SOIL

Sampling Point: SP #5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, Oklahoma City/County: Kay County Sampling Date: 8-11-2016

Applicant/Owner: PNE Wind USA, Inc. State: OK Sampling Point: SP #6

Investigator(s): Steve Haddigan, Lindsay McClendon Section, Township, Range: S13 T29N R2E

Landform (hillslope, terrace, etc.): Upland Prairie Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR): Subregion H Lat: 36.986726 Long: -97.030930 Datum: _____

Soil Map Unit Name: SsF - Shilder-Westsum complex NWI classification: No classification

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
No wetland present in study location. Upland grassland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Switchgrass		Yes	FAC
2. Blue Stem		Yes	FACU
3. Milk Thistle		No	
4. Indiangrass		Yes	FACU
5. Milk weed		Yes	UPL
6. Ragweed		Yes	FACU
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	0	x 2 =	
FAC species	1	x 3 =	3
FACU species	3	x 4 =	12
UPL species	1	x 5 =	5
Column Totals:	5 (A)		20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
No hydrophytic vegetation present.

SOIL

Sampling Point: SP #6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present. Upland grassland prairie.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, OK City/County: Kay Sampling Date: 8-17-2016

Applicant/Owner: PNE Wind USA, Inc. State: OK Sampling Point: FS-6A

Investigator(s): Steve Haddigan, Murray Verbonitz Section, Township, Range: S13 T29N R2E

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2%

Subregion (LRR): Subregion H Lat: 36.977929 Long: -97.035118 Datum: _____

Soil Map Unit Name: Bk - Grainola-Ashport Complex NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation , Soil_____, or Hydrology_____significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation , Soil_____, or Hydrology_____naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✔ No _____ Hydric Soil Present? Yes ✔ No _____ Wetland Hydrology Present? Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____

Remarks:
Wetland present in study location.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Black Willow	35	Yes	FACW
2.			
3.			
4.			
	35 = Total Cover		
Sapling/Shrub Stratum (Plot size:_____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:_____)			
1. Cattails	30	Yes	OBL
2. Sedges	15	Yes	OBL
3. Spike rush	30	Yes	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	75 = Total Cover		
Woody Vine Stratum (Plot size:_____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A)
	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:
Hydrophytic vegetation present.

SOIL

Sampling Point: FS-6A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5 YR 4/4	80			CS	M	Sandy Clay	
6-12	2.5 YR 5/1	80			CS	M	Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✔ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- 1 cm Muck (A9) (**LRR I, J**)
- Coast Prairie Redox (A16) (**LRR F, G, H**)
- Dark Surface (S7) (**LRR G**)
- High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- ✔ Hydrogen Sulfide Odor (C1)
- ✔ Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- Crayfish Burrows (C8)
- ✔ Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✔ No Depth (inches): _____

Water Table Present? Yes ✔ No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology present.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, Oklahoma City/County: Kay County Sampling Date: 8-11-2016

Applicant/Owner: PNE Wind USA, Inc. State: OK Sampling Point: SP #7

Investigator(s): Steve Haddigan, Lindsay McClendon Section, Township, Range: S24 T29N R2E

Landform (hillslope, terrace, etc.): Upland Prairie Local relief (concave, convex, none): _____ Slope (%): 1

Subregion (LRR): Subregion H Lat: 36.981657 Long: -97.035029 Datum: _____

Soil Map Unit Name: TabA - Tabler silt loam NWI classification: No classification

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
No wetland present in study location. Upland grassland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Switchgrass		Yes	FAC
2. Blue stem		Yes	FACU
3. Milk thistle		No	
4. Indiangrass		Yes	FACU
5. Milk weed			UPL
6. Ragweed		Yes	FACU
7.			
8.			
9.			
10.			
	= Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
No hydrophytic vegetation present.

SOIL

Sampling Point: SP #7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present. Upland grassland prairie.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, Oklahoma City/County: Kay County Sampling Date: 8-11-2016

Applicant/Owner: PNE Wind USA, Inc. State: OK Sampling Point: SP #8

Investigator(s): Steve Haddigan, Lindsay McClendon Section, Township, Range: S24 T29N R2E

Landform (hillslope, terrace, etc.): Upland Prairie Local relief (concave, convex, none): _____ Slope (%): 1

Subregion (LRR): Subregion H Lat: 36.978618 Long: -97.036074 Datum: _____

Soil Map Unit Name: BeA - Bethany silt loam NWI classification: No classification

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
No wetland present in study location. Upland grassland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Switchgrass		Yes	FAC
2. Blue stem		Yes	FACU
3. Milk thistle		No	
4. Indiangrass		Yes	FACU
5. Milk weed			UPL
6. Ragweed		Yes	FACU
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		
% Bare Ground in Herb Stratum _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	1	x 3 =	3
FACU species	3	x 4 =	12
UPL species	1	x 5 =	5
Column Totals:	5 (A)		20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
No hydrophytic vegetation present.

SOIL

Sampling Point: SP #8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present. Upland grassland prairie.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, Oklahoma City/County: Kay County Sampling Date: 8-17-2016

Applicant/Owner: PNE Wind USA, Inc. State: OK Sampling Point: SP #10

Investigator(s): Steve Haddigan, Murray Verbonitz Section, Township, Range: S24 T29N R2E

Landform (hillslope, terrace, etc.): Upland Prairie Local relief (concave, convex, none): _____ Slope (%): 1

Subregion (LRR): Subregion H Lat: 36.976382 Long: -97.039923 Datum: _____

Soil Map Unit Name: KrC2 - Kirkland-Renfrow complex NWI classification: No classification.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
No wetland present in study location. Upland grassland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Switchgrass		Yes	FAC
2. Blue stem		Yes	FACU
3. Milk thistle		No	
4. Indiangrass		Yes	FACU
5. Milk weed			UPL
6. Ragweed		Yes	FACU
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	1	x 3 =	3
FACU species	3	x 4 =	12
UPL species	1	x 5 =	5
Column Totals:	5	(A)	20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
No hydrophytic vegetation present.

SOIL

Sampling Point: SP #10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present. Upland grassland prairie.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, Oklahoma City/County: Kay County Sampling Date: 8-17-2016

Applicant/Owner: PNE Wind USA, Inc. State: OK Sampling Point: SP #11

Investigator(s): Steve Haddigan, Murray Verbonitz Section, Township, Range: S24 T29N R2E

Landform (hillslope, terrace, etc.): Upland Prairie Local relief (concave, convex, none): _____ Slope (%): 1

Subregion (LRR): Subregion H Lat: 36.976710 Long: -97. Datum: _____

Soil Map Unit Name: NeB - Agra-Foraker complex NWI classification: No classification

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
No wetland present in study location. Upland

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. Oak	5	No	
2. Elm	5	No	
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Switchgrass		Yes	FAC
2. Blue stem		Yes	FACU
3. Ragweed		Yes	FACU
4. Indiangrass		Yes	FACU
5. Milk weed			UPL
6.			
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	_____	x 3 =	_____
FACU species	_____	x 4 =	_____
UPL species	1	x 5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
No hydrophytic vegetation present.

SOIL

Sampling Point: SP #11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present. Upland grassland prairie.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, Oklahoma City/County: Kay County Sampling Date: 8-17-2016

Applicant/Owner: PNE Wind USA, Inc. State: OK Sampling Point: SP #13

Investigator(s): Steve Haddigan, Murray Verbonitz Section, Township, Range: S25 T29N R2E

Landform (hillslope, terrace, etc.): Prairie Local relief (concave, convex, none): _____ Slope (%): 1

Subregion (LRR): Subregion H Lat: 36.960405 Long: -97.044552 Datum: _____

Soil Map Unit Name: KnB - Kirkland silt loam NWI classification: No classification

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
No wetland present in study location. Upland grassland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Switchgrass		Yes	FAC
2. Blue stem		Yes	FACU
3. Milk thistle		No	
4. Indiangrass		Yes	FACU
5. Milk weed			UPL
6. Ragweed		Yes	FACU
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		
% Bare Ground in Herb Stratum _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	1	x 3 =	3
FACU species	3	x 4 =	12
UPL species	1	x 5 =	5
Column Totals:	5 (A)		20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
No hydrophytic vegetation present.

SOIL

Sampling Point: SP #13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present. Upland grassland prairie.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, Oklahoma City/County: Kay County Sampling Date: 8-17-2016

Applicant/Owner: PNE Wind USA, Inc. State: OK Sampling Point: SP #14

Investigator(s): Steve Haddigan, Murray Verbonitz Section, Township, Range: S25 T29N R2E

Landform (hillslope, terrace, etc.): Prairie Local relief (concave, convex, none): _____ Slope (%): 1

Subregion (LRR): Subregion H Lat: 36.965898 Long: -97.044983 Datum: _____

Soil Map Unit Name: KnB - Kirkland silt loam NWI classification: No classification

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
No wetland present in study location. Upland grassland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Switchgrass		Yes	FAC
2. Blue stem		Yes	FACU
3. Milk thistle		No	
4. Indiangrass		Yes	FACU
5. Milk weed			UPL
6. Ragweed		Yes	FACU
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		
% Bare Ground in Herb Stratum _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	1	x 3 =	3
FACU species	3	x 4 =	12
UPL species	1	x 5 =	5
Column Totals:	5 (A)		20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
No hydrophytic vegetation present.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, Oklahoma City/County: Kay County Sampling Date: 8-17-2016

Applicant/Owner: PNE Wind USA, Inc. State: OK Sampling Point: SP #14

Investigator(s): Steve Haddigan, Murray Verbonitz Section, Township, Range: S25 T29N R2E

Landform (hillslope, terrace, etc.): Prairie Local relief (concave, convex, none): _____ Slope (%): 1

Subregion (LRR): Subregion H Lat: 36.965898 Long: -97.044983 Datum: _____

Soil Map Unit Name: KnB - Kirkland silt loam NWI classification: No classification

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
No wetland present in study location. Upland grassland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Switchgrass		Yes	FAC
2. Blue stem		Yes	FACU
3. Milk thistle		No	
4. Indiangrass		Yes	FACU
5. Milk weed			UPL
6. Ragweed		Yes	FACU
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		
% Bare Ground in Herb Stratum _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	1	x 3 =	3
FACU species	3	x 4 =	12
UPL species	1	x 5 =	5
Column Totals:	5 (A)		20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
No hydrophytic vegetation present.

SOIL

Sampling Point: SP #14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present. Upland grassland prairie.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, Oklahoma City/County: Kay County Sampling Date: 8-17-2016

Applicant/Owner: PNE Wind USA, Inc State: OK Sampling Point: SP #15

Investigator(s): Steve Haddigan, Murray Verbonitz Section, Township, Range: S25 T29N R2E

Landform (hillslope, terrace, etc.): Upland Prairie Local relief (concave, convex, none): _____ Slope (%): 1

Subregion (LRR): Subregion H Lat: 36.965408 Long: -97.039370 Datum: _____

Soil Map Unit Name: NeC - Agra-Foraker complex NWI classification: No classification

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
No wetland present in study location. Upland grassland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Switchgrass		Yes	FAC
2. Blue stem		Yes	FACU
3. Milk thistle		No	
4. Indiangrass		Yes	FACU
5. Milk weed			UPL
6. Ragweed		Yes	FACU
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		
% Bare Ground in Herb Stratum _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	1	x 3 =	3
FACU species	3	x 4 =	12
UPL species	1	x 5 =	5
Column Totals:	5 (A)		20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
No hydrophytic vegetation present.

SOIL

Sampling Point: SP #15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present. Upland grassland prairie.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, OK City/County: Kay Sampling Date: 8-17-2016

Applicant/Owner: PNE Wind USA, Inc. State: OK Sampling Point: FS-16

Investigator(s): Steve Haddigan, Murray Verbonitz Section, Township, Range: S13 T29N R2E

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2%

Subregion (LRR): Subregion H Lat: 36.974605 Long: -97.031553 Datum: _____

Soil Map Unit Name: Bk - Grainola-Ashport Complex NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation , Soil_____, or Hydrology_____significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation , Soil_____, or Hydrology_____naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔ No _____	
Wetland Hydrology Present?	Yes ✔ No _____	

Remarks:
Wetland present in study location.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elm	30	Yes	FACW
2. Cottonwood	30	Yes	FAC
3. Black Willow	10	Yes	FACW
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1. Elm	30	Yes	FACW
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size:_____)			
1. Green Briar	30	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	75	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A)
	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:
Hydrophytic vegetation present.

SOIL

Sampling Point: FS-16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5 YR 4/4	80			CS	M	Sandy Clay	
6-12	2.5 YR 5/1	80			CS	M	Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ✔ Black Histic (A3)
- ✔ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ✔ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- 1 cm Muck (A9) (**LRR I, J**)
- Coast Prairie Redox (A16) (**LRR F, G, H**)
- Dark Surface (S7) (**LRR G**)
- High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✔ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- ✔ Hydrogen Sulfide Odor (C1)
- ✔ Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- Crayfish Burrows (C8)
- ✔ Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✔ No Depth (inches): _____

Water Table Present? Yes ✔ No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology present.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, Oklahoma City/County: Kay County Sampling Date: 8-17-2016

Applicant/Owner: PNE Wind USA, Inc. State: OK Sampling Point: SP #16

Investigator(s): Steve Haddigan, Murray Verbonitz Section, Township, Range: S25 T29N R2E

Landform (hillslope, terrace, etc.): Upland Prairie Local relief (concave, convex, none): _____ Slope (%): 1

Subregion (LRR): Subregion H Lat: 36.956518 Long: -97.039644 Datum: _____

Soil Map Unit Name: NeC - Agra-Foraker complex NWI classification: No classification

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
No wetland present in study location. Upland grassland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Switchgrass		Yes	FAC
2. Blue stem		Yes	FACU
3. Milk thistle		No	
4. Indiangrass		Yes	FACU
5. Milk weed			UPL
6. Ragweed		Yes	FACU
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		
% Bare Ground in Herb Stratum _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	1	x 3 =	3
FACU species	3	x 4 =	12
UPL species	1	x 5 =	5
Column Totals:	5 (A)		20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
No hydrophytic vegetation present.

SOIL

Sampling Point: SP #16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present. Upland grassland prairie.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, Oklahoma City/County: Kay County Sampling Date: 8-17-2016

Applicant/Owner: PNE Wind USA, Inc. State: OK Sampling Point: SP #17

Investigator(s): Steve Haddigan, Murray Verbonitz Section, Township, Range: S25 T29N R2E

Landform (hillslope, terrace, etc.): Upland Prairie Local relief (concave, convex, none): _____ Slope (%): 2

Subregion (LRR): Subregion H Lat: 36.958969 Long: -97.032087 Datum: _____

Soil Map Unit Name: SnB- Shidler silty clay loam NWI classification: No classification

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
No wetland present in study location. Upland grassland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Switchgrass		Yes	FAC
2. Blue stem		Yes	FACU
3. Milk thistle		No	
4. Indiangrass		Yes	FACU
5. Milk weed			UPL
6. Ragweed		Yes	FACU
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	1	x 3 =	3
FACU species	3	x 4 =	12
UPL species	1	x 5 =	5
Column Totals:	5	(A)	20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
No hydrophytic vegetation present.

SOIL

Sampling Point: SP #17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present. Upland grassland prairie.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, Oklahoma City/County: Kay County Sampling Date: 8-17-2016

Applicant/Owner: PNE Wind USA, Inc. State: OK Sampling Point: SP #18

Investigator(s): Steve Haddigan, Murray Verbonitz Section, Township, Range: S25 T29N R2E

Landform (hillslope, terrace, etc.): Upland Prairie Local relief (concave, convex, none): _____ Slope (%): 4

Subregion (LRR): Subregion H Lat: 36.964755 Long: -97.030516 Datum: _____

Soil Map Unit Name: NeC - Agra-Foraker complex NWI classification: No classification

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
No wetland present in study location. Upland grassland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Switchgrass		Yes	FAC
2. Blue stem		Yes	FACU
3. Milk thistle		No	
4. Indiangrass		Yes	FACU
5. Milk weed			UPL
6. Ragweed		Yes	FACU
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	1	x 3 =	3
FACU species	3	x 4 =	12
UPL species	1	x 5 =	5
Column Totals:	5 (A)		20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
No hydrophytic vegetation present.

SOIL

Sampling Point: SP #18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present. Upland grassland prairie.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Chilocco, Oklahoma City/County: Kay County Sampling Date: 8-17-2016

Applicant/Owner: PNE Wind USA, Inc. State: OK Sampling Point: SP #19

Investigator(s): Steve Haddigan, Murray Verbonitz Section, Township, Range: S25 T29N R2E

Landform (hillslope, terrace, etc.): Upland Prairie Local relief (concave, convex, none): _____ Slope (%): 4

Subregion (LRR): Subregion H Lat: 36.967830 Long: -97.030865 Datum: _____

Soil Map Unit Name: NeC - Agra-Foraker complex NWI classification: No classification

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
No wetland present in study location. Upland grassland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Switchgrass		Yes	FAC
2. Blue stem		Yes	FACU
3. Milk thistle		No	
4. Indiangrass		Yes	FACU
5. Milk weed			UPL
6. Ragweed		Yes	FACU
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		
% Bare Ground in Herb Stratum _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	1	x 3 =	_____
FACU species	3	x 4 =	_____
UPL species	1	x 5 =	_____
Column Totals:	5 (A)		20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
No hydrophytic vegetation present.

SOIL

Sampling Point: SP #19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No hydric soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present. Upland grassland prairie.

Desktop Review

Bald Eagle use of the Chilocco Wind Resource Area

Prepared for:

Cherokee Nation Businesses LLC
Tulsa, Oklahoma

Prepared by:

TETRA TECH EC, INC.

1750 SW Harbor Way, Ste 400
Portland, OR 97201

June 2011

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List of Figures

1.0 INTRODUCTION

1.1 Overview

Avian surveys of the Chilocco Wind Resource Area (WRA) detected bald eagles within the WRA (Young 2008). The bald eagle is currently protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA). The documentation of bald eagle use on the WRA indicates the need to further examine bald eagle use of the WRA and to evaluate the potential for negative interactions between bald eagles and wind turbines. The purpose of this document is to provide a summary of bald eagle activity in and near the WRA and to assess the level of collision risk for bald eagles. Publicly available data from Christmas Bird Counts (National Audubon Society), published literature, avian survey reports of the Chilocco WRA, Oklahoma Department of Wildlife Conservation, and the George Miksch Sutton Avian Research Center were reviewed and summarized in this report.

1.2 Bald Eagle Protections

The bald eagle is currently federally protected under the BGEPA and the MBTA. The BGEPA prohibits the take of any bald or golden eagle, alive or dead, including any part, nest, or egg. "Take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" a bald or golden eagle. "Disturb" means to agitate or bother an eagle to a degree that causes, or is likely to cause, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. Currently, federal take permits are not available under the BGEPA, but are under consideration (USFWS 2009). The U.S. Fish and Wildlife Service (USFWS) uses discretion when prosecuting eagle mortality for energy development. The likelihood of prosecution can be reduced by demonstrating good faith effort to lower eagle mortality through avian use studies, micrositing turbines away from areas of high eagle use, and consulting with the USFWS.

1.3 Study Area

The Chilocco Wind Resource Area (WRA) is located in the north central portion of Kay County, Oklahoma (Figure 1). The Chilocco property includes two block areas, a western segment (approximately 2,633 acres) and an eastern segment (approximately 1,658 acres); however, the eastern segment is not included in the current WRA layout (Figure 1). The WRA is relatively flat mixed grass prairie with scattered rolling hills, occasional shelter belts, few scattered farm ponds, ditches, and altered wetland areas, and the Chilocco Creek (Woods et al. 2005). The WRA is located approximately 5 miles to the west and 3 miles to the south of the Arkansas River (Figure 1). Additional water bodies in the vicinity of the WRA include Wentz Lake approximately 7 miles to the southwest of the WRA, Newkirk Lake approximately 5 miles east of the WRA on the east side of the Arkansas River, and Kaw Lake, a large reservoir (17,000 acres) along the Arkansas River; the upper reaches of Kaw Lake are approximately 7 miles to the southeast of the WRA and the lower portion and dam of the reservoir is approximately 19 miles from the WRA (Figure 2).

2.0 BALD EAGLE REVIEW

2.1 Bald Eagle General Information

Population trends. Bald eagles suffered drastic population declines starting during early human settlement and continuing into the mid 1900s. Historic declines of bald eagle populations were linked to a variety of human related causes (Buehler 2000). Declines prompted listing as Endangered in 1967 under the Endangered Species Preservation Act of 1966 (Federal Register 32: 4001), followed by continued Endangered status with the passage of the Endangered Species Act (ESA) of 1973. Bald eagle populations have made dramatic recoveries since the early 1970s (Figure 3), and like historic bald eagle population declines, recovery is difficult to attribute to any single management effort (Buehler 2000). The bald eagle was delisted in 2007, as recovery goals had been met for over 10 years and populations continued to increase (USFWS 2010).

Breeding behavior. Bald eagle nests are typically constructed in the tallest available trees (Herrick 1924; Buehler 2000). Nests are used year after year in most areas; however, failed breeding attempts often cause mating pairs to build a new nest within their territory (Herrick 1924). Immature bald eagles tend to disperse from natal territory once they are independent of parents. Immature bald eagle dispersal patterns are unpredictable, and they appear to be opportunistic in their movements, depending on food availability and weather (Buehler 2010).

Migration. Adult bald eagles have a generalized migratory pattern, moving between breeding grounds in the north and wintering areas in the south. The timing of migration is variable and depends on the availability of food in the north with fall migration occurring mid-August to mid-November (primarily September-October) and spring migration occurring from March-May (Buehler 2000). Bald eagles are mainly solitary migrants, occasionally joining others on the wing, but they do not form large kettles as do some other raptor species (Buehler 2010). Migratory bald eagles typically fly during midday, soaring on thermals to reduce energy costs and following the general course of major rivers (Buehler 2000).

Wintering behavior. As a means of conserving energy, wintering bald eagles form large communal roosts and are largely sedentary, spending very little time flying (<3% of 24 hour cycle) (Stalmaster and Gessaman 1984). Roosts are typically formed in the tallest available trees and are often located adjacent to a regular source of prey (Buehler 2000). Roost site fidelity is high for wintering bald eagles with communal roosts forming year after year at the same location or tree (Buehler 2000). Winter roost sizes fluctuate from year to year, depending on the severity of the winter weather and related food availability in the north (A. Jenkins pers. comm. 2010).

2.1.1 Bald Eagles in Oklahoma

Breeding Season. Historically, bald eagles were common winter residents of Oklahoma and have not been known to breed in the state. Starting in the 1950s, occasional nesting records of bald eagles were reported (Jenkins and Sherrod 1993). Lish and Sherrod (1986) suggested that the large number of reservoirs created during the 1950s and the designation of a number of state and federal wildlife refuges created and enhanced wintering and breeding habitat for bald eagles in Oklahoma. Occasional records of nesting bald eagles continued into the 1990s (Jenkins and Sherrod 1993). Recently, the

numbers of nesting bald eagle pairs have increased considerably (Figure 4; Sutton Center 2010a). Currently, there are an estimated 120 pairs of adult bald eagles nesting in Oklahoma (A. Jenkins pers. comm. 2010).

Migration. Migration data for adult bald eagles in Oklahoma is lacking. However, dispersal data for immature bald eagles are available from the Sutton Avian Research Center 's (SARC) satellite telemetry study (SARC 2010b). In spring 2010, two nestlings (one female, one male) at Sand Springs, Oklahoma were fitted with satellite transmitters. The two nestlings successfully fledged, and data for June-November is available on-line as single point per day location data. While the male fledgling wandered near Tulsa, Oklahoma and then south to eastern Texas, the female fledgling extensively used the Arkansas River drainage from Kaw Lake to Arkansas City, Kansas. The Arkansas River corridor provides suitable foraging habitat for migrating bald eagles and might serve as a migratory path for some bald eagles.

Winter Season. Bald eagles are well-established common winter residents of Oklahoma, usually present from October-April (Lish and Sherrod 1986; Young 2006). During winter months, the state of Oklahoma hosts 800-2,000 bald eagles (Tulsa Audubon Society 2010). Wintering bald eagles in Oklahoma often roost communally near large reservoir dams where fish injured from dam turbines are a reliable source of prey (Lish 1997). The following reservoirs are regularly listed on agency websites (USGS, ODWC) as places to view large numbers of wintering bald eagles: Kaw, Keystone, Texoma, Tenkiller, Ft. Gibson, Grand, Canton, Great Salt Plains, Tishomingo, and Spavinaw (Figure 2). Occasionally, wintering bald eagles in Oklahoma are observed away from waterways when winter-killed livestock or deer are available prey items (A. Jenkins pers. comm. 2010).

Overall trends indicate increasing winter bald eagle populations in Oklahoma (National Audubon Society 2010). The population increase in Oklahoma wintering bald eagles is consistent with the continent-wide increase observed for bald eagle populations. Within the overall increase in numbers, wintering bald eagle populations in Oklahoma fluctuate from year to year depending on the severity of winters in the northern portions of the winter range (A. Jenkins pers. comm. 2010).

2.1.2 Bald Eagles in Kay County and the Chilocco Wind Resource Area

Breeding Season. Bald eagle breeding has been documented at Ponca City, 19 miles from the Chilocco WRA (Young 2006) and at Sooner Lake since 1995 (SARC 2010b), 36 miles to the south of the Chilocco WRA. Additionally, recent nest surveys conducted along the Arkansas River from Mulvane, Kansas to Kaw Reservoir, Oklahoma documented up to 10 active nests with one nest observed 4 miles north of the Walnut River and another approximately 9 miles to the southeast near Kaw Reservoir (E. Young pers. comm. 2010; Figure 2). Although bald eagles breed in Kay County, breeding is not known to occur or expected to occur on the WRA due to the lack of suitable nesting trees in proximity to foraging habitat (Young 2008). The Chilocco Creek on the WRA does offer a water feature with potential nest trees along its borders, however, the creek is largely grown over, and offers very little, if any, open water available to foraging bald eagles (Tetra Tech 2010). Furthermore, bald eagles are not regularly observed using the WRA during the breeding season (E. Young pers. comm. 2010).

Migration. According to Young (pers. comm. 2010), the bald eagle is a common spring and fall transient of Kay County. If the Arkansas River is used as a migratory path, then its proximity to the WRA might contribute to transient bald eagle use of the WRA. However, the quality of eagle habitat along the Arkansas River is better than the habitat available in the WRA, suggesting that transient eagles would be incidental in nature and rare in occurrence in the WRA.

Winter Season. Of the reservoirs known to attract large numbers of wintering bald eagles, Kaw Lake (Reservoir)(17,000 acres) of the Arkansas River is the closest to the Chilocco WRA with the upper reaches approximately 6.5 miles from the Chilocco WRA and the lower portion and dam 19 miles from the WRA (Figure 2). Other large reservoirs with winter eagle residents in the greater vicinity of the Chilocco WRA are Sooner Lake (36 mi.), Keystone (63 mi.), and Great Salt Plains Lake (65 mi.). In addition to using large reservoirs, wintering bald eagles in Oklahoma roost and forage along the Arkansas River Drainage (A. Jenkins pers. comm. 2010), which lies approximately 5 miles to the east and approximately 3 miles north in Kansas. Data from the Christmas Bird Counts at the Arkansas City, Kansas Count Circle, which includes the WRA and a portion of the Arkansas River, indicate increasing winter bald eagle numbers near the WRA (Figure 5; National Audubon Society 2010). The amount of use on the WRA by winter bald eagles is thought to be a function of local winter severity, the amount of ice on the Arkansas River, the abundance of waterfowl, and the number of deer carcasses available (E. Young pers. comm. 2010).

The status of bald eagles on the Chilocco WRA is characterized by Young (2006) as rare winter resident, as three individuals were observed from late December-February (two individuals flying low <500 ft (152 m) and one soaring at about 1000 ft (305 m). Young (2008) recorded an additional three bald eagles as incidentals flying over the WRA during the winter months of 2006, 2007, and 2008. Although Young uses the term resident, all individuals observed were in flight and might have been in transit, potentially looking for foraging opportunities over the WRA, and were winter residents of the Kaw Reservoir or Arkansas River. Young (2008) concluded that "The Bald Eagle is a common winter resident in Kay County". Young's assessment of the wintering bald eagle as rare on the WRA and common in Kay County reflects the relatively high use of the Arkansas River and Kaw Lake compared to the immediate surrounding areas.

3.0 CONCLUSIONS

Breeding Season. The risk of negative interactions between breeding bald eagles and wind turbines on the Chilocco WRA are likely to be low based on several criteria. To date, no breeding bald eagles have been documented nesting on the WRA. Breeding bald eagles are not expected to nest on the WRA for several reasons. Nesting bald eagles typically use the same nest site year after year, so the likelihood of established breeding pairs moving on to the WRA to nest is low. Although resident summer bald eagles and breeding pairs in Oklahoma have increased in recent years, new breeding pairs are not expected to nest on the WRA due to a lack of suitable eagle habitat. Summer resident bald eagles are not known or expected to travel over or forage on the WRA except on rare occasions. Summer resident eagles primarily use the Arkansas River and large reservoirs and lakes to nest and/or forage, and are not likely

to forage away from these areas, except to scavenge on large animal carcasses, such as dead livestock and deer. The risk of carcasses attracting eagles to the WRA can be minimized by proactively locating and immediately removing any deer or livestock carcasses from the WRA.

Migration. The risk of negative interactions between migrating bald eagles and wind turbines on the Chilocco WRA appears low based on several criteria. Bald eagles are solitary, diurnal migrants that soar at higher altitudes on thermals, all traits that reduce the likelihood of interactions with turbines. Local migratory paths are not known to occur near the WRA, however, the Arkansas River, located approximately 5 miles to the west and 3 miles to the north of the WRA, provides a potential migratory path. If migration along the Arkansas River occurs, there is the potential for transient migratory bald eagles to occur over the WRA. However, the lack of preferred foraging habitat on the WRA indicates that the likelihood of interactions between transient migrants and wind turbines is low.

Winter Season. The risk of negative interactions between wintering bald eagles and wind turbines on the Chilocco WRA appears to be low based on several criteria. Wintering bald eagles roost communally in large groups at established roost sites and show strong site fidelity to these roost sites year after year. These roost sites are located adjacent to large water sources, which the WRA lacks. Wintering bald eagles are sedentary in nature and are rarely observed away from roosts and adjacent waterways. However, bald eagles have been observed, though rarely, as winter transients of the WRA. The situations in which wintering bald eagles are found away from large waterways, e.g. scavenging winter-killed deer or livestock, are expected to be low on the WRA based on the minimal livestock grazing on the WRA. As previously mentioned, the risk of carcasses attracting eagles to the WRA can be minimized by proactively locating and immediately removing any deer or livestock carcasses from the WRA.

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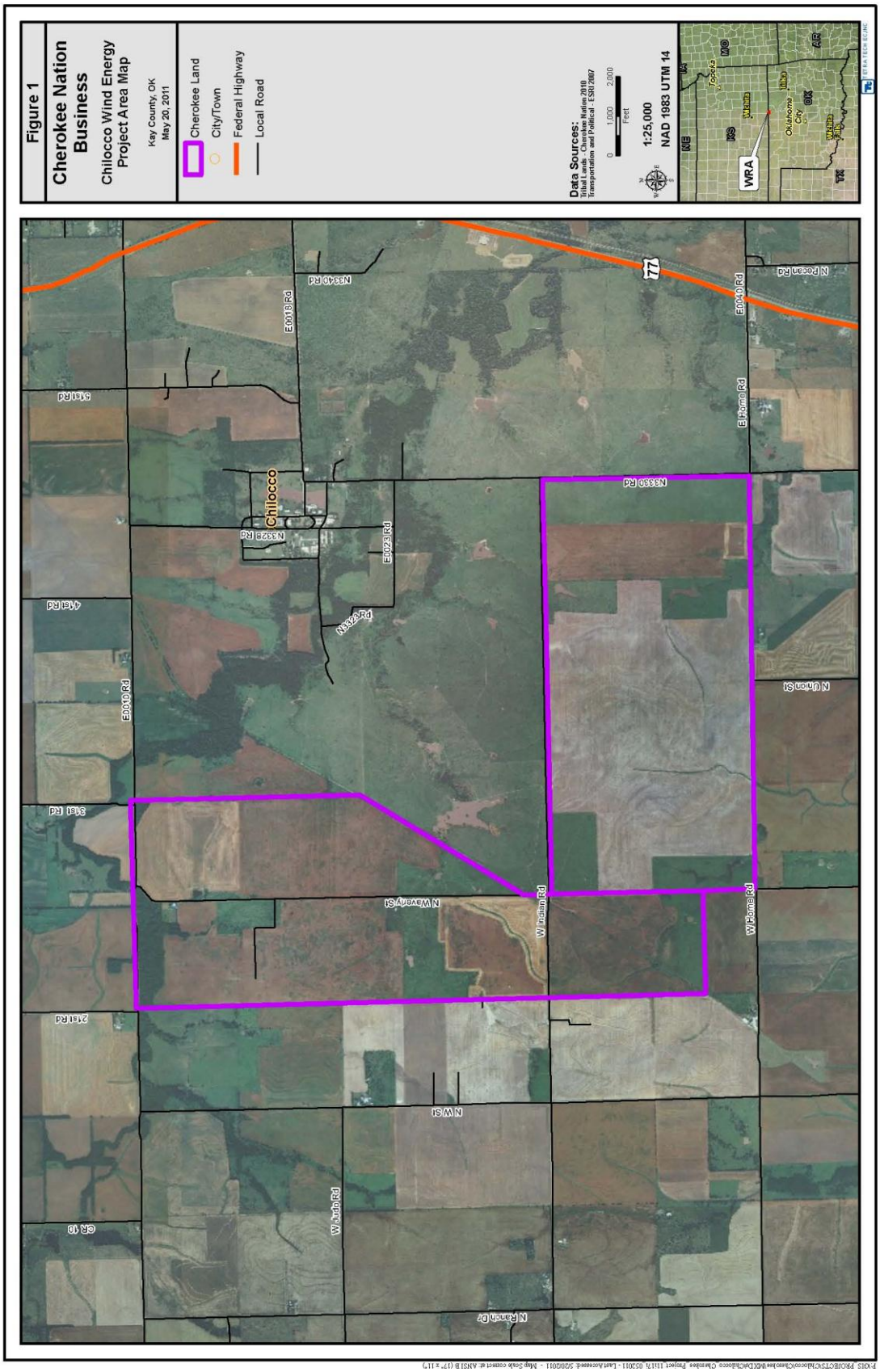


Figure 1
Cherokee Nation Business
Chilocco Wind Energy Project Area Map
Kay County, OK
May 20, 2011
Cherokee Land
City/Town
Federal Highway
Local Road
Data Sources:
Tribal Lands - Cherokee Nation 2010
Transportation and Political - ESRI 2007
0 1,000 2,000
Feet
1:25,000
NAD 1983 UTM 14
WRA
Chilocco
77
N3540 Rd
E0018 Rd
N3528 Rd
E0023 Rd
N3520 Rd
E0029 Rd
N3550 Rd
E0040 Rd
N Pecan Rd
Elphinn Rd
N Union St
W Hubbell Rd
W Homer Rd
N Ranch Dr
N W St
N Wavery St
W Hubbell Rd
CR 13
216th Rd
313th Rd
410th Rd
E0010 Rd
516th Rd

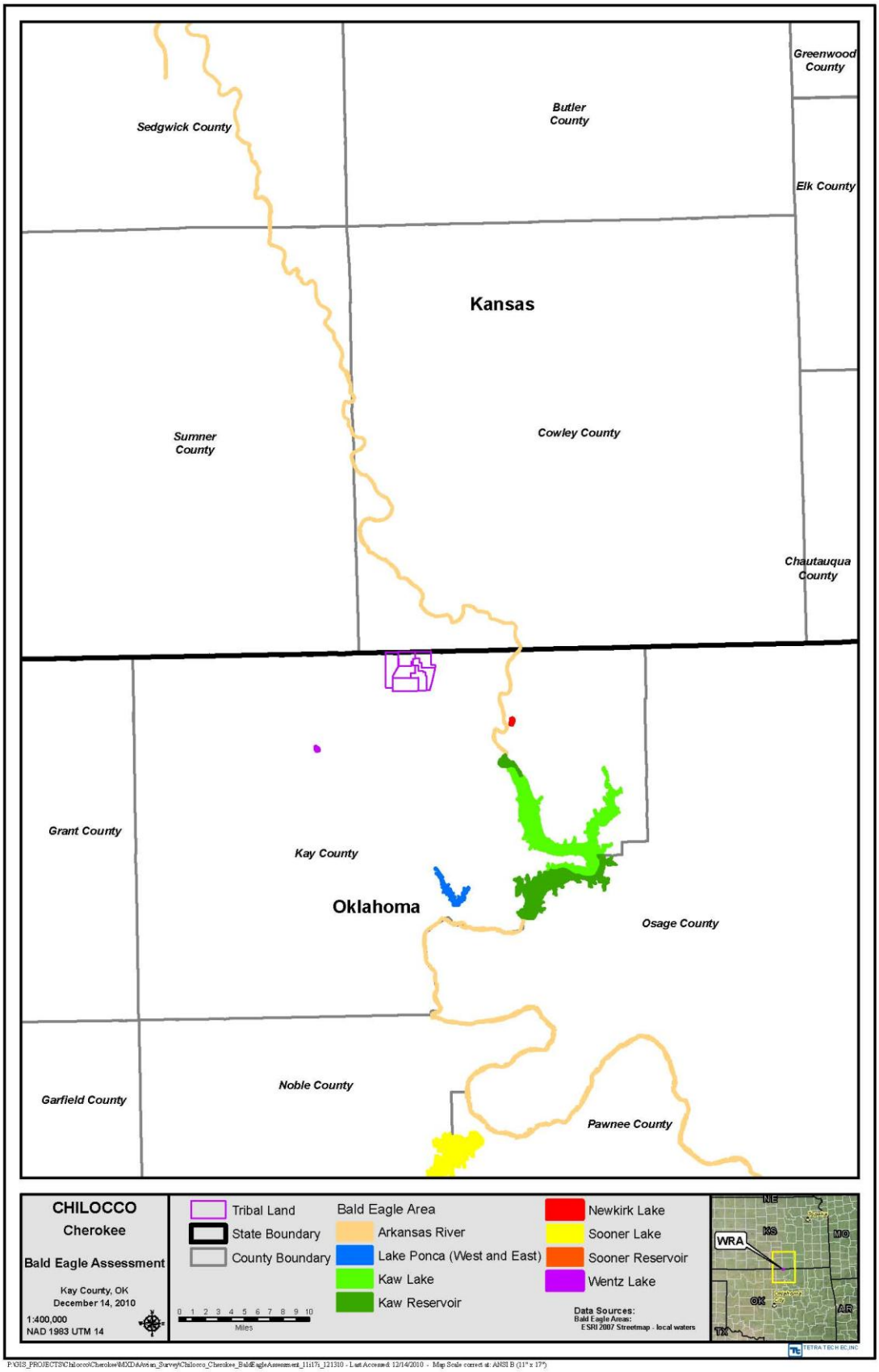

Greenwood County
Butler County
Sedgwick County
Elk County
Kansas
Sumner County
Cowley County
Chautauqua County
Grant County
Kay County
Oklahoma
Osage County
Noble County
Garfield County
Pawnee County
CHILOCCO
Cherokee
Bald Eagle Assessment
Kay County, OK
December 14, 2010
1:400,000
NAD 1983 UTM 14
Miles
Tribal Land
State Boundary
County Boundary
Bald Eagle Area
Arkansas River
Lake Ponca (West and East)
Kaw Lake
Kaw Reservoir
Newkirk Lake
Sooner Lake
Sooner Reservoir
Wentz Lake
Data Sources:
Bald Eagle Areas:
ESRI 2007 Streetmap - local waters
NE
KS
MO
WRA
OK
AR
TX
TETRA TECH EC, INC

Figure 3. Bald eagle population trends, 1960-1998 (Source: USFWS 2010)

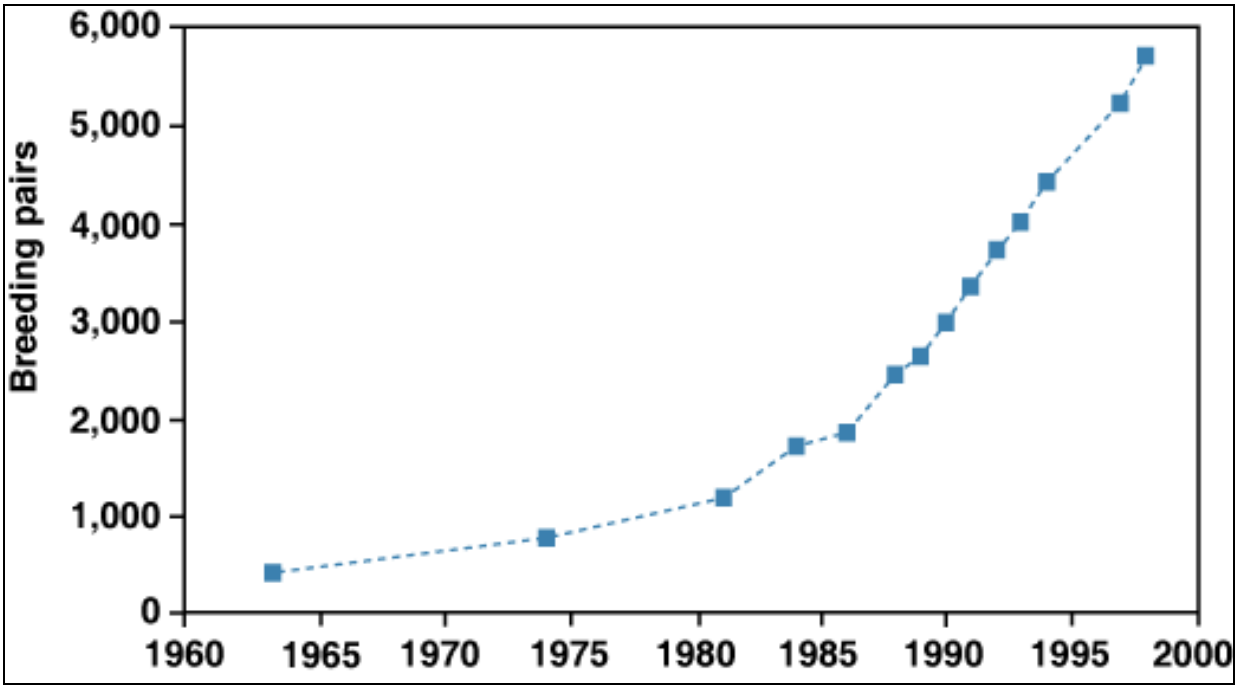


Figure 3. Bald eagle nesting data for Oklahoma, 1990-2009. Bars indicate number of occupied nests. (Increased numbers in 2009 attributed to increased survey effort) (Source: SARC 2010a)

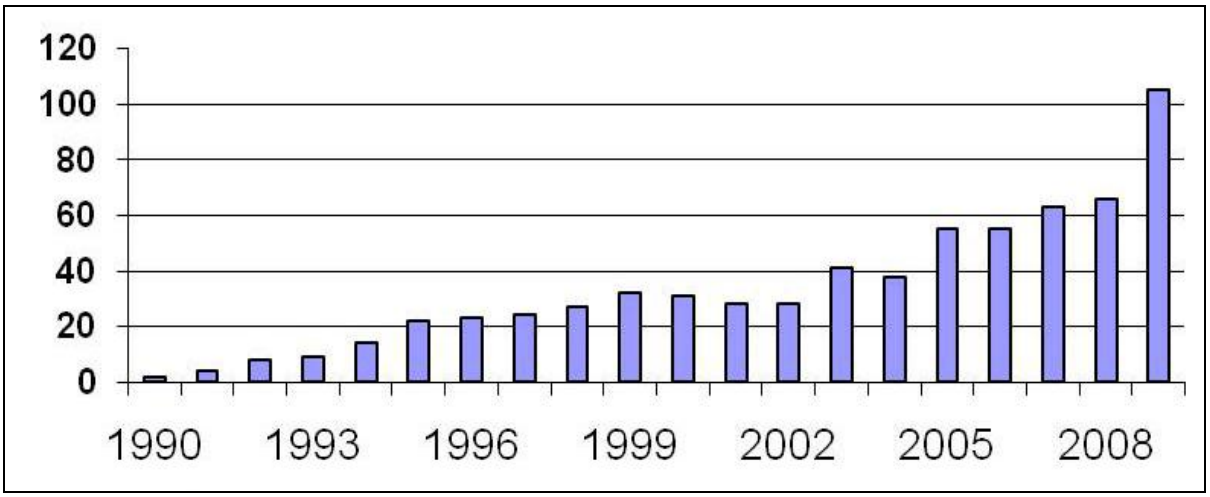
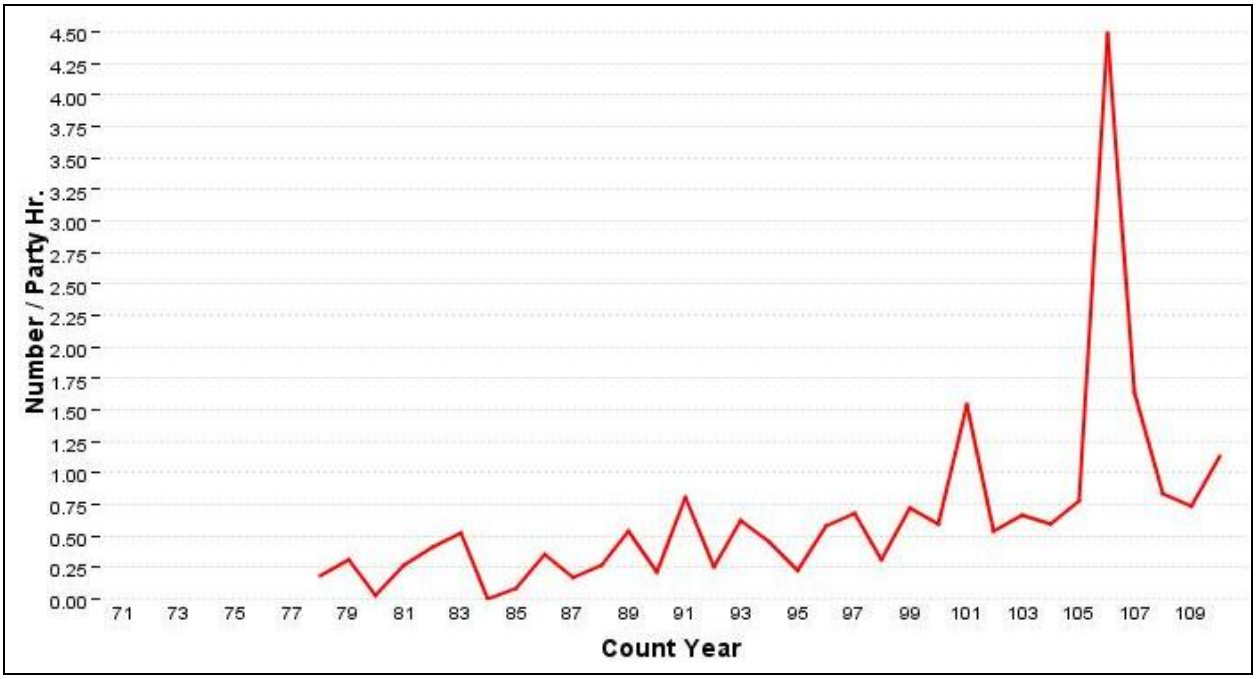


Figure 4. Bald eagle Christmas Bird Count data from the Arkansas City, Kansas Count Circle from winter 1970-1971 (year 71) to winter 2009-2010 (year 109) (Source: National Audubon Society 2010)



Study Report

Bald Eagle use of the Chilocco Wind Resource Area

Prepared for:

Cherokee Nation Businesses LLC
Tulsa, Oklahoma

Prepared by:

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August 2011

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List of Figures and Tables

1.0 INTRODUCTION

1.1 Overview

Wind energy provides a clean, renewable energy source that is currently in high demand. As the development of wind power generating facilities has increased, so has the need to address potential environmental impacts from those facilities. Birds have been identified as a wildlife group potentially at risk because of collisions with wind turbines and power lines, and displacement through development of wind energy infrastructure. Raptors are a source of specific concern because of raptor mortality levels observed at certain wind energy sites and the fact that the lower reproductive rate of this group increases the likelihood that fatalities might have population-level impacts (Erickson et al. 2005, Drewitt and Langston 2006). Concern about potential impacts on raptors from wind energy projects extends to bald eagles (*Haliaeetus leucocephalus*), although documented bald eagle fatalities are rare at wind energy projects in the United States (C. Farmer pers. Comm. 2011).

The bald eagle is currently federally protected under the BGEPA and the MBTA. The BGEPA prohibits the take of any bald or golden eagle, alive or dead, including any part, nest, or egg. "Take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" a bald or golden eagle. "Disturb" means to agitate or bother an eagle to a degree that causes, or is likely to cause, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. Currently, federal take permits are not available under the BGEPA, but are under consideration (USFWS 2009). The U.S. Fish and Wildlife Service (USFWS) uses discretion when prosecuting eagle mortality for energy development. The likelihood of prosecution can be reduced by demonstrating good faith effort to lower eagle mortality through avian use studies, micrositing turbines away from areas of high eagle use, and consulting with the USFWS.

The Cherokee Nation is proposing to develop a commercial wind energy conversion facility (Chilocco Wind Resource Area [WRA]) in the north central portion of Kay County, Oklahoma. Currently, 1.6 Mega-Watt (MW) GE wind turbine generators (WGTs) are being proposed; these turbines will have a rotor swept area (RSA) of 38.75 to 118.75 meters or 30 to 130 meters, depending on the sub-model selected. Previous avian surveys of the Chilocco Wind Resource Area (WRA) detected occasional bald eagles within the WRA (Young 2008). The documentation of bald eagle use on the WRA indicated the need to further examine bald eagle use of the WRA and to evaluate the potential for negative interactions between bald eagles and wind turbines. In an effort to assess the potential risk to bald eagles at the WRA, the Cherokee Nation contracted Tetra Tech, EC to conduct a study of Spring bald eagle use within and near the WRA. Weekly road-side and observation point surveys were conducted by Cherokee biologists from February 22 to May 31, 2011 for a total of 15 bald eagle surveys.

1.2 Bald Eagle General Information

Population trends. Bald eagles suffered drastic population declines starting during early human settlement and continuing into the mid-1900s. Historic declines of bald eagle populations were linked to

a variety of human related causes (Buehler 2000). Declines prompted listing as Endangered in 1967 under the Endangered Species Preservation Act of 1966 (Federal Register 32: 4001), followed by continued Endangered status with the passage of the Endangered Species Act (ESA) of 1973. Bald eagle populations have made dramatic recoveries since the early 1970s, and like historic bald eagle population declines, recovery is difficult to attribute to any single management effort (Buehler 2000). The bald eagle was delisted in 2007, as recovery goals had been met for over 10 years and populations continued to increase (USFWS 2010).

Breeding behavior. Bald eagle nests are typically constructed in the tallest available trees (Herrick 1924; Buehler 2000). Nests are used year after year in most areas; however, failed breeding attempts often cause mating pairs to build a new nest within their territory (Herrick 1924). Immature bald eagles tend to disperse from natal territory once they are independent of parents. Immature bald eagle dispersal patterns are unpredictable, and they appear to be opportunistic in their movements, depending on food availability and weather (Buehler 2010).

Migration. Adult bald eagles have a generalized migratory pattern, moving between breeding grounds in the north and wintering areas in the south. The timing of migration is variable and depends on the availability of food in the north with fall migration occurring mid-August to mid-November (primarily September-October) and spring migration occurring from March-May (Buehler 2000). Bald eagles are mainly solitary migrants, occasionally joining others, but they do not form large kettles as do some other raptor species (Buehler 2000). Migratory bald eagles typically fly during midday, soaring on thermals to reduce energy costs and following the general course of major rivers (Buehler 2000).

Wintering behavior. As a means of conserving energy, wintering bald eagles form large communal roosts and are largely sedentary, spending very little time flying (<3% of 24 hour cycle) (Stalmaster and Gessaman 1984). Roosts are typically formed in the tallest available trees and are often located adjacent to a regular source of prey (Buehler 2000). Roost site fidelity is high for wintering bald eagles with communal roosts forming year after year at the same location or tree (Buehler 2000). Winter roost sizes fluctuate from year to year, depending on the severity of the winter weather and related food availability in the north (A. Jenkins pers. comm. 2010).

1.2.1 Bald Eagles in Oklahoma

Breeding Season. Historically, bald eagles were common winter residents of Oklahoma and have not been known to breed in the state. Starting in the 1950s, occasional nesting records of bald eagles were reported (Jenkins and Sherrod 1993). Lish and Sherrod (1986) suggested that the large number of reservoirs created during the 1950s and the designation of a number of state and federal wildlife refuges created and enhanced wintering and breeding habitat for bald eagles in Oklahoma. Occasional records of nesting bald eagles continued into the 1990s (Jenkins and Sherrod 1993). Recently, the numbers of nesting bald eagle pairs have increased considerably (Sutton Center 2010a). Currently, there are an estimated 120 pairs of adult bald eagles nesting in Oklahoma (A. Jenkins pers. comm. 2010).

Migration. Migration data for adult bald eagles in Oklahoma is lacking. However, dispersal data for immature bald eagles are available from the Sutton Avian Research Center ‘s (SARC) satellite telemetry study (SARC 2010). In spring 2010, two nestlings (one female, one male) at Sand Springs, Oklahoma

were fitted with satellite transmitters. The two nestlings successfully fledged, and data for June-November is available on-line as single point per day location data. While the male fledgling first flew near Tulsa, Oklahoma and then south to eastern Texas, the female fledgling extensively used the Arkansas River drainage from Kaw Lake to Arkansas City, Kansas. The Arkansas River corridor provides suitable foraging habitat for migrating bald eagles and might serve as a migratory path for some bald eagles.

Winter Season. Bald eagles are well-established common winter residents of Oklahoma, usually present from October-April (Lish and Sherrod 1986; Young 2006). During winter months, the state of Oklahoma hosts 800-2,000 bald eagles (Tulsa Audubon Society 2010). Wintering bald eagles in Oklahoma often roost communally near large reservoir dams where fish injured from dam turbines are a reliable source of prey (Lish 1997). The following reservoirs are regularly listed on agency websites (US Geological Survey, Oklahoma Department of Wildlife Conservation) as places to view large numbers of wintering bald eagles: Kaw, Keystone, Texoma, Tenkiller, Ft. Gibson, Grand, Canton, Great Salt Plains, Tishomingo, and Spavinaw. Occasionally, wintering bald eagles in Oklahoma are observed away from waterways when winter-killed livestock or deer are available prey items (A. Jenkins pers. comm. 2010).

Overall trends indicate increasing winter bald eagle populations in Oklahoma (National Audubon Society 2010). The population increase in Oklahoma wintering bald eagles is consistent with the continent-wide increase observed for bald eagle populations. Within the overall increase in numbers, wintering bald eagle populations in Oklahoma fluctuate from year to year depending on the severity of winters in the northern portions of the winter range (A. Jenkins pers. comm. 2010).

1.2.2 Bald Eagles in Kay County and the Chilocco Wind Resource Area

Breeding Season. Bald eagle breeding has been documented at Ponca City, 19 miles from the Chilocco WRA (Young 2006) and at Sooner Lake since 1995 (SARC 2010), 36 miles to the south of the Chilocco WRA. Additionally, recent nest surveys conducted along the Arkansas River from Mulvane, Kansas to Kaw Reservoir, Oklahoma documented up to 10 active nests with one nest observed 4 miles north of the Walnut River and another approximately 9 miles SE of the WRA near Kaw Reservoir (E. Young pers. comm. 2010). Although bald eagles breed in Kay County, breeding is not known to occur or expected to occur on the WRA due to the lack of suitable nesting trees in proximity to foraging habitat (Young 2008). The Chilocco Creek on the WRA does offer a water feature with potential nest trees along its borders; however, the creek is largely grown over, and offers very little, if any, open water available to foraging bald eagles (Tetra Tech 2010). Furthermore, bald eagles are not regularly observed using the WRA during the breeding season (E. Young pers. comm. 2010).

Migration. According to Young (pers. comm. 2010), the bald eagle is a common spring and fall transient of Kay County. If the Arkansas River is used as a migratory path, then its proximity to the WRA might contribute to transient bald eagle use of the WRA. However, the quality of eagle habitat along the Arkansas River is better than the habitat available in the WRA, suggesting that transient eagles would be incidental in nature and rare in occurrence in the WRA.

Winter Season. Of the reservoirs known to attract large numbers of wintering bald eagles, Kaw Lake (Reservoir)(17,000 acres) of the Arkansas River is the closest to the Chilocco WRA with the upper

reaches approximately 6.5 miles from the Chilocco WRA and the lower portion and dam 19 miles from the WRA. Other large reservoirs with winter eagle residents in the greater vicinity of the Chilocco WRA are Sooner Lake (36 mi.), Keystone (63 mi.), and Great Salt Plains Lake (65 mi.). In addition to using large reservoirs, wintering bald eagles in Oklahoma roost and forage along the Arkansas River Drainage (A. Jenkins pers. comm. 2010), which lies approximately 5 miles to the east and approximately 3 miles north in Kansas. Data from the Christmas Bird Counts at the Arkansas City, Kansas Count Circle, which includes the WRA and a portion of the Arkansas River, indicate increasing winter bald eagle numbers near the WRA (National Audubon Society 2010). The amount of use on the WRA by winter bald eagles is thought to be a function of local winter severity, the amount of ice on the Arkansas River, the abundance of waterfowl, and the number of deer carcasses available (E. Young pers. comm. 2010).

The status of bald eagles on the Chilocco WRA is characterized by Young (2006) as rare winter resident, as three individuals were observed from late December-February (two individuals flying <150 meters) and one soaring at approximately 300 meters). Young (2008) recorded an additional three bald eagles as incidentals flying over the WRA during the winter months of 2006, 2007, and 2008. Although Young uses the term resident, all individuals observed were in flight and might have been in transit, potentially looking for foraging opportunities over the WRA. Young (2008) concluded that "The Bald Eagle is a common winter resident in Kay County". Young's assessment of the wintering bald eagle as rare on the WRA and common in Kay County reflects the relatively high use of the Arkansas River and Kaw Lake compared to the immediate surrounding areas.

1.3 Study Objectives

The purpose of this study is to further evaluate bald eagle use and flight behavior within and near (within 2 miles) the Chilocco WRA during late winter, spring migration, and early breeding season. The study objective is to evaluate the potential risk to bald eagles from the development the WRA by conducting field studies to document the level and type of bald eagle use within and near the WRA, flight corridors, and flight heights in relation to the turbine rotor swept area (RSA).

2.0 METHODS

2.1 Study Area

The proposed Chilocco Wind Resource Area (WRA) is located in the north central portion of Kay County, Oklahoma (Figure 1). The Chilocco WRA was initially composed of two areas, a western segment (approximately 2,633 acres) and an eastern segment (approximately 1,658 acres). However, a constructability review of the areas identified a number of problems with the eastern segment and it was removed from further study (Figure 1). Currently, 1.6 MW GE wind turbine generators (WGTs) are being proposed; these turbines will have a rotor swept area (RSA) of 38.75 to 118.75 meters or 30 to 130 meters, depending on the sub-model selected.

The WRA is relatively flat mixed grass prairie with scattered rolling hills, occasional shelter belts, few scattered ponds, ditches, and altered wetland areas, and the Chilocco Creek (Woods et al. 2005). The

WRA is located approximately 5 miles to the west and 3 miles to the south of the Arkansas River. Additional water bodies in the vicinity of the WRA include Wentz Lake approximately 7 miles to the southwest of the WRA, Newkirk Lake approximately 5 miles east of the WRA on the east side of the Arkansas River, and Kaw Lake, a large reservoir (17,000 acres) along the Arkansas River; the upper reaches of Kaw Lake are approximately 7 miles to the southeast of the WRA and the lower portion and dam of the reservoir is approximately 19 miles from the WRA (Figure 2).

2.2 Survey Methods

Surveys were conducted once weekly from late February through the end of May to assess bald eagle use of the WRA during late winter, spring migration, and early breeding season. Intervals between weekly surveys were kept as close to one week as weather and scheduling allowed. The survey schedule was alternated weekly between an early start and a late start, so that all daylight hours were surveyed adequately during the study.

Each weekly bald eagle survey consisted of two survey components, 1) *road-side survey*: driving a road survey route at 10 - 25 mph and 2) *fixed-point survey*: conducting observation survey from established survey points. Biologists alternated weekly the order the two components were completed, i.e., if week 1 survey started with the road-side survey and ends with the roost survey, then week 2 will start the survey with the roost survey and end with the road-side survey.

This study approach provided the best coverage of the project area and maximized the likelihood of observing bald eagle use, if any, within the WRA. The focus of the study is the qualitative characterization of the level of use and the nature of bald eagle use within the WRA; however, eagle use is also presented in this report as quantified data (bald eagles observed/unit observation effort).

2.2.1 Road-side Survey

The road-side survey consisted of two biologists driving in a single vehicle along an established survey route (~40 miles) at a speed of 10 to 25 mph while scanning trees and the sky for perched or soaring eagles (Figure 2). The survey route was designed to maximize coverage of the WRA and the surrounding area, using the grid of state highway and county roads to survey an area of 2 miles out from the boundary of the WRA. Vehicle speed was varied and was adjusted to an appropriate speed for the complexity of the surrounding landscape. The exact route driven was varied from week to week with a minimum of three sides of each survey route driven. Additionally, biologists alternated the direction that the route was driven so that landscape features were viewed from different angles.

2.2.2 Fixed-point Survey

The fixed-point survey consisted of weekly surveys from 4 established observation points (Figure 2). The observation points were chosen based on topography, available roosting habitat, and road access. The observation points were chosen to maximize visibility of areas were bald eagles could potentially roost (e.g., riparian corridor along Chilocco Creek). Observation points were approached slowly in vehicle to avoid flushing any perched eagles. Two biologists conducted a 30-minute fixed-point observation survey

at each of the 4 designated points each week. Forested areas and open sky were scanned with and without binoculars during the 30 minutes.

2.2.3 Documenting Bald Eagle Observations

For all eagle observations, observers recorded the observation number, species code, times first and last seen, time spent below, within and above the anticipated rotor swept area (RSA), age class (adult, immature or unknown), activity type (perched, flying, swooping, or other behavior), estimated flight height range or specific heights along flight path, behavioral observations such as locations where eagles appeared to be obviously hunting as well as areas of high prey abundance, and flight path and flight heights recorded on WRA maps. The amount of time an eagle flies in the proposed RSA (RSA exposure) is simply the amount of time that an eagle is observed flying within the WRA at a height of 30 to 130-meters assuming the WGTs are equipped with 100-m blade option.

3.0 RESULTS

3.1.1 Road-side Results

No eagles were observed during the road-side survey portion of the eagle surveys. The road-side survey averaged 41 miles of survey route per weekly survey, with a total of 612 miles of survey route driven during the 15 week study. A total of 32 hours and 54 minutes of road-side survey were logged, resulting in an average of 2.19 hours per weekly road-side survey.

3.1.2 Fixed-point Results

The four observation points were each surveyed a total of 15 times for 30 minutes for a total of 30 observation hours during the 15 week study. A total of five bald eagles were observed during the fixed-point surveys (0.17 eagles/hour of observation). All 5 bald eagles were observed on March 2, 2011 from observation point 2 (Figure 2). These five eagles were observed at the same time (1158 hours) flying loosely together, and were all observed for approximately 3 minutes (Figure 3). The five eagles maintained constant flight heights during the 3 minutes of observation; the heights of the eagles ranged from 50 to 90 meters (50, 50, 50, 80, 90 meters). The five bald eagles were identified as 2 adults and 3 immature eagles. The 5 eagles were first observed flying over a small agricultural pond that held a large number of waterfowl (approximately 2000) and appeared to be looking for hunting opportunities. A large portion of the waterfowl had taken flight and began dispersing in groups, presumably because of the presence of the 5 bald eagles. No take of the waterfowl by a bald eagle was observed.

When first observed, the 5 bald eagles were flying adjacent to, but outside of the WRA. Four of the eagles (2 adults; 2 immature) flew north along the eastern boundary of the northern section of the WRA. The other eagle (an immature) flew south and eventually over the southern section of the WRA (Figure 3) which resulted in a total of 1 minute of eagle RSA exposure. No nesting eagles were detected within the WRA or within the survey area (2-mile buffer from WRA boundaries); furthermore, roosting behavior was not observed within the survey area.

4.0 DISCUSSION

Eagle activity within the WRA was low during this study and was consistent with the assessment provided in the eagle desktop review (Tetra Tech 2011). That eagle activity within and near the WRA was limited to a single observation of 5 eagles detected when large numbers of waterfowl were observed suggests that eagle use of the Chilocco WRA is restricted to times of high prey influx. The age structure of the group of eagles (i.e., two adult and three immature) suggests that this might have been a family group cooperatively hunting.

The presence of large numbers of waterfowl within and near the WRA during the study was episodic, with large numbers recorded during the first and third weeks of March, indicating that the available water within and near the WRA provides stopover opportunities for migratory waterfowl. As the location of the WRA is within the Central Flyway, the use of the area by migratory waterfowl is expected and is likely comparable to spring waterfowl migration stopover use at most available waterways within the Central Flyway. No eagles were detected during the third week of March when large numbers of migratory waterfowl were again observed.

Although site eagle activity was low, the 5 bald eagles observed flew at altitudes that would put them at risk of collision with turbine blades had they been flying through an active wind farm such as that proposed for Chilocco. However, previous studies suggest that bald eagles demonstrate turbine avoidance behavior (Sharp et al. 2010). Additionally, the agricultural pond feature whose waterfowl appears to have attracted the eagles is located outside of the WRA, furthering the potential for WTG avoidance by eagles.

The lack of roosting or nesting eagles within or near the WRA provides further evidence that eagles make limited use of the lands within or near the WRA; possibly because prey abundance is not consistent enough to support nesting. Additionally, available roosting structures (e.g., large cottonwoods, etc.) are limited within the WRA, especially when compared to the available nesting trees along the nearby Arkansas River (Lish and Sherrod 1986; E. Young pers. comm. 2010). The bald eagles occasionally using the WRA are likely individuals that roost and/or breed along the Arkansas River and Kaw Reservoir (Figure 2).

The results of this study are consistent with previous avian studies (Young 2006) and the desktop review of eagle use in the WRA (Tetra Tech 2011); bald eagle use of the WRA is occasional in nature and appears to be related to prey abundance. The potential for negative interactions between bald eagles and WGTs are expected to be low, and restricted to occasional periods when prey availability is high (e.g., during spring waterfowl migration). Potential for eagle take can be minimized by avoiding siting turbines near wetland features and reducing other potential sources of prey (e.g., livestock carcasses).

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Figure 1. Project area map of the Chilocco Wind Resource Area.

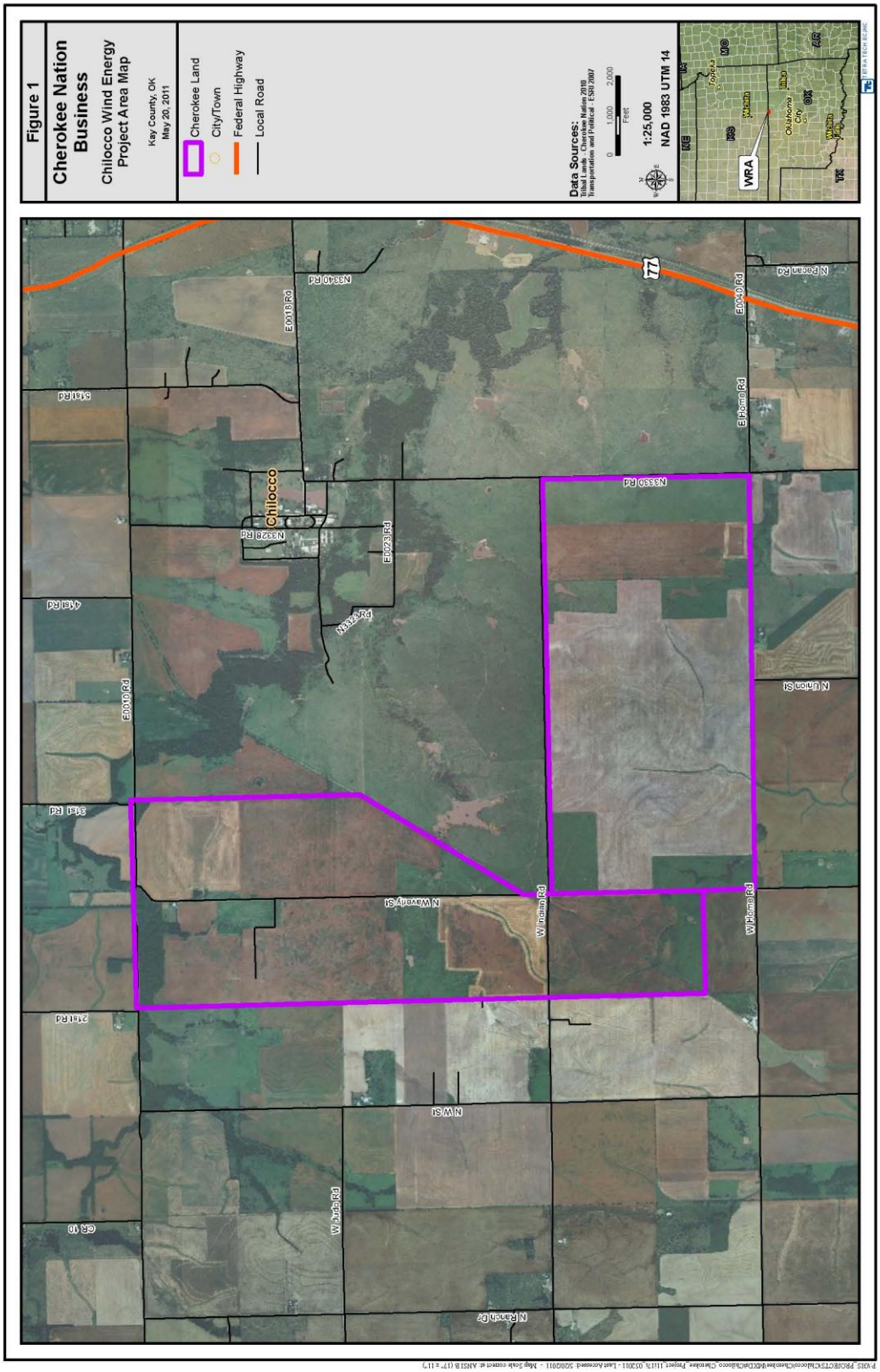

Figure 2. Waterways within the greater vicinity

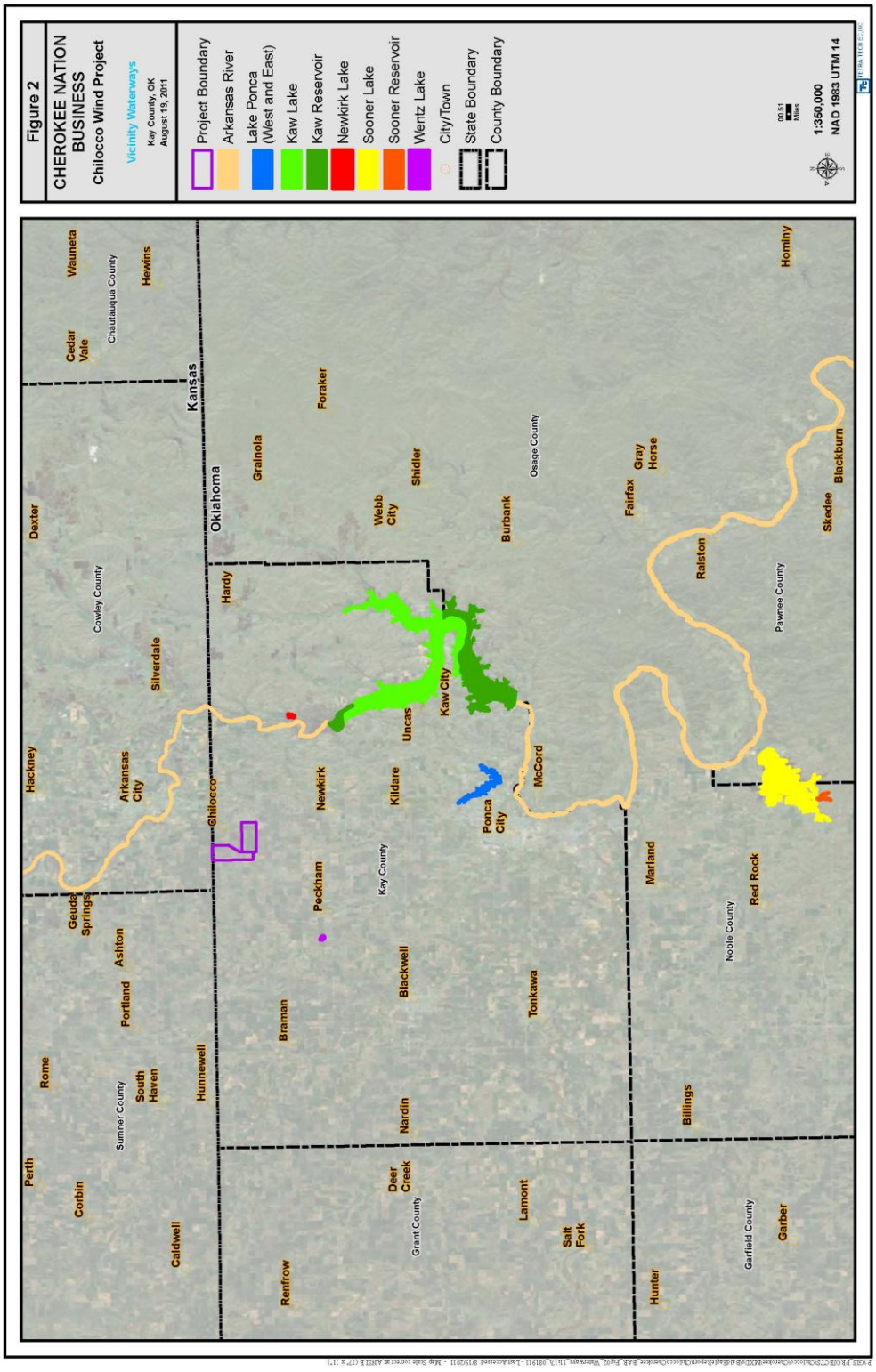

Figure 3. Road-side survey driving route and location of observation points

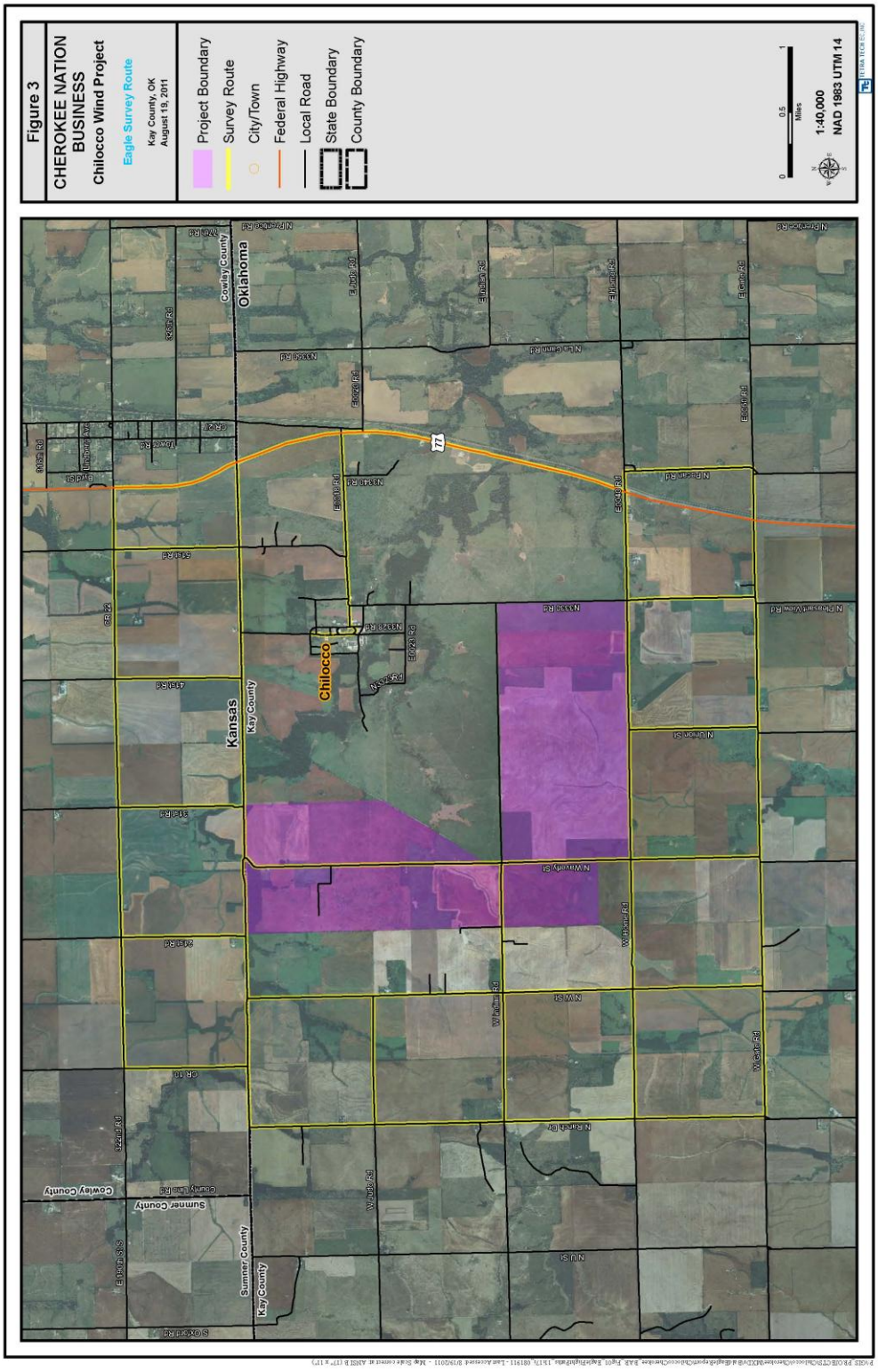

Figure 4. Flight paths of five bald eagles observed on March 2, 2011

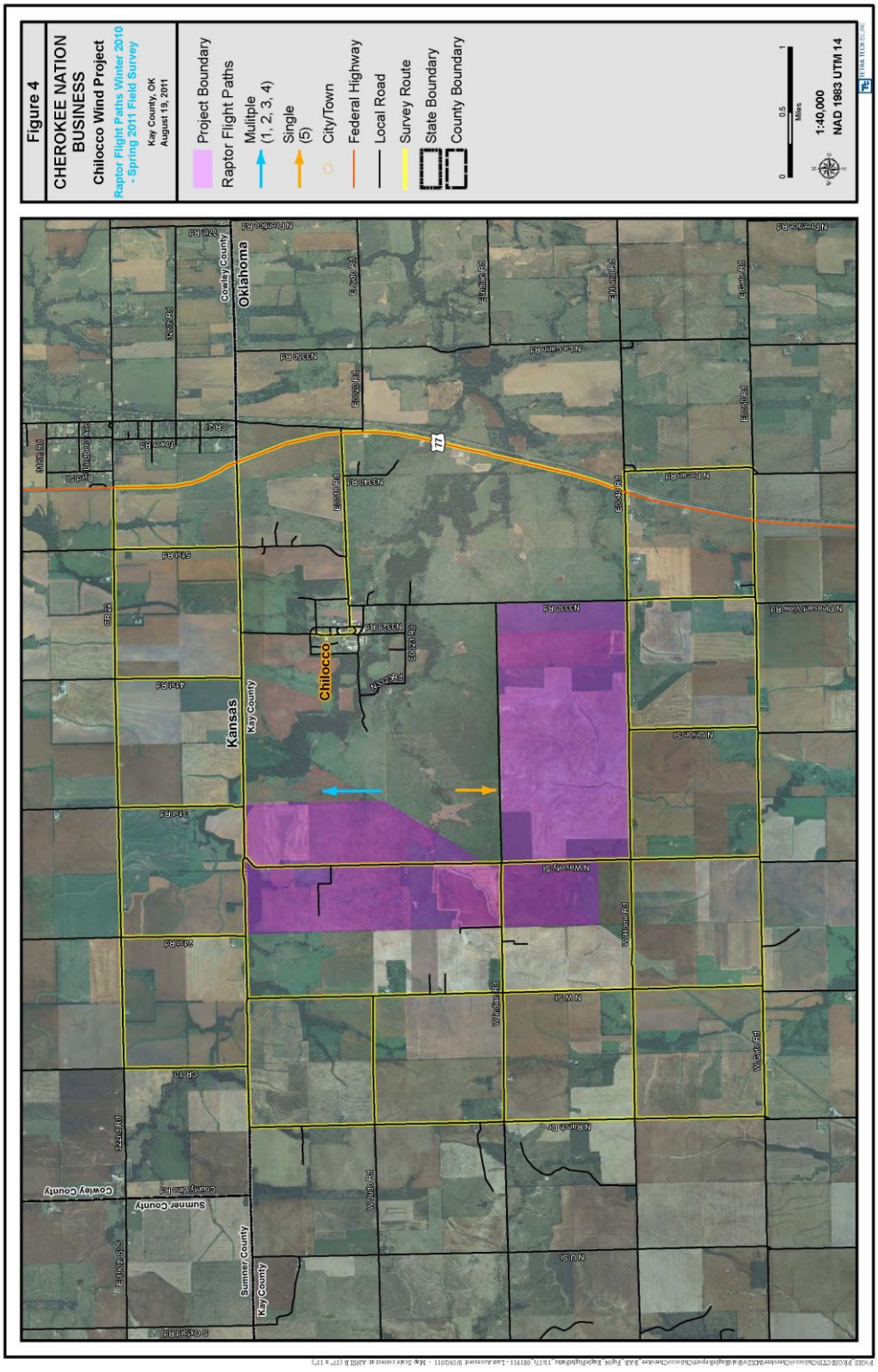

Table 1. Summary of survey periods and eagle observations overall, within the WRA (Chilocco Wind Resource Area), and within the RSA (Rotor Swept Area)

Week	Survey Date	Eagles Observed	Eagles within RSA	Eagles within WRA
1	2/22/2011	0	0	0
2	3/2/2011	5	5	1
3	3/10/2011	0	0	0
4	3/15/2011	0	0	0
5	3/22/2011	0	0	0
6	3/29/2011	0	0	0
7	4/5/2011	0	0	0
8	4/12/2011	0	0	0
9	4/19/2011	0	0	0
10	4/26/2011	0	0	0
11	5/3/2011	0	0	0
12	5/10/2011	0	0	0
13	5/17/2011	0	0	0
14	5/24/2011	0	0	0
15	5/31/2011	0	0	0
Total		**5**	**5**	**1**

OBS Ref. 2017-115-BUS-PNE

Dear Mr. Roden, Mar. 17, 2017

We have reviewed occurrence information on federal and state threatened, endangered or candidate species, as well as non-regulatory rare species and ecological systems of importance currently in the Oklahoma Natural Heritage Inventory database for the following location you provided:

Sec. 13 through 17 and 20 through 29-T29N-R2E, Kay County

We found 2 occurrence(s) of relevant species within the vicinity of the project location as described.

Bald Eagle(*Haliaeetus leucocephalus*), a federally protected species, two occurrences, one each in Sec. 22 and 23-T28N-R3E, Kay County.

Additionally, absence from our database does not preclude such species from occurring in the area.

If you have any questions about this response, please send me an email, or call us at the number given below.

Although not specific to your project, you may find the following links helpful.

ONHI, guide to ranking codes for endangered and threatened species:
http://vmpincel.ou.edu/heritage/ranking_guide.html

Information regarding the Oklahoma Natural Areas Registry:
http://www.oknaturalheritage.ou.edu/registry_faq.htm

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April 18, 2017

RE: Threatened and Endangered Species Update for the Proposed Chilocco Wind Farm

To Whom It May Concern:

SWCA Environmental Consultants (SWCA) has reviewed the biological studies associated with the previously approved EA for the purpose of updating any existing discrepancies between species federally listed at that time versus the current listings.

The 2012 species list included the piping plover (*Charadrius melodus*), whooping crane (*Grus Americana*) and the interior least tern (*Sterna antillarum athalassos*). The USFWS determined the project was not likely to adversely affect any of those species. SWCA ran a new IPaC report on March 15, 2017 that yielded two discrepancies, the listing of the red knot (*Calidris canutus rufa*) and the northern long-eared bat (NLEB, *Myotis septentrionalis*). The NLEB is, however, not listed for Kay County, Oklahoma where the project lies but rather Cowley County, Kansas, beyond the project area footprint. Upon further inspection, a shapefile projection issue in the IPaC system was discovered which resulted in the inclusion of the NLEB. After manual adjustment of the vertices to reflect the project footprint's actual setting being entirely within Kay County and re-running the IPaC report on April 18, 2017, the NLEB fell off the list. Therefore, the only discrepancy between the 2012 review and the current review is the inclusion of the red knot.

Most knots winter along the Chilean coast and migrate to the Canadian arctic breeding grounds by way of the Atlantic Coast. A small red knot population winters along the coast of Texas and migrates to the breeding grounds by way of the Great Plains. Even though this population passes over Oklahoma these birds are often flying thousands of feet above the ground, seldom making landfall in our state. To date, only 40 birds have been reported in Oklahoma. Of those birds, 85% have been reported during the fall migration. It is suspected inclement weather, inexperience of younger birds or weakened physical condition forces these birds to land during migration (https://www.wildlifedepartment.com/wildlife/nongamespecies/rufa-red-knot). According to the Oklahoma Natural Heritage Inventory, there are no known occurrence records for this species within the project area (ONHI 2017). Given the infrequent nature of landfall within Oklahoma and the project design that minimizes

wetland impacts which may serve as stopover habitat, adverse effects on red knots are considered unlikely.

If you have any questions or require any additional information, please contact Stephanie Rainwater at 918.219.9951 (SRainwater@swca.com) or Tom Koronkiewicz at 928.774.5500 (TKoronkiewicz@swca.com).

Sincerely,

SWCA Environmental Consultants

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Biologist
SWCA Environmental Consultants
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P 918.770.7983 | M 918.219.9951

Attachments
IPaC Report
ONHI Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Oklahoma Ecological Services Field Office
9014 East 21st Street
Tulsa, OK 74129-1428
Phone: (918) 581-7458 Fax: (918) 581-7467
http://www.fws.gov/southwest/es/Oklahoma/

In Reply Refer To: April 18, 2017
Consultation Code: 02EKOK00-2017-SLI-1354
Event Code: 02EKOK00-2017-E-02565
Project Name: Chilocco

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Non-federal entities conducting activities that may result in take of listed species should consider seeking coverage under section 10 of the ESA, either through development of a Habitat Conservation Plan (HCP) or, by becoming a signatory to the General Conservation Plan (GCP) currently under development for the American burying beetle. Each of these mechanisms provides the means for obtaining a permit and coverage for incidental take of listed species during otherwise lawful activities.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit through our Project Review step-wise process http://www.fws.gov/southwest/es/oklahoma/OKESFO%20Permit%20Home.htm.

Attachment(s):

- Official Species List

- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Oklahoma Ecological Services Field Office
9014 East 21st Street
Tulsa, OK 74129-1428
(918) 581-7458

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office:

Kansas Ecological Services Field Office
2609 Anderson Avenue
Manhattan, KS 66502-2801
(785) 539-3474

Project Summary

Consultation Code: 02EKOK00-2017-SLI-1354

Event Code: 02EKOK00-2017-E-02565

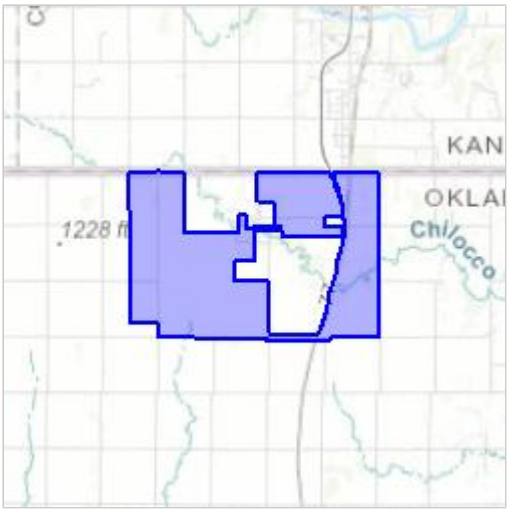
Project Name: Chilocco

Project Type: ** OTHER **

Project Description: wind farm

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/36.976972833067144N97.09082796243568W



Counties: Cowley, KS | Kay, OK

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Birds

NAME	STATUS
Least Tern *(Sterna antillarum)* Population: interior pop. No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8505	Endangered
Piping Plover *(Charadrius melodus)* Population: except Great Lakes watershed There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *(Calidris canutus rufa)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *(Grus americana)* Population: Wherever found, except where listed as an experimental population There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

Critical habitats

There are no critical habitats within your project area.

USFWS National Wildlife Refuges And Fish Hatcheries

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuges or fish hatcheries within your project area.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The migratory birds species listed below are species of particular conservation concern (e.g. Birds of Conservation Concern) that may be potentially affected by activities in this location. It is not a list of every bird species you may find in this location, nor a guarantee that all of the bird species on this list will be found on or near this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the AKN Histogram Tools and Other Bird Data Resources. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

NAME	SEASON(S)
Chestnut-collared Longspur *(Calcarius ornatus)*	On Land: Wintering
Least Bittern *(Ixobrychus exilis)* https://ecos.fws.gov/ecp/species/6175	On Land: Breeding
Mississippi Kite *(Ictinia mississippiensis)*	On Land: Breeding
Rusty Blackbird *(Euphagus carolinus)*	On Land: Wintering
Harris's Sparrow *(Zonotrichia querula)*	On Land: Wintering
Scissor-tailed Flycatcher *(Tyrannus forficatus)*	On Land: Breeding
Lark Bunting *(Calamospiza melanocorys)*	On Land: Breeding
Little Blue Heron *(Egretta caerulea)*	On Land: Breeding

Dickcissel *(Spiza americana)*	On Land: Breeding
Henslow's Sparrow *(Ammodramus henslowii)* https://ecos.fws.gov/ecp/species/3941	On Land: Breeding
Painted Bunting *(Passerina ciris)*	On Land: Breeding
Prothonotary Warbler *(Protonotaria citrea)*	On Land: Breeding
Upland Sandpiper *(Bartramia longicauda)* https://ecos.fws.gov/ecp/species/9294	On Land: Breeding
Red-headed Woodpecker *(Melanerpes erythrocephalus)*	On Land: Year-round
Golden Eagle *(Aquila chrysaetos)* https://ecos.fws.gov/ecp/species/1680	On Land: Wintering
Bald Eagle *(Haliaeetus leucocephalus)* https://ecos.fws.gov/ecp/species/1626	On Land: Year-round
Bell's Vireo *(Vireo bellii)* https://ecos.fws.gov/ecp/species/9507	On Land: Breeding
Loggerhead Shrike *(Lanius ludovicianus)* https://ecos.fws.gov/ecp/species/8833	On Land: Year-round
Short-eared Owl *(Asio flammeus)* https://ecos.fws.gov/ecp/species/9295	On Land: Wintering
Snowy Plover *(Charadrius alexandrinus)*	On Land: Breeding
Swainson's Hawk *(Buteo swainsoni)* https://ecos.fws.gov/ecp/species/1098	On Land: Breeding
Hudsonian Godwit *(Limosa haemastica)*	On Land: Migrating

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data http://www.birdscanada.org/birdmon/default/datasummaries.jsp

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

FRESHWATER EMERGENT WETLAND

- PEM1/SS1C
- PEM1Ch
- PEM1Ah
- PEM1C

FRESHWATER FORESTED/SHRUB WETLAND

- PSS1/EM1Ch
- PFO1/EM1A
- PFO1A
- PFO1Ch
- PFO1/EM1Ah
- PSS1Ch
- PFO1C

FRESHWATER POND

- PUSCh
- PUSAh
- PUBHh
- PUSA

OBS Ref. 2017-115-BUS-PNE

Dear Mr. Roden, Mar. 17, 2017

We have reviewed occurrence information on federal and state threatened, endangered or candidate species, as well as non-regulatory rare species and ecological systems of importance currently in the Oklahoma Natural Heritage Inventory database for the following location you provided:

Sec. 13 through 17 and 20 through 29-T29N-R2E, Kay County

We found 2 occurrence(s) of relevant species within the vicinity of the project location as described.

Bald Eagle(*Haliaeetus leucocephalus*), a federally protected species, two occurrences, one each in Sec. 22 and 23-T28N-R3E, Kay County.

Additionally, absence from our database does not preclude such species from occurring in the area.

If you have any questions about this response, please send me an email, or call us at the number given below.

Although not specific to your project, you may find the following links helpful.

ONHI, guide to ranking codes for endangered and threatened species:
http://vmpincel.ou.edu/heritage/ranking_guide.html

Information regarding the Oklahoma Natural Areas Registry:
http://www.oknaturalheritage.ou.edu/registry_faq.htm

Todd Fagin
Oklahoma Natural Heritage Inventory
(405) 325-4700
tfagin@ou.edu

Critical Issues Analysis: Cultural Resources

Chilocco Wind Resource Area
Kay County, Oklahoma

Prepared for
Cherokee Nation

June 2011

TETRA TECH EC, INC.

EXECUTIVE SUMMARY

A Critical Issues Analysis (CIA) of the proposed Chilocco Wind Resource Area (the Project) was completed to identify potential environmental, regulatory, and design issues associated with the Project. The CIA is a planning document based on desktop research intended to summarize avaiable resource information and highlight potential issues to be addressed during Project planning. It is not a substitute for more intensive investigations, such as archeological or architectural surveys that address Section 106 of the National Historic Preservation Act.

In the Project, the proponent, Cherokee Nation Enterprises, LLC, proposes to develop a wind farm comprising approximately 33 utility-scale wind turbines on 2,633 acres of Cherokee Nation tribal trust and fee land. The Project Area is situated south and west of the former Chilocco Indian School, in Kay County, Oklahoma. The proposed Project Area consists of all or portions of the following sections in Township 29 North, Range 2 East (T29N R2E): Sec 16 W½, 17 E½, 20 E½, 21 NW¼ and SW ¼ (portions), 27, 28, and 29 E½ (portions).

This CIA found that no comprehensive cultural resources survey of the Project Area or vicinity has been completed to date. There are no recorded archeological resources within the Project Area. Review of online sources also determined there are no inventoried historic properties within the physical boundaries of the Project Area as defined above. However, the Chilocco Indian Agricultural School, a historic district listed on the National Register of Historic Places, is situated approximately 1 mile from the Project boundaries. Visual and auditory elements of the proposed Project appear to have the potential to affect the district. Additional study is required to confirm these potential effects.

Planning for the Project has not yet progressed far enough to determine whether it will involve a federal nexus that would trigger review under Section 106 of the National Historic Preservation Act or the National Environmental Protection Act (NEPA). If either of these laws is triggered, then detailed study of the Project's effect on cultural resources would be necessary and would be undertaken in consultation with the Oklahoma State Historic Preservation Office (SHPO) and other parties, including interested Native American tribes.

Recommendations include:

1. Initiation of consultations with the SHPO at an early date;
2. Completion of required cultural resources studies;
3. Completion of due-diligence cultural resources studies if such studies are not required by applicable regulations; and
4. Inclusion of federally-recognized Native American tribes and other potential stakeholders in consultations concerning the possible effects of the Project on any significant archeological and historical resources or traditional cultural properties that may be present in the area.

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LIST OF FIGURES

1.0 INTRODUCTION

Under contract to the Cherokee Nation Enterprises, LLC (CNE), Tetra Tech EC, Inc. (TtEC) has prepared a Critical Issues Analysis (CIA) for the proposed Chilocco Wind Resource Area (WRA), in northern Kay County, Oklahoma (Figure 1). The CIA is a confidential planning document intended to synthesize available planning and environmental information at an early stage of project design to identify potentially significant environmental and regulatory issues, design constraints, and necessary studies and permits. This document provides a CIA for cultural resources; other documents prepared by TtEC consider other resource types and issues.

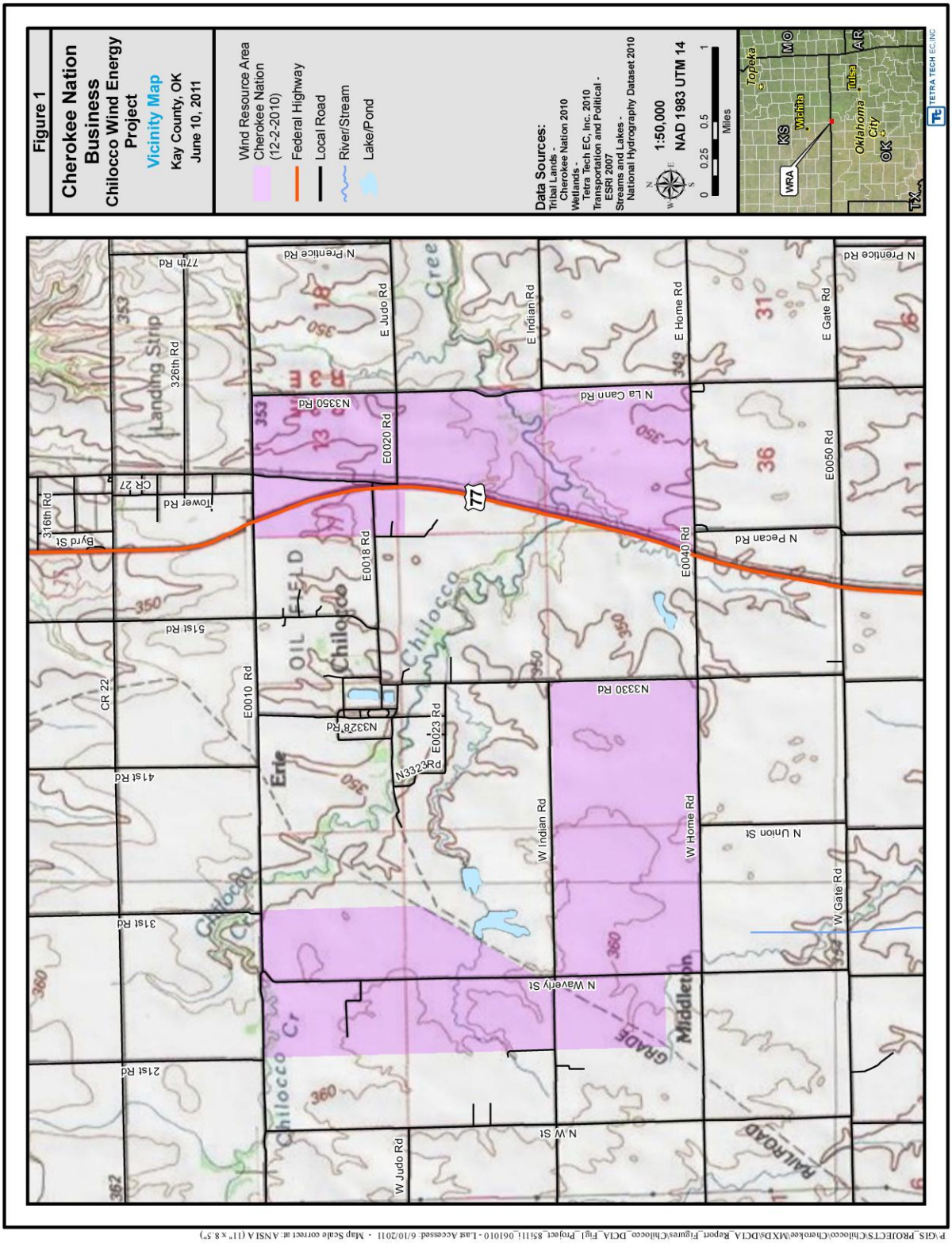
As part of the Chilocco WRA, CNE proposes to develop a wind farm comprising approximately 33 utility-scale wind turbines on 2,633 acres of Cherokee Nation fee and tribal trust land south and west of the former Chilocco Indian School, immediately south of the Kansas state border. For purposes of this document, the proposed Project Area consists of all or portions of the following sections in Township 29 North, Range 2 East (T29N R2E): Sec 16 W½, 17 E½, 20 E½, 21 NW¼ and SW ¼ (portions), 27, 28, and 29 E½ (portions) (Figure 2). The Project Area constitutes a portion of the historical Chilocco Reserve, an area of approximately 12 square miles established in the 1880s to support a federally-operated Indian boarding school. The Project Area is situated on agricultural land, including crop- and grazing land, outside the former core campus of the school.

Cultural resources include historically significant archeological sites, historic standing structures, objects, and districts, as well as traditional cultural properties. Such properties illustrate or illuminate significant aspects of prehistory or history or have significant cultural associations with long-standing communities or social groups. Designation of an archeological or architectural property as historically significant is based upon the eligibility criteria for the National Register of Historic Places (NRHP) (Title 36 *Code of Federal Regulations,* Part 63 [36 CFR 63]). The significance of sites or features identified as traditional cultural properties (TCPs) may be based on other, confidential, criteria that are not currently part of the NRHP evaluation process.

Available information indicates that the proposed Chilocco WRA may involve a federal nexus as a result both of the administration of Cherokee Nation tribal trust land through the Bureau of Indian Affairs (BIA) and because of potential federal funding assistance for developing the project. Depending upon future planning, the Project may be subject to review under both the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA). Permits and review processes under the jurisdiction of the State of Oklahoma, Kay County, or the Cherokee Nation may also apply to the proposed project.

This document is not intended to address the requirements of the review process under Section 106 (36 CFR 800) or other pertinent statutes or regulations. It is, instead, intended to summarize readily available information on cultural resources, identify potential critical issues, and discuss how to address subsequent steps in the cultural resources regulatory process.

Figure 1. Vicinity Map



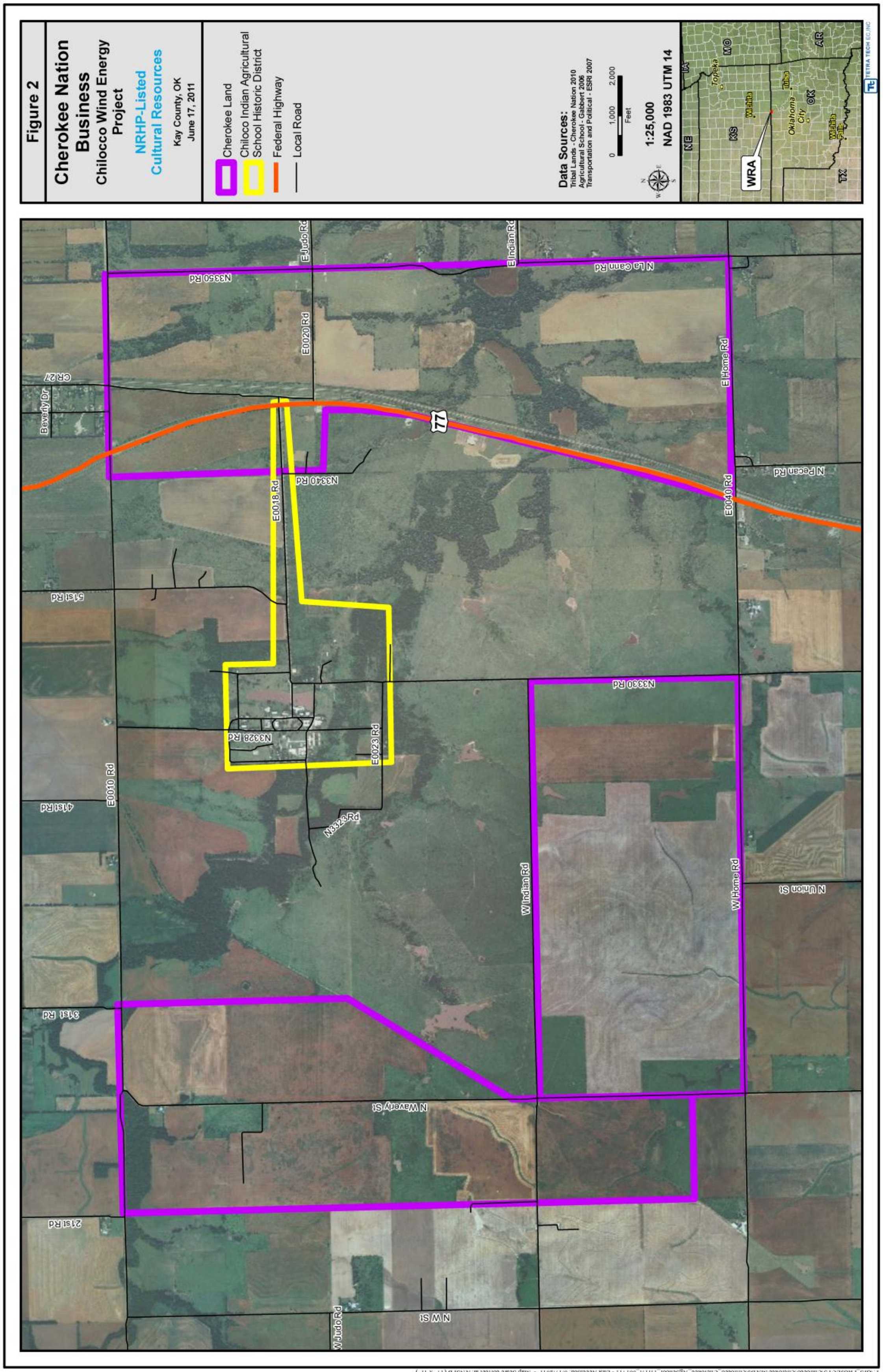


Figure 2
Cherokee Nation Business
Chilocco Wind Energy Project
NRHP-Listed Cultural Resources
Kay County, OK
June 17, 2011
Cherokee Land
Chilocco Indian Agricultural School Historic District
Federal Highway
Local Road
Data Sources:
Tribal Lands - Cherokee Nation 2010
Agricultural School - Gabbert 2006
Transportation and Political - ESRI 2007
0
1,000
2,000
Feet
1:25,000
NAD 1983 UTM 14
WRA
N3350 Rd
N La Cann Rd
E Judo Rd
E Indian Rd
E0020 Rd
E Home Rd
CR 27
Beverly Dr
77
N3340 Rd
E0018 Rd
N Pecan Rd
E0040 Rd
51st Rd
N3330 Rd
N3328 Rd
E0023 Rd
E0010 Rd
41st Rd
N3323 Rd
W Indian Rd
W Home Rd
N Union St
31st Rd
N Waverly St
21st Rd
N W St
W Judo Rd

2.0 INVENTORIED CULTURAL RESOURCES AND POTENTIAL RESOURCE ISSUES

Information on previously-inventoried cultural resources was obtained from several sources:

- Archeological site file check for a study area that included the current Project Area completed for CNE in December 2008 (Cojeen 2008);
- Telephone inquiries to the Oklahoma Archeological Survey (OAS) in April 2011; and
- Review in April 2011 of online databases, including the Oklahoma Landmarks Inventory (OLI) maintained by the State Historic Preservation Office (SHPO) and the NRHP's FOCUS database.

2.1 INVENTORIED ARCHEOLOGICAL SITES

No comprehensive, systematic archeological survey of the Project Area or vicinity has been completed to date. Available information is therefore necessarily incomplete.

According to an archeological records search in 2008 (Cojeen 2008), which was confirmed by a recent review of maps on file at the Oklahoma Archeological Survey (Thompson 2011), there are no inventoried archeological sites in the Project Area as defined herein.

The nearest recorded site is 34KA448. This site is situated approximately 3,100 feet east of the Project Area boundary in T29N R2E Sec 26. According to Cojeen (2008:1-2), Site 34KA448 is a collapsed stacked stone structure consisting of a "single cell… [and] wings," which has been dated to twentieth century on the basis of an inscribed date of 1934 found on the structure. The function of this structure and its NRHP eligibility are undetermined.

2.2 INVENTORIED HISTORIC RESOURCES

No comprehensive, systematic archeological survey of the Project Area or vicinity has been completed to date. Available information is therefore necessarily incomplete.

2.2.1 Oklahoma Landmarks Inventory (OLI)

The OLI (SHPO 2011a) lists five inventoried properties in the Chilocco area:

- Camp Schofield Site [historical monument]
- Chilocco Indian School Campus (Two Buildings) [sic—possibly Building 10, the Honors Dormitory, also known as the "Men's Club," a two-story, hip-roofed building constructed in 1937]
- Chilocco Indian School Reserve [campus and surrounding land, including Secs 13-16, 21-24, and 26-28 of T29N R2E]
- Chilocco National Guard Armory [Chilocco Indian School]

- Haworth Hall [Building 8, Chilocco Indian School]

The entry for the "Camp Schofield Site" refers to a purported Art Deco-style (ca. 1920-1940) historical monument memorializing a brief U.S. Army training encampment in 1889. The monument is supposedly located somewhere in T29N R3E Sec 17, some 2 or 3 miles east of the Project Area. The NRHP status of this monument is undetermined. The entry in the OLI contains a bare minimum of information, so it might actually refer not to a monument but to the site of the encampment itself, which is recorded in the Oklahoma Archeological Inventory as Site 34KA369, located in T29N R3E Secs 17 S½, 18 N½, and 19 (Cojeen 2008:2-4).

The remaining inventoried properties are all associated with the Chilocco Indian Agricultural School (operated 1884-1980). As discussed in the next section, the school's core campus area of about 288 acres was listed in the NRHP as a historic district in 2006, and Building 60, the National Guard armory, and Haworth Hall, all of which are included in the OLI as inventoried resources, are contributing elements to the district.

A check of the Historic Resources Inventory (KSHS 2011) determined that there are no inventoried historic properties close to the Project Area in neighboring Crowley County, Kansas.

2.2.2 National Register of Historic Places (NRHP)

Review of online information provided by the SHPO found only one property listed on the NRHP in the vicinity of the Project Area (SHPO 2011b). The Chilocco Indian Agricultural School (NR-06000792, listed September 8, 2006), a historic district of approximately 288 acres, is situated approximately 1 mile north of the Project Area in portions of T29N R2E Secs 14, 15, 22, and 23 (Figure 2). Encompassing 65 contributing resources and 11 non-contributing resources, this historic property comprises the core campus and main entrance for the now-closed school. The defined boundary of the property "includes the extant historic resources that represent the academic and vocational activities of the Chilocco Indian Agricultural School. The agricultural fields and pastures have been excluded, as has a section of farmland where agricultural buildings (no longer extant) were once located" (Gabbert 2006:39).

The Chilocco Indian Agricultural School is listed in the NRHP under Criterion A for its nationally-significant role in federal programs of Native American education from the late nineteenth to the mid-twentieth centuries. It is also listed under Criterion C for its distinctive assemblage of architectural styles and high degree of integrity associated with its period of historical significance (Gabbert 2006).

Checks of the NRHP FOCUS database (National Park and the Kansas Historical Society's National Register database (Kansas Historical Society 2011b) confirm that there are no other NRHP-listed resources in proximity to the Project.

In 2010, a state historic preservation society, Preservation Oklahoma, listed the Chilocco Indian School as one of Oklahoma's most endangered historic places (Preservation Oklahoma 2011a). According to the society, a nomination for listing the school as a National Historic Landmark (NHL) was prepared as a partnership project between Preservation Oklahoma, the Oklahoma SHPO, Native American tribes affiliated with the school, and others (Preservation Oklahoma 2011b). Like the NRHP listing, the draft NHL nomination emphasized the historical integrity of

the property. However, the draft NHL nomination also incorporated farmland adjoining the main campus on the north, east, and west for a total landmark area of 1,105 acres, nearly four times that of the listed NRHP district (Warde 2010). The NHL nomination was presented to and approved by the Landmarks Committee of the National Park System Advisory Board in November 2010, which forwarded it to the full advisory board for review in April 2011. However, the nomination is since reported to have been suspended or withdrawn, and its current status is unknown (National Park Service 2010, 2011b).

2.3 SENSITIVITY FOR ADDITIONAL ARCHEOLOGICAL AND HISTORIC RESOURCES

Prior to the expansion of Euroamerican settlement into Kansas and Oklahoma in the nineteenth century, the prairies in the Project vicinity were used for over 10,000 years by Native Americans, and numerous archeological traces of their presence occur in Kay County and in neighboring Crowley County, Kansas. According to Coojeen's (2008) report on the Project Area, a few ancient Native American archeological sites occur nearby. These sites are small lithic scatters, clusters of stone chips and similar debris left from the manufacture and maintenance of stone tools. Such sites typically represent brief episodes of occupation, such as travel or hunting camps, and usually contain small numbers of artifacts representing a limited range of activities. In the upland prairie environment characteristic of the Project Area, sites of this type are generally located close to the present ground surface. Though agricultural activities in the Project Area could potentially have diminished the integrity of such sites, archeological traces of ancient Native American use and occupation may still be present in the Project Area. If present, such sites most likely occur near springheads, along stream courses, at watercourse confluences, and near playas.

The Project Area has limited potential for containing historic archeological sites. Kay County was part of the Cherokee Outlet, a territory of 7 million acres ceded to the Cherokee Nation in 1835 by the Treaty of New Echota (Wilson 2011). With the Reconstruction Treaties of 1866, the Cherokee Nation was obliged to allow the federal government to situate other tribes there, but settlement of the Cherokee Outlet remained sparse. Early historic archeological sites in the region, if present, would therefore largely relate to transient activities, such as traveler, surveyor, and cattle camps. Significant Euroamerican settlement did not occur in the region surrounding the Chilocco Indian Agricultural School until the Cherokee Outlet land run of 1893 (Turner 2011). This opening of the former Cherokee lands to non-native settlement occurred nearly a decade after the 8,600-acre Chilocco Reserve was created in 1884, which was established for the use of the school. The reserve lands included the present Project Area, so available evidence indicates that any historic resources dating to the 1880s or later within the Project Area would relate to the school. Archeological sites associated with the school might include traces of agricultural outbuildings and other structures, such as bridges, as well as refuse disposal areas (dumps), temporary agricultural work areas, and the like.

Early twentieth-century plat maps emphasize the restricted nature of settlement within the historical Chilocco Reserve. A General Land Office survey plat of the reserve from 1907 indicates that the only buildings and structures within the school reserve at the beginning of the twentieth century were those associated with the school and that these buildings were concentrated in the historic core campus area (General Land Office 1907). No buildings or

structures are depicted in areas included in the current Project Area. Similarly, an early county atlas and plat book (Ogle 1910) shows several farmsteads immediately adjoining the Project Area to the west and south along Waverly and Home roads, respectively, but no development within the Chilocco Reserve, except by implication as associated with the school. Comparison of Ogle's (1910:42) map of the area in 1910 to a modern map (USGS 1976) indicates that some of these farmsteads are no long extant while others remain. Archeological traces of early farmsteads situated outside the boundaries of the Project Area would include building foundations, infrastructure such as wells and dumps, abandoned equipment, and similar traces. Small marked or unmarked family cemeteries or isolated graves may in some instances be associated with early prairie farmsteads.

Inspection of current Google Earth imagery indicates that outside the NRHP-listed Chilocco Indian Agricultural School, there are scattered buildings and structures, some of which occur at locations similar to structures shown on the early atlas and platbook (Ogle 1910). It is therefore likely that there are some uninventoried buildings and structures over 50 years old in the vicinity of the Project Area, but it is unknown whether such buildings are historically significant.

2.4 NATIVE AMERICAN TRADITIONAL CULTURAL PLACES (TCPs)

It is unknown whether the study area contains any traditional cultural properties (TCPs) associated with Native American groups or other communities or social groups that historically occupied the area. It is possible that historic-period TCPs existed at isolated places of the Chilocco Indian Agricultural School, outside the gaze of school authorities. Consultation with various tribes associated with the school would have to be undertaken to determine whether such resources are present.

According to the National Park Service's tribal consultation database (NPS 2008), there are 36 federally-recognized Native American tribes in Oklahoma:

- Absentee-Shawnee Tribe of Indians of Oklahoma
- Alabama-Quassarte Tribal Town, Oklahoma
- Apache Tribe of Oklahoma
- Caddo Nation of Oklahoma
- Cherokee Nation, Oklahoma*
- Cheyenne-Arapaho Tribes of Oklahoma
- Chickasaw Nation, Oklahoma
- Choctaw Nation of Oklahoma
- Citizen Potawatomi Nation, Oklahoma
- Comanche Nation, Oklahoma
- Delaware Nation, Oklahoma
- Fort Sill Apache Tribe of Oklahoma
- Iowa Tribe of Oklahoma
- Kaw Nation, Oklahoma*

- Kialegee Tribal Town, Oklahoma
- Kickapoo Tribe of Oklahoma
- Kiowa Indian Tribe of Oklahoma
- Miami Tribe of Oklahoma
- Modoc Tribe of Oklahoma
- Muscogee (Creek) Nation, Oklahoma
- Osage Nation, Oklahoma
- Otoe-Missouria Tribe of Indians, Oklahoma*
- Ottawa Tribe of Oklahoma
- Pawnee Nation of Oklahoma*
- Peoria Tribe of Indians of Oklahoma
- Ponca Tribe of Indians of Oklahoma*
- Quapaw Tribe of Indians, Oklahoma
- Sac & Fox Nation, Oklahoma
- Seminole Nation of Oklahoma
- Seneca-Cayuga Tribe of Oklahoma
- Shawnee Tribe, Oklahoma
- Thlopthlocco Tribal Town, Oklahoma
- Tonkawa Tribe of Indians of Oklahoma*
- United Keetoowah Band of Cherokee Indians in Oklahoma
- Wichita and Affiliated Tribes (Wichita, Keechi, Waco & Tawakonie), Oklahoma
- Wyandotte Nation, Oklahoma

*Has land interest in the Chilocco Indian Agricultural School historic district and vicinity.

Aside from these groups with potential interests in any consultations about the Project that may take place under Section 106, there may be additional groups located outside Oklahoma with substantial long-standing associations with the Chilocco Indian Agricultural School.

2.5 POTENTIAL CRITICAL ISSUES RELATED TO CULTURAL RESOURCES

To summarize the foregoing:

- No systematic archeological survey of the Project Area has been conducted.
    - Sensitivity or potential for the occurrence of prehistoric Native American archeological sites in the Project Area appears to be low to moderate;
    - Sensitivity for historic archeological sites predating the Chilocco Indian Agricultural School appears to be low; and

  - Sensitivity for historic archeological sites associated with the Chilocco Indian Agricultural School appears to be low to moderate.

- An NRHP-listed property, the Chilocco Indian Agricultural School, is situated approximately 1 mile north of the proposed Project.

- No systematic historic architectural survey of areas adjoining the Project Area and outside the boundaries of the historical Chilocco Reserve has been conducted. Buildings and structures more than 50 years old of unknown historic significance likely exist adjacent to the Project Area but outside the historical reserve boundaries.

- No information is available concerning the presence or absence of TCPs within the Project Area.

Gaps in the available data could be addressed by cultural resources surveys of the Project Area and vicinity. The design and level of effort required for such surveys would depend upon the specific regulatory context in which they are conducted. If there is no federal nexus, then the project proponent may not be obligated to conduct cultural resources surveys. If this is the case, however, the project proponent may still wish to conduct due-diligence investigations to identify and address any possible issues prior to project construction. On the other hand, if there is a federal nexus, then Section 106 of the NHPA would likely apply, and cultural resource investigations would need to conform to the requirements of the lead federal agency and would be conducted under guidelines of the Oklahoma SHPO. Such requirements and guidelines are likely to require a more intensive level of effort than an optional due-diligence survey.

Based on presently-available information, a single potential critical issue can be identified with respect to this project. This is the possible visual and auditory effects of the project on the NRHP-listed Chilocco Indian Agricultural School. The construction and operation of a utility-scale wind energy project in the vicinity of the historic property could introduce landscape elements that might affect the setting of the property and that detailed analysis might be assessed as an adverse effect. Given the early stage of planning for the project and the 1 mile separation between the Project Area and the resource, it is not currently possible to evaluate definitely whether adverse effects would occur. However, it is worth noting that the NRHP nomination highlights the existing integrity of the district, which is notable for its lack of "intrusions on the campus that are not related to its role in Indian education" (Gabbert 2006:37). As project planning advances, additional analysis may be necessary, and, if the effect of the project on the resource is determined to be adverse, direct or alternative mitigation measures might be necessary. Direct mitigation measures could include the introduction of vegetation screens adjustments to the layout to reduce the visibility of the turbines from the affected resource. Alternative mitigation measures might include projects that enhanced the condition or preservation of significant cultural resources in the Project vicinity or that enhanced the public education concerning such resources. The specific mitigation measures employed would be adopted in consultation with the relevant historic preservation agencies and various Project stakeholders.

3.0 REGULATORY COMPLIANCE AND PERMITS APPLICABLE TO CULTURAL RESOURCES

3.1 FEDERAL PERMITTING

If the Project is an "undertaking" by a federal agency, then it would be necessary for the agency to comply with Section 106 of the NHPA and its procedural regulations (36 CFR 800). These regulations require that the head of the relevant federal agency consider the effects of the agency's action on significant historic resources. Where more than one federal agency is involved, one is usually designated as the "lead federal agency," and it provides the primary review of the proposed action.

An undertaking is an action by an agency involving discretionary judgment or decision-making, and under Section 106, it entails an expenditure of funds or the grant of a license or permit. The proposed Project might involve an undertaking pursuant to Section 106 if, for example:

- The Bureau of Indian Affairs had to take action to transfer certain lands in the Project Area from fee status to tribal trust status; or
- Department of Energy or other federal agency funds were used to assist in development of the project; or
- A power-purchase agreement were executed with a federal agency (such as the Western Area Power Administration or the Tennessee Valley Authority);
- A U.S. Army Corps of Engineers permit was required to address wetlands or waterways issues; or
- The U.S. Fish and Wildlife Service issues an incidental take permit for incidental, inadvertant kills of organisms belonging to a species designated as threatened or endangered (a "T&E species").

The specific details of the project therefore drive the determination of whether Section 106 applies, and it is ultimately up to the federal agency or agencies involved to determine whether their actions constitute an undertaking under Section 106.

A Section 106 review would likely entail:

- An archeological investigation, including detailed background research and a field investigation to identify sites, possibly followed by further investigations to determine whether any of the identified sites are eligible for listing on the NRHP or the state-level OLI and to assess project effects;
- An architectural inventory to assess whether the Project Area and a surrounding buffer zone contain buildings or structures eligible for the NRHP or the OLI that may be affected by the project; and
- Consultation with Native American tribes with an interest in the area.

The involvement of federal agencies in the permitting process might also require Project review under the National Environmental Policy Act (NEPA), a law that subjects major federal actions to environmental review. Project impacts on historic and archeological resources are considered as part of a NEPA analysis, and it is generally advisable to coordinate cultural resources studies under Section 106 and NEPA for purposes of efficiency.

3.2 TRIBAL REGULATIONS

As of June 2011, there are apparently no Cherokee Nation environmental regulations that apply to Project effects on archeological and historic resources. However, the Cherokee Nation Environmental Protection Commission website notes that the Cherokee Nation Environmental Code "reserves Article 9 for historical and cultural preservation" (Cherokee Nation 2011). The Cherokee Nation in Oklahoma does not at present have a federally-recognized Tribal Historic Preservation Office (THPO).

3.3 STATE LAWS

As of June 2011, there is no comprehensive land use or similar regulations that require environmental review of Project impacts on historic and archeological resources. The Oklahoma Antiquities Law requires the State Archeologist to issue a permit prior to excavations or explorations of sites on state land or on the lands of its political subdivisions or on sites listed on the Oklahoma State Register (Oklahoma Statutes Title 53 ¶361). This statute also forbids unauthorized excavation or destruction of known sites on private land. The Oklahoma Burial Desecretation Law protects unmarked human graves and associated grave goods from unauthorized disturbance or destruction (Oklahoma Statutes Title 21 ¶1168) (Oklahoma Archeological Survey 2011; Oklahoma State Leglislature 2011).

3.4 LOCAL ORDINANCES

As of June 2011, there are no local ordinances applicable to the protection or investigation of archeological or historic properties in the Project Area.

4.0 RECOMMENDATIONS

1. At the earliest moment after a power-purchase agreement has been executed and design of the project is proceeding, consultation with the Oklahoma SHPO and pertinent tribal officials should be initiated. Such consultation should take the form of a letter with location map summarizing the purpose and design of the Project, known cultural resources in the Project vicinity, involved federal agencies, and anticipated permits and other factors that might trigger a formal project review under Section 106 or NEPA.

2. Conduct a field reconnaissance to confirm details of this desktop review and to obtain preliminary information on additional cultural resources that may be present in the Project Area.

3. If the project appears to involve a federal nexus, then cultural resource studies pursuant to Section 106 or NEPA should be initiated under federal agency and SHPO guidelines. A Section 106 review entails several stages of investigation and activity and may entail studies or other activities conducted by various types of specialists. Not all steps or activities may be needed in all cases, and the precise sequencing depends on Project specifics:

    - Detailed background research to establish cultural contexts and verify cultural resource inventories available from online sources;
    - Field identification surveys to systematically identify any archeological or architectural resources or traditional cultural properties that may be present in the Project area and that may be eligible for the NRHP;
    - Follow-up studies as needed to formally evaluate the NRHP eligibility of identified resources;
    - Assessment of Project effects on significant cultural resources;
    - Development of mitigation measures if needed and/or adjustments to Project designs to eliminate impacts; and
    - Execution of formal agreements among stakeholders concerning historic preservation issues.

4. If there does not appear to be a federal nexus triggering Section 106 studies, the project proponent should consider undertaking due-diligence cultural resource studies to ensure that the Project does not inadvertantly impact cultural resources. The studies and activities would be similar to those listed under the previous recommendation.

5. Stakeholders who may have an interest in the effects of the Project on cultural resources should be identified and afforded the opportunity to participate in consultations concerning these effects. Stakeholders might include, but would not necessarily be limited to: federally-recognized tribes in Oklahoma; federally-recognized tribes from outside Oklahoma who have a significant historical association with the Chilocco Indian Agricultural School; and any alumni or similar associations dedicated to preserving the history of the school.

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Class III Archaeological Survey

Proposed Chilocco Wind Farm Project

Kay County, Oklahoma
September 12, 2013

Prepared For:

PNE Wind, USA
9316 7th Ave S.
Seattle, WA 98108

Prepared By:

Westwood

Class III Archaeological Survey
For the Proposed Chilocco Wind Farm Project

Kay County, Oklahoma

Prepared for:
PNE Wind, USA
9316 7th Ave S.
Seattle, WA 98108

Prepared by:
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Project Number: R0000488.00

Federal Lead Agency – U.S. Bureau of Indian Affairs
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September 12, 2013

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ABSTRACT

Westwood Professional Services, Inc. (Westwood) was contracted by PNE Wind, USA of Chicago, Illinois to conduct a Class III Archaeological Survey of the proposed Chilocco Wind Farm Project. The Chilocco Wind Farm will be a 153-megawatt (MW) wind energy project consisting of 90, 1.7 MW GE wind turbines on tribal land situated in Kay County, Oklahoma. The project is being reviewed under Section 106 of the National Historic Preservation Act of 1966 (as amended), as much of the land is tribal trust land and therefore under legal title of the United States federal government. The United States Bureau of Indian Affairs (BIA) served as lead federal agency for the project. Abraham Ledezma Martinez, MS, RPA, served as Principal Investigator.

These investigations were conducted to determine if significant archaeological resources are located within the defined Area of Potential Effect (APE) of the proposed project. Field work was conducted on August 7-14, 2013. The APE was considered all locations which could potentially experience ground disturbing activities from the construction of proposed access roads, collector cable runs, crane paths, turbine locations, and a substation location. Field methodology included 100 percent pedestrian survey of the entire APE, a subsurface shovel test at every proposed turbine location, and subsurface shovel tests within the APE at 15-meter intervals within 300 feet of Chilocco Creek due to the higher potential for cultural resources near water sources. Finally, intuitive shovel testing was conducted in areas of high potential in locations with poor ground surface visibility.

Westwood also considered the Chilocco Indian Agricultural School. The school was an off-reservation boarding school used from 1884 through 1980. The school was listed on the National Register of Historic Places in 2006 under Criteria A and C. Tribal consultation was conducted directly by the BIA on a government to government basis.

Three previously undocumented archaeological sites were identified during this survey. The three sites, 34-KA-494, 34-KA-495, and 34-KA-496, are all prehistoric lithic scatters. All three sites will be avoided by project design, and a finding of *no historic properties affected* is recommended.

The Chilocco Indian Agricultural School will experience no direct physical effect from the proposed project. Extant trees which surround the school will limit indirect visual effects from the proposed project. All tribes which responded to the requests for consultation were satisfied with the level of work, and had no concerns of the project's effects upon archaeological sites, the Chilocco School, or traditional cultural properties and sacred sites.

No further work is recommended and the project may proceed as planned. Should there be additions or changes to the proposed construction plans, Westwood should be contacted to complete additional survey.

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APPENDICES

1.0 INTRODUCTION

Westwood Professional Services, Inc. (Westwood) was contracted by PNE Wind, USA (PNE) of Chicago, Illinois to conduct a Class III Archaeological Survey of the proposed Chilocco Wind Farm Project. Chilocco Wind Farm LLC is proposing to design, permit, and construct an approximately 153-megawatt wind energy facility, known as the Chilocco Wind Farm, within Kay County in north-central Oklahoma (**Exhibit 1**). The Chilocco Wind Farm will consist of 90, 1.7 MW GE wind turbines that will interconnect to the Chilocco Substation north of Newkirk, Oklahoma. Chilocco Wind Farm LLC involves a partnership between five tribes (the Kaw Nation, the Otoe-Missouria Tribe, the Pawnee Nation, the Ponca Nation, and the Cherokee Nation) and PNE.

Chilocco Wind Farm will be located in Sections (or parts thereof) 13-17, 20-23, and 26-29, T29N, R2E (**Exhibit 2**). The Project will encompass approximately 3,000 acres of land owned by a partnership of four tribes (the Kaw Nation, the Otoe-Missouria Tribe, the Pawnee Nation, and the Ponca Nation) and approximately 3,000 acres of land owned by the Cherokee Nation. The Chilocco Wind Farm includes the site of the former Chilocco Indian Agricultural School, which educated students from 1884 to 1980 and was listed on the National Register of Historic Places (NRHP) in 2006.

As much of the land is tribal trust land and therefore under legal title of the United States federal government, the project was deemed a federal undertaking. As a federal undertaking, the project is subject to review under Section 106 of the National Historic Preservation Act of 1966 (as amended). The United States Bureau of Indian Affairs (BIA) served as the lead federal agency for this project.

Abraham Ledezma Martinez, MS, RPA, served as Principal Investigator for the project. Field work was conducted August 7-14, 2013. Project design will include approximately 28 miles of access roads, 39 miles of collector cable runs, 29 miles of crane paths, 90 turbine locations and a substation location (**Exhibit 3**). The Area of Potential Effect (APE) for the proposed project consists of all locations where physical ground disturbance may occur (**Exhibit 4**). The proposed project area was examined using background research, a literature review, pedestrian survey, and subsurface shovel testing. The environmental background and historic contexts were examined to assess the probability of sites and what types of sites might be identified. This report details the methodology, results, and recommendations of the archaeological investigations conducted in partial fulfillment of Section 106 review.

2.0 ENVIRONMENTAL BACKGROUND

2.1 Topography

The dominant physiographic feature in the project area is a gentle slope, from north to southeast with a 30-foot wide creek incised into the surrounding plain from northwest to southeast. Chilocco Creek bisects the project area and has the lowest elevation of

1,114 feet associated with it on the eastern edge of the project. The highest elevation is within a cultivated crop field in the south-central portion of the project area, where an existing meteorological tower is located at 1,194 feet. Total topographic relief in the area is approximately 80 feet.

2.2 Vegetation

Based on land cover, 44% of the roughly 6,000-acre project area consists of cultivated cropland. The predominant cultivated crop is dry land winter wheat and oats. Grassland makes up approximately 40% of the project area and is managed as pasture. These areas include native and non-native grasses mixed with invasive species.

Woodlands are limited to the riparian area surrounding Chilocco Creek and buffering the Chilocco Indian School. Dominant species include eastern cottonwood (Populus deltoids), black walnut (Juglans nigra), silver maple (Acer saccharinum), American elm (Ulmus Americana), and green ash (Fraxinus pennsylvanica).

2.3 Soils

Information regarding soil types in the vicinity of the site was obtained from the NRCS Soil Survey Geographic Database (NRCS 2013). The dominant soil is silty loam, associated with much of the cropland in the project area. Soil types that are considered prime farmland include Bethany, Port, Kirkland, Agra, Foraker, Milan, and Renfrow. Topsoil depths range from shallow (0-6 inches) to relatively deep (greater than 6 to 12 inches). Runoff class reflects slope, surface texture, and the presence of bedrock near the surface, with soils in higher runoff classes reflecting either finer textures, steep slopes, or the presence of bedrock near the surface.

2.4 Geology

The geologic setting of the Chilocco area in Kay County, Oklahoma exists in a transitional area between the central red-bed plains geologic province on the west and the northern limestone-cuesta plains in the east. This area is characterized by thin soils over shales, sandstones and limestone caps forming flat expansive plains and gently rolling hills. In this area, these shallow-marine, deltaic and alluvial sedimentary rock deposits are less than 100 feet thick. Underlying this are layers of marine shale with interbedded sandstone, limestone, and coal with a thickness of approximately 100 feet. Below these are layers of cherty marine limestone approximately 50 feet thick. The deepest sedimentary layers in the area are approximately 700 feet thick and consist of marine limestone and dolomite, sandstone and shale. Igneous and metamorphic rocks consisting of granite and gneiss underlie the sedimentary rocks to depths of more than 30,000 feet.

2.5 Land Use

Land use within the project area is primarily agricultural and consisting of cultivated cropland, pasture, or grassland. The project is located on land previously used by the

Chilocco Indian Agricultural School for agricultural and livestock education between the years of 1884 and 1980. A large portion of the project area is used for row crop and forage crop production or for cattle pasture.

3.0 ARCHAEOLOGICAL CONTEXT

3.1 Cultural History

The Oklahoma Archaeological Society has developed archaeological contexts for Oklahoma. These contexts are based on years of prehistoric and historic research in the region in order to examine regional historic (Contact and Post-Contact) and prehistoric (Pre-contact) past. They are a general description and interpretation of regional history. The contexts give basic observations of current theories relating to prehistoric and historic people from different locations throughout the history of the region.

The Pre-Contact period is focused solely on Native American peoples before the arrival of Euro-Americans. This period is divided into four traditions: Paleoindian, Archaic, Woodland, and Villagers. These traditions are defined, and sub defined, by changes in technology and food sources exploited.

The Protohistoric cultural history is focused on the interaction of American Indians and Euro-Americans during the Contact and Post-Contact periods. These contexts range from the first contact between Europeans and American Indians during European exploration in the region (Contact), through Euro-American settlement of traditionally American Indian lands (Post-contact).

3.1.1 Pre-Contact Period

Paleoindian Tradition (12,000 to 8,000 Before Present [B.P.])

The first people to arrive in North America, the Paleoindians, crossed the Bering land bridge from Siberia to Alaska. When they arrived, approximately half of North America was covered by a glacial ice sheet. As the glaciers melted, the people moved south and eventually spread throughout the entirety of the Americas (Dobbs 1990). Pleistocene megafauna, such as mammoth and mastodon, roamed the land.

Paleoindian sites are relatively uncommon and difficult to locate by archaeologists due to buried deposits. The lack of stratified sites and the small number of artifacts from sites suggests that Paleoindian people lived in small, nomadic groups (Frison 1998). In Kay County, most Paleoindian archaeological evidence consists of a few lithic scatters but no well-defined kill site or camps have yet been identified (Brooks 1988). Environmental information has been derived from finds consisting of extinct fauna like the Trepp mammoth locality (Brooks 1988).

Paleoindians were small groups known best for hunting large megafauna, including mammoth, mastodon, and Bison antiquus - an extinct bison up to one-third larger than modern bison (Frison 1998). By 11,000 years B.P., mammoth and other megafauna were extinct, and the Paleoindians shifted their hunting focus to bison, the next largest mammal (Frison 1998). Evidence also suggests that these people not only hunted megafauna and large mammals, but also exploited other food sources such as fish, berries, nuts, and small mammals (Tankersley 1998).

The earliest Paleoindian spearpoints are easily identified by a distinctive flute down both sides. During the middle of the Paleoindian period lanceolate, nonfluted points began to emerge. During the late Paleoindian periods, we see a shift from fluted and lanceolate to exclusively lanceolate points.

The earliest of the fluted point style is known as the Clovis point, dating from 12,000 – 11,000 years B.P. (Justice 1987). The original Clovis point was recovered from the Blackwater Draw site and named after the nearby town of Clovis, New Mexico. The spearpoints from Blackwater Draw were found in direct association with late Pleistocene fauna including Columbian mammoth, horse, camel, bison, and saber-tooth cat (Dobbs 1990).

Following the Clovis point is the Folsom point, differentiated from Clovis by a decrease in length and an increase in the length of the flute. Dates of the Folsom Complex last from approximately 11,000 – 10,200 years B.P. (Hofman 1995). The Folsom point and type site is named after the city of Folsom, New Mexico, where a Folsom projectile point was recovered with the ribcage of the now extinct species of bison, Bison antiquus (Dobbs 1990).

The Late Paleoindian period generally begins toward the end of the Folsom Complex and lasts to the beginning of the Archaic Period. Late Paleoindian technology is marked by a change from the distinctive Folsom style. Lanceolate points vary greatly in style, but share the features of being nonfluted, unnotched, and finely flaked. They arrive in the archaeological record during the Folsom Complex, and continue to the end of the Paleoindian Tradition (Dobbs 1990).

Archaic Tradition (8,000 to 2,000 B.P.)

Evidence suggests that Archaic people lived in small groups occupying seasonal camps, much like their Paleoindian predecessors (Jones et.al. 2003), although some research counters this belief, suggesting that community size increased and groups became more sedentary (Dobbs 1990). The major innovations differentiating the Archaic people from the Paleoindian people

include a change in projectile point technology, the invention of groundstone tools, and a change in subsistence strategies. The Archaic Tradition is also noted for the development of regional differences, possibly due to regionalization of particular groups (Anfinson 1987).

By the beginning of the Archaic period, the megafauna had long been extinct. This resulted in a shift towards a more effective hunting and gathering subsistence. Hunters now focused on bison, deer, and small mammals. Some archaeologists believe that Archaic people became more regionalized partly due to the major biomes. This regionalization allowed the people to perfect the exploitation of local raw material and food sources (Dobbs 1990).

The Archaic Tradition technology is marked by a change in projectile point manufacture. Projectile points have shifted from lanceolate to notched and stemmed points and the flaking quality begins to diminish. Other innovations of the Archaic people is the appearance of groundstone tools created by friction from grinding, polishing, and pecking igneous and metamorphic rocks, such as granite and basalt (Brooks 1988).

A variety of settlement types are defined for the study region, including base camps, temporary hunting camps, bison kill sites, cemeteries, quarries, and less defined activity areas. Several camps containing organic (bone and shell) tools are preserved. Most of the information on Archaic life is derived from sites in eastern Oklahoma (Brooks 1988).

Woodland Tradition (2,000 B.P. to 1,200 B.P.)

The Woodland Tradition is generally divided into three periods – Early, Middle and Late. The Woodland Tradition is marked by the emergence of ceramic pottery vessels and the adoption of farming practices. The multiple contexts describing the Woodland period are a result of increased regionalization of the Woodland people (Brooks 1988).

The Woodland people most certainly exploited similar food sources to their Archaic ancestors. Bison, deer, and small mammals were still a major food source. Plants, such as wild rice, were exploited more heavily than in previous times, and there is evidence of cultivation of maize and squash (Dobbs 1990).

The primary technological advance during the Woodland Tradition is the advent of ceramic pottery. The original divisions of Early, Middle, and Late Woodland were differentiated by their technology. Ceramics during the Early Woodland period are normally thick and crude with cord-marked decoration on the exterior. Middle Woodland shows early evidence of earthen burial

mounds. Late Woodland continues the tradition of ceramics and burial mounds. Woodland sites in this region of Oklahoma include small villages or hamlets, base and temporary camps, workshops, and small rock mounds associated with burials (Brooks 1988).

Villagers (1,200 B.P. to 500 B.P.)

At the end of the Woodland Tradition, large societies of farming people established themselves along major rivers in Oklahoma. The people of this period continued to create ceramic vessels and earthen burial mounds. Populations became larger and even more regionalized than previous. These traditions lasted from the end of the Woodland Tradition to first contact with European explorers (Anfinson 1987).

The Village Farming cultures relied heavily on raising corn, beans, and squash supplemented by hunting game and collecting seasonal resources. The establishment of small to moderate-sized villages along terraces of major rivers due an increase in population led to a greater complexity in social organization. Throughout the state of Oklahoma, groups shared similar economies and levels of technology. Variations in farming and village patterns were maintained by all dependent on the physical environment (Brooks 1988).

Villages were comprised of 10 to 20 houses and a burial area. Burial areas are often associated with exotic goods indicating special treatment of individuals and status differentiation in their social organization. Corn horticulture intensified, as people became more regionalized and limited the number of different species of plants exploited. Perhaps the intensification of corn horticulture is a response to larger community size.

The site types assigned to the Plains Village Tradition are similar to the Woodland Tradition, and the archaeological remains of these complexes range from cemeteries to small burials, limited use sites to extensive habitation sites. Site location is also consistent with the previous period and depends on numerous factors, including the location of specific resources the people were using or the presence of a particular desirable environment (Brooks 1988).

3.1.2 Protohistoric (500 B.P.)

This period generally refers to the span of time extending from the first European explorations until intensive Euro-American settlement of the region. Possible archaeological site types associated with this period are generally consistent with those of earlier periods, but the influence of European and Euro-American traders, missionaries, settlers, and industries affected the locations of these sites. This period also includes the settlement patterns,

subsistence activities, and economic strategies employed by Euro-American immigrants. Associated archaeological and historic site types categorized in the Contact/Post-Contact period include standing structures as well as archaeological sites.

3.2 Archival Research

On July 8, 2013, Principal Investigator Abraham Ledezma Martinez requested a background review of the project area from the Oklahoma Archeological Survey (OAS) located at Oklahoma University in Norman, Oklahoma. This review was conducted to update a records search conducted of the general area by Christopher Cojeen in 2008, as well as a cultural resource Critical Issues Analysis performed in June 2011 by Tetra Tech EC, Inc. On August 12, 2013, Westwood Cultural Resource Scientist, Ryan P. Grohnke, went to the OAS offices and performed a records search in person. The results were the same as previously obtained directly from the OAS and previous reports. The Oklahoma State Historic Preservation Office's (OK SHPO) online databases were also examined to obtain information on historic/architectural resources.

A review of mapping acquired from the OAS indicated that only limited locations in the project area had been previously surveyed for cultural resources. Several of the surveys included BIA pond repairs or construction. These previous surveys did not cover any of the current proposed project's APE. A possible survey may have been conducted in the current project's APE on the western edge of Section 26 of Township 29N, Range 2E; however, as details could not be found on the survey, Westwood chose to resurvey that location.

The largest area of previous survey had been conducted within the SE ¼ of Section 21 and the SW ¼ of Section 22 in Township 29N, Range 3E. This survey had been completed by Bossey on July 1, 1990, for a proposed disposal area. Westwood still chose to resurvey the APE within this location out of due diligence, although the shovel test at proposed wind turbine generator 47 was not conducted due to the previous survey.

3.2.1 Previously Inventoried Archaeological Resources

Previously recorded cultural resource investigations within the project area and the one-mile buffer yielded evidence of seven previously recorded archaeological sites. All of the sites are located outside of the project area, but within a one-mile buffer, except for site 34-KA-448. Site 34-KA-448 is either just within or just outside the project boundary but outside of the APE. Six of the previously recorded sites were inventoried, but found to be not eligible for listing on the NRHP. Site 34-KA-448 was also inventoried, but its recorders state "future historians may find out more about the land improvement practices undertaken on the Chilocco School properties and thus nominate the

site for inclusion on the NRHP." A summary of the previously recorded archaeological sites is provided in **Table 3-1** below.

Table 3-1: Previously Inventoried Archaeological Sites

Site Number	Site Type	Cultural Period	NRHP Status	Project Area / Buffer
34-KA-398	Lithic Scatter	Unassigned Prehistoric	Not Eligible	Buffer
34-KA -399	Historic Trash Dump	Historic non-Indian	Not Eligible	Buffer
34-KA -401	Historic Farmstead	Historic non-Indian	Not Eligible	Buffer
34-KA -448	Rock Alignment	Protohistoric/Historic Indian	Further work may be necessary	Project Area or Buffer
34-KA -465	Historic Farmstead	Historic non-Indian	Not Eligible	Buffer
34-KA -466	Historic Farmstead	Historic non-Indian	Not Eligible	Buffer
34-KA -467	Historic Farmstead	Historic non-Indian	Not Eligible	Buffer

Key: Site Number = site designation applied by Oklahoma Archeological Survey; Site Type = defined site use type; Cultural Period = reported culture historic period affiliation; NRHP Status = eligibility for listing on the National Register of Historic Places; Project Area / Buffer = denotes if listed site is immediately within the defined project corridor or within a one-mile buffer of the project corridor.

3.2.2 Previously Inventoried Historic Resources

The OK SHPO maintains two databases in which historic properties have been inventoried. The Oklahoma National Register of Historic Places website is a compilation of all NRHP-listed properties located within the state of Oklahoma. The Oklahoma Landmarks Inventory (OLI) is a collection of historic properties throughout Oklahoma that the SHPO has recorded. Both databases were reviewed to obtain information for the current project.

A review of the Oklahoma National Register of Historic Places website maintained by the OK SHPO lists only one property within the vicinity of the proposed project area. The Chilocco Indian Agricultural School (NR ID 06000792) is an off-reservation Indian boarding school first built in 1884. It was listed in the NRHP on September 8, 2006. This historic district is surrounded by the Chilocco Wind Farm Project Area.

A review of the OLI indicates four previously inventoried properties in or within one-mile of the project area. All four properties are associated with and/or contributing to the NRHP-listed property, the Chilocco Indian Agricultural School. These properties include: Chilocco Indian School Campus (Two Buildings), Chilocco Indian School Reserve, Chilocco National Guard Armory, and Haworth Hall.

Chilocco Indian Agricultural School

Prior to the latter part of the 19th century, education of Native Americans had been dealt with primarily through missions and reservation schools. This policy changed through the efforts of Captain Richard Henry Pratt. In 1878 Pratt brought in teachers to instruct prisoners of war from the Arapaho, Cheyenne, and Kiowa tribes who had been placed under his guard (Reyhner and Eder 2004). After their release, some of the prisoners wished to continue their education so Pratt had them enrolled into the Hampton Institute. Following the success of the Indian students at the Hampton Institute, Pratt received permission to create a school for Indians of all tribes. Pratt established the Carlisle Indian Industrial School in 1879. This was the first of the off-reservation boarding schools.

The off-reservation boarding school system allowed for the education of Indian youth away from the influence of their cultures. Using a strong military disciplinarian attitude, the system hoped to Christianize and civilize Indian students. As Pratt said, "…the end to be gained…is the complete civilization of the Indian and his absorption into our national life…the Indian to lose his identity as such, to give up his tribal relations and to be made to feel that he is an American citizen" (Utley 1964). Following Carlisle, schools were established in Chemawa Oregon in 1880 and Chilocco in 1884 (Reyhner and Eder 2004).

In 1882, the United States Congress authorized an off-reservation Indian boarding school in Indian Territory (Oklahoma) near the Kansas state line and the Ponca and Pawnee reservations on land that had been deeded by the Cherokee. Major James Haworth, the superintendent of Indian Schools, chose the location near Chilocco Creek (Lomawaima 1994). First called the Haworth Institute, Chilocco, Indian Territory the name was changed to the Chilocco Indian Industrial School and later the Chilocco Indian Agricultural School. The original school property including the campus and fields had over 8,000 acres. Although primarily an agricultural school, Chilocco also taught industrial trades.

The school began as a single three story building serving as classrooms and dorms constructed in 1883. Classes began in January of 1884 with 150 students. Over 500 students were attending by 1910, and that number grew to

almost 1,300 in the 1950s (NPS 2013). Over the years, as enrollment grew so did the number of buildings needed for housing, staffing, and education.

The school's decline began in the 1960s due to changes in society and the Indian Service (NRHP 2006). In 1979, the United States Senate recommended the closing of Chilocco. On July 15, 1980, Chilocco Indian Agricultural School was closed. The campus was to be jointly owned by the Ponca, Tonkawa, Kaw, Pawnee, and Otoe-Missouria, with the surrounding land to be split between the five tribes. The Cherokee were also a given a portion of the land as well as 50% of mineral rights (NRHP 2006). Since its closure, the school has been used for various purposes; however, the buildings have largely been left empty and fallen into disrepair.

In 2006 the Chilocco Indian Agricultural School was listed on the National Register of Historic Places. It was listed as significant under Criteria A, "Property is associated with events that have made a significant contribution to the broad patterns of our history" for its role in Indian Education on a national level, as well as within the policies of the United States government toward Native peoples. It was also found significant at a state level under Criteria C, "Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction." The use of limestone in many of the buildings unites the different phases and styles of construction at the school, which is rare throughout the state of Oklahoma. Seventy-six resources were found to be located within the historic district, of which 65 are contributing to its listing on the NRHP. The NRHP-listed district is 288 acres in area and includes the campus and its entry road (**Exhibit 5**). The NRHP Registration form for the Chilocco Indian Agricultural School has been included as **Appendix A.**

4.0 METHODOLOGY

A Class III Archaeological Survey is conducted to determine if archaeological sites are present within the proposed project's APE. Should any sites be identified during the survey, enough information will be gathered to assess the impacts of proposed construction and provide recommendations on avoidance or additional work. The APE for this project was considered all locations within the project area that would potentially have direct physical disturbance by construction of the wind farm (**Exhibit 4**). The APE included access roads, collector cable runs, crane paths, turbine locations, and a substation location (**Exhibit 3**).

Previous record searches of the project area by Cojeen (2008) and Tetra Tech (2011) suggested that the area would have low potential for historic archaeological resources and a low to moderate potential for prehistoric archaeological resources. The most likely prehistoric

archaeological resources on the prairie would consist of lithic debitage most probably near the surface. The areas of highest potential for prehistoric cultural would be near water sources. Westwood concurs with the suggestions of Cojeen and Tetra Tech. The Scope of Work developed by the BIA also took into account this research.

The Scope of Work for the Class III Archaeological Survey was established by the BIA in a document dated August 5, 2013 (**Appendix B**). The scope called for 100 percent pedestrian survey of all locations of potential ground disturbing area. A subsurface shovel test would be placed at proposed turbine locations due to the significant amount of ground disturbance caused by turbine construction. Subsurface shovel tests would be placed at 15-meter intervals within 300 feet of Chilocco Creek due to the higher potential for cultural resources near water sources. Finally, intuitive shovel testing would also be conducted in areas of high potential in locations with poor ground surface visibility.

The investigative techniques utilized for this field work portion of the project were pedestrian survey and subsurface shovel testing. The techniques used in the field were the same as those established by the BIA in the scope of work. No deviation from the original scope was required.

Pedestrian survey of the entire APE was conducted at 5-15 meter intervals by teams of two. Pedestrian survey examined the ground surface for evidence of cultural surface features or the presence of artifacts. Much of the area had ample surface visibility for pedestrian survey. In locations with less visibility, the survey was still conducted to look for evidence of surface features, any areas with visibility were located and inspected, and the potential for cultural resources was assessed to determine if shovel testing should be conducted.

Shovel testing consisted of hand digging a 35-45 centimeter diameter excavation unit. Areas of low potential including wetlands or swampy areas, heavily sloped areas (greater than 20% slope), heavily disturbed locations, and areas that had been previously surveyed were not shovel tested. The depth of the excavated shovel test varied depending on the depth of the subsurface deposits. Shovel tests were excavated to culturally sterile sub-soil. All materials excavated from shovel tests or deep tests were screened through ¼" hardware mesh. All soil profiles were described in the field. Detailed field notes were recorded during field investigations.

5.0 INVESTIGATIONS AND RESULTS

Field work was conducted on August 7-14, 2013. Principal Investigator Abraham Ledezma Martinez directed the field investigations. Westwood Cultural Resource Scientist Ryan P. Grohnke assisted with project logistics. Field crew members included: John Fox, Elise Hargiss, Georgia LaMair, Grayson Larimer, Gregory Looney, and Mike Zuspann.

Prior to conducting field work, all required permissions were obtained from necessary parties. The BIA issued an ARPA (Archaeological Resources Protection Act) permit to conduct archaeological investigations on tribal trust lands administered by the BIA Southern Plains

Region and Eastern Oklahoma Region, as well as Cherokee tribally owned fee property (**Appendix C**). The BIA Pawnee Agency granted a permission to survey letter on trust lands of the Pawnee Nation of Oklahoma, the Otoe-Missouria Tribe of Indians, and the Ponca Tribe of Oklahoma (**Appendix D**). The Cherokee Nation granted right of entry on both tribal trust and fee lands (**Appendix E**). Additionally, right of entry to Kaw land was granted through the lease agreement between the Kaw Nation and PNE.

The entire APE, consisting of areas that could potentially experience ground disturbing activities, was investigated with pedestrian survey (**Exhibit 4**). A subsurface shovel test was placed at each turbine location, except for wind turbine generator 47 which was in a location that had been previously surveyed. Subsurface testing was conducted in intervals of 50 feet (15 meters) within 300 feet of Chilocco Creek; however, tests were not placed on slopes, or obviously inundated areas. Intuitive subsurface testing was conducted in two areas deemed high potential for the presence of archaeological sites based on distance from water, elevation, and lack of visibility. Intuitive area 1 is located near turbine 43 and resulted in a negative shovel test. Intuitive area 2 is located northwest of turbine 60 and resulted in a negative shovel test. Shovel test notes are located in **Appendix M**.

5.1 Archaeological Sites

Three previously unrecorded archaeological sites were identified during the Class III survey (**Exhibit 6**). All three sites were prehistoric lithic scatters. **Table 5-1** lists the archaeological sites identified during the survey.

Table 5-1: Identified Archaeological Sites

Site Number	Field Number	Site Type	Elevation	Site Acreage
34-KA-494	WPS-Chil-001	Lithic Scatter	1142 feet	0.55 acre
34-KA-495	WPS-Chil-002	Lithic Scatter	1138 feet	0.25 acre
34-KA-496	WPS-Chil-003	Lithic Scatter	1140 feet	0.75 acre

Key: Site Number = site designation applied by Oklahoma Archeological Survey; Field Number: site designation applied by Westwood personnel during field investigations; Site Type = defined site use type; Elevation = height of site above sea level; Site Acreage: size of site based on currently known site boundaries.

34-KA-494 (Field # WPS-Chil-001)

This site is a lithic scatter located in the SW ¼ of NE ¼ of SW ¼ of Section 15 in Township 29N, Range 2E of Kay County, OK (**Exhibit 6** and **Appendix F**). The site consists of a sparse lithic scatter of approximately 17 flakes of primarily Florence A chert observed on a two-track road. The two-track road is situated in a woodland approximately 150 meters east of Chilocco Creek on level land owned by the Ponca Tribe of Indians of Oklahoma. Agricultural fields are immediately to the north and south of the woodlot. The site most likely extends beyond the plotted boundary and outside of the current APE.

Site dimensions as currently defined are approximately 100 meters N-S X 45 meters E-W on 0.55 acre of land.

The APE intersecting with the site is a proposed collector run. Testing and evaluation of the site was not conducted, as the proposed project's design will be altered to avoid any impacts to the site.

34-KA-495 (Field # WPS-Chil-002)

This site is a lithic scatter located in the SE ¼ of NE ¼ of NW ¼ of Section 23 in Township 29N, Range 2E of Kay County, OK (**Exhibit 6** and **Appendix G**). This site was located outside of the project's APE on a nearby two-track dirt road on land owned by the Otoe-Missouria Tribe. A sparse lithic scatter of approximately 15 secondary and tertiary flakes of Florence A chert was observed. The two-track road is situated in grassland adjacent to Chilocco Creek. Immediately to the north of the site is a large lagoon and sewage disposal area. Should the site have extended to the north, that portion of the site would have been completely destroyed. It is possible that the site may extend further to the south toward Chilocco Creek. The site boundaries as currently defined are approximately 35 meters N-S X 50 meters E-W on 0.25 acre of land.

The APE in this area is a proposed crane path. It does not intersect the site, but instead is situated north of site 34-KA-495 in a heavily disturbed area. Testing and evaluation of the site was not conducted, as the proposed project will avoid any impacts to the site.

34-KA-496 (Field # WPS-Chil-003)

This site is a lithic scatter located in the SE ¼ of SW ¼ of SW ¼ of Section 15 in Township 29N, Range 2E of Kay County, OK (**Exhibit 6** and **Appendix H**). This site was located within the 300 foot corridor south of Chilocco Creek on land owned by the Ponca Tribe of Indians of Oklahoma. Shovel testing of the creek corridor revealed the presence of twelve Florence A flakes. A nearby two-track road bisects the site, indicating a possibly disturbed area of the site. Areas to the north and south of the two-track remain intact as revealed by shovel tests. A total of nineteen shovel tests were done in accordance with the 300 foot corridor. Twelve shovel tests tested positive for the presence of intact cultural deposits. It is possible that the site extends to the south. Site dimensions as currently defined are 60 meters N-S by 135 meters E-W on 0.75 acre of land.

The APE intersecting with the site is a proposed collector run and access road. Testing and evaluation of the site was not conducted, as the proposed project's design will be altered to avoid any impacts to the site.

5.2 Chilocco School

Although the project's APE for physical effects does not intersect with any of the NRHP contributing structures of the Chilocco Indian Agricultural School, the property was visited to assess its current condition and the potential for indirect visual effects. It was observed that with the exception of three structures currently being used for undisclosed purposes, all structures at the Chilocco School have become dilapidated and are in a serious state of disrepair. It was also noted that the school campus boundary is lined by trees which screen the external viewshed from the school itself.

5.3 Tribal Consultation

The BIA conducted consultation formally on a government to government basis with tribes whose lands will be affected by the proposed project. Those tribes who responded had no concerns in regards to the projects impacts on cultural resources including archaeological resources, the Chilocco School, or traditional cultural properties and sacred sites.

6.0 SUMMARY AND RECOMMENDATIONS

6.1 Archaeology

Three archaeological sites were identified as a result of this investigation. All the sites are prehistoric lithic surface scatters. Project design was altered to avoid all three sites. As all of the archaeological sites are being avoided by the proposed project, Westwood recommends a finding of *no historic properties affected* for the current project. Additionally Westwood recommends that no further archaeological investigations are warranted in the current APE (as of August 2013) and that the project may proceed as planned.

6.2 Chilocco School

Although turbines will be placed near the NRHP-listed property, the Chilocco Indian Agricultural School, the project will have no direct physical effects upon the school. Extant tree vegetation surrounding the school will screen the turbines from the campus and limit the indirect visual effects of the project upon the school. Additionally, four of the five tribes which make up the Chilocco Development Authority (the Kaw Nation, Otoe-Missouria, Pawnee Nation, and Ponca Nation) submitted a letter to the BIA that they, "agree and consent that the Chilocco School, though historically significant does not necessitate visual resource setbacks as it relates to wind power generation equipment" (**Appendix I**). The Tonkawa Tribe, which is the fifth member of the Chilocco Development Authority, did not sign the letter, but has provided no opposition or additional input.

6.3 Tribal Consultation

Formal government to government consultation was conducted by the BIA. Several tribes, including the Pawnee Nation of Oklahoma, the Otoe-Missouria Tribe of Indians, and the Ponca Tribe of Oklahoma, responded with letters that approved of the cultural resource survey, were satisfied with an unanticipated discovery provision in the lease, and gave consent for the project to proceed as there was no potential to affect known archaeological, historical, or sacred sites (**Appendix J**).

Westwood stresses that if any construction plans be altered to include areas that were not previously surveyed these locations must be examined for cultural resources. Although an archaeological survey was completed, there always remains the possibility of unidentified resources. If unrecorded archaeological sites are discovered during construction, all ground disturbing activities in the area should cease, and the BIA, the affected Tribes, and archaeologists at Westwood should be notified. *If human remains are encountered during construction activities, all ground disturbing activity must cease and local law enforcement must be notified as per the Burial Desecration Law (Oklahoma Statute Chapter 47 (Section 1168.0-1168.6).*

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APPENDICIES

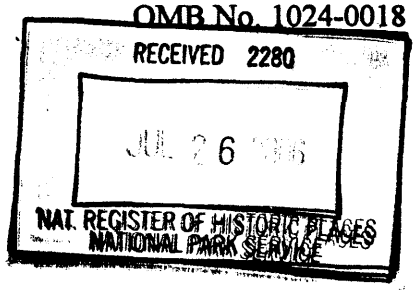
Appendix A:

Chilocco Indian Agricultural School –

National Register of Historic Places Registration Form

NPS Form 10-900
(Rev. 10-90)

OMB No. 1024-0018



792

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

1. Name of Property

historic name Chilocco Indian Agricultural School

other names/site number Chilocco Indian School ; U. S. Indian School, Chilocco

2. Location

street & number US 77 & E0018 Road not for publication N/A
city or town Newkirk vicinity X
state Oklahoma code OK county Kay code 071 zip code 74647

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this _X__ nomination ____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property _X__ meets ____ does not meet the National Register Criteria. I recommend that this property be considered significant _X__ nationally _X__ statewide ___ locally. (N/A See continuation sheet for additional comments.)

Signature of certifying official — Date 7-24-06

Oklahoma Historical Society, SHPO
State or Federal agency and bureau

In my opinion, the property ____ meets ____ does not meet the National Register criteria. (___ See continuation sheet for additional comments.)

Signature of commenting or other official — Date

State or Federal agency and bureau

4. National Park Service Certification

I, hereby certify that this property is:
X entered in the National Register 9/8/2006
___ See continuation sheet.
____ determined eligible for the _____ _____
National Register
___ See continuation sheet.
____ determined not eligible for the _____ _____
National Register
____ removed from the National Register _____ _____
____ other (explain): _____

_____ _____ _____
Signature of Keeper Date
of Action

5. Classification

Ownership of Property (Check as many boxes as apply)

- _X_ private
- ___ public-local
- ___ public-State
- ___ public-Federal

Category of Property (Check only one box)

- ___ building(s)
- _X_ district
- ___ site
- ___ structure
- ___ object

Number of Resources within Property

Contributing	Noncontributing	
43	4	buildings
1	0	sites
18	7	structures
3	0	objects
65	11	Total

Number of contributing resources previously listed in the National Register 0

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.)
N/A

6. Function or Use

Historic Functions (Enter categories from instructions)
Cat: EDUCATION Sub: School

Current Functions (Enter categories from instructions)
Cat: VACANT/NOT IN USE Sub: _____

7. Description

Architectural Classification (Enter categories from instructions)
LATE VICTORIAN: Romanesque Revival; Folk Victorian
LATE 19TH & 20TH CENTURY REVIVAL: Colonial Revival
LATE 19TH & 20TH CENTURY AMERICAN MOVEMENTS: Craftsman
MODERN MOVEMENT
OTHER: No Distinctive Style

Materials (Enter categories from instructions)
foundation CONCRETE
roof ASPHALT
walls STONE: Limestone
BRICK; WOOD: Weatherboard
other _____

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

XX A Property is associated with events that have made a significant contribution to the broad patterns of our history.

____ B Property is associated with the lives of persons significant in our past.

XX C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

____ D Property has yielded, or is likely to yield information important in prehistory or history.

Criteria Considerations (Mark "X" in all the boxes that apply.)

____ A owned by a religious institution or used for religious purposes.

____ B removed from its original location.

____ C a birthplace or a grave.

____ D a cemetery.

____ E a reconstructed building, object, or structure.

____ F a commemorative property.

____ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

EDUCATION
ETHNIC HISTORY: Native American
POLITICS/GOVERNMENT
ARCHITECTURE

Period of Significance 1883-1956

8. Statement of Significance (Continued)

Significant Dates _____
_____

Significant Person (Complete if Criterion B is marked above)
_____

Cultural Affiliation _____
_____
_____

Architect/Builder Bidwell, Edmund, architect; Pauley, Hoyland & Smith, architects
Hopper, George, builder

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS)
__ preliminary determination of individual listing (36 CFR 67) has been requested.
__ previously listed in the National Register
__ previously determined eligible by the National Register
__ designated a National Historic Landmark
__ recorded by Historic American Buildings Survey # _____
__ recorded by Historic American Engineering Record # _____

Primary Location of Additional Data
_X_ State Historic Preservation Office
___ Other State agency
_X_ Federal agency : BIA
___ Local government
___ University
____ Other
Name of repository: _____

10. Geographical Data

Acreage of Property approx. 288

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing		Zone	Easting	Northing
1	__	_____	_____	3	__	_____	_____
2	__	_____	_____	4	__	_____	_____

X See continuation sheet.

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Jim Gabbert, Architectural Historian

organization Oklahoma State Historic Preservation Office date _____

street & number _____ telephone _____

city or town _____ state __ zip code _____

Additional Documentation

Submit the following items with the completed form:
Continuation Sheets
Maps
A USGS map (7.5 or 15 minute series) indicating the property's location.
A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs
Representative black and white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of the SHPO or FPO.)

name Kaw Tribe of Oklahoma; Chairman ******

street & number PO Box 50 telephone (580) 269-2552

city or town Kaw City state OK zip code 74641

name Otoe-Missouria Tribe; Chairman *******

street & number 8151 Highway 177 telephone (580) 723-4466

city or town Red Rock state OK zip code 74651

name Pawnee nation of Oklahoma; President *******

street & number PO Box 470 telephone (918) 762-3621

city or town Pawnee state OK zip code 74058

name Tonkawa Tribe; President******

street & number P.O. Box 70 telephone (580) 628-2561

city or town Tonkawa state OK zip code 74653

name Ponca Nation of Oklahoma

street & number 20 White Eagle Drive telephone (580) 762-8104

city or town Ponca City state OK zip code 74601

name Cherokee Nation of Oklahoma; Principal Chief Chad Smith

street & number P. O. Box 948 telephone (918) 456-0671

city or town Tahlequah state OK zip code 74465

Summary

The Chilocco Indian School is located in north central Oklahoma, just west of US Highway 77, between Newkirk, Oklahoma and Arkansas City, Kansas. The original Chilocco reservation consisted of over 8,000 acres; the nominated property contains approximately 288 acres centered on the campus of the school and extending along the entry road. The balance of the reservation was used as farm and grazing land in support of the school. The campus is located one mile west of US 77, ¾ mile south of the Oklahoma/Kansas state line. Chilocco Creek meanders northwest to southeast along the south edge of the campus through gently rolling prairie. Screens of mature trees mark the west and north edges of the campus; new stands of volunteer trees are filling in formerly open areas around the campus. There are 76 total resources in the district, including buildings, structures, sites, and objects.

The campus is reached through a mile-long *alee* of elm trees. Pastures and fields are to the north and south of this road. A cluster of buildings, most notably the National Guard armory, mark the entrance to the campus. Chilocco Lake separates these buildings from the main campus. The campus consists of 44 buildings – academic and residence, most of which are constructed of locally quarried limestone, laid out around a central mall. Buildings related to the various academic and vocational departments are clustered to the southeast, south, and west of the mall. A cluster of residences is located north of the mall. South of Chilocco Creek, a small cemetery and scattered agricultural buildings are set apart from the main campus.

The campus has not been utilized as a school since 1980 and the facilities have been left to deteriorate. Many of the buildings have been compromised by failing roofs or acts of vandalism. They do, however, retain excellent integrity of design, location, feeling, association, setting, materials, and workmanship. Alterations to the buildings reflect the many years of service they provided, both as functional resources but also as laboratories for the vocational departments of the school.

The focal point of the campus is an oval, central mall, around which were arrayed the primary academic and residential buildings of the school. On the east side of the oval is Hayworth Hall, the main classroom building. Built in 1910 after a fire had destroyed its predecessor, it is a three story limestone building with multiple gables, a complex footprint and a central tower. On the north edge of the oval is Leupp Hall, built in 1905, the home of the domestic sciences department and also, for many years, the main dining hall for the school. A three story, limestone building, Leupp Hall has had a number of additions over the years to accommodate the growth and changing needs of the school. On the west edge of the oval is the Administration Building, built in 1918, a single story limestone building with wide overhanging eaves supported by heavy knee braces. At the southeast corner of the oval are the power plant, print shop and the boys' honor dorm, all constructed of limestone. The south edge of the oval is dominated by Hayman Hall, a two story, limestone boys' dormitory constructed in 1933. Located within the oval is a fountain, a war memorial, and the student union building, a red brick, single story building constructed in 1965.

North of the oval, north of Leupp Hall, is a cluster of residential buildings. A large girls' dorm, a staff apartment

building, and a single dwelling, all constructed of limestone are intermixed with seven other frame cottages and numerous garages. These cottages were constructed primarily by the students.

West and southwest of the oval there are buildings dedicated to the vocational trades and some additional frame cottages used as staff residences. The warehouse, a limestone rubble building rebuilt in 1911 after a fire, is the oldest of these buildings. The largest buildings are the Practical Arts Shop, constructed in 1963, and the new boys' dorm, the newest building on campus, completed in 1966.

East of Chilocco Lake stand two stone cottages, built in 1903, a small, stone apartment building, the National Guard Armory, and various buildings related to the agricultural operations of the school. The cottages and apartment were for instructors and staff. Further south of the campus are more agricultural buildings, including a sheep barn and the ruins of the dairy barn.

The buildings, sites, and structures that comprise the campus of Chilocco Indian School are all directly related to the function and purpose of the school. They are, for the most part, united by a common use of materials and design. There are no intrusions in the campus that depart from the mission of the school, although there are buildings that are less than fifty years of age. Individual buildings have been altered over time, primarily reflecting the continued use of the school until its closing, its use as a laboratory for the students, and the eventual deterioration that came with abandonment. The campus retains excellent integrity of design, setting, feeling, association, location, workmanship, and materials.

Resources (Noncontributing resources are underlined)

1) Entrance Gate. C. 1920. Structure. Located approximately 100 feet west of US Highway 77, the entrance gate consists of two quarry faced, limestone piers (each approximately 12 feet tall and two feet square) that support a metal superstructure. This superstructure is arched and supports a sign reading "Chilocco Indian School" with each letter painted in red on an individual sheet of white-painted steel. Photo #1

2) Entrance Road. C. 1884/1925. Structure. Perpendicular to US Highway 77 and running due west is the original entrance road to the campus. Paved with asphalt in 1925, the road once terminated at the A.T. & S.F Railroad line. The road is lined with elm trees, forming an *alee.* Small concrete culverts are integral parts of the road, as is the causeway that carries it into the main campus. Photo #1

3) National Guard Armory. C. 1950. Building. This red brick, Modern Movement building is two stories in height. It has a square footprint, a flat roof with a central, flat-roofed monitor. The roof has a concrete coping.

The main entry is centrally placed and recessed; there are paired steel and glass doors, each with six lights. Flanking the entry are three steel sash, industrial type awning windows. The east and west sides of the monitor have a series of fifteen steel awning type windows, allowing light and ventilation into the drill hall. Two large overhead garage doors on the rear of the building allow access to the drill hall. Photo #2

4) Building 80, Staff Quarters. 1903. Building. A one story, pyramidal roof house constructed of ashlar limestone, quarried on the Reserve. The square footprint house had a rear addition at an unknown time. The roof has a flat deck at the apex and the eaves flare slightly; it is clad in composition shingles. There is a shed roof porch that spans the front; it is supported by simple 4x4 posts. It is not original, but was added in the 1930s. The porch ceiling is beadboard and the side gables of the shed roof feature vertical bead-board terminating in saw tooth ends. The façade is symmetrical, with the central entry flanked by square window openings. These are boarded. The walls are of rectangular limestone blocks, quarry-faced, laid up in a running bond. The lintels for the door and windows are dressed. There is a wooden frieze board. Photo #3

5) Building 83, Staff Quarters. 1903. Building. This building is identical in construction to Building 80, with the following exceptions. There is a small gabled stoop instead of a porch. The window openings on the façade have been altered; Matching stone has been laid in, truncating the sized of the opening. The windows are aluminum, dating to the 1960s. The rear addition, like that of Building 80, is frame with wide weatherboard siding and a gabled roof.

6) Building 85, Old Hospital/Staff Apartments. 1897/ 1925. Building. This two-and-a-half story building was once used as the hospital for the school. It was of Late Victorian Queen Anne style, heavily modified in 1925 when a new hospital was constructed. The building has a rectangular footprint and is oriented to the north. The gabled roof has two offset, lower cross gables that project from the main line of the facade. Inset in the valley of these gables once were towers; these were removed when the building was converted to apartments. The gable end walls are of wood scalloped shingles. The main walls are of coursed, quarry-faced limestone. A band of lighter, wider stone separated the two floors. Entries are into the former towers. Windows are paired and single 2/2, 1/1 and boarded. A second floor balcony, accessed bay a wide central stair, is located between the two projecting sections/towers. This allows access to the second floor apartments and is not original. Two original window openings were modified to provide entries. Small, frame shed roof additions on the rear enclose entries. Photo #4

7) Building 91, Granary. 1939. Building. A one story, wood clad, transverse frame, gabled building on a concrete foundation. The composition roof has exposed rafter tails. A large wagon entry is centered in each gable end; a single narrow window opening is centered in the east gable. Photo #5

8) Building 90, Scale House. 1952. Building. The scale house is a simple, stone, gabled structure. The walls are of random ashlar, cut limestone with quarry face finish. The lintels and sills for the fenestration is concrete. A window is centered in the west gable. A door and a window are located on the south side, facing the scale pit. The scale slab and mechanism have been removed and the windows are boarded. Photo #6

9) Building 93, Agricultural Vocational Building. 1952. Building. A long, rectangular building, oriented east/west, with a low-pitched gable roof, this classroom building is constructed of random ashlar, cut limestone. The roof is clad in corrugated tin; the gable ends with asbestos shingles. There is no overhanging eave. The north side of the building has ha series of large openings with overhead, garage-type doors. Man doors are located on the gable ends and are offset. The south wall has windows and large openings irregularly spaced. All are boarded.

10) Building 156, Agricultural Classroom. 1955. Building. The agricultural classroom building has a long, rectangular footprint. A low pitched gabled roof is covered in corrugated tin; the gable ends are clad in asbestos shingle while the main walls are random ashlar, cut limestone. There are entries centered in either gable end. A rank of five large, steel, industrial sash windows are located near the west end of the south and north sides. Photo #6

11) Building 159, Calf Barn. 1960. Structure. Similar in appearance to Building 156 and constructed at the same time. The gable end entries for this building are larger, to accommodate equipment. There are also more windows, with the south and north sides fully lighted with steel, industrial sash awning type windows. Each window is 3x4 lights. Photo #7

12) Building 154, Hay Storage. 1951. Structure. Quonset hut style of corrugated tin with large, sliding doors on each end. There are three ventilators evenly spaced along the apex of the building. Photo #8

13) Building 155, Heavy Equipment Storage. 1951. Structure. Identical to Building 154, with the exceptions that the end door is an overhead type and there is an offset, fixed metal sash window on the east end. Photo #8

14) Building 178, Sewage Treatment. C. 1965. 3 structures. There are two concrete-lined settling ponds and a small, concrete block gabled pump house. These structures are interrelated and are considered a single complex. They are noncontributing due to their age.

15) Building 92, Machine Shed. 1952. Structure. This long, one story building consists of three segments, oriented to the south, configured in a shallow "U." The central section is slightly higher than the wings. The gabled roof is covered with corrugated tin. The walls are random ashlar limestone. The south side is open.

16) Bridge. C. 1930. Structure. This single span, steel stringer concrete bridge spans Chilocco Creek. It appears to be a replacement for an earlier bridge similar to resource #20. The abutments are concrete. The old concrete railing is gone.

17) Building 94, Sheep Shed. 1952. Structure. This structure is similar to Buildings 156 and 159. As single story, gabled building with asbestos shingle gable ends and random ashlar limestone walls. The east gable end has an offset entry door and a single, steel sash awning type window. The south wall has three such windows centered on the wall and flanked by large equipment openings. Entry doors are located offset, near each corner. The north wall has no windows. Photo #9

18) Cemetery. 1889. Site. The cemetery for the school contains numerous unmarked graves and a single headstone dating to 1889. There is a chain link fence around the site and a small gate constructed of steel pipe. The gate has a sign reading "CEMETERY." Plain concrete crosses that once marked graves are uprooted and scattered along a fence line. Photo #10

19) Dairy Barn. Ruins. The remains of the school's dairy barn consist of the cement feeding troughs, concrete piers, and partially collapsed exterior walls. The barn was demolished by a fire and no longer retains enough historic integrity to reflect is original design. It is noncontributing due to loss of integrity.

20) Bridge. C. 1910. Structure. This bridge crosses Chilocco Creek south and west of the Gymnasium complex. A single span, concrete arch, the bridge has concrete abutments and a steel pipe and concrete post rail system. The arch is segmental. Photo #11

21) Building 97, Boys' Dressing Room. 1937. Building. Part of the Gymnasium complex. This rectangular, gabled building is sited parallel to the Wresting Room building, perpendicular to the Gymnasium. Constructed of clay tile and covered in stucco, the building is attached to the Gymnasium and the Pool by a covered hallway. There are steel casement windows on the east wall and a single exterior entry centered in the east wall.

22) Building 98, Swimming Pool. 1937. Building. The Swimming Pool Building is roughly "T" shaped, with the leg of the "T" wedged in between Buildings 97 & 99. It is a flat-roofed, stuccoed building numerous steel, industrial sash, awning type windows that are located high along the south, east, and west walls. These windows have simple, concrete lug sills. Entry into the building is through a common hallway shared with Buildings 97, 99, and 100.

23) Building 99, Wrestling Room. 1937. Building. Building 99 is virtually identical in its exterior arrangement to Building 97. On the west wall are four steel casement windows and a single entry door. Near the south end of the wall is a large, steel sash, industrial, awning-type window. The gable ends of both Building 99 and 97 are of wood clapboards. A single louvered vent is centered in the gable. Photo #12

24) Building 100, Gymnasium. 1925. Building. The Gymnasium building is a large, rectangular building with a gabled roof. The original construction of the building used locally quarried limestone laid up in a random ashlar. When the three buildings were constructed at the rear of the gymnasium in 1937, the building was stuccoed to match. The gable ends are of wood clapboard with louvered vents located near the apex of the gable. A small gablet is locate over the original entry to the gymnasium. A gabled extension, set perpendicular to the main body and lower than the eave line, was added in 1937. This extension provides an airlock, coatroom and ticket booth. The stucco walls are pierced with simple, steel sash, four pane, pivoted windows. A secondary entry is located to the west of the main entry. This building was rebuilt from an older stone building used as a stable. Photo #12

25) Building 180, Wheeler Hall, Boys' Dormitory. 1966. Building. This "H" plan, Modern Movement building is the largest and newest on the campus. It consists of a three story section with a flat roof and a one story section wit ha flat and sawtooth roof. The single story section is located to the north and served as the dining hall and common rooms. The three story section, on the rear or south, is sited to take advantage of the slope of the property and does not appear to rise much higher than the front section. The building is constructed of concrete with a veneer of random ashlar limestone. The flat roof cantilevers, providing sunshade to the windows. Each floor of the rear also has a cantilevered pent roof with a sunshade. The front section has a sawtooth roof over the core of the section. Clerestories are set into the sawtooth, lighting the interior. Windows in the building are regularly spaced and consist of fixed panes of glass with colored aluminum panels below. This building is an excellent example of Modern architecture from the mid-century. However, it is noncontributing due to its age. Photo #13

26) Building 189, Two Stall Garage. C. 1966. Structure. This simple stone and concrete garage was constructed along with the dormitory. It has a flat roof and two overhead doors, separated by stone-clad piers. Although compatible with the rest of the campus in design and materials, this resource is noncontributing due to age.

27) Building 151, Classroom. 1950. Building. Building 151 is a rectangular, metal-clad building resembling an oilfield or industrial building. The gabled roof and walls are clad in corrugated tin. A wooden shed roof extension is centered on the west wall. Windows are a mixture of steel sash fixed windows and wooden hung windows and are not symmetrically placed. A large, sliding door is located on the east wall, near the south side. Sections of siding are coming off an the southwest corner, exposing the steel structure. Photo #14

28) Building 116, Golf Shop. C. 1940. Building. Also referred to as the Country Club, this simple, stucco, gabled single story building served the 9 hole golf course that once was located along the south edge of campus. The gabled roof is clad in composition shingles and has exposed rafter tails. The walls are stucco and a single entry is centered on the north wall. A single window is located just to the right of this entry.

29) Building 107, Fire Station. 1944. Building. This building housed the fire equipment for the school. It is a single story with a flat roof and a roughly square footprint. The walls are of limestone. The building faces south; two large, wooden overhead doors are on the south side. The west and north sides have two, small, double hung windows each. The east side has two large, steel sash casement windows and an offset, wooden entry door. The lintels of the two casement windows are flat arched, molded to look like dressed limestone. They contrast with the walls, which are heavy, quarry faced random ashlar stone blocks ¾ of the way up, and thinner, semi-dressed blocks for the last 1/3. The roof has a stone coping that overhangs slightly.

30) Building 150, Filling Station. 1949. Building. A one story, "T" plan, gabled building with limestone ashlar veneer walls. The leg of the "T" is oriented south. The west gable end has a large overhead garage door while the west wall of the leg has a single entry door and a pair of 1/1, square windows. There is a single 1/1 window on the north wall and a pair of 1/1 windows on the south gable end. Photo #15

31) Building 108, Warehouse/Commissary. 1910. Building. This two story, limestone building has a low-pitched hip roof. The original, one story warehouse building burned in 1908. Parts of the original walls were retained in reconstructing the building after the fire. The limestone used in this building is load bearing. It was quarried nearby on the reserve and is rough cut and laid up in a random ashlar. A water table of slightly larger, elongated blocks is set at about three feet above grade. The building is oriented to the north. The roof is clad in composition shingles. Each elevation is symmetrical. The east and west elevations have single 4/4 windows centered on each floor. The south elevation has five 4/4 windows on each floor and the north has five windows on the second floor and four on the first, with a large central opening. All of the windows have flat stone sills and lintels. There is a concrete loading dock at the large opening. This opening has a segmental arch carried on rough cut voisseurs. There is a modern, wooden overhead garage door. The north and south sides also had small windows that light the basement. These align with the first floor windows and are wooden awning-type windows. Photo #15 & 16

32) Building 110/113, Vocational Shop. 1933. Building. Buildings 110-113 are virtually identical and were utilized for the same purposes as vocational educational shops. Buildings 110 and 113 are connected and are axially symmetrical. Building 111 mirrors 110 while Building 112 mirrors 113. Building 110/113 is an elongated rectangular building wit ha gable roof. There is a break in the roofline in the center where there is an inset of the main façade. Over the main entry into each section is a small gablet with a fan-shaped louvered vent. There is a smaller, similar vent in each gable end. The walls are limestone ashlar. The windows are

asymmetrically placed, some in pairs and others single. They have flat arch lintels of grey concrete and stone sills. The inset portion, what would be a drop wing, contains large double door openings. Building 110's large entry, though, has been filled in and replace with a window and a door. The masonry matches in design, but there is a slight color variation.

33) Building 111, Vocational Shop. 1933. Building. A free standing building with similar details the double building 110/113. The gabled roof, in this case, does form a drop wing. The building is oriented to the south. The gablet is offset. The fenestration pattern is, from east to west, W, W, W, D, D, W, W, W, W. The windows are all newer aluminum 1/1. The entry door is offset under the gablet and the large opening is to its west. The entry and its neighboring window share a common flat arch lintel. The east gable end has four window openings; the west gable end has two, although one is in an obviously larger opening that was infilled at some time. Photo #17

34) Building 112, Vocational Shop. 1933. Building. Building 112 is identical to Building 111, although mirrored. The east gable end, though, has a single, centered entry door and an offset window. Another window opening has been infilled. A small, flat roof addition of matching stone is located on the rear of the drop wing on this east end. It has a single, steel door. Photo #17

35) Building 161, Practical Arts Shop. 1963. Building. This flat-roofed, Modern Movement building is rectangular in footprint and is oriented to the east. It is constricted of a concrete frame that is expressed on the exterior. The interstitial spaces between the posts are filled in with random ashlar limestone. The beams of the frame are decorated with squares that are inset. There are few windows; the west side of the building has a number of metal, overhead garage doors. The east wall has a central entry. A flat, concrete awning is cantilevered over the entry. This building, though compatible with the rest of the campus in terms of design and materials, is noncontributing due to age. Photo #18

36) Building 152, Band & Vocal Music. 1950. Building. The band & Vocal Music Building is a rectangular footprint, gabled building of vaguely Colonial Revival styling. The building is oriented to the south and the primary entrance is off center. A gabled stoop covers the entry door. The fenestration pattern on the south façade is W, W, D, W, W, D, W, W. There is an entry door centered in the east gable end. The windows of this building are boarded up, but have concrete sills and no lintels. Photo #18 & 19

37) Building 17, Staff Quarters. C. 1910. Building. Craftsman bungalow style. A single story, California bungalow with a front gabled roof, large gabled porch supported by iron posts, and wood lap siding. The main entry door is centered with pairs of 1/1 windows flaking. All windows and doors have simple flat surrounds. A louvered vent is located in the front and rear gables. The roof is composition shingle and a brick chimney is off center and located on the south roof slope. A variety of window sizes, in pairs and singles are found on the north and south walls. The foundation is stone. Photo #20

38) Building 18, Staff Quarters. C. 1910. Building. Similar to Building 17 in window details and siding. This bungalow has a gabled front stoop with brick piers. The central entry is flanked by paired 1/1 windows. The roof is composition shingle and has exposed rafter tails. The foundation is cut stone blocks. Photo #20

39) Building 19, Four Stall Garage. C. 1930. Structure. A wood frame, side gabled structure with four stalls. The siding is shiplap and the foundation is concrete. Each of the four stalls has a simple 1x4 surrounds. The composition roof has exposed rafter tails.

40) Building 20, Four Stall Garage. C. 1930. Structure. Identical to Building 19 except that the siding on the front of this south-facing structure has only a 2" reveal. The east and west gable ends show where similar siding was used to patch the original 4" shiplap siding. Photo #21

41) Building 21, Staff Apartments. C. 1940. Building. This two story apartment building has four two-bedroom apartments. The building is clad in quarry faced, random ashlar limestone. The roof is hipped, covered in composition shingles, and has a low pitch. A breezeway separates the building into two sections, with one apartment on each floor. The building is oriented east/west, with each of the primary walls having two sets of paired windows for each apartment. The windows are aluminum, single hung. The end walls have two single 1/1 windows offset and a smaller 1/1 window. Apartment access is gained through the breezeway, where there is also a steel and concrete staircase. Photo #21 & 22

42) Building 22, Staff Quarters. C. 1910. Building. Bungalow. A one story, front gabled bungalow with an incised corner porch, lap siding, and a concrete foundation. The wide, low pitched roof has composition shingles, exposed rafter tails, exposed purlins, and a centered ridge chimney. The gable ends are clad in asphalt shingle. A large, wide, center pivot window is located in the front gable. It, like the rest of the fenestration, has wide surrounds and a simple crown mold. The entry is in the recessed porch; paired 1/1 windows are beside. A matching set of paired windows is on the east side of the front façade. The west wall has two sets of paired windows; the east wall has single windows. Photo #21 & 23

43) Building 23, Staff Quarters. 1903. Building. This single story, Folk Victorian cottage has a cruciform plan. The cross gabled roof is clad in composition shingles and there is a central chimney. The foundation is stone; the walls are clad in asbestos shingles, but the original lap siding is visible in spots. The corner boards have caps. There is a wide raking board in each gable. The full-width, hipped porch is supported by wrought iron posts. The main entry is offset; two single 1/1 windows are beside it. The east and west gable ends have single 1/1 windows with wide surrounds and crown molds. The north gable end has paired 1/1 windows centered and a single, smaller 1/1 offset to the east. The condition of the building is poor. Photo #24

44) Building 25, Four Stall Garage. C. 1940. Structure. (Ruins). All that remains of this four stall garage are the concrete block walls. There is enough integrity to see that it once was a side gabled structure, similar to resources 19 and 20. Noncontributing due to loss of integrity.

45) Water Tower. Structure. ****. Semi-cylindrical water tank supported on four tubular steel posts. Photo #22

46) Building 7, Administration Building. 1918. Building. One story, wit ha low-pitched, hip roof with wide eaves and knee braces. The building could be classified as Craftsman in style. The roof has composition shingles and a small ridge that is oriented east/east. The walls are cut limestone, quarry faced and laid in a running bond. Windows have large stone lintels and thin stone sills. The main entry, on the east side, faces out onto the oval. A central door, flanked by sidelights, is accessed by a set of concrete steps (five risers) with stone wing walls. Flanking the entry are two windows on each side. All windows have been replaced with modern aluminum sash. The south elevation has a single offset entry door, accessed by a small flight of five steps with large stone wing walls. There are four windows evenly spaced on the balance of the wall. The north elevation Has a central door flanked by four windows while the rear, or west elevation has a door offset to the north and five, small, square fixed sash windows asymmetrically placed. Photo #25

47) World War I Memorial. 1923. Object. This memorial, dedicated in 1923, consists of a stone base and a tall, steel flagpole. The base, of brush hammered limestone, has a slanted top with a bronze plaque that reads "IN MEMORIUM - WORLD WAR 1914-1918 – BENNETT LAVERS '14 - DAVID JOHNSON '17 – EDWARD NELSON '18 – SIMEON MOSELY EX – 1923" Photo #25

48) Building 5, Antonne Hall. 1932. Building. Constructed as a girls dormitory, Antonne Hall has a vaguely Colonial Revival styling. The plan of the building is complex, basically a lazy "I." The roof is hipped. The walls are quarry faced, cut limestone laid in a running bond. The courses are not uniform, though. The main entry is centered and has a pediment hood supported by console brackets. A series of six smooth concrete pilasters separates the main elevation. A single window is in each section on each floor (all have been replaced with aluminum sash). The wings project; the north wing has a bowed bay on the first floor that conforms to the common room. There is a large, stone chimney on the north elevation, near the east corner and ten sets of paired windows and three single windows on each floor. The rear elevation has few windows, none in the wings and the balance in the central section. The south elevation has 10 sets of paired windows and three singles on each floor. Photo #26 & 27

49) Building 58, Staff Housing. C. 1930. Building. A one story, clapboard sided bungalow with a side gabled roof. An offset, lower cross gable is on the front (east elevation, while an offset, lower gabled wing on located on the rear north corner. There is a brick, shouldered chimney on the south elevation near the east corner. The

porch is incised at the north east corner. The foundation is parged. Entry is into the side of the incised porch. A single 6/1 window is offset. Two 6/1 windows, with flat surrounds, are located on the east façade under the offset gable. The south elevation has a pair of 6/1 windows off center, a single 6/1 offset to the west, and a small casement window near the chimney. The rear, or west elevation, has two 6/1 windows offset, a small 1/1 window off center, and the rear extension that has paired 1/1 windows at the corners. The north elevation has paired 6/1 windows flanked by singles. Photo #28

50) Building 56, Staff Housing. C. 1930. Building. This building is reflectively identical to Building 58. Another house was once located between these two.

51) Building 54, Six Stall Garage, C. 1930. Structure. A side gabled, wood frame structure with lap siding and six overhead garage doors. The roof has composition shingles and the foundation is concrete.

52) Building 53, Superintendent's Home. C. 1930. Building. A one story, "L" plan cottage with a cross gabled roof and random ashlar limestone walls. The Side gables have wide weatherboard. The front, projecting gable has single window opening (all windows are modern vinyl sash) centered. The entry is into the wing and is reached by a flight of five concrete steps with a low stone wing wall. Two windows are located to the north of the door. The north elevation has two paired window sets flanking a single, smaller window. The rear elevation has a single window offset, two paired sets and an enclosed porch in a shed roof extension. The enclosure uses wide weatherboard for its walls. Photo #29

53) Building 60, Staff Apartments. 1940. Building. Constructed as staff single bedroom apartments, this two story, rectangular building has a hipped roof and random ashlar limestone walls. The building is oriented to the west and the main entry is centered in the west elevation and raised above grade. It is a modern aluminum and glass door with sidelights set into an elliptical arched opening. There are 13 window openings on the second floor, twelve on the first, in a pattern of three large, one small, five large, one small, three large. All have modern aluminum sash. The rear, or east elevation has the same pattern, with the arched entry replaced wit ha simple single entry. A water table delineates the raised first floor; the basement/crawl space has wide openings roughly equating to first floor windows. There is a large, steel set of fire stairs on the south elevation. Photo #30

54) Building 61, Eight Stall Garage. C. 1940. Structure. One story, side gabled with shiplap siding and eight overhead garage doors Photo #31

55) Building 59, Staff Quarters. C. 1940. Building. A single story, side gabled Minimal Traditional/bungalow type house. There is a brick chimney centered on the rear slope of the composition shingle roof. The walls are clapboard, with joined corners. Board and batten is in the gables. There is a shed roof porch on the south facade and a shed roof rear addition. The foundation is poured concrete. The porch supports are lattice steel and the deck is concrete. The entry is slightly off center; a single 6/6 window is to the west, paired 6/6 to the

east. The east elevation has a single 6/6 offset, a smaller 6/6 off center, and paired 6/6 offset at the rear. Windows have simple flat surrounds and drip caps. Photo #32

56) Building 148, Two Stall Garage. C. 1940. Structure. A single story, side gabled structure with two overhead garage doors. The roof's rear slope extends farther down than does the front; rafter tails are exposed. Wall siding is shiplap and the foundation is concrete.

57) Building 149, Staff Quarters. C. 1940. Building. Bungalow type cottage, front gabled with shaped fascia board, wide raking board and clapboard siding. The foundation is poured concrete. The front entry is slightly off center and is sheltered by a gabled stoop, supported on square posts. Offset is a set of paired 1/1 windows. The north elevation has paired windows near the front (west) corner, a single entry door centered and paired 1/1 windows at the rear (east) corner. The entry is sheltered with a shed roof stoop. A brick chimney is located on the north slope of the roof. The south elevation has a lower cross gable bumpout with a pair of 1/1 windows. To the west is a triple set and to the east of the bumpout is a paired set. Photo #32

58) Building 164, Two Stall Garage. C. 1940. Structure. Gable front with two overhead garage doors, this structure has shiplap siding and a shaped fascia board. The foundation is concrete. Photo #32

59) Building 157, Staff Quarters. C. 1955. Building. A single story, side gabled Minimal Traditional building of the ranch family. The composition shingle roof has no eaves. There is a gabled stoop over the off center entry. A pair of 1/1 windows is to the north of the entry, a triple set to the south. The north end of the building has a drop wing that is set back from the plane of the main facade. There is a single, large, sliding glass door. The siding is clapboard and the foundation is concrete. This house was constructed by students. Photo #31

60) Building 163, Garage/Shed. C. 1955. Structure. This side gabled building contains a single stall garage on the west and a storage shed on the east half. The structure is oriented to the north. The gabled roof, clad in composition shingles, has exposed rafter tails. There is a large overhead door on the east side of the front and a single 1/1 window off center. The west gable end has an offset entry door and the south wall has a single, off center 1/1 window. Photo #34

61) Building 158, Staff Quarters. C. 1955. Building. Identical to Building 157 with the exception that the drop wing is still a garage, with an overhead garage door.

62) Building 160, Ten Stall Garage. C. 1940. Structure. An elongated, side gabled structure with ten overhead garage doors. The siding is asbestos shingle. Interior evidence suggests that this structure was cobbled together from three or more smaller structures. The foundation is concrete.

63) Building 71, Employees Quarters/Club. 1924. Building. A two story, rectangular footprint building wit ha hipped roof. The walls are of rough cut, quarry faced random ashlar limestone. The building is oriented to the south; a hipped roof porch with steel posts is centered on the middle third of the main facade. The windows on the second floor are all 8/1 singles; on the first floor they are paired. All have flat, dressed stone lintels. The main entry has sidelights and a transom. The rear (north) elevation has all single windows, 12 per floor. Fire escape is located on the east and west ends. Photo #35 & 47

64) Building 12, Leupp Hall. 1905/C. 1925/C. 1940. Building. The oldest building on campus, Leupp Hall was built as the domestic science classroom and the main dining hall for the campus. The original incarnation of the building has a Romanesque Revival style; later additions reflect their own architectural periods. The building is two stories in height, with a complex footprint and a complex hip and gable roof. The walls are of cut, quarry faced limestone laid in a running bond. The central feature of the building is the center tower/entry. Once capped with an open, wooden pavilion, the tower has, since around 1940, been flat topped. It features three, tall, narrow window openings with round arch tops. The main entry, a double door set in a round arch, has distinct voussoirs. Flanking the tower, and slightly stepped back, are two forward facing gabled sections. The gables have full returns and a wide, three part window in the tympanum. These windows have a full entablature supported by pilasters. The west wing had an extension added to the north end in the 1920s. The original section has two large segmental arch windows and a central door with segmental arch opening on the first floor that light the dining hall. The newer extension has a stucco second floor. All windows are 6/1; those in the older section have flat-topped, segmental arch lintels. A flat roof, single story addition was added to the east side of the building around 1940. The stone used in the walls of this addition has a rougher texture than that of the original section. Windows are 6/1 with concrete sills and flat lintels. Edmund Bidwell, architect. Photo #36

65) Building 179, Student Union. 1965. Building. A flat roof, stone veneer, Modern Movement building with a large, covered patio area on the south side. Entries are on the east and west facades; the north, or rear, has five sets of paired windows. The entries are centered and have modern aluminum and glass doors with fixed transoms. The patio is supported by steel lally columns on a low, stone wall with concrete caps. This building, though compatible in materials, is noncontributing due to age. Photo #37 & 41

66) Building 4, Correll Hall. 1935. Building. Two stories on a raised basement, this Colonial Revival dormitory has a cross gabled roof and random ashlar limestone walls. The footprint of the building is rectangular, with the main entry on the long axis, oriented to the west. There is a large, stone chimney with four clay pots centered on the long ridge of the roof. Each end of the building has a cross gable with full returns. Each tympanum has an oculus louvered vent. The main entry is centered on the west elevation. The steel doors are sheltered by a stoop with full entablature, supported by Tuscan columns. There is a flight of fifteen concrete steps leading to the entry landing. There is a decorative iron balustrade. The windows of the building have all been replaced with aluminum sash, hung windows. They are located symmetrically across the face of the building, nine on the

second floor and eight on the first of the main body, two each on the gabled wings. The window openings have rough stone lintels with enlarged keystones. The north and south ends of the building are identical, with a centered entry reached by a flight of concrete stairs and a single round arch window centered directly above. The doors and arched windows are flanked by typical, single windows. The door has a wooden, classical surround with flat Tuscan pilasters and an entablature. The rear, or east, elevation mirrors the front, minus the entry. It is entirely obscured by vines. Photo #38 & 47

67) Building 8, Haworth Hall. 1910. Building. The main academic building of the campus, Hayworth hall was constructed in 1908-1910 to replace the former main building, destroyed by fire in 1908. An example of Late Victorian Romanesque architecture, it is an imposing, if deteriorating presence on the campus. The building is three stories in height, with a complex footprint and a complex, hip and gable roof. Along the ridge of the roof are large, galvanized metal ventilators. Originally, the building had two towers – one was truncated and transformed into a stairwell. The walls of the building are quarry faced limestone, laid in a combination of regular and random ashlar. The building is oriented to the west. This elevation is asymmetrical, wit ha wide, forward facing gable, a central gabled pavilion, and a rather plain wing. The front gabled section houses the auditorium and features a single, round arch window opening in the gable, two sets of three 6/2 windows on each floor. A square addition, replacing the old tower, is located south of this section; it has a flat roof, a single window on the second level and simple paired doors on the ground level. The southernmost wing is set back from the auditorium. There are three 6/2 windows on each floor and a small round arch window in the gable. The north wing houses classroom and has six windows on each floor, with a wider separation between the center windows. The entry pavilion has a small gable with returns and dentils, a single window on the second level, a dressed stone water table between floors, a battered lower section and a large, round arch opening. The entry has two doors and a fanlight. Below the second level window is a name plague of slightly lighted limestone that reads "HAYWORTH." The footprint of the building is a lazy "E." The three legs of the "E" extend out the rear, to the east. Centered on the middle leg is the square bell/clock tower. It has a crenellated top and round arch openings on each side. The center leg of the "E" is the widest and has two, widely space 6/2 windows on each floor, plus a single round arch window in the gable. The north and south legs have three windows on each floor, plus the round arch window in the gable. Pauley, Hoyland & Smith, architects. Photo #39, 40, 47 & 48

68) Foot Bridge. Structure. Constructed at an unknown time, this steel structure crosses Chilocco Lake from Hayworth Hall toward the former location of the Health Clinic. Historic photographs show that this, or a very similar bridge, has been at this location since around 1940.

69) Fountain. Object. Constructed at an unknown date, but within the period of significance, this round, concrete fountain is located on the south third of the campus oval. The walls, capped with a curved coping, are approximately 18" tall. Centered in the fountain basin is a cylindrical font, clad in green stone. Photo #41

70) World War II Memorial. Object. 1949. Located on the west edge of the oval, directly in front of the Administration Building, is a shouldered sandstone slab set in a concrete base. A perched eagle is outlined on the face of the slab and inscribed within is "DEDICATED TO THE YOUTH OF CHILOCCO WHO SERVED IN WORLD WAR II AND GAVE THEIR LIVES THAT WE MIGHT LIVE – PRESENTED BY THE STUDENT BODY." It appears that the slab has been broken off and reset in its current base. Photo #42

71) Building 9, Power Plant. 1918. Building. This one story, "L" plan building has flat and gabled roofs and quarry faced, random ashlar limestone walls. Projecting upward from the center is a battered, red brick chimney. The central section of the building is taller than the two wings. The end walls of each section have parapets projecting about two feet above the roof. The southernmost section has a flat roof with a stone coping. The north wall of the taller section has large industrial sash windows. The shorter wings have smaller steel hung windows and some newer, aluminum, replacement windows. There is a round arch opening on the east wall of the south wing. The end walls of the west section has recessed, paired doors with dressed, quoined surrounds. Most windows have flat, stone lintels, except the end windows of the west section, which have flat arch stone lintels with large keystones. Photo #43, 48 & 49

72) Building 10, Honors Dorm, 1937. Building. This building is two stories on a raised basement. It has a hipped roof, clad in composition shingles, and a rectangular footprint. It is oriented to the west. The entry is centered on the west elevation and is accessed by a flight of seven concrete steps with wrought iron banisters. The entry has a dressed limestone surround, wit ha cornice hood supported by console brackets and the date of construction inscribed in the frieze. The walls are quarry faced, random ashlar limestone with a water table separating the basement and first floor. The windows are all replacement, aluminum, hung sash. Those on the first floor have a flat spandrel panel below the sill and a flat arch lintel with large keystone. Second floor windows' lintels coincide with the eave of the roof. There are seven window openings on the second floor, and six (with central entry) on the first. Second floor windows alternate between regular size and half- sized, thinner windows. On the rear, or east, elevation, there is a half-shouldered chimney stack offset to the south. A central entry is located at grade, and there is a single, narrow window above it, mid floor. The balance of the windows alternate between thin and normal, six on each floor. All basement windows are half-height with flat lintels. Photo #44 & 48

73) Building 14, Lumber Shed. C. 1970. Structure. A simple, rectangular, gabled building constructed of concrete blocks and lap siding in the gables. A single man door is offset on the east end of the north elevation. Five large, wooden, sliding doors are located on this elevation, too. This building is noncontributing due to age. It also varies from the materials typically found on the campus. Photo #48 & 49

74) Building 11, Print Shop. 1941. Building. A single story, hipped roof building with quarry faced, random ashlar limestone walls. The composition shingle roof has no eaves. The rectangular footprint is axially oriented

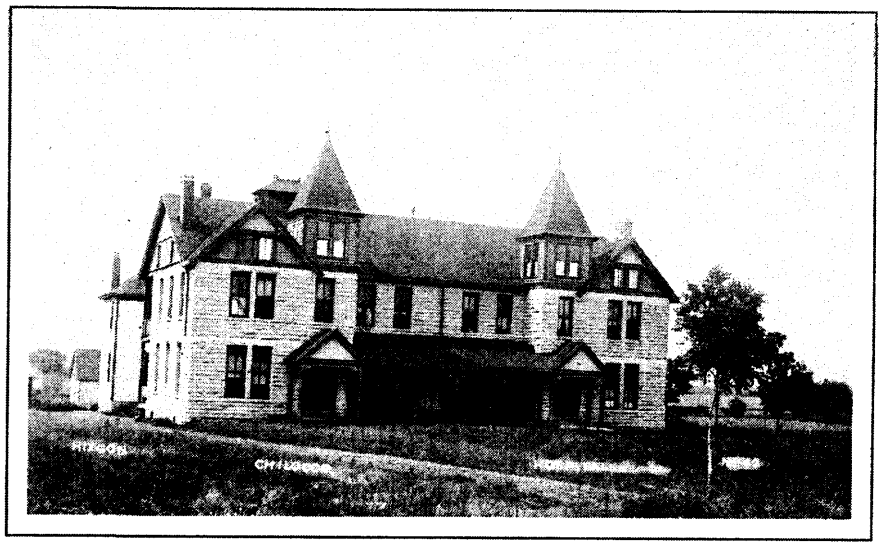
north/south. The main entry is on the west elevation. A single, steel door with the date "1941" brush hammered into the lintel, is centered between ranks of ten windows. All windows are modern, aluminum sash, hung units. The north and south elevations have paired, steel doors off center, with five windows while the rear elevation has smaller window openings, mirroring the front. Photo #45, 48, & 49

75) Building 6, Hayman Hall. 1932. Building. Constructed as a boys dormitory, Hayman Hall has a vaguely Colonial Revival styling. The plan of the building is complex, basically a lazy "I." The roof is hipped. The walls are quarry faced, cut limestone laid in a running bond. The courses are not uniform, though. The main entry is centered and has a pediment hood supported by console brackets. A series of six smooth concrete pilasters separates the main elevation. A single window is in each section on each floor (all have been replaced with aluminum sash). The wings project. There is a large, stone chimney on the west elevation, near the north corner, and ten sets of paired windows and three single windows on each floor. The rear elevation has few windows, none in the wings and the balance in the central section. The east elevation has 10 sets of paired windows and three singles on each floor. Photo #46

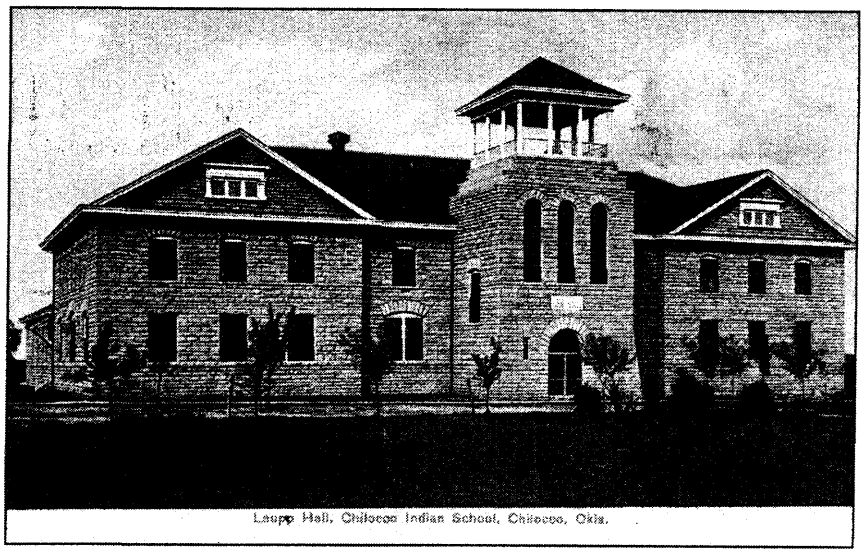
76) Building 195, Stadium Rest Room. Structure. Small, flat roofed structure constructed of concrete blocks. The roof is concrete and hangs over approximately 6".

There are numerous other structures and objects scattered around the area. Small concrete pump houses are common, as are the concrete culverts for the roads, and the sidewalks that hide steam tunnels. All of these could be considered landscape elements. In addition, there are former athletic facilities that have grown over and disappeared. There were tennis courts, basketball courts, a football field and a 9 hole golf course. The restrooms and the skeleton of bleachers and a press box mark the location of the football field; a low stone wall is located along the edge of the tennis courts. None of these facilities are recognizable anymore and are not included in the resource count.

The existing buildings, sites, structures, and objects are obvious on the landscape. They contribute to the story of the development and use of Chilocco Indian Agricultural School. Although neglected, and in many cases, deteriorated, they nonetheless retain high degrees of integrity of design, feeling, association, materials, setting, location and workmanship. They help to unify the campus as a nationally significant district.



Old Hospital (Building 85) c. 1910
Leupp Hall c. 1910



Summary Statement of Significance

The Chilocco Indian Agricultural School historic district is eligible for inclusion in the National Register of Historic Places under Criterion A at the national level of significance as an intact district that embodies the federal government's policies toward the education of Native American children from the inception of the non-reservation system in the late 19th Century through the mid 20th Century. Established as one of the first wave of schools modeled after Carlisle Indian School, Chilocco offered academic and vocational training to children of tribes across the United States. Its mission of assimilation and acculturation matured as advances in educational theory and relations between the federal government and the tribes improved. The campus, abandoned as a school in 1980, embodies in its buildings, structures, and layout the philosophy of the Bureau of Indian Affairs policies. Its collection of historic buildings, its overall historic integrity is second to none among the significant non-reservation schools, including sister school Haskell Institute (NHL) in Kansas and the model school Carlisle Indian School (NHL) in Pennsylvania.

The Chilocco Indian Agricultural School is also significant at the state level under Criterion C for its cohesive collection of limestone buildings, built by the federal government. The use of locally quarried stone in the vast majority of buildings on the campus provides a unity of design, a continuity of theme, and a visual cohesion that is rivaled only by the facilities at Fort Sill, a cavalry fort established in the 1870s and designated an NHL in 1960 . The stylistic elements of the campus reflect the maturity of the school from its inception in the 1880s through its eventual abandonment in 1980. Buildings representing different eras, different functions, and different stylistic vocabularies are unified by the common use of quarry faced limestone.

Historic Background – Indian Education

From its inception, the United States has had an evolving relationship with Native American tribes, at once antagonistic and then paternalistic. Official policies of the federal government have, for the most part, tended toward separation, isolation, assimilation, and finally accommodation and recognition. In referring to the Indians, President Thomas Jefferson set the tone in an address to Congress: "In truth, the ultimate point of rest and happiness for them is to let our settlements and theirs meet and blend together, to intermix and become one people. Incorporating themselves with us as citizens of the United States is what the natural progress of things will bring on; it is better to promote than retard it."[1] Official policy and public opinion, though, preferred isolation or separation to proximity and assimilation. The first treaty between the new United States and an Indian tribe was with the Delaware Indians in 1778, wherein the Delaware ceded their ancestral lands in the Delaware Valley for

1 Quoted by Edgar B. Merrit in a speech to the Maryland Federation of Women's Clubs at Baltimore, 11/1/1922, published in "The American Indian And Government Indian Administration," *The Indian School Journal*, (Chilocco, OK), Volume 22, Number 19, January, 1923.

new lands in the west (Ohio and Indiana). The ever-increasing thirst for land led to the removal of the Delaware and other northeastern tribes and later, on a greater scale, to the removal of the "Five Civilized Tribes" (Cherokee, Choctaw, Chickasaw, Creek, and Seminole) west to Indian Territory.

Even as the government waged war on some tribes, it acknowledged the need for accommodating and educating the many Indians who remained within the states or were removed west, to the territories. The first appropriations for Indian education were made in 1819, giving money to churches and missionary organizations to create schools, with the tribes themselves funding much of the expense as well.[2] In eastern Oklahoma, or Indian Territory, the first schools established in the lands of the Five Civilized Tribes were Christian mission schools, often started at the behest of the tribes themselves. The earliest mission school was Union Mission, established in 1820 for Osage Indians in what would become Cherokee land. Others followed, but not all lasted very long. Among the early, prominent mission schools were Dwight Mission, established in 1830 in the Cherokee Nation and Wheelock Seminary (later Academy), established in 1832 in the Choctaw Nation. Both were organized by the Presbyterian church at the behest of the tribes.

After the Civil War, Plains tribes were removed to Oklahoma and Indian Territories in the face of increasing settlement pressure, or placed on reservations of land thought worthless or substandard in other western territories. These removals were not always peaceful; this was the era of Indian Wars, of the Washita Massacre, of Little Big Horn. Tribes were often forcibly placed on reservations and many of them were considered prisoners of war. The US government encouraged the establishment of church missions and schools on these new reservations in order to help pacify the "wild" tribes.

1878 saw a change in government policy, brought about by the idea of one man. Captain Richard Henry Pratt had been assigned in 1875 to take Cheyenne, Arapaho, and Kiowa prisoners of war from Fort Sill, Indian Territory to Fort Marion, St. Augustine, Florida. Pratt brought in teachers to instruct the prisoners in English. In 1878, as the prisoners were to be released and returned to their homes, a group requested to remain and continue their education. Pratt, with the help of the Indian Bureau, enrolled them at Hampton Institute, in Hampton, Virginia, a historically Black college. The program of academic and industrial training appeared to Pratt to be the solution to the "Indian problem." In remarking on the program, the Commissioner of Education noted in his 1878 report that "Their (the Indian students) education there has gone forward with such satisfactory results that one addition after another has been made by government authority to the number of pupils under training..."[3] Pratt convinced the Indian Bureau and the War Department to allow him to set up a formal school open to all Indians, following a curriculum similar to that of Hampton Institute, but overlaid with rigid military discipline. An old cavalry barracks

2 Act of March 3, 1918, chapter 851, subsection 2; 3 Stat. 516, 517. $10,000 a year was appropriated for this "civilization fund" until repealed in 1873.

3 *Report of the Commissioner of Education, 1878.* (Washington, D.C.: Government Printing Office) 1880.

at Carlisle, Pennsylvania was made available and transferred to the Department of the Interior in 1879. The experiment, Carlisle Indian Industrial School, became a permanent institution when Congress enacted a law establishing the non-reservation school system in 1882.[4]

In addressing the educational needs of Indians at the time of the establishment of Carlisle, the Report of the Commissioner of Education, 1878 points out that: "A most promising effort for the education and civilization of a number of selected Indian youth in schools at the East superior to their own, and removed from all the bad influences of the wild tribes, was successfully begun in 1877-'78, and seems likely to be eminently beneficial." Boarding schools on the reservations had been established for individual tribes, but it was the prospect of removing the Indian youth from their usual environs that attracted the attention of policy makers and educators who subscribed to the philosophy of assimilation.

A year after the establishment of the Carlisle school, a small school was opened at Forest Grove, Oregon (later moved to Salem and renamed Chemawa). After the Congressional Act of 1882, nonreservation schools were opened in Kansas (Haskell Institute), Nebraska (Genoa), and Oklahoma (Chilocco) all opened in 1884. Others soon followed. By 1926, there were eighteen nonreservation schools, fifty-nine boarding schools and one hundred thirty-one day schools operated by the Indian Service. By 1959, there were fifteen nonreservation boarding schools, forty-six reservation schools, two hundred three day schools and eighteen special Navajo Community schools.[5] In Oklahoma at this time, there were eleven boarding schools (including Wheelock Academy) and one nonreservation school, Chilocco.

These schools, of various sizes, had varying degrees of quality, as well. A brief history of Indian Education published in an orientation manual for BIA employees summed up the state of these educational facilities in 1889: "'The Indian Bureau has been made the dumping ground for the sweepings of the political party that is in power....You will find people who are there only to draw their pay.'" A field report from that year indicates that many of the institutions were lacking proper facilities, that the teachers were incompetent, and that commissaries were poorly stocked, often with unnecessary items.[6]

Reform after reform brought changes to the schools, both in how they were managed and in the physical characteristics. Each wave of reform brought new buildings designed to address those conditions thought unsatisfactory. New curricula were introduced periodically, meant to address the shortcomings in the educational

4 Hendricks, Alexander; Land, Vernola; Irwin, James, "Brigadier General R. H. Pratt, Founder of Carlisle Indian School, Is Dead. *Indian School Journal*, March, 1924. Also, Craig, Robert W., Greiff, Constance M., Hunter, Richard W., "Carlisle Indian Industrial School National Historic Landmark" NHL nomination form, 10/15/84.

5 US Department of the Interior, Bureau of Indian Affairs, Branch of Education, *Orienting New Employees* (Chilocco, OK: Chilocco School Press) 1959. Page. 28-33.

6 *Ibid.*, Pages 30-31.

program. At the center of these curricula, though, was the idea that English be the centerpiece. In addressing a conference in 1918, H. B. Peairs, former Superintendent of Haskell Institute and Supervisor of Indian Schools discussed the newest curriculum introduced to the government schools: "...(T)he citizens of this nation must be English speaking people. They must not only be able to speak English but they must be capable of thinking in English to enable them to clearly understand and fully appreciate the Institutions of the United States of America...In the primary grades English is the center around which all other subjects are made to group." Peairs continued on to extol the virtues of physical education for the Indians ("...many tribes of Indians have gradually degenerated physically...") and manual or practical training.[7] This repression of native language and culture continued throughout Indian education until the 1928 Merriam Report, "The Problem of Indian Administration," spurred changes in the Indian Bureau as a whole, and especially in its Education Department.

Lewis Merriam summed up some of the changes made in the years immediately following publication of the Report. "The former practice of the government boarding-schools was to suppress all that was Indian in the children. English was the only language used. Indian art, Indian songs, Indian dances were taboo. Anything Indian was necessarily inferior." He decried the institutionalism of uniform curricula; "Gone are the days when all United States government Indian schools had a uniform course of study with standard examinations sent out at the end of the year from the Washington Office." [8]

As part of this new attitude and policy (and as a way to save money), Indian children were encouraged to attend their nearby public schools. The Johnson-O'Malley Act of 1934 (Indian Reorganization Act) provided federal funding for Indian students to attend public schools, helping to offset the loss of tax base for Indian land within the school districts. In some cases, where populations were widely dispersed, dormitories were constructed for Indian children near public schools.

The role of the government Indian schools continued in this vein through the next decades; the schools continued to combine academic and vocational training in an effort to serve a dual purpose – to promote pride in culture while preparing the students for productive life on or off the reservation. By the 1970s, though, budgetary constraints and cultural forces acted in concert to see a decline in attendance at many of the schools. Haskell Institute had transformed itself into a junior college in 1964, while many schools were closed, including Chilocco in 1980 and the Phoenix Indian School in 1987. The father of the schools, Carlisle, had closed in 1918. Of the large, nonreservation schools, only Chemawa, in Oregon, continued in its original mission.

7 Peairs, H. B., "Something New and Epoch-Making in Indian Education," address given at the Mohonk Conference, October 18, 1918. Unpublished transcription. Chilocco Indian School collection, Oklahoma Historical Society (OHS), Box 42.
8 Meriam, Lewis, "Indian Education Moves Ahead," *Graphic Survey*, June 1, 1931. p. 256-257.

Chilocco Indian Agricultural School

"The location of the industrial Indian school selected by Inspector Hayworth, is about six miles south of Arkansas City, in the Territory, on what is known as Chilochi creek. The section of ground on which the building is to be erected, is mostly bottom land, and contains several good springs. A better place could hardly be found in the Territory...We understand $25,000 has already been appropriated for the building, and $31,000 for supporting the school." So was announced to many in Indian Territory by the *Cherokee Advocate*, published in Tahlequah, the capital of the Cherokee Nation, on October 24, 1882. It was January, 1884, before the doors of the school were opened to students.

The Indian Appropriation Act of May 17, 1882 authorized the Secretary of the Interior to cause to be constructed 'a building suitable in size and convenience for the instruction and care of one hundred fifty Indian children' on a reserve of good agricultural land adjacent to the Kansas border, near the Ponca and Kaw reservations. The initial land acquisition was to have been one section, 640 acres, but upon inspection by James Hayworth, Superintendent of Indian Education, a tract of almost 1,200 acres was selected. After an Executive Order of the President in 1884, the final area for the Chilocco Reserve would encompass 8,598 contiguous acres, or twelve square miles.[9] The land was taken from a parcel known as the Cherokee Outlet, which after the treaty of 1866, was set aside for the settlement of Plains tribes. The first school building was begun in 1883 and opened for classes in January of the following year.[10] A three story, stone building, it served as dormitory, classroom, and dining hall. It stood as an imposing landmark on the treeless prairie.

The first Superintendent of the school was Jasper M. Hadley, a Quaker who transferred over from the Cheyenne Agency. The first students, recruited by Hayworth, were Cheyenne, Arapaho, and Kiowa children. The male students were immediately put to work on the farm, in addition to their English lessons; the female students were instructed in the domestic arts.

Hadley was replaced in the second year by Dr. Henry J. Minthorn, the foster father of Herbert Hoover. Minthorn successfully lobbied to raise the appropriation for the school; his efforts were successful and he began an expansion of the physical plant of the school, adding five new buildings in his first two years. This marked the first phase of campus expansion that lasted until about 1905. The second phase, from 1905 through 1935, was marked by the replacement of many of the original buildings and upgrades to the older building stock. After 1935, new

9 Quoted in *The Oklahoma Red Book*, Volume 1, edited by Seth K. Corden and W. B. Richards, Published in Oklahoma City, OK, 1912: "Executive mansion, July 12, 1884 – It is hereby ordered that the following described tracts of country in the Indian Territory, viz: Sections 13, 14, 15, 16, 21, 22, 23, 24, 25, 26, 27, 28 and the east half of sections 17, 20, and 29, all in township NO. 29 north, range No. 2, east if the Indian meridian, be, and the same are hereby, reserved and set apart for the settlement of such friendly Indians belonging within the Indian Territory as have been, or who may hereafter be educated at the Chilocco Indian Industrial School in said territory. – Chester A. Arthur"
10 "Fifty Years of Progress," *Indian School Journal*, Vol. 34, No. 24, March 8, 1935. Page 1.

construction slowed, with the exception of the Student Union in 1965 and the new Boys' Dorm in 1966, and some smaller cottages and outbuildings. Superintendent S. M. McCowan, overseeing the school at the turn of the century, was instrumental in devising the master plan for the campus.[11]

During the early expansion period, outside contractors performed much of the construction at the school. A quarry located on the south bank of Chilocco Creek, east of the Santa Fe tracks, was the primary source of building materials. George E. Hopper, a building contractor from Arkansas City, was the primary builder of many of the early buildings.[12] The school's vocational training focused primarily on agriculture for the male students and domestic science for the female students. A decision concerning the construction of a new staff cottage in 1907 would mark a change in the educational direction of the school as well as the construction and maintenance of its physical plant. A Request for Proposals was issued in 1905 for a simple stone cottage. Bids received were higher than expected and the decision was made to construct the cottage utilizing student labor and the plans and specifications previously used by George Hopper for other cottages.[13] The use of students to construct new buildings and then to make necessary repairs and maintenance would become a core aspect of the school's vocational curriculum for the next seventy-five years. While some of the larger buildings were overseen by outside contractors (or in cases where special skills were needed), for the most part students participated in ever increasing numbers in construction projects.

Another change that happened in the first decade of the new century was reflected in the makeup of the student body. In 1910, there were over five hundred students in residence at Chilocco. Until that year, none of them were from the Five Civilized Tribes of Oklahoma. The Cherokee, Choctaw, Chickasaw, Seminole and Creek had been barred from attending Chilocco; they had their own schools, both mission and government and had a special status in the Indian Service. The addition of these new students, coupled with increased interest in the school from other tribes, led to increasing economic pressures on the operation and maintenance of the school. Superintendent Edgar Allen, writing to U. S. Representative Bird S. McGuire in 1912, reflected on the perceived slight given to Chilocco in the Congressional budget for the Indian Office. Allen remarked on the proposed $103,000 for Chilocco:

> "This is $5,000 less than the Indian Office estimate and that much less than other schools of the same class are receiving on the same per capita basis. Other schools are allowed also an additional sum equal to the superintendent's salary. In the case of Chilocco, that is $2,750.00. This is the only school in the Service where this allowance is not made. At Haskell Institute, for example, the appropriation is for 750 children at $167 per capita whereas their capacity and average attendance is only about 650. We get an appropriation for 500 and our average

11 *Ibid.* Page 4.
12 See correspondence, invoices, reports found in Chilocco Indian School collection, Oklahoma Historical Society (OHS), Box 37.
13 *Ibid.*

> attendance was 526. You will see by that, Haskell gets an allowance for 100 children more than it has and we for at least 25 fewer than we have. On top of this Haskell is allowed an additional sum for the superintendent's salary and Chilocco is not. Then too, Haskell is allowed $11,000 for Repairs and Improvements and this school but $6,500, while we have the most expansive plant in the Service on account of our large farm..."

In requesting and increase of $10,000 to the proposed budget, Allen states that "This will have the effect of putting us on the same basis of other schools of the same class and we are certainly entitled to be so placed...I am able to carry this extra number (25-30 students) on account of the income that is received from our farming operations."[14]

The increase did not happen. Chilocco seemed to be both blessed and cursed by its size and success. The farming operation provided a good income to the school; enough, perhaps, that Congress and the Indian Service felt justified in keeping the appropriations down for the school, imagining that the operation of the farm could help the school toward self-sufficiency.

The farm and the farming operations were the central focus of the school and its academic and vocational training for the first half of its existence. In 1904, a small article in the *Cherokee Messenger* noted that "The Indian School Journal claims that at Chilocco is the only real agricultural college for Indians in the country," and that "...everything is based on the farm and its kindred industries. The language, the mathematics, the geography...is derived from and based upon farming and stock raising as far as possible."[15] While it might have been an exaggeration that everything revolved around agriculture, the subject was still the main focus. Half of each day was spent in the academic classroom and half in the vocational classes. Because of the size of Chilocco, the school offered unique opportunities in agricultural education for its students. In addition to the collective nature of the instruction in farming and stock-raising (Chilocco was renowned for its Percheron horses and its dairy herd), the school offered something akin to independent study. In 1924, a program that set aside parcels of land equal to the size of average farm in the state was implemented. Students could lease the tracts and work them as their own, using school equipment and seed. The student farmer, working half days during the school session and full time during the summer, ran the farm on his own. At the end of the period, the student kept one quarter of the fruit of their labor.[16]

As previously mentioned, although agricultural training was the primary vocation taught at Chilocco, other industrial training was offered. Some aspects of the vocational training, most notably the Print Shop, gained their

14 Allen, Edgar, letter to Representative Bird S. McGuire, 12/5/12. Similar letter to Senator Robert L. Owen, 1/4/13. Chilocco Indian School Collection, OHS, Box 38.

15 "Only Real Farm School," *Cherokee (OK) Messenger*, 2/17/04. Page 4.

16 "Student Farmers: An Experiment With the Project Method in Agriculture," *The Indian School Journal*, Volume 25, Number 14, February, 1926. Pages 157-159.

own renown and reputation. And, beginning in the 1910s, the academic program of the school was improved as the school sought accreditation. It became a graded school during this decade, adding a two-year high school program, and by 1927, offered a full course of accredited classes through grade twelve. Full accreditation came in 1932. Superintendent L. E. Correll, in a special edition of *The Oklahoma Indian School Magazine*, noted "...Administration at Chilocco is varied and unlike that of any other school in the Service, because it seeks to give training in so many fields."[17] Academic course, physical education, and a host of vocational programs (including, but not limited to, carpentry, masonry, printing, domestic science, and of course, agriculture and stock raising) were offered. This educational model, set forth as the school gained accreditation in the State of Oklahoma, was kept until the school's closing in 1980.

This new expansion of the academic and vocational course also led to an expansion of the physical plant. 1932 saw the beginning of a new phase of construction, including two new dormitories and a new vocational education complex. The four shop buildings, constructed with student labor, replaced a single vocational building.[18] By the time the United States entered World War II, a third new dormitory, two staff apartment buildings, and a new print shop building were constructed, as well as smaller outbuildings related to farming operations.

World War II saw a large number of Chilocco boys enter the service of the country. In 1924, Chilocco had petitioned the state for the establishment of an Oklahoma National Guard unit. Company C, 180th Infantry, 45th Infantry Division was established at the school and served with distinction in the European Theater of Operations during World War II and later served in Korea.

The end of WWII brought changes to the school – not in its educational mission, but to the composition of its students. An influx of Navajo children swelled the ranks of the student body. The Navajo students, for the most part, spoke no English and were initially segregated in special classes designed to accelerate their progress. The post war years marked the heyday of the school – its enrollment reached nearly 1,300 in the 1950s, it had many modern buildings and a diverse student body that represented tribes from coast to coast and Alaska.

Cultural changes, both in society and in the programs of Indian Service, that began in the 1960s led to a decline in the school. By 1973, the population of the school was halved. As the only vocational school in the Indian Service in Oklahoma, it still attracted students, but in many cases, Chilocco became choice of last resort for troubled youth. A student remarked that the vocational education was what brought him the Chilocco: "I can't do English very good, but I can do vocational things. If they close this school down, there is no place else to go. There are a lot of us who will either just go home and sit, or drop out and go on welfare." [19] By 1979, the student body numbered

17 Correll, L. E., "The Administration," *The Oklahoma Indian School Magazine*, Volume 1, Number 6, November, 1932. Pages 5-9.
18 "Chilocco Adding $35,000 in Shops," *Blackwell (OK) Morning Tribune*, 7/22/32. Page 7.
19 Ward, Mike, "This is a Home, Not Just a School," *Oklahoma City Times*, 11/14/79.

fewer than 150. Indian boarding schools, either on or off reservations, were seen as archaic by many and expensive by those who controlled the budgets. The U. S. Senate, in its budget recommendations for Fiscal Year 1979, recommended the closing of Chilocco and the Seneca Boarding School, also in Oklahoma. On July 15, Chilocco, the only vocational school operated by the BIA, closed its doors.

The closing of the school led to a dispute on the disposition of the land. The Cherokee Nation laid claim to all of the land, citing its previous ownership. The Confederated tribes of North Central Oklahoma, which included the Ponca, Tonkawa, Kaw, Pawnee, and Otoe-Missouria, also laid claim to the land. In the end, the five tribes divided the bulk of the reserve, and held the campus jointly. The Cherokee were granted a portion of the acreage and were also granted a 50% share in the mineral rights for the entire reserve.

The campus buildings have been under-utilized since the school closed. Initial attempts at creating an independent vocational training school failed. The site was leased to a controversial drug and alcohol treatment program for a number of years, but has been unused since 2000.

Chilocco in Context

National

Chilocco Indian Agricultural School was authorized in 1882 and opened in 1884 based on a model off-reservation school in Carlisle, Pennsylvania. Chilocco was among the first of these new boarding schools, along with Haskell Institute in Kansas, Salem (Chemawa) in Oregon, and Genoa in Nebraska. Other large, non-reservation schools opened in subsequent years, including the Phoenix Indian School in Arizona and Sherman Institute in California. These institutions comprise, with smaller reservation schools and existing mission schools, the U. S. government's official efforts to educate Native American children.

Of the large, nonreservation schools, two have been declared National Historic Landmarks – Carlisle Institute and Haskell Institute. One other has been listed in the National Register at the national level of significance, Phoenix Indian School. Sherman Institute and Chemawa are also represented in the National Register. In all of these cases, it is only a fraction of the original campus that is listed – a single building at Sherman, three at Phoenix, a scattering of historic buildings set amidst a modern campus at Haskell.

The missions of these schools, while similar to that of Chilocco, differed in their emphasis. The large reserve of Chilocco land allowed for it to concentrate on vocational agriculture to an extent unheard of in the Indian Service. Chemawa, for example, had less than 180 acres for agricultural use. The large physical plant of Chilocco also

allowed for an increasing emphasis on industrial vocational training; the students had the extensive collection of buildings to use as a laboratory, constructing new buildings, maintaining and repairing the older buildings and equipment.

Of these large, nonreservation schools, only Chemawa is still open in its original function. However, its campus is not historic; the original campus was abandoned in the 1970s. Haskell Institute became a Junior College in 1964. Its historic buildings, listed in the National Register and designated a National Historic Landmark, are a discontiguous collection of buildings located in a modern campus setting. Carlisle Indian School closed in 1918; its facilities had been leased from the U. S. Army and were returned to the Army where an expansion of the facility altered the historic landscape. The historic, Indian School era buildings are surrounded by, and interspersed with, buildings constructed during the 1930s and later. Phoenix Indian School, represented in the National Register by a small district of three buildings, is set in a more modern campus and has been surrounded by urban development. Chilocco retains its integrity of location, setting, and feeling. It was constructed in a large, empty prairie, miles from any settlement and so it remains.

Oklahoma

In Oklahoma, among the many Indian schools, there are two that are comparable to Chilocco. Wheelock Academy, in McCurtain County, was established in the 1840s as a Presbyterian mission school for the Choctaw Nation. It was operated as such until the early 20th century, when it was taken over by the Indian Service. It closed in the 1940s. The campus of Wheelock was designated a National Historic Landmark on December 21, 1965. Centered on Pushmataha Hall, built in the late 1870s, the dozen or so buildings of Wheelock represent Indian education in Indian Territory as administered by government chartered, but privately operated, religious organizations. Wheelock served only the Choctaw Nation and had a classical academic educational program. There were a great number of mission schools that operated in Indian Territory; all were affiliated with specific tribes and most were small, often with a single classroom building.

Riverside Indian School, a boarding school located near Anadarko, was originally established to serve the Wichita, Delaware, and affiliated tribes of the area. As a reservation school, it was smaller than Chilocco. It was after the 1930s that Riverside began to accept out of state students. The school is still in operation, however there are few of the historic buildings left. The 1920s gymnasium and four dormitories constructed with PWA funding in the 1930s remain among numerous newer buildings. Riverside was in a different category of schools than was Chilocco. Fort Sill Indian School, near Lawton, has a deteriorated dormitory listed in the National Register. It was one of many reservation boarding schools in Oklahoma, but with Riverside, was the only one to survive, outlasting Concho, Cantonment, Colony, and numerous other schools.

There are nineteen resources related to Indian education in Oklahoma that are listed in the National Register of Historic Places. These include resources identified as "academies," "seminaries," "missions," and "schools," all of which were dedicated to Indian education. Seven of these listed resources are sites, with no extant buildings associated. Most of them (fifteen) were administered by religious organizations and had their life spans primarily in the 19th century. Fort Sill Indian School, a reservation school for the Kiowa-Comanche-Apache lands, has a single building listed and it has deteriorated to the point of collapse.

Architectural Significance

Chilocco was the largest of all Indian schools in Oklahoma and was the only government, nonreservation school. Even when viewed beyond its role as an Indian school, its campus remains significant in its cohesion of design and its historic integrity. The unifying use of limestone in the buildings of Chilocco helps to bring buildings of disparate ages and styles together. This unity of materials is rare among larger academic campuses. Oklahoma State University, for example, once had a master plan that called for the use of red brick as the preferred material and Georgian Revival as the preferred architectural style. For the most part, the use of red brick has remained prevalent while modern architectural designs have been used. Campuses such as the University of Oklahoma or the smaller state schools, though, have a variety of styles and materials represented in their buildings.

The more than 70 buildings and structures of the Chilocco Indian Agricultural School represent a distinctive architectural collection. Examples of Romanesque Revival, Colonial Revival, and Modern Movements styles exist side-by-side, unified by a common use of materials and a logical arrangement on the site. Nowhere in Oklahoma is such a distinct and cohesive group of buildings, thematically related, that retains such excellent integrity of design, workmanship, feeling, materials, association, location, and setting.

Conclusion

Chilocco Indian Agricultural School is eligible for inclusion in the National Register of Historic Places under Criterion A, for its important role in Indian Education at the national level. It is significant architecturally at the state level, as a cohesive collection of unified materials unlike any similar environment.

Chilocco compares favorably with other nationally significant resources related to Indian Education. However, there are important differences related to its mission and its over-all historic integrity. Modeled after Carlisle Indian School, Chilocco grew to be the only true vocational school in the Indian Service, offering programs in agriculture, building, and industrial trades as well as a standard academic course of study. Its contemporaries, Genoa Indian School, Phoenix Indian School, Chemawa Indian School and others have suffered from the loss of their historic buildings. Haskell Institute, a National Historic Landmark, has suffered a loss of integrity by the addition of numerous new buildings to its campus following its conversion into a junior college in the 1960s. Chilocco retains

almost fifty buildings and twenty five structures on its campus, the vast majority of which date from the period of significance for the school. There are no intrusions on the campus that are not related to its role in Indian education. Unlike Wheelock Academy (NHL 1965), an early 19th century mission school, Chilocco represents the first incursion of the U. S. government into off-reservation Indian education. As such, and taking into account the integrity of the campus, Chilocco Indian Agricultural School is significant at the national level in the context of Indian education and U. S. government policies. It is significant at the state level in the area of architecture for its intact collection of educational buildings, distinct in their unified plan and use of materials.

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UTM Coordinates

Zone 14

1) E671480/N4095440	2) E672280/N4095460	3) E672290/N4095090
4) E674300/N4095090	5) E674310/N4094990	6) E672770/N4094870
7) E672720/N4094200	8) E671530/N4094180	

Verbal Boundary Description
Includes portions of the SE ½ of Section 14, SW ¼ of Section 15, NE ¼ Section 22, and NW ¼ Section 23, T29N, R4E, containing approximately 288 acres and corresponding to UTM points above.

Boundary Justification

The boundary is limited to the main academic campus and the main entry of the school reserve. The boundary includes the extant historic resources that represent the academic and vocational activities of the Chilocco Indian Agricultural School. The agricultural fields and pastures have been excluded, as has a section of farmland where agricultural outbuildings (no longer extant) were once located.

Photographs

The following is common to all photographs:

1) Chilocco Indian Agricultural School
2) Kay County, Oklahoma
3) Photographer: Jim Gabbert
4) Date of Photographs: 1/18/06
5) Location of negatives: OK/SHPO

Photograph #, Direction of camera, view:

1) Facing west: Entry gate and main drive.
2) Facing south-southwest: National Guard armory. C. 1950
3) Facing east-northeast: Building 80, staff quarters. 1903
4) Facing south: Building 85, old hospital/staff apartments. 1897/1925.
5) Facing west: Building 91, granary. 1939
6) Facing east: Building 90, scale house (1952) with Building 156 in background (1955)
7) Facing west: Building 159, calf barn (1960) Noncontributing due to age.
8) Facing southeast: Buildings 154 & 155. 1951.
9) Facing west-northwest: Building 94, sheep shed. 1952.
10) Facing north: Cemetery gate.
11) Facing southwest: Bridge – concrete arch over Chilocco creek. C. 1910.
12) Facing southwest: Buildings 100 and 97, gymnasium (1925/1937) and boys' dressing room at rear (1937)
13) Facing southwest: Building 180, Wheeler Hall. 1966. Dormitory, noncontributing due to age.
14) Facing southwest: Building 151, 1950. Classroom building for vocational classes.
15) Facing northeast: Building 150, filling station (1949), with Building 107 to right and Commissary behind.
16) Facing south-southeast: Building 108, warehouse/commissary. 1910.
17) Facing northwest: Buildings111 and 112, vocational shops. 1933. Filling station to right.
18) Facing northwest: Buildings 161 and 152, practical arts shop (1963) and band/music building.
19) Facing northwest: Building 152, band & vocal music building. 1933.
20) Facing southeast: Buildings 17 and 18, staff quarters. C. 1910. From rear.
21) Facing west-northwest: Buildings 22 and 21, staff quarters, with water tower behind.
22) Facing northwest: Building 21, staff apartments. C. 1940. Water tower behind.
23) Facing north: Building 22, staff quarters. C. 1910.
24) Facing northeast: Staff quarters. 1903.

25) Facing west: Building 7, administration building (1918) with World War I memorial and flagpole.
26) Facing north: View up driveway, with Leupp Hall and Student Union on right, Antonne Hall on left.
27) Facing west-northwest: Building 5, Antonne Hall. 1932. Girls dormitory.
28) Facing northwest: Buildings 56 and 58, staff housing. C. 1930.
29) Facing west: Building 53, Superintendent's house. C. 1930.
30) Facing southeast: Building 60, staff apartments. 1940.
31) Facing east-southeast: Buildings 61 (garage) and 157 (staff housing).
32) Facing west-northwest: Building 59, staff housing. C. 1940.
33) Facing east: Building 149 and 164, staff housing and garage. C. 1940.
34) Facing southeast: Building 158, garage/shed.
35) Facing northeast: Building 71, employees club/quarters. 1924.
36) Facing northeast: Building 12, Leupp Hall. 1905, showing c. 1925 rear addition.
37) Facing northwest: Buildings 179 and 12. Student union (1965), noncontributing; Leupp Hall in background.
38) Facing east: Building 4, Correll Hall. 1935.
39) Facing east: Haworth Hall. Main campus classroom building. 1910.
40) Facing northeast; Haworth Hall, showing newer stair tower addition.
41) Facing north: Fountain.
42) Facing east: World War II memorial tablet.
43) Facing east: Building 9, Powerhouse. 1918.
44) Facing east-southeast: Building 10, Honors dorm. 1937.
45) Facing northeast: Building 11, print shop. 1941.
46) Facing southwest: Building 6, Hayman Hall. 1932, boys dormitory.
47) Facing west-northwest. Looking toward campus across lake, showing footbridge, Haworth Hall, Correll Hall, and employees club buildings.
48) Facing west-southwest: Looking across lake toward powerhouse, lumber shed, print shop and gymnasium in background.
49) Facing west-northwest: Looking across lake; Print shop, lumber shed, honors dorm, powerhouse, Haworth Hall, Correll Hall.

Appendix B:

Scope of Work

SCOPE OF WORK
Class III Archaeological Survey and Report
Chilocco Wind Farm
Southern Plains Region
August 5, 2013

I. Background

As an agency of the U.S. Department of Interior, the Bureau of Indian Affairs (BIA), is mandated to comply with Federal laws and regulations on the identification and protection of cultural resources. These laws include the National Historic Preservation Act (NHPA), National Environmental Policy Act (NEPA), Native American Graves Protection and Repatriation Act, Archaeological Resources Protection Act, American Indian Religious Freedom Act, and implementing regulations.

As part of the compliance procedures for Section 106 of NHPA, the BIA requires a Class III archaeological survey and report on all new construction project(s) within the Southern Plains Region. All proposed projects are within Kay County, Oklahoma. The project(s) is designed to construct approximately 90 wind turbines on tribal trust and restricted lands within the jurisdiction of the Bureau of Indian Affairs.

II. Statement of Work

A. The contractor shall furnish all necessary labor, transportation, equipment, specialized personnel, and material to complete the archaeological survey and reports. At a minimum, the principal investigator, the archaeology field crew supervisor, and the field crew are to meet the Department of Interior qualifications. The principal investigator, and the archaeology field crew supervisor are to have a minimum of an MA degree in archaeology; at least one year of full time professional experience in archeological research, administration, or management; at least one year of supervised field and analytic experience in North American archaeology; in addition, at least one year of field experience in the Plains region.

B. A Class III archaeology inventory will consist of a 100 percent pedestrian survey of all affected wind turbine placements, cable lines, access roads, and other ground disturbing activities as shown on the attached maps.

1. A subsurface shovel test at every proposed turbine location. Pedestrian/surface survey of access roads/cables in between turbine locations in plowed fields. Subsurface shovel tests every 50' (15M) within 300' of Chilocco Creek. Intuitive shovel testing in areas of high potential on access roads/cables that are not plowed fields.

C. There will be no collecting of artifacts and no testing of cultural resources prior to approval from the Southern Plains Regional Archeologist (See ARPA Permit).

D. The report and the abstract must meet the Secretary of Interior's standards and be accepted by the Oklahoma State Historic Preservation Office.

F. The report will include the following:

1. SHPO Abstract. The abstract must outline the report contents and refer to specific highlights of the findings. If a survey report cover page and site summary table are provided, an abstract is optional.
2. Table of Contents.

3. Description of the project area and any areas within the project area that were not surveyed.
4. Description of field survey methods, procedures, reasoning, and strategy used to identify cultural resources.
5. A list of all recorded sites including site designation, elevation, and site type.
6. Pictures of project area and of sites.
7. A general vicinity map depicting the location of the project in Oklahoma.
8. Description, site legal location, and evaluation of all identified cultural resources; document their potential to contribute data on cultural resource problems of the project area; identify sites which may be eligible for the National Register of Historic Places, with rational and justification under National Register criteria (36CFR60.4).

G. All maps are to include a key, title, north arrow, and are to be drawn to scale in black and white, no colors. USGS 7.5 minute maps are to include quad map name and date, with townships and ranges placed in the margins.

H. 'Site' is to be defined by reference to any State of Oklahoma criteria. Prepare site records for newly discovered sites and updated for previously recorded sites. A specific narrative discussing the Chilocco Indian School including history, significance, and National Register status must be included in the report.

As a minimum, site records will include the following:

1. Oklahoma site designations
2. Pagination with page number and total number of pages on each page.
3. For previously recorded sites, include the original site record as well as all updates.
4. Maps: a portion of the USGS 7.5 minute topographic map showing the site locations, name of 7.5 minute USGS map; a site map depicting the location of the site datum (or site datum if secondary data are required), features, any site impacts, contour lines, UTM coordinates for site boundaries.
5. Site description: Global Positioning System (GPS) coordinates for the site datum/data: 7.5 minute USGS map name, township, range, 1/4 of 1/4 section; site elevation, site size in acres; a photo of the site area, a photo of the site datum which includes the immediate surrounding area, a description and photos of features and diagnostic artifacts; the location of any site impacts, and a photo and general description of the impacts. At a minimum, GPS coordinates are to be recorded with the level of accuracy with Trimble's GeoExplorer 3 or better and include Latitude and Longitude for previously recorded and newly recorded sites.

I. Within 30 days of the completion of the fieldwork, the contractor will deliver the following:

1. Eight copies of the final bound archeology report to the BIA Southern Plains Regional Archeologist.
2. Eight unbound copies of all site records to the BIA Southern Plains Regional Archeologist. All site records and maps are exempt from the Freedom of Information Act and will be delivered to the Landowner Tribes of Oklahoma as separate documents.
3. Photographs and slides: the negatives for all photographs (or memory sticks for digital cameras) and the original of any slides shall be delivered to the BIA Southern Plains Regional Archeologist.
4. Full size original 7.5 minute USGS quadrangle maps depicting the location of all sites shall be delivered to the BIA Southern Plains Regional Archeologist.

Note Any re-scheduling of the deliverable report must be agreed to by the BIA.

Appendix C:

ARPA Permit

Please use this number
when referring to this permit

No.: BIA0813-CWF-WW

DI Form 1991 (Rev Jan 2008)
for use with DI Form 1926
OMB No. 1024-0037
Exp. Date (6/30/2014)

United States Department of the Interior

PERMIT FOR ARCHEOLOGICAL INVESTIGATIONS

To conduct archeological work on Department of the Interior lands and Indian lands under the authority of:

- ☒ The Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm) and its regulations (43 CFR 7).
- ☒ The Antiquities Act of 1906 (P.L. 59-209; 34 Stat. 225, 16 U.S.C. 431-433) and its regulations (43 CFR 3).
- ☒ Supplemental regulations (25 CFR 262) pertaining to Indian lands.
- ☒ Bureau-specific statutory and/or regulatory authority: 59 IAM 3-H

1. Permit issued to Westwood Professional Services, Inc.	2. Under application dated August 5, 2013
3. Address 7699 Anagram Dr. Eden Prairie, MN 55344	4. Telephone number(s) (952) 937-5150
	5. E-mail address(es)

6. Name of Permit Administrator Abraham Ledezma Martinez Telephone number(s): (612) 269-8845 Email address(es): abraham.ledezma@westwoodps	7. Name of Principal Investigator(s) Abraham Ledezma Martinez Telephone number(s): (612) 269-8845 Email address(es): abraham.ledezma@westwoodps
8. Name of Field Director(s) authorized to carry out field projects Ryan Paul Grohnke	Telephone number(s): (612) 209-3352 Email address(es): ryan.grohnke@westwoodps.com

9. Activity authorized: To conduct Class I, II,and III, archaeological investigations for the proposed Chilocco Wind Farm on tribal trust lands administered by the Bureau of Indian Affairs, Southern Plains Region and Eastern Oklahoma Region. Also, Right of Entry on Cherokee tribally owned fee property.

10. On lands described as follows: See ownership legal descriptions information attached.

11. During the duration of the project From 08/05/2013 To 08/14/2013

12. Name and address of the curatorial facility in which collections, records, data, photographs, and other documents resulting from work under this permit shall be deposited for permanent preservation on behalf of the United States Government.

The final report and all supporting documentation will be submitted to the Southern Plains Regional Office , Regional Archeologist, John A. Worthington.

13. Permittee is required to observe the listed standard permit conditions and the special permit conditions attached to this permit.

14. Signature and title of approving official Robin R Butler C, Superintendent	15. Date 8/5/13

15. Standard Permit Conditions

a. This permit is subject to all applicable provisions of 43 CFR Part 3, 43 CFR 7, and 25 CFR 262, and applicable departmental and bureau policies and procedures, which are made a part hereof.

b. The permittee and this permit are subject to all other Federal, State, and local laws and regulations applicable to the public lands and resources.

c. This permit shall not be exclusive in character, and shall not affect the ability of the land managing bureau to use, lease or permit the use of lands subject to this permit for any purpose.

d. This permit may not be assigned.

e. This permit may be suspended or terminated for breach of any condition or for management purposes at the discretion of the approving official, upon written notice.

f. This permit is issued for the term specified in 11 above.

g. Permits issued for a duration of more than one year must be reviewed annually by the agency official and the permittee.

h. The permittee shall obtain all other required permit(s) to conduct the specified project.

i. Archeological project design, literature review, development of the regional historic context framework, site evaluation, and recommendations for subsequent investigations must be developed with direct involvement of an archeologist who meets the Secretary of the Interior's Standards for Archeology and Historic Preservation; fieldwork must be generally overseen by an individual who meets the Secretary of the Interior's Standards for Archeology and Historic Preservation.

j. Permittee shall immediately request that the approving official (14. above) make a modification to accommodate any change in an essential condition of the permit, including individuals named and the nature, location, purpose, and time of authorized work, and shall without delay notify the approving official of any other changes affecting the permit or regarding information submitted as part of the application for the permit. Failure to do so may result in permit suspension or revocation.

k. Permittee may request permit extension, in writing, at any time prior to expiration of the term of the permit, specifying a limited, definite amount of time required to complete permitted work.

l. Any correspondence about this permit or work conducted under its authority must cite the permit number. Any publication of results of work conducted under the authority of this permit must cite the approving bureau and the permit number.

m. Permittee shall submit a copy of any published journal article and any published or unpublished report, paper, and manuscript resulting from the permitted work (apart from those required in items q. and s., below), to the approving official and the appropriate official of the approved curatorial facility (item 12 above).

n. Prior to beginning any fieldwork under the authority of this permit, the permittee, following the affected bureau's policies and procedures, shall contact the field office manager responsible for administering the lands involved to obtain further instructions.

o. Permittee may request a review, in writing to the official concerned, of any disputed decision regarding inclusion of specific terms and conditions or the modification, suspension, or revocation of this permit, setting out reasons for believing that the decision should be reconsidered.

p. Permittee shall not be released from requirements of this permit until all outstanding obligations have been satisfied, whether or not the term of the permit has expired. Permittee may be subject to civil penalties for violation of any term or condition of this permit.

15. Standard Permit Conditions (continued)

q. Permittee shall submit a preliminary report to the approving official within a timeframe established by the approving official, which shall be no later than 6 weeks after the completion of any episode of fieldwork, setting out what was done, how it was done, by whom, specifically where, and with what results, including maps, GPS data, an approved site form for each newly recorded archeological site, and the permittee's professional recommendations, as results require. If other than 6 weeks, the timeframe shall be specified in Special Permit Condition p. Depending on the scope, duration, and nature of the work, the approving official may require progress reports, during or after the fieldwork period or both, and as specified in Special Permit Condition r.

r. Permittee shall submit a clean, edited draft final report to the agency official for review to insure conformance with standards, guidelines, regulations, and all stipulations of the permit. The schedule for submitting the draft shall be determined by the agency official.

s. Permittee shall submit a final report to the approving official not later than 180 days after completion of fieldwork. Where a fieldwork episode involved only minor work and/or minor findings, a final report may be submitted in place of the preliminary report. If the size or nature of fieldwork merits, the approving official may authorize a longer timeframe for the submission of the final report as specified in Special Permit Condition q.

t. Two copies of the final report, a completed NTIS Report Documentation Page (SF-298), available at http://www.ntis.gov/pdf/rdpform.pdf, and a completed NADB-Reports Citation Form, available at http://www.nps.gov/archeology/tools/nadbform_update.doc , will be submitted to the office issuing the permit.

u. The permittee agrees to keep the specific location of sensitive resources confidential. Sensitive resources include threatened species, endangered species, and rare species, archeological sites, caves, fossil sites, minerals, commercially valuable resources, and sacred ceremonial sites.

v. Permittee shall deposit all artifacts, samples and collections, as applicable, and original or clear copies of all records, data, photographs, and other documents, resulting from work conducted under this permit, with the curatorial facility named in item 12, above, not later than 90 days after the date the final report is submitted to the approving official. Not later than 180 days after the final report is submitted, permittee shall provide the approving official with a catalog and evaluation of all materials deposited with the curatorial facility, including the facility's accession and/or catalog numbers.

w. Permittee shall provide the approving official with a confirmation that museum collections described in v. above were deposited with the approved curatorial facility, signed by an authorized curatorial facility official, stating the date materials were deposited, and the type, number and condition of the collected museum objects deposited at the facility.

x. Permittee shall not publish, without the approving official's prior permission, any locational or other identifying archeological site information that could compromise the Government's protection and management of archeological sites.

y. For excavations, permittee shall consult the OSHA excavation standards which are contained in 29 CFR §1926.650, §1926.651 and §1926.652. For questions regarding these standards contact the local area OSHA office, OSHA at 1-800-321-OSHA, or the OSHA website at http://www.osha.gov.

z. Special permit conditions attached to this permit are made a part hereof.

16. Special Permit Conditions

- [x] a. Permittee shall allow the approving official and bureau field officials, or their representatives, full access to the work area specified in this permit at any time the permittee is in the field, for purposes of examining the work area and any recovered materials and related records.
- [x] b. Permittee shall cease work upon discovering any human remains and shall immediately notify the approving official or bureau field official. Work in the vicinity of the discovery may not resume until the authorized official has given permission.
- [x] c. Permittee shall backfill all subsurface test exposures and excavation units as soon as possible after recording the results, and shall restore them as closely as reasonable to the original contour.
- [ ] d. Permittee shall not use mechanized equipment in designated, proposed, or potential wilderness areas unless authorized by the agency official or a designee in additional specific conditions associated with this permit.
- [x] e. Permittee shall take precautions to protect livestock, wildlife, the public, or other users of the public lands from accidental injury in any excavation unit.
- [x] f. Permittee shall not conduct any flint knapping or lithic replication experiments at any archeological site, aboriginal quarry source, or non-site location that might be mistaken for an archeological site as a result of such experiments.
- [x] g. Permittee shall perform the fieldwork authorized in this permit in a way that does not impede or interfere with other legitimate uses of the public lands, except when the authorized officer specifically provides otherwise.
- [ ] h. Permittee shall restrict vehicular activity to existing roads and trails unless the authorized officer provides otherwise.
- [x] i. Permittee shall keep disturbance to the minimum area consistent with the nature and purpose of the fieldwork.
- [x] j. Permittee shall not cut or otherwise damage living trees unless the authorized officer gives permission.
- [x] k. Permittee shall take precautions at all times to prevent wildfire. Permittee shall be held responsible for suppression costs for any fires on public lands caused by the permittee's negligence. Permittee may not burn debris without the authorized officer's specific permission.
- [x] l. Permittee shall conduct all operations in such a manner as to prevent or minimize scarring and erosion of the land, pollution of the water resources, and damage to the watershed.
- [x] m. Permittee shall not disturb resource management facilities within the permit area, such as fences, reservoirs, and other improvements, without the authorized officer's approval. Where disturbance is necessary, permittee shall return the facility to its prior condition, as determined by the authorized officer.
- [x] n. Permittee shall remove temporary stakes and/or flagging, which the permittee has installed, upon completion of fieldwork.
- [x] o. Permittee shall clean all camp and work areas before leaving the permit area. Permittee shall take precautions to prevent littering or pollution on public lands, waterways, and adjoining properties. Refuse shall be carried out and deposited in approved disposal areas.
- [x] p. Permittee shall submit the preliminary report within 30 days/weeks of completion of any episode of fieldwork..
- [x] q. Permittee shall submit the final report within 60 days/weeks/months after completion of fieldwork..
- [ ] r. Permittee shall submit progress reports every _____ months over the duration of the project.
- [ ] s. Additional special permit conditions are attached.

Special Permit Conditions Continuation Sheet

The BIA, Southern Plains Region does not allow for collecting and testing of artifacts. This permit is specific only to the fieldwork for the proposed Chilocco Wind Farm. No other archaeological investigations are authorized under this permit. With the issuance of this permit, Westwood Professional Services, Inc. is accepting the scope of work (SOW) attached and all the deliverables.

The permitee is also responsible for gathering information and documentation relating to the Chilocco Indian School (CIS) that is situated within the Area of Potential Effect (APE). The CIS is on the National Register of Historic Places. A section of the final report should specifically address the significance of the property as well as the proposed wind farm impacts to the property for BIA, SHPO and THPO concurrence.

By signing below, I, the Principal Investigator, acknowledge that I have read and understand the Permit for Archeological Investigations and agree to its terms and conditions as evidenced by my signature below and initiation of work or other activities under the authority of this permit.

Signature and title:	Date:

Paperwork Reduction Act and Estimated Burden Statement: This information is being collected pursuant to 16 U.S.C. 470cc and 470mm, to provide the necessary facts to enable the Federal land manager (1) to evaluate the applicant's professional qualifications and organizational capability to conduct the proposed archeological work; (2) to determine whether the proposed work would be in the public interest; (3) to verify the adequacy of arrangements for permanent curatorial preservation, as United States property, of specimens and records resulting from the proposed work; (4) to ensure that the proposed activities would not be inconsistent with any management plan applicable to the public lands involved; (5) to provide the necessary information needed to complete the Secretary's Report to Congress on Federal Archeology Programs; and (6) to allow the National Park Service to evaluate Federal archeological protection programs and assess compliance with the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470). Submission of the information is required before the applicant may enjoy the benefit of using publicly owned archeological resources. To conduct such activities without a permit is punishable by felony-level criminal penalties, civil penalties, and forfeiture of property. A federal agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. Public reporting for this collection of information is estimated to average three hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Departmental Consulting Archeologist; NPS; 1849 C Street, NW (2275); Washington, DC 20240-0001.

Appendix D:

Permit to Survey-

BIA Pawnee Agency

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
PAWNEE AGENCY
P.O. BOX 440
PAWNEE, OKLAHOMA 74058
918-762-2585
FAX 918-762-3201

Westwood Professional Services
Attn: Ryan Grohnke
7699 Anagram Drive
Eden Prairie, MN 55344

Dear Mr. Grohnke:

This letter serves as a 60 day permit to conduct an archeological and cultural resources survey on the enclosed tracts of land which are owned by the following tribes and held in trust by the United States of America under the jurisdiction of the Bureau of Indian Affairs, Pawnee Agency. Those Tribes are:

- Pawnee Nation of Oklahoma
- Otoe-Missouria Tribe of Indians
- Ponca Tribe of Indians of Oklahoma

A survey crew employed by Westwood Professional Services is hereby permitted to enter onto the enclosed tracts of land to conduct an archeological and cultural resources survey in preparation for a wind energy project.

This permit expires 60 days from the date signed, or upon completion of work, whichever occurs first. A copy of this permit shall be carried by the Survey Party Chief, or his/her designate at all times while on the above described property.

If you have any questions or need additional information, please contact our office at (918) 762-2585.

8/2/13
DATE

Robin R Bellmard
ROBIN BELLMARD, SUPERINTENDENT

cc: Earl S. Howe, III, Chairman, Ponca Tribe of Indians of Oklahoma. 20 White Eagle Drive, Ponca City, OK 74601
John R. Shotton, Chairman, Otoe-Missouria Tribe of Indians, 8151 Highway 177, Red Rock, OK 74651
Marshall R. Gover, President, Pawnee Nation of Oklahoma, P.O. Box 470, Pawnee, OK 74058
BIA, Southern Plains Regional Office, Attn: John Worthington, P.O. Box 368, Anadarko, Ok 73005

United States Department of the Interior
Bureau of Indian Affairs
Title Status Report

Report Certification Time and Date: 05/01/1986 08:00:00 PM
Requestor: JLOVEKAM Date/Time: 08/01/2013 08:57:30

See Appendix C for Land Legal Descriptions

Title Status

Tract 811 ST 1005 is held by the United States of America in trust for the land owner(s) with trust interests and/or by the land owner(s) with restricted interests and/or fee simple interests, as listed in Appendix "A" attached to and incorporated in this Title Status Report.

The title to Tract 811 ST 1005 is current, complete, correct, and without defect. Ownership is in unity and interests are owned in the following title status: trust.

The tract ownership is encumbered by the title documents as listed on Appendix "B" attached to and incorporated in this Title Status Report.

No Tract Notes or Coded Remarks for this tract.

This report does not cover encroachments nor any other rights that might be disclosed by a physical inspection of the premises, nor questions of location or boundary that an accurate survey may disclose. This Report also does not cover encumbrances, including but not limited to irrigation charges, unpaid claims, not filed or recorded in this Land Titles and Records Office. This report does not state the current ownership of the interests owned in fee simple but states the ownership at the time the interest ceased to be held in trust or restricted ownership status.

This Title Status Report is a true and correct report of the status of title to the real estate described herein according to the official land records recorded and maintained in this office.

Appendix "A"

Effective Ownership as of 07/01/2000

---- OWNER ----				- DOCUMENT -		NAME IN WHICH ACQUIRED	FRACTION TRACT	AGGREGATE SHARE	AGGREGATE
Tribe	Indian or Non-Indian	Title Status	Interest*	Class	Type	SURNAME/FIRST NAME	AS ACQUIRED	CONVERTED TO LCD	DECIMAL
OTOE MISSOURIA - OK	Tribe	Trust	All	Acts Con	SPEC AUT	OTOE-MISSOURIA TRIBE	1 1	1 1	1.0000000000

* "All" means the equitable beneficial interest and the legal title interest merged together.

IN TRUST:	1 1	1.0000000000
IN FEE:	0 1	.0000000000
TOTAL:	1 1	1.0000000000

Appendix "B"

Ownership of Tract 811 ST 1005 is encumbered by the following:

Contract Type/Contractor Name	Contract Number	Contractor ID	Begin Date	Expiration Date	Leased Acres	Record Image#
Oil and Gas Pipeline	0002330025	811C005601	02/17/2000	02/16/2025	.720	811-000233
OK NATURAL GAS CO.						

Type of Encumbrance	Encumbrance Holder	Expiration Date	Document Number	Description and Explanation	
SURVEY/SUPPLEMENTAL PLAT			030391988	SUPPLEMENTAL PLAT -- SURVEY BY R. E. KAULEY 7/28/86	DTD

Appendix "C"

Land Legal Description

Land Area	Land Area Name	Tract Number	LTRO	Region	Agency	Resources
811	OTOE	ST 1005	ANADARKO, OK	SOUTHERN PLAINS REGIONAL OFFICE	PAWNEE AGENCY	Surface

Section	Township	Range	State	County	Meridian	Legal Description	Acres
14	029.00N	002.00E	OKLAHOMA	KAY	Indian	E E W W SW	10.000
						E SW	80.000
						E W SW	40.000
						NW NW NW SW	2.500
						S NE	80.000
						S NW	80.000
						SE	160.000
						W NE NW NW SW	1.250
						LOT 01=NE NE	36.590
						LOT 02=NW NE	36.550
						LOT 03=NE NW	36.530
						LOT 04=NW NW	36.490
15	029.00N	002.00E	OKLAHOMA	KAY	Indian	E NE NW NE SE	1.250
						N NE NE SE	5.000
						LOT 99=SE NE	63.090
	METES AND BOUNDS: PART LOT 1 LYING EAST OF CENTERLINE OF NORTH ENTRANCE RD; PART SENE LYING EAST CENTERLINE OF NORTH ENTRANCE RD; N 268.17' OF NWNWNESE LYING EAST CENTERLINE OF NORTH ENTRANCE RD; N 268.17' OF WNENWNESE; ENENWNESE; NNENESE.						
23	029.00N	002.00E	OKLAHOMA	KAY	Indian	E E NE NW NW	2.500
						E NE SE NW NW	1.250
						N N NE	40.000
						N NE NW	20.000
						N S N NE	20.000
						N S NE NW	10.000
24	029.00N	002.00E	OKLAHOMA	KAY	Indian	N NW NW	20.000
						N S NW NW	10.000
						N SW NE NW	5.000
						NW NE NW	10.000
						LOT 99=NE NW	7.300
	METES AND BOUNDS: PART OF NENENW & NSENENW LYING WEST OF EAST R/W LINE OF ATCHISON, TOPEKA & SANTA FE RR						
						TOTAL TRACT ACRES:	815.300

United States Department of the Interior
Bureau of Indian Affairs
Title Status Report

Report Certification Time and Date: 05/01/1986 08:00:00 PM
Requestor: JLOVEKAM Date/Time: 08/01/2013 08:58:50

Land Legal Description

Land Area	Land Area Name	Tract Number	LTRO	Region	Agency	Resources
812	PAWNEE	ST 1021	ANADARKO, OK	SOUTHERN PLAINS REGIONAL OFFICE	PAWNEE AGENCY	Surface

Section	Township	Range	State	County	Meridian	Legal Description	Acres
22	029.00N	002.00E	OKLAHOMA	KAY	Indian	E SE SW	20.000
						NE SE	40.000
						S N NE NE	10.000
						S NE NE	20.000
						S NW SE	20.000
						SE NE	40.000
						SE NE SW	10.000
						SE SE	40.000
						SW SE	40.000
23	029.00N	002.00E	OKLAHOMA	KAY	Indian	S S SW NW	10.000
						SW	160.000
						SW SW SE	10.000
26	029.00N	002.00E	OKLAHOMA	KAY	Indian	N SW	80.000
						NW	160.000
						W NW SE	20.000
						W W NE	40.000
						LOT 02=SE SW	20.715
						LOT 03=SW SE	41.430
						LOT 04=SW SW	41.420

DESCRIPTION REMARKS: W/2 OF LOT 2 LV 20.715 ACS

TOTAL TRACT ACRES: 823.565

Title Status

Tract 812 ST 1021 is held by the United States of America in trust for the land owner(s) with trust interests and/or by the land owner(s) with restricted interests and/or fee simple interests, as listed in Appendix "A" attached to and incorporated in this Title Status Report.

The title to Tract 812 ST 1021 is current, complete, correct, and without defect. Ownership is in unity and interests are owned in the following title status: trust.

The tract ownership is encumbered by the title documents as listed on Appendix "B" attached to and incorporated in this Title Status Report.

No Tract Notes or Coded Remarks for this tract.

This report does not cover encroachments nor any other rights that might be disclosed by a physical inspection of the premises, nor questions of location or boundary that an accurate survey may disclose. This Report also does not cover encumbrances, including but not limited to irrigation charges, unpaid claims, not filed or recorded in this Land Titles and Records Office. This report does not state the current ownership of the interests owned in fee simple but states the ownership at the time the interest ceased to be held in trust or restricted ownership status.

This Title Status Report is a true and correct report of the status of title to the real estate described herein according to the official land records recorded and maintained in this office.

Appendix "A"

Effective Ownership as of 07/01/2000

---- OWNER ----				- DOCUMENT -		NAME IN WHICH ACQUIRED	FRACTION TRACT	AGGREGATE SHARE	AGGREGATE
Tribe	Indian or Non-Indian	Title Status	Interest*	Class	Type	SURNAME/FIRST NAME	AS ACQUIRED	CONVERTED TO LCD	DECIMAL
PAWNEE - OK	Tribe	Trust	All	Acts Con	SPEC AUT	PAWNEE INDIAN TRIBE OF OKLAHOMA	1 1	1 1	1.0000000000

* "All" means the equitable beneficial interest and the legal title interest merged together.

IN TRUST:	1	
	1	1.0000000000
IN FEE:	0	
	1	.0000000000
TOTAL:	1	
	1	1.0000000000

Appendix "B"

Ownership of Tract 812 ST 1021 is encumbered by the following:

Contract Type/Contractor Name	Contract Number	Contractor ID	Begin Date	Expiration Date	Leased Acres	Record Image#
AGRICULTURE LEASE	0000010900	812C250025	01/01/2010	12/31/2013	541.560	812-0000010900
FLYING L RANCH						

Type of Encumbrance	Encumbrance Holder	Expiration Date	Document Number	Description and Explanation
DEFECT	Other (see remarks)	12/31/2013	0000010900	
DEFECT	Other (see remarks)	12/31/2013	0000010900	

United States Department of the Interior
Bureau of Indian Affairs
Title Status Report

Report Certification Time and Date: 05/01/1986 08:00:00 PM
Requestor: JLOVEKAM Date/Time: 08/01/2013 08:58:01

See Appendix C for Land Legal Descriptions

Title Status

Tract 813 ST 1005 is held by the United States of America in trust for the land owner(s) with trust interests and/or by the land owner(s) with restricted interests and/or fee simple interests, as listed in Appendix "A" attached to and incorporated in this Title Status Report.

The title to Tract 813 ST 1005 is current, complete, correct, and without defect. Ownership is in unity and interests are owned in the following title status: trust.

The tract ownership is encumbered by the title documents as listed on Appendix "B" attached to and incorporated in this Title Status Report.

No Tract Notes or Coded Remarks for this tract.

This report does not cover encroachments nor any other rights that might be disclosed by a physical inspection of the premises, nor questions of location or boundary that an accurate survey may disclose. This Report also does not cover encumbrances, including but not limited to irrigation charges, unpaid claims, not filed or recorded in this Land Titles and Records Office. This report does not state the current ownership of the interests owned in fee simple but states the ownership at the time the interest ceased to be held in trust or restricted ownership status.

This Title Status Report is a true and correct report of the status of title to the real estate described herein according to the official land records recorded and maintained in this office.

Appendix "A"

Effective Ownership as of 07/01/2000

----- OWNER -----				- DOCUMENT -		NAME IN WHICH ACQUIRED	FRACTION TRACT	AGGREGATE SHARE	AGGREGATE
Tribe	Indian or Non-Indian	Title Status	Interest*	Class	Type	SURNAME/FIRST NAME	AS ACQUIRED	CONVERTED TO LCD	DECIMAL
PONCA - OK	Tribe	Trust	All	Acts Con	SPEC AUT	PONCA TRIBE	1 1	1 1	1.0000000000

* "All" means the equitable beneficial interest and the legal title interest merged together.

IN TRUST:	1 1	1.0000000000
IN FEE:	0 1	.0000000000
TOTAL:	1 1	1.0000000000

Appendix "B"

Ownership of Tract 813 ST 1005 is encumbered by the following:

Contract Type/Contractor Name	Contract Number	Contractor ID	Begin Date	Expiration Date	Leased Acres	Record Image#
Oil and Gas Pipeline	0318259217	813C006348	12/15/1992	12/14/2017	9.056	813-031825-93

TOTAL PIPELINE CORP.

NO REALTY DEFECTS FOUND

NO TITLE DEFECTS FOUND

NO ENCUMBRANCES FOUND

Appendix "C"

Land Legal Description

Land Area	Land Area Name	Tract Number	LTRO	Region	Agency	Resources
813	PONCA	ST 1005	ANADARKO, OK	SOUTHERN PLAINS REGIONAL OFFICE	PAWNEE AGENCY	Surface

Section	Township	Range	State	County	Meridian	Legal Description	Acres
15	029.00N	002.00E	OKLAHOMA	KAY	Indian	N NW NW SE	5.000
						N SW	80.000
						NW NE NW SE	2.500
						S NW	80.000
						SW NE	40.000
						SW NW NW SE	2.500
						SW SW	40.000
						W E E SE SW	5.000
						W E SE SW	10.000
						W E SW NW SE	2.500
						W SE NW NW SE	1.250
						W SE SW	20.000
						W SW NW SE	5.000
						LOT 01=NE NE	18.560
						LOT 02=NW NE	36.680
						LOT 03=NE NW	36.780
						LOT 04=NW NW	36.890
	METES AND BOUNDS: PART OF LOT 1 LYING WEST OF THE CENTERLINE OF THE NORTH ENTRANCE ROAD; AND THE PART LYING WEST OF THE CENTERLINE OF THE NORTH ENTRANCE ROAD IN THE SENE; AND THE NORTH 268.17' OF THE NWNWNESE LYING WEST OF THE CENTERLINE OF THE NORTH ENTRANCE ROAD; AND THE NORTH 268.17' OF THE NENENWSE.						
16	029.00N	002.00E	OKLAHOMA	KAY	Indian	S NE	80.000
						SE	160.000
						LOT 01=NE NE	36.960
						LOT 02=NW NE	36.950
21	029.00N	002.00E	OKLAHOMA	KAY	Indian	N N NE	40.000
						LOT 99=E NE NE NW	.770
	METES AND BOUNDS: THE PORTION LYING EAST OF THE WEST R/W LINE OF THE ST. LOUIS & SANTA FE RAILROAD OF THE ENENENW.						
22	029.00N	002.00E	OKLAHOMA	KAY	Indian	N NW NW	20.000
						NW NE NW	10.000
						W E NE NE NW	2.500
						W NE NE NW	5.000
					TOTAL TRACT ACRES:		814.840

Appendix E:

Right of Entry-

Cherokee Nation

UNITED STATES
DEPARTMENT OF THE INTERIOR
CHEROKEE NATION
BUREAU OF INDIAN AFFAIRS

OWNERS CONSENT TO RIGHT OF ENTRY

Date: **August 1, 2013**

Owner: **Cherokee Nation and United States of America in Trust for Cherokee Nation**

Grantor: **Cherokee Nation**

Legal Description:

Section 16, T29N, R2E Lot 3; Lot 4; S2 NW4 and SW4.
Containing 313.85 FEE acres, more or less.

Section 17, T29N, R2E Lot 1; Lot 2; Lot 5; Lot 6; Lot 7; SE4 NE4; and E2 SE4
LESS AND EXCEPT that part described as "Beginning at a point 39 rods South of the NE corner of the NE4 of Section 17, T29N, R2E, I.B.&M.; thence 24 rods South; thence 33 1/3 rods West; thence 24 rods North; thence 33 1/3 rods East to the Point of Beginning containing 5 acres". i.e. Rod = 16.5 feet.
Containing 313.62 FEE acres, more or less.

Section 20, T29N, R2E Lot 1; Lot 2; Lot 3; Lot 4; E2 SE4 and E2 NE4
LESS AND EXCEPT that part described as "Beginning at a point 67 rods North of SE corner of the NE4 of Section 20, T29N, R2E, I.B.&M.; thence North 20 rods; thence West 50 rods; thence South 10 rods; thence East 20 rods; thence South 10 rods; thence East 30 rods to Point of Beginning, containing 5 acres".
Containing 316.36 FEE acres, more or less.

Section 21, T29N, R2E Those parts of the NW4 and SW4 lying West of the West right-of-way line of the S.L. & S.F. Railroad .
Containing 150.26 FEE acres, more or less.

Section 29, T29N, R2E N2 SE4 and NE4.
Containing 240.00 FEE acres, more or less.

Section 13, T29N, R2E Lot 4; SW4 NW4; W2 SW4; and the parts of Lot 3, SE4 NW4, E2 SW4 lying west of the east right-of-way line of the Atchison, Topeka and Santa Fe Railroad.
Containing 281.17 TRUST acres, more or less.

Section 27, T29N, R2E All.
Containing 642.76 TRUST acres, more or less.

Section 28, T29N, R2E All.
Containing 637.88 TRUST acres, more or less.

all in Township 29 North, Range 2 East, I.B.&M., Kay County, Oklahoma.

Purpose of Right of Entry: **Site access for observation and sampling for Archaeological Survey.**

The undersigned authorized owner of said land hereby gives permission for entry upon said Fee Lands and USA in Trust Indian Lands to:

Westwood, 7699 Anagram Drive, Eden Prairie, MN 55344, contacts are Ryan Grohnke and Abraham Ledezma, office phone number is 952-937-5150. Emails are ryan.grohnke@westwoodps.com and abraham.ledezma@westwoodps.com.

AND

PNE Wind, 150 North Michigan Avenue, Suite 1500, Chicago, Illinois 60601, contacts are Kenny Wheeler, phone number 405-443-7531 and Jorge Obregon, phone number 312-873-2246

Other terms or comments: **This Right of Entry is for the aforementioned purpose and any other usage of this property will be treated as a trespass.**

Authorized Owner/Representative:

Ginger Brown, Realty Director
Cherokee Nation

SUBSCRIBED and sworn to before me this 1st day of August, 2013.

MARSHEA HALTERMAN NOTARY PUBLIC # 04006116 EXP. 07-08-16 IN AND FOR STATE OF OKLAHOMA

Marshea Halterman, Notary Public

My commission expires: 7-8-2016
My Commission No: 04006116
(SEAL)

Appendix F:

Site Form 34-KA-494

OKLAHOMA ARCHAEOLOGICAL SITE SURVEY FORM

Site#: 34-KA-494

County: Kay

COMPLETE ALL SECTIONS

1.SITE NUMBER AND NAME:

Site Name: (derived from owner's name, etc.)

Project No.: (Temporary number or name assigned during project.) WPS-Chil-001

2.LOCATIONAL INFORMATION:

U.T.M. Reference

Zone: 14
Northing: 4095338 meters **Easting:** 670920 meters

Legal Description
SW 1/4 of NE 1/4 of SW 1/4 **of Section** 15 **Township** 29N **Range** 2E

U.S.G.S. Quad Name: Newkirk Quad Date (revised): 10/30/2002

Other Locational References (i.e., benchmarks, road intersections, bridges, etc., please give distance and bearing to site):
1. Approximately 0.10 miles NE of Chilocco Creek
2. Approximately 0.20 miles NNW of the T-intersection on the North end of N3323 Road
3. Approximately 0.70 miles South of the State Line Road

3.OWNER(S) OF PROPERTY:

Name: The Ponca Tribe of Indians of Oklahoma
Street and Number:
City/Town, State:
Zip:

4.SITE SURVEYED BY:

Name: Grayson Larimer & Elise Hargiss

Date Recorded:August 9, 2013

Reported by (if different):

Name: Ryan Grohnke

Date Reported: August 21, 2013

Time spent at site and time of day: 45 minutes, late morning

5.CULTURAL AFFILIATION - Cultural Periods (underline one):

Unassigned prehistoric
Paleoindian:
- Early
- Middle
- Late

Archaic:
- Early
- Middle
- Late

Woodland:
- Eastern – may be eastern?
- Plains

Village Farming/Mississippi
Plains Village
Protohistoric/Historic Ind.
Historic non-Indian

Archaeological Cultures, Phases, etc. represented:

How was cultural affiliation determined (diagnostic artifacts, radiocarbon dates, etc.):

6.HISTORIC PHASE IDENTIFICATION (ETHNIC):
Underline appropriate group.

1. Choctaw
2. Cherokee
3. Saux-Fox
4. Pottawatomie
5. Seminole
6. Comanche
7. Apache
8. Kiowa
9. Kiowa-Apache
10. Kickapoo
11. Pawnee
12. Arapaho
13. Ottawas
14. Wichita
15. Quapaw
16. Osage
17. Cheyenne
18. Caddo
19. Shawnee
20. Delaware
21. Creek
22. Dakotas
23. Chickasaw
24. 12 & 17
25. Missouri-Otos
26. Iowa
27. Anglo-American
28. French
29. Spanish
20. Other:

How was historic identification determined?:

7.HISTORIC SITE RANGE (underline one):

0. Missing data; unknown
1. pre-1800
2. 1800-1830
3. 1830-1859
4. 1860-1889
5. 1890-1929
6. 1930-1950
7. 1800-1900
8. 1800-present
9. 1900-present

8.INFERRED SITE TYPE
Please underline those that apply (can be more than one category)

Open habitation w/o mounds	Petroglyph/pictograph
Open habitation with mounds	Isolated burials (<2)
Earth mound (not midden mound)	Cemetery (>2)
Mound complex	Specialized activity sites
Stone mounds/rock piles	Rock alignments (tepee rings, etc.)
Burned rock concentrations	Historic farmstead
Non-mound earthworks	Historic mill/industrial
Rock shelter	Historic fort
Cave	Dugout
Quarry/workshop	Historic trash dump

9.MIDDEN AT SITE (underline):

Don't know	Present, earth
Absent	Present, shell
	Present, rock

10.MATERIALS COLLECTED:

Type	**Number**
Ceramics	
Projectile points/base frags.	
Hafted scrapers	
Drills	
Bifaces/biface fragments	
Unifaces	
Perforators/gravers	
Spokeshaves	
Scrapers (unhafted)	
Debitage (flakes, cores, chunks)	
Ground/pecked/battered stone	
Worked bone/shell	
Human bone	
Faunal remains	
Floral remains	
Other prehistoric	
Historic (describe)	
	Total Items:

Briefly describe diagnostic artifacts including type names. Attach outline drawings:

Materials observed but not collected: 17 flakes of lithic debitage

Name and address of owner of other collections from site:

N/A

11.ARTIFACT REPOSITORY

Name of institution where artifacts are to be stored:

N/A

Photos: 2
Number of black and white photos:
Number of color photos: 2

Name and address of institution where photos are filed: Bureau of Indian Affairs – Southern Plains Region P.O. Box 368
Anadarko, OK 73005

12.EVIDENCE OF RECENT VANDALISM OBSERVED? (Yes or No): No

13.SITE CONDITION (underline one):

1. apparently undisturbed
2. <u><25% disturbed</u>
3. 26-50% disturbed
4. 51-75% disturbed
5. 76-99% disturbed
6. totally destroyed
7. disturbed, % unknown

14.MAJOR LAND USE (underline those that apply):

<u>Cultivated field</u>
Pasture
<u>Woods, forest</u>
Road/trail
Ditch/dike/borrow pit
Landfill
Modern cemetery
Mining
Inundated
Industrial
Residential
Recreation
Commercial
Military
Logging/fire break
Scrub/secondary growth/oil field
Modern dump

Other: Grassland/Herbaceous

15.AMOUNT OF GROUND SURFACE VISIBLE (underline one):

1. <10%	4. 51-75%
2. 11-25%	5. 76-90%
3. 26-50%	6. 91-100%

Survey Conditions (wet, dry, sunny, ground coverage, etc.):rain, overcast

---

16.PHYSIOGRAPHIC DIVISION (underline one):

1. High Plains	6. Sandstone Hills
2. Gypsum Hills	7. Prairie Plains
3. Wichita Mountains	8. Ozark Plateau
4. Red Bed Plains	9. Ouachita Mountains
5. Arbuckle Mountains	10. Red River Plains

17.LANDFORM TYPE (underline one):

1. Floodplain	4. Dissected Uplands
2. Terrace	5. Undissected Uplands
3. Hillside - Valley wall	

18.LOCALITY TYPE - SPECIFIC SITE SETTING (underline one):

1. Level	5. Mesa
2. Knoll - low land	6. Slope
3. Blowout	7. Bluff crest
4. Ridge – upland	8. Bluff base

19.SOILS (if known):
Association: Kirkland-Renfrow **Series:**
Type:

20.ELEVATION/SLOPE:

Elevation amsl: 1142 feet
Slope (degrees): 6 **Slope facing direction:** SE

21.NATURAL VEGETATION (underline one):

1. Short grasses	6. Mesquite
2. Mixed grasses	7. Juniper-pinon
3. Tall grasses	8. Oak-hickory forest
4. Cross Timber	9. Oak-pine
5. Shin-oak	10. Loblolly pine forest

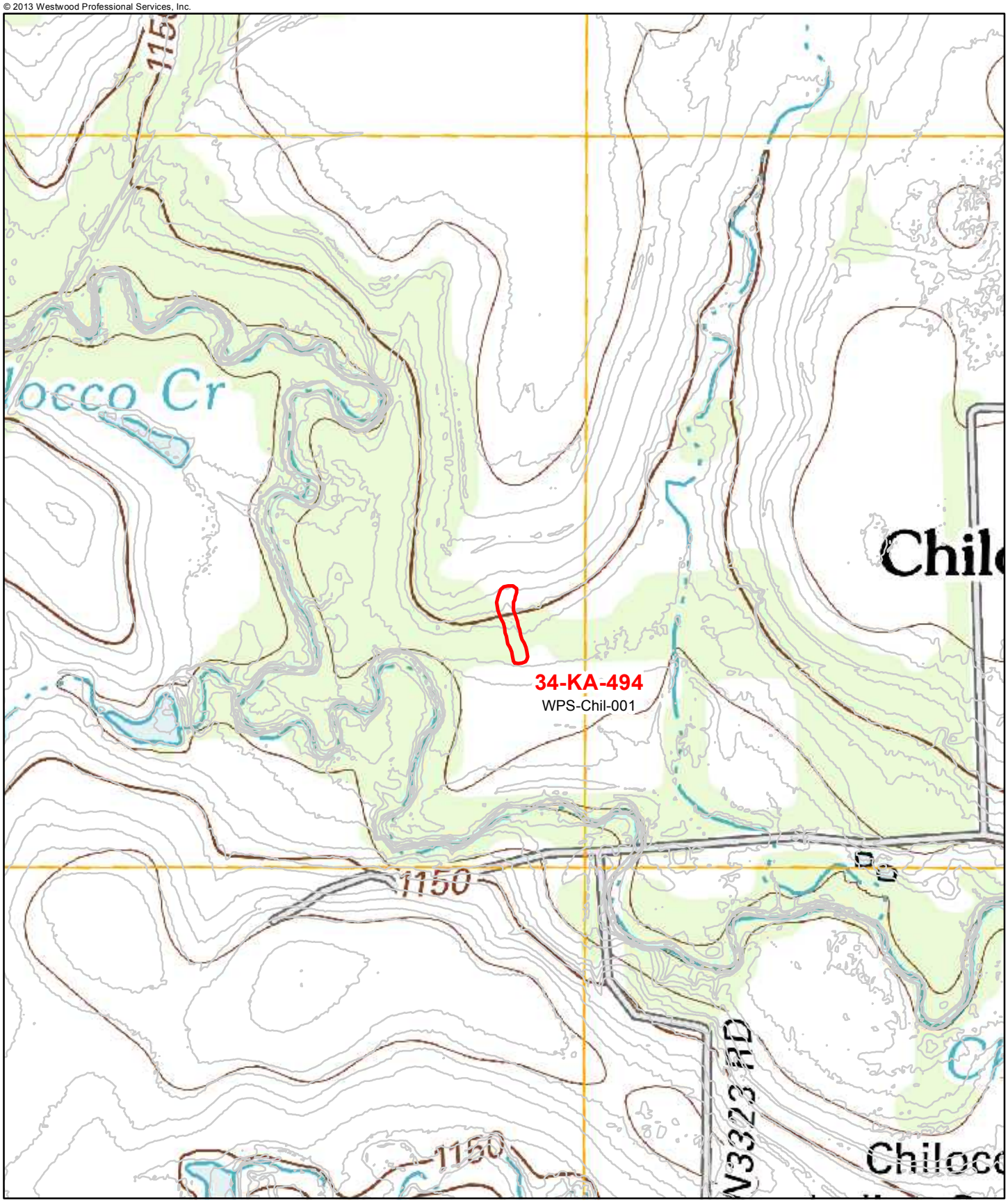
22.SITE AREA (Square Meters): 11155
Basis for area estimate (underline one):
1. Taped 2. Paced 3. Guessed 4. Range-finder
5. Alidade/transit

Confident of site boundaries? (Yes or No): No

23.DESCRIPTION OF SITE:

Give physical description of site and its setting, including dimensions, features, nature of materials and artifact concentrations. Include copy of U.S.G.S. topographic map with site location and boundaries marked (and sketch map if appropriate).

A sparse lithic scatter of approximately 17 flakes of primarily Florence A chert were observed on a two-track road. The two-track road is situated in a woodland approximately 150 meters east of Chilocco Creek. Agricultural fields are immediately to the north and south of the woodlot. The site most likely extends beyond the plotted boundary and outside of the current APE. Site dimensions as currently defined are approximately 100 meters N-S X 45 meters E-W on .55 acres of land.



Data Source(s): Westwood (2013); United States Geological Survey Topographic Map (2013)

34-KA-494

2 Foot Contours

USGS 7.5-Minute Series
Newkirk Quadrangle

Chilocco Wind Farm

Kay County, Oklahoma

N

0 600 Feet

34-KA-494

EXHIBIT 1

Westwood

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

Map Document: P:\0000488.00\GIS\CRM\WPS-Chil-001_130827.mxd 8/27/2013 9:47:37 AM

24.DRAINAGE (underline one):

1. Arkansas	10. Muddy Boggy
2. Beaver - N. Canadian	11. Neosho
3. Canadian	12. North Fork Red
4. Caney	13. Poteau
5. Cimarron	14. Red
6. Deep Fork	15. Salt Fork Arkansas
7. Illinois	16. Salt Fork Red
8. Kiamichi	17. Verdigris
9. Little R. (McCurtain County)	18. Washita

25.NEAREST NATURAL SOURCE OF WATER (underline one):

1. Permanent stream/creek	6. River
2. Intermittent stream	7. Slough or oxbow lake
3. Permanent stream	8. Relic stream channel
4. Intermittent spring/seep/bog site	9. Also consider wells if
5. Natural lake	is historic

26.DISTANCE TO WATER (in 10's of meters):
15

27.INVESTIGATION TYPE (underline one):

1. Reconnaissance (survey)	3. Excavated
2. Intensive (survey & testing)	4. Volunteered report

28.SIGNIFICANCE STATUS (underline one):

National Register Property
Eligible for National Register
Nominated to National Register by S.H.P.O.
Considered eligible but not nominated by S.H.P.O.
Inventory site
National Register status not assessed

29.DISCUSS THE POTENTIAL SIGNIFICANCE OF THE SITE:
Site avoided by project design. Significance not assessed and unknown.

30.PUBLISHED OR FORTHCOMING REPORTS ON THE SITE: Class III Archaeological Survey For the Proposed Chilocco Wind Farm Project By Ryan P. Grohnke and Abraham Ledezma Martinez, August 2013

View to the North

View to the South.

Appendix G:

Site Form 34-KA-495

OKLAHOMA ARCHAEOLOGICAL SITE SURVEY FORM

Site#: 34-KA-495

County: Kay

COMPLETE ALL SECTIONS

1.SITE NUMBER AND NAME:

Site Name: (derived from owner's name, etc.)

Project No.: (Temporary number or name assigned during project.) WPS-Chil-002

2.LOCATIONAL INFORMATION:

U.T.M. Reference

Zone: 14
Northing: 4094691 meters **Easting:** 672757 meters

Legal Description
SE 1/4 of NE 1/4 of NW 1/4 **of Section** 23 **Township** 29N **Range** 2E

U.S.G.S. Quad Name: Newkirk Quad Date (revised): 10/30/2002

Other Locational References (i.e., benchmarks, road intersections, bridges, etc., please give distance and bearing to site):
1. Approximately 0.15 miles NE of Chilocco Creek
2. Approximately 0.96 miles West of Highway 77
3. Approximately 0.50 miles SE of the intersection of N3330 Road and 30018 Road.

3.OWNER(S) OF PROPERTY:

Name: The Otoe-Missouria Tribe
Street and Number:
City/Town, State:
Zip:

4.SITE SURVEYED BY:

Name: Ryan Grohnke

Date Recorded: August 10, 2013

Reported by (if different):

Name: Ryan Grohnke

Date Reported: August 21, 2013

Time spent at site and time of day: 20 minutes at approximately noon

5.CULTURAL AFFILIATION - Cultural Periods (underline one):

Unassigned prehistoric
Paleoindian:
- Early
- Middle
- Late

Archaic:
- Early
- Middle
- Late

Woodland:
- Eastern – may be eastern?
- Plains

Village Farming/Mississippi
Plains Village
Protohistoric/Historic Ind.
Historic non-Indian

Archaeological Cultures, Phases, etc. represented:

How was cultural affiliation determined (diagnostic artifacts, radiocarbon dates, etc.):

6.HISTORIC PHASE IDENTIFICATION (ETHNIC):
Underline appropriate group.

1. Choctaw
2. Cherokee
3. Saux-Fox
4. Pottawatomie
5. Seminole
6. Comanche
7. Apache
8. Kiowa
9. Kiowa-Apache
10. Kickapoo
11. Pawnee
12. Arapaho
13. Ottawas
14. Wichita
15. Quapaw
16. Osage
17. Cheyenne
18. Caddo
19. Shawnee
20. Delaware
21. Creek
22. Dakotas
23. Chickasaw
24. 12 & 17
25. Missouri-Otos
26. Iowa
27. Anglo-American
28. French
29. Spanish
20. Other:

How was historic identification determined?:

7.HISTORIC SITE RANGE (underline one):

0. Missing data; unknown
1. pre-1800
2. 1800-1830
3. 1830-1859
4. 1860-1889
5. 1890-1929
6. 1930-1950
7. 1800-1900
8. 1800-present
9. 1900-present

8.INFERRED SITE TYPE
Please underline those that apply (can be more than one category)

Open habitation w/o mounds	Petroglyph/pictograph
Open habitation with mounds	Isolated burials (<2)
Earth mound (not midden mound)	Cemetery (>2)
Mound complex	Specialized activity sites
Stone mounds/rock piles	Rock alignments (tepee rings, etc.)
Burned rock concentrations	Historic farmstead
Non-mound earthworks	Historic mill/industrial
Rock shelter	Historic fort
Cave	Dugout
Quarry/workshop	Historic trash dump

9.MIDDEN AT SITE (underline):

Don't know	Present, earth
Absent	Present, shell
	Present, rock

10.MATERIALS COLLECTED:

Type	**Number**
Ceramics	
Projectile points/base frags.	
Hafted scrapers	
Drills	
Bifaces/biface fragments	
Unifaces	
Perforators/gravers	
Spokeshaves	
Scrapers (unhafted)	
Debitage (flakes, cores, chunks)	
Ground/pecked/battered stone	
Worked bone/shell	
Human bone	
Faunal remains	
Floral remains	
Other prehistoric	
Historic (describe)	
	Total Items:

Briefly describe diagnostic artifacts including type names. Attach outline drawings:

Materials observed but not collected: Approximately 15 secondary and tertiary lithic flakes made from Florence A chert.
Name and address of owner of other collections from site:

N/A

11.ARTIFACT REPOSITORY

Name of institution where artifacts are to be stored:
N/A

Photos: 2
Number of black and white photos:
Number of color photos: 2

Name and address of institution where photos are filed: Bureau of Indian Affairs – Southern Plains Region P.O. Box 368
Anadarko, OK 73005

12.EVIDENCE OF RECENT VANDALISM OBSERVED? (Yes or No): No

13.SITE CONDITION (underline one):

1. apparently undisturbed
2. <25% disturbed
3. 26-50% disturbed
4. 51-75% disturbed
5. 76-99% disturbed
6. totally destroyed
7. disturbed, % unknown

14.MAJOR LAND USE (underline those that apply):

Cultivated field
Pasture
Woods, forest
Road/trail
Ditch/dike/borrow pit
Landfill
Modern cemetery
Mining
Inundated
Industrial
Residential
Recreation
Commercial
Military
Logging/fire break
Scrub/secondary growth/oil field
Modern dump

Other: Grassland/Herbaceous

15.AMOUNT OF GROUND SURFACE VISIBLE (underline one):

1. <10%	4. 51-75%
2. 11-25%	5. 76-90%
3. 26-50%	6. 91-100%

Survey Conditions (wet, dry, sunny, ground coverage, etc.): Sunny, warm conditions. Ground visibility was poor except for a dirt two-track road where artifacts were observed.

16.PHYSIOGRAPHIC DIVISION (underline one):

1. High Plains	6. Sandstone Hills
2. Gypsum Hills	7. Prairie Plains
3. Wichita Mountains	8. Ozark Plateau
4. Red Bed Plains	9. Ouachita Mountains
5. Arbuckle Mountains	10. Red River Plains

17.LANDFORM TYPE (underline one):

1. Floodplain	4. Dissected Uplands
2. Terrace	5. Undissected Uplands
3. Hillside - Valley wall	

18.LOCALITY TYPE - SPECIFIC SITE SETTING (underline one):

1. Level	5. Mesa
2. Knoll - low land	6. Slope
3. Blowout	7. Bluff crest
4. Ridge – upland	8. Bluff base

19.SOILS (if known):
Association: Kirkland-Renfrow **Series:**
Type:

20.ELEVATION/SLOPE:

Elevation amsl: 1138 feet
Slope (degrees): **4 degrees** **Slope facing direction:** **SW**

21.NATURAL VEGETATION (underline one):

1. Short grasses	6. Mesquite
2. Mixed grasses	7. Juniper-pinon
3. Tall grasses	8. Oak-hickory forest
4. Cross Timber	9. Oak-pine
5. Shin-oak	10. Loblolly pine forest

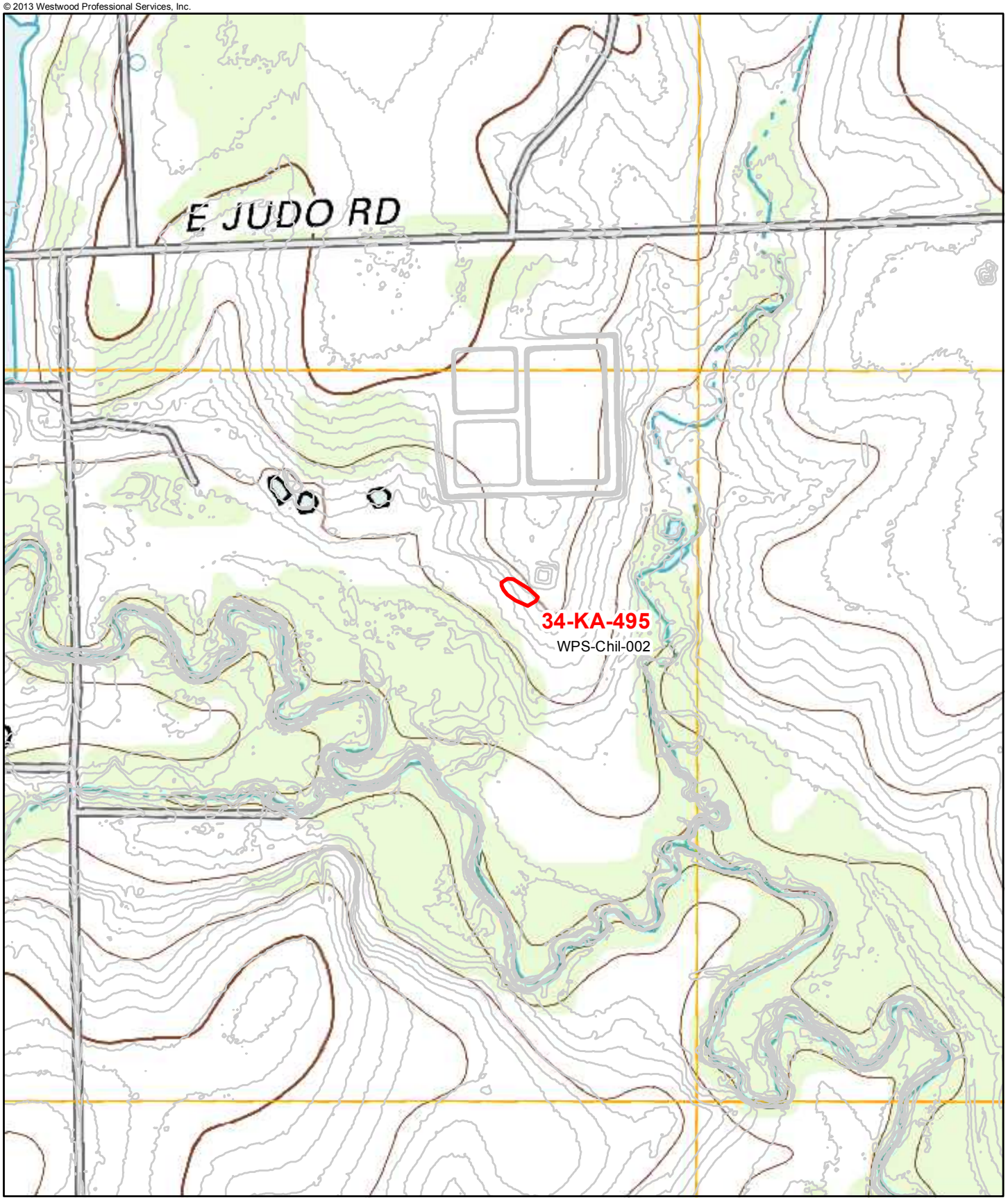
22.SITE AREA (Square Meters): 1035
Basis for area estimate (underline one):
1. Taped 2. Paced 3. Guessed 4. Range-finder
5. Alidade/transit

Confident of site boundaries? (Yes or No): No

23.DESCRIPTION OF SITE:

Give physical description of site and its setting, including dimensions, features, nature of materials and artifact concentrations. Include copy of U.S.G.S. topographic map with site location and boundaries marked (and sketch map if appropriate).

As APE for project was in a heavily disturbed location, a nearby two-track road was walked. A sparse lithic scatter of approximately 15 secondary and tertiary flakes of Florence A chert were observed. The two-track road is situated in a grassland adjacent to Chilocco Creek. Immediately to the north of the site is a large lagoon and sewage disposal area. Should the site have extended to the north, that portion of the site would be completely destroyed. It is possible that the site may extend further to the south toward Chilocco Creek. The site boundaries as currently defined are approximately 35 meters N-S X 50 meters E-W on .25 acres of land.



Data Source(s): Westwood (2013); United States Geological Survey Topographic Map (2013)

34-KA-495

2 Foot Contours

USGS 7.5-Minute Series
Newkirk Quadrangle

Chilocco Wind Farm

Kay County, Oklahoma

34-KA-495

N

0 600 Feet

EXHIBIT 1

Westwood

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

Map Document: P:\0000488.00\GIS\CRM\WPS-Chil-002_130827.mxd 8/27/2013 9:11:16 AM

24.DRAINAGE (underline one):

1. Arkansas	10. Muddy Boggy
2. Beaver - N. Canadian	11. Neosho
3. Canadian	12. North Fork Red
4. Caney	13. Poteau
5. Cimarron	14. Red
6. Deep Fork	15. Salt Fork Arkansas
7. Illinois	16. Salt Fork Red
8. Kiamichi	17. Verdigris
9. Little R. (McCurtain County)	18. Washita

25.NEAREST NATURAL SOURCE OF WATER (underline one):

1. Permanent stream/creek	6. River
2. Intermittent stream	7. Slough or oxbow lake
3. Permanent stream	8. Relic stream channel
4. Intermittent spring/seep/bog	9. Also consider wells if site is historic
5. Natural lake	

26.DISTANCE TO WATER (in 10's of meters): 16

27.INVESTIGATION TYPE (underline one):

1. Reconnaissance (survey)	3. Excavated
2. Intensive (survey & testing)	4. Volunteered report

28.SIGNIFICANCE STATUS (underline one):

National Register Property
Eligible for National Register
Nominated to National Register by S.H.P.O.
Considered eligible but not nominated by S.H.P.O.
Inventory site
National Register status not assessed

29.DISCUSS THE POTENTIAL SIGNIFICANCE OF THE SITE:
Site avoided by project design. Significance not assessed and unknown.

30.PUBLISHED OR FORTHCOMING REPORTS ON THE SITE: Class III Archaeological Survey For the Proposed Chilocco Wind Farm Project By Ryan P. Grohnke and Abraham Ledezma Martinez, August 2013

View from the North-West

Representative artifacts.

Appendix H:

Site Form 34-KA-496

OKLAHOMA ARCHAEOLOGICAL SITE SURVEY FORM

Site#: 34-KA-496

County: Kay

COMPLETE ALL SECTIONS

1.SITE NUMBER AND NAME:

Site Name: (derived from owner's name, etc.)

Project No.: (Temporary number or name assigned during project.) WPS-Chil-003

2.LOCATIONAL INFORMATION:

U.T.M. Reference

Zone: 14
Northing: 4095004 meters **Easting:** 670898 meters

Legal Description

SE 1/4 of SW 1/4 of SW 1/4 **of Section** 15 **Township** 29N **Range** 2E

U.S.G.S. Quad Name: Newkirk Quad Date (revised): 10/30/2002

Other Locational References (i.e., benchmarks, road intersections, bridges, etc., please give distance and bearing to site):

1. Approximately 0.05 miles South of Chilocco Creek
2. Approximately 0.08 miles West of the T-intersection on the North end of N3323 Road
3. Approximately 0.92 miles South of the State Line Road

3.OWNER(S) OF PROPERTY:

Name: The Ponca Tribe of Indians of Oklahoma
Street and Number:
City/Town, State:
Zip:

4.SITE SURVEYED BY:

Name: Abraham Ledezma Martinez & Greg Looney

Date Recorded: August 13, 2013

Reported by (if different):

Name: Ryan Grohnke

Date Reported: August 21, 2013

Time spent at site and time of day: Mid-afternoon, 1 hour

5.CULTURAL AFFILIATION - Cultural Periods (underline one):

Unassigned prehistoric
Paleoindian:
- Early
- Middle
- Late

Archaic:
- Early
- Middle
- Late

Woodland:
- Eastern – may be eastern?
- Plains

Village Farming/Mississippi
Plains Village
Protohistoric/Historic Ind.
Historic non-Indian

Archaeological Cultures, Phases, etc. represented:

How was cultural affiliation determined (diagnostic artifacts, radiocarbon dates, etc.):

6.HISTORIC PHASE IDENTIFICATION (ETHNIC):
Underline appropriate group.

1. Choctaw
2. Cherokee
3. Saux-Fox
4. Pottawatomie
5. Seminole
6. Comanche
7. Apache
8. Kiowa
9. Kiowa-Apache
10. Kickapoo
11. Pawnee
12. Arapaho
13. Ottawas
14. Wichita
15. Quapaw
16. Osage
17. Cheyenne
18. Caddo
19. Shawnee
20. Delaware
21. Creek
22. Dakotas
23. Chickasaw
24. 12 & 17
25. Missouri-Otos
26. Iowa
27. Anglo-American
28. French
29. Spanish
20. Other:

How was historic identification determined?:

7.HISTORIC SITE RANGE (underline one):

0. Missing data; unknown
1. pre-1800
2. 1800-1830
3. 1830-1859
4. 1860-1889
5. 1890-1929
6. 1930-1950
7. 1800-1900
8. 1800-present
9. 1900-present

8.INFERRED SITE TYPE
Please underline those that apply (can be more than one category)

Open habitation w/o mounds	Petroglyph/pictograph
Open habitation with mounds	Isolated burials (<2)
Earth mound (not midden mound)	Cemetery (>2)
Mound complex	Specialized activity sites
Stone mounds/rock piles	Rock alignments (tepee rings, etc.)
Burned rock concentrations	Historic farmstead
Non-mound earthworks	Historic mill/industrial
Rock shelter	Historic fort
Cave	Dugout
Quarry/workshop	Historic trash dump

9.MIDDEN AT SITE (underline):

Don't know	Present, earth
Absent	Present, shell
	Present, rock

10.MATERIALS COLLECTED:

Type	**Number**
Ceramics	
Projectile points/base frags.	
Hafted scrapers	
Drills	
Bifaces/biface fragments	
Unifaces	
Perforators/gravers	
Spokeshaves	
Scrapers (unhafted)	
Debitage (flakes, cores, chunks)	
Ground/pecked/battered stone	
Worked bone/shell	
Human bone	
Faunal remains	
Floral remains	
Other prehistoric	
Historic (describe)	
	Total Items:

Briefly describe diagnostic artifacts including type names. Attach outline drawings:

Materials observed but not collected: 12 flakes of Florence A chert

Name and address of owner of other collections from site:

N/A

11.ARTIFACT REPOSITORY

Name of institution where artifacts are to be stored:

N/A

Photos: 1
Number of black and white photos:
Number of color photos: 1

Name and address of institution where photos are filed: Bureau of Indian Affairs – Southern Plains Region P.O. Box 368
Anadarko, OK 73005

12.EVIDENCE OF RECENT VANDALISM OBSERVED? (Yes or No): No

13.SITE CONDITION (underline one):

1. apparently undisturbed
2. <u><25% disturbed</u>
3. 26-50% disturbed
4. 51-75% disturbed
5. 76-99% disturbed
6. totally destroyed
7. disturbed, % unknown

14.MAJOR LAND USE (underline those that apply):

Cultivated field
<u>Pasture</u>
<u>Woods, forest</u>
Road/trail
Ditch/dike/borrow pit
Landfill
Modern cemetery
Mining
Inundated
Industrial
Residential
Recreation
Commercial
Military
Logging/fire break
Scrub/secondary growth/oil field
Modern dump

Other: Developed (Open Space)

15.AMOUNT OF GROUND SURFACE VISIBLE (underline one):

1. <10%	4. 51-75%
2. 11-25%	5. 76-90%
3. 26-50%	6. 91-100%

Survey Conditions (wet, dry, sunny, ground coverage, etc.):overcast

---

16.PHYSIOGRAPHIC DIVISION (underline one):

1. High Plains	6. Sandstone Hills
2. Gypsum Hills	7. Prairie Plains
3. Wichita Mountains	8. Ozark Plateau
4. Red Bed Plains	9. Ouachita Mountains
5. Arbuckle Mountains	10. Red River Plains

17.LANDFORM TYPE (underline one):

1. Floodplain	4. Dissected Uplands
2. Terrace	5. Undissected Uplands
3. Hillside - Valley wall	

18.LOCALITY TYPE - SPECIFIC SITE SETTING (underline one):

1. Level	5. Mesa
2. Knoll - low land	6. Slope
3. Blowout	7. Bluff crest
4. Ridge – upland	8. Bluff base

19.SOILS (if known):
Association: Kirkland-Renfrow **Series:**
Type:

20.ELEVATION/SLOPE:

Elevation amsl: 1140 feet
Slope (degrees): 1 **Slope facing direction:** NE

21.NATURAL VEGETATION (underline one):

1. Short grasses	6. Mesquite
2. Mixed grasses	7. Juniper-pinon
3. Tall grasses	8. Oak-hickory forest
4. Cross Timber	9. Oak-pine
5. Shin-oak	10. Loblolly pine forest

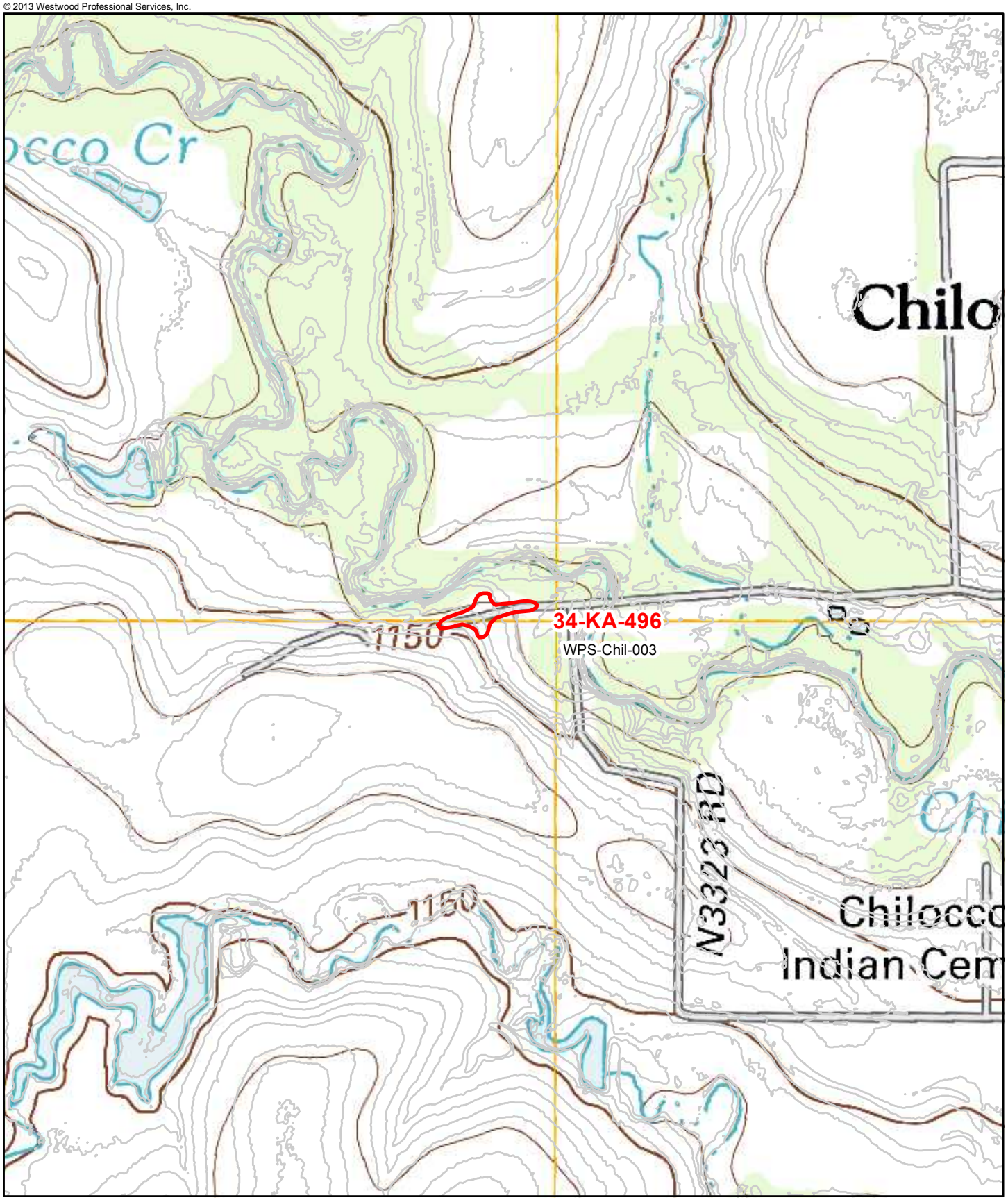
22.SITE AREA (Square Meters): 2950
Basis for area estimate (underline one):
1. Taped 2. Paced 3. Guessed 4. Range-finder
5. Alidade/transit

Confident of site boundaries? (Yes or No): No

23.DESCRIPTION OF SITE:

Give physical description of site and its setting, including dimensions, features, nature of materials and artifact concentrations. Include copy of U.S.G.S. topographic map with site location and boundaries marked (and sketch map if appropriate).
This site was located within the 300 feet corridor south of the Chilocco Creek. Shovel testing of the creek corridor revealed the presence of 12 Florence A flakes. A nearby two-track road bisects the site indicating a possibly disturbed area of the site. Areas to the north and south of a two-track remain intact as revealed by shovel tests. A total of nineteen shovel tests were done in accordance with the 300 foot corridor. Twelve shovel tests tested positive for the presence of intact cultural deposits. It is possible that the site extends to the south.

The APE intersecting with the site is a proposed collector run and access road. Testing and evaluation of the site was not conducted as the proposed project's design will be altered to avoid any impacts to the site. Site dimensions as currently defined are 60 meters N-S by 135 meters E-W on .75 acres of land.



Data Source(s): Westwood (2013); United States Geological Survey Topographic Map (2013)

34-KA-496

2 Foot Contours

USGS 7.5-Minute Series
Newkirk Quadrangle

Chilocco Wind Farm

Kay County, Oklahoma

34-KA-496

N

0 600 Feet

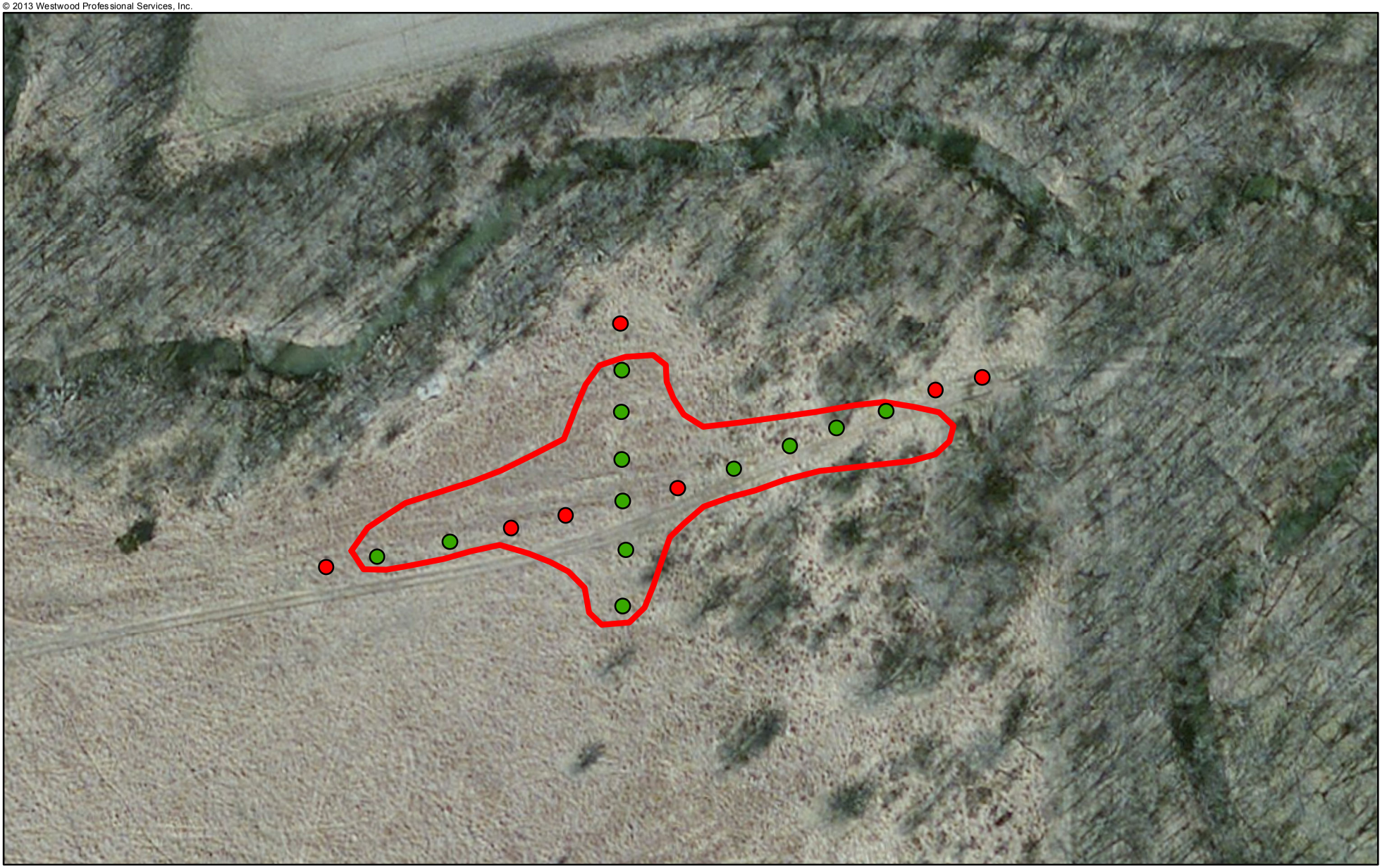
EXHIBIT 1

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

Map Document: P:\0000488.00\GIS\CRM\WPS-Chil-003_130827.mxd 8/27/2013 9:21:38 AM



Data Source(s):

Legend

Shovel Test Results

- Negative
- Positive
- 34KA496

USGS 7.5-Minute Series
Newkirk Quadrangle

N

0 100 Feet

Chilocco Wind Farm

Kay County, Oklahoma

Site 34-KA-496

Sketch Map

Westwood

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

24.DRAINAGE (underline one):

1. Arkansas	10. Muddy Boggy
2. Beaver - N. Canadian	11. Neosho
3. Canadian	12. North Fork Red
4. Caney	13. Poteau
5. Cimarron	14. Red
6. Deep Fork	15. Salt Fork Arkansas
7. Illinois	16. Salt Fork Red
8. Kiamichi	17. Verdigris
9. Little R. (McCurtain County)	18. Washita

25.NEAREST NATURAL SOURCE OF WATER (underline one):

1. Permanent stream/creek	6. River
2. Intermittent stream	7. Slough or oxbow lake
3. Permanent stream	8. Relic stream channel
4. Intermittent spring/seep/bog	9. Also consider wells if site is historic
5. Natural lake	

26.DISTANCE TO WATER (in 10's of meters): 4

27.INVESTIGATION TYPE (underline one):

1. Reconnaissance (survey)	3. Excavated
2. Intensive (survey & testing)	4. Volunteered report

28.SIGNIFICANCE STATUS (underline one):

National Register Property
Eligible for National Register
Nominated to National Register by S.H.P.O.
Considered eligible but not nominated by S.H.P.O.
Inventory site
National Register status not assessed

29.DISCUSS THE POTENTIAL SIGNIFICANCE OF THE SITE:
Site avoided by project design. Significance not assessed and unknown.

30.PUBLISHED OR FORTHCOMING REPORTS ON THE SITE: Class III Archaeological Survey For the Proposed Chilocco Wind Farm Project By Ryan P. Grohnke and Abraham Ledezma Martinez, August 2013

View toward North.

Appendix I:

Chilocco School Visual Impact Waiver

April 16, 2013

Mr. Robert Impson, Regional Director
Eastern Oklahoma Regional Office
Bureau of Indian Affairs
P.O. Box 8002
Muskogee, OK 74401-6201

Re: Chilocco Indian School

Dear Mr. Impson,

This letter is in regards to the Chilocco Wind Farm Project currently being developed by PNE Wind USA, Inc. The project is being developed on land which encompasses the Chilocco Indian School campus. Due to the fact the school is listed on the National Register of Historic Places, certain obstacles may arise. In an effort to negate any impediments to the placement of turbines near the school property, we collectively as the *Chilocco Development Authority* affirmatively state that we mutually agree and consent that the Chilocco School, though historically significant does not necessitate visual resource setbacks as it relates to wind power generation equipment.

Guy Munroe, Kaw Nation
Chair

John R. Shotton, Otoe-Missouria
Chairman

Marshall Gover, Pawnee Nation
President

Earl 'Trey' Howe, III, Ponca Nation
Chairman

Don Patterson, Tonkawa Tribe
President

Bill John Baker, Cherokee Nation
Chief

Appendix J:

Cultural Resource Letters

OTOE-MISSOURIA
TRIBE OF INDIANS

8151 HIGHWAY 177
RED ROCK, OK 74651-0348

August 15, 2013

Ms. Robin Bellmard, Superintendent,
Bureau of Indian Affairs, Pawnee Office
P.O. Box 440
Pawnee, OK 74058

RE: Chilocco Wind Farm Cultural Impacts

Dear Superintendent Bellmard,

The Otoe-Missouria Tribe of Oklahoma has reviewed the information and materials concerning the Chilocco Wind Farm's impact and potential impacts to Otoe-Missouria cultural and historic resources on the Tribe's Chilocco School property.

We are aware of and satisfied that Chilocco Wind Farm, LLC has properly surveyed the property for cultural resources prior to construction. In reviewing the lease, particularly, Pg. 29; Sec. 40 (6), which states, "In the event that historic properties, archaeological resources, human remains, or other cultural items, not previously reported are encountered during the course of an activity associate with this WRL, all activity in the immediate vicinity of the properties, resources, remains, or items will cease, and Company will contact BIA and Tribe to determine how to proceed and appropriate disposition", we are satisfied that any cultural, historic, or sacred resources that may be discovered during construction will be dealt with properly.

Given the information provided you are hereby notified that the proposed project should have no potential to adversely affect any known Otoe-Missouria archaeological, historical, or sacred sites.

This information is provided to you at your request to assist you in complying with 36 CFR Part 800 for Section 106 Consultation procedures. Please retain this correspondence to show compliance with Section 106. With questions, please contact John R. Shotton, Chairman, Otoe-Missouria Tribe of Indians.

Regards,

John R. Shotton, Chairman
Otoe Missouria of Indians