

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

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Attach this completed and signed form to the front of an unbound report or include a hard copy with a digital version (single PDF file of the report cover form and report, minimum 300 dpi resolution) and submit to: **Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279**. A single PDF of the completed cover form and report may be e-mailed to **Wetland_Delineation@dsl.state.or.us**. For submittal of PDF files larger than 10 MB, e-mail DSL instructions on how to access the file from your ftp or other file sharing website.

Contact and Authorization Information	
☒ Applicant ☐ Owner Name, Firm and Address: Calico Resources USA Corp. 665 Anderson Street Winnemucca, Nevada 89445	Business phone # (775) 625-3600 Mobile phone # (optional) (775) 770-4615 E-mail: nancy@paramountnevada.com
☒ Authorized Legal Agent, Name and Address (if different): Same as Above Attention: Nancy J Wolverson	Business phone # Mobile phone # (optional) (775) 770-4615 E-mail: nancy@paramountnevada.com
I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.	
Typed/Printed Name: <u>Nancy J Wolverson</u> Signature: <u></u> Date: <u>03/01/2018</u> Special instructions regarding site access: _____	
Digitally signed by Nancy J Wolverson Date: 2018.03.01 11:02:26 -08'00'	
Project and Site Information	
Project Name: <u>Grassy Mountain Mine Project</u>	Latitude: <u>43.729922</u> Longitude: <u>-117.337827</u> decimal degree - centroid of site or start & end points of linear project
Proposed Use: <u>hard rock mining</u>	Tax Map # _____ Tax lots: <u>100, 300, 400, 600, and 900</u> Tax Lot(s) _____ Tax Map # _____ Tax Lot(s) _____
Project Street Address (or other descriptive location): <u>Malheur County, Oregon, approximately 22 miles south-southwest of Vale</u> City: <u>n/a</u> County: <u>Malheur</u>	Township <u>22S</u> Range <u>44E</u> Section see att: <u>QQ</u> Use separate sheet for additional tax and location information Waterway: <u>Malheur River</u> River Mile: <u>n/a</u>
Wetland Delineation Information	
Wetland Consultant Name, Firm and Address: Sarah M. Harrelson of EM Strategies, Inc. 1650 Meadow Wood Lane Reno, NV 89502	Phone # (775) 826-8822 Mobile phone # (if applicable) E-mail: sarah@emstrats.com
The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.	
Consultant Signature: _____	Date: _____
Primary Contact for report review and site access is ☐ Consultant ☐ Applicant/Owner ☒ Authorized Agent	
Wetland/Waters Present? ☒ Yes ☐ No Study Area size: <u>1,762 acres</u> Total Wetland Acreage: <u>0</u>	
Check Applicable Boxes Below	
☐ R-F permit application submitted ☐ Mitigation bank site ☐ Industrial Land Certification Program Site ☐ Wetland restoration/enhancement project (not mitigation) ☒ Previous delineation/application on parcel If known, previous DSL # <u>WD2015-0432</u>	☒ Fee payment submitted \$ <u>\$ 437</u> ☐ Fee (\$100) for resubmittal of rejected report ☐ Request for Reissuance. See eligibility criteria. (no fee) DSL # _____ Expiration date _____ ☐ LWI shows wetlands or waters on parcel Wetland ID code _____
For Office Use Only	
DSL Reviewer: _____ Fee Paid Date: _____ / _____ / _____ DSL WD # _____	
Date Delineation Received: _____ / _____ / _____ Scanned: ☐ Electronic: ☐ DSL App.# _____	

Project and Site Information:

Township and Range Location:

The Wetland Study Area is located in all or portions of: Sections 5 through 8, Township 22 South, Range 44 East (T22S, R44E); Sections 3, 10, 11, 14, 15, 21 through 23, 28, 29, and 32, T21S, R44E; Sections 1, 12 through 14, 23, 26, 27, and 34; T20S, R44E; and Sections 22, 23, 26, 35, and 36, T19S, R44E, Willamette Meridian.

CALICO RESOURCES USA CORPORATION

GRASSY MOUNTAIN MINE PROJECT MALHEUR COUNTY, OREGON

***DRAFT* WETLAND DELINEATION REPORT**

February 2018

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**CALICO RESOURCES USA CORPORATION
GRASSY MOUNTAIN MINE PROJECT
DRAFT WETLAND DELINATION REPORT**

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A. LANDSCAPE SETTING AND LAND USE

Purpose

The purpose of this wetland delineation report is to characterize existing conditions prior to the start of proposed mining operations at the Calico Resources USA Corporation (Calico) Grassy Mountain Mine Project (Project), located in Malheur County, Oregon. In addition, this report delineates wetlands within and adjacent to the wetland study area.

Project Location

The Project is located approximately 22 miles south-southwest of Vale (Appendix A, Figure 1), and is approximately 1,762 acres in size (Wetland Study Area) (Appendix A, Figure 2).

The Wetland Study Area is located in all or portions of: Sections 5 through 8, Township 22 South, Range 44 East (T22S, R44E) Willamette Meridian (WM); Sections 3, 10, 11, 14, 15, 21 through 23, 28, 29, and 32, T21S, R44E; Sections 1, 6, 7, 12 through 14, 23, 26, 27, and 34; T20S, R44E; and Sections 22, 23, 26, 35, and 36, T19S, R44E, WM, on lands administered by the Bureau of Land Management, Vale District Office (BLM), and private land controlled by others.

Project Background

A portion of the Wetland Study Area was surveyed for wetlands and non-wetland waters by HDR Engineering, Inc. (HDR) in 2012, identified as Tax Lot 101 on Figure 2 in Appendix A. HDR did not identify any surface waters within the 2012 survey area (HDR 2012). HDR conducted an additional survey of a second portion of the Wetland Study Area in 2015 (Appendix A, Figure 2), which identified three ephemeral drainages and one pond (Schweizer Reservoir). Results of the 2015 survey are discussed in detail in Section E of this report. The remainder of the Wetland Study Area was surveyed by EM Strategies (EMS) in 2017 (Appendix A, Figure 2).

Vegetation

With the exception of 0.3 mile of the northern portion of the Wetland Study Area which is active agriculture row crops, most of the vegetation within the Wetland Study Area is a desert-rangeland type with sagebrush and grasses as the dominant species (HDR 2015, EMS 2017). The area has been extensively grazed, and portions of the Wetland Study Area were re-seeded after a wildfire with a crested wheatgrass (*Agropyron cristatum*)-dominated seed mix. Five vegetation community types were identified within the Wetland Study Area during the 2015 and 2017 surveys:

1. Mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*)/crested wheatgrass community;
2. Crested wheatgrass seeding community;
3. Bluebunch wheatgrass (*Pseudoroegneria spicata* ssp. *spicata*)/cheatgrass (*Bromus tectorum*)/annual community;
4. Mountain big sagebrush/bluebunch wheatgrass community; and

5. Burned yellow rabbitbrush (*Chrysothamnus viscidiflorus*)/bluebunch wheatgrass community.

Topography

Topography within the Wetland Study Area consists of large rolling hills and open valleys. Elevations range from 2,320 feet to 3,800 feet above mean sea level. Generally, slopes range from two to 15 percent.

Geology and Soils

Geology in the Wetland Study Area consists primarily of a thick sequence of arkosic sandstone, clayey siltstone, and reworked tuffs that are locally capped by olivine basalt flows (ACZ Inc. 1993). A Natural Resources Conservation Service (NRCS) soil survey was not available for the Wetland Study Area. Field investigations conducted by HDR in 2012 and 2015, and by EMS in 2017, determined that soils generally consist of rocky sandy loams. There are smaller areas of sandy clay soils.

Land Use

Past and current activities within the vicinity of the Wetland Study Area include mineral exploration, livestock grazing, and recreation.

B. SITE ALTERATIONS

Site alterations within the Wetland Study Area include agricultural fields and heavy livestock grazing. Additional site alterations within the vicinity of the Wetland Study Area include many cut and fill roads used for vehicle access to various sites, and surface disturbance due to drill pads from past exploration activities which occurred between 1986 and 2017.

C. PRECIPITATION DATA AND ANALYSIS

The nearest weather station is at the Owyhee Dam, station number 356405, located approximately 5.3 miles southeast of the Wetland Study Area. Although there was no precipitation during the May 18 through 21, 2017, site investigation, 0.43 inch was recorded for May 17, 2017 (NRCS 2017). The total amount of precipitation recorded for May 4 through 17 was 0.75 inch. Table 1 summarizes the percent of normal precipitation for the water year to date and the monthly percent of normal for each of the three months preceding the field investigation.

Table 1. Summary of Precipitation Data at Owyhee Dam

Category	Feb	March	April	May	Water Year-to-Date (Jan-May)
Monthly Total Precipitation 2017 (inches) ¹	0.91	1.67	1.34	0.76	8.17
Monthly Normal 1981-2010 (inches) ¹	0.76	0.89	0.96	1.16	4.69
Percent of Normal	120%	188%	140%	66%	174%

¹NRCS (2017)

D. METHODS

This wetland delineation was performed according to the standards set forth in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and *Final Arid West Supplement* (Environmental Laboratory 2008). EMS reviewed existing literature, including United States Geological Survey (USGS) topographic maps, aerial imagery, NRCS soils data (not available for the Wetland Study Area), National Wetland Inventory (NWI) maps, and National Hydrography Dataset (NHD) hydrology data to evaluate the physical features of the Wetland Study Area. The data review facilitated the identification of potential wetland areas and prioritization of field survey areas. Stream channels were evaluated for flow duration and presence of an ordinary high-water mark (OHWM) using the methods outlined in the *Streamflow Duration Assessment Method for Oregon* (SDAM) (Nadeau 2011).

EMS conducted wetland field surveys May 18 through 21, 2017; HDR conducted wetland field surveys July 5, 2012, and April 7, 2015. Paired soil pits were used to evaluate the soils, vegetation, and hydrology of potential wetlands. Wetland and stream boundaries were mapped using a handheld Trimble GeoExplorer XH6000 global positioning system (GPS) unit. Photographs were taken at each soil pit and of the surrounding environment. GPS coordinates of each feature were recorded. United States Army Corps of Engineers (USACE) wetland delineation data forms were completed to record vegetation, soil, and hydrology conditions at each site. Data from the 2015 and 2017 surveys (no data from the 2012 survey were collected within the current Wetland Study Area) are included in the following appendices: wetland delineation data forms and SDAM forms are presented in Appendix B; and photos are presented in Appendix C.

E. DESCRIPTION OF ALL WETLANDS AND OTHER NON-WETLAND WATERS

A total of two wetlands, two springs, one pond, one artificial waterway, and ten tributary drainages occur within the Wetland Study Area (Figures 4a through 4h). EMS identified two wetlands, two springs, one artificial waterway (J-H Canal) and ten tributary drainages within the 2017 survey area. HDR identified three tributary drainages and one pond (Schweizer Reservoir) within the 2015 survey area (HDR 2015). The three tributary drainages surveyed by HDR are contiguous with drainages surveyed by EMS. Both survey areas are shown on Figure 2 in Appendix A. Each of these waters is discussed in detail in the appropriate sections below and are illustrated on Figures 4a through 4h.

NWI Mapping

NWI mapping (United States Fish and Wildlife Service [USFWS] 1983) indicated the presence of two emergent wetlands and three ponds within or partially within the Wetland Study Area (Appendix A, Figures 3a through 3h). The NWI describes the wetlands as PEM1Ch (palustrine, emergent, persistent, seasonally flooded, diked/impounded) and PEM1B (palustrine, emergent, persistent, saturated). The ponds are described as PUBH (palustrine, unconsolidated bottom, permanently flooded), PUSC_x (palustrine, unconsolidated shore, excavated), and PUSCh (palustrine, unconsolidated shore, seasonally flooded, diked/impounded). The third pond, designated PUSCh, corresponds to Schweizer Reservoir on USGS maps. Two palustrine emergent

wetlands (Wetlands 1 and 2), two springs (Springs 1 and 2), and one impounded area (Schweitzer Reservoir) were identified during the 2017 and 2015 field investigations.

Wetland 1

Wetland 1, shown on Figure 4g (Appendix A), covers approximately 0.25 acre (0.09 acre extends outside of the Wetland Study Area), and is mapped by the NWI as PEM1B (palustrine, emergent, persistent, and saturated; USFWS 1983). Vegetation in Wetland 1 consisted primarily of cheatgrass and Great Basin wild rye (*Leymus cinereus*); other species observed included Baltic rush (*Juncus balticus*), cursed buttercup (*Ranunculus sceleratus*), and bulbous bluegrass (*Poa bulbosa*). Wetland soil colors were dark and consisted of sandy clay with small amounts of muck and displayed the redox dark surface hydric soil indicator. Hydrology within Wetland 1 appeared to be associated with a small, unmapped spring complex and consisted of one inch of surface water, and a high water table within two inches of the surface within the soil pit.

Wetland 2

Wetland 2, shown on Figure 4g (Appendix A), covers approximately 0.04 acre occurring entirely within the Wetland Study Area, and is not mapped by the NWI (USFWS 1983). Vegetation in Wetland 2 consisted primarily of Great Basin wild rye and bulbous bluegrass; other species observed included fowl bluegrass (*Poa palustris*) and meadow barley (*Hordeum brachyantherum*). Wetland soil colors were dark and consisted of sandy loam and displayed the redox dark surface hydric soil indicator. Hydrology within Wetland 2 appeared to be associated with a small, unmapped spring complex and consisted of two inches of surface water, and a high water table within three inches of the surface within the soil pit.

Springs 1 and 2

At springs one and two, also shown on Figure 4g (Appendix A), bubbling water was observed at the surface. Neither of the springs are indicated on USGS maps. Spring 1 comes to the surface along the side of Twin Springs Road approximately 35 feet to the south of Wetland 2. Water was observed flowing along the surface of the ground along the side of the road for approximately 285 feet before sinking into the surrounding soil. The soil was mostly bare in the area of Spring 1, and no wetland vegetation was observed. Spring 2 is located within Wetland 2, and water was observed bubbling from Spring 2 and flowing into Wetland 2.

Non-wetland Waters

Schweizer Reservoir

The boundary of Schweizer Reservoir and the top of the embankment were delineated (Appendix A, Figure 4h). An upland soil pit (Soil Pit #8A-2015) was dug at the low point to confirm that the area did not meet wetland criteria (HDR 2015).

Tributary Drainages

Ten un-named tributary drainages and one artificial waterway (J-H Canal) occur within the Wetland Study Area. Each drainage was mapped using a GPS unit, assessed using SDAM, and upstream/downstream photos were taken. SDAM survey results of the drainages (Table 2) indicate that the ten drainages displayed characteristics of an ephemeral channel; a portion of Tributary 2 (Tributary 2b) showed characteristics of an intermittent channel; and the J-H Canal was found to be an artificial waterway created for the purposes of crop irrigation. SDAM forms for each drainage and upstream/downstream reach photographs are included in Appendix B and Appendix C, respectively.

The J-H Canal crosses the proposed Access Road approximately 0.4 mile from the northern boundary of the Wetland Study Area (Appendix A, Figures 3a and 4a). This waterway is used for irrigation of the adjacent agricultural fields and is approximately five percent vegetated (Appendix D, photos 71 and 72). An earthen berm, approximately ten feet in height, occurs on the right bank of the canal, and a water control structure was observed on the left bank. Historically, the canal appears on both the 1952 General Land Office Survey Plat map where it is labeled as "Ditch," and on the 1967 Vale West, Oregon USGS 7.5"-Series Topographic Quadrangle, where it is labeled as "J-H Canal." Currently, NWI classifies the canal as a riverine wetland (Appendix A, Figure 3a).

Table 2. Summary of Non-Wetland Waters

Drainage Name	SDAM Determination	Channel Width (feet)	Map Sheet Number	Photo Number
Tributary 1	Ephemeral	2-5	4h	1 and 2
Tributary 2a ¹	Ephemeral	2-4	4h	5-8 and 10
Tributary 2b	Intermittent	6-21	4h	3 and 4
Tributary 3 ²	Ephemeral	2-12	4g and 4h	13-18 and 29-30
Tributary 4 ²	Ephemeral	1-4	4h	19-23
Tributary 5	Ephemeral	5-8	4h	24 and 25
Tributary 6	Ephemeral	4-14	4g	31 and 32
Tributary 7	Ephemeral	3-8	4f	46 and 47
Tributary 8	Ephemeral	2-6	4f	48-51
Tributary 9	Ephemeral	3-7	4d	57-60
Tributary 10	Ephemeral	2-20	4a and 4b	65-70
J-H Canal	Artificial Water Body	13-30	4a	71 and 72

¹ Tributary 2a was assessed by HDR during the 2015 survey.

² Portions of Tributaries 3 and 4 were assessed by HDR during the 2015 survey.

F. DEVIATION FROM LOCAL WETLANDS INVENTORY OR NATIONAL WETLANDS INVENTORY

Local Wetlands Inventory mapping was not available for the Wetland Study Area; NWI maps are included in Figures 3a-3h (Appendix A). NWI mapping indicated the presence of two emergent wetlands within or partially within the Wetland Study Area. One of these wetlands was confirmed as being Wetland 1, delineated as part of this study (Appendix A, Figures 3g and 4g). However, data from soil pit DP1 (Appendix B) indicate that the second mapped emergent wetland

(Appendix A, Figures 3h and 4h), does not meet wetland criteria. In addition, the presence of Wetland 2, a spring-fed emergent wetland delineated during this study (DP4 and DP5, Appendix B), was not shown on NWI mapping (Appendix A, Figures 3g and 4g).

NWI mapping shows two freshwater ponds within the northern portion of the Wetland Study Area (Appendix A, Figure 3g and 3e). One of these features did not contain water at the time of investigation and appeared to be a small, bermed area that was used to capture water from seeps that feed Wetland 1, but had since been abandoned (Appendix A, Figure 3g). Vegetation in this area consisted of upland species such as cheatgrass and bulbous bluegrass. The second feature is an existing stock water pond that is located outside of the Wetland Study Area, and not inside as indicated by NWI mapping (Appendix A, Figure 3e). Photos of these features are included in Appendix D (photos 43 and 54).

NWI maps indicate numerous intermittent, temporarily flooded streambeds within the Wetland Study Area that, in general, flow from south to north. Based on the results of this study, these areas are ephemeral stream channels, not riverine wetlands. Ten ephemeral tributary drainages, one intermittent drainage, and one artificial water body (J-H Canal) that correspond with NWI mapping were delineated within the Wetland Study Area (Section E).

G. MAPPING METHOD

The 2017 mapping has been prepared using wetland and stream boundaries that were recorded using a handheld GPS unit (Trimble GeoExplorer XH6000). For the 2017 field work, approximately 60 percent of positions were captured having a horizontal accuracy of less than 0.5 meter, and 91.5 percent of positions were captured having a horizontal accuracy of less than one meter after post-processing. For the 2013 field work, 93.8 percent of positions were captured having a horizontal accuracy of less than 0.5 meter after post-processing, and for the 2015 field work, 84.9 percent of positions were captured having a horizontal accuracy of less than 0.5 meter after post-processing.

H. ADDITIONAL INFORMATION

Oregon Department of Fish and Wildlife (ODFW) data were analyzed to determine if there was a fish presence at any of the drainages within the Wetland Study Area. The nearest fish habitat to the Wetland Study Area was for redband (*Oncorhynchus mykiss*), located approximately 0.5 mile north of the north end of the Wetland Study Area (ODFW 2017). Given that all drainages observed within the Wetland Study Area are ephemeral or intermittent, it is unlikely that fish are present within any of the drainages within the Wetland Study Area. No fish were observed within the canal during field studies. A county soil survey map was not available for this location.

I. RESULTS AND CONCLUSIONS

A total of two wetlands, two springs, one pond, one artificial waterway, and ten tributary drainages occur within the Wetland Study Area (Figures 4a through 4h). EMS identified two wetlands, two springs, one artificial waterway (J-H Canal) and ten tributary drainages within the 2017 survey area. HDR identified three tributary drainages and one pond (Schweizer Reservoir)

within the 2015 survey area (HDR 2015). The three tributary drainages surveyed by HDR are contiguous with drainages surveyed by EMS.

Two PEM wetlands, totaling 0.29 acre (0.09 acre of which occur outside of the Wetland Study Area), were delineated in the Wetland Study Area by EMS during the May 18 through 21, 2017, field surveys using methods recommended in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*. Wetlands 1 and 2 are located within the Sagebrush Gulch drainage, which crosses a small portion of the Wetland Study Area (Appendix A, Figure 4g). The wetlands are associated with ground water seeps/springs located in the immediate area, but do not appear to be connected to any downstream waters. A total of ten drainages were identified within the Wetland Study Area by HDR and EMS during the 2015 and 2017 surveys. A portion of one of the drainages, Tributary 2b, has been determined to be intermittent. All other tributary channels are considered ephemeral. One artificial water body, the J-H Canal, was identified in the northern portion of the Wetland Study Area.

Wetlands in the Wetland Study Area do not have USACE jurisdictional status because they do not demonstrate a significant nexus to a traditional navigable water of the United States. A desktop analysis of drainages within the Wetland Study Area indicated that, in general, all the drainages flow north, eventually leading into the J-H Canal, which empties into the Malheur River approximately 5.5 miles northeast of the Wetland Study Area. The Malheur River flows into the Snake River, eventually feeding into the Columbia River. All ten drainages identified during the wetland study may be considered jurisdictional by the USACE if the connection to the Malheur River is confirmed via additional field studies.

The Oregon Department of State Lands (DSL), typically requires a permit for the placing of fill into “waters of the state.” Waters of the state that meet jurisdictional requirements within the Wetland Study Area include Wetlands 1 and 2, and Tributary 2b. Ephemeral tributary drainages 1, 2a, and 3 through 10 do not meet DSL jurisdictional status because they have been determined to be ephemeral drainages.

J. DISCLAIMER

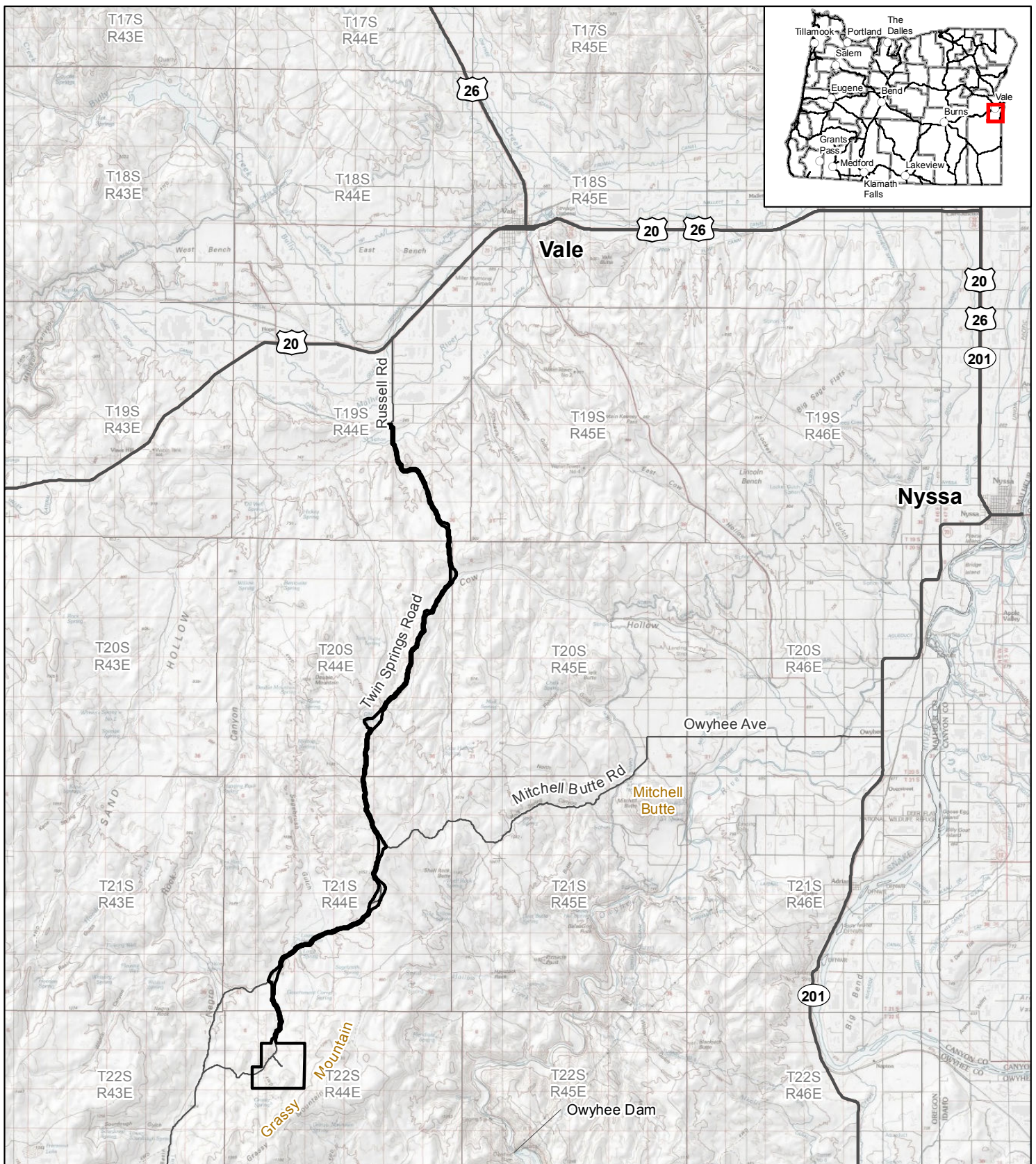
This wetland delineation and report documents the best professional judgment and conclusions of the EMS wetland investigation team. This report should be considered a draft until it is reviewed and approved in writing by the Oregon DSL in accordance with Oregon Administrative Rules 141-090-0005 through 141-090-0055.

K. REFERENCES

- ACZ Inc. 1993. Workplan for Baseline Hydrologic Studies, Prepared for: Newmont Grassy Mountain Corporation. 32 pp.
- EM Strategies, Inc. (EMS). 2017. In progress. *Draft Terrestrial Vegetation Baseline Study, Grassy Mountain Exploration Project*.
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- Oregon Department of Fish and Wildlife (ODFW). 2017. Natural Resources Information Management Program. Available online at: <https://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishdistdata>. Accessed November 13, 2017.
- United States Fish and Wildlife Service (USFWS). 1983. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. <http://www.fws.gov/wetlands/>

APPENDIX A

FIGURES



Explanation

- Wetland Study Area
- Existing Road

Sources:
 PLSS: BLM
 Roads: US Census Bureau
 Basemap: Copyright © 2013 National Geographic Society, i-cubed

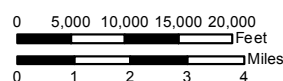
CALICO RESOURCES USA CORP.

GRASSY MOUNTAIN MINE PROJECT

Location Map

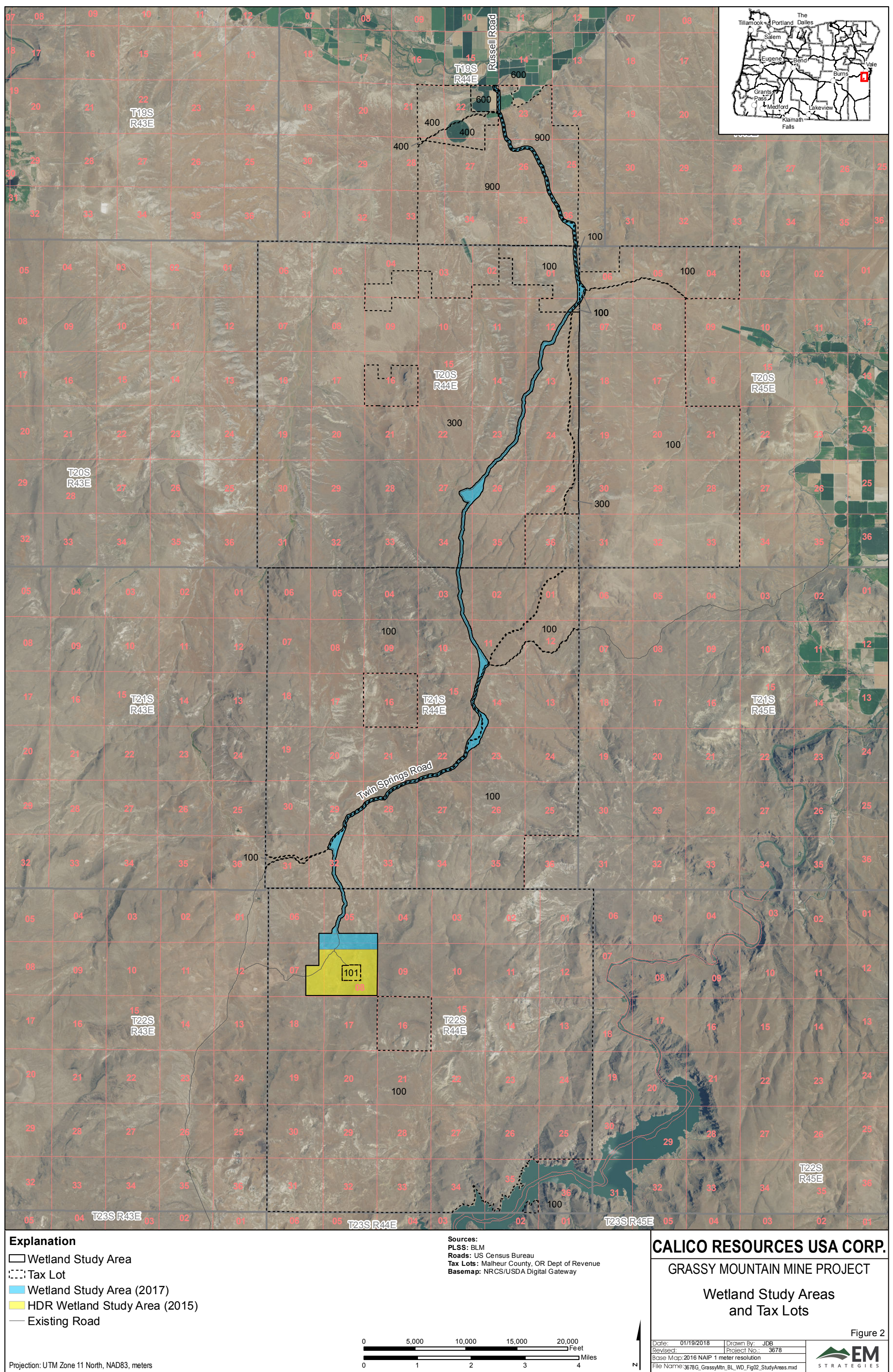
Figure 1

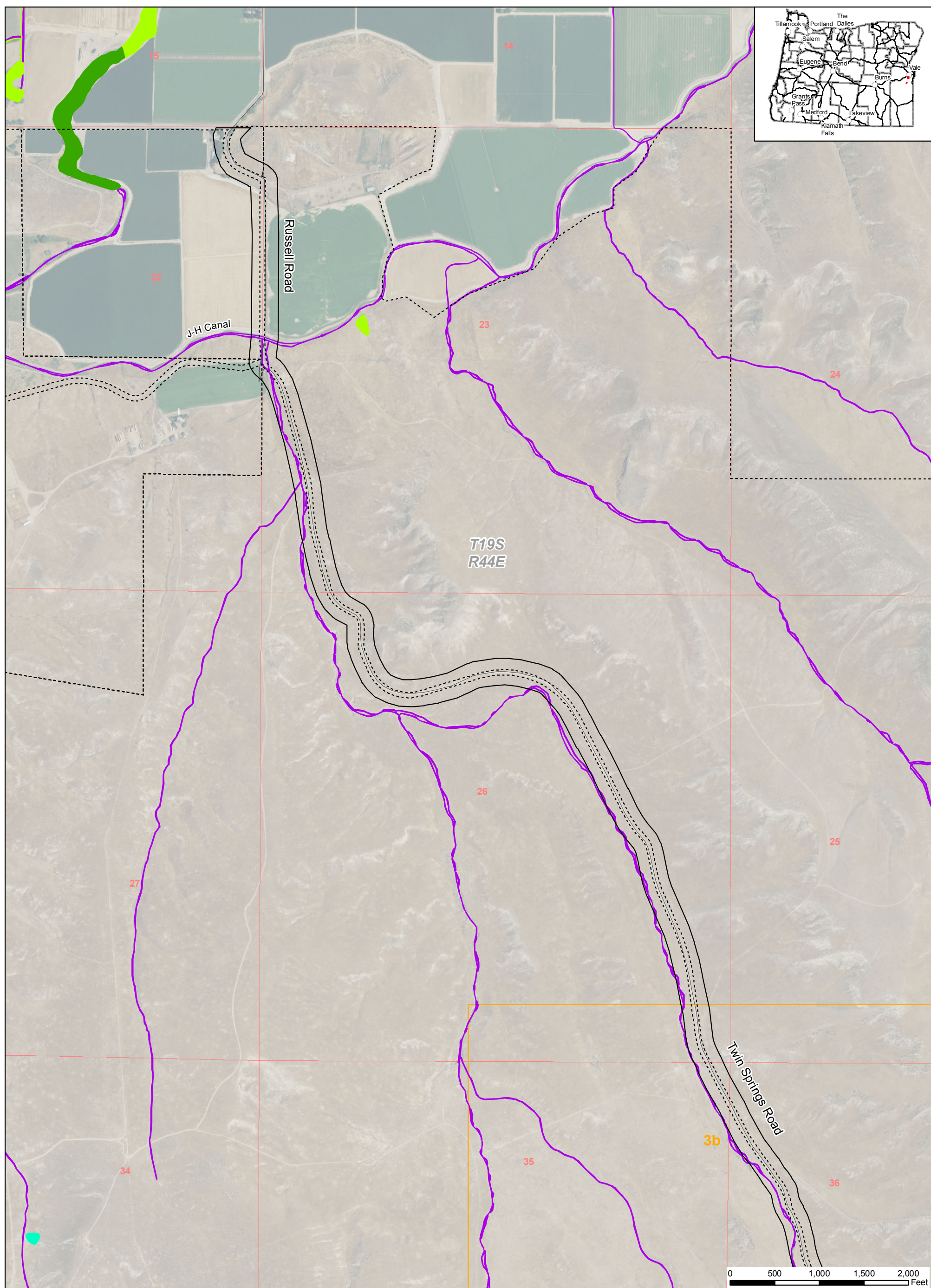
Projection: UTM Zone 11 North, NAD83, meters



Date: 01/19/2018	Drawn By: JDB
Revised:	Project No.: 3678
Base Map: USGS 100K quads: Boise, Brogan, Vale, Weiser	
File Name: 3678G_GrassyMtn_BL_WD_Fig01_Location.mxd	







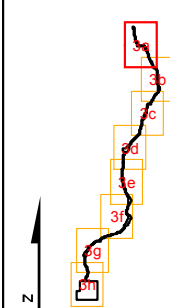
Explanation

-  Wetland Study Area
-  Tax Lot
-  Map Extent
-  Existing Road

National Wetlands Inventory (NWI)

-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond
-  Riverine

Sources:
NWI: U.S. Fish & Wildlife Service
PLSS: BLM
Roads: US Census Bureau
Tax Lots: Malheur County, OR Dept of Revenue
Basemap: NRCS/USDA Digital Gateway

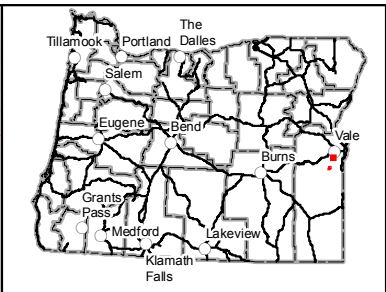
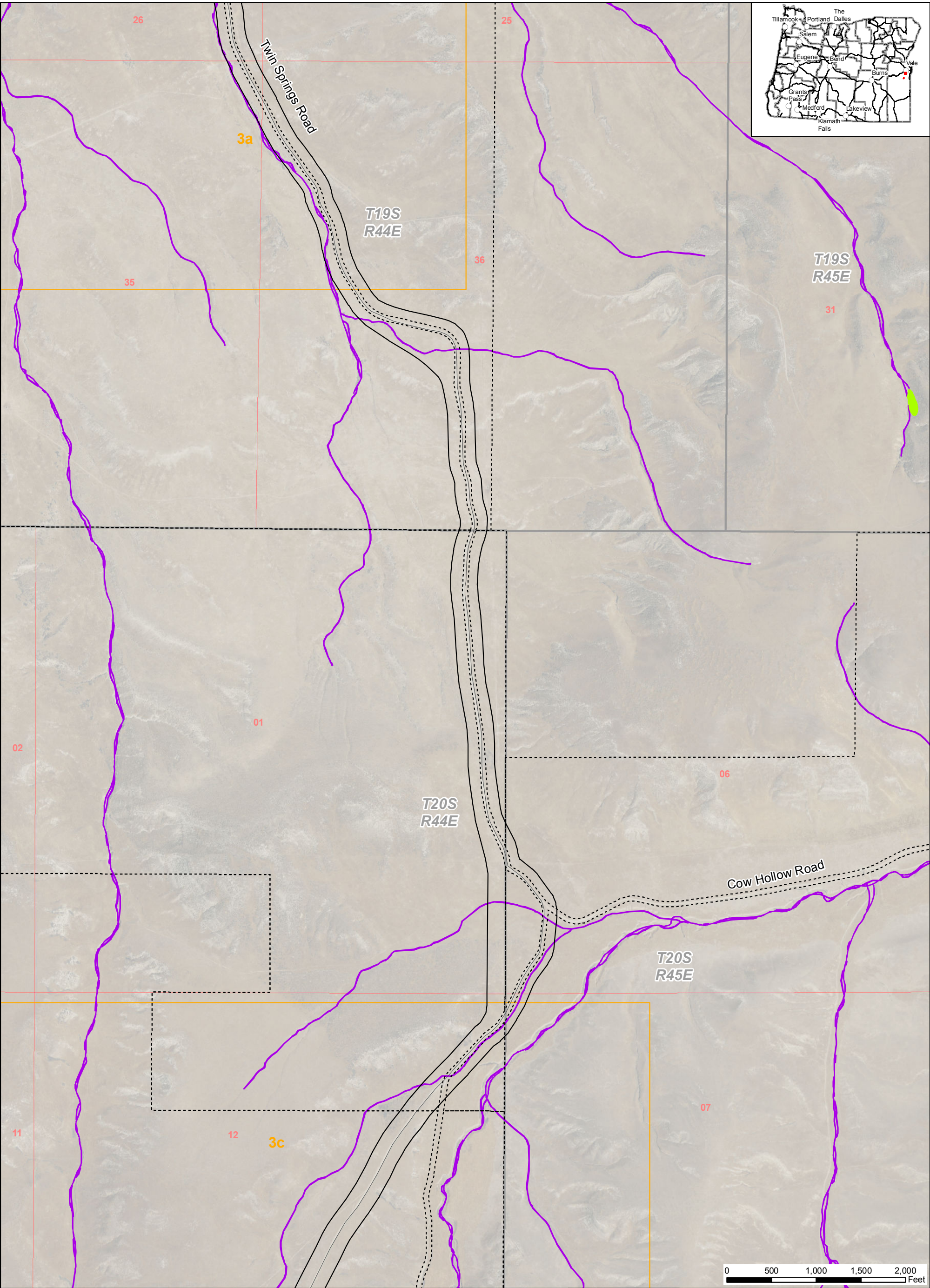


CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN MINE PROJECT
National Wetlands Inventory (NWI)

Figure 3a

Date: 01/19/2018	Drawn By: JDB
Revised:	Project No.: 3678
Base Map: 2016 NAIP 1 meter resolution	
File Name: 3678.G_GrassMtn_RL_WD_Ein03_NW12k.mxd	





Explanation

- Wetland Study Area
- Tax Lot
- Map Extent
- Existing Road

National Wetlands Inventory (NWI)

- Freshwater Emergent Wetland
- Riverine

Sources:

- NWI: U.S. Fish & Wildlife Service
- PLSS: BLM
- Roads: US Census Bureau
- Tax Lots: Malheur County, OR Dept of Revenue
- Basemap: NRCS/USDA Digital Gateway

Figure 3b

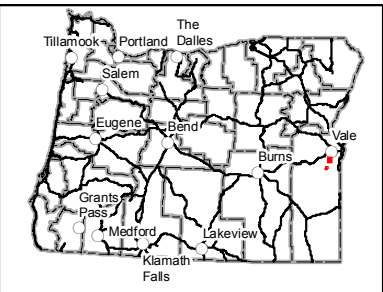
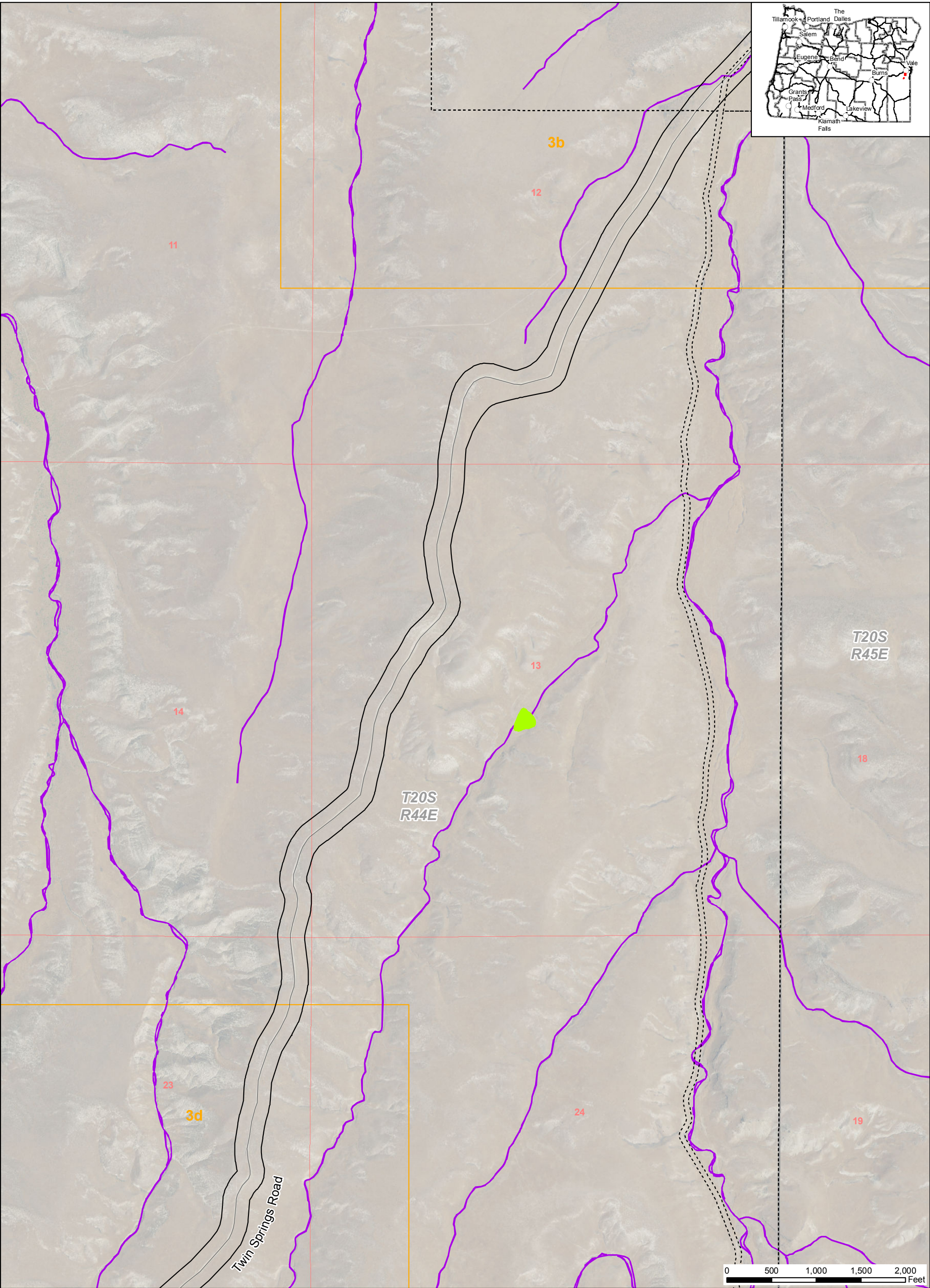
CALICO RESOURCES USA CORP.

GRASSY MOUNTAIN MINE PROJECT

National Wetlands Inventory (NWI)

Date: 01/19/2018	Drawn By: JDB
Revised:	Project No.: 3678
Base Map: 2016 NAIP 1 meter resolution	
File Name: 3678G_GrassyMtn_BL_WD_Fig03_NWI12k.mxd	

Projection: UTM Zone 11 North, NAD83, meters



Explanation

- Wetland Study Area
- Tax Lot
- Map Extent
- Existing Road

National Wetlands Inventory (NWI)

- Freshwater Emergent Wetland
- Riverine

Sources:

- NWI: U.S. Fish & Wildlife Service
- PLSS: BLM
- Roads: US Census Bureau
- Tax Lots: Malheur County, OR Dept of Revenue
- Basemap: NRCS/USDA Digital Gateway

Figure 3c

CALICO RESOURCES USA CORP.

GRASSY MOUNTAIN MINE PROJECT

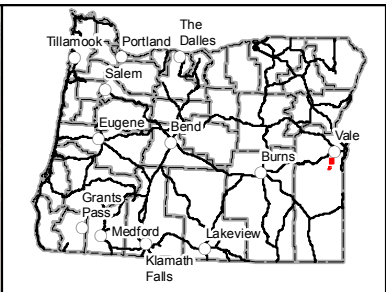
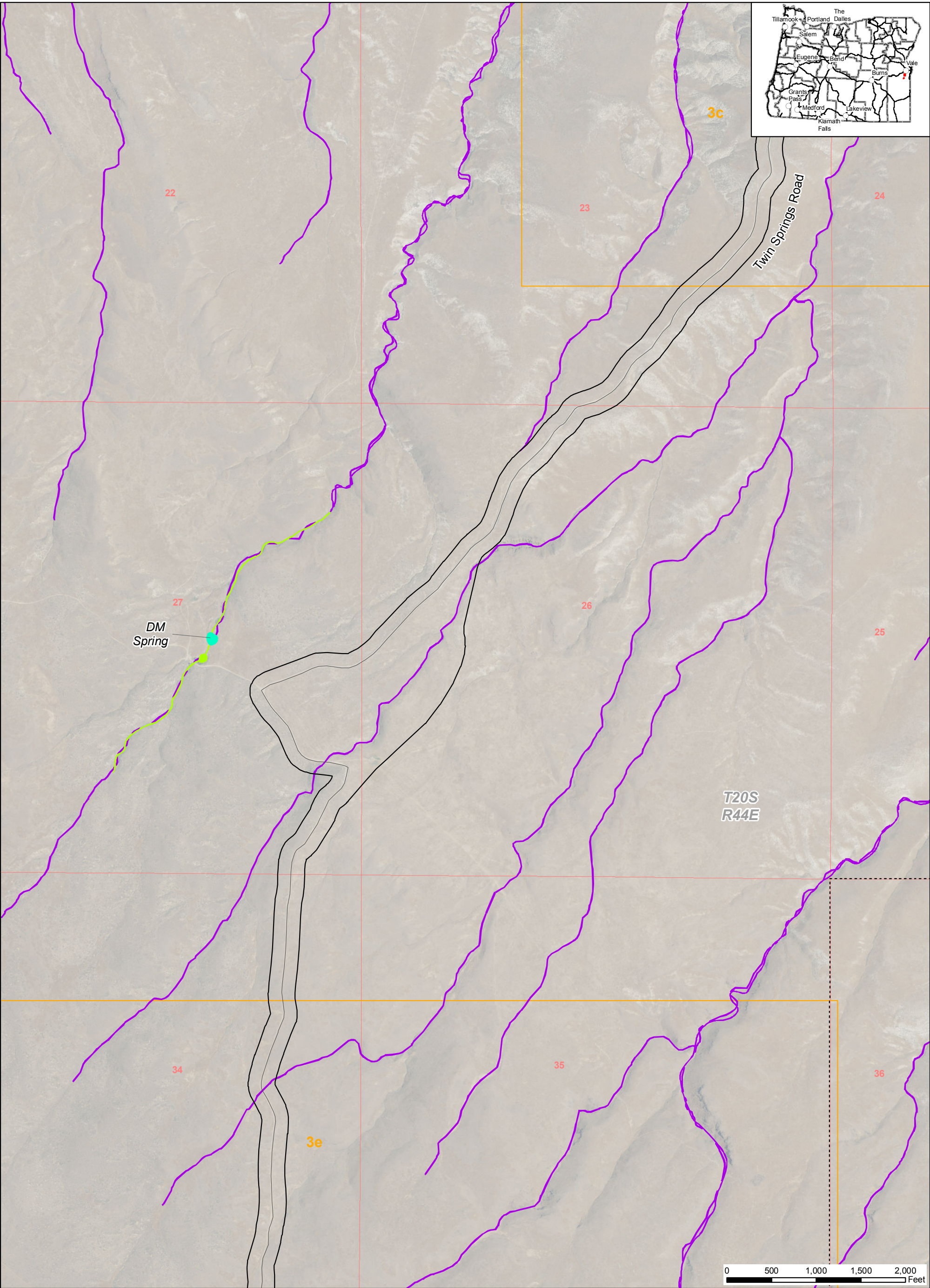
National Wetlands Inventory (NWI)

Date: 01/19/2018
Revised: Project No.: 3678
Base Map: 2016 NAIP 1 meter resolution
File Name: 3678G_GrassyMtn_BL_WD_Fig03_NWI12k.mxd

Drawn By: JDB

EM STRATEGIES

Projection: UTM Zone 11 North, NAD83, meters



Explanation

- Wetland Study Area
- Tax Lot
- Map Extent
- Existing Road

National Wetlands Inventory (NWI)

- Freshwater Emergent Wetland
- Freshwater Pond
- Riverine

Sources:

- NWI: U.S. Fish & Wildlife Service
- PLSS: BLM
- Roads: US Census Bureau
- Tax Lots: Malheur County, OR Dept of Revenue
- Basemap: NRCS/USDA Digital Gateway

CALICO RESOURCES USA CORP.

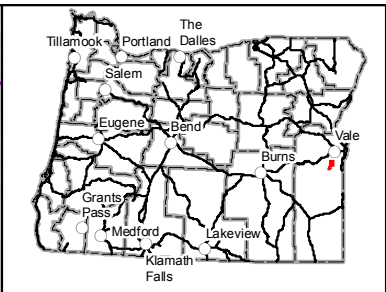
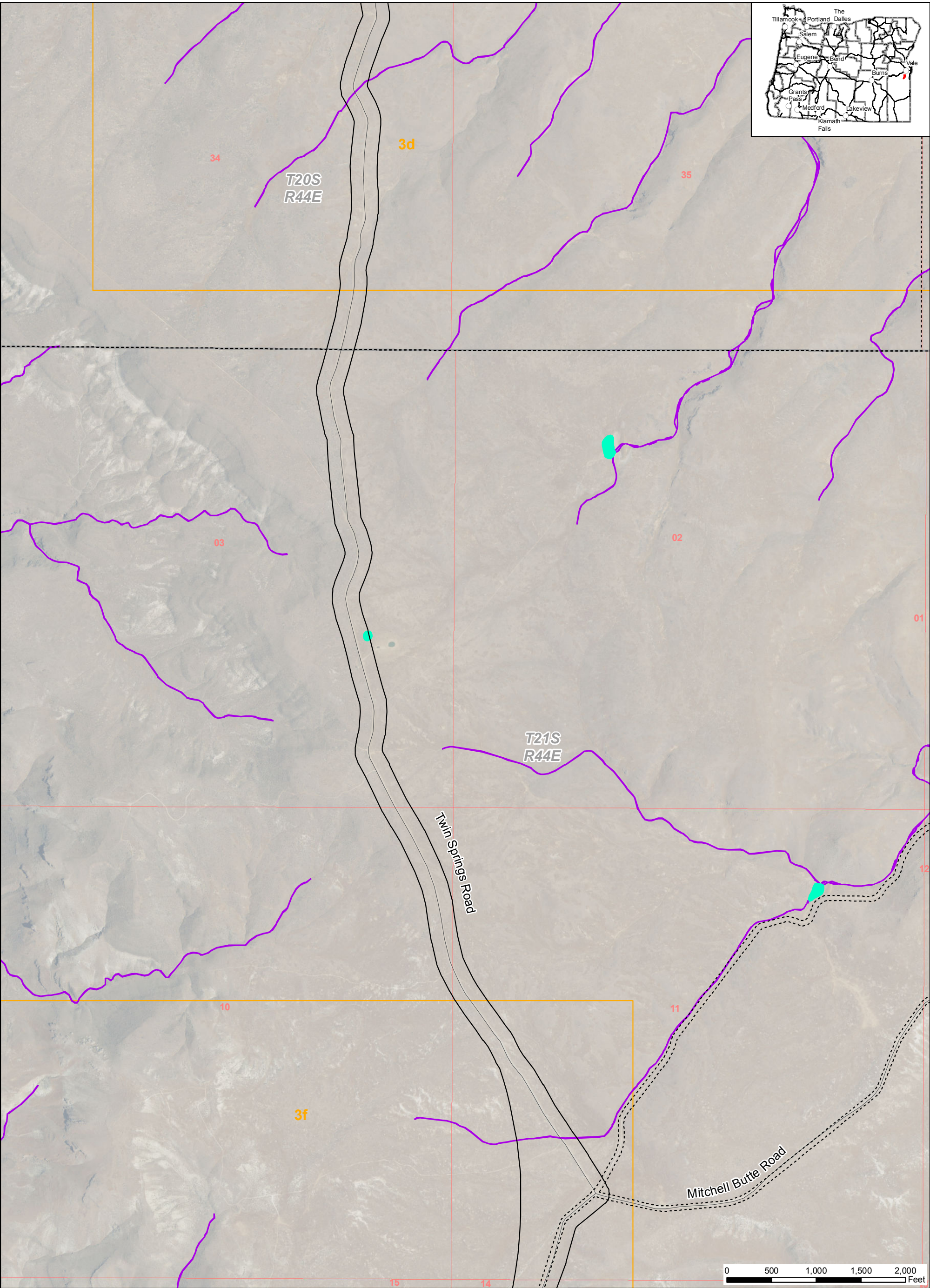
GRASSY MOUNTAIN MINE PROJECT

National Wetlands Inventory (NWI)

Figure 3d

Date: 01/19/2018	Drawn By: JDB
Revised:	Project No.: 3678
Base Map: 2016 NAIP 1 meter resolution	
File Name: 3678G_GrassyMtn_BL_WD_Fig03_NWI12k.mxd	

Projection: UTM Zone 11 North, NAD83, meters



Explanation

- Wetland Study Area
- Tax Lot
- Map Extent
- Existing Road

National Wetlands Inventory (NWI)

- Freshwater Pond
- Riverine

Sources:

- NWI: U.S. Fish & Wildlife Service
- PLSS: BLM
- Roads: US Census Bureau
- Tax Lots: Malheur County, OR Dept of Revenue
- Basemap: NRCS/USDA Digital Gateway

CALICO RESOURCES USA CORP.

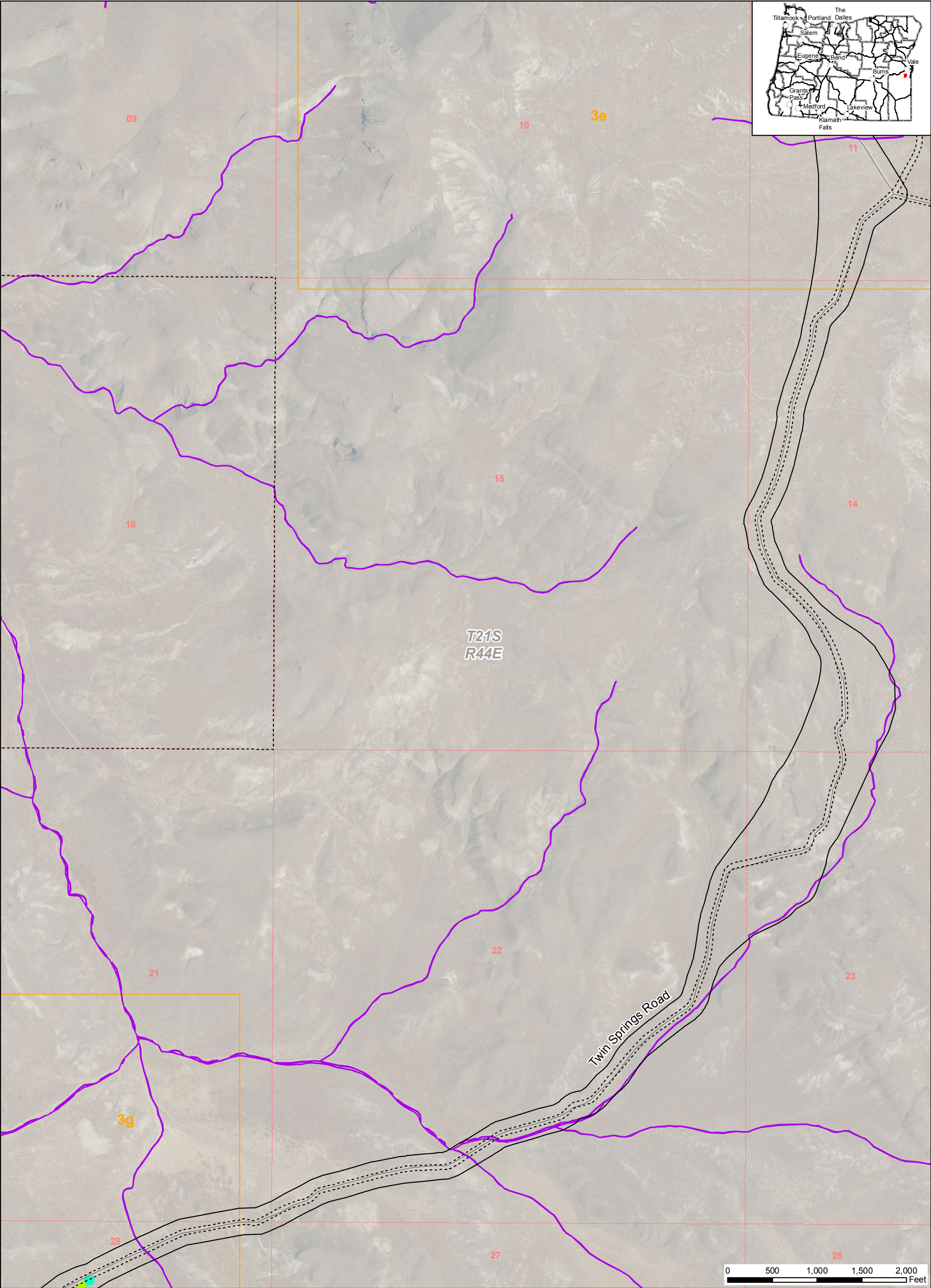
GRASSY MOUNTAIN MINE PROJECT

National Wetlands Inventory (NWI)

Figure 3e

Date: 01/19/2018	Drawn By: JDB
Revised:	Project No.: 3678
Base Map: 2016 NAIP 1 meter resolution	
File Name: 3678G_GrassyMtn_BL_WD_Fig03_NWI2k.mxd	

Projection: UTM Zone 11 North, NAD83, meters



Explanation

Wetland Study Area

Tax Lot

Map Extent

Existing Road

National Wetlands Inventory (NWI)

Freshwater Emergent Wetland

Freshwater Pond

Riverine

Sources:

NWI: U.S. Fish & Wildlife Service

PLSS: BLM

Roads: US Census Bureau

Tax Lots: Malheur County, OR Dept of Revenue

Basemap: NRCS/USDA Digital Gateway

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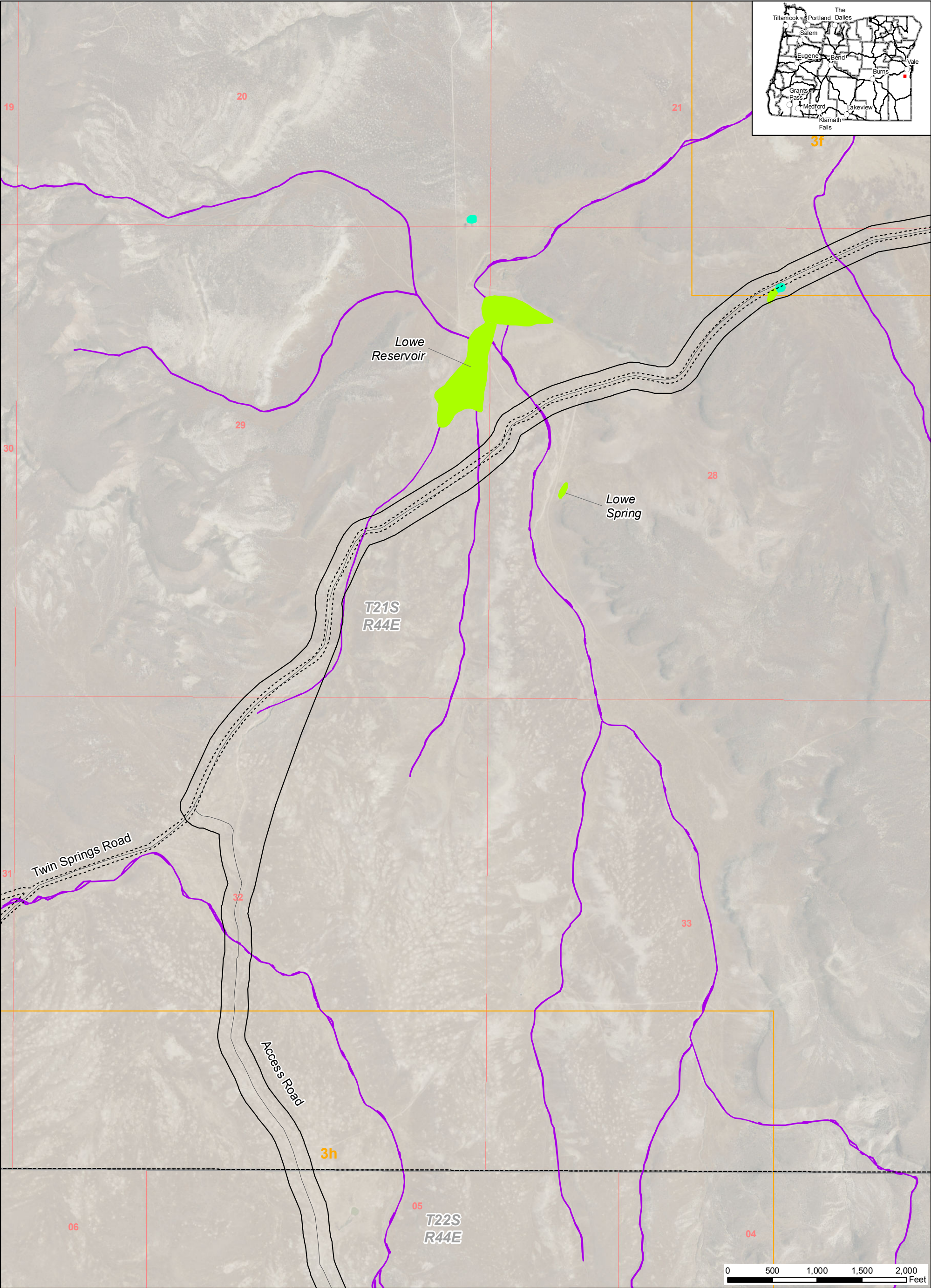
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Explanation

- Wetland Study Area
- Tax Lot
- Map Extent
- Existing Road

National Wetlands Inventory (NWI)

- Freshwater Emergent Wetland
- Freshwater Pond
- Riverine

Sources:

- NWI: U.S. Fish & Wildlife Service
- PLSS: BLM
- Roads: US Census Bureau
- Tax Lots: Malheur County, OR Dept of Revenue
- Basemap: NRCS/USDA Digital Gateway

CALICO RESOURCES USA CORP.

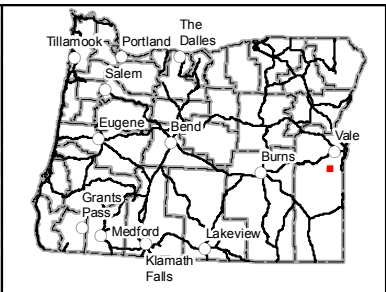
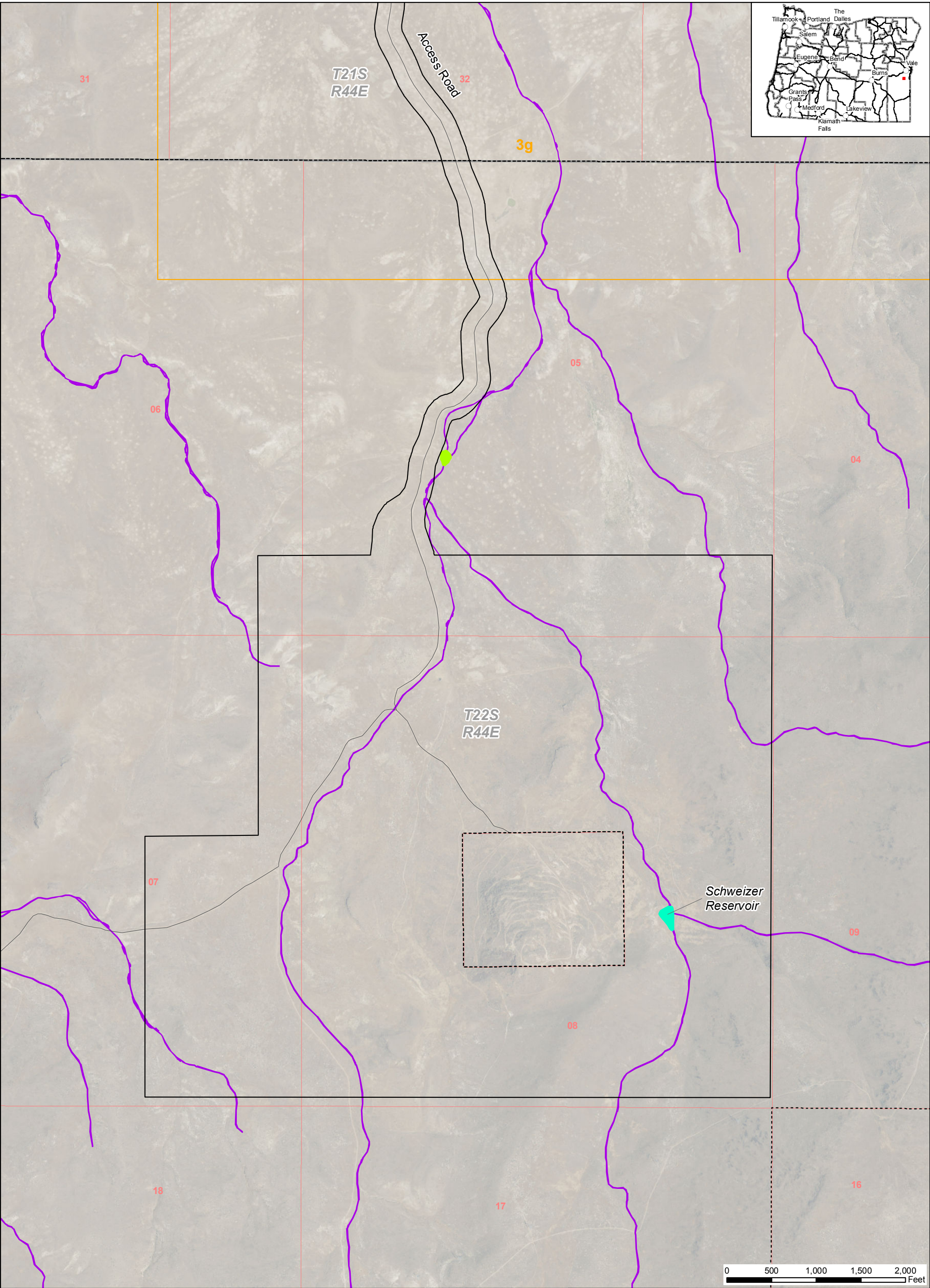
GRASSY MOUNTAIN MINE PROJECT

National Wetlands Inventory (NWI)

Figure 3g

Date: 01/19/2018	Drawn By: JDB
Revised:	Project No.: 3678
Base Map: 2016 NAIP 1 meter resolution	
File Name: 3678G_GrassyMtn_BL_WD_Fig03_NWI12k.mxd	

Projection: UTM Zone 11 North, NAD83, meters



Explanation

- Wetland Study Area
- Tax Lot
- Map Extent
- Existing Road

National Wetlands Inventory (NWI)

- Freshwater Emergent Wetland
- Freshwater Pond
- Riverine

Sources:
 NWI: U.S. Fish & Wildlife Service
 PLSS: BLM
 Roads: US Census Bureau
 Tax Lots: Malheur County, OR Dept of Revenue
 Basemap: NRCS/USDA Digital Gateway

CALICO RESOURCES USA CORP.

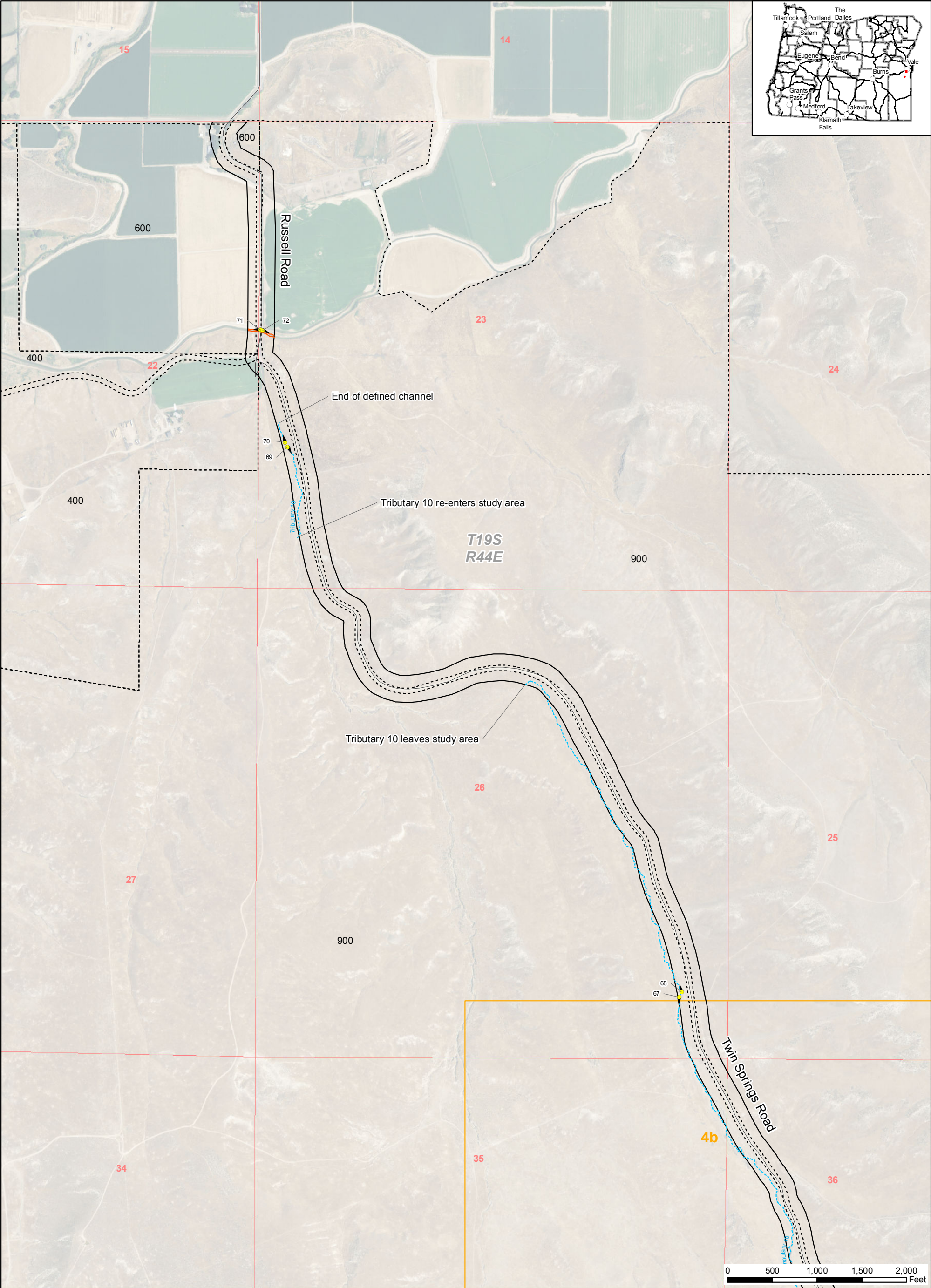
GRASSY MOUNTAIN MINE PROJECT

National Wetlands Inventory (NWI)

Figure 3h

Date: 01/19/2018	Drawn By: JDB
Revised:	Project No.: 3678
Base Map: 2016 NAIP 1 meter resolution	
File Name: 3678G_GrassyMtn_BL_WD_Fig03_NWI12k.mxd	

Projection: UTM Zone 11 North, NAD83, meters



Explanation

- Wetland Study Area
- Tax Lot
- Map Extent
- Existing Road
- Photo Point
- Ephemeral Drainage
- Artificial Water Body (J-H Canal)

Projection: UTM Zone 11 North, NAD83, meters

Sources:
PLSS: BLM
Roads: US Census Bureau
Tax Lots: Malheur County, OR Dept of Revenue
Basemap: NRCS/USDA Digital Gateway

Accuracy (EMS):
Wetlands survey fieldwork completed May 7, 2013. Locations captured using sub-meter resource grade GPS units with 93.8% of positions captured having a horizontal accuracy of less than 1/2 meter after post-processing Survey field work completed April 7, 2015. Locations captured using sub-meter resource grade equipment with 84.9% of positions captured having a horizontal accuracy of less than 1/2 meter after post-processing.
Wetlands survey fieldwork conducted May 18-21, 2017. Locations captured using sub-meter resource grade GPS unit with 60.3% of positions captured having a horizontal accuracy of less than 1/2 meter and 91.5% of positions captured having a horizontal accuracy of less than 1 meter after post-processing.

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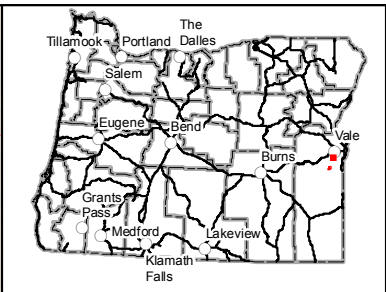
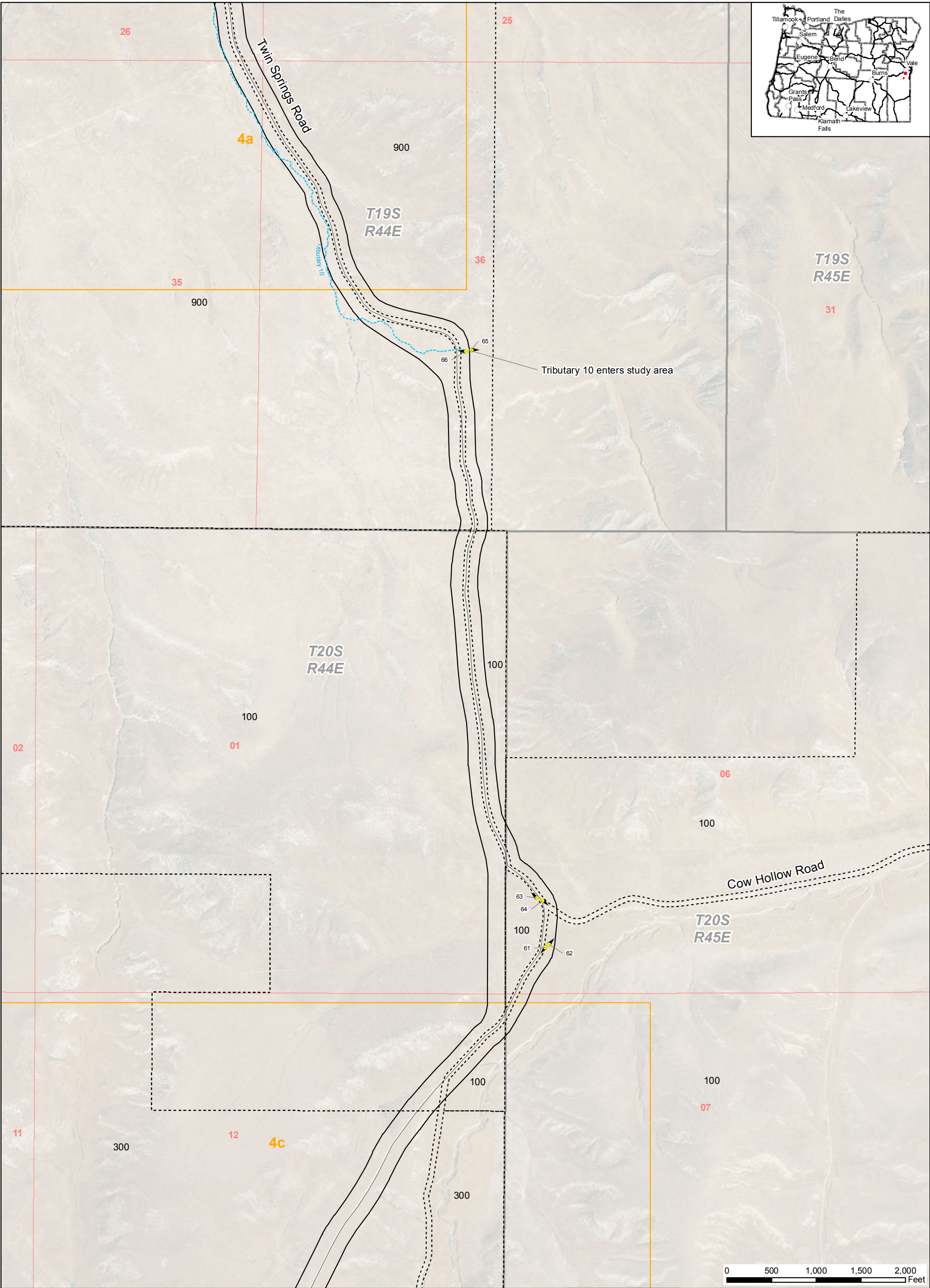
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GRASSY MOUNTAIN MINE PROJECT

Wetland Map Book

Figure 4a

Date: 01/23/2018	Drawn By: JDB
Revised:	Project No.: 3678
Base Map: 2016 NAIP 1 meter resolution	
File Name: 3678G_GrassyMtn_BL_WD_Fig04_Results12k.mxd	



Explanation

- Wetland Study Area
- Tax Lot
- Map Extent
- Existing Road
- Photo Point
- Ephemeral Drainage

Sources:
PLSS: BLM
Roads: US Census Bureau
Tax Lots: Malheur County, OR Dept of Revenue
Basemap: NRCS/USDA Digital Gateway

Accuracy (EMS):
Wetlands survey fieldwork completed May 7, 2013. Locations captured using sub-meter resource grade GPS units with 93.8% of positions captured having a horizontal accuracy of less than 1/2 meter after post-processing Survey field work completed April 7, 2015. Locations captured using sub-meter resource grade equipment with 84.9% of positions captured having a horizontal accuracy of less than 1/2 meter after post-processing.
Wetlands survey fieldwork conducted May 18-21, 2017. Locations captured using sub-meter resource grade GPS unit with 60.3% of positions captured having a horizontal accuracy of less than 1/2 meter and 91.5% of positions captured having a horizontal accuracy of less than 1 meter after post-processing.

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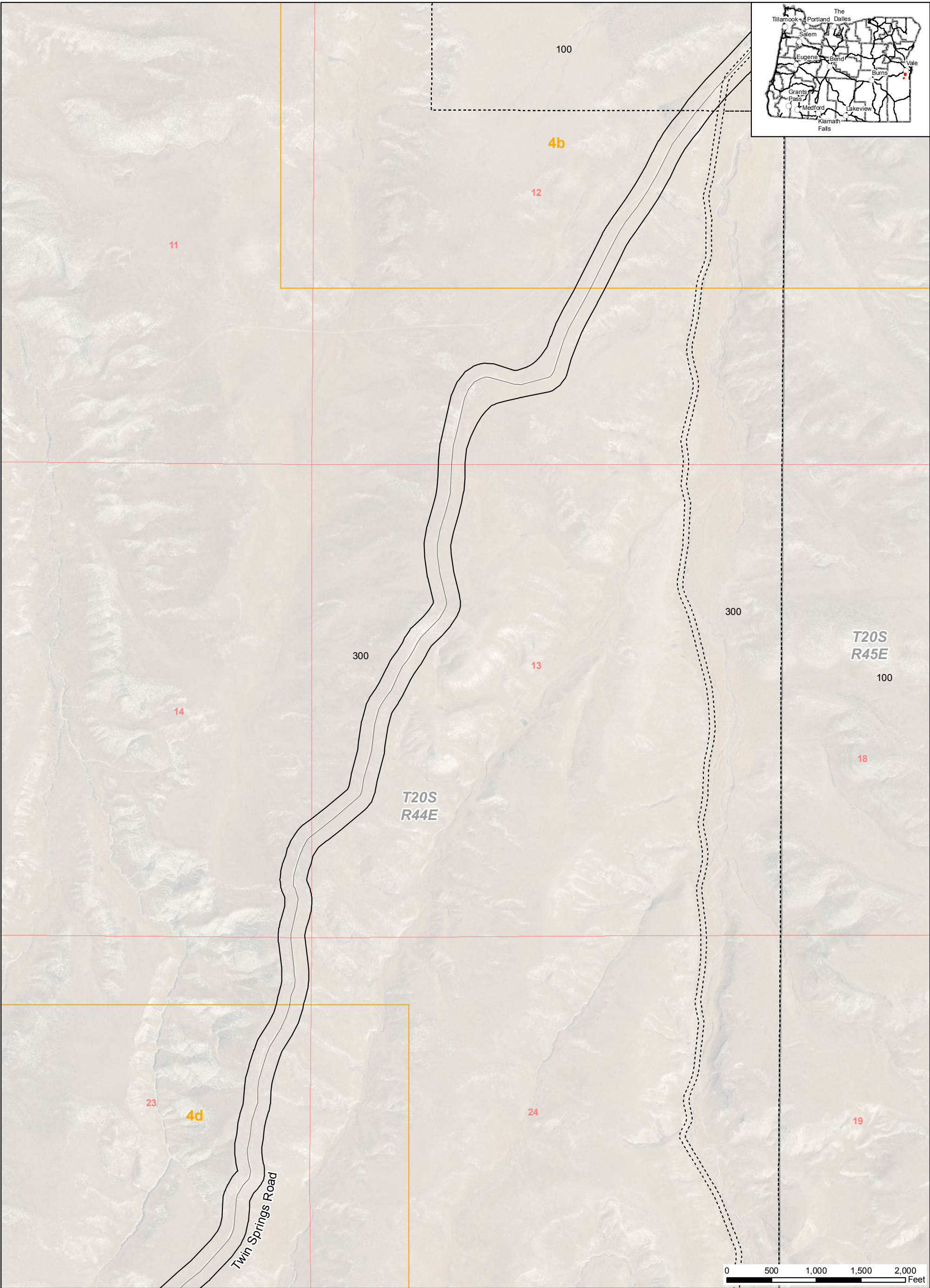
GRASSY MOUNTAIN MINE PROJECT

Wetland Map Book

Figure 4b

Date: 01/23/2018	Drawn By: JDB
Revised:	Project No.: 3678
Base Map: 2016 NAIP 1 meter resolution	
File Name: 3678G_GrassyMtn_BL_WD_Fig04_Results12k.mxd	

Projection: UTM Zone 11 North, NAD83, meters



Explanation

- Wetland Study Area
- Tax Lot
- Map Extent
- Existing Road

Sources:
PLSS: BLM
Roads: US Census Bureau
Tax Lots: Malheur County, OR Dept of Revenue
Basemap: NRCS/USDA Digital Gateway

Accuracy (EMS):
Wetlands survey fieldwork completed May 7, 2013. Locations captured using sub-meter resource grade GPS units with 93.8% of positions captured having a horizontal accuracy of less than 1/2 meter after post-processing Survey field work completed April 7, 2015. Locations captured using sub-meter resource grade equipment with 84.9% of positions captured having a horizontal accuracy of less than 1/2 meter after post-processing.
Wetlands survey fieldwork conducted May 18-21, 2017. Locations captured using sub-meter resource grade GPS unit with 60.3% of positions captured having a horizontal accuracy of less than 1/2 meter and 91.5% of positions captured having a horizontal accuracy of less than 1 meter after post-processing.

CALICO RESOURCES USA CORP.

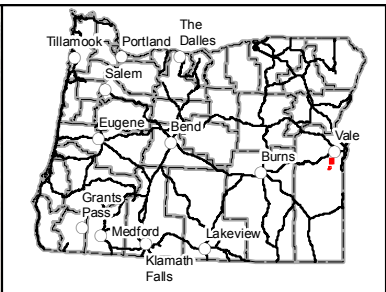
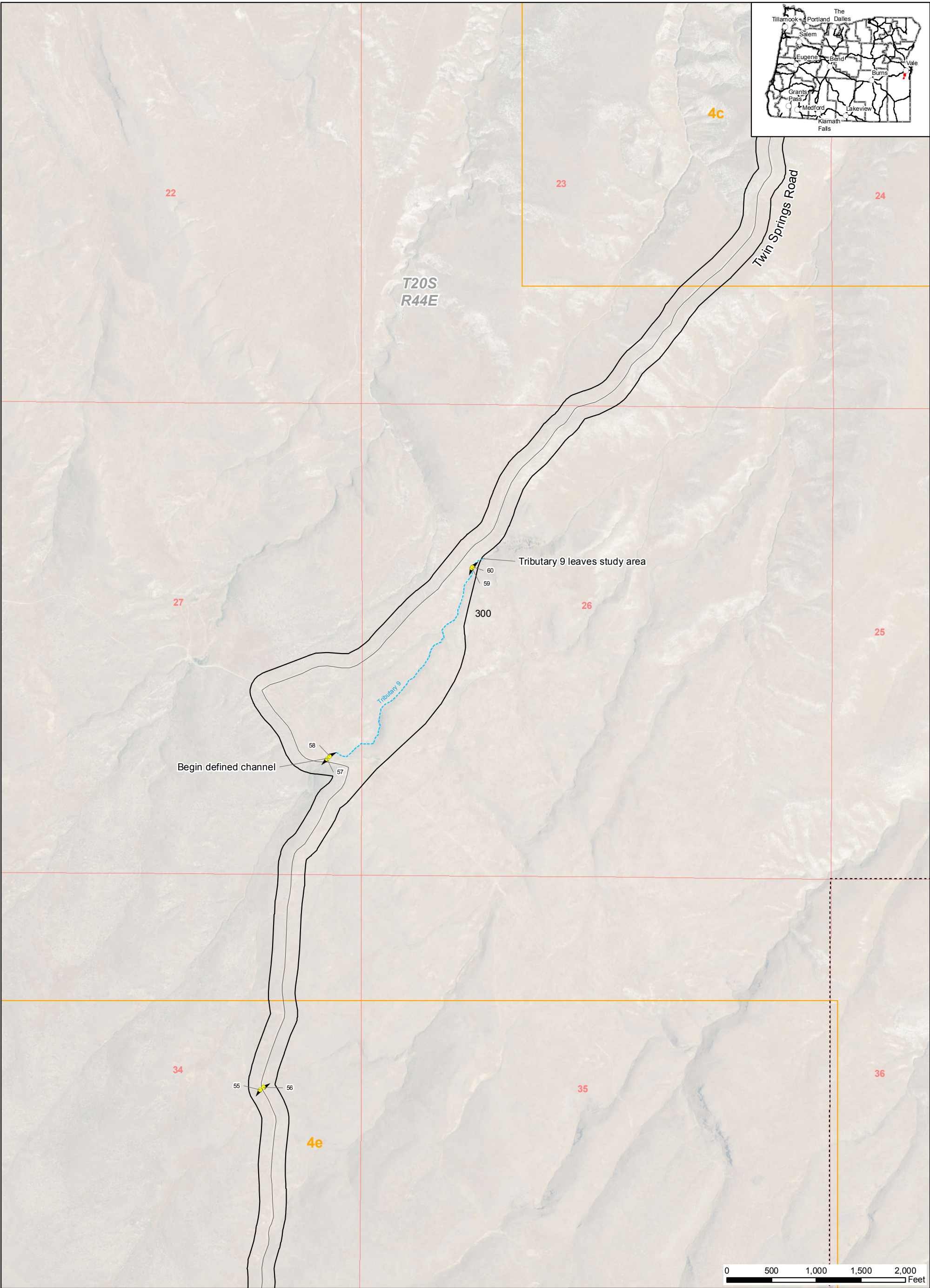
GRASSY MOUNTAIN MINE PROJECT

Wetland Map Book

Figure 4c

Date: 01/23/2018	Drawn By: JDB
Revised:	Project No.: 3678
Base Map: 2016 NAIP 1 meter resolution	
File Name: 3678G_GrassyMtn_BL_WD_Fig04_Results12k.mxd	

Projection: UTM Zone 11 North, NAD83, meters



Explanation

- Wetland Study Area
- Tax Lot
- Map Extent
- Existing Road
- Photo Point
- Ephemeral Drainage

Sources:
PLSS: BLM
Roads: US Census Bureau
Tax Lots: Malheur County, OR Dept of Revenue
Basemap: NRCS/USDA Digital Gateway

Accuracy (EMS):
Wetlands survey fieldwork completed May 7, 2013. Locations captured using sub-meter resource grade GPS units with 93.8% of positions captured having a horizontal accuracy of less than 1/2 meter after post-processing Survey field work completed April 7, 2015. Locations captured using sub-meter resource grade equipment with 84.9% of positions captured having a horizontal accuracy of less than 1/2 meter after post-processing.
Wetlands survey fieldwork conducted May 18-21, 2017. Locations captured using sub-meter resource grade GPS unit with 60.3% of positions captured having a horizontal accuracy of less than 1/2 meter and 91.5% of positions captured having a horizontal accuracy of less than 1 meter after post-processing.

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GRASSY MOUNTAIN MINE PROJECT

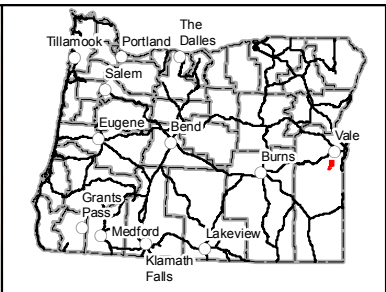
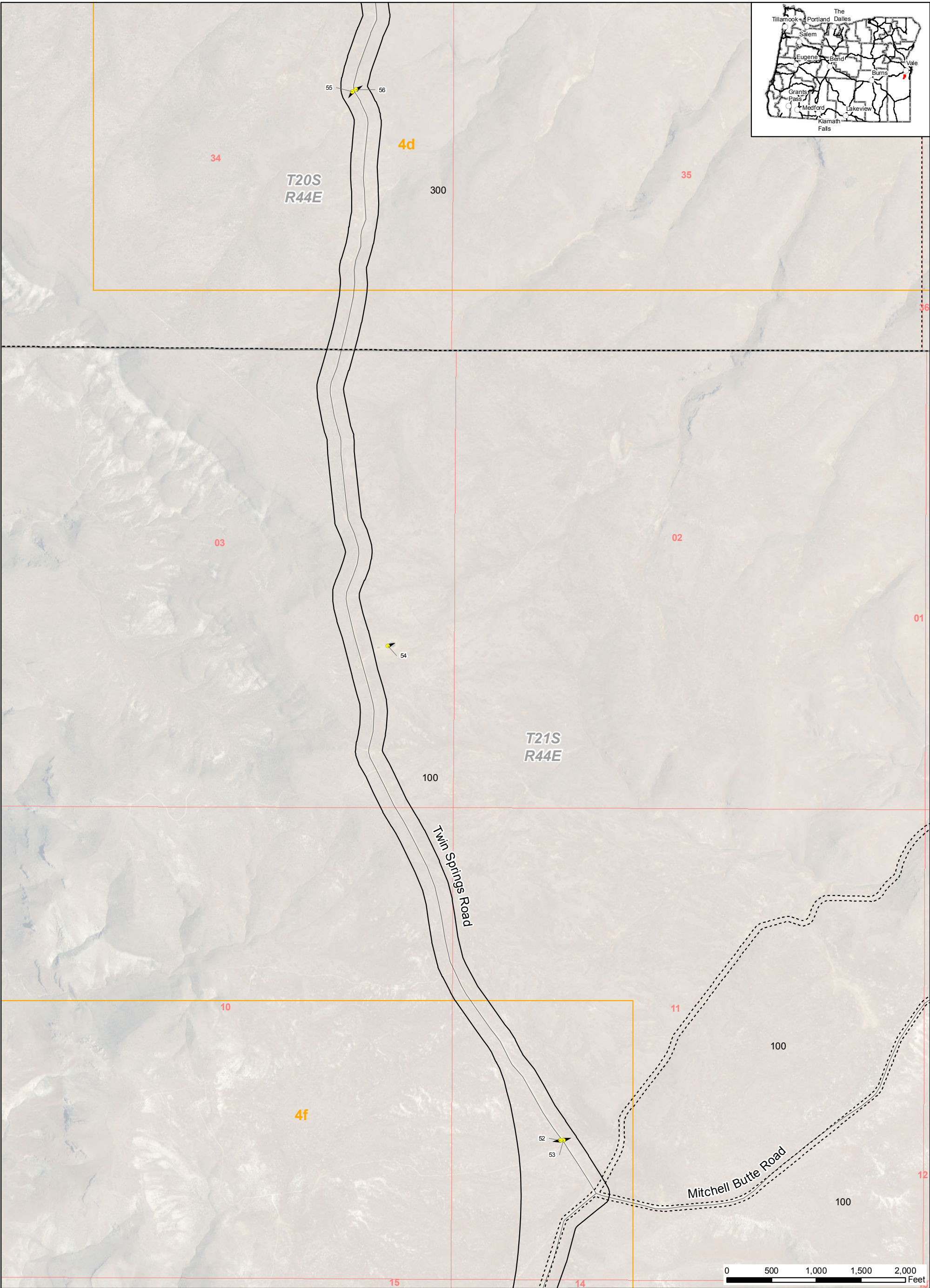
Wetland Map Book

Date: 01/23/2018
Revised:
Base Map: 2016 NAIP 1 meter resolution
File Name: 3678G_GrassyMtn_BL_WD_Fig04_Results12k.mxd

Drawn By: JDB
Project No.: 3678

Figure 4d

Projection: UTM Zone 11 North, NAD83, meters



Explanation

- Wetland Study Area
- Tax Lot
- Map Extent
- Existing Road
- Photo Point

Sources:
PLSS: BLM
Roads: US Census Bureau
Tax Lots: Malheur County, OR Dept of Revenue
Basemap: NRCS/USDA Digital Gateway

Accuracy (EMS):
Wetlands survey fieldwork completed May 7, 2013. Locations captured using sub-meter resource grade GPS units with 93.8% of positions captured having a horizontal accuracy of less than 1/2 meter after post-processing Survey field work completed April 7, 2015. Locations captured using sub-meter resource grade equipment with 84.9% of positions captured having a horizontal accuracy of less than 1/2 meter after post-processing.
Wetlands survey fieldwork conducted May 18-21, 2017. Locations captured using sub-meter resource grade GPS unit with 60.3% of positions captured having a horizontal accuracy of less than 1/2 meter and 91.5% of positions captured having a horizontal accuracy of less than 1 meter after post-processing.

CALICO RESOURCES USA CORP.

GRASSY MOUNTAIN MINE PROJECT

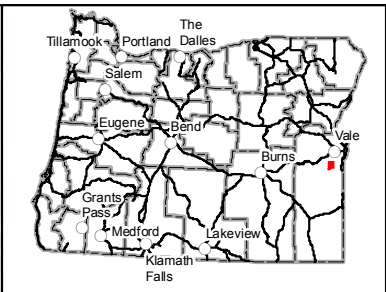
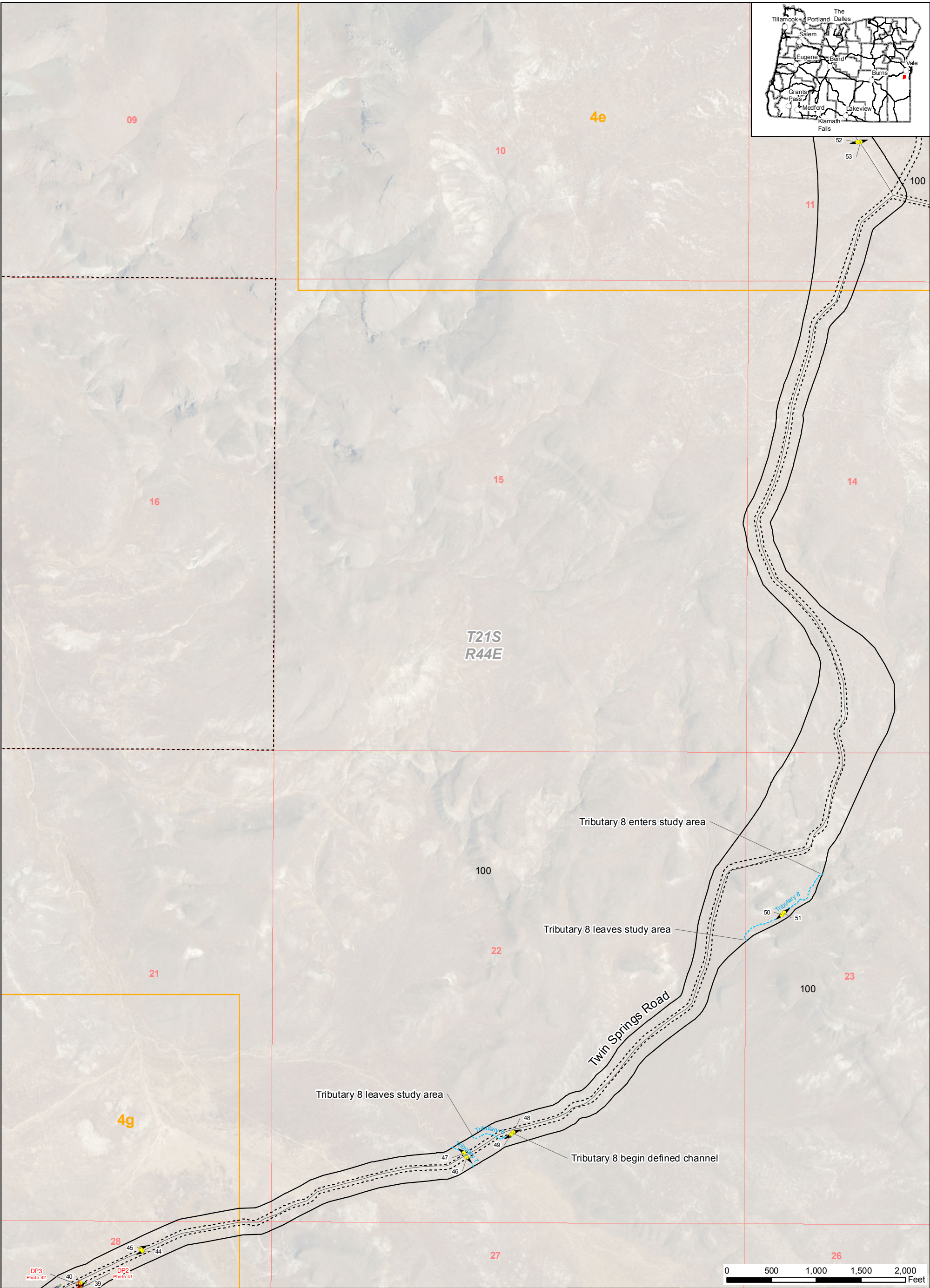
Wetland Map Book

Date: 01/23/2018
Revised:
Base Map: 2016 NAIP 1 meter resolution
File Name: 3678G_GrassyMtn_BL_WD_Fig04_Results12k.mxd

Drawn By: JDB
Project No.: 3678

Figure 4e

Projection: UTM Zone 11 North, NAD83, meters



Explanation

Wetland Study Area

Tax Lot

Map Extent

Existing Road

Photo Point

Spring

Soil Pit

Wetland

Ephemeral Drainage

Projection: UTM Zone 11 North, NAD83, meters

Sources:
PLSS: BLM
Roads: US Census Bureau
Tax Lots: Malheur County, OR Dept of Revenue
Basemap: NRCS/USDA Digital Gateway

Accuracy (EMS):
Wetlands survey fieldwork completed May 7, 2013. Locations captured using sub-meter resource grade GPS units with 93.8% of positions captured having a horizontal accuracy of less than 1/2 meter after post-processing Survey field work completed April 7, 2015. Locations captured using sub-meter resource grade equipment with 84.9% of positions captured having a horizontal accuracy of less than 1/2 meter after post-processing.
Wetlands survey fieldwork conducted May 18-21, 2017. Locations captured using sub-meter resource grade GPS unit with 60.3% of positions captured having a horizontal accuracy of less than 1/2 meter and 91.5% of positions captured having a horizontal accuracy of less than 1 meter after post-processing.

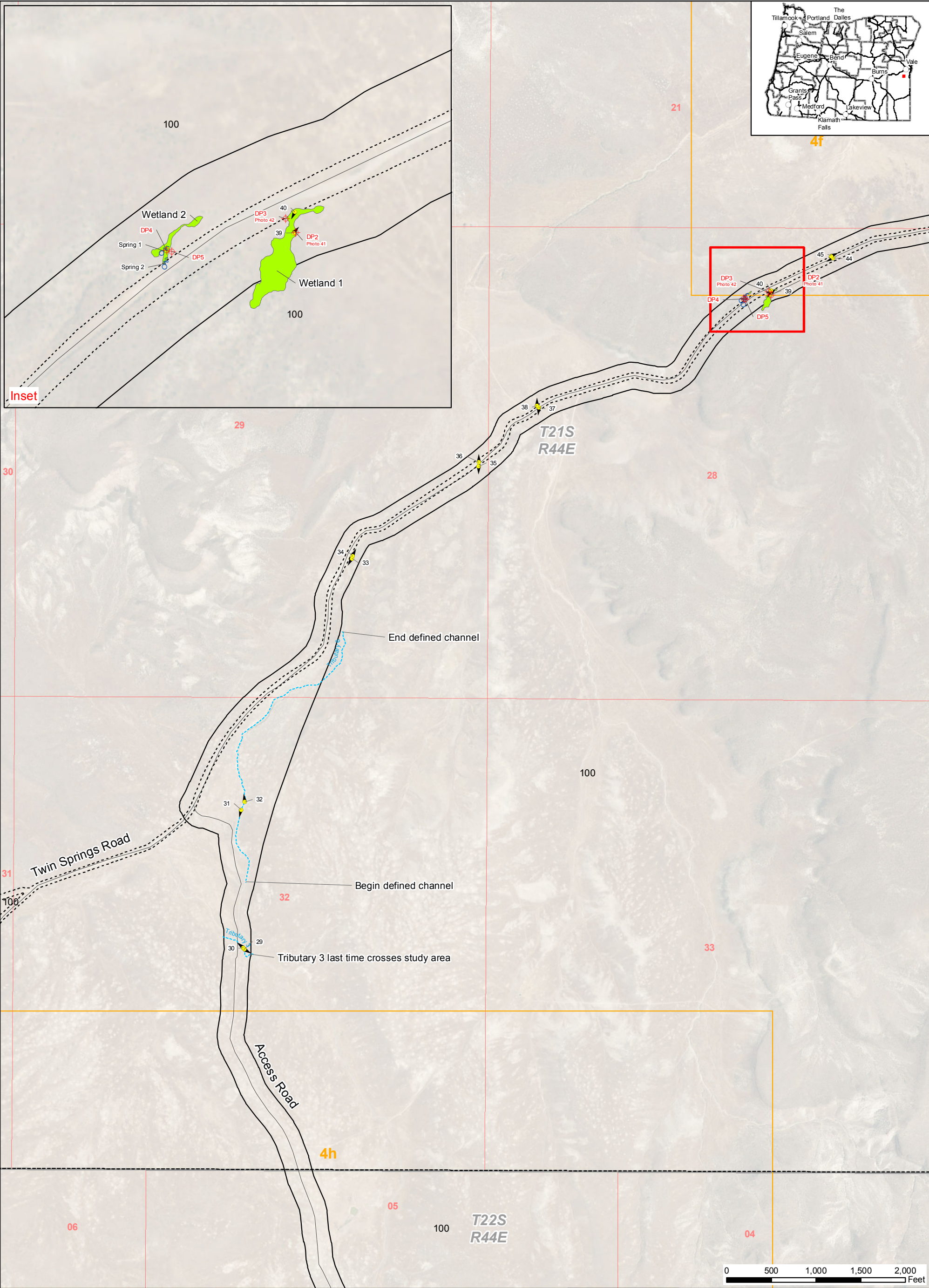
CALICO RESOURCES USA CORP.

GRASSY MOUNTAIN MINE PROJECT

Wetland Map Book

Figure 4f

Date: 01/23/2018	Drawn By: JDB
Revised:	Project No.: 3678
Base Map: 2016 NAIP 1 meter resolution	
File Name: 3678G_GrassyMtn_BL_WD_Fig04_Results12k.mxd	



Explanation

- Wetland Study Area
- Wetland
- Tax Lot
- Ephemeral Drainage
- Map Extent
- Existing Road
- Photo Point
- Spring
- Soil Pit

Sources:

- PLSS: BLM
- Roads: US Census Bureau
- Tax Lots: Malheur County, OR Dept of Revenue
- Basemap: NRCS/USDA Digital Gateway

Accuracy (EMS):

Wetlands survey fieldwork completed May 7, 2013. Locations captured using sub-meter resource grade GPS units with 93.8% of positions captured having a horizontal accuracy of less than 1/2 meter after post-processing Survey field work completed April 7, 2015. Locations captured using sub-meter resource grade equipment with 84.9% of positions captured having a horizontal accuracy of less than 1/2 meter after post-processing.

Wetlands survey fieldwork conducted May 18-21, 2017. Locations captured using sub-meter resource grade GPS unit with 60.3% of positions captured having a horizontal accuracy of less than 1/2 meter and 91.5% of positions captured having a horizontal accuracy of less than 1 meter after post-processing.

CALICO RESOURCES USA CORP.

GRASSY MOUNTAIN MINE PROJECT

Wetland Map Book

Figure 4g

Date: 01/23/2018	Drawn By: JDB
Revised:	Project No.: 3678
Base Map: 2016 NAIP 1 meter resolution	
File Name: 3678G_GrassyMtn_BL_WD_Fig04_Results12k.mxd	

APPENDIX B

WETLAND AND SDAM DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Grassy Mtn City/County: Mulheir Sampling Date: 5/18/17
 Applicant/Owner: Calred Resources Inc. State: OR Sampling Point: DPI
 Investigator(s): S.M. Harrelson (EMS) Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): Northwestern Wheat Range at: 4836882 Long: 470730.9 Datum: NAD83
 Soil Map Unit Name: not available NWI classification: PEM1Ch

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: <u>Precipitation higher than average</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. <u>none</u>				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Artemisia tridentata</u>	<u>15</u>	<u>Y</u>	<u>n/a</u>	
2. <u>Chrysothamnus viscidiflorus</u>	<u>1</u>		<u>n/a</u>	
3. _____				
4. _____				
5. _____				
_____ = Total Cover				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)
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Poa bulbosa</u>	<u>10</u>		<u>FACU</u>	
2. <u>Bromus tectorum</u>	<u>50</u>	<u>Y</u>	<u>n/a</u>	
3. <u>Ceratocephala testiculata</u>	<u>2</u>		<u>n/a</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
Woody Vine Stratum (Plot size: _____)				
1. <u>none</u>				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				

SOIL

Sampling Point: DPI

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		
0-10	10YR 4/3	100					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 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: hard panDepth (inches): 10Hydric 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): _____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:

DP2 Wetland 1

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Grassy Mtn 3078 City/County: Molheur Sampling Date: 5/19/17
 Applicant/Owner: Colico Resources Inc State: OR Sampling Point: DP2
 Investigator(s): S.M. Harrelson Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): toe slope Local relief (concave, convex, none): none Slope (%): 1
 Subregion (LRR): Columbia/Snake River Plateau Lat: 4840871 Long: 472381.8 Datum: NAD83
 Soil Map Unit Name: Not available NWI classification: PEM1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: <u>Precipitation higher than average</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>None</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: _____)				Prevalence Index worksheet:	
1. <u>None</u>				Total % Cover of:	Multiply by:
2. _____				OBL species <u>0</u>	x 1 = <u>0</u>
3. _____				FACW species <u>5</u>	x 2 = <u>10</u>
4. _____				FAC species <u>50</u>	x 3 = <u>150</u>
5. _____				FACU species <u>3</u>	x 4 = <u>12</u>
				UPL species <u>0</u>	x 5 = <u>0</u>
				Column Totals: <u>58</u> (A)	<u>172</u> (B)
				Prevalence Index = B/A = <u>2.9</u>	
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators:	
1. <u>Bromus tectorum</u>	<u>50</u>	<u>Y</u>	<u>N/L</u>	___ Dominance Test is >50%	
2. <u>Leymus cinereus</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	<u>X</u> Prevalence Index is ≤3.0 ¹	
3. <u>Juncus balticus</u>	<u>5</u>		<u>FACW</u>	___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. <u>Poa bulbosa</u>	<u>3</u>		<u>FACU</u>	___ Problematic Hydrophytic Vegetation ¹ (Explain)	
5. _____					
6. _____					
7. _____					
8. _____					
				= Total Cover <u>108</u>	
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
1. _____					
2. _____					
				= Total Cover	
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____					
Remarks:					

SOIL

Sampling Point: DP2

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		
0-2	10YR 3/1	98	10YR 3/6	2	C	M	sandy loam	w/ some muck (5%)
2-12	10YR 3/3	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.)

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:

very dark surface layer w/ some redox features evident & presence of muck

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): 2Water Table Present? Yes ☒ No ☐ Depth (inches): 3Saturation 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:

Ground water seep w/ the presence of water flowing along the surface; standing water in hole to w/in 2" of surface

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Grassy mtn City/County: Mojave Sampling Date: 5/21/17
 Applicant/Owner: Colico Resources Inc State: OR Sampling Point: DP3
 Investigator(s): S.M. Harrelson (EMS) Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): foeslope Local relief (concave, convex, none): convex Slope (%): 1
 Subregion (LRR): Northwestern Wheat Range Lat: 4840881 Long: 472374.5 Datum: NAD83
 Soil Map Unit Name: Not available NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: <u>Precipitation higher than average this year</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. <u>none</u>				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				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 _____ No <u>X</u>
Sapling/Shrub Stratum (Plot size: _____)				
1. <u>none</u>				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Bromus tectorum</u>	<u>70</u>	<u>y</u>	<u>n/a</u>	
2. <u>Leymus cinereus</u>	<u>30</u>	<u>y</u>	<u>FAC</u>	
3. <u>Chorizanthe tenuis</u>	<u>2</u>		<u>n/a</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. <u>none</u>				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				

SOIL

Sampling Point: DP3

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		
0-14	10YR 3/3	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.)

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 X

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): _____

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Wetland 2

Project/Site: Grassy mtn City/County: Malheur Sampling Date: 5/21/17
 Applicant/Owner: Colico Resources Inc State: OR Sampling Point: DP4
 Investigator(s): S.M. Harrison (EMS) Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): B Lat: 4640858 Long: 472290 Datum: NAD83
 Soil Map Unit Name: not available NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: <u>Precipitation higher than average</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)																
1. <u>none</u>																				
2. _____																				
3. _____																				
4. _____																				
_____ = Total Cover				Prevalence Index worksheet: <table border="0"> <tr> <td>Total % Cover of:</td> <td>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. <u>none</u> 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover																				
Herb Stratum (Plot size: _____) 1. <u>Hordeum brachyantherum</u> <u>10</u> <u>Y</u> <u>FACW</u> 2. <u>Poa bulbosa</u> <u>25</u> <u>Y</u> <u>FACU</u> 3. <u>Poa polystris</u> <u>20</u> <u>Y</u> <u>FAC</u> 4. <u>Leymus cinereus</u> <u>30</u> <u>Y</u> <u>FAC</u> 5. <u>Juncus bufonius</u> <u>3</u> <u>Y</u> <u>FACW</u> 6. _____ 7. _____ 8. _____ _____ = Total Cover																				
Woody Vine Stratum (Plot size: _____) 1. <u>none</u> 2. _____ _____ = Total Cover																				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____																				
Remarks:																				

Sampling Point: DP4

Sampling Point:

[illegible]

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

Indicators for Problematic Hydric Soils³:

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

☒ Surface Water (A1)	☐ Salt Crust (B11)	☐ Water Marks (B1) (Riverine)
☒ High Water Table (A2)	☐ Biotic Crust (B12)	☐ Sediment Deposits (B2) (Riverine)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Drift Deposits (B3) (Riverine)
☐ Water Marks (B1) (Nonriverine)	☐ Hydrogen Sulfide Odor (C1)	☐ Drainage Patterns (B10)
☐ Sediment Deposits (B2) (Nonriverine)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3) (Nonriverine)	☐ Presence of Reduced Iron (C4)	☐ Crayfish Burrows (C8)
☐ Surface Soil Cracks (B6)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Thin Muck Surface (C7)	☐ Shallow Aquitard (D3)
☐ Water-Stained Leaves (B9)	☐ Other (Explain in Remarks)	☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 2

Water Table Present? Yes ☒ No ☐ Depth (inches): 3

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

Wetland Hydrology Present? Yes X No

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

Remarks:

Remarks: standing water in hole to w/in 3" of the surface

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Gassy Mtn City/County: Mojave Sampling Date: 5/21/17
 Applicant/Owner: Colico Resources Inc State: OR Sampling Point: DP5
 Investigator(s): S.M. Harrelson (EMS) Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): none Slope (%): 1
 Subregion (LRR): B Lat: 4840858 Long: 472293.7 Datum: NAD83
 Soil Map Unit Name: not available NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: <u>Precipitation higher than average</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. <u>none</u>				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				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.
1. <u>none</u>				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
Herb Stratum (Plot size: _____)				
1. <u>Bromus tectorum</u>	<u>35</u>	<u>Y</u>	<u>n/o</u>	Remarks:
2. <u>Pascopyrum smithii</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____	% Cover of Biotic Crust _____			

SOIL

Sampling Point: DPS

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
☐ Surface Water (A1)	☐ Salt Crust (B11)	☐ Water Marks (B1) (Riverine)
☐ High Water Table (A2)	☐ Biotic Crust (B12)	☐ Sediment Deposits (B2) (Riverine)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Drift Deposits (B3) (Riverine)
☐ Water Marks (B1) (Nonriverine)	☐ Hydrogen Sulfide Odor (C1)	☐ Drainage Patterns (B10)
☐ Sediment Deposits (B2) (Nonriverine)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3) (Nonriverine)	☐ Presence of Reduced Iron (C4)	☐ Crayfish Burrows (C8)
☐ Surface Soil Cracks (B6)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Thin Muck Surface (C7)	☐ Shallow Aquitard (D3)
☐ Water-Stained Leaves (B9)	☐ Other (Explain in Remarks)	☐ 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: no hydrology observed		

WETLAND DETERMINATION DATA FORM - ARID WEST REGION

Project Site:	Calico Resources	Landform:	Reservoir	Slope(%):	0-2
City/County:	Malheur	State:	Oregon	Sub-Region (LRR):	B
Sampling Date:	5/7/2015	Section:	8	Lat:	43.67038217
Applicant/Owner:	Calico Resources	Township:	22S	Long:	-117.353740069
Sampling Point:	8A (2015)	Range:	44E	Datum:	NAD 83
Investigator 1:	R. Waldher			Soil Map Unit Name:	N/A
Investigator 2:	J. Tatum			NWI Classification:	PUSCH

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If No Explain in Remarks)

Are Vegetation ☐ Soil ☐ Hydrology ☐ Significantly Disturbed? Are normal Conditions present? ☒ Yes ☐ No

Are Vegetation ☐ Soil ☐ Hydrology ☐ Naturally Problematic?

SUMMARY OF FINDING - Attach a site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☐ Yes ☒ No Hydric Soil Present? ☐ Yes ☒ No Wetland Hydrology Present? ☐ Yes ☒ No	Is the Sampled Area within a Wetland? ☐ Yes ☒ No
---	---

Summary Soil pit taken at low point in Schweitzer Reservoir. Tributary channel T-11 (ephemeral) terminates into reservoir. An embankment is present at the north end of the reservoir. The ephemeral drainage continues downslope from the reservoir embankment. Green areas show up on aerial but vegetation was determined to be upland.

VEGETATION

(Use Scientific Names)

	<u>% Cover</u>	<u>Dominant Species</u>	<u>Indicator Status</u>
herb			
Onopordum acanthium	8		UPL
Ceratocephala testiculata	35	Y	UPL
Bromus tectorum	40	Y	UPL

Dominance Test Worksheet:

Number of Dominant Species that are OBL, FACW, or FAC:	0
	(A)
Total Number of Dominant Species Across all Strata:	2
	(B)
Percent of Dominant species that are OBL, FACW, or FAC:	0.00%
	(A/B)

Prevalence Index Worksheet

	(A)		(B)
OBL:	0	x1	0
FACW:	0	x2	0
FAC:	0	x3	0
FACU:	0	x4	0
UPL:	83	x5	415
	83		415
<u>Prevalence Index = B/A</u>			5.00

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test > 50%
- ☐ Prevalence Index <= 3.0
- ☐ Morphological Adaptations
- ☐ Problematic Hydrophytic Vegetation

% Bare Ground in Herb Stratum: 17 % Cover of Biotic Crust:	Tree Percentage: 0 Shrub Percentage: 0 Herb Percentage: 83	Hydrophytic Vegetation Present? ☐ Yes ☒ No
---	--	---

Vegetation Remarks: Vegetation dominated by weedy upland species.

WETLAND DETERMINATION DATA FORM - ARID WEST REGION

SOIL- Profile Description: (Describe to the Depth needed to Document the Indicator or Confirm the Absense of Indicators.)

Matrix						Redox Features					Texture	Remarks
Depth (in)	H	V	C	%		Color (moist)	%	Type	Loc			
0	4	10YR	4	2	100						sandy loam	1/2" pebbles throughout
4	20	10YR	4	4	100						sandy loam	Rocks up to 2" diameter

SOIL-Hydric Soil Indicators:

- | | |
|--|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) |
| ☐ Stratified Layers (A5) (LRR C) | ☐ Depleted Matrix (F3) |
| ☐ 1cm Muck (A9) (LRR D) | ☐ Redox Dark Surface (F6) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Dark Surface (F7) |
| ☐ Thick Dark Surface (A12) | ☐ Redox Depressions (F8) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Vernal Pools (F9) |
| ☐ Sandy Gleyed Matrix (S4) | |

Indicators for Problematic Hydric Soils:

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

☐ Restrictive Layer Present?

Type:

Depth (inches):

Hydric Soil Present? ☐ Yes ☒ No

Soil No hydric soil indicators present.
Remarks:

HYDROLOGY-Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| ☐ Surface Water (A1) | ☐ Salt Crust (B11) |
| ☐ High Water Table (A2) | ☐ Biotic Crust (B12) |
| ☐ Saturation (A3) | ☐ Aquatic Invertebrates (B13) |
| ☐ Water Marks (B1) | ☐ Hydrogen Sulfide Odor (C1) |
| ☐ Sediment Deposits (B2) | ☐ Oxidized Rhizospheres along Living Roots (C3) |
| ☐ Drift Deposits (B3) | ☐ Presence of Reduced Iron (C4) |
| ☐ Surface Soil Cracks (B6) | ☐ Recent Iron Reduction in Plowed Soils (C6) |
| ☐ Inundation Visible on Aerial Imagery (B7) | ☐ Other (Explain in Remarks) |
| ☐ Water-Stained Leaves (B9) | |

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
☐ Sediment Deposits (B2) (Riverine)
☐ Drift Deposits (B3) (Riverine)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Thin Muck Surface (C7)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)

Field Observations:

- | | |
|---|--------------------------------------|
| ☐ Surface Water Present? | Depth (inches): <input type="text"/> |
| ☐ Water Table Present? | Depth (inches): <input type="text"/> |
| ☐ Saturation Present? | Depth (inches): <input type="text"/> |

Wetland Hydrology Present? ☐ Yes ☒ No

Hydrology Remarks:

Soil was damp at approx 12 inches but no saturation was present. No wetland hydrology indicators at this location.

Appendix B: Streamflow Duration Field Assessment Form

Project # / Name <u>3678 / Grassy Mtn</u>		Assessor <u>HARRELSON</u>								
Address		Date <u>5/18/17</u>								
Waterway Name <u>Trib 1</u>		Coordinates at downstream end Lat. <u>43° 40' 40.95</u> N Long. <u>117° 22' 15.92</u> W								
Reach Boundaries <u>see Fig. 5</u>		(ddd.mm.ss)								
Precipitation w/in 48 hours (cm) <u>0.8</u>	Channel Width (m) <u>0.94</u>	☐ Disturbed Site / Difficult Situation (Describe in "Notes")								
Observed Hydrology	% of reach w/observed surface flow <u>0</u>									
	% of reach w/any flow (surface or hyporheic) <u>0</u>									
	# of pools observed <u>0</u>									
Observations	Observed Wetland Plants (and indicator status): <u>None</u>	Observed Macroinvertebrates:								
		<table border="1"> <thead> <tr> <th>Taxon</th> <th>Indicator Status</th> <th>Ephemeroptera?</th> <th># of Individuals</th> </tr> </thead> <tbody> <tr> <td colspan="4"><u>None</u></td> </tr> </tbody> </table>		Taxon	Indicator Status	Ephemeroptera?	# of Individuals	<u>None</u>		
Taxon	Indicator Status	Ephemeroptera?	# of Individuals							
<u>None</u>										
Indicators	1. Are aquatic macroinvertebrates present? ☐ Yes ☒ No									
	2. Are 6 or more individuals of the Order Ephemeroptera present? ☐ Yes ☒ No									
	3. Are perennial indicator taxa present? (refer to Table 1) ☐ Yes ☒ No									
	4. Are FACW, OBL, or SAV plants present? (Within 1/2 channel width) ☐ Yes ☒ No									
	5. What is the slope? (In percent, measured for the valley, not the stream) <u>9</u> %									
Conclusions										
	Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial								

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

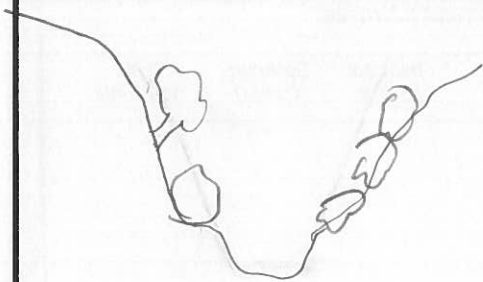
☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.



- no water at time of evaluation
- substrate - cobble, gravel, sand/silt
- run-off from surrounding hillsides

shrubs
sagebrush*
bitterbrush

cheatgrass*

Ancillary Information:

☐ Riparian Corridor *no*

☐ Erosion and Deposition *- very minor*

☐ Floodplain Connectivity *- no floodplain present*

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
<i>None</i>			

Streamflow Duration Field Assessment Form

Project # / Name <u>Calico Resources</u>		Assessor <u>R. Waldner</u>	
Address		Trib 2a (2017)	Date <u>5/8/15</u>
Waterway Name <u>Tributary 11 (2015)</u>		Coordinates at downstream end (ddd.mm.ss)	Lat. <u>46.67265003</u> N Long. <u>-117.3549443</u> W
Reach Boundaries <u>1000' downstream of embankment</u>		Precipitation w/in 48 hours (cm) <u>0</u> Channel Width (m) <u>2ft - 4ft</u> ☐ Disturbed Site / Difficult Situation (Describe in "Notes")	
Observed Hydrology	% of reach w/observed surface flow <u>0</u>		
	% of reach w/any flow (surface or hyporheic) <u>0</u>		
	# of pools observed <u>0</u>		
Observations	Observed Wetland Plants (and indicator status): <u>None</u>		Observed Macroinvertebrates: <u>None</u>
	Taxon		Indicator Status Ephemeroptera? # of Individuals
Indicators	1. Are aquatic macroinvertebrates present? ☐ Yes ☒ No		
	2. Are 6 or more individuals of the Order Ephemeroptera present? ☐ Yes ☒ No		
	3. Are perennial indicator taxa present? (refer to Table 1) ☐ Yes ☒ No		
	4. Are FACW, OBL, or SAV plants present? (Within 1/2 channel width) ☐ Yes ☒ No		
	5. What is the slope? (In percent, measured for the valley, not the stream) <u>8-10</u> %		
Conclusions	<pre> graph TD I1[Are aquatic macroinvertebrates present? (Indicator 1)] -- Yes --> I2[Are 6 or more individuals of the Order Ephemeroptera present? (Indicator 2)] I1 -- No --> E[EPHEMERAL] I2 -- Yes --> I3[Are perennial indicator taxa present? (Indicator 3)] I2 -- No --> I4[Are SAV, FACW, or OBL plants present? (Indicator 4)] I3 -- Yes --> P[PERENNIAL] I3 -- No --> INT[INTERMITTENT] I4 -- Yes --> I5[What is the slope? (Indicator 5)] I4 -- No --> E I5 -- Yes --> INT2[Slope < 10.5%: INTERMITTENT] I5 -- Yes --> EP[Slope >= 10.5%: EPHEMERAL] I5 -- No --> E </pre>		
	Single Indicators: <u>None</u> ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial	

Streamflow Duration Field Assessment Form T-11 (2015)

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
- ☐ Below Average
- ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.



- Drainage terminates @ Schweitzer reservoir (upland conditions)
- Poorly defined OHWM (flow path approx. 2.5 ft wide)
- upland vegetation throughout, rocks/boulders present
- Drainage poorly defined below reservoir

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Appendix B: Streamflow Duration Field Assessment Form

2176.83'
308.25

Project # / Name <u>3078 / Grassy Mt.</u>		Assessor <u>S.M. Harrelson</u>									
Address _____		Date <u>5/18/17</u>									
Waterway Name <u>Trib 2B</u>		Coordinates at downstream end (ddd.mm.ss) Lat. <u>43° 40' 52.89</u> N Long. <u>117° 21' 43.77</u> W									
Reach Boundaries <u>see Fig 5</u>											
Precipitation w/in 48 hours (cm) <u>0.8</u>	Channel Width (m) <u>10</u>	☐ Disturbed Site / Difficult Situation (Describe in "Notes")									
Observed Hydrology	% of reach w/observed surface flow <u>14%</u>										
	% of reach w/any flow (surface or hyporheic) <u>14%</u>										
	# of pools observed <u>2</u>										
Observations	Observed Wetland Plants (and indicator status): <u>Juncus sp. FACW/OBL</u> <u>Eleocharis acicularis OBL</u> <u>Ranunculus cymbalaria OBL</u> <u>R. sceleratus OBL</u>		Observed Macroinvertebrates: <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">Taxon</th> <th style="width:15%;">Indicator Status</th> <th style="width:15%;">Ephemeroptera?</th> <th style="width:15%;"># of Individuals</th> </tr> </thead> <tbody> <tr> <td><u>water slider</u></td> <td></td> <td></td> <td style="text-align: center;"><u>2</u></td> </tr> </tbody> </table>	Taxon	Indicator Status	Ephemeroptera?	# of Individuals	<u>water slider</u>			<u>2</u>
	Taxon	Indicator Status	Ephemeroptera?	# of Individuals							
<u>water slider</u>			<u>2</u>								
Indicators	1. Are aquatic macroinvertebrates present? ☒ Yes ☐ No										
	2. Are 6 or more individuals of the Order Ephemeroptera present? ☐ Yes ☒ No										
	3. Are perennial indicator taxa present? (refer to Table 1) ☐ Yes ☒ No										
	4. Are FACW, OBL, or SAV plants present? (Within 1/2 channel width) ☒ Yes ☐ No										
	5. What is the slope? (In percent, measured for the valley, not the stream) <u>10</u> %										
Conclusions											
Single Indicators: ☐ Fish ☐ Amphibians		Finding: ☐ Ephemeral ☒ Intermittent ☐ Perennial									

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

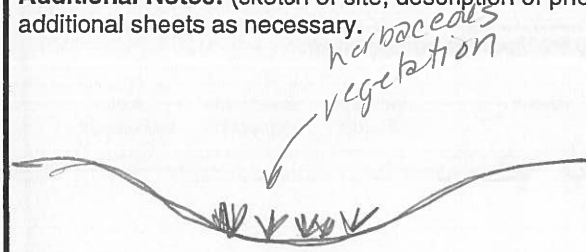
☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.



— very limited areas w/
hydrophytic veg
— no hydric soils observed
OHWN = line on bank
Substrate sorting

Ancillary Information:

☐ Riparian Corridor — none present

☐ Erosion and Deposition — some minor erosion observed

☐ Floodplain Connectivity — no fldpln observed

* In the southern portion of the study area, this tributary has shifted to the west, leaving 2 old ephemeral cut-off channels. These channels no longer have a connection to the main channel & do not flow anywhere.

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
None			

Streamflow Duration Field Assessment Form

Project # / Name <u>Calico Resources</u>		Assessor <u>R. Waldher</u>																
Address _____		Trib <u>3</u> (2017)	Date <u>5/8/15</u>															
Waterway Name <u>Tributary 9 (2015)</u>		Coordinates at downstream end (ddd.mm.ss)	Lat. <u>43.06875324</u> N Long. <u>-117.3697958</u> W															
Reach Boundaries <u>~500' from southern study boundary</u>		☐ Disturbed Site / Difficult Situation (Describe in "Notes")																
Precipitation w/in 48 hours (cm) <u>0</u>	Channel Width (m) <u>2ft-3ft</u> (ft)																	
Observed Hydrology	% of reach w/observed surface flow <u>0</u>																	
	% of reach w/any flow (surface or hyporheic) <u>0</u>																	
	# of pools observed <u>0</u>																	
Observations	Observed Wetland Plants (and indicator status): <u>None</u>		Observed Macroinvertebrates: <u>None</u>															
			<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Taxon</th> <th>Indicator Status</th> <th>Ephemeroptera?</th> <th># of Individuals</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	Taxon	Indicator Status	Ephemeroptera?	# of Individuals											
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Indicators	1. Are aquatic macroinvertebrates present? ☐ Yes ☒ No																	
	2. Are 6 or more individuals of the Order Ephemeroptera present? ☐ Yes ☒ No																	
	3. Are perennial indicator taxa present? (refer to Table 1) ☐ Yes ☒ No																	
	4. Are FACW, OBL, or SAV plants present? (Within 1/2 channel width) ☐ Yes ☒ No																	
	5. What is the slope? (In percent, measured for the valley, not the stream) <u>8-10</u> %																	
Conclusions	<pre> graph TD I1[Are aquatic macroinvertebrates present? (Indicator 1)] -- Yes --> I2[If Yes: Are 6 or more individuals of the Order Ephemeroptera present? (Indicator 2)] I1 -- No --> I4[If No: Are SAV, FACW, or OBL plants present? (Indicator 4)] I2 -- Yes --> I3[If Yes: Are perennial indicator taxa present? (Indicator 3)] I2 -- No --> I2N[INTERMITTENT] I3 -- Yes --> I3Y[If Yes: PERENNIAL] I3 -- No --> I5A[If No: What is the slope? (Indicator 5)] I4 -- Yes --> I5B[If Yes: What is the slope? (Indicator 5)] I4 -- No --> I4N[EPHEMERAL] I5A -- "Slope < 16%" --> I5AY[INTERMITTENT] I5A -- "Slope >= 16%" --> I5AN[PERENNIAL] I5B -- "Slope < 10.5%" --> I5BY[INTERMITTENT] I5B -- "Slope >= 10.5%" --> I5BN[EPHEMERAL] </pre>																	
	Single Indicators: <u>None</u> ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial																

Streamflow Duration Field Assessment Form

Tributary 9 (2015)

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

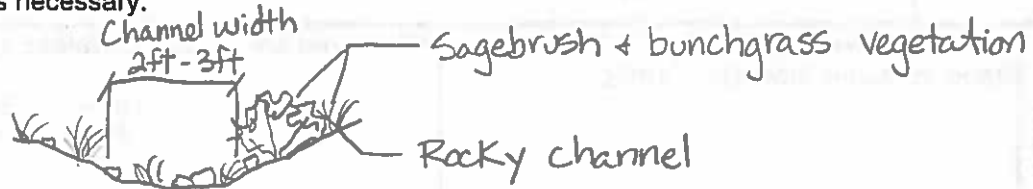
☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.



- OHWM poorly defined along channel (Flow path approx. 2.5 ft wide)
- Delineated same channel in 2013 near road
- upland vegetation, rocky soils

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Appendix B: Streamflow Duration Field Assessment Form

Trib 3

Project # / Name <u>3678/Gassy Mtn</u>		Assessor <u>S.M. Harrelson</u>								
Address _____		Date <u>5/18/17</u>								
Waterway Name <u>Trib 3</u>		Coordinates at downstream end (ddd.mm.ss) Lat. <u>43°41'10.63"</u> N Long. <u>117°21'41.15</u> W								
Reach Boundaries <u>see Fig 5</u>										
Precipitation w/in 48 hours (cm) <u>0.8</u>	Channel Width (m) <u>3</u>	☐ Disturbed Site / Difficult Situation (Describe in "Notes")								
Observed Hydrology	% of reach w/observed surface flow <u>0</u>									
	% of reach w/any flow (surface or hyporheic) <u>0</u>									
	# of pools observed <u>0</u>									
Observations	Observed Wetland Plants (and indicator status): <u>None</u>		Observed Macroinvertebrates:							
			<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">Taxon</th> <th style="width:15%;">Indicator Status</th> <th style="width:15%;">Ephemeroptera?</th> <th style="width:15%;"># of Individuals</th> </tr> </thead> <tbody> <tr> <td colspan="4" style="text-align: center;"><u>None</u></td> </tr> </tbody> </table>	Taxon	Indicator Status	Ephemeroptera?	# of Individuals	<u>None</u>		
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Indicators	1. Are aquatic macroinvertebrates present? ☐ Yes ☒ No									
	2. Are 6 or more individuals of the Order Ephemeroptera present? ☐ Yes ☒ No									
	3. Are perennial indicator taxa present? (refer to Table 1) ☐ Yes ☒ No									
	4. Are FACW, OBL, or SAV plants present? (Within 1/2 channel width) ☐ Yes ☒ No									
	5. What is the slope? (In percent, measured for the valley, not the stream) <u>5</u> %									
Conclusions										
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"> Single Indicators: ☐ Fish ☐ Amphibians </td> <td> Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial </td> </tr> </table>			Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial					
Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial									

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

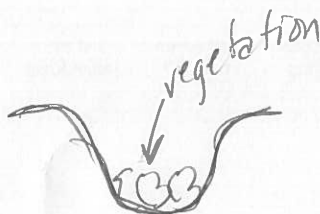
☐ Above Average

☒ Natural or Anthropogenic Disturbance

☐ Other: _____

channel appears to have been bermed in the past to create a pond. Berm no longer functional, pond gone, creating a break in the channel. NW portion of the channel no longer there.

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.



- dry channel w/in sagebrush
- some cobble
- see photos

Ancillary Information:

☐ Riparian Corridor - none observed

☐ Erosion and Deposition - very little

☐ Floodplain Connectivity none observed

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
None			

Streamflow Duration Field Assessment Form

Project # / Name <u>Calico Resources</u>		Assessor <u>R. Walther</u>																								
Address _____		Trib 4 (2017)	Date <u>5/8/15</u>																							
Waterway Name <u>Tributary 10 (2015)</u>		Coordinates at downstream end (ddd.mm.ss)	Lat. <u>43.66879619</u> N Long. <u>-117.363504</u> W																							
Reach Boundaries <u>~500' from southern study boundary</u>		☐ Disturbed Site / Difficult Situation (Describe in "Notes")																								
Precipitation w/in 48 hours (cm) <u>0</u>	Channel Width (m) <u>3ft-4ft</u>																									
Observed Hydrology	% of reach w/observed surface flow <u>0</u>																									
	% of reach w/any flow (surface or hyporheic) <u>0</u>																									
	# of pools observed <u>0</u>																									
Observations	Observed Wetland Plants (and indicator status): <u>None</u>		Observed Macroinvertebrates: <u>None</u>																							
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	4. Are FACW, OBL, or SAV plants present? (Within 1/2 channel width) ☐ Yes ☒ No																									
	5. What is the slope? (In percent, measured for the valley, not the stream) <u>6-10</u> %																									
Conclusions	<pre> graph TD I1[Are aquatic macroinvertebrates present? (Indicator 1)] -- Yes --> I2[Are 6 or more individuals of the Order Ephemeroptera present? (Indicator 2)] I1 -- No --> I4[Are SAV, FACW, or OBL plants present? (Indicator 4)] I2 -- Yes --> I3[Are perennial indicator taxa present? (Indicator 3)] I2 -- No --> I4 I3 -- Yes --> P1[PERENNIAL] I3 -- No --> I5_1[What is the slope? (Indicator 5)] I4 -- Yes --> I5_2[What is the slope? (Indicator 5)] I4 -- No --> E1[EPHEMERAL] I5_1 -- Yes --> P2[PERENNIAL] I5_1 -- No --> I5_3[Slope < 16%: INTERMITTENT] I5_1 -- No --> I5_4[Slope >= 16%: PERENNIAL] I5_2 -- Yes --> I5_5[Slope < 10.5%: INTERMITTENT] I5_2 -- No --> I5_6[Slope >= 10.5%: EPHEMERAL] </pre>																									
	Single Indicators: <u>None</u> ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial																								

Streamflow Duration Field Assessment Form T-10(2015)

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

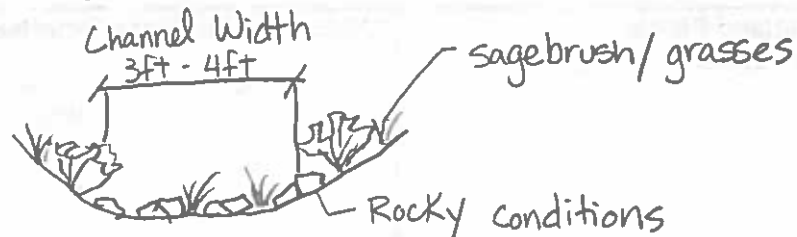
☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.



- sparse upland vegetation
- very rocky drainage
- Poorly defined OHWM (Flow path approx. 3 ft wide)

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Appendix B: Streamflow Duration Field Assessment Form

Trib 4

Project # / Name <u>3678 / Grassy mtn.</u>		Assessor <u>S.M. Harrison</u>									
Address _____		Date <u>5/10/17</u>									
Waterway Name <u>Trib 4</u>		Coordinates at downstream end (ddd.mm.ss) Lat. <u>43°40'42.02" N</u> Long. <u>117°21'47.81 W</u>									
Reach Boundaries <u>see Fig 5</u>											
Precipitation w/in 48 hours (cm) <u>0.8</u>	Channel Width (m) <u>1.3</u>	☐ Disturbed Site / Difficult Situation (Describe in "Notes")									
Observed Hydrology	% of reach w/observed surface flow <u>0</u>										
	% of reach w/any flow (surface or hyporheic) <u>0</u>										
	# of pools observed <u>0</u>										
Observations	Observed Wetland Plants (and indicator status): <u>None</u>		Observed Macroinvertebrates: <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Taxon</th> <th>Indicator Status</th> <th>Ephemeroptera?</th> <th># of Individuals</th> </tr> </thead> <tbody> <tr> <td colspan="4"><u>None</u></td> </tr> </tbody> </table>	Taxon	Indicator Status	Ephemeroptera?	# of Individuals	<u>None</u>			
	Taxon	Indicator Status	Ephemeroptera?	# of Individuals							
<u>None</u>											
Indicators	1. Are aquatic macroinvertebrates present? ☐ Yes ☒ No										
	2. Are 6 or more individuals of the Order Ephemeroptera present? ☐ Yes ☒ No										
	3. Are perennial indicator taxa present? (refer to Table 1) ☐ Yes ☒ No										
	4. Are FACW, OBL, or SAV plants present? (Within 1/2 channel width) ☐ Yes ☒ No										
	5. What is the slope? (In percent, measured for the valley, not the stream) <u>4-6</u> %										
Conclusions											
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Single Indicators: ☐ Fish ☐ Amphibians</td> <td>Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial</td> </tr> </table>			Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial						
Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial										

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
- ☐ Below Average
- ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.



OHWM = line on bank
Substrate sorting

- small Trib of Trib 3
- dry channel w/ in Sagebrush
- Cattle grazing

Ancillary Information:

- ☐ Riparian Corridor none observed
- ☐ Erosion and Deposition very little
- ☐ Floodplain Connectivity has access no fldpln observed

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
None			

Appendix B: Streamflow Duration Field Assessment Form

Project # / Name <u>3678 / Grassy mt.</u>		Assessor <u>S.M. Harrelson</u>								
Address _____		Date <u>5/18/17</u>								
Waterway Name <u>Trib5</u>		Coordinates at downstream end (ddd.mm.ss) Lat. <u>43°40'53.79"N</u> Long. <u>117°21'07.06"W</u>								
Reach Boundaries <u>see Fig 5</u>										
Precipitation w/in 48 hours (cm) <u>0.8</u>	Channel Width (m) <u>1.89</u>	☐ Disturbed Site / Difficult Situation (Describe in "Notes")								
Observed Hydrology	% of reach w/observed surface flow <u>0</u>									
	% of reach w/any flow (surface or hyporheic) <u>0</u>									
	# of pools observed <u>0</u>									
Observations	Observed Wetland Plants (and indicator status): <u>None</u>		Observed Macroinvertebrates:							
			<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">Taxon</th> <th style="width:15%;">Indicator Status</th> <th style="width:15%;">Ephemeroptera?</th> <th style="width:15%;"># of Individuals</th> </tr> </thead> <tbody> <tr> <td colspan="4" style="text-align: center;"><u>None</u></td> </tr> </tbody> </table>	Taxon	Indicator Status	Ephemeroptera?	# of Individuals	<u>None</u>		
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	2. Are 6 or more individuals of the Order Ephemeroptera present? ☐ Yes ☒ No									
	3. Are perennial indicator taxa present? (refer to Table 1) ☐ Yes ☒ No									
	4. Are FACW, OBL, or SAV plants present? (Within 1/2 channel width) ☐ Yes ☒ No									
	5. What is the slope? (In percent, measured for the valley, not the stream) <u>10-15 %</u>									
Conclusions										
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%; vertical-align: top;"> Single Indicators: ☐ Fish ☐ Amphibians </td> <td style="width:70%; vertical-align: top;"> Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial </td> </tr> </table>			Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial					
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Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

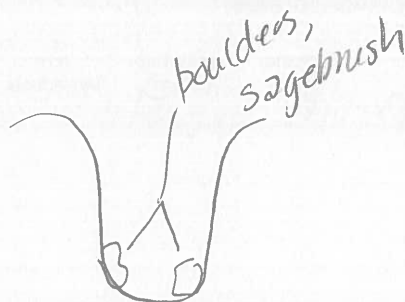
☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.



-dry channel, steeper slope than others
-w/in sagebrush
-some lrg cobbles

Ancillary Information:

☐ Riparian Corridor

none observed

☐ Erosion and Deposition

none

☐ Floodplain Connectivity

no fldpln observed

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
None			

Appendix B: Streamflow Duration Field Assessment Form

Project # / Name <u>3678/Grassy mt.</u>		Assessor <u>S.M. Harrelson</u>								
Address _____		Date <u>5/19/17</u>								
Waterway Name <u>Tribb</u>		Coordinates at downstream end (ddd.mm.ss) Lat. <u>43°42'35.96" N</u> Long. <u>117°21'39.43" W</u>								
Reach Boundaries <u>see Figs</u>										
Precipitation w/in 48 hours (cm) <u>0.8</u>	Channel Width (m) <u>2.36</u>	☐ Disturbed Site / Difficult Situation (Describe in "Notes")								
Observed Hydrology	% of reach w/observed surface flow <u>0</u>									
	% of reach w/any flow (surface or hyporheic) <u>0</u>									
	# of pools observed <u>0</u>									
Observations	Observed Wetland Plants (and indicator status): <u>None</u>		Observed Macroinvertebrates:							
			<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">Taxon</th> <th style="width:15%;">Indicator Status</th> <th style="width:15%;">Ephemeroptera?</th> <th style="width:15%;"># of Individuals</th> </tr> </thead> <tbody> <tr> <td colspan="4" style="text-align: center; height: 50px;"><u>None</u></td> </tr> </tbody> </table>	Taxon	Indicator Status	Ephemeroptera?	# of Individuals	<u>None</u>		
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	2. Are 6 or more individuals of the Order Ephemeroptera present? ☐ Yes ☒ No									
	3. Are perennial indicator taxa present? (refer to Table 1) ☐ Yes ☒ No									
	4. Are FACW, OBL, or SAV plants present? (Within 1/2 channel width) ☐ Yes ☒ No									
	5. What is the slope? (In percent, measured for the valley, not the stream) <u>2-4</u> %									
Conclusions										
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%; vertical-align: top;"> Single Indicators: ☐ Fish ☐ Amphibians </td> <td style="width:70%; vertical-align: top;"> Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial </td> </tr> </table>			Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial					
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Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

— presence of bed/banks begins & ends where indicated w/ gps
 — heavily traveled by cattle
 — some moderate erosion in N portion
 oHWN = scouring, line on bank

Ancillary Information:

☐ Riparian Corridor none observed

☐ Erosion and Deposition moderate ~20% of length

☐ Floodplain Connectivity no fld pln observed

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
None			

Appendix B: Streamflow Duration Field Assessment Form

Project # / Name <u>3678/Grassy mt.</u>		Assessor <u>S.M. Harrison</u>								
Address _____		Date <u>5/19/17</u>								
Waterway Name <u>Trib 7</u>		Coordinates at downstream end (ddd.mm.ss) Lat. <u>43°43'29.05" N</u> Long. <u>117°19'38.08" W</u>								
Reach Boundaries <u>see Fig 5</u>										
Precipitation w/in 48 hours (cm) <u>0.8</u>	Channel Width (m) <u>1.52</u>	☐ Disturbed Site / Difficult Situation (Describe in "Notes")								
Observed Hydrology	% of reach w/observed surface flow <u>0</u>									
	% of reach w/any flow (surface or hyporheic) <u>0</u>									
	# of pools observed <u>0</u>									
Observations	Observed Wetland Plants (and indicator status): <u>None</u>		Observed Macroinvertebrates:							
			<table border="0" style="width:100%;"> <tr> <th style="text-align: left;">Taxon</th> <th style="text-align: left;">Indicator Status</th> <th style="text-align: left;">Ephemeroptera?</th> <th style="text-align: left;"># of Individuals</th> </tr> <tr> <td colspan="4" style="text-align: center;"><u>None</u></td> </tr> </table>	Taxon	Indicator Status	Ephemeroptera?	# of Individuals	<u>None</u>		
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	3. Are perennial indicator taxa present? (refer to Table 1) ☐ Yes ☒ No									
	4. Are FACW, OBL, or SAV plants present? (Within 1/2 channel width) ☐ Yes ☒ No									
	5. What is the slope? (In percent, measured for the valley, not the stream) <u>1-2</u> %									
Conclusions	<pre> graph LR I1[Are aquatic macroinvertebrates present? (Indicator 1)] -- Yes --> I2[If Yes: Are 6 or more individuals of the Order Ephemeroptera present? (Indicator 2)] I1 -- No --> I4[If No: Are SAV, FACW, or OBL plants present? (Indicator 4)] I2 -- Yes --> I3[If Yes: Are perennial indicator taxa present? (Indicator 3)] I2 -- No --> I3_1[If No: INTERMITTENT] I3 -- Yes --> I3_2[If Yes: PERENNIAL] I3 -- No --> I5[If No: What is the slope? (Indicator 5)] I4 -- Yes --> I5_1[If Yes: What is the slope? (Indicator 5)] I4 -- No --> I5_2[If No: EPHEMERAL] I5_1 --> I5_1a[Slope < 10.5%: INTERMITTENT] I5_1 --> I5_1b[Slope ≥ 10.5%: EPHEMERAL] I5 --> I5_2a[Slope < 16%: INTERMITTENT] I5 --> I5_2b[Slope ≥ 16%: PERENNIAL] </pre>									
	<table border="0" style="width:100%;"> <tr> <td style="width:30%;"> Single Indicators: ☐ Fish ☐ Amphibians </td> <td> Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial </td> </tr> </table>			Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial					
Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial									

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

- dry channel w/culvert under road
OHWM = line on bank

Ancillary Information:

☐ Riparian Corridor *none observed*

☐ Erosion and Deposition *very little*

☐ Floodplain Connectivity *no fldpln observed*

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
<i>None</i>			

Appendix B: Streamflow Duration Field Assessment Form

Tnb 8

Project # / Name <u>3678/Grassy Mtn</u>		Assessor <u>S.M. Harrelson</u>								
Address		Date <u>5/19/17</u>								
Waterway Name <u>Tnb 8</u>		Coordinates at downstream end (ddd.mm.ss) Lat. <u>43°43'29.02"N</u> Long. <u>117°19'38.0"W</u>								
Reach Boundaries <u>see Fig 5</u>										
Precipitation w/in 48 hours (cm) <u>0.8</u>	Channel Width (m) <u>1.14</u>	☐ Disturbed Site / Difficult Situation (Describe in "Notes")								
Observed Hydrology	% of reach w/observed surface flow <u>0</u>									
	% of reach w/any flow (surface or hyporheic) <u>0</u>									
	# of pools observed <u>0</u>									
Observations	Observed Wetland Plants (and indicator status): <u>None</u>		Observed Macroinvertebrates:							
			<table border="0" style="width:100%;"> <tr> <th style="text-align: left;">Taxon</th> <th style="text-align: left;">Indicator Status</th> <th style="text-align: left;">Ephemeroptera?</th> <th style="text-align: left;"># of Individuals</th> </tr> <tr> <td colspan="4" style="text-align: center;"><u>None</u></td> </tr> </table>	Taxon	Indicator Status	Ephemeroptera?	# of Individuals	<u>None</u>		
Taxon	Indicator Status	Ephemeroptera?	# of Individuals							
<u>None</u>										
Indicators	1. Are aquatic macroinvertebrates present? ☐ Yes ☒ No									
	2. Are 6 or more individuals of the Order Ephemeroptera present? ☐ Yes ☒ No									
	3. Are perennial indicator taxa present? (refer to Table 1) ☐ Yes ☒ No									
	4. Are FACW, OBL, or SAV plants present? (Within 1/2 channel width) ☐ Yes ☒ No									
	5. What is the slope? (In percent, measured for the valley, not the stream) <u>3-10%</u>									
Conclusions										
	<table border="0" style="width:100%;"> <tr> <td style="width:30%;"> Single Indicators: ☐ Fish ☐ Amphibians </td> <td> Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial </td> </tr> </table>			Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial					
Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial									

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☒ Natural or Anthropogenic Disturbance

☐ Other: _____

- an old berm cuts off a portion of the trib. Channel starts again outside of study area

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

- dry channel along road
- ends at small berm, no channel present downstream of this pt.
OHWM = line on bank

Ancillary Information:

☐ Riparian Corridor *no*

☐ Erosion and Deposition *very little*

☐ Floodplain Connectivity ~~yes~~ *no fldpln observed*

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
None			

Appendix B: Streamflow Duration Field Assessment Form

Trib 9

Project # / Name <u>3678 / Grassy Mt</u>		Assessor <u>S.M. Harrelson</u>								
Address _____		Date <u>5/19/17</u>								
Waterway Name <u>Trib 9</u>		Coordinates at downstream end (ddd.mm.ss) Lat. <u>43°48'15.03" N</u> Long. <u>117°18'35.9" W</u>								
Reach Boundaries <u>see Fig 5</u>										
Precipitation w/in 48 hours (cm) <u>0.8</u>	Channel Width (m) <u>1.42</u>	☐ Disturbed Site / Difficult Situation (Describe in "Notes")								
Observed Hydrology	% of reach w/observed surface flow <u>0</u>									
	% of reach w/any flow (surface or hyporheic) <u>0</u>									
	# of pools observed <u>0</u>									
Observations	Observed Wetland Plants (and indicator status): <u>None</u>		Observed Macroinvertebrates:							
			<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Taxon</th> <th style="text-align: center;">Indicator Status</th> <th style="text-align: center;">Ephemeroptera?</th> <th style="text-align: center;"># of Individuals</th> </tr> </thead> <tbody> <tr> <td colspan="4" style="text-align: center;"><u>None</u></td> </tr> </tbody> </table>	Taxon	Indicator Status	Ephemeroptera?	# of Individuals	<u>None</u>		
Taxon	Indicator Status	Ephemeroptera?	# of Individuals							
<u>None</u>										
Indicators	1. Are aquatic macroinvertebrates present? ☐ Yes ☒ No									
	2. Are 6 or more individuals of the Order Ephemeroptera present? ☐ Yes ☒ No									
	3. Are perennial indicator taxa present? (refer to Table 1) ☐ Yes ☒ No									
	4. Are FACW, OBL, or SAV plants present? (Within 1/2 channel width) ☐ Yes ☒ No									
	5. What is the slope? (In percent, measured for the valley, not the stream) <u>8-20</u> %									
Conclusions										
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"> Single Indicators: ☐ Fish ☐ Amphibians </td> <td> Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial </td> </tr> </table>			Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial					
Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial									

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

- dry, channel, heavily incised
 - Significant erosion ~75-80% of length
 oHWM = substrate sorting, line on bank

Ancillary Information:

☐ Riparian Corridor

None observed

☐ Erosion and Deposition

significant, observed along 60% of reach

☐ Floodplain Connectivity

no, channel incised

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
None			

Appendix B: Streamflow Duration Field Assessment Form

Project # / Name <u>3678 / Grassy mt.</u>		Assessor <u>Harrelson</u>								
Address _____		Date <u>5/19/15</u> <u>20</u> / <u>17</u>								
Waterway Name <u>Trib 10</u>		Coordinates at downstream end (ddd.mm.ss) Lat. <u>4850166.42</u> N Long. <u>475066.45</u> W								
Reach Boundaries <u>see Fig 5</u>										
Precipitation w/in 48 hours (cm) <u>0.8</u>	Channel Width (m) _____	☐ Disturbed Site / Difficult Situation (Describe in "Notes")								
Observed Hydrology	% of reach w/observed surface flow <u>0</u>									
	% of reach w/any flow (surface or hyporheic) <u>0</u>									
	# of pools observed <u>0</u>									
Observations	Observed Wetland Plants (and indicator status): <u>None</u>		Observed Macroinvertebrates:							
			<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Taxon</th> <th style="text-align: left;">Indicator Status</th> <th style="text-align: left;">Ephemeroptera?</th> <th style="text-align: left;"># of Individuals</th> </tr> </thead> <tbody> <tr> <td colspan="4" style="text-align: center;"><u>None</u></td> </tr> </tbody> </table>	Taxon	Indicator Status	Ephemeroptera?	# of Individuals	<u>None</u>		
Taxon	Indicator Status	Ephemeroptera?	# of Individuals							
<u>None</u>										
Indicators	1. Are aquatic macroinvertebrates present? ☐ Yes ☒ No									
	2. Are 6 or more individuals of the Order Ephemeroptera present? ☐ Yes ☒ No									
	3. Are perennial indicator taxa present? (refer to Table 1) ☐ Yes ☒ No									
	4. Are FACW, OBL, or SAV plants present? (Within 1/2 channel width) ☐ Yes ☒ No									
	5. What is the slope? (In percent, measured for the valley, not the stream) <u>1-5</u> %									
Conclusions										
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%; vertical-align: top;"> Single Indicators: ☐ Fish ☐ Amphibians </td> <td style="width:70%; vertical-align: top;"> Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial </td> </tr> </table>			Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial					
Single Indicators: ☐ Fish ☐ Amphibians	Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial									

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation: *disturbance* Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☒ Natural or Anthropogenic Disturbance

☐ Other: _____

- cattle grazing for entire extent

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

*- highly disturbed & incised dry channel /
- heavily vegetated: cheat grass, herb sophia,
Cirsium sp.*

Ancillary Information:

☐ Riparian Corridor *none observed*

☐ Erosion and Deposition *heavy erosion along entire reach*

☐ Floodplain Connectivity *no fld pln observed*

** several erosional side channels were not mapped **

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
<i>None</i>			

Appendix B: Streamflow Duration Field Assessment Form

Project # / Name <u>3678 / Grassy mtn</u>		Assessor <u>Harrison</u>									
Address _____		Date <u>5/20/17</u>									
Waterway Name <u>J-H Canal</u>		Coordinates at downstream end (ddd.mm.ss) Lat. <u>4861176.53</u> N Long. <u>475521.36</u> W									
Reach Boundaries <u>see Fig 5</u>											
Precipitation w/in 48 hours (cm) <u>0.8</u>	Channel Width (m) <u>4.8</u>	☐ Disturbed Site / Difficult Situation (Describe in "Notes")									
Observed Hydrology	% of reach w/observed surface flow <u>100</u>										
	% of reach w/any flow (surface or hyporheic) <u>100</u>										
	# of pools observed <u>0</u>										
Observations	Observed Wetland Plants (and indicator status): <u>Typha sp. OBL</u>		Observed Macroinvertebrates: <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">Taxon</th> <th style="width:15%;">Indicator Status</th> <th style="width:15%;">Ephemeroptera?</th> <th style="width:15%;"># of Individuals</th> </tr> </thead> <tbody> <tr> <td colspan="4" style="text-align: center;"><u>None observed due to high flow, but presumed present</u></td> </tr> </tbody> </table>	Taxon	Indicator Status	Ephemeroptera?	# of Individuals	<u>None observed due to high flow, but presumed present</u>			
	Taxon	Indicator Status	Ephemeroptera?	# of Individuals							
<u>None observed due to high flow, but presumed present</u>											
Indicators	1. Are aquatic macroinvertebrates present? ☒ Yes ☐ No										
	2. Are 6 or more individuals of the Order Ephemeroptera present? ☐ Yes ☐ No <u>unknown</u>										
	3. Are perennial indicator taxa present? (refer to Table 1) ☒ Yes ☐ No <u>assumed</u>										
	4. Are FACW, OBL, or SAV plants present? (Within 1/2 channel width) ☒ Yes ☐ No										
	5. What is the slope? (In percent, measured for the valley, not the stream) <u>2-3</u> %										
Conclusions											
Single Indicators: ☐ Fish ☐ Amphibians		Finding: ☐ Ephemeral ☐ Intermittent ☒ Perennial									

→ presumed present

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

— irrigation canal w/ pumped water & water flow controls
— water murky, no fish/amphibians observed, but they are likely present w/in the canal

Ancillary Information:

☐ Riparian Corridor *none*

☐ Erosion and Deposition *observed on right bank*

☐ Floodplain Connectivity *no fldpln observed*

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
<i>None observed</i>			

APPENDIX C

SITE PHOTOGRAPHS

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 1.



Tributary 1 (ephemeral) facing upstream. OHWM defined by sediment sorting and scouring.

Photo 2.



Tributary 1 (ephemeral) facing downstream. Channel width ranged between 2-5 feet.

Photo 3.



Tributary 2b (intermittent) facing upstream. Some wetland plants and macroinvertebrates were observed.

Photo 4.



Tributary 2b (intermittent) facing downstream.

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 5.



Tributary 2a (ephemeral) facing upstream at location above Schweizer Reservoir. Channel width ranged between 2-4 feet. OHWM was poorly defined (HDR 2015).

Photo 6.



Tributary 2a (ephemeral) facing downstream at location above Schweizer Reservoir. Vegetation was dominated by sagebrush and upland bunchgrasses (HDR 2015).

Photo 7.



Tributary 2a (ephemeral) facing upstream at location below Schweizer Reservoir. Reservoir embankment is visible in background. OHWM was poorly defined (HDR 2015).

Photo 8.



Tributary 2a (ephemeral) facing downstream. Vegetation was upland throughout (HDR 2015).

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 9.



Soil Pit #8A was dug at the low point of Schweizer reservoir to confirm the absence of wetlands. Soils were light in color and not hydric (HDR 2015).

Photo 10.



View of upland vegetation at Soil Pit #8A (HDR 2015).

Photo 11.



Schweizer Reservoir facing upstream at ephemeral drainage Tributary 2. Grazing was evident throughout the reservoir (HDR 2015).

Photo 12.



Schweizer Reservoir facing north toward reservoir embankment (HDR 2015).

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 13.



Tributary 3 (ephemeral) facing upstream. Channel width ranged between 2-3 feet. OHWM was poorly defined (HDR 2015).

Photo 14.



Tributary 3 (ephemeral) facing downstream. Vegetation was upland throughout (HDR 2015).

Photo 15.



Tributary 3 (ephemeral) facing upstream. OHWM was poorly defined, and upland vegetation was present throughout.

Photo 16.



Tributary 3 (ephemeral) facing downstream.

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 17.



Tributary 3 (ephemeral) facing upstream. Channel width ranged between 4-12 feet. OHWM was poorly defined.

Photo 18.



Tributary 3 (ephemeral) facing downstream. End of defined channel.

Photo 19.



Tributary 4 (ephemeral) facing upstream. Channel width ranged between 3-4 feet. OHWM was poorly defined (HDR 2015).

Photo 20.



Tributary 4 (ephemeral) facing downstream. Vegetation was fairly sparse and soils were rocky (HDR 2015).

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 21.



Tributary 4 (ephemeral) facing upstream. Channel width ranged between 1-3 feet. OHWM was poorly defined.

Photo 22.



Tributary 4 (ephemeral) facing upstream. Vegetation was upland throughout, and areas was heavily grazed.

Photo 23.



Tributary 4 (ephemeral) facing downstream.

Photo 24.



Tributary 5 (ephemeral) facing upstream. Channel width ranged between 5-8 feet, and the OHWM was poorly defined.

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 25.



Tributary 5 (ephemeral) facing downstream. Sagebrush was common throughout the channel.

Photo 26.



Soil pit DP1 facing north. Partial berm from old pond is visible in the background.

Photo 27.



Photo facing downstream (south) from DP1 towards the end of Tributary 3 in this area.

Photo 28.



Photo facing upstream (north) from DP1.

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 29.



Tributary 3 (ephemeral) facing upstream.

Photo 30.



Tributary 3 (ephemeral) facing downstream towards access road.

Photo 31.



Tributary 6 (ephemeral) facing upstream. Channel width ranged between 4-14 feet; OHWM was defined by scouring and a line impressed on the bank.

Photo 32.



Tributary 6 (ephemeral) facing downstream. Old berm is visible on the left bank.

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 33.



Photo facing southwest (upstream). Area north of Tributary 6 with no evident channel.

Photo 34.



Photo facing northeast (downstream). Area north of Tributary 6 with no evident channel.

Photo 35.



Photo facing south (upstream). Area mapped as a stream channel, however, no channel is evident.

Photo 36.



Photo facing north (downstream). Area mapped as a stream channel, however, no channel is evident.

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 37.



Photo facing southeast (upstream). Area mapped as a stream channel, however, no channel is evident.

Photo 38.



Photo facing northwest (downstream). Area mapped as a stream channel, however, no channel is evident.

Photo 39.



Wetland 1 facing downslope (northeast).

Photo 40.



Wetland 1 facing upslope (southwest).

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 41.



Wetland data point DP2 facing south inside Wetland 1.

Photo 42.



Upland data point DP3 facing southwest.

Photo 43.



Photo facing east from Wetland 1 towards area mapped as a pond by NWI.

Photo 44.



Photo facing southeast (upstream). Area mapped as a stream channel, however, no channel is evident.

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 45.



Photo facing northwest (downstream). Area mapped as a stream channel, however, no channel is evident.

Photo 46.



Tributary 7 (ephemeral) facing upstream. Channel width ranged between 3-8 feet.

Photo 47.



Tributary 7 (ephemeral) facing downstream. OHWM was poorly defined.

Photo 48.



Tributary 8 (ephemeral) facing upstream. Beginning of defined channel.

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 49.



Tributary 8 (ephemeral) facing downstream.
Channel width ranged between 2-6 feet.

Photo 50.



Tributary 8 (ephemeral) facing upstream.

Photo 51.



Tributary 8 (ephemeral) facing downstream.
OHWM was defined by sediment sorting
and a line impressed on the bank.

Photo 52.



Photo facing west (upstream). Area mapped
as a stream channel, however, no channel is
evident.

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 53.



Photo facing east (downstream). Area mapped as a stream channel, however, no channel is evident.

Photo 54.



Cattle pond outside project area.

Photo 55.



Photo facing southwest (upstream). Area mapped as a stream channel, however, no channel is evident.

Photo 56.



Photo facing northeast (downstream). Area mapped as a stream channel, however, no channel is evident.

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 57.



Tributary 9 (ephemeral) facing upstream.
Beginning of defined channel.

Photo 58.



Tributary 9 (ephemeral) facing downstream.
OHWM was defined by some sediment
sorting and changes in vegetation.

Photo 59.



Tributary 9 (ephemeral) facing upstream.
Channel widths ranged between 3-7 feet.

Photo 60.



Tributary 9 (ephemeral) facing downstream.

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 61.



Photo facing southwest (upstream). Area mapped as a stream channel, however, no channel is evident.

Photo 62.



Photo facing northeast (downstream). Area mapped as a stream channel, however, no channel is evident.

Photo 63.



Photo facing northwest (upstream). Area mapped as a stream channel, however, no channel is evident.

Photo 64.

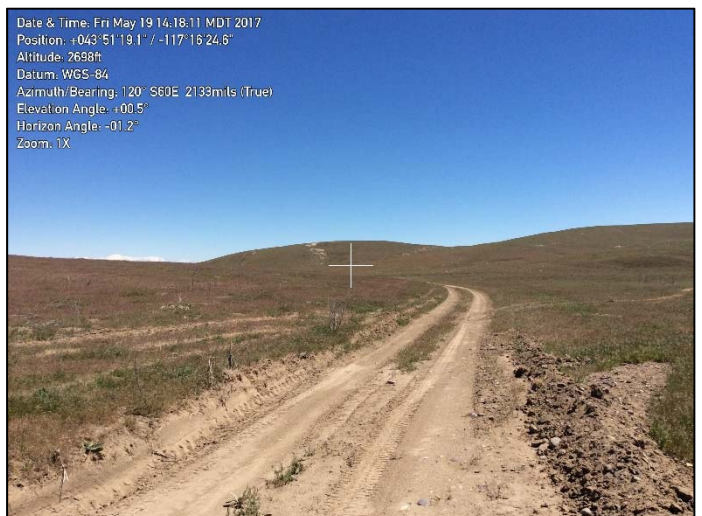


Photo facing southeast (downstream). Area mapped as a stream channel, however, no channel is evident.

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 65.



Tributary 10 (ephemeral) facing upstream. Area is heavily grazed with cattle roaming throughout channel.

Photo 66.



Tributary 10 (ephemeral) facing downstream. Channel width ranged between 2-20 feet.

Photo 67.



Tributary 10 (ephemeral) facing upstream.

Photo 68.



Tributary 10 (ephemeral) facing downstream. Channel is deeply incised with moderate to severe erosion.

Grassy Mountain Mine Project – Wetland Delineation Report

Photolog

Photo 69.



Tributary 10 (ephemeral) facing upstream. Area is heavily grazed with cattle roaming throughout channel.

Photo 70.



Tributary 10 (ephemeral) facing downstream.

Photo 71.



J-H Canal (artificial waterbody) facing upstream.

Photo 72.



J-H Canal (artificial waterbody) facing downstream. Berm is visible on right bank, and water control structure is visible on the left bank.