

# **B.C. SOIL INFORMATION SYSTEM VOLUME II**

Data Entry Procedures for Ecosystem Description Forms

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# **DATA ENTRY PROCEDURES FOR ECOSYSTEM DESCRIPTION FORMS**

(BCSIS Volume 2)

by  
M.Sondheim, T. Vold and H. Quesnel

The authors are members of the  
Terrestrial Studies Section  
Surveys and Resource Mapping Branch  
Ministry of Environment  
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## **OVERVIEW OF THE BRITISH COLUMBIA SOIL INFORMATION SYSTEM (BCSIS)**

BCSIS is a computer based soil information system incorporating site, morphological, and laboratory data. The main objectives of the system are: to increase accessibility and reliability of soils information; to increase accuracy, volume, speed of response, and sophistication of interpretations; to increase speed of legend development; to increase ability to integrate soils data with other resource data. The system includes a number of easy to use functions related to data control, data management, and report generation. For data analysis, BCSIS is designed to be used in conjunction with the commercially available Statistical Analysis System (SAS). BCSIS resides on the Victoria mainframe computer but is accessible as well in other cities through the DATAPAC and SNA communications networks.

An extension of BCSIS is the Soil Laboratory System (SLS). SLS is an interactive, PDP 11/24 based minicomputer system designed to capture physical and chemical soils data determined in the soils laboratory in Kelowna. The main objectives of the system are: to increase the volume of samples which the lab can process, by eliminating or reducing the need to maintain lab notebooks and paper administrative records; to allow quick and accurate entry of the data into BCSIS files, by providing for the transference of final results to the mainframe in Victoria over the DATAPAC network. Raw data are entered into a number of video terminals located in the lab. Virtually all calculated results are performed automatically by the computer, provided that the raw data required by the calculations have already been entered. Reports on the laboratory analyses are printed and sent to the soil scientist requesting the analyses. The data may also be accessed and manipulated through BCSIS and SAS.

This document is one of a series describing BCSIS. These documents are written primarily for the professional soil scientist or ecologist, as opposed to the computer specialist. The titles within the series are as follows:

- User Manual for the British Columbia Soil Information System (BCSIS Volume 1).
- Data Entry Procedures for Ecosystem Description Forms (BCSIS Volume 2).
- Data Entry Procedures for Soil Laboratory Forms (BCSIS Volume 3).
- British Columbia Soil Information System Validation Procedures (BCSIS Volume 4).
- Manipulation of Soils Data Using the British Columbia Soil Information System (BCSIS Volume 5).

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Mark Sondheim

## **TABLE OF CONTENTS**

OVERVIEW OF THE BRITISH COLUMBIA SOIL INFORMATION SYSTEM (BCSIS).....	iv
ACKNOWLEDGEMENTS.....	v
LIST OF FIGURES.....	vi
LIST OF APPENDICES.....	vi
PURPOSE.....	1
HOW TO USE THE PROCEDURES.....	1
RECOMMENDATIONS CONCERNING DATA COLLECTION.....	1
GLOSSARY.....	3
GENERAL COMMENTS.....	5
SITE FORM PROCEDURES.....	10
SOIL FORM PROCEDURES.....	24
VEGETATION FORM PROCEDURES.....	33
APPENDICES.....	38

## **LIST OF FIGURES**

Site Description Form.....	7
Soil Description Form.....	22
Vegetation Description Form.....	31

## **LIST OF APPENDICES**

APPENDIX A: SITE CODES.....	38
APPENDIX B: SOIL CODES.....	52
APPENDIX C: VEGETATION CODES.....	58

## **Purpose**

The purpose of this document is to give concise, detailed information as to how the site, soil, and vegetation description forms are to be completed. This degree of standardization is required in order to simplify the data entry and edit procedures. Forms will be entered directly by professional key entry personnel who will not have any particular knowledge of this type of data. Note that the data forms have been altered slightly from those displayed in the first printing of **Describing Ecosystems In the Field**<sup>1</sup>. The Site and Soil Information contained in this report constitutes Volume 2 of the British Columbia Soil Information System documentation.

## **How To Use The Procedure**

First read the glossary and the general comments which follow. Next examine the specific instructions for the site soil and vegetation forms. All data entry instructions are referenced by the item numbers as they appear on the site and soil forms and code symbols for the vegetation form. The field length, the field description, and comments about special characters or formats are provided where applicable. The possible entries are generally listed. The appendices provide a list of codes and the terms represented by them. Detailed definitions of the terms are provided in **Describing Ecosystems In the Field**. Any comments in the first printing of that document concerning data entry procedures are superseded by those given here.

## **Recommendations Concerning Data Collection**

For those surveyors who are interested in doing any numerical or statistical analysis on their data there are two points which should be noted:

1. Be consistent in your data collection. If you are interested in examining the gravel content across the survey area, then make sure that you always estimate gravel content, or at least that you estimate it for a sufficiently large number of plots to make analysis worthwhile. Also, make sure that you will be able to compare comparable things! A comparison of % gravel of a surface horizon at one site to % gravel of a deep horizon at another site is likely to be meaningless. It would be better to either specify a fixed depth interval used everywhere, or to always use the parent material (C horizon). Thus, you could specify a D1 horizon from 0 to 20 cm at every site. For D1 you might collect CSSC texture and % gravel data only. Later you would have a good basis for examining the distribution of these properties across the survey area. You could also collect normal horizon data. It would be perfectly legitimate to have the following horizon sequence: Ah (0-4), Ahe (4-10), Bf (10-37), BC (37-52), C (52-105), D1 (0-20), D2 (80-100). (If you have

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<sup>1</sup> Walmsley et al. (ed.) 1980. Describing ecosystems in the field. RAB Tech. Pap. 2, Land Management Rep. No. 7. Ministries of Environment and Forests, Victoria, BC 224 p.

taken a composite sample for lab analysis from the Ah and Ahe horizons, you would then enter as well a D3 (0-10) horizon. See the discussion under Level in the Soil section of this report.

2. Use an experimental design whenever possible. Before you begin your survey, you should carefully consider what types of comparisons or tests you will later want to make. You may in fact find it useful to discuss in detail your plans with someone familiar with statistical analysis. If any experimental design codes are required beyond those implied by the normal data on the forms, they can be entered into a free format field on the site form. For example, say you choose to sample on a grid basis, with the X coordinate ranging from 01 to 20 and the Y coordinate ranging from 01 to 20. You could use the first two spaces under Plot No. on the Site Form for the X coordinate and the next two spaces for the Y coordinate. Later, using BCSIS, you could place Plot No., with any other data to be examined into a Statistical Analysis System (SAS) data base. It would then be easy to define two new variables, X and Y, based on the values for Plot No.

3. Indicate the sampling technique used in the survey. Item 53 on the Site Description Form is to be used for this purpose. This may be of major importance to someone else using your data, depending upon the type of analysis or interpretation which they are employing.



## GLOSSARY

### Field

The space allocated for a given item on a data form on a computer transaction or in a computer file.

### Field Length

The maximum number of characters which may be entered for a given item. There are two general modes which may be used as shown by example here:

- 4        a field length of 4, with no reference as to the type of characters which it may contain.
- 5,2      a field length of 5, with the implication that the first three characters precede the decimal point and that the last two characters follow the decimal point. All five characters are assumed to be numeric. Thus, the number **123.12** has a field length of 5,2.

### Type

A reference to one of the following three categories of data:

- N        numeric characters. These are the ten digits 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9. Decimal points are not included. Blanks may be included if they are leading, as indicated by the following example. **10** and **010** are equivalent. (The entry **1** is not allowed.) Zeroes instead of blanks should follow a decimal. (A depth of 10 cm should be entered as **10.0**) Items 4 and 6 of the site form provide the only apparent exception to these rules.
- A        alphabetic characters. These are the twenty-six letters of the alphabet plus the blank character.
- AN      alphanumeric characters. These include all numeric and all alphabetic characters only.
- C        all possible characters. These include characters, alphabetic characters, and special characters. Special characters which may be used are: \* # % @ : ; , . ? ! ' " ( ) + - = < > . A slash (/) must not be used in items 1, 2, 8, 14, 15, and 47 on the Site Description Form; it may be used anywhere else where character data are allowed.

## Format

A reference to one of the following two categories of data storage:

- X      fixed - the position of each character of the data element is directly connotative. All numeric entries for example are fixed. Fixed format data can be readily used in sorting or analytic procedures. Specific edit procedures can usually be established for fixed format data.
- E      free - the position of each character of the data element is **not** connotative. All comments or notes entries are free. Free format data may appear in a report or description of a site but often cannot be easily used in sorting or analytic procedures. Specific edit procedures usually **cannot** be established for free format data.

Exception - a certain number of the leading characters of a free format entry may be considered as fixed if special arrangements are made with the systems analyst in the Terrestrial Studies Branch.

Thus, with certain modifications, agricultural capability ratings for example may be entered as fixed format data. In what normally would be a 'comments' or 'notes' item.

## Justification

A reference to one of the following two forms of data entry.

- L      left justified. The data is entered in the left-hand most part of the field. If for example the field length is 6 and the letters to be entered are ACK, then left justification would appear as follows: **ACK**. Normally, alphabetic characters are left justified.
- R      right justified. The data is entered in the right-hand most part of the field. Right justification would appear as follows: **115**. Normally, numeric characters are right justified. fields which assume a decimal are always right justified for the integer part of the number. The fractional part of the number should always be complete; thus, a slope of five percent would be entered as **5.0** under item 10 on the site form.

## Field Description

Specification of type format and justification as shown by the following example. A-X-L indicates alphabetic character data of a fixed format and left justified. Numeric fixed entries with decimals are right justified and filled with zeros on the right as discussed above; thus a justification code is not given for them in the tables which follow.

## GENERAL COMMENTS

### Series and Form Number

Each soil and vegetation form **must** have the form number entered corresponding to the associated site form. Pages stapled together may be separated by key entry personnel. The form number **must** be right justified.

### Decimal Points

On both the site and soil forms for all fixed format entries decimal points are supplied wherever allowed. On the vegetation form a decimal has been provided for stratum height in meters. However, for percent cover, values may range from 99 to 01 to .1; that is to enter values less than 01 percent, the surveyor may use a decimal point.

### Special Symbols

Special symbols (/ # % . etc.) are not allowed in any numeric alphabetic or alphanumeric fields. Consequently entries such as <25 or >50 are not permitted as indicators of depth. This is discussed under the appropriate items on both forms.

### Letters

The computer system stores all alphabetic characters as upper case. You may use lower case letters if you wish but they will not be entered as such. As discussed below, please print clearly and please use the proper form of the letters i, l, and o, in particular.

- X        On certain items (as discussed in the instructions) an X may be entered to indicate that an item has been looked for but not found. For numeric fields the X is placed in the right-hand most space. For other types of fields the X is placed in the left-hand most space. On the site form the only place where this is pertinent are number 35, a through g and number 38 the first entry. On the soil form the only items where an X may be entered are under item numbers 12, 13, 18, 19, 20, 21, 22, and 23. Note that all of these locations are shaded. If there is neither an X nor an entry for any of these items, it is assumed that the presence or value of the item has not been determined. This use of X is not relevant to the vegetation form.

### Circled Items

It is recommended that circled items on the site description form be completed. If any are not completed, the computer will accept the form and produce a message indicating which circled items have been ignored.

## **Print Style**

Printing is mandatory on all entries on all forms; it must be neat and legible. The **letter O should always have a slash through it**, whereas the number zero does not. The letter I should always have bars on both the top and bottom (or if lower case it should be clearly dotted). The letter L should always make a right angle (or an elongated loop if lower case). If the form is not legible the key entry staff will make mistakes which will come back to you as error messages from the computer.

## **Transaction Identifiers**

The small characters on the left hand side of the site and Soil Forms such as ADDS00, ADDS01 and the like are known as transaction identifiers. The identifier is key entered along with the series and form number and the appropriate data. The ADDS01 transaction for example contains the identifier in the first six spaces, two blanks in the 7th and 8th spaces, the Series and Form Number in spaces 9 through 15, and the data for site items 1 through 6 (Project ID through UTM System) in spaces 16 through 101. Thus, the ADDS01 identifier tells the system that site data for items 1 through 6 are being added or entered and that it is with reference to the given series and form number.

1. Proj. ID.  
16

2. Plot No.  
41

3. Date (Y/M/D)  
82

4. NTS Sheet  
62

5. Lat.  
70

6. UTM System  
87

7. Location  
16

8. Co-ord. Flight line Photo #  
93

9. Aspect  
112

10. Slope  
115

11. Elevation  
119

12. Terrain Yr.  
19

13. Phys. Sub.  
51

14. Zone/Subzone  
55

15. Ecological Classification  
77

16. Vegetative Cover  
16

17. Soil Classif.  
16

18. Plot representing  
146

19. Site position macro  
16

20. Site position meso  
17

21. Site surface shape  
18

22. Microtopography  
19

23. Meso slope length  
16

24. Meso up-slope length  
24

25. Site position diagram (refer to Series No. 28)

26 Exposure Type (allow 3)  
 39 a. not applicable  
 b. wind  
 c. insolation  
 d. frost  
 e. cold air drainage  
 f. saltpay  
 g. atmospheric toxicity

27. Ecological Moisture Regime 28. Nutrient Regime 29. Soil Temperature Class 30. Soil Moisture 31. Soil drainage 32. Perviousness 34. Flood hazard  
 112 a. very xeric 113 a. oligotrophic 114 a. extremely cold 115 Subclass a. xeric 116 a. rapidly 117 a. rapidly 118 a. rapidly 119 a. irregular  
 b. xeric b. submesotrophic b. very cold b. arid b. well b. moderately b. moderately b. irregular  
 c. subxeric c. mesotrophic c. cold c. subarid c. mod. well c. slowly c. slowly c. frequent  
 d. mesotrophic d. permesotrophic d. cool d. semiarid d. imperfectly d. Free Water d. may be expected  
 e. mesic e. eutrophic e. mild e. subhumid e. poorly e. e. rare  
 f. subhygric f. hypernutrophic f. humid f. per aquic f. very poorly f. present  
 g. hygric g. subhydric g. per aquic g. per aquic g. present  
 h. subhydric h. per aquic h. per aquic h. per aquic h. present  
 i. hydric i. per aquic i. per aquic i. per aquic i. absent  
 j. per aquic j. per aquic j. per aquic j. per aquic j. absent  
 k. per aquic k. per aquic k. per aquic k. per aquic k. absent

35. Depth to (cm)  
 16 a. water table  
 b. rooting (effective)  
 c. root restricting layer  
 d. frozen layer  
 e. bedrock  
 f. carbonate  
 g. salinity

36. Bedrock type 37. Bedrock structure  
 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

38. Coarse fragment lithology type (in order of dominance)  
 125 126 127 128 129 130 131 132 13

## SITE DESCRIPTION FORM

PAGE 3294

54. Notes on Site Description	28	28	46	56	64	217
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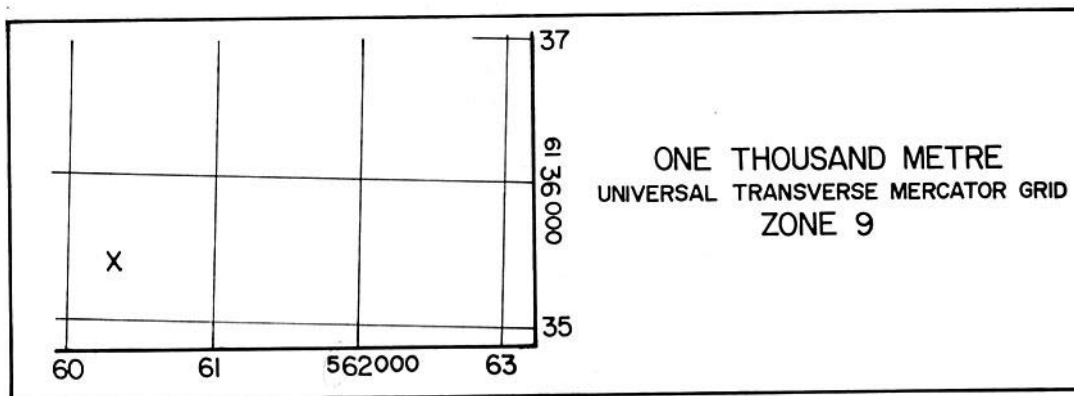
## SITE FORM PROCEDURES

Item Number	Description	Comments	Field Length	Field Description
-	Form Number	Series and Number are both provided. No user entry required.	<b>Series</b> 2 <b>Form</b> 5 <b>No.</b>	N-X N-X-R
-	Page - of -	Complete this item only if it is useful to you in a manual context.		
1	Proj. ID	Project identification code - <b>this must be identical for all forms of a given project.</b> It is recommended that it not exceed six characters.	25	C-E-L
2	Plot No.	Plot Number - the way in which this item is filled is at the discretion of the project coordinator. In some projects it may be useful to assign the first character the value 1, 2, or 3, indicating whether the form represents a quick, intermediate, or detailed examination.	15	C-E-L
3	Date	The date must be entered: <b>year</b> <b>month</b> <b>day</b>	2 2 2	N-X-R N-X-R N-X-R
4	NTS Sheet	User should make use of the following guidelines: NTS series or BC series - 1:125000 92F NW   NTS series or BC series - 1:50000 92F/4E 92F  4E  BC forest service 20 chain or 1:20000 92F/4-e 92F  4  E BC series - 1:20000 92F.057 92F 057  BC series - 1:10000 92F.057.2 92F 057 2	8	AN-X
5	Lat., Long.	Either the latitude and longitude or the UTM coordinates must be entered. The computer will automatically convert such that both types of coordinates will be stored.	<b>Latitude</b> 2 <b>Degrees</b> 2 <b>Minutes</b> 2 <b>Seconds</b> 2 <b>Accuracy</b> 2 <b>Latitude</b> 3 <b>Degrees</b> 2 <b>Minutes</b> 2 <b>Seconds</b> 2 <b>Accuracy</b> 2	N-X N-X-R N-X-R N-X-R N-X-R N-X N-X-R N-X-R N-X-R



## SITE FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description
6	UTM	<p>Zone a number ranging from <b>8</b> to <b>11</b> in BC.</p> <p>Easting a left justified number up to 6 digits in length.</p> <p>Northing a left justified number up to 7 digits in length.</p> <p>Example: The statue of Capt. Vancouver on the Parliament Buildings in Victoria:</p> <p style="padding-left: 40px;">to the nearest meter      to the nearest km</p> <p style="padding-left: 40px;">Zone <b>10</b>                      Zone <b>10</b></p> <p style="padding-left: 40px;">Easting <b>472703</b>            Easting <b>473</b></p> <p style="padding-left: 40px;">Northing <b>5362806</b>        Northing <b>5363</b></p> <p>The blue grid found on many maps is the UTM system. Look at the blue numbers in any of the corners of the map. The full six and seven digit numbers for Eastings and Northings will be given. The blue numbers along the map boundaries are not complete in that they are missing the first one or two digits.</p> <p>For example</p>	2	N-X-R
			6	N-X-L
			7	N-X-L



The location of the X could be given as: Zone **9** Easting **5603** Northing **61354** Do not confuse the UTM system with the military grid reference system; the grid is the same for both, but the referencing is somewhat different. Also note that this is the only example on any of the forms where a fixed numeric entry is left justified.

7	Location	Enter free-format comments related to location of site. A maximum of 78 characters may be used.	78	C-E-L
---	----------	---	----	-------

## SITE FORM PROCEDURES (Continued)

[illegible]

## SITE FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description
		<b>Surface Expression 3:</b> If three terms are used, enter third one here.	1	A-X
		<b>Second Stratigraphic Unit</b> (second line of box). Descriptions as per first stratigraphic unit.		
		<b>Terrain Texture 1</b>	1	A-X
		<b>Terrain Texture 2</b>	1	A-X
		<b>Genetic Material</b>	1	A-X
		<b>Qualifying Descriptor 1</b>	1	A-X
		<b>Qualifying Descriptor 2</b>	1	A-X
		<b>Surface Expression 1</b>	1	A-X
		<b>Surface Expression 2</b>	1	A-X
		<b>Surface Expression 3</b>	1	A-X
		<b>Third Stratigraphic Unit</b> (third line of box). Descriptions as per first stratigraphic unit.		
		<b>Terrain Texture 1</b>	1	A-X
		<b>Terrain Texture 2</b>	1	A-X
		<b>Genetic Material</b>	1	A-X
		<b>Qualifying Descriptor 1</b>	1	A-X
		<b>Qualifying Descriptor 2</b>	1	A-X
		<b>Surface Expression 1</b>	1	A-X
		<b>Surface Expression 2</b>	1	A-X
		<b>Surface Expression 3</b>	1	A-X
		<b>Modifying Processes</b> Descriptions as per first stratigraphic unit. Up to three modifying processes may be entered. They do <b>not</b> correspond in a one-to-one fashion to the stratigraphic units.		
		<b>Modifying Process 1:</b> Only one entry in each box is allowed	1	A-X
		<b>Qualifying Descriptor 1</b>	1	A-X
		<b>Qualifying Descriptor 2</b>	1	A-X
		<b>Modifying Process 2:</b>	1	A-X
		<b>Qualifying Descriptor 1</b>	1	A-X
		<b>Qualifying Descriptor 2</b>	1	A-X
		<b>Modifying Process 3:</b>	1	A-X
		<b>Qualifying Descriptor 1</b>	1	A-X
		<b>Qualifying Descriptor 2</b>	1	A-X
13	Physiographic Subdivision	Numeric code of four digits indicating the physiographic subdivision (according to Holland, 1976) in which the site is located. See Appendix A for the codes.	4	N-X

# SITE FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description																																			
14	Zone/Subzone	<p><b>System:</b> usual entries are either MFRS for the Ministry of Forests Research Branch or METS for the Ministry of Environment Terrestrial Studies Branch.</p> <table><tr><td></td><td>MFRS</td><td>METS</td><td></td><td></td></tr><tr><td>Forest Region</td><td>ignore</td><td>enter</td><td>3</td><td>A-X-L</td></tr><tr><td>Forest Section</td><td>ignore</td><td>enter</td><td>2</td><td>N-X-R</td></tr><tr><td>Zone</td><td>right justify</td><td>left justify</td><td>8</td><td>A-X</td></tr><tr><td>Subzone</td><td>enter</td><td>enter</td><td>2</td><td>A-X-L</td></tr><tr><td>Variant</td><td>enter</td><td>ignore</td><td>1</td><td>N-X</td></tr><tr><td>Phase</td><td>enter</td><td>ignore</td><td>1</td><td>A-X</td></tr></table> <p>Examples:</p> <p>System <b>MFRS</b> : : <b>ESSF GP 3D</b> vp</p> <p>System <b>METS</b> <b>IWB: 2:SAESALF</b>     vp</p> <p>BGC indicates items appropriate for the biogeoclimatic system.</p>		MFRS	METS			Forest Region	ignore	enter	3	A-X-L	Forest Section	ignore	enter	2	N-X-R	Zone	right justify	left justify	8	A-X	Subzone	enter	enter	2	A-X-L	Variant	enter	ignore	1	N-X	Phase	enter	ignore	1	A-X	5	AN-X
	MFRS	METS																																					
Forest Region	ignore	enter	3	A-X-L																																			
Forest Section	ignore	enter	2	N-X-R																																			
Zone	right justify	left justify	8	A-X																																			
Subzone	enter	enter	2	A-X-L																																			
Variant	enter	ignore	1	N-X																																			
Phase	enter	ignore	1	A-X																																			
15	Ecol. Class.	<p><b>System:</b> the usual entry will be <b>MFRS</b>. Daubenmire's system of habitat classification may be accommodated under item 16.</p> <table><tr><td><b>Association</b></td><td>two character numeric code</td><td>2</td><td>N-X-R</td></tr><tr><td><b>Subassociation</b></td><td>one character numeric code</td><td>1</td><td>N-X</td></tr><tr><td><b>Type</b></td><td>two character number code</td><td>2</td><td>N-X-R</td></tr><tr><td><b>Phase</b></td><td>one character alpha code</td><td>1</td><td>A-X</td></tr></table> <p>BGC indicates items appropriate for the biogeoclimatic system.</p>	<b>Association</b>	two character numeric code	2	N-X-R	<b>Subassociation</b>	one character numeric code	1	N-X	<b>Type</b>	two character number code	2	N-X-R	<b>Phase</b>	one character alpha code	1	A-X	5	AN-X-L																			
<b>Association</b>	two character numeric code	2	N-X-R																																				
<b>Subassociation</b>	one character numeric code	1	N-X																																				
<b>Type</b>	two character number code	2	N-X-R																																				
<b>Phase</b>	one character alpha code	1	A-X																																				
16	Veg. Cover	<p><b>System:</b> if a particular system is used, the abbreviated name should be entered here; for example <b>DAU68</b> would stand for Daubenmire 1968. Up to four plants may be entered using the abbreviations given in the Vegetation Coding List (April 1980, B.D. Titus) compiled by the Ministry of Forests.</p> <table><tr><td><b>Genus 1</b></td><td>four character alphabetic code</td><td>4</td><td>A-X</td></tr><tr><td><b>Species 1</b></td><td>three character alphabetic code</td><td>3</td><td>A-X</td></tr><tr><td><b>Variant 1</b></td><td>one character numeric code</td><td>1</td><td>N-X</td></tr><tr><td><b>Genus 2</b></td><td></td><td>4</td><td>A-X</td></tr><tr><td><b>Species 2</b></td><td></td><td>3</td><td>A-X</td></tr><tr><td><b>Variant 2</b></td><td></td><td>1</td><td>N-X</td></tr><tr><td><b>Genus 3</b></td><td></td><td>4</td><td>A-X</td></tr></table>	<b>Genus 1</b>	four character alphabetic code	4	A-X	<b>Species 1</b>	three character alphabetic code	3	A-X	<b>Variant 1</b>	one character numeric code	1	N-X	<b>Genus 2</b>		4	A-X	<b>Species 2</b>		3	A-X	<b>Variant 2</b>		1	N-X	<b>Genus 3</b>		4	A-X	5	AN-X-L							
<b>Genus 1</b>	four character alphabetic code	4	A-X																																				
<b>Species 1</b>	three character alphabetic code	3	A-X																																				
<b>Variant 1</b>	one character numeric code	1	N-X																																				
<b>Genus 2</b>		4	A-X																																				
<b>Species 2</b>		3	A-X																																				
<b>Variant 2</b>		1	N-X																																				
<b>Genus 3</b>		4	A-X																																				

## SITE FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description
		<b>Species 3</b>	3	A-X
		<b>Variant 3</b>	1	N-X
		<b>Genus 4</b>	4	A-X
		<b>Species 4</b>	3	A-X
		<b>Variant 4</b>	1	N-X
	Veg. Class.	System	5	AN-E-L
		Class	80	AN-E-L
		These two items do not appear on the field form. They do exist, however, in the computer. They have been included to allow for the identification of vegetation classes which may result from analysis after the field work and which may not be equivalent to items 14, 15, or 16. Their values may be entered directly through BCSIS edit-update procedures (see BCSIS Volume 1).		
17	Soil	<b>Classification:</b> The Canadian System of Soil Classification codes should be used. These are given in Appendix A.		
		<b>Subgroup:</b> right justified before the period.	4	A-X-R
		<b>Great Group:</b> left justified after the period.	3	A-X-L
		<b>Year:</b> the usual entry is 1978.	2	N-X
		<b>Phase:</b> Up to four coded phases or variants may be used. The possible codes include: _1, _2, _3, _4, _5, _6, _7, _8, _9, 10, W1, W2, W3, W4, D1, D2, D3, OB, OW, S1, S2, S3, S4, S5, S6, R1, R2, R3, R4, R5, R6, PT, as well as A_, CO, DC, G_, ID, L_, LO, MC, MD, PD, R_, S_, SL, SO, SP, T_, VG, VS, W_, WC. In addition up to three uncoded, free format phases or variants may be entered. See Appendix A.		
		<b>Coded Phase 1</b>	2	AN-X
		<b>Coded Phase 2</b>	2	AN-X
		<b>Coded Phase 3</b>	2	AN-X
		<b>Coded Phase 4</b>	2	AN-X
		<b>Uncoded Phase 1</b>	20	C-E-L
		<b>Uncoded Phase 2</b>	20	C-E-L
		<b>Uncoded Phase 3</b>	20	C-E-L
		<b>Family Particle Size:</b> up to two entries are allowed. Two entries are applicable where strongly contrasting stratigraphic units occur. Possible (left justified) entries are F, SS, LS, CS, L, CL, FL, CSI, FSI, C, FC, VFC, CI, A, T, AS, TS, G.		
		<b>Stratigraphic Unit 1</b>	3	A-X-L
		<b>Stratigraphic Unit 2</b>	3	A-X-L

### SITE FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description
18	Plot Representing	Usually free format information useful primarily on a project basis.	150	C-E-L
19	Site position macro	Circle one only, a through g.	1	A-X
20	Site position meso	Circle one only, a through g.	1	A-X
21	Site surface shape	Circle one only, a through c.	1	A-X
22	Microtopography	Circle one only, a through h.	1	A-X
23	Meso slope length	In metres, right justified.	4	N-X-R
24	Meso up-slope length	In metres, right justified.	4	N-X-R
25	Site position diagram	Refer to form Series and Number <b>Series</b> and <b>Number</b> <b>Photo Roll No:</b> number up to two characters long. <b>Photo No:</b> as above.	2 5 2 2	N-X N-X-R N-X-R N-X-R
26	Exposure Type	Circle up to three entries, a through g. In addition 'other' and 'comments' may be complete as free format items. <b>Entry 1</b> <b>Entry 2</b> <b>Entry 3</b> <b>Other</b> <b>Comments</b>	 1 1 1 20 50	 A-X A-X A-X C-E-L C-E-L
27	Ecological Moisture Regime	Circle one entry only, a through i.	1	A-X
28	Nutrient Regime	Circle one entry only, a through f.	1	A-X

### SITE FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description
29	Soil Temp. Class	Circle one entry only, a through e.	1	A-X
30	Soil Moisture Subclass	Circle one entry only, a through j.	1	A-X
31	Soil Drainage	Circle one entry only, a through f.	1	A-X
32	Perviousness	Circle one entry only, a through c.	1	A-X
33	Free Water	Circle one entry only, either a or b.	1	A-X
34	Flood Hazard	Circle one entry only, a through e.	1	A-X
35	Depth to (cm)	<b>a. Water Table</b> <b>b. Rooting (effective)</b> <b>c. Root Restricting Layer</b> <b>d. Frozen Layer</b> <b>e. Bedrock</b> <b>f. Carbonate</b> <b>g. Salinity</b> Indicate the absence of any of the above by placing an X in the right hand most column, just to the right of the decimal.	5,1 4,1 4,1 5,1 5,1 4,1 4,1	N-X N-X N-X N-X N-X N-X N-X
36	Bedrock Type	<b>Bedrock 1 - Alpha:</b> One or two alphabetic characters before the colon (:), left justified. Must be entered if Bedrock 1 - Numeric is given. Possible entries are: <b>I, IA, II, E, EA</b> etc. Appendix A contains all possible entries. <b>Bedrock 1 - Numeric:</b> One or two numeric characters after colon (:), right justified. If specific rock type is not known, item may be left blank. Possible entries are <b>01</b> through <b>67</b> . <b>Bedrock 2 - Alpha:</b> To be used for lower stratigraphic unit if present. <b>Bedrock 2 - Numeric:</b>	2 2 2 2	A-X-L N-X-R A-X-L N-X-R
37	Bedrock Structure	<b>Bedrock 1 Structure:</b> Free format entry indicating type of structure, strike, dip angle, direction of dip, and intensity of structure. <b>Bedrock 2 Structure:</b> As above, for Bedrock 2.	35 35	C-E-L C-E-L

## SITE FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description
38	Coarse Fragment Lithology	<b>Absence:</b> If no coarse fragments (>2mm) are found in the pedon, then enter an X in character space 125.	1	C-X
		<b>Most Common - Alpha:</b> as in item 36.	2	A-X-L
		<b>Most Common - Numeric:</b> as in item 36.	2	N-X-R
		<b>2nd Most Common - Alpha:</b> as in item 36.	2	A-X-L
		<b>2nd Most Common - Numeric:</b> as in item 36.	2	N-X-R
		<b>3rd Most Common - Alpha:</b> as In item 36.	2	A-X-L
		<b>3rd Most Common - Numeric:</b> as in item 36.	2	N-X-R
		<b>Mixed:</b> If the lithologies are so mixed that dominance cannot be determined, then enter 1 in box; Coarse Fragment Lithologies may still be entered, if known.	1	A-X
39	Successional Status	<b>Present Stage:</b> Circle one of the following: PS, YS, MS, OS, YEC, YCC, MC, MCC, MEC, DC, NV. These codes are explained in Appendix A.	30	C-E-L
		<b>Expected Climax:</b> Free format.	1	A-X
		<b>Rate of Succession:</b> Circle one only, a through e.		
40	Factors Influencing Stand Establishment	<b>Factors:</b> Coded factors include: A, A1, A2, A3, B, B1 through B9, C C1 through C5, D, D1 through D5, E, E1, through E7, F, F1 through F6, G, G1 through G5, H, H1 through H4. See Appendix A for explanation of codes. Additionally free format factors may be included.		
		<b>Coded Factor 1:</b> letter in first space, number or blank in second space.	2	AN-X-L
		<b>Coded Factor 2:</b> (as above)	2	AN-X-L
		<b>Coded Factor 3:</b> (as above)	2	AN-X-L
		<b>Coded Factor 4:</b> (as above)	2	AN-X-L
		<b>Uncoded Factor 1:</b> upper line.	40	C-E-L
		<b>Uncoded Factor 2:</b> lower line.	40	C-E-L
41	Veg. Plot	<b>Area:</b> area of plot. If subplots have been used, this number indicates the sum of the subplot areas. If the area is readily determined from the shape and dimension information (i.e., Shape not Irregular), the computer will automatically compute and store the area. This computed value will override any entry for Area.	3,2	N-X
		<b>Shape:</b> the first letter of one of the following words: Circle, Square, Rectangle, Line (no width - some grassland surveys), Irregular. If subplots are used, it is assumed that they are all of equal size and shape; if they are not, then shape should be left blank and Area should be entered.	1	A-X



# **SITE FORM PROCEDURES (Continued)**

Item Number	Description	Comments	Field Length	Field Description		
42	Humus Form Classification	<b>Dimensions:</b>				
		<b>Number:</b> number of subplots. Where there is only one plot, the usual situation, enter: <b>1</b> .	1	N-X-R		
		<b>Dimension 1:</b> The radius or first dimension of the plot. Where subplots are used, it is the radius or first dimension of a subplot.	5,2	N-X		
		<b>Dimension 2:</b> The second dimension of the plot.	5,2	N-X		
		<b>Mor Descriptors:</b> in first two spaces of the field. The first letter of one of the following may be used: <b>H</b> ypno, <b>S</b> phagno, <b>L</b> icheno, <b>E</b> ricaceo, <b>C</b> onifero, <b>D</b> eciduo. The first letter of one of the following may also be included: <b>G</b> ranulo, <b>A</b> morpho, <b>M</b> ycelio, <b>R</b> hizo.				
		<b>Mor Descriptor 1:</b> if only one descriptor is used, enter in the first space.	1	C-X		
		<b>Mor Descriptor 2:</b> if second descriptor is used, enter in the second space.	1	C-X		
		<b>Classification:</b> (spaces 34 to 37) one of the following:				
		Mulls	MD, R	MU, Z	MD,	
		Moders	MD,M	MD, T	MD, W	MD,
			L			
		Mors	MR,	MR,HF	MR, FH	MR,
			F			
		H	MR,	MR,HP	MR,MP	MR,
			P			
	F P	MR; Anmoor -	AN.			
	See Appendix A for full descriptions of these terms.					
	<b>Subgroup:</b> right justified in third and fourth spaces.	2	A-X-R			
	<b>Great Group:</b> in the fifth and sixth spaces.	2	A-X			
	<b>Variants:</b> up to four variants may be entered. The capitalized letters from the following list indicate possible entries. <b>C</b> Layey, <b>L</b> Oamy, <b>S</b> Andy, <b>H</b> Ydric, <b>M</b> Esic, <b>X</b> Eric, <b>A</b> Cid, <b>S</b> Lightly acid, <b>C</b> Alcareous, <b>Thic</b> K, <b>Thi</b> N.					
	<b>Variant 1:</b>	2	A-X			
	<b>Variant 2:</b>	2	A-X			
	<b>Variant 3:</b>	2	A-X			
	<b>Variant 4:</b>	2	A-X			
	See Appendix A for a complete list of abbreviations.					
43	Surface Substrate	Special symbols such as >, <, and + are not allowed. Note that in the computer check, the sum of the numbers must be between 95 and 110. Also note that a value of zero should be entered as <b>0.0</b> . Do <b>not</b> use an X here to indicate missing.				
		<b>Decaying Wood:</b>	4,1	N-X		
		<b>Bedrock:</b>	4,1	N-X		
		<b>Cobbles and Stones:</b>	4,1	N-X		

### SITE FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description
		<b>Mineral Soil:</b>	4,1	N-X
		<b>Organic Matter:</b>	4,1	N-X
		<b>Water:</b>	4,1	N-X
44	Profile Status	Circle one entry only, a through d.	1	A-X
45	Profile Deviation	Circle up to three entries, a through g. In addition 'other' may be complete as free format.		
		<b>Entry 1:</b>	1	A-X
		<b>Entry 2:</b>	1	A-X
		<b>Entry 3:</b>	1	A-X
		<b>Other:</b>	20	C-E-L
46	Soil Mapping Unit	Circle one entry only, a through h, or z.	1	A-X
47	Soil Name	The full soils name, without component or phase suffixes, for example: <b>ALBERT</b> . Do <b>not</b> enter <b>AL</b> or <b>AL2X</b> . Items 44 through 46 provide sufficient qualifying information. If there is not an official soils name, you should at least ensure consistency within your project. Note that new official soil names must be at least 6 characters.	20	AN-E-L
48	Associated Soil	The name should be given in full. Component and phase information may be included. Be consistent within your project.	24	AN-E-L
49	Profile No.	A right justified numeric entry to be used when more than one pedon is described for the same soil type.	2	N-X-R
50	Coordinator/ Surveyor	<b>Project-Coordinator:</b> the name of the individual supervising the project. The last name should be entered in full. The first name may be abbreviated.	20	C-E-L
		<b>Surveyor:</b> The name of the individual completing the form. Where more than one individual is involved, dashes may be used between the names.	20	C-E-L
51	Agency	Up to two agencies may be entered. Codes are given in Appendix A.		
		<b>Agency 1:</b> left justified code in the first four spaces.	4	A-X-L
		<b>Agency 2:</b> left justified code in the last four spaces.	4	A-X-L

### SITE FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description
52	Type of Soil Sample	Full sampling implies that all horizons have been sampled. Usually this implies that the profile is considered as a benchmark site. Partial sampling implies that only a limited number of horizons have been sample. <b>Chemical:</b> circle a or b or neither. <b>Physical:</b> circle a or b or neither.	1 1	A-X A-X
53	Sampling Technique	Free format information indicating type of statistical or non-statistical design used.	45	C-E-L
54	Notes on Site Description	Free format information worth storing in the computer bank. Please be concise and neat.	600	C-E-L

(if continuation then put X over ADOP00)

SERIES **8.2** FORM

SOIL DESCRIPTION FORM

PROJECT I.D. \_\_\_\_\_ PLOT NO. \_\_\_\_\_ SURVEYOR \_\_\_\_\_ PAGE \_\_\_\_\_ OF \_\_\_\_\_

1 HORIZON				2 HORIZON DEPTH cm.		3 HORIZON THICKNESS cm.		4 HORIZON BOUNDARY		5 COARSE FRAGMENT DESCRIPT				6 SOIL TEXTURE		7 STRUCTURE				8 MST		9 CONSIST.		10 LAB SAMPLE	
horizon		subdivision		upper	lower	min	max	dist	form	by vol	Gravel <7.5 cm	Cobbles 7.5-25 cm	Stones >25 cm	type	type	GRADE	KIND	GRADE	KIND	GRADE	KIND	dry	moist	plast.	LAB SAMPLE
1	2	3	4																						
16	17			33		41		47	49					64		68					88	89			83
a																									
b																									
c																									
d																									
e																									
f																									
g																									
h																									
i																									
j																									

11 COLOUR 1				12 COLOUR 2				13 MOTTLES				14 ROOTS 1				15 ROOTS 2				16 HORIZON NOTES											
Hue		Number		Aspect		Chroma		Hue		Number		Aspect		Chroma		Hue		Number		Aspect		Chroma		Hue		Number		Aspect		Chroma	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
16	17																														
a																															
b																															
c																															
d																															
e																															
f																															
g																															
h																															
i																															
j																															



## SOIL FORM PROCEDURES

Item Number	Description	Comments	Field Length	Field Description
-	Form Number	<b>Number and Year of Form</b> Must enter appropriate numeric code from Site Form. Up to five numeric characters precede a dash which is followed by 2 numeric characters denoting the year the data form was made (e.g. 81). Note that Number is right justified.	5 2	N-X-R N-X
-	Project ID	This item appears on the Site Form. Complete if it is useful to you in a manual context.		
-	Plot No.	As above.		
-	Surveyor	As above.		
-	Page - of -	Complete this item only if it is useful to you in a manual context.		
0	Level	Alpha characters "a" to "j" are already printed on the form so that the surveyor does not have to repeat the horizon designation. If more than ten horizons are described, a second soils sheet is needed; for each additional horizon, the level on the second sheet should be slashed and replaced by one of the letters k, l, m etc.; e.g. ak. Note that in this situation, an X should be placed through ADDP00 on the second soils sheet.  Note that the horizon designation (discount, horizon, suffixes, subdivision) is entered into the computer only once. As it is entered, the corresponding 'Level' code (a, b, c, etc.) is also entered. For the other three boxes on the form ( lower half of the front side, upper and lower halves of the back side), only the 'Level' code is entered into the computer. You must ensure that data entered in these boxes is entered at the appropriate 'Level'. <b>Note that if a soil sample has been taken from two or more horizons, then a new horizon and level must be described.</b> For example, if there exists an Ah from 0 to 5 cm and a Bm from 5 to 15, and if a sample for bulk density determination was taken from 0 to 15, then a D1 horizon from 0 to 15 should be noted. Only the type of horizon (here D1) and the horizon depths need be indicated for such composite horizons.	1	A-X

## SOIL FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description
1	Horizon	<b>Discontinuity:</b> Leave blank or enter appropriate Roman numerals (e.g. II, III, IV) where strongly contrasting horizons exist. Note that no entry is needed until a contrasting horizon is encountered, i.e., do not enter "1".	4	A-X-R
		<b>Horizon:</b> Master horizon designations must be one of the following: O, L, F, H, LF, LH, FZ, FH, HL, HF, LFH, LHF, FLH, FHL, HFL, HLF, A, B, C, AB, BA, AC, CA, BC, CB, A&B, A&C, C&A, B&C, C&B, W, R, ASH, D1 through D20. D1, D2, etc. are non-descriptive layer designations by depth.	3	C-X-L
		<b>Suffixes:</b> Suffix entry may be one or more of the following, subject to certain restriction: CA, CC, CO, SA, CJ, EJ, TJ, FJ, NJ, GJ, GF, HF, B, C, E, T, F, G, H, K, M, N, P, S, U, X, Y, Z. A maximum of 4 suffix codes can be used.		
		<b>Suffix 1</b>	2	A-X-L
		<b>Suffix 2</b>	2	A-X-L
		<b>Suffix 3</b>	2	A-X-L
		<b>Suffix 4</b>	2	A-X-L
2	Horizon Depth	Note that for a Gtgj horizon, for example, Suffix 1 is <b>T</b> and Suffix 2 is <b>GJ</b> . Also note that J by itself is not considered to be a suffix.		
		<b>Subdivision:</b> Leave blank or enter one numeric character (e.g., "1", "2"), where appropriate.	1	N
		<b>Upper Horizon Boundary:</b> One digit after the decimal point is allowed. Special symbols such as >, <, or + are not permitted.	4,1	N-X-R
		<b>Lower Horizon Boundary:</b> The value of the Lower Horizon Boundary for the lowest horizon in the pit usually will be the depth of the pit. Thus, if a pit is 105 cm in depth, the boundary information for a BC horizon may be 95.0 - 105.0. This does not mean that the BC horizon necessarily stops at 105 cm, but rather that it is known to exist only to that depth. The only exception to this would be in the case of Rock or some other impenetrable horizon. In such situations leave Lower Horizon Boundary blank.	4,1	N-X-R
3	Horizon Thickness	<b>Min:</b> no decimals or other special characters permitted.	3	N-X-R
		<b>Max:</b> as above.	3	N-X-R

### SOIL FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description
4	Horizon Boundary	<b>Distinctness:</b> enter one of the following alpha characters only: N, D, G, C, A.	1	A-X
		<b>Form:</b> enter one of the following alpha characters only: S, W, I, B. See Appendix B for explanation of codes.	1	A-X
5	Coarse Fragment Description	<b>% by Volume:</b>	3	N-X-R
		<b>Gravel:</b>		
		<b>% by volume</b>	3	N-X-R
		<b>type:</b> see Appendix B	1	A-X
		<b>Cobbles:</b>		
		<b>% by volume</b>	3	N-X-R
		<b>type:</b> see Appendix B	1	A-X
		<b>Stones:</b>		
		<b>% by volume</b>	3	N-X-R
		<b>type:</b> see Appendix B	1	A-X
A blank for percent means that no estimate was made. Enter the number “0” when no coarse fragments are present.				
6	Soil Texture	Entry may be one of the following only: S, LS, SL, L, SCL, SC, SIL, SI, SICL, CL, SIC, C HC, VCS, CS, MS, FS, VFS, LFCS, LCS, LMS, LFS, LVFS, VCSL, CSL, MSL, FSL, VFSL. See Appendix B for explanation of codes. Information concerning coarse fragments is entered under item 5.	4	A-X-L
7	Structure	<b>Grade:</b> enter one of the following alpha codes only: W, WM, M, MS, S.	2	A-X-L
		<b>Class:</b> enter one of the following alpha codes only: VF, VFF, F, FM, M, MC, C, VC.	3	A-X-L
		<b>Kind:</b> enter one of the following alpha codes only: ABK, SBK, GR, PL, PR, COL, SGR, MA, CDY.	3	A-X-L
		<b>Kind Modifier:</b> leave blank or enter PS where appropriate. See Appendix B for explanation of codes.	2	A-X
8	Moisture	Enter one of the following: D, M, W (Appendix B).	1	A-X
9	Consistence	<b>Dry:</b> enter either 1, 2, 3, 4, 5, 6, or 7.	1	N-X
		<b>Moist:</b> enter either 1, 2, 3, 4, 5, or 6.	1	N-X
		<b>Wet:</b> enter either 1, 2, 3, or 4.	1	N-X
		<b>Plasticity:</b> enter either 1, 2, 3, or 4. Codes are explained in Appendix B.	1	N-X



### SOIL FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description
10	Lab Sample	Enter a 1 if the horizon was sampled for any laboratory analysis. Otherwise leave blank.	1	N-X
11	Colour 1	<b>Aspect:</b> enter appropriate numeric code (Appendix B). <b>Hue Number:</b> enter appropriate numeric characters. Only one character is permitted following the decimal. <b>Hue Letter(s):</b> enter appropriate alpha characters. <b>Value:</b> enter appropriate numeric characters. Only one character is permitted following the decimal. <b>Chroma:</b> enter appropriate numeric characters. Only one character is permitted following the decimal.	2 3,1 2 2,1 2,1	N-X-R N-X A-X-L N-X N-X
	Colour 2	<b>Aspect:</b> see Colour 1. <b>Hue Number:</b> see Colour 1. <b>Hue Letter(s):</b> see Colour 1. <b>Value:</b> see Colour 1. <b>Chroma:</b> see Colour 1.	2 3,1 2 2,1 2,1	N-X-R N-X A-X-L N-X N-X
12	Mottles	<b>Abundance:</b> enter appropriate code: F, C, or M. If there are no mottles, enter an X. a blank indicates that the item was not described. <b>Size:</b> enter the appropriate code: F, M, or C. <b>Contrast:</b> enter appropriate code: F, D, or P. <b>Colour:</b> <b>Aspect:</b> see Colour 1. <b>Hue Number:</b> see Colour 1. <b>Hue Letter(s):</b> see Colour 1. <b>Value:</b> see Colour 1. <b>Chroma:</b> see Colour 1. <b>Boundary Distinctness:</b> enter appropriate code: S, C, or D. Codes are explained in Appendix B.	1 1 1 2 3,1 2 2,1 2,1 1	A-X A-X A-X N-X-R N-X A-X-L N-X N-X A-X
13	Roots 1	<b>Abundance:</b> enter appropriate code where roots occur: V, F, P, or A. If there are absolutely no roots, enter an X. A blank indicates that the item was not described. <b>Size:</b> enter appropriate code: V, F, M, or C. <b>Orientation:</b> enter appropriate code: V, H, O, or R. <b>Distribution:</b> enter appropriate code: IN, EX, or MX. Codes are explained in Appendix B.	1 1 1 2	C-X A-X A-X A-X
	Roots 2	<b>Abundance:</b> see Roots 1. <b>Size:</b> see Roots 1. <b>Orientation:</b> see Roots 1. <b>Distribution:</b> see Roots 1.	1 1 1 2	C-X A-X A-X A-X

### SOIL FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description
14	Horizon Notes	Enter free-format comments related to individual horizons.	30	C-E-L
15	pH	<b>Reaction:</b> enter actual pH value and not the reaction class. One character is permitted following the decimal. <b>Method:</b> enter appropriate code from 1 to 10 (Appendix B).	3,1 2	N-X N-X-R
16	Pores	<b>Abundance:</b> see Item 13. Note that X is not appropriate here. <b>Size:</b> see Item 13. <b>Orientation:</b> see Item 13. <b>Distribution:</b> see Item 13. <b>Continuity Class:</b> enter appropriate code: CO or DC. <b>Morphology Class:</b> enter appropriate code: S,D or C. <b>Types of Pores:</b> enter appropriate code: V, I, or T.	1 1 1 2 2 1 1	A-X A-X A-X A-X A-X A-X A-X
17	Horizon Porosity	Enter appropriate code: S, M, or H (Appendix B).	1	A-X
18	Clay Films	<b>Frequency Classes:</b> enter appropriate code: F, C, M, or CS. If there are no clay films, enter an <b>X</b> . A blank indicates that the item was not assessed. <b>Thickness Class:</b> enter appropriate code: TN, MTK, TK, or VTK. <b>Location:</b> enter appropriate code: 1,2,3,4,5,6,7, or 8. Codes are explained in Appendix B.	2 3 1	A-X A-X N-X
19	Effervescence	<b>Effervescence:</b> enter appropriate code: VW, W, M, or S. No effervescence is indicated by an <b>X</b> entry. If left blank it is assumed that effervescence was not tested. Codes are explained in Appendix B.	2	A-X
20	Secondary Carbonate Description	<b>Continuity:</b> enter appropriate code from 1 to 9. <b>Abundance:</b> enter appropriate code: F, C, or M. Ah X entry indicates an absence of secondary carbonates. If left blank it is assumed that secondary carbonates were not examined. <b>Size:</b> enter appropriate code: F, M, C. <b>Shape:</b> enter appropriate code: V, H, or R; and appropriate spotted code: C, O, I. <b>Consistence:</b> enter appropriate moist code from 1 to 6; and/or appropriate dry code from 1 to 7. Codes are explained in Appendix B.	1 1 1 1 1	N-X A-X A A-X N-X

### SOIL FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description
21	Salinity	Salinity: enter appropriate code: W, M, S (Appendix B). An X entry indicates the absence of salinity; if left blank it is assumed that salinity was not assessed.	1	A-X
22	Concretions, Nodules, Casts	<b>Kind:</b> enter appropriate code from 1 to 11. <b>Abundance:</b> enter appropriate code: F, C, or M. An X entry indicates absence. If left blank it is assumed that concretions, nodules, or casts were not assessed. <b>Size:</b> enter appropriate code: F, M, or C. <b>Location:</b> enter appropriate code: 1, 2, or 3. <b>Shape:</b> enter appropriate code: S, O, I, or P. See Appendix B for explanation of codes. <b>Colour:</b> <b>Aspect:</b> see Item 11. <b>Hue Number:</b> see Item 11. <b>Hue Letter(s):</b> see Item 11. <b>Value:</b> see Item 11. <b>Chroma:</b> see Item 11.	2 1 1 1 2 3,1 2 2,1 2,1	N-X-R A-X A-X N-X A-X N-X A-X-L N-X N-X
23	Cementation	<b>Agent:</b> enter appropriate code form 1 to 7. <b>Degree:</b> enter appropriate code: W, M, S, or I. <b>Extent:</b> enter appropriate code: C or D. Enter an X if cementation is absent. See Appendix B for explanation of codes.	1 1 1	N-X A-X A-X
24	Organic Material Description	<b>Kind 1:</b> enter appropriate code form 1 to 8. <b>Kind 2:</b> as above. <b>Decomposition:</b> enter appropriate code: N, S, M, or H. <b>Woody Material Hardness:</b> enter appropriate code: S, SH, H, or VH. <b>Woody Material Volume:</b> enter appropriate code: 0, 1, 2, 3, or 4. <b>Pyrophosphate Index:</b> enter appropriate value. One numeric character only follows the decimal. <b>von Post Scale:</b> enter appropriate code from 1 to 10. See Appendix B for explanation of codes.	1 1 1 2 1 2,1 2	A-X A-X A-X A-X-L N-X N-X N-X-R
25	General Comments	Enter free-format additional notes on soil profile. Brevity is preferred.	500	C-E-L
26	Soil Temperature	Enter depth of measurement in cm and temperature in degrees Celsius. <b>Depth 1</b> °C	3 4	N-X-R N-X-R

# SOIL FORM PROCEDURES (Continued)

Item Number	Description	Comments	Field Length	Field Description
		Depth 2	3	N-X-R
		°C	4	N-X-R
		Depth 3	3	N-X-R
		°C	4	N-X-R
		Depth 4	3	N-X-R
		°C	4	N-X-R
		Depth 5	3	N-X-R
		°C	4	N-X-R
		Depth 6	3	N-X-R
		°C	4	N-X-R
		Depth 7	3	N-X-R
		°C	4	N-X-R
		Depth 8	3	N-X-R
		°C	4	N-X-R
27	Schematic Soil Profile	This is not entered into the data file.		





## VEGETATION FORM PROCEDURES

### How To Use The Form

The usual way of using the form is virtually the same as the method employed over the last several years. Each sheet applies to a specific plot. The SERIES, previously referred to as the year, and the FORM NUMBER are placed on the first and second rows of columns 9 through 12. Thus if the SERIES is 82 and the FORM NUMBER is 01234, then 820 would appear in the first row and 1234 in the second. Next a field name may be placed on the sheet followed by the 4-3-1 code from the Ministry of Forests' **Vegetation Coding List**. This listing represents the standard for all plant codes. Usually the first four letters of the genus and the first three letters of the species name are coded, with an optional code for any varieties. Exceptions do exist and thus the **Vegetation Coding List** should be checked. The field name is not entered into the computer; it is only for the convenience of the surveyor. The field name (or collection number) may be used when the appropriate code is not known in the field; once the code is known it must be filled. The STRATUM and ENTRIES rows are both coded, as indicated below. For range surveys, total shrubs, forbs, and grasses are indicated by writing LOSHRUB, FORB, and GRASS, respectively, in the last three lines under ENTRIES. The total value is then recorded in the appropriate column. TOTAL % COVER, STRATA HEIGHT in metres, and number of DEAD TREES can be found at the bottom of the sheet. Each of these pertains to a particular stratum. Two rows for COMMENTS follow these. The back of the form is identical to the front with the exception that the bottom five lines contain spaces for more species. The SERIES and FORM NUMBER must be entered on the back as well, provided that data is entered there.

### **What the Codes Mean**

A0:	Veterans	Bl:	Total Trees
Al:	Dominant Trees	B2:	Low Shrubs
Al:	A2: Main Canopy	B_:	Total Shrubs
A3:	Trees	C_:	Herbs
A_:	Total Trees	D_:	Mosses, Lichens, and Live Seedlings
		Z_:	All Strata

### **Allowable Entries For All of the Above Strata**

- PP: percent cover on an area basis, from **.1** to **01** to **99**. Only the digits 0 through 9 and the decimal point may be entered; <, >, etc. are not allowed. A percent cover of 100% is assumed to be **adequately** represented by a PP entry of 99.
- D: numeric distribution code 1 to 9. See Appendix C for code values.
- V: numeric vigor code, from 0 to 4 (+ sign disallowed). See Appendix C for code values.

### **Additional Allowable Entries for All of the Above Strata**

(Strike out PP on form in Entries and replace by appropriate code.)

- CC: percent estimated composition: an estimate of the percent of the total green weight (g/m<sup>2</sup>) of a plot occupied by a given species. CC would be used in place of D and V. Thus ENTRIES would be PPCC.
- LL: percent cover on a line intersect basis. Equivalent to PP but based on a line instead of an area. Thus ENTRIES would be **LLDV** or **LL**.

### **Other Allowable STRATA and ENTRIES**

(Strike out appropriate STRATA and ENTRIES on form and replace with codes below as required.)

O\_: Forbs (PPCC)

This STRATUM does not occur on the form. IT is used for range surveys, where interest centres on this group of plants.

G\_: Grasses (PPCC)

The STRATUM does not occur on the form. It could be used for range surveys.

P\_: Phenology (EEGG)

EE: vegetative code, from 0 to 10. See Appendix C for code values.

GG: generative code, from 0 to 11. See Appendix C for code values.

P\_: Phenology (\_\_AA)

AA: the percent of the total annual growth on a mass basis which has been reached at the time of the survey. This code is not printed on the form. It is to be used for surveys such as range inventory.

T\_: Dead Tree (NNLC)

NN: number of stems/plot from 01 to (hypothetically) 99.

L: a stratum or layer code. A0, A1, A2, A3, B1, B2, C, and D are coded 0, 1, 2, 3, 4, 5, 6, and 7, respectively.

C: snag class; dead, loose bark, clean, broken, decomposed, down material, and stump are coded 1 to 7, respectively.



- U\_: Utilization (\_RFU)
- R: range condition indicator; a numeric code indicating whether a range species is increasing, decreasing, invading, or unaffected by grazing, coded 1, 2, 3, and 0, respectively.
- F: form utilization class, from 1 to 8. See Appendix C for code values.
- U: utilization rating, from 0 to 4. See Appendix C for code values.
- 
- F\_: Forage (WWWM)
- WWW: measured weight in g/m<sup>2</sup> from 001 to 999 (hypothetically).
- M: method; estimated green, estimated air dried, estimated oven dried, measured green, measured air dried, and measured oven dried are coded 1 to 6, respectively.
- 
- F\_: Forage (WWWU)
- WWW: measured weight in g/m<sup>2</sup> from 001 to 999 (hypothetically).
- U: percent utilization code; enter by class code the estimated proportion of annual growth to date of survey that has been removed, as a percentage of the total green weight which would otherwise have been expected for each plant group. This code is not printed on the form. It is inserted as an ENTRY for range surveys. See Appendix C for code values.
- 
- F\_: Forage (EEEEU)
- EEE: estimated weight in g/m<sup>2</sup> from 001 to 999 (hypothetically). This code is not printed on the form. It is used in place of WWW when estimated weights are recorded.
- U: percent utilization code; enter by class code the estimated proportion of annual growth to date of survey that has been removed, as a percentage of the total green weight which would otherwise have been expected for each plant group. This code is not printed on the form. It is inserted as an ENTRY for range surveys. See Appendix C for code values
- 
- S\_: Atypical Substrate (\_\_SA)
- S: substrate code; epilithic, epiphytic, epixylic, episolic, and mosses on humus are coded 1 to 5, respectively.
- A: abundance code from 1 to 3 to indicate rare (<25% cover), frequent (26-75%), and abundant (>76%) respectively.
- 
- X1: Project Specific - any numeric coding deemed useful to the project at hand. For any column which is to be used, one or more letters for ENTRIES at the top of the column must be entered.

Note that SERIES & FORM NO. is always numeric. STRATUM is always one letter followed by either a blank or a number. ENTRIES are always alphabetic characters. Any column which contains data must be supported by an ENTRIES character. Species codes are four letters, three letters, and (optional) one numeric character. Data in the main part of the sheet are always numeric, occasionally with a decimal. TOT%COV, STRAT HT, with an assumed decimal, and DEAD TREE are always numeric. COMMENTS may consist of letters, numbers, and special symbols. All letters anywhere on the form are assumed to be upper case.

### **Changing Codes for Project Specific Reasons**

Each stratum (or equivalent) and entry has a code, as discussed above, which is entered into the computer along with the rest of the data. You will also note that the boxes containing the codes for STRATUM and ENTRIES are twice as high as the other boxes on the form. In each case the value printed on the form may be crossed out and replaced with other codes, printed in the upper portion of the box. The only restrictions are that under any given STRATUM the codes for the ENTRIES must be unique, and in both cases, the formats regarding letters and numbers must be followed as given above. For example, PP under A0 through Z always indicates a two digit percent cover on an area basis or a decimal point followed by a one digit numeric character. If a line transect were being used, one might cross out the PP and enter LL (in the appropriate space provided immediately above) for percent cover on a line intersect basis. The fact that L is also a code for ENTRIES under Dead Tree is not a source of confusion since it is the combination of STRATUM code and ENTRIES code which must be unique. Any new STRATUM or ENTRIES code should be approved by the Systems Analyst of the Terrestrial Studies Branch to avoid duplication resulting from different people using different codes to mean the same thing.

## Using a Sheet for More Than One Plot

The form may also be used in a manner similar to a releve table, whereby more than one series and form number may be coded on the same sheet. The computer assumes that the series and form number for each of the eighteen strata (or equivalent) is the same as the series and form number adjacent to it on the left, unless otherwise specified. For example, if one were doing a grassland survey where only Low Shrubs (B2) and Herbs (C) were of interest, the sheet might look as follows:

821		821		821	
2345		2346		2347	
B2	C	B2	C	B2	
PPDV	PPDV	PPDV	PPDV	PPDV	etc.

The series and form number need be entered only when they are different from the STRATUM (or equivalent) on the immediate left. Thus, potentially anywhere from one to 34 plots may be coded on one vegetation sheet. Each one of the plots, however, must have a separate Site Description Form; an exception to this is discussed below. Note that if all strata are not being examined, this should be stated under COMMENT1 or COMMENT2; the phrase PARTIAL SAMPLE or PS: could for example be entered under COMMENT1 beginning in column 9.

## How to Handle Subplot Data

Subplots can be coded on the same form. Subplots are identified by using alphabetic characters. These characters are entered in the shaded spaces in the top row of the form where SERIES and FORM NO. are recorded. For example, if the A0 stratum plus three subplots in the A1 stratum are sampled for plot 82-12345, then 821\_821A821B821C would be coded sequentially in row 1. The alphabetic characters are coded in the shaded boxes under columns 16, 20, and 24. The second row would have the same numbers 2345234523452345 recorded sequentially in columns 9-24. In the row for STRATUM, A0 and A1 are left as they are, the 2 in A2 is crossed off and replaced by a 1, and the 3 in A3 is crossed off and replaced with a 1. The correct coding for these subplots is illustrated below. It is important to remember that the three subplots in the example all refer to the same site form.

821	821 A	821 B	821 C
2345	2345	2345	2345
A0	A1	A1	A1
PPDV	PPDV	PPDV	PPDV

## APPENDIX A: SITE CODES

### Item 12: Terrain Classification

#### Texture

Size mm						
ROUNDEDNESS		256	64	2	0.062	0.0039
ROUNDED	BOULDERY b	COBBLY k	PEBBLY p			
ROUND OR ANGULAR				SANDY s	SILTY \$	CLAYEY c
ROUNDED GRAVELLEY g						
					FINES f	
ANGULAR	BLOCKY a	RUBBLY r				
Organic:      e - fibric      m - mesic      h - humic						

<u>Genetic Material</u>		<u>Qualifying Descriptor</u>		<u>Surface Expression</u>		<u>Modifying Process</u>	
Anthropogenic	A	Clastic:		Apron	a	Avalanced	A
Colluvial	C	Glacial	G	Blankey	b	Bevelled	B
Eolian	E	Organic:		Fan	f	Cryoturbated	C
Fluvial	F	Bog	B	Hummocky	h	Deflated	D
Ice	I	Fen	F	Level	l	Channelled	E
Lacustrine	L	Swamp	S	Subdued	m	Failing	F
Morainal	M	Process:		Ridged	r	Kettled	H
Organic	O	Active	A	Steep	s	Karst modified	K
Bedrock	R	Inactive	I	Terraced	t	Nivated	N
Saprolite	S			Veneer	v	Piping	P
Volcanic	V					Soliflucted	S
Marine	W					Gullied	V
Undifferentiated	U					Washed	W

### Item 13: Physiographic Subdivision

W E S T E R N  S Y S T E M	1. OUTER MOUNTAIN AREA	1. ST. ELIAS MOUNTAINS	0.	1. FAIRWEATHER RANGES 2. ICEFIELD RANGES 3. ALSEK RANGES 4. DUKE DEPRESSION	
		2. INSULAR MOUNTAINS	1. QUEEN CHARLOTTE MOUNTAINS	1.. SKIDEGATE PLATEAU 2. QUEEN CHARLOTTE RANGES	
			2. VANCOUVER ISLAND MOUNTAINS	1. VANCOUVER ISLAND RANGES 2. ALBERNI BASIN 3. ESTEVAN COASTAL PLAIN	
	2. COASTAL TROUGH	1. HECTATE DEPRESSION	1. QUEEN CHARLOTTE LOWLAND	0. 1. ARGONAUT PLAIN	
			2. NAHWITTI LOWLAND	0. 1. SUQUASH BASIN	
			3. HECTATE LOWLAND	0. 1. MILBANKE STRANDFLAT	
		2. GEORGIA DEPRESSION	1. GEORGIA LOWLAND	0. 1. FRASER LOWLAND	
			2. NANAIMO LOWLAND	0.	
	I N T E R I O R  S Y S T E M	3. COAST MOUNTAIN AREA	1. COAST MOUNTAINS	1. BOUNDARY RANGES 2. KITIMAT RANGES	0.
				3. PACIFIC RANGES	0. 1. CHILCOTIN RANGES
2. CASCADE MOUNTAINS			0. 1. SKAGIT RANGE 2. HOZAMEEN RANGE 3. OKANAGAN RANGE	0.	
4. NORTHERN PLATEAU AND MOUNTAIN AREA		1. YUKON PLATEAU	1. TAGISH HIGHLAND 2. TESLIN PLATEAU 3. NISUTLIN PLATEAU	0.	
		2. LIARD PLAIN	0.	0.	
5. CENTRAL PLATEAU AND MOUNTAIN AREA		1. STIKINE PLATEAU	1. TAHLTAN HIGHLAND 2. TAKU PLATEAU	0.	
			3. KAWDY PLATEAU	0. 1. ATSUTLA RANGE	
			4. NAHLIN PLATEAU 5. TANZILLA PLATEAU 6. KLASTLINE PLATEAU 7. SPATSIZI PLATEAU		
			0. 1. KLAPPAN RANGE 2. TATLATUI RANGE 3. EAGLENEST RANGE 4. SICINTINE RANGE 5. SLAMGEESH RANGE	0.	
		3. NASS BASIN	0.	0.	
		4. HAZELTON MOUNTAINS	1. NASS RANGES 2. KISPIOX RANGE 3. BULKLEY RANGES 4. TAHTSA RANGES	0.	
		5. CASSIAR MOUNTAINS	1. DEASE PLATEAU 2. STIKINE RANGES 3. KECHIKA RANGES 4. SIFTON RANGES	0.	
		6. OMINECA MOUNTAINS	1. SWANNELL RANGES 2. FINLAY RANGES 3. HOGEM RANGES	0.	

I N T E R I O R  S T E P M	6. ROCKY MOUNT. TRENCH	0.	0.	0.
	7. SOUTHERN PLATEAU AND MOUNTAIN AREA	1. INTERIOR PLATEAU	1. FRASER BASIN	0. 1. NECHAKO PLAIN
			2. NECHAKO PLATEAU	0. 1. MCGREGOR PLATEAU
			3. FRASER PLATEAU 4. THOMPSON PLATEAU 5. QUESNEL HIGHLAND 6. SHUSWAP HIGHLAND 7. OKANAGAN HIGHLAND	0.
		2. COLUMBIA MOUNTAINS	1. SELKIRK MOUNTAINS 2. CARIBOO MOUNTAINS 3. PURCELL MOUNTAINS 4. MONASHEE MOUNTAINS	0.
E A S T  E R N  S Y S.	8. MCKENZIE MOUNTAIN AREA	1. LIARD PLATEAU	0.	0.
	9. ROCKY MOUNTAIN AREA	1. ROCKY MOUNTAINS	1. BORDER RANGES	1. GALTON RANGE 2. MACDONALD RANGE 3. CLARK RANGE 4. FLATHEAD BASIN
			2. CONTINENTAL RANGES	1. FRONT RANGES 2. KOOTNAY RANGES 3. PARK RANGES
			3. HART RANGES	1. MISINCHINKA RANGES
			4. MUSKWA RANGES	1. RABBIT PLATEAU
	0. INTERIOR PLAINS	1. ALBERTA PLATEAU	0. 1. FORT NELSON LOWLAND	0.

Numeric code to be given on data form (e.g. 1223 for Estevan Coastal Plain; or 3120 for Kitimat Ranges).

### Item 17: Soil Classification

Order	Great Group	Subgroup
Brunisolic	Melanic Brunisol	Orthic Melanic Brunisol O.MB Eluviated Melanic Brunisol E.MB Gleyed Melanic Brunisol GL.MB Gleyed Eluviated Melanic Brunisol GLE.MB
	Eutric Brunisol	Orthic Eutric Brunisol O.EB Eluviated Eutric Brunisol E.EB Gleyed Eutric Brunisol GL.EB Gleyed Eluviated Eutric Brunisol GLE.EB
	Sombric Brunisol	Orthic Sombric Brunisol O.SB Eluviated Sombric Brunisol E.SB Duric Sombric Brunisol DU.SB Gleyed Sombric Brunisol GL.SB Gleyed Eluviated Sombric Brunisol GLE.SB
	Dystric Brunisol	Orthic Dystric Brunisol O.DYB Eluviated Dystric Brunisol E.DYB Duric Dystric Brunisol DU.DYB Gleyed Dystric Brunisol GL.DYB Gleyed Eluviated Dystric Brunisol GLE.DYB

Chernozemic	Brown	Orthic Brown O.B Rego Brown R.B Calcareous Brown CA.B Eluviated Brown E.B Solonetzic Brown SZ.B Gleyed Brown GL.B Gleyed Rego Brown GLR.B Gleyed Calcareous Brown GLCA.B Gleyed Eluviated Brown GLE.B Gleyed Solonetzic Brown GLSZ.B
	Dark Brown	Orthic Dark Brown O.DB Rego Dark Brown R.DB Calcareous Dark Brown CA.DB Eluviated Dark Brown E.DB Solonetzic Dark Brown SZ.DB Gleyed Dark Brown GL.DB Gleyed Rego Dark Brown GLR.DB Gleyed Calcareous Dark Brown GLCA.DB Gleyed Eluviated Dark Brown GLE.DB Gleyed Solonetzic Dark Brown GLSZ.DB
	Black	Orthic Black O.BL Rego Black R.BL Calcareous Black CA.BL Eluviated Black E.BL Solonetzic Black SZ.BL Gleyed Black GL.BL Gleyed Rego Black GLR.BL Gleyed Calcareous Black GLCA.BL Gleyed Eluviated Black GLE.BL Gleyed Solonetzic Black GLSZ.BL
	Dark Grey	Orthic Dark Grey O.DG Rego Dark Grey R.DG Calcareous Dark Grey CA.DG Solonetzic Dark Grey SZ.DG Gleyed Dark Grey GL.DG Gleyed Rego Dark Grey GLR.DG Gleyed Calcareous Dark Grey GLCA.DG Gleyed Solonetzic Dark Grey GLSZ.DG
Cryosolic	Turbic Cryosol	Orthic Turbic Cryosol O.TC Brunisolic Turbic Cryosol BR.TC Regosolic Turbic Cryosol R.TC Gleysolic Turbic Cryosol GL.TC
	Static Cryosol	Orthic Static Cryosol O.SC Brunisolic Static Cryosol BR.SC Regosolic Static Cryosol R.SC Gleysolic Static Cryosol GL.SC
	Organic Cryosol	Fibric Organic Cryosol FI.OC Mesic Organic Cryosol ME.OC Humic Organic Cryosol HU.OC Terric Fibric Organic Cryosol TFI.OC Terric Mesic Organic Cryosol TME.OC Terric Humic Organic Cryosol THU.OC Glacic Organic Cryosol GC.OC

<b>Order</b>	<b>Great Group</b>	<b>Subgroup</b>
Gleysolic	Humic Gleysol	Orthic Humic Gleysol O.HG Rego Humic Gleysol R.HG Fera Humic Gleysol FE.HG
	Gleysol	Orthic Gleysol O.G Rego Gleysol R.G Fera Gleysol FE.G
	Luvic Gleysol	Orthic Luvic Gleysol O.LG Humic Luvic Gleysol HU.LG Fera Luvic Gleysol FE.LG Fragic Luvic Gleysol FR.LG
Luvisolic	Grey Brown Luvisol	Orthic Grey Brown Luvisol O.GBL Brunisolic Grey Brown Luvisol BR.GBL Podzolic Grey Brown Luvisol PZ.GBL Gleyed Grey Brown Luvisol GL.GBL Gleyed Brunisolic Grey Brown Luvisol GLBR.GBL Gleyed Podzolic Grey Brown Luvisol BLPZ.GBL
	Grey Luvisol	Orthic Grey Luvisol O.GL Dark Grey Luvisol D.GL Brunisolic Grey Luvisol BR.GL Podzolic Grey Luvisol PZ.GL Solonetzic Grey Luvisol SZ.GL Fragic Grey Luvisol FR.GL Gleyed Grey Luvisol GL.GL Gleyed Dark Grey Luvisol GLD.GL Gleyed Brunisolic Grey Luvisol GLBR.GL Gleyed Podzolic Grey Luvisol GLPZ.GL Gleyed Solonetzic Grey Luvisol GLSZ.GL Gleyed Fragic Grey Luvisol GLFR.GL
Organic	Fibrisol	Typic Fibrisol TY.F Mesic Fibrisol ME.F Humic Fibrisol HU.F Limno Fibrisol LM.F Cumulo Fibrisol CU.F Terric Fibrisol T.F Terric Mesic Fibri TME.Fsol Terric Humic Fibrisol THU.F Hydric Fibrisol HY.F
	Mesisol	Typic Mesisol TY.M Fibric Mesisol FI.M Humic Mesisol HU.M Limno Mesisol LM.M Cumulo Mesisol CU.M Terric Mesisol T.M Terric Fibric Mesisol TFI.M Terric Humic Mesisol THU.M Hydric Mesisol HY.M



<b>Order</b>	<b>Great Group</b>	<b>Subgroup</b>
	Humisol	Typic Humisol TY.H Fibric Humisol FI.H Mesic Humisol ME.H Limno Humisol LM.H Cumulo Humisol CU.H Terric Humisol T.H Terric Fibric Humisol TFI.H Terric Mesic Humisol TME.H Hydric Humisol HY.H
	Folisol	Typic Folisol TY.FO
	Podzolic	Humic Podzol Orthic Humic Podzol O.HP Ortstein Humic Podzol OT.HP Placic Humic Podzol P.HP Duric Humic Podzol DU.HP Fragic Humic Podzol FR.HP
	Ferro-Humic Podzol	Orthic Ferro-Humic Podzol O.FHP Ortstein Ferro-Humic Podzol OT.FHP Placic Ferro-Humic Podzol P.FHP Duric Ferro-Humic Podzol DU.FHP Fragic Ferro-Humic Podzol FR.FHP Luvisolic Ferro-Humic Podzol LU.FHP Sombric Ferro-Humic Podzol SM.FHP Gleyed Ferro-Humic Podzol GL.FHP Gleyed Ortstein Ferro-Humic Podzol GLOT.FHP Gleyed Sombric Ferro-Humic Podzol GLSM.FHP
	Humo-Ferric Podzol	Orthic Humo-Ferric Podzol O.HFP Ortstein Humo-Ferric Podzol OT.HFP Placic Humo-Ferric Podzol P.HFP Duric Humo-Ferric Podzol DU.HFP Fragic Humo-Ferric Podzol FR.HFP Luvisolic Humo-Ferric Podzol LU.HFP Sombric Humo-Ferric Podzol SM.HFP Gleyed Humo-Ferric Podzol GL.HFP Gleyed Ortstein Humo-Ferric Podzol GLOT.HFP Gleyed Sombric Humo-Ferric Podzol GLSM.HFP
Regosolic	Regosol	Orthic Regosol O.R Cumulic Regosol CU.R Gleyed Regosol GL.R Gleyed Cumulic Regosol GLCU.R
	Humic Regosol	Orthic Humic Regosol O.HR Cumulic Humic Regosol CU.HR Gleyed Humic Regosol GL.HR Gleyed Cumulic Humic Regosol GLCU.HR
Solonetzic	Solonetz	Brown Solonetz B.SZ Dark Brown Solonetz DBSZ Black Solonetz BL.SZ Alkaline Solonetz A.SZ Gleyed Brown Solonetz GLB.SZ Gleyed Dark Brown Solonetz GLDB.SZ Gleyed Black Solonetz GLBL.SZ

Order	Great Group	Subgroup
	Solodized Solonetz	Brown Solodized Solonetz B.SS Dark Brown Solodized Solonetz DB.SS Black Solodized Solonetz BL.SS Dark Grey Solodized Solonetz DG.SS Grey Solodized Solonetz G.SS Gleyed Brown Solodized Solonetz GLB.SS Gleyed Dark Brown Solodized Solonetz GLDB.SS Gleyed Black Solodized Solonetz GLBL.SS Gleyed Dark Grey Solodized Solonetz GLDG.SS Gleyed Grey Solodized Solonetz GLG.SS
	Solod	Brown Solod B.SO Dark Brown Solod DB.SO Black Solod BL.SO Dark Grey Solod DG.SO Grey Solod G.SO Gleyed Brown Solod GLB.SO Gleyed Dark Brown Solod GLDB.SO Gleyed Black Solod GLBL.SO Gleyed Dark Grey Solod GLDG.SO Gleyed Grey Solod GLG.SO

## EXPLANATION OF CODES USED FOR RECOGNIZED SOIL PHASES

Code	Phase	Brief Definition
	<b>SLOPE:</b>	
1	level	0 - 0.5%
2	nearly level	0.5 - 2%
3	very gentle slopes	2 - 5%
4	gentle slopes	6 - 9%
5	moderate slopes	10 - 15%
6	strong slopes	16 - 30%
7	very strong slopes	31 - 45%
8	extreme slopes	46 - 70%
9	steep slopes	70 - 100%
10	very steep slopes	>100%
	<b>WATER EROSION:</b>	
W1	slightly water-eroded	Up to 25% original A horizon eroded.
W2	moderately water-eroded	Approximately 25-75% original A horizon eroded.
W3	severely water-eroded	More than 75% original A horizon eroded.
W4	gullied land	Land dissected by deep gullies.
	<b>WIND EROSION:</b>	
D1	wind-eroded	Approximately 25-75% original Z horizon eroded.
D2	severely wind-eroded	More than 75% original A horizon eroded.
D3	blown-out land	Most of original solum eroded.
	<b>SOIL DEPOSITION:</b>	
OB	overblown deposition	Significant deposit of wind-blown material.
OW	overwash deposition	Significant deposit of water-eroded material.
	<b>STONINESS:</b>	
S1	nonstony	Fragments >15 cm diameter. <0.01% of surface, stones >30 m apart.
S2	slightly stony	0.01-0.1% of surface, stones 10-30 m apart.
S3	moderately stony	0.1-3% of surface, stones 2-10 m apart.
S4	very stony	3-15% of surface, stones 1-2 m apart
S5	exceedingly stony	15-50% of surface, stones 0.1-1 m apart.
S6	excessively stony	>50% of surface, stones <0.1 m apart.
	<b>ROCK OUTCROP:</b>	
R1	nonrocky	<2% of surface, >75 m apart.
R2	slightly rocky	2-10% of surface, 25-75 m apart.
R3	moderately rocky	10-25% of surface, 10-25 m apart.
R4	very rocky	25-50% of surface, 2-10 m apart.
R5	exceedingly rocky	50-90% of surface, <2 m apart.
R6	excessively rocky	>90% of surface is bedrock.
PT	PEATY	Mineral soil with >15 cm organic matter.

\*More complete definitions are provided in the Canadian System of Soil Classification (CSSC, 1978, pp.127-129).

## ADDITIONAL CODED SOIL PHASES (AND VARIANTS)

### Soil Phase and Variant Symbols

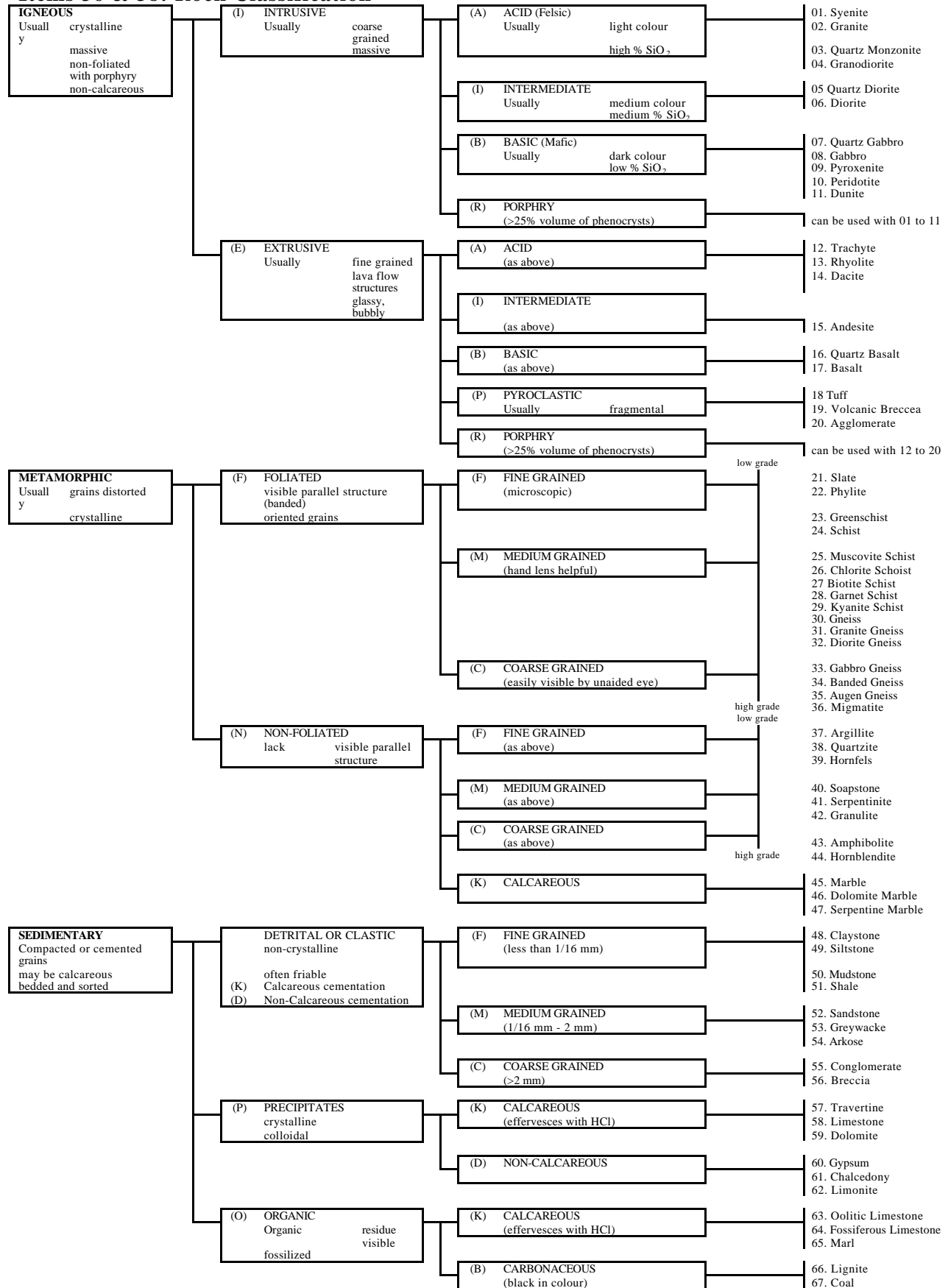
Symbol	Description
--------	-------------

A_	Sombric variant.
C0	Cobble (>20% cobbles or stones).
DC	Moderately to strongly cemented pan occurring between 100 and 200 cm depths.
G_	Gravelly (20-50% coarse fragments by volume).
ID	Imperfectly drained (wetter). Gleyed subgroups.
L_	Shallow lithic (50-100 cm to bedrock). Fine to medium textures only.
L0	Loamy texture (10-50 cm of finer textured capping).
MC	Moderately to strongly cemented sol horizons (Duric horizon).
MD	Moderately well to well drained (drier) (ie. O.DYB in a GL.DYB soil map unit).
PD	Poorly drained (Gleysolic).
R_	Rubbly/blocky (>50% rubbly or blocky materials by volume).
S_	Shallow (50-100 cm) capping over another parent material or strongly contrasting texture (ie. >50 cm of $\frac{sW_v}{M}$ ; $\frac{sW_v}{gsW}$ ).
SA	Saline.
S0	Shallow organic soils (40-160 cm to bedrock).
SP	Sedimentary peats.
T_	Taxajunct - taxonomy change. Specific classification given in soil description.
VG	Very gravelly (>50% coarse fragments by volume).
VS	Very shallow (10-50 cm) capping over another parent material or strongly contrasting texture (ie. 10-50 cm of $\frac{sW_v}{M}$ or $\frac{sW_v}{gsW}$ ).
W_	Strongly mottled phase. Wetter moisture regime in profile as evidenced by prominent mottling with 50 cm of the surface. Seasonal perched water tables present. Not a Gleysolic type landscape.
WC	Weakly cemented soil horizons.

## Family Particle Size

<b>Code</b>	<b>Particle Size Class</b>
F	Fragmental
SS	Sandy-Skeletal
LS	Loamy-Skeletal
CS	Clayey-Skeletal
S	Sandy
L	Loamy
CL	Coarse-Loamy
FL	Fine-Loamy
CSI	Coarse-Silty
FSI	Fine-Silty
C	Clayey
FC	Fine-Clayey
VFX	Very Fine-Clayey
CI	Cindery
A	Ashy
T	Thixotropic
AS	Ashy-Skeletal
TS	Thixotropic-Skeletal
G	Grumic

## Items 36 & 38: Rock Classification



### Item 39: Successional Status - Present Stage

PS	pioneer seral	MC	maturing climax
YS	young seral	MCC	maturing climatic climax
MS	maturing seral	MEC	maturing edaphic climax
OS	overmature seral	DC	disclimax
YEC	young edaphic climax	NV	non-vegetated
YCC	young climatic climax		

### Item 40: Factors Influencing Strand Establishment

- A. Atmosphere related effects:
  - 1. Atmospheric pollution (specify type)
  - 2. Climatic extremes (specify type)
  - 3. Windthrow
- B. Cutting and soil disturbances:
  - 1. Abandoned construction sites (road bed, railway, etc.)
  - 2. Clearcut logging (no slash burn unless indicated)
  - 3. Clutivation (continued disturbance of the vegetation and/or soil, excluding harvesting of native crop.
  - 4. Excavation
  - 5. Harvesting of native crop (haymaking, salal picking, etc.)
  - 6. Land clearing (includes grubbing and/or other forms of disturbance of the natural soil as for pipeline construction, etc.)
  - 7. Scarification
  - 8. Selective logging (including shelter cut)
  - 9. Soil compaction (including effects for foot traffic, machinery traffic and animal traffic)
- C. Dumping, disposal and spills:
  - 1. Chemical spill or disposal (specify type)
  - 2. Effluent disposal
  - 3. Mine spoils
  - 4. Oil spill or disposal
  - 5. Radioactive waste disposal or exposure
- D. Fires:
  - 1. Intensive fire (consuming trees and larger shrubs)
  - 2. Light fire (primarily ground fire)
  - 3. Repeated intensive fire
  - 4. Repeated light fire
  - 5. Slash burn (following logging)
- E. Plant and animal related effects:
  - 1. Beaver tree cutting
  - 2. Disease (excluding insect; specify type)
  - 3. Domestic grazing/browsing (specify animal)
  - 4. Excrement accumulation (other than that normally associated with grazing or browsing)
  - 5. Insect kill (specify type)
  - 6. Succession (generating of vegetation including climax stands)
  - 7. Wildlife grazing/browsing (specify animals)

- F. Terrain related effects:
1. Avalanching
  2. Eolian (active deflation or deposition)
  3. Recent deglaciation
  4. Rock quarrying (including open mine pits)
  5. Terrain failures (active or recent slumps, slides, solifluction, etc.)
  6. Volcanic activity
- G. Vegetation and site improvement related effects:
1. Fertilization (specify fertilizer)
  2. Irrigation
  3. Planted to trees or shrubs
  4. Seeded or planted to grass or herbs
  5. Seeded to trees or shrubs
- H. Water related effects:
1. Inundation (including temporary inundation resulting from beaver activity)
  2. Temporary seepage (usually man induced seepage; this excludes intermittent seepages resulting from climate patterns)
  3. Watertable control (diking, damming)
  4. Watertable depression (associated with extensive water extraction from wells)
- Z. Miscellaneous:
1. Other (specify and describe)



## Item 42: Humus Form Classification

Must be coded. Descriptors in first two spaces, great group in third and fourth spaces, order in the fifth and sixth space. Codes are as follows:

### Mor Descriptors

H	hypno	G	granular
S	sphagno	A	amorpho
L	licheno	M	mycelio
E	ericaceo	R	mycelio
C	conifero		rhizo
D	deciduo		

**only one of these may be used;      only one of these may be used**

### Classification - Subgroup - Great Group

mull	mor
rhizomull	fibrimor
zoomull	humifibrimor
moder	fibrihumimor
mull-like moder	humimor
typical moder	peatymor
raw moder	humic peatymor
	mesic peatymor
	fibric peatymor
	anmoor

### Variants

CL	clayey	HY	hydric	AC	acid	TK	thick
LO	loamy	ME	mesic	SL	slightly acid	TN	thin
SA	sandy	XE	xeric	NE	neutral		
				CA	calcareous		

**only one from each column may be entered**

## Item 51: Agency

### Provincial Agencies:

Ministry of Environment (ME)  
Terrestrial Studies Branch - METS  
Fish and Wildlife Branch - MEFW  
Ministry of Forests (MF)  
Research Branch - MRFS  
Range Branch - MFRG  
Inventory Branch - MFI

Ministry of Agriculture and Food (MA)  
Soils Branch - MAS  
Land Commision - MALC

### Industry:

eg MacMillan Bloedel – IMB  
Pacific Logging - IPL  
BC Forest Products - IFP

### Federal Agencies:

Agriculture Canada (CA)  
Vancouver - CAVA  
Agassiz - CAAG  
Kamloops - CAKA  
Environment Canada (CE)  
Lands Directorate - CELD  
Canadian Forestry Service -  
CEFS

### Consultants:

denote with “X” then initial of  
company  
e.g. “Arctic Soils LTD.” would be  
“XAS”

## APPENDIX B: SOIL CODES

### Item 4: Horizon Boundary

#### Distinctness Codes

N	none	C	clear
D	diffuse	A	abrupt
G	gradual		

#### Form Codes

S	smooth	I	irregular
W	wavy	B	broken

### Item 5: Coarse Fragment Description

#### Type

R	rounded	A	angular
S	subrounded or subangular	T	thin, flat

### Item 6: Soil Texture

#### Code

S	sand	SI	silt
LS	loamy sand	SICL	silty clay loam
SL	sandy loam	CL	clay loam
L	loam	SIC	silty clay
SCL	sandy clay loam	C	clay
SC	sandy clay	HC	heavy clay
SIL	silty loam		
CS	coarse sand	LCS	loamy coarse sand
MS	medium sand	LMS	loamy medium sand
FS	fine sand	LFS	loamy fine sand
VFS	very fine sand	LVFS	loamy very fine sand
CSL	coarse sandy loam	FSL	fine sandy loam
MSL	medium sandy loam	VFSL	very fine sandy loam

### Item 7: Structure

#### Grade Codes

W	weak	MS	moderate to strong
WM	weak to moderate	S	strong
M	moderate		

#### Class Codes

VF	very fine	M	medium
VFF	very fine to fine	MC	medium to coarse
F	fine	C	coarse
FM	fine to medium	VC	very coarse

**Kind Codes**

ABK	angular blocky	PR	prismatic
SBK	subangular blocky	COL	columnar
GR	granular	SGR	single grained
PL	platy	MA	massive
		CDY	cloddy

**Kind Modifier Code**

PS	pseudo
----	--------

**Item 8: Moisture****Code**

D	dry state
M	moist state
W	wet state

**Item 9: Consistence****Dry Consistence Codes**

1	loose	5	very hard
2	soft	6	extremely hard
3	slightly hard	7	rigid
4	hard		

**Moist Consistence Codes**

1	loose	4	firm
2	very friable	5	very firm
3	friable	6	extremely firm

**Wet Consistence Codes**

1	nonsticky	3	sticky
2	slightly sticky	4	very sticky

**Plasticity Codes**

1	nonplastic	3	plastic
2	slightly plastic	4	very plastic

**Item 11: Colour****Aspect Codes**

<b>mineral horizons</b>		<b>organic horizons</b>	
1	matrix moist	8	crushed dry
2	matrix dry	9	natural wet/reduced
3	exped moist	10	natural wet/oxidized
4	exped dry	11	pressed wet/ reduced
5	imped moist	12	pressed wet/oxidized
6	imped dry	13	rubbed wet/oxidized
7	crushed moist	14	rubbed dry

## Item 12: Mottles

### Abundance Codes

X	none
F	few
C	common
M	many

### Contrast Codes

F	faint
D	district
P	prominent

### Size Codes

F	fine
M	medium
C	coarse

### Boundary Distinctness

S	sharp
C	clear
D	diffuse

## Items 13 & 16: Roots and Pores

### Size Codes

V	very fine
F	fine
M	medium
C	coarse

### Abundance Codes

X	none (not applicable to Item 16)
V	very few
F	few
P	plentiful
A	abundant

### Orientation Classes

V	vertical
H	horizontal
O	oblique
R	random

### Distribution

IN	inped
EX	exped
MX	matrix

### Continuity (of Pores)

CO	continuous
DC	discontinuous

### Morphology (of Pores)

S	simple
D	dendritic
C	closed

### Types of Pores

V	vesicular
I	interstitial
T	tubular

## Item 15: pH

### Method Code

1	bromothymol blue	6	pH meter (0.1M CaCl <sub>2</sub> )
2	cresol red	7	phenol red
3	hellige - truog	8	soiltex
4	lamotte - morgan	9	thymol blue
5	pH meter (1:1 H <sub>2</sub> O)	10	phydrion

## Item 17: Horizon Porosity

S	slightly porous
M	moderately porous
H	highly porous

## Item 18: Clay Films

### Frequency Codes

X	none
F	few
C	common
M	many
CS	continuous

### Location Codes

1	in pores and/or channels only
2	on ped faces
3	in many pores/channels and on some ped faces
4	in all pores/channels and on all ped faces
5	visible bridges between sand grains
6	coatings on sand grains
7	on lower surfaces of coarse fragments
8	on upper surfaces of coarse fragments

### Thickness Codes

TH	thin
MTK	moderately thick
TK	thick
VTK	very thick

## Item 19: Effervescence

X	absent	M	moderate
VW	very weak	S	strong
W	weak		

## Item 20: Secondary Carbonate Description

### Continuity Codes

	<b>Continuous</b>
1	homogeneous, not banded
2	nonhomogeneous, not banded
3	homogeneous, banded
4	streaked banded
	<b>Discontinuous</b>
5	streaked
6	spotted
7	streaked and spotted
8	nodular
9	banded

### Abundance Codes

X	absent
F	few
C	common
M	many

### Size Codes

F	fine
M	medium
C	coarse

### Shape Codes

	<b>Streaks</b>
V	vertical
H	horizontal
R	random

### Spots

C	rounded
O	oblong
I	irregular

### Consistence

	<b>Moist</b>
1	loose
2	very friable
3	friable
4	firm
5	very firm
6	extremely firm

	<b>Dry</b>
1	loose
2	soft
3	slightly hard
4	hard
5	very hard
6	extremely hard
7	rigid

**Item 21: Salinity**

X	absent
W	weakly saline
M	moderately saline
S	strongly saline

**Item 22:****Kind Code**

1	durinodes	7	pedotubules
2	gypsum	8	worm casts
3	salts	9	insect casts
4	lime	10	others
5	lime silica	11	unspecified
6	oxides		

**Abundance Codes**

X	absent
F	few
C	common
M	many

**Size Codes**

F	fine
M	medium
C	coarse

**Shape**

S	spherical
O	oblong
I	irregular
P	plate - like

**Location**

1	around root channels
2	local concentrations
3	throughout matrix

**Item 23: Cementation****Degree Code**

W	weakly cemented
M	moderately cemented
S	strongly cemented
I	indurated

**Agent Code**

1	humus - aluminum
2	iron
3	lime
4	silica
5	lime and silica
6	other
7	unspecified

**Extent Code**

X	no cementation
D	discontinuous
C	continuous

## Item 24: Organic Material Description

### Kind Code

1	angiosperm leaves
2	doniferous needles
3	sphagnum moss
4	other mosses
5	sedges, reeds
6	herbaceous fragments
7	coprogenous earth
8	other

### Decomposition Code

N	none
S	slight
M	moderate
H	high

### Woody Material Hardness Code

S	soft
SH	slightly hard
H	hard
VH	very hard

### Woody Material Volume Code

0	none
1	< 10% volume
2	10 - 20% volume
3	20 - 50% volume
4	> 50% volume

### von Post Scale Codes

1	undecomposed	6	moderately strongly decomposed
2	almost undecompsed	7	strongly decomposed
3	very weakly deomposed	8	very strongly decomposed
4	weakly decomposed	9	almost completely decomposed
5	moderately decomposed	10	completely decomposed

## APPENDIX C: VEGETATION CODES

### Distribution Codes

- 1 rare individual, a singly occurrence
- 2 a few sporadically occurring individuals
- 3 a single patch or clump of a species
- 4 several sporadically occurring individuals
- 5 a few patches or clumps of a species
- 6 several well spaced patches or clumps
- 7 continuous uniform occurrence of well spaced individuals
- 8 continuous occurrence of a species with a few gaps in the distribution
- 9 continuous dense occurrence of a species

### Vigor Codes

- 0 Species Dead
- 1 Vigor Poor
- 2 Vigor Fair
- 3 Vigor Good
- 4 Vigor Excellent

### Phenology Codes

VEGETATIVE		GENERATIVE	
Deciduous Tree or Shrub	Conifer		
0 Closed bud	0 Closed bud	0	Without blossom buds
1 Buds with green tips	1 Swollen bud	1	Blossom buds recongnizable
2 Green leaf out but folded	2 Split bud	2	Blossom buds strongly swollen
3 Leaf unfolding up to 25%	3 Shoot capped	3	Shortly before flowering
4 Leaf unfolding up to 50%	4 Shoot elongate	4	Beginning flowering
5 Leaf unfolding up to 75%	5 Shoot full length, lighter green	5	In bloom up to 25%
6 Full leaf unfolding	6 Shoot mature, equally green	6	In bloom up to 50%
7 First leaves turned yellow		7	Full bloom
8 Leaf yellowing up to 50%		8	Fading
9 Leaf yellowing over 50%		9	Completely faded
10 Bare		10	Bearing fruit
		11	Dispersal of seed
Herbs			
0 Without shoots above ground		0	Without blossom buds
1 Shoots without unfolded leaves		1	Blossom buds recongnizable
2 First leaf unfolded		2	Blossom buds strongly swollen
3 2 to 3 leaves unfolded		3	Shortly before flowering



## Phenology Codes

VEGETATIVE		GENERATIVE	
	Deciduous Tree or Shrub	Conifer	
4	Several leaves unfolded		4 Beginning bloom
5	Almost all leaves unfolded		5 Up to 25% in blossom
6	Plant fully developed		6 Up to 50% in blossom
7	Stem and/or first leaves fading		7 Full bloom
8	Yellowing up to 50%		8 Fading
9	Yellowing over 50%		9 Completely faded
10	Dead		10 Yielding fruit
			11 Dispersal of seed
<hr/>			
	<b>Grasses</b>		
0	Without shoots above ground	0	Without recognizable inflorescence
1	Shoots without unfolded leaves	1	Inflorescence recognizable, closed
2	First leaf unfolded	2	Inflorescence partly visible
3	2 to 3 leaves unfolded	3	Inflorescence full visible, not unfolded
4	Beginning development of blades of grass	4	Inflorescence unfolded
5	Blades partly formed	5	First blooms pollenizing
6	Plants fully developed	6	Up to 50% pollenized
7	Blades and/or first leaves turning yellow	7	Full bloom
8	Yellowing up to 50%	8	Fading
9	Yellowing over 50%	9	Fully faded
10	Dead	10	Dearing fruit
		11	Dispersal of seed
<hr/>			
	<b>Ferns</b>		
0	Without shoot above ground	0	Sori absent
1	Rolled fronds above ground	1	Sori green, forming
2	First frond unfolded	2	Sori mature, darker, drier
3	2 to 3 fronds unfolded	3	Sori depressing, strobili forming in lycopodium
4	Several fronds unfolded		
5	Almost all fronds unfolded		
6	Plant fully developed		
7	First fronds fading		
8	Yellowing up to 50%		
9	Yellowing over 50%		

**Form Utilization Class**

- 1 All available, little or no hedging
- 2 All available, moderately hedged
- 3 All available, severely hedged
- 4 Partly available, little or no hedging
- 5 Partly available, moderately hedged
- 6 Partly available, severely hedged
- 7 Unavailable
- 8 Dead

**Utilization Rating**

- 0 No utilization (0%)
- 1 Trace (1-5%)
- 2 Light (6-25%)
- 3 Moderate (26-50%)
- 4 Heavy (>50%)

**Percent Utilization**

- 0 0%
- 1 1-15%
- 2 16-25%
- 3 26-35%
- 4 36-45%
- 5 46-55%
- 6 56-65%
- 7 66-75%
- 8 76-85%
- 9 86-100%