q,

chert, ribbon chert

S<sub>0</sub> = S<sub>1</sub> = 340-78

8-18-10

NP 070

Mostly (biotite) + chlorite  
but minor chlor - biotite + fs greenstone  
- med - wky fold  
- some myg. amphibole

- B band 22-3 m thick

- B has minor trace biotite

- shearing @ 360-90

18-11  
sediment, green / black

S. 005-12

probable fold

q, fsp, horn my dete

18-12

Red-rich MTS

mostly non-cherty  
So = 350-75

bi-cord (?) - Q schist

8-18-13

folded - structural complex

varying axes.

(steep S) mostly

eg amphib - green - white

NE 071

gneiss is Cataclastized +  
folded

meta-\*

- well banded

- strong met segregation

fs  
bb  
- in band



8-18-14

MP 077

mixed C + mg k(g) amphibolite  
BV's - mod fold

ll. not studied

Psc - amphib rock

u. rel minor grey chert

S = 345-10.

8-18-15

mixed chert MITS  
+ basalt

Pg (as @ 12)

cg, gneiss, ash 15

cg as 150 folded - +  
phos

8-18-16

- Pg-mg semi-amphibolitic T<sub>2</sub>  
a. ch. bi - ls ± chlor semi-s. Gist

NF 073

Pol<sup>W</sup> 345-80

17 - and corner  
same rx, but a

Pen<sup>W</sup>

Q-ch. bi schist tuff. sed/diach.  
bands

- see isoclinal folds in BV'S

- poddy qtz's w iso fold

8-18-18

NF 074

Mostly some black biotitic phyll<sup>id</sup>  
but some chloritic phyll<sup>id</sup>

- banded/bid. dyk

BT (7)

going down hill seem  
to get more  
normal chlorite-fs  
schist  
B/BV

foliation 30-85

- thin well relict  
chert's  
occasionally

---

8-18-19

nr 075

last ~50m sed's (in shear)  
have given way to sh'd BV's

chlorite/f's schist

foliation

- map green amphibolite  
mg

August 19/83

Finishing off traverse of

Stollheim L, started last month

Photo BC 7471-231

1st sample with

NE 076

8-19-1

vt are grey/black phyllite  
MTS, some quite graphitic  
most are prob white  
carbonaceous

- Q-bit seen - graph sch

thin to med - bdd

trace py on pz common

up to 3-5% py on

So = 5-280-25 graphite - vt

S-19-2

- more seeds, blk/grey  
carbonaceous  
phyllites

- some oddball  
bb- $\phi^2$  like; bond aged

S<sub>0</sub> = wavy but shallow  
dips

= steepens to N.W. pt of str

- some ps streaks

in graphite 'chert'

S-19-3

S<sub>0</sub> = 310-30

vt are seeds / phyllite

whit / lt grey

- sericite

- also med grey + dk grey, less ser  
prob graph, phyllite

8-19-5

MTS

graph - bi - @ phyllite  
dk grey - blk

-folded, smacked

- silice'd + g'd

misty weather

- near thrust

fairly schistose

310-70

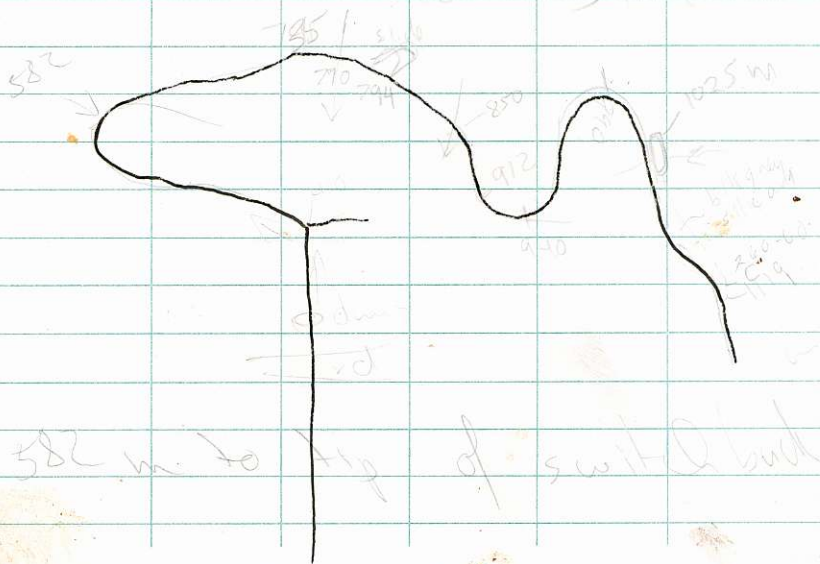
Walking up to meet  
554 on 'damp' rd  
W of Deer

00m = main road

road: ends 137  
@ chip pile

→ only 100m

about 400-410m  
to 7-5nd



582 m to top of switch back

@1025m 15' o/c

305 ~~35~~ = 58

- seas silic, bi-Q sch

= 8-19-6

- thin bedded / kind

arg - silic

pd 2-79%

+ grey/blk phyllite

- plagioclase amphib

@1119 o/c flakes out

- C white, well

reddish

So 76-6

- pos common thru o/c





1137.00 +  
1244

blk cherty argillaceous gash  
-50 = 310-00 arg ptgs

August 21/83

Traverse in small clear-cut  
between Cogburn Cr +  
North Fork

Photo 90004-263

NF 082 = 1<sup>st</sup> sample

8-21-1

1st of forming slope  
of hill (above rd) in clear  
cut

- vx are highly fol'd amphib  
(actin-fs) silic basic

- abundant qtz pods (sweats) near  
bottom of hill

fol'd 345-60

high on hill (my-fg)

silt sep. of A + dk

near halton (mg-) eq-veg

strong seg  
of amphib. + plagi

- prob mylonite

- locally chloritic - phyllonites

Q-21-7

ok - small blocks fine

- vx are strongly fol'd  
biot MTS

(+C?)

and lg basic vx (BU)

+ eq laminar texture

basic vx (K<sub>2</sub>?)

NF08C = lg basic vx

- folds on small scale,  
sheared-out 'books'

fol m = 350-55  
= // cts

- would go'g in the sedst  
some in the fg basin

Basalt }  
MTV }  
BT }

dk green

C

yellow

MTS - bi-Q sch  
+ms 2gt

brn

(phyll MTS / argill)

↑  
grey

G

blue

UM

purple

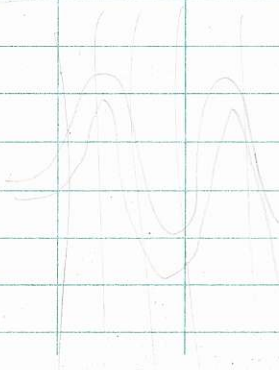
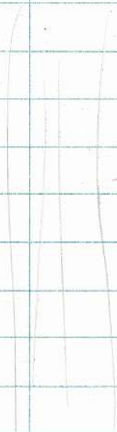
Granitic < Dioritic

red

Sett Sch

?

79/6 - 9/6/10

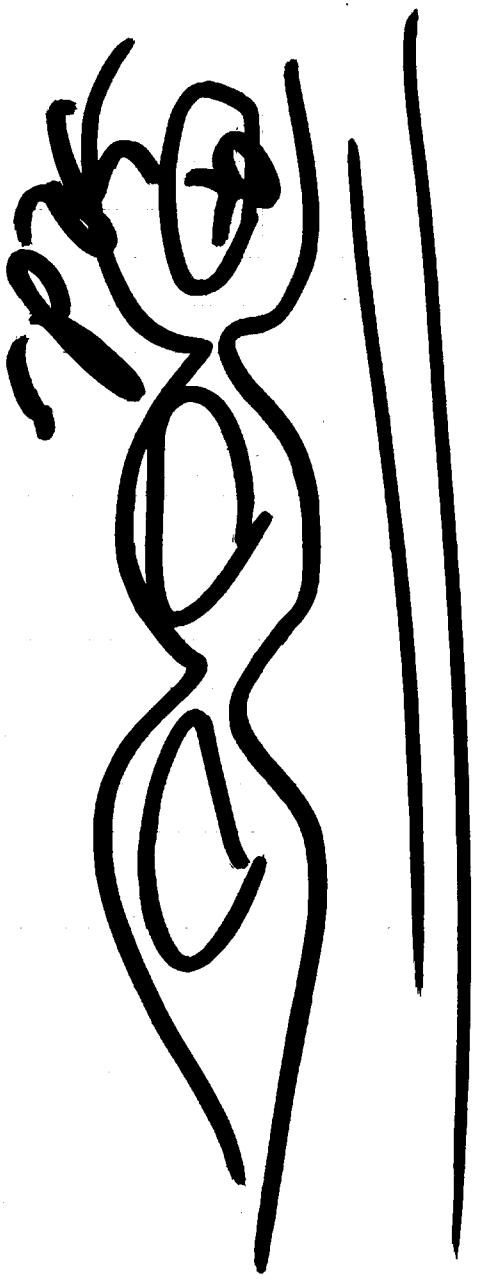


1370  
328

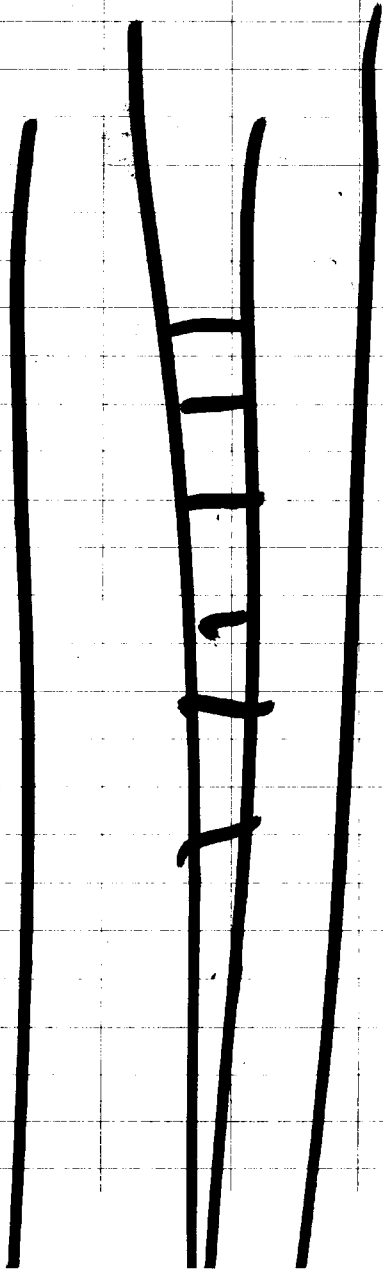
1  
5  
328  
137  
296  
328  
328  
49  
328

R INHAL D. MAL VANK ER, C DA  
DUKSBAK WATERPROOF

328  
328  
328  
328







328  
127

2984

656

328

4034

328

114

328

13

984

328

464

312

328

328

362112

328

127

2296

656

328

41656

NE

