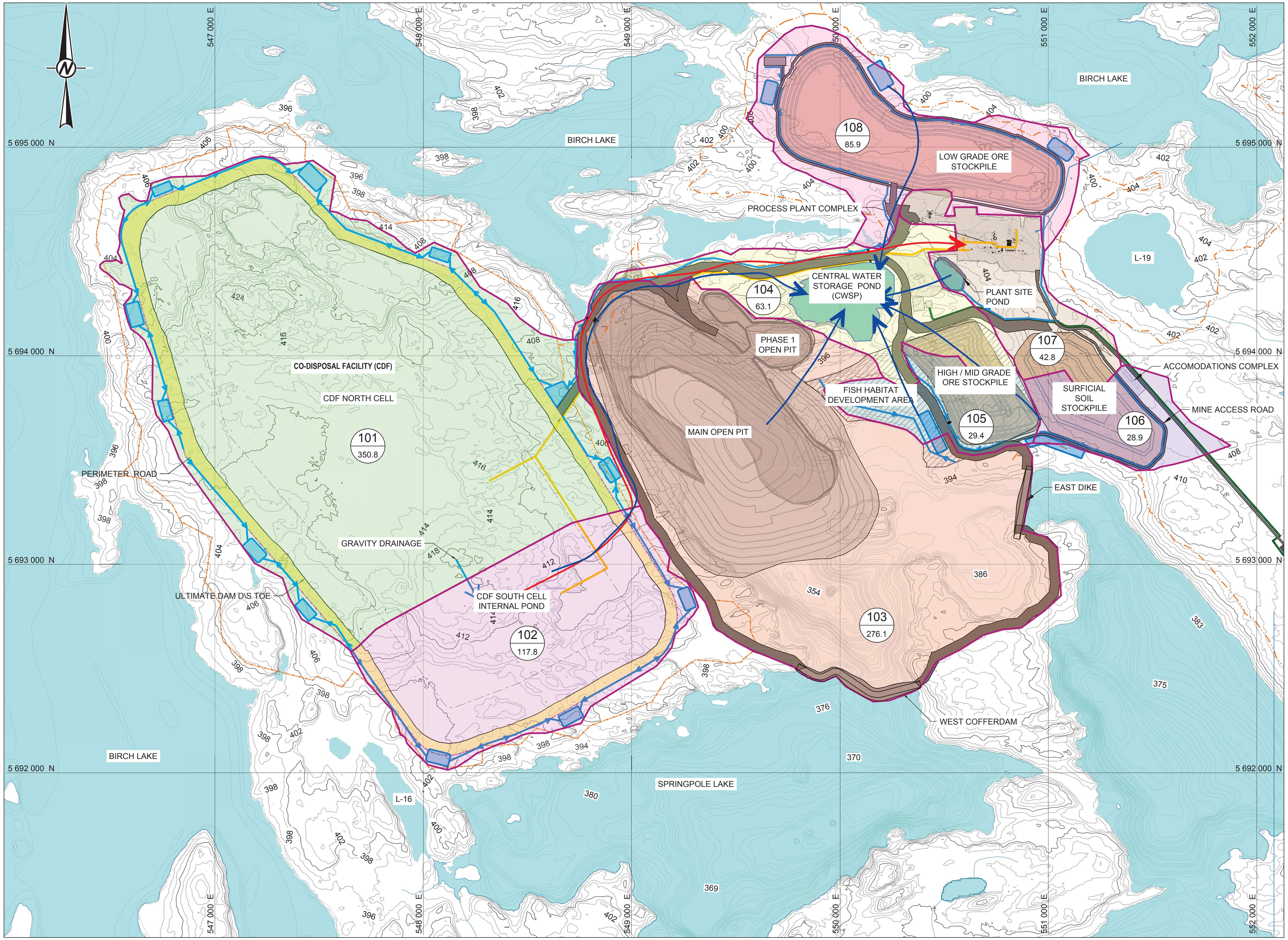


LEGEND

- 400 — CONTOUR
- PROPOSED DRAINAGE COLLECTION DITCH
- 120 m WATER BODY / OPEN PIT OFFSET
- EFFLUENT DISCHARGE LINE
- TAILINGS LINE
- WATERSHED
- CDF PROPOSED DESIGN DOWNSTREAM TOE
- CDF PROPOSED ULTIMATE CENTERLINE
- RECLAIM PUMPED FROM CDF INTERNAL POND TO PROCESS PLANT (CONCEPTUAL)
- PUMPED FLOWS TO CWSP (CONCEPTUAL)
- ROAD
- WATER
- SUMP
- OFFSET ALLOWANCE FOR PERIMETER DITCH AND ACCESS ROAD
- PROPOSED CULVERT
- 101 — WATERSHED ID
- 350.8 — WATERSHED AREA (ha)

NOTES

1. THIS FIGURE ILLUSTRATES THE PRELIMINARY OPERATIONS WATER MANAGEMENT PLAN. COLLECTION PONDS, DITCHES, BERMS/DAMS SHOWN ARE CONCEPTUAL ONLY.
2. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS. GRID COORDINATES ARE IN NAD 1983 UTM ZONE 15N.
3. THIS WATER MANAGEMENT PLAN SHOULD BE REVIEWED IN CONJUCTION WITH THE FLOW SCHEMATIC.

REFERENCES

1. THE DIGITAL FILES FOR THE BASE MAP WERE PRODUCED FROM DRAWING SP-0000-GX-LYD-0003-1.dwg, PROVIDED BY AUSENCO.

WATERSHED AREAS SUMMARY TABLE

CATCHMENT ID	CATCHMENT AREA (ha)
101	350.8
102	117.8
103	276.1
104	63.1
105	29.4
106	28.9
107	42.8
108	85.9
TOTAL:	994.8

0 500 1,000
1:10,000 METRES

SITE PLAN
SCALE 1:10,000 m

CLIENT
FIRST MINING GOLD

CONSULTANT

YYYY-MM-DD	2024-10-30
DESIGNED	MM
PREPARED	JY
REVIEWED	MM
APPROVED	MM

PROJECT
SPRINGPOLE GOLD PROJECT
CO-DISPOSAL FACILITY

TITLE
OPEN PIT MINING PHASE WATERSHEDS AND FLOW CONCEPT

PROJECT NO.	CONTROL	REV.	FIGURE
ONS2104A	0001	B	5.7-5

5.8 Stockpiles

5.8.1 Overburden and Lake Bed Sediment Storage

Lake bed sediments and overburden will be stripped from the open pit footprint to gain access to the bedrock for mining (Section 5.7.2). Overburden will also be removed from several other site development areas as needed including the following:

- CDF;
- Plant site; and
- Aggregate and quarry operation(s).

It is estimated that about 11 Mm^3 of overburden will be stripped from the open pit basin and from other locations on site. Overburden will be removed beneath the dam foundations of the CDF prior to fill placement, where required to meet stability objectives for the facility, and additional capacity in the surficial soil stockpile has been included.

Overburden not needed directly at other site locations for construction or progressive reclamation purposes is planned to be stored primarily in the surficial soil stockpile located east of the open pit. The surficial soil stockpile is planned to be approximately 26 ha and 20 m high.

Where practicable, surface organics and organic soils will be stripped and stored separately from the mineralized overburden at the surficial soil stockpile location as it has increased value for reclamation purposes. Overburden and surficial organics stripped from Project aggregate operations will be stockpiled at the aggregate locations to facilitate future reclamation of the aggregate extraction site(s).

5.8.2 Mine Rock Storage

Approximately 133 Mm^3 of mine rock will be produced by the Project. The NAG mine rock will be preferentially re-used as a construction material for the Project, with the residual volume co-managed with the tailings produced by the process plant within a CDF as described in Section 5.10. The co-disposed mine rock and tailings will result in a structure approximately 375 ha in area with an average height of approximately 77 m above average ground surface.

5.8.3 Ore Stockpiles

Two ore stockpiles are to be developed: a high / mid grade stockpile, and a low grade stockpile located north of the process plant site (Figure 5.1-1). The high / mid grade stockpile will be removed and fully processed prior to construction and establishment of the fish habitat development area designed for closure. The approximate footprint of the ore stockpiles will be as follows:

- High / mid grade stockpile = 22 ha; and
- Low grade stockpile = 52 ha.

The stockpiles will range in height from approximately 40 to 60 m. The stockpiles will be established by placing ore on a pad base constructed of NAG mine rock that will provide a buffer between the ore and the native ground. The ore stockpiles are designed with an overall slope of 2H:1V, having a lift height of 10 m and a berm width of 7 m. Final design of the stockpiles will account for the nature of the material being managed to provide sufficient stability. An appropriate setback has been established to account for any minor slumping or sloughing during stockpile management.

Ore storage volumes vary but peaks at 9.9 Mm^3 near the end of Year 3. At that time, the storage in the high grade, mid grade and low grade stockpiles is projected to be 2.7 Mm^3, 1.4 Mm^3 and 5.8 Mm^3 respectively. The ore stockpiles are expected to be fully consumed by the end of Year 9. After depletion of the high /mid grade stockpile, the area will be further restored and enhanced as part of the fish habitat development area, while the low grade stockpile area will be reclaimed as terrestrial habitat in accordance with the closure plan.

During operations, runoff and seepage from the stockpiles will be directed into the stockpile contact water management ponds, which are part of the integrated site water management system. As needed, the water will be pumped to the CWSP for subsequent re-use or for treatment and discharge to the environment in accordance with applicable regulatory requirements.

A small, crushed ore stockpile will also be established to receive the crushed ore from the gyratory crusher. This covered stockpile will contain approximately 16 hours of live storage for the process plant.

5.9 Ore Processing

5.9.1 Buildings and Structures

Ore will be processed using proven technology at the process plant area to produce doré bars for transport off site for sale. The primary processing facilities as shown in Figure 5.9-1 are as follows:

- Primary gyratory crusher;
- Conveyor system for crushed ore;
- Semi-autogenous (SAG) mill;
- Ball mill with hydro-cyclone cluster;
- Flotation circuit;
- Carbon in pulp (CIP) leaching circuit;
- Elution and electrowinning gold room;
- Tailings cyanide destruction; and
- Tailings thickener.

Excluding the primary crushing facilities, these circuits are contained within or immediately adjacent to the process plant. Table 5.9-1 summarizes the approximate dimensions of the onsite buildings.

5.9.2 Processing

Ore will be hauled either directly from the open pit or extracted from the ore stockpiles and fed into the primary apron feeder located in the process plant area. Crushed ore will be transported by conveyor to a covered crushed ore stockpile, which will hold approximately 16 hours of process plant feed. Crushed ore will be directed by the conveyor to the process plant, where it will undergo conventional ore processing in a series of circuits:

- Comminution;
- Concentration and separation;
- Leaching and carbon adsorption; and
- Gold recovery.

The ore processing circuit is shown in Figure 5.9-2.

The crushed ore will be ground in a SAG mill, followed by a ball mill to complete the sizing process, and a hydro-cyclone cluster. In the cyclones, gravity and hydraulic forces separate the larger and smaller ore particles in suspension. Smaller particles in the cyclones tend to remain in suspension and are discharged as cyclone overflow to the flotation circuit. Larger particles will report to the ball mill for further grinding.

The hydro-cyclone overflow will flow through a three-stage flotation circuit in a series of tanks (rougher flotation, rougher scavenger flotation and cleaner flotation), all located adjacent to the process plant. The tanks will be surrounded by a walled concrete slab to provide secondary containment.

The thickened ore slurry will then pass through the following stages:

1. The feed slurry is leached in a series of leach tanks to which oxygen and sodium cyanide are added, within an alkaline environment to keep the cyanide in solution.
2. The gold and silver that is dissolved in cyanide solution is attached to the activated carbon in the CIP tanks.
3. The loaded (gold and silver bearing) carbon is transferred from the CIP tanks to the recovery circuit, to a pressurized elution circuit followed by electrowinning to produce a gold-silver precipitate.
4. The gold-silver precipitate is poured to produce doré gold bars.

A high efficiency of water recycling is achieved within the process plant. In addition, most of the activated carbon used in the process will be reactivated for re-use in the CIP circuit. The finer fraction is an inert waste that will be stored in super bags for subsequent disposal off site.

Cyanidation is the only technically and cost-effective means of gold recovery from gold-bearing ore at a commercial scale for the ore type. The use of cyanide as a reagent to leach gold from ore is the standard practice throughout the industry, including at most other active gold mines in Ontario. Industry best practices are well established and will be used during the mixing and in-plant cyanide leaching process, and in the destruction and recycling of cyanide components in tailings prior to transport to the CDF for permanent storage. The Project will follow the International Cyanide Management Code for the Manufacture, Transport, and Use of Cyanide in the Production of Gold (International Cyanide Management Institute 2024).

5.9.3 Reagent Transport, Storage and Use

Reagents to be used in ore processing and water treatment for the Project are typical of Ontario gold mines. All process reagents will be stored according to well-established supplier and safety guidance, in separated and, as applicable, contained areas. Reagent mixing systems will be located indoors in the process plant within containment areas, to contain any spills and prevent incompatible reagents from mixing. Storage tanks will be equipped with level indicators, instrumentation and alarms to prevent spills during operations.

The primary reagents required to process the ore and the anticipated form / storage are provided in Table 5.9-2. All of these chemicals will be handled and stored according to all applicable regulatory requirements and are used within the fully contained process plant.

5.9.4 Tailings Production

Tailings are the primary by-product from the processing of ore. Prior to leaving the process plant, various treatment processes are available for removing cyanide from the tailings. In-plant destruction of cyanide in tailings using the sulphur dioxide and oxygen (SO_2/O_2) treatment process is well established and effective, and is included in the Project design. The reagents required for that treatment process are oxygen, lime, copper sulphate and sodium metabisulphite. In-plant SO_2/O_2 treatment of cyanide and metallo-cyanide complexes involves the following (or equivalent) reactions:

$$CN^- + SO_2(g) + H_2O + O_2(g) \rightarrow CNO^- + H_2SO_4(aq)$$

where the cyanide ion (CN^-) is oxidized to the cyanate ion (CNO^-) using copper as a catalyst. Cyanate then reacts with water (hydrolyzes) to form ammonia (NH_3) and carbon dioxide (CO_2) in accordance with the following reaction:

$$CNO^- + 2H_2O \rightarrow OH^- + NH_3 + CO_2$$

The target concentration of total residual cyanide in the tailings after the cyanide destruction will be in compliance with the International Cyanide Management Code, and the low residual cyanide concentrations in the tailings will naturally degrade when exposed to sunlight at the CDF.

Approximately 78 Mm^3 of tailings will be produced by the process plant over the life of the mine. Two types of tailings are proposed to be produced in the process plant: thickened NAG tailings (80% of total tailings by mass) and conventional slurry PAG tailings (20% of total tailings by mass):

- **Thickened NAG tailings (approximately 62 Mm^3):** produced by passing a portion of the tailings after cyanide destruction through a tailings thickener in the process plant to produce a drier product that can still be transferred hydraulically by pipeline.
- **Conventional slurry PAG tailings (approximately 16 Mm^3):** remaining tailings left in a conventional slurry form for long-term ARD mitigation.

These two tailings types will be co-managed in a CDF to best manage the potential for acid generation from the tailings in the long term and minimize the footprint of the Project and to facilitate operational efficiencies and reclamation (Section 5.10).

5.9.5 Tailings Geochemistry

A total of 18 synthetic tailings samples were produced from metallurgical test work undertaken by Basemet Metallurgical Laboratories. The samples were produced as a part of two metallurgical programs (2021 and 2022), including nine samples of flotation tailings and nine samples of sulphide concentrate tailings. These samples reflect the tailing processing and deposition optimizations made to the Project since the draft EIS/EA. Some samples represent life of mine milling conditions and other samples were generated as part of variability testing. These 18 samples were then tested as part of geochemistry investigations. As noted in Section 5.9.4, two types of tailings will be produced by the process plant: a thickened NAG tailings (a flotation tailing with a low sulphide content) and a conventional PAG tailings slurry (sulphide concentrate tailing). The NAG filtered tailings represent approximately 80% by mass of the tailings generated over life of mine, while the conventional PAG portion represents 20% by mass. As noted in Section 5.7.4.5, while a large portion of the ore is PAG, the majority of the tailings are NAG because flotation is being used to remove sulphur and purposefully generate NAG tailings.

Tailings samples and other tailings products representative of these two tailings streams are part of ongoing metallurgical and geochemical studies, including static and kinetic testing to provide supplemental information on the ML/ARD characteristics of the tailings. Completed studies to assess the static geochemistry of the two tailings streams included a total of 18 synthetic tailings samples produced as a part of two metallurgical programs (2021 and 2022): nine samples of NAG tailings and nine samples of PAG tailings. Some samples represent life of mine milling conditions and other samples were generated as part of variability testing.

The sample from a flotation circuit that represents NAG tailings had a low concentration of total sulphur, ranging from 0.08% to 0.26% (median 0.15%). The PAG tailings flotation samples had total sulphur content ranging from 10% to 25% (median 18%). Sulphur was primarily present as sulphide sulphur in both samples. Mineralogical testing identified pyrite as the only sulphide mineral in the conventional slurry tailings sample at approximately 40 weight percent (wt.%). Sulphide minerals were only detected in one NAG tailings sample (including 0.6 wt.% barite). The NP content of the NAG tailing sample ranged from approximately 30 to 240 kg $CaCO_3$/t (median of 145 kg $CaCO_3$/t), whereas the NP content of the PAG concentrate sample ranged from approximately 20 to 150 kg $CaCO_3$/t (median of 49 kg $CaCO_3$/t). In both samples, carbonate NP was similar to the NP content indicating that NP was present as carbonate minerals however, some samples contain some non-carbonate NP. Mineralogical testing also identified the presence of calcite along with dolomite-ankerite in both samples along with other trace minerals.

Tailings sample ABA results were assessed for the potential for neutral and acidic ML in the future. For Project planning purposes, ABA results with a ratio of NPR<2 were assumed to be PAG in accordance with industry standard guidance (MEND 2009). Based on this threshold, the sample representative of the thickened floatation tailings was classified as NAG (NPR>2) and the sample representative of the conventional slurry tailings was classified as PAG (NPR<2).

Table 5.9-1: List of Anticipated Buildings

Item	Description
Primary Crusher Building	• Pre-engineered, enclosed steel frame metal cladded building • 85 t overhead crane, 17 m span
Grinding Building	• Pre-engineered, steel frame metal cladded building • 60 t SAG mill overhead crane • 45 t ball mill overhead crane
Process Building	• Pre-engineered, steel frame metal cladded building • 25 t regrind mill overhead crane • 25 t regrind / flotation overhead crane
Stockpile Building	• Pre-engineered, fabric cladded dome building
Gold Room	• Pre-engineered, steel frame metal cladded building
Tailings Filtration Building	• Pre-engineered, steel frame metal cladded building
Reagent Building	• Pre-engineered, steel frame metal cladded building • 7.5 t overhead crane
Administration / Dry	• Modular building • Offices and change rooms (dry)
Mine Offices	• Modular building • Office and mine rescue room with equipment
Warehouse / Workshops	• Pre-engineered, steel frame fabric cladded building • For maintenance of equipment and storage of equipment parts
Gatehouse	• Modular building
Laboratory	• Modular building • Onsite assaying, metallurgical and environmental testing
Tire Change Shop	• Pre-engineered, steel frame fabric cladded building • Primarily mine haul fleet tire maintenance
Truck Shop	• Pre-engineered, steel frame metal cladded building • Two, 25 t overhead cranes • Separate sections for warehousing and maintenance workshop
Vehicle Wash-Bay	• Pre-engineered, steel frame fabric cladded building • Contains fluid-collection sump and oil-water separator • Wash water expected to be re-used
Fuel Depot	• Approximately three to five days of light and mine fleet diesel supply (150,000 to 250,000 litres [L]) and dispensing facilities • Other minor fuel types of storage
Explosive Storage Magazine	• Designed in accordance with current applicable regulations • Development of an explosive factory may or may not be constructed on site, but if developed will be under the care and control of the supplier

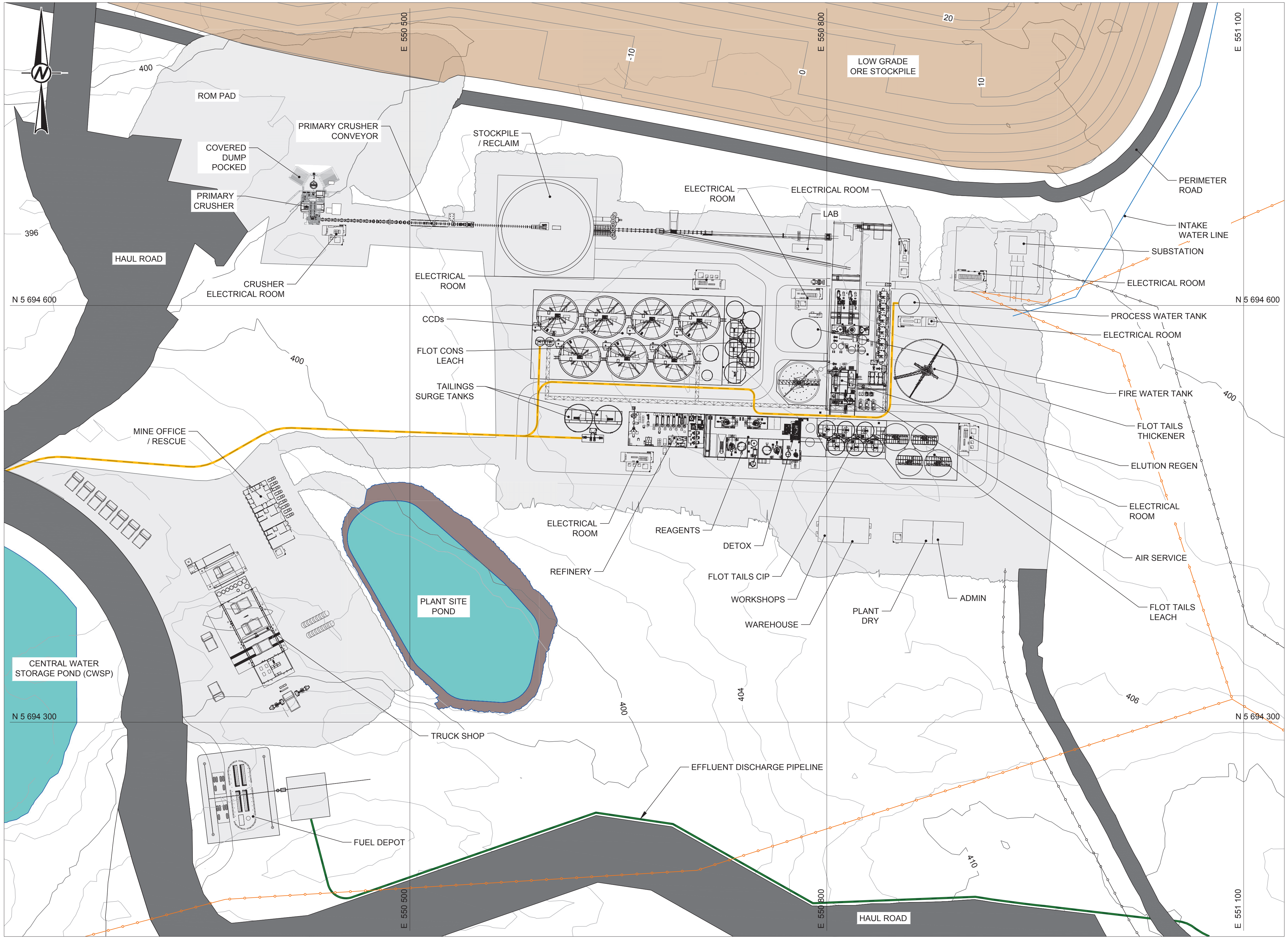
Table 5.9-2: Anticipated Reagent Use and Handling

Reagent	Use	Anticipated Form and Delivery[1]	Storage / Handling
Lime	pH adjustment; mixed into a hydrated lime slurry in plant	Fine powder in approximately 30 t container trucks	Silo; handled in accordance with industry standards for the protection of worker safety and the environment
Sodium Cyanide	Dissolution of gold; mixed to form a leach solution	Solid (briquettes) in bulk iso-tank carried by licensed carrier	Stored in containers inside the process plant with containment; handled in accordance with industry standards for the protection of worker safety and the environment
Caustic Soda	For cyanide mixing, carbon neutralization / stripping and electrowinning; diluted prior to use	Liquid in approximately 30 t tanker trucks	Diluted in a tank and stored in a holding tank(s); handled in accordance with industry standards for the protection of worker safety and the environment
Ferric Sulphate	Remove dissolved arsenic in the tailings' pore water.	Granular form (55-gallon drums) or liquid in tanker trucks.	Stored in a holding tank(s) or drums; handled in accordance with industry standards for the protection of worker safety and the environment
Hydrochloric Acid (or similar)	Used in elution circuit and elution tanks	Liquid in approximately 30 t tanker trucks	Stored in a holding tank(s); handled in accordance with industry standards for the protection of worker safety and the environment
Copper Sulphate Pentahydrate	Catalyst to aid in the cyanide destruction process	Solid, bulk (up to 1 t) super bags	Bulk bags stored with secondary containment; handled in accordance with industry standards for the protection of worker safety and the environment
Sodium Metabisulphite	Used in the cyanide destruction process	Solid, bulk (up to 1 t) super bags	Bulk bags stored with secondary containment; handled in accordance with industry standards for the protection of worker safety and the environment
Activated Carbon	Adsorption of gold in solution	Solid, bulk (up to 1 t) super bags	Bulk bags stored outdoors; inert material handled for dust control
Flocculant(s)	Slurry thickening (various); mixed into solution as appropriate	Solid, bulk (up to 1 t) super bags	Bulk bags stored with secondary containment; handled in accordance with industry standards for the protection of worker safety and the environment
Coagulant	Used to thicken tailings	Solid, bulk (up to 1 t) super bags	Bulk bags stored with secondary containment; handled in accordance with industry standards for the protection of worker safety and the environment
Collector	Used within the flotation circuit	Solid, bulk (up to 1 t) super bags	Bulk bags stored with secondary containment; handled in accordance with industry standards for the protection of worker safety and the environment

Table 5.9-2: Anticipated Reagent Use and Handling

Reagent	Use	Anticipated Form and Delivery[1]	Storage / Handling
Frother	Used within the flotation circuit	Solid, bulk (up to 1 t) super bags	Bulk bags stored with secondary containment; handled in accordance with industry standards for the protection of worker safety and the environment
Oxygen	Required in leach circuit	Liquid in approximately 30 t tanker trucks; expected to be replaced by onsite oxygen plant	Stored in a pressurized holding vessel; handled in accordance with industry standards for the protection of worker safety and the environment
Sulphur Dioxide	Cyanide destruction circuit	Liquid in 30 t tanker trucks	Stored in a pressurized holding vessel (approximately 64 m^3); handled in accordance with industry standards for the protection of worker safety and the environment

Note:
(1) Approximate; based on test work, supplier recommendations and practices in existing plants.



LEGEND

- 400 — CONTOUR
- INTAKE WATER LINE
- EFFLUENT DISCHARGE LINE
- TAILINGS LINE
- 25 KV TRANSMISSION LINE
- 230 KV TRANSMISSIONS LINE
- ROAD
- WATER

NOTES

1. THIS FIGURE ILLUSTRATES THE CO-DISPOSAL FACILITY CONCEPTUAL DESIGN PLAN VIEW OF ULTIMATE CONFIGURATION.
2. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, GRID COORDINATES ARE IN NAD 1983 UTM ZONE 15N.

0 50 100
1:1,500 METRES

CLIENT
FIRST MINING GOLD
FIRST MINING GOLD

CONSULTANT
wsp

YYYY-MM-DD	2024-10-30
DESIGNED	MM
PREPARED	JY
REVIEWED	MM
APPROVED	MM

PROJECT
SPRINGPOLE GOLD PROJECT
CO-DISPOSAL FACILITY

TITLE
PROCESSING AREA SITE PLAN

PROJECT NO.	CONTROL	REV.	FIGURE
ONS2104A	0001	B	5.9-1