



# STIBNITE GOLD PROJECT

Valley County, Idaho



## REFINED PROPOSED ACTION MODPRO2



December 2020

**Midas Gold Idaho, Inc.**  
PO Box 429  
13181 Hwy 55  
Donnelly, ID 83615

## Summary

This document describes Midas Gold Idaho, Inc.'s (Midas Gold's) proposed further refinements of the Stibnite Gold Project (SGP) Plan of Restoration and Operations (PRO) ([Midas Gold, 2016](#)) and presents Midas Gold's updated proposed action, the ModPRO2<sup>1</sup>. The ModPRO2 was developed to further reduce potential environmental impacts of the SGP in alignment with Midas Gold's Core Values as set out in the PRO (Section 2), Conservation Principles (PRO Section 2), its Sustainability Goals (PRO Section 2.4) and its Environmental Goals (PRO Section 6.2). Project refinements included in the ModPRO2: (1) are supported by updated data and analysis that identify opportunities to reduce potential environmental impacts; (2) address persistent potential environmental impacts not sufficiently ameliorated or reduced by project refinements included in the original ModPRO; (3) are informed by public and reviewing agencies' comments on the DEIS, and; (4) align with the National Environmental Policy Act (NEPA) and all applicable Federal, State and Local regulations and permit requirements. The ModPRO2 also aligns with the project development approach in Midas Gold's Feasibility Study (FS) ([M3, 2020](#)). The ModPRO2 is presented in three sections and an appendix:

- [Section 1](#) describes the evolution of the ModPRO2 in the context of the original proposed action (the PRO) and alternatives evaluated in the SGP Draft Environmental Impact Statement (DEIS) including the ModPRO (DEIS Alternative 2).
- [Section 2](#) provides the justification and approach for refinements to components of the SGP that result in the ModPRO2. The technical basis for these refinements includes updated data and analyses that identify additional areas for reduced potential environmental impact. Additionally, recurrent themes in comments on the DEIS are addressed through further project improvements.
- [Section 3](#) provides a detailed description of the SGP ModPRO2 refined alternative. Each aspect of the mine is addressed from construction through operations, reclamation and post-closure. Also included in this description are connected actions relating to mine road access and transmission lines. Additional data and reports supporting this project description, including an updated GIS geodatabase, will be submitted subsequently.
- [Appendix A](#) provides a tabular matrix comparing the alternatives analyzed in the DEIS to the ModPRO2.

The ModPRO2 incorporates information derived from agency and public scoping for Midas Gold's original proposed action (the PRO), the alternatives development process, baseline data collection and analysis, and predictive modeling (hydrologic, geochemical, water quality, stream temperature and air quality). It was also informed by Midas Gold's interactions with the public; federal, state and local governments; Native American tribes; and other project stakeholders and considers comments submitted during the public comment period for the DEIS.

The ModPRO2 presents a refined and improved project with a smaller footprint and reduced environmental impacts compared to the PRO and the first modification of Midas Gold's proposed action, the ModPRO. Mining methods, ore processing, exploration activities, water management, and supporting features including structures, access and haul roads and infrastructure remain identical to the PRO and/or the ModPRO, or are slightly modified. In all cases, these proposed refinements address environmental concerns raised or identified by various sources or through the effects analysis of the DEIS, and are targeted at addressing them accordingly. These refinements align with the purpose and intent of the NEPA. The ModPRO2 represents a further refinement of Midas Gold's proposed action and Midas Gold considers it to be the best alternative for developing the SGP.

<sup>1</sup> This is the second proposed modification to refine and improve the PRO; the first was referred to as the ModPRO (Brown and Caldwell, 2019)

TABLE OF CONTENTS

SECTION	PAGE
1 INTRODUCTION .....	1
1.1 BACKGROUND .....	1
1.2 PURPOSE.....	2
2 MODPRO2 DEVELOPMENT AND OVERVIEW.....	3
2.1 JUSTIFICATION AND APPROACH.....	3
2.1.1 Updated Data and Analysis.....	3
2.1.2 Environmental Effects and DEIS Public and Agency Comments .....	4
2.2 SUMMARY OF PROPOSED REFINEMENTS OF MIDAS GOLD’S PROPOSED ACTION .....	6
2.2.1 Hangar Flats Pit Footprint .....	6
2.2.2 Fiddle DRSF.....	6
2.2.3 Hangar Flats Pit Backfill .....	7
2.2.4 Stream Temperature/Fisheries Habitat .....	7
2.2.5 Tailings Arsenic Management.....	8
2.2.6 Ore Processing .....	8
2.3 SUMMARY .....	9
3 MODPRO2 DESCRIPTION .....	9
3.1 PROJECT LOCATION AND LAND MANAGEMENT .....	9
3.2 LIFE-OF-MINE SCHEDULE .....	13
3.3 SITE ACCESS .....	13
3.3.1 Yellow Pine Route.....	13
3.3.2 Burntlog Route .....	13
3.3.3 Public Access.....	14
3.3.4 Over Snow Vehicle Public Access .....	15
3.3.5 State Highway 55 and Warm Lake Road Intersection.....	16
3.4 POWER TRANSMISSION AND COMMUNICATIONS SYSTEMS.....	17
3.4.1 Power Transmission.....	17
3.4.2 Communication and Repeater Sites.....	18
3.5 OTHER OFFSITE INFRASTRUCTURE .....	18
3.5.1 Stibnite Gold Logistics Facility.....	18
3.5.2 Burntlog Maintenance Facility .....	20
3.6 SITE PREPARATION AND SUPPORT INFRASTRUCTURE .....	22
3.6.1 Overview .....	22
3.6.2 Growth Media Stockpiles .....	22
3.6.3 Mine Site Borrow Sources.....	23
3.6.4 Mine Support Infrastructure.....	23
3.7 MINING .....	26
3.7.1 Mining Schedule.....	26
3.7.2 Open Pits .....	26
3.7.3 Drilling and Blasting .....	27
3.7.4 Loading and Hauling .....	28
3.7.5 Mine Dewatering .....	28
3.7.6 Ore Management .....	28

3.7.7	Development Rock Management.....	29
3.7.8	Spent Ore and Legacy Tailings Removal in Meadow Creek Valley.....	31
3.7.9	Ore Processing Facility Ore Feed Schedule.....	31
3.8	ORE PROCESSING FACILITIES.....	33
3.8.1	Ore Processing Overview.....	33
3.8.2	Crushing and Grinding.....	33
3.8.3	Onsite Lime Generation.....	33
3.8.4	Antimony Concentrate Flotation and Dewatering.....	37
3.8.5	Antimony Concentrate Transport.....	37
3.8.6	Gold and Silver Flotation.....	37
3.8.7	Pressure Oxidation and Neutralization.....	38
3.8.8	Gold and Silver Leaching & Carbon Adsorption.....	38
3.8.9	Gold and Silver Electrowinning and Refining.....	39
3.8.10	Tailings Neutralization, Dewatering, and Pumping.....	39
3.9	TAILINGS STORAGE FACILITY.....	40
3.9.1	Tailings Storage Facility Overview.....	40
3.9.2	Embankment and Buttress.....	40
3.9.3	Liner System.....	40
3.9.4	Wildlife Protection.....	41
3.9.5	Underdrain System.....	41
3.9.6	Tailings Management Support Facilities.....	47
3.9.7	TSF Water Management.....	47
3.10	WATER MANAGEMENT.....	47
3.10.1	Surface Water Management.....	47
3.10.2	Groundwater Management.....	55
3.10.3	Water Use, Supply, and Balance.....	57
3.10.4	Water Treatment and Disposal.....	62
3.11	MATERIALS, SUPPLIES, AND CHEMICAL REAGENTS.....	63
3.11.1	Diesel Fuel, Gasoline, and Propane.....	63
3.11.2	Explosives.....	67
3.11.3	Oils, Solvents, and Lubricants.....	67
3.11.4	Miscellaneous Consumables.....	67
3.12	WASTE MANAGEMENT.....	67
3.12.1	Sanitary Waste.....	68
3.12.2	Composting.....	68
3.12.3	Landfarm.....	68
3.12.4	Solid Waste.....	68
3.12.5	Hazardous Waste Handling.....	69
3.13	SURFACE AND UNDERGROUND EXPLORATION.....	69
3.13.1	Surface Exploration.....	69
3.13.2	Underground Exploration.....	70
3.14	CLOSURE AND RECLAMATION.....	72
3.14.1	Overview.....	72
3.14.2	Temporary Closure.....	72
3.14.3	Decommissioning, Demolition, and Disposal of Facilities.....	74
3.14.4	Underground Exploration and EFSFSR Tunnel Closure and Decommissioning.....	74
3.14.5	Landfill.....	74
3.14.6	Yellow Pine Pit and DRSF.....	75

3.14.7	West End Pit .....	77
3.14.8	Tailings Storage Facility and Buttress .....	77
3.14.9	Hangar Flats Pit .....	78
3.14.10	Transmission Line and Electrical Infrastructure .....	79
3.14.11	Burntlog Route .....	79
3.14.12	Post Closure Public Access .....	80
3.14.13	Burntlog Maintenance Facility .....	80
3.14.14	Contouring, Grading, Growth Medium Placement, and Seeding.....	80
3.14.15	Post-Closure Water Treatment.....	81
3.14.16	Closure and Reclamation Financial Assurance.....	81
3.15	PROJECT TRAFFIC.....	82
3.15.1	Construction Traffic .....	82
3.15.2	Operations Traffic.....	82
3.15.3	Closure and Reclamation Traffic .....	83
3.16	MONITORING.....	86
3.16.1	Environmental Monitoring.....	87
3.16.2	Reclamation Monitoring .....	87
3.17	MITIGATION.....	89
4	REFERENCES .....	92

**LIST OF TABLES**

<b>TABLE</b>	<b>DESCRIPTION</b>	<b>PAGE</b>
Table 3-1	Land Management and Acreage by Project Component.....	10
Table 3-2	Summary of Mine Pit Physical Characteristics .....	27
Table 3-3	Development Rock Management Summary .....	30
Table 3-4	Processing Facility Ore Source Summary .....	32
Table 3-5	Estimated Gross Fresh and Recycled Water Usage .....	58
Table 3-6	Proposed Materials, Supplies, and Reagents.....	65
Table 3-7	Projected Construction Traffic; State Highway 55 to SGLF .....	83
Table 3-8	Projected Construction Traffic; SGLF to SGP .....	84
Table 3-9	Projected Operational Traffic; State Highway 55 to SGLF .....	84
Table 3-10	Projected Operational Traffic; SGLF to SGP .....	85
Table 3-11	Projected Closure and Reclamation Traffic .....	86

**LIST OF FIGURES**

<b>FIGURE</b>	<b>DESCRIPTION</b>	<b>PAGE</b>
Figure 3-1	Project Location Map.....	11
Figure 3-2	Site Layout .....	12
Figure 3-3	Stibnite Gold Logistics Facility Layout .....	19
Figure 3-4	Burntlog Road Maintenance Facility Layout.....	21
Figure 3-5	Stibnite Worker Housing Facility.....	25

Figure 3-6	Mine Operation Activity Schedule.....	26
Figure 3-7	End of Year Long-Term Stockpile Inventory by Ore Type.....	29
Figure 3-8	Processing Facility Ore Source by Year.....	32
Figure 3-9	Ore Processing Facility Layout.....	35
Figure 3-10	Ore Processing Facility Flowsheet.....	36
Figure 3-11	Plan View of TSF Impoundment, Embankment, Buttress, and Water Diversions.....	42
Figure 3-12	Design Cross Section through TSF Embankment and TSF Buttress.....	43
Figure 3-13	Design Cross Section through TSF Slope Preparation.....	44
Figure 3-14	TSF Embankment and Buttress Cross Section showing Phasing, Years -1 through 3.....	45
Figure 3-15	TSF Embankment and Buttress Cross Section showing Phasing, Years 4 through 12.....	46
Figure 3-16	Water Management Plan – North.....	49
Figure 3-17	Water Management Plan - South.....	50
Figure 3-18	Isometric Cutaway View of Fish Passage Tunnel.....	51
Figure 3-19	Operational Water Balance Flow Diagram.....	61
Figure 3-20	Surface Exploration Boundary.....	71
Figure 3-21	Site Closure Plan.....	73
Figure 3-22	Post Closure Oblique View of Yellow Pine Pit Area.....	76

**LIST OF APPENDICES**

<b>APPENDIX</b>	<b>DESCRIPTION</b>	<b>PAGE</b>
Appendix A	NEPA Alternatives Comparison.....	94

**LIST OF ABBREVIATIONS**

<b>ABBREVIATION</b>	<b>DESCRIPTION</b>
AADT	average annual daily traffic
ANFO	Ammonium Nitrate Fuel Oil
AQMR	Air Quality Modeling Report
BRMF	Burntlog Road Maintenance Facility
CFR	Code of Federal Regulations
CWA	Clean Water Act
DEIS	Draft Environmental Impact Statement
DRSF	development rock storage facility
EFSFSR	East Fork South Fork Salmon River
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FS	Feasibility Study
GCL	geosynthetic clay liner
GIS	geographic information system

**STIBNITE GOLD PROJECT**  
**REFINED PROPOSED ACTION – ModPRO2**



GMS	Growth Media Stockpile
HDPE	high-density polyethylene
IDEQ	Idaho Department of Environmental Quality
IDL	Idaho Department of Lands
IDWR	Idaho Department of Water Resources
IPDES	Idaho Pollutant Discharge Elimination System
IRA	inventoried roadless area
LCRS	leakage collection and recovery system
LLDPE	linear low-density polyethylene
OSV	over snow vehicle
M3	M3 Engineering & Technology Corporation
Midas Gold	Midas Gold Idaho, Inc.
MSGP	Multi-Sector General Permit
NEPA	National Environmental Policy Act
NFS	National Forest System
NPC	net present cost
OEMR	Idaho Governor's Office of Energy and Mineral Resources
PFS	Preliminary Feasibility Study
PMP	Probable Maximum Precipitation
POX	pressure oxidation
PRO	Plan of Restoration and Operations
RCP	Reclamation and Closure Plan
RCRA	Resource Conservation and Recovery Act
RFAI	requests for additional information
RFC	requests for clarification
RIB	rapid infiltration basin
SGLF	Stibnite Gold Logistics Facility
SGP	Stibnite Gold Project
SODA	Spent Ore Disposal Area
SPLNT	Stream and Pit Lake Network Temperature
SWWB	site-wide water balance
SWWC	site-wide water chemistry
TSF	tailings storage facility
USACE	United States Army Corps of Engineers
USFS	United States Forest Service
WAD	weak acid dissociable
WOTUS	Waters of the United States
WQMP	Water Quality Management Plan
WTP	water treatment plant

## 1 INTRODUCTION

### 1.1 BACKGROUND

Midas Gold Idaho, Inc. (Midas Gold) submitted a plan of operations for mining on National Forest System (NFS) lands, titled “Stibnite Gold Project (SGP) Plan of Restoration and Operations” (PRO) ([Midas Gold, 2016](#)) to the United States Forest Service (USFS) in September 2016, in accordance with USFS regulations for locatable minerals set forth in 36 Code of Federal Regulations (CFR) 228 Subpart A. The proposal included occupying and using NFS lands within the Payette and Boise National Forests for operations associated with open pit mining and ore processing. Midas Gold’s stated purpose and need is to “economically develop and operate a modern gold, antimony and silver mine to obtain financial return and benefits from its property rights and investment and supply extracted minerals for various uses. Midas Gold plans to execute this plan while undertaking cleanup, mitigation, and reclamation of legacy mining impacts before, during, and after the proposed mining activities”. The project was designed in accordance with Midas Gold’s Core Values as set out in the PRO (Section 2), Conservation Principles (PRO Section 2), its Sustainability Goals (PRO Section 2.4) and its Environmental Goals (PRO Section 6.2) (collectively “Midas Gold’s Values, Principles and Goals”).

Leading up to the submittal of the PRO in 2016, Midas Gold completed extensive exploration, environmental baseline data collection, alternatives analysis, and other technical studies that supported the development of a Preliminary Feasibility Study (PFS) ([M3, 2014](#)). These evaluations resulted in the design of a project that meets the purpose and need of the project and avoids or minimizes the potential social and environmental impacts to the greatest practicable extent. This included an iterative process of evaluating the size, location, and design of project components such as open pits, the tailings storage facility (TSF), the ore processing facilities, development rock storage facilities (DRSFs), and interrelated infrastructure such as site access and haul roads, transmission lines, and public access routes. This alternatives analysis is summarized in Appendix G of the PRO and supporting documents were submitted to the USFS and their third-party NEPA contractor on October 27, 2017, in response to a request for additional information (RFAI-38).

The USFS accepted the PRO as administratively complete in December 2016 and began to process the application per their responsibility under the National Environmental Policy Act (NEPA). On June 5, 2017, the USFS announced in the Federal Register its Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) to evaluate and disclose the potential environmental effects of approval of the PRO to occupy and use NFS lands for operations associated with open-pit mining and ore processing and related amendments to the Payette and Boise National Forest Land Resource Management Plans<sup>2</sup>. Agency and public scoping for the EIS were completed during 2017 and provided in an SGP EIS Scoping and Issues Summary Report ([AECOM, 2018](#)).

The USFS then began its independent evaluation of whether to approve the PRO as submitted by Midas Gold, or to require changes or additions to meet the requirements for environmental protection and reclamation set forth at 36 CFR 228 Subpart A before approving a final plan. Consistent with their responsibility under NEPA, the USFS identified issues of any significance and developed a range of alternatives and design measures that could be determined reasonable and necessary to meet USFS regulations for locatable minerals set forth at 36 CFR 228 Subpart A, but still meet the project purpose and need. The development of alternatives was informed by agency and public scoping comments and included agency evaluation per criteria that considered whether the alternative (1) met the project purpose and need, (2) proffered an environmental advantage, (3) was technically feasible, and, (4) was economically feasible. This process culminated in the USFS’ inclusion of two additional action alternatives in the DEIS,

<sup>2</sup> The USFS is the lead agency preparing the EIS. Five Cooperating agencies have been identified: U.S. Environmental Protection Agency (EPA), U.S. Army Corps of Engineers (USACE), Idaho Department of Lands (IDL), Idaho Department of Environmental Quality (IDEQ), and the Idaho Governor’s Office of Energy and Mineral Resources (OEMR)..

which centered around relocation of the tailings storage facility (TSF; DEIS Alternative 3) and use of existing roads for the primary mine access route (DEIS Alternative 4).

During the preparation of the DEIS, Midas Gold continued to refine and improve the mining and environmental performance of the PRO in accordance with the Core Values, Conservation Principles, Sustainability Goals and Environmental Goals described in the PRO (Section 2). This included completing more detailed feasibility analyses and re-evaluating components of the project to further avoid and minimize environmental impacts in accordance with NEPA, Section 404 of the Clean Water Act, the USFS permitting process, and other regulatory requirements, while meeting the project purpose and need. Midas Gold's own studies of the project footprint and potential effects on key resources such as wetlands and streams, water quality, federally listed species, public use, and other environmental considerations identified areas where the project's environmental performance might be improved through modifications of the PRO. The Modified Proposed Action (Modified PRO or ModPRO) was submitted to the USFS in May 2019 ([Brown and Caldwell, 2019](#)) and represented a refinement of Midas Gold's proposed action that was evaluated in the DEIS as Alternative 2.

Midas Gold provided the ModPRO and other appropriate supporting technical information so that the USFS could evaluate it as an alternative in the DEIS in a manner consistent with the Council on Environmental Quality (CEQ) NEPA regulations and guidance. Thus, the DEIS analyzed environmental effects for four action alternatives and the No Action Alternative, as follows:

- **Alternative 1:** The original proposed action, based on Midas Gold's PRO ([Midas Gold, 2016](#)).
- **Alternative 2:** Midas Gold's modified proposed action as summarized in the ModPRO Technical Memorandum ([Brown and Caldwell, 2019](#)).
- **Alternative 3:** An agency-proposed alternative centered around an optional location for the tailings storage facility (TSF) in the upper East Fork of the South Fork of the Salmon River (EFSFSR) drainage.
- **Alternative 4:** An agency-proposed alternative based on using an existing road corridor as a primary mine access route (Yellow Pine Route).
- **Alternative 5:** No Action Alternative.

See [Appendix A](#) for a summary of the components comprising the above alternatives.

The clarifications and refinements to the SGP that Midas Gold provided prior to publication of the DEIS were consistent with the purpose of the NEPA process – that “*It shall provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment*”. (40 CFR 1502.1). USFS regulations and guidance recognize that ongoing collaboration may result in modification of a Proposed Action or alternative(s), resulting in a better proposal and may ultimately inform a better decision. As discussed below, Midas Gold's process of continual project review and improvement has continued in parallel with the preparation and publication of the DEIS and review of comments on the DEIS submitted by the public and reviewing agencies.

## **1.2 PURPOSE**

While the DEIS was being prepared, Midas Gold continued to evaluate data and additional analyses to identify additional project refinements that could reduce the overall project footprint, reduce associated wetland impacts, improve surface water and groundwater quality, reduce temperature impacts to surface water, reduce air emissions, improve fisheries and wildlife habitat, and improve upon reclamation and restoration design. Project improvements were only considered if they were consistent with the requirements of NEPA, CWA Section 404, USFS regulations, the Endangered Species Act (ESA), Section 106 (cultural resources) and other regulatory requirements. These considerations guided the preparation of the PRO and the ModPRO, and continue to be applicable in the consideration of additional project improvements.

The purpose of this document is to describe Midas Gold’s refined proposed action, presented here as a further refinement of the ModPRO Alternative in the DEIS, and hereinafter referred to as the “ModPRO2”. Midas Gold will provide sufficient information for the USFS to include the ModPRO2 as an alternative considered in detail in the Final EIS (FEIS), including the necessary environmental analysis and geospatial data. It is intended that the ModPRO2 be included in the FEIS (currently being prepared by the USFS) as a further refined Alternative 2, replacing Alternative 2 in the DEIS, and a further refinement of Midas Gold’s proposed action. This is consistent with NEPA; per 40 CFR 1503.4, an agency preparing an FEIS has the option to “*Modify alternatives including the proposed action*” (40 CFR 1503.4(a)(1)).

## **2 MODPRO2 DEVELOPMENT AND OVERVIEW**

### **2.1 JUSTIFICATION AND APPROACH**

This Section provides the reasoning behind the development of the ModPRO2, Midas Gold’s updated refined proposed action. The ModPRO2 was developed to further reduce potential environmental impacts of the SGP in alignment with Midas Gold’s Values, Principles and Goals. Project refinements included in the ModPRO2: (1) are supported by updated data and analysis that identify opportunities to reduce potential environmental impacts; (2) address persistent potential environmental impacts not sufficiently ameliorated or reduced by project refinements included in the ModPRO; (3) are informed by public and agency comments on the DEIS, and; (4) align with the National Environmental Policy Act (NEPA), and all applicable Federal, State and Local regulations and permit requirements. The ModPRO2 also aligns with the project development approach in Midas Gold’s forthcoming Feasibility Study (FS) ([M3, 2020](#)).

The discussion below includes a summary of continued data analysis (Section 2.1.1) that identified additional opportunities for refinements to Midas Gold’s initial proposed action (PRO) and modified proposed action (ModPRO) to further reduce potential environmental impacts. Also included (Section 2.1.2) is a discussion of predicted environmental effects included in the DEIS Chapter 4 – Environmental Consequences and associated themes which surfaced in comments on the DEIS from the public and reviewing agencies and identified concerns about predicted environmental impacts for specific resource areas. In Section 2.2, project refinements which are proposed to address these concerns are summarized by providing a description of the current proposed action along with the proposed modification. Together, these project refinements comprise the ModPRO2. A more detailed project description that addresses all of the aspects of the refined proposed action is provided Section 3.

#### **2.1.1 Updated Data and Analysis**

The original PRO was developed primarily based on the technical information included in the SGP Preliminary Feasibility Study (PFS) ([M3, 2014](#)). As is summarized in the preceding section, following submission of the PRO, Midas Gold carried out additional technical studies and field investigations, participated in the agency-led alternatives development process, and continued to evaluate options for various project components to address concerns raised in the NEPA scoping process. Midas Gold also provided project data and evaluations in response to a series of Agency requests for additional information (RFAs) and requests for clarifications (RFCs). In addition to informing the narrative and analysis of the DEIS, these efforts also led to project changes that were incorporated into the ModPRO ([Brown and Caldwell, 2019](#)). To the degree practicable, the analyses and data from these ongoing efforts have been incorporated into the environmental impact analysis included in the DEIS; one primary example is Midas Gold’s SGP Water Quality Management Plan (WQMP) ([Brown and Caldwell, 2020](#)), which provided details on water management that were applied to the ModPRO alternative. However, the timing of completion of some studies and analyses conducted during preparation of the DEIS did not allow for some results to be fully considered in the DEIS effects analysis. Instead, it was anticipated that further refinements to the ModPRO would be incorporated into the environmental analysis during preparation of the Final EIS (FEIS).

Refinements and updates to key technical studies that are not incorporated in the DEIS but have resulted in identifying beneficial refinements to the ModPRO alternative include:

1. Updated geological and mineral resource modeling;
2. Detailed mine planning, including analysis of a smaller Hangar Flats pit and resulting alternative DRSF configurations;
3. Aquifer testing in the Meadow Creek valley and subsequent hydrogeologic modeling changes, including revised pit dewatering estimates;
4. Revised geochemical characterization of development rock and ore, which included additional metallurgical testing to confirm geochemical characteristics of the resultant tailings;
5. Updated site wide geochemical modeling for life-of-mine and post-closure, including predictive modeling of the proposed mine features and anticipated potential impacts to surface water and groundwater quality;
6. Updated site wide, life-of-mine water balance modeling;
7. Detailed water treatment scenario development;
8. Life-of-mine and post-closure water temperature modeling; and,
9. Updated tailings tonnage and consolidation modeling to match updated ore processing schedules and include more detailed metallurgical calculations accounting for gypsum formation.

The project refinements that form the basis of the ModPRO2 were derived from the preceding modeling and analyses. These refinements address environmental concerns that are identified in the DEIS for one or more alternatives; however, they are focused on refinement of the DEIS Alternative 2 (ModPRO).

### **2.1.2 Environmental Effects and DEIS Public and Agency Comments**

In the DEIS Chapter 4 – Environmental Consequences, the effects analysis indicated that, in most cases, the ModPRO (DEIS Alternative 2) resulted in reduced environmental impacts with respect to Alternative 1 (the PRO). However, even with these project improvements, for some resources potential environmental impacts for Alternative 2 did not achieve reductions that Midas Gold considered sufficient. As a result, project features associated with these impacts were evaluated to determine whether further reductions in impacts could be achieved. Comments submitted during the DEIS public review period recognized several of these persistent impacts and presented concerns or suggested project modifications to address the conditions noted.

These resources are listed below with a brief summary of how environmental effects analysis for Alternative 2 compared to other alternatives in the DEIS. Included with these summaries are related DEIS comment themes that have informed further refinements to the ModPRO. Section 2.2 of this document describes how these comments have translated to specific project improvements.

**Surface Water and Groundwater Quantity** – Hydrologic modeling for the PRO predicts reductions in stream low flows and average stream flow in Meadow Creek near the end of mine operations and in early post-closure. These impacts result primarily from the time required for recovery of the dewatered aquifer in the vicinity of the Hangar Flats pit. Measures incorporated into Alternative 2 (ModPRO) including the addition of a liner in the constructed Meadow Creek channel reduce the magnitude of reduced stream flows, but still predict flow reductions up to 3 years after mine operations cease.

- Related public comments suggested that further protective measures should be provided to address predicted reductions in stream low flows and temperature increases. Some commenters indicated that if additional reductions in temperature could not be achieved, then excluding fish from streams in the project site during operations seemed to be the preferable option.

**Surface Water and Groundwater Quality** – Alternative 2 (ModPRO) of the DEIS eliminates the West End DRSF, adds protective measures to reduce infiltration into remaining DRSFs, adds measures that lower stream temperatures during operations, and incorporates water management and treatment as described in the WQMP (though it has been noted, the WQMP is potentially scalable and applicable to all action alternatives). Even with the incorporation of the WQMP, the DEIS notes that adequate protection of surface water and groundwater quality is predicted to require long-term water treatment of Fiddle DRSF toe seepage and outflow from the Hangar Flats pit lake. Additionally, elevated summer maximum water temperatures are predicted in streams particularly early in the reclamation/post-closure period.

- Surface water and groundwater quality were a topic of many public comment letters. Some noted that the preferred alternative must incorporate the water management and treatment described in Alternative 2. Others noted that the two sources that will require perpetual (water) treatment are toe seepage from the reclaimed Fiddle DRSF and the Hangar Flats pit lake overflow but cited that uncertainties in the water balance could lead to additional sources requiring long-term treatment in post-closure.

**Vegetation Resources** – With respect to the PRO, overall surface disturbance and impacts to whitebark pine-occupied habitat are reduced by incorporating refinements under the ModPRO (Alternative 2). However, the DEIS indicates that, with respect to Alternatives 1, 3 and 4, Alternative 2 impacts the largest extent of modeled potential habitat for several sensitive and forest watch plant species.

- Related public comments noted that the project impacts a large area of whitebark pine habitat and indicate that none of the action alternatives were developed with the primary goal of minimizing impacts to plant and wildlife habitat, with the exception of Alternative 4 which reduces direct and indirect impacts to whitebark pine habitat.

**Wetland and Riparian Resources** – Midas Gold was able to reduce impacts to wetlands and waters of the U.S. (WOTUS) by reducing the overall project disturbance footprint and other environmental protective measures incorporated in the ModPRO. However, wetland and WOTUS impacts for Alternative 2 are roughly equal to Alternative 4 and impacts to riparian areas are slightly greater.

- Related public comments asserted that, based solely on wetland/WOTUS impacts, Alternative 4 should be selected as the preferred alternative. This is due in large part to Alternative 4's use of existing roadways for the primary access route. Several commenters suggested that the elimination of the Fiddle DRSF could reduce impacts to previously undisturbed vegetation, streams and wetlands.

**Fish Resources and Fish Habitat** – The SGP DEIS notes that cumulative effects on fisheries achieved by project refinements incorporated into the ModPRO (Alternative 2) would be lower than under Alternative 1. However, notable impacts that still occur under Alternative 2 include loss of bull trout lake habitat (removal of Yellow Pine pit lake and not connecting Meadow Creek to Hangar Flats pit lake), post-closure flow reductions in Meadow Creek, and increased summer maximum stream temperatures which impact spawning and juvenile rearing potential.

- Numerous public comments addressed impacts to fisheries; one comment letter noted that the remainder (of West End DRSF material) could probably be backfilled into the Hangar Flats pit, avoiding the necessity for a DRSF in the Fiddle Creek drainage. Another noted that temporary blockage of fish passage for the Meadow Creek diversion, permanent blockage of upper Meadow and Fiddle Creeks, would result in an overall decrease in quantity and quality of bull trout and Chinook salmon habitat. Several commenters noted that predicted impacts to stream temperature would negatively impact fish health and population stability.

**General Comments on Project Impacts** – Other recurrent public comment themes that are related to those above have been considered in the preparation of the ModPRO2:

- The EFSFSR TSF alternative should be rejected due to the level of impacts to undisturbed land and the loss of reclaiming the SODA and legacy tailings;
- The USFS should do what it can to scale down the size of the project;

- An alternative should be considered that does not include the Fiddle DRSF;
- An alternative should be considered in which sequential mining and backfilling of the various mine pits is scheduled so as to eliminate the need for the Fiddle DRSF;
- The Hangar Flats pit should be backfilled – the project merely moves the issue of the un-backfilled Yellow Pine pit two miles upstream.

In summary, review of the environmental consequences analysis in the DEIS, comparison of the potential environmental impacts between the alternatives revealed that the ModPRO (Alternative 2), and review of recurrent themes in public comment letters highlight SGP components that should be the focus of further project refinements. Additional environmental protection measures and adjustments to the size and/or location of components that comprise the ModPRO (DEIS Alternative 2) can reduce the predicted impacts to surface and groundwater quantity and quality, and reduce the overall surface disturbance footprint resulting in lessened impacts to spatially-impacted resources such as vegetation, wetlands and riparian areas.

## **2.2 SUMMARY OF PROPOSED REFINEMENTS OF MIDAS GOLD’S PROPOSED ACTION**

The refinements of the ModPRO that represent the ModPRO2 address the topics identified above and are summarized here. To illustrate how these project refinements have been derived, impacts related to specific project components are identified and an explanation is provided that includes the additional data and analysis that were considered in their development. Also included is a brief description of the proposed improvement of the project component as presented in the ModPRO2 and the resource area impacts which they aim to reduce. A more detailed description of these refinements is provided in the context of the full project description in Section 3.

### **2.2.1 Hangar Flats Pit Footprint**

The Hangar Flats pit has a large influence on the overall site water balance due to the magnitude and duration of the contact water management and pit dewatering requirements, particularly with concurrent mining of the Hangar Flats pit with the Yellow Pine and West End pits. Hangar Flats pit dewatering is the primary driver of reduced streamflow in Meadow Creek. Moreover, updated geological and mineral resource modeling indicate that the north portion of the Hangar Flats pit as envisioned in Alternative 2 has a very high strip ratio (ratio of development rock to mineralized rock) when compared to the south portion and is marginally economic at projected long-term metal prices when all economic considerations (from mining to closure) are taken into account.

**ModPRO2 Change/Benefits:** The disturbance area and volume of the Hangar Flats pit is reduced in the ModPRO2 and offers several project improvements. Adjusting pit sequencing and reducing the size of the Hangar Flats pit would reduce overlapping water management requirements, reduce the overall surface disturbance footprint, allow for the (smaller) Hangar Flats pit to be completely backfilled, reduce the amount of development rock that requires storage elsewhere, and reduce the likelihood and (if required) the volume of post-closure water management. This project refinement addresses public comments related to the reduction of overall project footprint, and provides accordant reductions in impacts to wetland/WOTUS, vegetation resources and wildlife and fisheries habitat.

### **2.2.2 Fiddle DRSF**

Operating concurrent DRSFs allows for increased operational flexibility; however, it also increases water management and reclamation requirements as well as wetland mitigation. The Fiddle DRSF in particular is influential on operational and post-closure water management as geochemical modeling indicates that long-term water treatment for toe seepage may be required even with a low-permeability cover installed at closure. Furthermore, as has been recognized in comments on the DEIS, the Fiddle DRSF occurs in a drainage that is undisturbed for the most part.

**ModPRO2 Change/Benefits:** Elimination of the Fiddle DRSF is a key element of the ModPRO2. Following the decision for the ModPRO2 to reduce the size of the Hangar Flats pit, opportunities for additional changes, such as eliminating the Fiddle DRSF and completely backfilling the Hangar Flats pit, became feasible. From the perspective of water management, eliminating the Fiddle DRSF would reduce operational, closure and post-closure water management efforts, costs and risk. Reducing the overall project footprint would also reduce impacts to numerous resources including soil, vegetation, wildlife habitat and fisheries. There would also be a reduction in reclamation and mitigation requirements through reduced wetland and WOTUS impacts. This project improvement addresses numerous DEIS comments related to the Fiddle DRSF and its potential impacts on water quality and overall disturbance footprint.

### 2.2.3 Hangar Flats Pit Backfill

Despite reducing the overall quantity of development rock that results from a smaller Hangar Flats pit, elimination of the Fiddle DRSF coupled with the elimination of the West End DRSF in the ModPRO led to an overall sitewide deficit of development rock storage capacity. Moreover, if left as proposed in the ModPRO, the Hangar Flats pit lake would still negatively impact water quality in Meadow Creek (metals and stream temperatures) and require substantial water treatment to mitigate.

**ModPRO2 Change/Benefits:** Expanding and changing the sequencing of the TSF Buttress<sup>3</sup> and backfilling Hangar Flats pit to the approximate pre-mining valley bottom elevation would resolve the sitewide development rock storage capacity deficit and would also reduce the overall project footprint, reduce long-term water treatment requirements, decrease post-mining Meadow Creek stream temperatures, and avoid post-mining relocation of the operational Meadow Creek diversion channel/floodplain corridor. Backfilling the pit would also address geotechnical concerns with having the permanent Meadow Creek channel adjacent to the south Hangar Flats pit highwall. Additional development rock would have to be placed in the TSF Buttress, thereby increasing its footprint somewhat. However, relative to the elimination of the Fiddle DRSF and associated water management requirements, this was deemed a reasonable trade-off since it results in an overall reduction in Project footprint, especially when taking into account usage of previously disturbed versus undisturbed areas. This proposed improvement addresses numerous public comments requesting reconsideration of the need for the Fiddle DRSF as well as comments related to concerns over the potential for long-term water treatment of Hangar Flats pit lake outflow.

### 2.2.4 Stream Temperature/Fisheries Habitat

Stream temperature modeling conducted for the PRO predicted increased water temperatures for both operational surface water diversions and post-closure restored and enhanced streams due to a combination of the effects of the Hangar Flats pit lake and lack of shade. Additionally, loss of fisheries habitat results from the removal of the Yellow Pine pit lake. Based on stream temperature modeling, the ModPRO adopted environmental protection measures, including the routing of diverted low flows in buried pipes rather than open channels to prevent warming during mine operations, and post-mine retention of the Meadow Creek diversion around Hangar Flats pit, rather than rerouting Meadow Creek and Blowout Creek through the Hangar Flats pit lake. Although the ModPRO modeling demonstrated that those measures would be successful in mitigating many of the predicted stream temperature increases, particularly during operations, persistent summer maximum stream temperature increases were predicted in post-closure resulting from restored and enhanced stream reaches with insufficiently developed vegetation for adequate shade. The ModPRO also did not fully ameliorate the loss of fisheries habitat due to removal of the Yellow Pine pit lake.

**ModPRO2 Change/Benefits:** The ModPRO2 proposes additional environmental protection measures to address stream temperature, including wider riparian planting widths on restored and enhanced stream reaches, increased proportion of taller and denser vegetation such as spruce trees, and creation of Stibnite Lake, a feature similar in size

<sup>3</sup> The TSF Buttress was formerly referred to as the Hangar Flats DRSF. To avoid confusion with the naming convention used for the backfilled pits the ModPRO2 uses the term Hangar Flats pit backfill for the backfilled Hangar Flats pit. 7

to the present Yellow Pine pit lake, within the restored Yellow Pine pit backfill. Shade improvements are predicted to lower stream temperatures generally, and the addition of Stibnite Lake would restore the function of the existing Yellow Pine pit lake in buffering temperature extremes and reduces maximum summer stream temperatures in EFSFSR in and downstream of the Project site, as well as replacing the bull trout lake habitat currently provided by the Yellow Pine pit lake. These project improvements address DEIS comments related to surface water quality and fisheries habitat loss resulting from the removal of the Yellow Pine pit lake.

### 2.2.5 Tailings Arsenic Management

Environmental testing completed on representative SGP tailings during the past year showed some soluble arsenic in the tailings leachate. Geochemical modeling indicates that the levels of soluble arsenic in the tailings may result in water quality compliance issues in Meadow Creek during post closure, necessitating long term water treatment. Metallurgical testing of the autoclave tailings confirmed that a substantial amount of amorphous (unstable) arsenic compounds formed in the pressure oxidation vessel that resulted in elevated soluble arsenic in subsequent environmental testing.

**ModPRO2 Change/Benefits:** Recent metallurgical testing to address the potential for creation of soluble arsenic determined that decreasing the free acid levels (increasing the pH) in the autoclave by increasing the ground limestone dosage in the autoclave feed increased the quantity of crystalline (stable) arsenic compounds in the resultant slurry with a proportional decrease in the quantity of amorphous (unstable) arsenic compounds. Increasing the ground limestone dosage to the pre-oxidized concentrate as it is fed into the autoclave would not have a material impact on the design of the autoclave and would not increase overall limestone consumption as there would be an offsetting decrease in limestone consumption in the subsequent neutralization circuit. Consequently, Midas Gold will move forward with the increased autoclave limestone dosage.

During the initial years of operation, Midas Gold will monitor levels of soluble arsenic in the tailings. If soluble arsenic levels are higher than anticipated, Midas Gold would treat the oxidized concentrate with hot arsenic cure (HAC) prior to neutralization. Metallurgical testing has shown that keeping the autoclave discharge at 92 degrees Celsius for 5 hours in agitated tanks, with small additions of ground limestone, would further promote the formation of stable, crystalline arsenic compounds. The detoxification of tailings in the ore processing circuit was not necessarily the focus of comments on the DEIS; however, this project improvement does address general comments related to the potential impacts of tailings geochemistry on groundwater quality.

### 2.2.6 Ore Processing

Typically, before slurry from the autoclave is neutralized using ground limestone and lime, a solid-liquid-separation step is completed using a process called countercurrent decantation (CCD). This circuit was included in the PRO and ModPRO and involves a number of large tanks to separate the acidic liquid from the oxidized solids, so the acidic liquid can be neutralized and reused in the process plant, and the solids can be sent to the leach circuit to extract the gold and silver. Concurrent to the metallurgical testing discussed in the preceding section, additional metallurgical testing was completed to determine if the CCD circuit could be eliminated by directly neutralizing the slurry rather than only neutralizing the liquids following the CCD circuit. Separating the materials before neutralization typically reduces the potential for gold and silver particles to be encapsulated during neutralization, and that encapsulation could reduce overall gold and silver recovery in the leach circuit.

**ModPRO2 Change/Benefits:** Metallurgical testing confirmed that gold and silver particles were not encapsulated during the slurry neutralization process, and reagent consumptions (including cyanide, limestone, and lime) were unimpacted by removal of the CCD circuit. Consequently, the CCD circuit was eliminated from the process flowsheet to reduce the overall plant footprint. However, as the CCD circuit decreased the temperature of the slurry due to the amount of time the slurry would be exposed to ambient temperatures, removal of the CCD circuit required the addition of a cooling circuit, which would require no material changes to the upstream or downstream ore processing circuits.

Thus, elimination of the CCD circuit from the process flowsheet would reduce the overall plant footprint versus that in the PRO or ModPRO. The CCD circuit was not necessarily the focus of comments on the DEIS; however, this project improvement does address general comments related to reducing the project footprint.

## **2.3 SUMMARY**

The preceding project improvements, combined with the project improvements documented in the ModPRO ([Brown and Caldwell, 2019](#)), further reduce the potential environmental impacts of the SGP and form the basis of Midas Gold's second refined proposed action, the ModPRO2.

The need for additional refinements of the SGP has been determined through Midas Gold's review of the SGP DEIS and agency and public comments on the DEIS, which indicate that there remain persistent potential environmental impacts that are not sufficiently ameliorated or reduced by project modifications included in the ModPRO. Midas Gold has identified additional opportunities for reducing project impacts through continued review of updated project data and analyses. In addition to addressing the concerns of the lead and cooperating agencies, other stakeholders and the public, the proposed project refinements included in the ModPRO2 are consistent with NEPA, as well as applicable requirements of the CWA Section 404, USFS regulations, the Endangered Species Act (ESA) and Section 106 (cultural resources); and all appropriate Federal, State, and Local regulatory agency regulations and permit requirements. The ModPRO2 also aligns with the project development approach in Midas Gold's Feasibility Study (FS) ([M3, 2020](#)), and is consistent with Midas Gold's Values, Principles and Goals.

A comprehensive description of the ModPRO2 is provided in [Section 3](#); the structure of [Section 3](#) was developed to align with the general structure of the DEIS Chapter 2 – Alternatives Description to facilitate incorporating this information into the FEIS as a refined Alternative 2. Appendix A includes a table that summarizes the primary differences between the ModPRO2 and the alternatives included in the DEIS.

## **3 MODPRO2 DESCRIPTION**

### **3.1 PROJECT LOCATION AND LAND MANAGEMENT**

The SGP is located in Valley County, Idaho approximately 98 mi northeast of Boise and approximately 10 mi east of Yellow Pine, Idaho. [Figure 3-1](#) provides a regional map that illustrates the project location and regional-scale project components, and [Figure 3-2](#) presents the ModPRO2 site layout.

[Table 3-1](#) provides a summary of land management or ownership by project component for the ModPRO2. The ModPRO2 reduced the on-site disturbance footprint by approximately 180 acres, or 5%, versus the ModPRO (per Table ES2-4 of the DEIS).

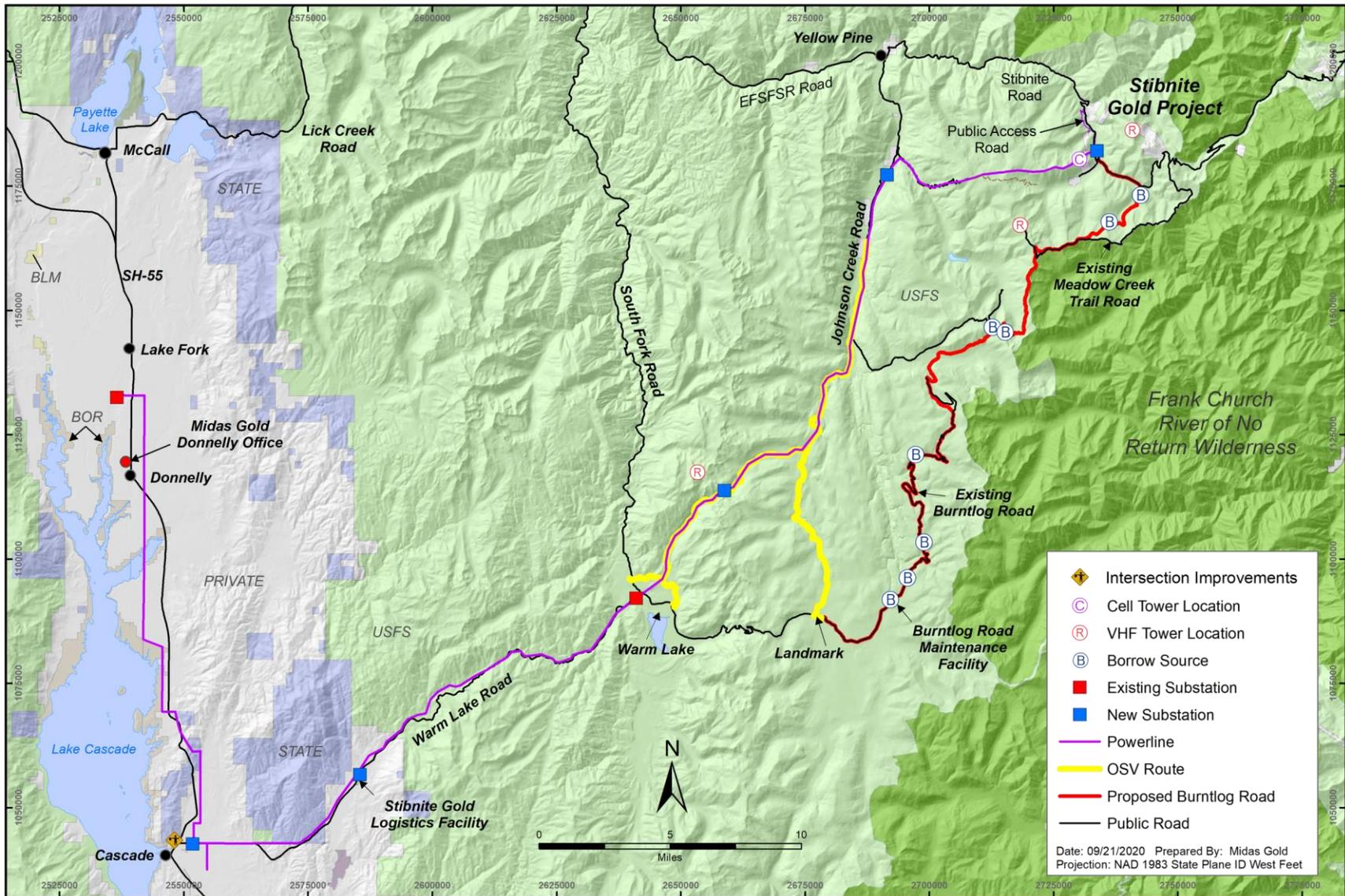
**Table 3-1 Land Management and Acreage by Project Component**

Component Subtotal	Private	State	Boise National Forest	Payette National Forest	Bureau of Reclamation	Total Acres
Mine Site Subtotal	503	0	0	1,224	0	<b>1,727</b>
Existing Access Roads Subtotal	6	0	95	18	0	<b>118</b>
Access Roads Subtotal	<1	0	250	96	0	<b>346</b>
Utilities Subtotal <sup>1</sup>	272	62	572	81	25	<b>1,012</b>
Offsite Facilities Subtotal	24	0	4	0	0	<b>28</b>
<b>Total<sup>2</sup></b>	<b>805</b>	<b>62</b>	<b>922</b>	<b>1,418</b>	<b>25</b>	<b>3,232</b>

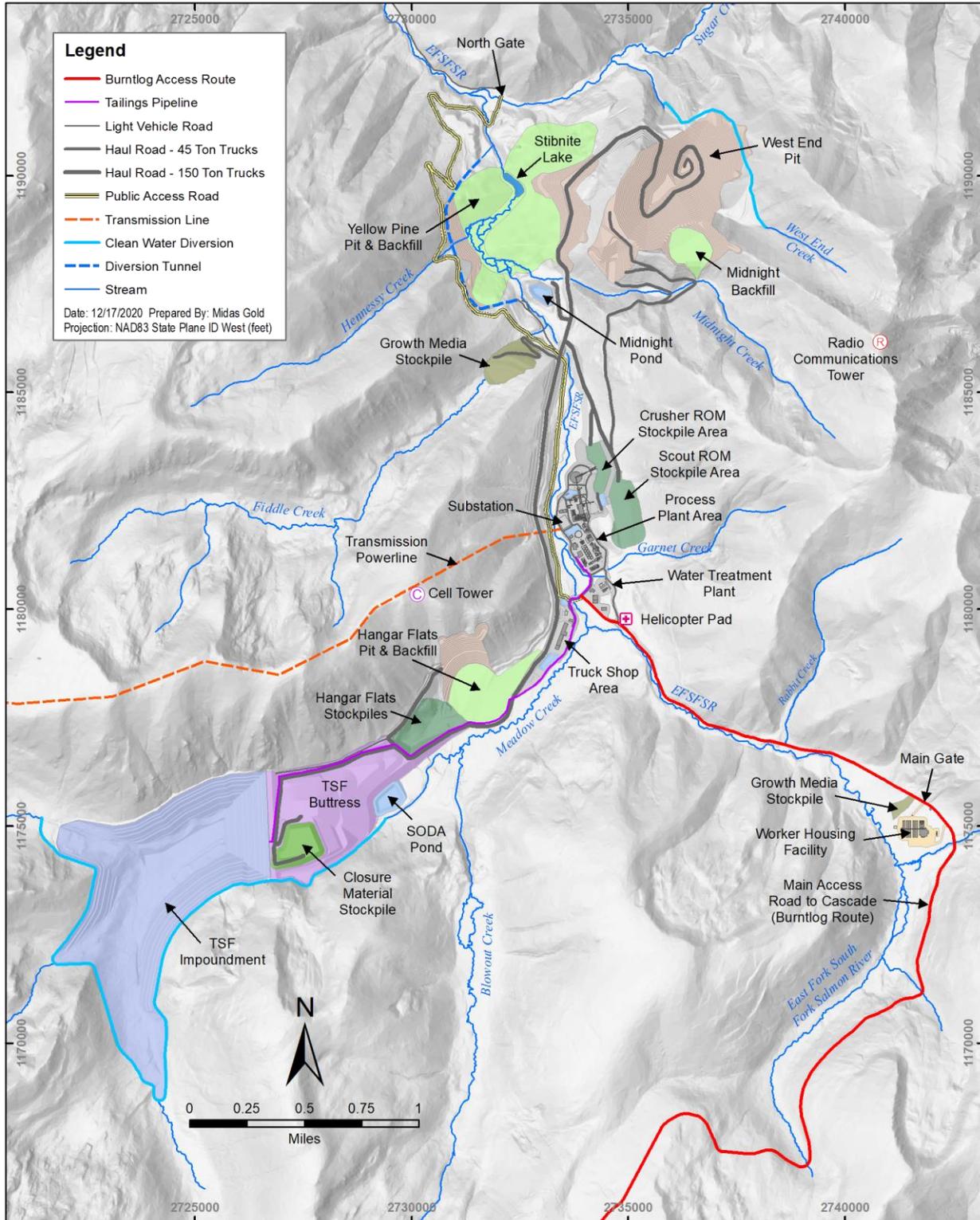
Table Source: AECOM 2020a Table Notes:

- 1 Existing access roads with minor to major improvements would be used for the SGP. Existing access roads acreages reflect the current road configurations. Any additional disturbance to widen existing roads is included in the new access roads subtotal.
- 2 Utilities affected acres include both existing utility corridors and access routes, and new utility corridors and access routes. Some existing utility access routes would be upgraded. Utilities affected acres include upgrades to utilities that are part of the Connected Actions.
- 3 Subtotals may not add to totals due to rounding.
- 4 Approximately 65 affected acres associated with surface exploration pads and temporary roads (mine site component) have unknown land ownership because the exact locations of these exploration areas are not yet known. The surface exploration acres are included in the PNF mine site subtotal.
- 5 Approximately 5 acres of land listed under the PNF is administered by the PNF but is within the boundary of the Salmon Challis National Forest.

**Figure 3-1 Project Location Map**



**Figure 3-2 Site Layout**



## **3.2 LIFE-OF-MINE SCHEDULE**

The actions proposed in the ModPRO2 would take place over a period of approximately 20 to 25 years, not including the additional years of long-term environmental monitoring that would be required for reclamation and closure, or potential long-term water treatment. The phases of the operation are described in subsequent sections and include:

- Construction (approximately 3 years);
- Mining and Ore Processing Operations (approximately 15 years);
- Surface and Underground Exploration (approximately 17 years, beginning during construction and continuing concurrent with operations); and
- Closure and Reclamation (approximately 5 years at the mine site).

The environmental monitoring phase would continue until full reclamation of the site could be demonstrated. Water treatment would continue until metal concentrations from each source have stabilized at levels that meet water quality standards for discharge.

The ModPRO2 life-of-mine schedule is consistent with the DEIS schedules for Alternatives 1, 2 and 3. The construction and mining schedule is discussed further in [Section 3.7.1](#), and the reclamation and closure period is discussed in [Section 3.14](#). Detailed sequencing of the TSF and TSF Buttress is discussed in [Section 3.9.2](#).

## **3.3 SITE ACCESS**

### **3.3.1 Yellow Pine Route**

During the initial 2 years of construction of the SGP, and concurrent to the development of the Burntlog Route (see [Section 3.3.2](#)), mine-related traffic would access the mine site from State Highway 55, north of the town of Cascade, via Warm Lake Road (County Road 10-579), then Johnson Creek Road (County Road 10-413) to Yellow Pine, and from Yellow Pine to the mine site via the East Fork Road (FR 50412, also known as Stibnite Road). The Johnson Creek Road and Stibnite Road (FR 50412) segments of this route are referred to as the Yellow Pine Route in the DEIS.

Minor surface improvements (e.g., ditch and culvert repair, adding gravel, winter snow removal, and summer dust suppression) would occur on the Yellow Pine Route to reduce sediment runoff and dust generation. There would be no road alignment modification or widening of these existing roads.

There is an existing agreement between Valley County and Midas Gold for maintenance of Stibnite and Johnson Creek roads. Revisions to the road maintenance agreement between Valley County and Midas Gold could be required for the use of the Yellow Pine Route as a construction route. Under the cooperative agreement with Valley County, Midas Gold would perform maintenance measures to repair segments that have deteriorated over time.

This represents no change to the use of, and improvements to, the Yellow Pine Route as detailed in the DEIS for Alternatives 1, 2 and 3.

### **3.3.2 Burntlog Route**

As detailed in the DEIS Alternatives 1, 2 and 3, while the Yellow Pine Route is being used to access Stibnite during the initial 2 years of construction, Midas Gold would develop a safe and reliable route to site, which involves widening and improving approximately 23 miles of existing roads including the Burnt Log Road (FR 447), Meadow Creek Lookout Road (FR 51290), and Thunder Mountain Road (FR 50375). Improvements required on the existing roads include:

- Straightening tight corners to allow for improved safety and traffic visibility;

- Maintaining grades of less than 10 percent in all practicable locations;
- Placing sub-base material and surfacing with gravel and localized sections of road with binders to provide a stable long-term roadway and reduce sediment runoff;
- Application of a road binding agent in localized segments to increase stability;
- Widening the existing road surface to a 20-foot-wide travel way (approximately 26 feet including shoulders); and,
- Installing side-ditching, culverts, guardrails, and bridges, where necessary, with design features to provide fish passage and limit potential sediment delivery to streams.

Two road segments comprising approximately 15 miles of new road would also be required to connect the Burntlog Road (FR 447) with the Meadow Creek Lookout Road (FR 51290) and the Meadow Creek Lookout Road (FR 51290) with the Thunder Mountain Road (FR 50375). [Figure 3-1](#) shows the proposed Burntlog Route, which includes the proposed new road construction. The connection between the end of Burnt Log Road (FR 447) and Meadow Creek Lookout Road (FR 51290) is approximately 11 miles and would cross Trapper Creek 0.5 miles east of the intersection of Trapper Creek Road (FR 440) and FR 440A and continue northeast towards Black Lake and on to the Meadow Creek Lookout Road (FR 51290).

The second connector is located between the Meadow Creek Lookout Road (FR 51290) and Thunder Mountain Road (FR 50375). The new construction is approximately 4 miles in length and links up with Thunder Mountain Road (FR 50375) approximately 2 miles south of Stibnite.

The new route construction would cross through portions of three Inventoried Roadless Areas (IRAs).

Once the Burntlog Route is complete, primary Site access would shift from the Yellow Pine Route to the Burntlog Route. The Burntlog Route would be compliant with all related usage and approval requirements included in 36 CFR Section 228, Part A. The Burntlog Route would avoid many challenges and risks associated with the Yellow Pine Route such as: the primary Site access passing through active mine areas; avalanche, landslide and flood risks; traffic issues (e.g. one ingress/egress entry point, safety, noise, dust) with Yellow Pine and Johnson Creek Road residents; and spill risk for long road segments adjacent to fish-bearing streams. Upon completion, the Burntlog Route would also serve as an alternative public access route to the Thunder Mountain area for the life of the mine and until it is decommissioned and reclaimed during mine closure.

Up to eight borrow sites would be established along the Burntlog Route to meet construction and ongoing maintenance needs throughout the life of the operation, and during closure and reclamation ([Figure 3-1](#)). Additionally, eight staging areas would be located along the route for staging of construction equipment and supplies. Three construction camps would be located within disturbance areas for borrow sources or staging areas. The construction camps would be for trailer parking. Each trailer would be equipped with fresh water and sanitary waste storage facilities.

This represents no change to the construction and use of the Burntlog Route as the primary mine access route as detailed in the ModPRO (DEIS Alternative 2).

### **3.3.3 Public Access**

The Burntlog Route would serve as an alternative public access route from Landmark to Thunder Mountain Road (FR 50375) and points beyond from the time of its completion in the mine construction phase to the time of its decommissioning and reclamation during mine closure (including obliteration of new connecting segments). An optional through-site public access route will replace the current access through the SGP site on Stibnite Road (FR 50375) during mine operations (described below). During mine reclamation and closure, the portion of Stibnite Road (FR 50375) passing through the site will be relocated to an alignment similar to its current configuration and will provide

public access through the reclaimed site permanently. The permanently relocated Stibnite Road will also serve as mine site access for all post closure monitoring and maintenance activities.

During construction of the SGP, current public access through the SGP site on Stibnite Road would be restricted for a period of one year or more while a new through-site public access road is constructed. A new 12-foot-wide gravel road would be constructed to provide public access from Stibnite Road (FR 50412) to Thunder Mountain Road (FR 50375) through the mine site (Figure 3-2). The road would be constructed on a widened bench within the Yellow Pine pit. South of the Yellow Pine pit, this road would parallel a mine haul road and use a partially revegetated portion of the former Bradley mine haul road. This road would be approximately 4 miles in length. The public access road would be constructed concurrent with the removal of development rock from Yellow Pine pit.

During operations, the public access road would be used to travel through the mine site and would provide seasonal use, open to all vehicles. Vehicles passing through the mine site would be required to check-in with mine personnel at the North or South mine site entry points and would receive a safety briefing. For safety purposes, vehicles on the public access road would be required to pass through the mine site without stopping or deviating from the public access road and would be required to check-out with mine site personnel upon exiting the mine site. Midas Gold would restrict mine site access to any vehicles due to concerns related to public or employee health and safety, such as during blasting, mining in the immediate area of the road and other similar operations.

Berms, security fencing, and an underpass to allow the public road to pass beneath the mine haul road, would separate the public access road from other mine site roads; the underpass would be located north of Fiddle Creek. The public access road would be temporarily closed during construction and maintenance of the public access road, and other mining activities that would be considered public safety hazards (e.g., high wall scaling, blasting). The public access road would be maintained to the current standards (i.e., not plowed in the winter) and signs would be placed to inform the public of seasonal and temporary closure.

During the operations phase (and during closure and reclamation) public access by foot or on roads would be restricted from entering the operations boundary shown in the SGP DEIS on Figure 2.3-2. Security personnel, fencing (including wildlife exclusion fencing), and signs would restrict public access to the designated public access roadway within the operations boundary.

The proposed public access route is not materially different than Option 1 of the public access route detailed in the ModPRO (DEIS Alternative 2). However in the ModPRO2, Option 2 of DEIS Alternative 2, which routes the northern portion of the public access route further west of the Yellow Pine pit, was removed from further from consideration.

### **3.3.4 Over Snow Vehicle Public Access**

#### **3.3.4.1 Cabin Creek - Johnson Creek Groomed Over Snow Vehicle Trail**

Due to year-round access to the mine site along Warm Lake Road and the Burntlog Route, an existing, approximately 11-mile groomed over snow vehicle (OSV) trail from Warm Lake to Landmark (on un-plowed Warm Lake Road) would be closed. Alternative OSV access between Warm Lake and Landmark would be provided by establishing a new OSV trail along Cabin Creek Road (FR 467) and adjacent to Johnson Creek Road (FR 413). During construction, approximately 13 miles of groomed OSV trail would be maintained along Cabin Creek Road (FR 467) and approximately 8 miles of groomed OSV would be maintained adjacent to Johnson Creek Road from the Trout Creek Campground south to Landmark. A 0.3-mile trail would be maintained south of Warm Lake Road and would connect Johnson Creek Road to the Landmark-Stanley Road (FR 579).

Portions of Cabin Creek Road (FR 467) would require creek crossing improvements, localized widening of the road, and may require blading the road surface and the addition of aggregate. This portion of the groomed OSV trail would originate from a new 2-acre parking area west of the intersection of FR 467 and South Fork Road (FR 50674) and

extend approximately 13 miles to the Trout Creek Campground on Johnson Creek Road. A new 1.5-mile groomed trail would connect the USFS Warm Lake Project Camp on Paradise Valley Road (FR 488) with Cabin Creek Road (FR 467). The USFS Warm Lake Project Camp will be used to store the groomer when not in use. [Figure 3-1](#) shows the Cabin Creek Road groomed OSV trail.

An 8-mile temporary 16-foot-wide groomed OSV trail would be created adjacent to Johnson Creek Road between Landmark and Trout Creek Campground (see [Figure 3-1](#)) during construction of the Burntlog Route. The temporary groomed OSV trail would be established using a snowplow wing attachment requiring some vegetation and tree removal to allow for safe snowplowing. The precise location of this trail is not yet determined and, in areas where topography and vegetation prevent using the wing attachment to establish the groomed OSV trail, short sections of trail would merge with Johnson Creek Road.

A 16-foot-wide groomed OSV trail would be created south of Warm Lake Road to connect the southern end of Johnson Creek Road to the Landmark-Stanley Road. This 0.3-mile route will be used throughout construction and operations and would require the removal of some vegetation and trees.

OSV access would be temporarily halted between Trout Creek Campground and Wapiti Meadows during construction of the Burntlog Route. Once construction of the Burntlog Route has been completed, the Yellow Pine Route would no longer be used by mine-related traffic and the OSV route would be returned to the unplowed Johnson Creek Road and extended northward to provide approximately 17 miles of groomed OSV access between Landmark and Wapiti Meadows. While the Yellow Pine Route is in use, Midas Gold would coordinate with Valley County on the use and maintenance of the route for year-round access in accordance with Valley County's public road easement stipulations.

This represents no material change to the proposed OSV public access detailed in ModPRO (DEIS Alternative 2) other than the additional 0.3-mile OSV route connecting Johnson Creek Road to the Landmark-Stanley Road and the resumption of OSV access between Trout Creek Campground and Wapiti Meadows following construction of the Burntlog Route.

### **3.3.4.2 Valley County Over Snow Vehicle Grooming Agreement**

Groomed snow trails are co-located on underlying Forest Roads and Valley County roads and relocating the current Warm Lake to Landmark route could require amendments outside of the approval of the SGP. Under the terms of an agreement between the USFS, Valley County, and the Idaho Department of Parks and Recreation, Valley County is allowed to groom OSV trails on the BNF within State Designated Snowmobile Areas. The grooming of the Cabin Creek-Johnson Creek OSV trail could amend the cost savings agreement (agreement #13-CS11040204-004), and Valley County would maintain the Cabin Creek OSV trail.

This represents no change to the proposed OSV grooming agreement described in the ModPRO (DEIS Alternative 2).

### **3.3.5 State Highway 55 and Warm Lake Road Intersection**

Warm Lake Road north of Cascade intersects State Highway 55, which is a major north-south transportation corridor in western Valley County ([Figure 3-1](#)). This intersection will be used by all mine-related traffic through all phases of the SGP. Changes to the intersection would improve access for large trucks carrying equipment and supplies to the SGP and would facilitate turns from State Highway 55 onto Warm Lake Road and from Warm Lake Road back onto the State highway. Any changes proposed to the intersection would need to be approved and implemented by the Idaho Transportation Department. Recommended changes to the intersection are: the addition of left and right turning lanes ([Parametrix, 2018](#)); an intersection modification to accommodate larger trucks; and potential relocation of two power poles ([HDR, 2017](#)); and a modification to the westbound approach at Warm Lake Road to improve the view of traffic coming from the north.

This represents no material change from what is described for Alternatives 1 through 4 in Section 4.16 of the DEIS.

### **3.4 POWER TRANSMISSION AND COMMUNICATIONS SYSTEMS**

#### **3.4.1 Power Transmission**

Midas Gold would require approximately 50 MW of electrical power to operate the SGP. Whereas the current 69 kV transmission line in the area is (a) not capable of supporting this power requirement and (b) does not extend to the SGP site, Midas Gold is working with Idaho Power Company (IPCo) to upgrade and expand their power transmission and distribution system to provide the necessary electrical power. Changes to the existing IPCo system for SGP operations would include:

- Upgrade approximately 63 miles of the existing 12.5 kV and 69 kV transmission lines between the Lake Fork and Johnson Creek substations to 138 kV service. The right of way corridor would be 50 to 100 feet and existing structures would be replaced with taller structures along the existing right of way.
- A new approximate 9-mile, 138 kV line would be constructed from the Johnson Creek substation to a new substation at the mine site, partially within a former transmission line right-of-way. The right-of-way for the new transmission line would be approximately 100 feet wide. At the mine site, transformers would reduce the voltage from 138 kV to 24.9 kV for distribution to facilities on the mine site. Individual mine infrastructure would receive power through overhead distribution lines or underground conduits.
- Upgrade the substations located at Oxbow Dam, Horse Flat, McCall, Lake Fork, and Warm Lake ([Figure 3-1](#)).
- New construction of the Scott Valley and Thunderbolt Tap substations, and a new switching substation near Cascade (Cascade switching station). The existing Scott Valley substation would be removed.
- Power to the town of Yellow Pine would no longer be provided via the low voltage (12.5 kV) line from the Warm Lake substation. A new substation (Johnson Creek substation) would be built south of the Johnson Creek airstrip on NFS lands and will provide low voltage distribution to Yellow Pine.
- Reroute approximately 5.4 miles of transmission line to avoid the Thunder Mountain Estates subdivision. The reroute would parallel Warm Lake Road for approximately 2.4 miles before crossing onto BNF and IDL land for approximately 1.7 miles. The portion crossing IDL property will require a right-of-way easement. An additional 1 mile of 69 kV transmission would be required along Thunder City Road linking the existing transmission line out of Emmett to the reroute.
- Reroute approximately 0.9 miles of transmission line between Cascade and Donnelly to use an old railroad grade on private property. The relocated line would be approximately 600 feet north of the existing transmission line location.
- Installation of approximately 3 miles of new underground distribution power along Johnson Creek Road from the Johnson Creek substation south to Wapiti Meadows.

Construction, operation, and maintenance of the transmission line would require improvements to the transmission line access roads and construction of new access roads. During construction, the new section of transmission line between the Johnson Creek substation and Stibnite would require major improvements to Horse Heaven Road (FR 416W), NFS Trail 233 (no name), and approximately 4 miles of new spur roads would be constructed. Minor upgrades to Cabin Creek Road (FR 50467) would also be required.

This represents no material change to the proposed transmission line detailed in the ModPRO (DEIS Alternative 2) except for three miles of distribution power placed underground from the Johnson Creek Substation south to Wapiti Meadows.

### 3.4.2 Communication and Repeater Sites

Midas Gold installed a microwave relay tower in 2013, located on private land on a 9,000-foot peak to the east of the proposed mine site, for communications at the project site. Midas Gold's existing microwave relay ([Figure 3-1](#)) was designed and constructed to be scalable to accommodate potential future increases in communication requirements. However, since the microwave relay was constructed the regional hub on Snowbank Mountain reached capacity and will no longer provide the required bandwidth (1,000 Mbps) to Stibnite. Alternatively, Midas Gold in partnership with IPCo and local communication providers will add fiber optic cable to the transmission line between Cascade and Stibnite. The existing communication facilities would also need to be expanded at the mine site and along the Burntlog Route to facilitate two-way rapid communication between equipment operators and ground personnel, and to allow broadcast of emergency messages. The two-way radio system would be supported by a series of repeaters placed on public and private land.

A series of very high frequency (VHF) radio repeaters would be placed along the Burntlog Route as needed. The repeaters would be placed near the existing Meadow Creek Lookout and Thunderbolt Lookout communication sites, the new Burntlog Road Maintenance Facility, and on private parcels at the mine site, as needed. The 10-foot towers on 3-foot by 3-foot concrete pads would be supported by solar panels, support hardware, and a backup battery case. Each site would be accessed annually (at a minimum) or as required for maintenance. Given their location at existing or proposed facilities, no additional disturbance for equipment installation or access would be required for their construction and maintenance.

A cell tower also would be installed to facilitate area communications and would improve cell phone coverage for area residents as well as mine personnel. The proposed cell tower would be approximately 60 feet tall and would include surface disturbance of approximately 30 feet by 60 feet. The cell tower location would be near the proposed transmission line upslope of the Hangar Flats pit. Locating the cell tower upslope of the Hangar Flats pit would require installation of a new access road and/or upgrades to existing roads.

The cell and VHF tower locations presented here are similar to those proposed in the DEIS for Alternatives 1 through 4, which also considered optional tower locations. Alternative cell and VHF tower locations included in the DEIS were removed from consideration in the ModPRO2 as the above locations provide the best performance and are thus preferred siting locations.

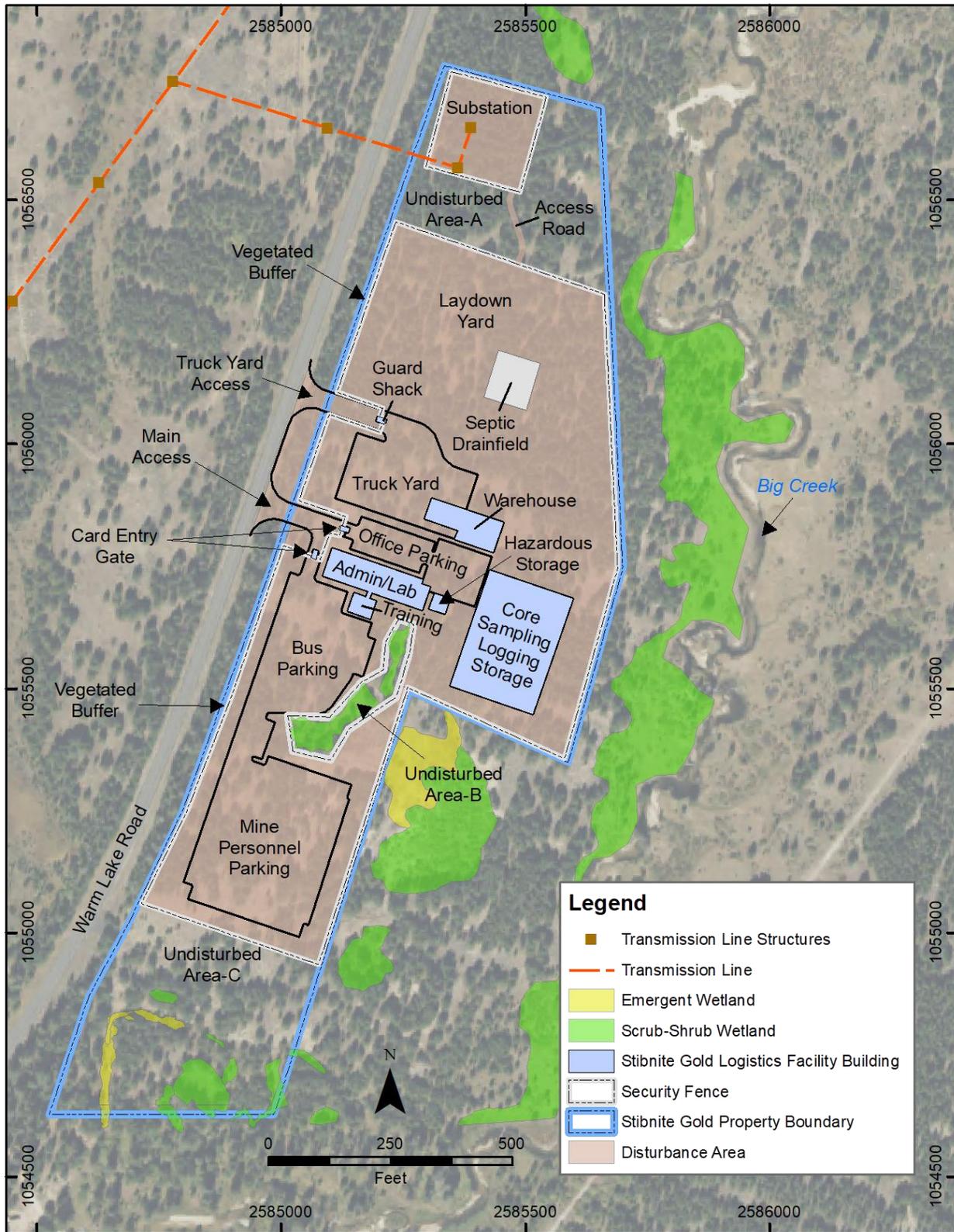
## 3.5 OTHER OFFSITE INFRASTRUCTURE

To support mine-related activities, Midas Gold would require an offsite facility that includes administrative offices, a transportation hub, warehouse, and an assay laboratory. These activities would occur at the Stibnite Gold Logistics Facility (SGLF). In addition to the support infrastructure located at the SGLF, year-round road maintenance and snow removal activities would be supported from the Burntlog Road Maintenance Facility (BRMF). The following sections describe these facilities.

### 3.5.1 Stibnite Gold Logistics Facility

The Stibnite Gold Logistics Facility (SGLF) would be located along Warm Lake Road on private land (approximately 7 miles northeast of Cascade). The SGLF property ([Figure 3-3](#)) is approximately 25 acres and would accommodate employee parking, an assay laboratory building, a core sampling logging storage facility, warehouses, laydown yards, equipment inspection areas, a truck scale, and an administration building for Midas Gold personnel and site safety orientation for personnel. Wetlands on the property would be fenced off and avoided during construction activities of these facilities. The parking and assembly area would accommodate approximately 300 light vehicles for employees using bus or van pooling to the mine site. To the degree practicable, Midas Gold would mandate the use of busing and vans for employee and contractor transportation to the mine site and the worker housing facility.

Figure 3-3 Stibnite Gold Logistics Facility Layout



Midas Gold would require supply truck drivers to check in at the SGLF and then direct them to either proceed to the mine site or unload at the warehouse for temporary storage and consolidation of their load. A truck scale would be located at the SGLF to verify loads going into or out of the warehouse area. The check-in process would include general safety and road readiness inspection of incoming trucks and equipment being transported to mine site. Heavy equipment transport vehicles would be inspected for items such as presence of weeds, excessive dirt on earth moving equipment, safety equipment, installed and maintained engine brake muffling systems, and general safety checks of equipment.

The SGLF would require a domestic groundwater well to service the facility. This well and associated water right would require permitting through the IDWR. Stormwater runoff during construction of the facility would be managed under a general permit through the IDEQ.

This represents no change to the proposed Stibnite Gold Logistics Facility for Alternatives 1 through 4 described in the DEIS.

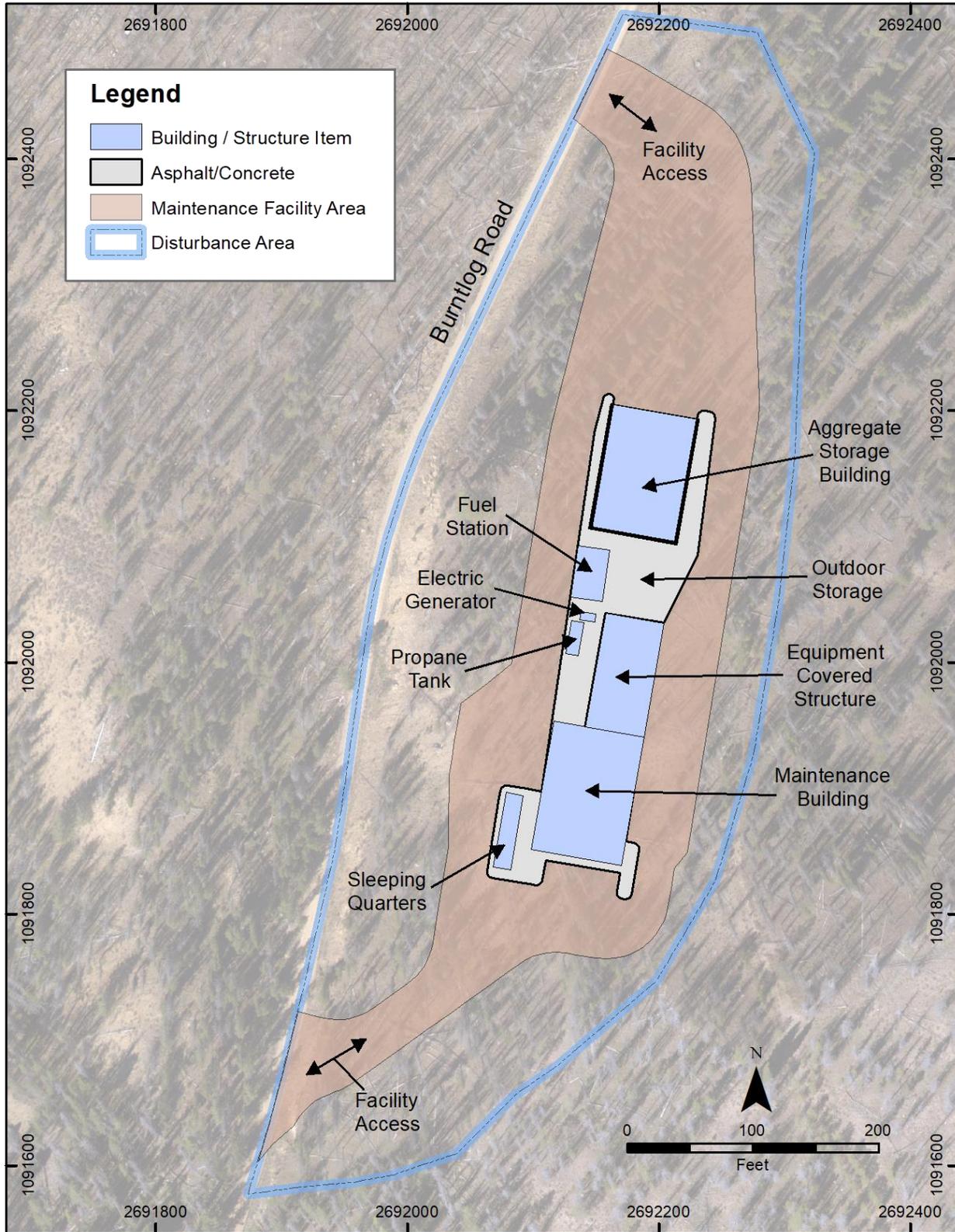
### **3.5.2 Burntlog Maintenance Facility**

The Burntlog Maintenance Facility ([Figure 3-4](#)) would be located on NFS land 4.4 miles east of the intersection of Warm Lake and Johnson Creek Roads and would be accessed via the Burntlog Road. The maintenance facility would be located within the footprint of a borrow source established for construction of the Burntlog Route. Facility structures would include a 7,500-square foot maintenance building; a 7,100-square foot aggregates storage building; a 4,300-square foot equipment shelter and an 825-square foot sleeping quarters. The maintenance building would house sanding/snowplowing trucks, snow blowers, road graders, and support equipment. Additional features of this facility may include covered stockpiles of coarse sand and gravel for winter sanding activities, and communications equipment.

This facility would include a double-contained fuel storage area housing three 2,500-gallon fuel tanks for on-road diesel, off-road diesel, and unleaded gasoline. Additionally, a 1,000-gallon used oil tank would be located inside the maintenance facility and a 1,000-gallon propane tank would be located at the facility for heating. Stormwater runoff during construction of the facility would be managed under a general permit through the IDEQ.

This represents no material change to the Burntlog Maintenance Facility described in the ModPRO (DEIS Alternative 2).

Figure 3-4 Burntlog Road Maintenance Facility Layout



## **3.6 SITE PREPARATION AND SUPPORT INFRASTRUCTURE**

### **3.6.1 Overview**

The SGP would require construction of surface facilities, mine site haul roads, and water management features. Additionally, removal of some legacy mining features would be initiated during the construction phase. Midas Gold would install 15 to 20 temporary trailers on private lands adjacent to the existing exploration camp to accommodate construction crews.

Prior to site preparation and construction of surface facilities, vegetation would be removed from operating areas. Merchantable timber on NFS surface lands could be purchased from the USFS. Non-merchantable trees, deadwood, shrubs, and slash would be removed, and any remaining vegetation would be grubbed using a bulldozer. The resulting material would be saved for future use in reclamation activities. Specifically, the organic matter would be chipped and stockpiled for use as mulch or blended to create a growth media additive. After vegetation removal, growth media would be salvaged and stockpiled. Stockpiles would be stabilized and seeded.

The existing potable water supply system at the existing SGP exploration camp would be used and expanded for the initial construction camp. The existing system would be supplemented with deliveries of potable water, if needed. Supplemental water sources (i.e., water deliveries) would be used by personnel in remote construction areas. Sanitation during construction would be provided through the existing sewage treatment system adjacent to the exploration camp. In addition, portable sanitary facilities would be located throughout the mine site and at remote construction areas.

Construction of the Burntlog Route would occur from both ends of the route at the same time on a seasonal basis (May to November), but construction could occur outside of those months if conditions allow. The southern portion workforce would be housed in three temporary trailer camps located within construction borrow sources or staging areas. The northern portion workforce would be housed at the temporary trailer construction camp at the mine site. Some construction workers could be housed in town of Cascade.

Pre-construction water management activities would include the installation of surface water management features and implementation of best management practices to reduce erosion and sediment delivery to streams. These water management features and best management practices could include sedimentation ponds; run-on water diversion ditches, trenches, and/or berms; runoff water collection ditches; silt fence; water bars; culverts; energy dissipation structures; terraces; and other features specified in construction permits.

This schedule of preparatory construction activity is similar to what is described in the ModPRO (DEIS Alternative 2).

### **3.6.2 Growth Media Stockpiles**

Suitable growth media material within the area proposed for operations would be salvaged for future reclamation following vegetation clearing and stockpiled either within the Fiddle valley, at the Worker Housing Facility, or in short-term growth media stockpiles (GMSs) within the footprint of the TSF. GMSs would be stabilized, seeded, and mulched to protect the stockpiles from wind and water erosion. Unconsolidated overburden (chiefly alluvial and glacial materials from Hangar Flats and Yellow Pine pits) would be stored in the upper lift of the TSF Buttress to allow future access for use as cover material for reclamation of the TSF, TSF Buttress and Hangar Flats pit backfill.

In comparison to the ModPRO (DEIS Alternative 2), the ModPRO2 includes a number of changes to the location and/or size of GMSs due to the elimination of the Fiddle DRSF, expansion of the TSF Buttress, reduced Hangar Flats pit size, consolidation of several smaller GMSs into a centralized GMS in Fiddle valley, and addition of contact water storage ponds.

### 3.6.3 Mine Site Borrow Sources

Various types of earth and rock material would be used from borrow sources for construction, maintenance, closure and reclamation activities. Most of these materials can be sourced at the mine site from existing development rock dumps, legacy spent heap leach ore, and from development rock removed as part of proposed surface mining and underground exploration activities. However, native materials would be required for some applications. Specific areas within the mine site that have large quantities of high quality native alluvial and glacial granular borrow materials for use include:

- The alluvial and glacial soils in the Meadow Creek valley floor within the footprint of the TSF, TSF Buttress, and Hangar Flats pit;
- The outwash soils in the lower Blowout Creek alluvial fan; and,
- Glacial soils in the Fiddle Creek valley walls, within the footprint of the Fiddle GMS.

This represents no change to the mine site borrow sources detailed in the ModPRO (DEIS Alternative 2) except that there will be minimal materials borrowed from the Fiddle valley due to the elimination of the Fiddle DRSF.

### 3.6.4 Mine Support Infrastructure

Onsite infrastructure to support the SGP mining and ore processing operations would include the following:

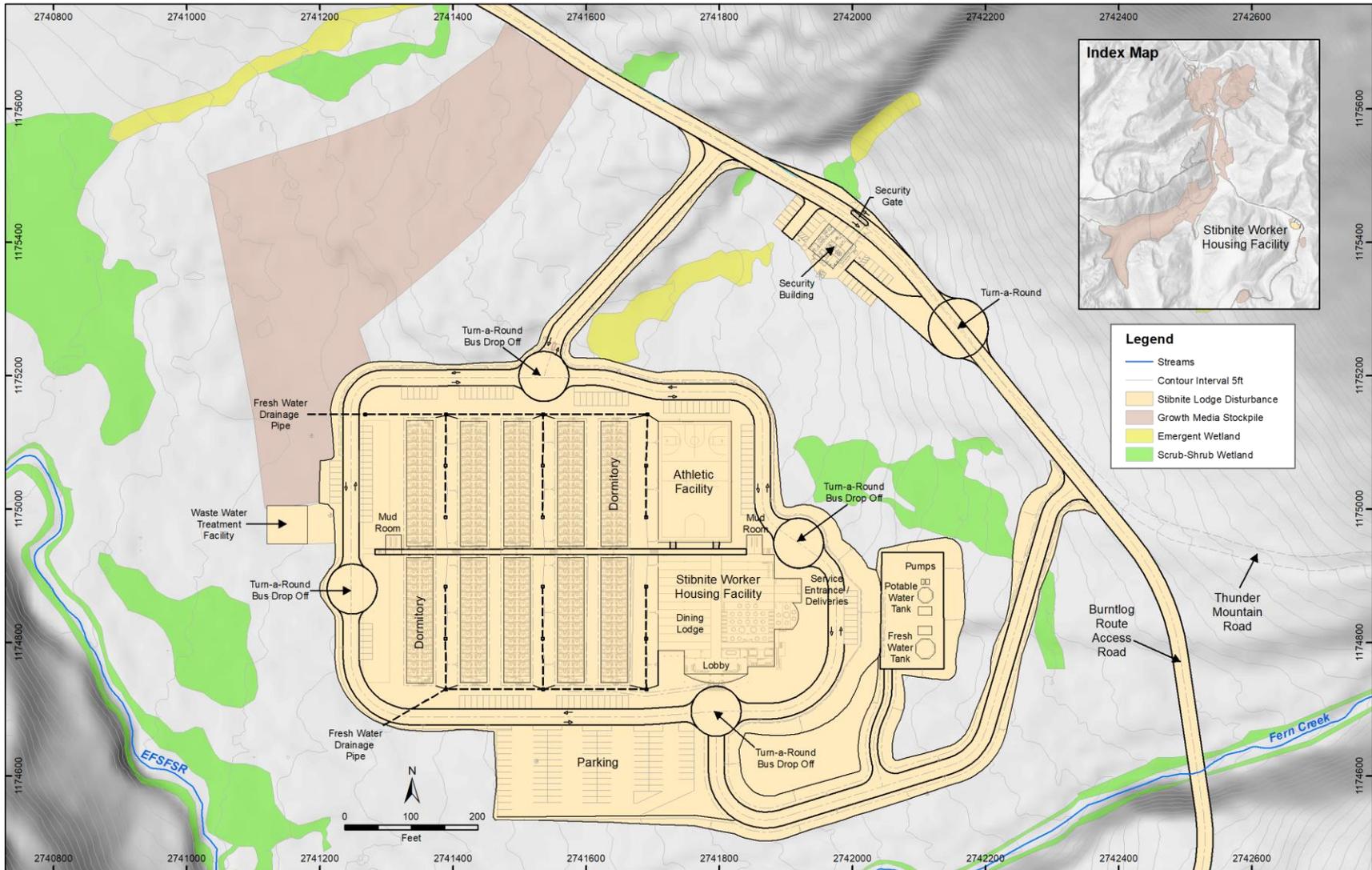
- A modular one-story mine administration building that would include offices for site management, environmental staff, and other administrative and technical staff.
- A maintenance workshop that would store materials and supplies as discussed in [Section 3.11](#).
- A truck wash facility that would include an oil/water separation system and water treatment facilities to enable reuse of the wash water.
- A worker housing facility that would be constructed on NFS lands adjacent to Thunder Mountain Road (FR 50375) and would accommodate approximately 500 people ([Figure 3-5](#)). The worker housing facility could include indoor multiuse areas and outdoor recreation facilities that could include a sports field and cross-country ski trails across federally administered land.
- Haul roads which would be required within the mine site to transport ore, development rock, and reclamation materials from mining or storage areas, and to transport vehicles to the maintenance workshop. A typical haul road would be approximately 87 feet wide. The haul roads would be built and maintained for year-round access and would be surfaced with gravel aggregate. Road maintenance activities would be conducted to manage fugitive dust emissions and maintain stormwater management features.
- Culverts would be installed where haul roads cross drainages or to direct stormwater to collection and retention structures. Culvert inlets and outlets would be lined with rock riprap, or equivalent, as needed to prevent erosion and protect water quality. Crossings of known fish-bearing streams would be constructed to support fish passage, with either appropriately designed and constructed culverts or bridges.
- Service roads and trails that would provide an internal access system for employees and visitors to the site. The service roads would typically be 12 to 15 feet wide. Some would be covered with gravel aggregate, while others would be dirt, two-track roads. There would be no planned public use of the mine site service roads or trails. The trail system would enable pedestrian traffic to move safely throughout the mine site operating area.
- Employee and visitor parking that would be maintained during construction and operations. During construction, the gravel parking areas would be located at the new worker housing facility, near the contractor/construction laydown areas, and at the Scout Portal. As operations are initiated, gravel parking areas would be maintained for buses, vans, and other miscellaneous vehicles for employees, contractors,

vendors, and visitors at the new worker housing facility, at the shop area, and near the on-site mine administration office.

- Stormwater runoff associated with the above construction would be managed under a general permit through the IDEQ.

In comparison to the ModPRO (DEIS Alternative 2) refinements to mine support infrastructure would include elimination of Fiddle DRSF haul roads except for an access road for the Fiddle GMS, re-configuration of Hangar Flats pit haul roads, relocation of EFSFSR haul road crossing and revision to timing of all pit haul roads.

**Figure 3-5 Stibnite Worker Housing Facility**



### 3.7 MINING

#### 3.7.1 Mining Schedule

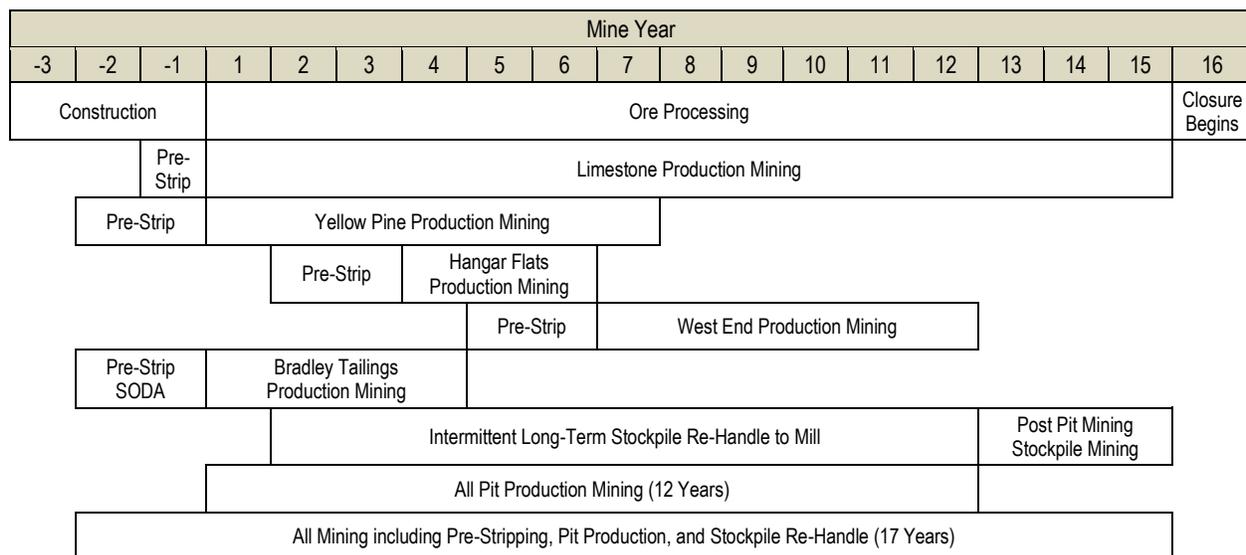
Mine construction and operations at the SGP would occur year-round for approximately 17 years (Year -2 to approximately Year 15). Open pit mining methods are proposed in the area of two historical open pit mines (Yellow Pine and West End) and one new open pit (Hangar Flats).

In general, ore mined from the three open pits would be hauled directly to the primary crusher area; however, during extended periods when the ore tonnage or ore type from the pits exceed the availability of the ore processing plant, the ore would be stockpiled and processed at a future time. Development rock (also commonly referred to as waste rock) would be hauled to the TSF embankment or placed in one of four destinations; the TSF Buttress; the mined-out Yellow Pine open pit; the mined-out Hangar Flats open pit, or the Midnight area within the mined-out West End open pit.

Mine operations would begin with pit pre-stripping during the second year of construction and end in year 15 of operations once the long-term stockpiles have been re-handled to the ore processing plant. [Figure 3-6](#) illustrates the mine operations activities schedule.

The ModPRO2 mining schedule is not materially different from the mining schedule for all DEIS alternatives.

**Figure 3-6 Mine Operation Activity Schedule**



#### 3.7.2 Open Pits

The SGP mine plan includes three open pits: Yellow Pine, Hangar Flats and West End. [Figure 3-2](#) shows the general location and extent of the three pits.

The Yellow Pine pit would be in the northern portion of the proposed mine site, in the same general location as a historical open pit mining area that currently has a pit lake formed from inflow to a previously mined open pit (Yellow Pine pit lake) fed by the EFSFSR, and the shallow mining area to the northeast previously mined as the Homestake pit.

The West End pit would be in the northeast portion of the proposed mine site, east of and at a higher elevation than the Yellow Pine pit, generally situated between Sugar Creek to the north and Midnight Creek to the south. The West End pit would be in the same general location as historical open pit mining where multiple open pits, mine benches, waste rock dumps, and areas of deep backfill exist. The Hangar Flats pit would be in the central portion of the proposed mine site, generally encompassing steep south and southeast facing slopes and the adjacent Meadow Creek valley floor. Past mining activity in this area was primarily underground but the proposed pit would also encompass the former Bradley mill and smelter area, the Hecla heap leach facility, and some of the Stibnite Mines Inc. leach pads. [Table 3-2](#) provides a summary of the physical characteristics for each pit.

The ModPRO2 represents no change to the number and location of the proposed open pits detailed in the DEIS for all Alternatives 1 through 4. However, the overall tonnage mined from the pits is 44 million tons less resulting from an approximately 70% smaller Hangar Flats pit, a 3% smaller Yellow Pine pit and a 20% larger West End pit. This updated mine plan also reduces the time that concurrent mining of multiple pits occurs. Since the Hangar Flats pit is now proposed to be completely backfilled, there will be no post-operations Hangar Flats pit lake. The Midnight pit would be backfilled with development rock as proposed in the ModPRO (DEIS Alternative 2).

**Table 3-2 Summary of Mine Pit Physical Characteristics**

Characteristic	Yellow Pine Pit	West End Pit	Hangar Flats Pit
Area (acres)	222	185	66
Pit Bottom Elevation (ft amsl)	5,360	6,180	6,080
Pit Depth Below Pit Spill Elevation <sup>1</sup> (ft)	720	440	460
Highwall Height Above Pit Spill Elevation <sup>1</sup> (ft)	600 for western highwall 900 for eastern highwall	1,000 highwalls	800 for northwestern highwall
Approximate Tonnage Mined (in million tons)	163	198	31
Disposal Location of Development Rock	TSF Embankment, TSF Buttress, Yellow Pine backfill	Yellow Pine backfill, TSF Buttress, Hangar Flats backfill, TSF Embankment, Midnight backfill	TSF Embankment, TSF Buttress, Yellow Pine backfill
<b>Table Notes:</b>			
1. The Spill Elevation is the theoretical elevation of a water surface where the pit would begin to spill if it were filled with water.			

### 3.7.3 Drilling and Blasting

Drilling and blasting would be used to remove ore and development rock from the mine pits. Following drilling, blasting would use explosives to break rock into fragments that are suitable for loading into equipment. The predominant explosive used to break rock within the pit would be a mixture of ammonium nitrate fuel oil (ANFO) and emulsion. ANFO consists of 6% fuel oil and 94% ammonium nitrate. Emulsion is similar to ANFO except it is produced as a water-resistant slurry of inorganic oxidizer gelled with a carbonaceous gelling agent. A blend of ANFO and emulsion, referred to as heavy ANFO, would be mixed onsite and loaded into blast holes. Due to emulsion's resistance to moisture, the heavy ANFO blend would vary for each blast pattern depending on the amount of moisture in the blast holes.

An Explosives and Blasting Management Plan would be prepared for the SGP. Explosives storage, transport, handling, and use would comply with applicable Department of Homeland Security, Bureau of Alcohol, Tobacco, Firearms and Explosives, and Mine Safety and Health Administration regulations.

This represents no change to the drilling and blasting detailed in the DEIS for Alternatives 1 through 4.

### 3.7.4 Loading and Hauling

Production mining would be done using a conventional diesel truck and shovel fleet consisting of two 29-cubic yard class shovels, approximately sixteen 150-ton class haul trucks, and one 28-cubic yard class wheel loader. The wheel loader would be used primarily to load haul trucks during shovel maintenance and to load stockpiled ore as needed. Mine development excavation required to establish haul truck access roads, access limestone, and pre-strip pits prior to production mining would be done using a fleet of medium sized excavators, wheel loaders, and 45-ton class articulated trucks. This development fleet would also be used to salvage growth media and support reclamation activities.

Other than minor changes to the scale and quantity of the loading and hauling equipment, the ore and development rock loading and hauling approach is not materially different from that detailed in the DEIS for Alternatives 1 through 4.

### 3.7.5 Mine Dewatering

Partial dewatering of the alluvial and bedrock groundwater would occur prior and concurrent to mining the open pits. Dewatering would be accomplished by drilling shallow alluvial and deeper bedrock wells adjacent to the pit perimeters, as necessary, to intercept and pump groundwater before it flows into the pit. In-pit sumps would collect additional groundwater seepage and in-pit surface water runoff for reuse or treatment during mining operations. Water from the pits would also serve as a source of water for the ore processing plant. Additional details on pit water management can be found in [Section 3.10.3.6](#).

This represents no change to the mine dewatering detailed in the DEIS for Alternatives 1 through 4.

### 3.7.6 Ore Management

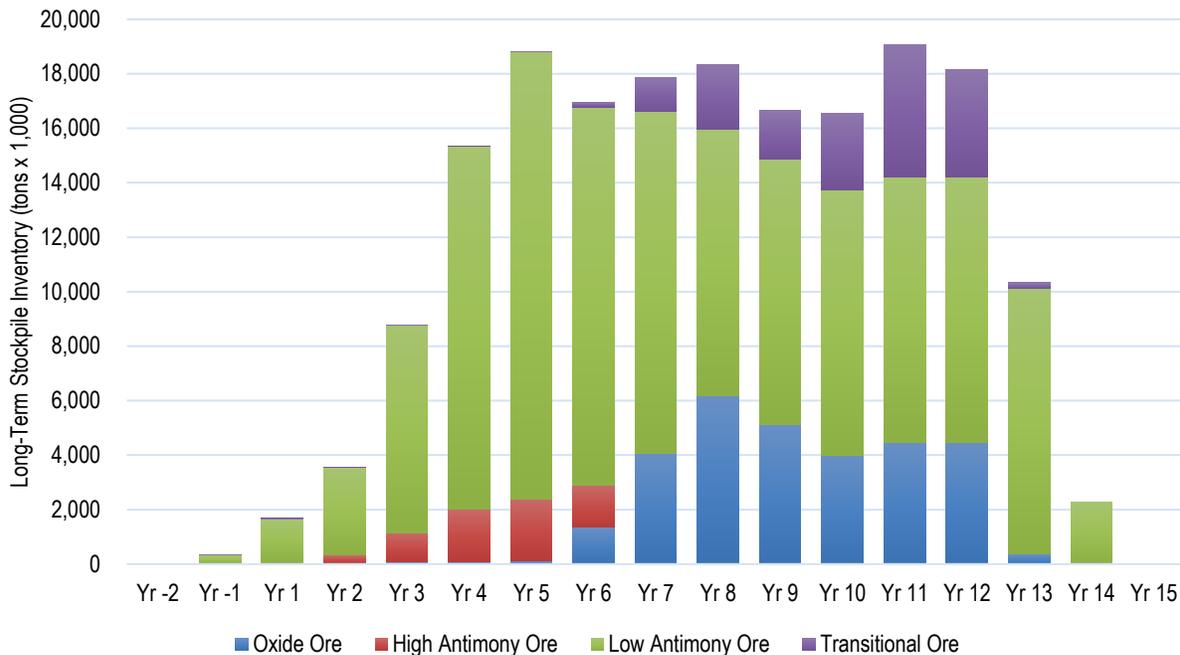
Typically, ore from the open pits is hauled to and placed directly at the ore processing plant. However, during periods when the ore tonnage or ore type from the open pits exceed the availability of the ore processing plant, the excess ore would be stockpiled for processing at a future time. In the ModPRO2, seven long-term ore stockpiles and one short-term stockpile would be established to manage the excess ore. The long-term ore stockpiles would be located on and near the TSF Buttress and Hangar Flats pit and the short-term stockpiles would be located near the crusher.

Typically, the highest-grade ore would be sent directly to the crusher, or to the short-term stockpile area where it would likely be processed within a few days, while the lower-grade ore would be sent to the long-term ore stockpiles where it would typically remain for months or longer. Some of the ore sent to the low-grade ore stockpiles would be re-handled during active mining operations, and some would be re-handled once open pit mining has ceased. If metal prices do not support processing of some of the long-term stockpiles, the material will be covered as part of DRSF closure activities (see [Section 3.14](#)).

Three of the seven long-term ore stockpiles would be located within the TSF Buttress on pads constructed along the north side of the valley. Two stockpiles would be located adjacent to the Hangar Flats pit and extended onto the pit footprint after it is backfilled. A stockpile within the West End pit footprint would be constructed to temporarily stockpile ore mined during West End road development and pre-stripping. Lastly, the short-term stockpile base would be extended to the south for additional ore stockpile capacity near the primary crusher. Ore storage in long-term stockpiles peaks in Year 11 with approximately 19 million tons as shown on [Figure 3-7](#). Contact water from stockpile runoff and toe seepage would be collected and managed similarly to that from any disturbed surface.

This represents no change to the ore handling detailed in the DEIS for Alternatives 1 through 4, except for the expansion of the short-term ore stockpile area near the processing plant, and the segregation, stockpiling, re-handling, and processing of low-grade rock, if supported by metal prices.

Figure 3-7 End of Year Long-Term Stockpile Inventory by Ore Type



### 3.7.7 Development Rock Management

Daily development rock production would vary based on the mine plan, and the delineation of ore and development rock as determined through production pit mapping and analysis of blast hole cuttings in the grade control program. Approximately 280 million tons of development rock from active mining areas would be used to construct the TSF embankment and buttress or placed in the mined-out pits, as described in Table 3-3.

It should be noted also that ModPRO2 terminology related to development rock management differs from that which is included in the DEIS. Whereas the West End DRSF (removed in the ModPRO) and the Fiddle DRSF are not part of the ModPRO2, and development rock is rehandled into pit backfill or incorporated into the TSF embankment and buttress, the term “DRSF” is avoided in the ModPRO2 to identify features that incorporate development rock. Preferred terminology for development rock repositories are included in Table 3-3 and illustrated in [Figure 3-2](#). The term “DRSF” is still utilized in some instances (i.e., in the description of the temporary development rock storage feature in the West End pit).

The ModPRO 2 includes an overall reduction in the cumulative disturbance acreage and volume of open pits; this results in a reduction of approximately 44 million tons of development rock relative to the tonnage included in Alternatives 1 through 4 of the SGP DEIS.

**Table 3-3 Development Rock Management Summary**

Characteristics	TSF Buttress <sup>1</sup>	Hangar Flats Backfill <sup>1</sup>	Midnight Backfill	Yellow Pine Backfill	TSF Embankment <sup>3</sup>
Location	Meadow Creek valley southwest of Hangar Flats pit	Backfill into the Hangar Flats pit	Backfill into south portion of West End pit north of Midnight Creek	Backfill into the Yellow Pine pit	Meadow Creek valley west of the TSF Buttress
Source of Development Rock	Hangar Flats pit, Yellow Pine pit, West End pit	Yellow Pine pit and West End pit	West End pit	West End pit, Yellow Pine pit, and Hangar Flats pit	Hangar Flats pit, Yellow Pine pit, and West End pit, SODA and Hecla heap leach legacy materials
Tonnage (in million tons) <sup>2</sup>	81	18	7	113	61
Area (acres)	120	41	18	180	88
Height (ft)	460	460	320	740	Initial embankment: 245 Final embankment: 460
Steepest Surface Grade (Horizontal:Vertical)	Overall 3:1	Approximately 60:1 matching original valley slope	3:1 north (pit) side 2:1 south side matching undisturbed slope	Varies from 5:1 to approximately 2.5:1	2:1 inter-bench (upstream) 2:1 overall (downstream) TSF slopes would be approved as part of the IDWR dam permit
<b>Table Notes:</b>					
1. The TSF Buttress was formerly referred to as the Hangar Flats DRSF. To be consistent with the naming convention used for the other backfilled pits, the ModPRO2 uses the term Hangar Flats backfill for the backfilled Hangar Flats pit.					
2. Limited amounts of development rock would be used to construct haul roads and pad areas for site facilities. In addition, some development rock may be crushed and screened for use as road surfacing material and/or concrete aggregate. The Development Rock Management Plan, to be developed once the preferred alternative is identified, would specify testing to determine which development rock can be used for these applications.					
3. The source of development rock includes material from the Spent Ore Disposal Area (SODA) and the Hecla heap leach facility.					

The TSF Buttress would be built by first constructing a ramp along the north side of the valley to access the crest of the TSF Embankment and upper portions of the buttress. The TSF Buttress would then be constructed upwards to further access TSF embankment lifts while the base expands down the valley (eastward) as historical spent ore and legacy tailings are removed from the valley bottom. This method of construction would allow for controlled material placement across the valley from the ramp north of the valley to the south side.

After the main portion of the Yellow Pine pit has been mined and mining commences in the northern Homestake portion of the pit, development rock would be end-dumped into the Yellow Pine pit as backfill. The dumped development rock would not be mechanically compacted, except as it nears the final reclaimed surface elevation of the backfilled area. The upper lifts of the backfill would be placed by direct dumping and compaction. The final backfilled surface would be contoured to provide positive drainage toward the EFSFSR and Stibnite Lake, a feature constructed within the lined EFSFSR corridor. The inclusion of Stibnite Lake in the Yellow Pine pit backfill would help buffer temperature extremes in the EFSFSR, as discussed in [Section 2.2.4](#). Development rock to backfill the Yellow Pine pit will be sourced predominantly from the West End pit, with minor backfill originating from the Yellow Pine and Hangar Flats pits. [Section 3.14.6](#) includes additional details of the backfilled pit and final reclamation configuration.

Once mining ceases at the Hangar Flats pit, development rock to backfill the Hangar Flats pit will be sourced predominantly from the West End pit.

The Midnight pit, a portion of the West End pit in the south-east corner of the pit near Midnight Creek, would be backfilled concurrent to mining the West End pit, with development rock from the West End pit, once mining in the area to be backfilled is completed.

In addition to the permanent development rock storage described above, a temporary DRSF would be constructed within the West End pit limit during road construction and pre-stripping activities. This temporary DRSF would contain approximately 2.5 million tons and serve as the base for the West End In-Pit stockpile. The purpose of this DRSF is to reduce the need for mixing the smaller development haul truck traffic with production haul truck traffic for safety purposes, and to provide a base for stockpiling ore encountered during road development and pre-stripping within the West End pit. Since this is a temporary DRSF entirely within the footprint of the proposed West End pit, it will be re-handled during regular mining operations at the West End pit and relocated to other facilities for permanent development rock storage.

Surface water and groundwater management for facilities that permanently store development rock are discussed in [Section 3.10](#). A Development Rock Management Plan (DRMP), which will provide active management for development rock produced and stored across the mine site during operations will be submitted as a supporting document to this ModPRO2, and a final DRMP will be prepared as part of the final mine plan.

The ModPRO2 approach to development rock management improves upon the ModPRO (DEIS Alternative 2) plan by eliminating the Fiddle DRSF and fully backfilling the Hangar Flats pit. This plan eliminates the Hangar Flats pit lake while maintaining a similar quantity and quality of spawning habitat in Meadow Creek relative to the ModPRO.

### **3.7.8 Spent Ore and Legacy Tailings Removal in Meadow Creek Valley**

While the TSF Buttress is being built, Midas Gold would remove and reuse approximately 7.5 million tons of spent ore currently in legacy mine deposits – the Spent Ore Disposal Facility (SODA), the Hecla Heap Leach Pad, and the Stibnite Mines Inc. Leach Pads – and remove and reprocess the 3 million tons of Bradley tailings underlying the SODA. During the first four or so years of operations, the legacy tailings would be mixed with water and pumped to the ore processing facilities. The temporary water addition and pumping facility would be an enclosed, heated structure located within the limits of the SODA area. The SODA materials would be excavated and hauled to the TSF for use as construction material. The historical Hecla and Stibnite Mine Inc. spent ore heap leach pads also would be excavated and could be used as construction materials. Physical and chemical testing of the legacy material would determine if the material is suitable for construction uses and final placement of the material. If additional legacy materials are encountered during construction they would be removed and hauled offsite to an appropriate disposal facility, placed in the TSF or used as pit backfill, or left in place, depending on testing to determine physical and chemical suitability.

Legacy development rock excavated as part of mining operations that is not used for TSF construction purposes or reprocessed would be placed in pit backfill. Solid waste encountered such as metal, plastic, or wood would be hauled offsite for disposal in a solid waste disposal facility or stored in the onsite solid waste disposal facility located on private land.

This represents no change to the handling of legacy spent ore and legacy tailings in the Meadow Creek valley versus that proposed in Alternatives 1, 2 and 4 of the DEIS.

### **3.7.9 Ore Processing Facility Ore Feed Schedule**

Approximately 115 million tons of ore would be processed during the approximately 15-year process facility operation. A summary of ore sources is provided in Table 3-4.

**Table 3-4 Processing Facility Ore Source Summary**

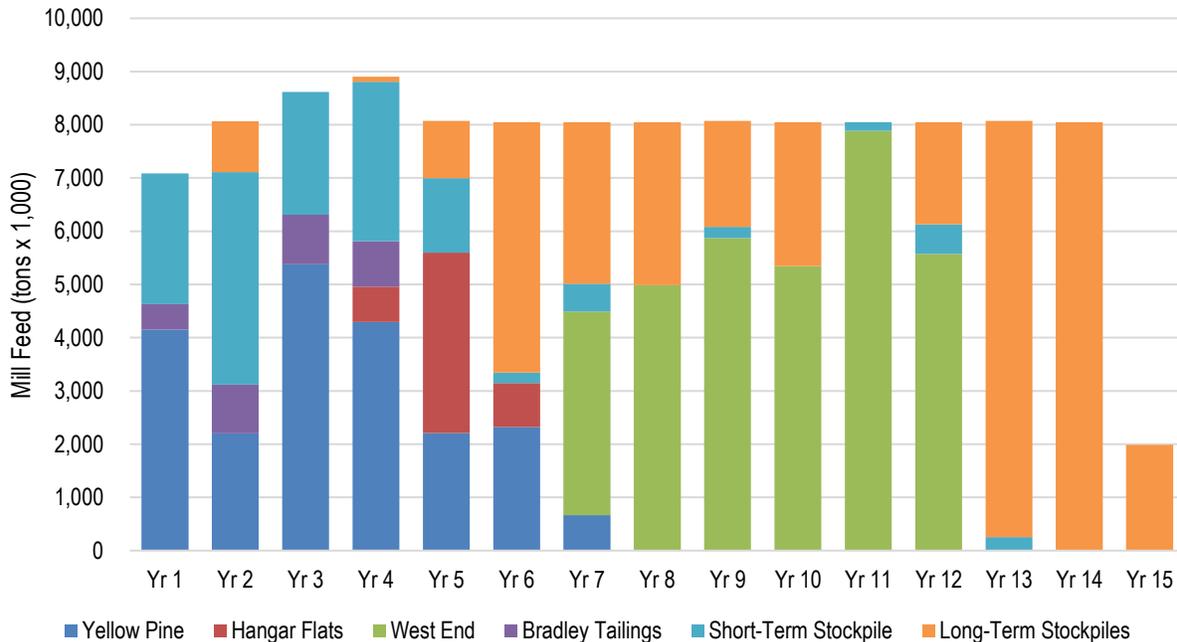
Ore Source	High Antimony Sulfide Ore (kst <sup>1</sup> )	Low Antimony Sulfide Ore (kst)	Oxide Ore (kst)	Transitional Ore (kst)	Total Ore (kst)
Yellow Pine Pit	15,944	36,798	-	-	52,742
Hangar Flats Pit	4,935	4,176	-	-	9,111
West End Pit	-	5,417	15,963	28,832	50,212
Bradley Tailings	-	3,164	-	-	3,164
<b>Total Ore Mined</b>	<b>20,879</b>	<b>49,554</b>	<b>15,963</b>	<b>28,832</b>	<b>115,228</b>

<sup>1</sup> thousand short tons

Ore feed for processing can be sourced from either the open pits, Bradley Tailings, the short-term stockpile, or long-term stockpiles. Typically, ore would be hauled directly from the pit to the primary crusher whenever the mill is capable of receiving the ore based on grade and metallurgy. If the ore requires short-term stockpiling due to process constraints or haul truck congestion at the primary crusher, it would likely be placed in the short-term stockpile. Ore that is lower value than other ore available at the time of pit mining would be placed in long-term stockpiles. Process facility ore source by year is shown on Figure 3-8.

The 115 million tons of ore in Table 3-4 compares to approximately 100 million tons in Alternatives 1 through 4 of the DEIS. The increase in tonnage results from processing additional low-grade rock that was formerly characterized as development rock, not from materially increasing the size of the open pits. The ModPRO2 includes a 10% reduction in the overall tonnage of mined rock in comparison to Alternative 1 through 4 of the DEIS.

**Figure 3-8 Processing Facility Ore Source by Year**



## 3.8 ORE PROCESSING FACILITIES

### 3.8.1 Ore Processing Overview

Approximately 115 million tons of ore would be processed through the SGP ore processing plant during the approximately 15-year operational life of the facility. At full operation, the plant would process ore at a rate of 20 to 25 thousand tons per day.

Ore would be hauled and dumped into the crusher, either directly from one of the three open pits or from the ore stockpiles and would proceed through a series of crushing and grinding steps to reduce the size of the rock to liberate the gold-, silver- and antimony-bearing minerals from the host rock. A layout of the ModPRO2 ore processing facility and associated support infrastructure is shown on [Figure 3-9](#).

The ore processing area would be designed to provide for containment of ore processing materials, chemicals, wastes, and surface runoff. Potentially hazardous chemicals and wastes would be stored within buildings or areas with both primary and secondary containment. Surface runoff within the ore processing area would be directed to a contact water pond for collection. Leaks or spills escaping primary and secondary containment would flow to the contact water pond for collection and would not discharge off site. Containment for each stage of the ore processing is described below. The ore processing flowsheet is shown on [Figure 3-10](#).

The processing would result in production of an antimony concentrate, gold- and silver-rich doré, tailings and other waste products. Tailings disposal is discussed in [Section 3.9](#).

This represents no material change to the ore processing described in the DEIS for Alternatives 1 through 4, except for the addition of a cooling circuit and the elimination of the solid liquid separation circuit, as discussed in [Section 2.2.6](#).

### 3.8.2 Crushing and Grinding

Mined ore would be hauled to the crusher and typically direct-dumped into the jaw crusher or stockpiled at the uncovered run-of-mine stockpile area near the crusher; stockpiled ore would be loaded into the crusher dump pocket, based on crusher availability, using a loader. Surface water runoff from the run-of-mine ore stockpile area would report to a pond and be used in the ore processing facility, see [Section 3.10.1.3](#).

Following crushing, the crushed ore would report via conveyor to a dome-shaped, covered stockpile. Apron feeders below the crushed ore stockpile would convey the ore to a semi-autogenous grinding mill, followed by a ball mill, for additional size reduction of the ore. Grinding would occur within an enclosed building to reduce noise levels and facilitate maintenance of the milling equipment. Dust emission controls would reduce dust from crushing, conveying, and stockpiling. Grinding would reduce the ore to the size of fine sand for further processing.

This represents no change to the crushing and grinding described in the DEIS for Alternatives 1 through 4.

### 3.8.3 Onsite Lime Generation

Ground limestone and lime are needed for pH adjustment in the SGP ore processing plant. Rather than trucking these materials to site from an off-site source, a limestone/marble unit in the West End pit is of suitable quality and quantity to satisfy the life-of-mine SGP requirements. Approximately 130 to 318 thousand tons of limestone/marble would be mined annually, averaging approximately 240 thousand tons per annum. Approximately 25 to 30 percent of the limestone mined would be processed through a kiln to produce metallurgical lime, and the remaining 70 to 75 percent of the material would be crushed and ground for direct use as ground limestone. Both ore and limestone would be temporarily stored at the short-term ore stockpile area. The use of limestone directly and to create lime represents a beneficial use of what would otherwise be managed as development rock.

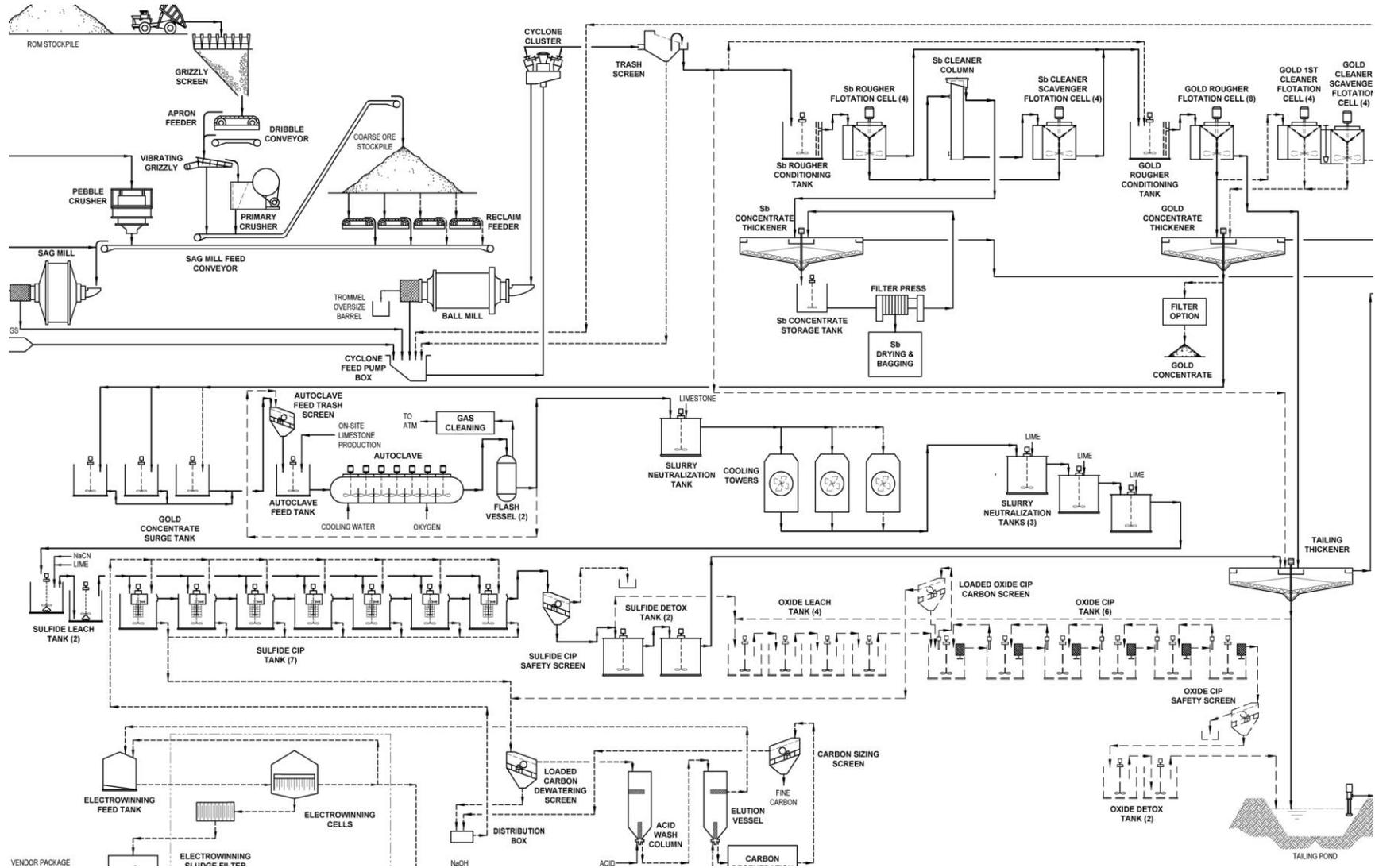
Onsite lime generation equipment located at the ore processing area would include: limestone crusher and conveyor; propane-fired kiln (200 tpd output capacity); kiln combustion air system including preheat heat exchanger; propane storage tank plus vaporizer; air compressor, receivers, and dryers for plant air and instrument air at kiln area; roll crusher for kiln product discharge; conveyors for moving feed and product materials; off-gas fume filter for kiln discharge; dust collector kiln feed bin; and storage bins for kiln feed material and lime products.

The limestone crusher, screens, conveyors, and feed bins would not be enclosed. Dust would be controlled in a similar manner to the ore crushing and conveying process using water sprays and/or bag house dust collectors.

This represents no change to the onsite lime generation described in the ModPRO (DEIS Alternative 2).



**Figure 3-10 Ore Processing Facility Flowsheet**



### 3.8.4 Antimony Concentrate Flotation and Dewatering

The purpose of the antimony flotation circuit is to selectively separate stibnite (antimony sulfide) from the ground mill feed. An estimated 15 to 20 percent of the total mill feed would contain sufficient antimony grades to warrant this process step. The remaining 80 to 85 percent of the mill feed would be subject to gold and silver recovery methods only (see [Section 3.8.6](#)).

Following grinding, the ground ore would be mixed with water, lime, and sodium cyanide or equivalent; the sodium cyanide is added to inhibit flotation of gold-bearing minerals (pyrite, and arsenopyrite) in the antimony flotation circuit. Lead nitrate or equivalent is added and then a sulfur- and phosphate-bearing organic chemical. These chemicals make the antimony-bearing particles hydrophobic where the particles then attach to air bubbles and float to the surface in the agitated flotation tanks. The gold-bearing mineral particles that do not adhere to the bubbles in the flotation tanks would drop to the bottom of the flotation tanks and be routed to the gold flotation circuit for further processing.

At the top of the tanks, the stibnite-laden bubbles form a froth layer, which would be allowed to overflow. The overflow froth would be subjected to one or two additional flotation steps. The resultant antimony-rich concentrate would be thickened, filtered, and the filtered antimony concentrate would be approximately 8 percent water by weight and ready for shipment to an off-site refinery.

This represents no change to the antimony concentrate flotation and dewatering detailed in the DEIS for Alternatives 1 through 4.

### 3.8.5 Antimony Concentrate Transport

The antimony concentrate would contain approximately 55 to 60 percent antimony by weight. The remaining 40 to 45 percent of the concentrate is predominantly sulfur (as sulfide in the stibnite) and common rock, with trace amounts of gold, silver, and mercury.

The antimony concentrate would be loaded into 2-ton sealed supersacks at site and hauled on flatbed trucks to the Stibnite Gold Logistics Facility (SGLF) via the Burntlog Route. Approximately one to two truckloads of antimony concentrate would be hauled off site each day. The supersacks would be offloaded at the SGLF, then loaded into 20-ft containers. From there the concentrate would be trucked via State Highway 55 to a commercial truck, train, barge or ship loading facility depending upon the refinery location. The concentrate, when sold, would likely be shipped to facilities outside of the US for smelting and refining because there are currently no such facilities operating in the US with capacity for refining antimony sulfide concentrate. There are US companies with refining equipment facilities and expertise that could potentially be brought online at some future date to refine antimony sulfide concentrate; however, Midas Gold does not have contracts in place with these companies and their ability to handle these concentrates has not been determined.

This represents no change to the antimony concentrate transportation detailed in the DEIS for Alternatives 1 through 4.

### 3.8.6 Gold and Silver Flotation

The purpose of the gold and silver flotation circuit is to separate the gold- and silver-rich minerals (pyrite and arsenopyrite) from the host rock. The circuit would be housed in a steel frame building set on concrete foundations with interior curbing to provide secondary containment; the interior curbing would be high enough to contain 110 percent of the volume of the largest tank. Both the gold and silver, and antimony flotation circuits would be contained in the same building.

Gold and silver flotation is a process similar to that described for antimony flotation using different chemicals to float the pyrite and arsenopyrite. The flotation bubbles, with particles containing gold and silver, are collected and pumped to the concentrate thickener for processing by pressure oxidation. The particles from flotation that do not float become tailings. The gold and silver concentrations of the tailings would be regularly monitored, and if the concentrations are high enough to warrant further processing, they would be sent to the leaching circuit; otherwise, the tailings would be thickened and neutralized then routed to the TSF as described below.

This represents no change to the flotation of gold and silver detailed in the DEIS for Alternatives 1 through 4.

### **3.8.7 Pressure Oxidation and Neutralization**

A pressure vessel (autoclave) system would be used to liberate the gold and silver particles from the pyrite and arsenopyrite flotation concentrate. Before the concentrate is pumped into the autoclave, it would be mixed with appropriate amounts of ground limestone to maintain a constant free acid level of approximately 10 grams per liter (g/L) in the autoclave. This value was established through bench and pilot-scale metallurgical testing to promote the formation of stable, crystalline arsenic compounds in the autoclave. Oxygen would be injected into the autoclave to promote the oxidation reaction, and the temperature in the autoclave would be maintained at approximately 220 degrees Celsius; water would be injected into the vessel, as needed, to control the temperature.

The oxidized concentrate from the pressure oxidation circuit would be neutralized in two steps, first to pH 4.5 with limestone, and then to pH 10.5 with lime. Between the two stages of neutralization, the slurry is cooled in two forced-draft cooling towers where the slurry is sprayed down from the top of the tower and cooled by rising air blown in from the bottom. The neutralized slurry would be sent to the leach circuit for recovery of gold and silver.

When increasing arsenic levels are observed, the slurry would be treated with hot arsenic cure (HAC) prior to neutralization. This would involve keeping the autoclave discharge at 92 degrees Celsius for 5 hours in agitated tanks with small additions of limestone. Metallurgical tests showed that this process promotes formation of the stable crystalline form of the arsenic precipitate enhancing environmental stability of arsenic.

This represents no change to the pressure oxidation and neutralization detailed for DEIS Alternatives 1 through 4 except for the addition of the cooling circuit and the hot cure circuit, and the elimination of the solid-liquid separation circuit, as discussed in [Section 2.2.6](#).

### **3.8.8 Gold and Silver Leaching & Carbon Adsorption**

Gold and silver leaching of the oxidized and neutralized concentrate would occur in agitated, steel tanks that would be fully contained to capture, retain, and recycle process solutions. Sodium cyanide would be added to the tanks to promote formation of a gold-silver-cyanide complex; activated carbon would be added to the tanks to promote the adsorption of the gold-silver-cyanide complex onto the carbon particles. The pH of the slurry in the leach circuit would be closely managed to maintain the cyanide in a stable soluble form.

The carbon coated with gold-silver-cyanide complex would be collected on screens and sent to the carbon stripping circuit. The loaded carbon would be washed with an acid solution in enclosed steel tanks to remove impurities, rinsed with fresh water, and stripped of the gold and silver under pressure at approximately 90 degrees Celsius using a hot alkaline solution. The resulting gold-silver-bearing solution would be transferred to the electrowinning and refinery area.

The acid solution used during carbon stripping would be reused until it loses its effectiveness. The ineffective solution would be neutralized with ground limestone and/or lime and sent to the tailings thickener for permanent storage in the TSF. Air emissions from the leaching facility would be captured in a series of air pollution controls, and the material collected would be disposed of as a solid waste or a hazardous waste depending on characterization of the waste.

The gold and silver leaching circuit would be designed and operated consistent with the International Cyanide Management Institute (ICMI) Code (<https://www.cyanidecode.org>) and the Initiative for Responsible Mining Assurance (IRMA) Standard for Responsible Mining (<https://responsiblemining.net/resources/>). Accordingly, impermeable secondary containment for cyanide unloading, storage, mixing and process tanks shall be sized to hold a volume at least 110 percent of the largest tank within the containment and any piping draining back to the tank, with additional capacity for the design storm event, if applicable. Pipelines containing process water or process solution shall also use secondary containment in combination with audible alarms, interlock systems, and/or sumps as spill control measures.

This represents no change to gold and silver leaching & carbon adsorption versus that detailed for DEIS Alternatives 1 through 4.

### **3.8.9 Gold and Silver Electrowinning and Refining**

The gold and silver electrowinning and refinery facility would be a closed-circuit system enclosed in a steel frame building set on concrete foundations with adequate secondary containment to store a minimum of 110 percent of the largest vessel.

This circuit takes the product of the carbon stripping circuit and subjects the solution to an electrolytic process called electrowinning. The precipitate generated from the electrowinning process would then be mixed with flux and placed into an induction furnace and heated. The molten material from the induction furnace, principally gold and silver, would be poured into doré bars. The doré bars would be shipped off site to one or more refineries to produce high-purity gold and silver.

Air emissions from the induction furnace would be captured in a series of emission controls. Mercury from the induction furnace would be converted to a liquid metallic state, and then securely stored prior to shipment to a certified hazardous waste disposal facility.

This represents no change to gold and silver electrowinning and refining versus that detailed in the DEIS for Alternatives 1 through 4.

### **3.8.10 Tailings Neutralization, Dewatering, and Pumping**

Cyanide-bearing solutions used in ore processing would be neutralized to approximately 10 milligrams per liter weak acid dissociable (WAD) cyanide before the material is pumped to the TSF. Residual cyanide would be treated using a sodium metabisulfite and air system to detoxify the cyanide by oxidation to form cyanate. After neutralization, tailings would be routed to a tailings thickener to partially dewater the tailings. As the tailings are thickened, the tailings thickener overflow water would be recycled and reused within the ore processing facility. The neutralized, thickened tailings slurry would be pumped from the ore processing plant to the TSF.

A lined tailings pipeline maintenance pond would be located at the ore processing facility, to which tailings and process water in the tailings distribution or water reclaim pipelines would drain by gravity during maintenance shutdowns or if there is a leak in either pipeline. The pond would typically be empty except during maintenance or unforeseen problems with the tailings pipeline, pumping system, or TSF. The pond is designed to contain the contents of the pipelines and the runoff from the pond and lined pipeline corridor from a 100-year, 24-hour storm event plus snowmelt.

This represents no change to tailings neutralization, dewatering and pumping versus that detailed in the DEIS for Alternatives 1 through 4.

### 3.9 TAILINGS STORAGE FACILITY

#### 3.9.1 Tailings Storage Facility Overview

The tailings storage facility (TSF) would be located on NFS lands within the Meadow Creek valley. The TSF impoundment, embankment, and associated water diversions would occupy approximately 423 acres at final buildout with approximately 405 acres of new disturbance. Midas Gold has conducted geotechnical and geophysical investigations supporting the design of the TSF and associated buttress. A plan view of the TSF impoundment, embankment, buttress, and water diversion system is shown on [Figure 3-11](#). At the end of operations, the TSF would contain approximately 120 million tons of tailings solids (approximately 115 million tons of ground ore plus approximately 5 million tons of lime, ground limestone and gypsum resulting from the neutralization of oxidized sulfides), the operational water pool, and precipitation runoff up to the 24-hour Probable Maximum Precipitation (PMP) event of 11.74 inches of rainfall.

As compared to Alternatives 1, 2 and 4 in the DEIS, the ModPRO2 TSF design is similar; however, the capacity has increased from approximately 100 million tons to 120 million tons as a result of processing additional ore (as discussed in [Section 3.7.9](#)), and the additional capacity results in an increase in the ultimate dam height by approximately 3% (15 feet). Despite this increase in TSF volume and dam height, refinements to the diversion profile and impoundment slopes have achieved an overall disturbance footprint decrease of approximately 5% (22 acres), and minimal change in wetlands disturbance versus the ModPRO.

#### 3.9.2 Embankment and Buttress

The TSF embankment ([Figure 3-12](#)) would consist of engineered rockfill sourced from spent ore, development rock and overburden from open pits, and native borrow sources within the impoundment footprint. The facility would be raised at intervals throughout the mine life to align with tailings storage and freeboard requirements, beginning with a starter embankment constructed to a crest elevation of approximately 6,850 feet (or approximately 245 feet above the existing ground surface). The final embankment height would be approximately 475 feet at a crest elevation of 7,080 feet. A development rock buttress would be placed on the east side of the TSF embankment to provide additional short- and long-term geotechnical stability. Buttress and embankment phasing are shown [Figure 3-14](#) and [Figure 3-15](#). Engineered fill would be placed against steep slopes within the impoundment to flatten and smooth slopes to facilitate liner placement.

SODA and other spent heap leach ore reused as TSF construction material would be placed beneath the TSF liner on the upstream face of the embankment or impoundment slope fill to minimize interaction with infiltrating surface water.

This represents no change to the embankment and buttress versus that detailed in the DEIS for Alternatives 1, 2 and 4 except that, as a result of eliminating the Fiddle DRSF, the TSF Buttress has increased somewhat in size, but the location of the facility toe is maintained at Meadow Creek, thus retaining the same ultimate valley bottom length as the PRO and ModPRO.

#### 3.9.3 Liner System

A cyanide neutralization circuit would be used to treat the tailings before transport to the TSF; however, up to approximately 10 milligrams per liter of WAD cyanide could remain in the tailings. The tailings would also contain metals that could leach into the groundwater system. A 60-mil, single-sided, textured, linear low-density polyethylene (LLDPE) geomembrane liner with a secondary geosynthetic clay laminate (GCL) liner would be employed to contain the tailings. The impoundment and upstream face of the TSF embankment would be fully lined. Before placement of the liner, the subgrade would be re-worked and compacted, or a minimum of 12 inches of buffer/liner bedding fill would be placed. Geosynthetic drains would be placed above portions of the liner to reduce hydraulic head on the liner and excess pore

pressure in the overlying tailings. The drains would report to a sump near the upstream toe of the dam, and the water pumped out to the pool or reclaim system for reuse.

Facilities that use cyanide in their mineral extraction process are required to obtain a permit from the Idaho Department of Environmental Quality (IDEQ) and follow the Rules for Ore Processing by Cyanidation (IDAPA 50.01.13). At the request of the Idaho Mining Association, the IDEQ has entered into rulemaking on the existing regulations to change the regulatory requirements from prescriptive requirements to performance-based requirements. A temporary Rule went into effect in October 2020, with final approval by the legislature expected in 2021. The liner system proposed meets the requirements of the temporary rule under which the Project's Cyanidation permit is expected to be issued. Midas Gold has indicated that the TSF liner system would be modified to meet the IDAPA regulatory requirements in effect at the time of facility permitting.

### **3.9.4 Wildlife Protection**

Cyanide would be neutralized to levels protective of wildlife, and the TSF would be surrounded by an 8-foot high, chain-link fence designed to keep wildlife, such as deer and elk, from entering the impoundment area, to prevent either liner damage or wildlife drowning.

This represents no change to wildlife protection versus that detailed for DEIS Alternatives 1 through 4.

### **3.9.5 Underdrain System**

Underdrains installed during site preparation would collect spring and seep flows beneath the TSF impoundment and convey the collected water beneath the TSF embankment and buttress. These underdrains would be a series of parallel drains with branching laterals, instead of a single valley bottom drain, due to the broad U-shape of the Meadow Creek valley. Underdrain flows would be collected in a sump, monitored for water quality, then routed to a surface water conveyance or pumped to the ore processing facility for use as makeup water. Underdrain collection sumps and downgradient monitoring wells would be used for TSF leak detection.

This represents no change to the underdrain versus that detailed for DEIS Alternatives 1 through 4.

Figure 3-11 Plan View of TSF Impoundment, Embankment, Buttress, and Water Diversions

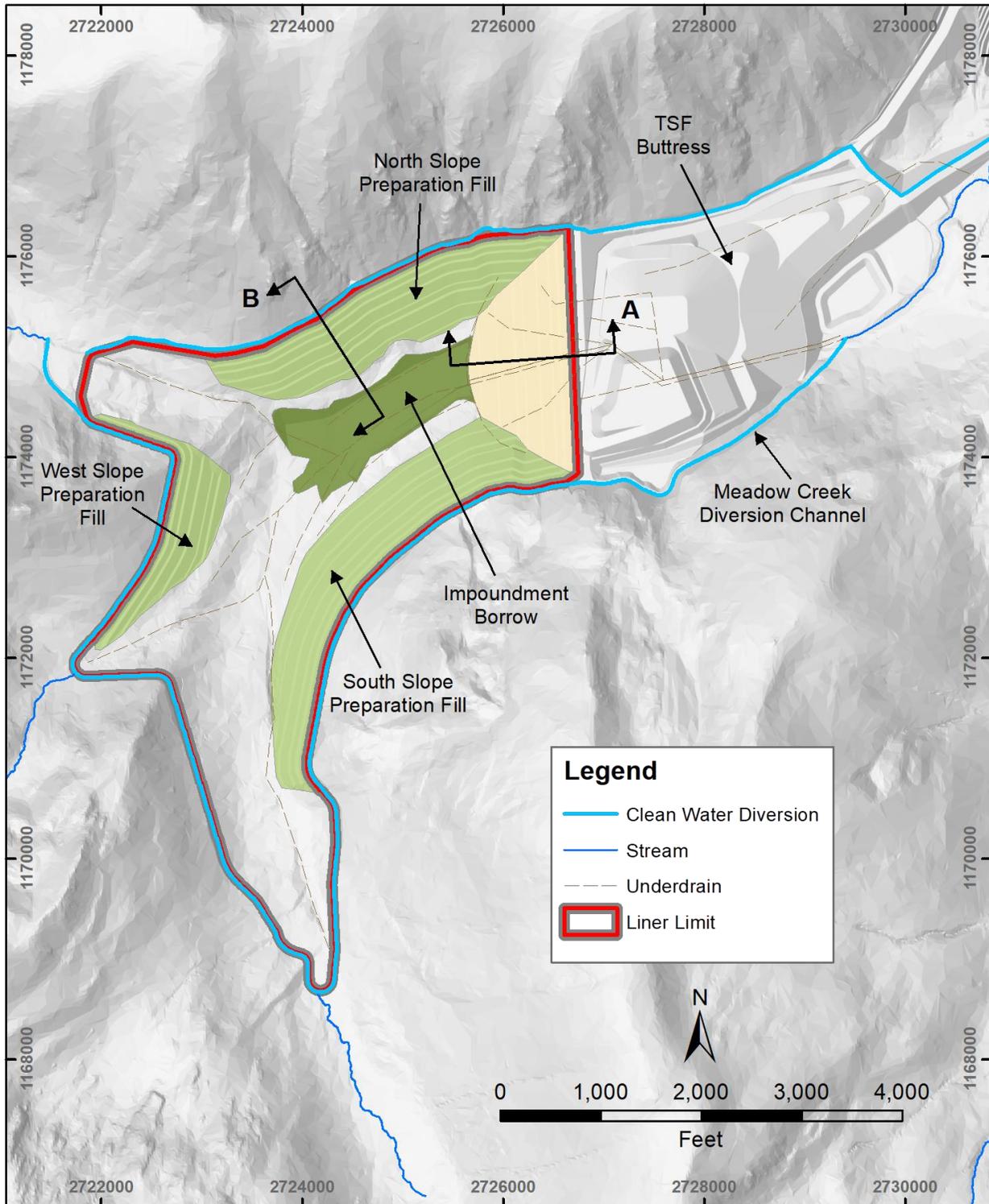
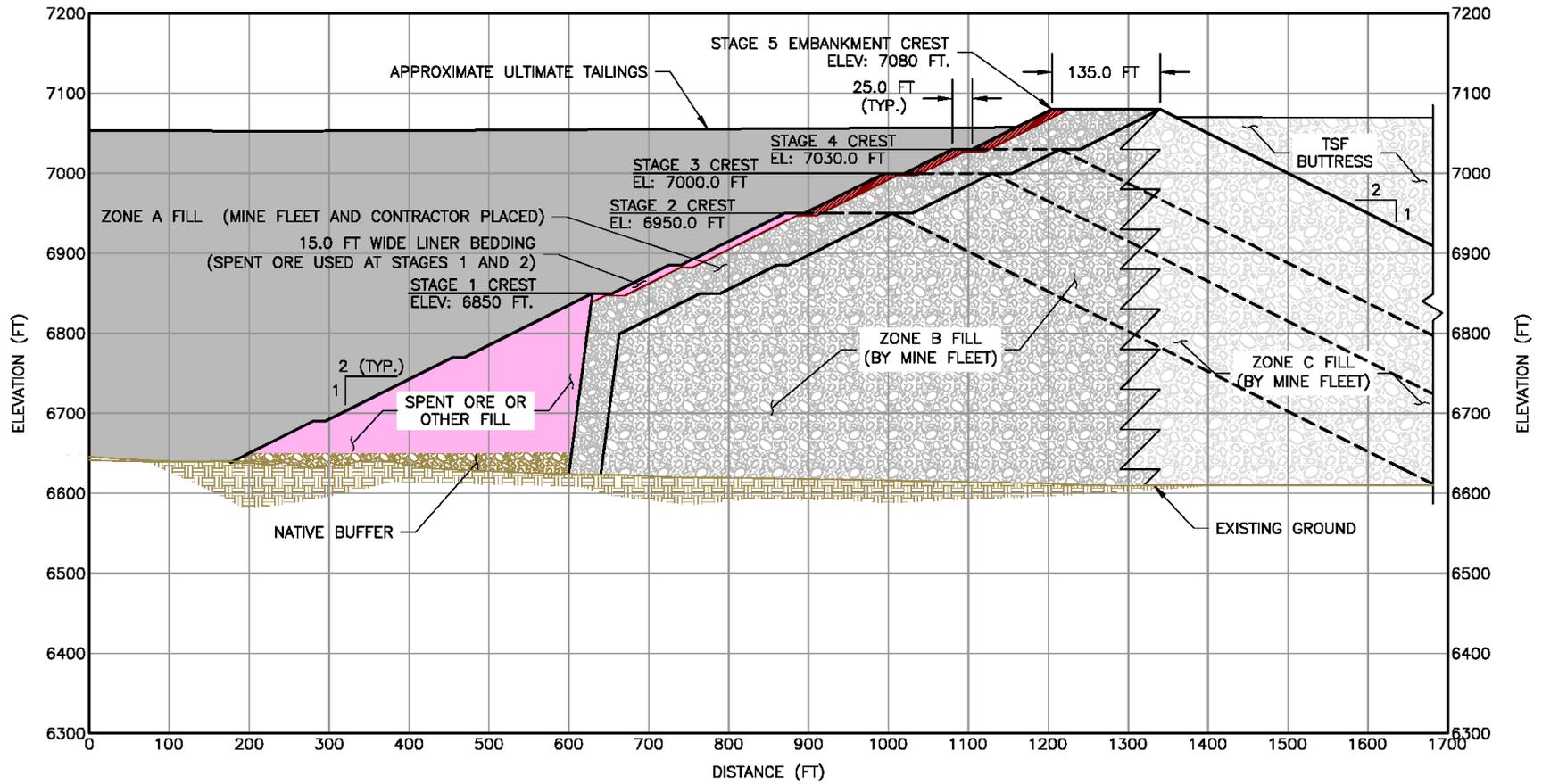
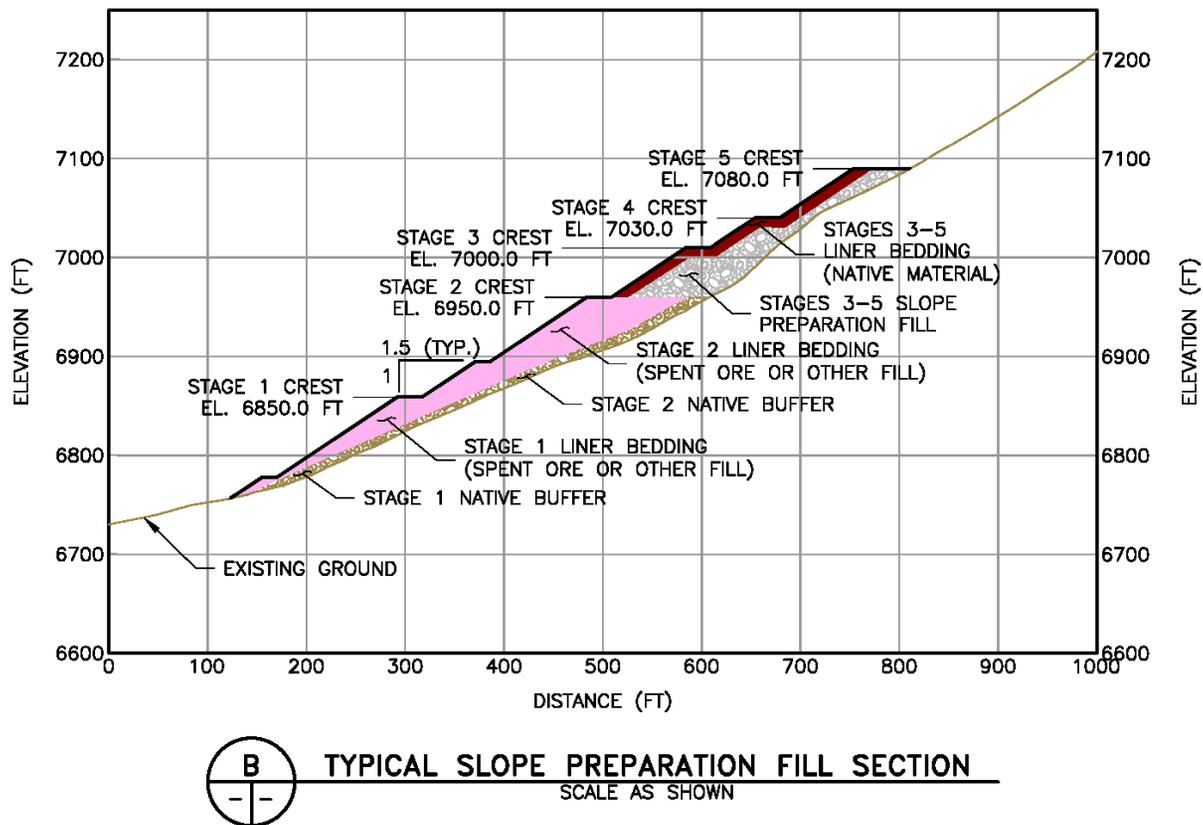


Figure 3-12 Design Cross Section through TSF Embankment and TSF Buttress



**A** ULTIMATE TSF EMBANKMENT FILL SECTION  
SCALE AS SHOWN

Figure 3-13 Design Cross Section through TSF Slope Preparation



**NOTE:**

1. SLOPE PREPARATION FILL CREST IS SLOPED. REFERENCED CREST ELEVATION IS THE SLOPE PREPARATION FILL CREST AT THE TSF EMBANKMENT.

**Figure 3-14 TSF Embankment and Buttress Cross Section showing Phasing, Years -1 through 3**

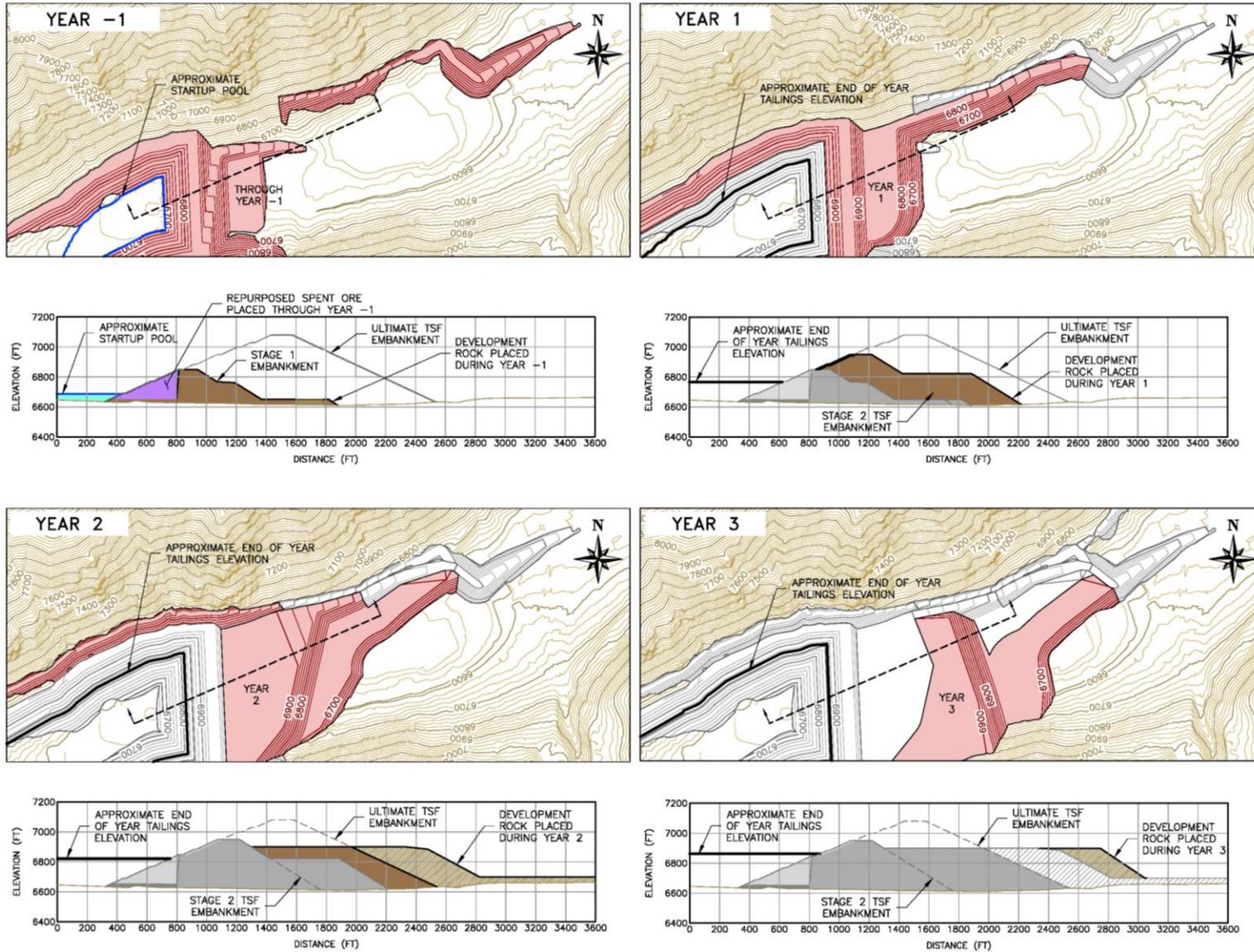
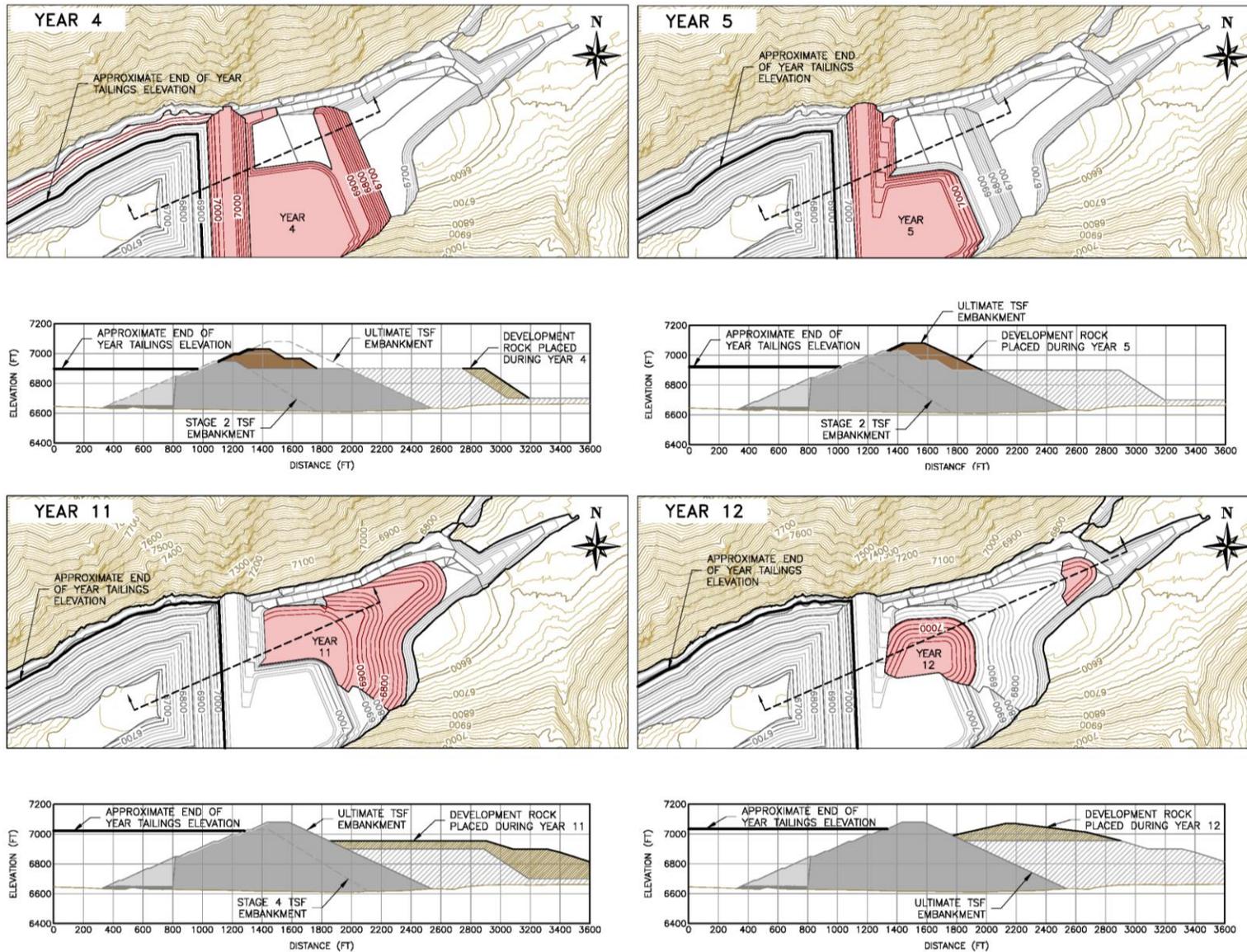


Figure 3-15 TSF Embankment and Buttress Cross Section showing Phasing, Years 4 through 12



### 3.9.6 Tailings Management Support Facilities

Light vehicle roads and haul roads would connect the ore processing facility and the TSF; the tailings delivery and reclaim water return pipelines would parallel the roads with secondary containment provided throughout the pipeline length. Secondary containment for pipelines would consist of an open geosynthetic-lined trench, pipe-in-pipe, or backfilled geomembrane-wrapped trench, depending on location, and the pipeline corridor would drain to one of two pipeline maintenance ponds – one at the truck shop and one at the ore processing facility (see [Section 3.8.10](#)). Electrically powered pumps would be located at the ore processing facility to pump tailings to the TSF and reclaim pumps ([Section 3.10.3.4](#)) would be located at the TSF to return water to the ore processing facility for reuse.

This represents no change to tailings management support facilities versus that detailed for DEIS Alternatives 1 through 4, except for replacement of most instances of open trench secondary containment with geomembrane wrap, to reduce water and snow management needs associated with open, lined, trenches; and slight reconfiguration of pipeline maintenance ponds.

### 3.9.7 TSF Water Management

The TSF would be designed and operated as a zero-discharge facility meaning no water would be discharged to the surface water or groundwater except in compliance with applicable permits and regulations. Thickened tailings slurry would be pumped to the TSF. Water collected in or falling on the surface of the TSF would drain to the supernatant pond on top of the tailings and be recycled, along with tailings consolidation water, for use in ore processing. Cyanide levels in the tailings storage facility would be monitored throughout operations to ensure they remain in compliance with issued approvals and permits.

This represents no change to TSF water management versus that detailed for DEIS Alternatives 1 through 4.

## 3.10 WATER MANAGEMENT

### 3.10.1 Surface Water Management

Project water management designs are focused on managing contact and non-contact water to maintain and improve water quality while supplying sufficient water for mining and ore processing. Contact water is water that flows into, from, or through disturbed areas and mining facilities and could have the potential to introduce increased levels of sediment, metals, and other possible contaminants into surface water and groundwater without proper management. Non-contact water is water that does not contact disturbed areas or mining facilities. The Water Management Plan ([Brown and Caldwell, in progress \[b\]](#)) establishes water management objectives for the project; provides an overview of how water will be managed during the construction, operations, and closure and reclamation of the mine; and describes the proposed water management infrastructure and procedures. A summary of the objectives is:

- To maintain and improve area water quality and aquatic and riparian habitat during operations, and permanently after closure;
- To ensure that water discharges meet Idaho Pollutant Discharge Elimination System (IPDES) permit requirements and applicable water quality standards;
- To ensure safe and efficient operating conditions by dewatering work areas; and,
- To supply an adequate quality and quantity of water to support ore processing.

To accomplish these objectives, Midas Gold proposes a variety of water management features and activities, including:

- Removing or otherwise addressing legacy sources of contamination;
- Minimizing erosion and generation of sediment through implementation of engineering controls and Best Management Practices;
- Managing non-contact surface water and stormwater flows to minimize the generation of contact water and prevent flooding or instability of mine facilities;
- Separating contact from non-contact stormwater runoff;
- Using contact water from DRSF and pits, pit dewatering water, and water accumulated in the TSF, for ore processing;
- Treating or evaporating contact water which exceeds discharge quality standards that cannot be used in ore processing or other mine needs; and,
- Restoring the SGP site to provide a self-sustaining ecosystem with improved water quality.

Removal of legacy sources of contamination is addressed in [Section 3.7.8](#). The following paragraphs address engineering controls, management of non-contact surface water and stormwater flows, and management of contact water. Site restoration and long-term water treatment is addressed in [Section 3.14](#).

As a result of the elimination of the West End and Fiddle DRSFs and the smaller Hangar Flats pit, plus the backfilling of the Hangar Flats and Midnight pits with development rock, and updated hydrologic models and incorporation of the Stibnite Lake, there are a number of changes to surface water management versus the PRO (DEIS Alternative 1), some of which were already incorporated in the ModPRO (DEIS Alternative 2). These are summarized in the following sections and are tabulated in [Appendix A](#). Broadly, revisions to the plan have reduced water management and treatment needs and lowered stream temperatures relative to the ModPRO.

### **3.10.1.1 Stream Diversions**

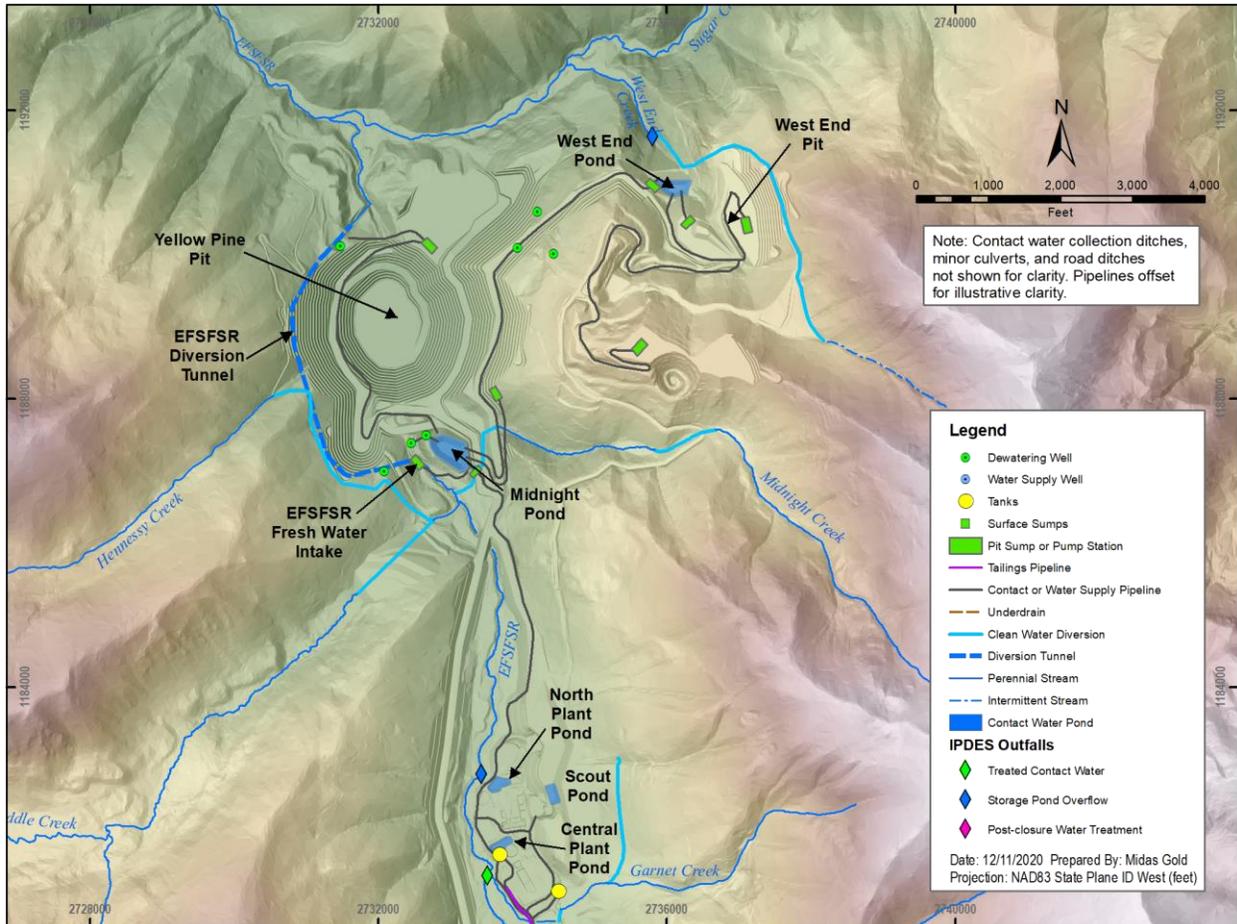
Existing streams that run through areas proposed for mining related disturbance would be diverted to prevent generation of contact water or commingling of contact and non-contact water, keeping clean water clean; and to prevent flooding of mine facilities by runoff generated offsite.

Streams would be temporarily diverted around mine site facilities, such as the open pits, GMSs, stockpiles, and the TSF, within constructed surface water channels. Stream diversion channels would be either: (1) rock-cut channels along steep slopes and in areas with shallow or at-surface bedrock; (2) excavated channels with berms; or (3) pipes. Channel segments constructed in erodible materials would be lined with riprap or other erosion-resistant lining to prevent erosion. The rock-cut channels would have low erosion potential and not require riprap lining. Channel segments constructed over fill or excavated in permeable materials would additionally be lined with a geosynthetic liner to minimize seepage. A transition layer of sand/gravel followed by riprap or similar would be placed over the liner for erosion protection.

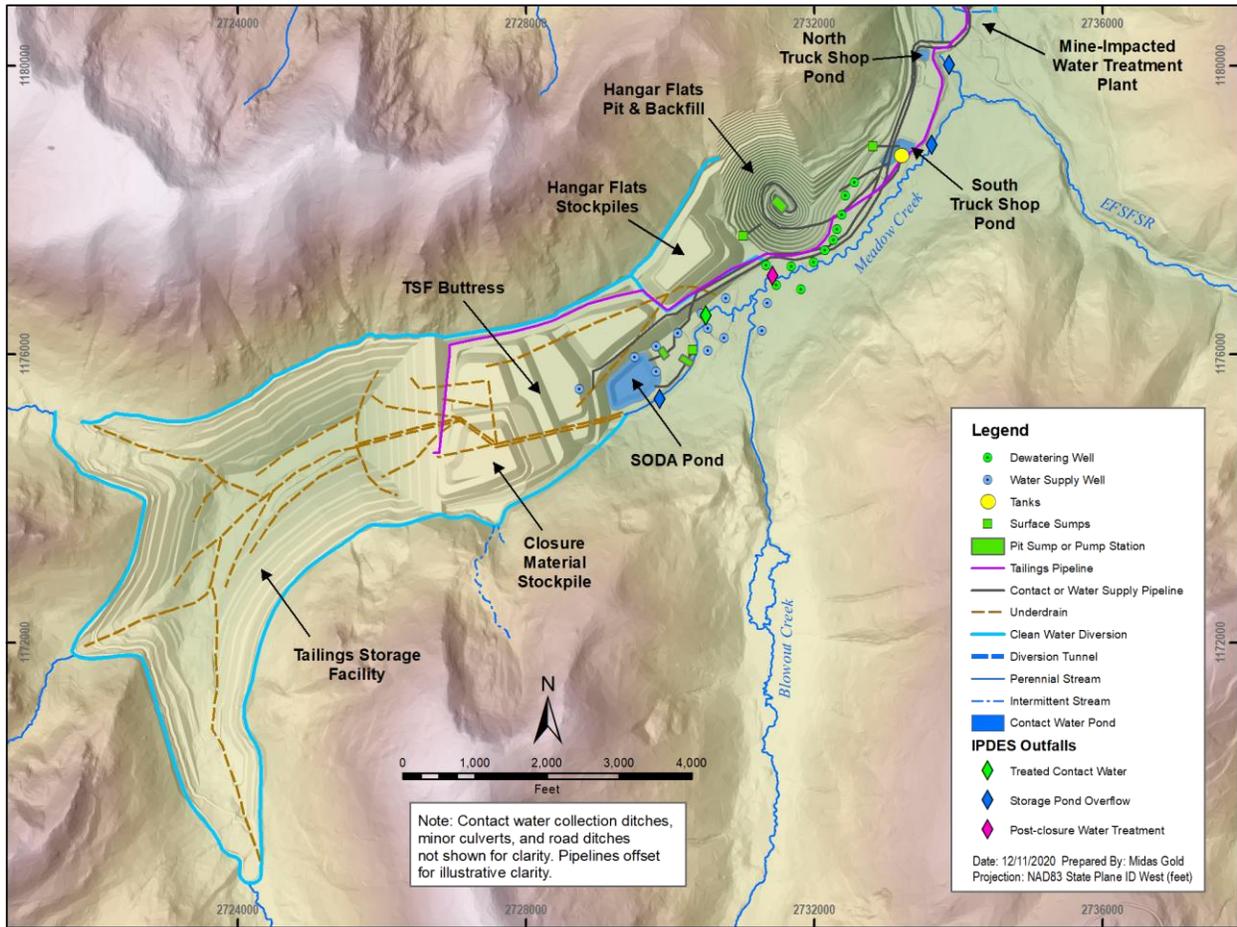
During mine operations, summer low flows in perennial diversion channels around the TSF impoundment and buttress (Meadow Creek), Yellow Pine pit (Hennessy Creek and EFSFSR tunnel), and West End pit (West End Creek) would be piped underground as a mitigation measure to maintain cold stream temperatures. Eight- to 12-inch-diameter pipes would be installed under the diversion channels in the riprap channel lining or under the adjacent access road to carry low flows. The low-flow pipe would be sized to convey August baseflow. Stream flow would enter pipes through inlets at the same locations stream and tributary inflows are diverted into the constructed channel. Some diversions, such as portions of Hennessy and West End Creeks, and EFSFSR tunnel, would be entirely underground, in which case conduits would be larger and sized for high flows. [Figure 3-16](#) and [Figure 3-17](#) provide plan views of the Yellow Pine

pit and West End pit area water management plan, and Meadow Creek and Blowout Creek area water management plan, respectively.

**Figure 3-16 Water Management Plan – North**



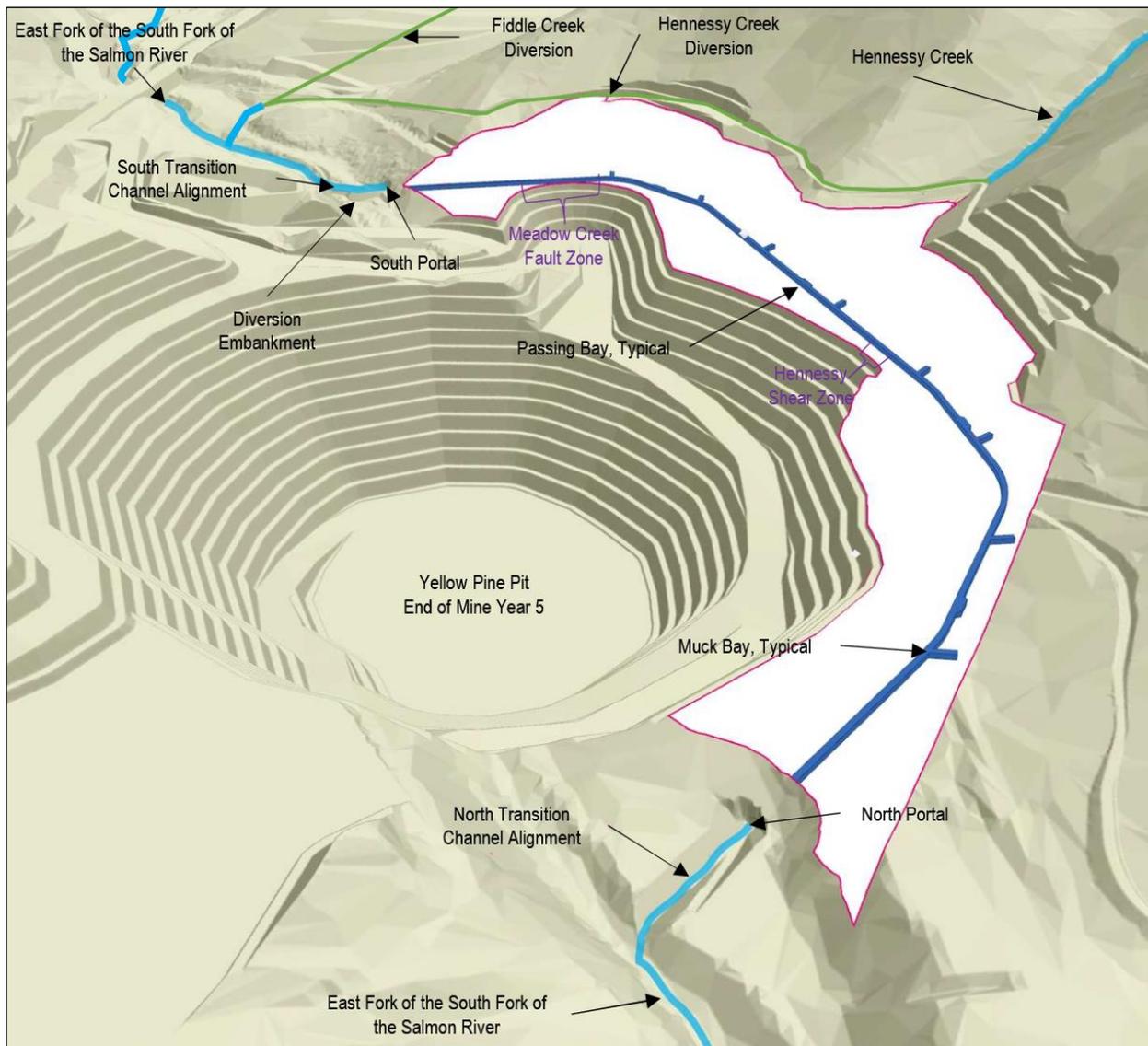
**Figure 3-17 Water Management Plan - South**



### 3.10.1.1.1 EFSFSR Diversion Tunnel

Currently, the EFSFSR runs through the Yellow Pine pit lake. The cascade at the inflow to the pit lake currently blocks upstream fish passage. A tunnel would be built to direct the EFSFSR around the west side of Yellow Pine pit to allow mining in the pit [Figure 3-16](#) and [Figure 3-18](#). The tunnel would be approximately 0.9 miles long and 15 feet high by 15 feet wide. The tunnel would include a fishway designed to provide for upstream and downstream passage of migratory and anadromous salmonid fish, and a parallel accessway to allow equipment and personnel access for monitoring, inspection, and maintenance. The accessway would function as a floodway for high flows, limiting the operating flow range within the fishway while river and thus total tunnel flows vary more widely.

Figure 3-18 Isometric Cutaway View of Fish Passage Tunnel



To encourage fish passage, low-energy lighting would be installed in the tunnel and set on timers to simulate daylight. A trash rack and sediment trap would be constructed at or near the upstream entrance to the tunnel to prevent large wood, boulders, and other debris from entering the tunnel. The spaces between the trash rack bars would be sized to allow passage of adult Chinook salmon. A surface water intake ([Section 3.10.3](#)), with fish screens, would be installed upstream of the control weir to supply raw water for ore processing makeup when necessary.

The tunnel fishway would incorporate concrete weirs, designed to produce hydraulic conditions that could be successfully navigated by fish.

This represents no change versus that detailed in Alternatives 1 and 2 in the DEIS, other than the addition of a surface water intake at the already-planned tunnel headworks.

### 3.10.1.1.2 Midnight Creek

The Midnight Creek stream diversion would reroute approximately 0.3 miles of the lower portion of Midnight Creek to the south, away from where it currently enters the Yellow Pine pit lake. The rerouted creek would be piped under haul roads and channelized downstream of the lower haul road to enter the EFSFSR upstream of the proposed tunnel portal ([Figure 3-16](#)). The Midnight Creek diversion would manage flows in Midnight Creek during Yellow Pine pit operations and backfill activities until the newly developed EFSFSR alignment (over the backfilled pit) is complete and stabilized as described in [Section 3.14.6](#). The Midnight Creek culverts and stream diversion would be designed to convey flows from a minimum 25-year storm event plus 2 feet of freeboard.

Compared to Alternative 1 in the DEIS, Midnight Creek would be piped under haul roads not a GMS.

### 3.10.1.1.3 Hennessy Creek

Hennessy Creek would be diverted south of Yellow Pine pit in a pipe along the public access road at the western edge of the pit ([Figure 3-16](#)). The diversion would include an impounding structure, overflow weir, and diversion cleanout basin. Diverted flows would be routed to Fiddle Creek upstream of the existing Stibnite Road culvert crossing, ultimately placing Hennessy Creek flows into the EFSFSR upstream of the south tunnel portal and disconnecting flow from the current unlined ditch passing alongside the Northwest Bradley dumps. Overflow, if any, would follow the existing stream channel into the Yellow Pine pit.

In comparison to the ModPRO (DEIS Alternative 2), Hennessy Creek would be routed south toward Fiddle Creek in a pipe along the public access road during mining and backfill of Yellow Pine pit (instead of open channel). With the elimination of the Fiddle DRSF, the ultimate outlet configuration of the Hennessy Creek diversion would be changed to a confluence with Fiddle Creek just downstream of the present culvert under Stibnite Road rather than the Fiddle DRSF north diversion channel.

### 3.10.1.1.4 Fiddle Creek

Fiddle Creek would not be diverted; however, small stormwater diversions would route hillslope runoff around the Fiddle GMS and a culvert would route Fiddle Creek under the GMS, GMS access road, and public access road.

In comparison to the ModPRO (DEIS Alternative 2), there would be no Fiddle Creek diversion with elimination of Fiddle DRSF, but there would be a culvert, much shorter than the ModPRO diversions, related to roads and the Fiddle GMS.

### 3.10.1.1.5 West End Creek

The West End Creek stream diversion would reroute the stream around an existing legacy DRSF and West End pit. The approximately 1.5-mile-long diversion would reroute West End Creek around the north side of the legacy upper West End DRSF and cross the upper benches West End pit ([Figure 3-16](#)). The diversion would consist of a lined channel along the upper legacy DRSF, and a pipe in the segments along a steep hillside above the West End pit, within the pit, and along the steep hillside alongside the lower legacy DRSF down to the outlet at the existing stream channel.

This is similar to the ModPRO (DEIS Alternative 2) except the lower portion of the West End Creek diversion is piped for constructability reasons, rather than being in an open ditch.

### 3.10.1.1.6 Garnet Creek

During Project construction, Garnet Creek would be restored downstream of the ore processing facility to a relocated confluence with the EFSFSR. Above the early restoration reach, Garnet Creek would be routed along the upper plant

site access road in a riprap channel, then cross under the ore processing facility roads in culverts, with best management practices to reduce sediment loading to the stream, and to protect water quality. Culverts would be designed to convey flows from a 100-year storm event.

In comparison to the ModPRO (DEIS Alternative 2), lower Garnet Creek is rerouted and restored during construction instead of at closure.

### **3.10.1.1.7 Meadow Creek**

Approximately 2 miles of Meadow Creek would be diverted around the south side of the TSF and TSF buttress. The diversion would direct flows back into the existing stream channel upstream of the Hangar Flats pit. The diversion would consist of a rock-cut channel in segments along the steep hillsides above the TSF and buttress, and an excavated channel with berm across tributary valley segments. Channel segments excavated in erodible or permeable materials would be lined with rock riprap and a geosynthetic liner to prevent erosion and to minimize seepage where needed. The Meadow Creek diversion channel around the TSF and TSF buttress would be designed to convey flows from a minimum 100-year storm event with 1 foot of freeboard.

The stream also would be diverted around the Hangar Flats pit. The Meadow Creek channel would be moved away from the pit to the south/southeast toward the valley wall and reconstructed as a sinuous channel and floodplain corridor to allow potential for spawning habitat and establishment of riparian habitat within the floodplain. A liner would be installed under the stream/floodplain corridor ([Figure 3-17](#)) to minimize water seepage into the Hangar Flats pit or the pit dewatering well system, and to avoid potential pit wall instability or loss of stream habitat as a result of stream dewatering. The Meadow Creek diversion channel/floodplain corridor around the Hangar Flats pit would be designed to convey flows from a minimum 100-year event with 3 feet of freeboard; the stream channel itself would be designed for bankfull flows (1.5-year recurrence).

The Meadow Creek diversion corridor on the south side of the Hangar Flats pit is lined with a geosynthetic liner extending farther downstream than Alternative 1, and the operational diversion of Meadow Creek around the Hangar Flats pit is retained as the permanent channel at closure; this is identical to the ModPRO (DEIS Alternative 2). The Meadow Creek diversion at the TSF would not be phased as in the ModPRO/Alternative 2, but rather would be built once during construction.

### **3.10.1.1.8 Blowout Creek**

Blowout Creek (East Fork Meadow Creek) was impacted by the failure of a water storage dam in 1965 creating the steep, eroding chute that conveys Blowout Creek. As part of the Compensatory Mitigation Plan for Streams and Wetlands, Midas Gold proposes to stabilize and repair the failed area of Blowout Creek in the actively eroding chute and raise groundwater levels in the meadow upstream of the former dam site to restore wetland hydrology. A retention structure would raise groundwater levels in the meadow and a coarse rock drain would address ongoing erosion of the channel side slopes that currently deliver sediment directly to the creek, while facilitating construction of a permanent surface channel. This would be a voluntary mitigation and restoration effort, as the Blowout Creek chute and upper meadow are unrelated to and unaffected by the proposed mine features. The lower portion of the Blowout Creek alluvial fan would be an important borrow area for this and other restoration projects and is included in Project disturbance.

During construction and early mining, Midas Gold would construct grade control and water retention features near the old reservoir water retention dam location to elevate the groundwater level and stream water surface sufficiently to restore wetland hydrology in the surrounding meadow. The retention structure would impound portions of the meadow and slowly fill with sediment over time.

A coarse rock drain would be constructed within the chute downstream of the failed dam to isolate the flow of Blowout Creek from the actively eroding chute side slopes and to prevent further erosion of the gully bottom, facilitating subsequent restoration of a surface channel on top of the drain. [Figure 3-17](#) shows the location of the rock drain and surface channels.

As the rock drain fills with sediment, it would become closed off from the stream channel. If the rock drain has not silted-in at the end of mine operations, the rock drain would be disconnected from surface inflow at the upstream end through excavation and replacement with less-permeable materials, or by grouting. The existing alluvial fan in lower Blowout Creek, located adjacent to Meadow Creek, would be removed, mostly during mine operations for borrow materials, and the area restored. A surface diversion would be constructed at the margin of the lower alluvial fan to facilitate borrow excavation, and this stream reach subsequently restored.

This represents no material change to the ModPRO (DEIS Alternative 2), except for potentially earlier timing of the permanent repair.

### **3.10.1.2 Non-Contact Stormwater Diversions**

Non-contact stormwater is meteoric water that does not contact tailings, open pits, DRSFs, spent heap leached ore and tailings from past mining operations, or other mining related surfaces. Stormwater runoff from undisturbed areas upslope of mine features in the major drainages would be captured in the stream diversion channels described above or in other channels that would direct runoff away from disturbed areas. Smaller-scale diversion channels or earthen berms would be used, where necessary, to divert stormwater around other mine infrastructure.

Non-contact water would be managed with features to reduce erosion and sediment delivery to streams within the mine site. Non-contact stormwater diversions would discharge directly into the stream system, with erosion control and energy dissipation features. Where sedimentation is a concern, non-contact water stormwater diversions would be routed to sediment catch basins where the water can evaporate, infiltrate, or discharge into the stream system. Energy dissipation structures would be installed at the non-contact surface water diversion outfalls as needed.

This approach to non-contact stormwater diversions is identical to the ModPRO (DEIS Alternative 2), although the specific locations of diversions is modified to reflect the removal of the Fiddle DRSF.

### **3.10.1.3 Contact Water**

Water that contacts mining disturbances and has the potential to impact water quality is termed contact water. Contact water includes, but is not limited to, runoff from mine facilities such as stockpiles, mine pits, and haul roads constructed of development rock; toe seepage from stockpiles; and underground exploration water. Collection of contact water would begin during the first year of on-site construction and would continue throughout operations and the closure and reclamation periods. Contact water would be captured in runoff collection channels and sumps and routed to the ore processing facility, contact water storage ponds, water treatment, or enhanced evaporation systems. In unusually high runoff periods, excess contact water may be routed to mine pits or the TSF. Contact water storage ponds would be lined to minimize leakage. Water in the contact water ponds could be pumped to the ore processing facility for use, treated and discharged in accordance with applicable requirements, or evaporated. Contact water in the mine pits would be directed to in-pit sumps in the lowest part of the pit and piped to the ore processing facility for use as makeup water, to other contact water ponds, to water treatment or evaporation, to the TSF, or into trucks for spraying for dust control within open pits and on stockpiles. Any contact water beneficially used for ore processing or dust control would require a water right permitted through the Idaho Department of Water Resources (IDWR) prior to use.

Contact water which exceeds discharge water quality limits and that cannot be used during operations would be disposed of through a variety of methods including forced evaporation using sprayers located within the TSF or other

managed areas, or active water treatment. Water would be treated to meet IPDES permit limits and treated water would then be discharged to IPDES permitted outfalls. Stormwater runoff (including snowmelt) from roads located inside of or draining into mine pits or development rock storage areas would be managed as discussed above. However, runoff from haul roads and access roads outside of pits or development rock storage areas may be of sufficiently good quality to be eligible for coverage under the Multi-Sector General Permit (MSGP) for Stormwater Associated with Industrial Activities. Eligibility will depend upon the materials used for road construction and will be determined through coordination with IDEQ with oversight by EPA. Runoff covered under the MSGP would be managed with a variety of conventional stormwater control measures to ensure the protection of surface water quality.

The management of contact water would be the same as in the ModPRO (DEIS Alternative 2), but at lower volumes in all phases due to less temporal overlap of disturbance, less dewatering, retention of operational Meadow Creek diversion at Hangar Flats pit, smaller Hangar Flats pit, and backfill eliminating the formation of a Hangar Flats pit lake.

#### **3.10.1.4 Surface Water Outfalls**

One or two IPDES-permitted surface water outfalls (specific number and locations of outfalls to be determined via IPDES permitting through DEQ) would be used to discharge treated contact water from active mine pits, the TSF buttress, and the ore processing facility. An outfall located near the ore processing facility would discharge to the EFSFSR, and a second outfall, if needed, would discharge to Meadow Creek to augment streamflow during pit dewatering. Up to six additional outfalls would be permitted at a given time for contact water storage pond spillways that could discharge to surface water – although discharge would be infrequent or non-existent, only occurring in the event of excessive precipitation or snowmelt. Storage pond spillways at the SODA, Hangar Flats, and Truck Shop contact water ponds would have permitted outfalls on Meadow Creek and EFSFSR. Storage pond spillways at the West End and plant site-area ponds would have outfalls on West End Creek and EFSFSR respectively. Any overflow from the Midnight contact water storage pond would initially report to the Yellow Pine pit (and thus not discharge to surface waters) but might later require an outfall on the EFSFSR after the pit is backfilled. Not all ponds/outfalls would exist simultaneously or be permitted in the same permit cycle. An outfall would be permitted on upper EFSFSR for the worker housing sanitary wastewater treatment facility. An outfall location would be permitted near the TSF for post-closure discharge of treated water to Meadow Creek. All outfalls would be required to meet water quality limits and control the volume of discharge. The approximate locations of the outfalls noted above are shown on [Figure 3-16](#) and [Figure 3-17](#).

#### **3.10.2 Groundwater Management**

Groundwater would require management to allow mining in the pits and to redirect seeps and springs from beneath mine facilities. Groundwater also would provide a water supply for the mine site. Water supply aspects of the mining operations are described in [Section 3.10.3](#). Any groundwater used within the mine site would require water rights permitting through IDWR prior to use. Depending on the final use or disposal of groundwater, water from wells drilled on the site could be permitted as domestic use, industrial use, or dewatering use and would have applicable water rights, based on their beneficial use.

Groundwater management would be the same as the ModPRO (DEIS Alternative 2), with direct discharge of treated water, when necessary, instead of rapid infiltration basins (RIBs) for streamflow support.

##### **3.10.2.1 Pit Dewatering**

Lowering the water table in and surrounding the pits would increase pit wall stability and provide dry working conditions in the pit bottom. Development of the Yellow Pine and Hangar Flats pits would require partial dewatering of the alluvium of portions of the EFSFSR and Meadow Creek valleys, respectively, to limit groundwater inflow to the pits and maintain

stability of the pit slopes. Once the West End pit is mined below the level of West End Creek, the West End pit also would require dewatering.

Dewatering would be accomplished by drilling a series of alluvial and deeper bedrock wells near the pit perimeters to intercept and pump groundwater before the water reaches the pit. Alluvial groundwater at the Yellow Pine and Hangar Flats pits would be managed using a series of vertical wells. The West End pit is primarily in bedrock with only a thin layer of alluvium in the vicinity of the pit and no alluvial dewatering is planned for that pit. Pumps would be installed in each well and would run as necessary to draw down the groundwater and facilitate mining and backfilling operations.

Groundwater pumped from the dewatering wells would be considered to be contact water and would be managed through forced evaporation or active water treatment when the volume of pumped water exceeds the ore processing facility demand. Treated water would be discharged to either of two IPDES-permitted outfalls depending on the need for streamflow support in Meadow Creek: either to Meadow Creek or the outfall located on the EFSFSR near the WTP.

Groundwater not captured by the dewatering wells would be directed to an in-pit sump in the lowest part of the pit where it would combine with stormwater and snowmelt runoff (i.e. contact water) from precipitation falling within the pit. The water would be used for dust control within the pits, and, as needed, pumped to the ore processing facility for use as makeup water. In-pit water that cannot be used would be disposed of through forced evaporation or routed to the WTP for treatment then discharged to the EFSFSR or Meadow Creek via IPDES permitted surface outfalls.

This approach to dewatering is similar to that which is described in the ModPRO (DEIS Alternative 2).

### 3.10.2.2 Groundwater Spring and Seep Control

Underdrains would be required beneath the TSF and TSF buttress to convey groundwater from seeps and springs beneath the facilities and prevent contact with the development rock and tailings. The TSF embankment and buttress underdrains promote geotechnical stability by preventing saturation and excess pore water pressure in the overlying development rock fill. For the TSF impoundment the underdrain system would protect liner integrity by preventing hydrostatic uplift on the liner.

The primary underdrains would be designed to follow major drainages under each facility and would run the length of the facility, with parallel and branching secondary lines owing to the wide valley bottom. Underdrains would be constructed of pipe or gravel wrapped with geotextile. Only inert materials, with limited potential to generate acid or leach metals would be used in the underdrain construction. Liner or solid-wall pipe may be used to limit inflow of mine-impacted seepage that could mix with clean groundwater in underdrains, and TSF impoundment underdrains would pass under the embankment and buttress in a solid-wall pipe separate from the buttress primary underdrain pipe. The underdrain system would convey spring and seep flows beneath both facilities to a collection sump at the buttress toe where the flows would be monitored for water quality prior to release into the stream system or capture for use in the processing circuit or treatment prior to discharge, depending on water quality. Sampling would be from a dedicated sump (manhole) in-line with the pipe upstream of the outlet.

This approach to groundwater spring and seep control is similar to that which is described in the ModPRO (DEIS Alternative 2).

### 3.10.2.3 Idaho Point of Compliance Determination

Midas Gold is coordinating with the Idaho DEQ to determine one or more Points of Compliance pursuant to the Idaho Groundwater Rule (IDAPA 58.01.11.401). This regulatory process is available to mining facilities as a mechanism to ensure compliance with groundwater quality standards. The Groundwater Rule specifies that: *"The point(s) of compliance shall be set so that, outside the mining area boundary, there is no injury to current or projected future*

*beneficial uses of ground water and there is no violation of water quality standards applicable to any interconnected surface waters.”*

### 3.10.3 Water Use, Supply, and Balance

[Figure 3-19](#) presents a flow diagram that represents the SGP operational water balance. As shown on the figure, there would be five general water classifications during operations, including fresh water, contact water and pit dewatering water, ore process water, and sanitary wastewater.

Non-contact water represents water flowing within the surface streams and precipitation falling onto non-contact areas. Non-contact water will be managed by diverting streams and stormwater around mine features and disturbed areas, to the extent practicable, to avoid generating contact water. This system of non-contact water management would be independent, with no water added from or discharged to the contact and process water systems, other than permitted discharges of treated water. Fresh water would be supplied from wells (including dewatering wells) and a surface intake on the EFSFSR.

Contact water consists of stormwater runoff and mine drainage from mine pits, stockpiles, the TSF embankment, legacy material removal sites, and other mine components, and water obtained from dewatering wells. The primary use for contact water would be make-up water for the ore processing system or for dust suppression on stockpiles and in-pit haul roads. The ore processing system would be a closed system with zero discharge during operations and includes the process circuit and the TSF. Once contact water is placed into this closed system, it becomes process water and only leaves as process losses (chiefly evaporation, and some chemical combination), within products (antimony concentrate), and as evaporation from the TSF. The process water would be used in ore processing, and ultimately transported to the TSF as part of the tailings slurry where a portion of the water would form a supernatant pond. Water in the supernatant pond would be pumped back to the ore processing facility, where it would be re-used in the ore processing circuit. It is expected that the volume of contact water would seasonally exceed the combined volume required for make-up water within the ore process circuit and for dust suppression. During operations, this excess contact water would be directed to the contact water ponds, evaporation systems, to a water treatment plant where it would be treated to meet IPDES water quality permit limits before being discharged via a permitted outfall to the EFSFSR or Meadow Creek.

The water use, supply and balance components are essentially the same as the ModPRO (DEIS Alternative 2), except for the addition of a surface water intake; however, the relative balance shifted towards more frequent seasonal water deficits and less need for mine-impacted water treatment due to less temporal overlap of disturbance, less dewatering, fewer DRSFs, smaller Hangar Flats pit, and backfill eliminating the formation of a Hangar Flats pit lake while speeding rebound of alluvial groundwater levels.

More specific details regarding each of these water systems are presented in the sections below.

#### 3.10.3.1 Water Use, Supply, and Recycling or Reclaimed or Reused

Water would be required for ore processing, surface and underground exploration, dust control, and potable use for workers. Water for industrial and mining uses would be supplied from groundwater pumped from dewatering wells and water supply wells; contact water ponds; a surface intake on the EFSFSR at the tunnel headworks; and process water recycled within the ore processing and tailings circuit. Potable water would primarily be drawn from dedicated wells at several locations as discussed in the Water Balance section below. Projected water use for the mining operations is summarized in Table 3-5.

**Table 3-5 Estimated Gross Fresh and Recycled Water Usage**

Component	Construction and Start-Up (gpm)	Operations (gpm)	Closure and Reclamation (gpm)
Underground <sup>2</sup> and surface <sup>3</sup> exploration	50	50	0
Surface dust control (seasonal basis) <sup>4</sup>	33	66	16.5
Ore processing including tailings storage <sup>5</sup>	0	3,900	0
Potable or domestic use <sup>6</sup>	26	12	4
Sub-Total Use	109	4,028	20.5
Contingency (10%)	11	403	2
<b>Total Estimated Use<sup>1,7</sup></b>	<b>120</b>	<b>4,431</b>	<b>22.5</b>

**Table Notes:**

- Usage projections are best estimates using currently available information. Gross numbers do not account for recycling of process and other collected water, which would continually be recirculated.
- Underground usage mainly for dust control, washing walls, removal of drill cuttings, and cooling the drill bits. Any runoff from these activities would be allowed to infiltrate in the underground exploration workings. In the event that infiltration rates are too slow to adequately dissipate the water, it will be pumped to the surface and sent to the reclaim water tank.
- Water is used to lubricate drill bits and drill rods of the exploration drill rigs.
- Assumed that during operations, two 10,000-gallon capacity water trucks are available to apply their full water load in 1 hour for 15-20 hours per day during dry periods of the year, yielding a maximum capacity of 190 gpm. Predicted dust control use is scaled from that value based upon monthly evaporation in the warm season, and zero in winter. Usage is assumed to be half that of mine operations during construction, and one-fourth the operations usage during closure and reclamation. Water usage for dust control could be reduced through the application of dust control chemicals.
- The major water use would be for ore processing facility operations, and this value represents the estimated water usage. Following initial start-up, water can be recycled back to the ore processing facility from the TSF pond and reduce the amount of freshwater makeup. It is anticipated that, on average, 24% (approximately 940 gpm) of water used in the ore processing facility) would be fresh water sourced for the purpose; while the remaining process water would be recycled from within the ore processing facility itself, contact water collection points, dewatering water, and/or from the TSF. The total water consumed by the process averages approximately 2,960 gpm over the life of the mining operation (included in the 3,900 gpm total above), and includes water entrained with the tailings, evaporated from the TSF, and evaporated or chemically combined in the process reactions.
- Potable water demands are estimated based on 50 gallons per day (gpd) per person usage on site.
- Storage volumes and flow capacity would be available for fire suppression, but this water would only be used in emergency situations and is not accounted for under daily gpm values.

As shown in [Table 3-5](#), ore processing facility operations would represent approximately 97% of water use associated with the Project. Most of the water used for ore processing would be repeatedly recycled from within the ore processing facility and the supernatant pond at the TSF. The remaining water required for the ore processing facility would be fresh water, referred to as makeup water. Makeup water would be supplied from the groundwater wells used for pit dewatering, from collected contact water when available, from water supply wells, and from surface water. A separate wellfield of up to five wells would be developed in the EFSFSR drainage adjacent to the worker housing facility to provide potable water for the facility. The use of groundwater from pit dewatering, contact water from precipitation runoff, surface water, and development of separate wellfields for supplemental industrial supply and for potable water at the worker housing facility would require permitting through the IDWR as a new water right or transfer of the point of use for one of Midas Gold's existing water rights (see [Section 3.10.3](#)).

### 3.10.3.2 Water Balance

The water balance is an accounting of water inflows, outflows, and storage for various components of the mining and ore processing system. Actual volumes for water balance variables could vary seasonally and annually from the volumes estimated. A water balance flow diagram for the mining and ore processing operations phase is provided on [Figure 3-19](#) showing components of the water balance described below.

### 3.10.3.3 Water for Ore Processing

Ore processing is the primary driver for water use. Water sources for ore processing include fresh water from pit dewatering and water supply wells, contact water, surface water, and water recycled from the TSF. Outflows from ore processing include tailings slurry conveyed to the TSF and evaporative losses from various process components.

The majority of the water needed for ore processing would be recycled (reclaimed) from the TSF. Reclaim water would be pumped from the supernatant water pond at the TSF to the reclaim water tank at the ore processing facility. Makeup water would be supplied from pit dewatering wells located around the Hangar Flats, Yellow Pine, and West End pits; water supply wells; contact water; and surface water in the EFSFSR. The dewatering water would be pumped from the dewatering wells to freshwater tanks near the ore processing facility site. These tank facilities also could supply water for exploration drilling, development drilling, road dust control, and emergency fire suppression. The freshwater tanks could store approximately 360,000 gallons of water; 240,000 would be available for process uses, and the remaining 120,000 gallons would be held in reserve for fire suppression only. The use of water for mining and ore processing operations would require appropriate permitting and approval of water rights from IDWR.

### 3.10.3.4 Water at the TSF

Inflows to the TSF include tailings slurry, precipitation, and pumped transfers from the contact water management system. The TSF would store tailings solids, water entrained with the tailings, and free water atop the tailings (supernatant pond). Stormwater falling directly on the TSF and water from the supernatant pond that forms as the tailings consolidate, would be stored in the TSF and reclaimed for ore processing as needed. The volume of available reclaim water would be influenced by the ore processing volumes, precipitation, and evaporation. The reclaim water would be pumped from the TSF to the reclaim water tank located at the ore processing facility.

### 3.10.3.5 Contact Water

Meteoric water that contacts open pits, stockpiles, spent heap leached ore and tailings from past mining operations, and other mining related surfaces would be collected and used, to the extent possible, in mining and ore processing activities as makeup water for the ore processing circuit or for dust control. Contact water that cannot be used would be treated, if necessary, to meet applicable IPDES permit limits prior to discharge. Inflows to the contact water component include DRSF runoff and toe seepage, pit wall runoff, water from underground exploration activities, runoff from processing facilities, and direct precipitation on contact water storage ponds. Outflows from the contact water component include makeup water for ore processing, evaporation (including forced evaporation), dust suppression in mine pits and on DRSFs, pumped transfers to the TSF, and discharge following treatment at the WTP. The use of water in the mining and ore processing operations would require appropriate permitting and approval of water rights from IDWR.

### 3.10.3.6 Pit Dewatering

Development of the mine pits would require dewatering alluvial and bedrock aquifers around the pits to limit groundwater inflow to the pits and maintain stability of the pit slopes. Water from the dewatering wells could be used as makeup water in ore processing operations, used for dust suppression, or sent to the WTP for treatment before being discharged to the surface water system via an IPDES permitted outfall.

### 3.10.3.7 Water for Potable Use

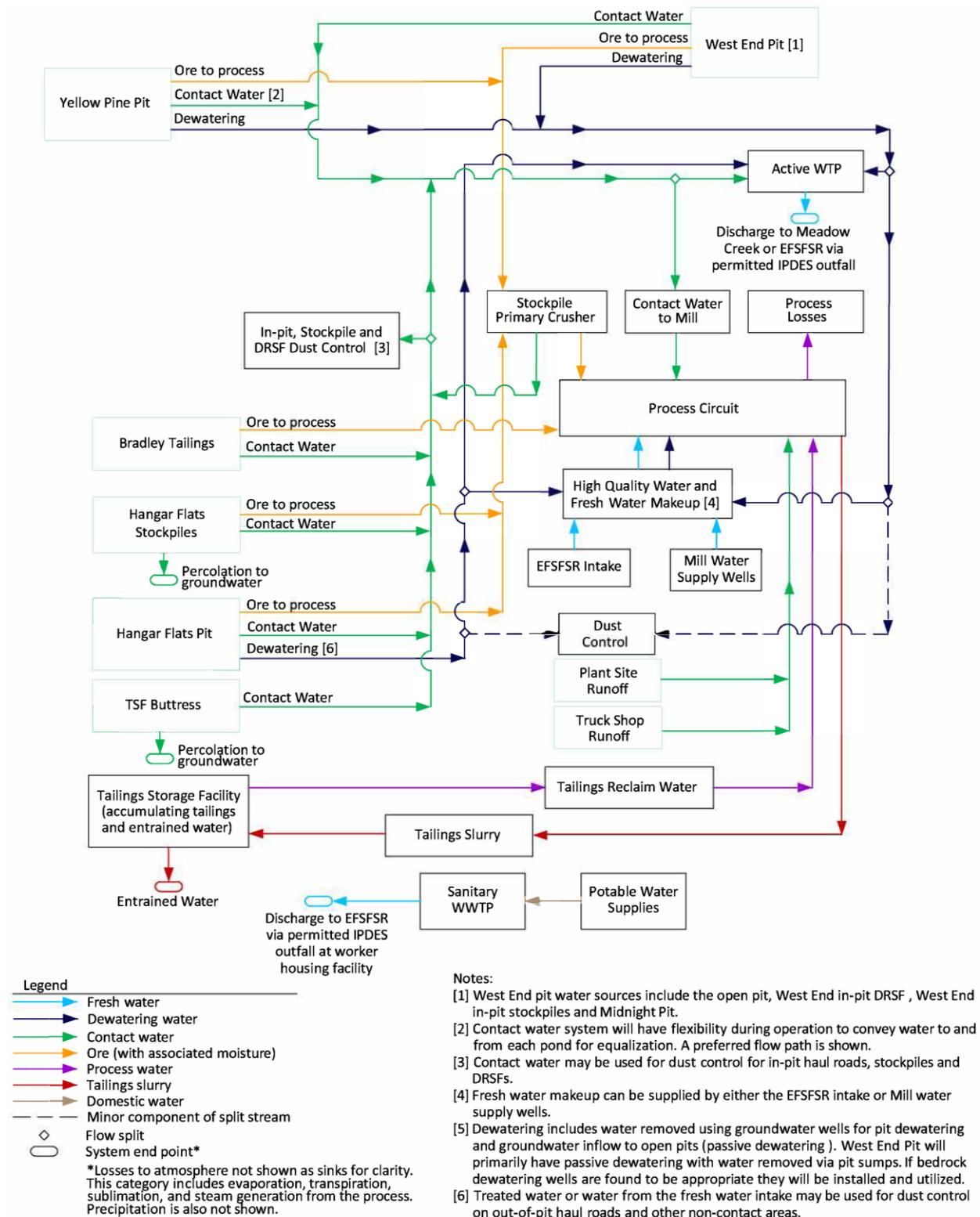
Potable water would be needed for worker consumption and sanitary use. Groundwater would be the primary source of water for potable use at the mine site. An existing well located near the exploration camp in the EFSFSR drainage would be used to supply an independent water circuit, along with a separate wellfield in the EFSFSR drainage adjacent

to the worker housing facility. Wells also would be drilled for potable and industrial water uses at the Landmark Maintenance Facility and the SGLF. Midas Gold would obtain appropriate domestic use water rights for these wells from IDWR.

### **3.10.3.8 Other Water Uses**

Other water uses associated with the SGP include dust control, exploration, and fire protection. Contact water can be used for dust control within disturbed areas such as the DRSFs and mine pits. In some areas, water volumes necessary for road dust suppression would be reduced by using dust control chemicals, such as magnesium chloride or lignin sulfonate. Water also would be used to support both surface and underground exploration activities. Fire suppression would be facilitated through freshwater storage tanks and hydrants.

Figure 3-19 Operational Water Balance Flow Diagram



### 3.10.4 Water Treatment and Disposal

Three water types will require treatment over the life of the Project: contact water from mine facilities, which includes dewatering water (construction through closure); process water from the TSF (closure); and sanitary wastewater (construction through early closure). During operations, treating and releasing contact water is generally limited to periods when a significant amount of dewatering water is being produced, or seasonally in wet years. Outside of that time, much of the collected contact water can be put to beneficial use by storing that water into the summer and fall. During construction and at closure, absent a water demand for ore processing, less contact water can be consumed and proportionally more must be disposed of through evaporation or treatment and discharge. From construction through early closure, the camp and offices will produce sanitary wastewater needing treatment.

Specific sources of water that could be expected to require treatment during operations include:

- Contact water from the dewatering of the Hangar Flats, Yellow Pine, and West End pits;
- Contact stormwater runoff from the pits, TSF buttress, Bradley Tailings, SODA, Hecla Heap, run-of-mine ore stockpile area, truck shop, and ore processing facility;
- Toe seepage from the TSF buttress and long-term ore stockpiles; and,
- Sanitary wastewater from the worker housing facility, truck shop, ore processing facility, administrative buildings, and offside facilities.

Water quality permitting discussions are ongoing, but it is likely that the Project will need to adhere to stringent surface water quality standards for arsenic and antimony. Thus, coupled with the timing of water treatment needs with respect to the mining sequence and dewatering excess, treatment methods and capacity will be phased. During construction and early in operations, a modular, mobile, rented iron coprecipitation system is planned. Early in operations, this system would be replaced by a two-train iron coprecipitation system located at the ore processing facility. Sludge from the clarifiers during construction would be stored in a small impoundment in the TSF footprint or on previously disturbed land at SODA. During operations and closure, the sludge would be stored on-site in the TSF. Due to contact water runoff seasonality, reuse, and equalization storage (i.e., ponds), average treatment rates are often significantly less than nominal treatment capacity, except during Hangar Flats dewatering when a substantial proportion of treated water is from relatively constant dewatering flows

The total area of the Project that would generate contact water varies through the life of the Project as various facilities come online, expand, and are closed. This is met with a staged water treatment strategy. The construction time period is paired with 300 gpm of peak capacity from package iron coprecipitation plants. The first three years of operations would require 1,000 gpm of total treatment capacity, using an iron coprecipitation plant that would remain until closure. During peak simultaneous dewatering of the Yellow Pine pit and the Hangar Flats pit, an additional 1,000 gpm of modular water treatment capacity will be brought online for approximately three years, then treatment capacity would be scaled back to 1,000 gpm for the remainder of operations and early closure.

At closure, the plant would be modified to accommodate treatment of water from the TSF. After mine closure and final reclamation of the TSF Buttress and pit backfill surfaces, contact water treatment will no longer be required; but process water treatment for the TSF (Section 3.14.15) will continue longer, through approximately year 40. For post-closure treatment, the plant would be relocated to the TSF Buttress as the TSF would be the only remaining water source requiring treatment. A transition to passive treatment of TSF water may be implemented in post-closure (year 24 through 40), contingent on pilot studies, and starting when TSF cover outflow rates and water quality allow. Active treatment would be continued as needed, and post-closure active and passive treatment would be located on private land.

Enhanced evaporation, using snowmaker style misters located over the TSF, ponds, and/or pits, will supplement the treatment system, in particular to prevent surplus process water accumulation in the TSF and eliminate contact water inventory, if necessary, in the Hangar Flats or SODA ponds. Approximately 3,600 gpm of nominal evaporator capacity (i.e., throughput, which exceeds actual volume evaporated according to unit efficiency) will be available during operations and early closure (through year 17), then scaled back to approximately 1,200 gpm until the TSF is covered in approximately year 23.

Sanitary wastewater would be treated using membrane bioreactor (MBR) or similar technology. Early in construction, the currently-permitted MBR plant at the existing exploration camp would be used, and treated effluent reused for flushing toilets and urinals (as allowed by Midas's existing Reuse Permit M-228-02) or discharged to the existing drain field, while the worker housing facility and its associated treatment plant is under construction. During operations and closure, sanitary wastewater from the worker housing facility, ore processing facility, and administration buildings would be treated at a new MBR or similar plant and discharged to the EFSFSR via a permitted IDPES outfall. Vaults or portable toilets would be used at offsite facilities and remote locations onsite (TSF, pits, maintenance facility etc.), and serviced as needed using vacuum trucks. Treatment residuals would be hauled offsite to a permitted sanitary landfill. Vault/portable toilet wastewater would be hauled to a public / municipal wastewater treatment plant.

Permit discharge limits would be developed according to IDEQ and Clean Water Act (CWA) requirements and the limits would be established by the IPDES permit issued by the IDEQ.

Additional mine water treatment would be required during closure and post-closure as discussed in [Section 3.14.15](#). Anticipated outfalls during mining operations are discussed in [Section 3.10.1.4](#).

The approach to water treatment would be the same as the ModPRO (DEIS Alternative 2), but at lower volumes in all phases due to revised mine planning and improved water modeling leading to less temporal overlap of disturbance, less dewatering, fewer DRSFs, retention of operational Meadow Creek diversion at Hangar Flats pit, smaller Hangar Flats pit, and backfill eliminating the formation of the Hangar Flats pit lake.

### **3.11 MATERIALS, SUPPLIES, AND CHEMICAL REAGENTS**

Table 3-6 lists the major materials, supplies, and chemical reagents to be used, including fuel, explosives, and ore processing reagents.

A Spill Prevention, Control, and Countermeasures Plan would be developed to establish procedures for responding to accidental spills and releases of petroleum products. In addition, a Hazardous Materials Handling and Emergency Response Plan would be developed to address procedures for responding to accidental spills or releases of hazardous materials to minimize health risks and environmental effects.

This represents no change to the materials, supplies and chemical reagents versus that detailed in the DEIS for all alternatives, other than greater LOM totals due to extending ore processing an additional 2.25 years, and the use of on-site limestone sources (as in Alternative 2).

#### **3.11.1 Diesel Fuel, Gasoline, and Propane**

Aboveground storage tanks would be used for fuels and other fluids, including gasoline, diesel fuel, lubricants, coolants, hydraulic fluids, and propane at the mine site, as outlined in a Spill Prevention, Control and Countermeasures Plan required for the mine site under Section 311(j)(1)(C) of the CWA. The storage tank facility for gasoline, diesel fuel, and propane would be located near the maintenance workshop with additional propane storage at the ore processing facility area, the underground portal area, and the worker housing facility.

Approximate tankage volumes for diesel, gasoline and propane that would be stored at the mine site are included in Table 3-6.

This represents no change to the diesel fuel, gasoline and propane versus that detailed in the DEIS for Alternatives 1 through 4, and reflects the onsite generation of lime using propane to fire the lime kiln (as in the ModPRO).

**Table 3-6 Proposed Materials, Supplies, and Reagents**

Common Name	Units	Annual Use	Delivery Form	Typical Vehicle Payload	Onsite Storage Capacity	Storage Method	On Site Mine Uses	Estimated Deliveries per Year
Diesel Fuel	Gallons	5,800,000	Bulk liquid	10,000	200,000	Tanks	Mine Site	580
Lubricants	Gallons	296,000	Bulk liquid	3,000	30,000	Tanks, Totes, Drums	Truck Shop	99
Gasoline	Gallons	500,000	Bulk liquid	5,000	10,000	Tanks	Mine Site	100
Antifreeze	Gallons	40,000	Bulk liquid	3,000	4,000	Tanks, Totes, Drums	Truck Shop	13
Propane-Buildings	Gallons	560,000	Bulk liquid	6,000	30,000	Tanks	Buildings	93
Propane-Lime Plant	Gallons	1,463,000	Bulk liquid	11,000	30,000	Tank	Lime Plant	133
Solvents	Gallons	1,000	Bulk liquid	200	1,000	Totes or Drums	Truck Shop	5
Tires	Each	246	Bulk solid	Variable	59	Laydown	Mining	47
Batteries	Units	Variable	Pallets	Variable	500 units	Pallets	Mining	25
Light Ballasts	Pounds	25	Pallets	Variable	1,000	Pallets	General Operations	5
Pesticides/ Insecticides	Pounds	250	Pallets	Variable	1,000	Pallets, drums	General Operations	1
Herbicides	Pounds	1,000	Pallets	Variable	2,000	Pallets, drums	Environmental	1
Fertilizer	Pounds	2,500	Pallets	Variable	5,000	Pallets, drums	Reclamation	1
Ammonium Nitrate	Tons	7,300	Bulk solid	24	200	Secured Silos	Open Pits - blasting	304
Explosives (1)	Tons	100	Boxes	5	20	Secured Magazines	Open Pits - blasting	20
Grinding media, SAG mill	Tons	4,449	Bulk solid	24	200	Bunkers and Bins	Mine Process Area	186
Grinding media, Ball mill	Tons	3,566	Bulk solid	24	200	Bunkers and Bins	Mine Process Area	149
Grinding media, LS Ball mill	Tons	34	Bulk solid	24	200	Bunkers and Bins	Mine Process Area	2
Priiary crusher liners	Tons	62	Set	24	1 set	Laydown	Mine Process Area	3
Pebble crusher liners	Tons	84	Set	24	1 set	Laydown	Mine Process Area	4
SAG liners	Tons	801	Set	24	1 set	Laydown	Mine Process Area	34
BM liners	Tons	1,424	Set	24	1 set	Laydown	Mine Process Area	60
LS Primary crusher liners	Tons	9.16	Set	24	1 set	Laydown	Mine Process Area	1
LS Secondary crusher liners	Tons	9.32	Set	24	1 set	Laydown	Mine Process Area	1
LS Ball mill liners	Tons	27.8	Set	24	1 set	Laydown	Mine Process Area	2
Lime Slaker liners	Tons	3.5	Set	24	1 set	Laydown	Mine Process Area	0.25

**STIBNITE GOLD PROJECT  
FEASIBILITY STUDY SUMMARY**



Common Name	Units	Annual Use	Delivery Form	Typical Vehicle Payload	Onsite Storage Capacity	Storage Method	On Site Mine Uses	Estimated Deliveries per Year
Sodium Cyanide	Tons	4,000	Bulk containers	24	300	Tanks, bins	Mine Process Area	167
Activated carbon	Tons	500	Supersack solid	22	50	Supersacks	Mine Process Area	23
Copper sulfate	Tons	1,250	Supersacks, 1,000 kg	22	100	Supersacks	Mine Process Area	57
Lead nitrate	Tons	800	Supersacks, 1,000 kg	22	25	Supersacks	Mine Process Area	37
Aerophine 3418A	Gallons	10,500	Bulk liquid	200	400	Tanks	Mine Process Area	53
AP 3477	Gallons	60,000	Bulk Liquid	3,000	6,000	Tanks	Mine Process Area	20
Methyl isobutyl carbonyl	Gallons	120,000	Bulk liquid	3,000	6,000	Tanks	Mine Process Area	40
Flocculant (Unnamed)	Tons	300	Supersacks	22	50	Super Sacks	Mine Process Area	14
Sodium metabisulfite	Tons	2,000	Supersacks	22	200	Supersacks	Mine Process Area	91
Potassium amyl xanthate	Tons	1,350	Bags in boxes	20	40	Stacked Boxes	Mine Process Area	68
Sodium hydroxide	Tons	330	Supersacks	22	40	Supersacks	Mine Process Area	15
Nitric acid	Gallons	65,000	Bulk liquid	3,000	6,000	Tanks	Mine Process Area	22
Scale control reagents	Pounds	5,000	Drums or totes	1000	1,000	Drums or totes	Mine Process Area	5
Hydrogen peroxide	Gallons	7,100	ISO Totes	3,660	10,000	ISO Totes	Mine Process Area	2
Sodium hypochlorite	Pounds	1,000	50-pound bags	1,000	1,000	Bags on pallets	Water treatment	1
Magnesium chloride, 33%	Gallons	250,000	Bulk liquid	4,500	20,000	Tanks	Road surfaces	56
Sulfuric acid	Gallons	12,285	Bulk liquid	3,000	8,000	Tank	Water Treatment	5
Ferric Sulfate	Tons	368	Supersacks	22.0	370	Supersacks	Water treatment	17
Anionic Polymer	Tons	2.19	Drums		3	Drums	Water treatment	1
Cationic Polymer	Tons	1.74	Drums		2	Drums	Water treatment	1
Microsand	Tons	6.58	Bags		7	Bags on pallets	Water treatment	1

### 3.11.2 Explosives

Ammonium nitrate would be received in bulk in tanker trucks and transferred into storage silos. Other blasting supplies used for mine blasting operations would include blasting emulsion products, detonating cord, cast primers, and blasting caps. These products would be delivered in boxes or other approved containers on trucks. Components of bulk explosive material would be stored in separate and isolated containers, sized and designed to meet Bureau of Alcohol, Tobacco, Firearms and Explosives and Mine Safety and Health Administration requirements. Explosive magazines for detonating cord, cast primers, and blasting caps also would be in a separate, fenced, and gated site away from the diesel fuel oil storage tanks and the ammonium nitrate silos, and other mine surface facilities.

This represents no change to the transport, nature and usage of explosives versus what is detailed in the DEIS for Alternatives 1 through 4.

### 3.11.3 Oils, Solvents, and Lubricants

Motor oils, lubricants, antifreeze, and solvents would be shipped to the mine site on trucks. These would be stored in approved containers located within, or directly adjacent to, the maintenance shop and contained within secondary containments to prevent spills into the environment. All used petroleum products, waste antifreeze, and used solvents would be collected in approved containers, transported off site, and disposed or recycled.

This represents no change to the transport, nature and usage of oils, solvents and lubricants versus what is detailed in the DEIS Alternatives 1 through 4.

### 3.11.4 Miscellaneous Consumables

Lime would be produced onsite and would be stored in silos at the ore processing facility. Silos would be equipped with air emission controls. Sodium cyanide would be transported as dry cyanide briquettes to the mine site. Nitric and sulfuric acid would be transported in tanks designed to prevent spills even in the event of rollovers. Nitric and sulfuric acids would be stored in specialized non-corrosive, polyethylene-lined tanks located within the ore processing facility and would have secondary containment.

Miscellaneous consumables would consist of various reagents used in the ore processing facility not already described, along with wear parts for the crushing and grinding circuits. Miscellaneous reagents used in the ore process are shown on Table 3-6. Liquids would be shipped to the mine site in tank trucks designed for spill prevention and escorted to the mine site by pilot cars manned and equipped to handle spills. All reagents would be transported and stored in suitable containers in designated reagent storage areas.

This represents no change to the transport, nature and usage of miscellaneous consumables versus what is detailed in the DEIS for all alternatives and reflects the increased usage of propane to generate lime on site (as in the ModPRO).

## 3.12 WASTE MANAGEMENT

Materials that are not consumed would be recycled, to the extent practical, or disposed of in accordance with applicable regulations. Some of the wastes anticipated to be generated at the mine site include municipal waste, fluorescent bulbs, batteries, empty aerosol containers, and Hazardous wastes which would be managed in accordance with the appropriate regulatory standards.

Used petroleum products would be stored on site in approved containers. Used petroleum products would be transported off site for recycling or disposal in an approved facility.

Other legacy materials may be encountered during construction and operations. If encountered, these materials would be characterized to determine potential for reprocessing, reuse, or on-site or off-site disposal.

This represents no change to waste management versus what is detailed in the DEIS for Alternatives 1 through 4.

### **3.12.1 Sanitary Waste**

Sanitary waste handling facilities would be present at the mine site and offsite facilities and would be constructed and operated in accordance with Valley County, IDEQ, and Idaho Department of Health and Human Services standards. Sanitary wastewater treatment is discussed in [Section 3.10.4](#).

This represents no change to sanitary waste versus what is detailed in the DEIS for Alternatives 1 through 4.

### **3.12.2 Composting**

A large-scale onsite composting facility is not anticipated due to the lack of available space in the project area. Small scale composting associated with organic materials generated at the worker housing facility may be incorporated within the centralized GMS in the Fiddle valley. Any larger composting facilities deemed necessary to support growth media quality or quantity improvements would be located at off-site areas such as Burntlog Route borrow areas and would be permitted by IDEQ with oversight by the local Health District.

This represents a change to composting versus what is detailed in the DEIS for Alternatives 1 through 4.

### **3.12.3 Landfarm**

A landfarm (i.e., a biological waste treatment process for treating hydrocarbon contaminated soils via spreading and tilling/aerating) would be maintained on site (as needed) on approximately 2 to 3 acres of private land. The landfarm and materials to be added would be sampled, characterized, constructed, operated, and monitored in accordance with all applicable local, state, and federal regulatory requirements.

This represents no change to the landfarm versus what is detailed in the DEIS for Alternatives 1 through 4.

### **3.12.4 Solid Waste**

Solid waste from the worker housing facility, shops, and other work areas that cannot be composted or recycled would be collected in wildlife-resistant receptacles and hauled offsite for disposal in a municipal waste landfill. Early in mine life, inert construction and demolition (C&D) waste would be placed in an approximately 4-acre onsite landfill located on private land in the Fiddle drainage. Once pit backfilling is in progress, and during active closure, additional C&D landfills would be created within pit backfills and at the ore processing facility site. No materials meeting the definition of municipal or hazardous waste, nor any waste that could produce pollutants or contaminants that could travel off site would be placed in these facilities. The onsite landfills would be designed to meet non-municipal solid waste landfill regulations (IDAPA 58.01.06).

This represents no material change to the general solid waste management strategy of haul-off of municipal waste and on-site landfilling of C&D waste versus what is detailed in the DEIS for Alternatives 1 through 4; however, with the elimination of the Fiddle DRSF the capacity of the landfill would be lower, potentially requiring additional on-site landfill(s) located on private land within the Yellow Pine or Hangar Flats pit backfills or at the ore processing facility, or C&D waste to be hauled offsite for disposal.

### 3.12.5 Hazardous Waste Handling

Material that meets the classification of a “hazardous waste” will be collected and stored, per the project Waste Management Plan at specially designed and operated secured satellite collection sites and a main storage site prior to shipment to a Resource Conservation and Recovery Act (RCRA) certified hazardous waste disposal facility.

This represents no change to hazardous waste handling versus what is detailed in the DEIS for Alternatives 1 through 4.

### 3.13 SURFACE AND UNDERGROUND EXPLORATION

Exploration and development drilling would occur to evaluate potential mineralized areas outside of the proposed mining areas. New surface and underground exploration activities would be conducted during construction and concurrent with operations. Any additional future expansion of mining activities would require supplemental permitting and approvals, including additional evaluation under NEPA where applicable.

#### 3.13.1 Surface Exploration

Up to 5 acres of temporary road disturbance and 8 acres of drill site disturbance on NFS lands at the mine site at any one-time during construction and operations. Exploration sites would be reclaimed after completion of drilling. Reclaimed acres would become available for future exploration, never exceeding 13 acres of disturbance at any one time. Ultimate potential disturbance resulting from surface exploration would total approximately 25 acres of roads and 40 acres of drill pads. Any stream crossings outside of permitted development and operations crossings may require additional permits under Section 404 of the Clean Water Act.

The exploration roads and drill pads would be located, as practical, on historical disturbance to avoid any identified cultural resources, other sensitive areas such as wetlands or Riparian Conservation Areas, and disturbance to Endangered Species Act listed species. [Figure 3-20](#) shows the boundary of the area within which ongoing surface exploration during construction and operations would occur.

Drill pad sizes would vary depending on the type of drilling equipment, number of holes to be drilled from the pad, and depth of drill hole. Drill pad sizes may range from approximately 0.05 acre to approximately 0.15 acre.

Sumps and/or portable tanks would be used at each drill site to collect drill cuttings and to manage and circulate drilling fluids. Sumps would be constructed with at least one side having a shallow grade for wildlife egress. Sumps would be backfilled and reclaimed when no longer needed for drilling.

Exploration wells would be abandoned with surface completions/seals and be capped consistent with IDAPA at 37.03.09 – Well Construction Standards Rules. Pre-collared holes would only be associated with track or truck mounted drilling equipment.

Areas disturbed for exploration would be contoured to blend into surrounding terrain; water bars and surface water channels would be retained to handle flows through the area. Compacted areas would be de-compacted as necessary prior to fertilizing and seeding.

Depending on the location of the drill site, a variety of drill rigs and equipment would be supported by helicopter or terrestrial vehicle. Some drill holes may exceed 1,500 feet, but the average drill-hole depth would be approximately 800 feet. Drill holes would be both vertical and angled. Drilling activities also may include water exploration, dewatering well installation, and monitoring well installation. Water and non-toxic drilling fluids would be used for all drilling.

This represents no change to the approach, scope and nature of surface exploration versus what is detailed in the DEIS for Alternatives 1 through 4.

### **3.13.2 Underground Exploration**

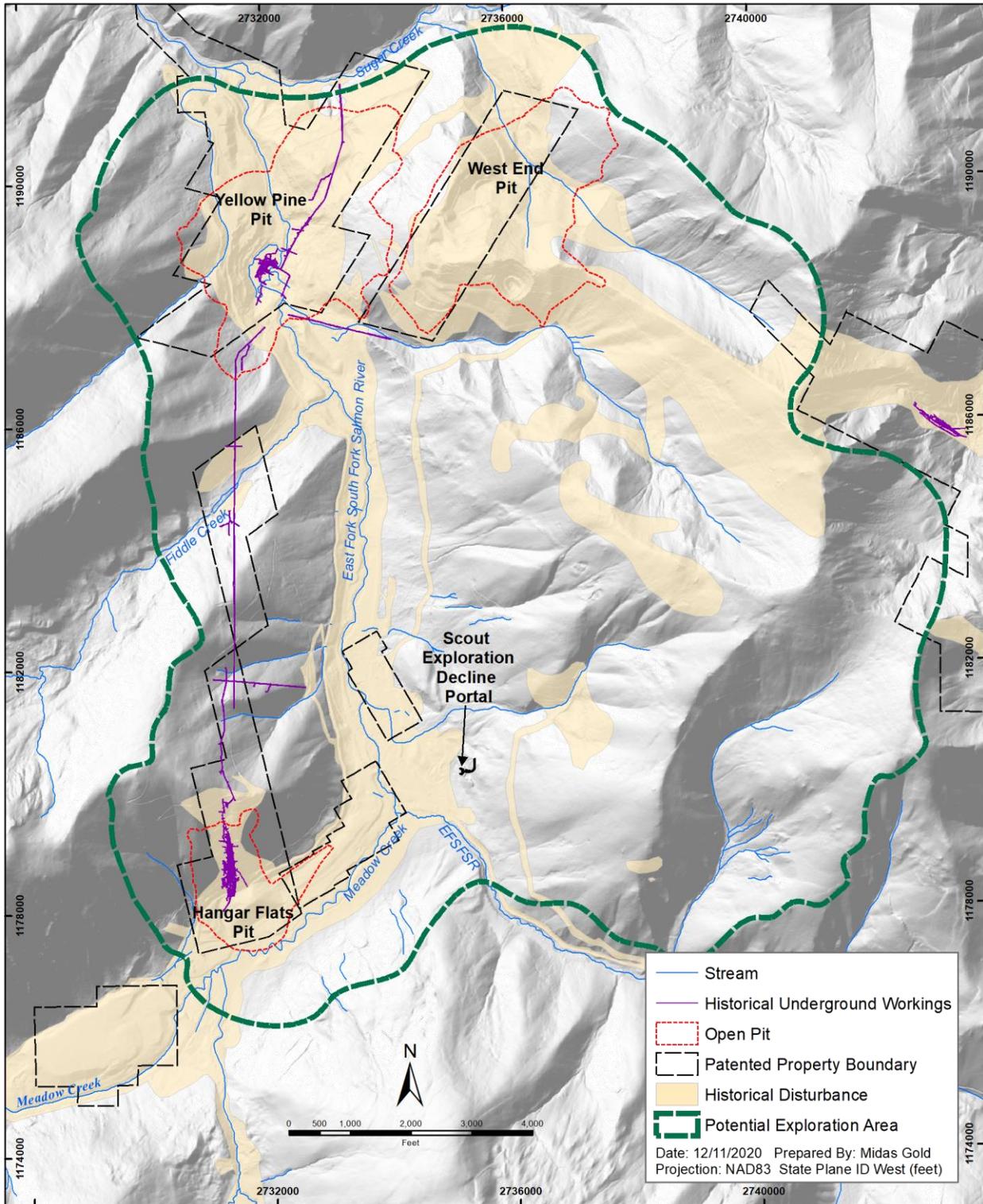
Underground exploration activities would be conducted from a one-mile, downward-sloping tunnel (i.e., a decline). The decline would be used to reach the subsurface mineralized zone known as the Scout Prospect. The decline would be accessed from a portal facility known as the Scout Portal, located south of the planned ore processing facility ([Figure 3-9](#)). Approximately 100,000 tons of rock would be excavated from the decline for development. Selected cuttings or core would be removed from underground for testing.

To construct the portal facility, the hillside would be cut into to develop a near vertical slope using conventional underground drill and blast operations with mechanized equipment. Explosives would be used in the underground development process to construct the decline. The underground development rock could be used for surface pad construction, hauled to the ore stockpile area, or hauled for storage in a DRSF as appropriate after appropriate testing.

Drilling is used in advance of the decline to ensure unexpected or unmanageable water pressures are not intersected. Water would be used in underground drilling or pumped from the collection point to the surface. Upon reaching the surface, this water would be piped to the ore processing facility and used in the plant.

This represents no change to the approach, scope and nature of underground exploration versus what is detailed in the DEIS for Alternatives 1 through 4.

Figure 3-20 Surface Exploration Boundary



### 3.14 CLOSURE AND RECLAMATION

#### 3.14.1 Overview

Closure and reclamation at the site would include interim, concurrent, and final closure and reclamation ([Tetra Tech, in progress \[b\]](#)).

Interim reclamation is intended to provide shorter-term stabilization to prevent erosion of disturbed areas and stockpiles that would be removed or more fully and permanently reclaimed later.

Concurrent reclamation is designed to provide permanent, low-maintenance achievement of final reclamation goals on completed portions of the site prior to the overall completion of mining activities throughout the mine site. Approximately 46% of the Project reclamation would be done concurrent to mining and ore processing; the remaining 54% would be accomplished during closure.

Final closure and reclamation would involve removing all structures and facilities; reclamation of those areas that have not been concurrently reclaimed such as the TSF and some backfill surfaces; recontouring and improving drainages; creation of wetlands; reconstructing various stream channels; decommissioning of the EFSFSR diversion tunnel; growth media placement; planting and revegetation on disturbance areas; and reopening Stibnite Road (FR 50412) through the mine site.

Final reclamation of certain facilities could continue beyond the five-year closure and reclamation period. The Burntlog Route would be needed until the TSF is fully reclaimed, after which the newly constructed portions would be decommissioned and reclaimed, with the exception of removal of soil nail walls, and the currently existing portions returned to their prior use.

Closure and reclamation activities would be intended to achieve post-mining land uses of wildlife and fisheries habitat and dispersed recreation at the mine site. Dispersed recreation uses would be accessible by the reopening of Stibnite Road (FR 50412) (including establishment of a permanent public road through the backfilled Yellow Pine pit) that would facilitate recreational traffic and access to Thunder Mountain.

Concurrent and final closure and reclamation for the ModPRO2 are described in greater detail in the following sections. A plan view of the Stibnite area closure surface is presented on [Figure 3-21](#).

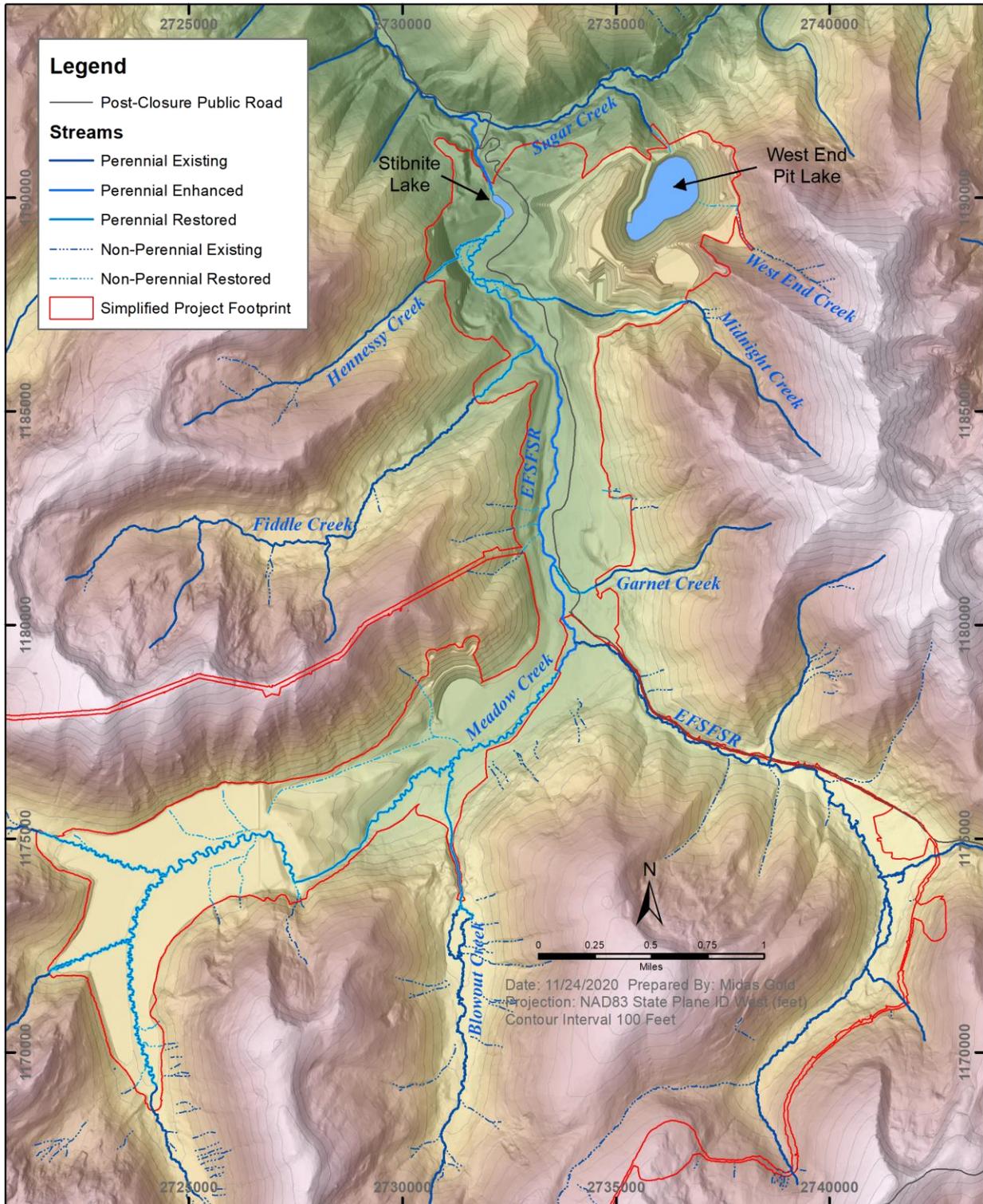
This represents no change to the approach to, and scope and nature of closure and reclamation versus what was detailed in the DEIS for Alternatives 1 and 2 except that the smaller Hangar Flats pit, backfill of Hangar Flats pit, larger West End pit, elimination of the Fiddle and West End DRSFs, the replacement of eight growth media stockpiles around the site as with one centralized GM stockpile in the Fiddle drainage, and a slightly larger Hangar Flats DRSF will reduce the overall project area to be closed and reclaimed.

#### 3.14.2 Temporary Closure

There are no periods of temporary or seasonal closure currently planned for the SGP. In the event of temporary suspension of mining activities, Midas Gold would notify the USFS, USACE, IDEQ, IDWR, IDL, and Valley County in writing with as much advanced warning as possible of the temporary stop of mining activities. This notification would include reasons for the shutdown and the estimated timeframe for resuming production.

During any temporary shutdown, Midas Gold would continue to implement operational and environmental maintenance and monitoring activities to meet permit stipulations and requirements for environmental protection.

**Figure 3-21 Site Closure Plan**



If ore processing is not occurring, and depending on the time of year, dewatering may be halted, and excess contact water collected from the various facilities may be allowed to remain in pits, stored in ponds, or transferred to the pits or TSF for temporary storage prior to water treatment or later reuse. In the case of a longer-term closure, mobilization of additional water treatment capacity may be necessary to allow discharge to the area streams and prevent filling of the TSF. In no case would the TSF design freeboard or reserved flood storage be exceeded. A plan would need to be developed, reviewed and approved by the appropriate regulatory authorities, and implemented at the time of any longer-term temporary closure.

This represents no change to the approach, scope and nature of temporary closure versus what is detailed in the DEIS for Alternatives 1 through 4.

### **3.14.3 Decommissioning, Demolition, and Disposal of Facilities**

Midas Gold would dismantle or demolish structures and facilities not necessary for post-closure water management (e.g., certain culverts, pipelines, and water treatment facilities). The materials from the dismantling or demolition of structures and facilities would be salvaged or disposed in the onsite private landfill(s) and/or in permitted offsite landfills. All reagents, petroleum products, solvents, and other hazardous or toxic materials would be removed from the site for reuse or would be disposed of according to applicable state and federal regulations. Foundations would be broken or fractured as required to prevent excessive water retention and covered in-place with a minimum of 2 feet of a combination of 1.5 feet of backfill and 0.5 feet of growth media or would be broken up and buried a minimum of 2 feet deep in the TSF buttress or pit backfill. Soil/rock beneath fuel storage areas and chemical storage buildings would be tested for contamination and removed and disposed of appropriately as needed.

This represents no material change to the approach, scope and nature of decommissioning, demolition and disposal of facilities versus what is detailed in the DEIS for Alternatives 1 through 4.

### **3.14.4 Underground Exploration and EFSFSR Tunnel Closure and Decommissioning**

Midas Gold would decommission and close underground facilities and underground support facilities, including the portals of the EFSFSR Tunnel and Scout decline. To prevent future access to underground workings, the underground portals (i.e., EFSFSR Tunnel and Scout decline) will be closed using a concrete block bulkhead, rockfill, or a combination of rockfill and low-permeability foam. The downstream (north) EFSFSR portal and the Scout decline would be closed with bulkheads inside the portals (where overhead cover was at least 3 times the tunnel height) or backfilled with clean rockfill starting inside the portals and working outward, and up against the portal headwalls. Surface swales would be installed to direct surface water around the backfilled portal, and the exterior backfill and surrounding disturbance would be graded to blend with adjacent topography, covered with growth media, and revegetated. At the EFSFSR upstream (south) portal, the control weir would be left in place, and the fishway weir notch raised with concrete, creating an approximately 4 foot high sill to exclude river water or alluvial groundwater, and low-permeability geofoam or similar would be installed inside the portal after the initial backfill or bulkhead, to prevent water entry. Then, the portal area would be filled, regraded, and revegetated as described for the other openings.

This represents no change to the general approach of blocking future access to underground openings but is a potential change in methodology in favor of allowing the option of using earthworks techniques (rockfill and/or geofoam) over structures (bulkheads) versus what is detailed in the DEIS for Alternatives 1 through 4.

### **3.14.5 Landfill**

Onsite landfills will be closed per Idaho requirements for Non-Municipal Waste Landfills. The surface of the onsite landfill would be covered with development rock, alluvium, or till at least 12 inches thick, graded to promote drainage

and prevent pooling of water and to match the surrounding surface topography. Following grading 6 inches of GM would be placed on the covered landfill and the areas would be revegetated. The final overall out-slopes of the Fiddle landfill would be no greater than 3H:1V; landfills within pit backfill would be covered by backfill and reclaimed at the final backfill slope (up to 2.5H:1V). Landfill access roads would be retained for monitoring and maintenance access until reclamation is complete. When surface reclamation and revegetation monitoring is completed, roads would be obliterated and reclaimed.

This represents no change to the approach, scope and nature of landfill closure and decommissioning versus what is detailed in the DEIS for Alternatives 1 through 4; however, the landfill size, number, and locations have changed as a consequence of eliminating Fiddle DRSF.

### **3.14.6 Yellow Pine Pit and DRSF**

The Yellow Pine pit would be backfilled with West End pit development rock during operations. The backfill will be placed by end dumping from a number of locations around the pit, including highwall edges and also direct placement in the base of the pit as the backfill fills the pit. This material will not be compacted beyond any compaction that takes place during placement, subsequent routing of trucks, burial and consolidation. Portions of the highwalls on the east and west sides of the pit would remain above the backfilled portion of the pit and would not be reclaimed. A sinuous channel would be constructed through the backfilled area for the reconstructed EFSFSR with an average valley gradient approximating the original river gradient ([Tetra Tech, in progress \[b\]](#)). The channel and floodplain corridor atop the Yellow Pine pit backfill would be lined with low permeability geosynthetics. Above the stream corridor liner, a layer of relatively fine material would be placed to protect the liner from puncture, followed by coarse rock armor to prevent exposure via stream scour, followed by floodplain alluvium at a minimum thickness equal to the maximum estimated scour depth of the proposed stream channel. Growth media will then be placed and revegetated as appropriate. The lined corridor will be wide enough to accommodate future channel migration and evolution.

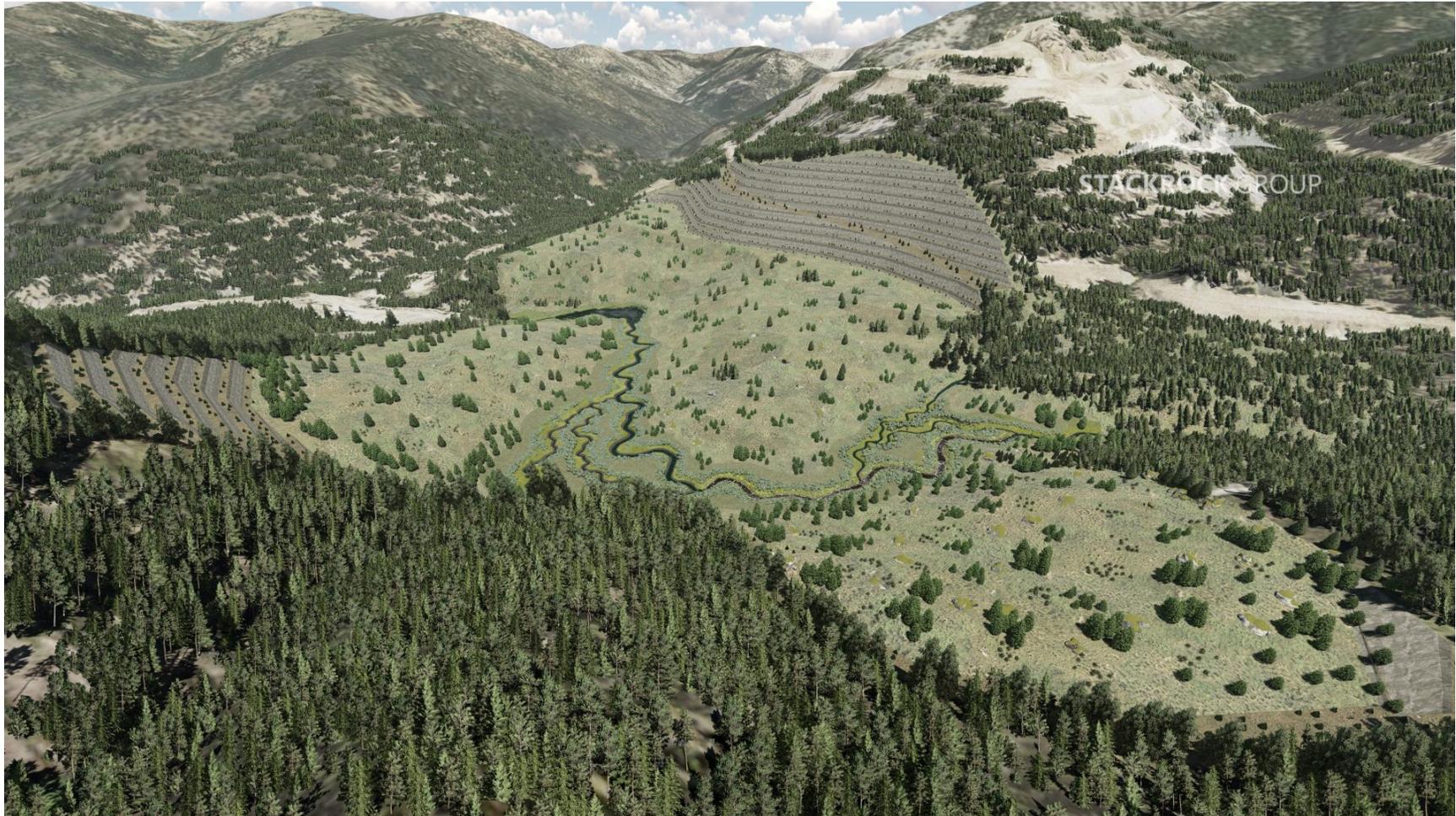
Hennessy Creek would cascade over the west highwall (approximately 275 feet tall) of the Yellow Pine pit to a restored section of low-gradient channel on the western edge of the reconstructed EFSFSR floodplain before joining the restored EFSFSR channel, and Midnight Creek would be restored across the southeastern portion of the EFSFSR floodplain. After closure of the EFSFSR tunnel, backfilling of the Yellow Pine pit, and restoration of the EFSFSR and Hennessy Creek across the backfill, the Hennessy Creek diversion would be decommissioned and the area reclaimed, along with the adjacent operations-phase public access road.

To accommodate migrating fish, including salmon and bull trout, step pools would be established within the constructed channels. The vertical relief (drop) between successive pools would not exceed published fish passage criteria. High flow events would guide the overall channel and floodplain design and construction, with channel bankfull width approximately 25 to 30 feet, and average depth of approximately 2 feet. Stibnite Lake, of similar size to the current Yellow Pine pit lake, would be constructed within the lined corridor. The Stibnite Lake feature would reduce summer maximum stream temperatures downstream site and replace or improve upon the habitat functions of the existing former mine pit.

The operations-phase public access road at the western edge of the pit would be reclaimed, and permanent public access through the site to Thunder Mountain Road (FR 50375) would be reestablished with construction of a road through the backfilled area, replacing segments of Stibnite Road (FR 50412) removed by mining.

This represents no change to the approach, scope and nature of the Yellow Pine pit and DRSF closure and decommissioning versus what is detailed in the DEIS for Alternatives 1 through 4, other than the addition of Stibnite Lake as a stream temperature control and environmental protection measure.

Figure 3-22 Post Closure Oblique View of Yellow Pine Pit Area



### 3.14.7 West End Pit

West End Creek would be routed into the West End pit in a rock chute on the highwall adjacent to the upper legacy development rock dump, below which a pit lake is anticipated to form in the main portion of the West End pit. The up to 400-foot-deep West End pit lake will fill gradually, and lake levels will fluctuate seasonally and with longer-term climate variations; however, the lake is not expected to completely fill with water or spill due to the limited catchment area.

To account for model uncertainty, lake levels would be monitored after closure, and a threshold water level would be established, sufficient to contain the predicted runoff volume from a high-snowpack year without discharge. If water levels approach the threshold, either or both surface water diversion and water treatment could be implemented to prevent the lake from spilling. For treatment, a temporary treatment unit would be mobilized to the site to treat and discharge the water until the lake level falls below the threshold level, thus preventing untreated discharge in potential subsequent wet weather years and enabling gradual and predictable water treatment rather than treatment at higher but variable and uncertain peak spring runoff rates.

The Midnight pit, the approximately 6-acre, 100-foot deep southeastern portion of the overall West End pit within the Midnight Creek catchment, would be backfilled during operations with approximately 6 million tons of development rock from the West End pit. The backfill would be placed to achieve a mounded final reclamation surface to promote drainage away from the West End pit and prevent formation of a pit lake within Midnight pit. Portions of the backfill would be covered with growth media and revegetated, and the remainder covered with talus like development rock to mimic a natural talus slope.

The floor of the sidehill pit southwest of the main West End pit would be graded to drain, covered with growth media, and revegetated.

No backfilling would occur for the main West End pit. At closure, the remaining road into the pit and access to highwalls would be blocked with large boulders and/or earthen berms to deter motorized vehicle passage into the pit.

Similar to the ModPRO (DEIS Alternative 2) the Midnight pit portion of the West End pit will be backfilled with development rock. Updated modeling suggests West End lake would not discharge to surface water and therefore post-closure water treatment is not required.

### 3.14.8 Tailings Storage Facility and Buttress

Midas Gold proposes to complete tailings reclamation within approximately 9 years after ore processing operations cease. After tailings consolidate sufficiently to use heavy equipment on top of the tailings, starting approximately 3 to 5 years after the end of deposition, Midas Gold would begin with placement of soil/rock cover material, then construct wetlands and restore Meadow Creek and its tributaries within appropriately sized lined floodplain corridors, place growth media, and revegetate the area.

Once ore processing operations have ceased, Midas Gold would begin removing the remaining supernatant pond through a combination of spray evaporators (similar to snowmaking misters) operated within the TSF boundary, and active water treatment that meets IPDES discharge limits, followed by discharge to the EFSFSR or Meadow Creek. Removal of the remaining supernatant water from the TSF would allow the surficial layers of the tailings to dry and gain strength, which would allow equipment to operate on the tailings surface for grading and the placement of a soil/rock cover. Cover placement and minor grading of tailings would occur as portions of the TSF allow equipment traffic, working inward from the facility perimeter beginning within 3 to 5 years from the end of deposition. The cover material would be sourced from unconsolidated overburden stored in the upper lifts of the adjacent TSF Buttress.

Midas Gold would restore appropriately designed meandering stream channels (Meadow Creek and tributaries) within a geosynthetic-lined stream and floodplain corridor across the top of the TSF ([Rio ASE, in progress](#)). Pools and riffles would be constructed within the channel. Measures to create aquatic habitat would include side channels, oxbows, boulder clusters, root wads, and large woody debris. This would allow for the post-closure development of riparian habitat, convey water off the facility, and minimize potential interaction of surface water with the underlying tailings. Given the nature of the surface of the TSF, the constructed channel would have a shallow gradient.

High-flow events would drive the overall channel and floodplain design, which would necessitate the construction of defined channels ranging from approximately 5 to 15 feet in bankfull width, with average bankfull depth reaching approximately 2 feet. A connected floodplain up to 200 feet wide would convey higher flows during a 100-year flood event.

Consolidation of the tailings would continue after surface reclamation, at gradually declining rates, and this consolidation water would mix with meteoric water on the cover, potentially leading to water quality impacts if discharged to streams. The lined stream corridors provide physical separation of these areas from Meadow Creek and its tributaries. The commingled water from the portions of the facility outside the lined corridors would be collected for treatment, and the TSF perimeter diversions would continue in service during treatment to divert hillside runoff away from the cover. Initially, collected flows would be routed to a WTP for treatment and discharge. After flows decline to levels appropriate for passive treatment, they would be routed to a passive treatment facility and on to discharge to Meadow Creek below the buttress. Treatment would no longer be required after approximately 40 years, at which time the treatment facility would be decommissioned and the WTP site reclaimed.

Final slopes of the TSF buttress would be variable, to blend with the surrounding terrain to the extent practicable, produce a permanent and stable landform, provide access for future maintenance on the TSF and buttress, and provide for non-erosive drainage across the reclaimed face of the buttress. Upon completion of final grading of the TSF buttress, a low permeability geosynthetic cover would be placed over the facility, which would be designed to limit infiltration through the underlying development rock. The geosynthetic liner would be overlain by an inert soil/rock layer and growth media and revegetated. Similar to that for the TSF, a channel and floodplain corridor would be established for Meadow Creek across the top of the closed buttress, with the stream corridor liner contiguous with the buttress cover. The channel would have a low gradient and wide floodplain across the top of the buttress, then drop more steeply to the valley floor near the south abutment. The steep channel segment would consist of a boulder chute (with underlying liner contiguous with the buttress cover) that would flow through an energy-dissipating basin at the toe of the TSF buttress before being discharged to a restored Meadow Creek on the valley bottom.

This represents no change to the approach, scope and nature of the TSF and buttress closure and decommissioning versus what is detailed in the DEIS for Alternatives 1 through 4, except that the TSF Buttress is modestly larger than in Alternatives 1 and 2 as a result of eliminating the Fiddle DRSF, and the Buttress would feature a low-permeability layer throughout the cover system, rather than only the top.

### **3.14.9 Hangar Flats Pit**

Hangar Flats pit would be backfilled to the valley bottom elevation or slightly higher during mine operations. The already-established Meadow Creek diversion channel and floodplain corridor would be retained around Hangar Flats pit as the final configuration, and the segment of Meadow Creek between the toe of the TSF Buttress and the entrance to the Hangar Flats pit diversion would be restored along with adjacent riparian wetlands. At closure, the backfilled Hangar Flats pit will be covered with seed bank material to establish approximately 39 acres of palustrine emergent wetlands. Meadow Creek downstream of the Hangar Flats pit diversion, to the confluence with the EFSFSR, would be enhanced during mine operations with large woody debris, boulder cluster habitat structures, and riparian plantings.

Saturation of the Hangar Flats backfill and rebound of the alluvial groundwater is predicted to take approximately 2 years (i.e., by the end of mine year 8) from the end of mining Hangar Flats pit.

As compared to all alternatives in the DEIS, the Hangar Flats pit would be considerably smaller with the mined tonnage decreased approximately 70%, reducing footprint and overlapping water management needs. Further, the Hangar Flats pit would be fully backfilled with development rock and there would be no Hangar Flats pit lake. During mining, streamflow and temperature environmental protection measures would be similar in effect, but rely on direct discharge rather than RIBs, and all else equal or shorter in duration for the case of a smaller, fully backfilled pit as opposed to a larger pit with an ultimate pit lake. Owing to the relatively rapid rebound of groundwater levels, no post-closure streamflow augmentation would be required associated with the Hangar Flats pit.

The complete backfill of Hangar Flats pit and the associated improvements of reduced disturbance footprint, and improved streamflow and stream temperature in Meadow Creek are project refinements that are exclusive to the ModPRO2.

### **3.14.10 Transmission Line and Electrical Infrastructure**

After mine closure activities, the Johnson Creek and Stibnite substations; including structures and conductor connecting the substations would not be reclaimed immediately as to provide power to for water treatment at the mine site as part of the post-closure Water Management Plan. Once there is no longer a need for active water treatment, the proponent, in coordination with IPCo, would disassemble the approximately 9-mile transmission line from the Johnson Creek substation to the mine site. The substation, switchgear, poles, and distribution lines would be removed from the mine site and the Johnson Creek substation would also be removed. The transmission line right-of-way from Johnson Creek to the mine site, and spur roads used to access power pole structure sites, would be recontoured to match surrounding topography and revegetated. As part of revegetation, the powerline structure pad sites and spur roads would be scarified where necessary and revegetated to establish species that can be expected to result in vegetation comparable to that growing adjacent to the affected area. Revegetation would not be required where affected lands, or portions thereof, where planting is not practicable or reasonable because the soil is composed of excessive amounts of sand, gravel, shale, stone, or other material to such an extent to prohibit plant growth (IDAPA 20.02.02). The reclaimed areas would be seeded with species listed in the Reclamation and Closure Plan ([Tetra Tech, in progress \[b\]](#)) or as approved by the USFS.

This represents a slight change relative to the ModPRO (DEIS Alternative 2). Transmission line infrastructure would be removed and reclaimed once there is no longer a need for active water treatment, rather than in perpetuity.

### **3.14.11 Burntlog Route**

Once all final mine closure/reclamation work has been completed, Midas Gold would reduce the 20-foot-wide travel way of 19.8 miles of Burntlog Road (FR 447), 1.3 mile of Meadow Creek Lookout Road (FR 51290), and 2.0 miles along Thunder Mountain Road (FR 375) of Burntlog Route to their approximate pre-mining width. Returning approximately 23 miles of existing road to pre-mining condition would entail grading and/or scarification along the outside edges of the road followed by seeding with the species listed in the Reclamation and Closure Plan ([Tetra Tech in progress \[b\]](#)) or as approved by the USFS. Midas Gold would remove ditches, cross drains, culverts, safety berms, mile markers, guardrails, and signs on roads if these features are no longer needed. These roads would retain their flatter grades and gentler curves constructed for mine operation.

The approximately 15 miles of Burntlog Route connecting to Meadow Creek Lookout Road (FR 51290) and Thunder Mountain Road (FR 50375) would be decommissioned by pulling back and re-contouring road cuts to slopes that are similar to pre-project conditions, and that would be consistent with the surrounding terrain as practicable. Surface water diversions, cross drains, culverts, safety berms, mile markers, guardrails, and signs would be removed. Water bars or

other erosion and sediment control structures, armored stream crossings, and stormwater crossings would be included where necessary. The reclaimed areas would be scarified, and growth media, where available, would be placed in upland areas, followed by seeding and certified weed-free mulching on slopes over 30 percent. Revegetation would not be required where affected lands, or portions thereof, where planting is not practicable or reasonable because the soil is composed of excessive amounts of sand, gravel, shale, stone, or other material to such an extent to prohibit plant growth (IDAPA 20.02.02).

This represents no material change to the approach and nature of the Burntlog Route closure and decommissioning versus what is detailed in the DEIS for Alternatives 1, 2 and 3.

### **3.14.12 Post Closure Public Access**

A road would be established over the backfilled Yellow Pine pit to allow public access through the reclaimed site and connect Stibnite Road (FR 50412) to Thunder Mountain Road (FR 50375).

This represents no material change to the approach, scope and nature of the post closure public access closure and decommissioning versus what is detailed in the DEIS for Alternatives 1 through 4.

### **3.14.13 Burntlog Maintenance Facility**

Following mining and ore processing operations, the Burntlog Maintenance Facility buildings would be removed. The sewer system and septic tanks for the Landmark maintenance facility would be decommissioned. Soil/rock beneath fuel storage areas and chemical storage buildings would be tested for contamination. All reagents, petroleum products, solvents, and other hazardous or toxic materials would be removed from the site and disposed of according to applicable state and federal regulations. After demolition of the buildings and facilities, the site would be graded, and drainage restored.

This represents no material change to the approach, scope and nature of the Burntlog Maintenance Facility closure and decommissioning versus what is detailed in the DEIS for Alternatives 1, 2 and 3.

### **3.14.14 Contouring, Grading, Growth Medium Placement, and Seeding**

Except for the Hangar Flats pit highwall above the valley bottom, West End pit, and a portion of the Yellow Pine pit highwall above the backfill level, Midas Gold would contour and grade disturbed areas to blend into the surrounding topography and terrain.

Compacted areas such as roads, ore stockpile areas, parking lots, fuel storage areas, and building sites would be prepared by ripping or scarification prior to placement of growth media and revegetation. Haul routes and access roads would be re-contoured to establish natural drainage patterns.

A deficit of approximately 815,000 bank cubic yards of growth media would exist. Midas Gold would manufacture growth media material using screened fines from glacial till sources mined from the Yellow Pine pit, available mulched vegetation, and off-site composted material.

Planting, seeding, and mulching would be conducted in the fall and early winter to take advantage of snowpack and springtime moisture. Where cover crops are used in lieu of mulch, seeding would occur in the spring or fall followed by seeding of the permanent mixture. The Reclamation and Closure Plan lists the forb, grass species, seed amounts, and the trees and shrubs planned for planting on reclaimed areas ([Tetra Tech, in progress \[b\]](#)). The reclamation seed mixes and rates would require approval by the USFS.

This represents no change to the approach, scope and nature of the contouring, grading, growth medium placement and seeding during post-closure and decommissioning versus what is detailed in the DEIS for Alternatives 1, 2 and 3; only the growth media material balance changed, largely as a consequence of eliminating Fiddle DRSF.

### 3.14.15 Post-Closure Water Treatment

Sources of water expected to require treatment during reclamation and closure include:

- TSF runoff and consolidation water during reclamation, closure, and early post-closure; and
- TSF buttress toe seepage during reclamation.

The iron coprecipitation water treatment system located at the ore processing area for use during mining operations and would continue in use during reclamation and early post-closure. As post-closure treatment flows decline due to drain-down of the TSF buttress and continued tailings consolidation, this system would be relocated to private land on the TSF buttress, and ultimately replaced with a passive system located in the Meadow Creek valley.

In post-closure, active water treatment would continue until water quality standards can be met either without treatment or with passive treatment methods, but the treatment plant will be on private land on the TSF Buttress to minimize pipeline length and head, and flow equalization would be provided by shallow water storage basins on the TSF on either side of the restored Meadow Creek corridor. Treatment is predicted to be necessary until approximately year 40 (approximately 25 years after closure) when consolidation water inflow to the cover is predicted to be minimal. Once this threshold has been achieved the remaining diversions on the perimeter of the facility will be removed, and hillside runoff would be routed over the cover

During active water treatment of TSF water, water treatment residuals would be stored at the TSF– initially in the supernatant pool area during closure, and within the water storage basins on the TSF surface for post-closure.

Subject to additional treatability studies and pilot testing, the anticipated passive treatment system would be a biochemical reactor with polishing through a wetland system constructed for the purpose of water treatment. No chemicals would be required for operation of the passive treatment system. The discharge from this system would be through a permitted outfall to Meadow Creek. If passive treatment is not effective or sufficient, active treatment would be provided as needed.

West End pit lake ([Section 3.14.7](#)) is not expected to spill to surface water; however, lake levels would be monitored, and if spillage becomes imminent a portable system could be brought to site to treat and discharge pit lake water to maintain levels below the rim of the lake and prevent uncontrolled release of lake water. Alternatively, surface water diversions could be reestablished to further reduce the inflowing catchment area.

This represents no change to the approach, scope and nature of post-closure water treatment versus what is detailed in the DEIS for Alternatives 1 and 2 but at lower volumes due to fewer DRSFs (the elimination of Fiddle and West End DRSFs), retention of an operational Meadow Creek diversion at Hangar Flats pit, the smaller Hangar Flats pit, and backfill eliminating Hangar Flats pit lake.

### 3.14.16 Closure and Reclamation Financial Assurance

As part of the approval of a Plan for the SGP, the PNF Forest Supervisor would require Midas Gold to post financial assurance to ensure that NFS lands and resources involved with the mining operation are reclaimed in accordance with the approved Plan and reclamation requirements (36 CFR Parts 228.8 and 228.13). This financial assurance would provide adequate funding to allow the USFS to complete reclamation and post-closure operation, maintenance activities, and necessary monitoring for as long as required to return the site to a stable and acceptable condition. The

amount of financial assurance would be determined by the USFS and would “address all USFS costs that would be incurred in taking over operations because of operator default” (USFS, 2004). The financial assurance would be required in a readily available financial instrument such as a surety bond or trust funds. To ensure the bond can be adjusted as needed to reflect actual costs and inflation, there would be provisions allowing for periodic adjustment on bonds in the final Plan prior to approval. Calculation of the initial bond amount would occur following the record of decision, when enough information is available to adequately and accurately perform the calculation.

In addition to the USFS-held bond, mitigation under Section 404 of the CWA also requires financial assurance. The IDL would require a bond as part of their permitting authority and would hold the bond associated with IDEQ’s cyanidation permit. The Idaho Department of Water Resources (IDWR) is the state agency responsible for design review and approval of the TSF. IDWR also would hold a bond so that the TSF can be placed in a safe maintenance-free condition if abandoned by the owner. These assurances are separate from those required by the USFS.

This represents no change in approach to closure and reclamation financial assurance versus that in the DEIS for Alternatives 1 through 4.

### **3.15 PROJECT TRAFFIC**

#### **3.15.1 Construction Traffic**

Initial construction activities are estimated to take approximately 2 to 3 years. Traffic associated with construction work would occur year-round, depending upon road and weather conditions. Construction-related traffic and material hauling would be most concentrated from May through November. Since Midas Gold would require most personnel to use company provided buses and vans at the SGLF to commute to the SGP, traffic volumes differ between State Highway 55 and the SGLF and between the SGLF and the SGP. Supplies and deliveries for the mine site during construction would access the SGLF using State Highway 55 to Warm Lake Road and would use State Highway 55 through Cascade and McCall, and other communities along State Highway 55 including Banks, Horseshoe Bend, Donnelly, Lake Fork, and New Meadows. The total estimated annual average daily traffic (AADT) for construction activities driving to the SGLF from State Highway 55 are presented in [Table 3-7](#). Estimated traffic volumes between the SGLF and the SGP are presented in [Table 3-8](#) Table 3-7. The estimated traffic volumes between State Highway 55 and the SGLF are new data.

Traffic volume estimates between the SGLF and the SGP represent no material change in construction traffic versus that in the ModPRO (DEIS Alternative 2).

#### **3.15.2 Operations Traffic**

Supplies and deliveries for the mine site during operations would access the SGLF using State Highway 55 to Warm Lake Road. Approximately two-thirds of all mine-related traffic would originate south along State Highway 55 through Cascade and other communities including Banks and Horseshoe Bend. Approximately one-third of all mine-related traffic originating north of Warm Lake Road would use State Highway 55 through the communities of Donnelly, Lake Fork, and McCall. Mine-related traffic would generally use Deinhard Lane and Boydstun Street through McCall. The estimated AADT for vehicles traveling to the SGLF during operations is provided in [Table 3-9](#). Estimated traffic volumes leaving the SGLF heading to the SGP is provided in [Table 3-10](#). The vehicle increase is attributed to employees traveling to and from the SGLF. This is a conservative estimate as Midas Gold will encourage employees to use company provided shuttle buses as transport to the SGLF from towns along SH 55. Traffic volumes between State Highway 55 and the SGLF were evaluated in a Traffic Impact Study Addendum (HDR, 2020). The purpose of the analysis was to verify the proposed improvement at the intersection of State Highway 55 and Warm Lake Road would adequately serve the proposed travel demand.

The estimated traffic volumes between State Highway 55 and the SGLF are new data. Traffic volume estimates between the SGLF and the SGP represent no material change in operations traffic versus that in the ModPRO (DEIS Alternative 2).

### 3.15.3 Closure and Reclamation Traffic

Most closure and reclamation traffic would occur May through November. Mine traffic during closure and reclamation is detailed in Table 3-11.

This represents no material change in closure and reclamation traffic versus that in the DEIS for Alternatives 1 through 4.

**Table 3-7 Projected Construction Traffic; State Highway 55 to SGLF**

Transport	Vehicle Type <sup>1</sup>	Estimated Average No. of Round Trips Per Period <sup>2</sup>	Period <sup>3</sup>	Scheduled Days per Year <sup>4</sup>	Number of Round Trips per Year <sup>5</sup>	Annual Average Daily Traffic <sup>6</sup>
Crew bus/van transport to site	HV	28	10 days	261	730	4
Crew personal vehicles	LV	37	10 days	261	965	5
Crew Traffic to SGLF	LV	916	10 days	261	23908	131
Salaried employees	LV	5	5 days	261	261	1
Salaried employees bus/van transport	HV	1	7 days	261	52	0.3
SGLF staff	LV	42	5 days	261	2192	12
Steel and Cement	HV	3	1 day	152	456	2
Fuel and miscellaneous supplies	HV	3	1 day	261	655	4
Equipment & supply representatives	LV	2	1 day	261	522	3
Food delivery	HV	2	1 day	261	522	3
Trash & recyclables	HV	3	7 days	365	156	1
Construction supply	HV	11	1 day	261	2,871	16
Miscellaneous traffic	LV	4	1 day	261	1,044	6
Road maintenance	HV	6	1 day	313	1,878	10
Total HV AADT						30
Total LV AADT						169
Total AADT						198

**Table Notes:**

- 1 LV = Light Vehicle; HV = Heavy Vehicle
- 2 The estimated average number of round trips that would occur within a given time period. All figures have been rounded up to whole numbers.
- 3 The allocated time period.
- 4 Not all transport phases would occur daily; scheduled days per year indicate the days per year when a trip is expected.
- 5 The estimated average number of round trips that would occur in a given year.
- 6 AADT = estimated average number of round trips per period / period x scheduled days per year / 365 days x 2 trips

**Table 3-8 Projected Construction Traffic; SGLF to SGP**

Transport	Vehicle Type <sup>1</sup>	Estimated Average No. of Round Trips Per Period <sup>2</sup>	Period <sup>3</sup>	Scheduled Days per Year <sup>4</sup>	Number of Round Trips per Year <sup>5</sup>	Annual Average Daily Traffic <sup>6</sup>
Crew bus/van transport to site	HV	28	14 days	365	730	4
Crew personal vehicles	LV	37	14 days	365	965	6
Salaried employees	LV	5	7 days	365	261	2
Salaried employees bus/van transport to site	HV	1	7 days	365	52	1
Steel and Cement	HV	3	day	152	456	3
Fuel and miscellaneous supplies	HV	2	day	261	522	3
Machine parts and consumables	HV	4	day	261	1,044	6
Pilot vehicle (fuel and hazardous loads)	LV	2	day	261	522	3
Equipment & supply representatives	LV	2	day	261	522	3
Food delivery	HV	2	day	261	522	3
Trash & recyclables	HV	3	7 days	365	156	1
Construction supply	HV	11	day	261	2,871	16
Miscellaneous traffic	LV	4	day	261	1,044	6
Road maintenance	HV	4	day	365	1,460	8
Total HV AADT						45
Total LV AADT						20
Total AADT						65

**Table Notes:**

- 1 LV = Light Vehicle; HV = Heavy Vehicle
- 2 The estimated average number of round trips that would occur within a given time period. All figures have been rounded up to whole numbers.
- 3 The allocated time period.
- 4 Not all transport phases would occur daily; scheduled days per year indicate the days per year when a trip is expected.
- 5 The estimated average number of round trips that would occur in a given year.
- 6 AADT = estimated average number of round trips per period / period x scheduled days per year / 365 days x 2 trips

**Table 3-9 Projected Operational Traffic; State Highway 55 to SGLF**

Transport	Vehicle Type <sup>1</sup>	Estimated Average No. of Round Trips Per Period <sup>2</sup>	Period <sup>3</sup>	Scheduled Days per Year <sup>4</sup>	Number of Round Trips per Year <sup>5</sup>	Annual Average Daily Traffic <sup>6</sup>
Crew bus/van transport to site	HV	11	10 days	261	287	2
Crew personal vehicles	LV	25	10 days	261	653	4
Crew Traffic to SGLF	LV	533	10 days	261	13911	76
Salaried staff to SGLF	LV	62	5 days	261	3236	18
Salaried employees	LV	8	5 days	261	418	2
Salaried employees bus/van transport	HV	2	5 days	261	104	1
SGLF staff	LV	42	5 days	261	2192	12
Fuel and miscellaneous supplies	HV	3	1 day	261	655	4
Ore processing supplies	HV	9	1 day	261	2436	13
Equipment & supply representatives	LV	2	1 day	261	522	3

Transport	Vehicle Type <sup>1</sup>	Estimated Average No. of Round Trips Per Period <sup>2</sup>	Period <sup>3</sup>	Scheduled Days per Year <sup>4</sup>	Number of Round Trips per Year <sup>5</sup>	Annual Average Daily Traffic <sup>6</sup>
Food delivery	HV	2	1 day	261	522	3
Trash & recyclables	HV	3	7 days	365	156	1
Ore concentrate haulage	HV	1	1 day	365	365	2
Miscellaneous traffic	LV	4	1 day	261	1,044	6
Road maintenance	HV	6	1 day	313	1,878	10
Total HV AADT						25
Total LV AADT						131
Total AADT						156

**Table Notes:**

- 1 LV = Light Vehicle; HV = Heavy Vehicle
- 2 The estimated average number of round trips that would occur within a given time period. All figures have been rounded up to whole numbers.
- 3 The allocated time period.
- 4 Not all transport phases would occur daily; scheduled days per year indicate the days per year when a trip is expected.
- 5 The estimated average number of round trips that would occur in a given year.
- 6 AADT = estimated average number of round trips per period / period x scheduled days per year / 365 days x 2 trips

**Table 3-10 Projected Operational Traffic; SGLF to SGP**

Transport Phase	Vehicle Type <sup>1</sup>	Estimated Average No. of Round Trips Per Period <sup>2</sup>	Period <sup>3</sup>	Scheduled Days per Year <sup>4</sup>	Number of Round Trips per Year <sup>5</sup>	Annual Average Daily Traffic <sup>6</sup>
Crew bus/van transport to site	HV	11	14 days	365	287	2
Crew personal vehicles	LV	25	14 days	365	652	4
Salaried employees	LV	8	7 days	365	417	2
Salaried employees bus/van transport to site	HV	2	7 days	365	104	1
Fuel and miscellaneous supplies	HV	3	day	261	655	4
Machine parts and consumables	HV	2	day	365	730	4
Ore processing supplies	HV	9	day	261	2436	13
Pilot vehicle (fuel and hazardous loads)	LV	2	day	261	522	3
Equipment and supply representatives	LV	2	day	261	522	3
Food delivery	HV	2	day	261	522	3
Trash & recyclables	HV	3	7 days	365	156	1
Ore concentrate haulage	HV	1	day	365	365	2
Miscellaneous traffic	LV	4	day	261	1,044	6
Road maintenance	HV	2	day	365	730	4
Total HV AADT						33
Total LV AADT						17
Total AADT						50

**Table Notes:**

- 1 LV = Light Vehicle; HV = Heavy Vehicle
- 2 The estimated average number of round trips that would occur within a given time period. All figures have been rounded up to whole numbers.
- 3 The allocated time period.

Transport Phase	Vehicle Type <sup>1</sup>	Estimated Average No. of Round Trips Per Period <sup>2</sup>	Period <sup>3</sup>	Scheduled Days per Year <sup>4</sup>	Number of Round Trips per Year <sup>5</sup>	Annual Average Daily Traffic <sup>6</sup>
4 Not all transport phases would occur daily; scheduled days per year indicate the days per year when a trip is expected.						
5 The estimated average number of round trips that would occur in a given year.						
6 AADT = estimated average number of round trips per period / period x scheduled days per year / 365 days x 2 trips.						

**Table 3-11 Projected Closure and Reclamation Traffic**

Transport Phase	Vehicle Type <sup>1</sup>	Estimated Average No. of Round Trips Per Period <sup>2</sup>	Period <sup>3</sup>	Scheduled Days per Year <sup>4</sup>	Number of Round Trips per Year <sup>5</sup>	Annual Average Daily Traffic <sup>6</sup>
Crew bus/van transport to site	HV	4	14 days	365	104	1
Crew personal vehicles	LV	10	14 days	365	261	2
Salaried employees	LV	10	7 days	365	520	3
Fuel and miscellaneous supplies	HV	1	day	261	261	2
Reclamation supplies	HV	2	day	152	304	2
Pilot vehicle (fuel and hazardous loads)	LV	1	day	261	261	2
Equipment and supply representatives	LV	2	day	261	522	3
Water Treatment Supplies	HV	1	day	261	252	2
Food delivery	HV	1	day	261	261	2
Trash & recyclables	HV	1	7 days	365	52	1
Demolished & dismantled items	HV	3	day	152	456	3
Miscellaneous traffic	LV	1	day	365	365	2
Road maintenance	HV	1	day	365	365	2
Total HV AADT						15
Total LV AADT						12
Total AADT						27
<b>Table Notes:</b>						
1 LV = Light Vehicle; HV = Heavy Vehicle						
2 The estimated average number of round trips that would occur within a given time period. All figures have been rounded up to whole numbers.						
3 The allocated time period.						
4 Not all transport phases would occur daily; scheduled days per year indicate the days per year when a trip is expected.						
5 The estimated average number of round trips that would occur in a given year.						
6 AADT = estimated average number of round trips per period / period x scheduled days per year / 365 days x 2 trips.						

### 3.16 MONITORING

Authorizations from federal and state agencies will include monitoring requirements for resources (e.g. air emissions, surface water, and groundwater) during mine construction, operation, closure, and post closure. Air emissions, groundwater, surface water, and aquatic parameters would be monitored during mine construction, operation, closure, and post-closure as specified in the final authorizations from the regulating agencies. Mitigation measures and monitoring actions would not be known until required permits have been issued.

Monitoring would be conducted following the completion of closure and reclamation of all facilities and disturbance areas to demonstrate compliance with permit requirements and to measure the success of reclamation and mitigation. Final monitoring requirements and timelines would be outlined in the final permit approval documents.

Midas Gold has prepared a draft Environmental Monitoring and Management Plan (EMMP) ([Brown and Caldwell, in progress \[a\]](#)). The final EMMP would consist of multiple component plans, each of which would be finalized upon issuance of the related permit(s) or upon issuance of the final Record of Decision and would contain monitoring and management requirements from each permit. In some cases, if environmental outcomes are uncertain, the EMMP would include adaptive management planning. Adaptive management requires identification of performance measures, impact thresholds, and operational adjustment options, all intended to achieve and demonstrate compliance with applicable permitting and/or consistency with the environmental analysis.

This represents no change in monitoring versus that in the DEIS for Alternatives 1 through 4, except for the changes in monitoring points due to deletion, contraction, or expansion of proposed mine facilities (i.e., elimination of Fiddle DRSF and Hangar Flats pit lake, expansion of TSF buttress, etc.).

### 3.16.1 Environmental Monitoring

A meteorological station in the Hangar Flats area has measured baseline information for temperature, solar radiation, relative humidity, precipitation, barometric pressure, wind speed and direction, and particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>). The tower and remaining instrumentation (the particulate matter instrumentation was removed following baseline data collection) would continue to collect data at this location, or it would be relocated to a site approved by the USFS and IDEQ. Meteorological monitoring would continue through construction, operations, and closure of the SGP in accordance with requirements of any air quality permit.

Baseline water resource information has been collected since 2012 from areas within and surrounding the mine site. This information is supplemented by USGS and other baseline data collected intermittently in association with past and current mining and mineral exploration projects in the mine area over the past 40 years. Water resource (groundwater and surface water) monitoring would continue in the mine area as part of construction, operation, and closure/reclamation. A Water Resources Monitoring Plan reviewed and approved by the appropriate regulatory agencies would include monitoring locations, monitoring frequency, water sample collection procedures, laboratory analyses, verification of data records and transmittal of samples, data management, and reporting. The monitoring locations and frequency would meet the requirements in final permits. Records and results of water resources monitoring would be shared with the appropriate regulating entity.

Fisheries and aquatics information within and surrounding the mine site has been collected since 2012 for habitat conditions, cobble embeddedness, free matrix, woody debris, McNeil Core Sampling, fish surveys, and macroinvertebrates. The draft EMMP ([Brown and Caldwell, in progress \[a\]](#)) includes the following plans for monitoring aquatic resources: Stream and Wetlands Monitoring Plan and Fisheries and Aquatic Habitat Monitoring Plan. These plans will be reviewed by the Idaho Department of Fish and Game; National Oceanic and Atmospheric Administration, National Marine Fisheries Service; the U.S. Fish and Wildlife Service; and the USFS. The monitoring locations and frequency would meet the requirements in final permits. Records and results of aquatics resource monitoring would be shared with the appropriate regulating entity.

Mine site facilities would be monitored in accordance with the draft EMMP ([Brown and Caldwell, in progress \[a\]](#)) for the presence and potential mortality of birds, mammals, reptiles, and amphibians. Sightings of rare or sensitive wildlife, along with any wildlife mortalities, would be recorded and provided in periodic reports to the USFS, U.S. Fish and Wildlife Service, and Idaho Department of Fish and Game.

### 3.16.2 Reclamation Monitoring

Prior to reclamation monitoring and maintenance programs, the USFS and IDL would agree to specific quantitative and qualitative reclamation monitoring plans and standards.

Reclamation monitoring would begin during concurrent reclamation at mine site facilities. Quantitative and qualitative monitoring of reclamation success would begin the first growing season after final reclamation is completed and would continue until success criteria are satisfied. Section 3.3.6 of the Reclamation and Closure Plan ([Tetra Tech, in progress \[b\]](#)) presents the quantitative and qualitative reclamation monitoring that would be conducted and the performance standards that would be used (with USFS and IDL approval) to determine when maintenance activities are necessary, or reclamation is complete. These monitoring requirements are summarized below.

### 3.16.2.1 Erosion and Sediment Control Monitoring

Soil stability would be estimated for all reclaimed areas using qualitative descriptors. A reclamation specialist would observe each reclaimed area and assign qualitative descriptors. The designations would be completed twice annually for erosion control purposes, once in the spring and once in the fall; and after 3 years for performance monitoring purposes. For performance monitoring, the observations would be made at the same time the vegetation success observations are made. The monitoring results would be used to aid in determining the cause of any failures that are encountered and to locate problem areas before erosion becomes widespread enough to affect reclamation success.

### 3.16.2.2 Slope Stability Monitoring

Slope stability would be monitored during the erosion inspections. Qualified staff would look for signs of slope movement, cut slope and rock face failures, and other indications of slope instability. The location and dimensions of significant surface cracks and fill slope bulges would be monitored. This information would be used to determine if surface cracks are the result of differential settling of fill material or slope instability. The appropriate regulatory agency would be notified, and corrective plans would be developed.

### 3.16.2.3 Reclamation Maintenance Procedures

If the performance of reclaimed areas is not satisfactory, appropriate maintenance activities would be implemented. Maintenance activities may include one or more of the following:

- Sediment removal from sediment basins, stormwater drainage channels, and diversions as necessary to maintain their design capacity;
- Diverting surface water away from reclaimed areas where erosion jeopardizes attainment of reclamation standards;
- Stabilizing rills, gullies, and other erosion features or slope failures that have exposed development rock;
- Noxious weed and invasive plant species control; and,
- Re-seeding or re-applying reclamation treatments in areas where it is determined through monitoring and agency consultation that reclamation would not meet standards.

### 3.16.2.4 Annual Report

Midas Gold would submit an annual report to the USFS and the other federal and state agencies that are responsible for issuing authorizations applicable to reclamation for the preceding calendar year. The annual report would contain descriptions of the reclamation activities completed during the previous year, a summary of areas reclaimed, a discussion of the results of the reclamation monitoring conducted, and corrective actions implemented.

### 3.17 MITIGATION

Mitigation is an important mechanism that Federal agencies use to offset the potential adverse environmental impacts associated with their actions and authorizations. Mitigation includes specific means, measures, or practices that would reduce or eliminate or compensate for adverse effects of the proposed action or alternatives. Mitigation meeting CEQ guidelines and USFS definition from the Payette Forest Plan (USFS, 2003) include: (1) design features of the proposed project or alternatives; (2) requirements for federal, state or local agencies for the proposed action or connected actions, and; (3) potential mitigation actions identified through the NEPA analysis.

Mitigation may be identified, revised, or refined based on further analysis, agency and public comments, and ongoing review and will be finalized in the Record of Decision (ROD), and unless noted otherwise are mandatory. The following sections present a summary of Midas Gold's Stibnite Gold Mitigation Plan (SGMP) and its component plans, which would apply to all the alternatives and the preferred alternative to be identified by the Forest Service.

#### 3.17.1.1 Stibnite Gold Mitigation Plan

Midas Gold considered many alternatives and other measures to avoid and reduce the potential impacts of the Project. The SGMP ([Brown and Caldwell, in progress \[c\]](#)) is Midas Gold's comprehensive plan for mitigating potential impacts of the Project. The plan is based on Midas Gold's efforts, during project development and its own alternatives analyses, to follow the process of avoiding and minimizing potential impacts, and compensating for unavoidable adverse impacts on streams, wetlands, riparian areas, fisheries and aquatic resources, upland wildlife habitats, and federally listed terrestrial and aquatic species. Midas Gold has committed to the SGMP as part of its proposed action, and so it is part of the Project for the purposes of the EIS.

#### 3.17.1.2 Components of the Stibnite Gold Mitigation Plan

The fundamental basis of the SGMP is rigorous impact avoidance and minimization following the federal mitigation sequence policy: avoid, minimize, rectify, and compensate (40 CFR 1508.20) that Midas Gold used prior to and during the during the alternatives development and evaluation process. The potential impacts of the Project remaining after that process were addressed on a resource-by-resource basis by further avoidance, minimization, and offsets described in its component mitigation plans, for which there is an updated version of each currently in preparation:

- Fisheries and Aquatic Resources Mitigation Plan (FMP) ([Brown and Caldwell and Rio ASE](#));
- Fishway Operations and Management Plan (FOMP) ([Brown and Caldwell, McMillen Jacobs Associates and BioAnalysts](#));
- Conceptual Stream and Wetland Mitigation Plan (CMP) ([Tetra Tech](#)); and
- Wildlife Habitat Mitigation Plan (WHMP) ([Tetra Tech](#)).

The SGMP also includes voluntary mitigative measures not otherwise required by law or regulation, such as the fishway in the EFSFSR Tunnel and the WHMP.

Midas Gold is in the process of compiling these and other mitigation commitments made for the Project and those required by different state and federal agency regulations, and following the ROD, will integrate these into the Environmental Monitoring and Management Plan (EMMP) ([Brown and Caldwell, in progress \[a\]](#)) currently being developed. This EMMP consists of a program framework and appendices containing component monitoring and management plans. Midas Gold will use the EMMP to guide monitoring, document permit compliance, reduce potential impacts to environmental resources, and address adaptive management thresholds and responses where impacts and mitigation effectiveness carry substantial uncertainty.

### 3.17.1.3 Fisheries and Aquatic Mitigation Plan

The FMP ([Brown and Caldwell and Rio ASE, in progress](#)) describes the measures that Midas Gold proposes to minimize and mitigate adverse impacts on fisheries and aquatic resources, with particular attention to fish species listed as threatened under the Endangered Species Act (ESA): Columbia River bull trout (*Salvelinus confluentus*), Snake River spring/summer Chinook salmon (*Oncorhynchus tshawytscha*), and Snake River Basin steelhead (*Oncorhynchus mykiss*). The FMP also addresses westslope cutthroat trout (*Oncorhynchus clarki lewisi*), considered a sensitive species by the Forest Service and Idaho Department of Fish and Game (IDFG), and other resident fish species.

The FMP mitigation actions begin during construction and continue throughout mine operations and into closure. Elements of the FMP include a fish salvage and relocation plan, measures to avoid impacts during blasting operations, timing of instream work, instream best management practices, stream diversion and re-watering process, and monitoring, among others. These would be implemented prior to and during mine operations, with the enhancement of existing stream habitats to address existing disturbances and construction of diversions around proposed mine facilities to minimize and avoid potential harm to aquatic species, habitat, and water quality.

Examples of the early environmental protection measures, described further below, include the proposed fishway in the EFSFSR diversion tunnel, early restoration of Blowout Creek to reduce ongoing erosion and sediment contributions to Meadow Creek and the EFSFSR, and habitat enhancement in the EFSFSR between Meadow Creek and the Yellow Pine pit. Later mitigation phases include restoration of streams impacted by the proposed mining by creating new stream channels and riparian and wetlands designed to maximize habitat potential based on species-specific habitat requirements. The FMP and its components continue to be refined in consultation with natural resource and regulatory agencies.

### 3.17.1.4 Fishway Operations and Management Plan

Midas Gold has proposed and designed a fishway for safe and effective upstream and downstream passage of anadromous and migratory fish in the EFSFSR during mine operations, which would be constructed inside the tunnel that diverts the EFSFSR around the Yellow Pine pit. The fishway represents an important part of the SGMP by enabling re-establishment of a volitional migratory pathway for anadromous fish to spawning grounds upstream of the pit, an area that has been historically blocked from fish passage since 1938 due to legacy mining activities. The temporary fishway would allow fish passage during the period of mine operations until volitional fish passage is provided by restoration of the EFSFSR over the backfilled Yellow Pine pit.

The FOMP (BC 2019) describes the purpose of the tunnel and fishway, general timeline for construction, the flows expected to occur through the tunnel, the target species, and the goals and objectives for the fishway operation. Additionally, it describes the operational and design criteria and overall function of the tunnel fishway, how it would be operated, the anticipated operation and maintenance requirements for the project, and serves as the basis for developing a detailed operation and maintenance manual in future design phases. Finally, the FOMP defines the monitoring and evaluation plan elements and describes how the hydraulic conditions, fish use, and performance of the tunnel fishway will be measured and evaluated, and the design of the adaptive management component of the plan including the option of using trap and haul.

### 3.17.1.5 Conceptual Stream and Wetland Mitigation Plan

Construction of the Project would permanently impact wetlands and other waters of the United States (WOTUS) subject to regulation under Section 404 of the Clean Water Act (CWA), and requires a Department of the Army (DA) permit pursuant to Section 404. The CMP provides detailed descriptions of proposed restoration, establishment,

enhancement, and/or preservation of aquatic resources to compensate for unavoidable impacts to WOTUS associated with activities that would be authorized by a DA permit ([Tetra Tech, in progress \[a\]](#)).

The CMP describes Midas Gold's proposed mitigation to address the requirements of the USACE and EPA under the Compensatory Mitigation for Losses of Aquatic Resources under CWA Section 404 (Final Rule). The CMP includes a description of the 12 required elements of compensatory mitigation plans (33 CFR 332.4(c)/40 CFR 230.94(c): objectives, maintenance plan, site selection, performance standards, site protection, monitoring requirements, baseline information, long-term management plan, determination of credits, adaptive management plan, mitigation work plan and financial assurances.

The CMP summarizes the methods that are used to account for the ecological functional value of WOTUS losses due to mining and gains due to restoration. Wetland functions and values were assessed using the Montana Wetland Assessment Methodology. A project-specific Stream Functional Assessment was also developed. The use of functional assessments mandated by the 2008 Compensatory Mitigation for Losses of Aquatic Resources; Final Rule is central to the development of Midas Gold's mitigation plans and their accounting of mitigation credits in mitigation ledgers. The wetland and stream mitigation ledgers allow Midas Gold and the regulatory agencies to transparently quantify and track impacts and compensatory mitigation over time and cumulatively until the mitigation is documented as complete.

The current CMP ([Tetra Tech, in progress \[a\]](#)) is labeled as conceptual because the actual final impacts of the Project will not be known until a preferred alternative is identified. The conceptual mitigation plan does demonstrate the feasibility of Midas Gold's ability to achieve the amount and types of mitigation to offset the impacts in a manner consistent with the 2008 Mitigation Rule.

Midas Gold anticipates that the CMP will be revised as the USFS proceeds through the EIS process and develops the final EIS. Additional CMP revisions are also expected from coordination with the USACE Regulatory Division—Walla Walla District, Boise Field Office, in compliance with the Clean Water Act Section 404/Department of the Army permit process, stream and wetland delineations and jurisdictional determinations, development of the stream functional assessment for USACE-approved stream functional analysis, wetland and stream credits and debits determinations, and compliance with USACE's 404(b)(1) Guidelines (40 CFR Part 230). When this document is submitted as part of the Clean Water Act Section 404/Department of the Army permit application, it will be identified as the Compensatory Mitigation Plan for Streams and Wetlands.

### **3.17.1.6 Wildlife Habitat Mitigation Plan**

The Project would result in impacts to upland wildlife habitat and its ecological functional value for wildlife. The WHMP ([Tetra Tech, in progress \[c\]](#)) describes the potential effects on upland wildlife habitat functionality and the voluntary compensatory mitigation proposed by Midas Gold to offset and replace the loss or modification of upland habitat functionality by replacing or providing substitute upland habitat functionality. The method used to account for the loss and gain of habitat functionality is Wildlife Habitat Functional Assessment (HFA). The HFA quantifies habitat functionality by assessing the ability of habitat to provide forage, cover, and structure. Midas Gold anticipates that the amount of habitat debits and credits calculated through the WHMP will change as the Project proceeds through the EIS process and the identification of a preferred alternative, and as additional avoidance and minimization measures are identified.

This represents no change in environmental protection measures versus that in the DEIS for Alternatives 1 through 4, except for changes related to the reduction in the size of the Hangar Flats pit, the elimination of the West End DRSF (as detailed in Alternative 2) and Fiddle DRSF, the backfilling of the Hangar Flats and Midnight pits, and the elimination of the Hangar Flats pit lake.

#### 4 REFERENCES

1. **AECOM (2018)**. Stibnite Gold Project EIS Scoping and Issues Summary Report. Prepared for the United States Forest Service.
2. **Brown and Caldwell (2019)**. Midas Gold ModPRO Technical Memorandum. Prepared for Midas Gold Idaho, Inc.
3. **Brown and Caldwell 2020**. Stibnite Gold Project Water Quality Management Plan. Prepared for Midas Gold Idaho, Inc. March 27, 2020.
4. **Brown and Caldwell (in progress [a])**. Stibnite Gold Project Environmental Monitoring and Management Plan. Being prepared for Midas Gold Idaho, Inc. Date TBD.
5. **Brown and Caldwell (in progress [b])**. Stibnite Gold Project Water Management Plan. Being prepared for Midas Gold Idaho, Inc. Date TBD.
6. **Brown and Caldwell (in progress [c])**. Stibnite Gold Mitigation Plan. Being prepared for Midas Gold Idaho, Inc. Date TBD.
7. **Brown and Caldwell and Rio ASE (in progress)**. Fisheries and Aquatic Resources Mitigation Plan. Being prepared for Midas Gold Idaho, Inc. Date TBD.
8. **Brown and Caldwell, McMillen Jacobs Associates and BioAnalysts (in progress)**. Fishway Operations and Management Plan. Being prepared for Midas Gold Idaho, Inc. Date TBD.
9. **HDR (2017)**. Stibnite Gold Logistics Facilities Transportation Impact Study. Prepared for Midas Gold Idaho.
10. **HDR (2020)**. Stibnite Gold Logistics Facilities Transportation Impact Study Addendum. Prepared for Midas Gold Idaho.
11. **Idaho Department of Lands, IDAPA 20.02, Title 47, Chapter 15, et seq., Idaho Code, Mine Land Reclamation**
12. **M3 Engineering & Technology (2014)**. Stibnite Gold Project Preliminary Feasibility Study. Prepared for Midas Gold Idaho, Inc.
13. **M3 Engineering & Technology (2020)**. Stibnite Gold Project Feasibility Study. Prepared for Midas Gold Idaho, Inc.
14. **Midas Gold Idaho, Inc. (2016)**. Stibnite Gold Project Plan of Restoration and Operations. Prepared for the United States Forest Service.
15. **Parametrix (2018)**. Stibnite Gold Project SH-55 Traffic Impact Improvements Technical Memorandum. Prepared for Midas Gold Idaho, Inc.
16. **Rio ASE (in progress)**. Stream Design Report Stibnite Gold Project. Being prepared for Midas Gold Idaho, Inc.
17. **Tetra Tech (in progress [a])**. Conceptual Mitigation Plan Stibnite Gold Project. Being prepared for Midas Gold Idaho, Inc.
18. **Tetra Tech (in progress [b])**. Reclamation and Closure Plan Stibnite Gold Project. Being prepared for Midas Gold Idaho, Inc.
19. **Tetra Tech (in progress [c])**. Wildlife Habitat Mitigation Plan. Being prepared for Midas Gold Idaho, Inc. Date TBD.

20. **United States Forest Service (2004).** Training Guide for Reclamation Bond Estimation and Administration for Mineral Plans of Operation authorized and administered under 36 CFR 228A, USDA – Forest Service, April 2004.
21. **United States Forest Service (2003).** Payette National Forest Land and Resource Management Plan.

**Appendix A  
NEPA Alternatives Comparison**

Table A-1 Comparison of Alternatives Analyzed in the Draft EIS and the ModPRO2

SGP Phase	Component/Subcomponent	Alternative 1 (PRO)	Alternative 2 (ModPRO)	Alternative 3 (EFSFSR TSF)	Alternative 4 (Yellow Pine Route)	ModPRO2
All Phases	SGP timeline	<p><b>Construction:</b> Approximately 3 years  <b>Operations:</b> Approximately 12-15 years  <b>Exploration:</b> Approximately 15 years (during construction and operations)  <b>Closure:</b> Approximately 5 years  <b>Post Closure:</b> As long as needed</p>	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1, except: <b>Construction:</b> Approximately 4 years	Same as ModPRO (Alt 2)
All Phases	Access Roads	<p><b>Construction/Operations:</b>  Yellow Pine route for mine site access during early construction with limited improvements.  Burntlog route for mine site access during construction, mining and ore processing operations, and closure and reclamation.  Associated eight borrow areas developed along Burntlog route for materials needed for road improvements and maintenance.  <b>Closure:</b>  New sections of Burntlog route to be reclaimed after the closure and reclamation period.</p>	Same as Alternative 1, except: Reroute of a 5.3-mile segment of the Burntlog route (Riordan Creek Segment).	<p>Same as Alternative 1, except:  The Burntlog route in the vicinity of the EFSFSR.  TSF rerouted on a new road segment around the TSF, coming into the mine site on a new road adjacent to Blowout Creek during operations.  Rerouting of the Burntlog route would eliminate access to two of the eight borrow areas.</p>	<p>Yellow Pine route upgraded and used for mine site access throughout life of mine instead of the Burntlog route.  No improvements or construction of new segments for Burntlog route.  Associated borrow sources developed along the Yellow Pine route for materials needed for road improvements and maintenance.</p>	Same as ModPRO (Alt 2)
All Phases	Public Access	<p><b>Construction:</b>  Temporary groomed over-snow vehicle (OSV) trail on the west side of Johnson Creek from Trout Creek to Landmark while Burntlog route is constructed.  Cabin Creek Road groomed OSV trail.  Public roads remain open through the mine site with temporary closures as needed to accommodate construction.  Off-highway vehicle (OHV) Trail from Horse Heaven/Powerline to Meadow Creek Lookout Road (National Forest System Road [FR] 51290).  <b>Operations &amp; Closure:</b>  Stibnite Road (Forest Route [FR] 50412) / Thunder Mountain Road (FR 50375) closed through the mine site.  Public access allowed on Burntlog route to Thunder Mountain Road (FR 50375).  OHV Trail from Horse Heaven/Powerline to Meadow Creek Lookout Road (FR 51290).  Cabin Creek Road Groomed OSV trail.</p>	<p><b>Construction:</b>  Same as Alternative 1, except no OHV Trail from Horse Heaven/Powerline to Meadow Creek Lookout Road (FR 51290).  <b>Operations:</b>  Same Cabin Creek Groomed OSV trail  No OHV trail from Horse Heaven/Powerline to Meadow Creek Lookout Road (FR 51290).  Same public access on Burntlog route as Alternative 1 (at USFS discretion).  Public access through the mine site provided by constructing new road to link Stibnite Road (FR 50412) to Thunder Mountain Road (FR 50375) with two options:  Option 1 - through Yellow Pine pit and below mine haul road  Option 2 - west of Yellow Pine pit and below mine haul road  <b>Closure &amp; Post Closure:</b>  Same as Alternative 1</p>	<p><b>Construction:</b>  Same as Alternative 1.  <b>Operations:</b>  No public access through the mine site.  Public access on Burntlog route connecting to Meadow Creek Lookout Road (FR 51290).  No OHV Trail from Horse Heaven/Powerline to Meadow Creek Lookout Road (FR 51290).  Cabin Creek Road groomed OSV trail.  <b>Closure &amp; Post Closure:</b>  Road established over Yellow Pine DRSF (same as Alt 1) to middle of mine site where public access provided around the TSF using one of two options:  Conversion of the temporary operational TSF access road along the TSF pipeline route to a permanent public access road connecting to the existing road at both ends.  Retention of mine access road for public access.</p>	<p><b>Construction:</b>  Same as Alternative 1 except the OHV Trail not constructed.  Groomed OSV trail on the west side of Johnson Creek from Wapiti Meadows to Landmark from construction through mine closure.  <b>Operations:</b>  Public access through the mine site provided by constructing new road to link Stibnite Road (FR 50412) to Thunder Mountain Road (FR 50375) with two options:  Option 1 - through Yellow Pine pit and below mine haul road  Option 2 - west of Yellow Pine pit and below mine haul road  Cabin Creek Road Groomed OSV trail.  Groomed OSV trail on the west side of Johnson Creek from Trout Creek to Landmark from construction through mine closure.  <b>Closure &amp; Post Closure:</b>  Same as Alternative 1</p>	<p><b>Construction:</b>  Same as ModPRO (Alt 2)  <b>Operations:</b>  Same as ModPRO (Alt 2) but with refined public access route through pit.  <b>Closure &amp; Post Closure:</b>  Same as ModPRO (Alt 2)</p>

SGP Phase	Component/ Subcomponent	Alternative 1 (PRO)	Alternative 2 (ModPRO)	Alternative 3 (EFSFSR TSF)	Alternative 4 (Yellow Pine Route)	ModPRO2
		<p><b>Post Closure:</b> New road constructed over the Yellow Pine DRSF (backfilled Yellow Pine pit) connecting Stibnite Road (FR 50412) to Thunder Mountain Road (FR 50375).</p>				
Operations	Development Rock Production and Storage	<p>Four DRSFs: Hangar Flats DRSF Fiddle DRSF West End DRSF Yellow Pine DRSF (pit backfill)</p>	<p>Three DRSFs – West End DRSF eliminated Development rock used to backfill the Midnight pit portion of the West End pit. Development rock used to partially backfill the Hangar Flats pit.</p>	<p>Same as Alternative 1 (four DRSFs), except that Hangar Flats DRSF moved to the EFSFSR drainage.</p>	<p>Same as Alternative 1.</p>	<p>Fiddle and West End DRSFs eliminated <b>Development rock storage in:</b> Hangar Flats and Yellow Pine (pit backfill). TSF Buttress (formerly called Hangar Flats DRSF) size increased, but maintains location of toe at Meadow Creek, retaining same ultimate valley bottom length as Alternative 1. Midnight pit backfill same as ModPRO. Complete backfill of Hangar Flats pit.</p>
Operations	TSF	<p>TSF located in Meadow Creek drainage. Tailings liner system<sup>1</sup> as follows: Underdrain of geotextile-wrapped gravel with perforated HDPE pipe as needed. Prepared subgrade of compacted in situ materials or minimum 12-inch buffer/liner bedding fill. Secondary GCL (or equivalent). Primary 60-mil single-sided textured, LLDPE geomembrane liner (or equivalent).</p>	<p>TSF location the same as Alternative 1. Tailings liner system<sup>1</sup> as follows: Underdrain system, prepared subgrade and GCL the same as Alternative 1.  Liner: 60-mil high density polyethylene (HDPE) AGRU MicroDrain® Liner as a combined secondary liner and leakage collection layer. 60-mil HDPE geomembrane primary liner.</p>	<p>TSF relocated to EFSFSR drainage. Tailings liner system the same as Alternative 1<sup>1</sup>.</p>	<p>TSF location the same as Alternative 1. Tailings liner system in compliance with Idaho Administrative Procedure Act (IDAPA) 50.01.13ID: Underdrain system the same as Alternative 1; A prepared subbase and a compacted soil layer a minimum of twelve inches thick; A secondary liner of a minimum thickness of 80 mil HDPE with a maximum coefficient of permeability of 10<sup>-11</sup> cm/s; A leak detection and collection system designed to remove process water to prevent greater than 12 inches of hydraulic head pressure on the primary liner. A primary liner of a minimum thickness of 80 mil HDPE with a maximum coefficient of permeability of 10<sup>-11</sup> cm/s</p>	<p>TSF location the same as ModPRO (Alt 2) Tailings liner system as follows: Underdrain system, subgrade, and GCL the same as ModPRO (Alt 2). Geomembrane liner layer(s) above GCL according to Cyanide Rule in force at time of permitting. Under the temporary Rule currently in force, liners would be 60-mil LLPE single-sided textured geomembrane primary liner, as in Alternative 1. A network of geosynthetic overliner drains would be installed on the floor of the facility to reduce hydraulic head on the liner system and reduce excess pore pressure in the tailings.</p>
Operations	Growth Media Stockpiles (GMSs)	<p>10 GMSs located in close proximity to project facilities.</p>	<p>Same as Alternative 1.</p>	<p>Changes to the location of 2 GMSs because of relocated TSF, DRSF and worker housing facilities.</p>	<p>Same as Alternative 1.</p>	<p>Changes to the location and/or size of # GMSs because of eliminated Fiddle DRSF, expanded Hangar Flats DRSF (now called the TSF Buttress), reduced Hangar Flats pit, and added contact water storage ponds.</p>
Operations	Ore Stockpiles	<p>Run-of-mine stockpile area at ore processing facility.</p>	<p>Same as Alternative 1.</p>	<p>Same as Alternative 1.</p>	<p>Same as Alternative 1.</p>	<p>Same as ModPRO (Alt 2), plus: Additional run-of-mine ore stockpile west of Scout Ridge near processing plant, and re-handling and processing of development rock from Hangar Flats DRSF and above-grade portions of Hangar Flats pit backfill, if supported by gold prices.</p>
Operations	Ore Processing	<p>Crushing and Grinding Circuits Antimony Flotation Circuit</p>	<p>Same as Alternative 1 with addition of: Limestone crushing plant</p>	<p>Same as Alternative 1.</p>	<p>Same as Alternative 1.</p>	<p>Same as ModPRO (Alternative 2) except:</p>

SGP Phase	Component/Subcomponent	Alternative 1 (PRO)	Alternative 2 (ModPRO)	Alternative 3 (EFSFSR TSF)	Alternative 4 (Yellow Pine Route)	ModPRO2
		Gold and Silver Flotation Circuit Gold/Silver Leaching and Carbon Adsorption Circuit Gold and Silver Electrowinning and Refining Circuit Tailings Neutralization Circuit	Associated lime generation equipment including lime kiln, lime stockpiles, conveyors, air quality controls.			Some minor changes to the process flowsheet; added a Cooling circuit, eliminated the Solid Liquid Separation circuit, added a hot cure circuit.
Operations	Reprocessing of Legacy Tailings	Reprocessing of legacy tailings in Meadow Creek drainage.	Same as Alternative 1.	No reprocessing of legacy tailings in Meadow Creek drainage.	Same as Alternative 1.	Same as ModPRO (Alt 2)
Operations	Mine Support Infrastructure	Mine Administration Building Maintenance Workshop Worker Housing Facility Haul Roads Fuel and Explosive Storage Service Roads and Trails	Same as Alternative 1 except for the following changes: Haul road locations modified to accommodate DRSF changes and hauling of limestone from the West End pit including: Elimination of West End DRSF haul roads. Addition of haul road for limestone from the West End pit to the processing facilities.	Most support infrastructure the same as Alternative 1 with the following changes: Relocation of worker housing facility to Blowout Creek due to EFSFSR TSF/DRSF. Changes to haul roads, service roads, and trails to accommodate relocated TSF/DRSF and relocated worker housing.	Same as Alternative 1.	Same as ModPRO (Alt 2) except for the following changes: Haul road locations modified to accommodate DRSF changes, pit and backfill changes, and hauling of limestone from the West End pit including: Elimination of Fiddle DRSF haul roads. Re-configuration of Hangar Flats pit haul roads. Relocation of EFSFSR haul road crossing. Revision to timing of all pit haul roads.
Operations	Surface Water Management – Stream Diversions	During operations, management of contact and non-contact water via stream and stormwater diversions and Idaho Pollutant Discharge Elimination System (IPDES)-permitted outfalls. EFSFSR routed around the Yellow Pine pit in a tunnel during operations with enhanced design for fish passage. Midnight Creek piped under GMS to enter EFSFSR upstream of the tunnel. Hennessy Creek diverted through several boreholes into the EFSFSR tunnel. Fiddle Creek diverted in a surface diversion around the Fiddle DRSF. West End Creek diverted in a surface diversion around the north side of the legacy West End development rock dumps, West End pit, and West End DRSF. Garnet Creek maintained in current alignment with culverts as needed. Meadow Creek diverted around the TSF and Hangar Flats DRSF on the south side and a smaller channel on the north side to catch runoff. Sinuous channel around Hangar Flats pit with enhancements for aquatic species and to create floodplains. Floodplain corridor lined with a geosynthetic material to prevent loss of flow. The channel of the East Fork of Meadow Creek (Blowout Creek) routed through a rock drain structure with a retention structure upstream to raise the	The same as Alternative 1 except for the following changes: Hennessy Creek routed south toward Fiddle Creek in a surface diversion channel during mining. With the elimination of the West End DRSF, the West End Creek diversion starts farther downstream. The Meadow Creek diversion channel on the south side of the Hangar Flats pit lined with a geosynthetic liner extending farther down the drainage than Alternative 1. Low flows in stream diversions around the DRSFs, TSF, and Hangar Flats pit piped to prevent warming. <b>Closure and reclamation:</b> Meadow Creek and Blowout Creek combined stream flows above 5 cubic feet per second (cfs) diverted into the Hangar Flats pit lake until the pit lake fills to accelerate pit lake filling. Operational diversion of Meadow Creek around the Hangar Flats pit retained as the reclaimed channel.	The same as Alternative 1 except for the following changes: Surface water management of EFSFSR around the relocated TSF/DRSF. No diversion of Meadow Creek upstream of Hangar Flats pit.	Same as Alternative 1 except for the following changes during operations: Step pools created in Blowout Creek in place of the rock drain. The EFSFSR routed in a tunnel designed to pass flows and sediment/debris but not enhanced for fish passage. Meadow Creek routed around Hangar Flats pit using a pipeline.	Same as ModPRO (Alt 2) except for the following changes: Midnight Creek piped under haul roads, not GMS. No Fiddle Creek surface diversion with elimination of Fiddle DRSF; Fiddle Creek piped under the much smaller Fiddle GMS. Lower portion of West End Creek diversion is piped for constructability reasons. Lower Garnet Creek rerouted and restored during construction. <b>Closure and reclamation:</b> No Hangar Flats pit lake Stibnite Lake constructed in the Yellow Pine backfill floodplain to mitigate stream temperatures. West End pit lake is not expected to fill and spill.

SGP Phase	Component/Subcomponent	Alternative 1 (PRO)	Alternative 2 (ModPRO)	Alternative 3 (EFSFSR TSF)	Alternative 4 (Yellow Pine Route)	ModPRO2
		upgradient water table and prevent further head cutting.				
Operations	Groundwater Management	Dewatering of Yellow Pine and Hangar Flats pits via wells and sumps. Use of two rapid infiltration basins (RIBs) and IDPES surface outfalls to manage dewatering water.	Same as Alternative 1 with the following change: The Yellow Pine pit dewatering wells continue to operate and send water to the RIBs during seasonal low flows after the completion of mining in the Yellow Pine pit until the Hangar Flats pit lake is filled.	Same as Alternative 1.	Same as Alternative 1.	Same as ModPRO (Alt 2) except: Direct discharge of treated water instead of RIBs and no need for continued streamflow support.
All Phases	Mine Impacted Water Treatment	Collection and storage, reuse, and/or treatment of contact water (including pit dewatering) as needed to meet water quality standards, with discharge to RIBs and surface outfalls. Construction: water from active pit/DRSF areas and legacy materials disturbed by construction. Operations: water from pits, dewatering, DRSFs, portions of plant site including ore stockpiles. Closure: TSF pool/runoff/consolidation water, approx. 30 years; Fiddle DRSF seepage and Hangar Flats pit lake in perpetuity.	Same as Alternative 1, but lower volumes at closure due to routing Meadow Creek around Hangar Flats pit lake.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1, but at lower volumes in all phases due to less temporal overlap of disturbance, less dewatering, fewer DRSFs, retention of operational Meadow Creek diversion at Hangar Flats pit, smaller Hangar Flats pit, and backfill eliminating Hangar Flats lake and eliminating the need for post-closure streamflow support and pumping/treating groundwater associated with it. Long-term treatment limited to TSF water for approximately 25 years after end of operations.
Operations	Sanitary and Solid Waste	Sanitary waste treatment Solid waste collection areas Onsite landfill Composting facilities Recycling Onsite landfarm	Same as Alternative 1.	Mostly the same as Alternative 1 with the following changes: Relocation of worker housing sanitary wastewater treatment facility and composting facilities due to relocation of worker housing facility to Blowout Creek. Relocation of wastewater outfall to Meadow Creek drainage instead of EFSFSR drainage due to relocation of worker housing sanitary wastewater treatment facility.	Same as Alternative 1.	Same as ModPRO (Alt 2) except: Added growth media/seed bank material stockpile in Fiddle valley.
Operations	Mine Site Borrow Sources	Legacy spent heap leach ore Development rock in mine pits and from underground exploration. Alluvial soils within the TSF and Hangar Flats pit footprints (within Meadow Creek valley). Outwash soils in lower Blowout Creek. Glacial materials in Fiddle Creek valley within footprint of Fiddle DRSF.	Same as Alternative 1.	Same as Alternative 1 with the following exceptions: Alluvial soils within footprint of the Meadow Creek valley TSF not used. Legacy spent heap leach not removed. Additional material obtained from the granular alluvial and colluvial materials within the EFSFSR, TSF, and DRSF footprints.	Same as Alternative 1.	Same as ModPRO (Alt 2) except: Minimal materials from Fiddle Creek Valley due to elimination of Fiddle DRSF.
Operations	Utilities - Transmission Lines	Upgrades to 42 miles of existing 69 kilovolt (kV) line and 21.5 miles of existing 12.5 kV line. (connected actions) New 8.3-mile-long 138 kV line 34.9 kV lines within the mine site	Same as Alternative 1 with two realignments: Reroute approximately 5.4 miles of upgraded transmission line to avoid the Thunder Mountain Estates subdivision. Reroute approximately 0.9 miles of upgraded transmission line to use an old railroad grade.	Same as Alternative 1, except: With relocation of TSF to EFSFSR valley, 2.5 miles of the new 8.3-mile-long 138 kV transmission line realigned to be coincident with a minimally developed access road in the Meadow Creek drainage.	Same as Alternative 1.	Same as ModPRO (Alt 2) except: 3 miles of underground distribution from the Johnson Creek Substation south to Wapiti Meadows

SGP Phase	Component/ Subcomponent	Alternative 1 (PRO)	Alternative 2 (ModPRO)	Alternative 3 (EFSFSR TSF)	Alternative 4 (Yellow Pine Route)	ModPRO2
			These are connected actions.	34.9 kV lines within the mine site to accommodate relocated TSF, DRSF, and worker housing facility.		
Operations	Utilities - Electrical Substations	Upgrades to existing substations (connected actions). New Johnson Creek and mine site substations. New Scott Valley and Thunderbolt Tap substations and new Cascade switching station. These are connected actions.	Same as Alternative 1 with the following change: The proposed Cascade Switching station moved from the intersection of Thunder City Road and Weant Lane to Warm Lake Road due to reroute of the transmission line to avoid Thunder Mountain Estates subdivision. This is a connected action.	Same as Alternative 1.	Same as Alternative 1.	Same as ModPRO (Alt 2)
Operations	Utilities – Communication Towers and Repeater Sites	Cell towers (three location options with associated access roads). VHF repeater sites Communication site at the Stibnite Gold Logistics Facility (SGLF) Upgrades to existing communication site	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1 but constructed and maintained using helicopter (instead of constructing access roads) for cell tower sites within Inventoried Roadless Areas (IRAs) managed for Backcountry/Restoration.	Same as ModPRO (Alt 2) except for the following changes: Reduced the number of cell tower options from three to one; North of the Hangar Flats pit. Eliminated alternative VHF repeater sites.
Operations	Offsite Road Maintenance Facility	Landmark Road Maintenance Facility (Warm Lake Road at Johnson Creek)	Road Maintenance Facility relocated to one of the access roads borrow source locations (4.4 miles east of the junction of Johnson Creek Road and Warm Lake Road along the proposed Burntlog route).	Same as Alternative 1.	Relocation of Road Maintenance Facility to the west of Landmark on south side of Warm Lake Road.	Same as ModPRO (Alt 2)
Operations	Offsite Stibnite Gold Logistics Facility	Located along Warm Lake Road, approximately 7 miles east of Cascade	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	Same as ModPRO (Alt 2)
Reclamation/ Closure	Mine Pits	Three open pits: Yellow Pine pit backfilled with development rock. Hangar Flats pit lake created; once pit lake established, Meadow Creek routed through the pit. West End pit (which includes the Midnight Pit) fills with water; a spillway provides for overflow into West End Creek. Midnight pit fills with water and spills into Midnight Creek.	Same as Alternative 1 except for the following changes: Hangar Flats pit partially backfilled with development rock to reduce the depth of the pit lake. Meadow Creek not routed through the partially backfilled Hangar Flats pit. The Midnight pit backfilled with development rock.	Same as Alternative 1.	Same as Alternative 1.	Same as ModPRO (Alt 2) except for the following changes: Hangar Flats pit mined tonnage decreased approximately 70%, Yellow Pine pit decreased approx. 3% and West End pit increased 20%, and pit sequencing changed slightly, reducing footprint and overlapping water management needs. Total Project tonnage mined decreased approximately 44 million tons (10%). Hangar Flats pit fully backfilled with development rock. No Hangar Flats pit lake.
Reclamation/ Closure	DRSFs	Closure of four DRSFs: DRSFs graded, 12 inches of growth medium placed. Backfilled Yellow Pine pit regraded with 12 inches of growth medium placed.	Closure of three DRSFs (West End DRSF eliminated): Same as Alternative 1 for the remaining DRSFs, except: Low permeability geosynthetic placed over the top and side of Fiddle DRSF and over the top of Hangar Flats DRSF, followed by a layer of soil/rock and growth media.	Closure of four DRSFs the same as Alternative 1, except that for the Hangar Flats DRSF, these activities would be relocated to the EFSFSR drainage.	Same as Alternative 1.	Closure of two DRSFs (Fiddle and West End DRSFs) eliminated: Same as ModPRO (Alt 2) for the remaining DRSFs, except: Low permeability geosynthetic placed over top and slopes of the TSF Buttress (formerly called Hangar Flats DRSF), followed by a layer of soil/rock and growth media (as in Alternative 2 but including slopes).

SGP Phase	Component/ Subcomponent	Alternative 1 (PRO)	Alternative 2 (ModPRO)	Alternative 3 (EFSFSR TSF)	Alternative 4 (Yellow Pine Route)	ModPRO2
Reclamation/ Closure	Surface Water Management – Stream Diversions	<p>EFSFSR channel reestablished in a surface channel routed across the reclaimed Yellow Pine pit backfill.</p> <p>Hennessy Creek reestablished in a surface channel.</p> <p>Fiddle Creek reestablished in a surface channel routed over the reclaimed Fiddle DRSF.</p> <p>West End Creek reestablished in a surface channel routed over the reclaimed West End DRSF.</p> <p>Meadow Creek reestablished in a surface channel routed over the reclaimed TSF and Hangar Flats DRSF.</p> <p>Meadow Creek flows routed into the Hangar Flats pit lake, pit lake discharges into lower Meadow Creek.</p>	<p>Meadow Creek and Blowout Creek combined stream flows above 5 cfs diverted into the Hangar Flats pit lake until the pit lake fills to accelerate pit lake filling.</p> <p>Operational diversion of Meadow Creek around the Hangar Flats pit retained as the reclaimed channel.</p>	Same as Alternative 1.	Same as Alternative 1.	<p>Same as ModPRO (Alt 2) except:</p> <p>Fiddle Creek no longer diverted due to elimination of Fiddle DRSF; shorter pipe at Fiddle GMS instead.</p> <p>Hangar Flats pit lake eliminated.</p> <p>Stibnite Lake constructed in the Yellow Pine backfill floodplain to mitigate stream temperatures.</p>
<p><b>Abbreviations:</b></p> <p><i>cfs = cubic feet per second</i>  <i>cm/s = centimeter per second</i>  <i>DRSF = development rock storage facility</i>  <i>EFSFSR = East Fork of the South Fork of the Salmon River</i>  <i>FR = forest route</i>  <i>GCL = geosynthetic clay liner</i></p> <p><i>GMS = growth media stockpiles</i>  <i>HDPE = high-density polyethylene</i>  <i>IDAPA = Idaho Administrative Procedures Act</i>  <i>IPDES = Idaho Pollutant Discharge Elimination System</i>  <i>IRA = inventoried roadless area</i>  <i>kV = kilovolt</i></p> <p><i>LLDPE = linear low-density polyethylene</i>  <i>OHV = off-highway vehicle</i>  <i>OSV = over-snow vehicle</i>  <i>RIB = rapid infiltration basin</i>  <i>SGLF = Stibnite Gold Logistics Facility</i>  <i>TSF = tailings storage facility</i></p>						