APPENDIX C

NRC VEGETATION MAPPING REPORT

NRC
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Pat Golden
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RE: Prairie Winds Vegetation Mapping, NRC Project # 009-0044-01, Portions of Jerauld, Aurora, Brule and Tripp Counties, South Dakota

Dear M r. Golden,

Natural Resources Consulting (NRC), Inc. performed vegetation mapping services during April 6 to 10, 2009 for the proposed Prairie Winds SD1 Project, located in portions of Jerauld, Aurora, Brule and Tripp Counties, South Dakota. Two alternative sites, known as the Crow Lake Site and the Winner Site, are being evaluated through the National Environmental Policy Act (NEPA) environmental analysis process. The Crow Lake Site encompasses roughly 26,000 acres and the Winner Site encompasses roughly 83,000 acres. NRC and Heritage Environmental Consultants, LLC performed land cover assessments via windshield surveys to characterize the land cover classes present at each site. Each land cover class was assigned a unique code and labeled as such on an aerial photograph. Brief land cover descriptions, including dominant vegetation and current land use, are provided for each site below.

CROW LAKE SITE

Agricultural Land; Cover Crop (CC), Row Crop (RC)

Agricultural land incorporates all open space areas where agricultural products are currently in production. This category was further divided into specific cover type classifications based on the previous year's crop type (i.e., row crop or cover crop). Row crop was observed in areas where sorghum or corn was planted during the previous growing season; while cover crop was observed in areas where alfalfa, winter wheat or hay was harvested during the previous growing season. Distinctions between agricultural cover types were based solely on the crop stems left over from the 2008 growing season. Many of the agricultural lands appeared to alternate between row and cover crop. In addition, it appeared that some areas defined as agricultural land were also used as rangeland during parts of the year.

Range Land (RL)

Range land was used to define areas of expansive, mostly unimproved land on which native or adapted introduced plant species are managed for livestock grazing. Dominant herbaceous vegetation included smooth brome (*Bromus inermis*) and sweet-clover (*Melilotus spp*), with occasional occurrences of

Carduus spp., *Artemisia* spp., and various members of the Asteraceae family. In addition to herbaceous plant species, range land often contained scattered plains cottonwood (*Populus deltoides*), and various shrub species.

Pasture (PAST)

Pasture was used to define areas where livestock are held in high densities. Herbaceous vegetation is often minimal; but when present, the vegetation is often heavily grazed.

Farmstead (FS)

Farmstead was used to describe developed areas of land with various structures devoted to residential, commercial, or industrial practices. Often times, these areas were located adjacent to pasture or range land and are scattered throughout the site.

Shelterbelt (SB)

Shelterbelts are a plantation of one or more rows of trees or shrubs which serve to provide shelter from wind or protect soil form erosion. Shelterbelts were commonly observed around the edges of fields, pastures and/or farmsteads. The most commonly observed tree species within the shelterbelts was eastern red cedar (*Juniperus virginiana*); however, plains cotton wood (*Populus deltoides*) and wild plum (*Prunus americana*) were also noted.

Stock Pond (SP)

Stock ponds describe areas where ranchers have bermed natural drainage features or seasonal wetlands to create a persistent water supply for livestock. These areas were often heavily grazed and did not contain a perimeter of hydrophytic vegetation, unlike the prairie pothole wetlands where hydrophytic vegetation was present along the perimeter of open water.

Prairie Pothole Wetland (PW)

Prairie pothole wetland describes naturally occurring depressional wetlands where native and non-native wetland vegetation persists. Dominant vegetation includes prairie cord grass (*Spartina pectinata*), reed canary grass (*Phalaris arundinacea*), narrow-leaved cat-tail (*Typha angustifolia*) and river bulrush (*Bolboschoenus fluviatilis*).

Deciduous Forest (DF)

Deciduous forest was used to describe areas of dense, naturally occurring tree species. In upland areas, plains cottonwood (*Populus deltoides*) was most abundant; with occurrences of eastern red-cedar (*Juniperus virginiana*), Siberian elm *(Ulmus pumila*), green ash (*Fraxinus pennsylvanica*) and wild plum (*Prunus americana*). Deciduous forest was often located within range land.

CRP/Prairie

CRP/Prairie defines areas of naturally occurring or planted grasslands where native prairie grasses are dominant. Short-grass prairies were dominated by smooth brome (*Bromus inermis*) and prairie beard grass (*Schizachyrium scoparium*); while tall-grass prairies were dominated by big blue-stem (*Andropogon gerardii*), switch grass (*Panicum virgatum*), Kentucky bluegrass (*Poa pratensis*) and sweet-clover (*Melilotus spp.*).

WINNER SITE

Agricultural Land (CC or RC)

Agricultural land incorporates all open space areas where agricultural products are currently in production. This category was further divided into specific cover type classifications based on the previous year's crop type (i.e., row crop or cover crop). Row crop was observed in areas where sorghum or corn was planted during the previous growing season; while cover crop was observed is areas where alfalfa or hay was harvested during the previous growing season. Distinctions between agriculutural cover types were based solely on the crop stems left over from the 2008 growing season. Many of the agricultural lands appeared to alternate between row and cover crop. In addition, it appeared that some areas defined as agricultural land were also used as rangeland during parts of the year.

Range Land (RL)

Range land was used to define areas of expansive, mostly unimproved land on which native or adapted introduced plant species are managed for grazed livestock. The most common taxa included smooth brome (*Bromus inermis*), sweet-clover (*Melilotus spp*), *Carduus* spp., *Artemisia* spp., various members of the Asteraceae family, switch grass (*Panicum virgatum*), prairie beard grass (*Schizachyrium scoparium*), *Muhlenbergia* spp., *Sonchus* spp., hoary verbena (*Verbena stricta*), *Agropyron* spp., *Trifolium* spp., and bull thistle (*Cirsium vulgare*)

Pasture (PAST)

Pasture was used to define an area where animals are held in high densities. Herbaceous vegetation is often minimal; but when present, the vegetation is often heavily grazed.

Farmstead (FS)

Farmstead was used to describe developed areas of land with various structures devoted to residential, commercial, or industrial practices. Often times these areas were located adjacent to pasture or range land.

Shelterbelt (SB)

Shelterbelts are a plantation of one or more rows of trees or shrubs which serve to provide shelter from wind or protect soil form erosion. Shelterbelts were commonly observed around the edges of fields, pastures and/or farmsteads. The most commonly observed tree species within the shelterbelts were eastern red cedar (*Juniperus virginiana*) and plains cotton wood (*Populus deltoides*); wild plum (*Prunus americana*) was also noted occasionally.

Stock Pond (SP)

Stock ponds describe areas where ranchers have bermed natural drainage features or seasonal wetlands to create a persistent water supply for livestock. These areas were often heavily grazed and did not contain a perimeter of hydrophitic vegetation.

Deciduous Forest (DF), Cottonwood Forest (C), Woody Draw (WD), Forested Wetland (FW)

These designations were used to describe areas of dense, naturally occurring tree species. In upland areas, plains cottonwood (*Populus deltoides*) was most abundant; occurrences of eastern red-cedar (*Juniperus virginiana*), Siberian elm (*Ulmus pumila*), box elder (*Acer negundo*), green ash (*Fraxinus pennsylvanica*) and wild plum (*Prunus americana*) were also noted. In wetland areas, cottonwood and willow species (*Salix* spp.) were dominant. These categories were often located within range land.

CRP/Prairie

CRP/Prairie designates areas of naturally occurring or planted grasslands where native prairie grasses are dominant. Short-grass prairies were dominated by prairie beard grass (*Schizachyrium scoparium*) with switch grass (*Panicum virgatum*) and yellow Indian grass (*Sorghastrum nutans*) as secondary dominants. Tall-grass prairies were dominated by switch grass (*Panicum virgatum*), prairie beard grass (*Schizachyrium scoparium*), yellow Indian grass (*Sorghastrum nutans*), goldenrod species (*Solidago spp*), evening-primrose (*Oenothera spp*), *Juncus* spp, hoary verbena (*Verbena stricta*), *Artemisia* spp., and various members of the Asteraceae family.

Wetland Complex (wet meadow, shrub-carr, wet forest)

A variety of wetland complexes, comprised of wet meadow, shrub-carr and wet forest communities were located within the site. The wet forest communities were dominated by plains cottonwood (*Populus deltoids*); the wet meadow communities were dominated by prairie cord grass (*Spartina pectinata*), switch grass (*Panicum virgatum*), river bulrush (*Bolboschoenus fluviatilis*), reed canary grass (*Phalaris arundinacea*), narrow-leaved cat-tail (*Typha angustifolia*), and *Juncus* spp.; the shrub-carr communities were dominated by willow (*Salix spp*) and olive species (*Elaeagnus* spp.).

SITE COMPARISONS

Generally speaking, the Winner site supported more wooded areas than did the Crow Lake site. The Winner site also appeared to contain more areas that were comprised of native prairie species. It should be noted that it is unclear whether the prairie areas observed at Winner are “prairie remnants” or lands that are enrolled in the CRP program. Wetland areas at the two sites appeared to house a similar suite of plant taxa, but the wetlands at the Winner site appeared to have a more prevalent tree component than did the Crow Lake site.

Although the suite of plant taxa between the two sites is similar, the greater amount of native prairie species and treed areas at Winner provides a more diverse habitat mosaic than is present at the Crow Lake site. For this reason, it is likely that the Winner site supports some wildlife species that are not present at the Crow Lake site. For example, the greater amount of treed areas at Winner may provide better habitat for certain species of migratory birds and bats, as well as certain species of herpetiles.

Sincerely,

Natural Resources Consulting, Inc.

Scott Yanco
Biologist

Attachments: Avian Species List