APPENDIX D

PHYSIOGRAPHIC PROVINCES AND SOIL SUBGROUPS
Soil Subgroup, Major Series and Ecological Site

Soil Subgroup Number:

1. Loamy glacial till soils on glaciated plains. Major series: Bearpaw, Dooley, Hillon, Joplin, Kevin, Phillips, Scobey, Sunburst, Telstad, Vida, Williams, Zahl and Zahill. These series are in a Sandy, Silty, Thin Silty, or Thin Clayey Ecological site. Includes small areas of soil subgroups 2, 3, 4, 6, 7, 9 and 11.

2. Clayey soils on glaciated plains and local terraces. Major series: Elloam, Absher and Thoeny. These series are in a Claypan or Dense Clay Ecological site. Includes small areas of soil subgroups 1, 3, 4, 6, 7 and 9.

3. Clayey acid shale soils on dissected uplands. Major series: Dilts, Julin and Teigen. These series are in a Clayey or Coarse Clay Ecological site. Includes small areas of soil subgroups 4, 5, 12 and 15.

4. Calcareous or bentonitic shale soils on uplands and stream breaks. Major series: Abor, Barkof, Bascovy, Darret, Dimyaw, Lisam, Neldore, Norbert, Thebo, Weingart, Winifred and Yawdim. These series are in a Clayey, Shallow Clay, Shallow, or Claypan Ecological site. Includes small areas of soil subgroup 3 and 15 in shale uplands and 6, 10 and 13 near stream channels.

5. Loamy soils on sedimentary uplands. Major series: Cabba, Cabbart, Cambert, Dast, Delpoint, Doney, Ernem, Lonna, Marmarth, Reeder, Rentsac, Riedel and Twilight. These series are in a Sandy, Silty, or Shallow Ecological site. Includes small areas of soil subgroups 2, 4, 6, 8, 9 and 11.

6. Loamy and clayey alluvial soils on floodplains and low terraces. Major series: Bowdoin, Gesa, Glendive, Hanly, Harlem, Havre, Havrelon, Kiwanis, Korent, Lallie, Lardell, Lohler, Nesda, Rivra, Sudworth, Trembles and the Typic Fluvaquents,Typic Ustifluvents, Aquic Ustifluvents, Fluvaquentic Haploborolls, and Ustic Torrifluvents. These soils are dominantly in an Overflow Ecological site. Small areas are in a Saline Lowland, Sandy, Silty,or Clayey Ecological site. Includes small areas of soil subgroups 8, 9 and 10.

7. Somewhat poorly drained to very poorly drained clayey soils in potholes and level basins subject to ponding. Major series: Dimmick, McKenzie and Nishon. These series are in a wetland or overflow ecological site. This soil subgroup is usually included in subgroups l, 2 and 10 due to the small size of each area on the map.

8. Moderately coarse and coarse textured soils on terraces, fans and foot slopes. Major series: Assinniboine, Blanchard, Busby, Chinook, Cozberg, Hawksell, Lihen, Parshall, Tally and Yetull. These series are in a Sands, or Sandy Ecological site. Includes small areas of soil subgroups 5, 6, 9 and 14.

9. Medium textured alluvial soils on terraces, fans and foot slopes. Major series: Attewan, Benz, Bitton, Brockway, Evanston, Farland, Farnuf, Floweree, Judith, Kremlin, Lambeth, Macar, Martinsdale, Redvale, Shawmut, Straw, Turner, Vanstel, Work and Yamac. These series are dominantly in a Silty Ecological site. Benz soils are in Saline Upland. Includes small areas of subgroups 6, 10, 11, 12 and 14.

10. Clayey textured alluvial soils on terraces, fans and foot slopes. Major series: Acel, Cherry, Ethridge, Grail, Kobar, Lawther, Linnet, Lothair, Macar, Marias, Marvan, Pendroy, Richey, Savage and Shaak. These series are dominantly in a Clayey Ecological site. Shaak soils are in Silty. Includes small areas of soil subgroups 6, 9, 11, 12, 13 and 14.

11. Clayey, well drained, salt affected soils on terraces,fans and foot slopes. Major series: Absher and Adger. These series are in a claypan or dense clay ecological site. This soil subgroup is usually included in subgroups 6, 9, 10 and 12 due to small size of areas on soil map.

12. Clayey, moderately well drained, salt affected soils on terraces, fans and foot slopes. Major series: Absher, Adger and Nobe. These series are in a claypan ecological site. Includes small areas of soil subgroups 6, 9, 10, 11 and 13.

13. Clayey, very slowly permeable, salt affected soils on terraces and fans. Major series: Vaeda and Vanda. These series are in a dense clay ecological site. Includes small areas of soil subgroups 6, 11 and 12.

14. Very gravelly, extremely gravelly and cobbley alluvial soils on terraces, fans and foot slopes. Major series: Beaverell, Beaverton, Tinsley, Wabek and Windham. These series are in a shallow to gravel or gravel ecological site. This soil subgroup is included in subgroup 8 or 9 due to the small size of areas on soil map.

15. Loamy and clayey soils on mountains with forest canopy cover. Major series: Arcette, Belain, Cowood, Elve, Gambler, Lolo, Macmeal, Repp, Sicklesteets, Silverchief, Trapper, Warneke, Whitecow and Whitore. These series are mostly Grazable Forest land. Includes small areas of soil subgroup 18 and rock outcrop.

16. Shallow and deep clayey soils on dissected shale upland slopes with forest canopy cover. Major series: Bascovy, Dilts, Julin and Neldore. These series are mostly grazable forest land. This subgroup is sometimes included in subgroup 3 or 4 due to the small size of some areas on the soil map.

17. Loamy and clayey alluvial soils on floodplains and along drainages with forest canopy cover of mostly deciduous trees. Major series: Glendive, Harlem, Havre, Havrelon, Kiwanis, Korchea, Korent, Lohler, Nesda, Rivra and Trembles. These series are mostly grazable forest land. This soil subgroup is included in subgroups l, 6, 9, 10 and 18 due to the small size of areas on the soil map.

18. Loamy and clayey alluvial nonforested soils on fans and foot slopes of mountains and foothills. Major series: Belain, Hedoes and Lolo. These series are in a Silty Ecological site. Included small areas of soil subgroups 15 and 17.

19. Shallow and deep, loamy and loamy-skeletal soils on bedrock ridges and on foot slopes of mountains. Major series Castner, Cheadle, Libeg, Perma and Warneke. These series are in a silty or shallow ecological site. This soil subgroup is included in subgroups 15 and 18 due to the small size of areas on the soil map.

Four Physiographic Provinces

A. Glaciated Plains and Wet Basins (Soil Subgroups 1, 2 and 7)

1. Loamy glacial till soils on upland plains.
2. Dominantly claypan soils on glacial till uplands and local terraces.
7. Potholes and level basins subject to ponding.

B. Sedimentary Uplands (Soil Subgroups 3, 4, 5, and 16)

3. Clayey acid shale uplands.
4. Calcareous or bentonitic shale uplands.
5. Loamy sedimentary uplands.
16. Dissected clay shale upland slopes with forest canopy cover.

C. Alluvium On Flood Plains, Terraces, Fans, & Foot Slopes (Soil Subgroups 6, 8, 9, 10, 11, 12, 13, 14, and 17)

6. Loamy and clayey alluvial soils on floodplains and low terraces.
8. Moderately coarse and coarse textured soils on terraces, fans and foot slopes.
9. Medium textured alluvial soils on terraces, fans and foot slopes.
10. Clayey textured alluvial soils on terraces, fans and foot slopes.
11. Dominantly, well drained, claypan and dense clay soils on terraces, fans and foot slopes.

12. Dominantly, moderately well drained, claypan alluvial soils on terraces and fans and foot slopes.
13. Very slowly permeable clay alluvial soils of terraces and fans.
14. Very gravelly, extremely gravelly and cobbley alluvial soils on terraces, fans and foot slopes.
17. Loamy and clayey alluvial soils on floodplains and along drainages with more than 10% canopy cover of deciduous trees.

D. Mountains and Foothills (Soil Subgroups 15, 18, 19)

15. Loamy and clayey soils in mountainous areas with forest canopy cover.
18. Loamy and clayey alluvial nonforested soils on fans and foot slopes of mountains and foothills.
19. Shallow to deep, loamy and loamy-skeletal soils on bedrock ridges and on foot slopes of mountains.

Sources: Published and unpublished Soil Conservation Service soil survey reports for Fergus, Petroleum, Judith Basin, Chouteau, Valley and Phillips Counties. Prairie Potholes EIS, March 1981.