

**Resolution Copper Project and Land Exchange
Environmental Impact Statement**

USDA Forest Service
Tonto National Forest
Arizona

August 6, 2018

Process Memorandum to File

Cultural Resources Analysis: Assumptions, Methodology Used and Relevant Regulations, Laws, and Guidance, and Key Documents

This document is deliberative and is prepared by the third-party contractor in compliance with the National Environmental Policy Act and other laws, regulations, and policies to document ongoing process and analysis steps. This document does not take the place of any Line Officer's decision space related to this project.

**Prepared by:
Emily Newell
SWCA Environmental Consultants**

Revision History

Date	Personnel	Revisions Made
08/06/18	Emily Newell	Process memorandum created
10/29/18	Emily Newell	Revisions to memorandum title, revision history table added, edits to purpose of process memorandum section, references and key documents section added
11/15/18	Emily Newell	Edits to references, applicability table, analysis area
01/14/19	Emily Newell	Ready for PM review
8/2/2019	Emily Newell	Update process memorandum for Draft EIS section

Purpose of Process Memorandum

In order to provide a concise and accessible summary of resource impacts, certain detailed information has not been included directly in the environmental impact statement (EIS). The purpose of this process memorandum is to describe additional supporting resource information in detail. The Cultural Resources section of Chapter 3 of the EIS includes brief summaries of the information contained in this process memorandum. This process memorandum covers the following topics:

- Resource analysis area
- Analysis methodology
- Regulations, Laws, and Guidance
- Key Documents and References Cited

Detailed Information Supporting EIS Analysis

Resource Analysis Area

There are three distinct analysis areas for this discussion: the direct impacts analysis area, the indirect impacts analysis area, and the atmospheric impacts analysis area. The direct impacts analysis area for each alternative consists of the complete footprint of all project elements, including the lands leaving Federal management under the land exchange. The analysis area for cultural resources for the General Plan of Operations (GPO) corresponds to the Section 106 of the National Historic Preservation Act (NHPA) direct and indirect areas of potential effects, defined by 36 CFR 800.16(d) as “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties.”

For the direct analysis area, the analysis assumes that all areas within those boundaries or fence lines would be disturbed. Indirect impacts include visual impacts from project elements. The direct analysis area for the proposed project is defined by several factors: the acreage of ground disturbance expected for each mine component described in the GPO and the acreage of land leaving Federal stewardship as a result of the land exchange. The direct analysis area for the proposed action (GPO

and land exchange) is approximately 40,988 acres and consists of the following, which includes access roads and other linear infrastructure:

- East Plant Site and subsidence area, including the reroute of Magma Mine Road (1,539 acres that is partially within the Oak Flat Federal Parcel and includes private, National Forest System [NFS], and Arizona State Land Department [ASLD] lands);
- 2,422-acre Oak Flat Federal Parcel of NFS land to be exchanged with Resolution Copper Mining, LLC (Resolution Copper);
- 940-acre West Plant Site;
- 6.96-mile Silver King to Oak Flat transmission line;
- 169-acre MARRCO railroad corridor and adjacent project components;
- 553-acre filter plant and loadout facility; and
- Alternatives 2–6 tailings storage facilities and tailings corridors: tailings storage facility and tailings corridor for Alternative 2 and 3; and Alternative 4 – Silver King, Alternative 5 – Peg Leg, and Alternative 6 – Skunk Camp, which have different locations and overall footprints from the GPO tailings storage facility and tailings corridor.

The indirect impacts analysis area consists of a 2-mile buffer around all project and alternative components. The 2-mile buffer is designed to account for impacts on resources not directly tied to ground disturbance and outside the direct analysis area. Potential indirect impacts include, but are not limited to, inadvertent damage, vandalism, unsanctioned collecting, and impacts caused by vibration from mine construction and operations.

The atmospheric impacts analysis area (including visual and auditory impacts) consists of a 6-mile buffer around all project and alternative components, which has been split into three distance zones: less than 1 mile, 1 to 3 miles, and greater than 3 miles from the project area. This distance is consistent with the indirect analysis area for visual impacts (see section 3.11 of the Draft EIS), which is based on Bureau of Land Management visual guidance and Forest Service guidance for assessing visual effects. The atmospheric impacts analysis area encompasses approximately 729,674 for all project components under all alternatives. The analysis area for cultural resources is shown in figure 3.12.2-1 in the Draft EIS.

Analysis Methodology

SWCA Environmental Consultants (SWCA) collected data through Class I records searches (records check at local, State, and Federal levels) and Class III pedestrian surveys (field crews systematically walk the analysis area and record resources). As of June 2019, crews had surveyed the direct analysis areas for cultural resources, except for portions of Alternative 6 – Skunk Camp and the pipeline routes not within previously surveyed areas. Please note that some survey results are preliminary and may change after the Draft EIS is published.

No additional details were identified regarding methodology not included in the Draft EIS.

Regulations, Laws, and Guidance

Mine operations are subject to a wide range of Federal, State, and local requirements. Table 1 provides a summary of cultural resources laws, regulations, policies, and plans at the Federal, State, and local level.

Table 1. Relevant Laws, Regulations, Policies, and Plans

Laws, Ordinances, Regulations and Standards	Description	Applicability
National Historic Preservation Act (NHPA of 1966) (16 U.S.C. 470x-6)	Created policies for the preservation of historic properties throughout the nation, put in place the Section 106 review process (see below), and established the National Register of Historic Places (NRHP), Advisory Council on Historic Preservation (ACHP), and the State Historic Preservation Officers (SHPOs)/Tribal Historic Preservation Officers (THPOs)	Adverse impacts to historic properties will be avoided, minimized, or mitigated through the Section 106 of the NHPA process. Of the 280 archaeological sites within the direct analysis area, 201 are recommended or determined eligible for the NRHP.
Archaeological Resources Protection Act (ARPA) of 1979 (16 U.S.C. 470aa-470mm)	Designed to protect archaeological resources on Federal and Indian lands and establishes procedures for permitting archeological work on Federal or tribal lands in order to curtail unauthorized collection	Cultural resource surveys performed on Forest Service lands within the analysis area followed procedures outlined by ARPA.
American Indian Religious Freedom Act (AIRFA) of 1978 (42 U.S.C. 1996)	Protects Native American access to sacred sites	The <i>Chi'chil Bildagoteel</i> Historic District is located within the direct analysis area and is an NRHP-listed traditional cultural property (TCP) and its boundaries contain sacred places.
Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 U.S.C. 3001–3013)	“Gives ownership and control” of Native American human remains and associated objects excavated on Federal and Indian lands to Native Americans	Excavation of human remains and associated objects may occur.
Executive Order 13007 (May 24, 1996), “Indian Sacred Sites”	Designed to protect, when practical, access to Native American sacred sites on Federal land	The <i>Chi'chil Bildagoteel</i> Historic District is located within the direct analysis area on Forest Service land and is an NRHP-listed TCP and its boundaries contain sacred places.

Laws, Ordinances, Regulations and Standards	Description	Applicability
Executive Order 13175 (November 6, 2000), "Consultation and Coordination with Indian Tribal Governments"	Encourages the strengthening of government-to-government relations between the United States Government and Indian Tribal Governments	Mitigation of adverse impacts under the National Environmental Policy Act (NEPA) which do not fall under Section 106 will also be developed in consultation with the Tribes. Additionally, Tribal Monitors are assisting with the Class III surveys for the alternative footprints and Oak Flat.
Arizona Antiquities Act of 1960 (ARS 41-841 through 844)	Protects archaeological and paleontological resources on State lands by requiring authorization prior to excavation or collection on State lands (ARS 41-841) and prohibits defacing of sites or objects on State land (ARS 41-843).	The act stipulates that any institution (in this instance, Resolution Copper) undertaking archaeological work on State or local lands acquire a permit from the Arizona State Museum (ASM) (ARS 41-842) and requires that all discoveries, including human remains and funerary objects, on State land be reported to the ASM (ARS 41-844).
State Historic Preservation Act of 1982 (ARS 41-861 through 41-865)	Created the Arizona Register of Historic Places and requires that the effects on cultural properties be considered at all levels of planning and development by agencies that manage State land. ARS 41-865 also requires that private landowners report human remains or funerary objects found on their lands to the ASM.	Of the 280 archaeological sites recorded, 201 are recommended or determined eligible for the NRHP.
Tonto National Forest Land and Resource Management Plan	Any proposed ground-disturbing activity must comply with the NHPA and the programmatic agreement (still in progress), as well as NAGPRA and National Register Bulletin 38: Guidelines for Evaluating and Documenting Traditional Cultural Properties (Parker and King 1998).	Avoidance and protection are the preferred site management for historic properties; historic properties will be managed to achieve a "No Effect" finding for proposed undertakings and relocating projects to protect significant resources will be considered. Management of resources will be coordinated with the SHPO and appropriate tribes to the extent feasible.
American Antiquities Act of 1906 (16 U.S.C. 431–433)	Protects archaeological sites and historic structures on Federal lands by allowing the President to declare them national monuments and establishing a permitting requirement for excavation and collection of objects of antiquity from sites on Federal lands	280 archaeological sites have been recorded within the direct analysis area.

Laws, Ordinances, Regulations and Standards	Description	Applicability
EO 11593 (May 13, 1971), "Protection and Enhancement of the Cultural Environment"	Directs Federal agencies to responsibly manage cultural properties on Federal land for future generations by inventorying properties under their management and establishing procedures for the maintenance and recordation of those properties	To date, 27 cultural resource surveys or inventories have been completed within the direct analysis area, 12 surveys have been conducted in the selected lands and/or East Plant Site, and Class I records searches were conducted for the indirect analysis area.
Religious Freedom Restoration Act of 1993 (42 U.S.C. 21B)	Designed to prevent the Federal Government from placing substantial burden on a person's religious exercise	Tonto National Forest must continue to allow Native Americans to practice their religious exercise
Section 106 of the NHPA	Requires Federal agencies to take into account the effects of their undertakings on historic properties, and the most relevant to the land exchange and GPO. As defined in the implementing regulations of Section 106, 36 CFR 800.16(l), historic properties are any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP under one of four significance criteria: a) association with events that have made a significant contribution to the broad patterns of history; b) association with a significant person in the past; c) embodiment of the distinctive characteristics of a type, period, or method of construction, or represents the work of a master or possess high artistic values; d) the potential to yield information important about the past (National Park Service 1995). The Section 106 process requires that if an undertaking has the potential to adversely affect historic properties, the Federal agency must, in consultation with the SHPO or THPO and other interested parties, establish the area of potential effects (APE), identify historic properties within the undertaking's APE, assess what, if any, effects the undertaking may have on historic properties in the APE, and attempt to resolve adverse effects through avoidance, minimization, or mitigation of the adverse effects.	The Forest Service is in the process of developing a robust mitigation plan to avoid, minimize, rectify, reduce, or compensate for resource impacts that have been identified during the process of preparing this EIS. Appendix F contains descriptions of mitigation concepts being considered and known to be effective, as of publication of the Draft EIS. Appendix F also contains descriptions of monitoring that sound be needed to identify potential impacts and mitigation effectiveness.

Key Documents and References Cited for Cultural Resources

The following list is meant to highlight key process or analysis documents in the project record. It should not be considered a full list of all documentation considered within this process memorandum or the EIS analysis.

- Benz, L.D. 2006. *A Class III Cultural Resources Survey of Approximately 5 Acres Near Superior, Pinal County, Arizona*. Cultural Resources Report 2006-14. ASM Accession No. 2006-0111. Project No. 807.10 B 110. Tucson, Arizona: WestLand Resources, Inc. March 2.
- Buckles, A. 2007. *A Class III Cultural Resources Survey of 0.68 Acre of State Trust Land Near US 60 and Queen Valley Road, Pinal County, Arizona*. Cultural Resources Report 2007-45. Project No. 807.15 520 520. Tucson, Arizona: WestLand Resources, Inc. December 21.
- . 2008. *A Class III Cultural Resources Inventory of 281 Acres in the Pinal Highlands, Pinal and Gila Counties, Arizona: Resolution Pre-Feasibility Studies*. Cultural Resources Report 2008-21. WestLand Project No. 807.17 500x 500. TNF Project No. 2005-12-090. Tucson, Arizona: WestLand Resources, Inc. April 10.
- . 2009. *A Class III Cultural Resources Inventory of 302 Acres in the Pinal Highlands, Pinal and Gila Counties, Arizona: Resolution Pre-Feasibility Studies*. Cultural Resources Report 2008-21. WestLand Project No. 807.25. TNF Project No. 2007-12-095. Tucson, Arizona: WestLand Resources, Inc. May 4.
- Buckles, A., and S. Granger. 2009. *A Class III Cultural Resources Inventory Within State Lands South of Oak Flat in Pinal County, Arizona*. Cultural Resources Report 2008-23. Project No. 807.15/17 520 520. Tucson, Arizona: WestLand Resources, Inc. December 18.
- Buckles, A., and C. Jerla. 2008. *A Class III Cultural Resources Inventory Along the MARRCO Right-of-Way West of Superior Pinal County, Arizona*. Cultural Resources Report 2008-27. WestLand Project No. 807.24 A 01. Tucson, Arizona: WestLand Resources, Inc. September 9.
- Buckles, A., C. Jerla, and C. Dore. 2012. *A Cultural Resources Inventory of the Magma Arizona Railroad Right-of-Way, Pinal County, Arizona*. Cultural Resources Report 2012-18. ASM Accession No. 2012-0122. WestLand Project No. 807.44 C 500. Tucson, Arizona: WestLand Resources, Inc. May 15.
- Chamorro, S. 2014a. *A Cultural Resources Inventory in Support of a Plan of Operation For Monitor Well Sites G and R and Associated Access Roads Located Within Section 5, Township 2 South, Range 13 East, Pinal County, Arizona*. Arizona State Land Department Exploration Permit Number 08-115472. Accession Number 2013-557. Cultural Resources Report 2013-80. Project No. 0807.94 A 01-520. Tucson, Arizona: WestLand Resources, Inc. January 9.
- . 2014b. *A Cultural Resources Inventory of 12.92 Acres An Addendum to the Resolution Project: A Cultural Resources Inventory of Baseline Hydrologic and Geotechnical Data-Gathering Sites and Access Roads in the Foothills of the Superstition Mountains, Northwest of Superior, Arizona*. Cultural Resources Report 2014-58. Project No. 807.94 06 05-110. Tucson, Arizona: WestLand Resources, Inc. November 13.

- . 2015. A Cultural Resources Inventory of 1,153 Acres Within the East and West Plan Sites for the Resolution Copper Project, in and Near Superior, Pinal County, Arizona. Cultural Resources Report 2015-24. ASM Accession No. 2015-0061. Tonto National Forest Permit No. TON 883. Project No. 807.101. Tucson, Arizona: WestLand Resources, Inc. October 12.
- Chamorro, S., S. Brown, and G. Tinseth. 2019. Results of a 7,770-Acre Cultural Resources Inventory for the Peg Leg Well Tailings Storage Facility Alternative, Pinal County, Arizona, Resolution Copper Mining. Cultural Resources Report 2018-85. Project Number: 807.146. Tucson, Arizona: WestLand Resources Inc. April 22.
- Chamorro, S., B. Stone, and C. Daughtrey. 2016. A Cultural Resources Inventory of 84.2 Acres of Tonto National Forest and Private Land in Support of the Resolution Copper Project General Plan of Operations Near Superior, Pinal County, Arizona, Resolution Copper. Cultural Resources Report 2016-53. Project Number: 807.125. Tucson, Arizona: WestLand Resources, Inc. November 29.
- Chamorro, S., G. Tinseth, S. Brown, and J. Bernatchez. 2019. Results of a 2,885-Acre Cultural Resources Inventory for the Silver King Filtered Tailings Storage Alternative Near Superior, Pinal County, Arizona, Resolution Copper. Cultural Resources Report 2018-94. Project Number: 807.148. Tucson, Arizona: WestLand Resources Inc. March 26.
- Cook, M.D. 2007a. Resolution Class III Cultural Resources Survey Along 2.5 Miles of Magma Arizona Railroad on State Trust Land Pinal County, Arizona. Cultural Resources Report 2007-15. Project No. 807.12. Tucson, Arizona: WestLand Resources, Inc. April 11.
- . 2007b. *Resolution Class III Cultural Resources Survey Along Magma Arizona Railroad on State Trust Land Pinal County, Arizona*. ASM Accession No. 2007-0213. Cultural Resources Report 2007-12. Project No. 807.12. Tucson, Arizona: WestLand Resources, Inc. April 2.
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- Hooper, J.M.D. 2014. Resolution Project: A Cultural Resources Inventory of Baseline Hydrologic and Geotechnical Data-Gathering Sites and Access Roads in the Foothills of the Superstition Mountains, Northwest of Superior, Arizona. Cultural Resources Report 2013-48. Project No. 807.90 02 02-520. Tucson, Arizona: WestLand Resources, Inc. April 30.
- Hooper, J.M.D., and G.L. Tinseth. 2015. Resolution Project: A Cultural Resources Inventory of 4,890 Acres in the Foothills of the Superstition Mountains, Northwest of Superior, Arizona. Cultural Resources Report 2014-29. Project No. 807.91 0500 0550. Tucson, Arizona: WestLand Resources, Inc. June 8.

- King, A.M., and A. Buckles. 2015. *A Revised Cultural Resources Inventory of the Magma Arizona Railroad Right-of-Way, Pinal County, Arizona*. Cultural Resources Report 2015-25. ASM Accession No. 2015-0268. Project No. 807.44/807.100. Tucson, Arizona: WestLand Resources, Inc. June 24.
- Lindeman, M. 2003. *Cultural Resources Survey of a Hydrologic Test Site East of Superior, Pinal County, Arizona*. Project Report No. 03-218. Project No. 03-160. Tucson, Arizona: Desert Archaeology, Inc. December 19.
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- WestLand Resources Inc. 2009. *A Class III Cultural Resources Survey of Approximately 0.45 Acre Near Superior, Arizona*. Project No.: 807.15 110-1. Tucson, Arizona: WestLand Resources, Inc. September 18.