



Technical Memorandum

January 23, 2026

To: Hermosa Project Community Protection and Benefits Agreement (CPBA) Signatories
South32
Town of Patagonia
City of Nogales
County of Santa Cruz

From: Spheros Environmental
Andrew Feltman, PG, CPG – Project Manager
Brent Johnson, PG, QP – Subject Matter Expert: Soil, Water
Josette Marrero, PhD – Subject Matter Expert: Air
Lehong Chow – Subject Matter Expert: Biology
Maris Densmore, PG – Senior Technical Advisor

Re: CPBA Phase 1 Update Protections Roadmap

Introduction

Spheros Environmental (Spheros) was engaged by Acorn International (Acorn) on behalf of the Community Protection and Benefits Agreement (CPBA) signatories (representatives from Santa Cruz County, the Town of Patagonia, the City of Nogales and South32) to provide environmental consulting services related to the South32 Hermosa Project (Project). The purpose of our work is to provide technical support to the CPBA signatories regarding monitoring and protections related to the Project. This includes a high-level document review, meetings with CPBA signatories, and the development of a protections “Roadmap” that defines the structure, roles, components, and timing of a process to ensure that the Project and the surrounding communities have a documented and robust channel of communication related to monitoring and protections for the life of mine.

The project scope was organized in a phased approach to include environmental review and protections development. Phase 1 consists of the following tasks:

- **On-Boarding** - Read and become familiar with the main body, list of Phase 1 protections, draft monitoring appendix and examples of other good neighbor agreement monitoring provisions (examples to be provided by Acorn International), draft EIS, and status of baseline data (to be provided by South32).

1221 Auraria Parkway, Denver, CO 80204
www.spherosenvironmental.com

- **Discuss** - (up to two meetings each) with Signatories to understand what is most important in terms of monitoring and protection of the physical and human environment within the scope of the CPBA (Acorn International to assist in arranging these meetings). Deliverable: brief meeting summaries documenting findings / priorities.
- **Prepare** - Step plan and timeline (i.e., Roadmap) for developing commitments for monitoring requirements, other protections, and commitments needed for definition in Phase 2 along with role of expert in supporting signatories in Phase 2. Deliverable: Gantt chart or matrix-based roadmap supported by brief 2-4 page summary of key observations and recommendations.
- **Provide** - limited advice to signatories as needed during Phase 1.

Phase 2 for this technical team will involve refining the Roadmap and integrating it with the existing CPBA initiatives, ongoing technical support, and detailed review and recommendations on existing and forthcoming monitoring and protections documents.

Phase 1 Project Update

On-Boarding and Document Review

Our team has conducted high-level reviews of all monitoring and baseline studies made available to us, in addition to CPBA documents detailing requested monitoring and protections. Monitoring and baseline studies are designed to result in a comprehensive data set and data interpretation methodology that can be effectively utilized to evaluate pre-mining (baseline) conditions and then to monitor for deviations from those baseline conditions to determine if the Project is impacting resources adjacent to the Project. Spheros has identified the following components we consider integral to a robust monitoring plan:

- **Monitoring stations/areas:** *Are they effectively located to monitor and quantify any impacts and guide adaptive management?*
- **Sampling suite:** *Are the appropriate analytes and tests methods included?*
- **Sampling frequency:** *Is the frequency of sampling sufficient to observe and evaluate potential impacts versus background variations?*
- **Sampling methodology and transparency:** *Are methods of sampling, QA/QC, data tracking, and data management sufficiently rigorous to support the goals of the regulators, communities, and the mine?*

Baseline studies and monitoring plans are often wide-ranging, detailed in scope, and involve complexity and nuance that require a significant level of effort to review. For Phase 1 we have reviewed these plans and protections outlined in the CPBA at a high level, focusing on what studies are available, and if their scope appears appropriate for the task and Project at hand. Subsequent detailed reviews are recommended to ensure baseline and monitoring plans are sufficiently thorough and rigorous to facilitate technical evaluation of potential impacts going forward. Understanding the

limitations of Phase 1, our multidisciplinary technical team, with our considerable expertise, has dug into the supporting documentation that is available, with an eye to what the CPBA has shared. We are well on our way to fully understanding the technical scope of the environmental protections in place and in progress.

Initial high-level reviews have revealed no significant deficiencies in the monitoring and mitigations. However, there are several plans that are still under development and not available for review. We believe that the baseline studies and monitoring plans, and the requested protections and monitoring in the CPBA agreement are reasonable and would provide the data and assurances to evaluate performance by South32. Many of the requested protections and monitoring are already in place, and others are in the planning and development stages. Table 1 contains a list of baseline and monitoring documents that were (or will be once available) reviewed, along with the disposition and availability of the documents. Our team has identified some subjects in both the requested protections and the monitoring documents that were not readily available for review, and whose inclusion could be beneficial to the communities and South32. Detailed, technical review of ALL baseline, monitoring, mitigation, and closure plans is recommended in order to complete a rigorous comparison of the CPBA requested actions with those already in place or in the planning/development stages by South32.

SUBJECT	DOCUMENT	TYPE	SCALE	OBTAINED BY SPHEROS?	SOUTH32 NOTES
Soils & Geochemistry	Mine Rock Management Plan		Site	✓	
	Mined Land Reclamation Plan		Site	✓	
	Reclamation & Closure Plan				To be included in Final MPO
	Tailings Management Plan		Site	✓	
	South32 Hermosa 2024 Environmental Geochemistry Baseline Report	Baseline	Site	✓	
Water	Monitoring and Mitigation Plan for GDEs and Water Wells-DRAFT	Monitoring & Mitigation	Regional	✓	
	Monitoring of Flows & Water Levels of Wells on Public Lands	Monitoring	Regional		Summarized in DEIS
	Discrete Continuous Monitoring of Springs & Seeps	Monitoring	Regional		Summarized in DEIS
	Continued Water Quality Sampling of Wells and Surface Water	Monitoring	Regional		Under development
	Monitoring & Mitigation of Streams along Goldbaum Canyon & Mowry Wash	Monitoring & Mitigation	Regional		Under development
	Well Protection Program	Monitoring	Regional		Under development
Biology	Vegetation Species Monitoring Plan	Monitoring			Planned
	Biological Technical Reports	Baseline	Site		Summarized in DEIS
	Wildlife Monitoring Plan	Monitoring			Planned
	Invasive Species/Noxious Weed Monitoring, Mitigation, and Management Plan	Monitoring, Mitigation, & Management			Planned
Air	Dust Control Plan	Mitigation	Site	✓	
	Community Air Monitoring Plan	Monitoring	Regional	✓	

Table 1. Disposition of Baseline and Monitoring Data Documents

CPBA Signatory Meetings

Our team has had productive conversations with three of four of the signatory parties: South32, Town of Patagonia, and Santa Cruz County. We will continue to attempt to liaise City of Nogales representatives and we look forward to additional meet-ups with all members of the CPBA.

The meetings with South32 have been critical to our technical review to provide information about, and access to, documents and studies they have conducted. There is a significant history associated with the project and our team is new to it. Connecting with mine staff ensures that we do not miss out on key information and documents.

Meetings with the Town, City, and County, have also been critical to our understanding of key concerns that the communities have including technical/environmental issues, as well as social and logistical challenges.

CPBA Protections Roadmap

Based on our discussions with the CPBA members and our review of baseline and monitoring documents, Spheros developed the CPBA Protections Roadmap. We intend this to be a collaborative, living workflow to guide the CPBA toward a transparent, sustainable, and mutually-beneficial relationship between the South32 and the surrounding communities.

Figure 1 shows a schematic of the Roadmap comprising six stages. While some of the action items in the various phases can be completed in parallel, the general workflow involves a stepwise progression through time, starting at "Engage" and moving through the stages to "Review".



Figure 2. CPBA Protections Roadmap

The stages and action items of the Roadmap are explained below. It is likely, based on discussions with the CPBA signatories, that some of these stages and actions items are already addressed in other parts of the agreement. In these cases, the overall agreement would be adjusted to accommodate the changes, as needed.

Appoint or Engage a Facilitator / Liaison

The first order of business would be to establish the role of Facilitator/Liaison (F/L) and supporting staff, as needed, to run the Roadmap program and document progress. The responsibilities of the F/L would include the following, but the details would be further defined by the F/L to take advantage of their expertise in designing such programs:

- Formally design the Roadmap program including writing a Terms of Reference document that lays out the goals, organization, structure, and timeline. This includes portions of the next stage (Define Goals) described in the next stage section.
- Define roles and responsibilities for various signatory members.
- Define schedule and deliverables including a detailed short term (e.g., first two year) and another that includes the entire mine life cycle.
- Organize and manage the process, including all logistics, communications, deadlines, meetings, etc.
- Strive for a collaborative and transparent atmosphere, with the goal of building mutual trust and a mutually-beneficial process.

Qualifications of the F/L should include the following:

- Be trained in facilitating multi-party groups with complex issues.
- Be independent, local to or very knowledgeable of the Project region, with an understanding of the regional socio-economic and physiographic conditions.
- Knowledgeable of both mining and regional environmental issues.

Define Goals

This stage will be conducted hand in hand with the first stage and the results of this stage will be incorporated into the Terms of Reference for the Roadmap. This stage includes definition of three different levels of "goals"; the Vision Statement, technical and "soft" goals, and specific objectives.

The Vision Statement is an important milestone for projects like Hermosa, which will be operating for many decades and with closure activities far beyond. It puts into words what signatories believe success would look like in ten or 20 years. The Vision Statement will comprise a few sentences, using straightforward language and will be agreed on unanimously by all signatories. The Vision Statement will be used to:

- Answer the question, "what does success look like?"
- Serve as a constant reminder of where the Roadmap is leading in the long term
- Use to guide the development of goals and objectives.
- Include unifying concepts (e.g., build trust, transparency, mutual benefit, future generations).

Roadmap goals will flow from the Vision Statement but will be provide for some structure and focus. This will be used primarily to communicate to the public the scope and focus of the Roadmap but it

can also be used internally to guide discussion and solutions. Some examples of Roadmap goals might be:

- To provide a venue and mechanisms for clear and constructive communication between signatories
- To provide a means to disseminate unbiased information to the public on issues and progress
- To provide a mechanisms to voice concerns or issues by the public or South32 and its employees, through their representatives
- To provide a venue to discuss potential safety and human health, ecological, and resource impact issues and develop investigations and solutions to those issues
- To provide a venue for collaboration on mutually beneficial initiatives and ideas to improve quality of life and quality of the working environment for the Hermosa project and surrounding communities.

Identify Environmental Protection Opportunities / Data Requests

This stage represents the first of two technical stages. This stage involves a deep technical review by experts in air, water, dust/geologic materials, and biological resources. The focus of the review will include key documents and study products for each of the study areas listed above and summarized in Table 1, such as baseline studies, impact analyses, monitoring plans, and closure plans. The review will include initiatives that have already been implemented by South32 related to protections and the well-being of the surrounding communities and mine employees.

The reviews will build on the Phase I high-level reviews and while data gaps or deficiencies are not anticipated because of the advanced stage of permitting, opportunities for additional data collection, planning, and outreach, among other issues, will be identified. However, if a data deficiency is identified, it will, of course, be included in the review documentation. The areas of study for this Roadmap include:

- Surface water quality and quantity monitoring (locations, frequency, analytical suites)
- Groundwater quality and quantity monitoring (locations, frequency, analytical suites)
- Air quality, dust monitoring (locations, frequency, analytical suites)
- Biological resources and monitoring (areas, frequency, affected species)
- Soils and mine materials (waste rock, tailings, residues, soils)
- Treated water and discharge/mixing effects
- Pre-existing and legacy “impacts” and mitigation
- Operations and monitoring plans
- Closure plans and other post-closure commitments

Explore Environmental Protection Opportunities

The second of the technical stages involves developing ideas and concepts to implement the protection opportunities identified in the review stage. The concepts put forward by the technical experts could be used, if selected, for additional design, scoping, and costing. The additional advancement of the concept is not covered within the Roadmap scope but the technical experts could be called on to participate in design and scoping; however, it is suggested that additional work not be conducted by the expert's company without appropriate conflict of interest considerations.

Reporting & Communicating Progress

Reporting and communicating progress would be orchestrated and disseminated by the F/L but responsibilities would be distributed across the signatories. The following bullets provide an example of potential reporting and communications that could form the core of the tasks for this stage. These are informed by similar, multi-party collaboration efforts and so would require customization to the CPBA Roadmap situation:

- Bi-annual written updates from Hermosa
- Annual (minimum) update from CBPA
- Annual summary by the Facilitator/Liaison
- Enhance/utilize the public facing website to include the Roadmap process
- Develop a public facing database dashboard
- Ongoing tally of recommendation status (see next stage for explanation of "recommendations" in this sense)
- Reports, updates, summaries
- Mechanism for public feedback

Annual Review and Update

Long-term oversite will involve developing a Technical Review Board (TRB) comprised of independent and qualified technical experts. The Board make-up and mandate can be modeled after other technical review boards common in mining and other industries. Signatory representatives would attend all meetings, if desired and meetings would be annually or as determined in discussions. The TRB will develop recommendations that include a ranking for urgency or importance and recommendations and resulting actions will be tracked and presented on the public-facing dashboard

Proposed Roadmap Timeline

Figure 2 provides a proposed timeline for Roadmap execution. It is anticipated that this timeline will need to be adjusted to the realities of members, site conditions, and Project progression. The timeline contains the key action items for each stage of the Roadmap along with the Record of Decision date for the Project (July 2026). This timeline would form the basis for the schedule developed by the F/L and the team.

Task Name	Lead Entity	2025				2026				2027				2028			
		Q1	Q2	Q3	Q4												
Task 1. ENGAGE																	
Engage facilitator/liaison (F/L)	CPBA, Expert Consultant																
Define roles and responsibilities	CPBA, Expert Consultant																
Define schedule and deliverables	CPBA, Expert Consultant																
Task 2. DEFINE GOALS																	
Develop a vision statement	CPBA, Expert Consultant, F/L																
Define goals	CPBA, Expert Consultant, F/L																
Task 3. DATA REQUESTS																	
Detailed technical review	Expert Consultant																
Data availability analysis	Expert Consultant																
Task 4. EXPLORE PROTECTION OPPORTUNITIES																	
Develop and execute plan to enhance	Expert Consultant																
Improve monitoring	Expert Consultant																
Improve preparedness	Expert Consultant																
Task 5. MONITOR & COMMUNICATE PROGRESS																	
Bi-annual written updates from Hermosa	South32																
Annual update from CPBA	CPBA																
Annual summary from F/L	F/L																
Include dashboard on public facing website	TBD																
Task 6. ANNUAL REVIEW																	
Establish Technical Review Board (TRB)	TRB																
TCRB visit site annually	TRB																
TCRB develop recommendations	TRB																

Figure 2. Proposed Timeline of Road Map Steps