

Wetland Assessment

Shell WindEnergy
Hermosa West Wind Farm Project, Albany County, Wyoming

January 11, 2010

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Shell WindEnergy

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Hermosa West Wind Farm Project

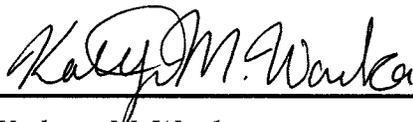
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Project No. 0105023
Albany County, Wyoming



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TABLE OF CONTENTS

<i>Executive summary</i>		<i>iv</i>
GLOSSARY		<i>vi</i>
1.0	INTRODUCTION	1
1.1	OBJECTIVES AND SCOPE	1
1.2	PROJECT SUMMARY	1
1.2.1	Project Description	1
1.2.2	Project Area Description	2
2.0	SURVEY METHODS	3
2.1	REGULATIONS AND DEFINITIONS	3
2.2	METHODOLOGY OVERVIEW	4
2.2.1	Desktop Analysis	4
2.2.2	Field Survey	5
3.0	RESULTS	11
3.1	WETLANDS	11
3.1.1	Vegetation	12
3.1.2	Soils	12
3.1.3	Hydrology	14
3.1.4	Plurality Test	14
3.1.5	Kennedy Test	15
3.2	WATERBODIES	15
3.2.1	Plurality Test	16
3.2.2	Kennedy Test	19
3.3	UPLANDS	19
4.0	SUMMARY AND CONCLUSIONS	20
4.1	ANTICIPATED IMPACTS AND MITIGATION	20
4.1.1	Proposed Action Impacts	20
4.1.2	Project Impacts	20
5.0	REFERENCES	25
5.1	ENVIRONMENTAL INVESTIGATORS	25
5.2	REFERENCE DOCUMENTS	25

TABLE OF CONTENTS (CONT'D)

APPENDICES

A	USACE WETLAND DETERMINATION DATA FORMS AND WATERBODY DATA SHEETS
B	DESCRIPTION OF DOMINANCE TEST
C	PHOTOGRAPHIC LOG
D	IDENTIFIED SWALE AND EROSIONAL FEATURES

LIST OF TABLES

2-1	VEGETATION INDICATOR STATUS
3-1	WETLANDS WITHIN THE SURVEYED AREA
3-2	SOIL ASSOCIATIONS AND SOIL SERIES WITHIN THE SURVEYED AREA
3-3	WATERBODIES WITHIN THE SURVEYED AREA
4-1	ESTIMATED PROJECT IMPACTS BY WETLAND
4-2	ESTIMATED PROJECT WATERBODY CROSSINGS

LIST OF FIGURES

1-1	VICINITY MAP
1-2	SURVEY AREA
3-1a – 3-1e	AERIAL MAP
3-2a – 3-2e	SOILS MAP
3-3a – 3-3e	NWI AND TOPOGRAPHIC MAP

EXECUTIVE SUMMARY

Environmental Resources Management Southwest, Inc. (ERM) completed a wetland delineation for the proposed Shell WindEnergy (SWE) Hermosa West Wind Farm Project (Project) in Albany County, Wyoming. Western Area Power Authority (Western) is evaluating under the National Environmental Policy Act (NEPA) the interconnection of the Project, which consists of transmission system upgrades and construction of a new substation (Proposed Action). The Project will consist of approximately 100-200 wind turbines, electrical gathering lines and transmission lines, access roads, operations and maintenance building, and other affiliated structures across an approximately 11,125 acre Project area. The purpose of this delineation is to identify, characterize, and map the extent of jurisdictional wetlands to support Project development. The specific areas assessed (hereafter "the Survey Area") are located in southeastern Wyoming approximately 18 miles south of Laramie, Wyoming along State Highway 287. The Survey Area consists of approximately 2,198 acres of both private and State-owned land.

Field investigations were performed in August and October 2009 to identify the location and extent of any jurisdictional wetlands or waterbodies within the Survey Area. Land use and land cover designations were assigned using field observations, interpretation of 2008 aerial photography, and interpretation of U.S. Geological Survey 7.5-minute topographic maps. Land use and land cover types were classified as agricultural land primarily dedicated to cattle grazing. The Project area was sparsely populated and contained few structures, owing mostly to homesteads and barns/outbuildings associated with livestock.

Field investigations identified a total of nine (9) palustrine emergent (PEM) wetlands within the Survey Area. These wetlands are dominated by wetland vegetation, typically sedges and rush species. Eight of these wetlands were associated with waterbodies. This association may constitute a significant nexus as described in the Kennedy Test; as a result, these wetlands may be deemed jurisdictional by the U.S. Army Corps of Engineers (USACE).

The Survey Area contained a total of 45 waterbodies. Of these, 21 are perennial streams, 12 are intermittent streams, and 12 are ephemeral streams. ERM has concluded that all of the waterbodies encountered within the Survey Area are likely under the jurisdiction of Section 404 of the Clean Water Act (CWA) and the USACE. These natural features described above are likely to be deemed jurisdictional under the CWA because they have a direct connection to a traditional navigable water (TNW) or exhibit a significant nexus with a TNW. Therefore, the USACE and the Environmental Protection Area (EPA) will likely deem these features jurisdictional. It should be noted that only the USACE and EPA can make the final jurisdictional determination of these features. SWE will apply for appropriate USACE permits prior to construction and mitigate, as required, for any unavoidable impacts to wetlands and waterbodies.

The Proposed Action is anticipated to have no impacts on wetlands or waterbodies. The Project is anticipated to impact 0.17 acres of wetlands due to access road construction. Additionally, the Project is anticipated to traverse (i.e. access road and connection line crossings) 30 waterbodies. Where possible crossings of wetlands and waterbodies have been rerouted to minimize crossing and, in some cases, avoid completely. The Project was redesigned November 2009 to cross 30 waterbodies versus 45. Thirteen of these crossings are located along existing roads throughout the Project area. In addition to the waterbody crossings, the Project was redesigned to reduce wetlands impacts from 6.18 to 0.17 acres.

GLOSSARY

BMP	Best Management Practice
CFR	Code of Federal Regulations
CWA	Clean Water Act
DBH	diameter at breast height
EPA	Environmental Protection Agency
ERM	Environmental Resources Management Southwest, Inc.
FAC	Facultative Plants
FACU	Facultative Upland Plants
FACW	Facultative Wetland Plants
FEMA	Federal Emergency Management Agency
GPS	Global Positioning System
kV	kilovolts
NAD27	North America Datum of 1927
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
MET	Meteorological
MW	megawatt
OBL	Obligate Wetland Plants
OHWM	ordinary high water mark
O&M	Operations and Maintenance
PEM	Palustrine Emergent Wetland
PFO	Palustrine Forested Wetland
Project	Hermosa West Wind Farm Project
PSS	Palustrine Scrub Shrub Wetland
RPW	Relatively Permanent Waterbody
SCADA	Supervisory Control and Data Acquisition
SWE	Shell Wind Energy
SWPPP	Stormwater Pollution Prevention Plan
TNW	Traditional Navigable Water
UPL	Obligate Upland Plants
US	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture

USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WEST	Western Ecosystems Technology, Inc
Western	Western Area Power Administration
WYDEQ	Wyoming Department of Environmental Quality

1.0

INTRODUCTION

Environmental Resources Management Southwest, Inc. (ERM) completed a wetland delineation for the proposed Shell WindEnergy's (SWE) Hermosa West Wind Farm Project (the Project) in Albany County, Wyoming (Figure 1-1). Western Area Power Authority (Western) is evaluating under the National Environmental Policy Act (NEPA) the interconnection of the Project, which consists of transmission system upgrades and construction of a new substation (Proposed Action). The purpose of this delineation is to identify, characterize, and map the extent of jurisdictional wetlands to support Project development and permitting. The specific areas assessed (hereafter "the Survey Area") are located in southeastern Wyoming approximately 18 miles south of Laramie, Wyoming along State Highway 287 (Figure 1-2). The Survey Area consists of approximately 2,198 acres of both private and State-owned land, consisting of 100 to 400 foot (ft) wide corridors around Project components described below.

The environmental field investigation, including wetland assessments and delineations, and evaluation of land use, was conducted in August and October 2009. ERM performed the wetland assessment and delineation to determine if potential jurisdictional wetlands and/or waters of the United States (U.S.) exist within the Survey Area and to identify the approximate boundaries of any such features.

Field survey methods and assessment results are presented and discussed in this report, together with Project maps, copies of Regional Supplement U.S. Army Corps of Engineers (USACE) Wetland Determination Data Forms, Waterbody Data Sheets, and a Photographic Log.

1.1

OBJECTIVES AND SCOPE

The purpose of this delineation is to identify, characterize, and map the extent of jurisdictional wetlands and/or waters of the U.S. within the Survey Area to support the Project's permitting, development and future management.

1.2

PROJECT SUMMARY

1.2.1

Project Description

SWE is proposing to develop the Project, consisting of approximately 100 to 200 wind turbines, with an anticipated total generating capacity of up to 300 megawatts (MW). The wind turbines would be arranged in roughly collinear "strings"; each turbine string would be situated within an approximately 250ft or 400ft wide corridor, depending on topography. The Project would interconnect with an existing Western-owned transmission line that traverses the Project area.

In addition to turbines, the Project would include the following:

- Access roads and truck turn-around areas;
- One permanent meteorological (met) tower;
- Supervisory Control and Data Acquisition (SCADA) equipment;
- 34.5 kilovolt (kV) power collection lines that would deliver power to the substation;
- Metering equipment for custody transfer related communication equipment;
- Operations and Maintenance (O&M) facilities, approximately 5,000 to 8,000 ft², including: offices, signage, spare parts storage, restrooms, telecommunications, equipment laydown areas, emergency living accommodations, shop area, conference rooms, outdoor parking, a turn-around area for larger vehicles, and potentially a welcome/information center;
- High voltage (345 kV) transmission line less than one mile in length connecting the substation to the existing Western transmission line;
- Project substation, approximately 70,000 to 85,000 ft² (1.6 to 2 acres), where the power from the collection system would be stepped up to the voltage required to interconnect with an existing Western-owned transmission lines (i.e., 345 kV); and
- System upgrades that would need to be made to Western's transmission line and associated facilities to accept the 300MW at the determined delivery point.

The last three Project components are part of the Proposed Action.

1.2.2 *Project Area Description*

The Project area is located within Albany County, Wyoming. The City of Laramie is located approximately 18 miles northwest of the Project area. The Project is located within the Upper Laramie River and South Platte River Sub-basins of the Platte River Basin.

The typical landscape of the region is low mountain slopes and nearly level floodplains, as are associated with the Mid-Elevation Forests and Shrublands of the Southern Rockies Ecoregion, and Laramie Basin of the Wyoming Basin Ecoregion (Chapman *et al.* 2004). The Mid-Elevation Forests and Shrublands Ecoregion ranges from 7,500 to 9,000 ft in elevation. The Ecoregion is generally characterized by low mountain slopes and outwash fans with moderate to high gradient (approximately 0.1 to 5% slopes) perennial streams. The Laramie Basin Ecoregion ranges from 7,100 to 7,900 ft in elevation and is characterized by nearly level floodplains and low terraces. The average elevation of the Project area is approximately 7,900 ft.

2.0 *SURVEY METHODS*

The following sections describe survey methodology, assumptions and site-specific information utilized to perform the wetland delineation assessment.

2.1 *REGULATIONS AND DEFINITIONS*

The USACE regulates "waters of the U.S.", wetlands and special aquatic sites, under Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. The USACE and the Environmental Protection Agency (EPA) define wetlands as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands typically include swamps, marshes, bogs, and other similar areas." This definition takes into consideration three distinct environmental parameters: hydrology, soil, and vegetation. Positive wetland indicators of all three parameters are normally present in wetlands.

The term "waters of the U.S." means:

- a. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; these are referred to as traditional navigable waters (TNWs);
- b. All interstate waters including interstate wetlands;
- c. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
 1. which are or could be used by interstate or foreign travelers for recreational or other purposes; or
 2. from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 3. which are used or could be used for industrial purpose by industries in interstate commerce;
- d. All impoundments of waters otherwise defined as waters of the U.S. under the definition;
- e. Tributaries of waters identified in paragraphs (a) through (d) above;
- f. The territorial seas;
- g. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f).
 1. The term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other Waters of the U.S. by man-made dikes or

barriers, natural river berms, beach dunes and the like are "adjacent wetlands."

- h. Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds as defined in 40 Code of Federal Regulations (CFR) 123.11(m) which also meet the criteria of this definition) are not waters of the U.S.; and
- i. Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the EPA.

In 2006, the Supreme Court addressed the jurisdictional scope of Section 404 of the CWA, specifically the term "the waters of the U.S.," in *Rapanos v. U.S.* and in *Carabell v. U.S.* The decision provides two new analytical standards, which have been variously applied by lower courts, for determining whether waterbodies that are not TNWs, including wetlands adjacent to those non-TNWs, are subject to CWA jurisdiction:

1. If the waterbody is relatively permanent, or if the waterbody has a wetland that directly abuts (e.g., the wetland is not separated from the tributary by uplands, a berm, dike, or similar feature) a relatively permanent waterbody (RPW), otherwise known as the Plurality Test.
2. If a waterbody, in combination with all wetlands adjacent to that waterbody, has a significant nexus with TNWs, which can be determined using the Kennedy Test.
 - a. Justice Kennedy stated during *Rapanos* that "wetlands possess the requisite nexus, and thus come within the statutory phrase 'navigable waters,' if the wetlands, either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable.'"

2.2 **METHODOLOGY OVERVIEW**

Methodology performed in this assessment includes conducting a desktop analysis and field survey of the Survey Area. These steps, detailed below, identify, characterize and determine connections between wetlands and waterbodies observed within the Survey Area to jurisdictional features outside the Survey Area.

2.2.1 **Desktop Analysis**

Prior to conducting the environmental field activities, a desktop analysis of the Survey Area and adjacent lands was performed by reviewing the following sources:

- U.S. Geological Survey (USGS) 7.5-minute Topographic Quadrangle Maps (2009);

- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Maps (2009);
- Aerial Photographs (2006);
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) County Soil Surveys (2008); and
- Federal Emergency Management Agency (FEMA) Flood Hazard Maps were not available digitally for the Project area.

The analysis of these documents assisted in the planning and execution of the field survey by identifying potential drainage contours, areas of likely wetlands and waterbodies, and general habitat characteristics.

2.2.2 *Field Survey*

Environmental field surveys were performed by ERM scientists using common wetland survey tools including shovels, the Munsell Soil Color Chart, USACE Wetland Determination Data Forms, plant indicator lists, and visual observation for plant identification. The survey crews implemented the three parameter approach set forth in the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) 2008 (“the Regional Supplement”) to identify the boundaries of potential wetlands within the Survey Area. The three parameter approach assessed vegetation, soils, and hydrology for wetland conditions. Evaluation of these parameters is discussed below.

Surveys were conducted following the protocols set forth in the 1987 USACE Wetland Delineation Manual (USACE 1987) for areas greater than five (5) acres in size. In addition, Regional Supplement USACE Wetland Determination Data Forms, Waterbody Data Sheets and maps of Survey Area are included in Appendix A.

Landuse within the Survey Area was characterized according to land use categories (wetlands, open land, agricultural land, forested land, industrial/commercial land, residential land, and open water). Wetland types and hydrological features located within the Survey Area are discussed in detail in Section 3.

2.2.2.1 *Wetlands*

Vegetation

When possible, dominant vegetation was identified and documented to the species level (occasionally to genus) and classified according to the National List of Plant Species that Occur in Wetlands: Region 4 (Reed 1988). The ‘indicator status’ identifies a range of probabilities that an individual species is estimated to be found in wetland or upland areas in a defined region (Table 2-1).

Table 2-1 ***Vegetation Indicator Status***

<i>Classification</i>	<i>Symbol</i>	<i>Percentage found in Wetlands</i>
Obligate	OBL	> 99 %
Facultative Wetland	FACW	66% - 99%
Facultative	FAC	33% - 66%
Facultative Upland	FACU	1% - 33%
Obligate Upland	UPL	< 1%

Appendix B contains the procedures for the use of the 50/20 Rule and the Prevalence Index to select dominant plant species to determine if the plant community is considered to be hydrophytic (i.e., a positive wetland indicator) as provided by the Regional Supplement.

In the Arid West, vegetative species located in specialized habitats that include riparian corridors, playas, and saline areas can be classified as either wetlands or uplands, depending on site-specific conditions. This can be problematic in areas where vegetation is a mixture of both hydrophytes and other species adapted to growing in these unique, specialized western habitats. Therefore, it is vital to consider the physiological and morphological adaptations of plant species within these areas in order to better evaluate potential wetland areas as outlined in *Wetland Plants of Specialized Habitats in the Arid West* (Lichvar and Dixon 2007).

Species classified as FACU that have morphological adaptations to wetland conditions are classified as hydrophytes. In the event that more than half of these hydrophytes are located within the Survey Area, the indicator status will be reassigned as FAC. As detailed in the Arid West Regional Supplement, descriptions of the observed morphological adaptations and any observations of growth habit of these species in adjacent wetland and non-wetland locations are also indicated on the data sheet.

The dominant species and their indicator status are reflected in the updated Regional Supplement USACE Wetland Determination Data Forms in Appendix A. Photographs are provided in Appendix C. Vegetation identified within the Survey Area is presented in Section 3.1.1.

Hydric Soils

Hydric soils are soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that facilitate the growth and regeneration of hydrophytic vegetation. Hydric soil indicators relate to

color, structure, organic content, and the presence of reducing conditions. Color characteristics (hue, value, and chroma) were recorded using Munsell Soil Color Charts (Kollmorgen Corporation 1990). Soil observations were typically focused on the area immediately below the 'A' horizon (top most mineral horizon) or the top 12 inches, whichever was shallower.

Soils were identified using the respective county soil survey maps and examined in the field by hand-excavating test pits ranging from 6 to 12 inches in diameter and 14 to 20 inches deep along boundaries of areas exhibiting different plant communities. Soil type assessments were conducted according to the determining criteria for hydric (wetland) or non-hydric (non-wetland) soils, as outlined in the Regional Supplement.

Soils encountered within the Survey Area are documented in Section 3.1.2 and sampling points are shown in Appendix A.

Hydrology

Hydrological characteristics were characterized at each sampling point by field observation as well as examining aerial photography, USGS topographic maps, NWI maps, and FEMA Flood Hazard maps to identify primary and secondary indicators associated with wetlands and wetland hydrology. Field observations were made to determine if primary and secondary indicators of hydrology, as outlined in the Regional Supplement, were present. Primary indicators for wetland hydrology include:

- Surface water;
- High water table;
- Saturation;
- Water marks;
- Sediment and drift deposits;
- Surface soil cracks;
- Inundation visible on aerial imagery;
- Water stained leaves;
- Algal mats or salt crust;
- Aquatic invertebrates;
- Hydrogen sulfide odor;
- Oxidized rhizospheres (root channels) associated with living roots;
- Presence of reduced iron;
- Recent iron reduction in tilled soils; and
- Thin muck surfaces.

Secondary indicators for wetland hydrology include:

- Drainage patterns;
- Dry-season water table;
- Crawfish burrows;
- Saturation visible on aerial imagery;
- Geomorphic position;
- Shallow aquitard; and
- Positive FAC-Neutral test (comparative dominance of FACW and OBL vegetative species versus FACU and UPL vegetative species).

Hydrological characteristics identified within the Survey Area are discussed in Section 3.1.3 and sampling points are shown in Appendix A.

Documentation

As described in the Regional Supplement, areas with qualifying wetland criteria for all three parameters—vegetation, soils, and hydrology—were characterized as wetlands. Field data were recorded on Regional Supplement USACE Wetland Determination Data Forms found in Appendix A. These Regional Supplement USACE Wetland Determination Data Forms document wetland and upland plant communities, hydrology parameters, and soil conditions within the Survey Area.

Identified wetland boundaries were recorded in the field using sub-meter Global Positioning System (GPS) technologies. A Trimble™ GEO ProXH handheld GPS unit was used to record delineated boundaries of wetland areas identified during the field survey. Data collected in the field were collected using the North American Datum of 1927, (NAD27), State Plane Wyoming East 4901, and U.S. Survey Feet. GPS data were processed using ArcGIS and then overlaid onto orthorectified aerial imagery.

Wetland Characterization

Traditionally, the Cowardin System is used as a hierarchical system that aids resource managers and others by providing a universal language for classifying wetlands according to hydrologic, geomorphic, chemical, and biological factors. However, due to the variability of habitat and conditions of the Arid West in comparison to the habitats evaluated by Cowardin in *Classification of Wetlands and Deepwater Habitats of the United States* (1979), adaptations to the Cowardin System were necessary for this survey. In the Arid West region, wetlands are primarily ciénegas, oases, inland salt marshes, or are associated with old flood channels or man-made depressional areas in which the growth habitat of vegetation varies from that described by Cowardin.

The Cowardin System classifies wetlands into one or a combination of the following groups: palustrine emergent (PEM), palustrine scrub shrub (PSS) or palustrine forested (PFO). Wetlands recorded in combinations (i.e., PEM/PSS, PFO/PEM, PFO/PSS, and PFO/PSS/PEM) contain distinct boundaries comprising greater than five percent of the total wetland area of PEM, PSS or PFO.

PEM wetlands, as defined by Cowardin, et al. (1979), are those wetlands that are dominated by erect, rooted, herbaceous plants. These wetlands are commonly dominated by cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), sedges (*Carex* spp.), rushes (*Juncus* spp.), and various forbs.

PSS wetlands, as defined by Cowardin, et al. (1979), are those wetlands that are dominated by woody vegetation less than 20 feet tall. These wetlands are commonly dominated by eastern false-willow (*Baccharis halimifolia*), willows (*Salix* spp.) and other shrubs. PSS wetlands are often transitional areas between herbaceous and forested habitats or are in succession from herbaceous conditions to forested conditions. PSS wetlands, therefore, often display a combination of immature species found in forested communities and species found in herbaceous wetland communities.

PFO wetlands, as defined by Cowardin, et al. (1979), occur in undisturbed, forested areas and are often associated with streams. As defined in the Arid West Regional Supplement, trees are considered any woody plant greater than three inches diameter at breast height (DBH), regardless of height. Tree species associated with wetlands in this region include arroyo willow (*Salix lasiolepis*), narrow-leaved cottonwood (*Populus augustifolia*), lanceleaf cottonwood (*P. x acuminata*), Hinckley poplar (*P. x hinckleyana*), African tamarisk (*Tamarix africana*), and salt cedar (*T. aphylla*), among others.

2.2.2.2

Waterbodies

Waterbodies include any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing or an ordinary high water mark (OHWM), as defined by the USACE, and other permanent waters such as lakes and ponds. Waterbodies identified within the Survey Area were identified and surveyed. Perennial or intermediate waterbodies were differentiated according to size: minor, intermediate, and major. Minor waterbodies are 10 feet or less in width from water's edge to water's edge; intermediate waterbodies range in width from > 10 feet to < 100 feet; major waterbodies are 100 feet or greater in width. Applicable data were gathered for the waterbody feature, including: bank height, bank slope, stream-flow, direction and type, water appearance, stream substrate, aquatic habitats, channel conditions, and disturbances. Data were documented on Waterbody Data Sheets, which are provided in Appendix A. Waterbodies identified within the Survey Area are described in Section 3.2.

Due to the arid climate, waterbodies and areas that were excavated and had the potential to retain water for a short period of time were surveyed using a

Tremble™ Geo ProXH GPS unit as described above in Section 2.3.4. Data points were collected along the upper banks or edges of the features within the Survey Area.

Indicated waterbodies on USGS topographic maps were also field verified. If indicated waterbodies on the USGS topographic maps did not meet the criterion of waterbodies, as listed above, such as swales or erosional features; a GPS point was collected and the area was photographically documented. Photographs and a map detailing the location of these swales and erosion features are presented in Appendix D.

2.2.2.3

Uplands

Upland (i.e., non-wetland) samples were collected within the Survey Area and adjacent to the respective wetland where a distinguishable transition from wetland to upland communities could be identified (based on vegetation, hydrology and soil parameters outlined in the Regional Supplement). Typical indicators of habitat change include vegetative species composition, soil saturation levels, soil composition, and elevation.

3.0

RESULTS

The results of the wetland delineation are presented in the following sections. General descriptions of the vegetation, soils and hydrology are provided for each feature type. Completed Regional Supplement USACE Wetland Determination Data Forms and Waterbody Data Sheets are presented in Appendix A and a Photographic Log is provided in Appendix C

The results presented in this report were based on review of available current and historical information, a desktop evaluation, and the wetland delineation conducted in August and October 2009.

3.1

WETLANDS

A total of nine (9) wetlands (approximately 6.18 acres) were identified and delineated within the Survey Area. The delineated wetlands were all classified as PEM wetlands due to the predominance of yellow nutsedge (*Cyperus esculentus*: FACW) and Baltic rush (*Juncus balticus*: FACW), within the wetlands. The extent and location of these wetlands are shown in Figure 3-1(a-h).

Table 3-1 summarizes data for wetlands identified within the Survey Area, including the wetland location, size, type, and connectivity to a waterbody or otherwise exhibiting a significant nexus with a TNW. Detailed information for each feature is provided on the Regional Supplement USACE Wetland Determination Data Forms in Appendix A.

Table 3-1 Wetlands within the Survey Area

Feature ID	Latitude	Longitude	Type ^(A)	Acreage ^(B)	Connection to Significant Nexus	Figure
WAAL001	41.056410	-105.573166	PEM	1.29	Associated with Forest Creek	3-1a/d
WAAL002	41.047740	-105.560374	PEM	0.90	Associated with Boulder Creek	3-1d
WAAL003	41.050119	-105.535957	PEM	0.33	Associated with Willow Creek	3-1e
WAAL004	41.038912	-105.535552	PEM	1.52	Associated with Willow Creek	3-1e
WBAL001	41.068691	-105.545779	PEM	0.20	Associated with Boulder Creek	3-1b
WBAL002	41.082437	-105.546098	PEM	0.13	Isolated depressional wetland	3-1b
WBAL003	41.058457	-105.553990	PEM	0.43	Associated with Boulder Creek	3-1b
WBAL004	41.058491	-105.523914	PEM	0.16	Associated with Willow Creek	3-1c
WBAL005	41.020996	-105.516327	PEM	1.22	Associated with Fish Creek	3-1 d/e/g
TOTAL				6.18		
Total Potentially Jurisdictional Wetlands				6.05		

(A) Wetland types: PEM = palustrine emergent;

(B) Wetland acreages are based on GPS boundaries surveyed.

3.1.1

Vegetation

In the Survey Area, Herbaceous stratum observed within the wetlands were dominated by colonies of creeping bentgrass (*Agrostis stolonifera*: FAC+), yellow nutsedge, Baltic rush, and spikerush (*Eleocharis spp*). Shrub and tree stratum, while typically not dominant, consisted of Bebb willow (*Salix bebbina*: FACW) and quaking aspen (*Populus tremuloides*: FAC). These tree species were found in wetlands associated with banks of perennial streams.

3.1.2

Soils

A desktop assessment of the soils located within the Survey Area was performed (Figure 3-2a-h). According to the USDA NRCS Soil Survey for Albany County (2008) there are 15 soil series present within the Survey Area, of these four (4) are considered partially hydric (Table 3-2). These hydric series are typically located in low-lying landforms associated with stream terraces.

Field verification of these hydric soils was accomplished through soil test pits of approximately 12 inches a diameter and up to 16 inches deep. These test pits were dug using shovels in the identified wetland and associated upland area. Mapped soils identified within the wetland contained low chroma soils (typically Munsell notations of 10 YR 2/1, black; 10 YR 3/1, very dark gray; or 7.5 YR 3/2, dark brown); the soils classification varied from muck to coarse sandy clay. The predominant indicators of hydric soils within the Survey Area were mottled and low chroma soils. Soils within the observed wetlands also met requirements for indicators F6 (Redox Dark Surface) and F3 (Depleted Matrix). Findings from the field surveys were generally consistent with those described in the USDA NRCS county soil survey. Detailed results of the identified soils encountered within the Survey Area are included in the Regional Supplement USACE Wetland Determination Data Forms (Appendix A).

Table 3-2

Soil Associations and Soil Series within the Survey Area

<i>Map Unit</i>	<i>Soils Series</i>	<i>Acres</i>	<i>Map Unit Symbol</i>	<i>Hydric</i>	<i>Landform</i>	<i>Drainage Class</i>
Boyle-Lininger association, 1 to 15 percent slopes	Boyle and Lininger	546	125	No	Uplands and mountain hill slopes	Well drained
Boyle-Rock outcrop complex, 5 to 25 percent slopes	Boyle	24	124	No	Uplands and mountain hill slopes	Well drained
Byrnie-Rock outcrop complex, 10 to 50 percent slopes	Byrnie	26	130	No	Gently sloping to very steep hills and ridges	Well drained
Canburn loam, 1 to 4 percent slopes	Canburn	37	132	Partially	Mountain valley bottoms, flood	Poorly drained

<i>Map Unit</i>	<i>Soils Series</i>	<i>Acres</i>	<i>Map Unit Symbol</i>	<i>Hydric</i>	<i>Landform</i>	<i>Drainage Class</i>
					plains, stream terraces and lower slopes of alluvial fans at 4,800 to 8,200 feet	
Dalecreek-Kovich complex, 0 to 9 percent slopes	Dalecreek and Kovich	2	149	Partially	Flood-plains, stream terraces, low lying alluvial fans and broad valley floors.	Moderately well drained
Hapjack-Rogert-Amesmont complex, 3 to 25 percent slopes	Hapjack and Rogert	250	172	Partially	Mountain slopes and ridges	Well drained
Rock outcrop-Cathedral complex, 20 to 40 percent slopes	Cathedral	1	137	No	Mountain slopes, hills, and ridges	Well drained
Rock outcrop-Rogert complex, 25 to 99 percent slopes	Rogert	109	219	No	Mountain slopes and ridges	Well drained
Rogert-Rock outcrop-Amesmont complex, 5 to 25 percent slopes	Rogert	293	220	No	Mountain slopes and ridges	Well drained
Silas, gravelly substratum-Vensora loams, 0 to 6 percent slopes	Silas and Vensora	15	227	Partially	Mountain valley fills, outwash terraces, and floodplains	Somewhat poorly drained
Stunner-Tisworth-Blazon complex, 1 to 6 percent slopes	Stunner, Tisworth, and Blazon	32	230	No	Alluvial fans, fan aprons, and terraces	Well drained
Tieside-Pilotpeak-Rock outcrop complex, 3 to 10 percent slopes	Tieside and Pilotpeak	409	234	No	Uplands, structural benches, and strath terraces	Well drained
Wycolo-Alcova complex, 3 to 10 percent slopes	Wycolo and Alcova	181	241	No	Uplands, structural benches, strath terraces, pediments, and fan aprons	Well drained
Wycolo-Thermopolis-Rock outcrop complex, 10 to 50 percent slopes	Wycolo and Thermopolis	3	244	No	Uplands, structural benches, strath terraces, ridges, and hills	Well drained

<i>Map Unit</i>	<i>Soils Series</i>	<i>Acres</i>	<i>Map Unit Symbol</i>	<i>Hydric</i>	<i>Landform</i>	<i>Drainage Class</i>
Wycolo-Tieside sandy loams, 3 to 10 percent slopes	Wycolo and Tieside	268	243	No	Uplands, structural benches, and strath terraces	Well drained

3.1.3

Hydrology

Geography and topography are primary factors influencing wetland hydrology. Rolling hills dominate the general topography within the Project area. Wetland development throughout the Survey Area can be attributed to low-lying areas between gentle undulations, natural drainage patterns, and clay soils with poor drainage capabilities.

USFWS NWI and topographic maps (Figure 3-3a-h) provide an overview of NWI-mapped wetlands within the Project area. Review of these maps prior to field mobilization indicated several potential wetland areas within the Survey Area predominately associated with stream corridors. Wetland features identified and classified during the field survey were generally similar in location to those included on NWI Maps; however, delineated types and sizes generally differed from those identified on NWI Maps.

Delineated wetlands not associated with NWI-mapped wetlands were primarily associated with named stream corridors or their tributaries; the exception being wetland WBAL002, which was an isolated depressional wetland.

Primary hydrological indicators associated with the identified wetlands include surface water (A1), saturation (A3), and water marks (B1). Secondary indicators for wetland hydrology include: drainage patterns (B10) and shallow aquatard (D3). Other indicators such as topography, local soils survey data and vegetation species composition were observed and factored into the delineations.

3.1.4

Plurality Test

Government Creek, Forest Creek, and Boulder Creek all flow into Willow Creek, which flows generally across the middle of the Project area. Willow Creek continues outside the Project area approximately 16 miles until joining the Laramie River. The Laramie River ultimately confluences with the North Platte River, a TNW, approximately 120 miles north of the Project area. The northern portion of the Project area is located in the North Platte Basin and drains into the Missouri Region Watershed.

Fish Creek flows generally across the southern portion of the Project area into Deadman Creek, approximately five miles outside of the Project area. Deadman Creek continues until it joins the North Fork Cache la Poudre River which

ultimately confluences with the South Platte River, a TNW, approximately 60 miles southeast of the Project area. The southern portion of the Project area is located in the South Platte Basin and drains into the Missouri Region Watershed.

Seven of the nine wetlands (all except WBAL002 and WBAL005) identified in the Survey Area are ultimately connected to the North Platte River through a series of named or unnamed tributaries to Willow Creek, a RPW. An eighth wetland (WBAL005) is ultimately connected to the South Platte River through a direct connection to Fish Creek, a RPW. Due to the defined size of the Project area, field verification of a direct wetland connection to a TNW was limited to visual verifications and a desktop analysis. The desktop analysis indicates the potential for a direct connection between eight of the nine identified wetlands within the Survey Area and a TNW, specifically, the North Platte River and the South Platte River. Based on the potential for connectivity, these features may be classified under the jurisdiction of the USACE.

3.1.5 *Kennedy Test*

With the exception of the one isolated wetland identified within the Survey Area, the hydrologic interconnection of the eight remaining wetlands to the nearest TNW (North Platte River and South Platte River) suggests that the eight identified wetlands could support the TNW. The diminutive size of these wetlands and the distance from the TNW make them unlikely to provide substantial direct habitat or lifecycle support functions to any aquatic species found within the TNW. Biological support of wetlands within the Survey Area would therefore be limited to providing temporary habitat for avian species associated with the TNW and /or the TNW's riparian buffer. However, the presence of small fish found in a few of the wetlands and the interconnection through the series of RPWs provides a potential link between these eight wetlands and the nearest TNW. This biological connection would likely meet the requirements of the Kennedy Test for a significant nexus; therefore, these features are likely under the jurisdiction of the USACE.

3.2 *WATERBODIES*

The Survey Area contained a total of 45 waterbodies. Of these, 21 are perennial streams, 12 are intermittent streams, and 12 are ephemeral streams. Additionally, one headwater spring was identified within the Survey Area and another was identified outside the Survey Area in connection with identified features SAAL014 and SAAL012, respectfully. Table 3-3 summarizes the waterbodies by feature identification, name, type, and size and relation to a TNW. Waterbody Data Sheets containing detailed information regarding the waterbodies (stream flow, depth, water characteristics, etc.) are contained in Appendix A.

It should be noted several areas identified as intermittent or ephemeral waterbodies on the USGS topographic maps (identified as dashed blue lines) were field verified and deemed swales or erosion features as they did not meet

the criterion discussed in Section 2.2.2.2. A map illustrating these areas and representative photolog is included in Appendix D.

3.2.1 *Plurality Test*

Government Creek, Forest Creek, and Boulder Creek all flow into Willow Creek, which flows generally across the middle of the Project area. Willow Creek continues outside the Project area approximately 16 miles until joining the Laramie River. The Laramie River ultimately confluences with the North Platte River, a TNW, approximately 120 miles north of the Project area. The northern portion of the Project area is located in the North Platte Basin and drains into the Missouri Region Watershed.

Fish Creek flows generally across the southern portion of the Project area into Deadman Creek, approximately five miles outside of the Project area. Deadman Creek continues until it joins the North Fork Cache la Poudre River which ultimately confluences with the South Platte River, a TNW, approximately 60 miles south east of the Project area. The southern portion of the Project area is located in the South Platte Basin and drains into the Missouri Region Watershed.

NWI and topographic mapping indicates that most likely all of the waterbodies found within the Survey Area have either a direct or indirect connection to a TNW (Table 3-3).

Table 3-3 Waterbodies within the Survey Area

<i>Feature ID</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Name</i>	<i>Type</i>	<i>Length (ft)</i>	<i>Connection to TNW</i>	<i>Figure</i>
SAAL001	41.066863	-105.582609	Government Creek	Perennial	735	Direct connection to a TNW	3-1a
SAAL002	41.072383	-105.573911	Government Creek	Perennial	785	Direct connection to a TNW	3-1a
SAAL003	41.079602	-105.563864	Government Creek	Ephemeral	1301	Direct connection to a TNW	3-1a/b
SAAL004	41.056285	-105.573305	Forest Creek	Perennial	1299	Direct connection to a TNW	3-1a/d
SAAL005	41.062013	-105.564295	Forest Creek	Intermittent	827	Direct connection to a TNW	3-1a/b
SAAL006	41.046449	-105.562884	Tributary of Boulder Creek	Ephemeral	619	Direct connection to a TNW	3-1d
SAAL007	41.045361	-105.562785	Tributary of Boulder Creek	Ephemeral	225	Direct connection to a TNW	3-1d
SAAL008	41.047795	-105.560299	Boulder Creek	Ephemeral	1224	Direct connection to a TNW	3-1d
SAAL009	41.043325	-105.561854	Tributary of Boulder Creek	Ephemeral	3979	Indirect connection to a TNW	3-1d
SAAL010	41.042975	-105.535672	Willow Creek	Perennial	1313	Direct connection to a TNW	3-1e
SAAL012	41.038769	-105.536049	Tributary of Willow Creek	Perennial	781	Indirect connection to a TNW	3-1e
SAAL013	41.041863	-105.526986	Tributary of Willow Creek	Ephemeral	1493	Indirect connection to a TNW	3-1e
SAAL014	41.025831	-105.487344	Unnamed Tributary	Perennial	443	Direct connection to a TNW	3-1f
SAAL015	41.028552	-105.493262	Unnamed Tributary	Ephemeral	633	Indirect connection to a TNW	3-1f
SAAL016	41.027122	-105.507064	Unnamed Tributary	Ephemeral	960	Indirect connection to a TNW	3-1e/f
SAAL017	41.018978	-105.505231	Tributary of Fish Creek	Perennial	1087	Direct connection to a TNW	3-1g/h
SAAL018	41.009066	-105.515787	Tributary of Fish Creek	Ephemeral	657	Direct connection to a TNW	3-1g
SAAL019	41.019927	-105.525159	Fish Creek	Perennial	1180	Indirect connection to a TNW	3-1e/g
SAAL020	41.018891	-105.535615	Fish Creek	Perennial	809	Direct connection to a TNW	3-1g
SAAL021	41.070793	-105.522148	Willow Creek	Perennial	473	Direct connection to a TNW	3-1c
SAAL022	41.079493	-105.508033	Tributary to Grant Creek	Intermittent	341	Indirect connection to a TNW	3-1c
SBAL001	41.068364	-105.544509	Tributary to Forest Creek	Ephemeral	607	Indirect connection to a TNW	3-1b
SBAL002	41.069789	-105.545064	Forest Creek	Perennial	3034	Direct connection to a TNW	3-1b
SBAL003	41.064732	-105.554744	Forest Creek	Perennial	776	Direct connection to a TNW	3-1b
SBAL004	41.058280	-105.554093	Boulder Creek	Perennial	637	Direct connection to a TNW	3-1b
SBAL005	41.057989	-105.553673	Tributary to Boulder Creek	Perennial	268	Indirect connection to a TNW	3-1b
SBAL006	41.054440	-105.506621	Tributary to Willow Creek	Intermittent	335	Indirect connection to a TNW	3-1f
SBAL007	41.057142	-105.515617	Tributary to Willow Creek	Intermittent	336	Indirect connection to a TNW	3-1c
SBAL008	41.053209	-105.516595	Tributary to Willow Creek	Perennial	522	Indirect connection to a TNW	3-1e
SBAL009	41.051501	-105.516645	Tributary to Willow Creek	Intermittent	1744	Indirect connection to a TNW	3-1e
SBAL010	41.041411	-105.517572	Tributary to Willow Creek	Ephemeral	296	Indirect connection to a TNW	3-1e
SBAL011	41.046786	-105.516241	Tributary to Willow Creek	Ephemeral	775	Indirect connection to a TNW	3-1e
SBAL012	41.047692	-105.516305	Tributary to Willow Creek	Intermittent	390	Indirect connection to a TNW	3-1e
SBAL013	41.058449	-105.523856	Tributary to Willow Creek	Perennial	440	Indirect connection to a TNW	3-1c

<i>Feature ID</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Name</i>	<i>Type</i>	<i>Length (ft)</i>	<i>Connection to TNW</i>	<i>Figure</i>
SBAL014	41.057108	-105.525356	Willow Creek	Perennial	1561	Indirect connection to a TNW	3-1b/c/e
SBAL015	41.045800	-105.527373	Tributary to Willow Creek	Intermittent	318	Indirect connection to a TNW	3-1e
SBAL016	41.045472	-105.526402	Tributary to Willow Creek	Intermittent	1040	Indirect connection to a TNW	3-1e
SBAL017	41.014666	-105.489100	Unnamed Tributary	Intermittent	1012	Indirect connection to a TNW	3-1h
SBAL018	41.015307	-105.504368	Fish Creek	Perennial	3605	Direct connection to a TNW	3-1g/h
SBAL019	41.021630	-105.516588	Tributary of Fish Creek	Perennial, man made	451	Indirect connection to a TNW	3-1e
SBAL020	41.020891	-105.516295	Fish Creek	Perennial	938	Direct connection to a TNW	3-1e/g
SBAL021	41.020444	-105.525898	Tributary of Fish Creek	Intermittent	562	Indirect connection to a TNW	3-1g
SBAL022	41.020859	-105.524967	Tributary of Fish Creek	Intermittent	307	Indirect connection to a TNW	3-1e/g
SBAL023	41.019408	-105.534696	Tributary of Fish Creek	Intermittent	303	Indirect connection to a TNW	3-1g
SBAL024	41.078858	-105.508036	Grant Creek	Perennial	329	Direct connection to a TNW	3-1c

3.2.2

Kennedy Test

All 45 surveyed waterbodies were found to have either direct or indirect biological, physical, and chemical connection with either Willow Creek, a RPW, which connects to the Laramie River (RPW) and ultimately drains in to the North Platte River, a TNW; or Fish Creek, a RPW, which connects to the North Fork Cache La Poudre River (RPW) and ultimately drains in to the South Platte River, a TNW. The surveyed waterbodies have the potential to provide biological support to a wide variety of aquatic fauna and avian species. The potential for direct connection to a RPW satisfies the criterion of the Kennedy Test for a significant nexus; therefore, these features are likely under the jurisdiction of the USACE.

3.3

UPLANDS

The upland habitat located along the majority of the Survey Area is characterized as grasslands dominated by sparse ground cover including spineless horsebrush (*Tetradymia canescens*), big sagebrush (*Artemisia tridentate*), wax currant (*Ribes cereum*), Timothy grass (*Phleum pretense*), blue wildrye (*Elymus glaucus*), elkweed (*Frasera speciosa*), Canada goldenrod (*Solidago canadensis*), big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), and assorted upland grasses (Whitson 2004). Regional Supplement USACE Wetland Determination Data Forms are provided in Appendix A.

SUMMARY AND CONCLUSIONS

Field investigations identified a total of nine PEM wetlands within the Survey Area. One of these features, WBAL002 (0.13 acres), was an isolated depressional wetland and showed no significant nexus to a water of the U.S. The remaining eight wetlands (6.05 acres) were associated with stream corridors and meet the requisite of the Plurality Test. Additionally these wetlands demonstrate a measureable significant nexus as described in the Kennedy Test; as a result, these wetlands may be deemed jurisdictional by the USACE.

The Survey Area contained a total of 45 waterbodies. Of these, 21 are perennial streams, 12 are intermittent streams, and 12 are ephemeral streams. ERM has concluded that all of these natural waterbodies may likely be deemed under the jurisdiction of Section 404 of the CWA and the USACE. The features described above are likely to be deemed jurisdictional under the CWA because they have the potential for a direct connection to a TNW, or exhibit a significant nexus with a TNW. Therefore, the USACE and EPA may deem these features jurisdictional.

Several areas identified as intermittent or ephemeral waterbodies on the USGS topographic maps were field verified and deemed swales or erosion features as they did not meet the criterion discussed in Section 2.2.2.2. A map illustrating these areas and representative photographic log is included in Appendix D.

Results of the assessment indicate one of the nine wetlands delineated within the Survey Area may be deemed non-jurisdictional by the USACE and the EPA as it is isolated and shows no connection to waters of the U.S.

Note: Only the USACE and EPA can make the final jurisdictional determination of the features.

4.1

ANTICIPATED IMPACTS AND MITIGATION

4.1.1

Proposed Action Impacts

The Proposed Action includes the construction of a substation, high voltage (345 kV) transmission line less than one mile long, and system upgrades to an existing 345 kV Western-owned transmission line. The Proposed Action is not anticipated to have impacts on wetlands and/or waterbodies within the Survey Area.

4.1.2

Project Impacts

The Project is anticipated to impact approximately 0.17 acres of wetlands. These impacts are entirely due to the construction of access roads and installation of underground electrical connection lines. Turbines, laydown areas, O&M areas, and the permanent met tower will be sited outside of areas likely to be considered jurisdictional wetlands. In November 2009 the Project was redesigned to reduce wetlands impacts from 6.18 to 0.17 acres.

Table 4-1 *Estimated Project Impacts by Wetland*

<i>Feature ID</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Type</i> ^(A)	<i>Estimate Impact Acreage</i> ^(B,C)	<i>Connection to Significant Nexus</i>	<i>Figure</i>
WAAL001	41.056410	-105.573166	PEM	0.06	Associated with Forest Creek	3-1a/d
WAAL002	41.047740	-105.560374	PEM	0.05	Associated with Boulder Creek	3-1d
WAAL004	41.038912	-105.535552	PEM	0.01	Associated with Willow Creek	3-1e
WBAL004	41.058491	-105.523914	PEM	0.04	Associated with Willow Creek	3-1c
WBAL005	41.020996	-105.516327	PEM	0.01	Associated with Fish Creek	3-1d/e/g
TOTAL				0.17		
Total Potentially Jurisdictional Wetlands				0.17		

(A) Wetland types: PEM = palustrine emergent;

(B) Wetland acreages are based on GPS boundaries surveyed.

(C) Acreage calculations are based on the assumption that the access roads and underground electrical collections lines will have a 50 ft wide corridor.

In November 2009, the Project was redesigned to avoid 15 waterbodies and use existing crossings to minimize further impact. The current Project design is anticipated to cross a total of 30 waterbodies. Of these, 12 are perennial streams, eight are intermittent streams, and ten are ephemeral streams (Table 3-3). Waterbody crossings are necessary to construct the access roads and install underground electrical connection lines. Thirteen of the 30 crossings are located along existing roads throughout the Project area. Turbines, laydown areas, O&M areas, and the permanent met tower will be sited outside of waterbodies and riparian habitats.

Table 4-2 **Estimated Project Waterbody Crossings**

<i>Feature ID</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Name</i>	<i>Type</i>	<i>Crossing Length (ft)</i>	<i>Connection to TNW</i>	<i>Figure</i>
SAAL001	41.066863	-105.582609	Government Creek	Perennial	15	Direct connection to a TNW	3-1a
SAAL002	41.072383	-105.573911	Government Creek	Perennial	15	Direct connection to a TNW	3-1a
SAAL003	41.079602	-105.563864	Government Creek	Ephemeral	30	Direct connection to a TNW	3-1a/b
SAAL004	41.056285	-105.573305	Forest Creek	Perennial	40	Direct connection to a TNW	3-1a/d
SAAL006	41.046449	-105.562884	Tributary of Boulder Creek	Ephemeral	10	Direct connection to a TNW	3-1d
SAAL007	41.045361	-105.562785	Tributary of Boulder Creek	Ephemeral	15	Direct connection to a TNW	3-1d
SAAL008	41.047795	-105.560299	Boulder Creek	Ephemeral	2	Direct connection to a TNW	3-1d
SAAL009	41.043325	-105.561854	Tributary of Boulder Creek	Ephemeral	2	Indirect connection to a TNW	3-1d
SAAL010	41.042975	-105.535672	Willow Creek	Perennial	2	Direct connection to a TNW	3-1e
SAAL013	41.041863	-105.526986	Tributary of Willow Creek	Ephemeral	12	Indirect connection to a TNW	3-1e
SAAL014	41.025831	-105.487344	Unnamed Tributary	Perennial	10	Direct connection to a TNW	3-1f
SAAL015	41.028552	-105.493262	Unnamed Tributary	Ephemeral	10	Indirect connection to a TNW	3-1f
SAAL016	41.027122	-105.507064	Unnamed Tributary	Ephemeral	20	Indirect connection to a TNW	3-1e/f
SAAL020	41.018891	-105.535615	Fish Creek	Perennial	10	Direct connection to a TNW	3-1g
SAAL021	41.070793	-105.522148	Willow Creek	Perennial	15	Direct connection to a TNW	3-1c
SAAL022	41.079493	-105.508033	Tributary to Grant Creek	Intermittent	5	Indirect connection to a TNW	3-1c
SBAL001	41.068364	-105.544509	Tributary to Forest Creek	Ephemeral	8	Indirect connection to a TNW	3-1b
SBAL006	41.054440	-105.506621	Tributary to Willow Creek	Intermittent	10	Indirect connection to a TNW	3-1f
SBAL007	41.057142	-105.515617	Tributary to Willow Creek	Intermittent	30	Indirect connection to a TNW	3-1c
SBAL008	41.053209	-105.516595	Tributary to Willow Creek	Perennial	10	Indirect connection to a TNW	3-1e
SBAL009	41.051501	-105.516645	Tributary to Willow Creek	Intermittent	20	Indirect connection to a TNW	3-1e
SBAL011	41.046786	-105.516241	Tributary to Willow Creek	Ephemeral	10	Indirect connection to a TNW	3-1e
SBAL012	41.047692	-105.516305	Tributary to Willow Creek	Intermittent	15	Indirect connection to a TNW	3-1e
SBAL013	41.058449	-105.523856	Tributary to Willow Creek	Perennial	2	Indirect connection to a TNW	3-1c
SBAL014	41.057108	-105.525356	Willow Creek	Perennial	9	Indirect connection to a TNW	3-1b/c/e
SBAL015	41.045800	-105.527373	Tributary to Willow Creek	Intermittent	10	Indirect connection to a TNW	3-1e
SBAL016	41.045472	-105.526402	Tributary to Willow Creek	Intermittent	2	Indirect connection to a TNW	3-1e
SBAL017	41.014666	-105.489100	Unnamed Tributary	Intermittent	10	Indirect connection to a TNW	3-1h
SBAL018	41.015307	-105.504368	Fish Creek	Perennial	3	Direct connection to a TNW	3-1g/h
SBAL024	41.078858	-105.508036	Grant Creek	Perennial	2	Direct connection to a TNW	3-1c

SWE will obtain the appropriate USACE permits prior to construction and develop a mitigation plan as part of the permit process to address the minimization of impacts, restoration of temporarily disturbed wetlands and waterbodies, and compensation for lost habitat types and monitoring the revegetation of the construction corridor.

Minimization

SWE sited Project facilities outside of wetlands and riparian habitat where feasible. In November 2009, the Project was redesigned to reduce wetlands impacts from 6.18 to 0.17 acres and to cross 30 waterbodies versus 45. Thirteen of these crossings are located along existing roads throughout the Project area. In those areas where avoidance is not possible, SWE has worked to minimize impacts to the practical extent possible. Minimization includes actions taken to reduce overall wetland impacts through Project development and construction techniques.

SWE is proposing to utilize best management practices (BMPs) during Project construction to preserve and protect wetlands in order to minimize impacts. During the initial clearing phase of the construction process, woody vegetation in wetlands would be cut at ground level. This would leave the root systems intact and encourage sprouting of the existing species following construction. Small stumps of shrubs and trees may be cut at or just below ground level. Larger trees and shrubs would be removed to assure a safe, level work surface for equipment working on temporary mats. Equipment operation in wetlands would be kept to the minimum necessary to safely perform the work, and would operate on prefabricated equipment matting or acceptable substitute. Additionally, in areas where power collection lines or access roads have to take place in waterbodies BMPs will be developed and implemented to minimize impacts to water quality and sensitive species and required permits will be obtained.

In order to protect water resources, a storm water pollution prevention plan (SWPPP), which includes erosion control measures, would be generated and implemented on site for the Project. The SWPPP would be based on the U.S. EPA document entitled "Storm Water Management for Construction Activities-Developing Pollution Prevention Plans and Best Management Practices. The Project will obtain a General Stormwater Construction Permit from the Wyoming Department of Environmental Quality (WYDEQ).

Given the dry and windy nature of the area, dust control measures will be proposed as part of the SWPPP to protect water quality, minimize impacts to local residents, and minimize impacts to vehicles traveling along local roads. Examples of BMPs that can be included in the SWPPP are the use of water or other dust control measures on or near heavily used public roads, holding traffic speeds to appropriate levels to minimize dust generation, using rock to cover

disturbed soil, and re-vegetating or otherwise covering soils as soon as possible following soil disturbance.

Restoration

SWE will develop a restoration plan, as part of the SWPPP, in order to further minimize permanent impacts to associated wetlands. Upon the completion of the Project, the construction corridor would be restored to pre-construction contours, with exception of the turbine foundations, access roads, and permanent Project facilities (i.e. O&M area and substation). These areas would also be allowed to naturally revegetate from the existing rootstock and supplemented with native seed mix where necessary.

Compensation

While many steps have been taken to minimize impacts to wetlands within the Project area, permanent loss of some wetlands may be unavoidable due to the nature of the Project. SWE will mitigate for unavoidable impacts to wetlands and waterbodies as part of the USACE permit process, as required.

5.0 REFERENCES

5.1 ENVIRONMENTAL INVESTIGATORS

Clark, Chris	ERM, Environmental Consultant
Johnson, Erin C.	ERM, Environmental Consultant
Wanka, Kathryn M.	ERM, Environmental Consultant
Zeisloft, Chris	ERM, Environmental Consultant
Zuniga, Amanda	ERM, Environmental Scientist

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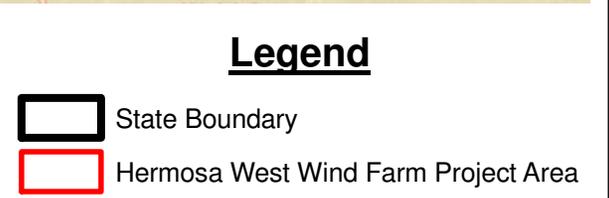
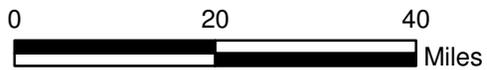
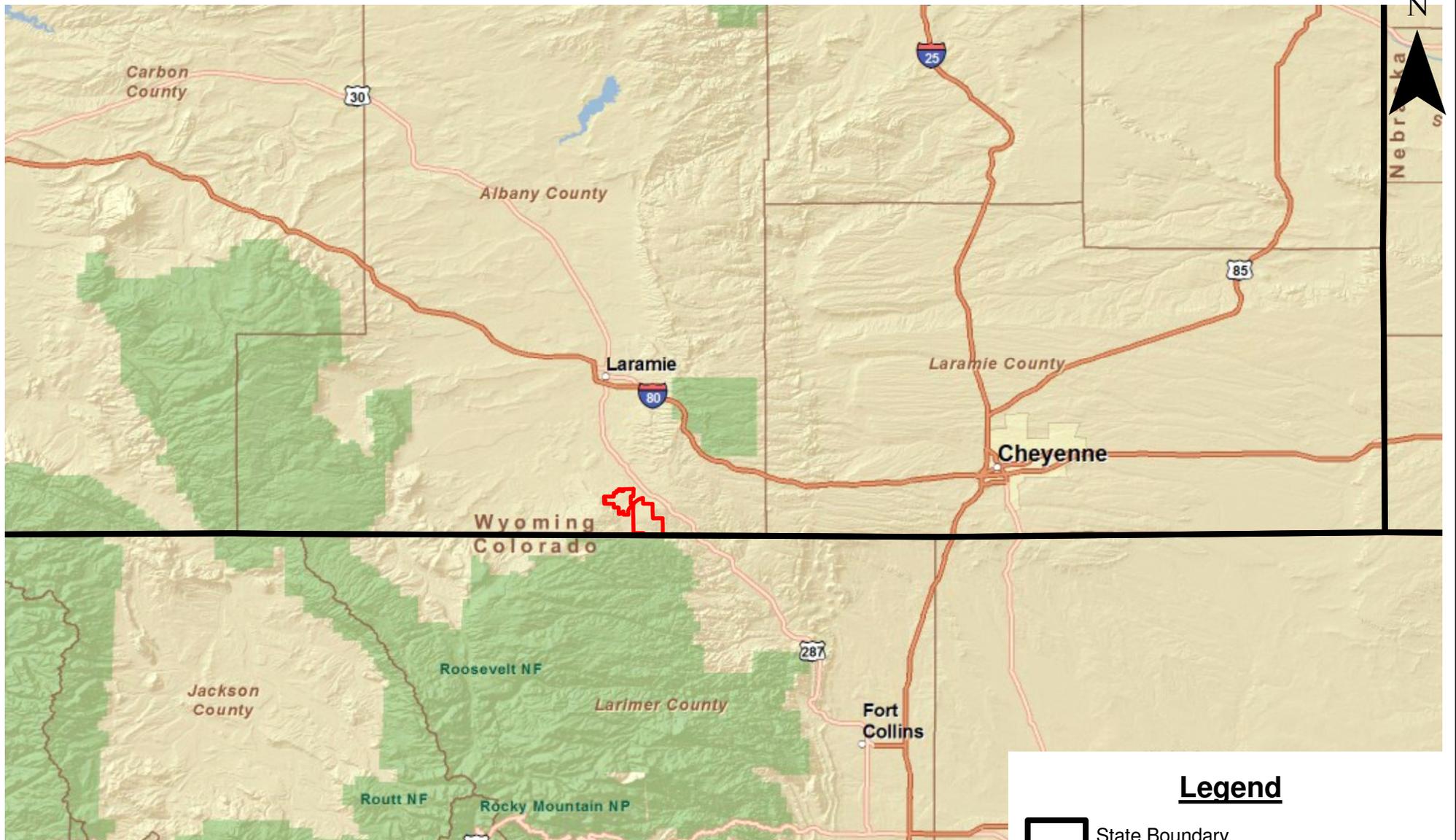
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Figures

January 11, 2010
Project No. 0105023

Environmental Resources Management Southwest, Inc.
15810 Park Ten Place, Suite 300
Houston, Texas 77084-5140
(281) 600-1000

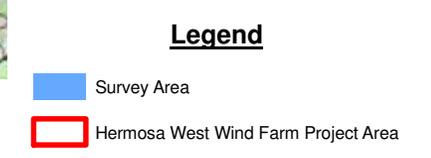
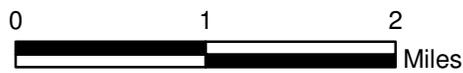
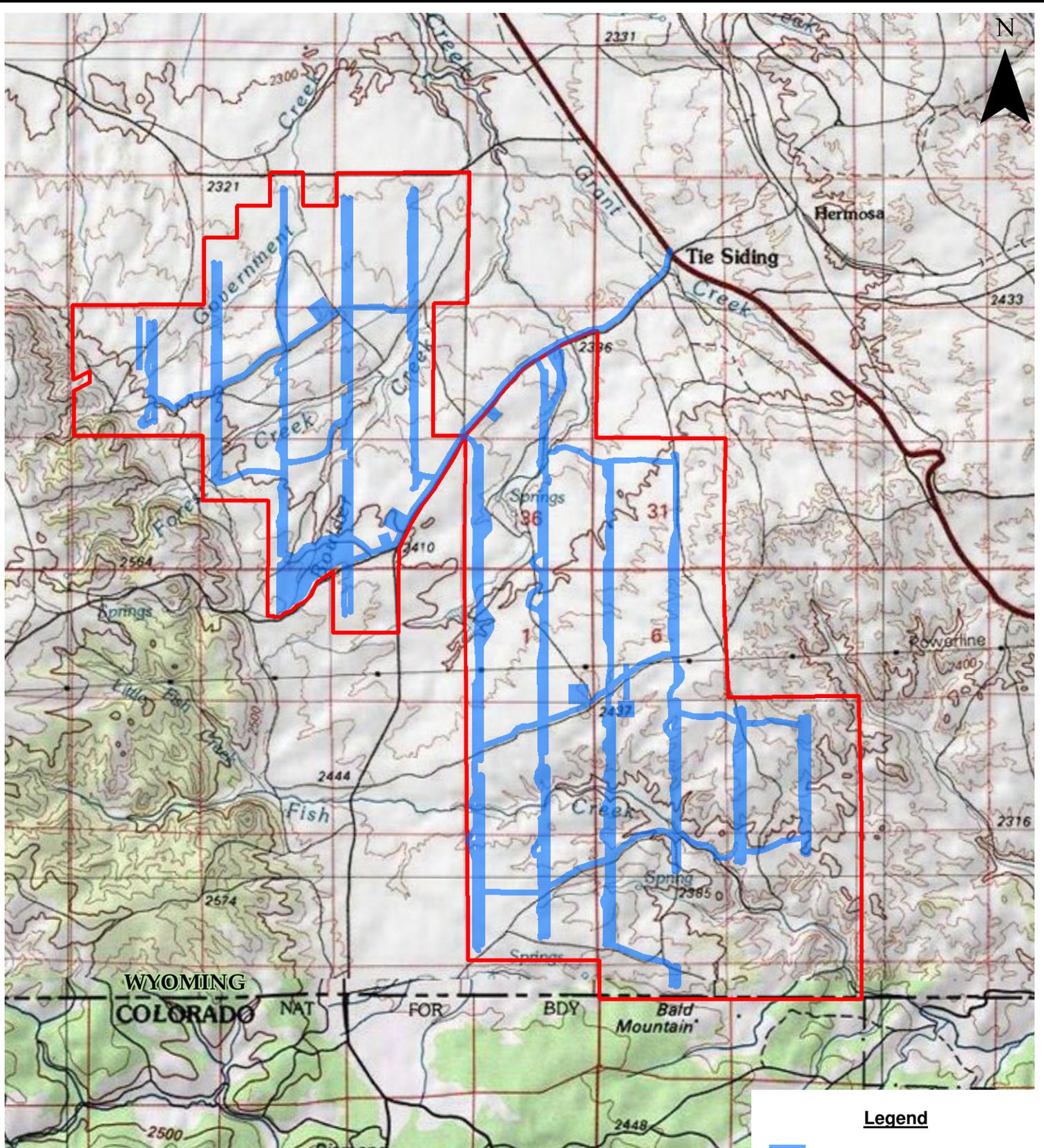


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FIGURE 1-1
VICINITY MAP
Shell Wind Energy
Hermosa West Wind Farm Project



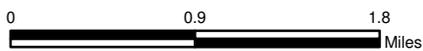
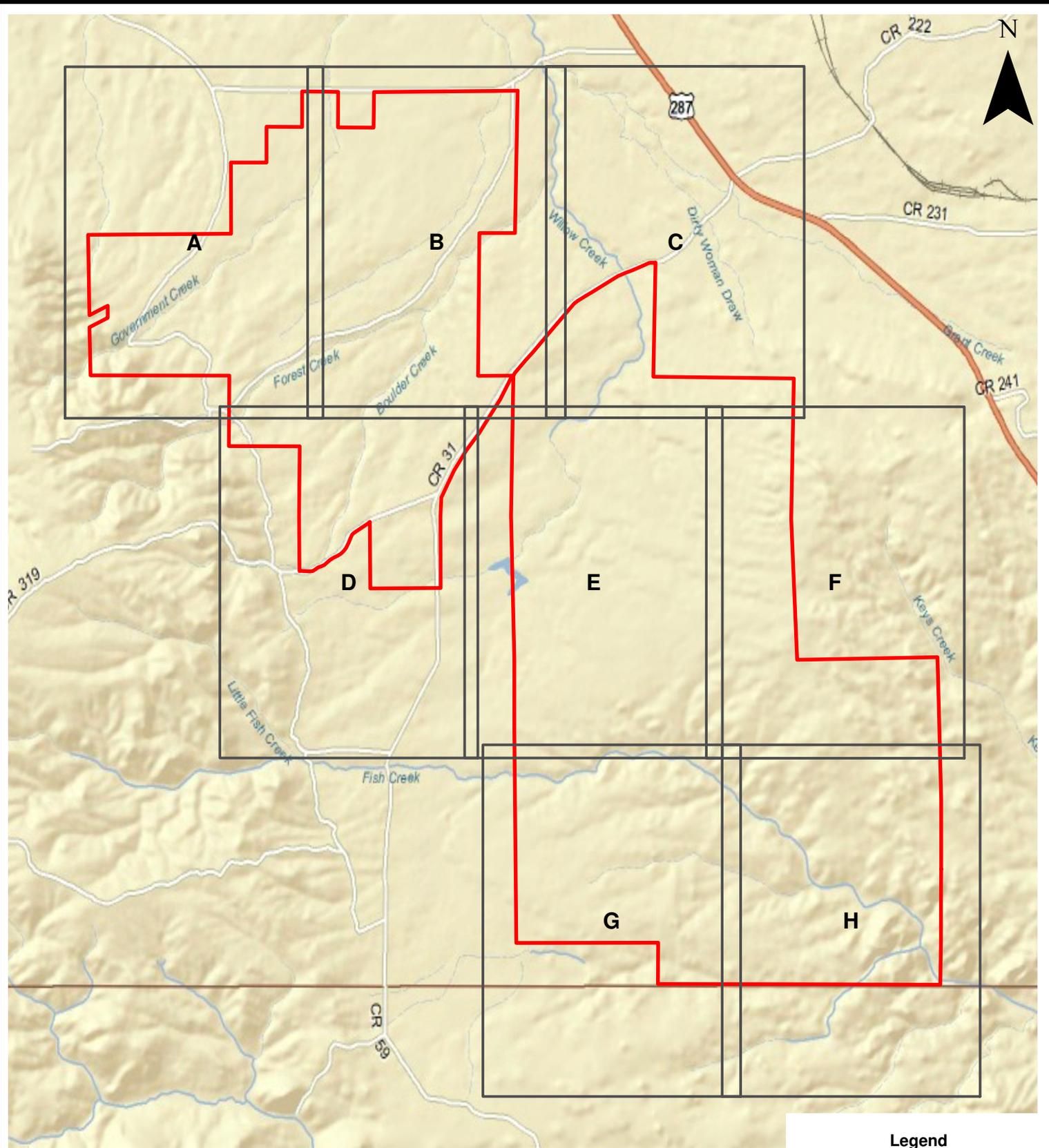


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FIGURE 1-2
SITE PLAN
 Shell WindEnergy
 Hermosa Wind Farm Project
 Albany County, Wyoming





Environmental Resources Management

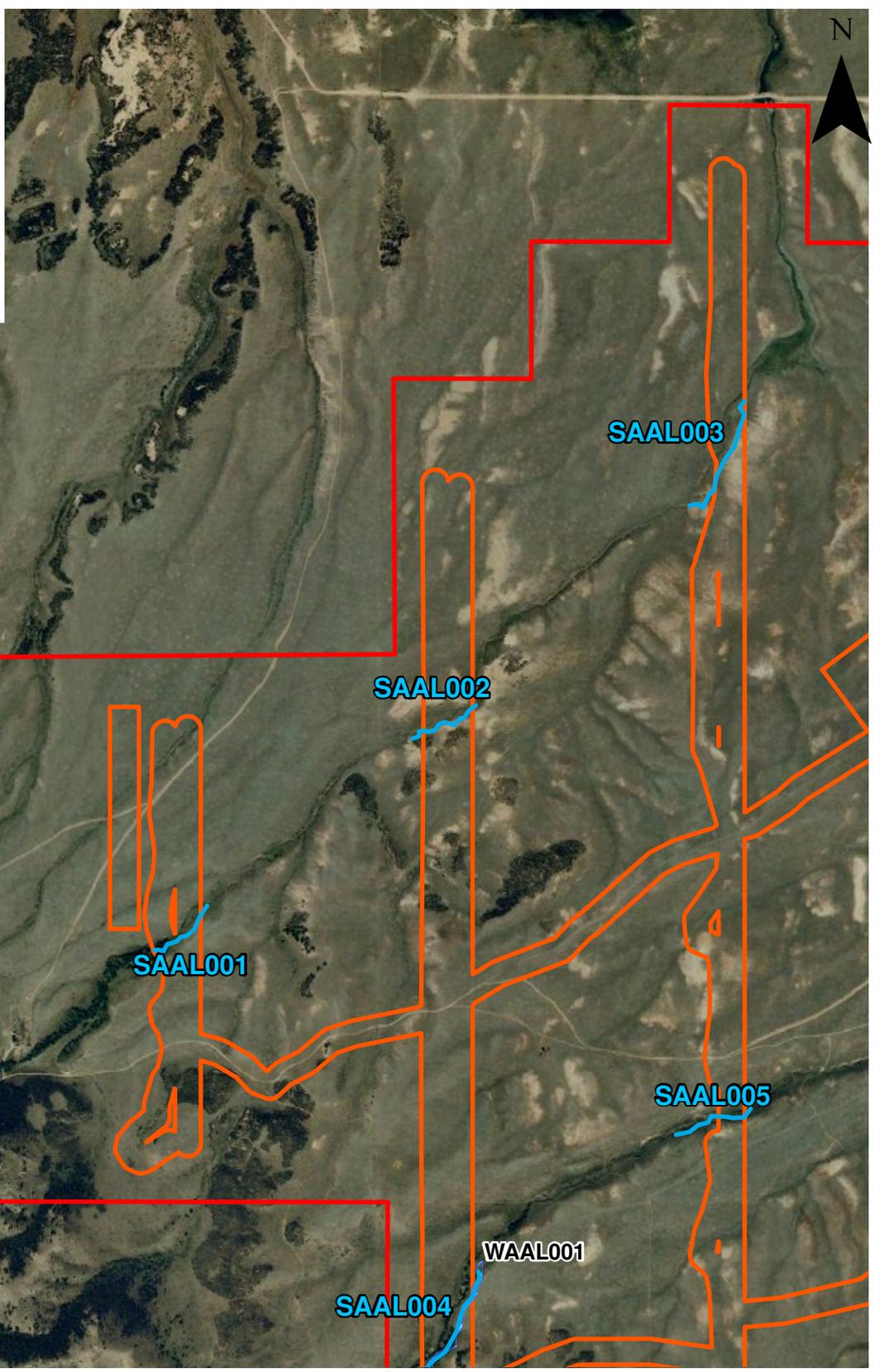
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MAP KEY
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



Legend

-  Culverts/Drains
-  Waterbodies
-  Stream Start/End Point
-  Wetlands
-  Hermosa West Wind Farm Project Area
-  Survey Area

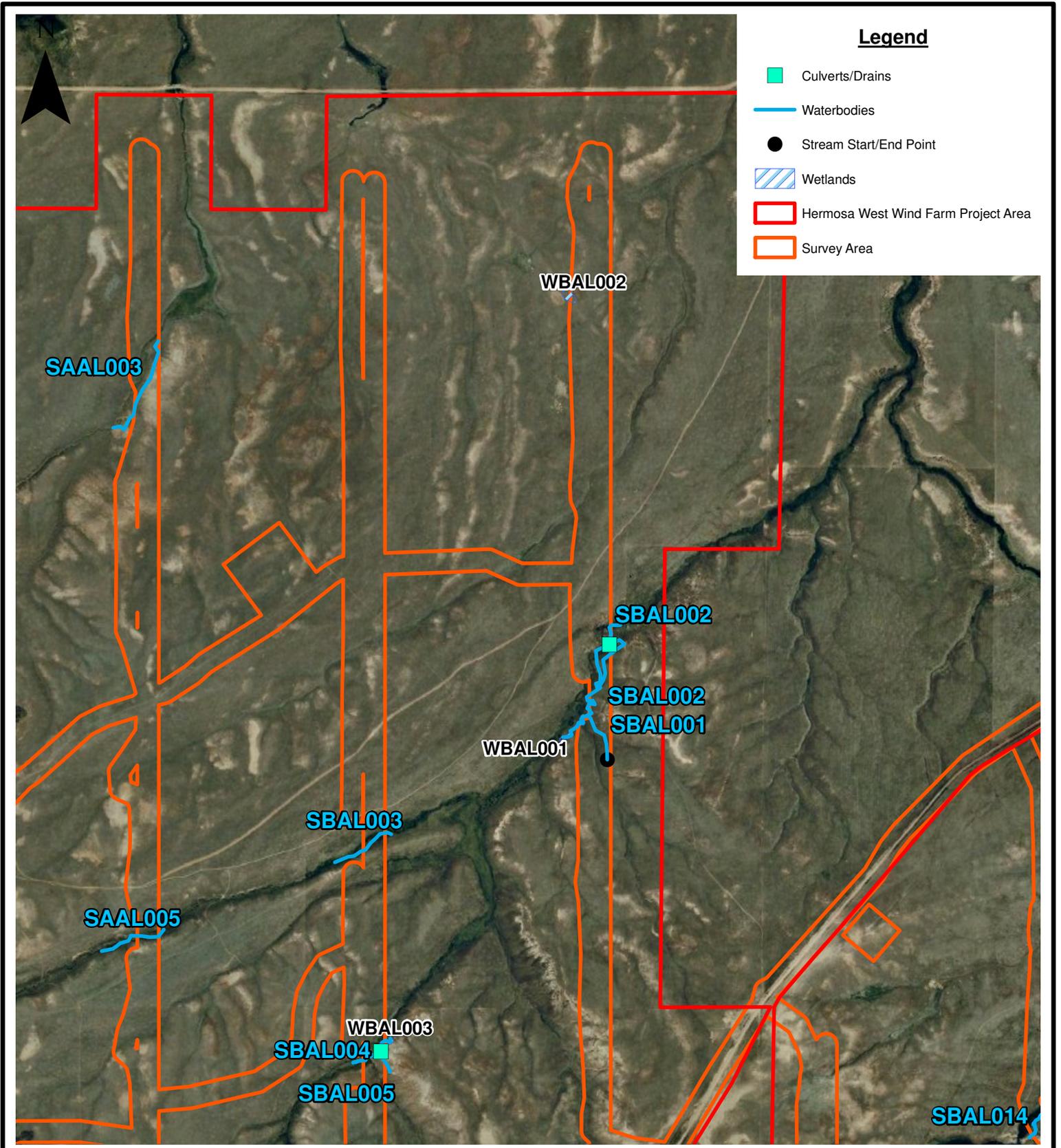


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FIGURE 3-1a
AERIAL MAP
Shell WindEnergy
Hermosa West Wind Farm Project
Albany County, Wyoming





Legend

- Culverts/Drains
- Waterbodies
- Stream Start/End Point
- Wetlands
- Hermosa West Wind Farm Project Area
- Survey Area

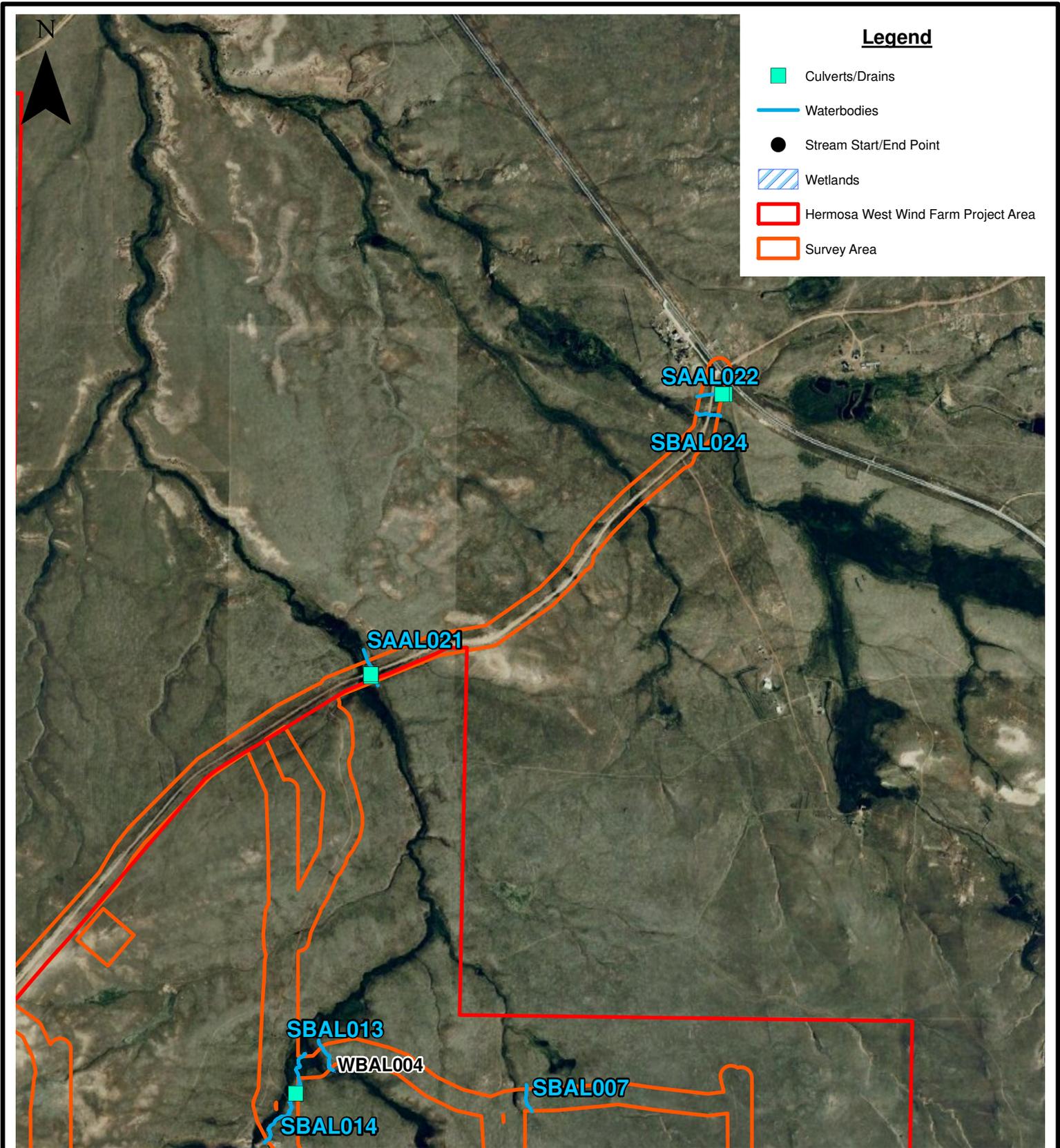


Environmental Resources Management

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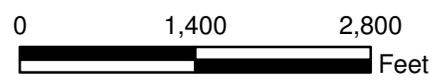
FIGURE 3-1b
 AERIAL MAP
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming





Legend

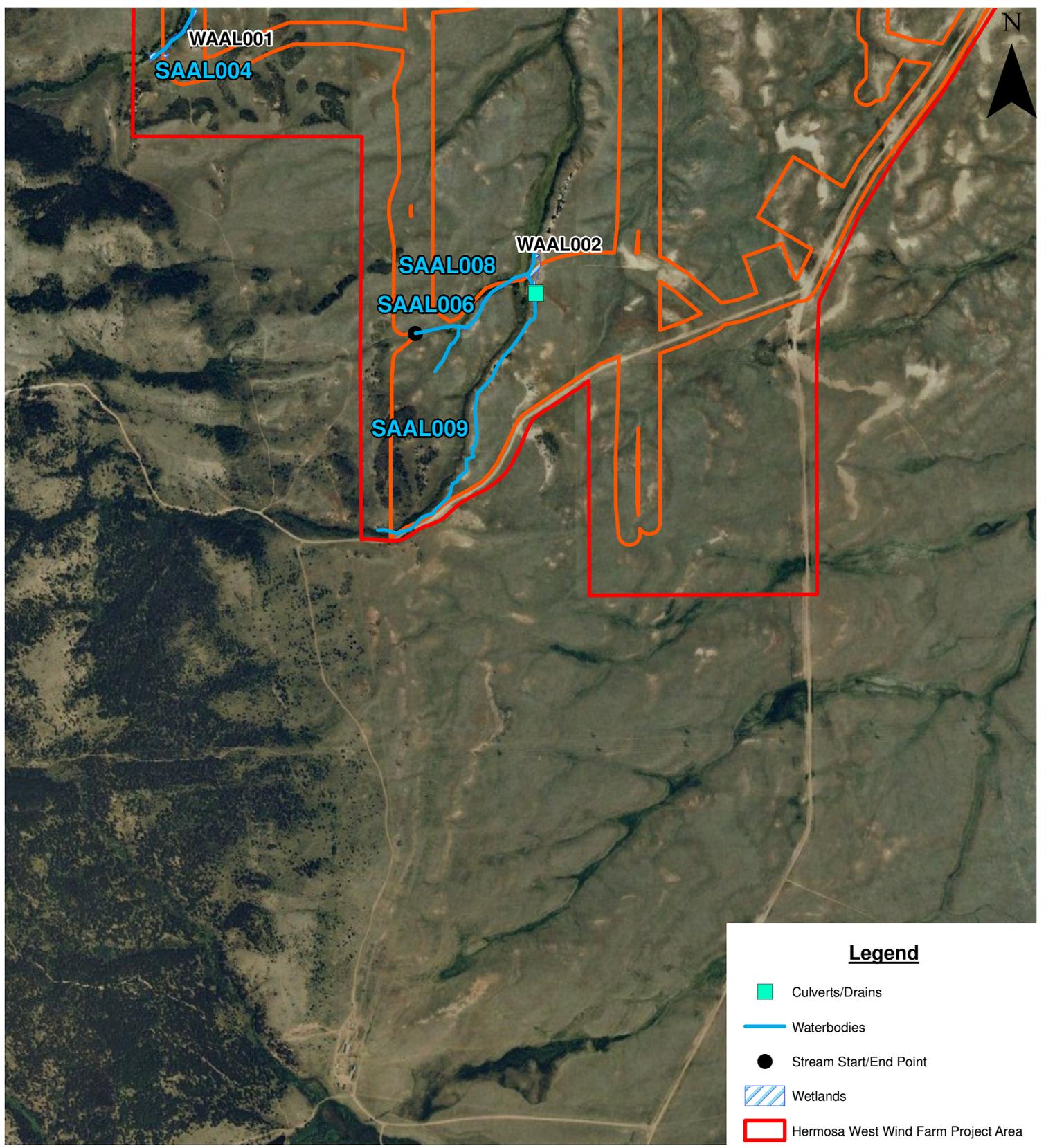
- Culverts/Drains
- Waterbodies
- Stream Start/End Point
- Wetlands
- Hermosa West Wind Farm Project Area
- Survey Area



Environmental Resources Management		
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DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
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FIGURE 3-1c
 AERIAL MAP
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming





Legend

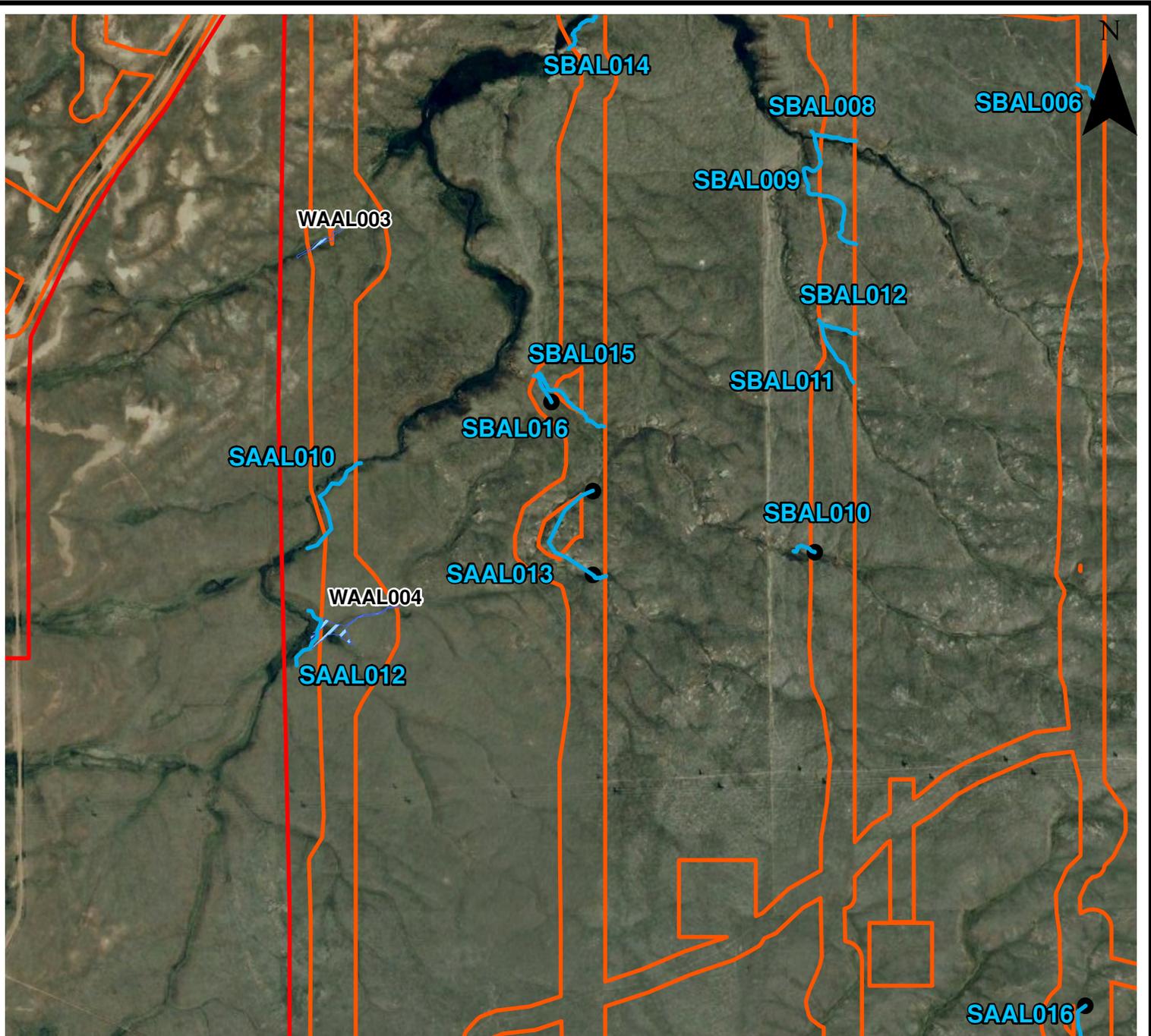
- Culverts/Drains
- Waterbodies
- Stream Start/End Point
- Wetlands
- Hermosa West Wind Farm Project Area
- Survey Area

Environmental Resources Management

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FIGURE 3-1d
 AERIAL MAP
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming





Legend

- Culverts/Drains
- Waterbodies
- Stream Start/End Point
- Wetlands
- Hermosa West Wind Farm Project Area
- Survey Area

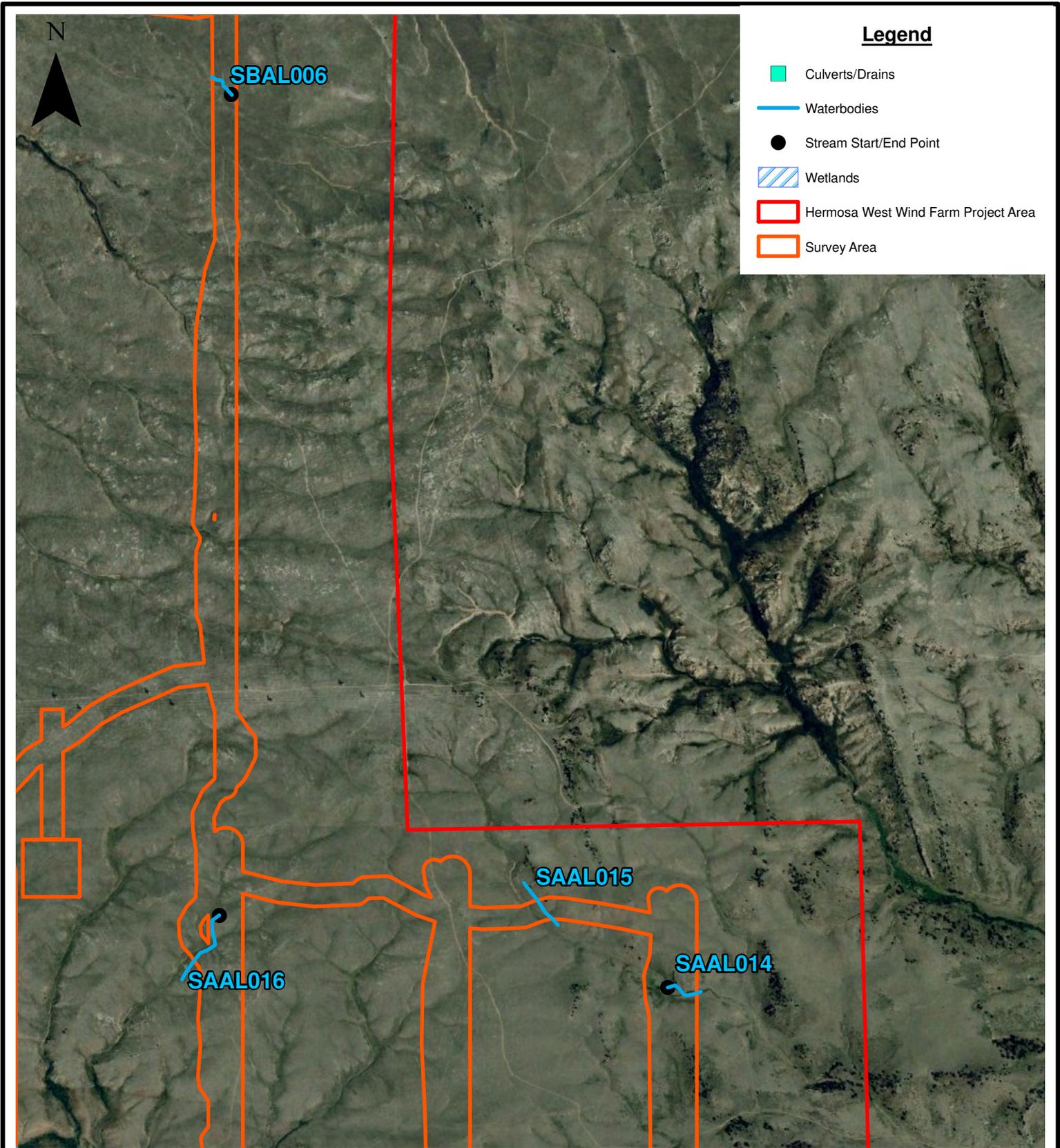


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FIGURE 3-1e
 AERIAL MAP
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming





Legend

- Culverts/Drains
- Waterbodies
- Stream Start/End Point
- Wetlands
- Hermosa West Wind Farm Project Area
- Survey Area

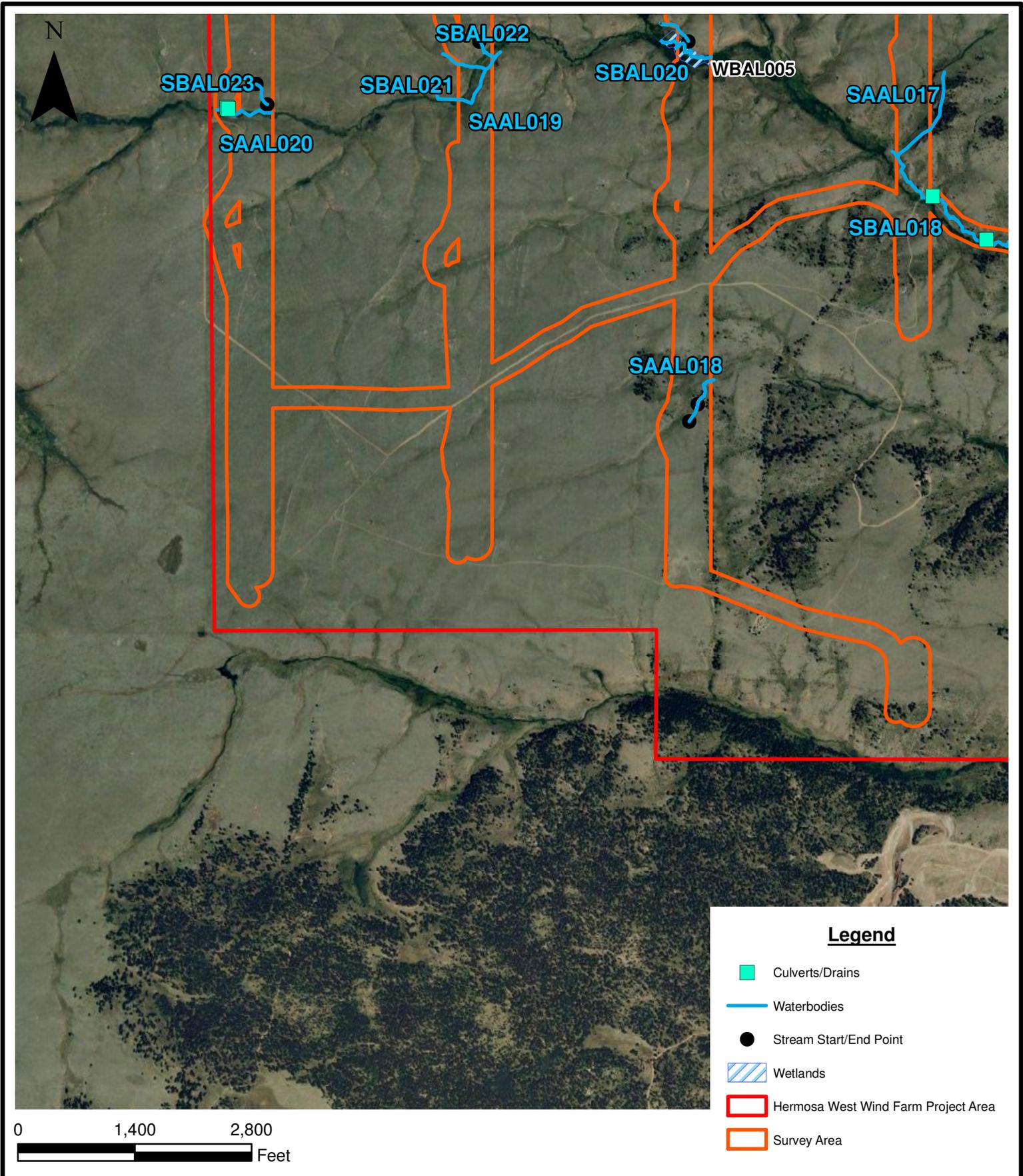


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FIGURE 3-1f
 AERIAL MAP
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming





Legend

- Culverts/Drains
- Waterbodies
- Stream Start/End Point
- Wetlands
- Hermosa West Wind Farm Project Area
- Survey Area

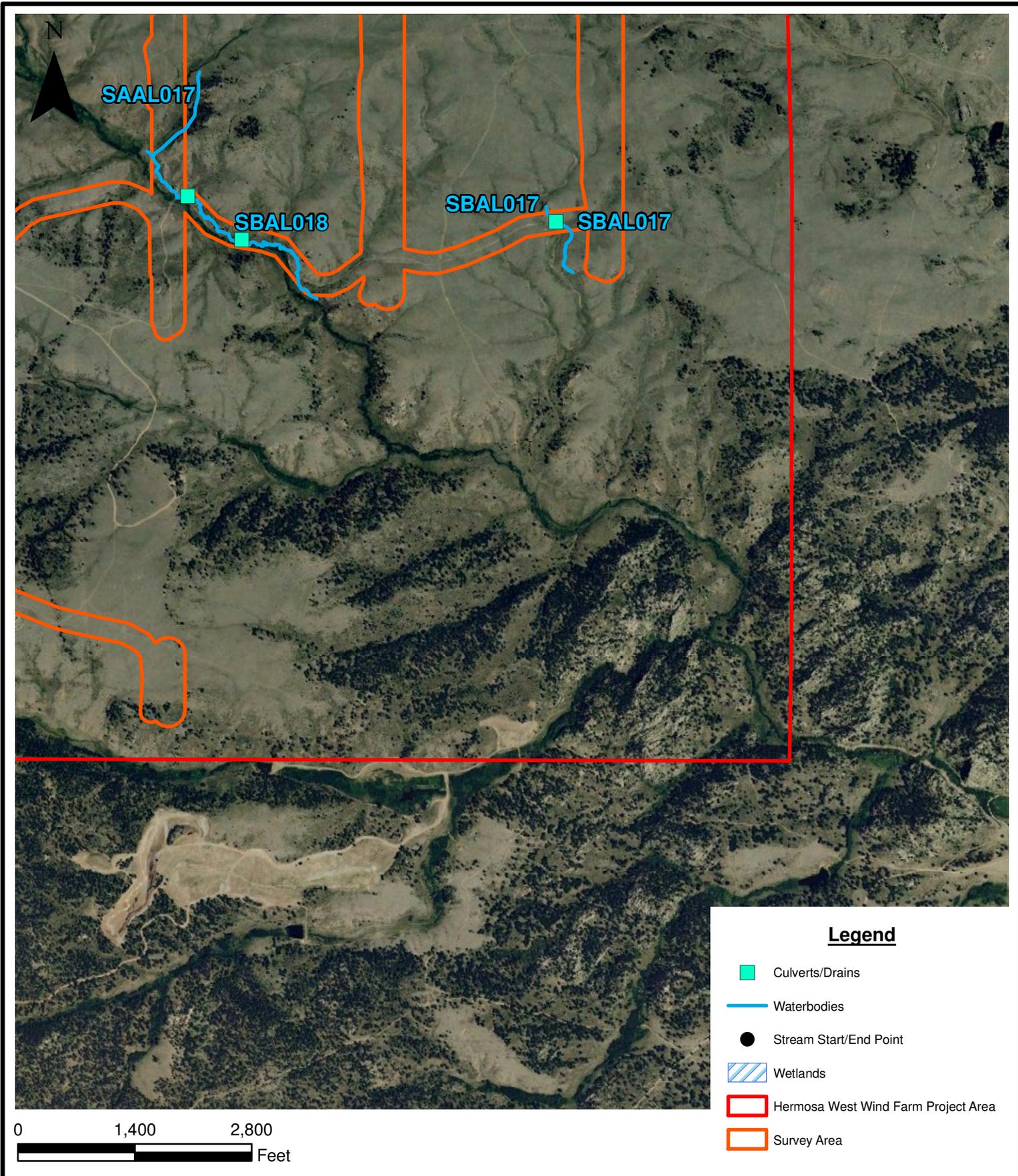
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Environmental Resources Management

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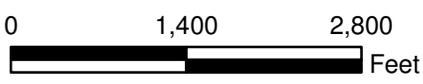
FIGURE 3-1g
 AERIAL MAP
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming





Legend

- Culverts/Drains
- Waterbodies
- Stream Start/End Point
- Wetlands
- Hermosa West Wind Farm Project Area
- Survey Area



Environmental Resources Management

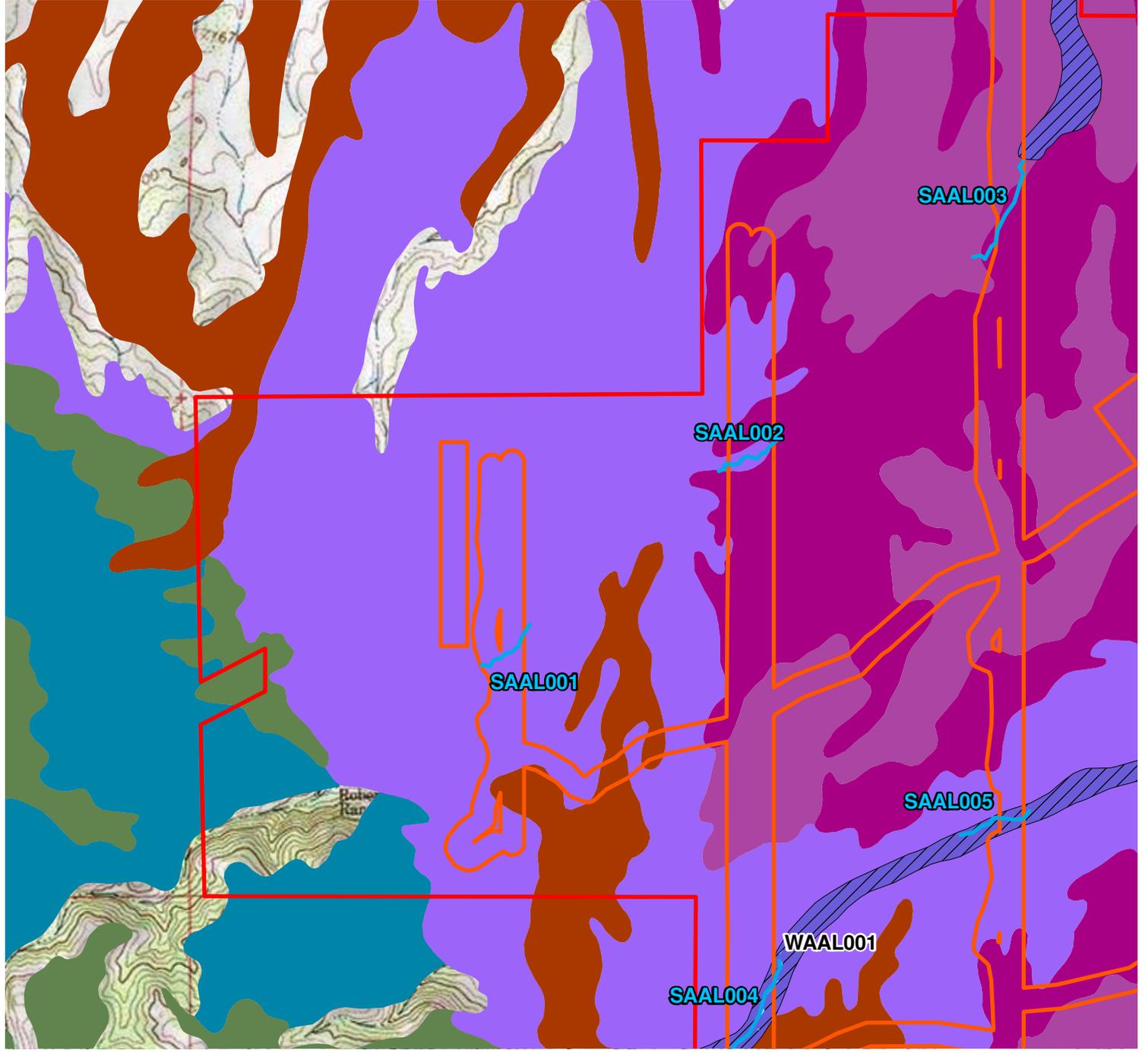
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FIGURE 3-1h
 AERIAL MAP
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



Legend

-  Culverts/Drains
 -  Waterbodies
 -  Stream Start/End Point
 -  Wetlands
 -  Hermosa Wind Farm Project Area
 -  Survey Area
 -  Partially hydric soils
- NRCS Soils**
-  Boyle-Lininger association, 1 to 15 percent slopes
 -  Boyle-Rock outcrop complex, 5 to 25 percent slopes
 -  Byrnie-Rock outcrop complex, 10 to 50 percent slopes
 -  Canburn loam, 1 to 4 percent slopes
 -  Dalecreek-Kovich complex, 0 to 9 percent slopes
 -  Hapjack-Rogert-Amesmont complex, 3 to 25 percent slopes
 -  Rock outcrop-Cathedral complex, 20 to 40 percent slopes
 -  Rock outcrop-Rogert complex, 25 to 99 percent slopes
 -  Roger-Rock outcrop-Amesmont complex, 5 to 25 percent slopes
 -  Silas, gravelly substratum-Vensora loams, 0 to 6 percent slopes
 -  Stunner-Tiesworth-Blazon complex, 1 to 6 percent slopes
 -  Tieside-Pilotpeak-Rock outcrop complex, 3 to 10 percent slopes
 -  Wycolo-Alcova complex, 3 to 10 percent slopes
 -  Wycolo-Thermopolis-Rock outcrop complex, 10 to 50 percent slopes
 -  Wycolo-Tieside sandy loams, 3 to 10 percent slopes

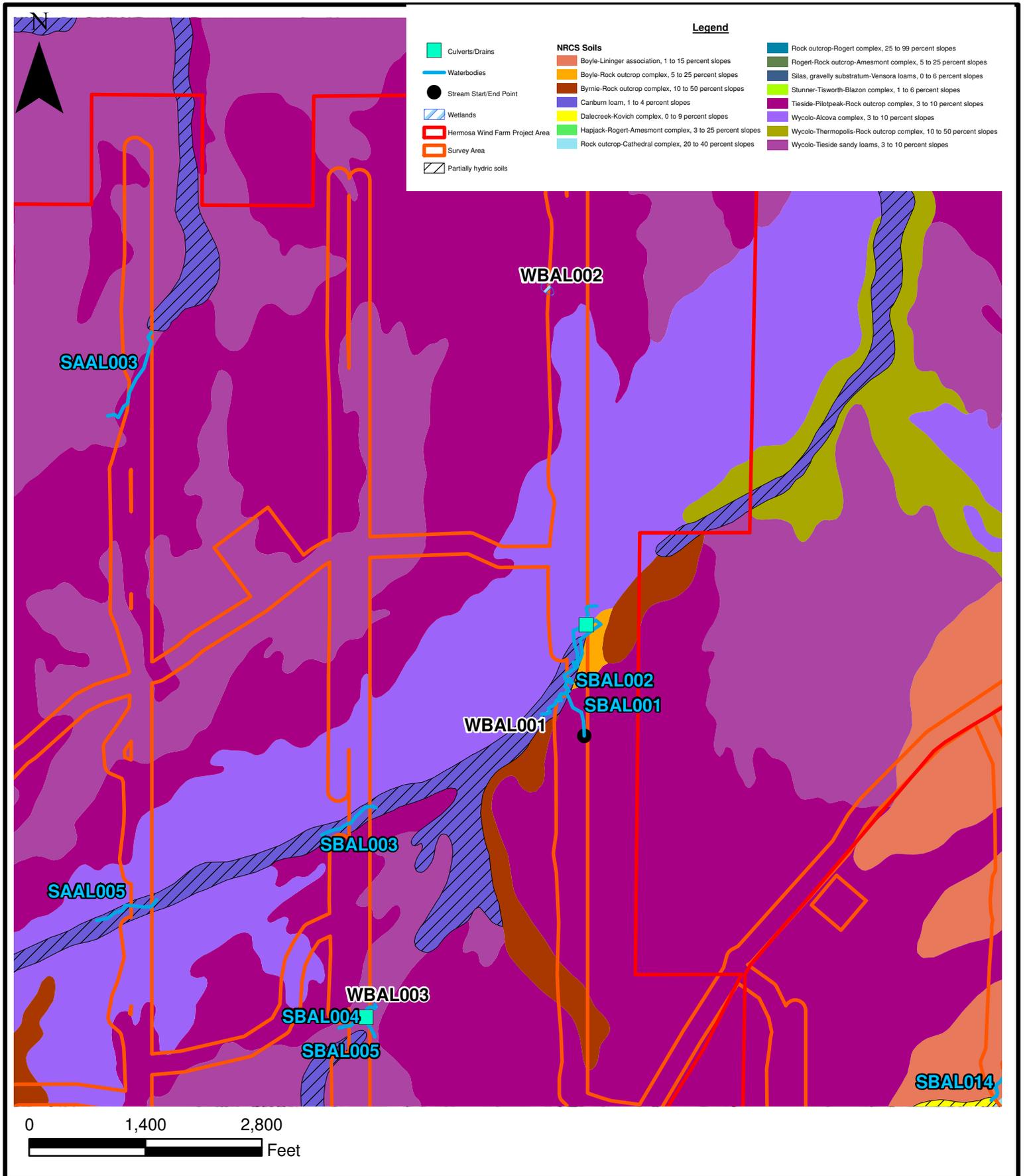


Environmental Resources Management

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FIGURE 3-2a
SOILS MAP
Shell WindEnergy
Hermosa Wind Farm Project
Albany County, Wyoming



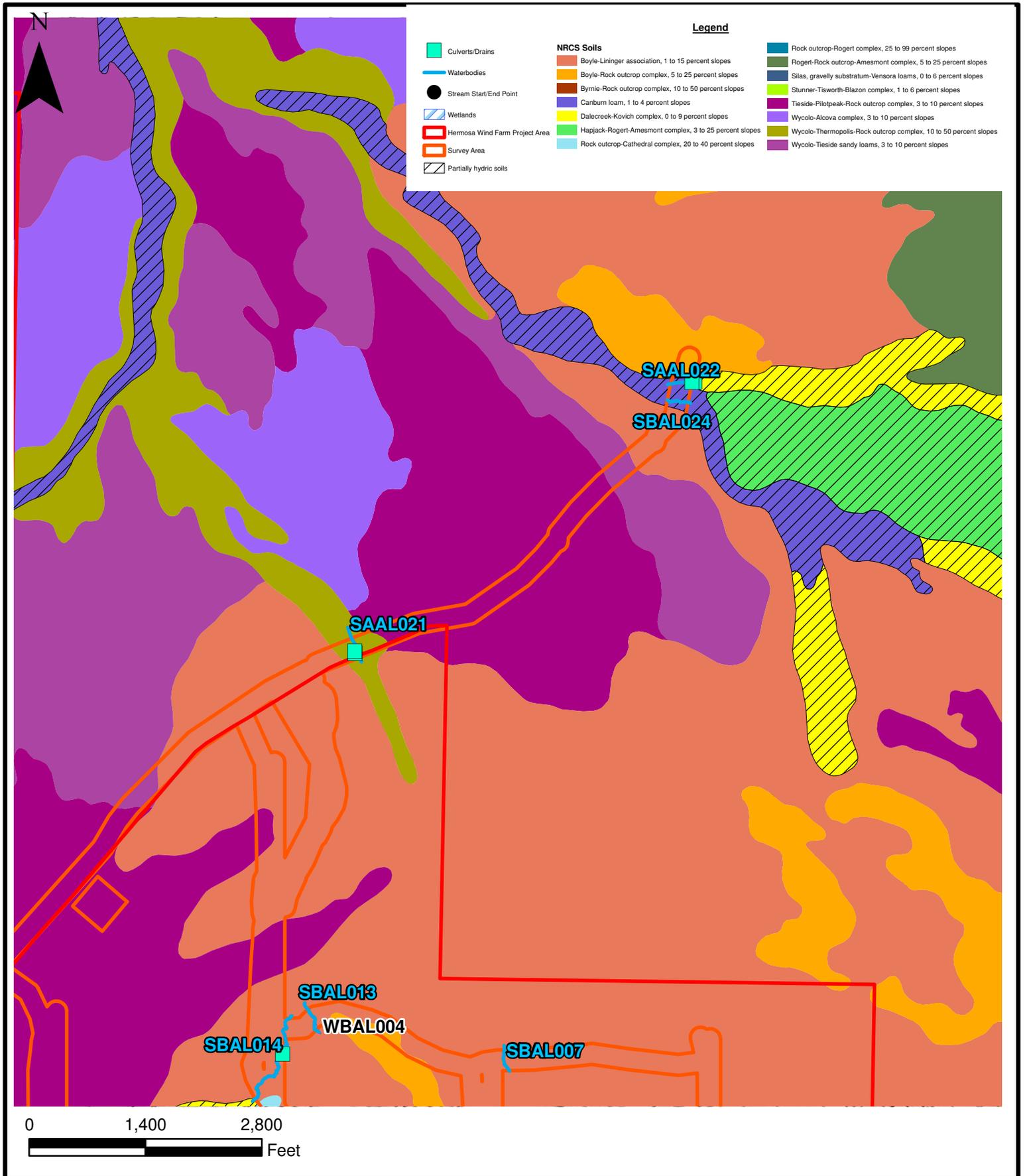


Environmental Resources Management

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FIGURE 3-2b
SOILS MAP
Shell WindEnergy
Hermosa Wind Farm Project
Albany County, Wyoming



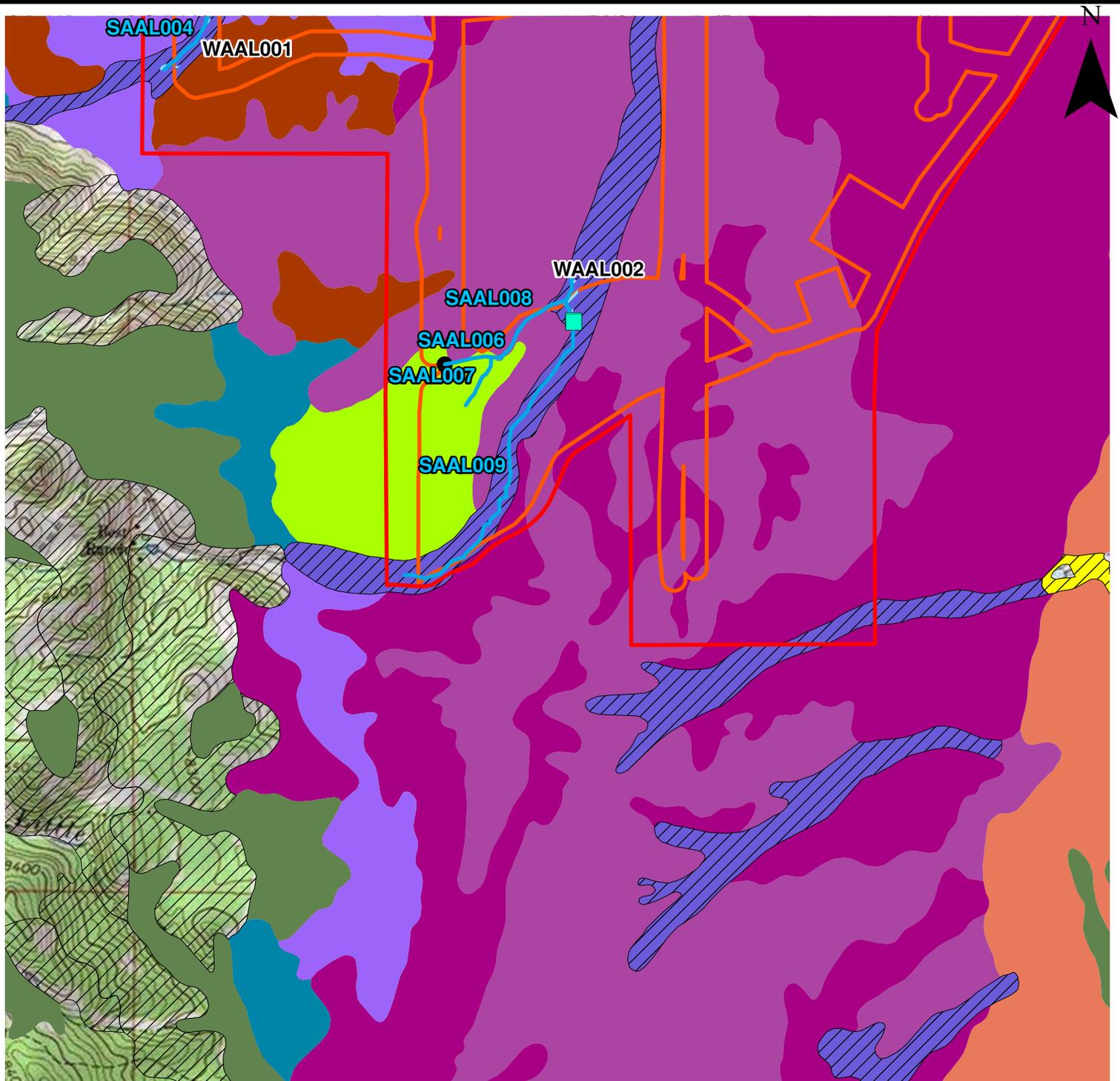


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FIGURE 3-2c
SOILS MAP
Shell WindEnergy
Hermosa Wind Farm Project
Albany County, Wyoming





Legend

Culverts/Drains	NRCS Soils	Rock outcrop-Rogert complex, 25 to 99 percent slopes
Waterbodies	Boyle-Lininger association, 1 to 15 percent slopes	Rogert-Rock outcrop-Amesmont complex, 5 to 25 percent slopes
Stream Start/End Point	Boyle-Rock outcrop complex, 5 to 25 percent slopes	Silas, gravelly substratum-Vensora loams, 0 to 6 percent slopes
Wetlands	Byrne-Rock outcrop complex, 10 to 50 percent slopes	Stunner-Tisworth-Blazon complex, 1 to 6 percent slopes
Hermosa Wind Farm Project Area	Carburn loam, 1 to 4 percent slopes	Tieside-Pilotpeak-Rock outcrop complex, 3 to 10 percent slopes
Survey Area	Dalecreek-Kovich complex, 0 to 9 percent slopes	Wycolo-Alcova complex, 3 to 10 percent slopes
Partially hydric soils	Hapjack-Rogert-Amesmont complex, 3 to 25 percent slopes	Wycolo-Thermopolis-Rock outcrop complex, 10 to 50 percent slopes
	Rock outcrop-Cathedral complex, 20 to 40 percent slopes	Wycolo-Tieside sandy loams, 3 to 10 percent slopes

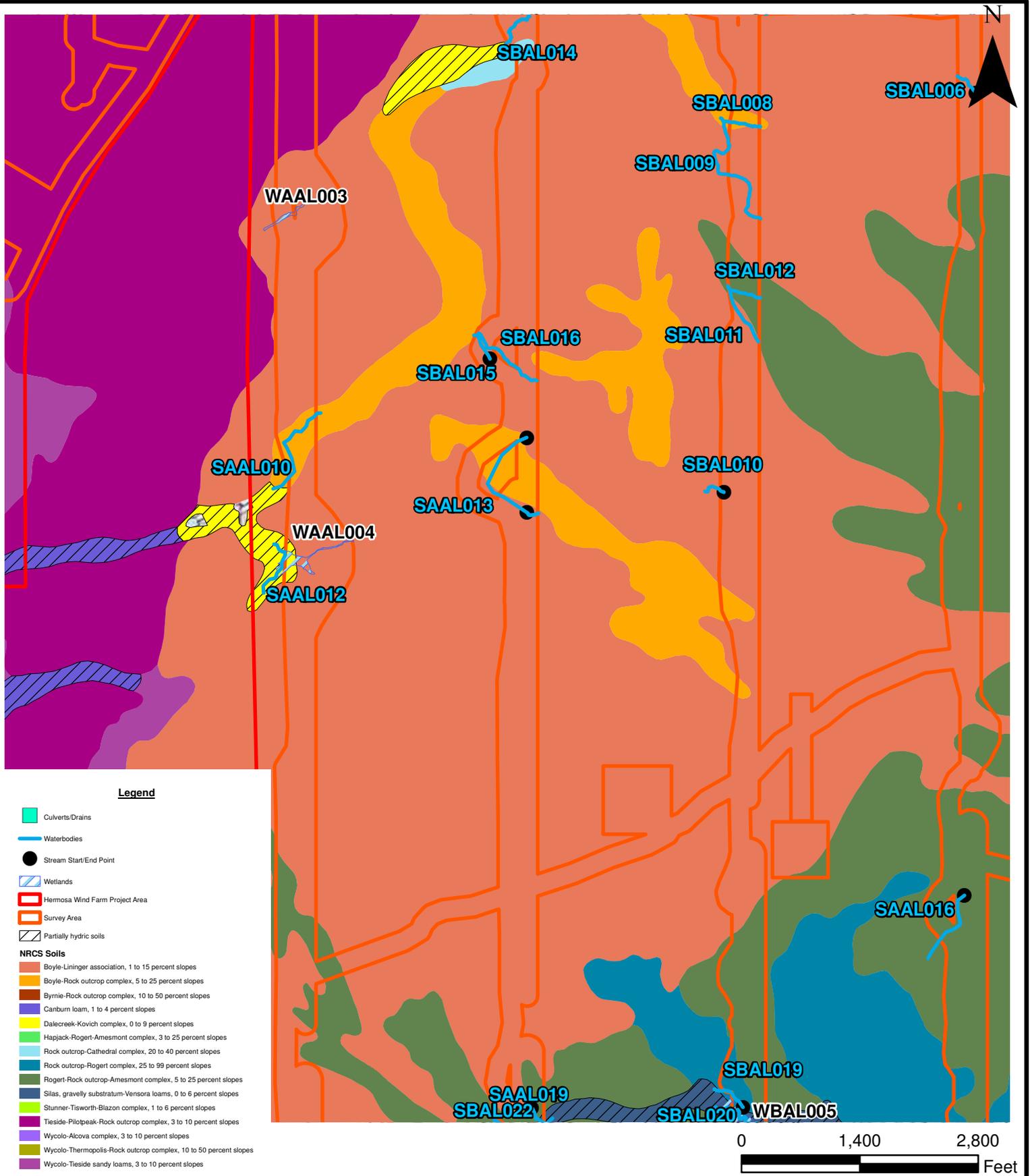


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FIGURE 3-2d
SOILS MAP
Shell WindEnergy
Hermosa Wind Farm Project
Albany County, Wyoming





Legend

-  Culverts/Drains
 -  Waterbodies
 -  Stream Start/End Point
 -  Wetlands
 -  Hermosa Wind Farm Project Area
 -  Survey Area
 -  Partially hydric soils
- NRCS Soils**
-  Boyle-Linger association, 1 to 15 percent slopes
 -  Boyle-Rock outcrop complex, 5 to 25 percent slopes
 -  Byrnie-Rock outcrop complex, 10 to 50 percent slopes
 -  Canburn loam, 1 to 4 percent slopes
 -  Dalcreek-Kovich complex, 0 to 9 percent slopes
 -  Hajjack-Rogert-Amesmont complex, 3 to 25 percent slopes
 -  Rock outcrop-Cathedral complex, 20 to 40 percent slopes
 -  Rock outcrop-Rogert complex, 25 to 99 percent slopes
 -  Rogert-Rock outcrop-Amesmont complex, 5 to 25 percent slopes
 -  Silas, gravelly substratum-Vensora loams, 0 to 6 percent slopes
 -  Stunner-Tisworth-Blazon complex, 1 to 6 percent slopes
 -  Tieside-Pilotpeak-Rock outcrop complex, 3 to 10 percent slopes
 -  Wycolo-Alcova complex, 3 to 10 percent slopes
 -  Wycolo-Thermopolis-Rock outcrop complex, 10 to 50 percent slopes
 -  Wycolo-Tieside sandy loams, 3 to 10 percent slopes

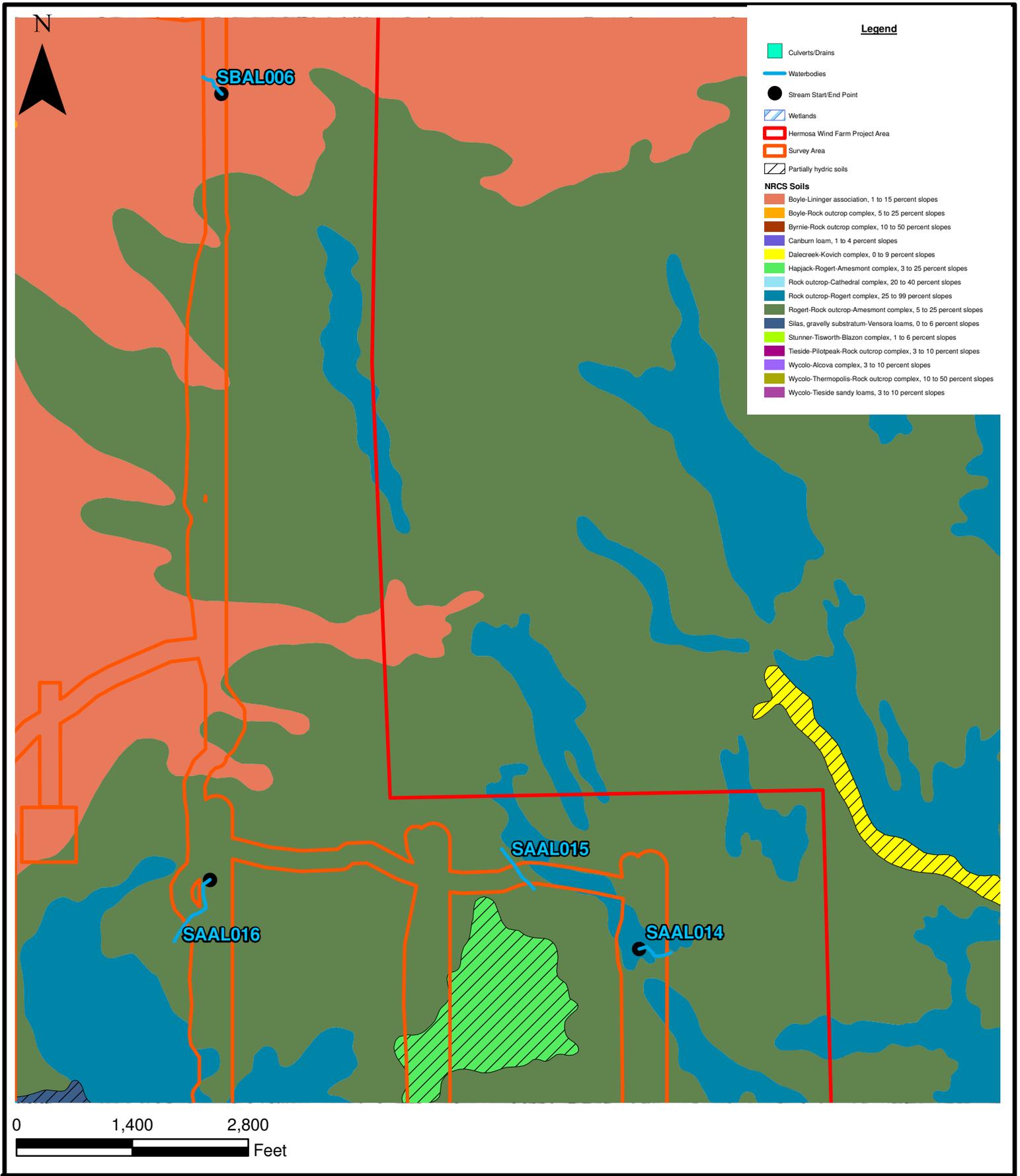


Environmental Resources Management

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FIGURE 3-2e
SOILS MAP
Shell WindEnergy
Hermosa Wind Farm Project
Albany County, Wyoming





Legend

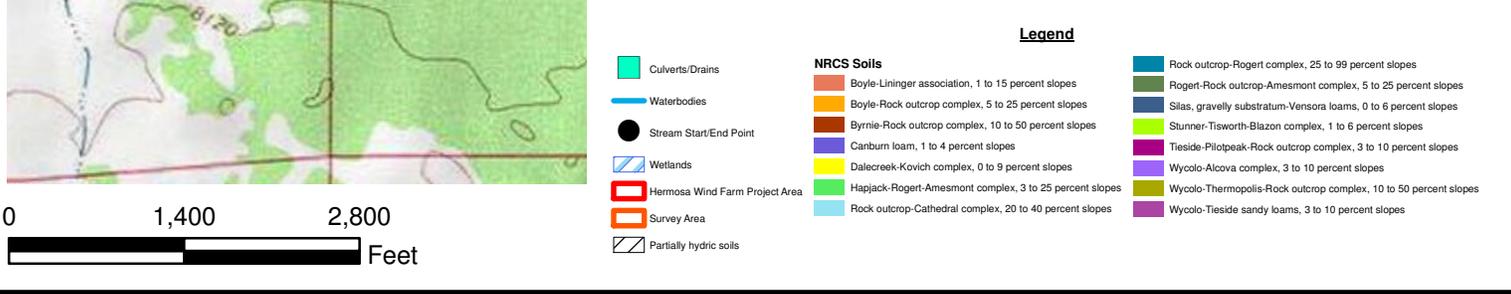
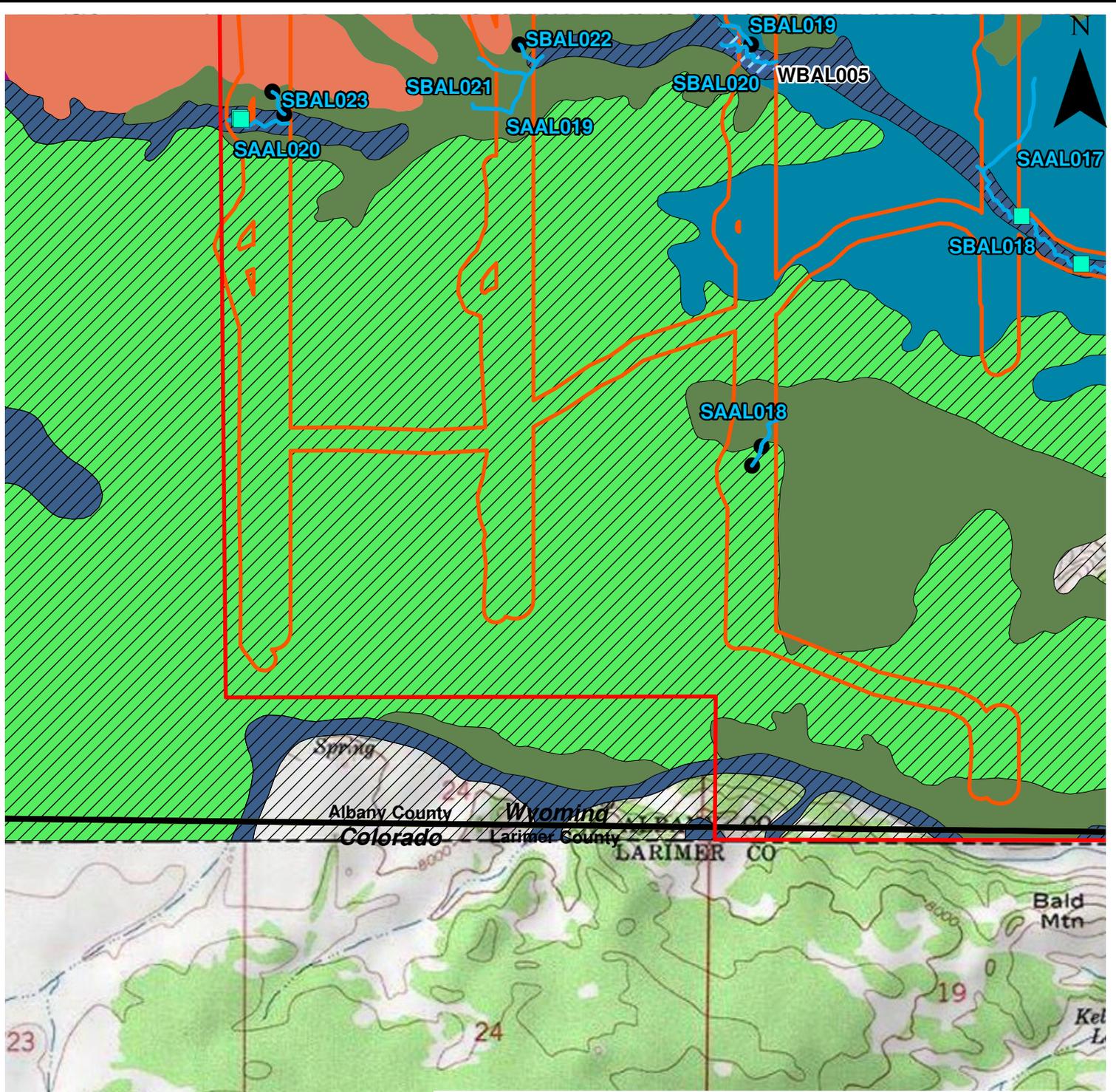
- Culverts/Drains
 - Waterbodies
 - Stream Start/End Point
 - Wetlands
 - Hermosa Wind Farm Project Area
 - Survey Area
 - Partially hydric soils
- NRCS Soils**
- Boyle-Lininger association, 1 to 15 percent slopes
 - Boyle-Rock outcrop complex, 5 to 25 percent slopes
 - Byrrie-Rock outcrop complex, 10 to 50 percent slopes
 - Canburn loam, 1 to 4 percent slopes
 - Dalecreek-Kovich complex, 0 to 9 percent slopes
 - Hapjack-Rogert-Amesmont complex, 3 to 25 percent slopes
 - Rock outcrop-Cathedral complex, 20 to 40 percent slopes
 - Rock outcrop-Rogert complex, 25 to 99 percent slopes
 - Rogert-Rock outcrop-Amesmont complex, 5 to 25 percent slopes
 - Silas, gravelly substratum-Vensora loams, 0 to 6 percent slopes
 - Stunner-Tisworth-Blazon complex, 1 to 6 percent slopes
 - Tieside-Pilotpeak-Rock outcrop complex, 3 to 10 percent slopes
 - Wycolo-Alcova complex, 3 to 10 percent slopes
 - Wycolo-Thermopolis-Rock outcrop complex, 10 to 50 percent slopes
 - Wycolo-Tieside sandy loams, 3 to 10 percent slopes

Environmental Resources Management

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FIGURE 3-2f
SOILS MAP
Shell WindEnergy
Hermosa Wind Farm Project
Albany County, Wyoming





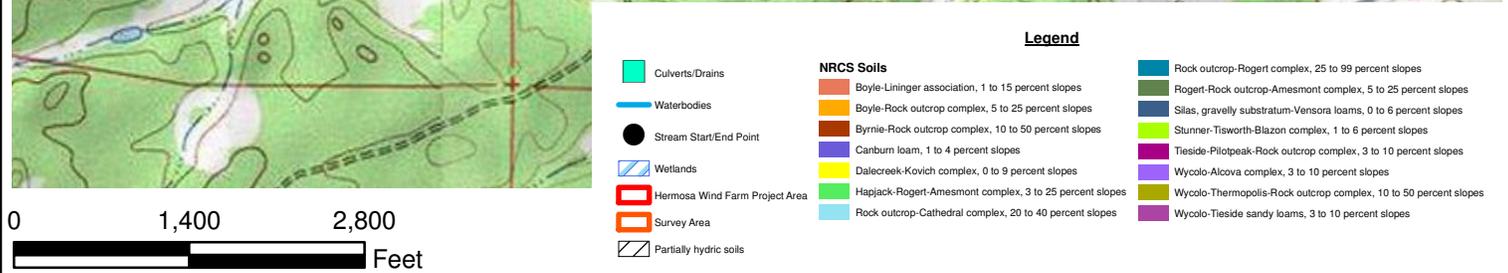
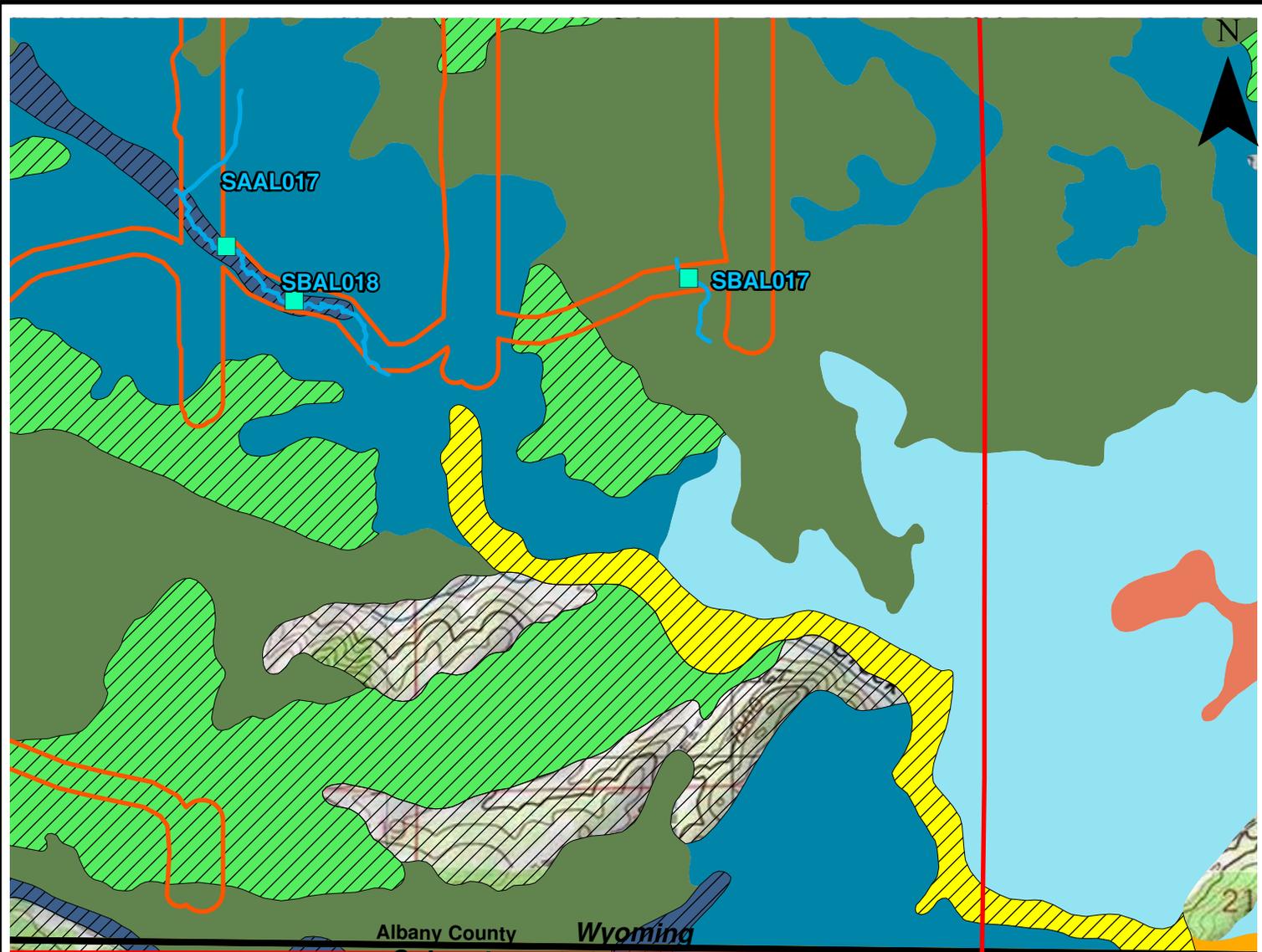
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Culverts/Drains	NRCS Soils	Rock outcrop-Rogert complex, 25 to 99 percent slopes
Waterbodies	Boyle-Lininger association, 1 to 15 percent slopes	Rogert-Rock outcrop-Amesmont complex, 5 to 25 percent slopes
Stream Start/End Point	Boyle-Rock outcrop complex, 5 to 25 percent slopes	Silas, gravelly substratum-Vensora loams, 0 to 6 percent slopes
Wetlands	Byrnie-Rock outcrop complex, 10 to 50 percent slopes	Stunner-Tisworth-Blazon complex, 1 to 6 percent slopes
Hermosa Wind Farm Project Area	Canburn loam, 1 to 4 percent slopes	Tieside-Pilotpeak-Rock outcrop complex, 3 to 10 percent slopes
Survey Area	Dalecreek-Kovich complex, 0 to 9 percent slopes	Wycolo-Alcova complex, 3 to 10 percent slopes
Partially hydric soils	Hapjack-Rogert-Amesmont complex, 3 to 25 percent slopes	Wycolo-Thermopolis-Rock outcrop complex, 10 to 50 percent slopes
	Rock outcrop-Cathedral complex, 20 to 40 percent slopes	Wycolo-Tieside sandy loams, 3 to 10 percent slopes

Environmental Resources Management		
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FIGURE 3-2g
SOILS MAP
 Shell WindEnergy
 Hermosa Wind Farm Project
 Albany County, Wyoming



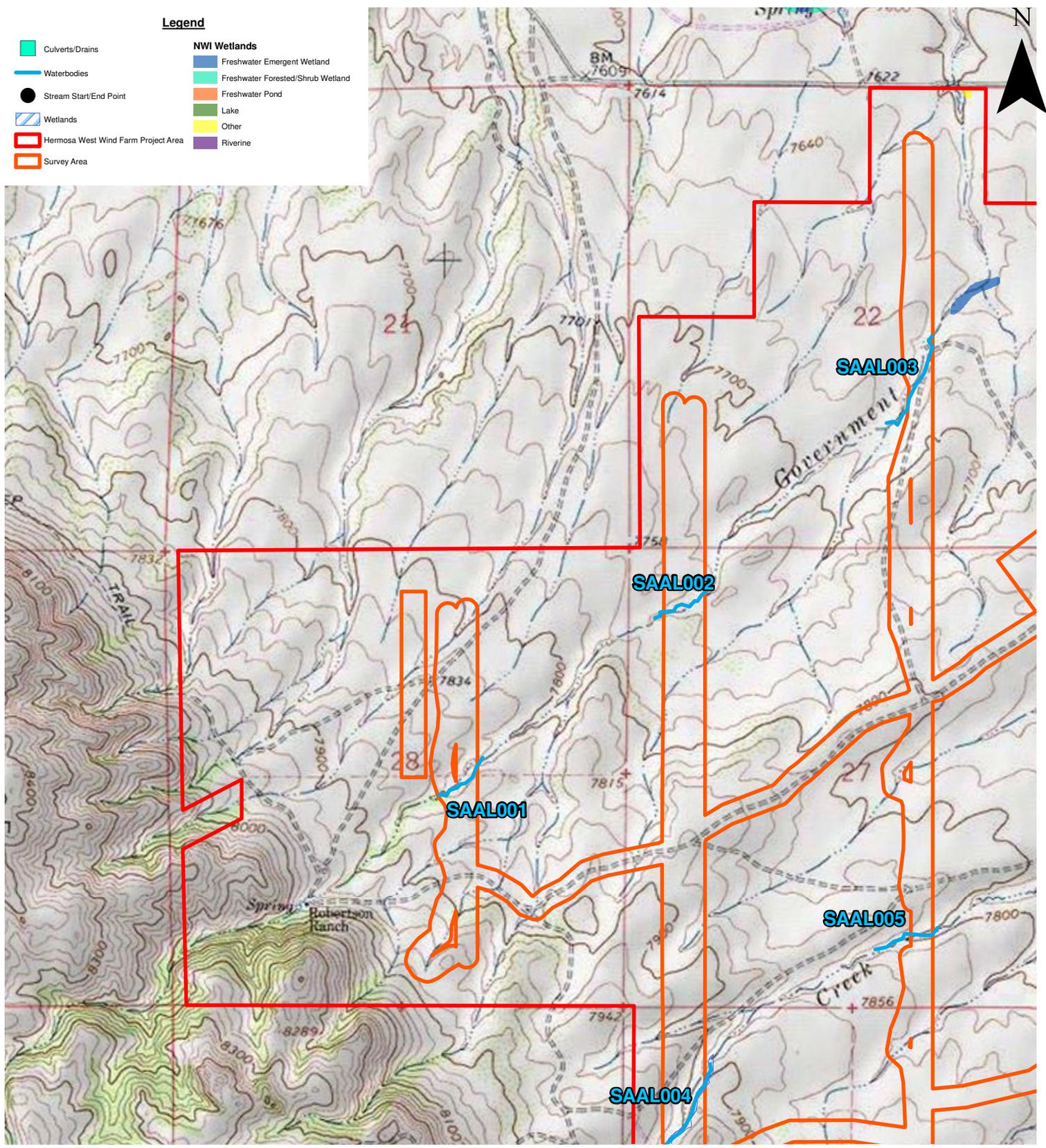


Environmental Resources Management

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FIGURE 3-2h
SOILS MAP
Shell WindEnergy
Hermosa Wind Farm Project
Albany County, Wyoming



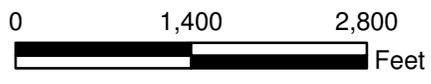
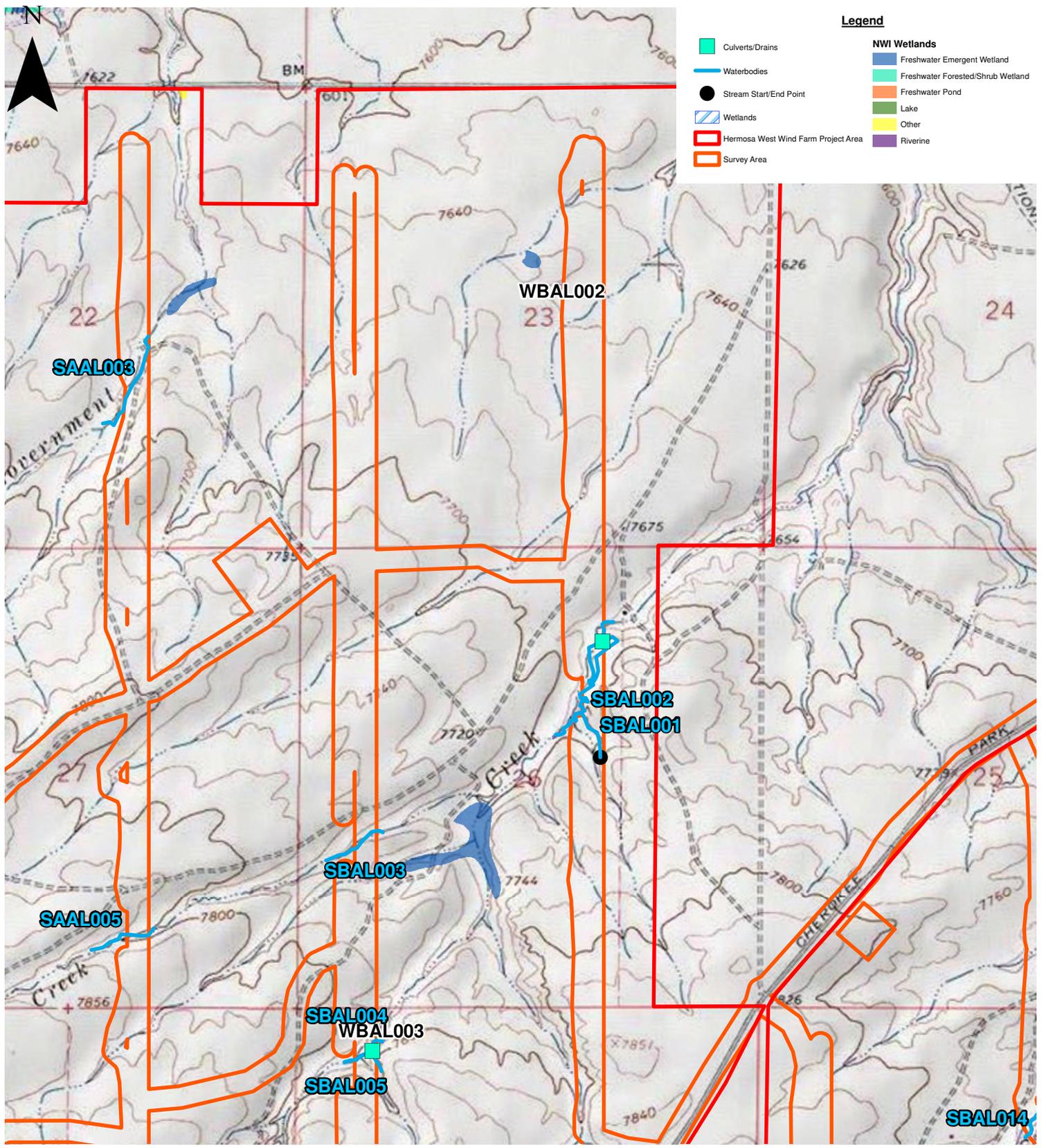


Environmental Resources Management

FIGURE 3-3a
 TOPOGRAPHIC MAP WITH NWI WETLANDS
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



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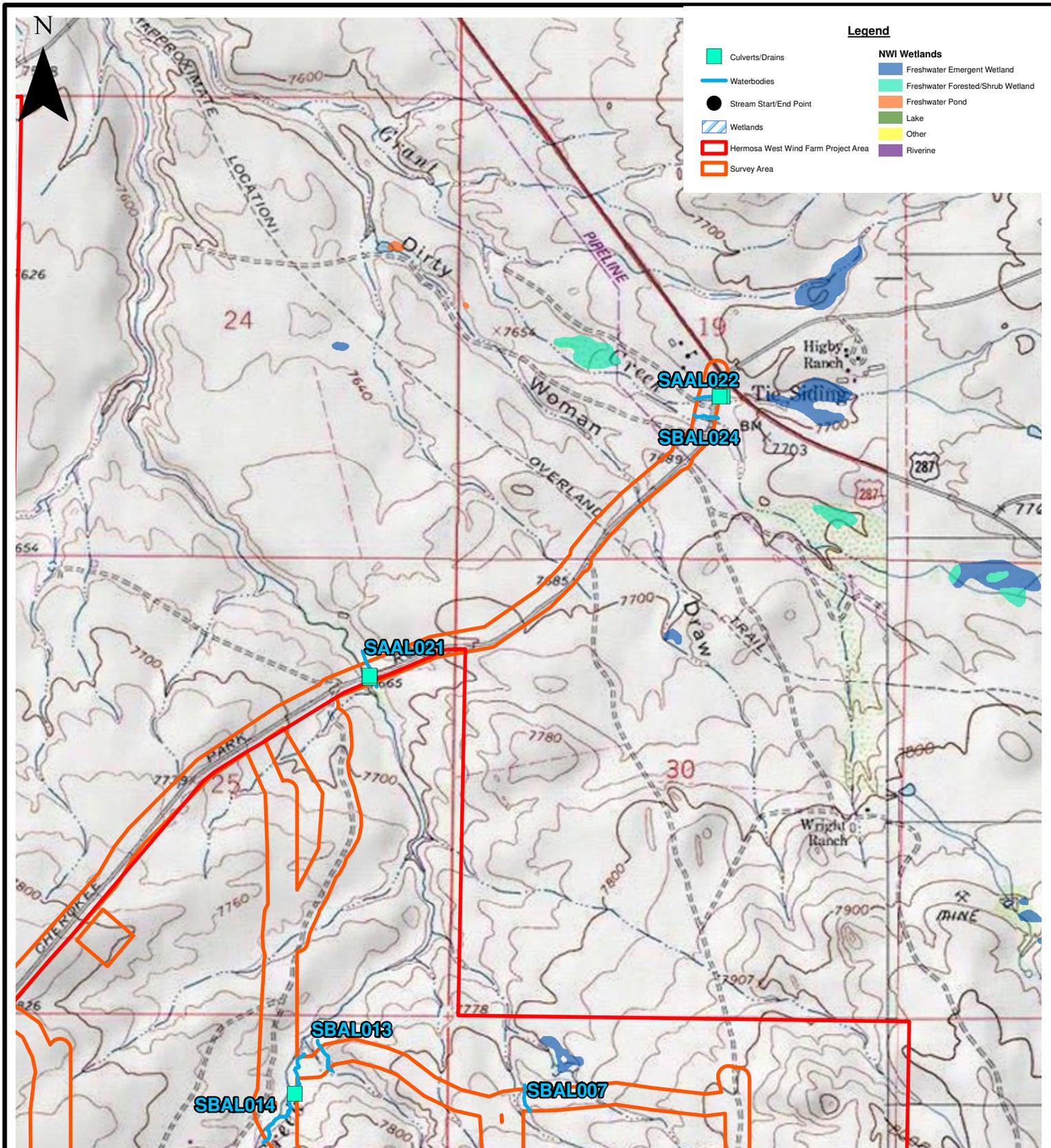


Environmental Resources Management

FIGURE 3-3b
 TOPOGRAPHIC MAP WITH NWI WETLANDS
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



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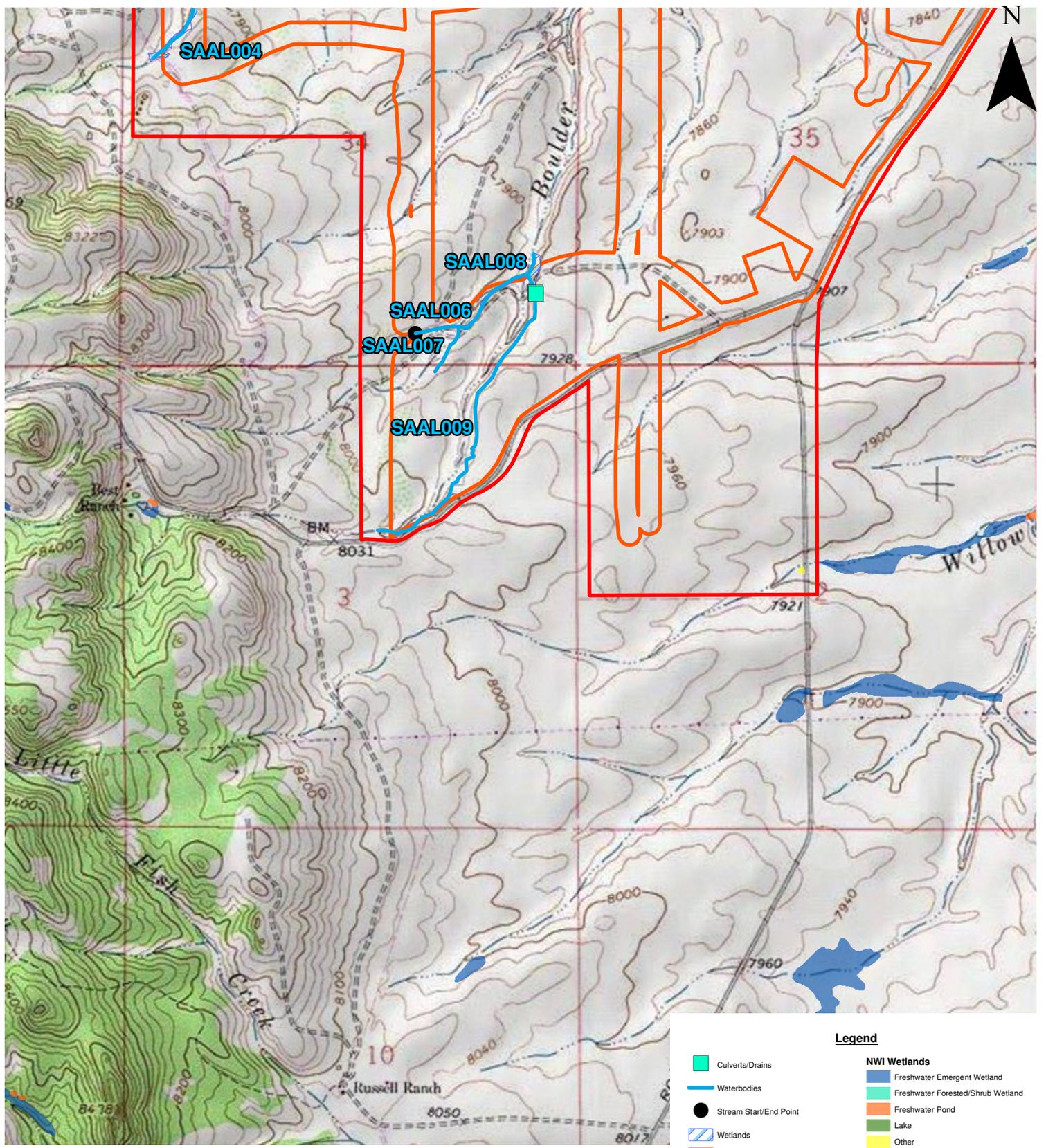
Environmental Resources Management

FIGURE 3-3c
TOPOGRAPHIC MAP WITH NWI WETLANDS
Shell WindEnergy
Hermosa West Wind Farm Project
Albany County, Wyoming



ERM

DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 10/02/2009	SCALE: AS SHOWN	REVISION: 0
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Legend

- Culverts/Drains
 - Waterbodies
 - Stream Start/End Point
 - Wetlands
 - Hermosa West Wind Farm Project Area
 - Survey Area
-
- NWI Wetlands**
- Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Other
 - Riverine

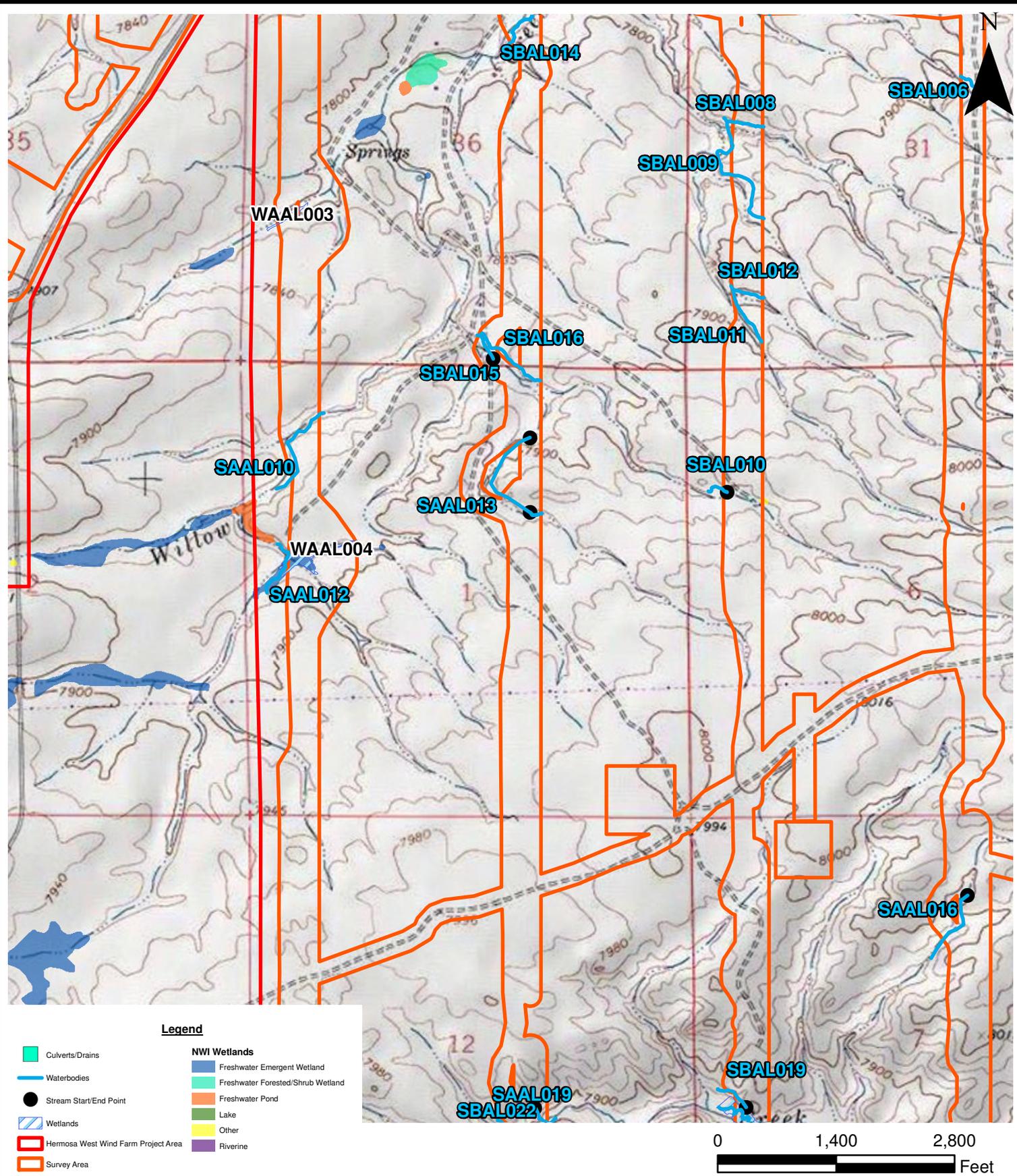
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Environmental Resources Management

DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 10/02/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\topo.mxd		

FIGURE 3-3d
 TOPOGRAPHIC MAP WITH NWI WETLANDS
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming





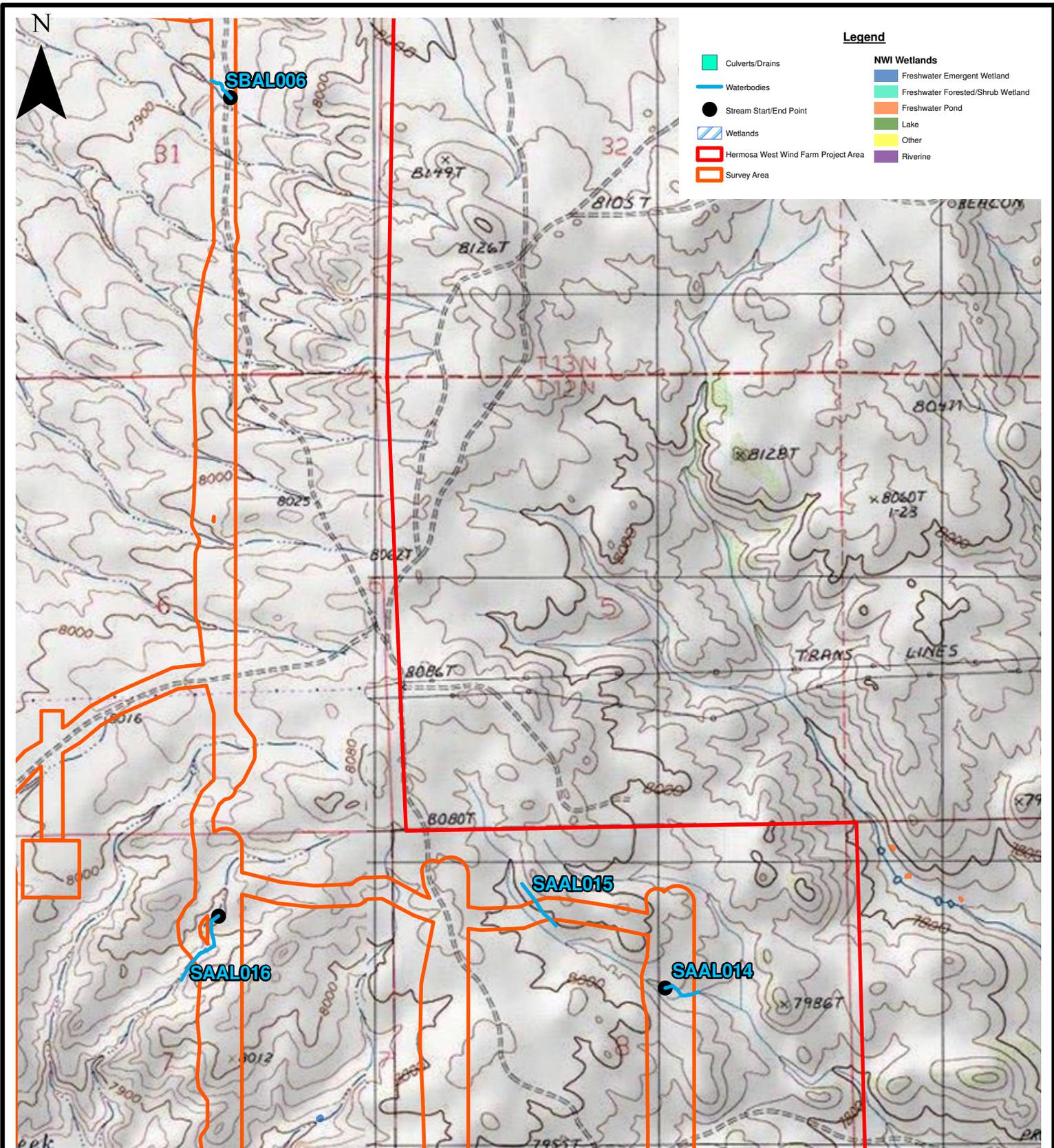
Environmental Resources Management

FIGURE 3-3e
 TOPOGRAPHIC MAP WITH NWI WETLANDS
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 10/02/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\topo.mxd		

ERM



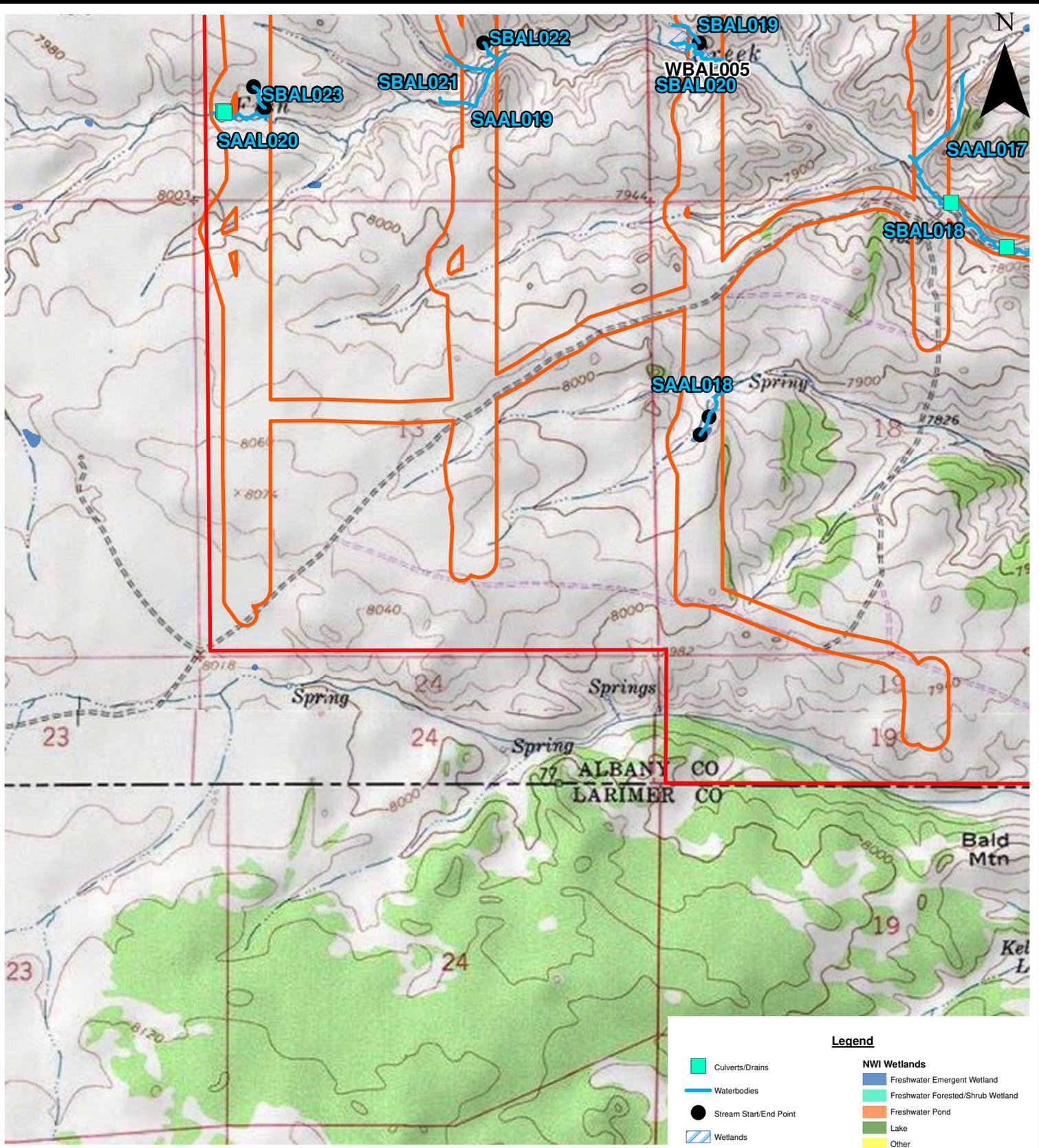
0 1,400 2,800
 Feet

Environmental Resources Management

DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 10/02/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\topo.mxd		

FIGURE 3-3f
 TOPOGRAPHIC MAP WITH NWI WETLANDS
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



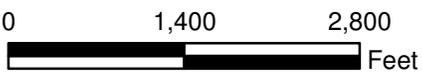
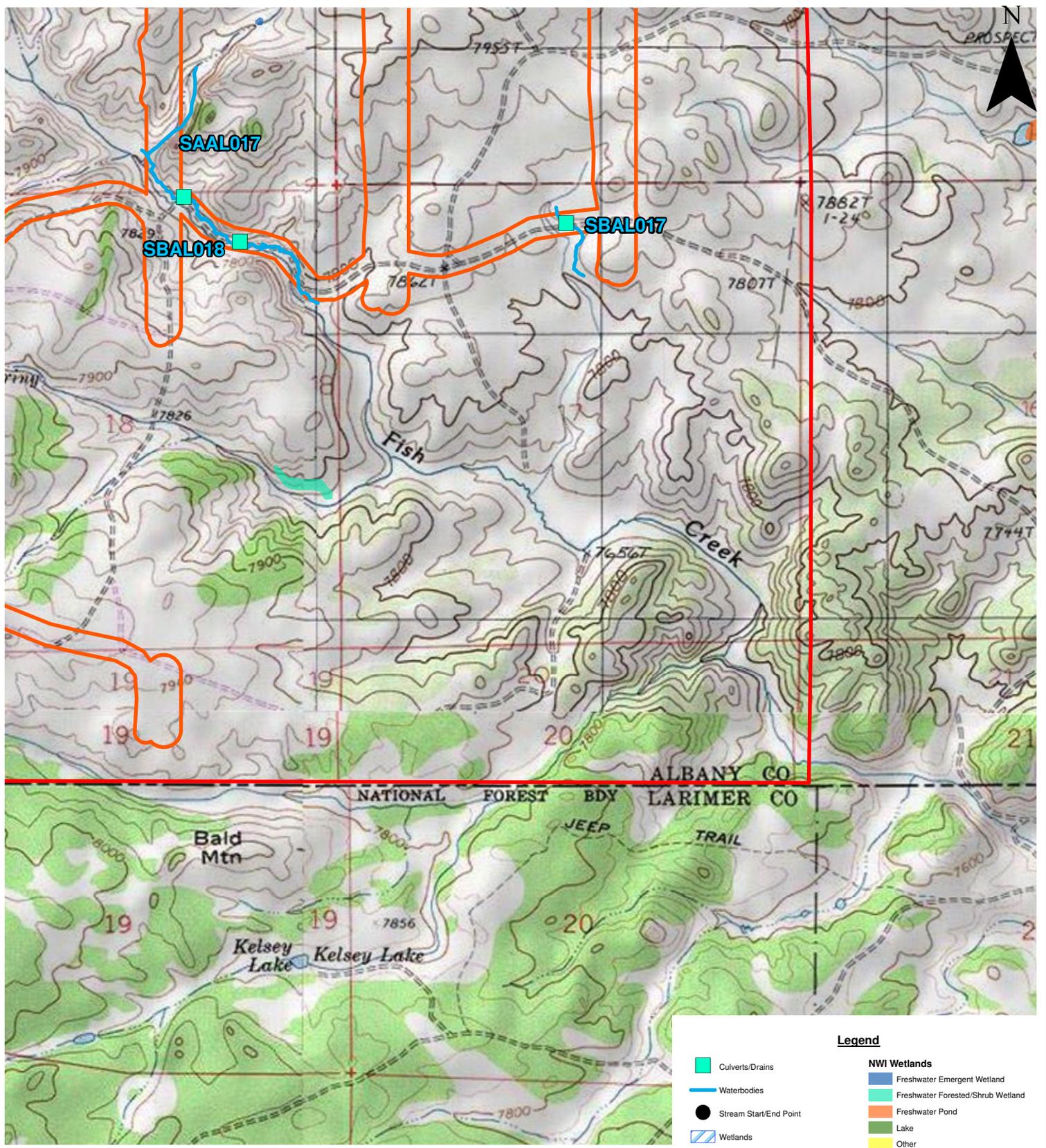


Environmental Resources Management

FIGURE 3-3g
 TOPOGRAPHIC MAP WITH NWI WETLANDS
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 10/02/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\topo.mxd		



- Legend**
- Culverts/Drains
 - Waterbodies
 - Stream Start/End Point
 - Wetlands
 - Hermosa West Wind Farm Project Area
 - Survey Area
- NWI Wetlands**
- Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Other
 - Riverine

Environmental Resources Management

FIGURE 3-3h
 TOPOGRAPHIC MAP WITH NWI WETLANDS
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 10/02/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\topo.mxd		

ERM

**Regional Supplemental USACE Wetlands Determination Data
Forms, Waterbody Data Sheets, and Transect Map**
Appendix A

January 11, 2010
Project No. 0105023

Environmental Resources Management Southwest Inc.
15810 Park Ten Place, Suite 300
Houston, Texas 77084-5140
(281) 600-1000

SOIL

Sampling Point: WAAAL001

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	100					Muck	Set to surf & ponded

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :	
<input checked="" type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input checked="" type="checkbox"/> 1 cm Muck (A9) (LRR C)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input checked="" type="checkbox"/> 2 cm Muck (A10) (LRR B)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)	
<input checked="" type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Vernal Pools (F9)		

³Indicators 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: Set to surface & ponded

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations:

Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>0"</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>0"</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>0"</u>

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: HERMOSA City/County: ALBANY Sampling Date: 8-25-09
 Applicant/Owner: SHELL WIND ENERGY State: WY Sampling Point: WAAL001U
 Investigator(s): CLARK; ZEISLOFT Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): CONVEX Slope (%): 1-2%
 Subregion (LRR): LRRD Lat: 41.05 Long: -105.57 Datum: _____
 Soil Map Unit Name: Canburn loam 1-4% slopes 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? NO Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____	_____	_____	_____	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 = _____
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>100 SF</u>)				
1. <u>Solidago canadensis</u>	<u>25</u>	<u>YES</u>	<u>FACU</u>	
2. <u>Phleum pratense</u>	<u>30</u>	<u>YES</u>	<u>FACU</u>	
3. <u>Phalaris diandra</u>	<u>10</u>	<u>NO</u>		
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>65</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: WAAD01U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 5/2	100					loam	

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

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

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 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)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators 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:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): NA
 Water Table Present? Yes _____ No Depth (inches): >12"
 Saturation Present? Yes _____ No Depth (inches): >12"
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: HERMOSA City/County: ALBANY Sampling Date: 8-26-09
 Applicant/Owner: SHELL WIND ENERGY State: NY Sampling Point: WAAL002
 Investigator(s): CLARK; ZEISCOFT Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 3%
 Subregion (LRR): LRR D Lat: 41.04774 Long: -105.56 Datum: _____
 Soil Map Unit Name: Cambium loam 1-4% slopes 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? NO Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
				= Total Cover
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				= Total Cover
Herb Stratum (Plot size: <u>100SF</u>)				
1. <u>Agrostis stolonifera</u>	<u>25</u>	<u>YES</u>	<u>FACW</u>	
2. <u>Elytrichia sp</u>	<u>5</u>	<u>YES</u>	<u>OBL</u>	
3. <u>Amaranthus tuberculatus</u>	<u>1</u>	<u>NO</u>	<u>FACW+</u>	
4. <u>Phalaris arundinacea</u>	<u>1</u>	<u>NO</u>	<u>NI</u>	
5. <u>Cyperus esculentus</u>	<u>15</u>	<u>YES</u>	<u>FACW</u>	
6. <u>Phleum pratense</u>	<u>5</u>	<u>YES</u>	<u>FACW</u>	
7. <u>Aristida oligantha</u>	<u>2</u>	<u>NO</u>	<u>NI</u>	
8. _____	_____	_____	_____	
				<u>54</u> = Total Cover
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
				= Total Cover
% Bare Ground in Herb Stratum _____	% Cover of Biotic Crust _____			
Remarks:				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
 Total Number of Dominant Species Across All Strata: 4 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (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:
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No _____

SOIL

Sampling Point: WAAL002

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	7.5YR3/2	100					F sandy loam	

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

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

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 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)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators 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: some redox (FAWT) @ 12"

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3) 12"
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): 12"
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Heymosa City/County: Albany Sampling Date: WAAL002U
 Applicant/Owner: Shell Wind Energy State: WY Sampling Point: 8-26-09
 Investigator(s): CLARK; ZEISLOFT Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Hill slope Local relief (concave, convex, none): convex Slope (%): 30%
 Subregion (LRR): LRR D Lat: 41.04774 Long: -105.56 Datum: _____
 Soil Map Unit Name: Conburn loam 21-4% slopes 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? NO Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (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 <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
= Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>100 SF</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Rudbeckia hirta</u>	<u>25</u>	<u>YES</u>	<u>FACU</u>	<input type="checkbox"/> Dominance Test is >50%
2. <u>Solidago canadensis</u>	<u>10</u>	<u>YES</u>	<u>FACU</u>	<input type="checkbox"/> Prevalence Index is ≤3.0 ¹
3. <u>Coleoium variegata</u>	<u>1</u>	<u>NO</u>	_____	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Circeum divaricatum</u>	<u>16</u>	<u>YES</u>	<u>FACU</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Salvia olivacea</u>	<u>1</u>	<u>NO</u>	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>53</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		
Remarks:				

SOIL

Sampling Point: WAAL0020

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	7.5YR 4/3	100					Sandy loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

Indicators for Problematic Hydric Soils³:

³Indicators 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:

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)

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 DETERMINATION DATA FORM – Arid West Region

Project/Site: HERMOSA City/County: ALBANY Sampling Date: 8-26-09
 Applicant/Owner: SHELL WIND ENERGY State: WY Sampling Point: WAAL003
 Investigator(s): CLARK; ZEISLOFT Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): TERRACE Local relief (concave, convex, none): NONE Slope (%): 2
 Subregion (LRR): LRD Lat: 41.05012 Long: -105.536 Datum: _____
 Soil Map Unit Name: Camburn loam 1-4% slopes 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? No (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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>site severely grazed & compacted; altered by livestock hummocky look from hooves All vegetation is dropped.</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	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 = _____
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>100 SF</u>)				
1. <u>Cyperus esculatus</u>	<u>50</u>	<u>YES</u>	<u>FACW</u>	
2. <u>Juncus balticus</u>	<u>20</u>	<u>YES</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>70</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		

Remarks: _____

SOIL

Sampling Point: WAAK003

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					silt loam	
4-16	10YR 3/2	80	7.5YR 6/8	20	D	M	silty clay loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

³Indicators 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: Redox concentrations on ped faces 4-16"

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine)
	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
	<input checked="" type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)

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): most @ 16"

Wetland Hydrology Present? Yes No

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

Remarks: No saturation on day of visit, but site obviously ponds; large deep hoof prints sunk below surface

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: HERMOSA City/County: ALBANY Sampling Date: 8-26-09
 Applicant/Owner: SHELL WIND ENERGY State: WY Sampling Point: WAAL0030
 Investigator(s): CLARK; ZELSLOFT Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 15%
 Subregion (LRR): LLRD Lat: 41.05012 Long: -105.536 Datum: _____
 Soil Map Unit Name: Conburn loam 1-4% slopes 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? NO Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (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 <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
_____ = Total Cover				Column Totals: _____ (A) _____ (B)
_____ = Total Cover				Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>100 SP</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>unidentified pea</u>	_____	_____	_____	___ Dominance Test is >50%
2. <u>Ambrosia artemisiifolia</u>	<u>20</u>	<u>YES</u>	<u>FACU</u>	___ Prevalence Index is ≤3.0 ¹
3. <u>Cirsium arvense</u>	<u>5</u>	<u>YES</u>	<u>FACU</u>	___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>25</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		

Remarks: more mounds - indicative of low water table

SOIL

Sampling Point: WAAL003U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	7.5YR 3/3	100					gravelly loam	
3-12	7.5YR 3/3	100					loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			

³Indicators 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:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: HERMOSA City/County: ALBANY Sampling Date: 8-26-09
 Applicant/Owner: SHELL WIND ENERGY State: WY Sampling Point: WAAL004
 Investigator(s): CLARK; ZELSLOTT Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): TERRACE Local relief (concave, convex, none): NONE Slope (%): 2%
 Subregion (LRR): LLR D Lat: 41.03891 Long: -105.536 Datum: _____
 Soil Map Unit Name: _____ 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? NO Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (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 <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____	
Remarks: _____			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)																
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)																
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)																
4. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = _____</td> </tr> </table>		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 = _____	
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 = _____																					
= Total Cover																					
Sapling/Shrub Stratum (Plot size: _____)																					
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																	
2. _____	_____	_____	_____																		
3. _____	_____	_____	_____																		
4. _____	_____	_____	_____																		
5. _____	_____	_____	_____																		
= Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																	
Herb Stratum (Plot size: <u>100 SD</u>)																					
1. <u>Cyperus esculatus</u>	<u>15</u>	<u>YES</u>	<u>OBL</u>	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____																	
2. <u>Eleocharis sp</u>	<u>5</u>	<u>YES</u>	<u>OBL</u>																		
3. _____	_____	_____	_____	Remarks: _____ _____ _____																	
4. _____	_____	_____	_____																		
5. _____	_____	_____	_____																		
6. _____	_____	_____	_____																		
7. _____	_____	_____	_____																		
<u>20</u> = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____																	
Woody Vine Stratum (Plot size: _____)																					
1. _____	_____	_____	_____	Remarks: _____ _____																	
2. _____	_____	_____	_____																		
= Total Cover				Remarks: _____ _____																	
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____																					

SOIL

Sampling Point: WAAL 004

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 3/1	100					mud	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input checked="" type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input checked="" type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> 1 cm Muck (A9) (LRR D)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Vernal Pools (F9)	

³Indicators 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:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine)
	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
	<input checked="" type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No _____ Depth (inches): 0-2^u

Water Table Present? Yes No _____ Depth (inches): 0^u

Saturation Present? Yes No _____ Depth (inches): 0^a

Wetland Hydrology Present? Yes No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: HERMOSA City/County: ALBANY Sampling Date: 8-26-09
 Applicant/Owner: SHELL WIND ENERGY State: WY Sampling Point: WAAL0040
 Investigator(s): CLARK, ZELSOFT Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): CONVEX Slope (%): 20
 Subregion (LRR): LLRD Lat: 41.03891 Long: -105.536 Datum: _____
 Soil Map Unit Name: Coburn loam 1-4% slopes 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? NO Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (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 <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	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 = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>100x5</u>)				
1. <u>Solidago canadensis</u>	<u>2</u>	<u>NO</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Stachys pasubis ssp pilosa</u>	<u>2</u>	<u>NO</u>	<u>FAC</u>	
3. <u>Andropogon gerardii</u>	<u>80</u>	<u>YES</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>84</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		
Remarks:				

SOIL

Sampling Point: WAAC 0040

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	7.5YR3/4						loam	

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

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5) (LRR C)</p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR D)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR C)</p> <p><input type="checkbox"/> 2 cm Muck (A10) (LRR B)</p> <p><input type="checkbox"/> Reduced Vertic (F18)</p> <p><input type="checkbox"/> Red Parent Material (TF2)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
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³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p>Restrictive Layer (if present):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/></p>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

<p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1) (Nonriverine)</p> <p><input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)</p> <p><input type="checkbox"/> Drift Deposits (B3) (Nonriverine)</p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p><input type="checkbox"/> Salt Crust (B11)</p> <p><input type="checkbox"/> Biotic Crust (B12)</p> <p><input type="checkbox"/> Aquatic Invertebrates (B13)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
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<p>Field Observations:</p> <p>Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hermosa 0105023 City/County: Albany Co. Sampling Date: 8/25/09
 Applicant/Owner: Shell Wind Energy State: WY Sampling Point: WBAL001
 Investigator(s): Erin Johnson, Amanda Zuniga Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR): LRRD Lat: 41.0687 Long: -105.5458 Datum: _____
 Soil Map Unit Name: Carbun loam 1-4% NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N, Soil N, or Hydrology N 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 <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____	
Remarks: <u>Associated with stream features SBAL001 and SBAL002</u>			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>NA</u>				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>67%</u> (A/B)
4. _____					
<u>0</u> = Total Cover					
Shrub/Strawberry Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:	
1. <u>Salix bebbiana</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	Total % Cover of:	Multiply by:
2. _____				OBL species _____ x 1 = _____	
3. _____				FACW species _____ x 2 = _____	
4. _____				FAC species _____ x 3 = _____	
5. _____				FACU species _____ x 4 = _____	
_____ = Total Cover				UPL species _____ x 5 = _____	
				Column Totals: _____ (A)	_____ (B)
				Prevalence Index = B/A = _____	
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:	
1. <u>Phleum pratense</u>	<u>35</u>	<u>Y</u>	<u>FACU</u>	___ Dominance Test is >50%	
2. <u>Agrostis stolonifera</u>	<u>35</u>	<u>Y</u>	<u>FAC+</u>	___ Prevalence Index is ≤3.0 ¹	
3. <u>Juncus sp.</u>	<u>5</u>		<u>FAC</u>	___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. <u>Cyperus esculentus</u>	<u>5</u>		<u>FACW</u>	___ Problematic Hydrophytic Vegetation ¹ (Explain)	
5. <u>Amaranthus rudis</u>	<u>5</u>		<u>FAC</u>		
6. _____					
7. _____					
8. _____					
<u>85</u> = Total Cover					
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?	
1. <u>NA</u>				Yes <input checked="" type="checkbox"/>	No _____
2. _____					
<u>0</u> = Total Cover					
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____			
Remarks:					

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hermosa 0105023 City/County: Albany Co. Sampling Date: 8/25/09
 Applicant/Owner: Shell Wind Energy State: WY Sampling Point: WBA L001U
 Investigator(s): Ean Johnson, Amanda Zung Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1
 Subregion (LRR): LRR D Lat: 41.0687 Long: -105.5458 Datum: _____
 Soil Map Unit Name: Carbon loam 1-4Y NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N, Soil N, or Hydrology N 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>NA</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>NA</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species <u>40</u> x 2 = <u>80</u>
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species <u>40</u> x 4 = <u>160</u>
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: <u>80</u> (A) <u>240</u> (B)
				Prevalence Index = B/A = <u>3</u>
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Phleum pratense</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	<input type="checkbox"/> Dominance Test is >50%
2. <u>Distichlis spicata</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹
3. _____				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
<u>80</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Footnote:
1. <u>NA</u>				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____		
Remarks:				

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hermosa 0105023 City/County: Albany Co Sampling Date: 8/25/09
 Applicant/Owner: Shell Wind Energy State: WY Sampling Point: WBA2002
 Investigator(s): Erin Johnson, Amanda Zunge Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): <1
 Subregion (LRR): LRR D Lat: 41.0824 Long: -105.5461 Datum: _____
 Soil Map Unit Name: Carbun loam 1-4% NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N (Soil Y), or Hydrology N 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? <u>problematic</u> Yes _____ No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Remarks: <u>likely non-jurisdictional</u> <u>vernal pool-like topography</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>NA</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				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 = _____
ϕ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. <u>NA</u>				
2. _____				
3. _____				
4. _____				
5. _____				
ϕ = Total Cover				
Herb Stratum (Plot size: _____)				
1. <u>Hordeum jubatum</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. <u>NA</u>				
2. _____				
ϕ = Total Cover				
% Bare Ground in Herb Stratum <u>60</u>		% Cover of Biotic Crust _____		
Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ 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 <input checked="" type="checkbox"/> No _____				

Remarks:

SOIL

Sampling Point: WRAL 402

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>6</u>	<u>5YR5/6</u>						<u>coarse sandy clay</u>	

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

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5) (LRR C)</p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR D)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p>	<p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> <p><input type="checkbox"/> Vernal Pools (F9)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR C)</p> <p><input type="checkbox"/> 2 cm Muck (A10) (LRR B)</p> <p><input type="checkbox"/> Reduced Vertic (F18)</p> <p><input checked="" type="checkbox"/> Red Parent Material (TF2)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> <p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
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Restrictive Layer (if present):

Type: hard surface

Depth (inches): 6 in

Hydric Soil Present? Yes No

Remarks: Red parent soil, saturated, and sustaining a significantly different type and pattern of vegetation. Difficult to dig below 6 in. Holds water. Vernal pool-like shape

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine)
	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input checked="" type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)

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): throughout

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hermosa 0105023 City/County: Albany Co Sampling Date: 8/25/09
 Applicant/Owner: Shell Wind Energy State: WY Sampling Point: WBA L002U
 Investigator(s): Erin Johnson, Amanda Zuniga Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): _____ Slope (%): CR
 Subregion (LRR): LRR D Lat: 41.0824 Long: -105.5761 Datum: _____
 Soil Map Unit Name: Carbun loam 1-47 NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N, Soil Y, or Hydrology N 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 <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: _____ (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>Unknown grass</u>	<u>80</u>	<u>Y</u>	_____	<input type="checkbox"/> Dominance Test is >50%
2. _____	_____	_____	_____	<input type="checkbox"/> Prevalence Index is ≤3.0 ¹
3. _____	_____	_____	_____	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>80</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>20</u> % Cover of Biotic Crust _____		Hydrophytic Vegetation Present? Yes _____ No _____		

Remarks: _____

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hermosa 0105023 City/County: Albany Co. Sampling Date: 8/25/09
 Applicant/Owner: Shell Wind Energy State: WY Sampling Point: WDAL003
 Investigator(s): Erin Johnson, Amanda Zuniga Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): LRR D Lat: 41.0585 Long: -105.5540 Datum: _____
 Soil Map Unit Name: Carbon loam 1-47 NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N, Soil N, or Hydrology N 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Associated with stream features SBAL004 and SBAL005</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>NA</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>NA</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Agrostis stolonifera</u>	<u>30</u>	<u>Y</u>	<u>FAC+</u>	<input type="checkbox"/> Dominance Test is >50%
2. <u>Phleum pratense</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>	<input type="checkbox"/> Prevalence Index is ≤3.0 ¹
3. <u>Juncus sp.</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Miscellaneous species</u>	<u><10% ea</u>			<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
<u>100</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. <u>NA</u>				Yes <input checked="" type="checkbox"/> No _____
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust _____				
Remarks:				

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hermosa 0105023 City/County: Albany Co. Sampling Date: 8/26/09
 Applicant/Owner: Shell Wind Energy State: WY Sampling Point: WBA L004
 Investigator(s): Erin Johnson, Amade Zuniga Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 4
 Subregion (LRR): LRR D Lat: 41.0585 Long: -105.5239 Datum: _____
 Soil Map Unit Name: Carbon loam 1-4 NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N, Soil N, or Hydrology N 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>NA</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
ϕ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Salix bebbiana</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
<u>10</u> = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Phalaris arundinacea</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Phleum pratense</u>	<u><5</u>	<u>N</u>	<u>FACU</u>	<input type="checkbox"/> Prevalence Index is $\leq 3.0^1$
3. <u>Juncus sp.</u>	<u><5</u>	<u>N</u>	<u>FAC</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
<u>90</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No _____
2. _____				
ϕ = Total Cover				
% Bare Ground in Herb Stratum <u>ϕ</u> % Cover of Biotic Crust _____				
Remarks:				

SOIL

Sampling Point: WBA4004

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
1	10YR 3/2		10YR 5/6	5			fine sandy loam	
6-12	7.5YR 3/2		7.5YR 4/6	10	D	M	fine sandy loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

Indicators for Problematic Hydric Soils³:

³Indicators 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:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine)
	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): 1 inch

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

Saturation Present? Yes No Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hermosa 0105023 City/County: Albany Co. Sampling Date: 8/26/09
 Applicant/Owner: Shell Wind Energy State: WY Sampling Point: WBA L0040
 Investigator(s): Erin Johnson, Amanda Zuniga Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): _____ Slope (%): 4
 Subregion (LRR): LRR D Lat: 41.0585 Long: -105.5239 Datum: _____
 Soil Map Unit Name: Cambium loam 1-4? NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N, Soil N, or Hydrology N 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>NA</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
<u>0</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>NA</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
<u>0</u> = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Phalaris arundinacea</u>	<u>95</u>	<u>Y</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Phleum pratense</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	<input type="checkbox"/> Prevalence Index is ≤3.0 ¹
3. _____				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Footnote:
1. <u>NA</u>				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____

Remarks: _____

SOIL

Sampling Point: WBAL 040

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
6	7.5 yr 2.5/1	100					Sandy, silty loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
--	--	--

³Indicators 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:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (2 or more required) <input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hermosa 0105023 City/County: Albany Co Sampling Date: 8/27/09
 Applicant/Owner: Shell Wind Energy State: WY Sampling Point: WBA2005
 Investigator(s): Erin Johnson, Amanda Zipse Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 15
 Subregion (LRR): LRR D Lat: 41.0210 Long: -105.5163 Datum: _____
 Soil Map Unit Name: Canon loam 1-4i NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N, Soil N, or Hydrology N 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>NA</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
4. _____				
∅ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Salix bebbiana</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
5 = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Phleum pratense</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Agrostis stolonifera</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	<input type="checkbox"/> Prevalence Index is ≤3.0 ¹
3. <u>Carex nabrescensis</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Deschampsia cespitosa</u>	<u>5</u>		<u>FACW</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>unidentified red plumed herb</u>	<u><2</u>			
6. <u>miscellaneous</u>	<u>~3</u>			
7. _____				
8. _____				
95 = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Footnote:
1. <u>NA</u>				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
∅ = Total Cover				
% Bare Ground in Herb Stratum <u>∅</u> % Cover of Biotic Crust _____				
Remarks:				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hermosa 0105023 City/County: Albany Co. Sampling Date: 8/27/09
 Applicant/Owner: Shell Wind Energy State: WY Sampling Point: WBAL0650
 Investigator(s): Erin Johnson, Amanda Zuniga Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): 10
 Subregion (LRR): LRR D Lat: 41.0210 Long: -105.5163 Datum: _____
 Soil Map Unit Name: Carbun loam 1-4i NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N, Soil N, or Hydrology N 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 <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>NA</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
4. _____				
<u>0</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>NA</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
<u>0</u> = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Artemisia arbuscula</u>	<u>50</u>	<u>Y</u>	<u>NO</u>	<input type="checkbox"/> Dominance Test is >50%
2. <u>Aster</u>	<u>30</u>	<u>Y</u>	<u>NO</u>	<input type="checkbox"/> Prevalence Index is ≤3.0 ¹
3. <u>Distichlis spicata</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
<u>0</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Footnote:
1. <u>NA</u>				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____				



WATERBODY DATA SHEET

ERM.

Waterbody Name: SAAL 001 Government Creek Waterbody ID No.: SAAL 001

Centerline Re-Route Access Road Warehouse Site Other:

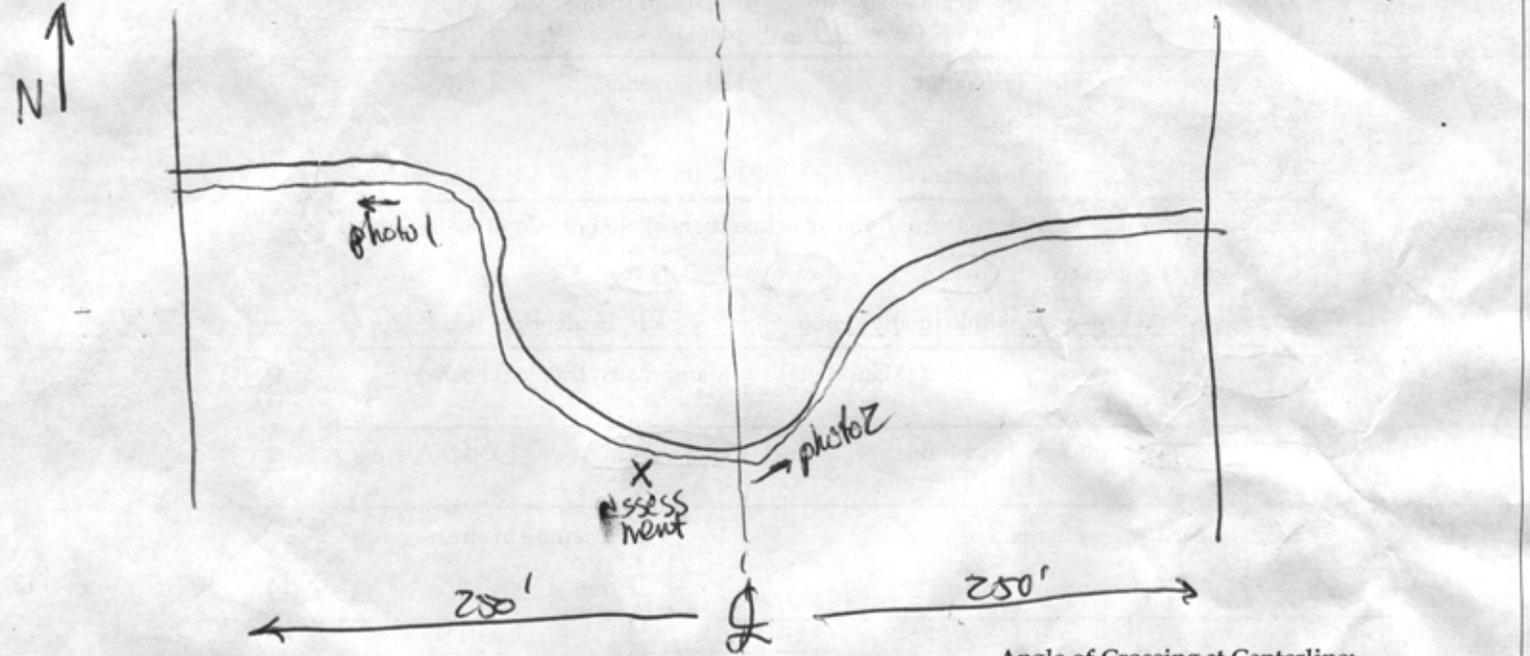
Associated Wetland No.:

Date: <u>8-25-09</u>	Client/Project Name & No.: <u>SHEL WIND ENERGY</u>	Milepost: <u>HERMOSA</u>
Investigators: <u>CLARK; ZRISKOFT</u>		Quad Name:
State/County/Municipality: <u>WY / ALBANY</u>		Picture No.: <u>1920 A11, A12</u>

PHYSICAL ATTRIBUTES

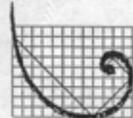
Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline:

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other: Other	
Stream Flow	Fast		Moderate		<u>Slow</u>	Very Slow	None	
Flow type	<u>Perennial</u> (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>EINK</u> Months of estimated flow: <u>6-8</u>	
OHWM Indicator	Clear natural line on bank		<u>Shelving</u>	Wrested vegetation		<u>Scour</u>	Water Staining	
Bent, matted or missing vegetation	Soil character changes		Abrupt plant community change		Wrack line	Litter and debris		
Sinuosity	Straight		<u>Meandering</u>		Subsurface Flow?		Yes <u>No</u> Unknown	
Stream Depth (in.)	<u>0-3</u>	<u>3-6</u>	6-12	12-18	18-24	24-36	36-48 48-60 60+	
Stream Width (ft.)	Top of Bank (at crossing location): <u>15'</u>				Water Surface (at crossing location): <u>3'</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	2-4	4-6	<u>6-8</u>	8+		
	Right	0-2	2-4	4-6	<u>6-8</u>	8+		
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	20-40	40-60	<u>60-80</u>	80+		
	Right	0-20	20-40	40-60	<u>60-80</u>	80+		



ERM.

Waterbody ID No.: SAAL 001

Date: 8-25-09 Client/Project Name & No.: SHELL WIND ENERGY - HERMOSA Milepost:

QUALITATIVE ATTRIBUTES

Table with 6 columns and 10 rows detailing water appearance, stream substrate, aquatic habitats, undercut banks, aquatic organisms, riparian zone, tributary, channel condition, and disturbances.

T/E SPECIES / SUITABLE HABITAT Habitat ID No.:

Blank area for species and suitable habitat information.

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

Blank area for comments.

STREAM QUALITY (indicate) [] High [X] Moderate [] Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.
Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.
Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: Government Creek

Waterbody ID No.: SAAL002

Centerline Re-Route Access Road Warehouse Site Other:

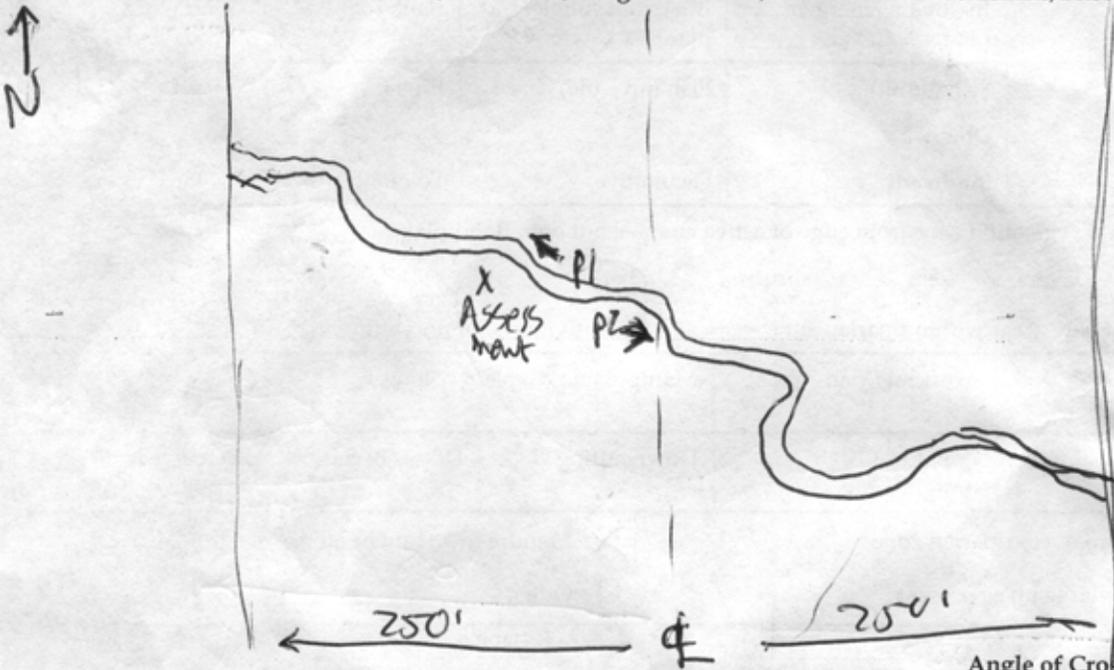
Associated Wetland No.:

Date: <u>8-25-09</u>	Client/Project Name & No.: <u>SAREE WIND ENERGY</u>	Milepost: <u>HERNIM</u>
Investigators: <u>CLARK; ZELSOFT</u>		Quad Name:
State/County/Municipality: <u>WY / ALBANY</u>		Picture No.: <u>30-31 A21 A22</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: 90

Waterbody Type	Lake	Pond	Borrow Pit	River	<input checked="" type="radio"/> Stream	Ag. Ditch	Other: _____
Stream Flow	Fast		Moderate		<input checked="" type="radio"/> Slow	Very Slow	None
Flow type	<input checked="" type="radio"/> Perennial (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>EINE</u> Months of estimated flow: <u>6</u>
OHWM Indicator	Clear natural line on bank		Shelving	Wrested vegetation		<input checked="" type="radio"/> Scour	Water Staining
	Bent, matted or missing vegetation		Soil character changes	Abrupt plant community change		Wrack line	Litter and debris
Sinuosity	Straight		<input checked="" type="radio"/> Meandering		Subsurface Flow?		Yes <input type="radio"/> No <input checked="" type="radio"/> Unknown
Stream Depth (in.)	<input checked="" type="radio"/> 0-3	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>15'</u>				Water Surface (at crossing location): <u>4'</u>		
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<input checked="" type="radio"/> 2-4	4-6		6-8	8+
	Right	0-2	<input checked="" type="radio"/> 2-4	4-6		6-8	8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	<input checked="" type="radio"/> 20-40	40-60		60-80	80+
	Right	0-20	20-40	<input checked="" type="radio"/> 40-60		60-80	80+



Waterbody ID No.: SAAL 002

Date: 8-25-09 Client/Project Name & No.: SHELL WIND ENERGY / HERMOKA Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	<input checked="" type="radio"/> Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay <u>100%</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover _____	In-stream submerged plants % Cover <u>80</u>	Bank root systems	Fringing Wetlands <i>observed upstream off project</i>
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<input checked="" type="radio"/> Natural	Artificial (Man-Made)	Manipulated (Explain below)		<input checked="" type="radio"/> Stable / <input type="radio"/> Unstable
Channel Condition	<input checked="" type="radio"/> Channelization / Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT Habitat ID No.:

None

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: Government Creeks

Waterbody ID No.:

SAA 003

Centerline Re-Route Access Road Warehouse Site Other:

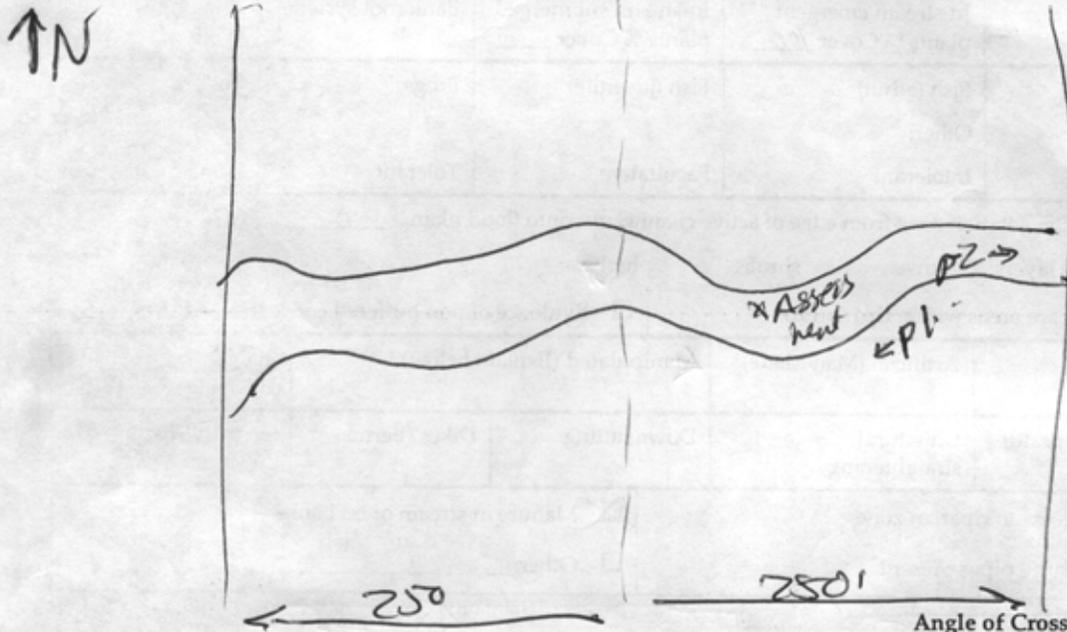
Associated Wetland No.:

Date: <u>8-25-09</u>	Client/Project Name & No.: <u>SHAW WIND FARM</u>	Milepost: <u>Hermosa</u>
Investigators: <u>CLARK ZEISLOFT</u>	Quad Name:	
State/County/Municipality: <u>WY ALBANY</u>	Picture No.: <u>A25 A26</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other: <u>dry wash</u>		
Stream Flow	Fast	Moderate	<u>Slow</u>	Very Slow	None				
Flow type	Perennial (Flows > 3 months annually)	Intermittent/Seasonal (Flows < 3 months annually)	<u>Ephemeral</u> (Flows only in response to rainfall)	Direction: <u>E</u>	Months of estimated flow: <u>2-3</u>				
OHWM Indicator	Clear natural line on bank	<u>Shelving</u>	Wrested vegetation	Scour	Water Staining				
Bent, matted or missing vegetation	Soil character changes	Abrupt plant community change		Wrack line	Litter and debris				
Sinuosity	Straight	<u>Meandering</u>	Subsurface Flow?	Yes	No	<u>Unknown</u>			
Stream Depth (in.)	<u>0-2</u>	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>30'</u>				Water Surface (at crossing location): <u>10'</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	2-4	4-6	<u>6-8</u>	8+			
	Right	0-2	<u>2-4</u>	4-6	6-8	8+			
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	20-40	<u>40-60</u>	60-80	80+			
	Right	0-20	<u>20-40</u>	40-60	60-80	80+			



Waterbody ID No.:

SAAL003

Date: 8-25-09

Client/Project Name & No.: SHELL WIND PATENTS HERMOSA

Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance NA	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay 100%	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover 100	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: 0 (ft) Circle vegetative layers: trees shrubs herbs <input type="checkbox"/> Significant bare areas within riparian zone <input type="checkbox"/> Evidence of non-buffered concentrated flows				
Tributary is	Natural	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate)

High

Moderate

Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: FOREST CREEK

Waterbody ID No.: SAAL-007

Centerline Re-Route Access Road Warehouse Site Other:

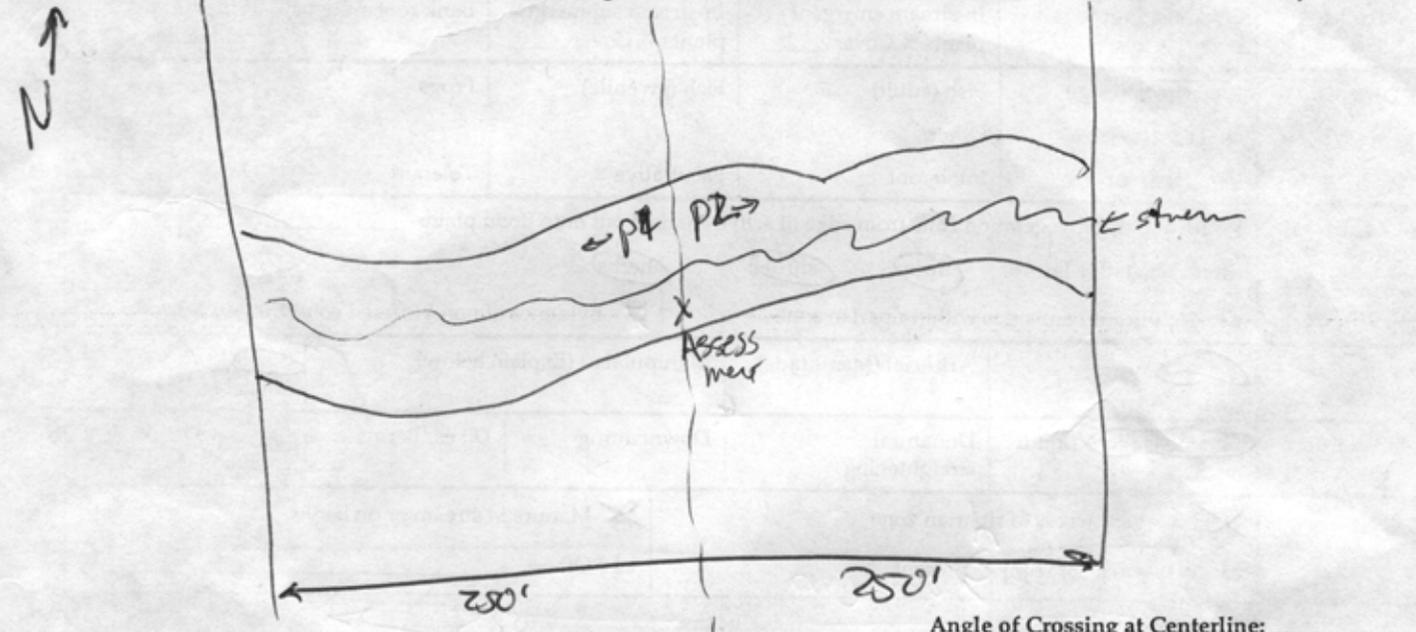
Associated Wetland No.: WAAL 001

Date: <u>8-25-09</u>	Client/Project Name & No.: <u>SHELL WIND ENERGY</u>	Milepost: <u>ARMOR</u>
Investigators: <u>CLARK; ZEISLOFF</u>	Quad Name:	
State/County/Municipality: <u>WY/ALBANY</u>	Picture No.: <u>A33 A34</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:		
Stream Flow	Fast	Moderate	Slow	<u>Very Slow</u>	None				
Flow type	<u>Perennial</u> (Flows > 3 months annually)	Intermittent/Seasonal (Flows < 3 months annually)	Ephemeral (Flows only in response to rainfall)	Direction: _____	Months of estimated flow: _____				
OHWM Indicator	Clear natural line on bank	<u>Shelving</u>	Wrested vegetation	Scour	Water Staining				
Bent, matted or missing vegetation	Soil character changes	<u>Abrupt plant community change</u>	Wrack line	Litter and debris					
Sinuosity	Straight	<u>Meandering</u>	Subsurface Flow?	Yes	<u>No</u>	Unknown			
Stream Depth (in.)	0-3	<u>3-6</u>	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>40'</u>			Water Surface (at crossing location): <u>12'</u>					
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	2-4	<u>4-6</u>	6-8	8+			
	Right	0-2	2-4	<u>4-6</u>	6-8	8+			
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	<u>20-40</u>	40-60	60-80	80+			
	Right	0-20	20-40	<u>40-60</u>	60-80	80+			



Waterbody ID No.:

SAAL004

Date: 8-25-09

Client/Project Name & No.: SHELL WIND ENERGY - HERMOSA

Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay 100	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover _____	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs herbs				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	Natural	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate)

High

Moderate

Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: FOREST CREEK

Waterbody ID No.:

SAAL005

Centerline Re-Route Access Road Warehouse Site Other:

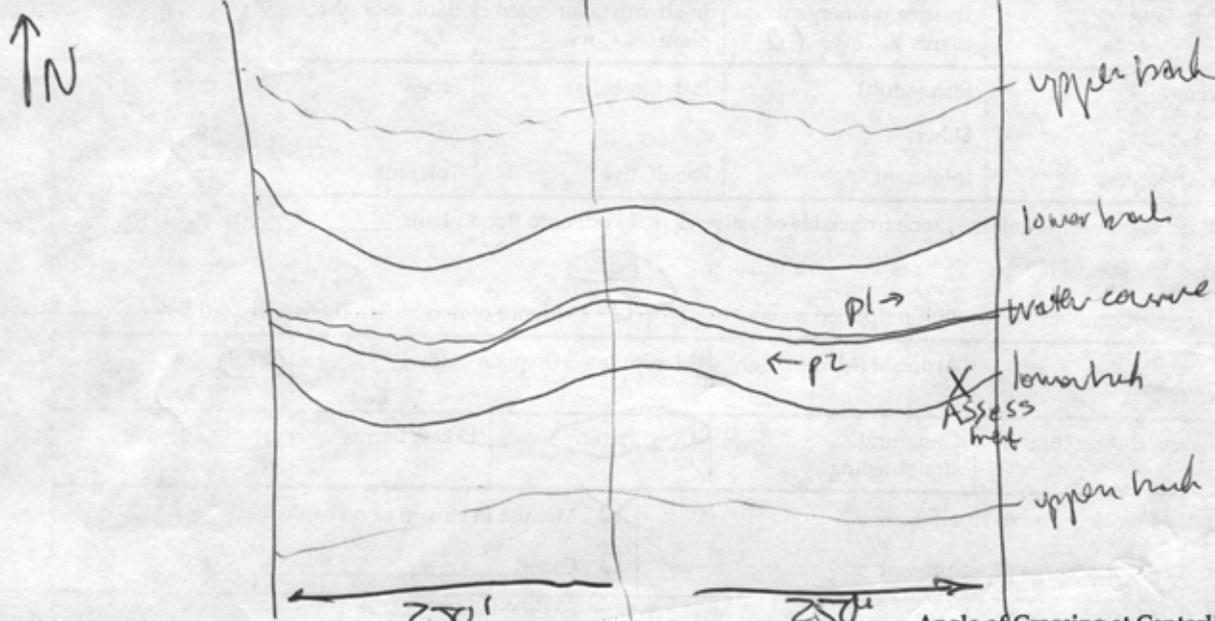
Associated Wetland No.:

Date: <u>8-26-09</u>	Client/Project Name & No.: <u>SHELL WIND ENERGY</u>	Milepost: <u>HERMOSA</u>
Investigators: <u>CLARK; ZEISLOFT</u>	Quad Name:	
State/County/Municipality: <u>NY ALBANY</u>	Picture No.: <u>A38 A39</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other: <u>dry wash</u>	
Stream Flow	Fast		Moderate		<u>Slow</u>	Very Slow	<u>None</u>	
Flow type	Perennial (Flows > 3 months annually)		<u>Intermittent</u> Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>E</u> Months of estimated flow: <u>2-3</u>	
OHWI Indicator	Clear natural line on bank		<u>Shelving</u>	Wrested vegetation	Scour	Water Staining		
Bent, matted or missing vegetation		Soil character changes		Abrupt plant community change		Wrack line	Litter and debris	
Sinuosity	Straight		<u>Meandering</u>		Subsurface Flow?		Yes <u>No</u> Unknown	
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+	
Stream Width (ft.)	Top of Bank (at crossing location):				Water Surface (at crossing location):			
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>		4-6	6-8	8+	
	Right	0-2	<u>2-4</u>		4-6	6-8	8+	
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	20-40		<u>40-60</u>	60-80	80+	
	Right	0-20	20-40		<u>40-60</u>	60-80	80+	



Waterbody ID No.:

SAAL 005

Date: 8-26-09

Client/Project Name & No.: Small Wood Enticement

Milepost: Herndon

QUALITATIVE ATTRIBUTES

Water Appearance NA	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand <u>60</u>	Silt/Clay <u>40</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>60</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)	<u>Stable</u> / Unstable	
Channel Condition	Channelization/Braiding	Unnatural straightening	<u>Downcutting</u>	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

Upper bank much higher

STREAM QUALITY (indicate)

High

Moderate

Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

ERM

Waterbody Name: BOULDER CREEK

Waterbody ID No.: SAAL006

Centerline Re-Route Access Road Warehouse Site Other:

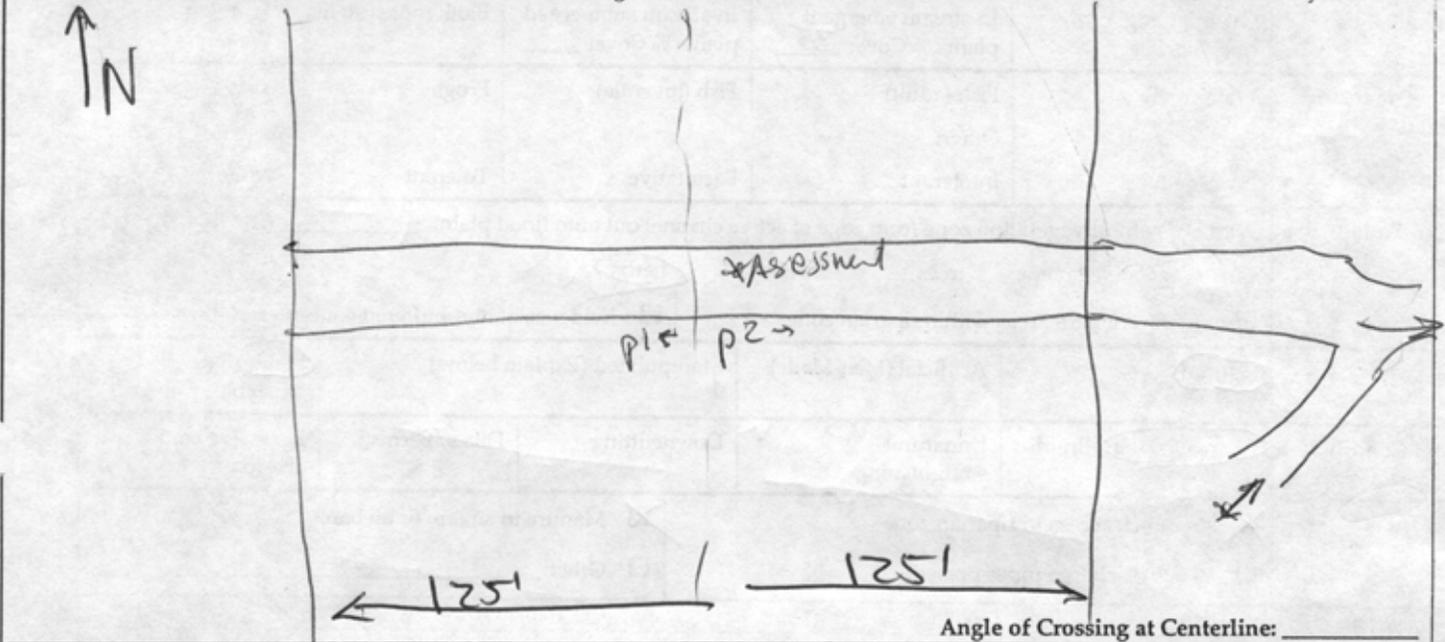
Associated Wetland No.: _____

Date: <u>8-26-09</u>	Client/Project Name & No.: <u>SHELL WIND ENERGY</u>	Milepost: <u>HERMOSA</u>
Investigators: <u>CLARK; ZEISLOFT</u>	Quad Name:	
State/County/Municipality: <u>WY / ALBANY</u>	Picture No.: <u>A50 A51</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	<input type="checkbox"/> Lake	<input type="checkbox"/> Pond	<input type="checkbox"/> Borrow Pit	<input type="checkbox"/> River	<input checked="" type="checkbox"/> Stream	<input type="checkbox"/> Ag. Ditch	Other: <u>dry wash</u>	
Stream Flow	<input type="checkbox"/> Fast		<input type="checkbox"/> Moderate		<input type="checkbox"/> Slow	<input type="checkbox"/> Very Slow	<input checked="" type="checkbox"/> None	
Flow type	<input type="checkbox"/> Perennial (Flows > 3 months annually)		<input type="checkbox"/> Intermittent/Seasonal (Flows < 3 months annually)		<input checked="" type="checkbox"/> Ephemeral (Flows only in response to rainfall)	Direction: <u>E</u> Months of estimated flow: <u>2-3</u>		
OHWB Indicator	<input type="checkbox"/> Clear natural line on bank		<input type="checkbox"/> Shelving	<input type="checkbox"/> Wrested vegetation	<input type="checkbox"/> Scour	<input type="checkbox"/> Water Staining		
<input type="checkbox"/> Bent, matted or missing vegetation	<input type="checkbox"/> Soil character changes		<input checked="" type="checkbox"/> Abrupt plant community change		<input type="checkbox"/> Wrack line	<input type="checkbox"/> Litter and debris		
Sinuosity	<input checked="" type="checkbox"/> Straight		<input type="checkbox"/> Meandering		<input type="checkbox"/> Subsurface Flow?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Stream Depth (in.)	<input checked="" type="checkbox"/> 0-3	<input type="checkbox"/> 3-6	<input type="checkbox"/> 6-12	<input type="checkbox"/> 12-18	<input type="checkbox"/> 18-24	<input type="checkbox"/> 24-36	<input type="checkbox"/> 36-48 <input type="checkbox"/> 48-60 <input type="checkbox"/> 60+	
Stream Width (ft.)	Top of Bank (at crossing location): <u>125'</u>				Water Surface (at crossing location): <u>5'</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<input checked="" type="checkbox"/> 0-2	2-4		4-6		6-8	8+
	Right	<input checked="" type="checkbox"/> 0-2	2-4		4-6		6-8	8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<input checked="" type="checkbox"/> 0-20	20-40		40-60		60-80	80+
	Right	<input checked="" type="checkbox"/> 0-20	20-40		40-60		60-80	80+



Waterbody ID No.:

SAAL006

Date: 8-26-09

Client/Project Name & No.: SHELL WIND ENERGY

Milepost: HERMON

QUALITATIVE ATTRIBUTES

Water Appearance NA	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock	Gravel	Sand	Silt/Clay 100	Organic
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover 35	In-stream submerged plants % Cover	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)	<u>Stable</u> / Unstable	
Channel Condition	<u>Channelization</u> /Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: BOULDER CREEK

Waterbody ID No.: SAAL007

Centerline Re-Route Access Road Warehouse Site Other:

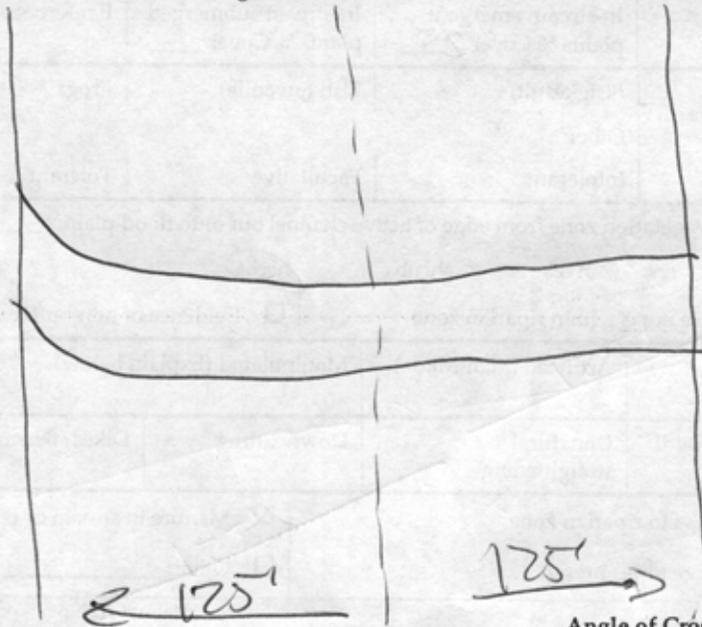
Associated Wetland No.: _____

Date: <u>8-26-09</u>	Client/Project Name & No.: <u>SHELL WIND ENERGY</u>	Milepost: <u>HERMOSA</u>
Investigators: <u>CLARK & ZEISLOFT</u>	Quad Name: _____	
State/County/Municipality: <u>WY / ALBANY</u>	Picture No.: <u>A52 A53</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<input checked="" type="radio"/> Stream	Ag. Ditch	Other: <u>dry wash</u>
Stream Flow	Fast		Moderate		Slow	Very Slow	<input checked="" type="radio"/> None
Flow type	Perennial (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		<input checked="" type="radio"/> Ephemeral (Flows only in response to rainfall)	Direction: _____	Months of estimated flow: <u>2-3</u>
OHWB Indicator	Clear natural line on bank		<input checked="" type="radio"/> Shelving	Wrested vegetation		Scour	Water Staining
Bent, matted or missing vegetation		Soil character changes		Abrupt plant community change		Wrack line	Litter and debris
Sinuosity	Straight		<input checked="" type="radio"/> Meandering		Subsurface Flow?		Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown
Stream Depth (in.)	0-3	3-6	6-12	12-18	18-24	<input checked="" type="radio"/> 24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>15'</u>				Water Surface (at crossing location): <u>2'</u>		
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<input checked="" type="radio"/> 2-4	4-6		6-8	8+
	Right	0-2	<input checked="" type="radio"/> 2-4	4-6		6-8	8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	<input checked="" type="radio"/> 20-40	40-60		60-80	80+
	Right	0-20	<input checked="" type="radio"/> 20-40	40-60		60-80	80+



Waterbody ID No.:

SAAL 007

Date: 8-26-09

Client/Project Name & No.: SHAL WIND ENERGY

Milepost: HERMOSA

QUALITATIVE ATTRIBUTES

Water Appearance NA	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand <u>SD</u>	Silt/Clay <u>SD</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>25</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		<u>Stable</u> / Unstable
Channel Condition	<u>Channelization</u> /Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate)

High

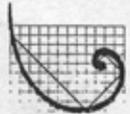
Moderate

Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: BOULDER CREEK

Waterbody ID No.: SAAL 008

Centerline Re-Route Access Road Warehouse Site Other:

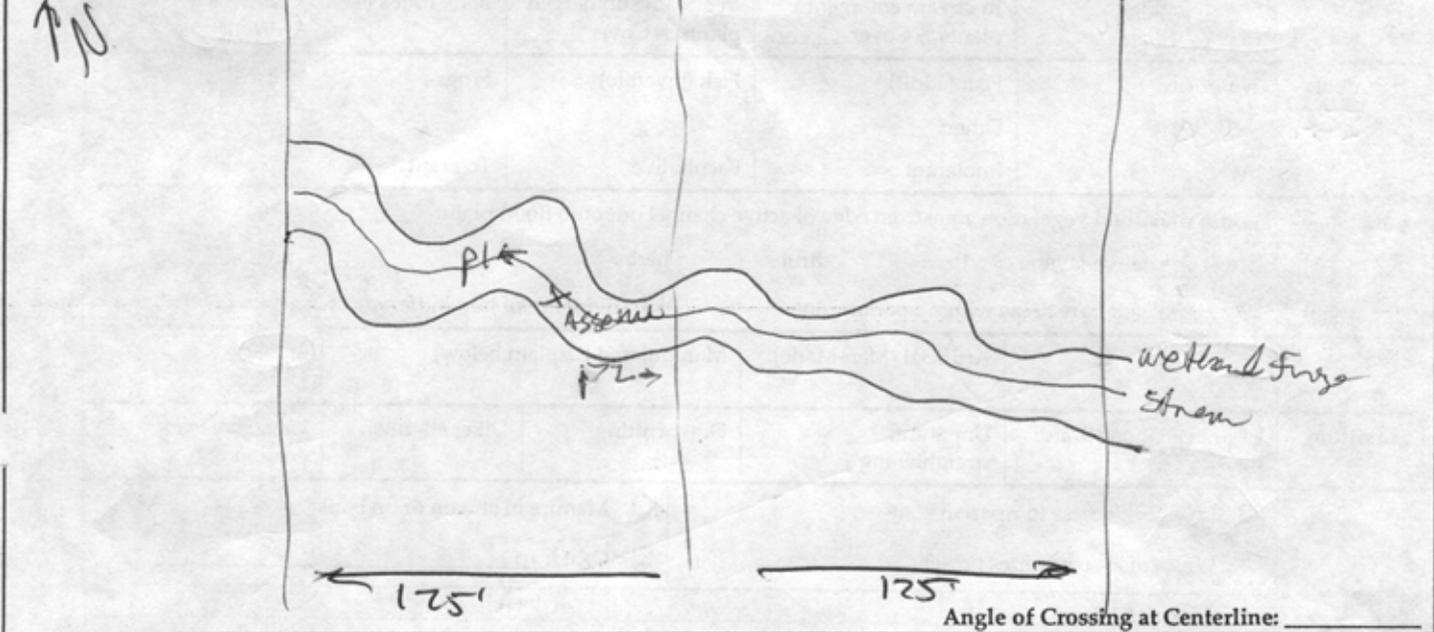
Associated Wetland No.: WAAL 002

Date: <u>8-26-09</u>	Client/Project Name & No.: <u>SHELL WIND ENERGY</u>	Milepost: <u>HERMOSA</u>
Investigators: <u>CLARK; ZEISLOFT</u>	Quad Name:	
State/County/Municipality: <u>WY ALBANY</u>	Picture No.: <u>A57 A58</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:		
Stream Flow	Fast	Moderate	Slow	Very Slow	<u>None</u>				
Flow type	Perennial (Flows > 3 months annually)	Intermittent/Seasonal (Flows < 3 months annually)	<u>Ephemeral</u> (Flows only in response to rainfall)	Direction: <u>E</u>	Months of estimated flow: <u>2-3</u>				
OHWI Indicator	Clear natural line on bank	<u>Shelving</u>	Wrested vegetation	Scour	Water Staining				
Bent, matted or missing vegetation	Soil character changes	<u>Abrupt plant community change</u>	Wrack line	Litter and debris					
Sinuosity	Straight	<u>Meandering</u>	Subsurface Flow?	Yes	No	Unknown			
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>2'</u>				Water Surface (at crossing location): <u>2'</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<u>0-2</u>	2-4	4-6	6-8	8+			
	Right	<u>0-2</u>	2-4	4-6	6-8	8+			
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	20-40	<u>40-60</u>	60-80	80+			
	Right	0-20	20-40	<u>40-60</u>	60-80	80+			



Waterbody ID No.:

SAAL008

Date: 8-26-09

Client/Project Name & No.: SAREU

Milepost: AERMWA

QUALITATIVE ATTRIBUTES

Water Appearance NA	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay <u>100</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover _____	In-stream submerged plants % Cover _____	Bank root systems	Pringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs herbs				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	Natural	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate)

High

Moderate

Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: Tributary of Boulder Creek

Waterbody ID No.:

ERM
 SAAL 009

Centerline Re-Route Access Road Warehouse Site Other:

Associated Wetland No.: WAAL 002

Date: <u>8-26-09</u>	Client/Project Name & No.: <u>Shell Wind Energy</u>	Milepost: <u>HERMOSA</u>
Investigators: <u>CLARK / ZELSKOFF</u>	Quad Name:	
State/County/Municipality: <u>Ny / ALBANY</u>	Picture No.: <u>A59 A60</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:		
Stream Flow	Fast		Moderate		Slow		Very Slow		<u>None</u>
Flow type	Perennial (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		<u>Ephemeral</u> (Flows only in response to rainfall)		Direction: _____		Months of estimated flow: <u>2-3</u>
OHWI Indicator	Clear natural line on bank		<u>Shelving</u>	<u>Wrested vegetation</u>		Scour	Water Staining		
Bent, matted or missing vegetation	Soil character changes		<u>Abrupt plant community change</u>			Wrack line	Litter and debris		
Sinuosity	Straight		<u>Meandering</u>		Subsurface Flow?		Yes	<u>No</u>	Unknown
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>1'</u>				Water Surface (at crossing location): <u>2'</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<u>0-2</u>	2-4		4-6		6-8		8+
	Right	<u>0-2</u>	2-4		4-6		6-8		8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	<u>20-40</u>		40-60		60-80		80+
	Right	0-20	<u>20-40</u>		40-60		60-80		80+



Waterbody ID No.: SAAL009
~~HAAL00~~

Date: 08-26-09 Client/Project Name & No.: SABU WIND ENERGY Milepost: Harmon

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	<u>NA</u> Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>10</u>	Sand <u>50</u>	Silt/Clay <u>40</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	<u>Overhanging trees/shrubs</u>	In-stream emergent plants % Cover <u>25</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: <u>trees</u> shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)	<u>Stable</u> / Unstable	
Channel Condition	<u>Channelization/Braiding</u>	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: Wit-- Creek

Waterbody ID No.: SAAL 010 010

Centerline Re-Route Access Road Warehouse Site Other:

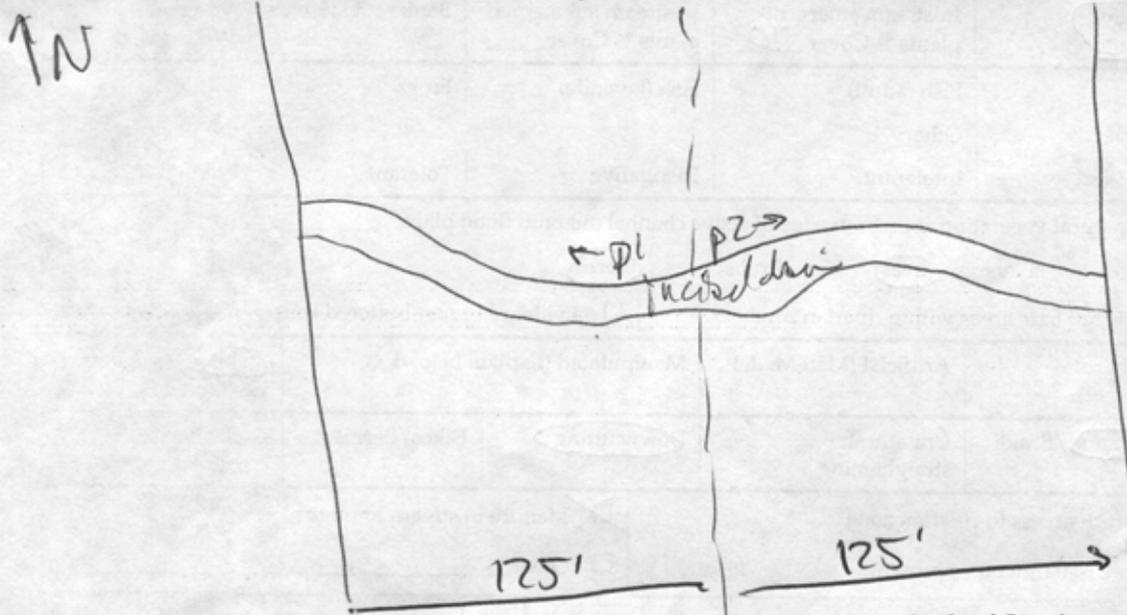
Associated Wetland No.: -

Date: <u>8-26-09</u>	Client/Project Name & No.: <u>SHIELD WIND ENERGY</u>	Milepost: <u>HERMOSA</u>
Investigators: <u>CLARK; ZEISLOFT</u>	Quad Name:	
State/County/Municipality: <u>WY / ALBANY</u>	Picture No.: <u>A70 A71</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:		
Stream Flow	Fast		<u>Moderate</u>		Slow	Very Slow	None		
Flow type	<u>Perennial</u> (Flows > 3 months annually)	Intermittent/Seasonal (Flows < 3 months annually)	Ephemeral (Flows only in response to rainfall)	Direction: <u>E</u>		Months of estimated flow: <u>12</u>			
OHWI Indicator	Clear natural line on bank	<u>Shelving</u>	Wrested vegetation	<u>Scour</u>	Water Staining				
Bent, matted or missing vegetation	Soil character changes	Abrupt plant community change		Wrack line	Litter and debris				
Sinuosity	Straight	<u>Meandering</u>	Subsurface Flow?	Yes	No	<u>Unknown</u>			
Stream Depth (in.)	0-3	3-6	6-12	<u>12-18</u>	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>2'</u>				Water Surface (at crossing location): <u>2'</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>	4-6	6-8	8+			
	Right	0-2	<u>2-4</u>	4-6	6-8	8+			
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	<u>20-40</u>	40-60	60-80	80+			
	Right	0-20	<u>20-40</u>	40-60	60-80	80+			



Waterbody ID No.:

SAAL ~~018~~ 010

Date: 8-26-09 Client/Project Name & No.: SHELL WIND ENERGY Milepost: HERMOSA

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock	Gravel	Sand 30	Silt/Clay 70	Organic
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover 70	In-stream submerged plants % Cover	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs herbs				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	Natural	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for ID forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

ERM

Waterbody Name: unknown

Waterbody ID No.: SAAL011

Centerline Re-Route Access Road Warehouse Site Other:

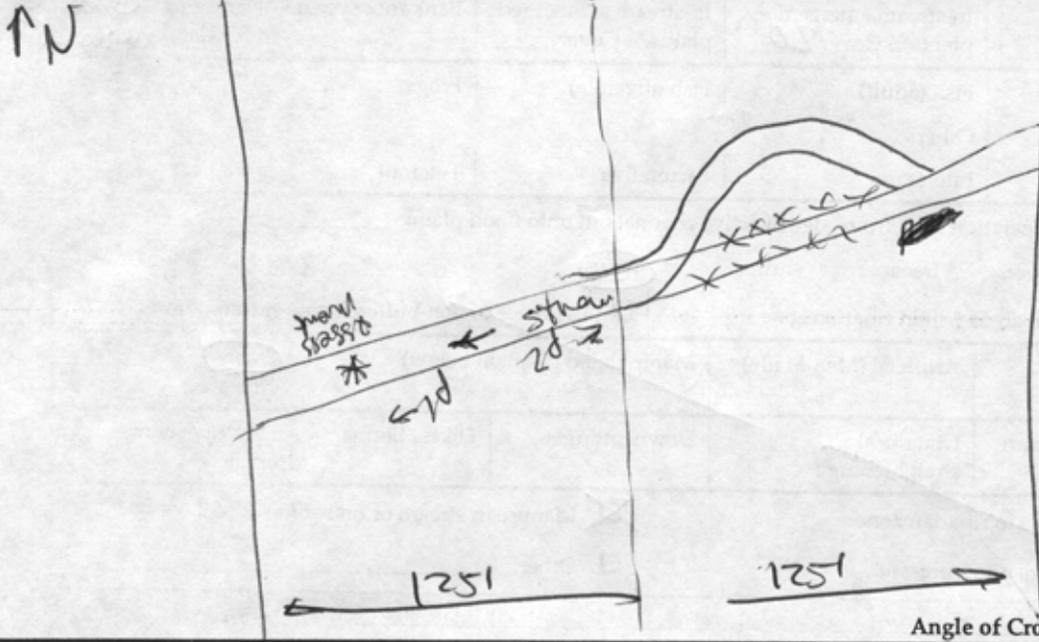
Associated Wetland No.: WAAL004

Date: <u>8-26-09</u>	Client/Project Name & No.: <u>SHELL WIND ENERGY</u>	Milepost: <u>HERNOSA</u>
Investigators: <u>CLARK; ZELSLOFT</u>	Quad Name:	
State/County/Municipality:	Picture No.: <u>A72 A73</u>	

PHYSICAL ATTRIBUTES

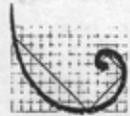
Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:
Stream Flow	Fast		<u>Moderate</u>		Slow		Very Slow None
Flow type	Perennial (Flows > 3 months annually)		<u>Intermittent/Seasonal</u> (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: _____ Months of estimated flow: <u>2-3 w/td</u>
OHWM Indicator	Clear natural line on bank		<u>Shelving</u>	Wrested vegetation	Scour	Water Staining	
Bent, matted or missing vegetation	Soil character changes		<u>Abrupt plant community change</u>		Wrack line	Litter and debris	
Sinuosity	Straight		<u>Meandering</u>	Subsurface Flow?	Yes	No	<u>Unknown</u>
Stream Depth (in.)	0-3	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>12'</u>			Water Surface (at crossing location): <u>5'</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>		4-6		6-8 8+
	Right	0-2	<u>2-4</u>		4-6		6-8 8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	<u>20-40</u>		40-60		60-80 80+
	Right	<u>0-20</u>	20-40		40-60		60-80 80+



ERM.

Waterbody ID No.:

S AALOU

Date: 8-26-09

Client/Project Name & No.: SHELL WIND ENERGY - HERMOSA

Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	<input checked="" type="radio"/> Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay <u>100</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>20</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing <u>ends</u> Wetlands <u>Wetland</u>
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<input checked="" type="radio"/> Natural	Artificial (Man-Made)	Manipulated (Explain below)		<input checked="" type="radio"/> Stable / <input type="radio"/> Unstable
Channel Condition	<input checked="" type="radio"/> Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate)

High

Moderate

Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

ERM.

Waterbody Name: Unknown

Waterbody ID No.: SAAL 012

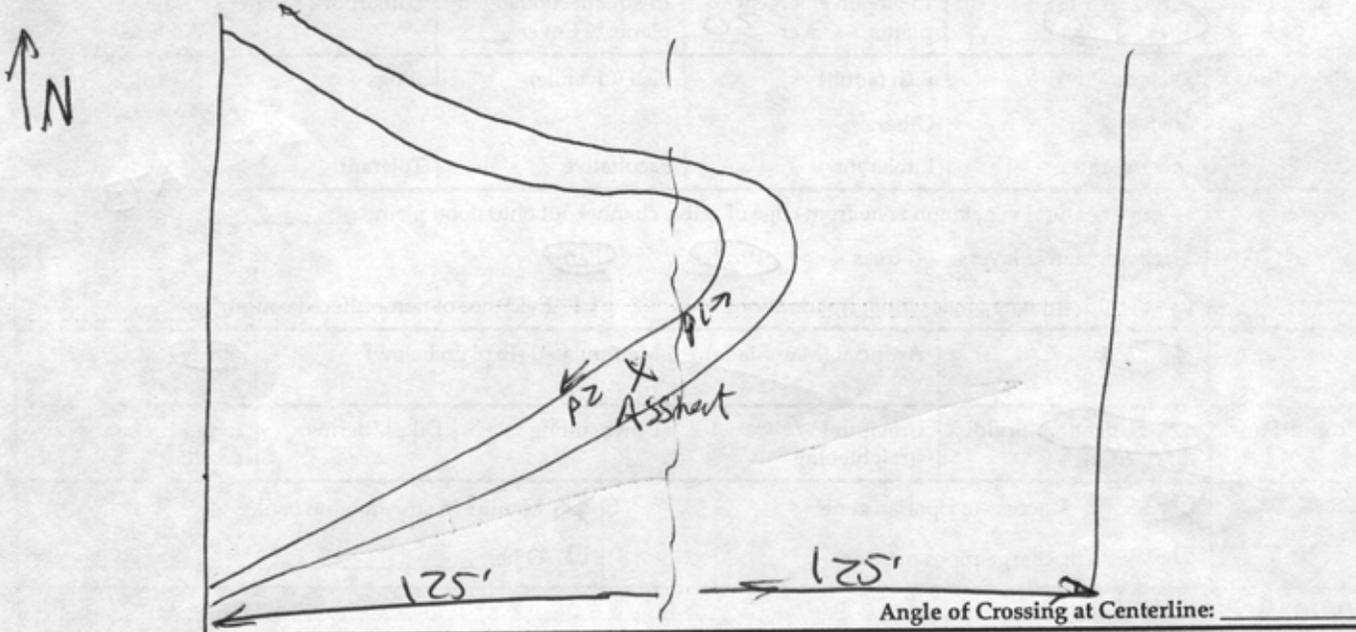
Centerline Re-Route Access Road Warehouse Site Other:

Associated Wetland No.: WAA004

Date: <u>8-26-09</u>	Client/Project Name & No.: <u>SAAL Wind Energy</u>	Milepost: <u>HERNOSA</u>
Investigators: <u>CLARK; ZELSLIFT</u>	Quad Name:	
State/County/Municipality: <u>WY / ALBANY</u>	Picture No.: <u>A77 A78</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan
 Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Waterbody Type	Lake	Pond	Borrow Pit	River	<input checked="" type="checkbox"/> Stream	Ag. Ditch	Other:	
Stream Flow	Fast	<input checked="" type="checkbox"/> Moderate			Slow	Very Slow	None	
Flow type	<input checked="" type="checkbox"/> Perennial (Flows > 3 months annually)		<input type="checkbox"/> Intermittent/Seasonal (Flows < 3 months annually)		<input type="checkbox"/> Ephemeral (Flows only in response to rainfall)		Direction: <u>NW</u> Months of estimated flow: <u>12</u>	
OHWM Indicator	Clear natural line on bank		<input checked="" type="checkbox"/> Shelving	Wrested vegetation		Scour	Water Staining	
	Bent, matted or missing vegetation		Soil character changes	Abrupt plant community change		Wrack line	Litter and debris	
Sinuosity	Straight		<input checked="" type="checkbox"/> Meandering		Subsurface Flow?		<input checked="" type="checkbox"/> Yes No Unknown	
Stream Depth (in.)	0-3	<input checked="" type="checkbox"/> 3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+	
Stream Width (ft.)	Top of Bank (at crossing location):				Water Surface (at crossing location):			
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<input checked="" type="checkbox"/> 0-2	2-4		4-6		6-8	8+
	Right	<input checked="" type="checkbox"/> 0-2	2-4		4-6		6-8	8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<input checked="" type="checkbox"/> 0-20	20-40		40-60		60-80	80+
	Right	<input checked="" type="checkbox"/> 0-20	20-40		40-60		60-80	80+



ERM.

Waterbody ID No.:

SAALOPZ

Date: 8-26-09

Client/Project Name & No.: Shell Wind Energy

Milepost: Hermon

QUALITATIVE ATTRIBUTES

Water Appearance	<input checked="" type="radio"/> Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay <u>2</u>	Organic 10 <u>5</u>
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	<input checked="" type="radio"/> Overhanging trees/shrubs	In-stream emergent plants % Cover <u>30</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees <input type="checkbox"/> <input checked="" type="checkbox"/> shrubs <input checked="" type="checkbox"/> <input type="checkbox"/> herbs <input type="checkbox"/>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<input checked="" type="radio"/> Natural	Artificial (Man-Made)	Manipulated (Explain below)		<input checked="" type="radio"/> Stable / <input type="radio"/> Unstable
Channel Condition	<input checked="" type="radio"/> Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate)

High

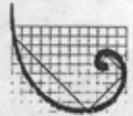
Moderate

Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

ERM

Waterbody Name: Unknown

Waterbody ID No.: SAAL 013

Centerline Re-Route Access Road Warehouse Site Other:

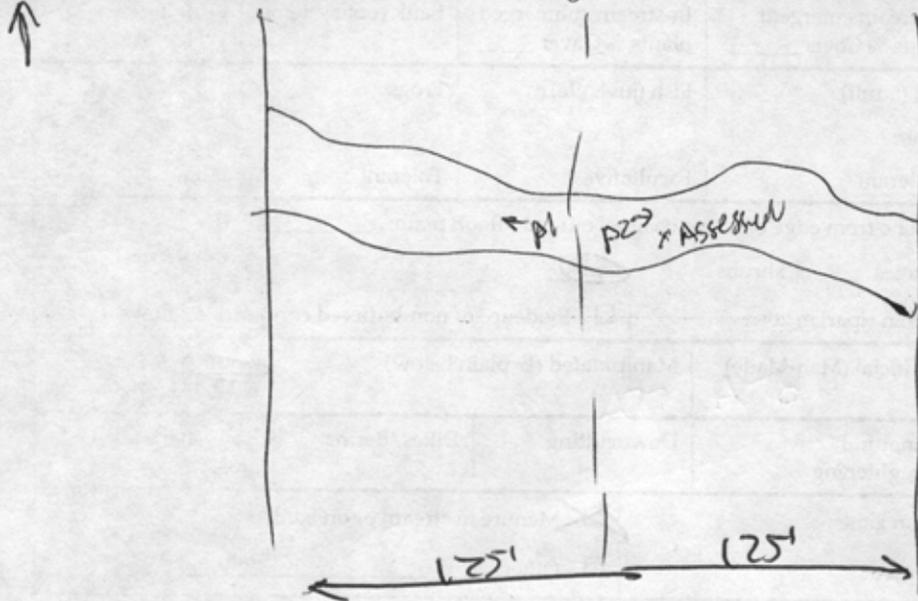
Associated Wetland No.:

Date: <u>8-26-09</u>	Client/Project Name & No.: <u>SHELL WIND ENERGY</u>	Milepost: <u>HERMOSA</u>
Investigators: <u>CLADON; ZELISLOFT</u>	Quad Name:	
State/County/Municipality: <u>WY / ALBANY</u>	Picture No.: <u>A87 A88</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other: <u>dry wash</u>		
Stream Flow	Fast		Moderate		Slow		Very Slow		<u>None</u>
Flow type	Perennial (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		<u>Ephemeral</u> (Flows only in response to rainfall)		Direction: _____		Months of estimated flow: _____
OHWI Indicator	Clear natural line on bank		<u>Shelving</u>	Wrested vegetation		Scour	Water Staining		
Bent, matted or missing vegetation		Soil character changes		Abrupt plant community change			Wrack line	Litter and debris	
Sinuosity	Straight		<u>Meandering</u>		Subsurface Flow?		Yes	No	Unknown
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location):				Water Surface (at crossing location):				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>		4-6		6-8		8+
	Right	0-2	<u>2-4</u>		4-6		6-8		8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	20-40		40-60		<u>60-80</u>		80+
	Right	0-20	<u>20-40</u>		40-60		60-80		80+



ERM.

Waterbody ID No.:

SAAL013

Date: 8-26-09

Client/Project Name & No.: State Wind Energy

Milepost: Hermon

QUALITATIVE ATTRIBUTES

Water Appearance NA	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>80</u>	Sand <u>20</u>	Silt/Clay _____	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover _____	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)	<u>Stable</u> / Unstable	
Channel Condition	<u>Channelization/Braiding</u>	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate)

High

Moderate

Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

ERM

Waterbody Name: Unknown Sand Lane on Topo

Waterbody ID No.: SAAL01A

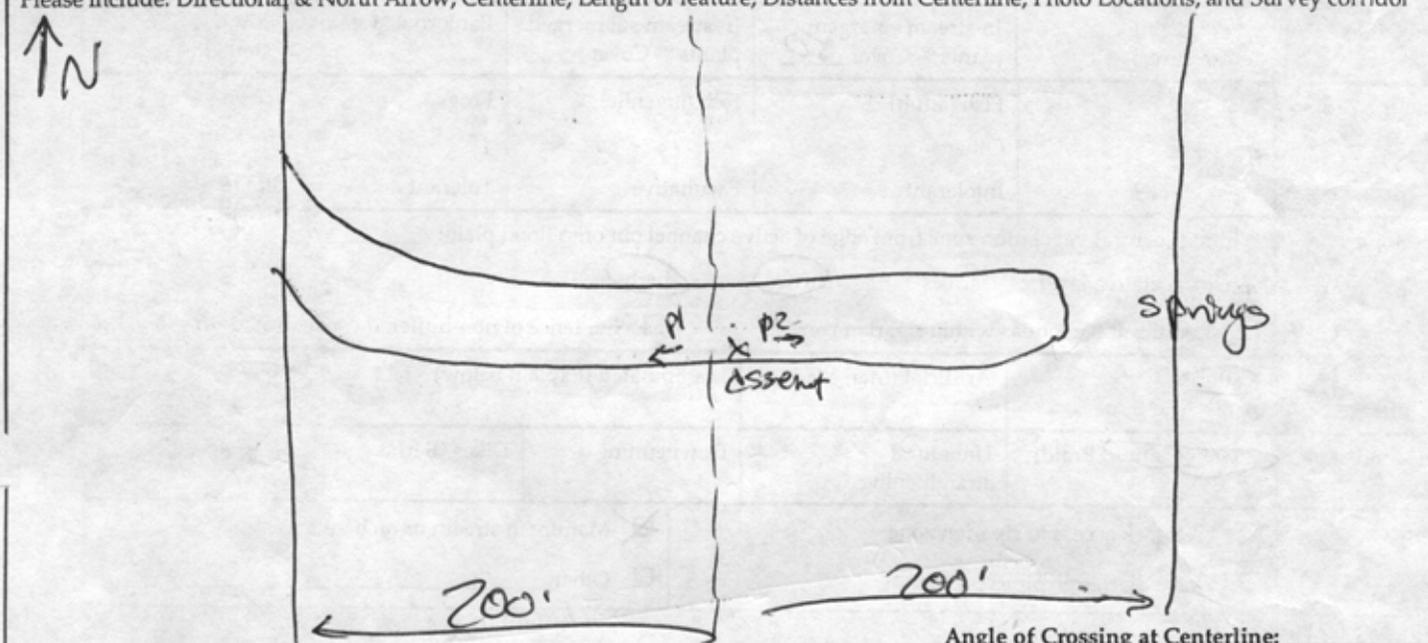
Centerline Re-Route Access Road Warehouse Site Other:

Associated Wetland No.: -

Date: <u>8-27-09</u>	Client/Project Name & No.: <u>SURE Wind Energy</u>	Milepost: <u>HERMOSIL</u>
Investigators: <u>CLARK, ZEISLOFF</u>	Quad Name:	
State/County/Municipality: <u>NY, ALBANY</u>	Picture No.: <u>A93 A94</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan



Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:		
Stream Flow	Fast		<u>Moderate</u>		Slow	Very Slow	None		
Flow type	<u>Perennial</u> (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)	Direction: <u>E</u>	Months of estimated flow: <u>6</u>		
OHWI Indicator	Clear natural line on bank		<u>Shelving</u>	Wrested vegetation	Scour	Water Staining			
Bent, matted or missing vegetation		Soil character changes		Abrupt plant community change		Wrack line	Litter and debris		
Sinuosity	Straight		<u>Meandering</u>	Subsurface Flow?		Yes	No	<u>Unknown</u> <i>poss</i>	
Stream Depth (in.)	0-3	<u>3-6</u>	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>10'</u>				Water Surface (at crossing location):				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>		4-6		6-8	8+	
	Right	0-2	<u>2-4</u>		4-6		6-8	8+	
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	20-40		40-60		<u>60-80</u>	80+	
	Right	0-20	20-40		40-60		<u>60-80</u>	80+	



Waterbody ID No.:

SAALON

Date: 8-27-09

Client/Project Name & No.: SURE WIND ENERGY

Milepost: HERMOSA

QUALITATIVE ATTRIBUTES

Water Appearance	<input checked="" type="radio"/> Clear Floating algal mats	<input type="radio"/> Slightly Turbid	<input type="radio"/> Turbid	<input type="radio"/> Very Turbid	Color:
		<input type="radio"/> Obvious surface scum	<input type="radio"/> Sheen on surface	<input type="radio"/> Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>30</u>	Sand <u>20</u>	Silt/Clay <u>50</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>50</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees <input type="checkbox"/> shrubs <input checked="" type="checkbox"/> herbs <input checked="" type="checkbox"/>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<input checked="" type="radio"/> Natural	<input type="radio"/> Artificial (Man-Made)	<input type="radio"/> Manipulated (Explain below)		<input checked="" type="radio"/> Stable / <input type="radio"/> Unstable
Channel Condition	<input checked="" type="radio"/> Channelization/Braiding	<input type="radio"/> Unnatural straightening	<input type="radio"/> Downcutting	<input type="radio"/> Dikes/Berms	<input type="radio"/> Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT

Habitat ID No.:

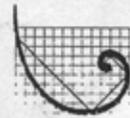
Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



ERM

WATERBODY DATA SHEET

Waterbody Name: unknown - upstream from shackle

Waterbody ID No.:

SAAL015

Centerline Re-Route Access Road Warehouse Site Other:

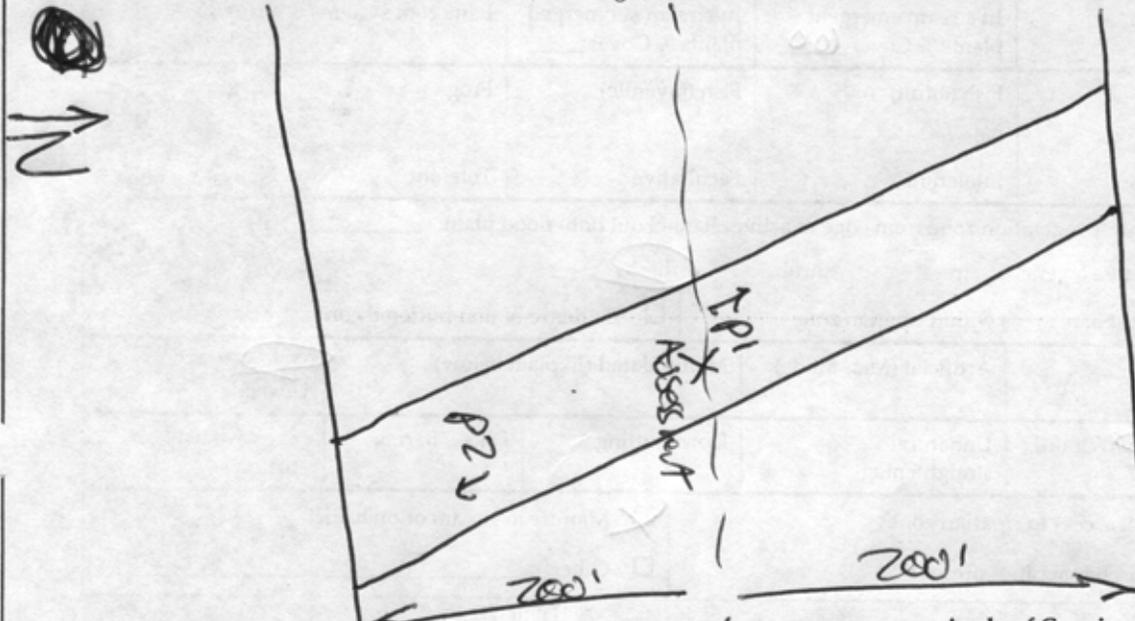
Associated Wetland No.:

Date: <u>8-27-09</u>	Client/Project Name & No.: <u>SHELL WOOD ENERGY</u>	Milepost: <u>Hermosa</u>
Investigators: <u>CARA ZEUSOFF</u>	Quad Name:	
State/County/Municipality: <u>WY / ALBANY</u>	Picture No.: <u>A95 A96</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Waterbody Type	Lake	Pond	Borrow Pit	River	<input checked="" type="radio"/> Stream	Ag. Ditch	Other: <u>dry wash</u>	
Stream Flow	Fast		Moderate		Slow	Very Slow	<input checked="" type="radio"/> None	
Flow type	Perennial (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		<input checked="" type="radio"/> Ephemeral (Flows only in response to rainfall)		Direction: <u>SE</u> Months of estimated flow: <u>1</u>	
OHWI Indicator	Clear natural line on bank		<input checked="" type="radio"/> Shelving	Wrested vegetation	Scour	Water Staining		
Bent, matted or missing vegetation		Soil character changes		Abrupt plant community change		Wrack line	Litter and debris	
Sinuosity	<input checked="" type="radio"/> Straight		<input checked="" type="radio"/> Meandering		Subsurface Flow?		Yes No <input checked="" type="radio"/> Unknown	
Stream Depth (in.)	0-3	3-6	<input checked="" type="radio"/> 6-12	12-18	18-24	24-36	36-48 48-60 60+	
Stream Width (ft.)	Top of Bank (at crossing location): <u>10'</u>				Water Surface (at crossing location): <u>2'</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<input checked="" type="radio"/> 2-4		4-6	6-8	8+	
	Right	0-2	<input checked="" type="radio"/> 2-4		4-6	6-8	8+	
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	<input checked="" type="radio"/> 20-40		40-60	60-80	80+	
	Right	<input checked="" type="radio"/> 0-20	20-40		40-60	60-80	80+	



Waterbody ID No.:

SAA 015

ERM.

Date: 8-27-08 Client/Project Name & No.: SITELE Milepost: Hemosa

QUALITATIVE ATTRIBUTES

Water Appearance NA	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock	Gravel 60	Sand 20	Silt/Clay 20	Organic
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover 100	In-stream submerged plants % Cover	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)	<u>Stable</u> / Unstable	
Channel Condition	<u>Channelization</u> / Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT Habitat ID No.:

NA

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

NW end more deeply incised

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

ERM

Waterbody Name: unknown

Waterbody ID No.: SAAL016

Centerline Re-Route Access Road Warehouse Site Other:

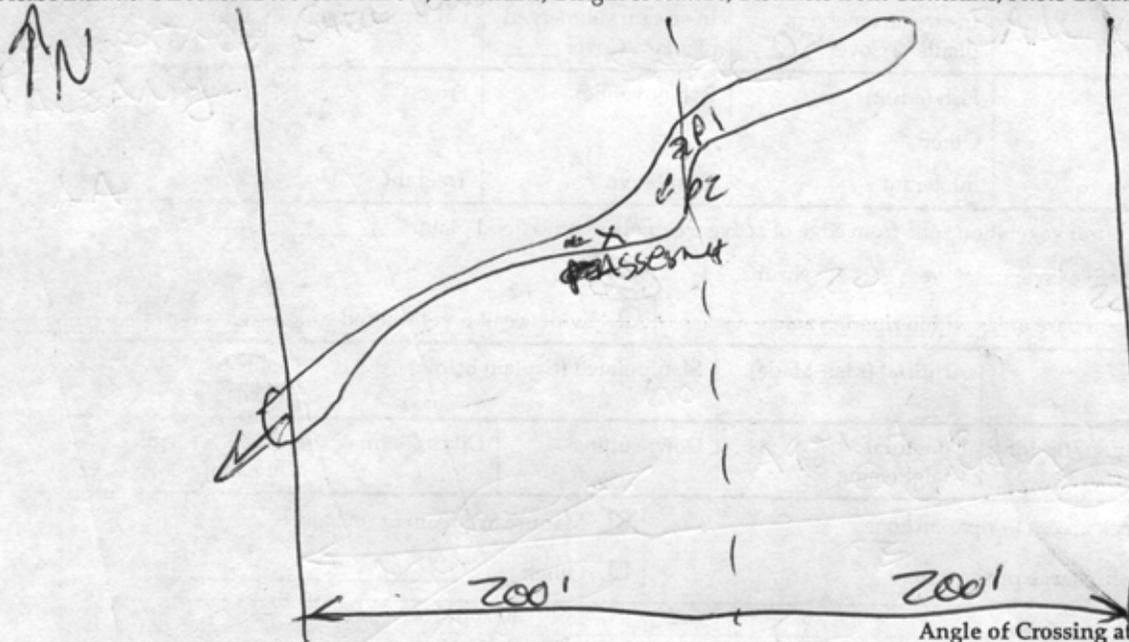
Associated Wetland No.:

Date: <u>8-27-09</u>	Client/Project Name & No.: <u>SHELL WIND ENERGY</u>	Milepost: <u>HERMOSA</u>
Investigators: <u>CLARK; ZEKLOFT</u>	Quad Name:	
State/County/Municipality: <u>WY / ALBANY</u>	Picture No.: <u>A101 A102</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<input checked="" type="radio"/> Stream	Ag. Ditch	Other: <u>dry wash</u>	
Stream Flow	Fast		Moderate		Slow	Very Slow	<input checked="" type="radio"/> None	
Flow type	Perennial (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		<input checked="" type="radio"/> Ephemeral (Flows only in response to rainfall)		Direction: <u>SW</u> Months of estimated flow: <u>1</u>	
OHWB Indicator	Clear natural line on bank		<input checked="" type="radio"/> Shelving	Wrested vegetation	<input checked="" type="radio"/> Scour	Water Staining		
Bent, matted or missing vegetation	Soil character changes		Abrupt plant community change		Wrack line	Litter and debris		
Sinuosity	Straight		<input checked="" type="radio"/> Meandering		Subsurface Flow?	Yes	<input checked="" type="radio"/> No <input type="radio"/> Unknown	
Stream Depth (in.)	<input checked="" type="radio"/> 0-3	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+	
Stream Width (ft.)	Top of Bank (at crossing location): <u>20'</u>				Water Surface (at crossing location): <u>7'</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<input checked="" type="radio"/> 2-4		4-6	6-8	8+	
	Right	0-2	<input checked="" type="radio"/> 2-4		4-6	6-8	8+	
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	20-40		<input checked="" type="radio"/> 40-60	60-80	80+	
	Right	0-20	20-40		<input checked="" type="radio"/> 40-60	60-80	80+	



Waterbody ID No.:

SAAL 066

Date: 8-27-09

Client/Project Name & No.: SURE HAND ENERGY

Milepost: ARMCHA

QUALITATIVE ATTRIBUTES

Water Appearance <u>NA</u>	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>70</u>	Sand <u>20</u>	Silt/Clay <u>10</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>50</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		<u>Stable</u> / Unstable
Channel Condition	<u>Channelization/Braiding</u>	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate)

High

Moderate

Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

ERM

Waterbody Name: Unknown

Waterbody ID No.: SAA1017

Centerline Re-Route Access Road Warehouse Site Other:

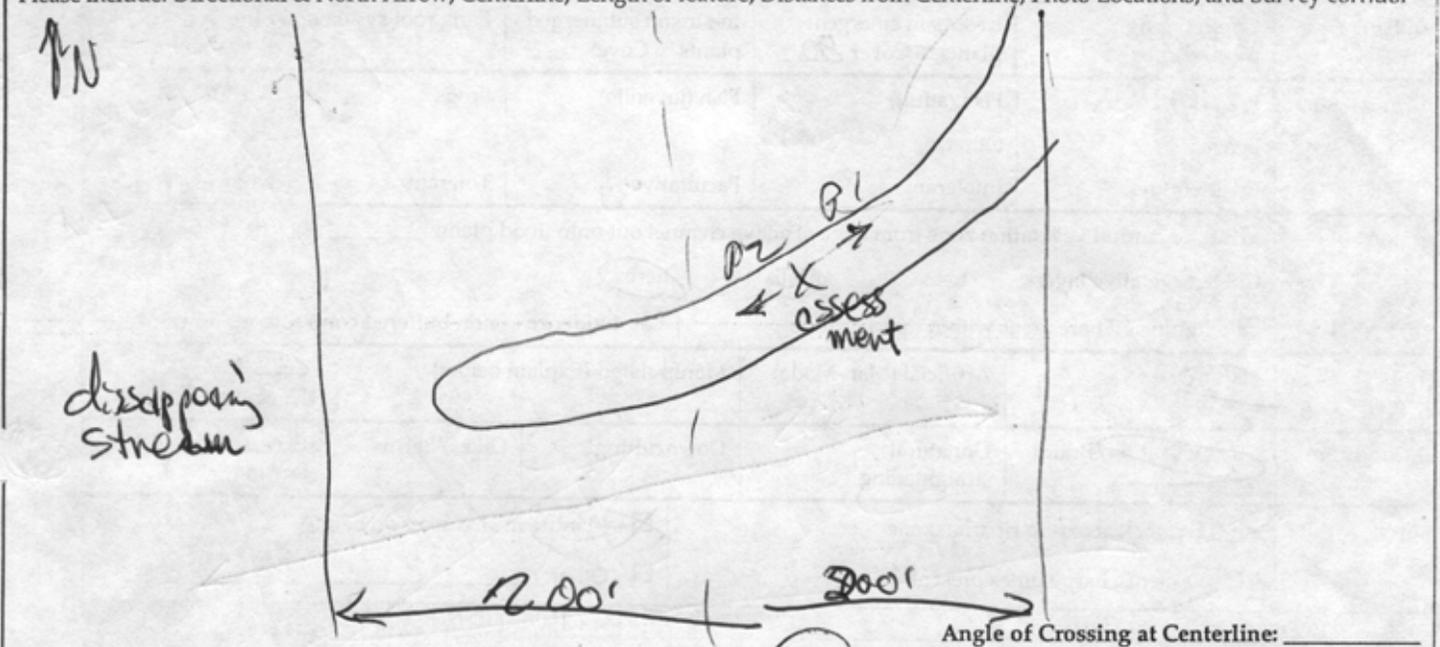
Associated Wetland No.:

Date: <u>8-27-09</u>	Client/Project Name & No.: <u>Sween</u>	Milepost: <u>Hermosa</u>
Investigators: <u>Craney, Zeisloft</u>	Quad Name:	
State/County/Municipality: <u>WY, Albany</u>	Picture No.: <u>A103 A104</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other: <u>dry wash</u>		
Stream Flow	Fast	<u>Moderate</u>	Slow	Very Slow	None				
Flow type	<u>Perennial</u> (Flows > 3 months annually)	Intermittent/Seasonal (Flows < 3 months annually)	Ephemeral (Flows only in response to rainfall)	Direction: <u>W</u>	Months of estimated flow: <u>6</u>				
OHWB Indicator	Clear natural line on bank	<u>Shelving</u>	Wrested vegetation	<u>Scour</u>	Water Staining				
Bent, matted or missing vegetation	Soil character changes	Abrupt plant community change		Wrack line	Litter and debris				
Sinuosity	Straight	<u>Meandering</u>	Subsurface Flow?	<u>Yes</u>	No	Unknown			
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>10'</u>				Water Surface (at crossing location): <u>3'</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<u>0-2</u>	2-4	4-6	6-8	8+			
	Right	<u>0-2</u>	2-4	4-6	6-8	8+			
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<u>0-20</u>	20-40	40-60	60-80	80+			
	Right	<u>0-20</u>	20-40	40-60	60-80	80+			



Waterbody ID No.:

SAAL 007

Date: 8-27-09 Client/Project Name & No.: SHAW Milepost: Heron

QUALITATIVE ATTRIBUTES

Water Appearance NA	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock	Gravel	Sand	Silt/Clay	Organic
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover 80	In-stream submerged plants % Cover	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees <u>shrubs</u> <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		<u>Stable</u> / Unstable
Channel Condition	<u>Channelization</u> / Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

H2O to west gate under pier

T/E SPECIES / SUITABLE HABITAT Habitat ID No.:

None

Comments (e.g. Information useful for ID forms, construction constraints, erosion potential, existing disturbances, and meanders)

Water to west gate indigenous

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

ERM

Waterbody Name: unknown

Waterbody ID No.:

SAL 018

Centerline Re-Route Access Road Warehouse Site Other:

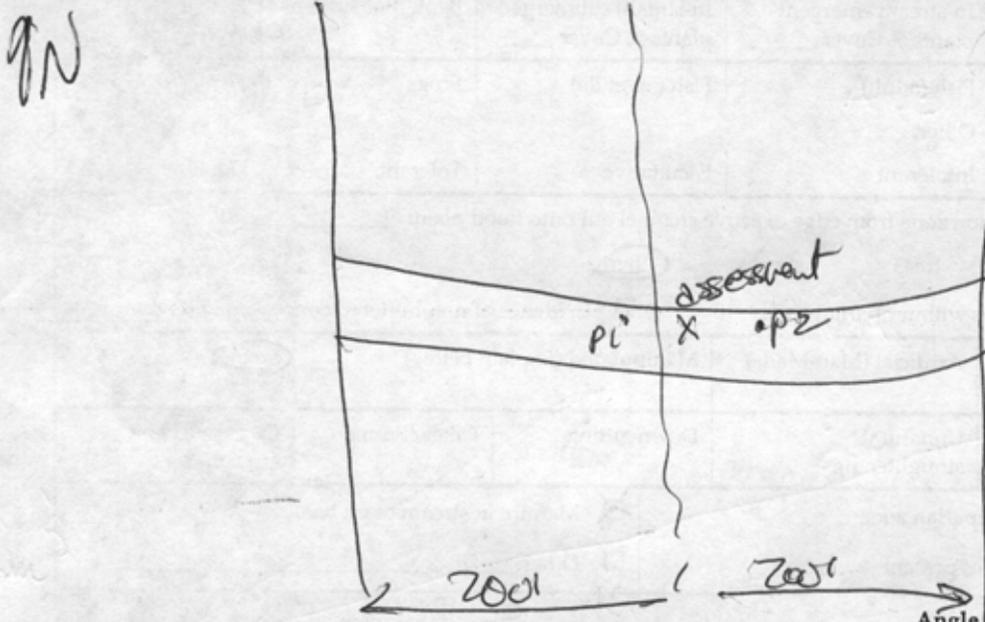
Associated Wetland No.:

Date: <u>8-27-09</u>	Client/Project Name & No.: <u>SURE</u>	Milepost: <u>Hermon</u>
Investigators: <u>CLARK; ZELSWOY</u>		Quad Name:
State/County/Municipality: <u>WY, ALBANY</u>		Picture No.: <u>A109 A110</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Waterbody Type	Lake	Pond	Borrow Pit	River	<input checked="" type="radio"/> Stream	Ag. Ditch	Other: <u>dry wash</u>		
Stream Flow	Fast	Moderate	Slow	Very Slow	<input checked="" type="radio"/> None				
Flow type	Perennial (Flows > 3 months annually)	Intermittent/Seasonal (Flows < 3 months annually)	<input checked="" type="radio"/> Ephemeral (Flows only in response to rainfall)		Direction: <u>E</u>	Months of estimated flow: <u>1-3</u>			
OHWI Indicator	Clear natural line on bank	<input checked="" type="radio"/> Shelving	Wrested vegetation	Scour	Water Staining				
Bent, matted or missing vegetation	Soil character changes	Abrupt plant community change		Wrack line	Litter and debris				
Sinuosity	<input checked="" type="radio"/> Straight	<input checked="" type="radio"/> Meandering	Subsurface Flow?	Yes	<input checked="" type="radio"/> No	Unknown			
Stream Depth (in.)	<input checked="" type="radio"/> 0-3	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>10</u>				Water Surface (at crossing location): <u>2'</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<input checked="" type="radio"/> 0-2	2-4	4-6	6-8	8+			
	Right	<input checked="" type="radio"/> 0-2	2-4	4-6	6-8	8+			
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<input checked="" type="radio"/> 0-20	20-40	40-60	60-80	80+			
	Right	<input checked="" type="radio"/> 0-20	20-40	40-60	60-80	80+			



ERM.

Waterbody ID No.:

SAAL 018

Date: 8-27-09

Client/Project Name & No.: SHAN

Milepost: Harnosa

QUALITATIVE ATTRIBUTES

Water Appearance NA	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock	Gravel 20	Sand 20	Silt/Clay 60	Organic
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover	In-stream submerged plants % Cover	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		<u>Stable</u> / Unstable
Channel Condition	<u>Channelization</u> /Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate)

High



Moderate

Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

ERM

Waterbody Name: FISH CREEK

Waterbody ID No.: SAA1019

Centerline Re-Route Access Road Warehouse Site Other:

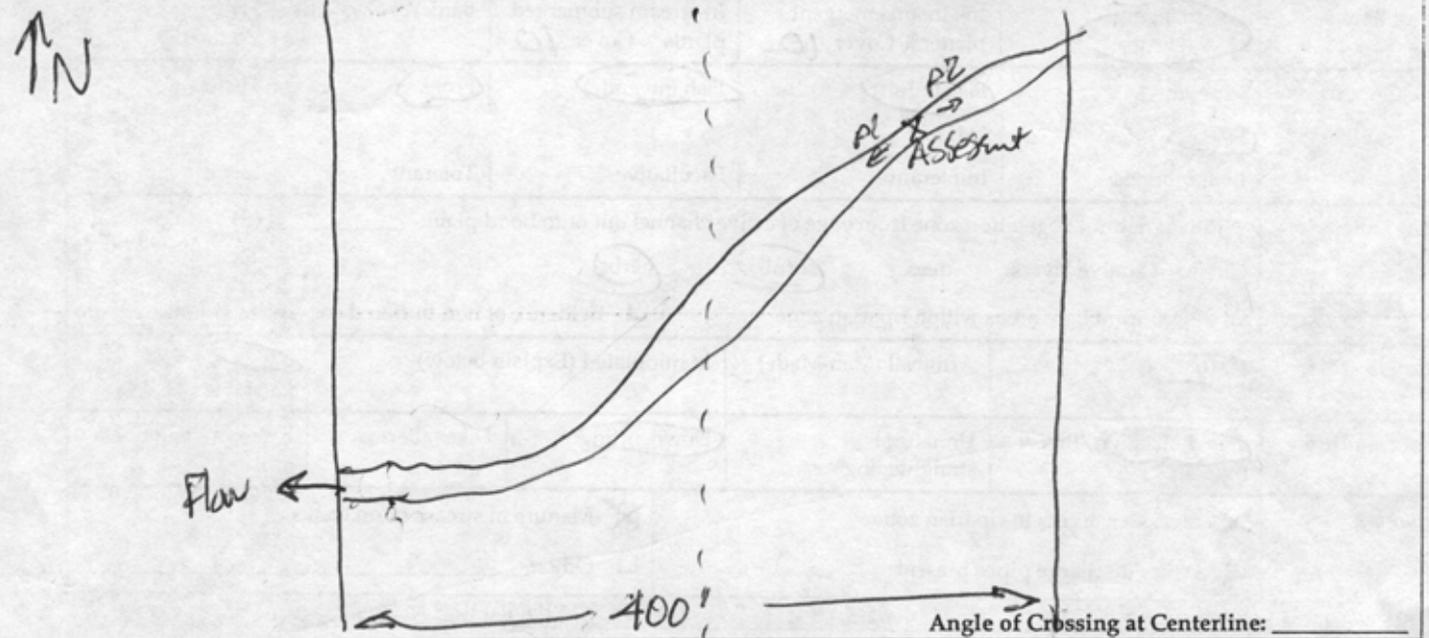
Associated Wetland No.:

Date: <u>8-27-09</u>	Client/Project Name & No.: <u>Sweet Wind Fw.</u>	Milepost: <u>Harmosa</u>
Investigators: <u>CLARK; ZELSOFT</u>	Quad Name:	
State/County/Municipality: <u>WY / ALBANY</u>	Picture No.: <u>A114 A115</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Waterbody Type	Lake	Pond	Borrow Pit	River	<input checked="" type="checkbox"/> Stream	Ag. Ditch	Other:		
Stream Flow	Fast		<input checked="" type="checkbox"/> Moderate	Slow		Very Slow		None	
Flow type	<input checked="" type="checkbox"/> Perennial (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>E</u>		Months of estimated flow: <u>12</u>
OHWM Indicator	Clear natural line on bank		<input checked="" type="checkbox"/> Shelving	Wrested vegetation		<input checked="" type="checkbox"/> Scour	Water Staining		
Bent, matted or missing vegetation		Soil character changes		Abrupt plant community change			Wrack line	Litter and debris	
Sinuosity	Straight		<input checked="" type="checkbox"/> Meandering		Subsurface Flow?		Yes	No	<input checked="" type="checkbox"/> Unknown
Stream Depth (in.)	0-3	3-6	<input checked="" type="checkbox"/> 6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>0-12'</u>				Water Surface (at crossing location): <u>5'</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<input checked="" type="checkbox"/> 2-4		4-6		6-8		8+
	Right	0-2	<input checked="" type="checkbox"/> 2-4		4-6		6-8		8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	20-40		40-60		60-80		<input checked="" type="checkbox"/> 80+
	Right	0-20	20-40		40-60		60-80		<input checked="" type="checkbox"/> 80+



Waterbody ID No.:

WAAL019

Date: 8-27-09 Client/Project Name & No.: SHELL Milepost: HERMOSA

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock	Gravel	Sand	Silt/Clay	Organic
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover 10	In-stream submerged plants % Cover 10	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
Invertebrates:	Intolerant	Facultative	Tolerant	None	
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs herbs				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	Natural	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: Fish Creek

Waterbody ID No.: SAA070

Centerline Re-Route Access Road Warehouse Site Other:

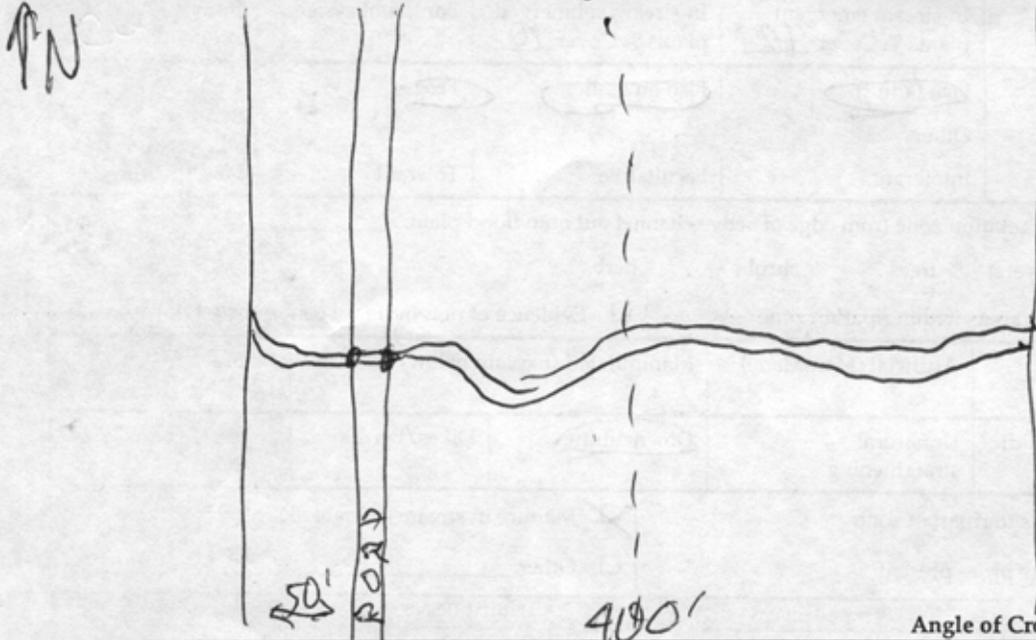
Associated Wetland No.:

Date: <u>9-27-09</u>	Client/Project Name & No.: <u>Shell Wind</u>	Milepost: <u>Hermosa</u>
Investigators: <u>CLARK, ZELSCOFF</u>	Quad Name:	
State/County/Municipality: <u>WY/ALBANY</u>	Picture No.: <u>A120 A121</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:		
Stream Flow	Fast	<u>Moderate</u>		Slow	Very Slow	None			
Flow type	<u>Perennial</u> (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)	Ephemeral (Flows only in response to rainfall)	Direction: <u>E</u>		Months of estimated flow: <u>10</u>		
OHWI Indicator	Clear natural line on bank		<u>Shelving</u>	Wrested vegetation	<u>Scour</u>	Water Staining			
Bent, matted or missing vegetation	Soil character changes		Abrupt plant community change		Wrack line	Litter and debris			
Sinuosity	Straight		<u>Meandering</u>		Subsurface Flow?		Yes	No	Unknown
Stream Depth (in.)	0-3	3-6	6-12	<u>12-18</u>	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>10'</u>				Water Surface (at crossing location): <u>5'</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>		4-6	6-8	8+		
	Right	0-2	<u>2-4</u>		4-6	6-8	8+		
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<u>0-20</u>	20-40		40-60	60-80	80+		
	Right	<u>0-20</u>	20-40		40-60	60-80	80+		



Waterbody ID No.:

SAAL020

Date: 9-27-09

Client/Project Name & No.: Shell Wind Energy

Milepost: Harwood

QUALITATIVE ATTRIBUTES

Water Appearance	<input checked="" type="radio"/> Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface <i>some slight</i>	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>30</u>	Sand <u>30</u>	Silt/Clay <u>40</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	<input checked="" type="radio"/> Overhanging trees/shrubs	In-stream emergent plants % Cover <u>10</u>	In-stream submerged plants % Cover <u>10</u>	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	<input checked="" type="radio"/> Fish (adult)	<input checked="" type="radio"/> Fish (juvenile)	<input checked="" type="radio"/> Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs herbs				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<input checked="" type="radio"/> Natural	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	<input checked="" type="radio"/> Channelization/Braiding	Unnatural straightening	<input checked="" type="radio"/> Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for ID forms, construction constraints, erosion potential, existing disturbances, and meanders)

Much cow piss smell & manure

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: probably (unknown)

Waterbody ID No.: SAA021

Centerline Re-Route Access Road Warehouse Site Other:

Associated Wetland No.:

Date: <u>8/27/09</u>	Client/Project Name & No.: <u>Shell</u>	Milepost: <u>Armore</u>
Investigators: <u>CHARLY ZELSOFT</u>	Quad Name:	
State/County/Municipality: <u>WY, ALBANY</u>	Picture No.: <u>A122 A123</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<input checked="" type="checkbox"/> Stream	Ag. Ditch	Other:		
Stream Flow	Fast		<input checked="" type="checkbox"/> Moderate	Slow		Very Slow		None	
Flow type	<input checked="" type="checkbox"/> Perennial (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>N</u>		Months of estimated flow: <u>12</u>
OHWI Indicator	Clear natural line on bank		<input checked="" type="checkbox"/> Shelving	Wrested vegetation		<input checked="" type="checkbox"/> Scour	Water Staining		
Bent, matted or missing vegetation		Soil character changes		Abrupt plant community change		Wrack line	Litter and debris		
Sinuosity	Straight		<input checked="" type="checkbox"/> Meandering		Subsurface Flow?		Yes	No	Unknown
Stream Depth (in.)	0-3	3-6	<input checked="" type="checkbox"/> 6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>15'</u>				Water Surface (at crossing location): <u>8'</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<input checked="" type="checkbox"/> 0-2	2-4		4-6		6-8		8+
	Right	0-2	<input checked="" type="checkbox"/> 2-4		4-6		6-8		8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<input checked="" type="checkbox"/> 0-20	20-40		40-60		60-80		80+
	Right	0-20	<input checked="" type="checkbox"/> 20-40		40-60		60-80		80+



ERM.

Waterbody ID No.:

SAALOZI

Date: 8-27-09

Client/Project Name & No.: Shell

Milepost: Hornosa

QUALITATIVE ATTRIBUTES

Water Appearance	<u>Clear</u>	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>10</u>	Sand <u>10</u>	Silt/Clay <u>80</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	<u>Mud Bar</u>	Gravel Riffles	Deep Pools
Undercut Banks	<u>Overhanging trees/shrubs</u>	In-stream emergent plants % Cover _____	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: <u>trees</u> <u>shrubs</u> <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		<u>Stable</u> / Unstable
Channel Condition	<u>Channelization</u> /Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g., Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate)

High

Moderate

Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

ERM

Waterbody Name: Unknown

Waterbody ID No.: SARLOZZ

Centerline Re-Route Access Road Warehouse Site Other:

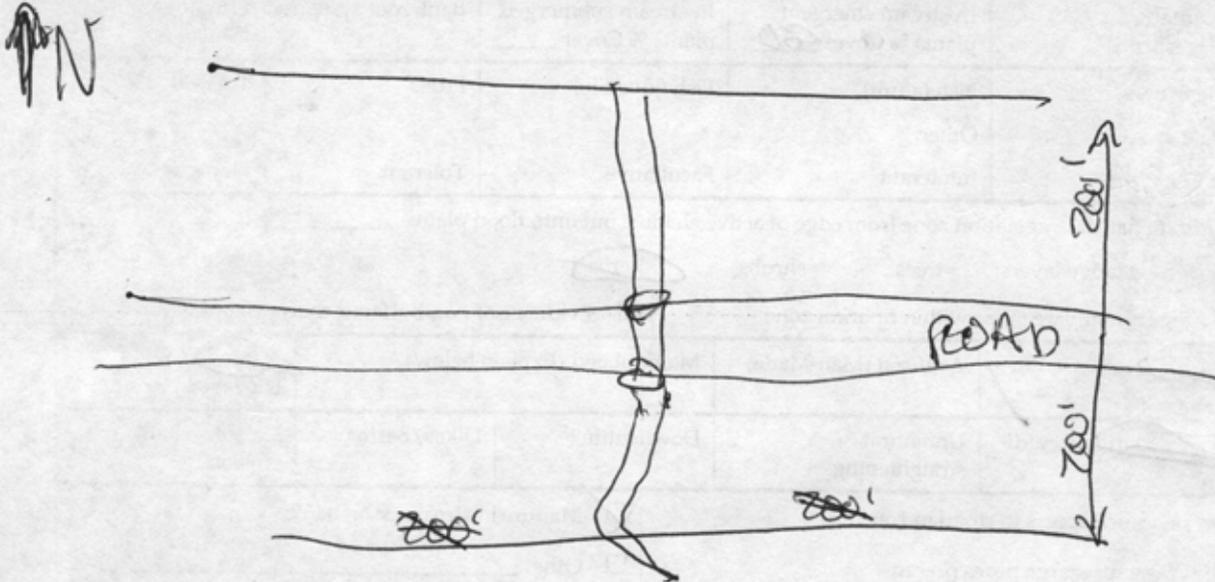
Associated Wetland No.:

Date: <u>8-27-09</u>	Client/Project Name & No.: <u>Shell</u>	Milepost: <u>Hermosa</u>
Investigators: <u>CLARK, ZERLOFF</u>	Quad Name:	
State/County/Municipality: <u>WY, ALBANY</u>	Picture No.: <u>A124 A125</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other: <u>dry wash</u>
Stream Flow	Fast		Moderate		Slow		Very Slow <u>None</u>
Flow type	Perennial (Flows > 3 months annually)		<u>Intermittent</u> Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>N</u> Months of estimated flow: <u>2-3</u>
OHWI Indicator	Clear natural line on bank		<u>Shelving</u>	Wrested vegetation		Scour	Water Staining
Bent, matted or missing vegetation		Soil character changes		<u>Abrupt plant community change</u>		Wrack line	Litter and debris
Sinuosity	<u>Straight</u>		<u>Meandering</u>		Subsurface Flow?		Yes No Unknown
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>5'</u>				Water Surface (at crossing location): <u>2'</u>		
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<u>0-2</u>	2-4		4-6		6-8 8+
	Right	<u>0-2</u>	2-4		4-6		6-8 8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<u>0-20</u>	20-40		40-60		60-80 80+
	Right	<u>0-20</u>	20-40		40-60		60-80 80+



ERM.

Waterbody ID No.: SAA022

Date: 8-27-09 Client/Project Name & No.: Shell Milepost: Harvosa

QUALITATIVE ATTRIBUTES

Water Appearance	<input checked="" type="radio"/> Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>10</u>	Sand <u>10</u>	Silt/Clay <u>80</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>60</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<input checked="" type="radio"/> Natural	Artificial (Man-Made)	Manipulated (Explain below)	<input checked="" type="radio"/> Stable / <input type="radio"/> Unstable	
Channel Condition	<input checked="" type="radio"/> Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: Unnamed Tributary

Waterbody ID No.: SBAL001

Centerline Re-Route Access Road Warehouse Site Other:

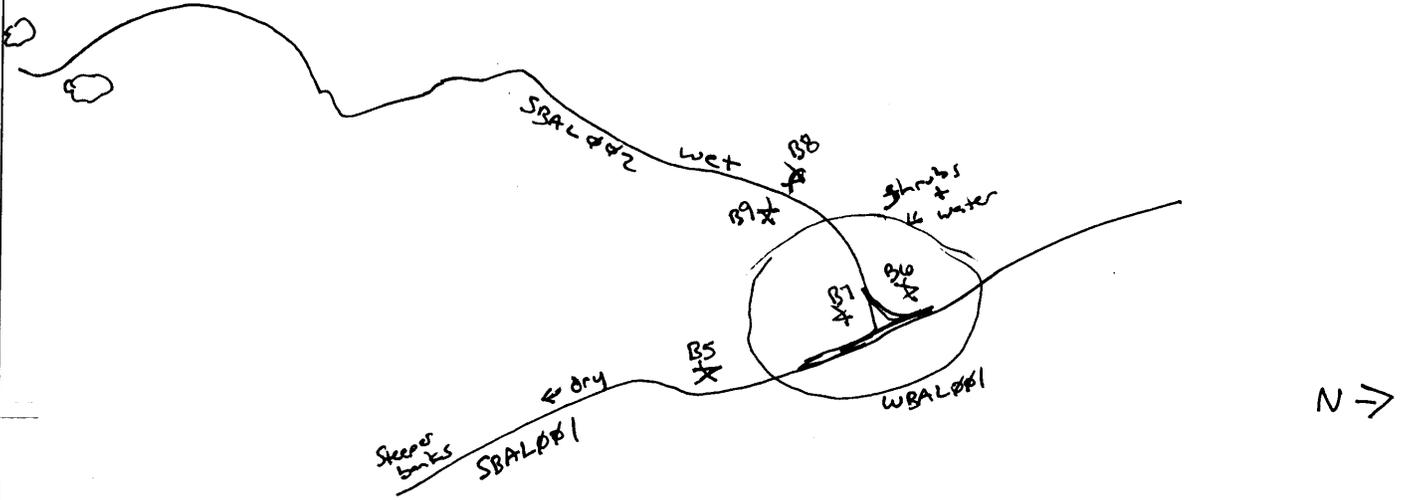
Associated Wetland No.: WBAL001

Date: <u>8/25/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amada Zuniga</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B5</u>

PHYSICAL ATTRIBUTES

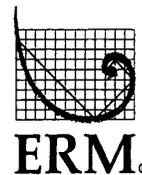
Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:	
Stream Flow	Fast		Moderate		Slow	Very Slow <u>None</u>		
Flow type	Perennial (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		<u>Ephemeral (Flows only in response to rainfall)</u>	Direction: <u>N</u> Months of estimated flow: _____		
OHWM Indicator	Clear natural line on bank		Shelving	<u>Abrupt plant community change</u>		Scour	Water Staining	
	Bent, matted or missing vegetation		Soil character changes		Wrack line	Litter and debris		
Sinuosity	<u>Straight</u>		Meandering		Subsurface Flow?		Yes No <u>Unknown</u>	
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+	
Stream Width (ft.)	Top of Bank (at crossing location): <u>2-8ft</u>				Water Surface (at crossing location): <u>NA</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>		4-6		6-8 8+	
	Right	0-2	<u>2-4</u>		4-6		6-8 8+	
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	<u>20-40</u>		40-60		60-80 80+	
	Right	0-20	<u>20-40</u>		40-60		60-80 80+	



Waterbody ID No.: SBAL001

Date: 8/25/09 Client/Project Name & No.: Hermosa 0105023 Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	<u>N/A</u>	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay <u>100</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>50</u>	In-stream submerged plants % Cover <u>20</u>	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>None</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>10-100</u> (ft) Circle vegetative layers: trees shrubs <u>herbs</u> <i>Steeper banks to south</i>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)	Stable / Unstable	
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

I/E SPECIES/SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any likes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.

15810 Park Ten Place
 Suite 300
 Houston, Texas 77084-5140



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SBAL002

Centerline Re-Route Access Road Warehouse Site Other:

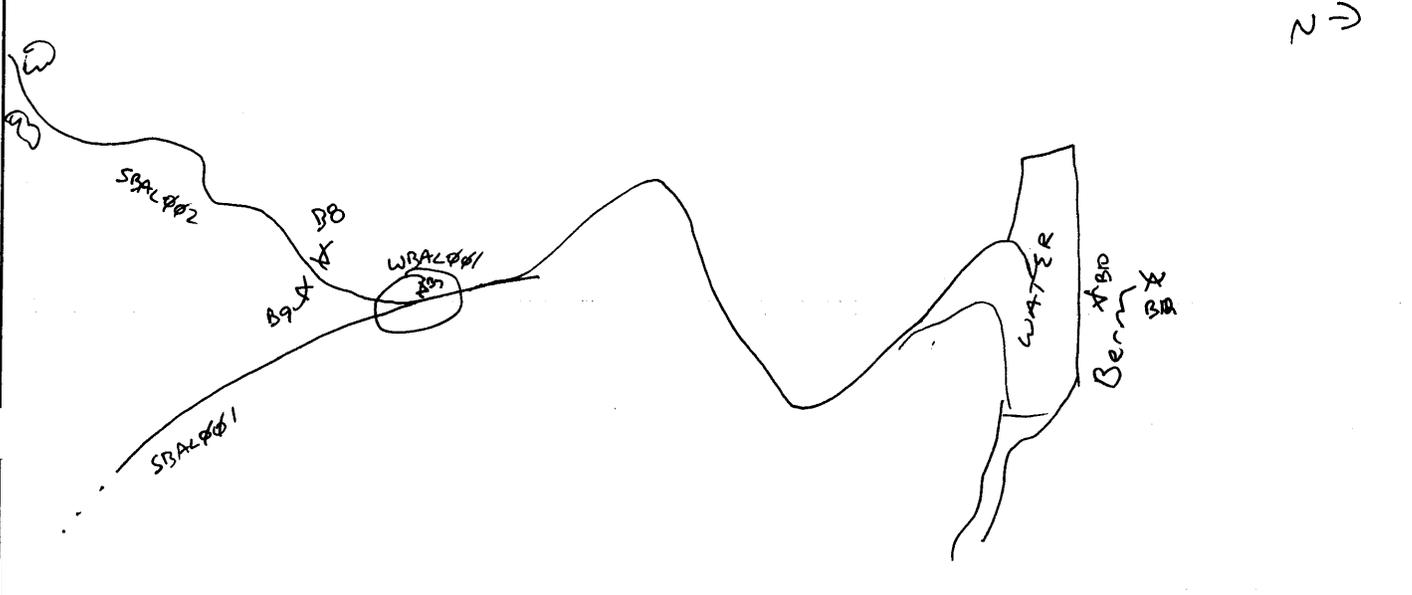
Associated Wetland No.: WBAL001

Date: <u>8/25/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B7-14</u>

PHYSICAL CHARACTERISTICS

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:		
Stream Flow	Fast		Moderate		Slow		<u>Very Slow</u>		
Flow type	<u>Perennial (Flows > 3 months annually)</u>		Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: _____ Months of estimated flow: _____		
OHWI Indicator	Clear natural line on bank		Shelving	<u>Wrested vegetation</u>		Scour	Water Staining		
Bent, matted or missing vegetation		Soil character changes		<u>Abrupt plant community change</u>			Wreck line	Litter and debris	
Sinuosity	Straight		<u>Meandering</u>		Subsurface Flow?		Yes	No	<u>Unknown</u>
Stream Depth (in.)	0-3	3-6	6-12	12-18	<u>18-24</u>	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>2-5</u>				Water Surface (at crossing location): <u>1-2</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>		4-6		6-8		8+
	Right	0-2	<u>2-4</u>		4-6		6-8		8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<u>0-20</u>	20-40		<u>40-60</u>		60-80		80+
	Right	<u>0-20</u>	20-40		<u>40-60</u>		60-80		80+

South reach

North reach



Waterbody ID No.: SBA 6002

Date: <u>8/25/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
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QUALITATIVE ATTRIBUTES

Water Appearance	<u>Clear</u>	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay <u>100</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	<u>Overhanging trees/shrubs</u>	In-stream emergent plants % Cover <u>30</u>	In-stream submerged plants % Cover _____	Bank root systems	<u>Fringing Wetlands</u>
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>None</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u> <u>South reach</u>	Artificial (Man-Made)	<u>Manipulated (Explain below)</u>	Stable / Unstable	
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	<u>Dikes/Berms</u> <u>north reach</u>	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

WATER SPECIES / SUITABLE HABITAT Habitat ID No.:

Comments (e.g., information useful for ID forms, construction constraints, erosion potential, existing disturbances, and meanders):

Presence of aquatic organisms is likely, although none were seen. Large dirt berm on the northern portion of the surveyed area holding a pool of water.

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: Forest Creek

Waterbody ID No.: SBA L003

Centerline Re-Route Access Road Warehouse Site Other:

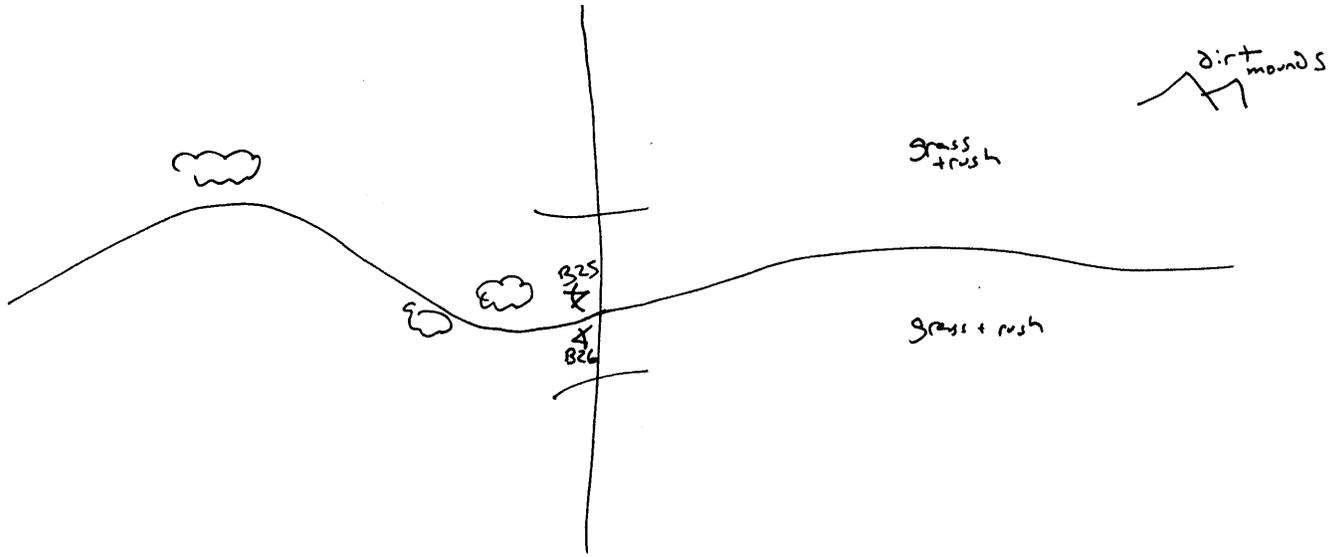
Associated Wetland No.:

Date:	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>	Quad Name:	
State/County/Municipality: <u>Albany Co, Wyoming</u>	Picture No.: <u>B25 + 26</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



N ↓
 Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:	
Stream Flow	Fast		Moderate		Slow		<u>Very Slow</u> None	
Flow type	<u>Perennial (Flows > 3 months annually)</u>		Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>E</u> Months of estimated flow: <u>9</u>	
OHWM Indicator	Clear natural line on bank		Shelving	<u>Wrested vegetation</u>		Scour	Water Staining	
	Bent, matted or missing vegetation		Soil character changes	<u>Abrupt plant community change</u>		Wrack line	Litter and debris	
Sinuosity	Straight		Meandering		Subsurface Flow?		Yes No <u>Unknown</u>	
Stream Depth (in.)	0-3	<u>3-6</u>	6-12	12-18	18-24	24-36	36-48 48-60 60+	
Stream Width (ft.)	Top of Bank (at crossing location): <u>2</u>				Water Surface (at crossing location): <u>2</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	2-4		4-6		6-8 8+	
	Right	0-2	2-4		4-6		6-8 8+	
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<u>0-20</u>	20-40		40-60		60-80 80+	
	Right	<u>0-20</u>	20-40		40-60		60-80 80+	



Waterbody ID No.:

SBA 003

Date: 8/25/09

Client/Project Name & No.: Hermosa 0105023

Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	<input checked="" type="radio"/> Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay <u>100</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>100</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands <u>veg. along banks</u>
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	<input checked="" type="radio"/> Snakes <u>holes</u>	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>20</u> (ft)				
	Circle vegetative layers: trees shrubs <input checked="" type="radio"/> herbs				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<input checked="" type="radio"/> Natural	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

USE SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SBA2004

Centerline Re-Route Access Road Warehouse Site Other:

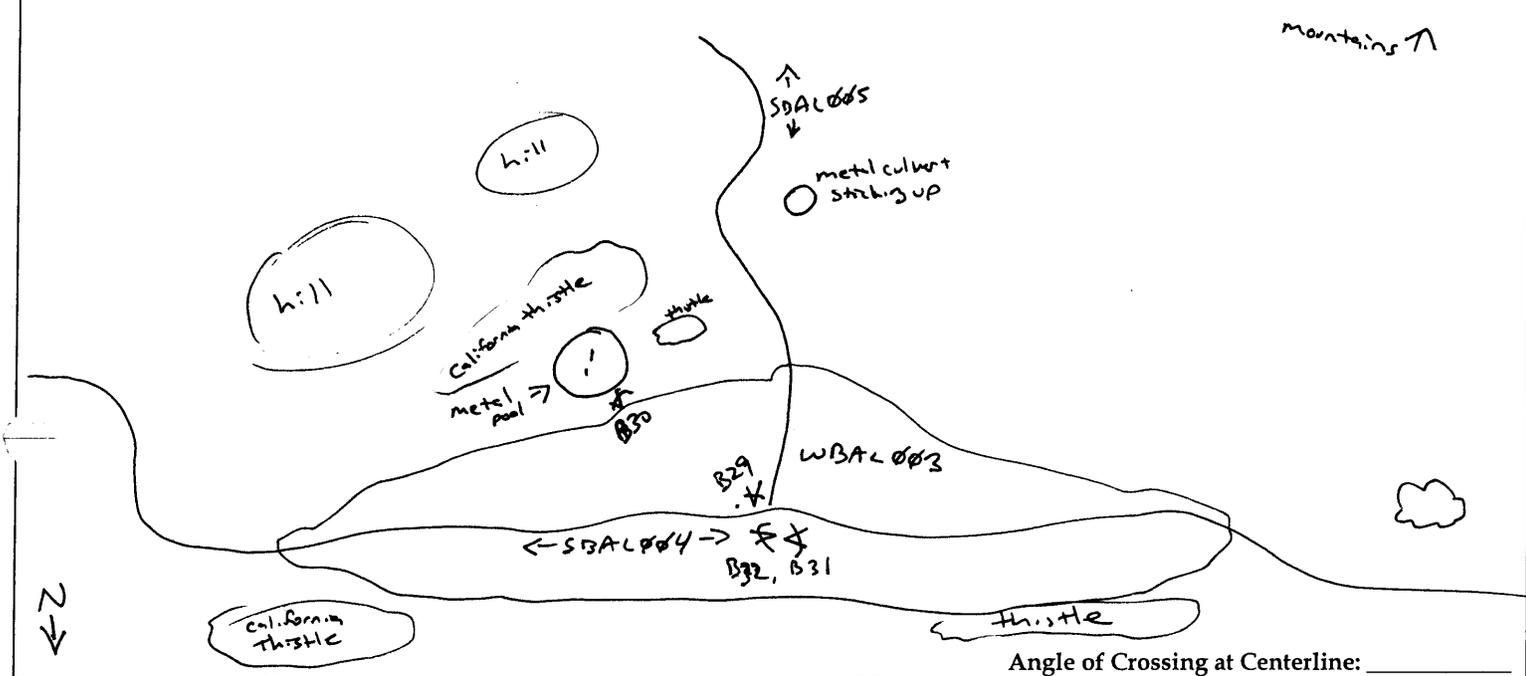
Associated Wetland No.: WBA2003

Date:	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>	Quad Name:	
State/County/Municipality: <u>Albany Co, Wyoming</u>	Picture No.: <u>B31 + B32</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:	
Stream Flow	Fast		<u>Moderate</u>		Slow		Very Slow None	
Flow type	<u>Perennial (Flows > 3 months annually)</u>		Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>E</u> Months of estimated flow: <u>12</u>	
OHWM Indicator	Clear natural line on bank		Shelving	<u>Abrupt plant community change</u>		Scour	Water Staining	
	Bent, matted or missing vegetation		Soil character changes			Wrack line	Litter and debris	
Sinuosity	<u>Straight</u>		Meandering		Subsurface Flow?		Yes No <u>Unknown</u>	
Stream Depth (in.)	0-3	<u>3-6</u>	6-12	12-18	18-24	24-36	36-48 48-60 60+	
Stream Width (ft.)	Top of Bank (at crossing location): <u>40</u>				Water Surface (at crossing location): <u>2</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	2-4		4-6		<u>6-8</u> 8+	
	Right	0-2	2-4		4-6		<u>6-8</u> 8+	
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	<u>20-40</u>		40-60		60-80 80+	
	Right	0-20	<u>20-40</u>		40-60		60-80 80+	



Waterbody ID No.: SBA 004

Date: 8/25/09 Client/Project Name & No.: Hermosa 0105023 Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	<u>Clear</u>	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>30</u>	Sand _____	Silt/Clay <u>70</u>	Organic _____
Aquatic Habitats	Sand Bar	<u>Gravel Bar</u>	Mud Bar	<u>Gravel Riffles</u>	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>5</u>	In-stream submerged plants % Cover _____	Bank root systems	<u>Fringing Wetlands</u>
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>40</u> (ft)				
	Circle vegetative layers: trees shrubs <u>(herbs)</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	<u>Channelization/Braiding</u>	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

USE SPECIES / SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

Clumps of californian thistle present. Aquatic organisms likely present, though not seen.

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any likes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SBAL005

Centerline Re-Route Access Road Warehouse Site Other:

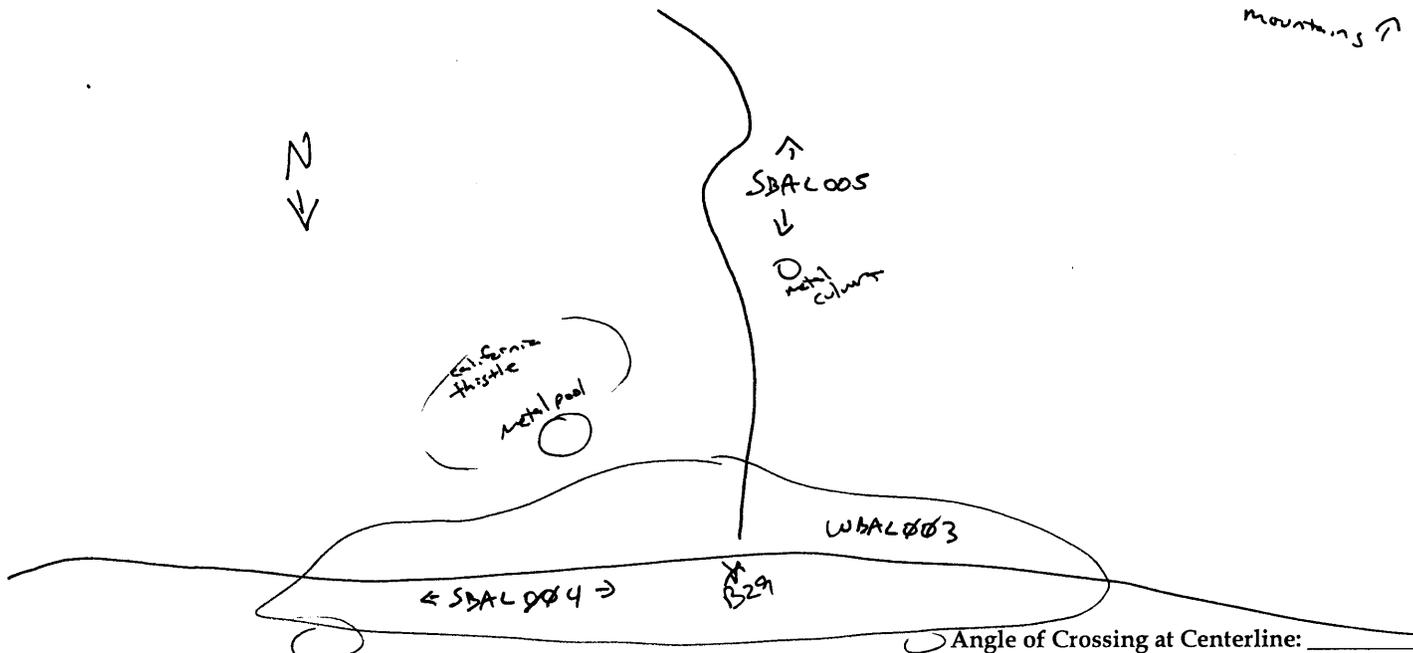
Associated Wetland No.: WBAL003

Date:	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>	Quad Name:	
State/County/Municipality: <u>Albany Co, Wyoming</u>	Picture No.: <u>B29</u>	

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan SAME AS SBAL004

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Waterbody Type	Lake	Pond	Borrow Pit	River	<input checked="" type="radio"/> Stream	Ag. Ditch	Other:	
Stream Flow	Fast	<input checked="" type="radio"/> Moderate		Slow	Very Slow	None		
Flow type	<input checked="" type="radio"/> Perennial (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>N</u> Months of estimated flow: <u>12</u>	
OHWM Indicator	Clear natural line on bank		Shelving	<input checked="" type="radio"/> Wrested vegetation		Scour	Water Staining	
	Bent, matted or missing vegetation	Soil character changes	<input checked="" type="radio"/> Abrupt plant community change		Wrack line	Litter and debris		
Sinuosity	<input checked="" type="radio"/> Straight		Meandering		Subsurface Flow?		Yes No <input checked="" type="radio"/> Unknown	
Stream Depth (in.)	0-3	<input checked="" type="radio"/> 3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+	
Stream Width (ft.)	Top of Bank (at crossing location): <u>15</u>				Water Surface (at crossing location): <u>2</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	2-4		<input checked="" type="radio"/> 4-6		6-8 8+	
	Right	0-2	2-4		<input checked="" type="radio"/> 4-6		6-8 8+	
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	<input checked="" type="radio"/> 20-40		40-60		60-80 80+	
	Right	0-20	<input checked="" type="radio"/> 20-40		40-60		60-80 80+	



Waterbody ID No.: SBAL 005

Date: 8/25/09 Client/Project Name & No.: Hermosa 0105023 Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	<u>Clear</u>	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay <u>100</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover _____	In-stream submerged plants % Cover _____	Bank root systems	<u>Fringing Wetlands</u>
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>None</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>15</u> (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	<u>Channelization/Braiding</u>	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

I/E SPECIES / SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any likes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.

15810 Park Ten Place
 Suite 300
 Houston, Texas 77084-5140



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SBA 2006

Centerline Re-Route Access Road Warehouse Site Other:

Associated Wetland No.:

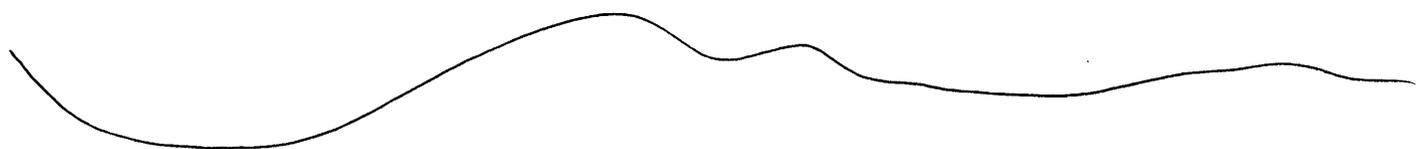
Date: <u>8/26/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.:

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

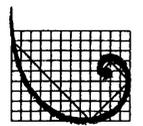
Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor

NA



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:		
Stream Flow	Fast		Moderate		Slow	Very Slow		<u>None</u>	
Flow type	Perennial (Flows > 3 months annually)		<u>Intermittent/Seasonal (Flows < 3 months annually)</u>		Ephemeral (Flows only in response to rainfall)		Direction: <u>W</u>		Months of estimated flow: <u>< 3</u>
OHWM Indicator	Clear natural line on bank		Shelving	<u>Wrested vegetation</u>		<u>Scour</u>	Water Staining		
Bent, matted or missing vegetation		Soil character changes		<u>Abrupt plant community change</u>		Wrack line	Litter and debris		
Sinuosity	Straight		Meandering		Subsurface Flow?		Yes	No	<u>Unknown</u>
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>10</u>				Water Surface (at crossing location): <u>NA</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>		4-6		6-8		8+
	Right	0-2	<u>2-4</u>		4-6		6-8		8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	20-40		<u>40-60</u>		60-80		80+
	Right	0-20	20-40		<u>40-60</u>		60-80		80+



ERM.

Waterbody ID No.:

SBAL 006

Date: 8/26/09

Client/Project Name & No.: Hermosa 0105023

Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance NA	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock	Gravel 5	Sand	Silt/Clay 95	Organic
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover 50	In-stream submerged plants % Cover 30	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs <u>Kerbs</u>				
	<input checked="" type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)	Stable / Unstable	
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

VE SPECIES/SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate)

High

Moderate

Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any likes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SBAL 067

Centerline Re-Route Access Road Warehouse Site Other:

Associated Wetland No.:

Date: <u>8/26/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B59 + B60</u>

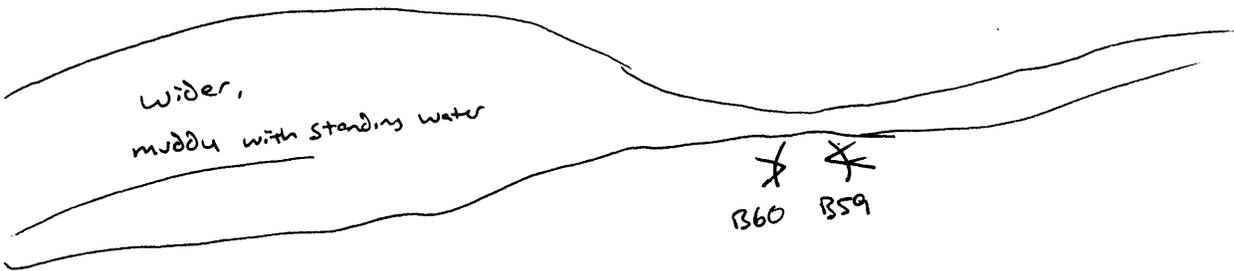
PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



hills & cattle



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:
Stream Flow	Fast		Moderate		Slow	<u>Very Slow</u>	<u>STANDING</u> None
Flow type	Perennial (Flows > 3 months annually)	<u>Intermittent/Seasonal</u> (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>N</u>	Months of estimated flow: <u>~3</u>
OHWM Indicator	Clear natural line on bank		Shelving	<u>Wrested vegetation</u>		Scour	Water Staining
Bent, matted or missing vegetation	Soil character changes		<u>Abrupt plant community change</u>			Wrack line	Litter and debris
Sinuosity	<u>Straight</u>		Meandering		Subsurface Flow?		Yes No <u>Unknown</u>
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>30</u>				Water Surface (at crossing location): <u>15</u>		
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	2-4		4-6		<u>6-8</u> 8+
	Right	0-2	2-4		4-6		<u>6-8</u> 8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left <u>W</u>	0-20	<u>20-40</u>		40-60		60-80 80+
	Right <u>E</u>	0-20	20-40		<u>40-60</u>		60-80 80+



Waterbody ID No.: SBAL007

Date: 8/26/09 Client/Project Name & No.: Hermosa 0105023 Milepost: _____

QUALITATIVE ATTRIBUTES

Water Appearance	<u>Clear</u>	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	<u>Sheen on surface</u>	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay <u>100</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	<u>Mud Bar</u>	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>60</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>None</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>30</u> (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)	Stable / Unstable	
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

I/E SPECIES / SUITABLE HABITAT Habitat ID No.: _____

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.

15810 Park Ten Place
 Suite 300
 Houston, Texas 77084-5140



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SBAL008

Centerline Re-Route Access Road Warehouse Site Other:

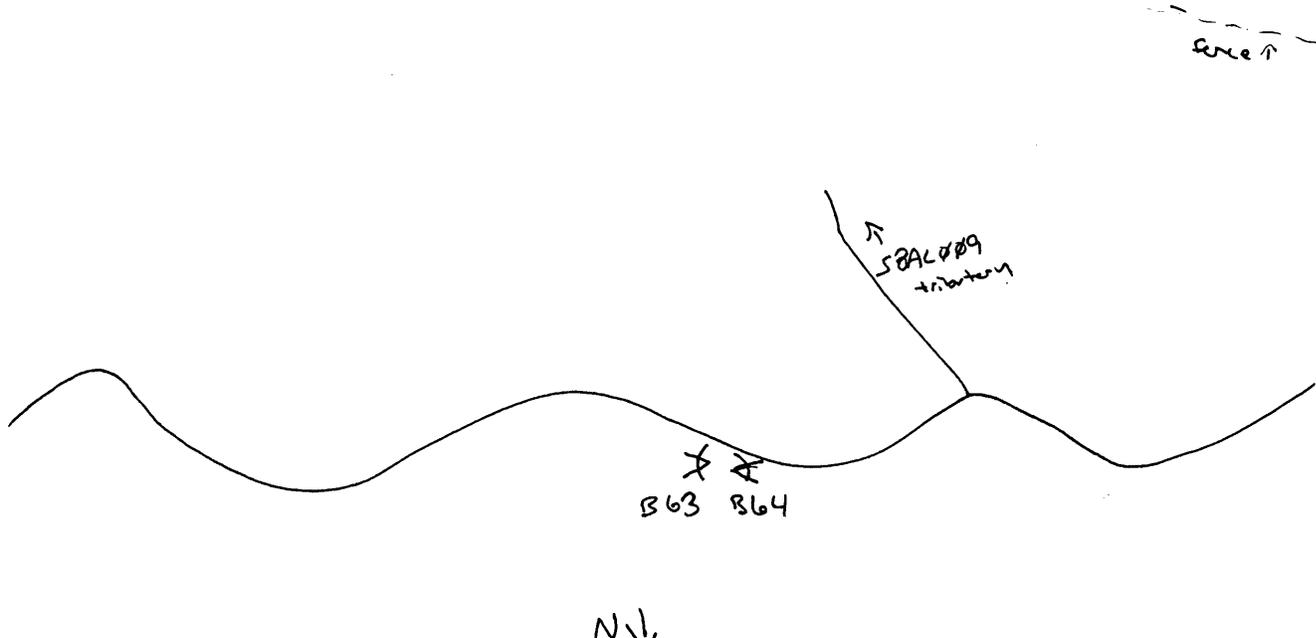
Associated Wetland No.:

Date:	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators:	<u>Erin Johnson, Amanda Zuniga</u>	Quad Name:
State/County/Municipality:	<u>Albany Co., Wyoming</u>	Picture No.: <u>B63 + B64</u>

PHYSICAL ATTRIBUTES

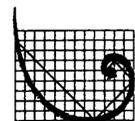
Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:
Stream Flow	Fast	<u>Moderate</u>		Slow	Very Slow	None	
Flow type	<u>Perennial (Flows > 3 months annually)</u>	Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>NW</u> Months of estimated flow: <u>6*</u>	
OHWM Indicator	<u>Clear natural line on bank</u>		Shelving	<u>Wrested vegetation</u>		Scour	Water Staining
	Bent, matted or missing vegetation		Soil character changes	<u>Abrupt plant community change</u>		Wrack line	Litter and debris
Sinuosity	<u>Straight</u>		Meandering		Subsurface Flow?		Yes No <u>Unknown</u>
Stream Depth (in.)	0-3	<u>3-6</u>	6-12	12-18	18-24	24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>10</u>				Water Surface (at crossing location): <u>6</u>		
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>		4-6	6-8	8+
	Right	0-2	<u>2-4</u>		4-6	6-8	8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	<u>20-40 east</u>		<u>40-60 west</u>	60-80	80+
	Right	0-20	<u>20-40</u>		<u>40-60</u>	60-80	80+



ERM®

Waterbody ID No.:

SBAL008

Date: 8/26/09

Client/Project Name & No.: Hermosa 0105023

Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	<u>Turbid</u> Brown	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay <u>100</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>30</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>None</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>15</u> (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	Natural	Artificial (Man-Made)	Manipulated (Explain below)	Stable / Unstable	
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

I/E SPECIES/SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate)

High

cattle

Moderate

Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SBAL009
 (tributary to SBAL008)

Centerline Re-Route Access Road Warehouse Site Other:

Associated Wetland No.:

Date: <u>8/26/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B65 + B66</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:
Stream Flow	Fast		Moderate		Slow	Very Slow None	
Flow type	Perennial (Flows > 3 months annually)		<u>Intermittent/Seasonal</u> (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)	Direction: <u>N</u> Months of estimated flow: <u>~3</u>	
OHWM Indicator	Clear natural line on bank		Shelving	<u>Wrested vegetation</u>		Scour	Water Staining
	Bent, matted or missing vegetation		Soil character changes	<u>Abrupt plant community change</u>		Wrack line	Litter and debris
Sinuosity	<u>Straight</u>		Meandering		Subsurface Flow?		Yes No Unknown
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>20</u>				Water Surface (at crossing location): <u>0</u>		
Bank Height (ft.) (looking downstream else give direction you're facing here: _____)	Left	0-2	<u>2-4</u>		4-6	6-8	8+
	Right	0-2	<u>2-4</u>		4-6	6-8	8+
Bank Slope (°) (looking downstream else give direction you're facing here: _____)	Left	0-20	<u>20-40</u>		40-60	60-80	80+
	Right	0-20	<u>20-40</u>		40-60	60-80	80+



Waterbody ID No.: SBA4009

Date: 8/26/09 Client/Project Name & No.: Hermosa 0105023 Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	<u>NA</u> Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay <u>50</u>	Organic <u>50</u>
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>100</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>None</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>8</u> (ft) Circle vegetative layers: trees shrubs <u>(herbs)</u> <input type="checkbox"/> Significant bare areas within riparian zone <input type="checkbox"/> Evidence of non-buffered concentrated flows				
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone <input type="checkbox"/> Waste discharge pipes present		<input checked="" type="checkbox"/> Manure in stream or on banks <input type="checkbox"/> Other: _____		

USE SPECIES/SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any likes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SBAL010

Centerline Re-Route Access Road Warehouse Site Other:

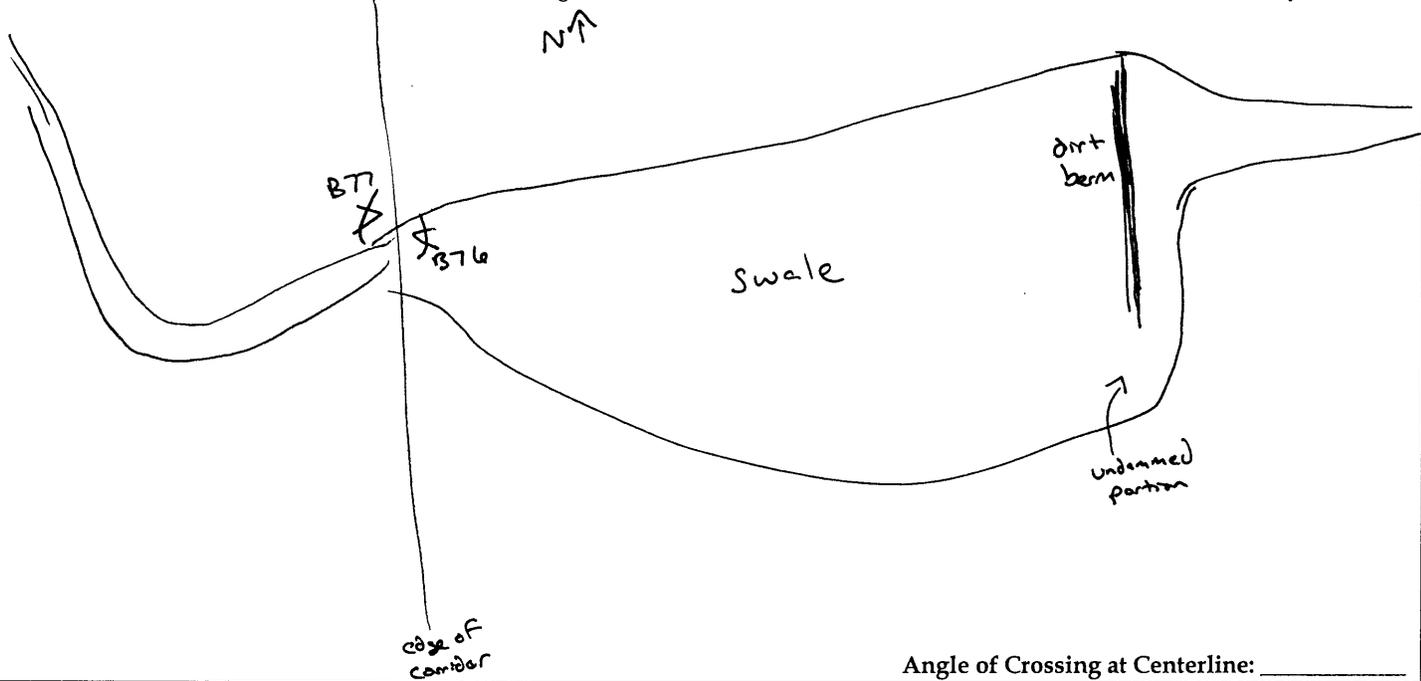
Associated Wetland No.:

Date: <u>8/26/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>		Quad Name:
State/County/Municipality: <u>Albany Co, Wyoming</u>		Picture No.: <u>B76 + B77</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:		
Stream Flow	Fast		Moderate		Slow	Very Slow (None)			
Flow type	Perennial (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		<u>Ephemeral (Flows only in response to rainfall)</u>	Direction: <u>NW</u> Months of estimated flow: _____			
OHWI Indicator	<u>Clear natural line on bank</u>		Shelving	Wrested vegetation	<u>Scour</u>	Water Staining			
Bent, matted or missing vegetation	Soil character changes		Abrupt plant community change		Wrack line	Litter and debris			
Sinuosity	Straight		<u>Meandering</u>		Subsurface Flow?	Yes	No	Unknown	
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>5</u>				Water Surface (at crossing location): <u>0</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<u>0-2</u>	<u>(2-4 NW)</u>		4-6	6-8	8+		
	Right	<u>0-2</u>	<u>(2-4)</u>		4-6	6-8	8+		
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<u>0-20</u>	<u>(20-40 NW)</u>		40-60	60-80	80+		
	Right	<u>0-20</u>	<u>(20-40)</u>		40-60	60-80	80+		

deeper cut west, out of survey area



Waterbody ID No.: SBA L 010

Date: 8/26/09 Client/Project Name & No.: Hermosa 0105023 Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	<u>NA</u> Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>50</u>	Sand _____	Silt/Clay <u>50</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>40</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>None</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>5</u> (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	Natural	Artificial (Man-Made)	<u>Manipulated (Explain below)</u>		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

USE SPECIES/SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

A dirt berm/Artificial dam is present to the east (upstream); however, it appears as though water can pass by the barrier on the southern edge of the berm.

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any levees/berms are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SBA2011

Centerline Re-Route Access Road Warehouse Site Other:

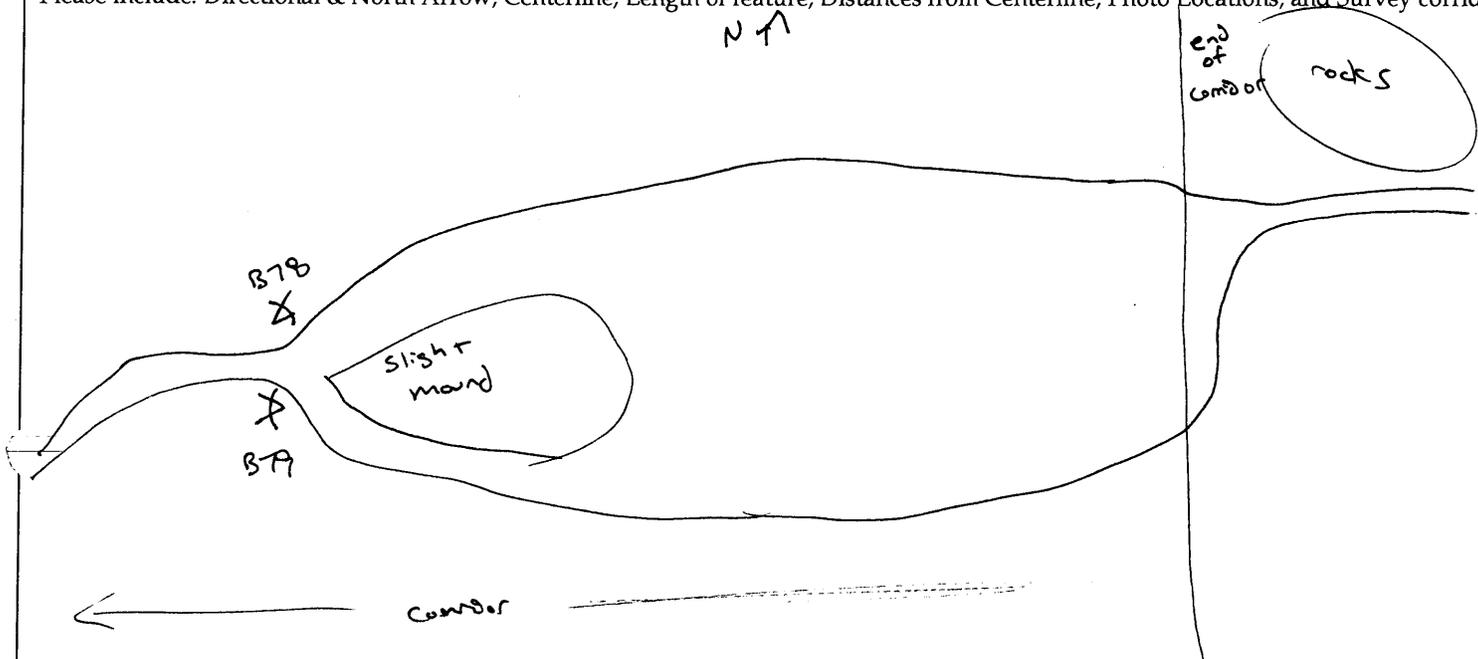
Associated Wetland No.:

Date: <u>8/26/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B78 + B79</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:		
Stream Flow	Fast		Moderate		Slow		Very Slow (None)		
Flow type	Perennial (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		<u>Ephemeral (Flows only in response to rainfall)</u>		Direction: <u>NW</u> Months of estimated flow: _____		
OHWM Indicator	Clear natural line on bank		Shelving	<u>Wrested vegetation</u>		Scour	Water Staining		
	Bent, matted or missing vegetation		Soil character changes	<u>Abrupt plant community change</u>		Wrack line	Litter and debris		
Sinuosity	<u>Straight</u>		Meandering		Subsurface Flow?		Yes	No	Unknown
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>0</u>				Water Surface (at crossing location): <u>0</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>		4-6		6-8		8+
	Right	0-2	<u>2-4</u>		4-6		6-8		8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	20-40		<u>40-60</u>		60-80		80+
	Right	0-20	20-40		<u>40-60</u>		60-80		80+



Waterbody ID No.: SBAL 011

Date: 8/26/09 Client/Project Name & No.: Hermosa 0105023 Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	<u>NA</u> Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>20</u>	Sand _____	Silt/Clay <u>80</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>75</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>(None)</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>40</u> (ft)				
	Circle vegetative layers: trees shrubs <u>(herbs)</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>(Natural)</u>	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

I/E SPECIES / SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any likes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SBAL012

Centerline Re-Route Access Road Warehouse Site Other:

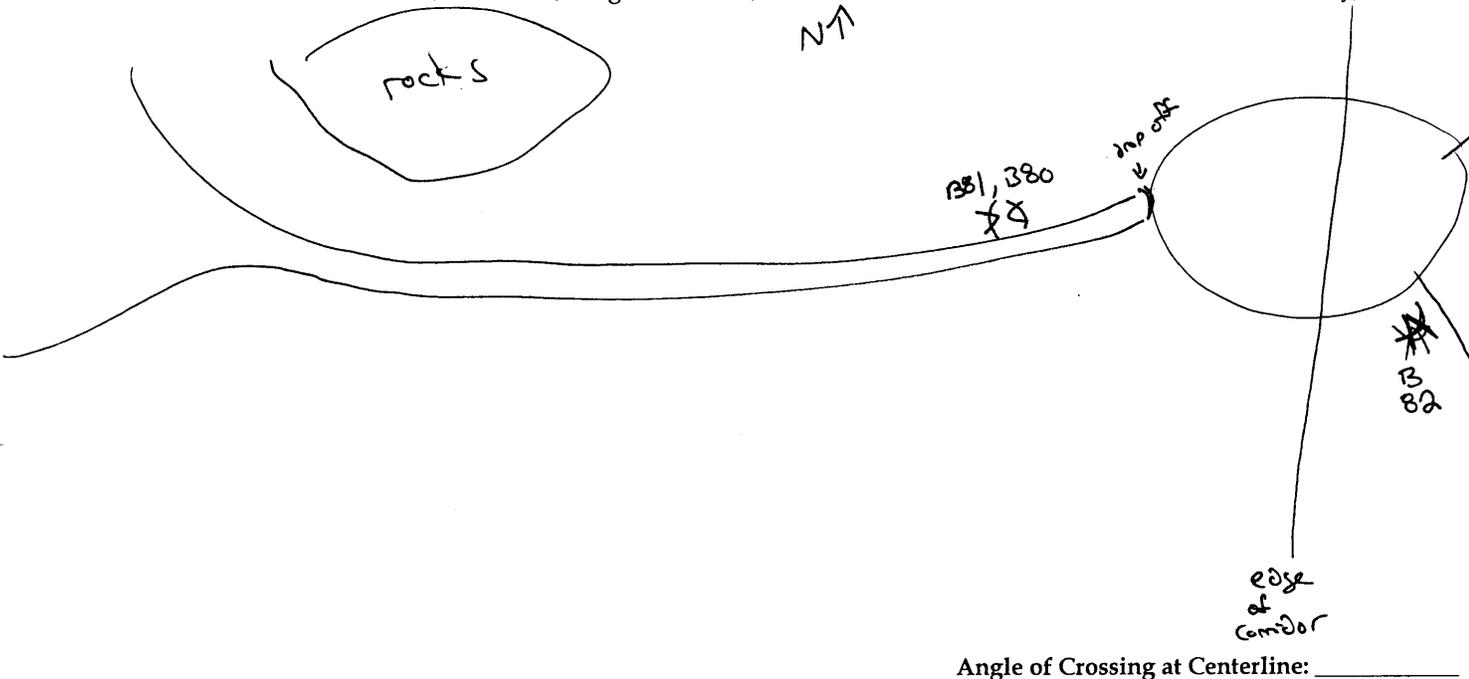
Associated Wetland No.:

Date: <u>8/26/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B80-82</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:	
Stream Flow	Fast		Moderate		Slow	Very Slow (None)		
Flow type	Perennial (Flows > 3 months annually)		<u>Intermittent/Seasonal</u> (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>W</u> Months of estimated flow: <u>3</u>	
OHWM Indicator	Clear natural line on bank		Shelving	Wrested vegetation		Scour	Water Staining	
Bent, matted or missing vegetation	Soil character changes		<u>Abrupt plant community change</u>			Wrack line	Litter and debris	
Sinuosity	Straight <u>==</u>		Meandering		Subsurface Flow?		Yes No <u>Unknown</u>	
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+	
Stream Width (ft.)	Top of Bank (at crossing location): <u>15</u>				Water Surface (at crossing location): <u>0</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>		4-6		6-8 8+	
	Right	0-2	<u>2-4</u>		4-6		6-8 8+	
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	<u>20-40</u>		40-60		60-80 80+	
	Right	0-20	<u>20-40</u>		40-60		60-80 80+	



Waterbody ID No.: SBAL 012

Date: 8/26/09 Client/Project Name & No.: Hermosa 0105023 Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance <u>NA</u>	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>70</u>	Sand _____	Silt/Clay <u>30</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	<u>Gravel Riffles</u>	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>50</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>None</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>5</u> (ft) Circle vegetative layers: trees shrubs <u>herbs</u> <input type="checkbox"/> Significant bare areas within riparian zone <input type="checkbox"/> Evidence of non-buffered concentrated flows				
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone <input type="checkbox"/> Waste discharge pipes present		<input checked="" type="checkbox"/> Manure in stream or on banks <input type="checkbox"/> Other: _____		

VE SPECIES/SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

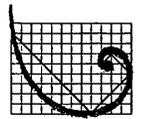
Erosional feature to the east ("drop off" in sketch)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any likes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SBAL013

Centerline Re-Route Access Road Warehouse Site Other:

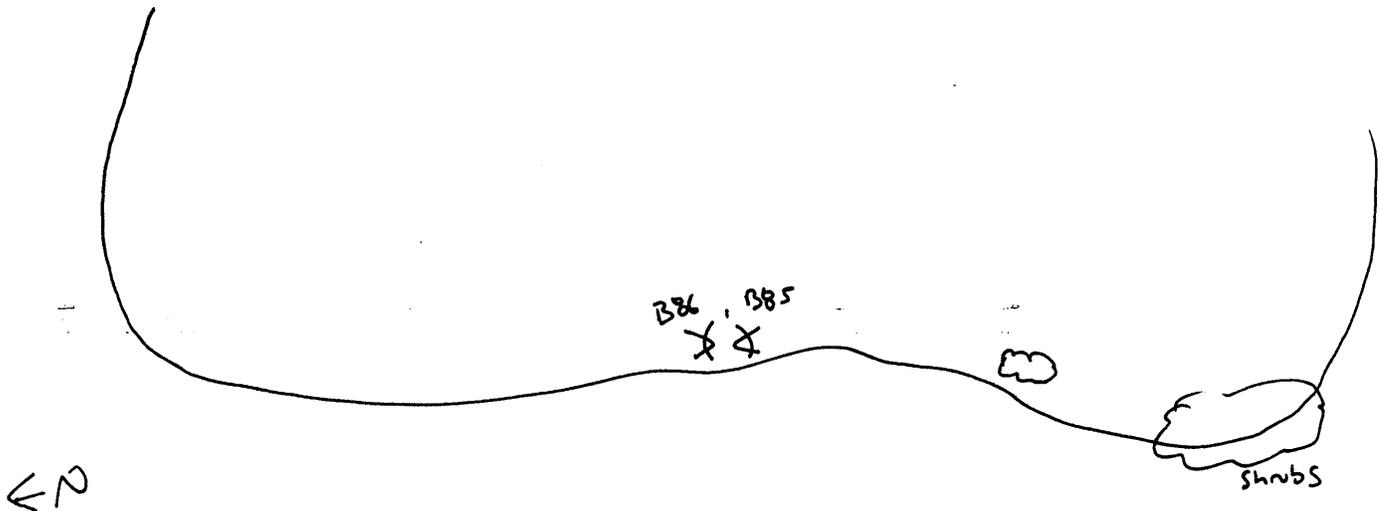
Associated Wetland No.: WBAL004

Date: <u>8/26/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zurise</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B85 + B86</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:
Stream Flow	Fast		<u>Moderate</u>		Slow		Very Slow None
Flow type	<u>Perennial (Flows > 3 months annually)</u>		Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>N</u> Months of estimated flow: <u>12</u>
OHWI Indicator	Clear natural line on bank		Shelving	<u>Wrested vegetation</u>		Scour	Water Staining
Bent, matted or missing vegetation	Soil character changes		<u>Abrupt plant community change</u>			Wrack line	Litter and debris
Sinuosity	<u>Straight</u>		Meandering		Subsurface Flow?		Yes No Unknown
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>2</u>				Water Surface (at crossing location): <u>2 + wetland</u>		
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<u>0-2</u>	2-4		4-6		6-8 8+
	Right	<u>0-2</u>	2-4		4-6		6-8 8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<u>0-20</u>	20-40		40-60		60-80 80+
	Right	<u>0-20</u>	20-40		40-60		60-80 80+



Waterbody ID No.: SBA LØ13

Date: 8/26/09 Client/Project Name & No.: Hermosa 0105023 Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	<u>Clear</u>	Slightly Turbid	Turbid	Very Turbid	Color:
	<u>Floating algal mats</u>	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay <u>100</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>90</u>	In-stream submerged plants % Cover _____	Bank root systems	<u>Fringing Wetlands</u>
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>None</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>10</u> (ft)				
	Circle vegetative layers: trees <u>shrubs</u> <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

I/E SPECIES / SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SBAL 014

Centerline Re-Route Access Road Warehouse Site Other: _____

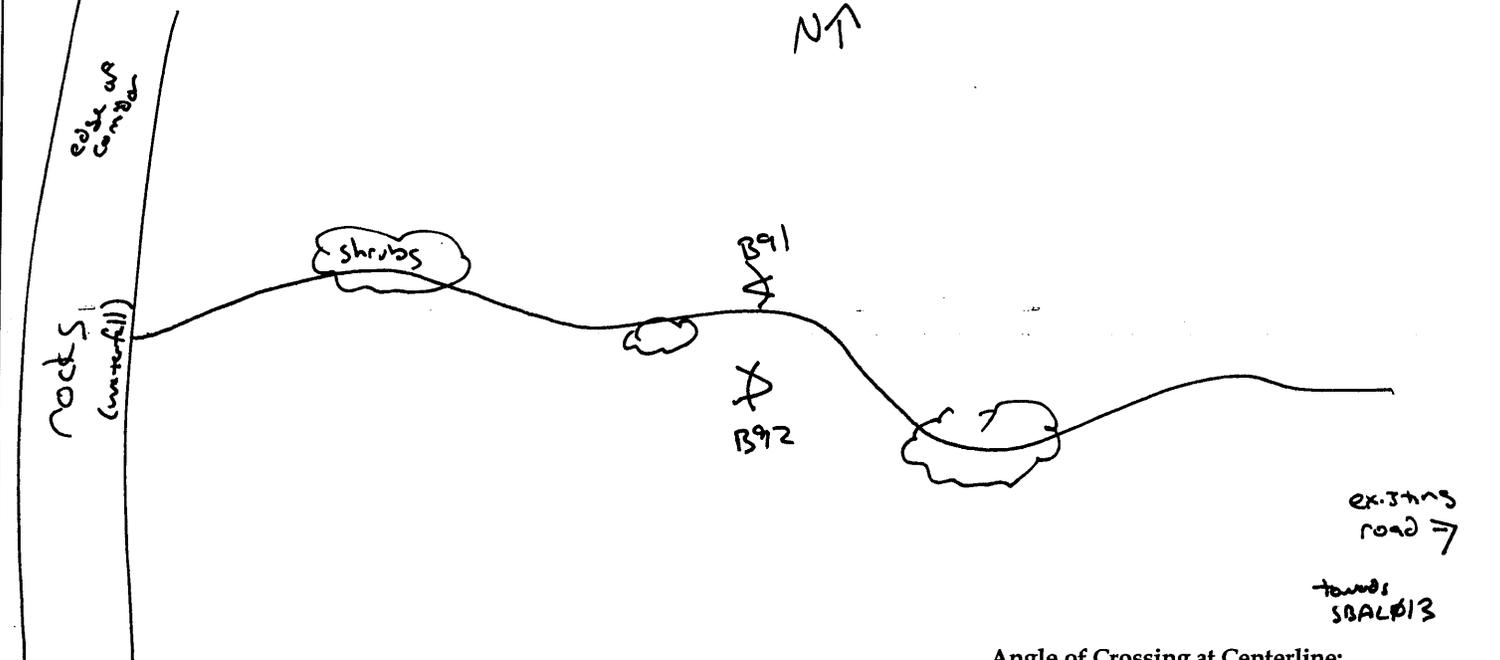
Associated Wetland No.: _____

Date: <u>8/26/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost: _____
Investigators: <u>Erin Johnson, Amanda Zuniga</u>		Quad Name: _____
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B91 + B92</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:
Stream Flow	Fast		<u>Moderate</u>		Slow		Very Slow None
Flow type	<u>Perennial (Flows > 3 months annually)</u>		Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>E</u> Months of estimated flow: <u>12</u>
OHWI Indicator	Clear natural line on bank		Shelving	<u>Wrested vegetation</u>		Scour	Water Staining
Bent, matted or missing vegetation	Soil character changes		<u>Abrupt plant community change</u>			Wrack line	Litter and debris
Sinuosity	<u>Straight</u>		Meandering		Subsurface Flow?		Yes No Unknown
Stream Depth (in.)	0-3	3-6	<u>6-12</u>	12-18	18-24	24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>9</u>				Water Surface (at crossing location): <u>3</u>		
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>	4-6		6-8	8+
	Right	0-2	<u>2-4</u>	4-6		6-8	8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<u>0-20</u>	20-40		40-60		60-80 80+
	Right	<u>0-20</u>	20-40		40-60		60-80 80+



Waterbody ID No.: SBAL014

Date: 8/26/09 Client/Project Name & No.: Hermosa 0105023 Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	<u>Clean</u>	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock	Gravel <u>30</u>	Sand	Silt/Clay <u>70</u>	Organic
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	<u>Overhanging trees/shrubs</u>	In-stream emergent plants % Cover	In-stream submerged plants % Cover	<u>Bank root systems</u>	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	<u>Fish (adult) small</u>	Fish (juvenile)	<u>Frogs</u>	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>20</u> (ft)				
	Circle vegetative layers: trees <u>shrubs</u> <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT Habitat ID No.:

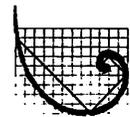
Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SRAL015

Centerline Re-Route Access Road Warehouse Site Other:

Associated Wetland No.: _____

Date: <u>8/26/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B109, B102</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<input checked="" type="radio"/> Stream	Ag. Ditch	Other:		
Stream Flow	Fast		Moderate		Slow		Very Slow		<input checked="" type="radio"/> None
Flow type	Perennial (Flows > 3 months annually)		<input checked="" type="radio"/> Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>N</u>		Months of estimated flow: <u>~3</u>
OHWM Indicator	<input checked="" type="radio"/> Clear natural line on bank		<input type="radio"/> Shelving		<input type="radio"/> Wrested vegetation		<input checked="" type="radio"/> Scour		<input type="radio"/> Water Staining
	<input type="radio"/> Bent, matted or missing vegetation		<input type="radio"/> Soil character changes		<input checked="" type="radio"/> Abrupt plant community change		<input type="radio"/> Wrack line		<input type="radio"/> Litter and debris
Sinuosity	<input checked="" type="radio"/> Straight		<input type="radio"/> Meandering		Subsurface Flow?		<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Unknown
Stream Depth (in.)	<input checked="" type="radio"/> 0-3	<input type="radio"/> 3-6	<input type="radio"/> 6-12	<input type="radio"/> 12-18	<input type="radio"/> 18-24	<input type="radio"/> 24-36	<input type="radio"/> 36-48	<input type="radio"/> 48-60	<input type="radio"/> 60+
Stream Width (ft.)	Top of Bank (at crossing location): <input type="radio"/>				Water Surface (at crossing location): <input checked="" type="radio"/>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left <u>W</u>	0-2	<input checked="" type="radio"/> 2-4		4-6		6-8		8+
	Right <u>E</u>	<input checked="" type="radio"/> 0-2	2-4		4-6		6-8		8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left <u>W</u>	0-20	<input checked="" type="radio"/> 20-40		40-60		60-80		80+
	Right <u>E</u>	<input checked="" type="radio"/> 0-20	20-40		40-60		60-80		80+



Waterbody ID No.: SBALØIS

Date: 8/26/09 Client/Project Name & No.: Hermosa 0105023 Milepost: _____

QUALITATIVE ATTRIBUTES

Water Appearance <u>NA</u>	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>50</u>	Sand _____	Silt/Clay <u>50</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>5</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>None</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>5-10</u> (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)	Stable / Unstable	
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

R/E SPECIES / SUITABLE HABITAT Habitat ID No.: _____

Comments (e.g., information useful for ID forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SBAL016

Centerline Re-Route Access Road Warehouse Site Other:

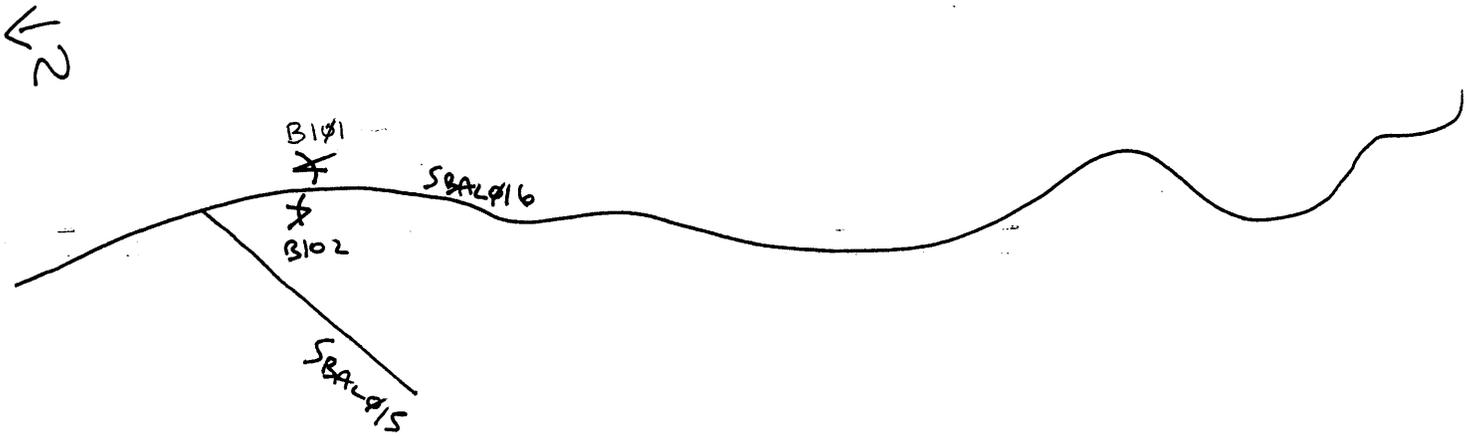
Associated Wetland No.:

Date: <u>8/26/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Ean Johnson, Amanda Zuniga</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B101, B102</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:
Stream Flow	Fast	Moderate	Slow	Very Slow	<u>None</u>		
Flow type	Perennial (Flows > 3 months annually)	<u>Intermittent/Seasonal</u> (Flows < 3 months annually)	Ephemeral (Flows only in response to rainfall)	Direction: <u>N</u>	Months of estimated flow: <u>~3</u>		
OHWB Indicator	Clear natural line on bank	Shelving	<u>Wrested vegetation</u>	<u>Scour</u>	Water Staining		
Bent, matted or missing vegetation	Soil character changes	<u>Abrupt plant community change</u>		Wrack line	Litter and debris		
Sinuosity	<u>Straight</u>	Meandering	Subsurface Flow?		Yes	No	Unknown
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>2</u>			Water Surface (at crossing location): <u>∅</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<u>0-2</u>	2-4	4-6	6-8	8+	
	Right	<u>0-2</u>	2-4	4-6	6-8	8+	
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<u>0-20</u>	20-40	40-60	60-80	80+	
	Right	<u>0-20</u>	20-40	40-60	60-80	80+	



Waterbody ID No.: SBA 016

Date: 8/26/09 Client/Project Name & No.: Hemos 0105023 Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance <u>NA</u>	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>100</u>	Sand _____	Silt/Clay _____	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	<u>Gravel Riffles</u>	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover _____	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>10</u> (ft) Circle vegetative layers: trees shrubs <u>herbs</u> <input type="checkbox"/> Significant bare areas within riparian zone <input type="checkbox"/> Evidence of non-buffered concentrated flows				
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone <input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Manure in stream or on banks <input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

All gravel, slender, no plants in pathway

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.

15810 Park Ten Place
 Suite 300
 Houston, Texas 77084-5140



WATERBODY DATA SHEET

ERM

Waterbody Name: _____

Waterbody ID No.: SBAL017

Centerline Re-Route Access Road Warehouse Site Other:

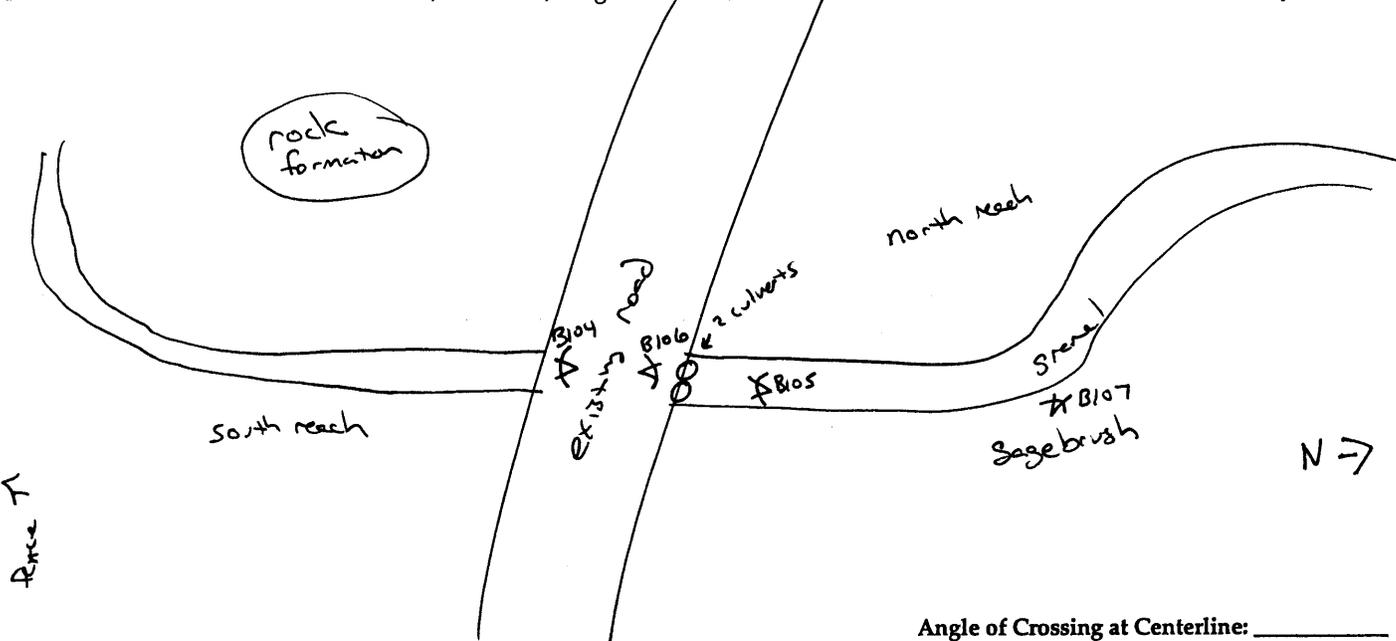
Associated Wetland No.: _____

Date: <u>8/27/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost: _____
Investigators: <u>Erin Johnson, Amanda Zuniga</u>		Quad Name: _____
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B104-107</u>

PHYSICAL CHARACTERISTICS

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:
Stream Flow	Fast		Moderate		Slow	Very Slow	<u>None</u>
Flow type	Perennial (Flows > 3 months annually)		<u>Intermittent/Seasonal (Flows < 3 months annually)</u>		Ephemeral (Flows only in response to rainfall)		Direction: <u>N</u> Months of estimated flow: <u>6</u>
OHWI Indicator	<u>Clear natural line on bank</u>		Shelving	<u>Wrested vegetation</u>		Scour	Water Staining
Bent, matted or missing vegetation		Soil character changes		<u>Abrupt plant community change</u>		Wreck line	Litter and debris
Sinuosity	Straight		<u>Meandering</u>		Subsurface Flow?		Yes No Unknown
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>10</u>				Water Surface (at crossing location): <u>0</u>		
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>		<u>4-6</u>		6-8 8+
	Right	0-2	<u>2-4</u>		<u>4-6</u>		6-8 8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	<u>20-40</u>		<u>40-60</u>		60-80 80+
	Right	0-20	<u>20-40</u>		<u>40-60</u>		60-80 80+

South Reach

north reach



Waterbody ID No.: SBA2017

Date: 8/27/09 Client/Project Name & No.: Hermosa 0105023 Milepost: _____

QUANTITATIVE ATTRIBUTES

Water Appearance <u>NA</u>	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>50</u>	Sand _____	Silt/Clay <u>50</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	<u>Gravel Riffles</u>	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>40</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>None</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>5-10</u> (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

woody debris

T/E SPECIES / SUITABLE HABITAT Habitat ID No.: _____

Comments (e.g. information useful for ID forms, construction constraints, erosion potential, existing disturbances, and meanders):

Sagebrush in stream to the south. More bare gravel to the north w/less sage and more grasses. Small woody debris. culverts slightly obstructed by silt.

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: Fish Creek

Waterbody ID No.: SBAL018

Centerline Re-Route Access Road Warehouse Site Other:

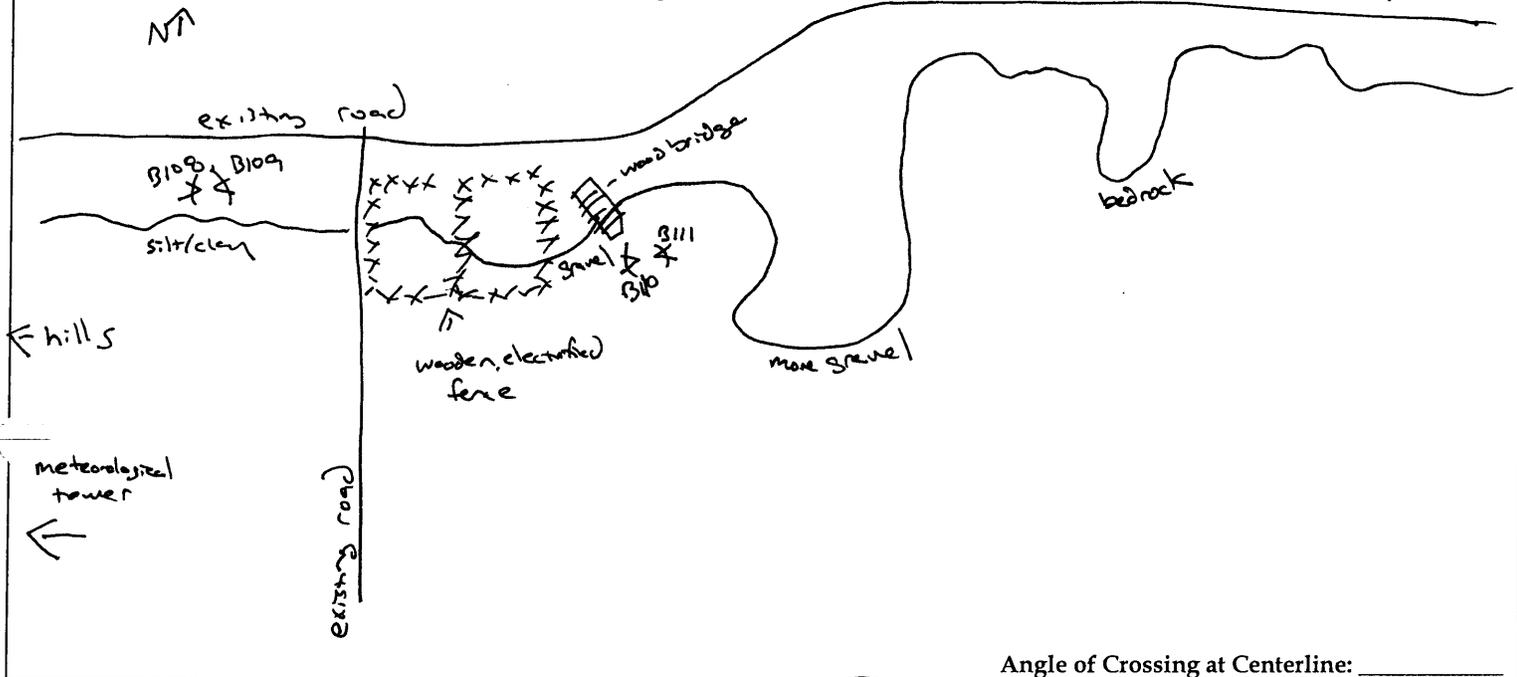
Associated Wetland No.:

Date: <u>8/27/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>		Quad Name:
State/County/Municipality: <u>Albany Co, Wyoming</u>		Picture No.: <u>B100-111</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:
Stream Flow	<u>Fast</u>	Moderate		Slow		Very Slow None	
Flow type	<u>Perennial (Flows > 3 months annually)</u>		Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>E</u> Months of estimated flow: <u>12</u>
OHWM Indicator	<u>Clear natural line on bank</u>		Shelving	<u>Wrested vegetation</u>		Scour	Water Staining
	Bent, matted or missing vegetation		Soil character changes	<u>Abrupt plant community change</u>		Wrack line	Litter and debris
Sinuosity	Straight		<u>Meandering</u>		Subsurface Flow?		Yes No Unknown
Stream Depth (in.)	0-3	3-6	6-12	12-18	<u>18-24</u>	24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>3</u>				Water Surface (at crossing location): <u>3</u>		
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>		4-6	6-8	8+
	Right	0-2	<u>2-4</u>		4-6	6-8	8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<u>0-20</u>	20-40		40-60	60-80	80+
	Right	<u>0-20</u>	20-40		40-60	60-80	80+



Waterbody ID No.: SBAL018

Date: 8/27/09 Client/Project Name & No.: Hermosa 0105023 Milepost: _____

QUALITATIVE ATTRIBUTES

Water Appearance	<u>Clear</u>	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	<u>Gravel</u> <u>Coarse</u>	Sand _____	<u>Silt/Clay</u> <u>Coarse</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	<u>Gravel Riffles</u>	Deep Pools
Undercut Banks	<u>Overhanging trees/shrubs</u>	In-stream emergent plants % Cover _____	In-stream submerged plants % Cover <u>20</u>	Bank root systems	<u>Fringing Wetlands</u>
Aquatic Organisms Observed	<u>Waterfowl</u> <u>Great Blue Heron</u>	<u>Fish (adult)</u>	Fish (juvenile)	<u>Frogs</u>	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>30</u> (ft)				
	Circle vegetative layers: trees <u>shrubs</u> <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)	Stable / Unstable	
Channel Condition	<u>Channelization</u> Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

I/E SPECIES / SUITABLE HABITAT Habitat ID No.: _____

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

Substrate shifts from silt/clay with some gravel (10/90%) on the NW to bedrock and gravel to the east (gravel 50/silt 50). Canada thistle present.

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any likes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: Tributary

Waterbody ID No.: SBAL019

Centerline Re-Route Access Road Warehouse Site Other:

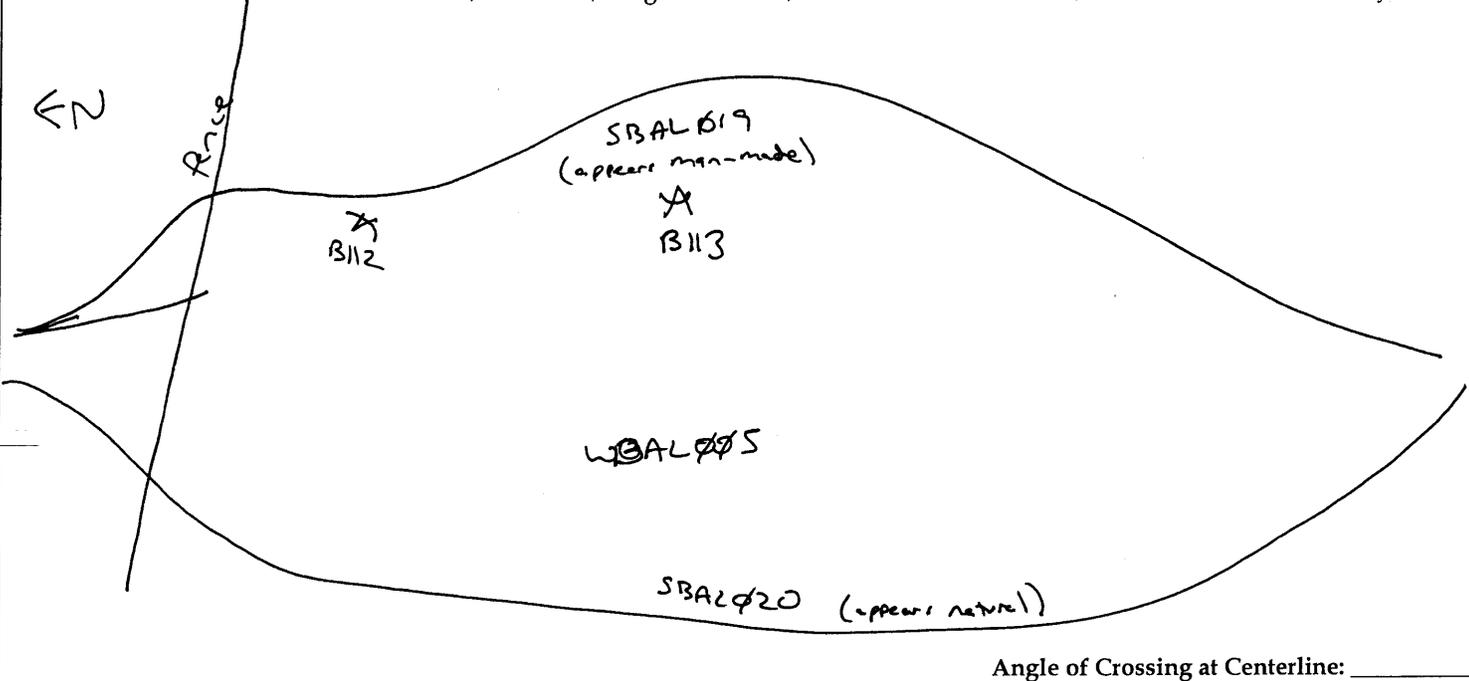
Associated Wetland No.:

Date: <u>8/27/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B112</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Waterbody Type	Lake	Pond	Borrow Pit	River	<input checked="" type="checkbox"/> Stream	Ag. Ditch	Other:
Stream Flow	Fast		Moderate		Slow		Very Slow None
Flow type	<input checked="" type="checkbox"/> Perennial (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>S</u> Months of estimated flow: <u>9</u>
OHWM Indicator	Clear natural line on bank		Shelving	Wrested vegetation		<input checked="" type="checkbox"/> Scour	Water Staining
	Bent, matted or missing vegetation		Soil character changes	<input checked="" type="checkbox"/> Abrupt plant community change		Wrack line	Litter and debris
Sinuosity	<input checked="" type="checkbox"/> Straight		Meandering		Subsurface Flow?		Yes No Unknown
Stream Depth (in.)	<input checked="" type="checkbox"/> 0-3	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>2</u>				Water Surface (at crossing location): <u>2</u>		
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<input checked="" type="checkbox"/> 0-2	2-4		4-6		6-8 8+
	Right	<input checked="" type="checkbox"/> 0-2	2-4		4-6		6-8 8+
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<input checked="" type="checkbox"/> 0-20	20-40		40-60		60-80 80+
	Right	<input checked="" type="checkbox"/> 0-20	20-40		40-60		60-80 80+



Waterbody ID No.: SBAL019

Date: 8/27/09 Client/Project Name & No.: Hermosa 0105023 Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	<u>Clear</u>	Slightly Turbid	Turbid	Very Turbid	Color:
	<u>Floating algal mats</u>	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>80</u>	Sand _____	Silt/Clay <u>20</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	<u>Mud Bar</u>	<u>Gravel Riffles</u>	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover _____	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	<u>Snakes</u> <u>holes</u>	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>100</u> (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	Natural	<u>Artificial (Man-Made)</u>	Manipulated (Explain below)	Stable / Unstable	
Channel Condition	Channelization/Braiding	<u>Unnatural straightening</u>	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

I/E SPECIES / SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

The "stream" appears to have been dug, perhaps to expand the wetland near SBAL020. It is higher in elevation than the associated wetland.

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any likes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: Fish Creek

Waterbody ID No.: SBAL 020

Centerline Re-Route Access Road Warehouse Site Other:

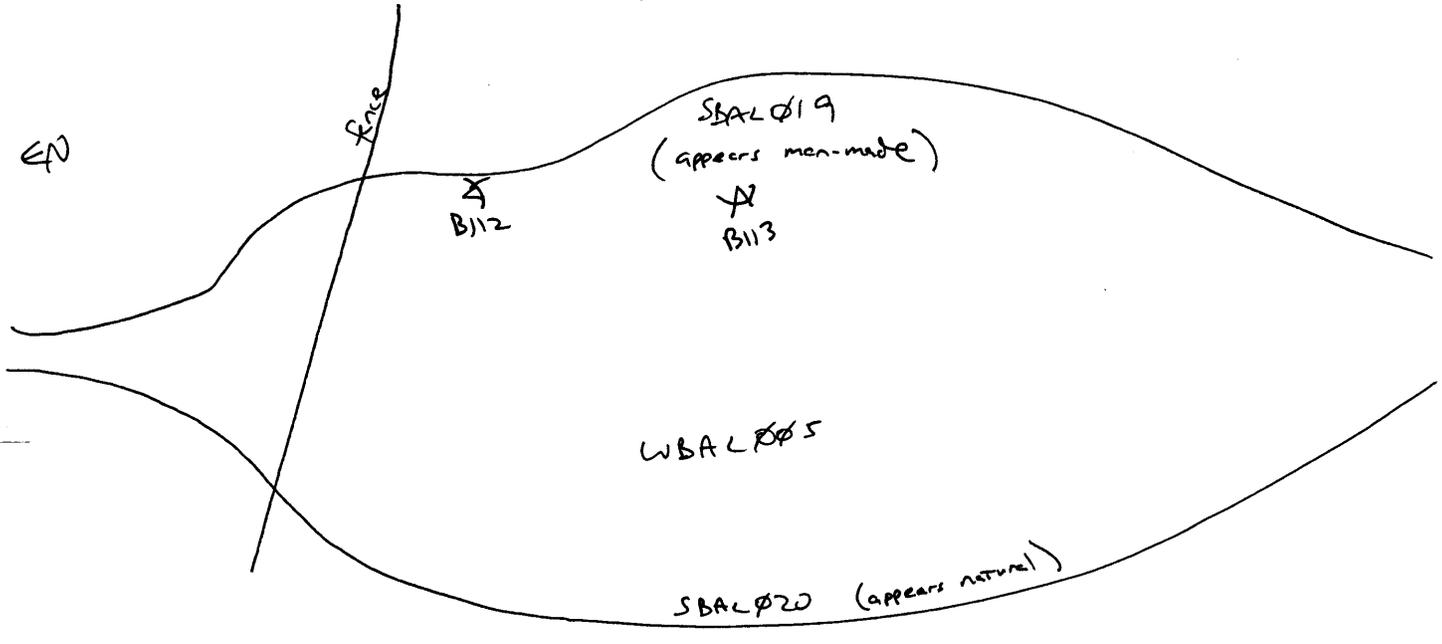
Associated Wetland No.:

Date: <u>8/27/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>	Quad Name:	
State/County/Municipality: <u>Albany Co., Wyoming</u>	Picture No.: <u>B113</u>	

PHYSICAL ATTRIBUTES

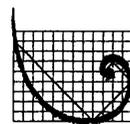
Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:		
Stream Flow	<u>Fast</u>	Moderate	Slow	Very Slow	None				
Flow type	<u>Perennial (Flows > 3 months annually)</u>	Intermittent/Seasonal (Flows < 3 months annually)	Ephemeral (Flows only in response to rainfall)	Direction: <u>S</u>	Months of estimated flow: <u>12</u>				
OHWM Indicator	<u>Clear natural line on bank</u>	Shelving	<u>Wrested vegetation</u>	Scour	Water Staining				
Bent, matted or missing vegetation	Soil character changes	<u>Abrupt plant community change</u>	Wrack line	Litter and debris					
Sinuosity	Straight	<u>Meandering</u>	Subsurface Flow?	Yes	No	Unknown			
Stream Depth (in.)	0-3	3-6	<u>6-12</u>	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>4</u>				Water Surface (at crossing location): <u>3</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<u>0-2</u>	2-4	4-6	6-8	8+			
	Right	<u>0-2</u>	2-4	4-6	6-8	8+			
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<u>0-20</u>	20-40	40-60	60-80	80+			
	Right	<u>0-20</u>	20-40	40-60	60-80	80+			



ERM®

Waterbody ID No.:

SBAL 020

Date: 8/27/09

Client/Project Name & No.: Hermosa 0105023

Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	<input checked="" type="radio"/> Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>75</u>	Sand _____	Silt/Clay <u>25</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	<input checked="" type="radio"/> Gravel Riffles	Deep Pools
Undercut Banks	<input checked="" type="radio"/> Overhanging trees/shrubs	In-stream emergent plants % Cover _____	In-stream submerged plants % Cover _____	Bank root systems	<input checked="" type="radio"/> Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	<input checked="" type="radio"/> Fish (adult)	Fish (juvenile)	<input checked="" type="radio"/> Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>100</u> (ft)				
	Circle vegetative layers: trees <input checked="" type="radio"/> shrubs <input checked="" type="radio"/> herbs <input checked="" type="radio"/>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<input checked="" type="radio"/> Natural	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

1/2 SPECIES / SUITABLE HABITAT

Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate)



High

Moderate

Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: Fish Creek Tributary

Waterbody ID No.: SBAL021

Centerline Re-Route Access Road Warehouse Site Other:

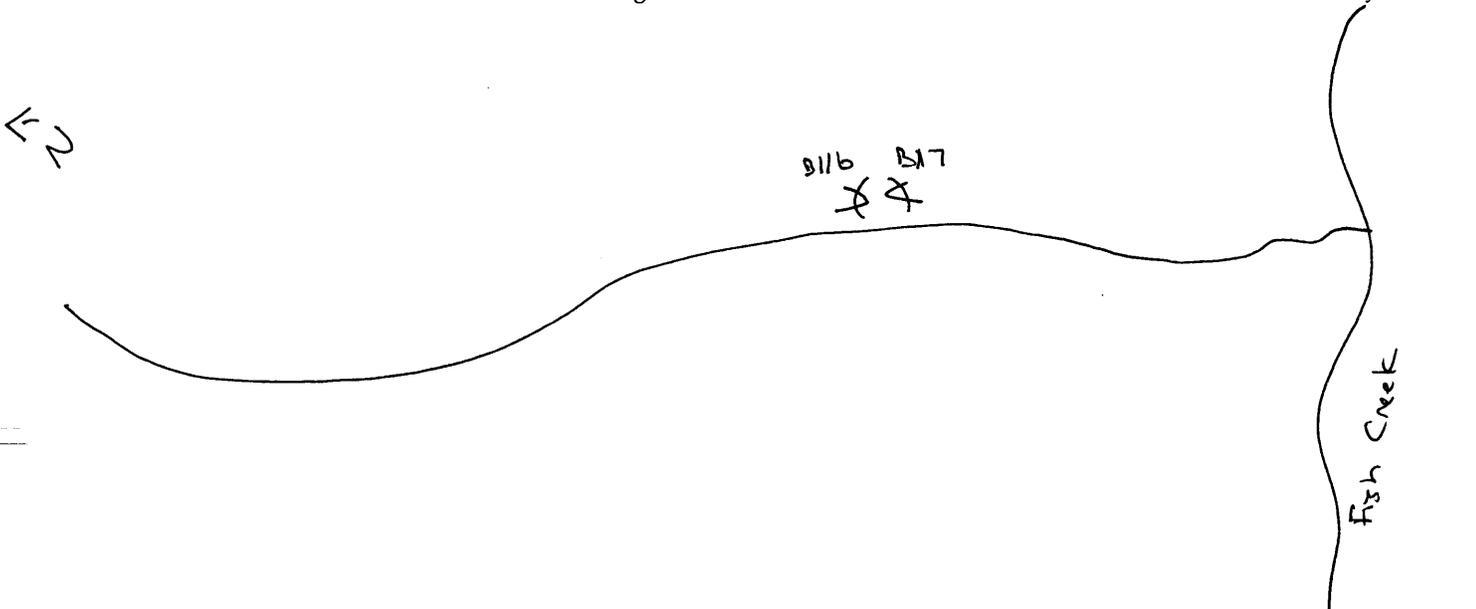
Associated Wetland No.:

Date: <u>8/27/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B116 + B117</u>

PHYSICAL ATTRIBUTES

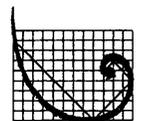
Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:		
Stream Flow	Fast	Moderate			Slow	Very Slow <u>None</u>			
Flow type	Perennial (Flows > 3 months annually)	<u>Intermittent/Seasonal</u> (Flows < 3 months annually)			Ephemeral (Flows only in response to rainfall)	Direction: <u>S</u> Months of estimated flow: <u>3</u>			
OHWM Indicator	<u>Clear natural line on bank</u>			Shelving	<u>Wrested vegetation</u>		Scour	Water Staining	
	Bent, matted or missing vegetation		Soil character changes	<u>Abrupt plant community change</u>			Wrack line	Litter and debris	
Sinuosity	<u>Straight</u>		Meandering		Subsurface Flow?		Yes	No	Unknown
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>15</u>				Water Surface (at crossing location): <u>Ø</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	2-4		4-6		<u>6-8</u>	8+	
	Right	0-2	2-4		4-6		<u>6-8</u>	8+	
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	20-40		<u>40-60</u>		60-80		80+
	Right	0-20	20-40		<u>40-60</u>		60-80		80+



ERM®

Waterbody ID No.: SBA 021

Date: 8/27/09 Client/Project Name & No.: Hermosa 0105023 Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	<u>N/A</u> Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock	Gravel <u>10</u>	Sand	Silt/Clay <u>90</u>	Organic
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>60</u>	In-stream submerged plants % Cover	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>None</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>5</u> (ft) Circle vegetative layers: trees shrubs <u>herbs</u> <input type="checkbox"/> Significant bare areas within riparian zone <input type="checkbox"/> Evidence of non-buffered concentrated flows				
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	<u>Channelization/Braiding</u>	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone <input type="checkbox"/> Waste discharge pipes present		<input checked="" type="checkbox"/> Manure in stream or on banks <input type="checkbox"/> Other: _____		

PER SPECIES / SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY DATA SHEET

Waterbody Name: Fish Creek Tributary

Waterbody ID No.: SBAL 022

Centerline Re-Route Access Road Warehouse Site Other:

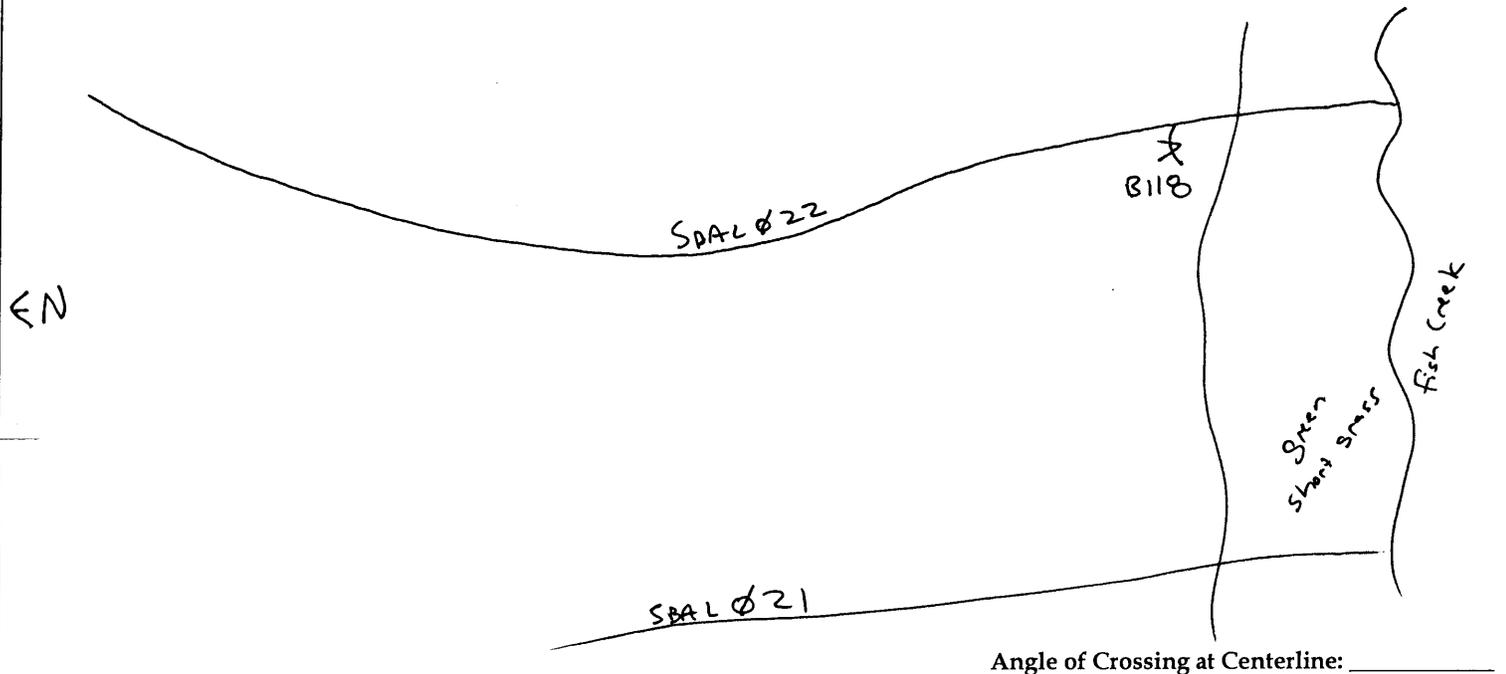
Associated Wetland No.:

Date: <u>8/27/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Runge</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B118</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Waterbody Type	Lake	Pond	Borrow Pit	River	<input checked="" type="radio"/> Stream	Ag. Ditch	Other:
Stream Flow	Fast		Moderate		Slow		Very Slow <input checked="" type="radio"/> None
Flow type	Perennial (Flows > 3 months annually)		<input checked="" type="radio"/> Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>S</u> Months of estimated flow: <u>3</u>
OHWM Indicator	<input checked="" type="radio"/> Clear natural line on bank		<input type="radio"/> Shelving	<input checked="" type="radio"/> Wrested vegetation		<input type="radio"/> Scour	<input type="radio"/> Water Staining
	<input type="radio"/> Bent, matted or missing vegetation		<input type="radio"/> Soil character changes		<input checked="" type="radio"/> Abrupt plant community change		<input type="radio"/> Wrack line <input type="radio"/> Litter and debris
Sinuosity	<input type="radio"/> Straight		<input checked="" type="radio"/> Meandering		Subsurface Flow?		<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
Stream Depth (in.)	<input checked="" type="radio"/> 0-3	<input type="radio"/> 3-6	<input type="radio"/> 6-12	<input type="radio"/> 12-18	<input type="radio"/> 18-24	<input type="radio"/> 24-36	<input type="radio"/> 36-48 <input type="radio"/> 48-60 <input type="radio"/> 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>10 - 15</u>				Water Surface (at crossing location): <u>Ø</u>		
Bank Height (ft.) (looking downstream else give direction you're facing here: _____)	Left	0-2	<input checked="" type="radio"/> 2-4		4-6	6-8	8+
	Right	0-2	<input checked="" type="radio"/> 2-4		4-6	6-8	8+
Bank Slope (°) (looking downstream else give direction you're facing here: _____)	Left	0-20	<input checked="" type="radio"/> 20-40		40-60	60-80	80+
	Right	0-20	<input checked="" type="radio"/> 20-40		40-60	60-80	80+



Waterbody ID No.: SBAL 022

Date: 8/27/09 Client/Project Name & No.: Hermosa 0105023 Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	<u>N/A</u> Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>40</u>	Sand _____	Silt/Clay <u>60</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	<u>Gravel Riffles</u>	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover _____	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>None</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)	Stable / Unstable	
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

I/E SPECIES / SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.

15810 Park Ten Place
 Suite 300
 Houston, Texas 77084-5140



WATERBODY DATA SHEET

Waterbody Name: Fish Creek Tributary

Waterbody ID No.: SBAL 023

Centerline Re-Route Access Road Warehouse Site Other:

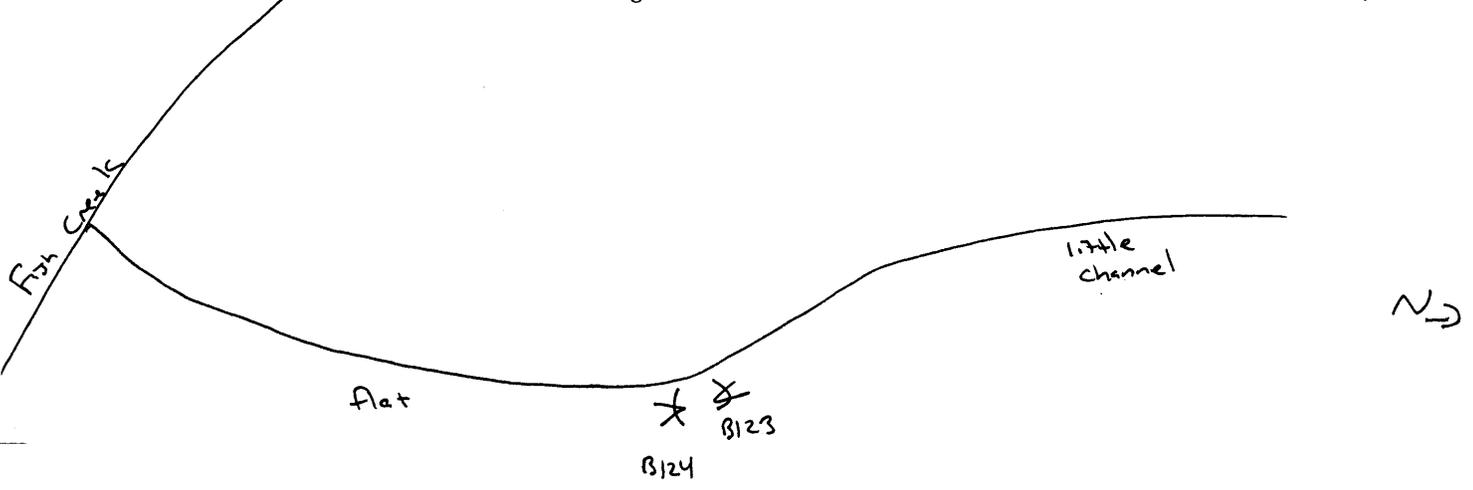
Associated Wetland No.:

Date: <u>8/27/09</u>	Client/Project Name & No.: <u>Hemosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuehlke</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B123 + B124</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:		
Stream Flow	Fast		Moderate		Slow		Very Slow		<u>None</u>
Flow type	Perennial (Flows > 3 months annually)		<u>Intermittent/Seasonal</u> (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>SW</u>		Months of estimated flow: <u>2</u>
OHWM Indicator	<u>Clear natural line on bank</u>		Shelving	<u>Wrested vegetation</u>		Scour	Water Staining		
Bent, matted or missing vegetation	Soil character changes		<u>Abrupt plant community change</u>			Wrack line	Litter and debris		
Sinuosity	Straight		<u>Meandering</u>		Subsurface Flow?		Yes	No	Unknown
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location):				Water Surface (at crossing location):				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<u>0-2</u>	<u>2-4</u>	<u>2-4</u>	4-6	6-8	8+		
	Right	<u>0-2</u>	<u>2-4</u>	<u>2-4</u>	4-6	6-8	8+		
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<u>0-20</u>	20-40	<u>40-60</u>	60-80	80+			
	Right	<u>0-20</u>	20-40	<u>40-60</u>	60-80	80+			

Southwest



Waterbody ID No.: SBAL023

Date: 8/27/09 Client/Project Name & No.: Hermosa 0105023 Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance <u>NA</u>	Clear	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>90</u>	Sand _____	Silt/Clay <u>20</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants % Cover <u>10-50</u>	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	<u>None</u>
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>5</u> (ft) Circle vegetative layers: trees shrubs <u>herbs</u> <input type="checkbox"/> Significant bare areas within riparian zone <input type="checkbox"/> Evidence of non-buffered concentrated flows				
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone <input type="checkbox"/> Waste discharge pipes present		<input checked="" type="checkbox"/> Manure in stream or on banks <input type="checkbox"/> Other: _____		

USE SPECIES / SUITABLE HABITAT Habitat ID No.:

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.

15810 Park Ten Place
 Suite 300
 Houston, Texas 77084-5140



WATERBODY DATA SHEET

Waterbody Name: _____

Waterbody ID No.: SBAL024

Centerline Re-Route Access Road Warehouse Site Other:

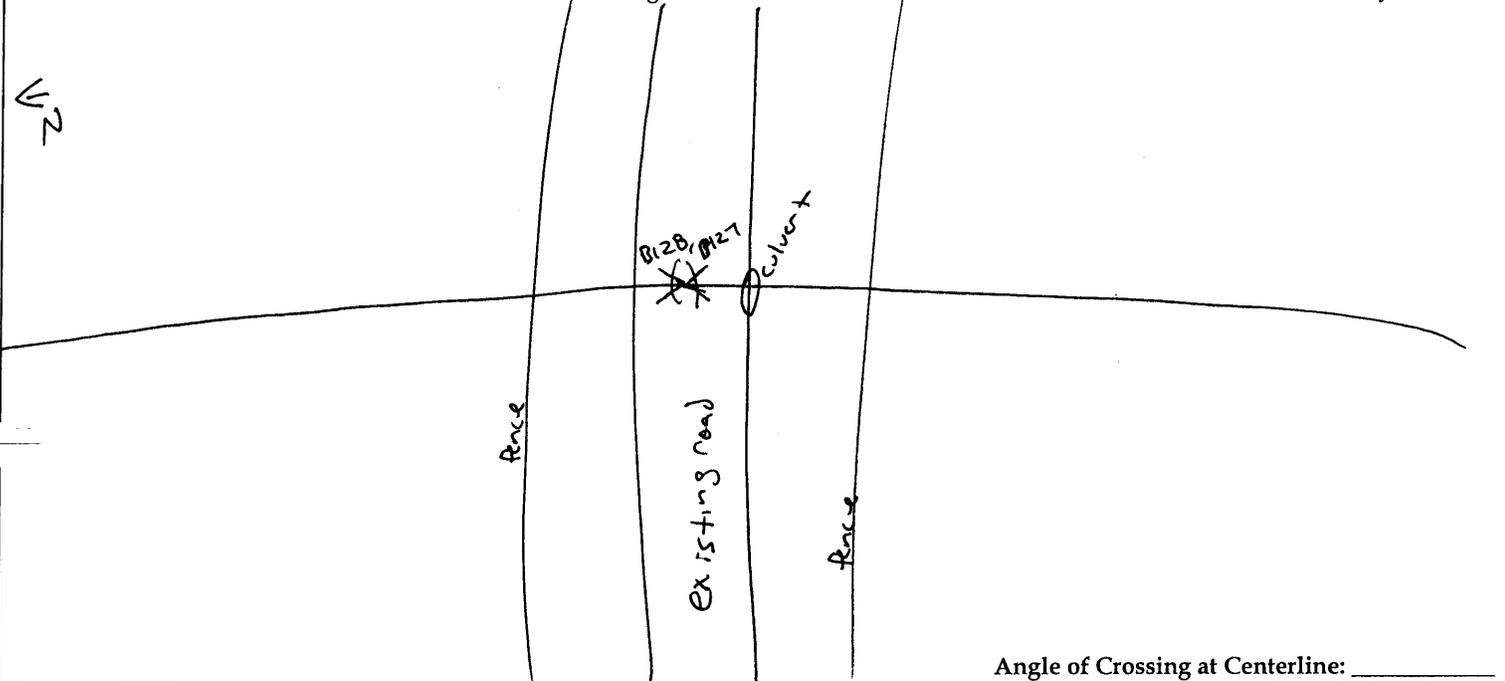
Associated Wetland No.:

Date: <u>8/27/09</u>	Client/Project Name & No.: <u>Hermosa 0105023</u>	Milepost:
Investigators: <u>Erin Johnson, Amanda Zuniga</u>		Quad Name:
State/County/Municipality: <u>Albany Co., Wyoming</u>		Picture No.: <u>B127-128</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:	
Stream Flow	<u>Fast</u>	Moderate		Slow		Very Slow None		
Flow type	<u>Perennial (Flows 3 months annually)</u>	Intermittent/Seasonal (Flows <3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: <u>N</u> Months of estimated flow: <u>2</u>		
OHWM Indicator	Clear natural line on bank		Shelving	Wrested vegetation		Scour	Water Staining	
	Bent, matted or missing vegetation		Soil character changes	<u>Abrupt plant community change</u>		Wrack line	Litter and debris	
Sinuosity	<u>Straight</u>		Meandering		Subsurface Flow?		Yes No Unknown	
Stream Depth (in.)	0-3	<u>3-6</u>	6-12	12-18	18-24	24-36	36-48 48-60 60+	
Stream Width (ft.)	Top of Bank (at crossing location): <u>2</u>				Water Surface (at crossing location): <u>1</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<u>0-2</u>	2-4		4-6		6-8 8+	
	Right	<u>0-2</u>	2-4		4-6		6-8 8+	
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<u>0-20</u>	20-40		40-60		60-80 80+	
	Right	<u>0-20</u>	20-40		40-60		60-80 80+	



Waterbody ID No.: SBAC 024

Date: 8/27/09 Client/Project Name & No.: Hermosa 0105023 Milepost: _____

QUALITATIVE ATTRIBUTES

Water Appearance	<u>Clear</u>	Slightly Turbid	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand _____	Silt/Clay <u>100</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	<u>Overhanging trees/shrubs</u>	In-stream emergent plants % Cover _____	In-stream submerged plants % Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other: <u>Difficult to see due to plant growth</u>			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>50</u> (ft)				
	Circle vegetative layers: trees shrubs <u>herbs</u>				
	<input type="checkbox"/> Significant bare areas within riparian zone		<input type="checkbox"/> Evidence of non-buffered concentrated flows		
Tributary is	<u>Natural</u>	Artificial (Man-Made)	Manipulated (Explain below)		Stable / Unstable
Channel Condition	<u>Channelization/Braiding</u>	Unnatural straightening	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input checked="" type="checkbox"/> Livestock access to riparian zone		<input type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

I/E SPECIES / SUITABLE HABITAT Habitat ID No.: _____

Comments (e.g. Information useful for JD forms, construction constraints, erosion potential, existing disturbances, and meanders)

Culverted, thin stream with a lot of vegetation surrounding it

STREAM QUALITY (indicate) High Moderate Low

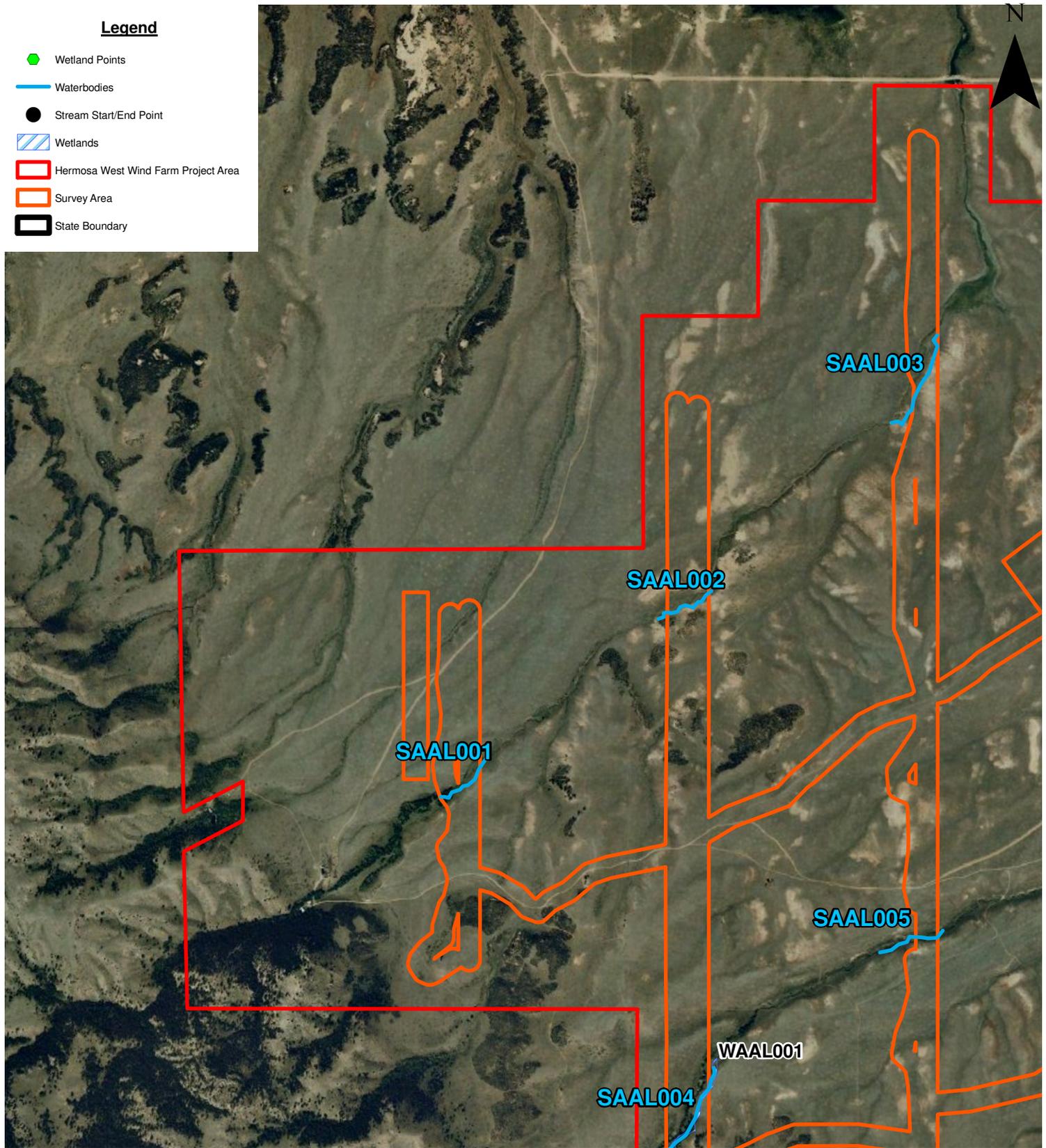
High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.

Legend

-  Wetland Points
-  Waterbodies
-  Stream Start/End Point
-  Wetlands
-  Hermosa West Wind Farm Project Area
-  Survey Area
-  State Boundary

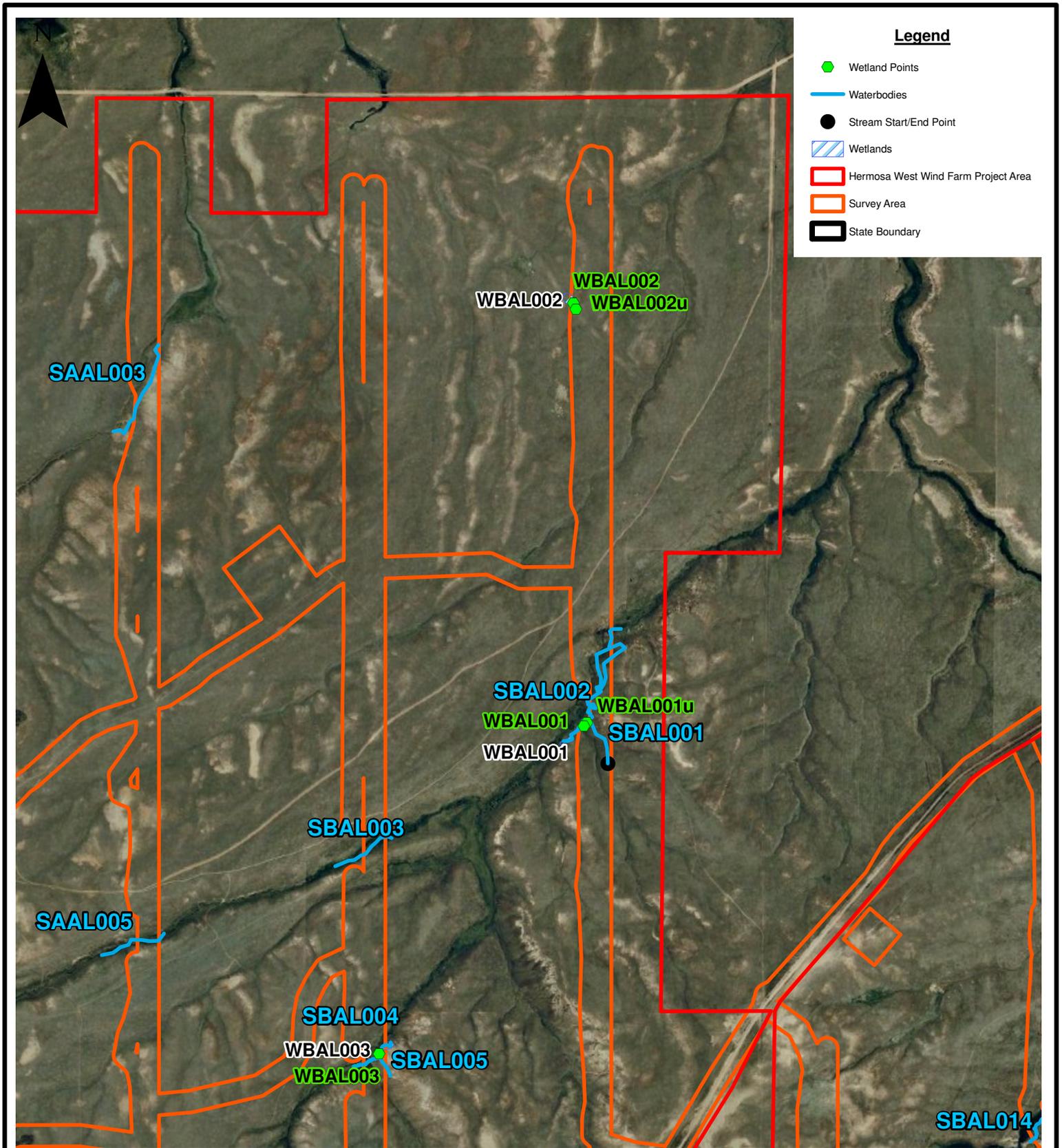


Environmental Resources Management

DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\airal_wetlands.mxd		

FIGURE A-1a
AERIAL MAP WITH CORP PLOTS
Shell WindEnergy
Hermosa West Wind Farm Project
Albany County, Wyoming





Legend

- ◆ Wetland Points
- Waterbodies
- Stream Start/End Point
- Wetlands
- Hermosa West Wind Farm Project Area
- Survey Area
- State Boundary

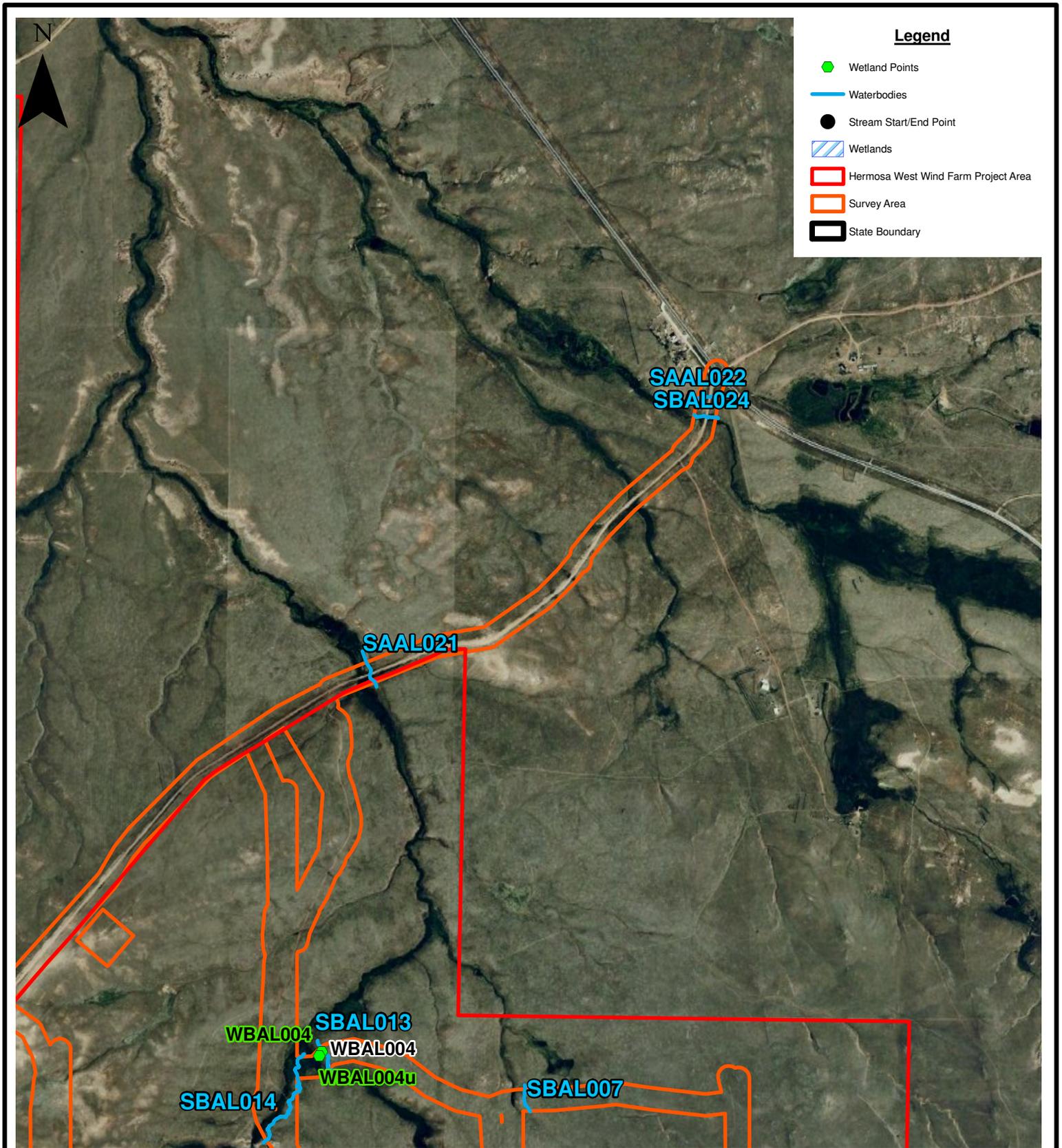


Environmental Resources Management

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DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0	
File: I:\GIS\Shell\projects\airal_wetlands.mxd			

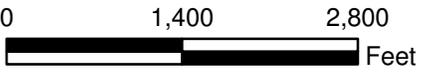
FIGURE A-1b
 AERIAL MAP WITH CORP PLOTS
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming





Legend

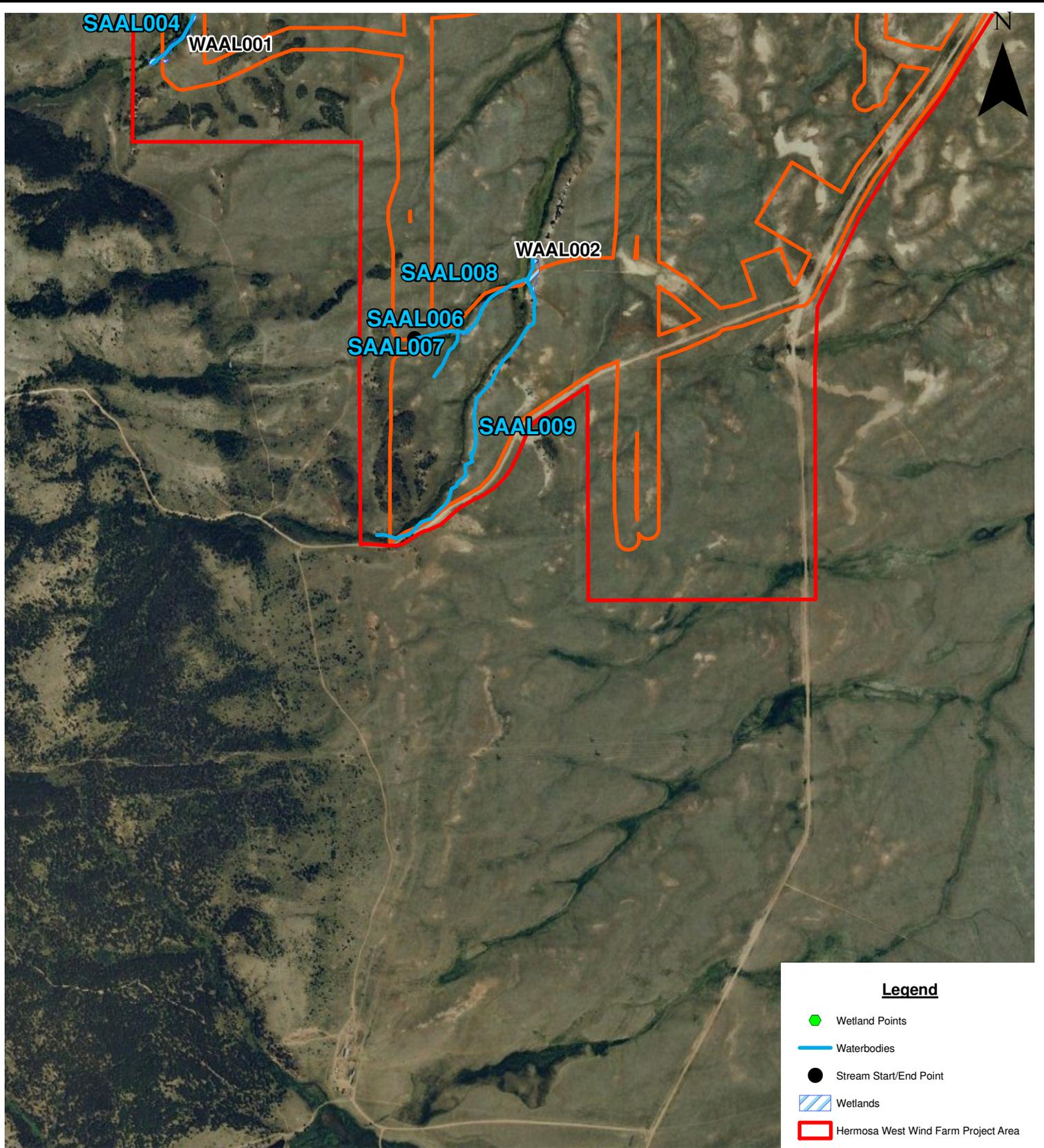
- ◆ Wetland Points
- Waterbodies
- Stream Start/End Point
- Wetlands
- Hermosa West Wind Farm Project Area
- Survey Area
- State Boundary



Environmental Resources Management		
DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\airal_wetlands.mxd		

FIGURE A-1c
 AERIAL MAP WITH CORP PLOTS
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming





Legend

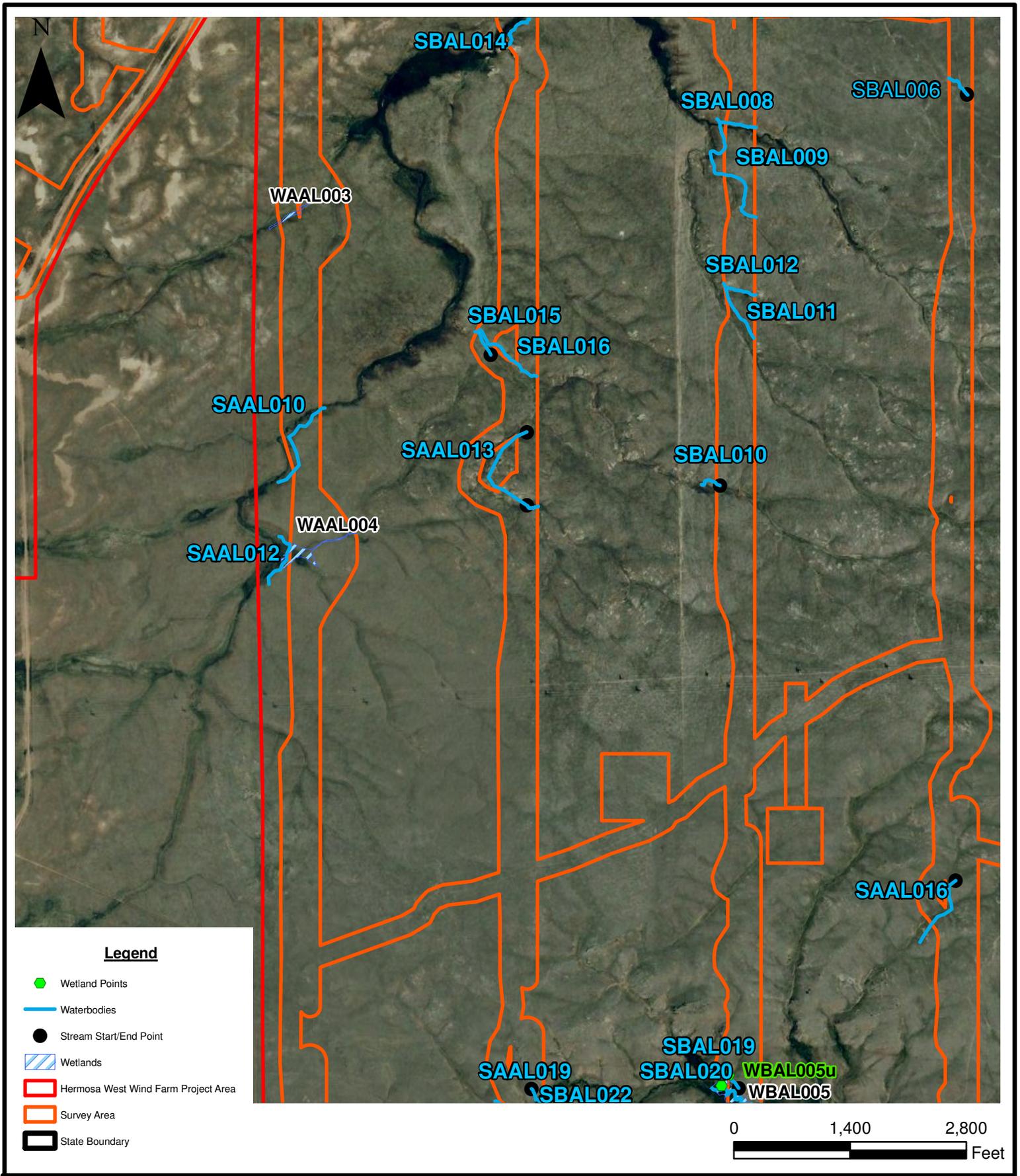
- Wetland Points
- Waterbodies
- Stream Start/End Point
- Wetlands
- Hermosa West Wind Farm Project Area
- Survey Area
- State Boundary

Environmental Resources Management

DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\airal_wetlands.mxd		

FIGURE A-1d
 AERIAL MAP WITH CORP PLOTS
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



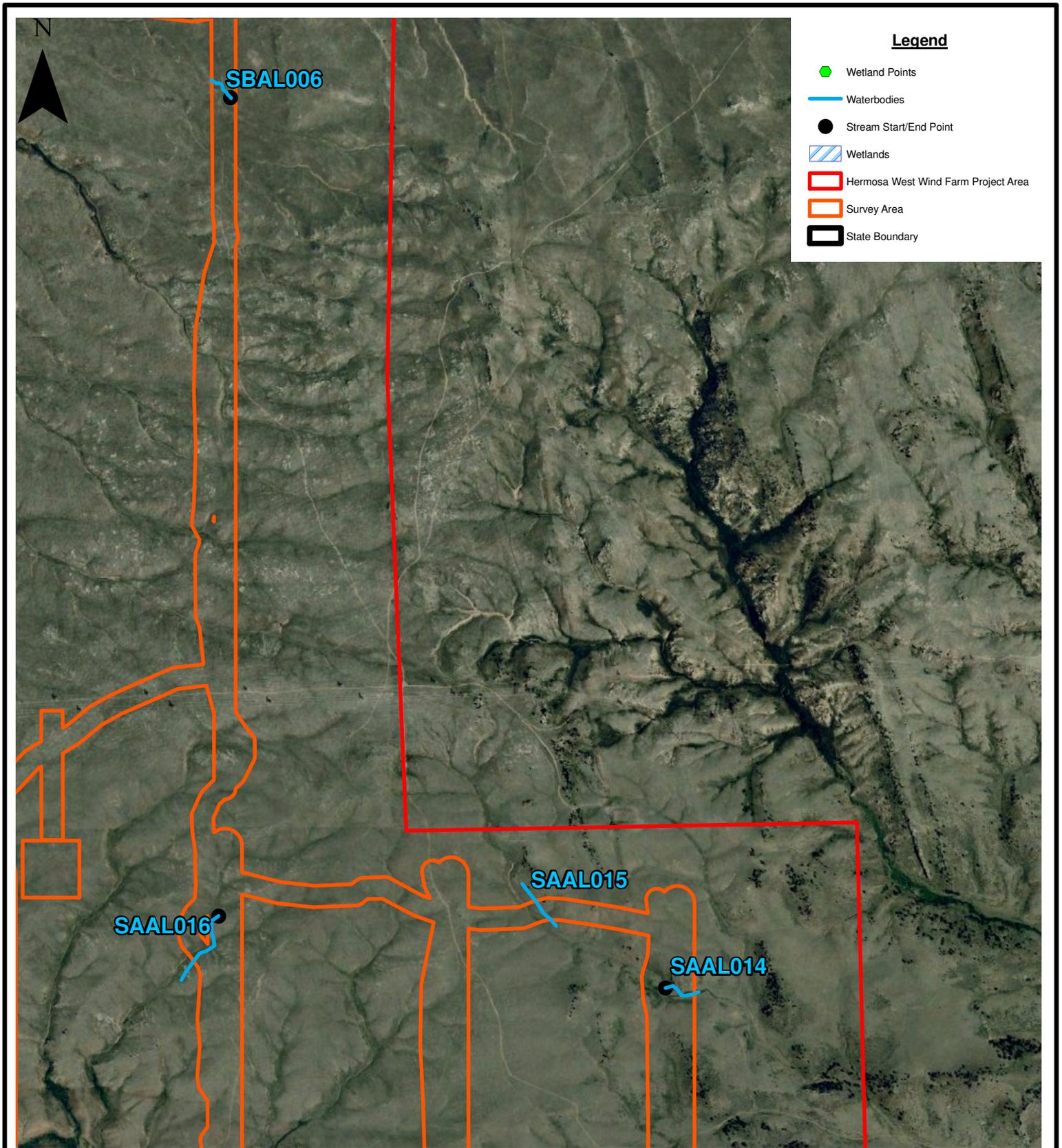


Environmental Resources Management

FIGURE A-1e
 AERIAL MAP WITH CORP PLOTS
 Shell Wind Energy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
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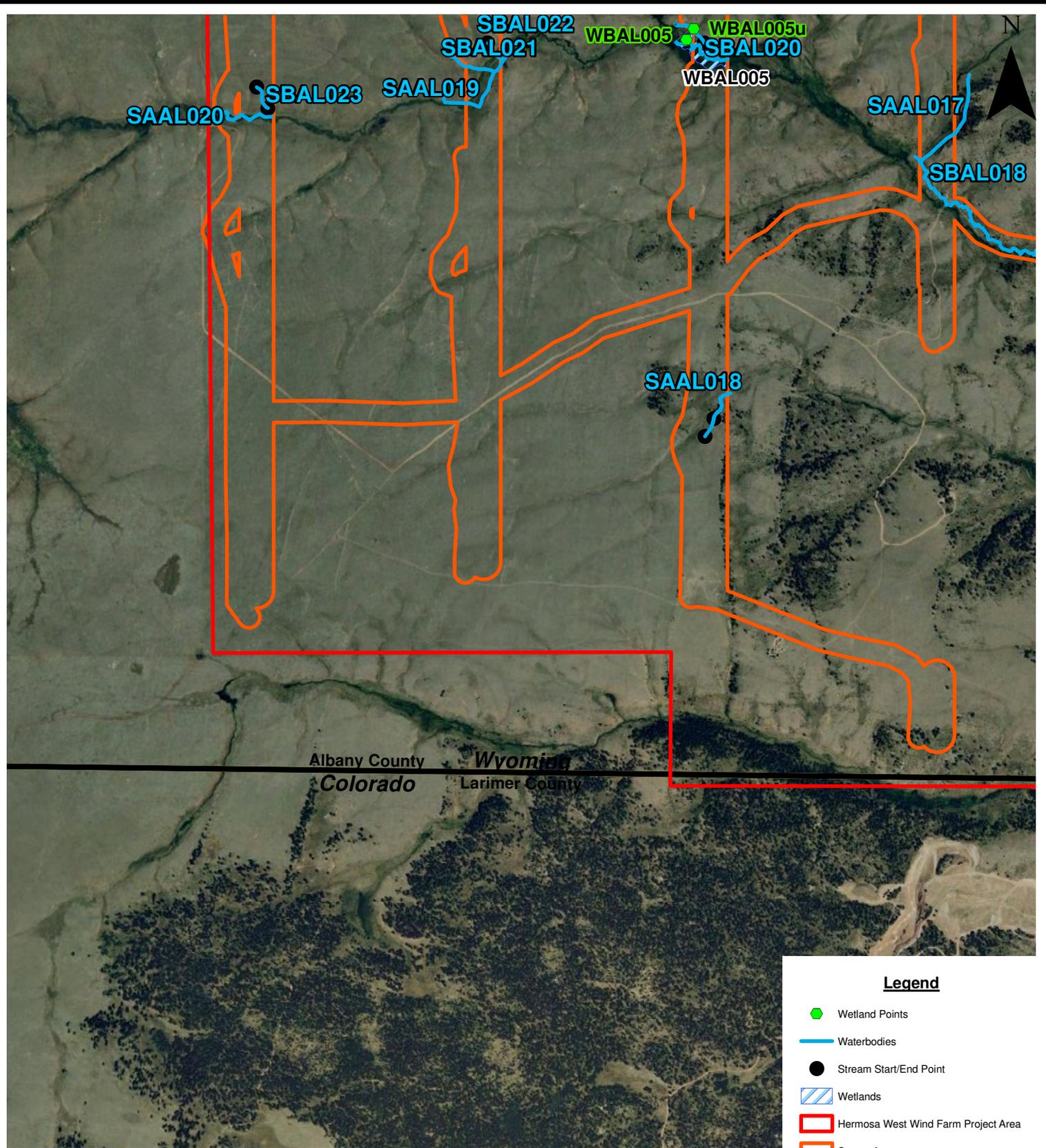


Environmental Resources Management

DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\airal_wetlands.mxd		

FIGURE A-1f
 AERIAL MAP WITH CORP PLOTS
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



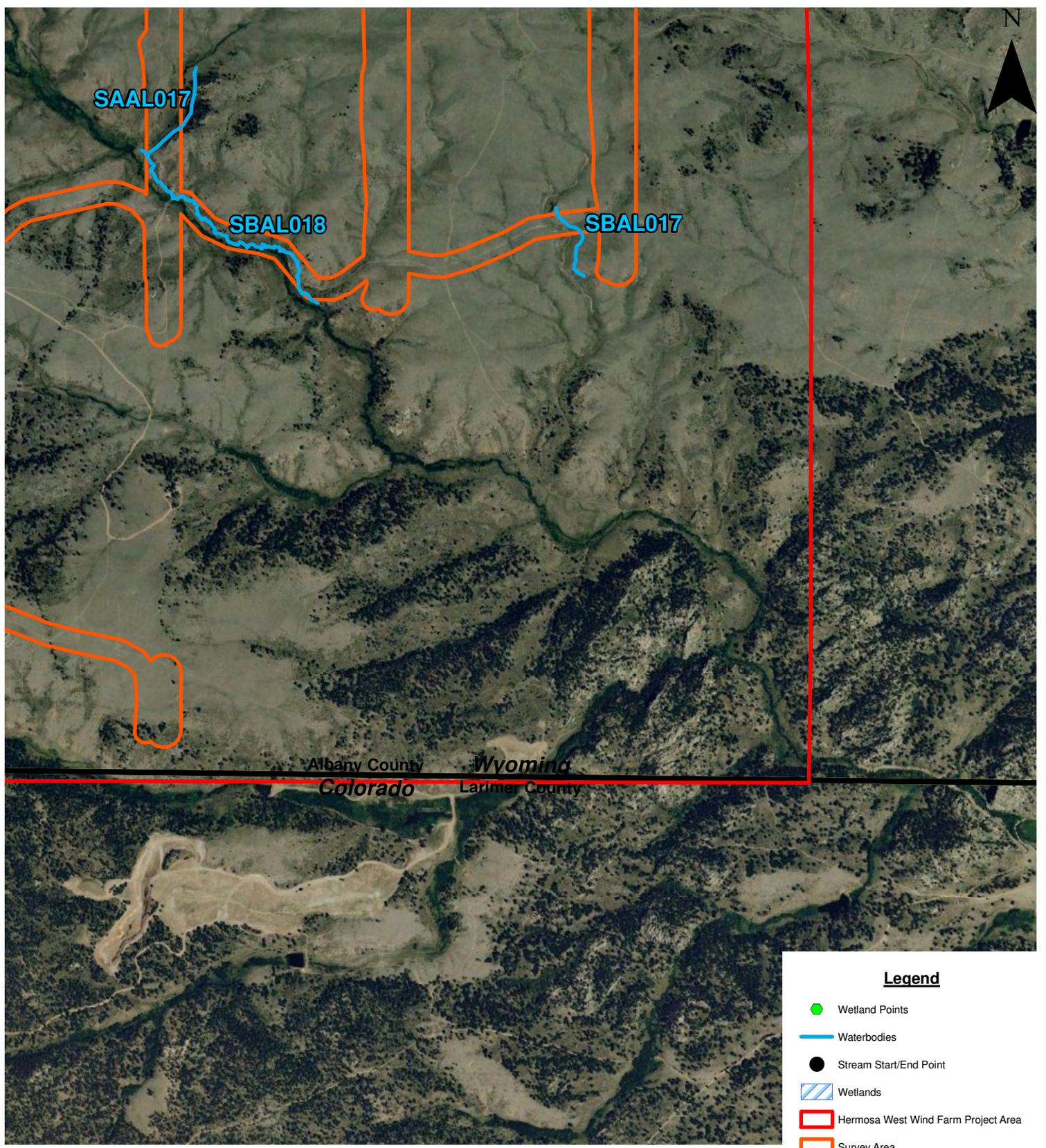


Environmental Resources Management

DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\airal_wetlands.mxd		

FIGURE A-1g
AERIAL MAP WITH CORP PLOTS
Shell WindEnergy
Hermosa West Wind Farm Project
Albany County, Wyoming





Environmental Resources Management

FIGURE A-1h
 AERIAL MAP WITH CORP PLOTS
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



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DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\airal_wetlands.mxd		

Description of Dominance Test
Appendix B

January 11, 2010
Project No. 0105023

Environmental Resources Management Southwest Inc.
15810 Park Ten Place, Suite 300
Houston, Texas 77084-5140
(281) 600-1000

Procedure

The procedure for using hydrophytic vegetation indicators is as follows:

1. Apply Indicator 1 (Dominance Test).
 - a. If the plant community passes the dominance test, then the vegetation is hydrophytic and no further vegetation analysis is required.
 - b. If the plant community fails the dominance test, and indicators of hydric soil and/or wetland hydrology are absent, then hydrophytic vegetation is absent unless the site meets requirements for a problematic wetland situation (see Chapter 5).
 - c. If the plant community fails the dominance test, but indicators of hydric soil and wetland hydrology are both present, proceed to step 2.
2. Apply Indicator 2 (Prevalence Index). This step assumes that at least one indicator of hydric soil and one primary or two secondary indicators of wetland hydrology are present.
 - a. If the plant community satisfies the prevalence index, then the vegetation is hydrophytic. No further vegetation analysis is required.
 - b. If the plant community fails the prevalence index, then hydrophytic vegetation is absent unless indicators of hydric soil and wetland hydrology are present and the site meets the requirements for a problematic wetland situation (Chapter 5).

Indicator 1: Dominance test

Description: More than 50 percent of the dominant plant species across all strata are rated OBL, FACW, or FAC.

User Notes: Use the “50/20 rule” described below to select dominant species from each stratum of the community. Combine dominant species across strata and apply the dominance test to the combined list. Once a species is selected as a dominant, its cover value is not used in the dominance test; each dominant species is treated equally. Thus, a plant community with seven dominant species across all strata would need at least four dominant species that are OBL, FACW, or FAC to be considered hydrophytic by this indicator. Species that are dominant in two or more strata should be counted two or more times in the dominance test.

Procedure for Selecting Dominant Species by the 50/20 Rule:

Dominant plant species are the most abundant species in the community; they contribute more to the character of the community than do the other non-dominant species present. The 50/20 rule is the recommended method for selecting dominant species from a plant community when quantitative data are available.

Dominant species are chosen independently from each stratum of the community. In general, dominants are the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total. For the purposes of this regional supplement, absolute percent cover is the recommended abundance measure for plants in all vegetation strata. See Table 3 for an example application of the 50/20 rule in evaluating a plant community. Steps in selecting dominant species by the 50/20 rule are as follows:

1. Estimate the absolute percent cover of each species in the first stratum. Since the same data may be used later to calculate the prevalence index, the data should be recorded as absolute cover and not converted to relative cover.
2. Rank all species in the stratum from most to least abundant.
3. Calculate the total coverage of all species in the stratum (i.e., sum their individual percent cover values). Absolute cover estimates do not necessarily sum to 100 percent.
4. Select plant species from the ranked list, in decreasing order of coverage, until the cumulative coverage of selected species *exceeds* 50 percent of the total absolute coverage for the stratum. If two or more species are equal in coverage (i.e., they are tied in rank), they should all be selected. The selected plant species are all considered to be dominants. All dominants must be identified to species.
5. In addition, select any other species that, by itself, is at least 20 percent of the total absolute percent cover in the stratum. Any such species is also considered to be a dominant and must be accurately identified.

Table 3. Example of the selection of dominant species by the 50/20 rule and determination of hydrophytic vegetation by the dominance test.

Stratum	Species Name	Wetland Indicator Status ¹	Absolute Percent Cover	Dominant?
Herb	<i>Impatiens capensis</i>	FACW	30	Yes
	<i>Boehmeria cylindrica</i>	FACW	18	Yes
	<i>Pilea pumila</i>	FACW	12	No
	<i>Athyrium filix-femina</i>	FAC	3	No
	<i>Symplocarpus foetidus</i>	OBL	3	No
	Total cover		66	
	50/20 Thresholds: 50% of total cover = 33.0% 20% of total cover = 13.2%			
Shrub	<i>Ilex opaca</i>	FACU	18	Yes
	<i>Viburnum dentatum</i>	FAC	6	Yes
	<i>Clethra alnifolia</i>	FAC	3	No
	<i>Vaccinium corymbosum</i>	FACW	3	No
	Total cover		30	
	50/20 Thresholds: 50% of total cover = 15.0% 20% of total cover = 6.0%			
Sapling	<i>Acer rubrum</i>	FAC	9	Yes
	<i>Liquidambar styraciflua</i>	FAC	9	Yes
	<i>Fraxinus pennsylvanica</i>	FACW	2	No
	Total cover		20	
	50/20 Thresholds: 50% of total cover = 10.0% 20% of total cover = 4.0%			
Tree	<i>Acer rubrum</i>	FAC	18	Yes
	<i>Liquidambar styraciflua</i>	FAC	18	Yes
	<i>Platanus occidentalis</i>	FACW	12	Yes
	<i>Fraxinus pennsylvanica</i>	FACW	6	No
	<i>Liriodendron tulipifera</i>	FACU	3	No
	<i>Nyssa sylvatica</i>	FAC	3	No
	Total cover		60	
	50/20 Thresholds: 50% of total cover = 30% 20% of total cover = 12%			
Woody Vine	<i>Toxicodendron radicans</i>	FAC	5	Yes
	<i>Lonicera japonica</i>	FAC	4	Yes
	<i>Parthenocissus quinquefolia</i>	FACU	1	No
	Total cover		10	
	50/20 Thresholds: 50% of total cover = 5.0% 20% of total cover = 2.0%			
Hydrophytic Vegetation Determination	Total number of dominant species across all strata = 11. Percent of dominant species that are OBL, FACW, or FAC = 10/11 = 90.9%. Therefore, this community is hydrophytic by Indicator 1 (Dominance Test).			

¹Indicator statuses according to the Region 1 (Northeast) plant list (Reed 1988).

6. Repeat steps 1-5 for any other stratum present. Combine the lists of dominant species across all strata. Note that a species may be dominant in more than one stratum (e.g., a woody species may be dominant in both the tree and sapling strata).

Indicator 2: Prevalence index

Description: The prevalence index is 3.0 or less.

User Notes: The prevalence index ranges from 1 to 5. A prevalence index of 3.0 or less indicates that hydrophytic vegetation is present. To calculate the prevalence index, at least 80 percent of the total vegetation cover on the plot (summed across all strata) must be of species that have been correctly identified and have assigned wetland indicator statuses (Reed 1988 or current list) or are upland (UPL) species.

Procedure for Calculating a Plot-Based Prevalence Index: The prevalence index is a weighted-average wetland indicator status of all plant species in the sampling plot, where each indicator status category is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and weighting is by abundance (absolute percent cover). It is a more comprehensive analysis of the hydrophytic status of the community than one based on just a few dominant species. It is particularly useful in (1) communities with only one or two dominants, (2) highly diverse communities where many species may be present at roughly equal coverage, and (3) cases where strata differ greatly in total plant cover (e.g., total herb cover is 80 percent but sapling cover is only 10 percent). The prevalence index is used in this supplement to determine whether hydrophytic vegetation is present on sites where indicators of hydric soil and wetland hydrology are present but the vegetation initially fails the dominance test.

The following procedure is used to calculate a plot-based prevalence index. The method was described by Wentworth et al. (1988) and modified by Wakeley and Lichvar (1997). It uses the same field data (i.e., percent cover estimates for each plant species) that were used to select dominant species by the 50/20 rule, with the added constraint that at least 80 percent of the total vegetation cover on the plot must be of species that have been correctly identified and have an assigned indicator status (including UPL). For any species that occurs in more than one stratum, cover estimates are

summed across strata. Steps for determining the prevalence index are as follows:

1. Identify and estimate the absolute percent cover of each species in each stratum of the community. Sum the cover estimates for any species that is present in more than one stratum.
2. Organize all species (across all strata) into groups according to their wetland indicator status (i.e., OBL, FACW, FAC, FACU, or UPL) and sum their cover values within groups. Do not include species that were not identified.
3. Calculate the prevalence index using the following formula:

$$PI = \frac{A_{OBL} + 2A_{FACW} + 3A_{FAC} + 4A_{FACU} + 5A_{UPL}}{A_{OBL} + A_{FACW} + A_{FAC} + A_{FACU} + A_{UPL}}$$

where:

PI = Prevalence index

A_{OBL} = Summed percent cover values of obligate (OBL) plant species

A_{FACW} = Summed percent cover values of facultative wetland (FACW) plant species

A_{FAC} = Summed percent cover values of facultative (FAC) plant species

A_{FACU} = Summed percent cover values of facultative upland (FACU) plant species

A_{UPL} = Summed percent cover values of upland (UPL) plant species

See Table 4 for an example calculation of the prevalence index using the same data set as in Table 3. The following web link provides free public-domain software for simultaneous calculation of the 50/20 rule, dominance test, and prevalence index:

<http://www.crrel.usace.army.mil/rsgisc/wetshed/wetdatashed.htm>.

Table 4. Example of the Prevalence Index using the same data as in Table 3.

Indicator Status Group	Species Name	Absolute Percent Cover by Species	Total Cover by Group	Multiply by: ¹	Product
OBL species	<i>Symplocarpus foetidus</i>	3	3	1	3
FACW species	<i>Boehmeria cylindrica</i>	18			
	<i>Fraxinus pennsylvanica</i> ²	8			
	<i>Impatiens capensis</i>	30			
	<i>Pilea pumila</i>	12			
	<i>Platanus occidentalis</i>	12			
	<i>Vaccinium corymbosum</i>	3	83	2	166
FAC species	<i>Acer rubrum</i> ²	27			
	<i>Athyrium filix-femina</i>	3			
	<i>Clethra alnifolia</i>	3			
	<i>Liquidambar styraciflua</i> ²	27			
	<i>Lonicera japonica</i>	4			
	<i>Nyssa sylvatica</i>	3			
	<i>Toxicodendron radicans</i>	5			
	<i>Viburnum dentatum</i>	6	78	3	234
FACU species	<i>Ilex opaca</i>	18			
	<i>Liriodendron tulipifera</i>	3			
	<i>Parthenocissus quinquefolia</i>	1	22	4	88
UPL species	None	0	0	5	0
Sum			186 (A)		491 (B)
Hydrophytic Vegetation Determination		Prevalence Index = B/A = 491/186 = 2.64 Therefore, this community is hydrophytic by Indicator 2 (Prevalence Index).			

¹ Where OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5.

² These species were each recorded in two or more strata (see Table 3), so the cover estimates were summed across strata.

Photographic Log
Appendix C

January 11, 2010
Project No. 0105023

Environmental Resources Management Southwest Inc.
15810 Park Ten Place, Suite 300
Houston, Texas 77084-5140
(281) 600-1000

Photographic Log

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A35			
Feature: WAAL001			
Date: 08-25-2009			
Comments: Looking south, this photo depicts wetland WAAL001 associated with stream SAL004 (Forest Creek).			
Photograph ID: A36			
Feature: WAAL001			
Date: 08-25-2009			
Comments: Looking north, this image shows another view of wetland WAAL001.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A37			
Feature: WAAL001U			
Date: 08-25-2009			
Comments: Looking west, this photograph shows the upland vegetation community adjacent to wetland WAAL001.			
Photograph ID: A54			
Feature: WAAL002			
Date: 08-26-2009			
Comments: Looking south-southwest this image shows a view of wetland WAAL002 associated with the confluence of stream SAAL008 (Boulder Creek) and SAAL009.			

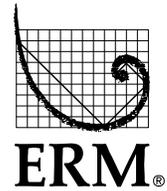
PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A55			
Feature: WAAL002			
Date: 08-26-2009			
Comments: Looking north-northeast this photograph shows another view of wetland WAAL002.			
Photograph ID: A56			
Feature: WAAL002U			
Date: 08-26-2009			
Comments: Looking south, this picture shows the upland plant community associated with wetland WAAL002.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A65			
Feature: WAAL003			
Date: 08-26-2009			
Comments: Looking west, this image shows wetland WAAL003. This wetland is located in a low-lying area near an offsite wetland complex associated with a tributary to Willow Creek.			
Photograph ID: A66			
Feature: WAAL003			
Date: 08-26-2009			
Comments: Looking east, this image shows another view of the hummocks within wetland WAAL003.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A67			
Feature: WAAL003U			
Date: 08-26-2009			
Comments: Looking north, this photograph shows the upland community associated with wetland WAAL003.			
Photograph ID: A74			
Feature: WAAL004			
Date: 08-26-2009			
Comments: Looking east, this photograph shows wetland WAAL004, a large wetland associated with the confluence of SAAL011 and SAAL012, both unnamed tributaries of Willow Creek.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A75			
Feature: WAAL004			
Date: 08-26-2009			
Comments: Looking west, this image depicts another view of wetland WAAL004.			
Photograph ID: A76			
Feature: WAAL004U			
Date: 08-26-2009			
Comments: Looking north, this photo shows the upland plant community associated with wetland WAAL004.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B6			
Feature: WBAL001			
Date: 08-25-2009			
Comments: Fringing wetland at junction of stream features SBAL001 and SBAL002. Photograph taken facing south.			
Photograph ID: B7			
Feature: WBAL001			
Date: 08-25-2009			
Comments: Fringing wetland at junction of SBAL001 and SBAL002 facing north.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B17			
Feature: WBAL002			
Date: 08-25-2009			
Comments: Isolated wetland feature facing south.			
Photograph ID: B29			
Feature: WBAL003			
Date: 08-25-2009			
Comments: SBAL004 facing south with fringing wetland WBAL003 at junction of SBAL004 and SBAL005.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B85			
Feature: WBAL004			
Date: 08-26-2009			
Comments: Stream SBAL013 and wetland feature WBAL004 facing south.			
Photograph ID: B86			
Feature: WBAL004			
Date: 08-26-2009			
Comments: Stream SBAL013 and wetland feature WBAL004 facing north.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B113			
Feature: WBAL005			
Date: 08-27-2009			
Comments: Photograph taken from SBAL019 looking towards wetland WBAL005 with stream SBAL020 following the line of shrubs in the distance.			
Photograph ID:	[INTENTIONALLY LEFT BLANK]		
Feature:			
Date:			
Comments:			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A11			
Feature: SAAL001			
Date: 08-25-2009			
Comments: Looking west, this image shows the aspen lined stream banks of SAAL001 (Government Creek).			
Photograph ID: A12			
Feature: SAAL001			
Date: 08-25-2009			
Comments: Looking east, this photo shows another view of the perennial stream SAAL001.			

PHOTOGRAPHIC LOG

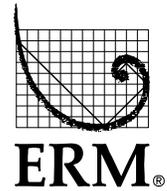
Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A21			
Feature: SAAL002			
Date: 08-25-2009			
Comments: Looking west this image shows a view of the perennial stream SAAL002 (Government Creek).			
Photograph ID: A22			
Feature: SAAL002			
Date: 08-25-2009			
Comments: Looking east this image shows another view of this Waterbody.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A25			
Feature: SAAL003			
Date: 08-25-2009			
Comments: Looking southwest, this image shows stream SAAL003. While this is still Government Creek, this reach is considered an ephemeral creek.			
Photograph ID: A26			
Feature: ESAAL003			
Date: 08-25-2009			
Comments: Looking northeast, this image shows the shelving of SAAO003.			

PHOTOGRAPHIC LOG

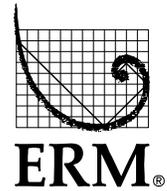


Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A33			
Feature: SAAL004			
Date: 08-25-2009			
Comments: Looking west, this image shows the perennial creek SAAL004 (Forrest Creek). This Waterbody is associated with wetland WAAL001.			
Photograph ID: A34			
Feature: ESAAL004			
Date: 08-25-2009			
Comments: Looking east, this image provides another view of SAAL004 and wetland WAAL001.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A38			
Feature: SAAL005			
Date: 08-26-2009			
Comments: Looking west, this image shows the intermittent reach of Forrest Creek SAAL005.			
Photograph ID: A39			
Feature: SAAL005			
Date: 08-26-2009			
Comments: Looking east, this image shows the shelving associated with this intermittent waterbody.			

PHOTOGRAPHIC LOG

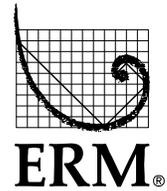


Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A50			
Feature: SAAL006			
Date: 08-26-2009			
Comments: Looking west, this photograph shows the ephemeral creek SAAL006, a tributary to Boulder Creek.			
Photograph ID: A51			
Feature: SAAL006			
Date: 08-26-2009			
Comments: Looking east, this image shows another view of this ephemeral creek.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A52			
Feature: SAAL007			
Date: 08-26-2009			
Comments: Looking west, this image shows the ephemeral creek SAAL007. This Waterbody is a tertiary tributary to Boulder Creek.			
Photograph ID: A53			
Feature: SAAL007			
Date: 08-26-2009			
Comments: Looking east, this image shows Boulder Creek in the distance along the tree line.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A57			
Feature: SAAL008			
Date: 08-26-2009			
Comments: Looking west, this image shows the ephemeral creek SAAL008. This photograph also show the associated wetland, WAAL002.			
Photograph ID: A58			
Feature: SAAL008			
Date: 08-26-2009			
Comments: Looking east, this image provides another view of SAAL008 and the associated wetland WAAL002.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A59			
Feature: SAAL009			
Date: 08-26-2009			
Comments: Looking north, this image shows the ephemeral stream SAAL009 and the associated wetland WAAL002.			
Photograph ID: A60			
Feature: SAAL009			
Date: 08-26-2009			
Comments: Looking south this image provides another view of the ephemeral stream and the associated wetland.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A70			
Feature: SAAL010			
Date: 08-26-2009			
Comments: Looking west, this image shows the perennial stream SAAL010, an unnamed tributary to Willow Creek.			
Photograph ID: A71			
Feature: SAAL010			
Date: 08-26-2009			
Comments: Looking east this image provides another view of this stream.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A72			
Feature: SAAL011			
Date: 08-26-2009			
Comments: Looking northeast this image shows the perennial stream SAAL011. This stream flows into wetland WAAL004 where it loses all channeling.			
Photograph ID: A73			
Feature: SAAL011			
Date: 08-26-2009			
Comments: Looking southwest this image shows another view of SAAL011.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A77			
Feature: SAAL012			
Date: 08-26-2009			
Comments: Looking northeast this image shows the perennial stream SAAL012. This image also provides a view of the wetland WAAL004.			
Photograph ID: A78			
Feature: SAAL012			
Date: 08-26-2009			
Comments: Looking southwest, this image shows another view of SAAL012 and the associated wetland WAAL004.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A87			
Feature: SAAL013			
Date: 08-26-2009			
Comments: Looking west this image depicts the ephemeral stream SAAL013.			
Photograph ID: A88			
Feature: SAAL013			
Date: 08-26-2009			
Comments: Looking east, this photograph provides another view of SAAL013.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A93			
Feature: SAAL015			
Date: 08-27-2009			
Comments: Looking west this image shows the shelving associated with the ephemeral stream SAAL015.			
Photograph ID: A94			
Feature: SAAL014			
Date: 08-27-2009			
Comments: Looking east, this photo provides another view of SAAL015.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A95			
Feature: SAAL014			
Date: 08-27-2009			
Comments: Looking northwest, this photo shows the perennial stream SAAL014.			
Photograph ID: A96			
Feature: SAAL015			
Date: 08-27-2009			
Comments: Looking southeast this image shows another view of SAAL015.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A101			
Feature: SAAL016			
Date: 08-27-2009			
Comments: Looking northeast this photograph shows the ephemeral stream SAAL016.			
Photograph ID: A102			
Feature: SAAL016			
Date: 08-27-2009			
Comments: Looking southwest this image shows the shelving associated with SAAL016.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A103			
Feature: SAAL017			
Date: 08-27-2009			
Comments: Looking east this image shows a view of the perennial stream SAAL017.			
Photograph ID: A104			
Feature: SAAL017			
Date: 08-27-2009			
Comments: Looking west this image shows another view of the stream course.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A109			
Feature: SAAL018			
Date: 08-27-2009			
Comments: Looking west this picture shows the ephemeral creek SAAL018.			
Photograph ID: A110			
Feature: SAAL018			
Date: 08-27-2009			
Comments: Looking east this photograph provides another view of SAAL018.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A114			
Feature: SAAL019			
Date: 08-27-2009			
Comments: Looking west this photo depicts the perennial stream SAAL019 (Fish Creek).			
Photograph ID: A115			
Feature: SAAL019			
Date: 08-27-2009			
Comments: Looking east this photo provides another view of this perennial stream.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A120			
Feature: SAAL020			
Date: 08-27-2009			
Comments: Looking west this picture shows the westernmost crossing of Fish Creek.			
Photograph ID: A121			
Feature: SAAL020			
Date: 08-27-2009			
Comments: Looking east this photo provides an additional view of Fish Creek.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A122			
Feature: SAAL021			
Date: 08-27-2009			
Comments: Looking north this image shows the perennial creek SAAL021 along the entry road.			
Photograph ID: A123			
Feature: SAAL021			
Date: 08-27-2009			
Comments: Looking south, this photograph shows another view of SAAL021 along the entry road.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A124			
Feature: SAAL022			
Date: 08-27-2009			
Comments: Looking north along the entry road, this photograph shows the intermittent stream SAAL022.			
Photograph ID: A125			
Feature: SAAL022			
Date: 08-27-2009			
Comments: Looking south along the entry road, this photograph shows another view of SAAL022			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B5			
Feature: SBAL001			
Date: 08-25-2009			
Comments: Stream feature facing south.			
Photograph ID: B8			
Feature: SBAL002			
Date: 08-25-2009			
Comments: Stream feature facing south.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B9			
Feature: SBAL002			
Date: 08-25-2009			
Comments: Stream feature on the left side of the photograph, facing north into WBAL001.			
Photograph ID: B10			
Feature: SBAL002			
Date: 08-25-2009			
Comments: Segment of stream feature SBAL002 to the north of previous photographs. Facing south from a berm.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B11			
Feature: SBAL002			
Date: 08-25-2009			
Comments: Facing north from the berm.			
Photograph ID: B12			
Feature: SBAL002			
Date: 08-25-2009			
Comments: Facing east from the berm.			

PHOTOGRAPHIC LOG

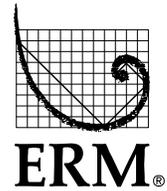


Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B13			
Feature: SBAL002			
Date: 08-25-2009			
Comments: Same stream feature a little further north.			
Photograph ID: B14			
Feature: SBAL002			
Date: 08-25-2009			
Comments: Same general location as photograph B13 facing south.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B25			
Feature: SBAL003			
Date: 08-25-2009			
Comments: Stream feature facing east.			
Photograph ID: B26			
Feature: SBAL003			
Date: 08-25-2009			
Comments: Stream feature facing west.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B31			
Feature: SBAL004			
Date: 08-25-2009			
Comments: SBAL005 facing west with fringing wetland WBAL003 at junction of SBAL005 and SBAL004.			
Photograph ID: B32			
Feature: SBAL004			
Date: 08-25-2009			
Comments: SBAL005 facing east with fringing wetland WBAL003 at junction of SBAL005 and SBAL004.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B29			
Feature: SBAL005			
Date: 08-25-2009			
Comments: SBAL004 facing south with fringing wetland WBAL003 at junction of SBAL004 and SBAL005.			
Photograph ID: B30			
Feature: Metal corral			
Date: 08-25-2009			
Comments: Metal cistern with water flowing out of black pipe in center at junction of SBAL004 and SBAL005. (Located just to the left of photograph B29)			

PHOTOGRAPHIC LOG

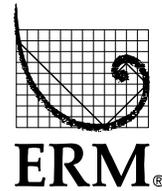
Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B53			
Feature: SBAL006			
Date: 08-26-2009			
Comments: Stream feature facing east.			
Photograph ID: B54			
Feature: SBAL006			
Date: 08-26-2009			
Comments: Stream feature facing west.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B59			
Feature: SBAL007			
Date: 08-26-2009			
Comments: Stream feature facing south.			
Photograph ID: B60			
Feature: SBAL007			
Date: 08-26-2009			
Comments: Stream feature facing north.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B63			
Feature: SBAL008			
Date: 08-26-2009			
Comments: Stream feature facing east.			
Photograph ID: B64			
Feature: SBAL008			
Date: 08-26-2009			
Comments: Stream feature facing west.			



PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B65			
Feature: SBAL009			
Date: 08-26-2009			
Comments: Stream feature facing south.			
Photograph ID: B66			
Feature: SBAL009			
Date: 08-26-2009			
Comments: Stream feature facing north.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B76			
Feature: SBAL010			
Date: 08-26-2009			
Comments: Looking east, into corridor from the edge of stream feature SBAL010.			
Photograph ID: B77			
Feature: SBAL010			
Date: 08-26-2009			
Comments: Looking west, out of the corridor into stream feature SBAL010.			

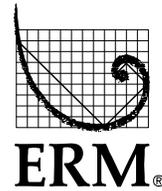
PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B78			
Feature: SBAL011			
Date: 08-26-2009			
Comments: Stream feature facing east.			
Photograph ID: B79			
Feature: SBAL011			
Date: 08-26-2009			
Comments: Stream feature facing west.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B80			
Feature: SBAL012			
Date: 08-26-2009			
Comments: Stream feature facing east to the edge of the corridor.			
Photograph ID: B81			
Feature: SBAL012			
Date: 08-26-2009			
Comments: Stream feature facing west.			



PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B82			
Feature: SBAL012			
Date: 08-26-2009			
Comments: Facing south from the same stream feature as photographs B80 and B81.			
Photograph ID:	[INTENTIONALLY LEFT BLANK]		
Feature:			
Date:			
Comments:			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B85			
Feature: SBAL013			
Date: 08-26-2009			
Comments: Stream SBAL013 and wetland feature WBAL004 facing south.			
Photograph ID: B86			
Feature: SBAL013			
Date: 08-26-2009			
Comments: Stream SBAL013 and wetland feature WBAL004 facing north.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B91			
Feature: SBAL014			
Date: 08-26-2009			
Comments: Stream feature facing east.			
Photograph ID: B92			
Feature: SBAL014			
Date: 08-26-2009			
Comments: Stream feature facing west.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B100			
Feature: SBAL015			
Date: 08-26-2009			
Comments: Stream feature facing south.			
Photograph ID: B101			
Feature: SBAL016			
Date: 08-26-2009			
Comments: Stream feature facing south.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B102			
Feature: SBAL015, SBAL016			
Date: 08-26-2009			
Comments: Junction of SBAL015 and SBAL016, facing north.			
Photograph ID:	[INTENTIONALLY LEFT BLANK]		
Feature:			
Date:			
Comments:			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B104			
Feature: SBAL017			
Date: 08-27-2009			
Comments: Stream feature facing south from existing culverted road.			
Photograph ID: B105			
Feature: SBAL017			
Date: 08-27-2009			
Comments: Culverts under existing road for stream feature SBAL017, facing south.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B106			
Feature: SBAL017			
Date: 08-27-2009			
Comments: Stream feature facing north while standing on existing road.			
Photograph ID: B107			
Feature: SBAL017			
Date: 08-27-2009			
Comments: Further north on stream feature SBAL017.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B108			
Feature: SBAL018			
Date: 08-27-2009			
Comments: Photograph taken just north of an existing access road and wood fence facing northwest towards the end of the corridor. An existing road parallels the stream along the north (unseen to the right).			
Photograph ID: B109			
Feature: SBAL018			
Date: 08-27-2009			
Comments: Same position as previous photograph, facing east towards the access road and wooden fence.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B112			
Feature: SBAL019			
Date: 08-27-2009			
Comments: Photograph taken facing southwest from a fence. Stream feature is channelized and appears to be man-made.			
Photograph ID: B113			
Feature: SBAL020			
Date: 08-27-2009			
Comments: Photograph taken from SBAL019 looking towards wetland WBAL005 with stream SBAL020 following the line of shrubs in the distance.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B116			
Feature: SBAL021			
Date: 08-27-2009			
Comments: Stream feature facing north. Tributary to Fish Creek			
Photograph ID: B117			
Feature: SBAL021			
Date: 08-27-2009			
Comments: Stream feature facing south. Tributary to Fish Creek			

PHOTOGRAPHIC LOG

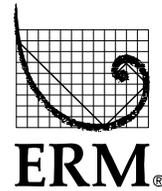
Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B118			
Feature: SBAL022			
Date: 08-27-2009			
Comments: Stream feature facing north. Tributary to Fish Creek			
Photograph ID:	[INTENTIONALLY LEFT BLANK]		
Feature:			
Date:			
Comments:			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B123			
Feature: SBAL023			
Date: 08-27-2009			
Comments: Stream feature facing northwest.			
Photograph ID: B124			
Feature: SBAL023			
Date: 08-27-2009			
Comments: Stream feature facing southwest.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B127			
Feature: SBAL024			
Date: 08-27-2009			
Comments: Stream feature facing south from existing culverted road.			
Photograph ID: B128			
Feature: SBAL024			
Date: 08-27-2009			
Comments: Stream feature facing north from existing culverted road.			



PHOTOGRAPHIC LOG

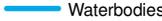
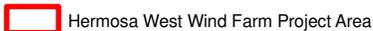
Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B93			
Feature: Prairie Dog			
Date: 08-26-2009			
Comments: Prairie dog town located on Wyoming State property.			
Photograph ID:	[INTENTIONALLY LEFT BLANK]		
Feature:			
Date:			
Comments:			

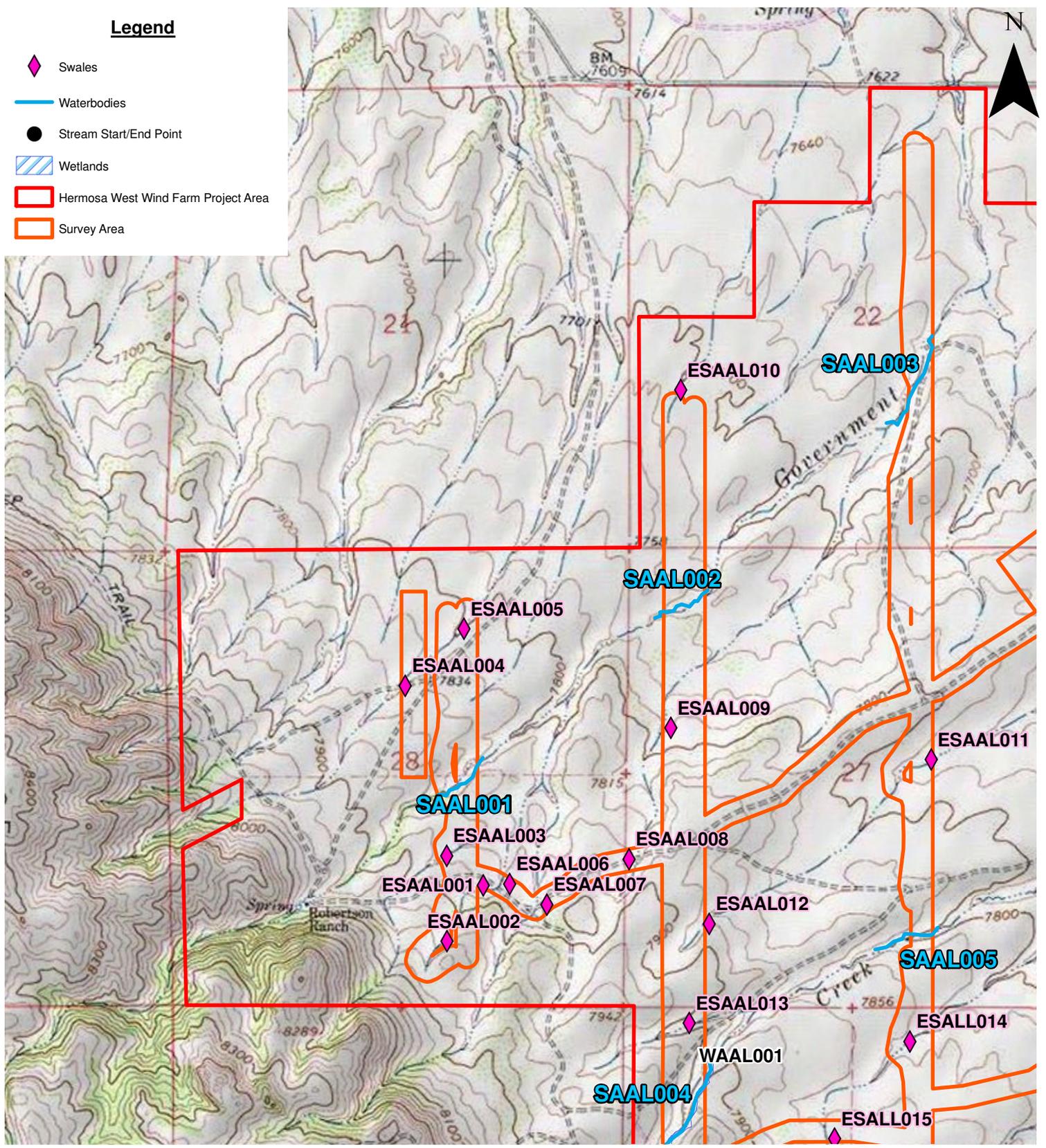
Identified Swales and Erosional Features
Appendix D

January 11, 2010
Project No. 0105023

Environmental Resources Management Southwest Inc.
15810 Park Ten Place, Suite 300
Houston, Texas 77084-5140
(281) 600-1000

Legend

-  Swales
-  Waterbodies
-  Stream Start/End Point
-  Wetlands
-  Hermosa West Wind Farm Project Area
-  Survey Area

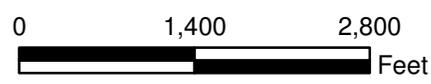
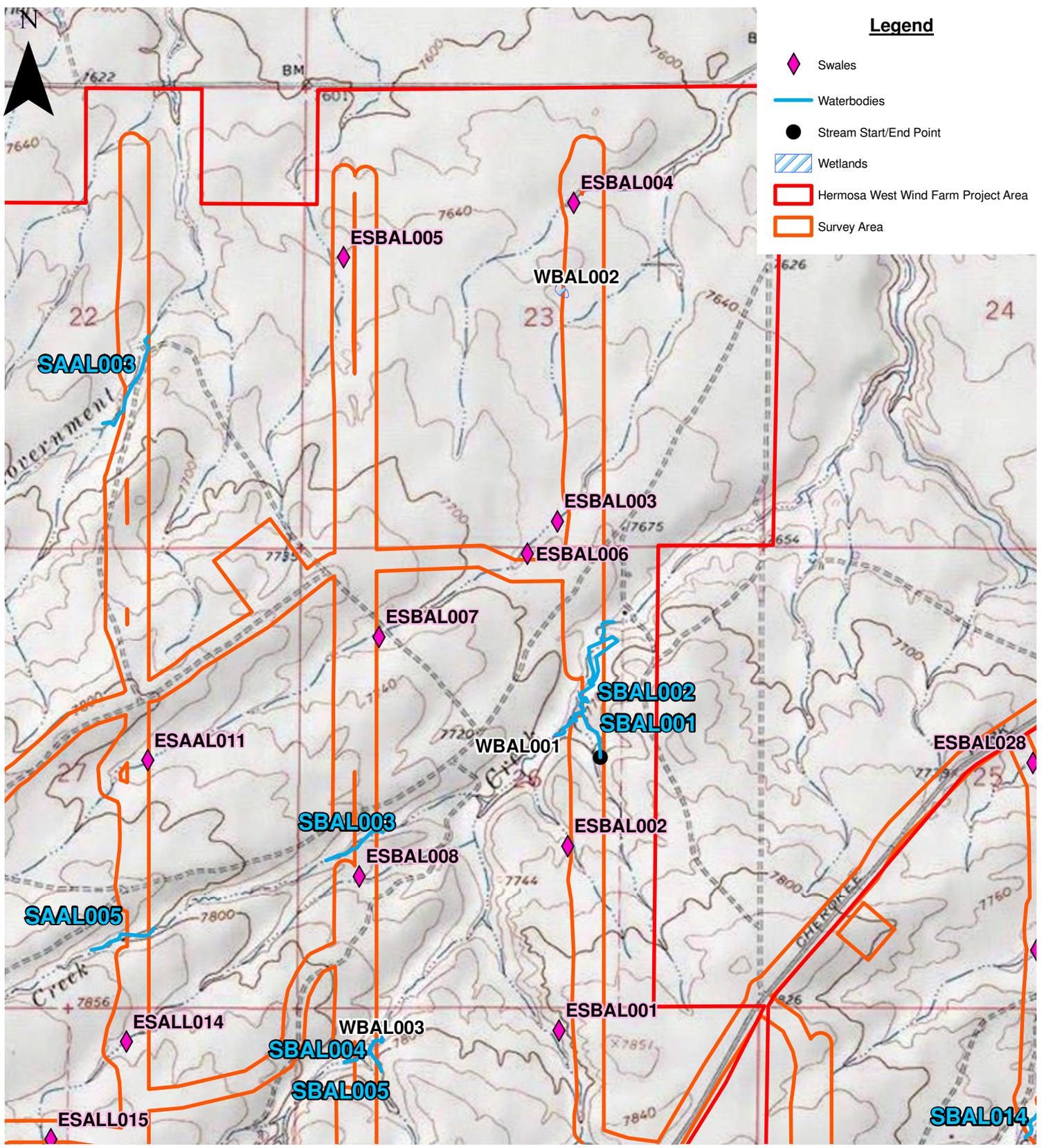


Environmental Resources Management

DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\topo_swales.mxd		

FIGURE D-1a
 IDENTIFIED SWALES
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



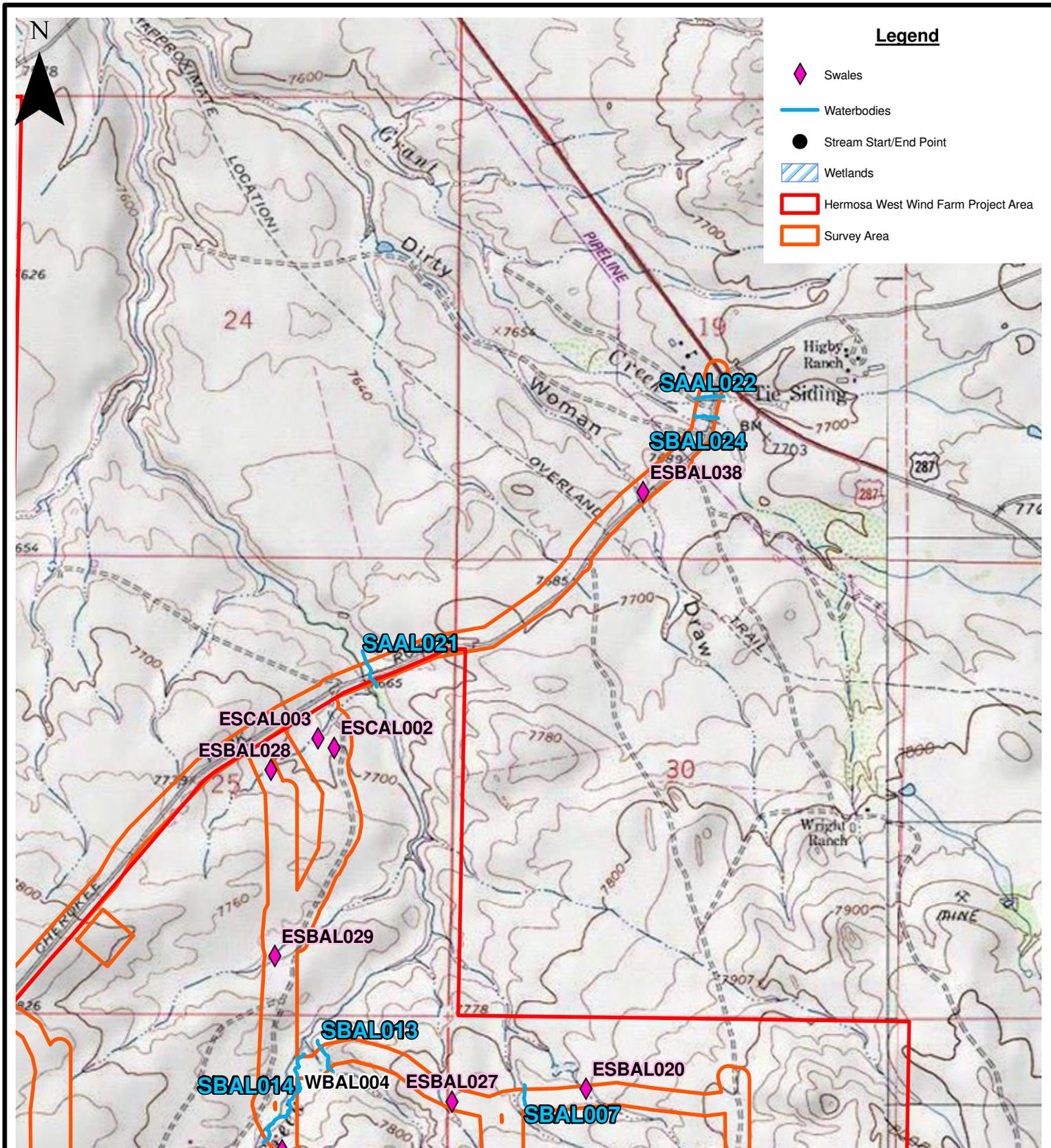


Environmental Resources Management

FIGURE D-1b
 IDENTIFIED SWALES
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\topo_swales.mxd		

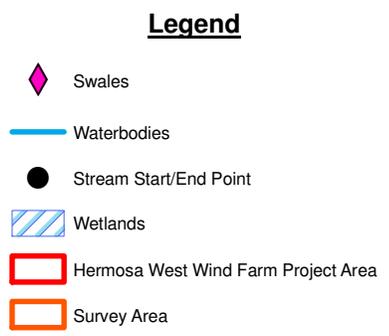
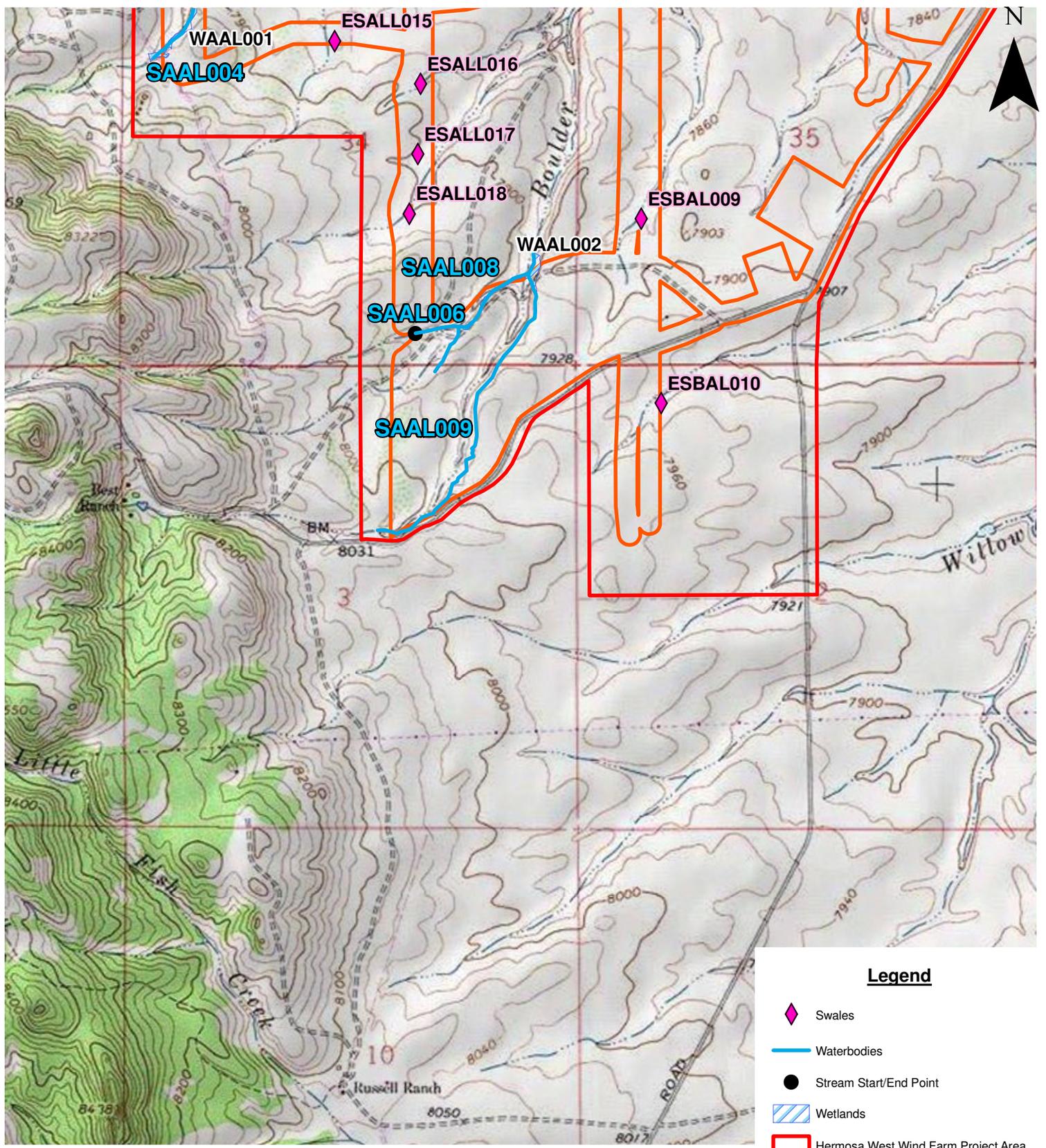


Environmental Resources Management

DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\topo_swales.mxd		

FIGURE D-1c
 IDENTIFIED SWALES
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



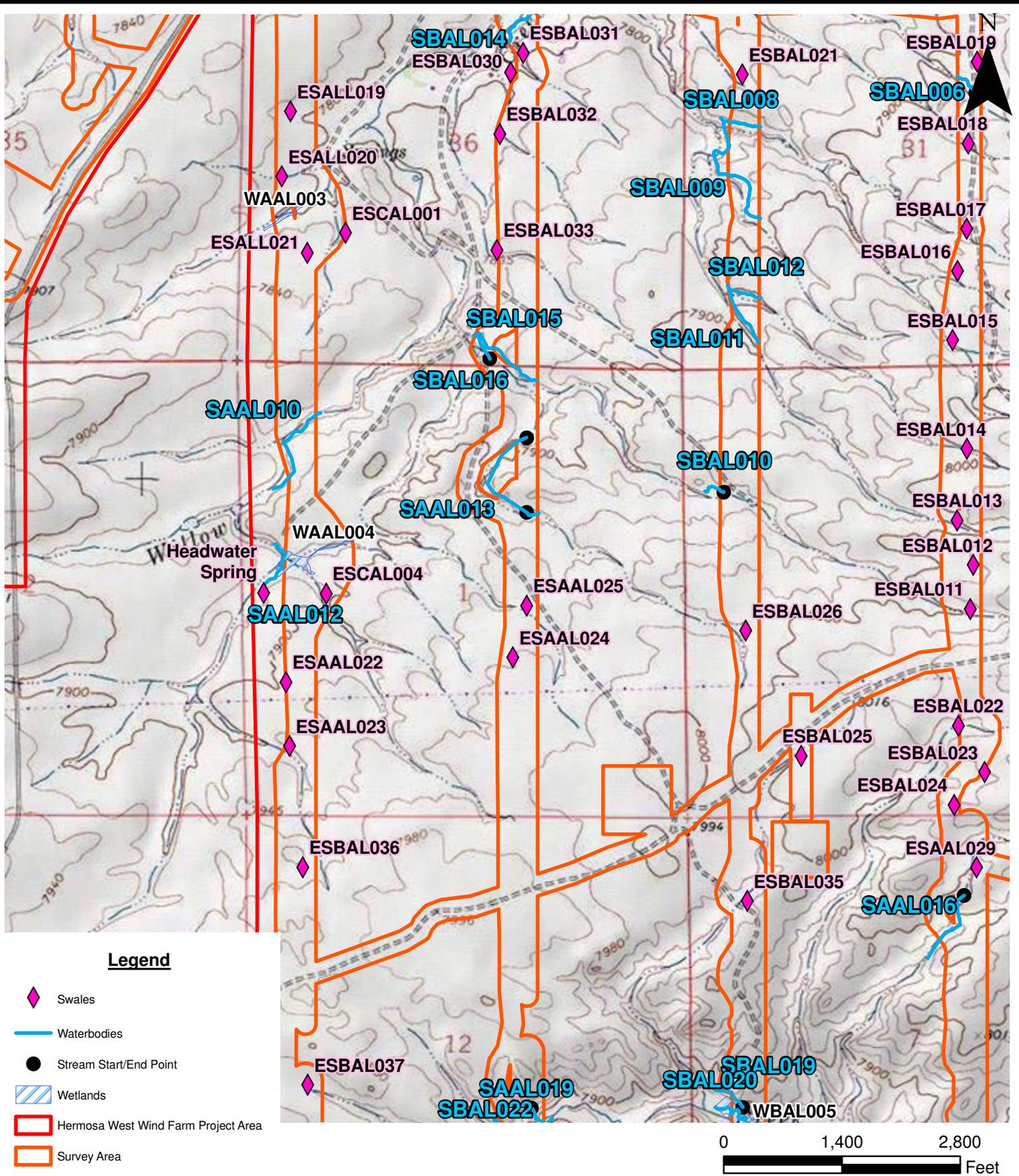


Environmental Resources Management

DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\topo_swales.mxd		

FIGURE D-1d
 IDENTIFIED SWALES
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



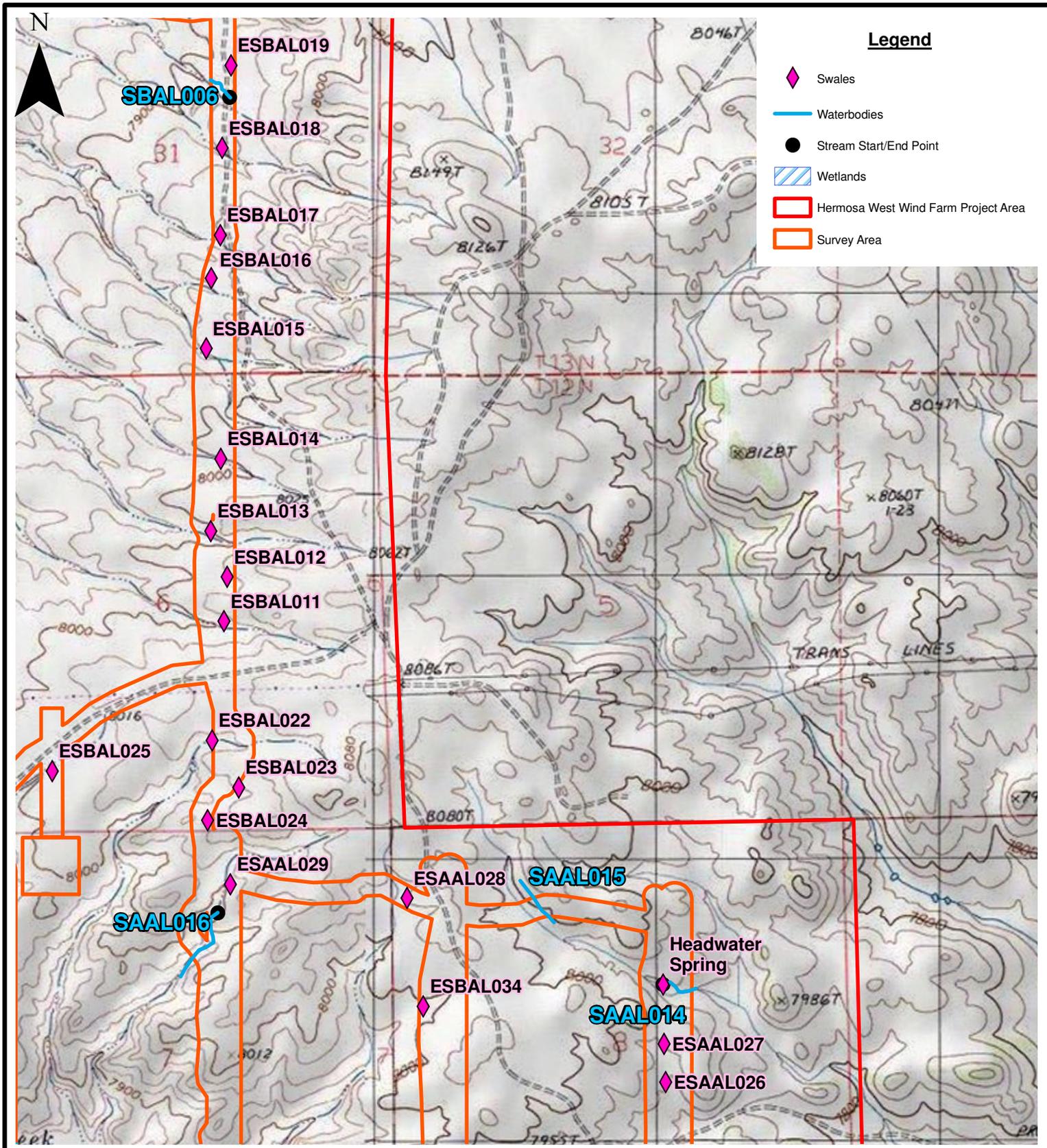


Environmental Resources Management

FIGURE D-1e
 IDENTIFIED SWALES
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\topo_swales.mxd		



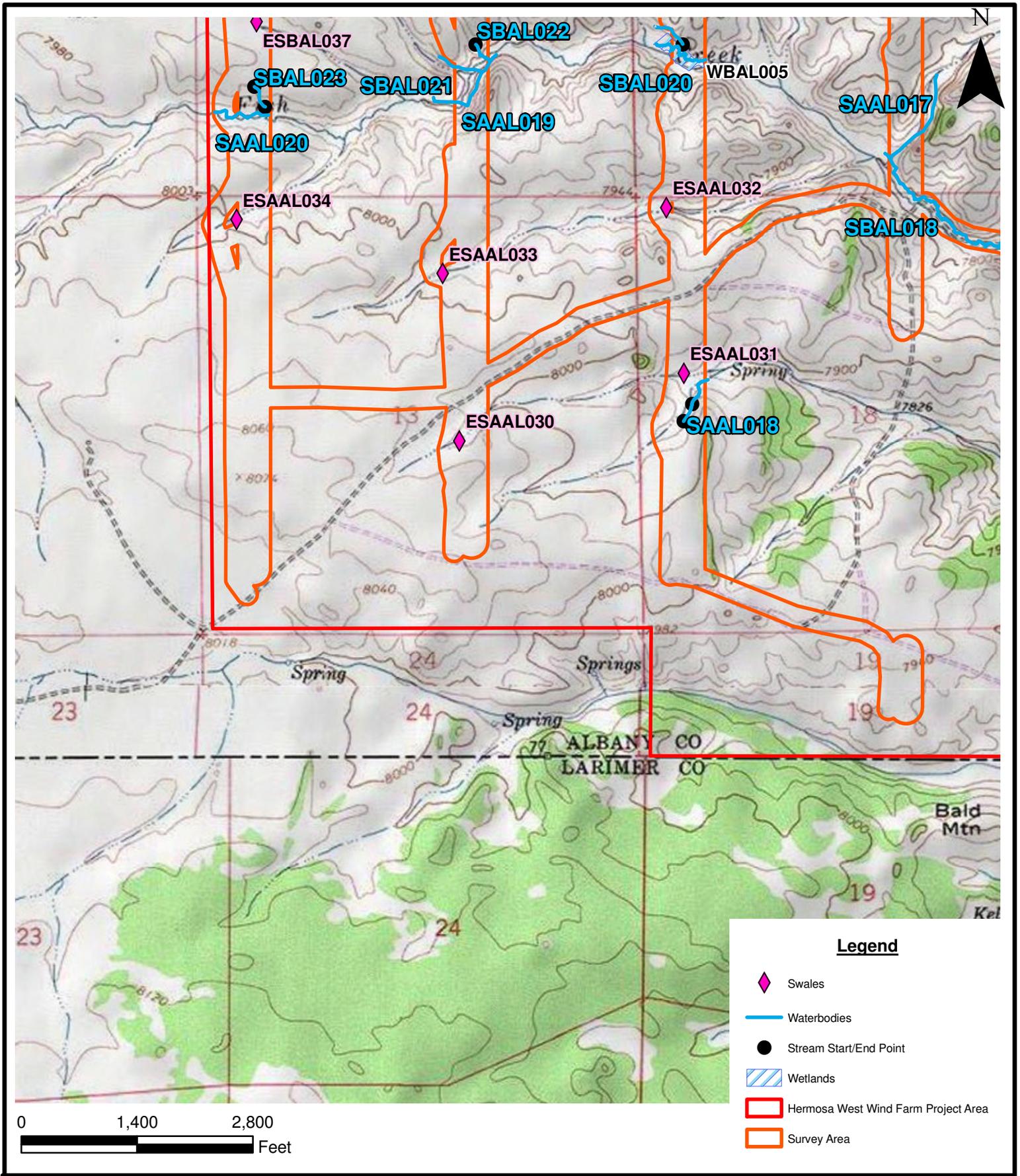
Environmental Resources Management

FIGURE D-1f
 IDENTIFIED SWALES
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\topo_swales.mxd		

ERM

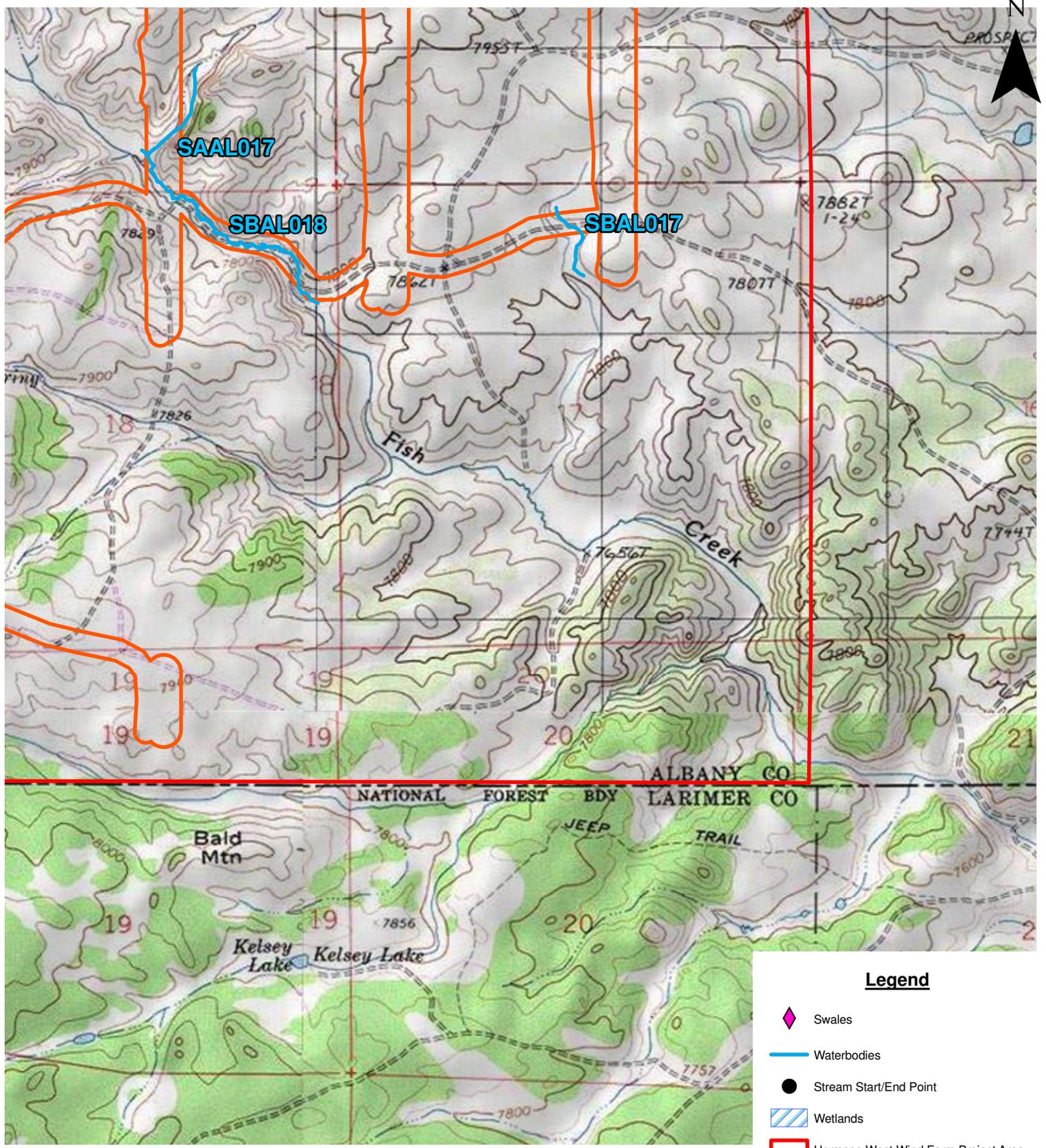


Environmental Resources Management

FIGURE D-1g
 IDENTIFIED SWALES
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\topo_swales.mxd		



Legend

- Swales
- Waterbodies
- Stream Start/End Point
- Wetlands
- Hermosa West Wind Farm Project Area
- Survey Area

Environmental Resources Management

DESIGN: E Johnson	DRAWN: S King	CHKD.: A Smith
DATE: 11/12/2009	SCALE: AS SHOWN	REVISION: 0
File: I:\GIS\Shell\projects\topo_swales.mxd		

FIGURE D-1h
 IDENTIFIED SWALES
 Shell WindEnergy
 Hermosa West Wind Farm Project
 Albany County, Wyoming



Photographic Log

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A1			
Feature: ESAAL001			
Date: 08-25-2009			
Comments: Erosional swale (determined not to be a water body), facing northeast.			
Photograph ID: A2			
Feature: ESAAL001			
Date: 08-25-2009			
Comments: Swale facing southwest.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A3			
Feature: ESAAL002			
Date: 08-25-2009			
Comments: Swale facing northeast.			
Photograph ID: A4			
Feature: ESAAL002			
Date: 08-25-2009			
Comments: Swale facing southwest.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A5			
Feature: ESAAL003			
Date: 08-25-2009			
Comments: Swale facing west.			
Photograph ID: A6			
Feature: ESAAL003			
Date: 08-25-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG

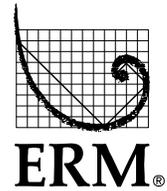


Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A7			
Feature: ESAAL004			
Date: 08-25-2009			
Comments: Swale facing northeast.			
Photograph ID: A8			
Feature: ESAAL004			
Date: 08-25-2009			
Comments: Swale facing southwest.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A9			
Feature: ESAAL005			
Date: 08-25-2009			
Comments: Swale facing east.			
Photograph ID: A10			
Feature: ESAAL005			
Date: 08-25-2009			
Comments: Swale facing west.			



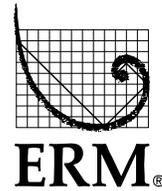
PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A13			
Feature: ESAAL006			
Date: 08-25-2009			
Comments: Swale facing west.			
Photograph ID: A14			
Feature: ESAAL006			
Date: 08-25-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A15			
Feature: ESAAL007			
Date: 08-25-2009			
Comments: Swale facing southwest.			
Photograph ID: A16			
Feature: ESAAL007			
Date: 08-25-2009			
Comments: Swale facing northeast.			



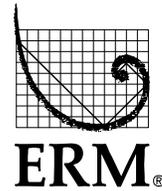
PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A17			
Feature: ESAAL008			
Date: 08-25-2009			
Comments: Swale facing northeast.			
Photograph ID: A18			
Feature: ESAAL008			
Date: 08-25-2009			
Comments: Swale facing southwest.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A19			
Feature: ESAAL009			
Date: 08-25-2009			
Comments: Swale facing west.			
Photograph ID: A20			
Feature: ESAAL009			
Date: 08-25-2009			
Comments: Swale facing east.			



PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A23			
Feature: ESAAL010			
Date: 08-25-2009			
Comments: Swale facing west.			
Photograph ID: A24			
Feature: ESAAL010			
Date: 08-25-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG

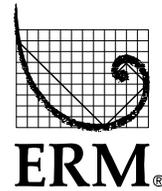


Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A27			
Feature: ESAAL011			
Date: 08-25-2009			
Comments: Swale facing west.			
Photograph ID: A28			
Feature: ESAAL011			
Date: 08-25-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A29			
Feature: ESAAL012			
Date: 08-25-2009			
Comments: Swale facing southwest.			
Photograph ID: A30			
Feature: ESAAL012			
Date: 08-25-2009			
Comments: Swale facing northeast.			



PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A31			
Feature: ESAAL013			
Date: 08-25-2009			
Comments: Swale facing west.			
Photograph ID: A32			
Feature: ESAAL013			
Date: 08-25-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A40			
Feature: ESAAL014			
Date: 08-26-2009			
Comments: Swale facing southwest.			
Photograph ID: A41			
Feature: ESAAL014			
Date: 08-26-2009			
Comments: Swale facing northeast.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A42			
Feature: ESAAL015			
Date: 08-26-2009			
Comments: Swale facing north.			
Photograph ID: A43			
Feature: ESAAL015			
Date: 08-26-2009			
Comments: Swale facing south.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A44			
Feature: ESAAL016			
Date: 08-26-2009			
Comments: Swale facing west-southwest.			
Photograph ID: A45			
Feature: ESAAL016			
Date: 08-26-2009			
Comments: Swale facing east-northeast.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A46			
Feature: ESAAL017			
Date: 08-26-2009			
Comments: Swale facing west.			
Photograph ID: A47			
Feature: ESAAL017			
Date: 08-26-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A48			
Feature: ESAAL018			
Date: 08-26-2009			
Comments: Swale facing west.			
Photograph ID: A49			
Feature: ESAAL018			
Date: 08-26-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A61			
Feature: ESAAL019			
Date: 08-26-2009			
Comments: Swale facing west-southwest.			
Photograph ID: A62			
Feature: ESAAL019			
Date: 08-26-2009			
Comments: Swale facing east-northeast.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A63			
Feature: ESAAL020			
Date: 08-26-2009			
Comments: Swale facing west.			
Photograph ID: A64			
Feature: ESAAL020			
Date: 08-26-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A68			
Feature: ESAAL021			
Date: 08-26-2009			
Comments: Swale facing southwest.			
Photograph ID: A69			
Feature: ESAAL021			
Date: 08-26-2009			
Comments: Swale facing north-northwest.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A79			
Feature: ESAAL022			
Date: 08-26-2009			
Comments: Swale facing northwest.			
Photograph ID: A80			
Feature: ESAAL022			
Date: 08-26-2009			
Comments: Swale facing southeast.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A81			
Feature: ESAAL023			
Date: 08-26-2009			
Comments: Swale facing west.			
Photograph ID: A82			
Feature: ESAAL023			
Date: 08-26-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG



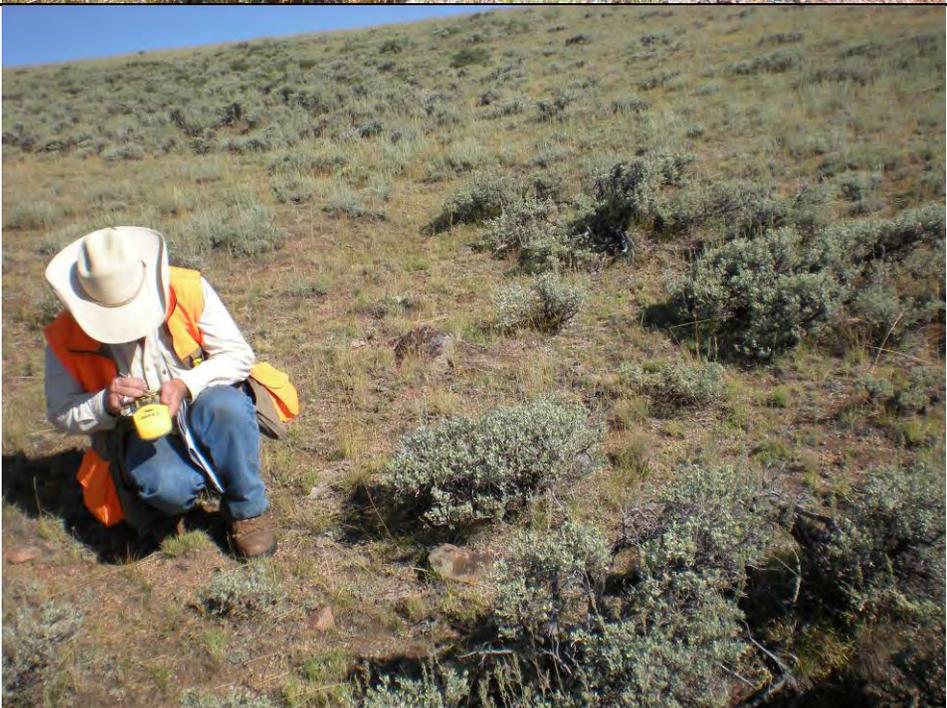
Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A83			
Feature: ESAAL024			
Date: 08-26-2009			
Comments: Swale facing northeast.			
Photograph ID: A84			
Feature: ESAAL024			
Date: 08-26-2009			
Comments: Swale facing southwest.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A85			
Feature: ESAAL025			
Date: 08-26-2009			
Comments: Swale facing west.			
Photograph ID: A86			
Feature: ESAAL025			
Date: 08-26-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A89			
Feature: ESAAL026			
Date: 08-27-2009			
Comments: Swale facing southeast.			
Photograph ID: A90			
Feature: ESAAL026			
Date: 08-27-2009			
Comments: Swale facing northwest.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A91			
Feature: ESAAL027			
Date: 08-27-2009			
Comments: Swale facing west.			
Photograph ID: A92			
Feature: ESAAL027			
Date: 08-27-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A97			
Feature: ESAAL028			
Date: 08-27-2009			
Comments: Swale facing north-northeast.			
Photograph ID: A98			
Feature: ESAAL028			
Date: 08-27-2009			
Comments: Swale facing south-southwest.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A99			
Feature: ESAAL029			
Date: 08-27-2009			
Comments: Swale facing west.			
Photograph ID: A100			
Feature: ESAAL029			
Date: 08-27-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A105			
Feature: ESAAL030			
Date: 08-27-2009			
Comments: Swale facing west.			
Photograph ID: A106			
Feature: ESAAL030			
Date: 08-27-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A107			
Feature: ESAAL031			
Date: 08-27-2009			
Comments: Swale facing west.			
Photograph ID: A108			
Feature: ESAAL031			
Date: 08-27-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A112			
Feature: ESAAL032			
Date: 08-27-2009			
Comments: Swale facing west.			
Photograph ID: A113			
Feature: ESAAL032			
Date: 08-27-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A116			
Feature: ESAAL033			
Date: 08-27-2009			
Comments: Swale facing west.			
Photograph ID: A117			
Feature: ESAAL033			
Date: 08-27-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: A118			
Feature: ESAAL034			
Date: 08-27-2009			
Comments: Swale facing east.			
Photograph ID: A119			
Feature: ESAAL034			
Date: 08-27-2009			
Comments: Swale facing west.			

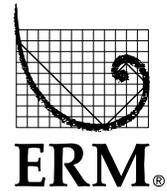
PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B1			
Feature: ESBAL001			
Date: 08-25-2009			
Comments: Erosional swale (determined not to be a water body) located west of survey corridor. Facing south.			
Photograph ID: B2			
Feature: ESBAL001			
Date: 08-25-2009			
Comments: Erosional swale facing north.			

PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B3			
Feature: ESBAL002			
Date: 08-25-2009			
Comments: Erosional swale facing north.			
Photograph ID: B4			
Feature: ESBAL002			
Date: 08-25-2009			
Comments: Erosional swale facing south.			



PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B15			
Feature: ESBAL003			
Date: 08-25-2009			
Comments: Swale facing east.			
Photograph ID: B16			
Feature: ESBAL003			
Date: 08-25-2009			
Comments: Swale facing west.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B18			
Feature: ESBAL004			
Date: 08-25-2009			
Comments: Swale facing east.			
Photograph ID: B19			
Feature: ESBAL004			
Date: 08-25-2009			
Comments: Swale facing west			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B20			
Feature: ESBAL005			
Date: 08-25-2009			
Comments: Swale facing north.			
Photograph ID: B21			
Feature: ESBAL005			
Date: 08-25-2009			
Comments: Swale facing south.			



PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B22			
Feature: ESBAL006			
Date: 08-25-2009			
Comments: Swale facing west.			
Photograph ID: B23			
Feature: ESBAL006			
Date: 08-25-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B24			
Feature: ESBAL007			
Date: 08-25-2009			
Comments: Swale facing east			
Photograph ID:	[INTENTIONALLY LEFT BLANK]		
Feature:			
Date:			
Comments:			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B27			
Feature: ESBAL008			
Date: 08-25-2009			
Comments: Swale facing east.			
Photograph ID: B28			
Feature: ESBAL008			
Date: 08-25-2009			
Comments: Swale facing west			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B33			
Feature: ESBAL009			
Date: 08-25-2009			
Comments: Swale facing east			
Photograph ID: B34			
Feature: ESBAL009			
Date: 08-25-2009			
Comments: Swale facing west			

PHOTOGRAPHIC LOG

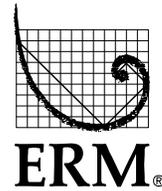


Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B35			
Feature: ESBAL010			
Date: 08-25-2009			
Comments: Swale facing west.			
Photograph ID: B36			
Feature: ESBAL010			
Date: 08-25-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B37			
Feature: ESBAL011			
Date: 08-26-2009			
Comments: Swale facing east.			
Photograph ID: B38			
Feature: ESBAL011			
Date: 08-26-2009			
Comments: Swale facing west.			



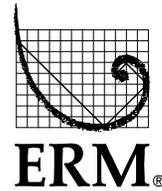
PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B39			
Feature: ESBAL012			
Date: 08-26-2009			
Comments: Swale facing east.			
Photograph ID: B40			
Feature: ESBAL012			
Date: 08-26-2009			
Comments: Swale facing west.			

PHOTOGRAPHIC LOG

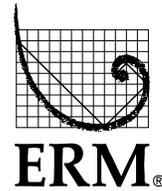


Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B41			
Feature: ESBAL013			
Date: 08-26-2009			
Comments: Swale facing east.			
Photograph ID: B42			
Feature: ESBAL013			
Date: 08-26-2009			
Comments: Swale facing west.			



PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B43			
Feature: ESBAL014			
Date: 08-26-2009			
Comments: Swale facing east.			
Photograph ID: B44			
Feature: ESBAL014			
Date: 08-26-2009			
Comments: Swale facing west.			



PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B45			
Feature: ESBAL015			
Date: 08-26-2009			
Comments: Swale facing east.			
Photograph ID: B46			
Feature: ESBAL015			
Date: 08-26-2009			
Comments: Swale facing west.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B47			
Feature: ESBAL016			
Date: 08-26-2009			
Comments: Swale facing east.			
Photograph ID: B48			
Feature: ESBAL016			
Date: 08-26-2009			
Comments: Swale facing west.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B49			
Feature: ESBAL017			
Date: 08-26-2009			
Comments: Swale facing east.			
Photograph ID: B50			
Feature: ESBAL017			
Date: 08-26-2009			
Comments: Swale facing west.			

PHOTOGRAPHIC LOG

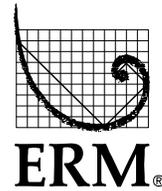


Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B51			
Feature: ESBAL018			
Date: 08-26-2009			
Comments: Swale facing east.			
Photograph ID: B52			
Feature: ESBAL018			
Date: 08-26-2009			
Comments: Swale facing west.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B55			
Feature: ESBAL019			
Date: 08-26-2009			
Comments: Swale facing east.			
Photograph ID: B56			
Feature: ESBAL019			
Date: 08-26-2009			
Comments: Swale facing northwest.			



PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B57			
Feature: ESBAL020			
Date: 08-26-2009			
Comments: Swale facing east.			
Photograph ID: B58			
Feature: ESBAL020			
Date: 08-26-2009			
Comments: Swale facing west with cattle in background.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B61			
Feature: ESBAL021			
Date: 08-26-2009			
Comments: Swale facing east.			
Photograph ID: B62			
Feature: ESBAL021			
Date: 08-26-2009			
Comments: Swale facing northwest.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B67			
Feature: ESBAL022			
Date: 08-26-2009			
Comments: Swale facing east.			
Photograph ID:	[INTENTIONALLY LEFT BLANK]		
Feature:			
Date:			
Comments:			

PHOTOGRAPHIC LOG

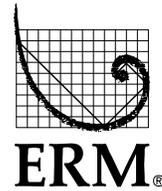


Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B68			
Feature: ESBAL023			
Date: 08-26-2009			
Comments: Swale facing east.			
Photograph ID: B69			
Feature: ESBAL023			
Date: 08-26-2009			
Comments: Swale facing west.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B70			
Feature: ESBAL024			
Date: 08-26-2009			
Comments: Swale facing north.			
Photograph ID: B71			
Feature: ESBAL024			
Date: 08-26-2009			
Comments: Swale facing south.			



PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B72			
Feature: ESBAL025			
Date: 08-26-2009			
Comments: Swale facing east.			
Photograph ID: B73			
Feature: ESBAL025			
Date: 08-26-2009			
Comments: Swale facing west.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B74			
Feature: ESBAL026			
Date: 08-26-2009			
Comments: Swale facing south.			
Photograph ID: B75			
Feature: ESBAL026			
Date: 08-26-2009			
Comments: Swale facing northwest.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B83			
Feature: ESBAL027			
Date: 08-26-2009			
Comments: Swale facing southeast.			
Photograph ID: B84			
Feature: ESBAL027			
Date: 08-26-2009			
Comments: Swale facing northwest.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B87			
Feature: ESBAL028			
Date: 08-26-2009			
Comments: Swale facing west.			
Photograph ID: B88			
Feature: ESBAL028			
Date: 08-26-2009			
Comments: Erosional feature facing east, out of the corridor.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B89			
Feature: ESBAL029			
Date: 08-26-2009			
Comments: Swale facing west.			
Photograph ID: B90			
Feature: ESBAL029			
Date: 08-26-2009			
Comments: Swale facing east.			

PHOTOGRAPHIC LOG

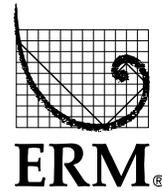


Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B94			
Feature: ESBAL030			
Date: 08-26-2009			
Comments: Swale facing south.			
Photograph ID:	[INTENTIONALLY LEFT BLANK]		
Feature:			
Date:			
Comments:			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B95			
Feature: ESBAL031			
Date: 08-26-2009			
Comments: Erosional feature facing south.			
Photograph ID: B96			
Feature: ESBAL031			
Date: 08-26-2009			
Comments: Erosional feature facing north.			



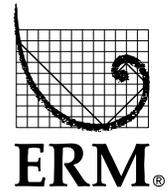
PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B97			
Feature: ESBAL032			
Date: 08-26-2009			
Comments: Swale facing north.			
Photograph ID: B98			
Feature: ESBAL032			
Date: 08-26-2009			
Comments: Swale facing south.			

PHOTOGRAPHIC LOG



Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B99			
Feature: ESBAL033			
Date: 08-26-2009			
Comments: Swale facing south, looking into the corridor from the edge.			
Photograph ID: B103			
Feature: ESBAL034			
Date: 08-27-2009			
Comments: Swale facing north into the corridor from the edge.			



PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B114			
Feature: ESBAL035			
Date: 08-27-2009			
Comments: Swale facing east.			
Photograph ID: B115			
Feature: ESBAL035			
Date: 08-27-2009			
Comments: Swale facing west.			

PHOTOGRAPHIC LOG

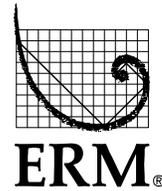


Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B119			
Feature: ESBAL036			
Date: 08-27-2009			
Comments: Swale facing north.			
Photograph ID: B120			
Feature: ESBAL036			
Date: 08-27-2009			
Comments: Swale facing south.			



PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B121			
Feature: ESBAL037			
Date: 08-27-2009			
Comments: Swale facing east.			
Photograph ID: B122			
Feature: ESBAL037			
Date: 08-27-2009			
Comments: Swale facing west.			



PHOTOGRAPHIC LOG

Client:	Shell Wind Energy	Project Number:	0105023
Project Name:	Hermosa West	Location:	Albany County, WY
Photograph ID: B125			
Feature: ESBAL038			
Date: 08-27-2009			
Comments: Swale facing south.			
Photograph ID: B126			
Feature: ESBAL038			
Date: 08-27-2009			
Comments: Swale facing north.			