APPENDIX II

TECHNICAL DATA FOR BLACKBIRD AREA SAMPLING DESIGN

A stratified random sampling program was developed for the sub-surface testing program in the Blackbird study area due to its large size and the large extent of wooded areas within it. A 5% sampling fraction was chosen due to time and money restrictions.

The first step in the development of the sampling design was to determine the variables to use for stratification of the study area. The two main variables usually utilized are surface water setting and soil types. In previous studies these variables were seen to account for much of the variability in site locations (Custer and Galasso 1983; Wells 1981). It was not possible to use soil data for the Blackbird area because the dense tree cover and the large extent of poorly drained soils caused much of the area to be mapped as a limited range of soil series in the USDA soil survey. Consequently, surface water settings were used as the only variable for stratification of the study area.

Table 79 shows the ten varied surface water settings recognized in the study area. The entire wooded portion of the study area was divided into sample units of variable size and each sample unit was categorized into one of the ten surface water types. Table 80 provides a summary of the area included within each surface water type. A 5% sample was then drawn from each of surface water types I - IX. Table 81 shows the final areas chosen for study and the actual percentage sampled within each strata for the total study area and for the sample. Because the size of the initial sample units was not equal, the size of the actual sampling fraction varies for each stratum. However, in all but two cases, the fraction is at least 5%, and it is larger than 4% in all cases. The mean sampling fraction is 12% with a standard deviation of 2.53%. The last column of Table C shows the percentage representation of each stratum within the sample. Comparison of these values with the values of the final column of Table B using the chi-square test shows no significant difference (chi-square=2.27, degrees-of-freedom=8, .975<p<.99). Therefore, the sampled area is a proportional representation of the varieties of surface water settings within the total Blackbird study area.

Table 79: Surface Water Types

Type	Description
I	No surface water
II	Simple (single) bay/basin association
III	Complex (multiple) bay/basin association
IV	Major stream (Blackbird)
V	Minor stream
VI	Major/minor confluence
VII	Minor/minor confluence
VIII	Springhead
IX	Bay/basin-stream association
X	Poorly drained and untestable

Table 80: Extent of Surface Water Types

Surface Water Type	Total Area (ha)	Percent of Total Area
I	207.95	13
II	33.79	2
III	494.12	31
IV	7.91	1
V	269.07	17
VI	66.54	4
VII	144.87	9
VIII	64.35	4
IX	101.00	6
X	192.42	13
TOTAL	1582.02	100

Table 81: Sampled Areas - Blackbird Area

Surface Water Type	Sampled Area	% w/in Stratum	% w/in Sample
I	15.73	8	15
II	4.68	14	4
III	21.30	4	20
IV	.98	12	1
V	12.05	4	11
VI	11.83	18	11
VII	7.55	5	7
VIII	20.66	32	19
IX	13.11	13	12
TOTAL	107.89	7	100