# Environmental Assessment

Kings Mountain Lithium Mine Project

City of Kings Mountain, North Carolina

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## PRIVACY ADVISORY

The draft Environmental Assessment (EA) has been provided for public comment in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality NEPA Implementing Regulations (Title 40 Code of Federal Regulations [CFR] §§ 1500–1508), and 32 CFR § 989, the Environmental Impact Analysis Process which provides an opportunity for public input on applicable federal decision-making, allows the public to offer input on alternative ways for federal agencies to accomplish a proposed action and solicits comments on the agencies' analysis of environmental effects.

Public input allows the federal agencies to make better-informed decisions. Letters or other written or verbal comments may be published in this EA. Providing personal information is voluntary. Private addresses will be compiled to develop a stakeholder inventory; however, only the names of the commenting individuals and their specific comments will be disclosed.

Personal information, home addresses, telephone numbers, and email addresses will not be published in the EA.

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## Acronyms and Abbreviations

| Acronym | Definition |
|---|---|
| Albemarle | Albemarle U.S., Inc. |
| amsl | above mean sea level |
| BCC | Bird of Conservation Concern |
| BMP | best management practice |
| CEQ | Council on Environmental Quality |
| CFR | Code of Federal Regulations |
| CO | carbon monoxide |
| DAF | Department of the Air Force |
| dBA | A-weighted decibel |
| DMS | dense media separation |
| DOE | Department of Energy |
| DPA | Defense Production Act |
| EA | Environmental Assessment |
| EO | Executive Order |
| EPM | environmental protection measure |
| ESA | Endangered Species Act |
| EU | European Union |
| FEMA | Federal Emergency Management Agency |
| FONSI | Finding of No Significant Impact |
| Gateway Trail | Kings Mountain Gateway Trail |
| gpm | gallons per minute |
| HAP | hazardous air pollutant |
| I-85 | Interstate 85 |
| IIJA | Infrastructure Investment and Jobs Act |
| IPaC | Information for Planning and Consultation |
| KMM | Kings Mountain Mine |
| KMSZ | Kings Mountain Shear Zone |
| KOP | key observation point |
| MSHA | Mine Safety and Health Administration |
| NAAQS | National Ambient Air Quality Standards |
| NCAC | North Carolina Administrative Code |
| NCDEQ | North Carolina Department of Environmental Quality |
| NCDOT | North Carolina Department of Transportation |
| NEPA | National Environmental Policy Act |
| NHPA | National Historic Preservation Act |
| $NO_2$ | nitrogen dioxide |
| non-PAG | non-potentially acid generating |

| | |
|---|---|
| NPDES | National Pollutant Discharge Elimination System |
| NPI | non-process infrastructure |
| $O_3$ | ozone |
| OSF | Overburden Storage Facility |
| OSHA | Occupational Safety and Health Administration |
| PAG | potentially acid generating |
| PFO | palustrine forested wetland |
| PM | particulate matter |
| $PM_{10}$ | particulate matter with a diameter of 10 micrometers or less |
| $PM_{2.5}$ | particulate matter with a diameter of 2.5 micrometers or less |
| PPV | peak particle velocity |
| Proposed Project | Kings Mountain Lithium Mine Project / Preferred Site Alternative |
| PUB | palustrine unconsolidated bottom |
| RCRA | Resource Conservation and Recovery Act |
| ROM | run-of-mine |
| RSF | rock storage facility |
| RSF-A | rock storage facility for non-potentially acid generating rock |
| RSF-W | rock storage facility used to temporarily store potentially acid generating rock |
| RSF-X | rock storage facility for potentially acid generating rock |
| SHEM | safety, health, and environment manager |
| SHPO | State Historic Preservation Office |
| SOP | standard operating procedure |
| $SO_2$ | sulfur dioxide |
| SWCA | SWCA Environmental Consultants |
| TENORM | Technologically Enhanced Naturally Occurring Radioactive Material |
| Technology Center | Albemarle Global Technology Center for Research and Development |
| TIA | traffic impact analysis |
| TSF | tailings storage facility |
| U.S. | United States |
| USACE | United States Army Corps of Engineers |
| USC | United States Code |
| USEPA | United States Environmental Protection Agency |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |
| VIA | visual impact assessment |
| WOTUS | Waters of the United States |
| WSB | water storage basin |
| WTP | water treatment plant |

# 1. INTRODUCTION

This Environmental Assessment (EA) was prepared by the United States (U.S.) Department of Energy (DOE) National Energy Technology Laboratory pursuant to the National Environmental Policy Act of 1969 (NEPA) (U.S. Code, Title 42, Section 4321 et. Seq., [42 USC § 4321]) and DOE's NEPA implementing procedures (Code of Federal Regulations Chapter 10, Part 1021 [10 CFR Part 1021]), to evaluate the potential environmental and social impacts of DOE's Proposed Action to provide funding to Albemarle U.S., Inc.'s (Albemarle's) proposed project as opposed to the No-Action Alternative.

Albemarle, based in Charlotte, North Carolina, is a leading global producer of lithium-based chemicals. The company currently operates a lithium compound and metal production facility at the site of the legacy Kings Mountain Mine (KMM) in Cleveland County, North Carolina.

## 1.1. DEPARTMENT OF ENERGY'S PURPOSE AND NEED

The purpose and need for DOE action, pursuant to the Manufacturing Deployment Office in the Office of Critical Minerals and Energy Innovation and the funding opportunity under the Bipartisan Infrastructure Law: Lithium Materials Processing and Lithium Manufacturing (DE-FOA-0002678), is to accelerate the development of a concentrator facility (also referred to as a "mineral processing plant"). Through a grant awarded to Albemarle, DOE proposes to partially fund the design, construction, and start of operations for a mineral processing plant that would produce approximately 420,000 metric tons of spodumene concentrate annually. DOE proposes to provide $149,658,312, and Albemarle's private cost share would be at least $244,407,734, for a total of $394,066,046. The grant funding is intended to support a portion of the anticipated cost to construct a new, commercial-scale, U.S.-based lithium materials/spodumene mineral processing plant that uses sustainably extracted spodumene minerals from the reopened and expanded mine at Kings Mountain in North Carolina. The proposed project would support DOE's Energy Strategic Goal of "protecting our national and economic security by promoting a diverse supply and delivery of reliable, affordable, and environmentally sound energy."

Infrastructure Investment and Jobs Act (IIJA) investments in the battery supply chain include five main steps: (i) raw material production; (ii) materials processing including material refinement; (iii) battery material/component manufacturing and cell fabrication; (iv) battery pack and end-use product manufacturing; and (v) battery end-of-life recycling.

DOE considers Albemarle's proposed project and location to be one that can meet the following IIJA sections by: a) creating and retaining good-paying jobs; b) supporting workforce development efforts to strengthen America's competitive advantage; c) ensuring that the U.S. has a viable domestic battery materials processing industry to supply the North American battery supply chain; d) expanding the U.S.'s capabilities in advanced battery manufacturing; e) enhancing national security by reducing the U.S.'s reliance on foreign competitors for critical materials and technologies; f) enhancing the domestic processing capacity of minerals necessary for battery materials and advanced batteries; and g) ensuring that the U.S. has the viable domestic manufacturing and recycling capability to support and sustain a North American battery supply chain. The proposed project site was selected due to its proximity to supporting industries and the availability of existing industrial facilities in the area, as well as the site's access to reliable energy. The site has room for future expansion and exceptional access to transportation infrastructure and public utilities. The proposed project also has the potential to have a significant positive economic impact on the King's Mountain community.

DOE intends to further the above-described purpose and satisfy stated needs by providing financial assistance under cost-sharing arrangements to this and other projects selected under DE-FOA-0002678. Such projects meet the objective of recruiting, training, and retaining a skilled workforce in communities that have lost jobs due to displacement of fossil fuel-based energy jobs, including jobs in internal combustion, engine vehicle and components manufacturing, as well as workforce opportunities in low and moderate-income local and rural communities. The proposed project would also meaningfully assist with the nation's economic recovery by creating U.S. manufacturing jobs in accordance with the objectives of the IIJA.

## 1.2. DEPARTMENT OF AIR FORCE'S PURPOSE AND NEED

To promote national security and reduce dependence on foreign supplies, Presidential Determination No. 2022-11 authorizes the Department of Defense to secure a reliable, sustainable supply of critical minerals within the U.S. This directive is pursuant to Section 303(a)(5) of the Defense Production Act (DPA) of 1950, which states the Secretary of Defense shall lead this effort and has assigned oversight of the DPA Title III Executive Agent Program Office within the Air Force Research Laboratory. Therefore, the purpose of the proposed action is for the DOE and the Department of the Air Force (DAF), as a cooperating agency, to address the capability gap in procuring lithium within the U.S. The need for the action is to provide a reliable, affordable domestic lithium stream to meet the nation's demands, essential for both the U.S. economy and national defense.

The DAF supports DOE as the lead agency for NEPA requirements as well as Section 7 consultations of the Endangered Species Act (ESA) and Section 106 consultations of the National Historic Preservation Act (NHPA), including consultations with federally recognized Tribes and other similar regulatory consultations or other coordination requirements (See Appendix A, Department of the Air Force Cooperating Agency Letter). Once the NEPA process is completed, separate cost-shared grant funding from DAF of $225,967,885.38 would be awarded under DPA Title III to secure the domestic lithium source within the U.S. The cost share from Albemarle would be at least $136,015,693.74 with a DAF contribution of $89,952,191.64.

## 1.3. NATIONAL ENVIRONMENTAL POLICY ACT AND RELATED PROCEDURES

NEPA requires federal agencies to consider the potential consequences of their actions on both the natural and human environments as part of their planning and decision-making processes. This EA has been prepared in accordance with NEPA, as amended (42 USC § 4321), the President's Council on Environmental Quality's (CEQ) regulations for implementing NEPA (40 CFR Parts 1500-1508), and DOE's implementing procedures for compliance with NEPA (10 CFR 1021). DOE is aware that CEQ issued a final rule to rescind its NEPA implementing regulations at 40 C.F.R. Parts 1500–1508, effective April 11, 2025 and DOE issued new NEPA Implementing Procedures in June 2025. To promote completion of its NEPA review in a timely manner and without delay, in this Final EA DOE is voluntarily relying on the CEQ's guidance and DOE's own procedures for implementing NEPA, to meet its obligations under NEPA, 42 USC §§ 4321 et seq. Although this document was prepared under the previous guidance, updates were made where practicable to align with more recent guidance. NEPA, as amended, and the implementing procedures require DOE, as the lead federal agency to:

- Assess the environmental impacts of the proposed action;
- Identify any adverse environmental effects that cannot be avoided, should the proposed action be implemented;

- Propose mitigation measures for adverse environmental effects, if appropriate;
- Evaluate alternatives to the proposed action, including a No-Action Alternative; and
- Describe the cumulative impacts of the proposed action together with other past, present, and reasonably foreseeable future actions.

These provisions must be addressed before a final decision is made to proceed with a proposed federal action that has the potential to impact the human environment, including providing federal funding to a project. This EA is intended to meet DOE's and other federal agencies' regulatory and grant requirements under NEPA. Table 1: Laws, Regulations, and Executive Orders (EO), provides a list of requirements applicable to the review of the proposed action.

This EA also provides the DOE with the information needed to make an informed decision about providing financial assistance. In accordance with the regulations discussed above, this EA allows for public input into the federal decision-making process; provides federal decision-makers with an understanding of the potential environmental effects of their decisions; and documents the NEPA process.

## 1.4. SCOPE OF ENVIRONMENTAL ASSESSMENT AND PERMITTING

This EA will be reviewed by the DOE and DAF and other cooperating agencies to determine whether the proposed project constitutes a Finding of No Significant Impact (FONSI). The EA is a stand-alone document provided as a grant requirement to the DOE and the DAF and will be sent to other federal agencies responsible for NEPA reviews.

As the lead agency, the DOE has created an Interim Action Memorandum to authorize specific tasks that can be carried out before completing the EA for the proposed project or issuing a FONSI. Elements of the proposed project, such as land acquisition, construction, procurement, design, permitting, and select training and hiring practices were examined by DOE and determined not to have a significant effect on the environment nor to limit the range of reasonable alternatives for the project. DOE has determined that completing the tasks as outlined in the Interim Action Memorandum will not have an adverse environmental impact; nor will they limit the choice of reasonable alternatives for the proposed project. These tasks were documented in the memorandum titled, "RE: Interim Action(s) within the scope of an ongoing EA prior to issuance of a FONSI for the Project."

The scope of the proposed action (providing federal financial assistance for construction of the facility) has been reviewed to identify potentially significant issues that would warrant detailed review in the EA. In its review, DOE considered the scope of the proposed action, the location of the facility within the city of Kings Mountain, the existing industrial setting, and the status of the permits and approvals necessary for construction of the facility. In accordance with NEPA, this EA addresses the proposed project's construction and planned operations.

The following list is a summary of proposed project activities under NEPA review:

1. Construction of an offsite tailings storage facility (TSF).
2. Construction of support infrastructure for the activities described by the proposed action including haul roads, offices, fueling facilities, vehicle wash areas, and other non-process infrastructure (NPI).
3. Construction of a bridge to connect the two KMM facility areas located north and south of Interstate 85 (I-85).
4. Construction of conveyors to transport ore, concentrate, tails, and other materials.

5. Construction of concentrate and tailings loadout areas.
6. Construction of three rock storage facilities (RSF): one for non-potentially acid generating (non-PAG) rock (RSF-A), one for potentially acid generating (PAG) rock (RSF-X), and one which will be used to temporarily store PAG material at the bottom of the open pit while construction of RSF-X is underway (RSF-W).
7. Construction of a water treatment facility to treat runoff water from the PAG RSF area and process water from the mineral processing plant.
8. Construction of a run-of-mine (ROM) pad where ore would be stored prior to feeding the crushing circuit.
9. Resumed mining of the spodumene pegmatite resource, which would increase the size of the open pit.
10. Separation of rock from ore.
11. Construction of three overburden storage facilities (OSF) for storage of saprolite and overburden soils removed to improve foundation conditions and stability of other facilities.

Based on DOE's review of the scope of the proposed action, existing site conditions, and permit status, the elements of the DOE's review that have impacts analyzed by this EA include: Aesthetics and visual resources; air quality; biological resources including habitat vegetation and threatened and endangered species; cultural resources; geology and soils; public health and safety; land use; parks, recreational areas, and fisheries; coastal zone; noise and blasting; socioeconomics; traffic and transportation; waste management; and water resources

These resource areas were identified as being potentially affected by the proposed project, and each was assessed to determine the nature and extent of the impacts. This EA also examined the direct, indirect, and cumulative effects of the proposed project. The assessment combined desktop research and analysis of existing information along with select field studies including site assessments related to wetlands, flora, fauna, soils and geology, visual and aesthetic resources, and cultural resources.

## 1.5. CONSULTATION WITH TRIBAL NATIONS

The DOE initiated consultations with the Catawba Indian Nation, Cherokee Nation, Eastern Band of Cherokee Nation, and Muscogee (Creek) Nation on March 13, 2024, and the United Keetoowah Band of Cherokee on September 4, 2024, through each Tribal Nation's Tribal Historic Preservation Office.

# 2. PROPOSED ACTION AND ALTERNATIVES

DOE makes preliminary determinations about the required level of NEPA review based on potentially significant impacts it identifies during evaluation of technically acceptable applications. DOE conducts these preliminary reviews pursuant to 10 CFR 1021.216 and prepares a synopsis for projects under the funding opportunity announcement. These preliminary NEPA determinations and environmental reviews are provided to the selection official, who considers them during the selection process. Because DOE's proposed actions are limited to providing financial assistance in cost-sharing arrangements to projects submitted by applicants in response to a competitive funding opportunity, DOE's decisions are limited to either accepting or rejecting a project as proposed, including its proposed technology and

selected sites. DOE's consideration of reasonable alternatives is therefore limited to the technically acceptable applications and a No-Action Alternative for each selected project.

This EA considers two alternatives: the No-Action Alternative and the Proposed Action Alternative. The No-Action Alternative reflects conditions without the Proposed Action Alternative and serves as a basis of comparison for determining potential effects and the environmental consequences of implementing the Proposed Action Alternative.

## 2.1. ALBEMARLE'S PROPOSED PROJECT

Albemarle is seeking approval and funding to resume operations at KMM including site preparation, construction, operations, and closure of facilities required to process mined ore into spodumene concentrate. Tailings produced during operations will be sorted and dry stacked at the Archdale TSF.

The proposed project consists of five major phases and a milestone including: site preparation and access; construction; operations; closure/cessation of mining operations; and post-closure and final reclamation.

Site preparation activities will occur prior to infrastructure construction, which has been permitted by a separate state authorization. Mine closure and final reclamation will be performed after all mining and processing activities have ceased.

## 2.2. APPLICANT INTRODUCTION

Albemarle, headquartered in Charlotte, North Carolina, is a leading global producer of lithium-based chemicals. Albemarle currently operates a lithium compound and metal production facility (Kings Mountain Facility) at the site of the legacy KMM (also the "legacy mine") located in the city of Kings Mountain in Cleveland County, North Carolina (Figure 1: Project Location Map). To meet current and expected demand for lithium products, Albemarle intends to reopen the legacy mine to produce spodumene concentrate from the resource at the site. The spodumene will be extracted by deepening and expanding the legacy mine footprint from an existing, inactive open pit. Non-ore bearing rock, ore sorting rejects, and dense media separation (DMS) of coarse tails generated during mining operations will be managed onsite, while tailings will be transported to an offsite TSF approximately 3 miles southwest of the KMM called the Archdale TSF. Together, the KMM site and Archdale TSF constitute the Kings Mountain Lithium Mine Project (hereafter the "Proposed Project").

The proposed KMM will be located in the city of Kings Mountain, Cleveland County, North Carolina, approximately 30 miles west of Charlotte within the U.S. Geological Survey (USGS) Kings Mountain, 7.5-minute quadrangle (Figure 1: Project Location Map). The KMM site is comprised of approximately 1,083.43 acres of disturbed, undisturbed, and developed land that is bisected by I-85, with a larger land area located on the northern side of the interstate, and a smaller land area south of the interstate. The larger area to the north is bordered by South Battleground Avenue (Highway 216), Tin Mine Road to the west, Quarry Road to the east, and I-85 to the south. The smaller southern area is bordered by I-85 to the north and York Road to the south. The northern area of the site currently includes a lithium metal and salts production facility as well as Albemarle's Global Technology Center for Research and Development (Technology Center). The existing lithium metal and salts production facility receives raw materials from other sites and is not capable of processing the spodumene concentrate product from the Proposed Project and the KMM site is impacted by previous mining activity (Figure 2: Existing and Proposed Mine Site – KMM).

The proposed Archdale TSF will be located in the city of Kings Mountain in Cleveland County, approximately 3 miles southwest of the KMM site (Figure 1: Project Location Map). The143.8-acre Archdale TSF will be used to store filtered and compacted tailings from the spodumene concentrate process generated at the Kings Mountain Mineral Processing Plant.

The tailings will be transferred from the KMM to the TSF via trucks using South Battleground Road (Highway 216) and U.S. Highway 29. This site is also impacted by previous mining activity (Figure 3: Historical Mining Activities – KMM; Figure 4: Historical Mining Activities – TSF).

Albemarle is seeking approval to resume mining operations and expand the mine footprint of the Kings Mountain Facility through the issuance of a major modification to the existing mine permit. Maintenance of the Proposed Project commenced with dewatering the existing open pit, which has filled with water over time to an elevation of 822 feet above mean sea level (amsl). Pit dewatering and associated discharge conditions were permitted under National Pollutant Discharge Elimination System (NPDES) Permit No. NC0090212. Open-pit mining will be used to deepen the existing pit and expand its footprint to the southwest. Saprolite will be removed first and transferred to one of three OSFs. The ore will be transferred to the concentrator which will process an average of 3.25 million short tons per annum (8,900 short tons per day) of ore to produce 420,000 to 440,000 short tons per annum of spodumene concentrate. The spodumene concentrate will be transported by rail to an offsite conversion plant for further refinement into lithium hydroxide monohydrate. Tailings from the spodumene concentrate process will be filtered to approximately 15 percent moisture content by weight and transported to the offsite Archdale TSF. A portion of the non-ore bearing rock with economic value as aggregate will be transported to the adjacent Martin Marietta quarry.

The Archdale TSF will be used to store filtered and compacted tailings generated from the spodumene concentrate process at the Kings Mountain Mineral Processing Plant. The tailings will be transferred to the offsite TSF via trucks using South Battleground Avenue (Highway 216) and U.S. Highway 29. Other activities associated with the Proposed Project include construction of new processing facilities, crushing circuit facilities, RSFs, NPI, haul roads, a water treatment plant (WTP), an ROM pad, a water storage basin (WSB) and sumps, fueling facilities, and stormwater management infrastructure. The individual components are described in more detail in the following sections of this document.

## 2.3. BACKGROUND

### 2.3.1. Kings Mountain

Mining at Kings Mountain started in 1883 with the discovery of cassiterite, a tin-bearing mineral, within the outcropping pegmatites. Subsequently, open-pit mining for tin occurred sporadically between 1903 and 1937. Between 1943 and 1945, under sponsorship by the U.S. government, a company named Solvay established a mineral processing plant and mined for spodumene from the outcroppings of pegmatites at Kings Mountain. In the early 1950s, Foote, a subsidiary of Newmont Mining Corporation, purchased the property and began open-pit mining to produce spodumene concentrate. In 1993, exploration and mining operations ceased. In early 1994, an open-pit lake started to form due to rebounding groundwater and precipitation. The resulting pit lake reached an elevation of 817 feet amsl. During the groundwater recovery period water was sporadically pumped from the Kings Mountain Pit Lake to an adjacent aggregate quarry to support quarry operations. In 2015, Albemarle acquired the site and resumed exploration and mine feasibility studies. Figure 3: Historical Mining Activities – KMM shows the approximate extent of historical mining activities and current aerial imagery from 1973 to 2023.

### 2.3.2. Archdale Tailings Storage Facility

The offsite Archdale TSF will be used for tailings storage. The Archdale TSF site has also previously been used for mining activities (Figure 5: Existing and Proposed Mine Site – TSF). Dating back to the 1970s, mica, feldspar, clay, and quartz were mined at this site by other mining companies. Prior to these mining operations, the TSF property was composed of undeveloped pastures and woodlands (Figure 4: Historical Mining Activities – TSF). Currently, the proposed Archdale TSF is comprised of approximately 143.8 acres, most of which is disturbed land as a result of mica mining operations performed by Imerys in the 1990s. Reclamation activities occurred sometime after 2014 and included slope re-grading, disturbed ground revegetation, and allowing several of the open pits to flood with fresh water through natural hydrologic processes. The water was pumped and discharged. No legacy ore processing equipment or structures exist at the Archdale TSF site and approximately 15 acres of undisturbed area that has not been previously impacted remains. Remaining legacy mining features include:

- Access roads;
- Open pits, several of which currently contain water;
- Seven historical monitoring wells; and
- A water management system including a pit lake pump, pipes, pond, and culverts which facilitate a water discharge to an unnamed tributary to Dixon Branch.

### 2.3.3. Existing Legacy Features

In the 1990s, the legacy KMM was reclaimed to meet closure requirements. Reclamation activities included slope grading, revegetation of disturbed ground, and allowing the open pit to flood with freshwater through natural hydrologic processes. Much of the legacy ore processing equipment and the spodumene minerals processing plant were removed, though remnants of the mining operations still exist, including:

- An open pit, containing water from rainfall, runoff, and groundwater seepage;
- A tin mine excavation pit (known as PEG-25);
- The spur rail line;
- Several RSFs;
- A mill pond;
- Two tailings disposal sites;
- An existing drainage network consisting of Kings Creek, South Creek, a legacy tailings pond Water Storage Basin 1 (WSB-1) also called Executive Club Lake, and South Creek Reservoir;
- Several repurposed mine operation support buildings; and
- Storage of radioactive mining refuse (structural steel and vessels from the legacy processing mill) within the footprint of the KMM. The refuse was encased in a clay liner and has been buried in the legacy tailings area since 2001, in accordance with a plan approved by the North Carolina Department of Environmental Quality (NCDEQ). Note: This will be removed before construction commences.

## 2.3.4. Proposed Project Features

Key features that will either remain in place with modifications from the legacy mine, or that will be newly added for the Proposed Project are described on Figure 6: Kings Mountain Mine Site Layout and are described below.

- Conveyors—a conveyor system that will be used to transport material (including over I-85).
- Crushing and screening circuit—a three-stage crushing circuit where the ore will be reduced in size to facilitate separation of the spodumene from non-lithium-bearing materials.
- Growth media storage—an area where growth media will be stockpiled for future use as soil coverage for reclamation.
- Haul roads/service roads—internal roads that will either be modified or newly constructed to transport material across the KMM site. Haul roads may be relocated during mining operations, as the pit expands. Haul roads will primarily be used by onsite haul trucks.
- Service roads on the site will have several uses. The transport of tailings to the TSF will be over public roads.
- Kings Creek—a natural creek that has been altered from legacy mine operations at the KMM site and from ongoing operations at the adjacent Martin Marietta quarry. The creek enters the KMM site from the adjacent Martin Marietta facility. It will receive discharge from the Proposed Project's stormwater and wastewater outfalls, South Creek Reservoir, and WSB-1 before ultimately discharging offsite.
- Mineral processing facility—a facility designed to physically separate spodumene from pegmatite ore (i.e., concentrator).
- Mobile equipment—equipment that will be used to perform operations.
- NPI—support infrastructure including, but not limited to, non-haul roads, offices, fueling facilities, hazardous material storage, and vehicle maintenance and wash areas. Two NPI areas will be located at the KMM site (north and south of I-85), to support mining and processing operations.
- Open pit—the existing open pit that was excavated during previous mining operations. The pit will be deepened, and its footprint expanded during operations.
- OSF—an area used to store saprolite and alluvium resulting from excavations at Archdale and sub-excavation under the RSFs during site preparation activities.
- Plant feed stockpile—an area used to stockpile ore produced from the crushing circuit, and to feed the mineral processing facility.
- Ponds—temporary ponds for retention of runoff and sedimentation control specific to the water source (contact water, non-contact stormwater, PAG runoff, and non-PAG runoff).
- ROM pad—an area used to stockpile ore mined from the open pit before processing.
- RSF—an area used to store non-ore-bearing rock excavated from the open pit.
  - RSF-A—an area used to store non-PAG rock, legacy tailings, and coarse embankment material to be removed from the legacy TSF at the KMM site.

  - RSF-W—an area used to temporarily store PAG material, and a small quantity of ore sorter rejects during RSF-X construction. Material in RSF-W will be relocated to RSF-X when construction is complete.
  - RSF-X—an area used to store PAG rock, sorted ore rejects, and DMS rejects.
- South Creek—a natural creek that was historically impounded to support legacy mine operations. It enters the KMM site from an adjacent property and flows generally south through the KMM site before discharging into South Creek Reservoir. The South Creek Reservoir dam contains culverts and pipelines that convey under the dam.
- TSF—the TSF will be used to store filtered and compacted tailings generated at the mineral processing facility.
- WSB-1—the legacy TSF pond that will be modified to serve as water storage for discharges from the WTP and all contact water (treated and untreated). It will also act as a sedimentation pond and supply makeup water (water that is lost during operations) to the mineral processing facility and other mining operations.
- WTP—a WTP that will be used to treat PAG contact water runoff from RSF-X, and excess water used at the mineral processing facility.

Site preparation activities will occur prior to construction of the infrastructure, which will be required for tailings storage and mining operations. Reclamation will run concurrently with site disturbing activities and be completed in the post-closure phase (Table 2: Project Phase Time Periods and General Activities).

The proposed KMM site layout illustrates the locations of the main Proposed Project facilities and associated infrastructure (Figure 6: Kings Mountain Mine Site Layout). The crushing circuit, RSFs, growth media storage, north NPI, and ROM pad will be constructed north of I-85 to support operations on the south side of I-85. Internal haul roads will connect the open pit to the ROM pad, Martin Marietta, and RSFs during operations for processing and storing mined materials. The tailings truck loadout area will be located at the north NPI area, and the concentrate loadout area will be located west of the open pit. A new bridge and conveyor will be constructed over I-85 to connect the ROM pad/crushing circuit to the concentrator and south NPI area located immediately south of I-85. WSB-1 will be located south of the concentrator and will collect all contact water, portions of the non-contact water not directly discharged to Kings Creek and South Creek, and treated, recovered water from the WTP before it is discharged from the site. WSB-1 will provide surface water control, act as a sedimentation pond, and supply water to the concentrator and mine operations.

The proposed Archdale TSF site layout (Figure 7: TSF Site Map) shows the locations of the primary components of the Proposed Project (SRK 2024b; Hatch 2023c). Filtered tailings from the KMM will be transported to the Archdale TSF and placed and compacted in a legacy open pit at the site in a dry stack configuration. The Archdale TSF will include a starter embankment and a perimeter berm that will have an initial embankment crest elevation of 885 feet amsl (SRK 2024b). The embankment will be constructed using non-PAG waste rock sourced from KMM. Over the life of the Proposed Project, the Archdale TSF embankment will be raised in six phases, and the filtered tailings will continue to be stored to a maximum embankment crest elevation of 960 feet amsl. Contact water from the interior of the Archdale TSF will be collected in an underdrain system and seepage collection drain and directed to a contact water management pond. Water in this pond will be monitored for water quality prior to being discharged into an unnamed tributary that flows under I-85 to the south where it joins Dixon Branch south of the Archdale TSF site. Stormwater will be collected in a series of perimeter

stormwater management channels and one sediment retention basin. It will ultimately be discharged into several culverts and moved offsite to the south through existing culverts under I-85.

### 2.3.5. Environmental Protection Measures

Albemarle has incorporated various environmental protection measures (EPM) into its Proposed Project design to avoid, minimize, or mitigate potential environmental impacts from the Proposed Project. Among others, Albemarle incorporated the following key EPMs into the Proposed Project design:

- Use of legacy and active mine sites—the Proposed Project is designed to use current and former mine sites (i.e., brownfields) as a part of the Proposed Project mine plan, thereby reducing the amount of land disturbance.
- Dry stack tailings—the Proposed Project will implement dry stack tailings via a filtration process prior to storage at the Archdale TSF. The use of dry stack tailings will reduce tailings seepage, water requirements, and improve TSF safety and stability.
- Visual buffers—the Proposed Project will be surrounded by a visual buffer, either by existing vegetation or earthen berms and newly planted vegetation.
- Liner and water treatment for PAG rock storage—RSF-X will be used for the storage of PAG rock and will be lined. Associated runoff water will be treated with a reverse osmosis treatment prior to discharge.

## 2.4. ALTERNATIVES

An evaluation of alternatives is required under NEPA for all jurisdictional activities. NEPA requires discussion of a reasonable range of alternatives, including a No-Action Alternative, and the effects of those alternatives. The practicability of the alternatives is considered under the guidelines, and no alternative may be permitted if there is a less environmentally damaging practicable alternative.

### 2.4.1. No-Action Alternative

Under the No-Action Alternative, DOE would not provide cost-shared funding to the proposed project. The project would be delayed if other funding sources were pursued. Alternatively, the project may not be constructed. DOE assumes, for the purposes of a meaningful NEPA evaluation of the impacts of funding the project, that the recipient would not pursue the project.

Consequently, Albemarle would not construct a hardrock lithium mine in the Tin-Spodumene Belt, and battery-grade lithium hydroxide made from lithium-bearing spodumene concentrates produced from hardrock mining would not be brought to the U.S. market from a domestic source. Many lithium chemicals would still be imported from outside the

U.S. to meet the domestic demand, continuing the U.S.'s reliance on lithium from other countries to safeguard its national security. It can also be assumed that there would be environmental impacts associated with mines located outside the U.S., especially in areas where environmental regulations may be less stringent, although the magnitude of impacts would be unknown.

## 2.4.2. Alternatives

DOE's alternatives to this project consist of the numerous technically acceptable applications received in response to FOA DE-FOA-0002678. Before selection, DOE made preliminary determinations about the level of review under NEPA based on potentially significant impacts it identified during a review of technically acceptable applications. DOE conducted these preliminary reviews pursuant to 10 CFR 1021.216 and prepared a synopsis for projects under the FOA. These preliminary NEPA determinations and environmental reviews were provided to the selection official, who considered them during the selection process.

Because DOE's Proposed Action is limited to providing financial assistance in cost-sharing arrangements to projects submitted by applicants in response to a competitive funding opportunity, DOE's decision is limited to either accepting or rejecting a project as proposed by the proponent, including its proposed technology and selected site. DOE's consideration of reasonable alternatives is therefore limited to the technically acceptable application and a No-Action Alternative for each selected project.

## 2.4.3. Project Site Alternatives

The project Applicant considered alternate locations for their project and subsequently dismissed them. See Appendix H for a summary of the site analysis and decision-making. In this EA, DOE will only analyze the location and configurations proposed by the Applicant.

## 2.4.4. Proposed Project Alternatives

### *2.4.4.1. Kings Mountain*

Various alternative onsite layouts were considered during the Proposed Project's design and development. There have been three major iterations of the KMM design: Kings Mountain Tract Mine Site only; KMM with the Archdale Tract TSF Site; and Kings Mountain Tract Mine, Archdale Tract TSF Site, and a partnership with Martin Marietta to utilize the aggregate byproduct of the mining process instead of storing it onsite. The final site layout (Figure 6: Kings Mountain Mine Site Layout and Figure 7: TSF Site Map) was designed based on data collected during the drilling program and various baseline studies evaluated in the EA. Each major iteration of the site design improved the avoidance and minimalization of NEPA impacts.

### *2.4.4.2. Kings Mountain Lithium Mine*

The preferred project alternative is to restart mining activities at the legacy Kings Mountain Lithium Mine. The onsite alternative is the former Foote Mineral Lithium Mine (Figure 2: Existing and Proposed Mine Site – KMM). This open-pit mine operated from 1938 until the mid-1980s and was one of the largest producers of lithium in the world. In 2012, Rockwood Lithium acquired the land which was then acquired by Albemarle in 2015. The parent parcel is approximately 771 acres and is currently permitted for mining (Division of Energy, Mineral, and Land Resources Permit Nos. 23-01 and 23-34) in accordance with the provisions of the North Carolina Mining Act of 1971. Prior to the development of this Proposed Project, approximately 509 acres were heavily disturbed by historical mining activities. The activities associated with the Proposed Project's resumption of open-pit mining at the KMM site will disturb an additional 574.43 acres, creating a total area of 1,083.43 acres.

Recent exploration has indicated that additional spodumene resources are available for extraction. Desktop review of National Hydrography Dataset and National Wetland Inventory features indicates that the site includes the headwaters of Kings Creek and South Creek.

#### *2.4.4.3. Archdale Tailings Storage Facility*

Concentrate and tailings from the concentrator will be transported by a conveyor on the I-85 bridge to a rail loadout facility for concentrate and a separate loadout facility for tailings, which will be transported by truck to the offsite Archdale TSF.

The KMM site is constrained due to available land and the need to accommodate necessary components for safe and efficient operation. The Archdale site provides some relief from the land constraints for use as a TSF, which results in decreasing the need for wetland and stream impacts. Figure 7: TSF Site Map provides an overview of the layout for the Archdale TSF facilities.

### 2.4.5. Proposed Project Construction

#### *2.4.5.1. Kings Mountain*

Many Proposed Project components will be constructed to start and sustain mining operations. Prior to construction activities, vegetation will be cleared, and growth media salvaged in approved disturbance areas. Diversion ditches will be installed to intercept non-contact surface water drainage and to convey the non-contact surface water to existing drainage outlets. Silt fences, or other best management practices (BMP), will be installed downstream as required to prevent release of sediment to the environment.

Construction of the concentrator and associated Proposed Project infrastructure, including the crushing circuit, RSFs, OSFs, WSB-1, WTP, haul roads, access roads, I-85 bridge, NPI areas, concentrate and tailings loadouts, the railway, stormwater management system, and supporting utilities will be completed in an anticipated 2- to 3-year period after receipt of regulatory approval.

Existing legacy tailings will be excavated and disposed of at RSF-A prior to the construction of RSF-X. RSF-A will be constructed from coarse rock sourced from the open pit and will grow as mine operations continue, reaching an ultimate height of 385 feet above surrounding grade.

The subgrade foundation for the RSF-X liner will be graded to achieve a positive drainage slope of approximately 2 percent to the perimeter drainage conveyance system. To install the high-density polyethylene liner geomembrane system, RSF-X will be constructed in two phases: Phase 1 (northeast) and Phase 2 (southwest), and construction will extend into operations. The high-density polyethylene geomembrane panels will be welded together by thermal methods (SRK 2023b). RSF-X will grow as mine operations continue, reaching an ultimate height of 210 feet above grade.

RSF-X Phase 1 will be constructed first to allow operational use in the first year of development mining (also referred to as preproduction mining or waste stripping). More Phase 1 and Phase 2 construction details and timing will be defined during the detailed design stage of the Proposed Project, prior to construction (SRK 2023a).

WSB-1 construction will involve removing legacy tailings and some coarse rock from the existing embankment to allow reconstruction of the existing concrete-lined spillway where necessary; constructing a gravel blanket drain along the downstream face of the embankment; and constructing a compacted fill buttress to improve stability (SRK 2023b). The WSB-1 embankment will consist of suitable fill materials sourced from the Proposed Project site.

During the construction period, concurrent reclamation of disturbed areas will occur where possible. Surface disturbances associated with roads, ditches, embankment faces, and the disturbed perimeter will be reclaimed after final grades are established. BMPs will be installed

and maintained during construction to minimize erosion, sedimentation, and to control surface and stormwater runoff. Removal of vegetation, soil layers, legacy tailings, and embankment materials will be conducted using bulldozers, excavators, loaders, scrapers, and trucks. If bedrock is encountered during grading in preparation for the installation of the geomembrane, ripping, drilling, and/or blasting of bedrock may be required locally.

The construction of the KMM is expected to occur over a 2.5-year period. The initial construction schedule has been developed and is assumed to include the open pit, concentrator, ROM pad, crushing circuit, south NPI, north NPI, I-85 concentrator bridge/conveyor, Kings Creek haul road culvert, OSFs, RSF-X, RSF-A, and concentrate and tailings loadout.

The sequence of construction activities will be as follows:

- Implement sediment and erosion control measures.
- Execute clearing and grubbing activities. Stockpile vegetation and soil separately in designated areas.
- Develop access roads, temporary site service roads, and laydown areas.
- Commence grading to bulk cut and fill requirements.
- Place fill and install permanent drainage systems and erosion control structures (ROM pad wall).
- Develop utilities infrastructure.
- Develop permanent haul site service roads.
- Excavate for foundations and conduct piling as required.
- Construct permanent infrastructure.

#### *2.4.5.2. Archdale Tailings Storage Facility*

Initial Archdale TSF construction will consist of pit dewatering, site clearing and grubbing of existing vegetation, implementation of stormwater BMPs, and construction of access and haul roads and an embankment and perimeter berm around the former mine pit to allow storage of filtered tailings above the base topography in the area.

The footprint of the Archdale TSF will be cleared and grubbed of existing vegetation. Organic growth media will be stripped and hauled to a designated stockpile where it will be stored for re-use during the Proposed Project's post-closure phase. Unsuitable soils for lithium production, including weak saprolitic soils, will be removed and hauled from the Archdale TSF to a designated stockpile at KMM where they will be stored for re-use during facility reclamation.

Based on information obtained during site characterization activities, the depth of required removal of unsuitable soils is highly variable across the site and will require direct oversight by the Archdale TSF design engineer during construction to remove and replace potential unsuitable soils. Where unsuitable soils are removed below design grade, waste rock or other suitable fill material, potentially generated through cut and fill operations within the pit base, will be used to backfill the excavations in compacted layers up to the design grade. Placement and compaction will be achieved in accordance with the technical specifications tailored to each material type.

Several legacy mica stockpiles are also present and will be removed from within the proposed excavation footprint during construction and salvaged for reclamation. These legacy mica-bearing stockpiles materials are estimated to total 0.45 million cubic yards and will be

transported and stored at the growth media storage area located on the southern end of the Archdale TSF site or transported back to the KMM facility to be properly stored.

Initial construction of the Archdale TSF will include a perimeter access road constructed around the edge of the existing pit, grading for the plant site pad, and a starter embankment completely within the base of the existing pit with a 40-feet-wide crest to an elevation of 885 feet amsl. The embankment will be constructed with a 1.5 horizontal to 1 vertical interior side slope and 2.5 horizontal to 1 vertical exterior side slope. A 2-feet-thick (3-feet-wide, horizontally) layer of crushed sand filter will be placed along the interior slope face to prevent migration of tailings through the coarse waste rock outer embankment.

Waste rock hauling for embankment construction will be via over-the-highway haul trucks from the KMM pit and legacy tailings area. Only non-PAG waste rock will be used for embankment construction, as described by SRK Consulting U.S., Inc (SRK 2024b). Temporary haul roads will be constructed as necessary within the Archdale TSF and tailings placement areas to allow all weather access for highway and site haul trucks during operations. Tailings haul trucks will access the interior of the Archdale TSF via temporary haul roads constructed off the main site haul road around the southwest corner of the Archdale TSF.

The saprolite at the base of the Archdale TSF interior will be excavated to an average depth of 10 feet and shaped to roughly mirror existing topography to provide a relatively smooth surface sloped to a single seepage collection sump at the southeastern corner of the TSF. Based on available site characterization and laboratory test data (SRK 2024b), low permeability saprolitic soils are likely to be available throughout the TSF footprint, and it is expected that moisture conditioning and compaction of in-situ soils during base preparation will provide a low permeability surface to reduce the potential for vertical migration of fluids and promote lateral flow to the TSF basal drain system described below.

The excavation base will not only provide a low permeability surface for seepage collection at the base of the tailings but cut-to-stockpile grading for base preparation will generate soil for other construction needs at the site and provide additional tailings storage capacity. Where possible, fine grained saprolitic soils excavated from the TSF base will be stockpiled for later use in facility reclamation.

Following base grading and compaction, a TSF basal drain system will be installed over the prepared TSF base to collect and remove infiltrating meteoric water and any collected seepage from upwelling groundwater. This basal drain system will consist of a series of various sizes of perforated corrugated polyethylene collection pipes placed along the existing and regraded natural flow lines and be covered with drain rock or sand. The basal drain system will convey fluids to a seepage and stormwater collection sump at the southeastern edge of the TSF interior. Collected water within the sump will be pumped from two drainpipes under the southern embankment and into a contact water management pond.

The waste rock for the starter embankment and annual raise construction is anticipated to be comprised of coarse 2-foot minus rockfill. As described above for the starter embankment, the design will include a layer of crushed sand filter along the interior slope face to form a zoned sand filter and prevent migration of tailings solids through the coarse waste rock outer embankment. Grain size distribution relationships for each component of the filter zone will be based on standard filter design calculations to verify that filters are both internally stable and compatible for use in a layered sand filtered design. If onsite materials cannot be processed to meet the necessary specifications, Albemarle will import the required materials from an outside vendor.

#### *2.4.5.3. Site Preparation*

Most of the site preparation activities and surface disturbance will focus on the infrastructure pad, service facility sites, and adjacent utility lines located on the southern end of the site. Archdale pit dewatering activities will also need to be completed prior to initiating tailings storage activities associated with the Proposed Project.

## 2.4.6. Proposed Project Operations

### *2.4.6.1. Kings Mountain*

#### Pit

The expansion of the pit will have design parameters like batter face angles of 60 degrees, a batter height of 30 feet (9.14 meters), a berm width of 21 feet (6.4 meters), an overall wall angle of 60 degrees, and a ramp width of 93 feet (28.3 meters) for transportation of material (Figure 6: Kings Mountain Mine Site Layout). The pit will be dewatered prior to construction activities.

Albemarle obtained a NPDES permit for dewatering the existing mine pit (Permit No. NC0090212). This discharge will be temporary, approximately 18 to 24 months, or until the pit lake has been dewatered and WSB-1 is constructed. The flow will be continuous initially with an approximate flow of 2,000 gallons per minute (gpm) until the pit is dewatered. After initial dewatering, pumping will continue as needed to remove accumulated rainfall and evacuate accumulated water within the pit. The receiving water will be Kings Creek. The current water quality of the discharge water meets the limits set forth in the NPDES permit.

#### Rock Storage Facilities

Based on site preparation material characterization, as well as operational testing, waste rock will be classified as either non-PAG or PAG. PAG waste rock will be stored in a separate, lined facility (RSF-X [71.79 acres]) at the location of the existing historical TSF. Non-PAG waste rock will be stored in RSF-A (85.94 acres) located adjacent to and southwest of RSF-X. The location of the RSFs is depicted on Figure 6: Kings Mountain Mine Site Layout. Stormwater runoff from the RSFs will be contained and treated, if necessary. Seepage from RSF-X will be collected using an underdrain collection system.

RSF-A is anticipated to be similar in nature to the material at the multiple historical RSFs that have existed at the site for decades. RSF-A will not be lined, while RSF-X will be lined. Runoff from RSF-X will be conveyed to a PAG pond and then pumped to a constructed WTP prior to discharge into WSB-1. Runoff from RSF-A is anticipated to be of sufficient quality to allow for surface discharge after being collected in sediment ponds.

At RSF-A and RSF-X approximately 41.8 million and 47.6 million tons of rock storage will be generated, respectively. Excess rock storage will be used for TSF perimeter embankment construction or placed in RSF disposal areas (SRK 2024d).

Remaining material in RSF-A will not create long-term acid generation issues, as it will be composed of non-PAG rock. Based on predictive modeling results, the risk of groundwater degradation resulting from RSF-A is considered low. At closure, RSF-A will begin to be graded and covered with approximately 2 feet of growth media. Larger boulders are expected to protrude from the growth media due to the nature of the rock material.

## Overburden Storage Facilities

Three OSFs will be constructed to store saprolite rock that will be excavated during the creation of the RSFs and preparation of the Archdale TSF.

## Run-of-Mine Pad

The ROM pad will be used to temporarily stockpile ore mined directly from the open pit. The ore will be transported by haul trucks to the ROM pad before processing. The ROM pad will be located southwest of the open pit and east of the crushing and screening circuit (Appendix B, Design Drawings; Hatch 2023a).

## North Non-Process Infrastructure Area

The NPI will consist of supporting infrastructure associated with mining and concentrating operations. The NPI will include but is not limited to, roads, offices, fueling facilities, hazardous material storage, security gates, fencing, power supplies, stormwater management, water and fire systems, a septic/sewer system, and vehicle wash areas. Two NPI areas will be located at the KMM site (north and south of I-85) to support mining and processing operations (Figure 6: Kings Mountain Mine Site Layout). Numerous types of mobile equipment will be required to perform mining activities during development and operations. Drilling, loading, hauling and other mine operations will involve equipment including but not limited to, deck drills, hammer drills, front end loaders, haul/maintenance/fuel trucks, excavators, track/wheel dozers, motor graders, pressure washers, forklifts, compressors, and backhoes.

## Mineral Processing Facility

The DOE-funded concentrator facility (mineral processing facility) will be located on the south side of I-85 and will consist of a DMS circuit, the grinding circuit, desliming, magnetic separation, mica and spodumene flotation circuits, and concentrate and tails thickening and filtering circuits.

The separation of lithium-bearing spodumene ore and marketable byproducts from the host rock will be conducted at an onsite concentration plant (Figure 8: Concentrator Facilities), the Kings Mountain Mineral Processing Plant. Mined ore will be transported from the pit using haul trucks and will be placed on the ROM pad. From there, ore will be moved via conveyor to undergo primary and secondary crushing followed by sorting. Ore delivery, crushing, and preparation will occur north of I-85 near the existing lithium conversion plant. The crushed ore will be delivered via conveyor over I-85 to the enclosed mineral processing plant feed stockpile located south of I-85 using a new bridge constructed for the Proposed Project.

The mineral processing plant feed stockpile will provide a buffer between the crushing circuit (north of I-85) and the concentrator circuit (south of I-85). Plant feed material will undergo further milling, screening, and magnetic separation in the spodumene conversion plant facility. Spodumene and tailings will be separated using flotation processes. The resulting concentrate will be thickened and then filtered and dried to remove water to prepare it for shipping, and then will be delivered by conveyor back over I-85 for stockpiling and shipping via rail. The remnant tailings material will be thickened and filtered to remove water, and then moved by conveyor over I-85 prior to being loaded onto trucks for placement in the Archdale TSF.

## Tailings

Tailings will be placed and compacted at the offsite Archdale TSF which will be reclaimed concurrently with native soil and vegetation due to the structural nature of the tailings material.

The tailings material is anticipated to be similar in nature to the material that has existed for decades at the historical TSF with no identified impact to groundwater resources. The Archdale TSF will not be lined; however, stormwater runoff and seepage from the facility will be contained and collected, though it is anticipated to be of sufficient quality to discharge. Available geochemical characterization shows no potential to degrade groundwater or surface water.

### Pit Inflows

The pit will receive stormwater runoff and direct precipitation, as well as inflows from groundwater. Based on historical observations from pit filling, groundwater seepage is anticipated to contribute 200 to 350 gpm to the pit. This water will need to be continually removed to allow mining.

Water treatment will extend approximately 4 years into the post-closure period. During this time, PAG seepage will be treated and PAG material from RSF-X will be backfilled into the pit. Once the backfill is complete and the pit refloods, treatment will no longer be required. Treatment facilities will then be dismantled and disposed of in accordance with applicable regulations.

### Water Storage Basin 1

The purpose of WSB-1 will be to:

- Act as a temporary retention location before water is discharged to Kings Creek.
- Act as a final location for water quality testing before water is discharged.
- Control discharge flow to prevent disruptive surges in Kings Creek.
- Provide supply water to the processing plant for process makeup, raw water supply, and dust suppression.
- The reservoir will be designed to allow sediments to settle, reducing sediment load and turbidity downstream.

### Roads

The Proposed Project will use 2.45 miles of existing roads (some of the existing roads may be modified or expanded for the Proposed Project's operations). Approximately 15.67 miles of internal roads will be constructed for pit, RSFs, OSFs, NPI, and ROM pad access throughout the KMM site. Internal haul roads will either be modified or newly constructed to transport material across the site. The haul roads will be connected to exit points and offsite roadways for material transport offsite. Haul roads may be relocated during mining operations, as the pit expands (Figure 9: Location of Onsite Roadways Left in Place). Mine Safety and Health Administration (MSHA) requires design road widths to be 2.5 times the width of the mine trucks used, and all mine haul roads will require berms of one-half axle height or greater for the largest truck. Existing roads will be retrofitted/widened as necessary according to MSHA standards.

Eight new internal access roads will cross streams, impacting 899.5 linear feet of stream channels.

Roads that are not needed for closure and post-closure uses such as water management/treatment, power generation, security, and monitoring will be closed. Reclamation will be achieved by ripping compacted surfaces and re-grading as needed to promote proper surface drainage, covering the area with growth media where needed, and revegetating. Where possible, the larger roads that are retained will be resized for post-closure use by re-grading and ripping to a width that is appropriate for anticipated post-closure traffic.

The following roads are pending either full or partial removal to accommodate the Proposed Project:

- Castle Rock (North Carolina Department of Transportation [NCDOT])
- Park Grace (NCDOT)
- Beta Place (NCDOT)
- Beta Circle (private)
- Goodall Drive (NCDOT and partially private)
- Miracle Drive (private)
- Holiday Inn Drive (partially NCDOT)
- Quality Lane / Industrial Drive (partially NCDOT)

### Conveyors

After initial separation and transport of non-ore bearing rock and delivery of ore to the ROM pad, most material will be moved within the Proposed Project boundary by conveyors to minimize fuel use and emissions. A new bridge and enclosed conveyor will be constructed over I-85 to connect the ROM pad / crushing circuit to the concentrator and south NPI area located immediately south of I-85. After haul trucks deposit ore on the ROM pad, ore will be moved through the crushing circuit by conveyor. Once primary through tertiary screening and crushing are complete, the crushed ore will be transferred by conveyor across the new bridge to the concentrator circuit.

The enclosed conveyor system that will be constructed across the new concentrator bridge will deposit ore from the crushing circuit into the enclosed plant feed stockpile south of I-85. The plant feed stockpile will supply material to the concentrator circuit via conveyor. There will be two primary outputs from the concentrator circuit: concentrate and tailings. Concentrate will be conveyed to the north side of I-85, to either the concentrator rail loadout station or concentrator truck loadout, and stockpiled. Filtered tailings will be transported north across the I-85 bridge via a conveyor to the filtered tailings loadout area located at the north NPI.

### Stormwater Outfalls

Two general drainages are on the existing mine site: South Creek and Kings Creek. After construction of the OSFs and RSFs, runoff will be managed through two separate conveyance systems, one for non-contact water and one for contact water. South Creek and Kings Creek will remain largely undisturbed in their present condition.

Contact water will be collected separately in a series of lined channels and seepage ponds, with all water stored in WSB-1, centrally located in the southern portion of the KMM site. Non-contact perimeter channels have been designed to route runoff from undisturbed areas around the Proposed Project's infrastructure into Kings Creek, maintaining clean water. Erosion protection for channels was selected based on the maximum tributary catchment throughout the life of the Proposed Project, and the expected velocities during design flood events. Most of the channels will be grass lined, while those segments with steeper gradients will be lined with riprap.

Three sediment control ponds will be situated downstream of the non-contact water channels before discharging into Kings Creek. The sediment control ponds were designed using a 25-year, 24-hour storm event, exceeding North Carolina standards. WSB-1 will provide sediment control functions for all contact and non-contact water from the Proposed Project.

Seepage and contact water runoff from the active mining areas will be routed to either the non-PAG collection sump, PAG collection sump, or the ore sorting area collection sump during operations and initial closure. As active surfaces are reclaimed, runoff contributions will be eliminated with reduced seepage flows to these sumps. Once flows have decreased, the non-PAG collection sump will be breached and allowed to discharge into the non-contact perimeter channels.

The PAG collections sump associated with RSF-X will be removed once the PAG material has been relocated to the pit backfill.

#### *2.4.6.2. Archdale Tailings Storage Facility*

The Archdale TSF will be used to store 10,000,000 tons (8,427,770 placed cubic yards) of filtered tailings produced at the KMM site within the footprint of the remnant legacy open pits, which will be progressively filled over time (Burnley 2024). The proposed Archdale TSF layout (SRK 2024b; Hatch 2023b) illustrates the locations of the primary components.

The conceptual TSF design drawings for the proposed filtered TSF and its facilities, as well as plans, sections, details, slope stability analyses, and settlement calculations were designed by a professional engineer currently registered in the state of North Carolina (SRK 2024b, 2024c). Design drawings include the following components:

- Filtered TSF;
- TSF underdrain system;
- TSF starter and phased downstream embankment expansion configurations;
- Final closed configuration;
- Seepage collection drain;
- Contact water mitigation pond;
- Haul and access roads;
- Stormwater management facilities including diversion channels and a sedimentation basin;
- Roadside ditches; and
- Culverts.

It is assumed that filtered tailings included in the filtered TSF design will be delivered to the site at a moisture content of 15 percent. The perimeter embankment design provides for full containment and internal drainage of the tailings mass.

## 2.4.7. Closure / Post-Closure

The post-closure strategy involves implementing best management approaches to develop post-mining land uses that are agreeable to all stakeholders.

#### *2.4.7.1. Kings Mountain*

### Vegetation

Pursuant to North Carolina mining regulations, a mine reclamation plan is required to include plans for seeding, including the time of seeding, and the amount and type of seed, and type of fertilizer, lime, and mulch per acre. The recommendations include general seeding instructions

for both permanent and temporary revegetation. A preliminary seed mix and schedule is provided in Table 3: Preliminary Seed Mix Composition and Schedule. Seed will be procured from an approved seeding contractor.

### Stormwater Management

As closure covers are placed over the RSFs, contact water diversion channels will be removed to allow runoff from the reclaimed surfaces to flow into the non-contact water diversion channels. This flow will be routed through sediment ponds or in-line sediment controls, such as rock check dams to control sediment as vegetation is established. The sediment ponds will ultimately discharge to Kings Creek.

### Open Pit

The open pit will be partially backfilled when the PAG material is removed from RSF-X. The open pit will recharge from groundwater inflows and precipitation, which will eventually discharge through shallow groundwater and surface water outflow into Kings Creek. The pit lake will form quickly and continue to fill until the surface water discharge point is reached, which is assumed to be at 850 feet amsl. The model predicts the pit lake will not inundate the pit backfill until 2 to 3 years after the backfill is complete and will reach the surface water discharge elevation sometime between the years 2087 and 2096. An outflow channel connecting the open pit to Kings Creek will be designed once post-mining topography has been established. Pit lake water quality predictions indicate that the shallow pit lake water chemistry will meet applicable surface water quality standards. The open pit will not be stocked with fish upon closure, and it is not currently being considered for recreational use.

### Post-Closure Management

Closure management plans will be developed as mine planning progresses.

### Rock Storage Facilities

During closure, RSF-X material segregated during operations will be backfilled into the open pit and will eventually be submerged as the pit lake begins to form. Remaining material in RSF-A will not create long-term acid generation issues, as it will be composed of non-PAG rock. Based on predictive modeling, the risk of groundwater degradation resulting from RSF-A is considered low.

At closure, RSF-A will be graded and covered with approximately 2 feet of growth media and revegetated. Larger boulders are expected to protrude from the growth media due to the nature of the rock material.

### Overburden Storage Facilities

At closure, the three OSFs will contain excavated materials beneath the surficial growth media layer consisting of saprolite C-horizon material. The OSFs will be constructed during Proposed Project development. Their final configuration will have a slope of no greater than 3 horizontal to 1 vertical and they will be revegetated once complete to meet final stabilization requirements. Runoff from the OSFs will be conveyed to natural streams or be diverted via sedimentation basins constructed downgradient of each facility. At closure, no additional activities are anticipated unless material is borrowed from the OSFs for closure activities at other facilities. In that case, disturbed areas will be revegetated. Since the majority of the OSFs are not required during operations, they may be progressively closed during construction (SRK 2024f).

## Water Treatment

Water treatment will last approximately 4 years during the post-closure period. During this time, PAG seepage will be treated and PAG material from RSF-X will be backfilled into the pit. Once the backfill is complete, treatment will no longer be required. Treatment facilities will then be dismantled and disposed of in accordance with applicable permits.

## Buildings and Foundations

Associated infrastructure will be decommissioned, dismantled, and the area reclaimed.

## Mineral Processing Plant

The mineral processing plant site and ancillary facilities will remain active until material processing has been completed. Subsequently, plant equipment will be cleaned, decontaminated, and removed from the KMM site. Foundations will be demolished and removed, and the area reclaimed. Remaining chemicals will be disposed of in accordance with applicable regulations.

## Infrastructure

### *Water Supply System*

Water used onsite will consist of municipal potable water for drinking and other potable water needs, and non-process water. Once operations and processing cease and water supply to the Proposed Project is no longer needed, pipes and pumps will be dismantled and removed.

### *Roads*

Roads that are not needed for closure and post-closure uses such as water management/treatment, power generation, security, or monitoring will be closed. Road closure will be achieved by ripping compacted surfaces and re-grading as needed to promote proper surface drainage, covering the area with growth media where needed, and revegetating. Where possible, larger roads that are retained will be resized for post-closure use by re-grading and ripping to a width that is appropriate for anticipated post-closure traffic.

### *Industrial and Hazardous Waste*

Industrial and hazardous waste will be identified in accordance with Resource Conservation and Recovery Act (RCRA) and applicable waste regulations and disposed of offsite at an approved third-party facility.

### *Fencing*

Fencing will be removed consistent with site safety needs and transferred to an appropriate waste disposal facility once closure is complete, and appropriate exclusionary berms have been placed at the site.

### *Ponds*

After the closure covers are placed on the RSFs, all sumps and collection ponds will be breached and discharged into sediment channels that lead to Kings Creek.

### *Yard Areas*

Yards and laydown areas are generally flat stretches used to store mine materials or pad areas remaining after buildings are removed. These flat spaces will require minimal grading to blend them into the surrounding topography.

### *Well Abandonment*

All wells will be plugged once monitoring and production wells are no longer needed in accordance with North Carolina Administrative Code 15A 02C.0113 (NCAC 15A 02C.0113), Abandonment of Wells.

### Well Monitoring

The objective of the closure and post-closure monitoring program is to track the recovery of the site toward long-term post-closure land use goals, in accordance with overall closure objectives. The monitoring program will be designed to collect information to demonstrate that the closure criteria have been achieved, revegetation and restoration objectives have been met, and the site is stable.

The strategy will be to adopt monitoring requirements for specific environmental aspects and adapt these for closure. These activities will then be implemented throughout the closure and post-closure periods. Monitoring typically required during the closure and post-closure periods is summarized in Table 4: Monitoring Summary.

Reports will be prepared to document the monitoring results during the closure and post-closure phases. These reports will provide the information required to manage ongoing closure activities. The data and reports will be used to:

- Provide recommendations for improving subsequent reclamation activities.
- Indicate where reclamation and closure activities have not been successful, requiring a potential change in design criteria.
- Provide information about when care and maintenance are required during the post-closure period.
- Indicate if relinquishment criteria have been achieved.

### *Progressive Reclamation*

Progressive reclamation involves reclamation activities that take place during operations to accelerate closure of facilities for which closure can begin during operations, or for facilities that are no longer needed for current operations.

Progressive reclamation plans will be developed before and during operations as mine planning progresses.

## *2.4.7.2. Archdale Tailings Storage Facility*

TSF closure will include the formation of a mounded top surface of compacted tailings graded to drain to the TSF perimeter at a minimum surface grade of 3 percent. A minimum of 2 feet of growth media will be placed in loose lifts and revegetated with an approved seed mix. BMPs will be implemented to prevent erosion until vegetation is successfully established. Stormwater berms and channels will be installed as necessary to control stormwater flows off the closed surface and will be safely routed to the perimeter stormwater management system. Riprap lining or channel erosion protection products will be employed where necessary.

### Water Quality Post-Closure

During post-closure, the drains simulating the water collection system under the TSF will be deactivated and the groundwater level in the facility will be allowed to recover. Particle tracking will be used to analyze the movement of the tailings contact water during post-closure.

# 3. EXISTING CONDITIONS AND IMPACTS TO AFFECTED ENVIRONMENT

In the following sections, qualitative and, where applicable, quantitative information is used to describe the nature and extent of specific resources that may be affected by the Proposed Project. Potential direct and indirect impacts to those resources are also discussed within the context of Proposed Project controls.

## 3.1. KINGS MOUNTAIN

### 3.1.1. Existing Permits for Existing Conditions

The existing Kings Mountain Facility currently operates under Mining Permit Numbers 23-01 and 23-34, in accordance with the provisions of the North Carolina Mining Act of 1971. Two permit modifications for site preparation and access activities have been applied for in advance of portions of the Proposed Project located at the KMM site. Site preparation activities were separated into two modifications named the East Mine and West Mine. As previously mentioned, the existing pit is currently being dewatered per the conditions of the approved NPDES Permit NC0090212.

### 3.1.2. Existing Conditions

The main area north of I-85 is mostly developed/disturbed and includes Albemarle's lithium compound and metal production facility, which includes a 5,000 metric ton lithium-grade lithium hydroxide facility and the Technology Center. The northwest side of this area, along South Battleground Avenue, includes an abandoned drive-in theater and recreational vehicle campground, remnants of a textile mill, and an abandoned school building. These buildings will be demolished prior to construction of the Proposed Project. Five utility rights-of-way cross the northern and central portions of the parcel. The area south of I-85 is mostly undeveloped but has been previously disturbed by industrial activity (Figure 2: Existing and Proposed Mine Site – KMM). The Kings Mountain Gateway Trail (Gateway Trail) is located along the northern and eastern boundaries of this area, with an access point and parking area off Galilee Church Road. Once construction begins, the Gateway Trail will be relocated off the KMM and Archdale TSF sites. Additionally, three utility rights-of-way cross the parcel running northeast to southwest.

Seven existing man-made ponds are onsite: the accumulated water in the existing pit, PEG 25, South Creek Reservoir, No.1 Mill Pond, WSB-1 (previously referred to as Executive Club Lake), Mud Pond 1, and Mud Pond 2. Of these ponds South Creek Reservoir, and Executive Club Lake, are jurisdictional. Executive Club Lake will no longer be jurisdictional after the impacts of the Proposed Project are permitted.

The mine site is surrounded by residential, commercial, and industrial development to the north, west, and south (Figure 2: Existing and Proposed Mine Site – KMM). The Kings Mountain Quarry, operated by Martin Marietta borders the mine site area to the northeast. Primarily

undeveloped land associated with Crowders Mountain State Park is to the east. No land belonging to the state park borders the mine site.

## 3.2. ARCHDALE TAILINGS STORAGE FACILITY

The current condition of the Archdale TSF property is impacted by industrial operations, specifically historical mining operations. Surrounding land use includes industrial/manufacturing, commercial, residential, and other mining/drilling operations.

Based on aerial historical photographs, active mining operations began at the KMM site in the mid-1990s (Figure 4: Historical Mining Activities – TSF). Prior to mining activities, the KMM site contained agricultural land and undeveloped woods. Active mining operations ceased around 2014, and much of the area has naturally revegetated.

## 3.3. RESOURCE AREAS CONSIDERED AND ASSOCIATED IMPACTS

The following sections detail existing conditions, impacts, and proposed mitigation measures for each of the affected resources. Impacts are measured by how the Proposed Project affects NEPA laws.

### 3.3.1. Aesthetics and Visual Resources

#### *3.3.1.1. Existing Conditions*

The area around the city of Kings Mountain, North Carolina, is characterized by open valleys, rolling hills, and taller mountains that frame the landscape. Forested areas are common and provide contrast, verticality, and texture while providing a buffer between other common lands uses (e.g., agriculture, residential, commercial). Due to the prevalence of trees and other deciduous vegetation, the landscape appearance and colors change throughout the year depending on the season. This creates variation and interest that contribute to the overall scenic value of the regional landscape. The rolling topography, forested areas, and current development (e.g., buildings and other structures) limit wider landscape views in many locations, but elevated areas (e.g., hilltops, peaks) often provide open vistas from which to view the regional landscape. Residential development is centered in Kings Mountain, but there are pockets of rural residential development throughout the region. I-85 and U.S. Route 74 are major transportation corridors, and many state and local roads also provide access throughout the region. Multiple public parks, open space areas, and other tourist destinations are near the Proposed Project.

#### *3.3.1.2. Impacts during Site Preparation, Construction, Operations, Closure, and Post-Closure*

A visual impact assessment (VIA) was prepared to identify existing visual resource conditions and evaluate potential changes from the operation and post-closure phases of the Proposed Project (ERM 2024). Two analyses were completed to make up the VIA, a viewshed analysis and visual simulations from key observation points (KOP) contrasting existing conditions to modeled Proposed Project conditions. The VIA used similar inventory processes, photographic simulations, and assessment techniques commonly applied to federal systems, including the Bureau of Land Management's Visual Resource Management system, the U.S. Forest Service's Scenery Management System, and the Federal Highway Administration's Visual Impact Assessment for Highway Projects, among others. The results of the analysis address public visibility, changes to the current landscape elements (e.g., form, line, color, texture), and estimate viewer sensitivity to scenic changes from the Proposed Project.

Based on the viewshed analysis, the Proposed Project will not be visible from most locations in the region. Table 5: Aesthetics and Visual provides a summary of anticipated changes at each KOP. The Proposed Project's facilities will be most visible in areas of the foreground. In particular, the RSFs and TSF will be visible from about 18 percent and 14 percent of areas in the foreground, respectively. The RSFs have the greatest percentage of foreground areas from which they will be highly visible, but even these areas are small (under 5 percent of the total foreground area). Into the middle ground and background, the Proposed Project's facilities will generally not be visible, with less than 1 percent of the total area of each of these zones showing some level of visibility. Even the RSFs, the tallest of the Proposed Project's facilities, will only be visible from about 2 to 3 percent of middle ground and background areas.

Overall, the Proposed Project will be visible from locations adjacent to or at an elevation that provides views of the Proposed Project over vegetation and other screening elements (e.g., topography, buildings). The most commonly visible Proposed Project facilities will be the RSFs. These facilities will be the tallest structures on the KMM site at full buildout, so it is reasonable to expect them to also be the most visible. The TSF and other Proposed Project structures at the KMM site (e.g., communication towers, ROM pad, mineral processing facility, support buildings, etc.) near existing roads will also be partially visible. The mine pit will have limited visibility to much of the surrounding area.

The Proposed Project will primarily be visible from roads adjacent to the main mine and TSF properties, as well as from elevated viewpoints that provide panoramic views of the region.

## 3.3.2. Air Quality (Clean Air Act)

### *3.3.2.1. Existing Conditions*

Primary air quality standards were developed for pollutants to protect public health, including for sensitive populations such as children, the elderly, and asthmatics; and secondary standards were developed to protect the nation's welfare, including against decreased visibility and damage to animals, crops, and vegetation (Table 6: National Ambient Air Quality Standards).

Air quality modeling used the U.S. Environmental Protection Agency's (USEPA) American Meteorological Society/Environmental Protection Agency Regulatory Model to evaluate impacts from criteria air pollutants such as nitrogen dioxide ($NO_2$), carbon monoxide (CO), sulfur dioxide ($SO_2$), particulate matter (PM) with a diameter of 10 micrometers or less ($PM_{10}$), and PM with a diameter of 2.5 micrometers or less ($PM_{2.5}$), as well as hazardous air pollutants (HAP) including benzene, polycyclic aromatic hydrocarbons, arsenic, cadmium, lead, and nickel.

The air quality modeling results indicated that the Proposed Project would lead to increases in criteria pollutants and HAPs; however, these increases were projected to remain within the National Ambient Air Quality Standards (NAAQS) and European Union (EU) Numeric Air Quality Standards. The Proposed Project will not exceed the NAAQS for any regulated pollutants, including $NO_2$, CO, $SO_2$, $PM_{10}$, or $PM_{2.5}$. The assessment of HAPs against reference exposure levels and reference concentrations showed minimal potential for acute or long-term health impacts. Additionally, the concentrations of HAPs such as arsenic, benzene, polycyclic aromatic hydrocarbons, cadmium, lead, and nickel were well below the EU thresholds, confirming minimal health risks. The cancer

risk was found to be negligible, evaluated through the Maximum Exposed Individual and Maximum Likelihood Estimate scenarios.

The analysis used the USEPA's Modeled Emission Rates for Precursors to assess the secondary formation of $PM_{2.5}$ and ozone ($O_3$). The results confirmed that the significant impact

levels for both $PM_{2.5}$ and $O_3$ will not be exceeded. Moreover, when combined with nearby monitoring data, the projected $O_3$ levels remained below the NAAQS and reinforced that the Proposed Project will not contribute to air quality violations.

The comprehensive air quality assessment for the Proposed Project demonstrates that it will comply with all relevant U.S. air quality standards. The findings indicate that the Proposed Project will not cause significant deterioration of ambient air quality, and the potential health risks associated with HAP emissions will be minimal.

USEPA has concluded that the current NAAQS protect public health, including at-risk populations of older adults, children, and people with asthma with an adequate margin of safety. The airshed that contains the KMM and Archdale TSF sites in Cleveland County, North Carolina is in attainment or unclassifiable for NAAQS, meaning none of the ambient concentrations of criteria pollutants exceed the air quality standards (USEPA 2023).

The quantity of the pollutants reasonably permitted in the air is defined based on the primary and secondary standards described above. Since 2015, all areas of North Carolina have been characterized by USEPA as meeting NAAQS (NCDEQ 2022a)[1]. Albemarle has an Ambient Air Quality Monitoring Protocol (dated October 2023) that specifies conducting air quality analyses in line with NAAQS and EU Air Quality Standards (European Commission 2013).

Measurements were taken at three monitoring stations from August 1, 2023, to August 31, 2023, around the KMM site. All measurements obtained were well below NAAQS for $PM_{10}$ and the international standard for $PM_{10}$.

#### *3.3.2.2. Impacts during Site Preparation and Construction*

Airborne PM has the potential to affect areas in which the Proposed Project's personnel will work, causing a potential health and safety issue. Roads will be constructed of aggregate material and the use of these roads by the Proposed Project's vehicles is anticipated to generate dust. An increase in levels of PM may potentially impact the health of site personnel and communities through which the Proposed Project's traffic will be routed and cause visual impairment and loss of wildlife and wildlife habitat as a result of long-distance transport of dust particles settling on the ground or in water.

Construction activity will temporarily increase airborne dust particles and engine emissions. This change will be almost negligible. During construction, air emissions and dust will be generated from mobile sources (e.g., trucks, machinery) as well as ground-disruptive operations onsite. Emissions from workers' vehicles and construction equipment will be temporary and transient in nature, and various BMPs, such as limiting vehicle idling, watering (if/as necessary), and use of temporary construction entrances will be implemented to reduce potential impacts (Table 7: Facility-Wide Potential to Emit – Site Preparation and Construction).

#### *3.3.2.3. Impacts during Operations, Closure, and Post-Closure*

An increase in vehicle and equipment use during mining operations will result in increased noise, light, and air emissions (i.e., dust, CO, $NO_2$, PM) with the potential to impact the natural environment (including wildlife) as well as human health (mine personnel and nearby communities). Potential sources of Proposed Project-related impacts to air quality include the crushing circuit, conveyors, exhaust emissions from vehicles, construction equipment, generators, and fugitive dust emissions from hauling activities, road traffic, and typical operation activities. These activities have the potential to generate fugitive dust resulting in short-lived

[1] According to data last updated in August 2022.

episodes when PM ($PM_{10}$ and $PM_{2.5}$) concentrations are higher than air quality standards (Table 8: Facility-Wide Potential to Emit – Operations, Closure, and Post-Closure). No impacts are anticipated for closure or post-closure, as exposure limits will be below detection (Table 9: Annual Decommissioning Estimates).

## 3.3.3. Biological Resources

### *3.3.3.1. Existing Conditions*

Various biological surveys were conducted during each season in 2022 and 2023. During these field efforts, some common mammals, reptiles, amphibians, and birds were regularly observed. Mammals observed included white-tail deer (*Odocoileus virginianus*), eastern gray squirrel (*Sciurus carolinensis*), eastern cottontail (*Sylvilagus floridanus*), and raccoon (*Procyon lotor*). Additionally, black bears (*Ursus americanus*) have been observed occasionally at the site. Common reptiles observed included eastern rat snake (*Pantherophis alleghaniensis*), northern water snake (*Nerodia sipedon*), Carolina anole (*Anolis carolinensis*), five-lined skink (*Plestiodon fasciatus*), eastern fence lizard (*Sceloporus undulatus*), eastern box turtle (*Terrapene carolina*), eastern mud turtle (*Kinosternon subrubrum*), and common musk turtle (*Sternotherus odoratus*). Common amphibians included American toad (*Anaxyrus americanus*), green frog (*Lithobates clamitans*), bullfrog (*Lithobates catesbeianus*), northern cricket frog (*Acris crepitans*), spring peeper (*Pseudacris crucifer*), northern dusky salamander (*Desmognathus fuscus*), and spotted salamander (*Ambystoma maculatum*; egg masses only).

An aquatic habitat assessment was conducted in 2022 to determine the aquatic faunal assemblage of the ponds and streams within the KMM and Archdale TSF sites (SWCA 2022a). In ponds, bluegill (*Lepomis macrochirus*) was the most common fish species, accounting for 98.4 percent of observations. Other fish recorded species included the redbreast sunfish (*Lepomis auritus*), spotted bass (*Micropterus punctulatus*), largemouth bass (*Micropterus salmoides*), and pumpkinseed (*Lepomis gibbosus*). Other fauna in pond habitats included mud turtles (*Kinosternon subrubrum*), musk turtles (*Sternotherus odoratus*), painted turtles (*Chrysemys picta*), a yellow-bellied slider (*Trachemys scripta scripta*), a northern water snake (*Nerodia sipedon*), and bullfrog tadpoles and adults (*Lithobates catesbeianus*).

Eleven fish species were observed in Kings Creek, South Creek, and two unnamed streams. The most abundant species observed in the stream habitats was the creek chub (*Semotilus atromaculatus*), which accounted for 51 percent of observed individuals. Instream riffle/runs were dominated by creek chub, bluehead chub (*Nocomis leptocephalus*), and rosyside dace (*Clinostomus funduloides*). Pool structures in the streams were dominated by bluegill and redbreast sunfish.

The only freshwater bivalve observed was Asian clam (*Corbicula* sp.), an introduced species of mollusk that is considered invasive. Numerous individuals of crayfish were observed and captured in the two streams. All crayfish were members of the *Cambarus* (*Puncticambarus*) sp. *C* (*acuminatus*) complex.

All fish, crustacean, and bivalve species observed had an International Union for Conservation of Nature status of Least Concern, which is a species that the International Union for Conservation of Nature has classified as not being a priority for species conservation because the species is abundant in the wild. They were not endangered, vulnerable, threatened, near threatened, or conservation dependent (IUCN 2022). Additionally, none were listed by the U.S. Fish and Wildlife Service (USFWS) under the ESA, and none were state-listed. The aquatic features of the Archdale TSF did not contain federally protected species.

The bird species observed included northern cardinal (*Cardinalis cardinalis*), American crow (*Corvus brachyrhynchos*), and blue jay (*Cyanocitta cristata*).

The USFWS Information for Planning and Consultation (IPaC) resource list identified tricolored bat (*Perimyotis subflavus*) as having moderate potential to occur in the KMM and Archdale TSF sites or vicinity (Table 10: USFWS Federally Listed Species with Potential to Occur within the Project Area) (USFWS 2024a, 2024b).

#### *3.3.3.2. Impacts during Site Preparation, Construction, Operations, Closure, and Post-Closure*

Regarding forest-dwelling species, there is risk of direct mortality if occupied roost trees are removed while in use. Since forest-dwelling species are habitat generalists and typically roost in the foliage of living trees, identifying specific roost trees can be challenging. Site preparation, however, will not impact areas of habitat or aquatic resources.

During construction of the facility, there may be minor, localized, and temporary adverse impacts to biological resources present at the Proposed Project site. Potential adverse impacts to wildlife species during construction include disturbance from noise and human activity and risk for direct mortality from ground disturbance. Tree removal and road construction may cause mortality and loss of habitat and foraging for some species. Wildlife and wildlife habitat may be affected by increased activity onsite during the construction phase resulting in changes in species, populations, and behavior of wildlife, as well as loss of wildlife habitat or habitat connectivity in various areas. Wildlife incidents or mortalities as a result of vehicular strikes, wildlife entering active construction areas, and attraction of wildlife to food wastes may increase with increased human presence onsite. Increases in areas of disturbance and dust levels may also negatively affect wildlife habitat on or adjacent to the site.

Impacts to biological resources are not anticipated during operations due to avoidance of the Proposed Project site from certain species of animal. Additionally, adverse impacts to biological resources are not anticipated after closure and post-closure.

## 3.3.4. Habitat Vegetation

#### *3.3.4.1. Existing Conditions*

The habitat vegetation at the KMM and Archdale TSF sites has been impacted by the effects of project activities over an extended period. Mining at Kings Mountain from the 1940s until 1994 heavily disturbed the KMM site. Much of the vegetative communities at the KMM and Archdale TSF sites are a result of ecological regeneration of historical mining areas. Outside of the mining areas and mine tailings landings, most of the KMM and Archdale TSF sites consist of deciduous forest and mixed deciduous-pine forests in various stages of forest succession. In addition, portions of the KMM site with sizable wetlands and waterways have been or are currently influenced by beaver activity. Six upland land use / vegetative communities have been mapped within the KMM and Archdale TSF sites:

**Developed**—This land use category includes areas recently and currently used for previously impacted activities associated with the chemical plant, Technology Center, former campground, movie theater, and recently acquired residential properties. Vegetation in these areas is primarily grasses and ornamentals. Some areas are barren ground.

**Forested Upland Deciduous**—Upland deciduous forests at the KMM and Archdale TSF sites are generally characterized by relatively widely spaced, large trees with a developed understory of smaller trees, shrubs, and some herbaceous plants. Dominant canopy tree species are

American sweetgum, tulip tree (*Liriodendron tulipifera*), American beech (*Fagus grandifolia*), red maple, white oak (*Quercus alba*), red oak (*Quercus rubra*), mockernut hickory (*Carya tomentosa*), and chestnut oak (*Quercus montana*). Understory species commonly observed in the deciduous forest are flowering dogwood (*Cornus florida*), black cherry (*Prunus serotina*), American holly (*Ilex opaca*), American hornbeam (*Carpinus caroliniana*), eastern red cedar (*Juniperus virginiana*), greenbrier (*Smilax* spp.), blackberry *(Rubus* spp.), and spicebush (*Lindera benzoin*).

**Forested Upland Evergreen**—The upland evergreen forest community is dominated by stands of loblolly pine (*Pinus taeda*). Other less common evergreen trees observed were Virginia pine (*Pinus virginiana*) and shortleaf pine (*Pinus echinata*).

**Forested Upland Mix**—This vegetative community is the most common forest type and includes a mixture of deciduous and evergreen trees and shrubs as mentioned above. There are both mature and successional mixed forests throughout the KMM and Archdale TSF sites.

**Herbaceous Upland**—The herbaceous upland communities consist of non-wetland areas dominated by non-woody vegetation. These communities are common within the existing right-of-way, in recently disturbed or cleared areas, and along edge habitats (e.g., forest edges, roadsides).

**Scrub-Shrub Upland**—This community type is a transition between the herbaceous and forested upland areas. It includes species found in both the herbaceous community and young saplings found in the forested uplands.

Three wetland community types have been identified and delineated at the KMM site. Wetlands were determined to be non-jurisdictional. In addition, streams and open water bodies (palustrine unconsolidated bottom [PUB]) have also been identified and delineated (Figure 10: Wetland Delineations – KMM). Wetland vegetative communities include:

**Palustrine Emergent Wetland**—The palustrine emergent wetland communities consist of a prevalence of hydrophytic non-woody vegetation less than 3 feet in height, generally located in open areas without a tree canopy layer. Many of the emergent wetlands are along pond and stream edges, or in small depressional areas where woody vegetation has not developed. Emergent wetlands are also found within mowed and maintained utility line easements. Most emergent wetlands are subject to periodic inundation rather than permanent flooding. Dominant herbaceous species included giant cane (*Arundinaria gigantea*), bushy bluestem (*Andropogon glomeratus*), lamp rush (*Juncus effusus*), cottongrass bulrush (*Scirpus cyperinus*), lesser poverty rush (*Juncus tenuis*), fowl blue grass (*Poa palustris*), shallow sedge (*Carex lurida*), and goldenrod species (*Solidago* sp.).

**Palustrine Forested Wetland** (PFO)—The PFO wetland communities consist of a prevalence of hydrophytic woody species 20 feet or greater in height and 3 inches or greater in diameter at breast height. Most of the forested wetlands are mature forests with large trees along stream sides or within flooded areas influenced by human and/or beaver dams. Smaller forested wetlands are generally associated with the emergence of groundwater on hillsides adjacent to streams and likely do not have year-round surface water. Several forested wetlands were also observed along the edges of lakes and ponds that may be periodically inundated after large storm events. The tree strata are dominated by red maple (*Acer rubrum*), American sycamore (*Platanus occidentalis*), water oak (*Quercus nigra*), sugarberry (*Celtis laevigata*), American elm (*Ulmus americana*), and American sweetgum (*Liquidambar styraciflua*).

**Palustrine Scrub-Shrub Wetland**—The palustrine scrub-shrub wetland communities consist of a prevalence of hydrophytic woody vegetation less than 20 feet tall. Most of the scrub-shrub wetlands in the KMM and Archdale TSF sites are in linear depressional areas along the

Gateway Trail or within portions of the Executive Club Lake wetland complex and are subject to periodic flooding. Most of these wetlands occur as dense thickets dominated by only a few scrub-shrub species and have a sparse herbaceous layer. The scrub-shrub strata are dominated by brookside alder (*Alnus serrulate*), American sycamore, black willow (*Salix nigra*), Chinese privet (*Ligustrum sinense*), and red maple.

Details of wetlands and streams identified and delineated on the KMM site can be found in Section 3.3.17 Water Resources.

#### *3.3.4.2. Impacts during Site Preparation, Construction, Operations, Closure, and Post-Closure*

Tree removal and loss of habitat through site preparation is expected to cause damage and/or mortality to certain bat species. Wildlife and wildlife habitat may be affected by the increase in activity onsite during the construction phase resulting in changes in species, populations, and behavior of wildlife, as well as loss of wildlife habitat or habitat connectivity in various areas. Wildlife incidents or mortalities as a result of vehicular strikes, wildlife entering active construction areas, and attraction to food wastes may increase with increased human presence onsite. Increases in disturbance areas and dust levels may also negatively affect wildlife habitat on or adjacent to the site.

## 3.3.5. Threatened and Endangered Species

### *3.3.5.1. Existing Conditions*

#### Kings Mountain

Federally listed, threatened, and endangered species are protected under the ESA. Three species were identified on the USFWS IPaC resource list (USFWS 2024a) as having the potential to occur in the KMM or vicinity (see Table 10: USFWS Federally Listed Species with Potential to Occur within the Project Area): the tricolored bat (*Perimyotis subflavus*), monarch butterfly (*Danaus plexippus*), and dwarf-flowered heartleaf (*Hexastylis naniflora*). Under the ESA, the USFWS can also propose and designate critical habitats for threatened or endangered species. No USFWS-designated critical habitats for federally listed species are within the KMM and Archdale TSF sites (Appendix C, Federally Listed Species for Kings Mountain).

Approximately 47 acres of suitable dwarf-flowered heartleaf (*Hexastylis naniflora*) habitat are possible in the KMM and Archdale TSF sites. SWCA Environmental Consultants (SWCA) conducted presence/absence surveys in these suitable habitats during the optimal survey window, and no dwarf-flowered heartleaf populations were observed in the April and May 2024 surveys or the previous May 2022 survey. Based on the results of these presence/absence surveys, the Proposed Project will have no effect on the federally listed dwarf-flowered heartleaf. If this species is subsequently identified, any occupied habitat should be avoided until after consultation with USFWS.

According to USFWS, surveys are valid for 2 years and will be required again starting in April 2026, if the species is still listed at that time (SWCA 2024a). If the species is removed from the federal list, the dwarf-flowered heartleaf may remain a state-listed species.

Presence/absence surveys were also conducted during the optimal survey window within potentially suitable habitat on April 8 to 10, 2024 and May 21, 2024. The 15 survey areas covered 46.74 acres of suitable habitat varying from low to high suitability. The threatened dwarf-flowered heartleaf was not identified in any of the survey areas. Several populations of

the little heartleaf, a common species, were observed during the surveys. This species is noticeably larger than dwarf-flowered heartleaf and has calyx tube lengths generally longer than 1 centimeter. However, other flowers that were observed in these areas, or often adjacent to flowerless plants, had calyx tube openings larger than 8 millimeters and/or a calyx tube longer than 1 centimeter, which are not characteristics consistent with dwarf-flowered heartleaf (SWCA 2022d).

No USFWS-designated critical habitats for federally listed species are within the KMM and Archdale TSF sites (Appendix D, Federally Listed Species for the Archdale Tailings Storage Facility). The tricolored bat (*Perimyotis subflavus*), a habitat generalist, was detected during acoustic surveys conducted by SWCA in 2022 at KMM. (Figure 11: Acoustic Detectors). This bat is not currently state or federally listed, but in September 2022, USFWS proposed to list the tricolored bat as an endangered species in response to observed population declines resulting primarily from white-nose syndrome (Federal Register 87:56381).

Should the tricolored bat become listed as endangered, consultation with the USFWS recommends, to keep the Not Likely to Adversely Affect status, that construction should commence outside pup season and winter torpor season. The tricolored bat is expected to be present at the KMM and Archdale TSF sites May 1 to July 15 (pup season) and December 15 to February 15 (winter torpor season). Conducting pre-clearing surveys and avoiding the removal of forested habitat during these timeframes will likely minimize the potential for direct mortality, and small-scale habitat modification is unlikely to result in harm to individuals.

All other bat species have a low to very low potential to occur due to a general lack of suitable habitat, as confirmed by field surveys.

### Archdale Tailings Storage Facility

Federally listed, threatened, and endangered species are protected under the ESA. Five species were identified on the USFWS IPaC resource list (USFWS 2024a) as having potential to occur at the Archdale TSF or vicinity (see Table 10: USFWS Federally Listed Species with Potential to Occur within the Project Area). The tricolored bat (*Perimyotis subflavus*), monarch butterfly (*Danaus plexippus*), and dwarf-flowered heartleaf (*Hexastylis naniflora*). There is moderate potential for tricolored bat to occur at the Archdale TSF site based on the forested and shrubby habitat with surrounding aquatic features. There is no suitable habitat for the monarch butterfly or the dwarf-flowered heartleaf, as most soils and vegetation at the Archdale TSF site were substantially disturbed or removed during mining activities that only recently ceased. Regenerating vegetation is currently in a dense, successional phase that does provide suitable habitat.

The tricolored bat, a habitat generalist, was detected during acoustic surveys conducted by SWCA in 2022 at the KMM site approximately 2 miles east of the Archdale TSF site. Development within the Archdale TSF site will impact forested habitat used by this species and other bats during the summer season.

#### *3.3.5.2. Impacts during Site Preparation, Construction, Operations, Closure, and Post-Closure*

Tree removal and road construction may cause mortality, loss of habitat, and loss of foraging and prey for some species. Nightshift work involving bright lights may attract insects and other prey for certain species and may cause mortality for bats.

Protected species may be affected by the increase in activity onsite during the construction phase resulting in changes in species, populations, and behavior of wildlife, as well as loss of wildlife habitat or habitat connectivity in various areas.

While the Proposed Project site could serve as foraging habitat for bats, the Proposed Project is unlikely to significantly alter the overall nature and quality of foraging habitat in the region. Due to the lack of natural habitat on or near the Proposed Project site, and the presence of surrounding industrial activities, any impacts on listed threatened and/or endangered species resulting from the Proposed Project will likely be minor. Protected species are expected to avoid the area due to ongoing operational activities that cause vibrations and disrupt their adaptive habitat.

Impacts during closure and post-closure are not anticipated.

#### *3.3.5.3. Proposed Mitigation Measures*

Development within the KMM and Archdale TSF sites could impact forested habitat used by the tricolored bat and other bats during the summer season. Albemarle will comply with the USFWS's seasonal tree clearing restrictions from May 1 to July 15 (pup season) and December 15 to February 15 (winter torpor season).

Other recommended management practices that may be beneficial to all bat species include minimizing forest clearing, avoiding impacts to large and intact contiguous forested blocks, and avoiding impacts to water quality by limiting stream/wetland impacts and implementing erosion and sediment controls along waterways. Additionally, revegetating with native grassland species using a pollinator mix could promote prey diversity and abundance, which will also benefit other wildlife, such as monarch butterflies.

Should the tricolored bat become listed as endangered, consultation with the USFWS is recommended to determine suitable measures, such as habitat conservation or enhancement, to address potential adverse effects. The tricolored bat is expected to be present at the KMM and Archdale TSF sites from April through October. Conducting a pre-clearing survey and avoiding the removal of forested habitat from April through October is likely to minimize the potential for direct mortality, and small-scale habitat modification is unlikely to result in harm to individuals.

### 3.3.6. Migratory Bird Treaty Act of 1918 and Bald and Golden Eagle Protection Act of 1940

#### *3.3.6.1. Existing Conditions*

Archdale TSF locations are frequently seen and consistently documented during the annual breeding bird survey in this area. Current conditions show the region as a migratory bird drop zone. The breeding bird survey is a community-driven effort aimed at tracking the population dynamics of breeding birds across North America. Notable Migratory Bird Treaty Act and Bird of Conservation Concern (BCC) species observed include the Chimney Swift (*Chaetura pelagica*), Chuck-will's-widow (*Antrostomus carolinensis*), Eastern Whip-poor-will (*Antrostomus vociferus*), Grasshopper Sparrow (*Ammodramus savannarum perpallidus*), Prairie Warbler (*Setophaga discolor*), and Wood Thrush (*Hylocichla mustelina*).

According to IPaC and the Rapid Avian Information Locator, the Bald Eagle (*Haliaeetus leucocephalus*) has the potential to occur at the KMM and Archdale TSF sites. Breeding season is from September 1 to July 31. The probability of presence is highest during the first 2 weeks of March. The Bald Eagle is not a BCC in this area, but it warrants attention because of the Bald

and Golden Eagle Protection Act, or because of potential susceptibility in areas from certain types of development or activities.

Persons or organizations who plan or conduct activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures. Bald Eagle presence should be monitored and any impact(s) to the species requires a USFWS permit (USFWS 2024a).

#### *3.3.6.2. Impacts during Site Preparation, Construction, Operations, Closure, and Post-Closure*

Site preparation includes the removal of trees and shrubs, which reduces habitat for roosting and nesting, as well as foraging opportunities for migratory bird species.

Construction and operation could cause loss of habitat and avoidance of the area for migratory bird species. Migratory bird species may experience minimal impacts, as they have the capacity to become mobile when disturbed and can relocate to alternative areas beyond the boundaries of operational sites.

No impacts are expected during closure and post-closure.

## 3.3.7. Cultural Resources

### *3.3.7.1. Existing Conditions*

#### Kings Mountain

A Phase I archaeological survey was conducted in accordance with Section 106 of the NHPA and its implementing regulations, found at 36 CFR Part 800, and in accordance with applicable federal and state guidelines and requirements, including the North Carolina Office of State Archaeology Archaeological Investigations Standards and Guidelines (NCOSA 2017). The Phase I archaeological fieldwork was conducted between June 6 and August 22, 2022 (SWCA 2023). Fieldwork consisted of a visual inspection, pedestrian survey, and shovel testing of the KMM site. No previously recorded archaeological sites are located within the KMM site.

Geotechnical coring in floodplains however indicated potential for deeply buried archaeological sites within several locations with fine alluvial and eolian sediments below the vertical extent of shovel testing. During the survey, investigators identified 24 newly recorded sites within the KMM site. Twenty-two sites were determined to be ineligible for listing in the National Register of Historic Places. Park Grace School and the Macedonia Baptist Church are the two sites within the Proposed Project boundary which may be determined to be eligible for the National Register of Historic Places and are still pending as demolition eligible. The survey also identified 59 above-ground historic-age resources. During this study, no graves were found in the Proposed Project area.

The State Historic Preservation Office (SHPO) issued full concurrence on SWCA's report (SHPO 2023). Letters of concurrence from SHPO are dated April 12, 2023, September 27, 2023, February 27, 2024, and October 11, 2024, and conclude there are four eligible and 55 ineligible properties. The four eligible properties are CL1717; Macedonia Baptist Church—eligible under Criterion C and meets Criterion Consideration A as an individual resource, it is also eligible as a complex or district under Criteria A and C and meets Criterion Consideration A; CL1723; and Galilee United Methodist Church—eligible under Criterion C and meets Criterion Consideration A (Appendix E, Cultural, Historical, and Archaeological Resources). In September/October 2025 a Memorandum of Agreement between the North Carolina SHPO,

Cleveland County Historical Society, the Applicant, and DOE was process and recorded to ensure there is a permanent record of the three historic properties as they now exist.

### Archdale Tailings Storage Facility

Phase I archaeological survey activities were conducted in accordance with Section 106 of the NHPA and its implementing regulations, found at 36 CFR Part 800, and in accordance with applicable federal and state guidelines and requirements, including the North Carolina Office of State Archaeology Archaeological Investigation Standards and Guidelines (NCOSA 2017).

The Phase I archaeological fieldwork was conducted on September 18 and September 21, 2023. Fieldwork consisted of a visual inspection, pedestrian survey, and shovel testing of the TSF area. No previously recorded archaeological sites are found in the Archdale TSF site, and investigators did not identify any during the survey. Development of the Archdale TSF will have no adverse effect on historic properties, and no additional work is recommended for the current Archdale TSF site. No graves/human remains were found within the Proposed Project site during this study.

#### *3.3.7.2. Impacts during Site Preparation, Construction, Operations, Closure, and Post-Closure*

Site preparation will include demolition of old residential homes but is not expected to impact registered cultural historic resources at the KMM site. Site preparation activities will not impact registered cultural historic resources at the Archdale TSF. State and federal protocols and BMPs will be implemented if historical resources are found during site preparation.

Ground disturbing activities associated with construction such as site clearing, grading, excavation and filling have the potential to impact archaeological resources. However, located archaeological resources eligible for demolition are still being considered. These measures are implemented based on state and federal protocols and procedures if archaeological resources are found during construction.

Operations are not anticipated to result in any impact to terrestrial archaeological resources; however, Albemarle has committed to EPMs to further reduce the risk of potential impacts to terrestrial archaeological resources. These measures are implemented based on state and federal protocols and procedures if archaeological resources are found during operations.

No impacts to archaeological resources during closure or post-closure activities.

## 3.3.8. Geology and Soils

#### *3.3.8.1. Existing Conditions*

### Geology

The Kings Mountain deposit is situated in North Carolina's Tin-Spodumene Belt and is located within a large-scale shear zone known as the Kings Mountain Shear Zone (KMSZ). The KMSZ extends for at least 37 miles and has a width of several hundred feet. It strikes northeast and exhibits steep to moderately dipping deformation, combining both ductile and semi-brittle behavior (Figure 12: KMM and TSF USGS 2008 Geology Map). The general topography of the Proposed Project area has been substantially altered due to mining (Figure 13: USGS Topographic Map). The Kings Mountain deposit itself is a lithium-bearing rare-metal pegmatite intrusion along the KMSZ. At its widest point in the legacy pit area, the intrusion spans approximately 1,500 feet, narrowing to 400 to 500 feet south of the legacy pit. The geology of

the open pit's footprint primarily consists of metamorphic units with beds oriented to the northeast. Within this context, spodumene pegmatite intrusions intersect schist units.

### Soils

The U.S. Department of Agriculture Soil Survey has mapped 16 unit types and three non-soil units within the KMM site. Soils consist primarily of Udorthents, loamy, 0 to15 percent slopes (approximately 32 percent of the Kings Mountain tract); Madison-Bethlehem complex, 2 to 8 percent slopes (approximately 9 percent of the Kings Mountain tract); and Madison-Bethlehem complex, 8 to 15 percent slopes (approximately 8 percent of the KMM site). Most of the soils were classified as well drained. Approximately 2 percent (Chewacia loam, 0 to 2 percent slopes) of the KMM site soils were considered hydric.

At the Archdale TSF site, the soils were primarily mapped as Hulett gravely sandy loam, 2 to 8 percent slopes (26.2 percent of site); Madison gravelly sandy clay loam, 2 to 8 percent slopes, moderately eroded (21.1 percent of site); and Madison- Bethlehem complex, 8 to 15 percent slopes, very stony, moderately eroded (20 percent of site). All the soil types within the Archdale TSF were classified as well drained and were not listed as hydric.

#### *3.3.8.2. Impacts during Site Preparation, Construction, Operations, Closure, and Post-Closure*

The Proposed Project will require land disturbance and grading; however, the land is relatively flat, and the Proposed Project is designed to minimize land disturbance and grading. During site preparation, the minor disturbance impact to geological features will result from construction, trucks, excavation, concreting, and filling activities. Ground disturbance during construction and mining may impact some geological features and soils through replacement of soil types such as clay, limestone, and impervious surfaces.

Ground disturbance during operations may impact some geological features and soils through mining of geological resources.

No additional impacts are anticipated during closure and post-closure activities.

#### *3.3.8.3. Proposed Mitigation Measures*

To mitigate potential future impacts to soils and underlying geology, the Proposed Project will implement spill prevention and emergency response procedures, as well as a facility monitoring and inspection program in accordance with MSHA standards. Specifically, the Proposed Project will include a spill prevention and response plan executed by an onsite emergency response team. The goal of these plans will be to prevent spilled constituents from infiltrating the soil and reaching underlying geology and groundwater.

Throughout the construction phase and during mining operations, all erosion control measures mandated by local, state, and federal guidelines will be diligently implemented and followed.

These measures will encompass various actions, including using water trucks to control dust, installing fences or similar barriers to prevent offsite releases and protect wetlands during construction, and revegetating stockpiles or disturbed soil areas. Additionally, at road entrances, materials such as riprap or gravel will be used to reduce or eliminate vehicle track-out onto public roadways caused by construction vehicles.

## 3.3.9. Human Health and Safety

The Proposed Project's safety and health program will be compliant with the requirements of the Occupational Safety and Health Administration, USEPA, and NCDEQ.

### *3.3.9.1. Impacts during Site Preparation, Construction, Operations, Closure, and Post-Closure*

The facility is expected to have 150 to 300 or more workers onsite during construction. The actual number of construction workers is yet to be determined. Approximately 150 to 230 workers are expected to be onsite during plant operations. Of that number, approximately 95 will be administrative daytime workers. Forty-five operations workers will be onsite during each of the three shifts (day, swing, night). It is tentatively planned for the plant to operate 24/7.

Albemarle will hire a plant safety, health, and environment manager (SHEM) to implement the requirements of the safety program. The manager will be either a certified safety professional or certified industrial hygienist.

The primary duties of the SHEM will be to implement programs regarding:

- Personal and process safety;
- Monitoring of contractors for compliance with contract safety provisions;
- Industrial hygiene;
- Environmental management;
- Safety orientation for employees and visitors;
- Local, state, and federal permitting and compliance;
- Initiating job safety analyses and process hazard analyses;
- Safety meetings and training; and
- Site safety policies.

Standard operating procedures (SOP) for safety will be developed.

- SOPs will be prepared and followed for plant processes to provide for worker, public, and environmental health and safety.
- All SOPs will be approved by facility management and the SHEM.
- All safety SOPs will be reviewed at least annually for accuracy and applicability.
- A safety SOP for spills and accident response will be included.
- Workers will be trained on all SOPs applicable to their duties.

## 3.3.10. Land Use

### *3.3.10.1. Existing Conditions*

Land use in the area is made up of industrial and commercial businesses. Developed land in Kings Mountain is made up of industrial, residential, and rural land uses. The Kings Mountain Comprehensive Plan aims to guide future land use planning and “development and redevelopment while preserving community character.” This plan is an approach to keeping a

variety of the land uses between open space, rural and semi-rural, and urbanized environment available (City of Kings Mountain 2022b).

### Onsite Land Use

The KMM and Archdale TSF sites occur within an existing mine site and are previously disturbed by mining activities. These activities have resulted in altered upland landscapes and man-made water features (ponds and reservoirs). Several waterways are located near the site's property boundaries. The largest proximal streams flow from south to north and west.

### Offsite Land Use

Martin Marietta operates an aggregate quarry that borders the KMM site to the east. The southern parcel is bordered by I-85 to the north and York Road to the south. The Archdale TSF is located approximately 3 miles southwest of the KMM and is bounded by I-85 and U.S. 29.

The Imerys Mine is adjacent to the Archdale TSF.

#### *3.3.10.2. Impacts during Site Preparation, Construction, Operations, Closure, and Post-Closure*

As stated in Section 1, construction will consist of adding several buildings to the site through a phased approach. Figure 1: Project Location Map also shows a map of the KMM and Archdale TSF sites and surrounding land use. Much of the site will be converted to impervious surfaces due to the conversion of forested land to buildings, parking lots, and roadways. BMPs will be used to limit the damage to surfaces and runoff. Because agricultural land is considered previously disturbed, impacts to land use from construction of the KMM and Archdale TSF sites will be temporary and minor.

The operation of the facility will bring additional cars and trucks onto the existing roads. Land use changes to these roads are not anticipated due to the additional traffic. Operations will not change any of the surrounding land use. The operation of the site will not add additional residential or commercial areas. Therefore, impacts to land use from operation of the KMM and Archdale TSF sites will be minor.

No impacts to land use are anticipated during closure and post-closure.

## 3.3.11. Parks, Recreational Areas, and Fisheries

#### *3.3.11.1. Existing Conditions*

No state or federal parks are within the Proposed Project’s footprint. Crowders Mountain State Park is located east of the Proposed Project, southeast of I-85 in Gaston County. It has the highest elevation in the surrounding area and has trails that traverse parks in two states, Kings Mountain State Park and Kings Mountain Military Park both located in North and South Carolina.

Kings Mountain is in the foothills of the Blue Ridge Mountains in a region with several recreational areas and parks. Kings Mountain has a variety of parks and playgrounds for residents including the Deal Park Walking Track, Patriots Park, and the Rick Murphey Children’s Park. The Moss Lake Campground, also known as the John H. Moss Lake Recreation Park, is located on the Kings Mountain Reservoir.

The City of Kings Mountain has a Tourism Development Authority Board, which helps to promote tourism and travel in Kings Mountain. The Tourism Development Authority Board meets monthly and has eight members, three of which are representatives of local hoteliers.

### The Kings Mountain Gateway Trail

The Gateway Trail, established in 2009, has become a social and cultural landmark for Kings Mountain. The trail was built in coordination with the National Park Service, Cleveland County, the City of Kings Mountain, and the State of North Carolina, and was created as a public-private partnership between Cleveland County and the Gateway Trail's non-profit. The Gateway Trail has received grants from a variety of organizations including North Carolina Adopt-a-Trail, the North Carolina Parks and Recreation Trust Fund, the Carolina Thread Trail, and others (ERM 2024).

When surveyed, multiple stakeholders expressed the importance of the Gateway Trail to the community. As the current Gateway Trail path at the KMM site is routed along the top portion of the existing pit, a small portion of the overall trail will have to be rerouted due to development of the Proposed Project.

### Recreational and Commercial Fisheries

There are no public, recreational, or commercial fisheries within the KMM and Archdale TSF sites or vicinity, therefore the Proposed Project will not affect these resources/uses.

### Onsite Onstream Channels

Onsite stream channels are not near any recreational or commercial fisheries; therefore, the Proposed Project will not affect these resources/uses.

#### *3.3.11.2. Impacts during Site Preparation, Construction, Operations, Closure, and Post-Closure*

Temporary impacts to the Gateway Trail at the KMM site are anticipated while the trail is relocated. Albemarle is working with the Gateway Trail Board of Directors, the City of Kings Mountain, and Cleveland County to develop a plan for a new route and associated improvements to the Gateway Trail that align with the City’s master plan and avoids the Proposed Project area.

No impacts are anticipated during operations as the Gateway Trail will be relocated and re-established.

#### *3.3.11.3. Proposed Mitigation Measures*

Plans for construction of a new Gateway Trail route is underway. The goal of these plans is to preserve and enhance the Gateway Trail experience for all users. Albemarle is working with Gateway Trail representatives to relocate the portions of the trail that overlap the KMM site to maintain public access (ERM 2022).

## 3.3.12. Coastal Zone

The KMM and Archdale TSF sites are not within North Carolina’s designated coastal zone; therefore, a consistency determination is not required.

# 3.3.13. Noise and Blasting

## *3.3.13.1. Noise*

### Existing Conditions

The KMM and Archdale TSF sites are presently zoned as industrial. Current land uses surrounding the KMM include residential, commercial, forested areas, and other industrial mining facilities. Neighboring properties of the Archdale TSF are either undeveloped or host industrial businesses. The area surrounding the KMM site can be categorized with a noise level similar to a noisy urban residential neighborhood, which experiences estimated ambient noise levels of 67 A-weighted decibels (dBA) (ANSI 2013). Average indoor and outdoor noise levels experienced on a day-to-day basis are provided in Table 11: Indoor and Outdoor Noise Levels. The KMM's surrounding land use is made up of residential, industrial, and commercial businesses with the loudest noise-emitting source being the Senator Marshall Arthur Rauch Highway (I-85) with the potential for noise levels to reach 89.9 dBA. A smaller public road, Battleground Avenue, runs from the northwest to the southwest of the KMM site and may experience traffic-related noise levels of up to 59.9 dBA. Likewise, York Road, which runs from the northeast to the southeast of the mine, may generate noise levels of up to 59.9 dBA.

SWCA conducted a preliminary noise measurement program to quantify the ambient sound environment of the KMM site. Monitoring began in the second quarter of 2022 and was conducted quarterly through the first quarter of 2023. Additional noise measurement programs will be conducted.

### Impacts during Site Preparation and Construction

Noise will be generated by the Proposed Project's construction activities such as using vehicles, machinery, diesel generators, and vehicles, as well as drilling, excavating, blasting, etc. Noise and vibration will be generated as a result of construction activities, including the construction of the Proposed Project's infrastructure, due to the use of equipment. High levels of environmental noise and vibrations generated by the Proposed Project may impact human health (personnel and nearby communities) and wildlife receptors. The potential to impact noise sensitive receptors (e.g., workers, communities, sensitive wildlife) depends on the type of activity and the proximity of that activity to the receptor. Noises and vibration associated with construction activities may negatively impact wildlife distribution and abundance, especially in areas where these noises historically did not exist or were infrequent or minimal.

The Proposed Project will generate temporary noise during construction from heavy machinery, such as bulldozers, graders, excavators, 19.5-ton (net) quad-axle dump trucks, and cement trucks, as well as smaller tools such as jackhammers and nail guns. Noise and sound levels will be typical of new construction activities and will be intermittent and temporary.

The construction of the Proposed Project is scheduled to take place 6 days per week and 10 hours each day during daytime hours. The anticipated noise during the day is expected to blend in with the current ambient sounds. Considering the commercial nature of the area and the fact that most employees work indoors, the slight increase in noise should be imperceptible. There may be some additional noise outside of regular business hours, but this will be sporadic and should have minimal impact due to the receptor's distance from KMM and Archdale TSF and the staff's indoor work environment. The closest homes are located half a mile east of the Proposed Project site and will not be impacted.

### Impacts during Operations, Closure, and Post-Closure

Once operational, the facility's noise will be contained primarily within the Proposed Project's boundary, except for in two scenarios. First, noise will arise intermittently during the daytime from loading and unloading materials, with 196 truck trips per day (a 23.5-ton [net] tractor trailer with a 39-foot steel bed for waste rock and a 25-ton [net] tractor trailer with a 28-foot aluminum bed for tailings). Second, the facility will require continuous ventilation, which may necessitate noise mitigation measures like baffles to maintain noise levels within acceptable limits, as per the Occupational Safety and Health Administration's recommendation of 85 dBA—a standard adopted by many localities.

With construction noise limited to daytime hours and the Proposed Project's location next to an existing manufacturing site with no nearby residences, the noise impact during both construction and operations is expected to be minor.

No impacts to noise are anticipated for closure and post-closure.

### Proposed Mitigation Measures

Noise from equipment, machinery and vehicles will be minimized to the greatest extent possible.

## *3.3.13.2. Blasting*

Blasting will fragment the ore and non-ore bearing rock directly within the open pit. The shot muck (fragmented material) will be classified as ore, non-ore bearing rock, overburden, or aggregate source material by a grade control geologist, and then it will be loaded into haul trucks. The fragmented material will be transported to the proper destination, as described in previous sections. The progressive blasting, loading, and hauling of the fragmented materials from the pit will create benches in the pit.

All blasting will be done with ammonium nitrate / fuel oil, emulsion, bulk, or packaged products. Two to five blasts will typically occur each week. Blasting will only occur during daylight hours, and meteorological conditions will be monitored for unfavorable conditions. Shots will be initiated with non-el (shock-tube), electric, or electronic blasting caps.

Ground vibration from blasting is expressed in terms of peak particle velocity (PPV), given in units of inches per second. In addition to PPV, the frequency of ground vibrations is also important in terms of its ability to damage structures, and regulatory limits are therefore dependent on frequency. PPV levels increase with charge mass and reduce over distance as logarithmic decay.

A network of nine monitoring stations has been installed around the site to monitor and confirm that vibrations, noise, and overpressure produced by the blasts are below the thresholds established by state regulations. All explosives will be handled by an experienced and licensed blasting contractor. Explosive management practices will comply with all MSHA and NCDEQ rules and regulations. NCDEQ blasting requirements are identified in the two current North Carolina Kings Mountain mining permits. If ground vibration or air blast limits are exceeded, the operator will immediately report the event to NCDEQ with causes and corrective actions. The use of explosives at the specific blast site that produced the excessive reading will cease until corrective actions are approved.

### Impacts during Site Preparation

Blasting impacts are not anticipated during site preparation. The high risk (51 pound/charge delay) scenario would not produce ground vibration or overpressure exceedances at any blast/receptor combination. No blasting is anticipated for the Archdale TSF.

### Impacts during Construction, Operations, Closure, and Post-Closure

Modeling will be used at 61 potential blast locations spread throughout the mine pit area prior to each stage of blasting in order to ensure that no regulatory thresholds are exceeded. The regulatory limit established by North Carolina mining regulations is 129 linear decibels.

No impacts to historic structures are anticipated from blasting. Noise and blasting may but are not likely to impact threatened or endangered species, especially bat species, or habitat long term. The frequency/time structure of the noise will play a role in deterring bats from being present. The charge delay and warning-creating vibrations are expected to cause the bats to flee from their habitat (Allen et al. 2021). No impacts are anticipated from blasting during closure and post-closure.

### Proposed Mitigation Measures

Certain precautions can be implemented to prevent physical hazards to persons or neighboring properties from flyrock, excessive air blasts, or ground vibrations associated with blasting (SESHAT Consultants Pty Ltd. 2023). Accordingly, Albemarle has committed to the following mitigation strategies:

- Each blast will be pre-planned and designed to minimize impacts. Albemarle will use appropriate models to predict overpressure and ground vibration for each blast event and compare the results to regulatory thresholds. If the model predicts an exceedance of either overpressure and/or ground vibration limits, the blast will be modified (generally by reducing the charge size) so that regulatory standards are not exceeded.
- Blasting will be restricted to the daylight hours of non-holiday weekdays. No blasting will occur on weekends, at night, or during holidays. Albemarle will also monitor and evaluate weather conditions to identify unacceptable atmospheric conditions and will avoid blasting when these occur.
- Monitors will be installed to measure the blast overpressure and ground vibration to document compliance with regulatory standards. Results will be compared to the modeled/predicted values to calibrate the model to improve accuracy, as appropriate.
- A series of pre-development test blasts are planned to provide initial calibration results for the model. When mine development begins, the early stages of the program will use conservatively small charges until the attenuation characteristics of the surrounding environment are better understood. The screening modeling is based on assumed and typical conditions.

## 3.3.14. Socioeconomics

### *3.3.14.1. Existing Conditions*

The population of Kings Mountain is approximately 11,246 (USCB 2022b). The KMM site is located in Census Tract 9505 Block Group (BG) 3, and the TSF in Census Tract 9506.03 Block Group 2 with respective populations of 1,203 and 2,050 (USCB 2022b). Additionally, the cities of Gastonia and Shelby are located within commuting distances (roughly a 17- and 30-minute

drive from Kings Mountain, respectively) and may serve as locations where non-local employees might choose to live after hire. Approximately 53 percent of Kings Mountain residents work outside of Cleveland County (USCB 2019).

Cleveland County's economy is dependent on a diverse set of industries including manufacturing, mining, automotive machining, textiles, and data centers (EDPNC 2022). The largest industries in Kings Mountain are manufacturing (24 percent), educational services, health care and social assistance (18 percent), and retail trade (11 percent) (USCB 2022a). The unemployment rate in Kings Mountain is 8.1 percent and 7.1 percent in Cleveland County, which is higher than both the state (5.3 percent) and national (5.1 percent) averages (USCB 2021). The median household income of Kings Mountain is $42,336 and 13.7 percent of families live below the poverty line (USCB 2021).

In 2021, approximately 13.3 percent of households in North Carolina were in poverty (USCB 2022c). In Kings Mountain, 21.1 percent of households were below the poverty level,[2] a higher proportion than those below the poverty level statewide in North Carolina (USCB 2022c). Most individuals in Kings Mountain identify as white alone (61.7 percent), followed by those who identify as Black or African American (20.6 percent), and those who identify as Hispanic or Latino (10 percent) (USCB 2022a).

Most residents in Cleveland County have either an associate or a bachelor's degree as their highest level of education (combined 55 percent), which is higher than Gaston County (combined 29 percent) and the U.S. overall (combined 34 percent) (My Future NC 2021). The high schools and community colleges in Kings Mountain and Cleveland County have vocational programs designed to give students hard skills in areas including manufacturing trades (North Carolina School Report Cards 2021; ERM 2022). Two four-year colleges, Gardner-Webb and the University of North Carolina-Charlotte are also located near Kings Mountain.

Kings Mountain has been growing as the Charlotte Metro area continues to expand further west toward Cleveland County. The City has proposed plans for new subdivisions that are currently undergoing an approval process, and the city council established a housing committee to evaluate the housing inventory to address the growing demand (City of Kings Mountain 2022a). Housing prices in Kings Mountain have increased year over year. The median sold price of a home in Kings Mountain in May 2024 was $254,000, up 17 percent compared to May 2023 (Redfin 2024).

The housing market and public infrastructure of Kings Mountain is not likely to be overburdened by an influx of new workers to the area, as the city of Kings Mountain is a rapidly developing suburb of the greater Charlotte Metro area with existing infrastructure to support the growing population including new housing developments in creation and planning, and numerous schools including four elementary schools, one intermediate school, one middle school, and one high school.

Several healthcare facilities are located within Kings Mountain, such as Atrium Health, which provides a wide range of services including emergency services. However, the health infrastructure is currently operating at capacity, and many residents must travel outside Kings Mountain, typically to Shelby, for basic services such as primary care, pre- and post-natal care, and pediatric care (ERM 2022; Atrium Health 2022). Social infrastructure (fire, police, utilities) is adequate for the population of Kings Mountain.

[2] Poverty level as defined by NCDEQ and the American Community Survey (NCDEQ 2022b)

#### *3.3.14.2. Impacts during Site Preparation, Construction, Operations, Closure, and Post-Closure*

The Proposed Project will result in positive impacts through the creation of approximately 1000 new jobs during construction and 400 jobs during operations. The Proposed Project will create additional economic opportunity through the procurement of goods and services during construction and operations. Further, Albemarle is committed to supporting community development through workforce upskilling and supporting community programs in Kings Mountain and education programs in Cleveland County. Impacts to socioeconomics during closure and post-closure may occur once the facilities have been shut down and related jobs are no longer available.

## 3.3.15. Traffic and Transportation

#### *3.3.15.1. Existing Conditions*

Site traffic is expected to be generated from employee shift changes, deliveries, maintenance, and visitors to the mine as well as from truck shipments to the offsite Archdale TSF, located approximately 3 miles southwest of the KMM site between U.S. 29 / Highway 216 and I-85. A traffic impact analysis (TIA) was conducted to determine the potential traffic impacts of this development and to identify transportation improvements that may be required to mitigate impacts to the roadway network. The TIA also aimed to identify and recommend the most feasible route for the transport of tailings between the KMM and Archdale TSF as part of daily operations. Tailings from the processing plant will circulate between the KMM and the Archdale TSF. Necessary embankment material for the TSF (reflected as "Tailings Embankment" in the trip generation) will also circulate between the KMM and the TSF.

The highest expected truck count will be six per hour running 16 hours per day, 7 days per week. High truck counts will occur for construction months 3 through 11. Truck counts for building the embankment will be three per hour (16 hours per day, 7 days per week) during construction months 12 through 31.

Concentrate shipments from the KMM will be transported offsite via rail and as such are not proposed to be studied in this TIA/EA.

#### *3.3.15.2. Impacts during Site Preparation, Construction, Operations, Closure, and Post-Closure*

No traffic detours or road closures are proposed at any point during construction. Construction traffic is anticipated to be distributed over time as follows: construction workers with shift arrivals and dismissals occurring during two off-peak time periods. A portion of the KMM site will be used as a temporary parking location for construction-related vehicles and the private vehicles of construction personnel. In addition, construction trailers and material storage will occur on the portion of the temporary parking lot on the KMM site.

The Proposed Project will also rely primarily on the same portion of the KMM site for equipment “laydown” areas as well as supply deliveries and staging. Given the robust nature of the current road infrastructure, the availability of temporary parking on the KMM site, and the shift changes occurring at non-peak hours, the impacts to traffic due to construction of the Proposed Project will be temporary and minor.

Site traffic is expected to be generated from employee shift changes, deliveries, maintenance, and visitors to the mine as well as from truck shipments to the Archdale TSF. A summary of this trip generation is provided in Table 12: Daily Trip Generation.

The impacts of additional traffic to/from the KMM and Archdale TSF sites are expected to be minor given the following: i) the current road infrastructure, with ample capacity to expand to the north (the direction the traffic to/from the site will originate from or head toward); ii) good sight lines along the route; iii) some traffic, both during construction and operations, occurring at off-peak hours; and iv) a relatively low volume of truck traffic to/from the KMM and Archdale TSF sites. No impacts to traffic are anticipated during closure and post-closure.

## 3.3.16. Waste Management

This section discusses solid waste that may be generated at the facility.

### *3.3.16.1. Construction Waste*

All solid waste generated during the Proposed Project's construction phase will be collected, placed in appropriate receptacles, and disposed of offsite in accordance with Department of Solid Waste Management requirements. The configuration of the proposed facility and its geographic location will prevent offsite environmental impacts from waste possession and disposal. After concrete work, waste concrete, cement mixers, and equipment will be washed down in a designated concrete washout pit. The contractor will dispose of the solids offsite. Cement and fly-ash storage bins will be enclosed, and dust and PM will be managed according to air quality guidelines. Concrete production will occur within the batch plant to contain dust, and BMPs will minimize onsite dust effects.

### *3.3.16.2. Resource Conservation and Recovery Act Waste*

Such waste may be generated at the facility during the removal of the sewer line and buried radioactive material but is not anticipated. The waste will be stored temporarily but will not be treated or disposed of at the regulated Class 1 land fill waste facility. Industrial and hazardous waste will be identified in accordance with RCRA and applicable waste regulations and disposed of offsite at an approved third-party facility. All RCRA waste will be transferred to facilities permitted by the Department of Solid Waste Management or other federal or state jurisdictions. Hazardous wastes will be transferred to a duly-permitted treatment, storage, and disposal facility.

### *3.3.16.3. Technologically Enhanced, Naturally Occurring Radioactive Material*

In February 1994, radioactive components were detected when old mining components were salvaged at the Cyprus Foote Mineral Company's Kings Mountain site. Two railcars of scrap metal set off radiation detectors and were rejected by the nearby steel mill. The material consisted of approximately two truckloads of radioactive mining refuse created during previous mining operations and was encapsulated by a clay lining. A burial survey was performed for final approval of the permitted disposal process by the then Department of Environment, Health, and Natural Resources. A disposal plan was developed and subsequently approved to permanently bury the material onsite in the former tailings area. The plan was implemented and completed in May 2001. The (then-named) Division of Land Resources confirmed the completion of the permanent disposal activity and that the associated documentation requirements were met by Chemetall Foote Corporation. The Division of Land Resources certified attachment of the approval letter to the KMM Permit No. 23-01 and the property deed (TX-4-81, PB-4-27, Book L, Page 527) for future reference. The materials remain buried onsite at the KMM.

Radioactive material is present within the Proposed Project's footprint and has been buried in the mill tailings area since 2001. During the demolition of mining components by the previous

operator, it was found that some equipment and building structures were contaminated with naturally occurring radioactivity from previous mining activities.

#### *3.3.16.4. Radon*

Radon is a naturally occurring radioactive gas found in soils, rocks, water, and indoor and outdoor air. While the health risks of radon exposure are commonly associated with indoor air, radon in groundwater may also pose a threat to human health through ingestion or release into an indoor space.

On April 18, 2023, SWCA conducted groundwater sampling at ten groundwater wells to test for the presence of radon. Radon was detected at nine of the ten locations sampled.

Cleveland County is one of 19 counties in North Carolina known to have moderate to high susceptibility to elevated radon in water. The median level of radon in groundwater wells in the county is 3,090 picocuries per liter (Campbell et al. 2011). Geology is the primary influence on dissolved radon levels. Cleveland County is underlain by Cherryville granite, which is associated with higher-than-average radon levels due to the level of uranium within the bedrock (Waldron, et al. 2007). However, only one well, SNKM22-438, has a radon level that is higher than the median radon level for the county.

#### *3.3.16.5. Relocation of the Sewer Force Main Line and Sewer*

A sanitary sewage conveyance pipe parallels the northwest railway spur before extending west to the city of Kings Mountain's municipal infrastructure. The pipe is approximately 5,700 linear feet and is buried at a depth of 4 feet. The current route conflicts with the development of the proposed infrastructure. Additionally, the municipality is planning to abandon the facilities which receive the sewage from this main line. As a result, decommissioning and demolition of the existing line is part of the site preparation plan.

A new line will be installed prior to decommissioning the existing line to maintain service continuity. The location of the new route is currently being determined based on the feasibility of connecting to the municipal system relative to Proposed Project activities. However, it is likely the line will follow the service road from the Kings Mountain Facility to I-85, and then west toward Kings Mountain Boulevard.

Clearing and grubbing will occur within a 15- to 20-foot corridor to allow for vehicle access. A wider corridor may be required locally where the current slope does not allow vehicle access. The relocation of the sewer force main line and sewage is expected to have negligible impacts on environmental resources.

#### *3.3.16.6. Removal of Redundant Dominion Gas Distribution Line*

Dominion Energy currently supplies the existing Kings Mountain Facility with natural gas via a buried 8-inch diameter distribution line. The natural gas line extends southward from the Kings Mountain Facility to I-85, although it is no longer in service (to be formally confirmed by Dominion Energy). The location of a portion of this line conflicts with future development of the crushing circuit and NPI areas, requiring decommissioning, purging, and demolition of the line between Kings Creek and I-85. The extent of the ground disturbance will be approximately 1,500 linear feet. Excavation is required to remove the line. The cross-section of the installation along the current route is unknown. A minimum of 2 feet of cover above the pipe, and a width of approximately 8 feet is expected. Excavation will be at a depth of 4 feet. Clearing and soil disturbance will occur within a 20-foot corridor to allow for vehicle access.

#### *3.3.16.7. Rerouting of Dominion Gas Line to Kings Mountain Facility*

The Dominion Energy natural gas line, which serves the existing Kings Mountain Facility enters the property from the northwest and extends along the south side of the railway spur. Planned railway and other infrastructure upgrades will require the relocation of this gas line. The expected reroute length is approximately 5,500 feet of excavation, and replacement will be at a depth of 4 feet. To minimize interruption of the gas supply, a new line will be installed prior to decommissioning the existing line. The expected extent of clearing and soil disturbance will occur within a 15- to 20-foot corridor to allow for vehicle access.

#### *3.3.16.8. Impacts during Site Preparation, Construction, Closure, and Post-Closure*

No impacts are expected as a result of the disposal of solid wastes. The technologically enhanced naturally occurring radioactive material (TENORM) and radon on the property are existing conditions and are not expected to be disturbed or impacted by the Proposed Project. Since the pipelines being replaced or relocated are in areas previously disturbed for this purpose, the replacement will cause only minor disturbance to the surface soils.

## 3.3.17. Water Resources

This section covers NEPA-related Proposed Project water facilities and activities, including wells, groundwater, wastewater, wetlands, stormwater, stream crossings, and dewatering. Proposed Project activities will impact jurisdictional wetlands and streams.

#### *3.3.17.1. Existing Conditions*

### Streams

#### *Kings Mountain*

Thirty-seven distinct stream segments (22,527 linear feet total) within the KMM site (Appendix F, Wetlands) were identified. The 37 stream segments consist of 19 intermittent stream segments and 18 perennial stream segments. The ordinary highwater mark of streams within the KMM site averaged between 2 and 5 feet wide, and common substrates consist of sand, silt, and cobble. Based on the conditions observed during field investigations, the streams were classified as ephemeral, intermittent, or perennial. These forms were used during the assessment of all waterways as a standardized and replicable way of assessing the geomorphology, hydrology, and aquatic organisms present within the waterways and their potential jurisdictional status. Due to open culvert construction placed on the uplands to avoid contact with streams and allow more water flow, no jurisdictional streams are expected to be impacted.

Albemarle also identified onsite water resources for Proposed Project purposes. These are all man-made features and include the mine pit (53.22 acres), Mud Pond 1 (0.68 acres), Mud Pond 2 (1.20 acres), No. 1 Mill Pond (7.16 acres), PEG 25 (1.29 acres), Executive Club Lake (43.79 acres), South Creek, and South Creek Reservoir (8.37 acres) (Figure 14: Watershed Boundaries). Pit Lake is a mining pit that has filled with water since prior mining ceased. Mud Pond 1, Mud Pond 2, and No. 1 Mill Pond are non-jurisdictional isolated ponds on the KMM site parcel, north of I-85. South Creek is a south-flowing stream on the western portion of the KMM site, north of I-85, with the South Creek Reservoir making up the dammed portion that eventually discharges into Kings Creek. Executive Club Lake is an old tailings pond on the KMM

site parcel, south of I-85, that discharges to Kings Creek. Small tributaries contribute to the flow to this lake.

### *Archdale Tailings Storage Facility*

No streams were identified within the Archdale TSF site.

## Wetlands

### *Kings Mountain*

Wetland delineations were conducted in 2023 and 2024 at the KMM site and the surrounding area. One offsite 0.3-acre wetland (Wetland A) was documented to the southeast of the KMM site, and outside the Proposed Project footprint. Black willow (Salix nigra) and sweetgum (Liquidamber styraciflua) dominated the wetland. The 2023 survey noted that the wetland could be considered jurisdictional by the U.S. Army Corps of Engineers (USACE) and the state; however, based on desktop mapping, it appears that the wetland is potentially isolated. If that is the case, the wetland will likely be considered non-jurisdictional under the Sackett vs. USEPA ruling (Sackett v. United States Environmental Protection Agency ELR Citation: 53 ELR 20083 No (s). 21-454 [U.S. May 25, 2023]).

Based on the North Carolina Wetland Assessment Method and North Carolina Stream Assessment Method, most KMM wetlands and streams have been rated as having a high functional value. Nine small wetlands and isolated wetlands received a medium functional value. Only one stream in a residential area with little instream habitat and wooded buffer was rated as having a low functional value. (Figure 15: Surface Water Features – KMM).

A field investigation of the KMM site was conducted in February and March 2022, and February, June, and July 2023 (Appendix F, Wetlands). A delineation of wetlands and waterbodies was conducted to verify National Wetland Inventory mapping (USFWS 2015) and National Hydrography Dataset data (USGS 2013) within the KMM site (SWCA 2024b). The requests for an approved jurisdictional determination and a preliminary jurisdictional determination were submitted on September 20, 2023. Based on the delineation, 45 distinct wetlands (40.24 acres total) and 12 ponds/impoundments (85.58 acres) are on the KMM site (Figure 10: Wetland Delineations – KMM).

Additionally, 12 distinct PUB aquatic features (e.g., ponds, lakes, mining pits) totaling 85.58 acres were delineated within the KMM site area. Resources determined to be USACE non-jurisdictional are generally isolated within the KMM site and not connected to a downstream traditional navigable water or are regulated under the NPDES permit for the Proposed Project. Additional resources were determined to be USACE non-jurisdictional due to being isolated within the KMM site and not connected to a downstream traditional navigable water. Table 13: Impacts as a Percentage of Resources (Site and Basin) summarizes the number and acreages of jurisdictional and non-jurisdictional features. Hydrology within portions of the KMM site has been modified through historical mining land use practices. Additionally, most of the sizable wetlands and waterways have been influenced by beaver activity.

SWCA delineated 37 distinct stream segments (22,527 linear feet total) of which 19 stream segments were classified as intermittent and 18 stream segments were classified as perennial within the KMM area (Table 14: Waterways). Some of the intermittent and perennial streams segments originate as either sheet flow, ephemeral, or other connected intermittent streams before transitioning into their final classification. Non-jurisdictional features include upland swales and streams with no significant nexus. Sediment and erosion control measures will be implemented to prevent increased flows from negatively inundating onsite and nearby wetlands.

### *Archdale Tailings Storage Facility*

The wetland delineation at the Archdale TSF identified one wetland complex (7.63 acres total) and six waterbodies (9.42 acres total). The waterbodies are all man-made ponds or mining pits filled with water (Figure 16: Wetland Delineations – TSF). Details are provided in the wetland and waterbody delineation report (Appendix F, Wetlands). There are no jurisdictional streams at the Archdale TSF.

A field investigation of the Archdale TSF site was completed in September 2023 (SWCA 2024b). One palustrine scrub-shrub wetland complex and six PUB waterbodies were identified. The waterbodies are all man-made ponds or mining pits filled with water.

## Floodplains

### *Kings Mountain*

Floodplain management requires agencies to assess the effects their actions may have on floodplains and to consider alternatives to avoid adverse effects and incompatible development of floodplains.

No impacts to 100-year floodplains will occur at the KMM site. According to Federal Emergency Management Agency (FEMA) Map 370304, the mining site is designated as Zone X, which means the area is outside of the 0.2 percent annual chance floodplain. Additionally, FEMA National Flood Hazard Layer maps depict approximately 21 acres of the KMM site being within Zone AE of the 100-year floodplain (areas subject to inundation by the 1 percent annual chance of flood; FEMA 2024). These mapped floodplains are located along Kings Creek (Figure 17: Location of 100-Year Floodplain Limits – KMM).

### *Archdale Tailings Storage Facility*

FEMA National Flood Hazard mapping does not depict any areas in the Archdale TSF being within Zone AE of the 100-year floodplain (Figure 18: Location of 100-Year Floodplain Limits – TSF).

## Groundwater

The Piedmont and Blue Ridge aquifers within the KMM and Archdale TSF sites consist of bedrock overlain by unconsolidated weathered parent materials.

The area is characterized by ancient igneous and metamorphic rocks, with the major rock types being schist and gneiss (Versar 1984). The depth to groundwater varies from greater than 40 feet at the highest site elevations to less than 3 feet at the lowest site elevations (Versar 1984). Groundwater flows through the Piedmont and Blue Ridge aquifers in a southwestern direction. Water taken from the unconfined aquifer at the KMM site is generally not used for drinking water (Versar 1984).

## Seeps and Springs

Seeps and springs were identified within the KMM site to understand and monitor site hydrology related to these resources (SWCA 2022c). Based on winter and fall surveys, there are seven seeps and 14 springs within the KMM site (Table 15: Seeps and Springs Inventory; Figure 19: Seepage Springs). Most springs form into intermittent streams that are tributaries to larger streams within the KMM site. Most seeps form into wetlands that contribute hydrology to larger streams or wetlands within the KMM site.

## Wells

Fifteen groundwater wells were installed across the KMM and Archdale TSF sites to enhance the ability to assess long-term changes to the deeper groundwater flow system and establish a baseline.

In 2022, two deep monitoring wells, 22 overburden monitoring wells, and four pumping wells within the overburden were installed. Well installation was completed in 2023, and quarterly samples are taken from these wells instead of at the interim monitoring points.

Results of the well surveys show there are no municipal or private water supplies within the KMM site. Approximately 260 confirmed or suspected wells were within the search area (SRK 2024e). Though most are suspected to be positive, at least 56 wells were positively identified based on previous environmental investigations (reports dating back as far as the early 1990s), well construction diagrams, and/or laboratory data since 2010. Well locations are shown on Figure 20: Existing Monitoring Well Locations – KMM and Figure 21: Existing Monitoring Well Locations – TSF. Well locations are approximate since location information is largely based on a parcel system and does not necessarily reflect exact coordinates. There are 23 confirmed and 226 suspected wells within a 2-mile radius of the KMM site.

## Water Management Plan

The objectives of the Proposed Project's water management plan are to achieve water quality and water quantity objectives, reduce potential effects on the downstream environment, and limit the infrastructure damage from storm events. Objectives will be achieved by separating clean, non-contact water from water that has come into contact with ore, waste rock, or tailings (i.e., contact water).

## Diversion Channels

The diversion channel network has been designed to keep stormwater separate from wastewater.

## Sediment Control Ponds

Permanent sediment basins are designed to serve areas larger than 5 acres and function for longer than 1 year; however, ponds with contributing areas of less than 5 acres are proposed. Eleven dedicated sediment basins have been designed for the site, which will capture site runoff and allow sediment to settle. WSB-1, while not designated a primary sediment control pond, will provide secondary sediment control and is therefore included for completeness.

## Water Storage Basin 1

Stormwater and wastewater will be routed to the proposed WSB-1, which will be constructed above the footprint of the existing Executive Club Lake. Wastewater and other treated water streams will be pumped to WSB-1 for sediment control, mixing, and monitoring prior to release as wastewater through Outfall 003 to an unnamed tributary to Kings Creek. From the discharge point at Outfall 003, it will flow overland approximately 1,500 feet before joining Kings Creek.

Since WSB-1 receives wastewater streams in addition to stormwater, the discharge at Outfall 003 will be regulated as a wastewater discharge.

WSB-1 will be constructed by restoring the historically breeched embankment to the original crest elevation of 850 feet amsl above the current discharge outlet of approximately elevation

820 feet amsl. Normal operational discharges will be managed through a series of 18-inch diameter vertical risers placed along the upstream embankment face at 5 feet vertical spacing.

Wastewater inflows to WSB-1 will be conveyed from other facilities in the Proposed Project area via the wastewater pipeline, which will discharge to the pond at the far eastern (upstream) end of the pond and will form a sediment forebay. A 5-feet-high permeable rockfill dam will serve to trap coarse sediments in the forebay. The remainder of WSB-1 will form a long, narrow lake, and with the nominal 830 feet amsl water level and a 100-year peak inflow, result in an estimated 114 hours of residence time in WSB-1. This is sufficient to trap 4-micron particle sized sediment.

### Water Treatment Plant

The WTP will receive inflows of excess water from the concentrator and seepage/runoff from RSF-X routed through Collection Pond 51. The WTP will be designed for an average flow of 145 gpm and a peak flow of 327 gpm treatment capacity and be constructed adjacent to the concentrator. The WTP is designed to operate 365 days per year.

### Wastewater

Wastewater will originate from mine dewatering (classified as wastewater by Division of Energy, Mineral, and Land Resources), and PAG contact water from RSF-X. Wastewater will be collected across the site and diverted to WSB-1 before discharging at Outfall 003.

### Stormwater

Perimeter channels have been designed to route non-contact runoff from disturbed areas that have not come into contact with ore, preventing precipitation and runoff from becoming contact water. Non-contact water originating from disturbed areas is classified as stormwater and will be managed with sediment controls and monitored as per General Permit requirements before being released through a permitted outfall. Stormwater will be routed through one of the Proposed Project's sediment control ponds to manage sediment.

### Outfalls

All regulated surface water from the Proposed Project site will be discharged to one of eight permanent and four temporary outfalls on Albemarle's KMM property. The four temporary outfalls will be used during the Proposed Project's construction phase only. Water will be discharged into an unnamed tributary to Kings Creek, Kings Creek, or South Creek, which eventually flows into King's Creek. Water from two RSF-A run-on catchment areas will only be exposed to undisturbed areas, therefore runoff from these two sites is not regulated. The proposed outfall locations are shown in Table 16: Project Discharge Outfall Locations.

#### *3.3.17.2. Impacts during Site Preparation, Construction, Operations, Closure, and Post-Closure*

### Streams

Site preparation will involve filling in the streams with clean fill as described. Proper sediment and erosion control measures will be installed prior to and during construction so that the substrate of remaining Waters of the United States (WOTUS) will not be changed or affected.

During construction, impacts to streams are expected. For the construction phase, a Stormwater Pollution Prevention Plan will be prepared and implemented to effectively prevent potential

pollution or contamination of stormwater runoff. Implementation of appropriate BMPs during construction (such as silt fencing and/or straw wattles) will prevent potential impacts to the streams from turbid stormwater runoff. Once construction is complete, discharge of treated water will be directed offsite. No surface water diversion or withdrawal is proposed. No riparian vegetation will be removed.

During construction, there may be an increase in suspended particulates that may lead to increased turbidity downstream. However, the increase will be minimal and temporary due to the installation and maintenance of proper sediment and erosion control measures (e.g., turbidity curtains, silt fences, and hay bales) during construction and shortly thereafter. Erosion control measures and BMPs will be installed and maintained at all times during construction and mining operations to prevent discharges of sediment and turbid waters to offsite surface waters and onsite wetlands that would not be impacted.

Proposed Project construction activities such as clearing, grading, excavation, and stockpiling, as well as activities conducted in or near waterbodies, have the potential to alter the movement (flow) of water as well as the quantity and quality normally encountered onsite. The quality and quantity of effluent streams discharged, including stormwater, process effluents, excavation ingress water, diversion pumping, and site drainage should be managed and treated to meet applicable effluent discharge requirements.

## Wetlands

Impacts to wetlands are anticipated under the proposed action. Ten distinct impact areas are proposed as described in in the Wetland Impact Summary below. However, no jurisdictional wetlands will be impacted with the expansion of the existing pit.

## Wetland Impact Summary

Albemarle wants to expand the existing non-jurisdictional mining pit (53.22 acres) to approximately 84.4 acres (Table 17: Impact Summary on 404 Jurisdictional Resources and Figure 22: WOTUS Impacts [July 2024]). The expansion will include dewatering the existing pit and transporting the water into South Creek Reservoir. The impact from the expansion will be to uplands and non-jurisdictional man-made ponds that will be dewatered and filled. During the dewatering of the existing pit, fish and other aquatic species (e.g., turtles) will be collected and relocated to other water bodies onsite. No federally protected species occur in the mine pit lake and no jurisdictional wetlands will be impacted by the expansion of the existing pit. The Proposed Project will result in impacts to 5.12 acres of wetlands, 11.11 acres of ponds (excluding inundation), and 6,656 linear feet of stream (2,463 linear feet of intermittent stream, and 4,193 linear feet of perennial stream)[3].

Ten distinct impact areas are proposed (excluding roads). Impact Area 1 will contain the construction of necessary infrastructure in the north NPI area. The activity will impact 0.30 acres of PFO (WC-01), 96 linear feet of intermittent streams (SC-03), and 1,207 linear feet of perennial streams. Impact Area 2 will consist of the South Creek Road crossing with temporary impacts to 384 linear feet (SA-05) of perennial streams to allow access to RSF-A. Impact Area 3 will be the OSF-1 facility with impacts to 0.50 acres of wetland, 113 linear feet of intermittent streams, and 1485 linear feet of perennial streams which will result from construction of the RSFs to provide slope stability, access, and stormwater management systems. Impact Area 4,

[3] Note: Impact calculations detailed in Table 17 and this EA are not final at the time of this document's publication due to timing of permit submissions and minor refinements to engineering design requirements and the mine layout. The FONSI for this EA identifies final calculations that are aligned with the approved USACE Section 404 Nationwide Permit.

RSF-A, will impact approximately 0.02 acres of PFO wetlands (WA-01), 1,296 linear feet of SA-04 intermittent streams, and 440 linear feet of perennial streams (SA-04). Impact Area 5 will be the Kings Creek haul road with impacts to 116 linear feet of perennial streams for the bridge span. Impact Area 6 will be the ROM pad and will impact 0.30 acres of wetland (WB-05) and 561 linear feet of perennial streams. Impact Area 7 will be the WSB-1 dam and will impact 0.26 acres of wetland and 226 linear feet of intermittent streams (pending new design modifications). Impact Area 8 will impact 3.69 acres of wetlands and 286 linear feet of intermittent streams. Impact Area 8 is not expected to permanently impact the wetlands due to periodic influx and change in water elevation. Impact Area 9 will be the concentrator facilities added for pipe impacts with 0.05 acres of wetlands. Impact Area 10 will be the Pit and will impact 446 linear feet of intermittent streams (Figure 22: WOTUS Impacts [July 2024] and Figure 23: Impact Areas).

The development of Proposed Project facilities and infrastructure will affect several wetlands, watercourses, and waterbodies through the removal of vegetation resulting in sedimentation and erosion, infilling of wetlands and waterbodies, or construction of diversions or culverts affecting the form and function of the waterbodies and/or watercourses. No additional wetlands other than those mentioned in Table 17: Impact Summary on 404 Jurisdictional Resources will be impacted during site preparation. See also Table 18: Wetlands and Palustrine Unconsolidated Bottom Features.

### Floodplains

No impacts to 100-year floodplains will occur at the KMM or Archdale TSF sites.

### Groundwater

The natural drainage network in the vicinity of the Proposed Project is heavily influenced by legacy and active mining activities. The Proposed Project does not propose groundwater withdrawals, nor will construction impact groundwater, as the groundwater tables are not shallow at the KMM and Archdale TSF sites. The Archdale groundwater model, using the MODFLOW-USG control-volume finite-difference simulator, was used to help calculate flows and estimate seepage rates during operations. During the operations phase, water infiltrating the tailings will be removed using collection sumps beneath the tailings. Pit dewatering was included in the water balance model, and it was determined there would be no adverse impacts to groundwater. Therefore, no impacts to groundwater are expected. Additionally, no impacts to groundwater are anticipated during closure or post-closure.

### Municipal and Private Water Supplies

Results of numerical groundwater modeling indicate that impacts related to a reduction in groundwater levels are expected to be minimal outside the site boundary as a result of dewatering and mining operations.

No impacts to offsite municipal and private water supplies are expected from closure or post-closure. All wells will be plugged once monitoring and production wells are no longer needed in accordance with NCAC 15A 02C.0113 Abandonment of Wells.

### Proposed Mitigation Measures

Avoidance and minimization measures to stream crossings, surface waters, and wetlands are provided in Table 19: Example Avoidance and Minimization Measures.

Compliance with restrictions on discharge measures will be taken so that no more than minimal adverse effects due to the proposed discharge will occur. Table 20: Compliance with Restrictions on Discharge details these actions.

The following measures will be implemented to manage potential environmental impacts to wetlands, waterbodies, and watercourses. Wetlands not identified for removal will not be disturbed. Activities conducted adjacent to or in proximity to wetlands will include sediment and erosion control measures appropriate to the activities and areas adjacent to the wetland and suitable signage will provide area demarcation. Wetlands indirectly affected by construction activities will be restored so that their functions and features are maintained. Use of appropriately sized fish screens will be employed on any pump or intakes placed in waterbodies (wetlands) or watercourses which are identified as fish-bearing or that support amphibians.

Compensatory mitigation to wetlands will be required because impacts will not be considered minimal individually and/or cumulatively and will far exceed levels that generally require compensatory mitigation. Mitigation banks in the service area do not have the appropriate number and resource type credits available.

The impacts will be within the service area of an approved in lieu fee program (Table 21: Mitigation Type and Location). The in lieu fee program has the appropriate number and resource type credits available per wetland type. Table 22: Compensatory Mitigation Impact Analysis for 404 Jurisdictional Resources and Table 23: Compensatory Mitigation Impact Analysis for NCDEQ-Only Jurisdictional Resources Credit calculations are based on a 2 to1 ratio for streams and 0.5 to1 for open water. Table 24: In Lieu Fee Credit Calculation and Table 25: Summary of Credits calculate the summary of credits for direct and indirect impacts. Table 26: Summary of Proposed and Required Compensatory Mitigation divides the credit type into wetlands and streams.

### 3.3.18. Impacts of No-Action Alternative

Under the No-Action Alternative, a hardrock lithium mine would not be constructed. No impacts to: visual/aesthetic resources; air quality; biological resources; wildlife or vegetation; threatened and endangered species; migratory birds; cultural resources; geology and soils; human health and safety; land use; parks, recreational areas, and fisheries; noise and blasting; socioeconomics; traffic and transportation; waste management; or water resources would occur as existing conditions would remain unchanged.

## 4. CUMULATIVE IMPACTS

Cumulative impacts are potential effects on the environment from the incremental impact of the Proposed Project when added to other past, present, and reasonably foreseeable future actions undertaken by other agencies (federal or nonfederal) or persons.

The cumulative impacts review assessed the past, present, and anticipated future projects related to the Proposed Project's location. The primary projects analyzed for cumulative impacts included the Catawba Village commercial and residential development and the Dixon Ridge Development. As part of the conceptual plan for Catawba Village, the City of King's Mountain has outlined development plans for approximately 211.88 acres. Plans for this private development include the construction of a casino (sometimes referred to as the Catawba Two Kings Casino), residential spaces, and various amenities. The Dixon Ridge Development is a mixed-use industrial, research, and residential development across I-85 from the future Catawba Village. Other projects in the immediate vicinity include primarily residential

neighborhood developments that are not likely to have cumulative impacts with the Proposed Project. Table 27: Cumulative Impacts details the direct, indirect, and cumulative impacts for the Proposed Project.

# 5. PUBLIC NOTICE RESULTS

A public notice was sent on November 26, 2024. Several public outreach efforts have been conducted and Appendix G, Public Comments and Responses summarizes all public outreach efforts and responses for this EA.

# 6. FINDINGS

Based on the information presented in this EA (DOE/EA-2265), DOE finds that providing cost-sharing funding to the Proposed Project does not constitute a major federal action that will cause significant impacts. Therefore, the preparation of an Environmental Impact Statement is not required, and DOE will issue a FONSI.

# 7. LIST OF PREPARERS AND REVIEWERS

The preparers and reviewers of this EA are identified in Table 28: List of Preparers and Reviewers.

## 7.1. LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS CONTACTED

DOE coordinated with various applicable agencies, Tribal nations, and stakeholders throughout the preparation of this EA and/or while preparing the supporting technical studies. These agencies were also notified of the availability of the draft EA through consultation letters and/or direct notification of the availability of the draft EA.

### 7.1.1. State Agencies

- NCDEQ

### 7.1.2. Local Agencies

- City of Kings Mountain

### 7.1.3. Native American Tribes

- Catawba
- Cherokee
- Easter Band of Cherokee Indians
- Muscogee (Creek) Nation
- Keetowah Band of Cherokee

DOE certifies that it has considered the factors mandated by NEPA, and the Environmental Assessment represents DOE's good-faith effort to prioritize documentation of the most important considerations required by the statute within the Congressionally mandated page limits. This prioritization reflects DOE's expert judgment; and that any considerations addressed briefly or left unaddressed were, in DOE's judgment, comparatively not of a substantive nature that meaningfully informed the consideration of environmental effects and the resulting decision.

# 8. REFERENCES

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