

ADDENDUM TO THE ROSEMONT MINE STATE-PROTECTED PLANT AND NOXIOUS WEED INVENTORY ON ASLD LANDS EAST OF SAHUARITA, PIMA COUNTY, ARIZONA REPORT: APPROXIMATELY 39.5 ACRES ALONG CORTO, COUNTRY CLUB, SANTA RITA, AND DAWSON ROADS, PIMA COUNTY, ARIZONA

Prepared For: Rosemont Copper Company

Prepared By: WestLand Resources, Inc.

Date: October 7, 2011

Project No. 1049.29 323 323

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Memorandum

To: Bev Everson
Cc: Chris Garrett
From: Kathy Arnold
Doc #: 005/12-15.3.2
Subject: Transmittal Associated with Utility Routes
Date: January 13, 2012

Rosemont Copper Company is having delivered by courier, the following materials in hard copy and electronic. These reports were prepared in support of the CEC application and/or associated with State Land Right of Way Process.

- *Addendum to the Rosemont Mine State-Protected Plant and Noxious Weed Inventory on ASLD Lands East of Sahuarita, Pima County, Arizona Report: Approximately 39.5 Acres Along Corto, Country Club, Santa Rita and Dawson Roads, Pima County, Arizona, dated October 7, 2011 by WestLand Resources, Inc. One (1) copy to FS and SWCA each.*
- *Addendum to the Rosemont Mine Saguaro and Agave Survey: Proposed Rosemont Project Santa Rita Road Alignment Report: Approximately 6.7 Acres on Corto Road Between Country Club Road and the Sanrita Parcel, dated October 7, 2011 by WestLand Resources, Inc. One (1) copy to FS and SWCA each.*
- *Addendum to the Pima Pineapple Cactus Survey: Proposed Rosemont Project Santa Rita Road Alignment Report: Approximately 46.2 Acres Along Corto, Country Club, Santa Rita, and Dawson Roads, Pima County, Arizona, dated October 7, 2011 by WestLand Resources, Inc. One (1) copy to FS and SWCA each.*
- *Addendum to the Pima Pineapple Cactus Survey: Proposed Rosemont Project Santa Rita Road Alignment Report: Approximately 38 Around a Utility Line Pinch Point Near the Helvetia Townsite, Pima County, Arizona, dated October 31, 2011 by WestLand Resources, Inc. One (1) copy to FS and SWCA each.*
- *Agave and Saguaro Surveys: Proposed Southern Alternative Utility Alignment for the Rosemont Project, dated October 31, 2011 by WestLand Resources, Inc. One (1) copy to FS and SWCA each.*

Please do not hesitate to contact me should you require anything further.

1. INTRODUCTION

This report is an addendum to the report “*State-Protected Plant and Noxious Weed Inventory on ASLD Lands East of Sahuarita, Pima County, Arizona*”, dated January 6, 2010, that WestLand Resources, Inc. (WestLand) produced for Rosemont Copper Company (Rosemont). The alignment for the Santa Rita Road utility alternative was expanded to include approximately 39.5 acres of additional State Trust lands administered by the Arizona State Land Department (ASLD) located in portions of Sections 19, 20, and 29, Township 17 South, Range 14 East, Gila and Salt River Meridian. The new inventory area includes an approximately 200-foot widening northward (north from the Section 29 southern boundary) of the previous survey area along Corto Road between Country Club Road and Rosemont’s Sanrita South parcel (approximately 0.25 mile in length); a 50-foot widening westward of the previous survey along the west side of Country Club Road from El Toro Road to Corto Road (approximately 2 miles in length); 100 feet wide on the south side of Dawson Road between Country Club Road and Santa Rita Road (approximately 4,000 feet in length); and 100 feet wide on the southwest side of Santa Rita Road from Country Club Road northwest for approximately 1.25 miles; (the Addendum Area; **Figure 1**). No inventory had previously been conducted along the Dawson Road and Santa Rita Road portions of this area.

At the request of Rosemont, WestLand is providing an estimate of the number of native trees, shrubs, sub-shrubs, cacti, and succulents within the Addendum Area.

2. METHODS

The area of the original inventory for the report referenced in the Introduction of this addendum included approximately 773.3 acres of ASLD lands. As described in that report, WestLand developed a stratified-random sampling protocol for conducting the native plant inventory of the 773.3 acres. For this report, we have used the sample data from the original inventory to estimate numbers of plants by species for the Addendum Area, with no supplemental field inventory. Based on the estimated plant density for each species found in the three previously sampled plots nearest to the Addendum Area (Plots 1,3, and 4 from the original inventory; **Figure 1**), WestLand estimated the number of each species within the 39.5-acre Addendum Area.

To extrapolate the total number of plants of each species and the total linear footage of saguaros within the Project Area, a multiplier was applied to the inventory numbers. The multiplier was calculated by dividing the acreage of the Addendum Area (39.5 acres) by the total acreage of sample plots 1, 3, and 4 from the original inventory (1.02 acres). The resulting multiplier is 38.73.

Since production of the original report, the ASLD has requested that a different format be used for reporting plant inventory numbers. Instead of reporting plant species by Arizona Protected Native Plant status, plants are reported by growth form: trees, shrubs, sub-shrubs, cacti, and succulents (some species can be categorized as either trees or shrubs, depending on their growth form). The heights of saguaros (not including arms) are recorded, instead of total linear feet. However, because the original data recorded only total linear feet for saguaros, we must report total linear feet for saguaros for the Addendum Area.

WestLand personnel also recorded any noxious weeds that were found within the Project Area. The noxious weed species included those on the Arizona Department of Agriculture (AZDA) list of “prohibited, regulated and restricted noxious weeds.”

3. RESULTS

3.1. NATIVE PLANT INVENTORY

The plant inventory results are provided in Table 1. The table includes the number of plants of each species counted within the sample plots and the extrapolated totals, sorted by plant growth form. The sample plots total approximately 2.6 percent (1.02 acres surveyed/39.5 total acres) of the Addendum Area.

Table 1. Total Plants Counted in Sample Plots and Estimated Total Plants on ASLD Land within the 39.5-Acre Addendum Area of the Rosemont Mine Santa Rita Road Utility Line Alternative.

Plant Type	Common Name	Scientific Name	Original Total Counts in Sample Plots 1, 3, and 4	Multiplier	Total Estimated Plant Numbers in 39.5-acre Addendum Area
Cactus	Saguaro	<i>Carnegiea gigantea</i>	9	38.73	349
	Barrel cactus	<i>Ferocactus wislizeni</i>	31	38.73	1201
	Pencil cholla	<i>Opuntia arbuscula</i>	6	38.73	232
	Engelman prickly pear	<i>Opuntia engelmannii</i>	50	38.73	1937
	Chain fruit cholla	<i>Opuntia fulgida</i>	68	38.73	2634
	Christmas cholla	<i>Opuntia leptocaulis</i>	10	38.73	387
	Purple prickly pear	<i>Opuntia santa-rita</i>	14	38.73	542
	Cane cholla	<i>Opuntia spinosior</i>	4	38.73	155
	Staghorn cholla	<i>Opuntia versicolor</i>	9	38.73	349
Shrub	Catclaw acacia	<i>Acacia greggii</i>	23	38.73	891
	Fourwing saltbush	<i>Atriplex canescens</i>	22	38.73	852
	Desert hackberry	<i>Celtis pallida</i>	2	38.73	77
	Longleaf jointfir	<i>Ephedra trifurca</i>	1	38.73	39
	Creosotebush	<i>Larrea tridentata</i>	1	38.73	39
	Wolfberry	<i>Lycium sp.</i>	5	38.73	194
Sub-shrub	Broom snakeweed	<i>Gutierrezia sarothrae</i>	1	38.73	39
	Desert zinnia	<i>Zinnia acerosa</i>	5	38.73	194
Tree	Blue paloverde	<i>Parkinsonia florida</i>	9	38.73	349
	Velvet mesquite	<i>Prosopis velutina</i>	94	38.73	3641

3.2. FOOTAGE FOR SAGUAROS

Table 2 provides the number of saguaros counted within sample plots 1, 3, and 4, the total linear feet of those saguaros, and the estimated totals for the entire Addendum Area. Nine saguaros totaling 34.5 feet in height were inventoried within the Addendum Area sample plots. The estimated totals for the entire Addendum Area are 349 saguaros and 1,336 linear feet. The saguaros averaged less than 4 feet in height, and the tallest was 6 feet.

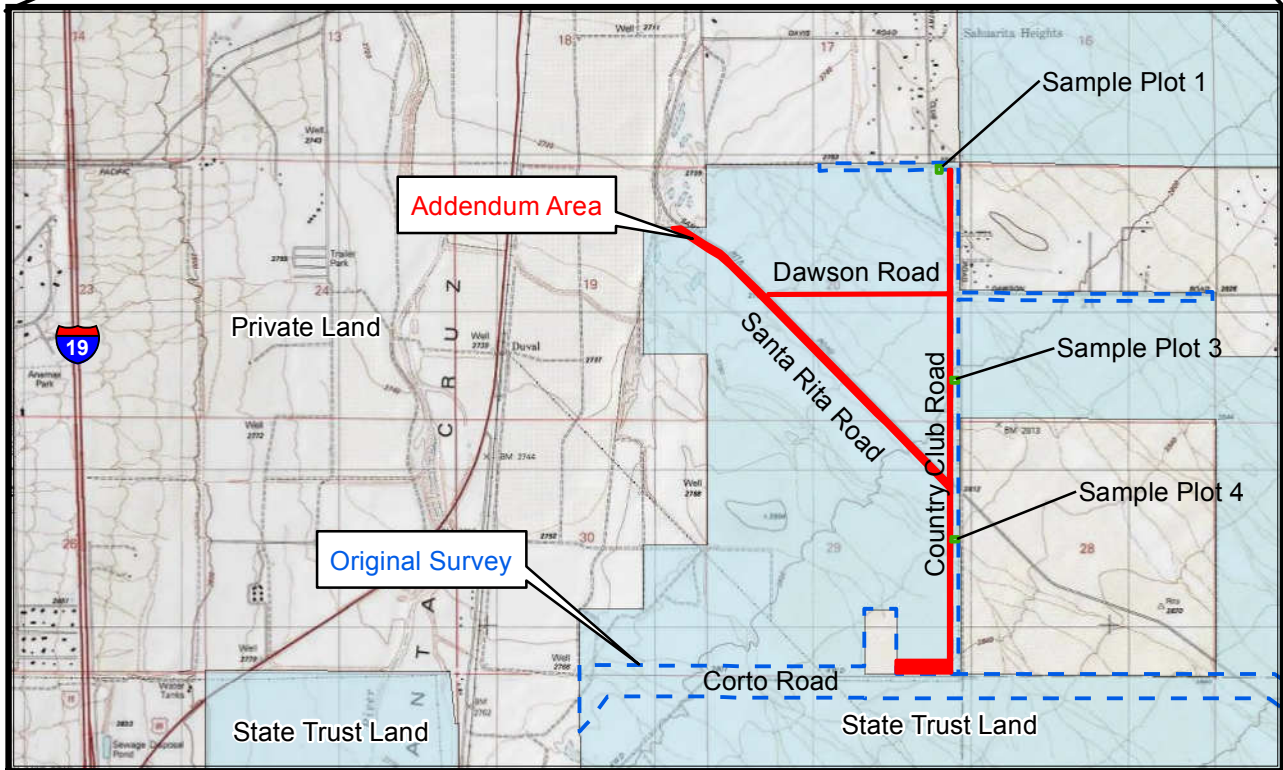
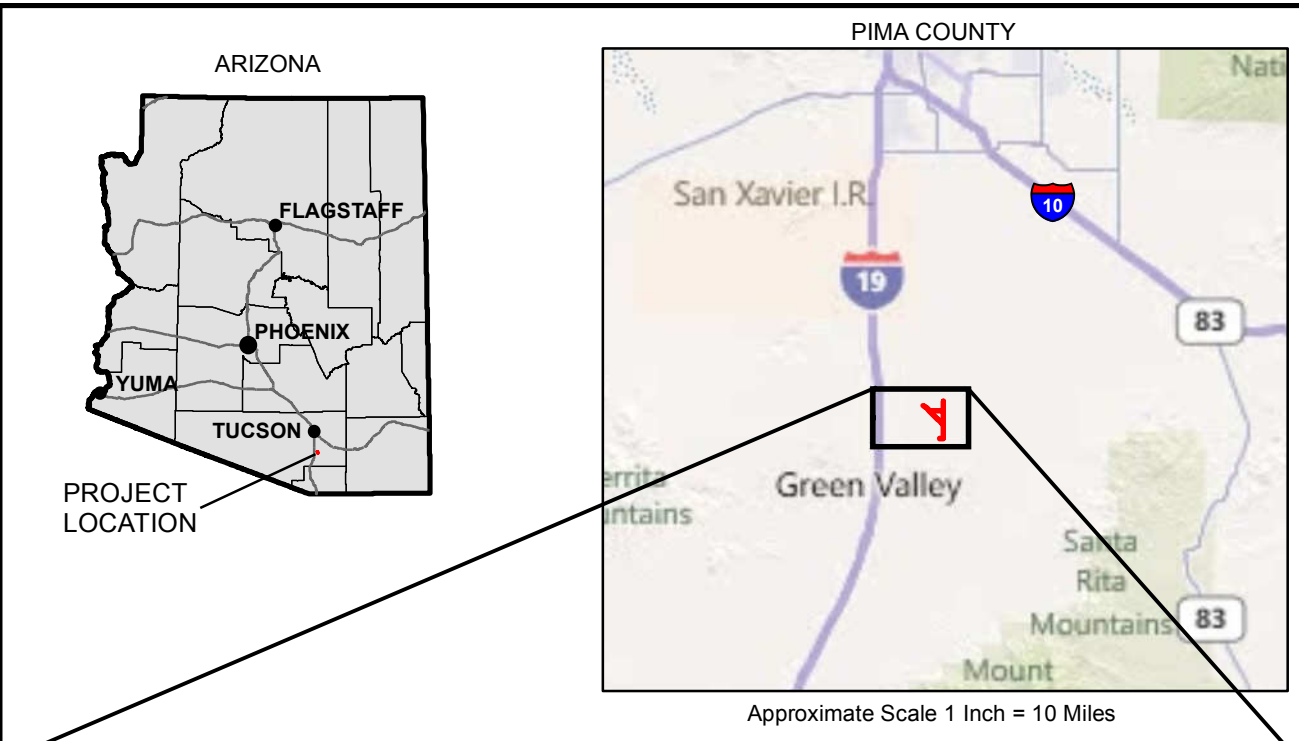
Table 2. Total Saguaros and Linear Feet of Saguaros Counted in Sample Plots and Estimated Saguaros and Height, on ASLD Land within the Rosemont Mine Santa Rita Road Utility Line Alternative 34.5-Acre Addendum Area.

Total Saguaros Counted in Sample Plots 1, 3, and 4	Multiplier	Estimated Number of Saguaros in 34.5-Acre Addendum Area	Total Linear Feet of Saguaros in Sample Plots 1, 3, and 4	Multiplier	Estimated Linear Feet of Saguaros in 34.5-Acre Addendum Area
9	38.73	349	34.5	38.73	1,336

3.3. NOXIOUS WEEDS

One species listed by the AZDA as a “prohibited, regulated and restricted noxious weed” was observed within one of the three sample plots used for this report. Buffelgrass (*Pennisetum ciliare*), listed by the AZDA as both prohibited and regulated, was observed within Plot 4 (a small patch). While conducting other work within the Addendum Area, it was noted that buffelgrass was also common within the Addendum Area along the sides of Santa Rita Road, Dawson Road, and Country Club Road.

FIGURES



T17S, R14E, Portion of Sections 19, 20 & 29,
Pima County, Arizona,
Sahuarita USGS 7.5' Quadrangle

Note: The Sample Plots depicted were from the
original inventory and used for the Addendum Area

ROSEMONT PROJECT
Santa Rita Road Utility Line Addendum
State Land Native Plant Inventory

VICINITY MAP

Figure 1

