# EXHIBIT S

## HISTORIC, CULTURAL, AND ARCHAEOLOGICAL RESOURCES

### OAR 345-021-0010(1)(s)

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## ATTACHMENTS

### S-1
Archaeological Inventory for the Golden Hills Wind Energy Development, Sherman County, Oregon (Tetra Tech EC, Inc. 2007).

### S-2
Supplemental Phase 1B Archaeological Investigations for the Golden Hills Wind Energy Development, Sherman County, Oregon (Tetra Tech EC, Inc. 2008).

June 2008
S.1 INTRODUCTION

OAR 345-021-0010(1)(c) Information about historic, cultural, and archaeological resources providing evidence to support a finding by the Council as required by OAR 345-022-0090, including:

Response: This exhibit describes impacts related to the Golden Hills Wind Energy Development (the Project) on historic, cultural, and archaeological resources in the vicinity. For discussions of Exhibit S, the “analysis area” for archaeology is synonymous with the Area of Potential Effects (APE) from ground disturbances related to Project construction, operation, and retirement of the facility. The total APE for archaeology is approximately 7,101 acres, including turbine corridors (Corridors A to Q), crane paths, underground collector lines, existing road improvements, new roads, transmission lines, bridge improvement, laydown areas, and substations.

S.2 HISTORIC AND CULTURAL RESOURCES LISTED, OR POSSIBLY ELIGIBLE FOR LISTING, ON THE NATIONAL REGISTER OF HISTORIC PLACES

(A) Historic and cultural resources within the analysis area that have been listed, or would likely be eligible for listing, on the National Register of Historic Places;

Response: “Historic properties” are cultural resources that have been listed on, or determined to be eligible for listing on, the National Register of Historic Places (NRHP). The Oregon State Historic Preservation Office (OSHPO) maintains files concerning NRHP-listed sites and determinations of eligibility. At present, one historic property, DeMoss Springs Park, is listed on the NRHP. Since 2007, a proposed underground collector line for the Project was redesigned and relocated approximately 500 feet south of DeMoss Springs Park to avoid potential impacts to associated archaeological sites.

In addition, the Project crosses portions of the Oregon Trail and the Barlow Cutoff, which are known to be associated with events that have made a significant contribution to the broad patterns of our history (36 CFR 60.4, criterion “a”), and are potentially eligible for the NRHP. The Oregon Trail is designated as an Historic Trail under both federal and Oregon statutes. Historic-period maps from the General Land Office; the 1913 Atlas of Sherman County, Oregon; 1959 Oregon State Highway Department maps; and highway historic markers identified the Oregon Trail in varying locations, including crossing portions of Corridors O and P (Attachment S-1; Figure 2).

Apart from two historic-period isolated finds (GH Iso 3 and GH Iso 5) located near the presumed Oregon Trail in Corridor O, no physical evidence of the trail was observed at any of the Project crossings. Excavation of up to eight shovel probes around each isolated find recovered no additional artifacts and no stratigraphic evidence for the Oregon Trail. Farming activity is likely to have obliterated most—if not all—physical traces of the trail.
This same physical disturbance makes it difficult to substantively correlate the isolated finds to that of the historic emigrant route.

The Oregon Trail Cut-off to the Barlow Road begins at the John Day River Oregon Trail Crossing east of Wasco and runs southwesterly to Grass Valley and from Grass Valley southwesterly on Highway 216 to Hollenbeck Point where emigrants entered Buck Hollow and the Deschutes River crossing north of present-day Sherar's Bridge. This historic emigrant route crossed the APE in the southeastern portion of the Project within turbine Corridor D and associated underground collector routes and crane paths. Complete archaeological pedestrian surveys were conducted at each of the above-mentioned trail crossings. No physical evidence of the Barlow Cutoff Route was observed at any of these locations. Farming activity seems to have obliterated most—if not all—physical traces of the trail. This same physical disturbance makes it difficult to substantively correlate the isolated finds to that of the historic emigrant route.

S.3 ARCHAEOLOGICAL OBJECTS AND SITES ON PRIVATE LANDS WITHIN THE ANALYSIS AREA

(B) For private lands, archaeological objects, as defined in ORS 358.905(1)(a), and archaeological sites, as defined in ORS 358.903(1)(c), within the analysis area;

Response: The OSHPO maintains archaeological records of archaeological sites, “isolated finds” (including nine or fewer artifacts), and aboveground resources (archaeological and architectural sites) within the state. Site file research at OSHPO identified no archaeological sites, isolated finds, or aboveground resources recorded within the Project APE.

S.4 ARCHAEOLOGICAL OBJECTS AND SITES ON PUBLIC LANDS WITHIN THE ANALYSIS AREA

(C) For public lands, archaeological sites, as defined in ORS 358.905 (1)(c) , within the analysis area;

Response: There are no public lands in the Project APE.

S.5 SIGNIFICANT POTENTIAL IMPACTS OF CONSTRUCTION, OPERATION, AND RETIREMENT OF THE FACILITY ON HISTORIC, CULTURAL, AND ARCHAEOLOGICAL RESOURCES

(D) The significant potential impacts, if any, of the construction, operation, and retirement of the proposed facility on the resources described in paragraphs (A), (B), and (C) and a plan for protection of those resources that includes at least the following:
S.5.1 Methodology

(5) A description of any discovery measures, such as surveys, inventories, and limited subsurface testing work, recommended by the State Historic Preservation Officer and the National Park Service of the U.S. Department of Interior for the purpose of locating, identifying, and assessing the significance of resources listed in paragraphs (A), (B), and (C);

Response: Archival research was conducted at the OSHPO in Salem to review archaeological site records and reports, and properties listed on the NRHP. Additional background literature research was conducted at the Sherman County Historical Society and Museum in Moro, at the Dalles-Wasco County Library in the City of The Dalles, and at the Oregon Historical Society in Portland, Oregon. Consultation was also undertaken with Native American groups including the Confederated Tribes of the Warm Springs Reservation, the Confederated Tribes and Bands of the Yakama Indian Nation, the Colville Confederated Tribes, the Confederated Tribes of the Umatilla Indian Reservation, and the Nez Perce Tribe. Copies of letters initiating consultations with Native American tribes are provided in Attachment S-1. No responses from Native American tribes have been received at this time. Following recommendations by OSHPO, a telephone consultation was conducted with the Umatilla Tribe Archaeologist about the environmental settings of stacked rock features, including both prehistoric-period and historic-period cultural resources (Attachment S-2).

Archaeological field investigations were conducted during May and June 2007 and during April 2008. The archaeological field investigations were conducted in compliance with professional standards and guidelines of the OSHPO (OSHPO 2006, 2007). During the 2007 field investigation, a pedestrian survey was conducted in areas with good ground visibility in order to identify surface artifacts and aboveground features associated with prehistoric-period and historic-period archaeological sites and aboveground historic-period sites. Portions of the Project APE were planted in crops and were not surveyed due to poor ground visibility. In portions of the APE where surface visibility was deemed adequate, surface survey was performed by three to six archaeologists walking transects spaced no greater than 25 meters. During the field survey, all archaeological sites, isolated finds, and historic structures identified within the Project APE were documented and mapped using a Trimble GeoXT global positioning system (GPS) unit. Photographs were taken of all cultural resource settings and intermittently throughout the survey area to document landforms, vegetation coverage, and identified disturbances. No subsurface testing or collection of artifacts was conducted at any sites, localities, or isolated finds during the 2007 field investigation. Approximately 54 percent of the Project APE (3,810 acres) was surveyed during the 2007 field investigation. All archaeological sites, archaeological isolated finds, and aboveground resources identified during the 2007 field investigation were recommended for avoidance during Project construction.

Following the 2007 field investigation, OSHPO recommended development of a sensitivity model for non-surveyed portions of the APE, including new areas resulting from redesigns.
of the APE. As a result of sensitivity modeling and following OSHPO recommendations, approximately 1,011 acres were identified for supplemental archaeological field investigations during 2008. The 2008 supplemental pedestrian survey followed methods utilized during 2007 and OSHPO guidelines (2006, 2007). All areas recommended for survey in the 2008 sensitivity model and by OSHPO were investigated during the 2007 and 2008 field investigations.

Following the 2007 field investigation, five cultural resources (one prehistoric-period archaeological site, one historic-period archaeological site, and three historic-period aboveground resources) were avoided by redesigns of the Project APE. Other archaeological sites and isolated finds were investigated in detail during the 2008 field investigation to document site boundaries and develop avoidance plans during construction. Intensive surface surveys were conducted at three historic-period archaeological sites, and site boundaries were recorded by GPS surveys.

In accordance with OSHPO guidelines, shovel probes were utilized to determine whether six isolated finds in the Project APE were associated with buried archaeological sites. At prehistoric-period site GH Site 1, shovel testing was conducted beyond the site boundary to verify that buried remains were not present and to document areas outside of identified site boundaries. Shovel probes were excavated at 5-meter (16-foot) intervals. The location of each shovel probe was recorded with a GPS unit. Shovel probes measured 30 centimeters (1 foot) in diameter, and were excavated in arbitrary 20-centimeter levels to depths of 60 centimeters below surface (cmbs) or deeper, unless impeded by an impasse (e.g., excessively rocky soils, hard pan, impenetrable soil compaction, etc.). Excavated soils were screened through 0.25-inch mesh on shaker screens. Field forms recorded soil strata depths, Munsell soil color, soil texture, rocks, gravel, and other inclusions. No historic-period or prehistoric-period artifacts were identified in shovel tests. At isolated finds, two shovel probes were excavated at each cardinal direction (eight total shovel probes) around the find location. Fewer shovel probes were dug around isolated finds adjacent to disturbances and steep stream banks.

S.5.2 Survey and Inventory Results

(ii) The results of surveys, inventories, and subsurface testing work recommended by the state and federal agencies listed in subparagraph (i), together with an explanation by the applicant of any variations from the survey, inventory, or testing recommended

Response: In total, 4,821 acres of the APE were surveyed during 2007 and 2008 for the presence of archaeological sites, isolated finds, and aboveground resources. As a result of these pedestrian surveys, 16 cultural resources were identified, including 2 prehistoric-period archaeological sites, 4 historic-period archaeological sites, 2 prehistoric-period archaeological isolated finds, 4 historic-period archaeological isolated finds, and 4 historic-period aboveground sites. Each of these resources is discussed in Attachments S-1 and S-2, and full
Oregon State Archaeological and Aboveground Resource Inventory forms were prepared for OSHPO.

GH Site 1 is a prehistoric-period lithic scatter located along the transmission line north of Corridor C. The site is located on a rocky southwest-facing ridge slope overlooking an intermittent drainage ravine. The site measures approximately 256 meters (840 feet) north-south by 67 meters (220 feet) east-west, or about 13,500 square meters (3.3 acres) in area. Surface survey identified the limits of the artifacts, consisting entirely of chert debitage, on the site surface. Shovel probes were excavated at 5 meters and 10 meters north of the surface scatter to verify that buried artifacts did not extend onto the ridge crest. In total, 18 shovel probes were excavated north of the site and no cultural materials were recovered. Shovel probe locations were recorded by GPS and provide detailed information for OSHPO and Project engineers to avoid the site during Project construction.

GH Site 2 is an historic-period farm dump located during the 2007 field investigation. The site is in a laydown area west of Corridor A. Artifacts include agricultural items, machinery, and domestic refuse. The site extends for 87 meters (285 feet) north-south and 30 meters (98 feet) east-west and covers approximately 2,200 square meters (0.5 acre). During 2008, Teton Tech EC, Inc. (TTEC) performed intensive surface surveys of surrounding fields to verify site boundaries. No shovel probes were excavated, since extant surface artifacts and grassy vegetation established the site boundaries accurately. Site boundaries were delineated by GPS readings. Accurate GPS data will facilitate site avoidance during Project construction.

GH Site 3 is an historic-period farmstead identified during the 2007 field investigation. The site is in a proposed equipment laydown area west of Corridor A. The site is indicated by lines of locust trees, two vaulted cellar features, farm equipment, and other items. The site is approximately 275 meters (902 feet) in length from northeast to southwest, 110 meters (361 feet) in width, and 23,315 square meters (5.8 acres) in area. During the 2008 field investigations, intensive surface surveys were performed in surrounding areas. Site boundaries were based on vegetation, major artifacts, and other landscape features. No shovel probes were excavated, as extant features established the site boundaries adequately. Site boundaries were delineated by GPS readings. Accurate GPS data will facilitate site avoidance during Project construction.

GH Site 4 is an historic-period aboveground resource, including a windmill, stone retaining wall, and abandoned dirt road, identified during the 2007 field investigation. After the 2007 field investigation, the Project APE was redesigned to avoid Project impacts to this site.

GH Site 5 is an historic-period archaeological site near DeMoss Springs identified during the 2007 field investigation. The site includes portions of a stone and concrete foundation, an adjoining underground tank structure, and a concrete cistern. After the 2007 field investigation, the Project APE was redesigned to avoid Project impacts to this site.
GH Site 6 is an historic-period aboveground resource, including transmission line poles, identified during the 2007 field investigation. After the 2007 field investigation, the Project APE was redesigned to avoid Project impacts to this site.

GH Site 7 is a prehistoric-period archaeological site identified during the 2007 field investigation. The site contains chert flakes and debitage east of Spanish Hollow. After the 2007 field investigation, the Project APE was redesigned to avoid Project impacts to this site.

GH Site 8 is an historic-period aboveground resource along the proposed transmission line southwest of the John Day Substation. The resource consists of three wooden poles with glass insulators along a fence line south of Tom Road. The site was recommended as not eligible for the NRHP, based on lack of architectural integrity and distinctive characteristics.

GH Site 9 is an historic-period farmstead located south of a crane path east of Corridor G and identified during the 2008 field investigation. The site was identified by a circular formation of locust trees that formerly served as shade and windbreaks for a house and perhaps a barn. The trees surround grassy mounds, partially collapsed and buried stone walls, and other features and artifacts. The site measures approximately 70 meters (230 feet) north to south and 40 meters (132 feet) east-west, or about 2,800 square meters (0.7 acres) in area. No shovel probes were excavated. GPS points of historic-period landscape features established the site boundaries.

GH Iso 6 is an historic-period aboveground resource, consisting of a standing windmill, located near Corridor O. This structure was identified during the 2007 field investigation. After the 2007 field investigation, the Project APE was redesigned to avoid Project impacts to this site.

GH Iso 1 is an historic-period Oregon license plate identified during the 2007 field investigation. During the 2008 field investigation, eight shovel probes encountered no additional artifacts or stratigraphic evidence to indicate a buried archaeological site.

GH Iso 2 is a scatter of nine historic-period artifacts in Corridor O identified during the 2007 field investigation. During the 2008 field investigation, eight shovel probes encountered no additional artifacts or stratigraphic evidence to indicate a buried archaeological site.

GH Iso 3 is an historic-period whiteware sherd in Corridor O identified during the 2007 field investigation. The sherd is near a mapped location of the Oregon Trail. During the 2008 field investigation, eight shovel probes encountered no additional artifacts to indicate a buried archaeological site. No stratigraphic evidence was observed in shovel probe profiles to indicate the location of the Oregon Trail.

GH Iso 4 is a prehistoric-period chert flake located along the transmission line east of Spanish Hollow identified during the 2007 field investigation. During the 2008 field
investigation, four shovel probes encountered no additional artifacts or stratigraphic evidence to indicate a buried archaeological site.

**GH Iso 5** is an historic-period rusted tin object in Corridor O identified during the 2007 field investigation. The artifact is near a mapped location of the Oregon Trail. During the 2008 field investigation, eight shovel probes encountered no additional artifacts to indicate a buried archaeological site. No stratigraphic evidence was observed in shovel probe profiles to indicate the location of the Oregon Trail.

**GH Iso 7** is a prehistoric-period chert flake identified during the 2007 field investigation along the transmission line south of Tom Road. During the 2008 field investigation, eight shovel probes encountered no additional artifacts or stratigraphic evidence to indicate a buried archaeological site.

**S.5.3 Measures Designed to Prevent Destruction of Historic, Cultural, and Archaeological Resources**

(iii) A list of measures to prevent destruction of the resources identified during surveys, inventories, and subsurface testing referred to in subparagraph (i) or discovered during construction; and

Response: Cultural resources might be affected during Project construction by ground disturbances related to machine activities. In total, 16 cultural resources were identified during the 2007 and 2008 field investigations. Following the 2007 field investigations, the Project APE was modified to avoid impacts to five cultural resources (GH Site 4, GH Site 5, GH Site 6, GH Site 7, and GH Iso 6).

During the 2008 field investigation, shovel probes were excavated at six isolated finds. Shovel probes demonstrated that buried archaeological sites were not present at these locations. TiEC recommends that isolated finds are not to be considered significant cultural resources. Similarly, GH Site 8 was an historic-period aboveground resource along a transmission line that was recommended as not eligible for the NRHP. As such, TiEC recommends that these locations do not need to be avoided during Project construction. OSHPO concurrence will be requested.

Four archaeological sites were documented within the Project APE, including prehistoric-period site GH Site 1 and historic-period sites GH Site 2, GH Site 3, and GH Site 9. Detailed investigations were conducted to document the boundaries of each of these sites. All of the archaeological sites are recommended for avoidance during construction, operation, and retirement of the proposed facilities.

Intensive investigations were conducted to document that isolated finds within the Project APE were not associated with buried archaeological sites. No evidence was identified for the Oregon Trail, the Barlow Cutoff, or other historic trails. Shovel probing was conducted at isolated finds GH Iso 3 and GH Iso 5 near mapped locations of the Oregon Trail; however, no additional artifacts or stratigraphic evidence for the trail was identified.
A Cultural Resource Management Plan (CRMP) will be developed by the Applicant in coordination with the OSHPO. Archaeological sites will be protected by 30-meter (100-foot) "no access" buffers. These "no access" buffers will be identified on construction plans and temporarily demarcated in the field before and during construction. The Project Environmental Inspector will monitor flagged "no access" buffers around archaeological sites during construction to prevent accidental damage to cultural resources. OSHPO concurrence will be requested.

As a result of the 2007 and 2008 Phase 1B field investigations, TiTEC recommends no additional cultural resource field investigations for this Project.

S.5.4 Permit Application

(iv) A completed copy of any permit applications submitted pursuant to ORS 358.920. Notwithstanding OAR 345-021-0000(4), the applicant shall include copies of the permit applications as part of the site certificate application. If the same information required by subparagraphs (i) through (iii) above is contained in the permit applications, then the applicant may provide cross-references to the relevant sections of the permit applications in substitution.

Response: No permit applications have been submitted to the OSHPO pursuant to ORS 358.920 because no subsurface testing on public or private land was conducted within recorded sites. In the event that heretofore undiscovered archaeological sites are inadvertently disturbed during construction, construction work will cease and the Applicant will direct its archaeologist to apply for necessary archaeological excavation permits from the OSHPO. This requirement will be included in the CRMP.

S.6 PROPOSED MONITORING PROGRAM

(E) The applicant's proposed monitoring program, if any, for impacts to historic, cultural, and archaeological resources during construction, operation and retirement of the proposed facility;

Response: During construction in archaeologically sensitive locations, such as near recorded archaeological sites, on-site archaeological monitors will be present to ensure that no accidental damage to known cultural resources occurs, if required by OSHPO. The CRMP will address long-term management of the known/recorded resources and will include a section on accidental discovery of cultural resources. This section will provide a detailed plan of protocols and procedures (measures) to be followed if cultural resources are accidentally discovered during construction or operation of the facilities.

S.7 REFERENCES


ATTACHMENT S-1
Archaeological Inventory for the Golden Hills Wind Energy Development, Sherman County, Oregon
ATTACHMENT S-2
Supplemental Phase 1B Archaeological Investigations
for the Golden Hills Wind Energy Development,
Sherman County, Oregon