APPENDIX C -CULTURAL RESOURCES RECORD SEARCH

Quality Services, Inc.
3459 Jet Drive, Rapid City, South Dakota 57703-4760
Archeology-Paleontology-History-NEPA-Training
info@qualityservices.us.com www.quality-services.us.com
Phone: 605-388-5309 Fax: 605-388-5319 Cell: 605-209-0265

December 7, 2013

John O'Meara
Chief Operating Officer
Wind Quarry, LLC
330 South 9th Street
Montrose, CO 81401

Re: **Record Search – Newell-Vale Wind Farm**
Location – Butte and Meade Counties, South Dakota
NHPA Section 106 – USDA Rural Development REAP Grant
Description – Wind Quarry, LLC is considering applying to a REAP grant, and potentially other Federal grants, loans, and permits. Eventual construction of multiple wind turbines and upgrading existing or constructing new transmission line.

Dear Mr. O'Meara:

GIS specialist Nick Dierks and principal investigator archeologist David G. Hahs conducted the record search for the Newell-Vale Wind Farm project on with the SD Archeological Research Center (SARC). The records search reported all archeological sites, historic period structures, and previous archeological surveys within one mile of the potential project areas. The National Register of Historic Places (NRHP) and the National Historic Landmarks online databases were also checked.

Specific information from this record search is listed below. Management recommendations for each cultural resource are also provided. Maps showing the project boundary, and the record search area, previous inventories, and known cultural resources is attached to this letter.

The block area of land identified for potential wind turbines and a linear corridor following the existing power transmission line were considered the area of potential effect for this project, even though this is expected to be reduced once actual project plans are developed. Visual, audible, and atmospheric APEs have not been specifically identified for this study.

Table 1. Cultural resources within one mile of the project area.

Resource	Resource Type	NRHP Status	Potential Effects
39BU0014	Stone Circle	***Unevaluated***	**Within APE Evaluate and/or Avoid**
39BU0020	Artifact Scatter	***Unevaluated***	**Out of APE - No Effect**
39BU0021	Isolated Find	***Not Eligible***	**Out of APE - No Effect**
39BU0139	Stone Circle	***Unevaluated***	**Out of APE - No Effect**
39BU0141	Euroamerican Alignment	***Unevaluated***	**Out of APE - No Effect**
39BU0142	Stone Circle; Cairn	***Unevaluated***	**Out of APE - No Effect**
39BU0143	Stone Circle; Artifact Scatter	***Unevaluated***	**Out of APE - No Effect**
39BU0144	Isolated Find	***Not Eligible***	**Out of APE - No Effect**
39BU0145	Cairn; Isolated Find	***Unevaluated***	**Within APE Evaluate and/or Avoid**
39BU0146	Artifact Scatter	***Unevaluated***	**Within APE Evaluate and/or Avoid**
39BU0147	Isolated Find; Stone Circle	***Unevaluated***	**Within APE Evaluate and/or Avoid**
39BU0148	Cairn; Stone Circle	***Unevaluated***	**Within APE Evaluate and/or Avoid**
39BU0158	Stone Circle; Artifact Scatter	***Unevaluated***	**Within APE Evaluate and/or Avoid**
39BU0463	Artifact Scatter	***Not Eligible***	**Out of APE - No Effect**
39MD0059	Isolated Find	***Not Eligible***	**Within APE - No Effect**
39MD0851	Isolated Find	***Not Eligible***	**Out of APE - No Effect**
BU00000152	Kivimaki Ranch	***Unevaluated***	**Within APE Evaluate and/or Avoid**
BU00000181	Bridge 10-429-196	***Not Eligible***	**Within APE - No Effect**
BU00000182	Bridge 10-506-319	***Not Eligible***	**Within APE - No Effect**
BU00000233	Bridge 10-445-332	***Not Eligible***	**Within APE - No Effect**
MD00000006	Aurora School	***Unevaluated***	**Out of APE - No Effect**
MD00000142	St. Joseph's Catholic Church	***Unevaluated***	**Out of APE - No Effect**

Table 2. Previous inventories within one mile of the project area.

Survey #	Year	Author(s)	Report Title
ABU-0089	1994	Byrne, Daniel	An Intensive Cultural Resources Survey of a Surfacing and Spot Grading Project Along U.S. Highway 212 in Butte County, South Dakota. SDDOT Project No. F 0212(89)39 PCEMS 3236. CIS No. 813
ABU-0107	1999	Watts, Jane P.	Letter Report on the Proposed Bridge Replacement of Structure #10-429-196, Project BRO 8010, PCEMS 5748, Butte County, South Dakota CIS No. 1331
ABU-0138	2003	Armitage, Charles	Cultural Resource Inventory of the EQIP Pipeline Project, T9N, R8E, Sections 14, 15, 20, 21, 22 & 29, Butte County, South Dakota. NRCS CRM Report No. 03BU03

Survey #	Year	Author(s)	Report Title
ABU-0139	2003	Armitage, Charles	Cultural Resource Inventory of the EQIP Pipeline Project, T8N, R8E, Sections 33, 34, 35 and T9N, R8E, Sections 22 and 27, Butte County, SD. NRCS CRM Report No. 03BU04
ABU-0166	2006	Armitage, Charles	Cultural Resource Inventory for an EQIP Pipeline & Tanks Project, T11N, R8E, Sections 9, 15 & 16, Butte County South Dakota. NRCS CRM Report No. 06BU02
ABU-0173	2006	Harken, Nick	A Letter Report Documenting an Intensive Cultural Resources Survey of a The Maurine to Rapid City (MA-RC) 115 Storm Job, Butte County, SD. BLM Permit No. M95622
ABU-0180	2007	Littlefield, Steven	Letter Format Report for Level III Cultural Resource Inventory of NRCS Project #07BU17 Grazing Land Mechanical Treatment, T10N, R8E, S19, 20, Butte Cty, SD
ABU-0192	2008	Buechler, Jeffrey V.	Letter Format Report of a Cultural Resources Inventory Survey of Three Storm Damage Repair Projects for Butte Electric Cooperative in Butte County, SD. Project No.08-64
ABU-0213	2011	Byrne, Daniel	An Intensive Cultural Resources Survey of SDDOT Culvert Replacements at MRM 58.7 and MRM 601.1, Project HN 9212(158)58 PCN 02ZN in Butte County, SD. CIS No. 2510
WSD-0085	1988	Byrne, Daniel	Intensive Cultural Resource Survey of Two Proposed Bridge Replacement Projects, Butte and Haakon Counties, SD.
WSD-0144	1984	Keller, Steve	Belle Fourche River Project, Volume 1: Western Butte County, South Dakota.
WSD-0145	1985	Miller, D. & R. Keller	Belle Fourche River Project, Volume 2: Eastern Butte County, South Dakota.
WSD-0174	1997	Buechler, Jeffrey V.	Intensive Cultural Resources Inventory Survey of West River Cooperative Telephone Association's 1997 Buried Cable Routes in Butte, Harding, Meade and Perkins Counties, South Dakota. Project No. 97-22
WSD-0252	2003	Haakenson, Wade	Record Search and Intensive Pedestrian Cultural Resources Inventory of Golden West Telecommunications, Inc.'s Maurine Exchange, Butte, Meade and Perkins Counties, South Dakota. Project No. 012403

Nick Dierks checked the National Register of Historic Places and National Historic Landmarks on October 23, 2013. There are no National Register of Historic Places listed cultural resources or National Historic Landmarks in the project area or one mile radius record search area.

The project area shows minimal previous cultural resource inventory work. The archeological cultural resources within the study area consist of sixteen archeological sites, three structures and three bridges. None of these cultural resources are currently considered eligible for the National Register of Historic Places (NRHP).

Soils and the Potential for Buried Cultural Resource Sites

As part of the research for this project, ***Quality Services, Inc.*** researched correlation between soil types and terrain in relation to the location of recorded cultural resources. In order to examine if either was a factor in site placement, locations of previously recorded sites were mapped within one mile of the project. Then, soil types and locations from the USDA Soil Data Survey were added. These were compared to determine whether a correlation exists. This map was then used to determine if and where the project area could contain high cultural resource potential soils or terrain features.

Theoretically, if soil is a major factor in determining where a site would be placed, soils in the inventory area that are found to have a high proportion of previously located cultural resources should have a similar proportion of sites throughout the project area. Further, the soils in the project area that have less site density should also have a smaller number of sites located on them.

Historically, nearly level to gently sloping areas are typically cultivated. Gently sloping to moderately sloping areas are cultivated or pastured, and steeply sloping areas are pastured, wooded, or both.

Fifty-one soil types are found within the 54,015 acre project study area; only nine of these soil types have cultural resources sites located on them. Approximately 1.2% of the project area has been previously surveyed. The nine soil types with sites located on them comprise 22, 862 acres or 42.3% of the total project area. These soil types include Arvada silt loam, Eapa-Grail complex, Hisle-Slickspots complex, Kyle clay, two variations of Lismas clay, Pierre clay, Slickspots-Wasa complex, and Twilight-Marmarth-Parchin fine sandy loams.

- Arvada silt loam (ArA) makes up approximately .03 percent of the project area. This soil series comprise well drained soils on 0-3% slopes on terraces, summits and footslopes. All areas are not considered prime farmland.
- Eapa-Grail complex (EgB) makes up approximately .006 percent of the project area. This soil series comprise well drained soils on 2-6% slopes on terraces, summits and footslopes. All areas are considered prime farmland if irrigated.
- Hisle-Slickspots complex (HsB) makes up approximately .3 percent of the project area. This soil series comprise well drained soils on 0-9% slopes on plains, summits and footslopes. All areas are not considered prime farmland.
- Kyle clay (KlA) makes up approximately 1.3 percent of the project area. This soil series comprise well drained soils on 0-2% slopes on terraces, fans and footslopes. It is not considered prime farmland.
- Lismas clay (LcE) makes up approximately 23.7 percent of the project area. This soil series comprise well drained soils on 3-25% slopes on shoulder ridges. It is not considered prime farmland.
- Lismas clay stony (St) makes up approximately .3 percent of the project area. This soil series comprise well drained soils on 12-45% slopes on shoulder ridges. It is not considered prime farmland
- Pierre clay (PrD) makes up approximately 7.6 percent of the project area. This soil series comprise well drained soils on 6-21% slopes on hills, summits and backslopes. It is not considered prime farmland

- Slickspots-Wasa complex (SlB) makes up approximately 8.6 percent of the project area. This soil series comprise well drained soils on 0-6% slopes on plains, summits and backslopes. It is not considered prime farmland
- Twilight-Marmarth-Parchin fine sandy loams (TwC) makes up approximately .4 percent of the project area. This soil series comprise well drained soils on 4-9% slopes on plains and backslopes. It is not considered prime farmland

Sixteen archeological sites are recorded within the one mile record search area. Thirteen of these cultural resources are prehistoric sites and three historic period sites. Five sites are found on Lismas clay (LcE) which is the most prominent soil type making up 23.7% of the total project area. Three sites are found on Slickspots-Wasa complex (SlB) comprising 8.6% of the project area and two sites are found Lismas clay stony (St) which only makes up .3% of the total project area. All other soil types listed above have one cultural resource site located on each.

A 29,271 acre sample area located southwest of the proposed project area has 37% of its total area previously surveyed. This area can be used as an accurate correlation between soil types and terrain in relation to the location of recorded cultural resources to predict site probability in the proposed project area. Seventy cultural resource sites are recorded within the sample area; forty of these sites are within the same soils found in the proposed project area. Twelve cultural resource sites are found on Lismas clay (LcE), ten sites on Slickspots-Wasa complex (SlB), seven sites are located on Pierre clay (PrD), five sites on Kyle clay (KlA), three cultural resource sites on Hisle-Slickspots complex (HsB), and three sites on Arvada silt loam (ArA). These six soil types comprise 34% or 9817 acres of the sample area.

The same six soils types make up 41.6% or 22, 486 acres of the proposed project area. The difference in percentage of previously inventoried land is drastic, only 1.2 percent of the proposed project area has been surveyed compared to 37 percent of the sample area. If soil is a major factor in determining where a site would be placed, soils in the sample area that are found to have a high proportion of previously located cultural resources should have a similar proportion of sites throughout the proposed project area. Since the proposed project area is twice the size of the sample area one could predict over 80 cultural resource sites to be located during field survey. Lismas clay (LcE) comprises the highest percentage of soil within the project area; there is a high probability for the majority of cultural resources to be present on this soil type.

Trends that appeared during this geomorphological analysis include:

1. Cultural resource sites have the highest probability of being located on Lismas clay (LcE) which is found on shoulder ridges.
2. Cultural resource sites have a high probability of being located within the overall project area; though there are not enough archeological sites located within the project area to substantiate this trend, a sample area was used as an accurate representation of how many cultural resource will be found within the current project location.

Based on the record search research data above, and also from incorporating data from inventoried areas nearby but outside of the project record search area, there is a high potential for unrecorded cultural resources to be located within the Newell-Vale wind power study area.

Quality Services, Inc. recommends the following for the proposed Newell-Vale wind project:

1. When the construction plans are developed, project areas of potential effect can be better determined and Level II or Level III inventories can be designed and carried out.
2. Areas previously inventoried within the Newell-Vale Wind Farm study area seem to meet current inventory standards and may not need to be resurveyed.
3. Potential project effect on historic properties will be minimized or eliminated if project construction activities are within previously disturbed areas, or if the project is designed to avoid cultural resources as much as possible.
4. Tribal members should be incorporated into all cultural resources field crews to help identify spiritual areas or traditional cultural properties.
5. While over 12 miles from the proposed development potential visual effects to the Bear Butte National Historic Landmark should be considered so that appropriate mitigation measures can be implemented.
6. Consider a Programmatic Agreement (PA) with the SHPO, interested THPOs, and involved federal agencies, and other interested parties to allow a phased Section 106 compliance procedure to be implemented as the project plan is developed and as other environmental studies are conducted.
7. Develop a tribal consultation and involvement plan coordinated with any PA that might be developed.

Please call if you have any questions or need further information.

Thank you!

Sincerely,

Lance Rom

Attachments -

A. Project information as requested in SD SHPO review per Guidelines for Cultural Resource Surveys and Survey Reports (for Review and Compliance)
B. Project record search maps