DESERT CLAIM WIND POWER LLC

DESERT CLAIM WIND POWER PROJECT
COMPENSATORY MITIGATION PLAN

Grette Associates LLC
ENVIRONMENTAL CONSULTANTS

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PREPARED FOR:

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Grette Associates LLC
ENVIRONMENTAL CONSULTANTS

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1 INTRODUCTION

Grette Associates, LLC is under contract to Desert Claim Wind Power, LLC (Desert Claim) to prepare a compensatory mitigation plan (Plan) to address the unavoidable aquatic and wetland impacts that will occur during the construction of the Desert Claim Wind Power Project (Project).

The Project Site (approximately 4,400 acres in size) is located in Kittitas County approximately eight miles northwest of Ellensburg, Washington (Figure 1) and encompasses portions of Sections 17, 18, 19, 20, 21, 29, and 30, Township 19 North, Range 18 East, W. M., and a portion of Section 13, Township 19 North, Range 17 East, W.M. In addition, the Project includes improvements to county and federal road rights-of-way along U.S. Highway 97, Smithson Road, and Howard Road in order to provide adequate access for over-size construction and materials transport equipment. Road improvements to provide access to the Project site would be located within Sections 29 and 30, Township 19 North, Range 18 East, W.M. and Section 25, Township 19 North, Range 17 East, W.M.

1.1 Responsible Parties

Project Proponent:

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Report Preparer:

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2 PROJECT DESCRIPTION

2.1 Background

The purpose of the Project is to develop a commercially viable wind energy facility with a generation capacity up to 100 MW. The Project site has sufficient wind resources to achieve the generation goal as well as access to the existing electrical transmission system. A maximum of 31 wind turbines will be erected during the construction of the Project. Desert Claim is considering two turbine configurations depending on the type of turbine utilized; however, the Project layout and impacts with respect to critical areas (wetlands and streams) will not change.

2.2 Proposed Actions

The Project will include the construction of wind turbines, meteorological towers, access roads, underground electrical collection system, operation and maintenance facility, electrical substation, and electrical distribution feeder lines ("Project footprint"). Details of the proposed actions are described below:

1. *Wind Turbines*. The Project will consist of a maximum of 31 wind turbines on tubular steel towers, not to exceed a maximum height (hub height plus blade tip height) of 145 meters.

2. *Meteorological Tower*. The Project will include a free-standing permanent meteorological tower, approximately 80 meters tall.

3. *Internal Access Roads*. The Project will include approximately twenty (20) miles of internal roads for access to the turbines and other Project facilities. Typical road width is 16-foot (for straight sections:roads are slightly wider for curved sections). The roads will consist of a compacted subgrade and gravel cap.

4. *Electrical Collection/Interconnection and Communication Systems*. The electrical output of the turbines will be collected and transmitted to the Project substation via a system of underground and overhead electric cables. Fiber optic or copper communication wires will also link the individual turbines to a central computer monitoring system.

5. *Project Substation*. Power from the Project will be collected and fed to the Puget Sound Energy (PSE) or the Bonneville Power Administration (BPA) high voltage transmission lines through a Project step-up substation. In addition to power transformer(s) and relay equipment, the substation will include a small building housing the control and relay equipment, batteries, and computer monitoring station.

6. *Operations and Maintenance Facility*. The Operations and Maintenance (O&M) facility will include a main building with offices, restrooms, reception area, outdoor parking facilities, outdoor lighting and gated access. The O&M facility building will have a foundation footprint of approximately 5,000 sq. ft. and will be placed on a site of approximately four (4) acres.

7. *Mobilization*. An approximately 150' turning radius will be required for component delivery off of public roads. This will require temporary modifications to existing intersections at U.S. 97 and Smithson Road and at Smithson Road and Howard Road to provide the necessary turning radius. The bridge across the Kittitas Reclamation District Canal will be replaced to provide access into the project area. In addition, improvements to an existing bridge on Smithson Road across Dry Creek may also be necessary to accommodate turbine component loads.

2.3 Construction Methods

A summary of the construction methods used to construct the Project are described below:

2.3.1 Roads

A typical turbine access road is constructed by stripping 4-8" of topsoil, compacting the subgrade, then surfacing the road with aggregate. The finished aggregate surface is typically level with the adjacent ground to maintain the existing grade. For this project, there will be two options for crossing wetlands, streams, and irrigation ditches with a road. These are as follows:

Standard Duty Crossing – (Sheet 5; Appendix A)

This low water crossing is used when a road crosses a swale containing a ephemeral stream channel, seasonally inundated or saturated wetland, or seasonal irrigation ditch with gradual side slopes. This allows the road to be constructed at grade so that water running in the swale can spill over the road surface. These crossings will be oriented as close to 90-degrees to the swale as possible to minimize the potential for water to run

down the road rather than the channel. The finished surface elevation of the road will match the channel to maintain drainage without creating a basin upstream from the road crossing.

Crossings utilize a geotextile fabric overlain with an aggregate base, then a geocell material filled with 2"-minus crushed aggregate. This treatment extends through the OHW of the channel to protect the road from eroding and washing downstream (Sheet 5, Appendix A).

There will be eleven low water road crossings constructed within the Project Area.

Standard Duty Crossing with Culvert (Sheet 4; Appendix A*)*

Culvert road crossings with an overflow swale will be used in instances where the stream channel or ditch is incised or has perennial flow. The culvert will be sized to accommodate the normal flow and to allow the road to be built above the normal water level. An overflow swale will be cut into the road near the culvert to allow higher flows from runoff events to spill over the road and to prevent high velocities that could degrade the downstream channel.

The overflow swale will be cut into the road surface after the oversized turbine components have been delivered. This is due to the fact that the turbine delivery vehicles have very tight tolerance and small dips or humps in the roads can cause the vehicles to bottom out or scrape the road surface. The surface of the road through the overflow swale is the same design as the standard crossing (Sheet 4; Appendix A).

There will be a total of four standard crossings with culverts in the Project Area.

Temporary Road Crossings

Fill necessary to construct temporary crossings will be left in place for less than 90 days. Due to the size of turbine components (turbine blades can be over 170' in length), oversize trucks that make wide turns will be utilized for delivery. A typical radius of 160' is required for a 90-degree turn. Where required, fill will be brought to construct a temporary radius for turbine deliveries. At the intersection of Smithson Road / Howard Road, the existing corrugated metal pipe culvert spanning Howard Road will be replaced with an reinforced concrete arch pipe to support the heavy loading that will occur during construction mobilization. After turbine deliveries are complete, the temporary fill that made up the radius will be removed. All disturbed areas will be graded back to original condition and will be revegetated according to this plan.

2.3.2 Bridge

The existing bridge crossing the KRD canal at Howard Road will be removed and replaced. The existing abutment will remain in place and new foundation abutments will be constructed beyond the footprint of the existing abutment to avoid any impacts to the canal. No impacts or fill within the canal are expected.

2.3.3 Utility Lines

The electrical output of the turbines will be collected and transmitted to the Project substation via a system of underground and overhead electric cables. Medium voltage

collection lines will be installed using a trencher machine. The conductors will be placed at a depth of 36"- 48" (Sheet 6; Appendix A).

There are sixteen locations where trenching will occur through critical areas. For perennial streams and associated wetland crossings, directional boring will be used to avoid impacts to the wetland and stream channel.

2.4 Regulatory Summary

Wetlands and natural water features are regulated by agencies at the local, state, and federal levels. At the local and state level, wetlands and natural water features will be regulated under the Washington Energy Facility Site Evaluation Council (EFSEC). A project permitted through the EFSEC process receives a Site Certification Agreement, which incorporates the permits and approvals that would otherwise be issued by state agencies and local jurisdictions.

At the federal level, impacts (specifically dredging or filling) to aquatic features are regulated by the Environmental Protection Agency through the US Army Corps of Engineers (USACE). The USACE administers the federal Clean Water Act (Section 404) for projects involving dredging or filling in Waters of the US (lakes, streams, marine waters, and most non-isolated wetlands). The USACE may also regulate activities in tributaries to Waters of the US, including ditches, swales, and canals that contain a significant nexus to a Waters of the US.

This Plan was prepared using the guidance from *Wetland Mitigation in Washington State* (the "Joint Guidance", Ecology, USACE, and EPA 2006).

3 ENVIRONMENTAL BASELINE

Grette Associates wetland specialists visited the Project site throughout the summer and fall of 2017 as well as early spring of 2018 to verify the wetland status and locations of wetlands and streams. A Wetland and Stream Delineation and Analysis Report (Grette Associates 2018) was prepared to document the results of the verification of the previous delineated critical areas (wetlands and streams) that are within 200 feet of the Project footprint. Please refer to this report for detailed results. Provided below is a summary of the baseline conditions in the vicinity of the Project footprint.

3.1 Wetland Baseline Conditions

During Grette Associates' field investigations, staff collected wetland delineation data on 74 wetland features (Appendix B) that are situated in or near the Project footprint which contained all three wetland criteria defined in the USACE *Federal Wetland Delineation Manual* (1987), and the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (2008).

Wetlands were rated according to Section 17.32.035.01 of the Kittitas County Code (KCC) and the Washington State Department of Ecology's (Ecology) *Washington State Wetland Rating System for Eastern WA – 2014 Update* (Hruby 2014).

3.2 Aquatic Habitat Baseline Conditions

All natural water features, as defined by Title 17A of the KCC and in WAC 222-16-030, were identified and typed according to the specifications defined in said references. 22 streams (Appendix B) were verified according to the guidance in Ecology's *Determining OHWM for Shoreline Management Act Compliance in Washington State* (Anderson et al 2016).

3.3 Existing Land Use

Historically, the area where the Project is situated was largely dominated by grassland and shrub-steppe habitats. These communities are still present within the broader landscape with the current land use. However, the habitat within the Project area as well as the wetlands, have become degraded due to the current land use practices.

The existing land use within the Project site is primarily used to support agriculture. More specifically, the Project site is utilized for cattle grazing.

4 MITIGATION APPROACH

Projects requiring authorization under Section 404 of the Clean Water Act (as well as state and local regulations) are required to demonstrate mitigation sequencing. Mitigation sequencing is a set of steps designed to prevent unavoidable impacts to the environment, and then rectify those impacts that cannot be avoided. This section describes the efforts made by the Project proponent to apply mitigation sequencing to the Project.

4.1 Mitigation Sequencing

4.1.1 Avoidance

Desert Claim considered several design configurations to achieve a suitable layout while avoiding streams and wetlands as much as possible. Repeated field investigations facilitated siting roads and turbines outside of wetlands and streams. However, given the number of streams and wetlands on the site, it is not practical to construct access roads to each of the turbines without crossing or impacting streams and wetlands.

The original Project Area consisted of a layout of 95 wind turbines and associated infrastructure across an approximately 5,250 acre site. This layout included crossings across Reecer Creek and its associated Category I wetlands as well as several other streams and wetlands. The layout configuration was revised to eliminate development east of Reecer Creek, avoiding both the high quality wetlands in that area and the need to cross Reecer Creek. Moreover, the revised Project has only one-third as many turbines (less turbine and road footprint).

Water quality impacts associated with construction will largely be avoided by constructing during periods when there is no streamflow in ephemeral streams or surface water saturation present in wetlands.

4.1.2 Minimization

All turbine locations are situated outside of any stream or wetland. In addition, all roads and utilities have been aligned outside any stream, wetland, or their associated buffers to

the extent possible. In general, roads and utilities have been designed to be positioned parallel and outside of any critical area or buffer except where a crossing is proposed. All of the necessary crossings have been designed to be perpendicular across and in the narrowest portion of a stream or wetland to minimize impacts. Additionally, all crossings have been designed in a manner to not obstruct the movement of surface flows, wood debris, or fish and wildlife.

The Project will also install underground utilities and place temporary crane crossings across several streams and wetlands. Utility and construction crane crossings have been designed to utilize the access road alignment to prevent additional temporary impacts wherever practical. Where feasible, utilities will be installed underground beneath the access roads while the crane will utilize the access roads to maneuver across the Project site to raise the turbines.

4.1.3 Restoration

The majority of the Project footprint consists of the access roads that will be used for construction, maintenance and operation of the Project. Careful consideration of road alignments that avoid wetlands has reduced the permanent Project impacts to approximately 0.35 acres of wetland.

However, there are several areas where it is not feasible for the crane to utilize the access road alignment, and building a permanent access road would cause unnecessary permanent impacts. Approximately 1.95 acres of temporary wetland and stream impacts will occur during the construction of the Project where crane and collection line crossings are located. Temporary impacts will mostly be limited to minor vegetation and soil disturbance to facilitate construction. These areas will be restored. Soils will be restored to pre-disturbance conditions and permanently damaged vegetation will be replaced with like native species.

4.1.4 Compensation

Unavoidable permanent impacts will occur to approximately 0.35 acres of wetland. The Project will replace the functions of the permanently affected wetlands using the USACE's hierarchy guidance for compensatory mitigation (USACE 2016). Please refer to Section *4.2 Mitigation Hierarchy* for details.

4.2 Mitigation Hierarchy

The Federal Rule on Compensatory Mitigation (the "Federal Rule", 33 CFR Parts 325 and 332) outlines the requirements for providing compensatory mitigation for adverse impacts to the aquatic environment. The Federal Rule establishes a preference hierarchy for different types of compensatory mitigation. The order of preference outlined in the Federal Rule is 1. Mitigation banks; 2. In-lieu fee (ILF) programs; 3. Permittee-responsible mitigation using the Watershed Approach; 4. Permittee-responsible mitigation that is on-site and in-kind; and 5. Permittee-responsible mitigation that is off-site and/or out-of-kind. Where a project is located within the service area of a USACE approved mitigation bank or ILF program, these options must be considered first.

Mitigation Bank

According to the Federal Rule (33 CFR 332.3[b][2]), banks are the preferred compensatory mitigation option because the use of a bank can help reduce the risk and uncertainty of mitigation success and reduce the temporal loss of resource functions and services associated with permittee-responsible compensatory mitigation projects.

The Project is not within the service area of USACE approved mitigation bank; therefore, purchasing mitigation bank credits is not an option for mitigation.

In-Lieu Fee Program

The second preference in the Federal Rule's mitigation hierarchy is compensatory mitigation through a USACE approved ILF program. No approved ILF programs have been established in Kittitas County; therefore, this option is not available.

Permittee-Responsible Mitigation under a Watershed Approach

Per the Federal Rule, when a project site is not within the service area of a mitigation bank or an ILF program, permittee-responsible mitigation is the only option. Of the three permittee-responsible mitigation options, mitigation under a watershed approach is preferred. The Federal Rule requires that, where practicable and likely to be successful and sustainable, a watershed approach be used to select a mitigation site.

In Washington State, the USACE, EPA, and Ecology collectively developed the *Selecting Wetland Mitigation Sites Using a Watershed Approach* guide to help planners select the best location for sustainable and functional wetland mitigation (the "Guide", Hruby 2009). While the Guide was intended to be used east of the Cascade Divide it was utilized as guidance to fulfill the watershed approach requirements defined in the Federal Rule.

The Guide directs the user to evaluate the hydrologic unit where the project impacts occur to identify mitigation sites that have the potential and opportunity to be the most beneficial to the watershed. The Project is located in the Dry Creek and Currier Creek hydrologic units which are within Swauk-Reecer Sub-Basin defined in the *Watershed Management Plan-Yakima River Basin* (the "Basin Plan", EES 2003). According to the Basin Plan, the overall surface water quality goal is to protect and improve surface water quality consistent with the needs of aquatic life, public/private water supplies, recreation, and other uses. More specifically, one of the categorical goals defined within the plan is to reduce non-point source pollution.

The Project is situated within a broad area of land that is used for agricultural purposes. Agricultural activities such as cattle grazing have the potential to be a non-point source of pollution. As summarized above, the wetlands within the Project site have been degraded due to the introduction of cattle. This has altered native vegetation growth and recruitment as well as introduced the opportunity for the current land use to reduce water quality and habitat conditions. Non-point pollution from agricultural activities is a particular problem in the Yakima River watershed (EES 2003). Therefore, the Project site has the potential and opportunity to meet one of the primary objectives defined in the Basin Plan, satisfying the Federal Rule requirements for site selection using the watershed approach.

5 IMPACT ANALYSIS

The Project will result in unavoidable impacts to critical areas. The impacts addressed in this Plan include those impacts to wetlands, natural waters features (as defined in WAC 222-16-030), and their associated buffers. The affected critical area by road crossing location (Appendix B) is summarized below in Table 1. The BMP measures outlined in Section 5.4 were considered when analyzing potential impacts.

5.1 Natural Waters Impacts

The Project will require 13 permanent stream crossings which results in approximately 0.026 acres of permanent impact to natural waters (Table 1). Of the 13 stream crossings, seven are perennial and seasonal streams that potentially provide fish habitat (Type F streams). The other six streams are classified as Type Ns streams. Type Ns streams are seasonal non-fish habitat streams.

Permanent Impact

Two types of crossings will be constructed depending on stream dynamics and are defined as *standard access road crossing* and *standard access road crossing with culvert* (Sheets 4 and 5; Appendix A). Both crossing types were designed using WDFW's stream crossing guidelines (Barnard, R.J. et al. 2013).

Standard crossings will be constructed where roads will cross ephemeral and seasonal (fish and non-fish habitat) streams. Standard crossings will be constructed so that the finished road surface will be at an elevation to match the channel to maintain drainage without creating a basin upstream from the road crossing (Sheet 5; Appendix A). The standard crossings were designed so that seasonal flow can spill over the road surface without eroding and washing the material downstream.

Standard crossings with culverts will be constructed where roads will cross perennial streams. These crossings will utilize a culvert to capture flows to protect the integrity of the road (Sheet 4; Appendix A). The culvert will be sized to accommodate normal flow. In addition, an overflow swale will be constructed into the road prism near the culvert to allow seasonal high flow to spill over the road to prevent erosion and stream velocity from damaging the stream channel downstream of the crossing (Sheet 4; Appendix A).

Potential impacts associated with both types of stream crossings may include elevated turbidity from erosion and scouring during seasonally high flow events. However, these potential impacts will be minimized through design features that either match the crossing grade to the stream bed or allow high flows to pass without causing erosion. Also, strict implementation of BMPs and utilizing WDFW's stream crossing guidelines (Barnard, R.J. et al. 2013) will minimize the likelihood of function loss. Therefore, the stream crossings are considered to have little to no effect on the existing stream habitat conditions or stream functions.

5.2 Wetland Impacts

Approximately 0.347 acres of unavoidable permanent impacts from road construction will occur within eight wetlands (Table 1). Similar to the stream crossings, the wetland

crossings will utilize the standard crossing and the standard crossing with culvert methods defined above. Please refer to Sheets 4 and 5 in Appendix A for details.

These two crossing types have been designed to not impede surface flows. In general, wetland crossings that are not associated with perennial streams will be constructed at an elevation equal to the wetland surface. As a result, seasonal surface runoff originating upslope of the crossing will not be obstructed by the road and will allow sheet flow to continue downslope across the wetland.

The primary wetland function affected at each crossing is habitat. Each road crossing will permanently remove all vegetation within the road prism. However, based on the construction methods and material used, the road crossings will not have any significant impact to water quality and hydrology functions. As discussed above, standard crossings will be constructed at existing grade to allow surface water to flow naturally. In addition, the road bed will be constructed using gravel and will not be paved which will allow for some surface hydrology to infiltrate into the soils.

Potential impacts within the wetlands may include elevated turbidity during the construction of the road crossing. However, these activities are considered temporary and will be minimized through strict implementation of BMPs, most specifically working during the dry season when there is not surface water anticipated.

5.3 Temporary Impacts

Temporary wetland and stream crossings will occur to install underground utilities and to allow the construction crane to access areas of the Project. A total of 18 temporary construction crossings will occur (Table 1). In addition, some minor temporary disturbance to the wetlands and stream channels along the margins of the road crossings will occur to facilitate construction (Table 1). Overall, approximately 1.949 acres of temporary disturbance will occur during the construction of the Project.

The underground utilities will be installed using a trenching machine to a depth of approximately 36-48 inches (Sheet 6; Appendix A). At perennial stream crossing locations where there is an associated fringe wetland, directional boring will be used to avoid impacts.

Crane crossing will utilize road and/or utility crossing locations where feasible. In general, prior to crossing, timber mats will be used to span stream crossings and/or limit direct contact with the substrate (Sheet 7; Appendix A). In areas where timber mats are not feasible to bridge across a stream, a temporary culvert and backfill material will be installed to provide temporary crossing (Sheet 7; Appendix A).

Potential impacts associated with the temporary crossings may include elevated turbidity during crossing processes. However, these activities are considered temporary and will be minimized through strict implementation of BMPs. Therefore, the temporary stream crossings will have no significant adverse impact to streams.

Table 1. Impact summary

Crossing ID	Stream Name	Stream Type	Wetland Name	Category	Permanent Impact[1] (acres)	Temporary Impact[1] (acres)	Lat/Long
1	S20	F	R139	II	0.004/0.023	0.008/0.051	47.13919027 - 120.6452659
2	S19	F	R139	II	0.001/0.009	0.003/0.019	47.13873496 - 120.6410147
3	S17	Ns	-	-	0.001	0.003	47.11609407 - 120.6430492
4	S15	Ns	-	-	0.003	0.006	47.12576387 - 120.6362107
5	S14	Ns	-	-	0.003	0.006	47.11857188 - 120.6307793
6	S4	F	First Creek	II	0.002/0.015	0.005/0.032	47.13784034 -20.6211737
7	S6	F	R27	II	0.001/0.023	0.003/0.048	47.12209481 - 120.6190279
8	S14	Ns	-	-	0.001	0.003	47.10757113 - 120.6242646
9	Ditch	-	-	-	-	0.019	47.10279426 - 120.6241402
10	S12	Ns	R44	II	0.001/0.020	0.002/0.040	47.10861422 - 120.6193647
11	S7	Ns	R44	II	0.001/0.021	0.002/0.043	47.10850674 - 120.6183854
12	S6	F	R27	II	0.001/0.029	0.002/0.059	47.10863591 - 120.6163455
13	-	-	R25	III	0.017	0.035	47.11005675 - 120.6147484
14	S4	F	First Creek	II	0.001/0.008	0.003/0.017	47.11525272 - 120.6117093
15	S1	F	R1	II	0.005/0.102	0.007/0.212	47.123745 - 120.6093167
16	Ditch	-	-	-	0.001	0.002	47.12926202 - 120.6057126
17	-	-	R408/R409	III	0.080	-	47.10480886 - 120.6241686
A	S15	Ns	R135	III	-	0.002/0.078	47.13436909 - 120.6367738
B	-	-	R137	III	-	0.037	47.12976001 -

Crossing ID	Stream Name	Stream Type	Wetland Name	Category	Permanent Impact[1] (acres)	Temporary Impact[1] (acres)	Lat/Long
							120.6373141
C	S15	Ns	-	-	-	0.003	47.12980526 - 120.6363627
D	-	-	R112	III	-	0.040	47.13006696 -20.6336749
E	S14	Ns	R115	III	-	0.004/0.135	47.1324613 - 120.6305284
F	S14	Ns	-	-	-	0.007	47.13070424 - 120.6293682
G	S13	Ns	-	-	-	0.006	47.11235788 -120.623728
H	S6-N	Ns	-	-	-	0.006	47.13065382 - 120.6229017
I[2]	S4	F	First Creek	II	-	0.005/0.323	47.1301556 - 120.6180389
J[2]	S6-S	F	R35	II	-	0.003/0.059	47.1282778 - 120.6194462
K	-	-	R165	III	-	0.019	47.1262681 - 120.6189768
L[2]	S4	F	R70/First Creek	III/II	-	0.003/0.211	47.12266302 - 120.6169183
M	-	-	R43	II	-	0.059	47.12265396 - 120.6160061
N	-	-	R0	III	-	0.044	47.12237449 - 120.6133898
O	-	-	R0	III	-	0.006/0.145	47.12236306 - 120.6124106
P	-	-	R0	III	-	0.072	47.12234 -120.611211
A	-	-	R131	III	-	0.045	47.14101002 - 120.6373092
B	S15	Ns	-	-	-	0.007	47.1206306 - 120.6358252
TOTAL IMPACT AREA (Streams/Wetlands)					**0.026/0.347**	**0.126/1.823**	
TOTAL AREA					**0.373**	**1.949**	

[1] In instances in which a crossing would impact both a stream and a wetland, this column indicates the acres of impact first to the identified stream and then to the identified wetland. Impacts to water features that do not meet the classifications defined in Chapter 17.A.04 of the KCC (swales and ditches) are nonetheless included in the stream calculation totals because these features are considered waters of the State (RCW 90.48.030).

[2] Directional boring will occur at the referenced crossing location to extend underground utilities.

5.4 Best Management Practices

At a minimum, the following BMPs will be utilized during all proposed Project activities to minimize potential impacts to critical areas and buffers:

- Construction equipment operations and access will be limited to the proposed road alignment. No construction equipment will operate within the wetland or stream outside of the designated work area;
- All construction equipment will be clean and free of external oil, fuel, or other potential pollutants;
- The contractor will be responsible for preparation and implementation of a Spill Prevention, Control, and Countermeasure Plan;
- The contractor will have a spill containment kit, including oil-absorbent materials, on site to be used in the event of a spill or if any oil product is observed in the water;
- Corrective actions will be taken in the event of any discharge of oil, fuel, or chemicals into the water (WAC 173-201A), including:
    - In the event of a spill, containment and cleanup efforts will begin immediately and be completed as soon as possible, taking precedence over normal work. Cleanup will include proper disposal of any spilled material and used cleanup material.
    - The cause of the spill shall be assessed and appropriate action will be taken to prevent further incidents or environmental damage.
    - Spills and/or conditions resulting in distressed or dying fish shall be reported immediately to DOE's Northwest Regional Spill Response Office at (425) 649-7000 (a 24-hour phone number) (WAC 173-201A). Spills of oil or hazardous materials also shall be reported immediately to the National Response Center at 1 (800) 424-8802 and the Washington Emergency Management Division at 1 (800) 258-5990 or 1 (800) OILS-911.
- Standard erosion control measures will be implemented during all construction activities to prevent runoff or erosion into the adjacent wetland or stream;
- All in-water work will occur during the approved in-water work window;
- Fish exclusion barriers will be installed to prevent fish access within the road crossing construction areas. Stream flows will be temporarily diverted around the construction area to prevent elevated turbidity and erosion within the stream.

6 MITIGATION SITE SELECTION

6.1 Site Description

6.1.1 Site Location and Land Use

The proposed mitigation site is situated within the southwest portion of the Project site (Appendix C). This location was chosen due to its proximity to Dry Creek. The mitigation site contains several Category III wetlands (R73, R74, and R76) that have

been degraded by cattle grazing. Grazing has suppressed vegetation growth and recruitment as well as reduced the opportunity to improve water quality and provide habitat conditions.

6.1.2 Site History Overview

Historically, the general area where the mitigation site is located would have likely supported suitable habitat for native plant and animal species. As summarized above, the modern land use has altered the pre-settlement landscape due to the introduction of cattle grazing. As a result, the vegetation community has been altered. Cattle are more attracted to the wetlands given they provide moist vegetation and the consequent quality grazing opportunities. As a result, the wetlands are more susceptible to disturbance and long term affects.

6.2 Baseline Conditions

6.2.1 Vegetation

The vegetation within the wetlands areas of the mitigation site consists of emergent vegetation including meadow arnica (*Arnica chamissonis*), graceful cinquefoil (*Potentilla gracilis*), blue camas (*Camassia quamash*), mountain blue-eyed grass (*Sisyrinchium montanum*), Baltic rush (*Juncus balticus*), and bluegrass (*Po sp.*). With the exception of a few shrubs within wetland R73, the wetlands are devoid of shrubs and trees.

Similar to the wetland areas, the upland areas within the mitigation site are devoid of shrubs and trees. The herbaceous vegetation within these areas is largely dominated by bluegrass (*Poa sp.*), fern-leaved desert parsley (*Lomatium dissectum*), and Hooker's balsamroot (*Balsamorhiza hookeri*).

6.2.2 Soils

According to the Natural Resources Conservation Service's (NRCS) Web Soil Survey (NRCS 2018), the mitigation site consists of two mapped soil units, Millhouse-Metser (0-5% slope) and Maxhill ashy loam (0-5% slopes). The Millhouse-Metser soil unit is largely demarcating the area where wetlands R73, R74, and R76 are situated while the Maxhill soil unit is mapped in upland areas. Both of these soils are not listed as a hydric soil (NRCS 2018).

6.2.3 Hydrology

Primary hydrologic support within the mitigation site is provided by seasonally high groundwater, runoff from snowmelt, and direct precipitation. As the snow melts on the site and from higher elevations in the spring, groundwater in isolated areas (wetlands) becomes shallow and/or seeps from the soil surface.

Runoff from snow melt and direct on-site precipitation flows south/southwest across the mitigation site. A portion of this runoff flows into these wetlands.

7 COMPENSATORY MITIGATION PLAN

7.1 Goals and Objectives

As summarized above in Sections 5 and 6, the introduction of cattle has altered native vegetation growth and recruitment as well as reduced water quality and habitat functions relative to those of an undisturbed community.

For example, historically, the wetlands within the mitigation site likely contained a moderate density of camas; however, due to the current land use, camas density within the wetlands is reduced. Camas wetlands have the potential to provide grazing areas for large and small mammals in the early spring as well as attract a wide variety of pollinators (Stevens et al 2000). In addition, all wetlands provide some level of water quality and hydrology functions. These wetlands likely have the potential to filter out sediments and toxins from shallow groundwater and runoff.

The opportunity for these wetlands to provide quality function and value is limited due to cattle grazing. From early spring to late summer, cattle frequent the wetlands to graze and rest. As a result, the vegetation within the wetlands does not have the opportunity to flourish and the soils are highly disturbed which provides opportunity for sediment-laden runoff to flow offsite, ultimately into aquatic areas (wetlands and streams) down slope. Concentrations of cattle that regularly occur in isolated areas introduce high levels of pollution. While all wetlands provide some level of water quality and hydrology functions, these wetlands likely cannot adequately manage such high levels of soil disturbance and pollution.

The overall goal of the proposed compensatory mitigation plan is to ensure no net loss of wetland function and value and that no adverse impacts to wetlands and streams will result from the Project. More specific goals include:

- Improve water quality to reduce non-point pollution (EES 2003);
- Reestablish historical vegetation conditions within the degraded wetlands;
- Provide opportunity for suitable growing conditions for native vegetation and recruitment;
- Provide wildlife habitat that is of higher quality than that being lost as a result of the Project.

Functional objectives to achieve the goals of the compensatory mitigation plan include:

- Remove cattle from the selected wetlands and surrounding area to eliminate grazing, soil disturbance, and contamination and allow for vegetation recovery and development within the wetlands and their associated buffers;
- Supplement native vegetation within wetland areas that are devoid of vegetation.

7.2 Conceptual Overview

The unavoidable impacts that will occur during this project will be compensated for through wetland enhancement. The overall goal of the compensatory mitigation plan is to provide opportunity for the degraded wetlands to resemble historical conditions and improve water quality and habitat. The mitigation site is currently utilized for cattle

grazing which has altered native vegetation growth and recruitment as well as reduced water quality and habitat conditions.

Enhancement actions would include removing cattle from the mitigation site and surrounding area to eliminate grazing, soil disturbance, and contamination and allow vegetation succession within the wetlands and their associated buffers. In addition to removing cattle, areas devoid of vegetation and where cattle regularly wallow will be recontoured and planted with native vegetation that is suitable for the growing conditions found in the region.

7.3 Targeted Functions

The compensatory mitigation plan is intended to improve wetland functions within the landscape. Prior to settlement, the wetlands within the mitigation site likely provided seasonal wildlife habitat and were historically valuable. However, the introduction of cattle grazing has degraded these features to the extent they no longer provide historic levels of function.

Enhancement actions include removal of cattle from 21 acres of emergent wetland along with recontouring and planting within areas devoid of vegetation. These enhancement actions would allow natural vegetation recruitment and succession within the wetlands and buffers, and eliminate soil disturbance and pollutant loading.

7.4 No Net Loss Analysis

Ecology's *Calculating Credits and Debits for Compensatory Mitigation in Wetlands for Eastern Washington* (the "Credit-Debit Method", Hruby 2012) was used to evaluate the permanent impacts and temporal loss associated with the Project. The Credit-Debit Method is a rapid method that provides an estimate for whether a proposed compensatory mitigation plan will adequately replace the ecological functions and values lost when a wetland is altered.

The Credit-Debit Method scores each of the three functions at the altered wetland(s) which are used as the basis for calculating how much mitigation is needed. These calculations determine the debits of a proposed project. Similarly, the three wetland functions at the proposed mitigation site are scored to establish a baseline and then rescored based on the completed mitigation actions. The relative gains in the level of functions are calculated to determine the credits of the proposed mitigation. The gains (credits) in levels of functions and values at a mitigation site are compared to the losses (debits) at the impact site to determine if the "no-net-loss" policy is being met.

7.4.1 Debit Analysis - Permanent Impacts

According to the Credit-Debit Method, the timing of mitigation needs to be considered when calculating temporal loss of function. The proposed mitigation actions defined in this plan will be completed concurrently with the construction of the Project; therefore, a temporal loss factor of 1.5 was used to calculate the debits associated with the unavoidable impacts that will occur during this Project (Hruby 2012).

The 0.347 acres of unavoidable impacts to wetlands would result in a debit for 2.490 acre-points for Category II wetlands and 1.110 acre-points for Category III wetlands (Table 2)[1].

Table 2. Debit summary

Wetland Feature	Wetland Category	Impact Area (Acres)	Debits (Acre-Points)		
			Improving Water Quality	Hydrology Function	Habitat Function
First Creek	II	0.023	0.210	0.240	0.280
R-1	II	0.102	0.160	0.100	0.210
R-25	III	0.017	0.470	0.470	0.630
R-27	II	0.052	0.430	0.370	0.431
R-44	II	0.041	0.920	1.080	1.230
R-139	II	0.032	0.290	0.290	0.340
R408/R-409	III/III	0.080	0.840	0.720	0.480
Total		**0.347**	**3.320**	**3.270**	**3.600**

7.4.2 Credit Analysis – Mitigation Actions

The proposed conceptual mitigation plan will result in the enhancement of wetlands R-73, R-74, and R-76. According to the Credit-Debit Method, the removal of cattle within these features to eliminate grazing, soil disturbance, contamination, and allow vegetation succession within the wetlands would provide 10.360 acre-points of credit to use as compensatory mitigation (Table 3).

Table 3. Credit summary

Wetland Feature	Wetland Category[1]	Enhancement Area (Acres)	Credits (Acre-Points)		
			Improving Water Quality	Hydrology Function	Habitat Function
R-73	II	17.925	8.960	8.960	8.960
R-74	II	0.196	0.100	0.100	0.100
R-76	II	2.608	1.30	1.30	1.30
Total		20.729	**10.360**	**10.360**	**10.360**

[1] Wetland category based on post-enhancement actions (Hruby 2014).

7.4.3 Debit and Credit Summary

This summary focuses on demonstrating the balance of debit and credit associated with project impacts and the proposed mitigation to compensate for those impacts. As summarized in Table 4, removing cattle grazing from the wetlands within the mitigation site will yield a credit balance of nearly double the calculated debit for the wetland

[1] For assessment purposes, only the highest value of debit acre-points calculated for the three functional categories is presented. Refer to Table 2 for individual debit values.

impacts. Therefore, with the implementation of the proposed mitigation actions, the Project will result in no-net-loss of wetland functions.

Table 4. Summary of debits and credits

DEBITS (Acre-Points)	IMPROVING WATER QUALITY	HYDROLOGY FUNCTION	HABITAT FUNCTION
Wetland Impacts	3.32	3.27	3.60
CREDITS (Acre-Points)	**IMPROVING WATER QUALITY**	**HYDROLOGY FUNCTION**	**HABITAT FUNCTION**
Wetland Enhancement	10.36	10.36	10.36
BALANCE (Credits – Debits)	**7.04**	**7.09**	**6.76**

8 MITIGATION ACTIONS

The conceptual mitigation plan will enhance approximately 21 acres of wetland through the removal of cattle grazing and supplemental plantings of native vegetation.

More specifically, a cattle exclusion fence will be installed around the perimeter of the mitigation site to prevent cattle from grazing and disturbing the soils within the mitigation site (Appendix C). The fence will be erected in upland areas outside of the wetlands to allow an adequate buffer for the wetlands and to provide additional protection to the wetlands and to ensure the goals and objectives defined in this plan are met. Based on the credit-debit analysis, the proposed enhancement actions would convert the wetlands from Category III wetlands (75 foot buffer) to Category II wetlands (100 foot buffer). Therefore, the exclusion fence would be erected, at a minimum, of 100 feet from the wetland edge to include the appropriate buffer as required by Kittitas County Code. The additional 25 foot buffer would yield approximately 4.7 acres of additional wetland buffer.

Due to historic use, cattle have created wallowing sites where shallow groundwater and/or seeps occur within the mitigation site. These areas are devoid of vegetation and the soils are highly disturbed. As a result, these conditions provide opportunity for sediment-laden runoff to flow downslope without the potential for the wetlands to provide much function. In response to these conditions, the wallowing sites will be replanted with native species that dominate the wetlands within the mitigation site (Appendix C).

8.1 Site Preparation

Prior to installing the cattle exclusion fence, a vegetation baseline survey will be performed to compare against vegetation monitoring results defined in Section 9.

Once the baseline survey is complete, the alignment of the cattle exclusion will be clearly marked and installed after the alignment has been verified by a qualified biologist. The cattle exclusion fence shall be constructed using barbed wire and post or like materials to ensure the mitigation site will not be accessed by cattle. The exclusion fence shall not be constructed at a height greater than 48 inches to provide opportunity for wildlife access.

8.2 Planting Plan

The intent of the planting plan is to enhance the vegetation community within the subject wetlands that has been degraded from the current land use. Supplemental plantings of native vegetation will provide an opportunity for these wetlands to reestablish a dense

vegetation community at a faster rate than excluding cattle alone. Bare areas where cattle wallow or vegetation has been eliminated shall be enhanced with native vegetation according to the plant schedule (Table 5). Due to the extent of disturbance within the wetlands, a dense planting schedule was established to fulfill the goals of this Plan.

Table 5. Proposed planting plan

Common Name	*Species Name*	Quantity[1]	Size	Spacing (O.C)
Emergent species				
Meadow arnica	*Arnica chamissonis*	-	Plug	1 ft.
Graceful cinquefoil	*Potentilla gracilis*	-	Plug	1 ft.
Small camas	*Camassia quamash*	-	Plug	1 ft.
Mountain blue-eyed grass	*Sisyrinchium montanum*	-	Plug	1 ft.
Baltic rush	*Juncus balticus*	-	Plug	1 ft.

[1] Quantities to be determined during the post-installation inspection

8.2.1 Preparation and Installation

The landscape contractor shall verify the location of all elements of the planting plan prior to installation. The project biologist may adjust the locations of landscape elements during the installation period as necessary. Implementation of the planting plan shall occur in the late fall or early spring. No plantings shall occur during a time forecasted for freezing conditions.

Circular pits approximately 12 inches in diameter and 12 inches deep shall be excavated. Plugs will be planted in clumps of four (same species) and a spacing specified in Table 5. Once plugs are installed the pit shall be backfilled with a mixture of topsoil and organic matter if necessary to provide appropriate rooting media.

8.3 Site Protection

To ensure the long term protection of the mitigation site, the Corps authorization and a description of the mitigation will be recorded on the mitigation site property deed. Proof of documentation will be submitted to the U.S. Army Corps of Engineers Seattle Regulatory Branch with the notice of Project completion upon commencing operations.

9 MONITORING PLAN

9.1 Duration and Frequency

The following sections describe the monitoring program of the conceptual mitigation plan. As described below, Project proponents will monitor the mitigation site for a total of 5 years, with monitoring events occurring post-construction in years 1-3, and 5. For clarification, the year within which construction of the site is complete (including plant installation), will be considered monitoring Year 0.

9.1.1 Baseline Survey

Prior to implementing the mitigation actions, a survey will be completed to determine baseline conditions for future comparison. Fixed transect points will be established within the mitigation site following the procedures described in Section 9.3. The

transects established during the baseline survey will be used during the post-installation inspection to evaluate areas where supplemental planting did not occur.

9.1.2 Post-Installation Inspection

Compliance monitoring will consist of evaluating the mitigation site immediately after the mitigation actions are implemented to confirm the plan was followed. A walk-through survey will be conducted to verify the exclusion fencing and vegetation installation conforms to the approved plan. Fixed transect points will be established in areas where supplemental planting occurred following the procedures described in Section 9.3. Transect points will be used as transect end points for physical monitoring of vegetation and photo-point documentation during the long-term monitoring.

Compliance monitoring will be conducted by qualified personnel using the evaluation standards and criteria discussed below. Upon completion of the compliance inspection, a compliance report will be prepared verifying that all mitigation actions have been correctly implemented. Any deviation from the approved plan will also be discussed in the compliance report. The report will be submitted to the appropriate regulatory staff within 60 days following completion of the compensatory mitigation actions.

9.1.3 Long-Term Monitoring

Long-term monitoring will be conducted over a five year period with observations conducted during years 1-3 and 5. The purpose of the long-term monitoring program will be to evaluate the mitigation site and to determine if the goals and objectives of the plan have been met. The points established during the post-construction inspection will be utilized for monitoring the development of the mitigation site over the course of the long-term monitoring period. Photographs will be taken at each point to document the development of the mitigation site.

Unless otherwise noted, monitoring activities are to be conducted in late spring (April-June). Monitoring reports will be submitted to the USACE no later than December 31 in the year monitoring activities were conducted.

9.2 Performance Standards

Performance standards provide a clear means of evaluating the results of a mitigation action. Performance standards (Table 6) have been developed to provide metrics relative to the goals and functional objectives detailed in Section 7.1 of this plan. Guidance from the *Washington Mitigation in Washington State – Part 2: Developing Mitigation Plans (Version1)* was used to develop the performance standards.

Table 6. Performance standards

Mitigation Goal	Functional Objective	Performance Standard	Year Inspected	Sampling Method
Improve water quality, hydrology and habitat function.	1. Enhance and preserve Wetlands R73, R74, and R76.	1a. Remove grazing from approximately 21 acres of wetland through the installation of exclusion fencing.	0	Visual walk through
		1c. A minimum 80% survival of planted emergent species based on Year 1 results.[1, 2]	0,1	Visual walk through
		1d. Increased habitat complexity by Year 5 as reflected in species diversity.	1, 2, 3, 5	Random Plot[3, 4, 5]
		1e. A maximum of 10% non-native, invasive and noxious species coverage.[6]	0, 1, 2, 3 , 5	Visual assessment and random plot[7]

[1] Year 0 will have 100% survival.
[2] In the event that monitoring staff is unable to distinguish planted and volunteer species during monitoring period, visual observations and coverage data will be used to assess survival and overall health of the restoration area.
[3] Native planted and volunteer species will be an acceptable component of this performance standard.
[4] Random plot sampling will utilize a 0.25^2 meter quadrat to collect data at the monitoring points established in the compliance inspection.
[5] Species abundance and coverage data will be collected each monitoring year to track development of species diversity.
[6] Class A, B and C-listed species in the most current Washington State Noxious Weed List (as issued by the Washington State Noxious Weed Control Board).
[7] Visual assessment and random plots will be used to evaluate non-native and noxious species coverage within the restoration area during Years 1, 2, 3, and 5. Year 0 will only evaluate non-native and noxious species through visual assessment only.

9.3 Monitoring Methods

9.3.1 Vegetation Monitoring

Vegetation surveys will be conducted in accordance with the monitoring schedule to compare results against the performance standards. Vegetation within the planted areas will be assessed using the guidance described in the *Guide for Wetland Mitigation Project Monitoring* (the "Guide"; Horner and Raedeke 1989). Data along each established transect will be collected at 3 meter intervals using a 0.25^2m quadrat. Vegetation data will be collected on one side of each transect to avoid disturbing the plots that will be sampled. A minimum of 40 plots is recommended to adequately characterize the vegetation within a monitoring site (Horner and Raedeke 1989).

9.3.2 Photographic Documentation

Permanent photo-points will be established during the compliance inspection in order to obtain representative photographs of the restoration area. Photo-points will be established at each transect end point to document the success and development of the restoration area over time. Photographs will be taken from the same locations (and facing the same direction) yearly to document the site's appearance and progress.

9.4 Monitoring Reports

As part of the monitoring program, Project proponents will be required to submit regular reports describing the results of the restoration monitoring and comparisons to the performance standards.

9.4.1 Compliance Inspection Report

Within 60 days of the mitigation actions, a compliance report will be submitted to the USACE, documenting the implementation of the mitigation actions and describing any deviations from the original plan. The report will also describe any potential problems identified during installation and any recommended remedies to be proposed to the agencies. Photographs will be taken at the established photo-points to further document the baseline conditions within the restoration area.

9.4.2 Monitoring Reports

Project proponents will submit an annual monitoring report by December 31 to the USACE detailing the results of that year's monitoring activities. The report will document site conditions, provide a summary of the maintenance actions conducted on the site, and describe any deviations from the monitoring protocols prescribed in this plan. The report will also describe any potential problems observed and recommend changes to the maintenance or monitoring protocols.

10 MAINTENANCE AND CONTINGENCY PLANS

The sections below describe the maintenance activities and contingency planning processes to be conducted by Project proponents within the mitigation site for the duration of the monitoring period and are not intended to serve as a maintenance plan for the infrastructure associated with the Project.

10.1 Maintenance Plan

Maintenance of the mitigation site will be the responsibility of Desert Claim for the duration of the monitoring period. During annual maintenance action, all litter including paper, plastic, bottles, construction debris, etc., will be collected. Additionally, all non-native noxious[2] vegetation will be removed from the restoration area. Any litter or invasive vegetation will be removed and disposed of at an approved upland location. Work to be completed during the monitoring period at the mitigation site includes of dead or failed plant materials with plantings of the same species, size and location as original plantings as well as fence maintenance actions.

10.2 Contingency Plan

The contingency plan provides a framework for taking action if the mitigation actions fail to meet the performance standards described above. The contingency actions will vary depending on whether physical or biological processes are responsible for non-attainment of performance standards, and the degree of shortfall. If the Project fails one or more performance standards, but the USACE agrees the shortfall is minor, then additional monitoring prior to undertaking more intense corrective actions may be proposed.

10.2.1 Contingency Actions

This contingency plan identifies a planning process for selecting appropriate actions to address failure of specific performance standards. In order to maintain the flexibility needed to respond effectively and appropriately to biological and/or physical conditions, this plan does not present a specific list of actions that will be taken to remedy all specific types of failures at the mitigation site.

Site-specific contingency options do exist for the mitigation site, and sample options are outlined below. The list of sample corrective actions is not exclusive, nor is it a commitment to undertake a specific action. It is expected that any shortfall in the defined

[2] Class A, B and C-listed species in the most current Washington State Noxious Weed List (as issued by the Washington State Noxious Weed Control Board.

mitigation actions can be remedied within the confines of the site through adaptive management techniques.

Failure of biological components of the mitigation actions are more difficult to predict and specific responses are impossible to present in detail. However, the following general approaches are anticipated:

- If the vegetation planted fails to meet the performance standards, additional planting may occur;
- If a species that was originally planted continues to have a high mortality rate over time then an approved substitute may be planted;
- If cattle regularly damage a specific location, modifications to the cattle exclusion fence will occur.

10.2.2 Contingency Planning Procedures

The problem recognition process is an integral part of the monitoring program. As monitoring data are collected, they will be examined and interpreted relative to the performance standards. The purpose of the process is to determine if there is a problem and if so, the nature and extent of the problem. Desert Claim and the USACE shall meet in good faith and shall use their best efforts to reach consensus regarding an appropriate response. In the event that consensus cannot be reached, the USACE will determine if modified or continued monitoring is adequate.

10.2.3 Contingency Planning and Response Process

The purpose of the contingency planning process is to develop contingency actions that may be appropriate, depending on the results of the monitoring program and problem recognition step. If modified or continued monitoring is not an adequate response, Desert Claim shall submit a contingency proposal for USACE personnel to review.

The contingency planning process could result in the implementation of an approved response action. Alternatively, it could result in agreement to take no further action, depending on the results of monitoring. The USACE will make a final determination on an appropriate response, based on available information and scientifically and economically feasible recommendations. Desert Claim or the USACE can invite any resource agencies into contingency planning and response discussions. No contingency action will be undertaken until the USACE gives approval in writing. Potential responses include, but are not limited to, one or more of the following:

- Concluding that the situation does not require further action.
- Expanding or modifying the monitoring program.
- Developing more specific criteria to evaluate the data during future monitoring.
- Initiating a corrective action.

11 REFERENCES

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DESERT CLAIM WIND POWER LLC.

DESERT CLAIM WIND POWER PROJECT
APPENDIX A: PROJECT DESIGN SHEETS

DESERT CLAIM WIND POWER LLC.

DESERT CLAIM WIND POWER PROJECT
APPENDIX B: DELINEATION MAP

DESERT CLAIM WIND POWER LLC.

DESERT CLAIM WIND POWER PROJECT
APPENDIX C: MITIGATION SITE MAP