USDA Forest Service
Tonto National Forest
Arizona

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Process Memorandum to File

Cumulative Effects Screening and Analysis for Copper Creek Exploration Drilling Program

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.

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Revision History

Date	Personnel	Revisions Made
5/23/2025	C. Garrett	Process memorandum created.

Purpose of Process Memorandum

The Tonto National Forest received correspondence dated April 11, 2025, purporting to contain "significant new information" regarding the Resolution Copper Project and Land Exchange and associated National Environmental Policy Act (NEPA) process. The new information was assessed and considered for relevance (Project Record #0006382). With the exception of Item #42, no information submitted with the April 11 correspondence represented new information that had not already been considered in the NEPA process.

Item #42 provided information on the Copper Creek Exploration Drilling Program (Copper Creek Project) and asserted that this project should be considered as a reasonably foreseeable future action (RFFA) and included in the cumulative effects analysis, specifically due to the proximity to the Lower San Pedro Ranch exchange parcel.

The purpose of this memorandum is to screen the Copper Creek Project for inclusion in the cumulative effects analysis and assess any cumulative effects with the Resolution Copper Project.

Overview of the Copper Creek Exploration Drilling Program

The Copper Creek Project is a proposed copper mineral exploration program on Bureau of Land Management (BLM) lands in Pinal County, Arizona. The area targeted is located on the western face in the northern portion of the Galiuro Mountains, east of Mammoth, Arizona. The nearest drilling is located approximately 4 miles from the eastern edge of the Lower San Pedro River exchange parcel (figure 1).

A plan of operations for the Copper Creek Project was submitted to Safford Field Office of the BLM in November 2022 (WestLand Resources Inc. 2022). The BLM released a draft environmental assessment (EA) for the project in February 2025 (BLM 2025).

The Copper Creek Project would consist of 67 drill pad sites and associated access roads within unpatented claims on BLM-managed public lands, largely using previously disturbed drill pads and existing access roads. Total ground disturbance on BLM-managed lands is estimated to be 18 acres, which includes 6 acres for 67 drill pads (this acreage includes the previously disturbed and reclaimed portions of all pads plus any necessary expansion), 8 acres of reestablished access roads (all previously disturbed for exploration activities and reclaimed); and 4 acres of road widening on existing access roads with minor maintenance and/or improvements (e.g., modifying the existing road prism to allow safe passage of vehicles and equipment). All drill rigs would be diamond core drill rigs.

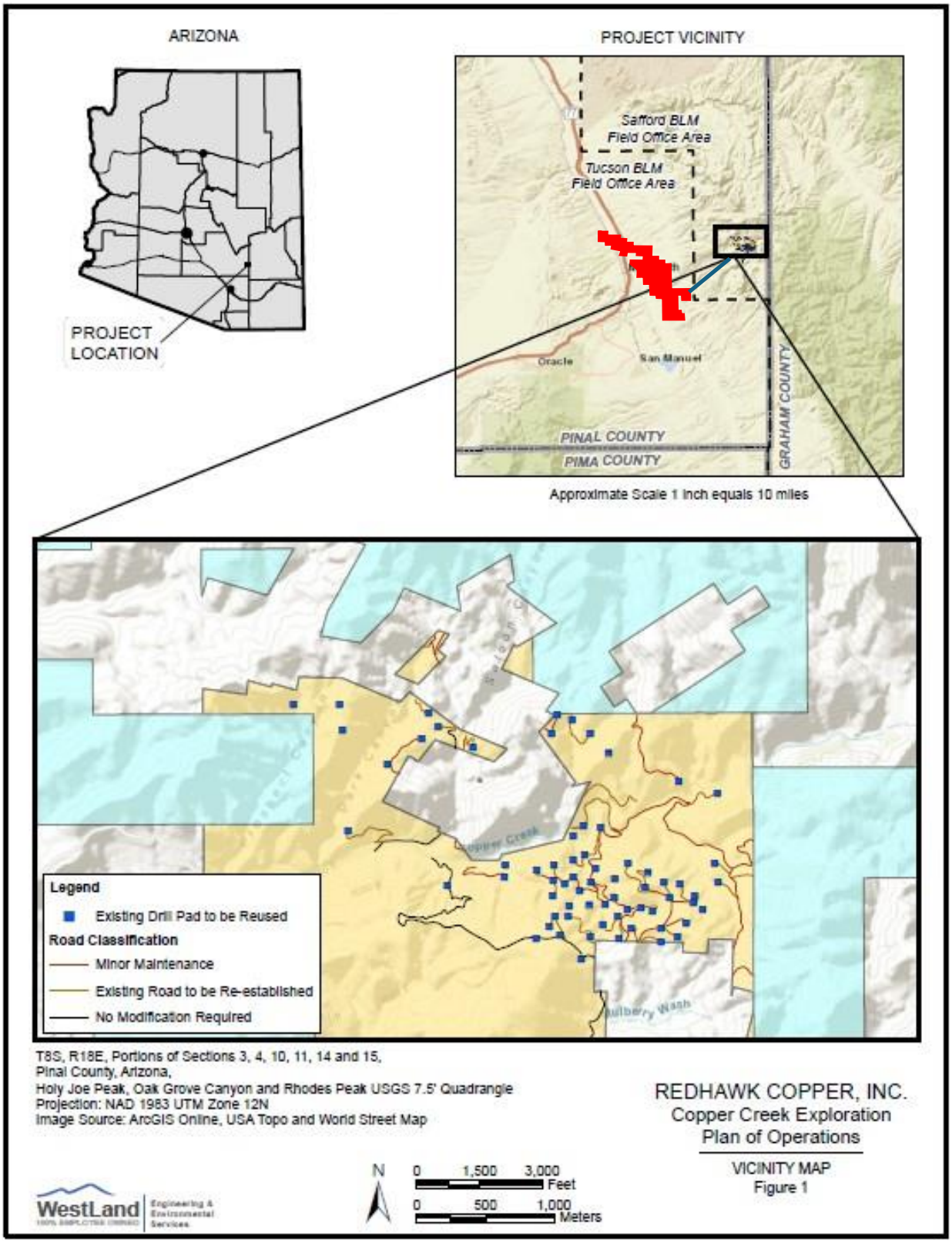

Figure 1. Location map (excerpt from BLM EA), with Lower San Pedro River exchange parcel shown in red

The schedule is to initiate the proposed activities as soon as feasible. Upon initiation, exploration activities are expected to be conducted 24 hours per day, 365 days per year, as weather permits, for 2 to 3 years. However, drilling would more realistically occur approximately 9 months per year, with breaks primarily during the monsoon season associated with weather conditions and the end-of-year holiday season.

Pumped groundwater would primarily be used for drilling activities, reintroduced to the subsurface through pumping into the drill holes (1) to lubricate and cool the drill bit and (2) to wash out the loose material created during the drilling process. In addition, as conditions warrant, water will also be required to control dust on the roads with use of a water truck. Water would be pumped via polyvinyl chloride (PVC) hoses placed along the side of roads from an off-site, private well. Daily water requirements would differ, but the proponent estimates that approximately 70,000 gallons of water would be pumped per month per drill rig, including water use for dust abatement purposes.

Screening of the Copper Creek Project as a Reasonably Foreseeable Future Action

The process for evaluating a potential RFFA consists of two steps: (1) screening, and (2) if appropriate, evaluation of the cumulative effects of the RFFA combined with anticipated effects from the Resolution Copper Project. This section provides a detailed screening of the Copper Creek Project to assess whether it represents an RFFA and, if so, what resources should be assessed for cumulative effects. The next section provides the assessment of cumulative effects for pertinent resources.

Screening of RFFAs has taken place four times during the Resolution Copper Project NEPA process. The Copper Creek Project was not analyzed in any of the four previous screenings.

- October 17, 2018, "Process Memorandum to File - Determination of Reasonably Foreseeable Actions Considered in Cumulative Effects Analysis" (Project Record #0110920)
- October 28, 2020, "Process Memorandum to File - Post-DEIS Update: Determination of Reasonably Foreseeable Actions Considered in Cumulative Effects Analysis" (Project Record #0004293); as well as October 28, 2020, "Process Memorandum to File - Cumulative Effects Analysis Overview and Screening by Resource" (Project Record #0004292)
- February 23, 2023, "Process Memorandum to File - Addendum #1 to October 28, 2020 Process Memo 'Cumulative Effects Analysis Overview and Screening by Resource'" (Project Record #0004788)
- October 18, 2024, "Process Memorandum to File - Addendum #2 to October 28, 2020 Process Memo 'Cumulative Effects Analysis Overview and Screening by Resource'" (Project Record #0006388)

Screening of a potential RFFA includes the evaluation of four factors:

1. Is there adequate information about the potential RFFA to allow analysis, or is the RFFA speculative in nature? For a potential RFFA to be analyzed and not considered speculative, there must be some level of detailed information to support analysis. In most cases, this means

there must be a published plan that contains adequate detail, or a permit or plan that has been submitted to a state or federal agency.

2. Do the effects from the potential RFFA overlap in space with effects from the Resolution Copper Project?

3. Do the effects from the potential RFFA overlap in time with effects from the Resolution Copper Project?

4. On a resource-by-resource basis, are there anticipated to be adverse effects associated with the potential RFFA?

Screening Criteria #1 – Assessment of Adequate Information

The plan of operations for the Copper Creek Project and the BLM EA released in February 2025 provide adequate information for evaluation of the project as a potential RFFA.

Screening Criteria #2 – Spatial Overlap with the Resolution Copper Project

Cumulative effects analysis areas for the Resolution Copper Project have been identified for each resource (see chapter 4 of the FEIS, Section 4.3.1, Cumulative Effects Analysis Areas and Impact Metrics). At a screening level, the Copper Creek Project falls within the boundaries at least two of the cumulative effects analysis areas (air quality and socioeconomics) and therefore meets this criterion for being considered as a potential RFFA.

Note that this step represents a rough screening for spatial overlap. More detailed screening of spatial overlap is contained for pertinent resources in the cumulative effects analysis contained in the next section.

Screening Criteria #3 – Temporal Overlap with the Resolution Copper Project

The EA for the Copper Creek states, "The preliminary Proposed Action Alternative schedule is to initiate the proposed activities as soon as feasible. Upon initiation of the Proposed Action Alternative, exploration activities are expected to be conducted at the Project Area 24 hours per day, 365 days per year, as weather permits, for 2 to 3 years. However, drilling would more realistically occur approximately 9 months per year, with breaks primarily during the monsoon season associated with weather conditions and the end-of-year holiday season" (p. 10).

The schedule for initiation of construction and operation of the Resolution Copper Project is unknown, pending completion of the permitting process and resolution of litigation. However, the nearest component of the Resolution Copper Project is the Lower San Pedro River exchange parcel (also known as "7B Ranch"), which would be transferred from Resolution Copper to the Federal Government and come under management of BLM (see figure 1). Execution of the land exchange would occur relatively early, taking place within 60 days of the publication of the Resolution Copper Project and Land Exchange FEIS. Therefore, it is conceivable that there may be temporal overlap between the Copper Creek Project and the Resolution Copper Project and Land Exchange.

Screening Criteria #4 – Resource-by-Resource Screening for Potential Adverse Effects

Multiple similar exploration projects have been assessed previously for inclusion in the cumulative effects analysis. The resource-by-resource screening rationale shown in table 1 below is consistent with these previous RFFAs but is further informed by the NEPA analysis contained in the EA for the Copper Creek Project.

As an outcome of the screening shown in table 1, six resources were identified to be carried forward for analysis for cumulative effects:

- Noise and vibration
- Transportation and access
- Water: Groundwater quantity and groundwater-dependent ecosystems
- Water: Groundwater and surface water quality
- Water: Surface water quantity
- Wildlife

The resource-by-resource screening of previous exploration RFFAs indicated that cumulative effects analysis was required only for noise/vibration and transportation/access. The four additional resources identified for the Copper Creek Project are due to the use of a pumping well to supply water for the Copper Creek Project.

Table 1. Resource-by-resource Screening for Potential for Cumulative Effects

Resource Category	Results of RFFA Screening
Geology, Minerals, and Subsidence	Dismiss from further analysis; RFFA would not contribute to cumulative effects or effects are negligible. Installation of boreholes for exploratory purposes is not likely to impact the ability to access geology or mineral resources in this area. This is consistent with the screening of resource issues found in appendix A of the BLM EA, which concluded for this resource (Geology/Minerals/Energy Production): • Present, but not affected to a degree that detailed analysis is required. • "Extracting drill core will have negligible effects on geological resources."
Soils, Vegetation, and Reclamation	Dismiss from further analysis; RFFA would not contribute to cumulative effects or effects are negligible. Drilling will take place mostly on previously used drill pads, and all drill sites will be reclaimed upon cessation of drilling. This is consistent with the screening of resource issues found in appendix A of the BLM EA, which concluded for these resources (Soils: Physical/Biological; Plants: Invasive and Noxious Weeds; Plants: Native Vegetation & Woodlands/Forestry): Present, but not affected to a degree that detailed analysis is required "The Storm Water Pollution Prevention Plan (SWPPP) and the H-9115-1 Primitive Road Design Handbook will implement specific BMPs to prioritize the prevention of erosion. With continuous maintenance and monitoring, these measures may be sufficient to prevent further degrading of soil resources caused by vehicle traffic associated with this operation and the effects of stormwater runoff in this erosion-prone area."

Resource Category	Results of RFFA Screening
	"Invasive plants and noxious weeds issues will be mitigated using BLM-determined Best Management Practices (BMPs), including cleaning and inspection of all equipment prior to entry onto public lands, minimizing soil disturbance to the most practical extent, and use of certified weed-free native seed mix. If noxious weeds emerge on the project site areas as a result of project activities, the proponent will be required to treat and eliminate those." "Less than .3% of the project areas is expected to be disturbed; the disturbance expected to native vegetation should be concentrated along travel routes due to minor construction and maintenance, such as berms, ditches and erosion control features. This resource does not require additional analysis at this time per the scope, scale and applicant committed measures as proposed." In addition, the screening of resource issues found in appendix A of the BLM EA concluded for these resources (Plants: Threatened, Endangered, Proposed, or Candidate; Plants: BLM Sensitive): • Not present in the area impacted by the proposed or alternative action.
Noise and Vibration	Continue analysis. RFFA could contribute to cumulative effects, and sufficient information exists to analyze. Drilling and vehicles will create temporary noise and vibration impacts.
Transportation and Access	Continue analysis. RFFA could contribute to cumulative effects, and sufficient information exists to analyze. The proposed project would use public roads and has the potential to impact transportation and access in and around the project area.
Air Quality	Dismiss from further analysis; RFFA would not contribute to cumulative effects or effects are negligible. The proposed action would not substantially impact this resource and includes mitigation measures to control dust. This is consistent with the screening of resource issues found in appendix A of the BLM EA, which concluded for this resource (Air Quality): • Present, but not affected to a degree that detailed analysis is required. • "Based on information from mitigation and incorporation of best available operating practices from the proponent into proposed project design the emissions associated with the proposed action would not be impacted to a degree that detailed analysis is necessary."
Water: Groundwater Quantity and Groundwater-Dependent Ecosystems	Continue analysis. RFFA could contribute to cumulative effects, and sufficient information exists to analyze. This is consistent with the BLM EA. BLM found that groundwater impacts and potential hydrologic effects required detailed analysis in the EA.
Water: Groundwater and Surface Water Quality	Continue analysis. RFFA could contribute to cumulative effects, and sufficient information exists to analyze. This is consistent with the BLM EA. While BLM found that groundwater quality impacts were "present, but not affected to a degree that detailed analysis is required," but that surface water quality required detailed analysis in the EA due to potential sedimentation impacts.

Resource Category	Results of RFFA Screening
Water: Surface Water Quantity	Continue analysis. RFFA could contribute to cumulative effects, and sufficient information exists to analyze. This is consistent with the BLM EA. BLM found that surface water quantity required detailed analysis in the EA due to potential reduced availability.
Wildlife	Previous U.S. Forest Service screening of resource impacts to wildlife from exploration drilling found that RFFAs would not contribute to cumulative effects or effects are negligible. This rationale was based on the fact that drilling will take place in mostly previously disturbed areas and the project includes mitigation measures to reduce impacts to wildlife. This prior conclusion differs from the BLM EA, which contains detailed analysis of potential wildlife impacts. In consideration of this, the determination of the resource-by-resource screening is to continue analysis as the RFFA could contribute to cumulative effects on wildlife.
Recreation	Dismiss from further analysis; RFFA would not contribute to cumulative effects or effects are negligible. The proposed action would not impact this resource. This is consistent with the screening of resource issues found in appendix A of the BLM EA, which concluded for this resource (Recreation Resources): • Present, but not affected to a degree that detailed analysis is required. • "Per GIS review, there are no developed or undeveloped recreation resources within the project area. Impacts to disbursed [sic] recreation would be minor to imperceptible due to similar disbursed [sic] recreation opportunities available in adjacent areas. Disbursed [sic] recreation activities may be present within the Project Area, but within the scope and scale of the Proposed Action impacts do not need further analysis at this time due to the reclamation standards incorporated into the proposal per 3809 regs."
Public Health & Safety: Tailings Safety	Dismiss from further analysis; RFFA would not contribute to cumulative effects or effects are negligible. Tailings are not involved in the proposed project.
Public Health & Safety: Fuels and Fire Management	Dismiss from further analysis; RFFA would not contribute to cumulative effects or effects are negligible. The proposed action would not impact this resource. This is consistent with the screening of resource issues found in appendix A of the BLM EA, which concluded for this resource (Fuels/Fire Management) that no fuel or fire management activities present in the area impacted by the proposed or alternative action.
Public Health & Safety: Hazardous Materials	Dismiss from further analysis; RFFA would not contribute to cumulative effects or effects are negligible. Typical drilling actions use containment ponds and best management practices to minimize potential for hazardous materials to impact the environment. This is consistent with the screening of resource issues found in appendix A of the BLM EA, which concluded for this resource (Wastes - hazardous/solid): • Present, but not affected to a degree that detailed analysis is required. • "No chemicals subject to reporting under SARA Title III in an amount equal to or greater than 10,000 pounds will be used, produced, stored, transported, or disposed of annually in association with the project. Solid Wastes: Trash would be confined in a covered container and hauled to an

Resource Category	Results of RFFA Screening
	approved landfill. Burning of waste or oil is not authorized. Human waste would be contained and be disposed of at an approved sewage treatment facility."
Scenic Resources	Dismiss from further analysis; RFFA would not contribute to cumulative effects or effects are negligible. The proposed action would not impact this resource or would only impact it temporarily until reclamation is completed and vegetation reestablished. This is consistent with the screening of resource issues found in appendix A of the BLM EA, which concluded for this resource (Visual Resources): • Present, but not affected to a degree that detailed analysis is required. • "Per GIS review, the project area falls within a visual resource management (VRM) class IV objective. VRM Class IV provide for management activities that require major modifications of the existing character of the landscape. The level of change may be high and may dominate the view and be the major focus of viewer's attention. The proposed action would conform with the visual objectives of the area and not conflict with visual management objectives."
Cultural Resources	Dismiss from further analysis; RFFA would not contribute to cumulative effects or effects are negligible. The proposed action would not impact this resource. Pre-drilling clearance surveys would be conducted to avoid cultural resource sites. This is consistent with the screening of resource issues found in appendix A of the BLM EA, which concluded for this resource (Cultural: Archaeological Resources): • Present, but not affected to a degree that detailed analysis is required. • "Based on the Copper Creek surveys conducted in 2006 (Dolan and Lindley 2007), 2011 (Hooper and King 2011), and 1998 (1998-485.ASM), where five sites were identified (AZ BB:3:47[ASM]; AZ BB:3:34[ASM]; AZ BB:7:22[ASM];AZ BB:7:23[ASM]; and AZ BB:2:195[ASM]), compounded with the fact that land disturbances from the current project will not include more than minor expansion past previously disturbed areas, no known cultural resources will be impacted by the Proposed Action."
Socioeconomics	Dismiss from further analysis; RFFA would not contribute to cumulative effects or effects are negligible. No major changes in employment or tax revenue are anticipated. This is consistent with the screening of resource issues found in appendix A of the BLM EA, which concluded for this resource (Socioeconomics): • Present, but not affected to a degree that detailed analysis is required. • "A review of the Implementation of the Proposed Action could cause temporary construction impacts to residents and businesses in the local community, including increased noise and dust in the project area. Due to the limited scope of the project on public lands, this resource does not require additional analysis for this project as defined."
Tribal Values and Concerns	Dismiss from further analysis; RFFA would not contribute to cumulative effects or effects are negligible. The proposed action would not impact this resource. This is consistent with the screening of resource issues found in appendix A of the BLM EA, which concluded for this resource (Cultural: Native American Religious Concerns):

Resource Category	Results of RFFA Screening
	• Present, but not affected to a degree that detailed analysis is required. • "Pursuant to the American Indian Religious Freedom Act of 1978 (42 USC 1531) and National Historic Preservation Act (NHPA) (16 USC 131) Native American Tribes were notified of the project by letter mailed 2/17/2023. Letters were received from the Pascua-Yaqui Tribe on 2/22/2023, the White Mountain Apache Tribe on 3/17/2023, and the Ak-Chin Indian Community on 4/3/2023. There are no identified Native American Traditional Cultural Properties within the Project Area."
Livestock and Grazing	Dismiss from further analysis; RFFA would not contribute to cumulative effects or effects are negligible. The proposed action would not impact this resource. This is consistent with the screening of resource issues found in appendix A of the BLM EA, which concluded for this resource (Livestock Grazing and Rangeland Health Standards): • Present, but not affected to a degree that detailed analysis is required. • "With appropriate reclamation, monitoring, and compliance of the project activities (as currently proposed), short-term or long-term impacts to both grazing and rangeland health standards should not be impacted to a level that would require additional analysis at this time."

Resource-by-Resource Cumulative Effects Analysis for Copper Creek Project

Each of the six resources identified in table 1 is assessed independently below.

Potential Cumulative Effects – Noise and Vibration

Location Compared with Cumulative Effects Analysis for Noise and Vibration

The cumulative effects spatial analysis area for noise and vibration is defined in chapter 4, section 4.3.1 of the FEIS for the Resolution Copper Project and Land Exchange:

> The direct and indirect effects of noise and vibration were determined to be limited to 1 mile from the project area. The cumulative effects analysis area for noise and vibration extends an additional mile from the project footprint (2 miles total), to allow for overlap of the direct/indirect effects from any RFFAs.

The Copper Creek Project is located approximately 2 miles beyond the boundary of the noise and vibration cumulative effects analysis area and therefore would not be anticipated to have overlap of noise or vibration effects.

Potential Adverse Effects from Copper Creek Project

The BLM EA describes the potential noise effects from a drill rig based on field measurements at varying distances and directions from a rig (pp. 41–44). Measured ambient noise levels ranged from 29.2 to 38.4 A-weighted decibels (dBA). In most directions sound decreased from 92.2 dBA at the rig

to under 50 dBA at a distance of 300 feet, which is below the 55 dBA threshold used to define adverse impacts in the Resolution Copper FEIS. The BLM EA also notes the guidance that sound pressure levels decrease by 6 decibels per doubling of distance. Using this approach, ambient sound levels would be reached within approximately half a mile.

Potential Adverse Effects from Lower San Pedro River Exchange Parcel

Congress directed that upon exchange the Lower San Pedro River exchange parcel would be managed by BLM as part of San Pedro River National Conservation Area (SPRNCA). Current management of SPRNCA generally allows for recreation and fire management activities and excludes grazing and vehicles, and manages for the preservation and enhancement of the riparian corridor.

Until the exchange occurs, a specific land management plan is being implemented on this parcel by The Nature Conservancy (The Nature Conservancy 2016). As stated in that plan, "This management plan describes a number of management steps that will prepare the property for transfer to the Department of the Interior, and establish a long-term conservation management approach for the 7B Ranch that will integrate general management objectives with other conservation properties along this stretch of the river." It is reasonable to assume the activities would be similar to this plan and would include the following:

- Fencing around the bosque was installed in 2011. As a result, the incidence of trespassing for illegal woodcutting, hunting, vandalism, and dumping has been nearly eliminated. It also effectively excludes cattle from returning to the bosque.
- Agricultural use, with associated water use, ceased roughly 30 years ago and would not restart.
- Grazing is recommended by The Nature Conservancy to continue to be excluded.
- Some vegetation management would occur to maintain a fire line around the bosque-public road interface, using an all-terrain vehicle with a pull-behind mower roughly twice a year.
- A fire suppression plan would be implemented in the event of a wildland fire.
- A variety of monitoring would occur, including groundwater levels, wetlands, wildlife species, and vegetation.

None of these activities would contribute to substantial noise levels that would be anticipated to extend far beyond the immediate parcel.

Conclusions for Noise and Vibration

The Copper Creek Project is located well beyond the boundaries established for the noise and vibration cumulative effects analysis area. The analysis in the BLM EA of noise associated with the Copper Creek Project (noise extending maybe 0.5 mile from the drill rig before being reduced to ambient sound levels), plus the type of activities anticipated on the Lower San Pedro River exchange parcel (unlikely to result in noise that extends beyond the parcel), supports the conclusion that cumulative effects due to noise and vibration are unlikely to occur and are not appropriate to analyze for the Resolution Copper Project.

Potential Cumulative Effects – Transportation and Access

Location Compared with Cumulative Effects Analysis for Transportation and Access

The cumulative effects spatial analysis area for transportation and access is defined in chapter 4, section 4.3.1 of the FEIS for the Resolution Copper Project and Land Exchange:

> The direct and indirect effects of transportation changes are analyzed for the roads adjacent to the project-related facilities and the regional transportation routes. The cumulative effects analysis area for transportation is identical, as traffic from other projects would potentially travel these same routes.

The nearest transportation route in the cumulative effects analysis area is State Route 77, from Dripping Springs Road toward Globe, located roughly 25 miles from the Copper Creek Project. Traffic associated with the Copper Creek Project is unlikely to overlap these routes.

Potential Adverse Effects from Copper Creek Project

The plan of operations describes the level of traffic as follows:

- Up to 12 personnel could be on-site at any one time during typical project activities.
- Exploration drilling and maintenance equipment typically could include two track-mounted core drill rigs, one service truck (fuel) for drill support, one backhoe or excavator for general earthwork, one bulldozer for road and pad improvements, one water truck, and up to 10 four-wheel-drive pickup trucks for personnel transport.

Given mobilization/demobilization, most equipment would likely remain at the project site and not traverse public roads regularly. Daily traffic on public roads would be expected to be the 10 pickup trucks. This level of traffic is negligible.

Potential Adverse Effects from Lower San Pedro River Exchange Parcel

None of the management activities described in the current management plan would contribute to substantial traffic levels.

Conclusions for Transportation and Access

Any traffic from the Copper Creek Project is located well beyond the boundaries established for the transportation and access cumulative effects analysis area. The plan of operations indicates negligible traffic on public roads, and the type of activities anticipated on the Lower San Pedro River exchange parcel would not produce traffic. This supports the conclusion that cumulative effects for transportation and access are unlikely to occur and are not appropriate to analyze for the Resolution Copper Project.

Potential Cumulative Effects – Water: Groundwater Quantity and Groundwater-Dependent Ecosystems

Location Compared with Cumulative Effects Analysis for Groundwater

The cumulative effects spatial analysis area for groundwater quantity and groundwater-dependent ecosystems is defined in chapter 4, section 4.3.1 of the FEIS for the Resolution Copper Project and Land Exchange:

> Two separate modeling areas were used to assess direct and indirect impacts to groundwater resources and groundwater-dependent ecosystems: a large model area centered on the block-cave zone and encompassing much of the upper Queen Creek watershed, the Superior basin, and Oak Flat (where dewatering would occur), and the East Salt River valley (from where the mine water supply would be pumped). Both model areas are sufficiently large to encompass other water users that could combine with the project effects and impact groundwater resources. The cumulative effects analysis area for groundwater quantity is identical to the two groundwater model analysis areas.

The groundwater use for the Copper Creek Project lies roughly 40 miles beyond the cumulative effects analysis area for groundwater quantity and therefore would not be anticipated to have overlap of groundwater effects.

Potential Adverse Effects from Copper Creek Project

The drawdown effects of groundwater pumping are not specifically quantified in the BLM EA. Qualitatively the EA notes, "Groundwater pumping from the private-land wells has the potential to affect the availability of surface water and lower the groundwater table within the Project Area" (p. 41).

Further, "The two existing wells have been and are currently in use for ranching and for mineral exploration on non-federal lands. Any pumping for the Proposed Action Alternative would be replacing current pumping for other Redhawk drilling operations on non-federal lands" (p. 68).

Potential Adverse Effects from Lower San Pedro River Exchange Parcel

None of the management activities described in the current management plan would involve groundwater pumping.

Conclusions for Groundwater Quantity and Groundwater-Dependent Ecosystems

Any groundwater drawdown from the Copper Creek Project is located well beyond any anticipated drawdown caused by the Resolution Copper Project, either at the mine site from dewatering or from the Desert Wellfield. The type of activities anticipated on the Lower San Pedro River exchange parcel would not cause groundwater drawdown. This supports the conclusion that cumulative effects on groundwater quantity or groundwater-dependent ecosystems are unlikely to occur and are not appropriate to analyze for the Resolution Copper Project.

Potential Cumulative Effects – Water: Groundwater and Surface Water Quality

Location Compared with Cumulative Effects Analysis for Groundwater and Surface Water Quality

The cumulative effects spatial analysis area for groundwater and surface water quality is defined in chapter 4, section 4.3.1 of the FEIS for the Resolution Copper Project and Land Exchange:

> The effects on surface water quality generally would be confined to the watersheds within which the project is located. In most cases, the point at which groundwater quality impacts would merge with impacts from other projects is where groundwater is expressed at the surface, specifically Queen Creek (Alternatives 2, 3, and 4) and the Gila River (Alternatives 5 and 6). The cumulative effects analysis area for groundwater and surface water quality consists of the watersheds for upper Queen Creek (headwaters to Whitlow Ranch Dam), Dripping Spring Wash, Donnelly Wash, and the Gila River between Dripping Spring Wash to the Ashurst-Hayden Diversion Dam near Florence.

The groundwater use for the Copper Creek Project lies roughly 20 miles beyond the cumulative effects analysis area for groundwater and surface water quality, in a different watershed, and therefore would not be anticipated to have overlap of effects on groundwater and surface water quality.

Potential Adverse Effects from Copper Creek Project

With respect to water quality, the BLM EA notes the potential effects from groundwater drawdown:

> Groundwater pumping for project purposes and the potential for reductions of surface and shallow groundwater availability may have scaling effects specific to the affected resource. Reductions in surface flow may disrupt the water/sediment balance, lowering the transport capability of the stream, affecting aquatic habitat and surface water expression. Reductions in surface water would reduce available habitat for aquatic wildlife and aquatic vegetation. Reductions in surface water would reduce water availability for terrestrial wildlife. Reductions in surface water would result in increases of water temperature and decreases in water quality. Reductions of groundwater levels would have negative effects for riparian vegetation, relatively shallow-rooted hydrophytes dependent on surface water availability. (p. 69)

Additional impacts could result from erosion and sedimentation from ground disturbance, though specific design features are in place to minimize these impacts: “Project design features outlined in Section 2.2.10 would reduce potential impacts from lighting, fugitive dust, and erosion, and on sedimentation in water resources, but may not eliminate them entirely” (p. 47).

The BLM EA does not note any specific impacts to groundwater quality.

Potential Adverse Effects from Lower San Pedro River Exchange Parcel

The management plans for the Lower San Pedro River exchange parcel, whether those specified in the current management plan or those currently in effect for SPRNCA, have goals of protecting and

enhancing riparian vegetation and reducing impacts to the riparian system. No specific impacts to groundwater or surface water quality are anticipated from these management practices.

Conclusions for Groundwater and Surface Water Quality

Any potential surface water quality impacts from the Copper Creek Project are located well beyond the area within which anticipated effects from Resolution Copper Project would occur, in a different watershed. The type of activities anticipated on the Lower San Pedro River exchange parcel would not cause specific groundwater or surface water quality impacts. This supports the conclusion that cumulative effects on groundwater and surface water quality are unlikely to occur and are not appropriate to analyze for the Resolution Copper Project.

Potential Cumulative Effects – Water: Surface Water Quantity

Location Compared with Cumulative Effects Analysis for Surface Water Quantity

The cumulative effects spatial analysis area for surface water quantity is defined in chapter 4, Section 4.3.1 of the FEIS for the Resolution Copper Project and Land Exchange:

> The effects on surface water quantity are confined to the watersheds within which the project is located, where surface water reductions could occur due to mine stormwater controls or the subsidence area. The cumulative effects analysis area for surface water quantity is the same as that used for groundwater and surface water quality.

The potential surface water impacts for the Copper Creek Project lies roughly 20 miles beyond the cumulative effects analysis area for surface water quantity, in a different watershed, and therefore would not be anticipated to have overlap of effects to surface water quantity.

Potential Adverse Effects from Copper Creek Project

The effects on surface water quantity are noted above, with the potential for reductions in surface flow in Copper Creek due to groundwater pumping.

Potential Adverse Effects from Lower San Pedro River Exchange Parcel

No diversions or use of surface water are identified in the management of the Lower San Pedro River exchange parcel. No direct impacts to surface water quantity are anticipated from these management practices.

Conclusions for Surface Water Quantity

Any potential surface water quantity impacts from the Copper Creek Project are located well beyond the area within which anticipated effects from Resolution Copper Project, in a different watershed. The type of activities anticipated on the Lower San Pedro River exchange parcel would not directly involve surface water use. This supports the conclusion that cumulative effects on surface water quantity are unlikely to occur and are not appropriate to analyze for the Resolution Copper Project.

Potential Cumulative Effects – Wildlife

Location Compared with Cumulative Effects Analysis for Wildlife

The cumulative effects spatial analysis area for wildlife is defined in chapter 4, section 4.3.1 of the FEIS for the Resolution Copper Project and Land Exchange:

> As with vegetation effects, the loss of habitat in the project footprint contributes to changes in landscape-scale habitat blocks. The cumulative effects analysis area for wildlife consists of the larger landscape of the Arizona transition zone (an ecoregion that roughly extends from the Mogollon Rim/Colorado Plateau to the desert valleys).

Even with the expansive cumulative effects analysis area for wildlife (11.8 million acres), the Galiuro Mountains lie outside the boundary. Potential wildlife impacts for the Copper Creek Project would therefore not be anticipated to have overlap of effects on wildlife effects from the Resolution Copper Project.

Potential Adverse Effects from Copper Creek Project

Potential impact to game and nongame species identified in the BLM EA include the following:

- Reduced surface water availability could lead to loss of available breeding habitat, drinking water, forage, and cover and to mortality or inability to successfully move through the area.
- Increased ambient noise levels and nighttime lighting could disrupt wildlife behavior, including communications, mating calls, and predator and prey interactions. Nighttime lighting could disorient nocturnal species, disrupt natural behaviors, and increase predation risks.

The BLM EA notes that: "Project design features outlined in Section 2.2.10 would reduce potential impacts from lighting, fugitive dust, and erosion, and on sedimentation in water resources, but may not eliminate them entirely. Noise would further be reduced by drilling at less than the maximum possible rate, to keep drill holes straight. No drilling would occur within 500 ft of the riparian areas from May 25 to September 30 (Figure 5), and a secondary muffler would be installed on drill rigs to reduce noise impacts" (p. 47).

Potential Adverse Effects from Lower San Pedro River Exchange Parcel

The management plans for the Lower San Pedro River exchange parcel, whether those specified in the current management plan or those currently in effect for SPRNCA, are beneficial to wildlife and protective of wildlife habitat. No specific adverse impacts to wildlife are anticipated from these management practices.

Conclusions for Wildlife

Any potential wildlife impacts from the Copper Creek Project are located outside the area within which anticipated effects from Resolution Copper Project would occur. The type of activities anticipated on the Lower San Pedro River exchange parcel would not cause adverse impacts to wildlife. This supports

the conclusion that cumulative effects on wildlife are unlikely to occur and are not appropriate to analyze for the Resolution Copper Project.

Summary of Screening and Analysis for the Copper Creek Project

- Screening of potential RFFAs has taken place multiple times during the Resolution Copper Project as new projects come to light. The Copper Creek Project had not previously been screened.
- Screening identified the following:
- Adequate information exists to analyze the Copper Creek Project as a potential RFFA, in the form of the plan of operations and a Draft EA completed and released by the BLM.
- The Copper Creek Project could potentially overlap in space and time with effects from the Resolution Copper Project, with the actual spatial overlap assessed on a resource-by-resource basis for pertinent resources.
- The Copper Creek Project has potential effects on these six resource areas that require analysis for cumulative effects:
    - Noise and vibration
    - Transportation and access
    - Groundwater quantity and groundwater-dependent ecosystems
    - Groundwater and surface water quality
    - Surface water quantity
    - Wildlife

All six resource areas were analyzed for potential cumulative effects. Resource-specific cumulative effects analysis areas have been defined for the Resolution Copper Project, as described in chapter 4, section 4.3.1 of the FEIS. The Copper Creek Project falls outside the boundary of the cumulative effects analysis area for all of the six resources identified. Further, assessment of the anticipated actions on the Lower San Pedro River exchange parcel identified that impacts related to any of the six resource areas are unlikely to occur on the parcel under anticipated management plans.

The analysis indicates that cumulative effects for these six resource areas are unlikely to occur and are not appropriate to analyze for the Resolution Copper Project.

Key Documents and References Cited for Cumulative Effects Analysis for Copper Creek Project

Bureau of Land Management. 2025. *Draft Environmental Assessment: Copper Creek Exploration Project*. DOI-BLM-AZ-G010-2023-0003-EA. Safford, Arizona: Bureau of Land Management. February.

The Nature Conservancy. 2016. *7B Ranch Management Plan*. Rev. Prepared for Resolution Copper Mining LLC. Nature Conservancy. October.

WestLand Resources Inc. 2022. *Copper Creek Exploration Drilling Program Plan of Operations, Pinal County, Arizona*. Prepared for Redhawk Cooper, Inc. Project No. 1288.14. Tucson, Arizona: WestLand Resources Inc. May 20.