Appendix 2B
Stormwater Management Plan

Pan Project
Stormwater Management Plan

January 2013

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And

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1 INTRODUCTION

The purpose of this stormwater management plan is to identify stormwater drainages and pathways, identify potential pollution sources, and describe how potential impacts from sources are reduced or managed. This stormwater management plan has been prepared to provide an overview of site conditions, facilities, potential on-site sources of impact to natural drainages from stormwater migration, and best management practices (BMPs) to reduce potential impacts and control or mitigate stormwater migration.

1.1 Site Information

The Pan Mine Project (the Project) will be operated by Midway Gold US Inc. (Midway) on Bureau of Land Management (BLM)-administered public lands. The project is located in White Pine County, Nevada, approximately 20 miles southeast of Eureka. Figure 1 shows the general Project location. The Project is located in all or parts of the following sections (Mount Diablo Base & Meridian):

- Township 18 North, Range 55 East – Section 34
- Township 17 North, Range 55 East – Sections 3, 10, 13, 14, 15, 22, 23, 24, 25, 26, 27, 34, 35, and 36
- Township 16 North, Range 55 East – Sections 1, 2, 3, 11, 12, 13, 14, 23, and 24

1.2 Contact Information / Responsible Parties

The project stormwater management team is responsible for updating this stormwater management plan, implementation of BMPs, and modification to this plan whenever there is a change in construction, operation, or maintenance that affects potential pollution sources, discharge pathways, or BMPs. The stormwater management team will consist of the mine manager, environmental manager, and/or environmental coordinator.

The current mailing address for Project personnel is:

705 Avenue K
Ely, Nevada 80301

1.3 Past and Authorized Operations

The Pan deposit has been explored by several exploration and/or mining companies. Exploration activity has taken place in the general region since 1978 but mining of the Pan deposit has not occurred. Past exploration activities have resulted in existing surface disturbance some of which has been reclaimed.

An exploration plan was submitted on behalf of Castleworth Ventures, Inc. (CVI) for exploration drilling at the Project site in 2004. A Finding of No Significant Impact (FONSI) to disturb up to 25 acres for drill pads and roads was signed in April 2004. An amendment to the 2004 exploration plan was submitted in 2011 on behalf of Midway, which proposed an additional 75 acres of disturbance to develop a new access road and construct additional drill pads and drill roads. An EA for this amendment was completed in April 2011 and a FONSI was issued in July 2011.

Existing disturbances consist primarily of access roads, drill roads and pads, geotechnical soils pits and trenches, and a laydown area. The authorized exploration operations for the Project are ongoing and include:

- Road building (main access road and drill roads);
- Reverse circulation (RC) and core exploration drilling and drill pad construction;
- Trench excavation and borehole augers for obtaining bulk metallurgical samples and soil samples;
- Construction and monitoring of groundwater monitoring wells;
- Development of a staging area for temporary storage of drilling materials and equipment; and
- Provision of temporary portable sanitation facilities.

1.4 Proposed Operations

Midway has developed a Plan of Operations (PoO) based on a 13-year mine life using the most up-to-date information available. Midway will continue to collect information during ongoing drilling and geological exploration activities over the mine life which may result in revisions to the information submitted in this Plan. This stormwater management plan will be amended as necessary.

Proposed activities will occur within either the Plan area or the Mine area as shown on Figure 2, and will include:

- Expanding the 2011 exploration plan area to the “Plan area”;
- Establishing a “Mine area” within the Plan area consisting of:
    - Two main open pits, the North Pan Pit and the South Pan Pit;
    - Four satellite pits: the Black Stallion, North Syncline, Syncline, and South Syncline pits;
    - Crushing facilities and associated stockpiles;
    - Two waste rock disposal areas (WRDAs);
    - Heap leach pad, conveyors, processing facilities, and ponds;
    - Water supply wells and delivery/storage system;
    - Haul and secondary roads;
    - Exploration within the Mine area;
    - Ancillary facilities including: power supply; stormwater controls; reagent, fuel, and explosives storage; buildings including administration, laboratory, security, warehouse, coreshed, and associated parking; potable water supply and septic systems; maintenance shop; ready line; light vehicle wash; communications facilities; helicopter pad; growth medium and woody debris stockpiles; class III-waivered landfill; area to store petroleum contaminated soils; monitoring wells; borrow areas; fencing; and yards and inter-facility disturbance;
- Undertake closure and reclamation activities.

2 SITE CONDITIONS

2.1 Climate

The climate in the area is typical for the high desert of central Nevada and the Basin and Range province. Climate data from Eureka, Nevada averages 11.85 inches of precipitation per year, with average temperatures ranging from 17 degrees F in the winter to 86.4 degrees F in the summer. Daytime temperatures exceeding 90 degrees F during July and August are common. Average annual pan evaporation at the Ruby Lake Station is 51.5 inches (Western Regional Climate Center 2008).

2.2 Hydrology

The Project is located in the Central Nevada Hydrographic region within the Newark Valley watershed. Newark valley is internally drained, covers 801 square miles and is undesignated. In general, most of the basin-wide recharge in Nevada is derived from precipitation falling on higher elevations.

Snowmelt and rain falling on the mountain ranges flows down slope within the surface drainage channels towards the valleys and becomes recharge as it flows across the porous material on the upper part of alluvial fans. Most of the recharge, therefore, occurs to the alluvium underlying the piedmont slope along the margins of the basin. A lesser amount of recharge also occurs to the bedrock at higher elevations. Eakin (1960) estimated recharge in the Newark Valley to be 18,000 acre feet per year (ac-ft/yr), and discharge at 19,000 ac-ft/yr. Upgradient recharge to bedrock occurs mainly along structurally controlled stream channels in the lower parts of the ranges where the overall gradient of the streams is lower and where there is an increasing thickness of colluvium flanking the channel.

Although recharge rates to bedrock may be locally significant, the recharge volume to bedrock is generally small in comparison to recharge to alluvium. At lower elevations, close to the valley floor, recharge is expected to be negligible because of the lower precipitation, finer-grained alluvial soils, and higher evapotranspiration rates. Regional groundwater flow in the Newark Basin is generally from recharge areas along the margins of the valley towards the center of the valley where a northward component to groundwater flow along the axis of the valley is present.

No perennial streams or springs are located within the Project area. A waters of the United States survey was conducted within the Plan area. No waters of the United States were identified. Approximately 3.4 acres of non-jurisdictional waters were identified in the Project area. All were ephemeral, isolated drainages (JBR 2011).

3 GENERAL BEST MANAGEMENT PRACTICES

Midway will implement BMPs to manage the flow of stormwater, prevent uncontrolled migration, and minimize erosion and sediment transport from Project facilities and disturbed areas during construction, operations, and initial stages of reclamation. The general BMPs covered in this section include structural and non-structural controls:

3.1 Structural Control BMPs

Structural stormwater controls include stormwater diversion and erosion/sediment control. Structural controls minimize or mitigate the effects of stormwater velocity and pathway. Structural controls are either permanent as part of the overall stormwater management plan for the life of the Project and post- reclamation, or are temporary as part of stormwater management during construction and development of facilities and during operations. Specifications and cross-sectional drawings typical of temporary and permanent diversion channels for various facilities are provided in separate design reports.

Design of control structures (except for short-term construction projects) will be based on the required storm events. Some of these structures are permanent and will remain throughout the life of the Project and some are temporary and will remain for a limited number of years of operation. In general, stormwater diversion and erosion/sediment structural control BMPs include the following types.

- *Up-Gradient Control*: Diversion of stormwater that originates up-gradient of roads, disturbed areas, and other potential pollution sources will be accomplished by using a combination of berms, channels, culverts, and water bars. Erosion and sediment controls include rip-rap channel lining, synthetic channel lining, and sediment basins. These erosion and sediment controls will slow velocity and settle out sediment. Where diversion channels are narrow or at relatively steeper grades, rip-rap and/or synthetic lining will be installed if necessary to slow the velocity and scouring effect of the stormwater.
- *Down-Gradient Control*: Down-gradient diversion of stormwater that originates on potential pollution sources will be accomplished by using a combination of berms, channels, culverts, and water bars. Erosion and sediment controls include rip-rap channel lining, synthetic channel lining, and settling basins or ponds. Down-gradient structural controls will capture stormwater originating on WRDAs, stockpiles, growth medium stockpiles, and borrow areas and divert it to sediment basins to settle out sediment. Stormwater originating on roads will be captured in roadside diversion channels with integral engineered outlets that allow diversion to basins or ponds. Channels will have rip-rap and/or synthetic lining if necessary to slow the velocity and scouring.
- *Temporary Construction Controls*: Temporary construction structural controls would be implemented for short-term construction activities. For temporary construction controls, a combination of silt fences, straw bales, waddles, and/or temporary diversion channels will be installed. Temporary construction structural controls may be relocated as construction activities progress.

3.2 Non-Structural Control BMPs

Non-structural controls are procedures, management actions, and other policy activities that are employed to reduce the potential for pollutant loading in stormwater outfalls. Appropriate non-structural controls for the mine include:

- Good housekeeping measures;
- Routine inspections;
- Maintenance;
- Training; and
- Reclamation and revegetation.

3.2.1 Good Housekeeping

Good housekeeping measures include, but are not limited to:

- Storage of materials in areas that are not exposed to precipitation and do not drain to stormwater;
- Providing secondary containment for bulk storage tanks and other containers;
- Removal of non-essential products and waste materials from the site; and
- Removal of debris from stormwater drainage areas.

Good housekeeping and preventive maintenance are the most effective BMPs for controlling stormwater pollution from process areas and storage areas. Spills will be cleaned up immediately and contaminated materials removed and disposed of in accordance with applicable regulations. A licensed firm would be responsible for characterizing the spent materials and either recycling or disposing in accordance with state and federal regulations. Used coolant and oil would not be mixed.

Used containers would be disposed of or recycled according to federal, state, and local regulations. Midway would institute a waste management plan that would identify the wastes generated at the site and their appropriate means of disposal.

3.2.2 Routine Inspections

Inspections of disturbed areas and stormwater structural controls such as stormwater diversion and conveyance systems will be conducted to identify erosion and to ensure that structural controls are functioning effectively. Schedules for inspections are outlined in Section 7, Monitoring and Reporting.

<u>Disturbed Areas Inspection</u>

Inspections of disturbed areas will include observing erosion; gullies, pooling of water, collapsed embankments, or other types of erosion will be identified and documented.

<u>Structural Controls Inspection</u>

Structural stormwater controls will be inspected to determine:

- The functional integrity of the structures; and
- The amount of sediment accumulation if present, to plan for removal of sediment.

Breaches or other items requiring repair observed in berms, channels, or secondary containment will be recorded in writing and reported immediately to management. Following inspections, additional erosion controls or maintenance of existing BMPs will be implemented if required by the Midway Stormwater Management team.

Storage Areas Inspection

Storage areas for chemicals, hazardous materials, solid and liquid waste, or other potential sources of stormwater pollution will be inspected to ensure that containment has not been adversely impacted by storm events.

Oil and Petroleum Storage Inspection

Primary containment (tanks, totes, drums, and other containers) and secondary containment structures for oil and petroleum products will be inspected on a regular basis.

Inspection Schedules

Midway will observe stormwater structural controls, if feasible, during storm events to ensure that the integrity of the structures is maintained. In addition, Midway will inspect disturbed areas, control structures, and storage areas exposed to precipitation or stormwater after any storm event that is equal to or greater than a 25-year, 24-hour event.

Annual Inspections

Inspection and evaluation of BMPs and disturbed areas will be conducted annually, preferably following the spring runoff period. Inspections of the BMPs and the disturbed areas may be conducted separately or concurrently. This evaluation will result in the preparation of a written report, as described in Section 7.

3.2.3 Maintenance

Maintenance is performed after inspections to repair structural controls or to supplement or enhance existing BMPs with additional controls, as required. Maintenance can also be conducted as a result of non-routine observance of needed repairs, testing of facility stormwater equipment such as pumps. Examples of maintenance of stormwater controls include (but are not limited to):

- Removal of accumulated sediment from holding ponds or basins;
- Repair of deteriorated channel linings, pond linings, berms, or water bars;
- Routine maintenance of earth-moving equipment, pumps, and vehicles; and
- Repair of equipment.

3.2.4 Training

An employee awareness, orientation, and training program will be conducted annually for mine personnel responsible for implementation of stormwater management practices. The education program will inform personnel of the components and goals of the Project's stormwater management plan. Table 1 identifies four modules that each annual training session addresses.

Table 1: Training Sessions

Module	Training Requirements
Housekeeping and source control measures	• Review routine housekeeping measures and issues; • Review procedures for minimizing pollutant sources
Mine inspection procedures and maintenance of structural BMPs	• Review mine inspection procedures and schedules • Completion of BMP inspection forms • Maintenance of BMPs • Review BMP plan
Annual periodic evaluation	• What to evaluate • Completing the forms
Spill prevention, response, and reporting	• Review mine spill contingency plan and spill response, containment, and cleanup measures • Review spill notification procedures

A form for documenting stormwater management training sessions will be completed and filed with the water pollution control permit records.

In addition to stormwater management training, other forms of training would indirectly benefit the stormwater management program, such as training for staff in proper unloading techniques, emergency procedures training, and training to inform employees of their responsibilities in proper waste disposal procedures (e.g., allowable wastes that can be placed in the landfill, management of used filters, oily rags, fluorescent light bulbs, aerosol cans, and other regulated substances).

4 POTENTIAL SOURCES OF STORMWATER POLLUTION

This provides an assessment of facilities associated with the Project and discusses each facility's potential (if any) as a source of stormwater pollution. Facility-specific stormwater management controls and BMPs that address potential sources of stormwater pollution are discussed as well.

In general, the types of potential stormwater pollution sources that, depending on specific activities, could be present at the Project include:

- Sediment as total suspended solids (TSS);
- Geochemical constituents (GC) (e.g., metals, potentially acid-generating materials, anions);
- Petroleum hydrocarbons; and
- Reagents, process solutions, or other chemicals.

Facilities are discussed in this section; areas where potential sources of stormwater pollution could occur within the Project area are summarized in Table 2 and described in more detail in the following subsections.

Table 2: Summary of Potential Pollution Sources

Source	Potential Pollutants
Pits	TSS
WRDAs	TSS
Process Facilities	TSS, GC, Petroleum hydrocarbons, solvents, reagents
Haul and Secondary Roads and Conveyor Corridors	TSS
Growth Medium and Woody Debris Stockpiles	TSS
Borrow Areas	TSS
Exploration Activities	TSS
Reagent, Fuel, and Explosives Storage	TSS, Petroleum hydrocarbons, solvents, reagents
Buildings	TSS
Waste Management Facilities	TSS, solvents, reagents
Ready Line	TSS
Yards and Inter-facility Disturbance	TSS
Construction Activities	TSS

A facility is considered a potential stormwater pollution source if the location is exposed to precipitation or may come in contact with stormwater and has the potential to generate stormwater pollution types as previously identified. Locations where potential contaminants are contained within buildings or within the enclosed confines of the process circuit are not considered potential stormwater pollution sources.

Facility categories which have been determined to not be sources of stormwater pollution due to their nature, cover, or other fluid management designs are:

- Power supply;
- Potable water and septic systems;
- Fire water supply;

- Light vehicle wash and truck scale;
- Communication facilities;
- Monitoring wells;
- Fencing;
- Water supply facilities; and
- Area to store petroleum contaminated soils.

4.1 Pits

The Project includes the development of six pits including two main pits known as the North Pan Pit and the South Pan Pit, and four satellite pits known as the Black Stallion, South Syncline, Syncline, and North Syncline pits. The satellite pits will be backfilled.

Groundwater is not expected to be encountered by the pits. Dry pits are expected except for normal wetting during precipitation events. If isolated, perched saturated zones are encountered, diversion ditches and sumps will be installed as necessary to maintain safe operating conditions within the pits. Precipitation-related water that could accumulate in the bottom of the pits and/or pit sumps and benches will be temporary given the high net evaporation (51.5 inches) compared to precipitation (11.85 inches).

4.1.1 Stormwater Controls and Best Management Practices

Stormwater will be diverted around the eastern and western flanks of both pits and returned to natural drainages. Stormwater collection trenches will direct stormwater from disturbed areas to sediment basins to minimize transport of sediment. The diversions will be designed to handle flows in excess of the 25-year, 24-hour storm event. The east North Pan Pit stormwater collection pond, located on the east side of the North Pan Pit (shown on Figure 3) will allow for collection and pumping of stormwater from the native watershed east of the North Pan Pit to the native drainage west of the North Pan Pit. The pumps and pipeline will convey non-contact stormwater from the pond to the native drainage west of the North Pan Pit; the pipeline discharge area will be designed to prevent erosion of the native drainage. Additional sediment basins will be located to prevent sediment from leaving the Mine area as shown on Figure 3.

The diversion of non-contact stormwater through constructed ponds and trenches could result in an increased concentration of suspended solids. The construction of sediment basins will help mitigate the amount of suspended solids entering downgradient drainages.

Stormwater which originates in the pit will remain in the pit, collected temporarily in sumps or ditches if needed. As this water will not leave the pit it is not identified as a potential stormwater pollution source.

4.2 Waste Rock Disposal Areas

Waste rock will be placed on either the North WRDA or the South WRDA. Both WRDAs are located along the western perimeters of their respective pits. Results of geochemical analysis indicate that the majority of waste rock samples are considered non-acid generating (NAG) with an overall low potential for metal-leaching.

The small amount of waste rock that is potentially acid generating (PAG) or metal leaching will be blended within the WRDAs in small quantities within the interior of the WRDA. The final cover on the WRDAs will consist of either 10 or 14 inches of plant growth medium, which, in addition to supporting vegetation, will limit infiltration into the WRDA.

During operations, active portions of the WRDAs will lack established vegetation. This condition will potentially decrease absorption of precipitation by the ground surface which could lead to increased run-off volumes and potential erosion. In turn, this could potentially lead to temporary increased concentrations of suspended solids in stormwater runoff that contacts these facilities during this time period.

4.2.1 Stormwater Controls and Best Management Practices

Stormwater run-off will be diverted around the WRDAs and returned to natural drainages. Culverts will be employed where roads cross natural drainages. The diversions will be designed to handle flows exceeding the 25-year, 24-hour storm event as shown in Figure 3. Sediment basins will be located in drainages down gradient of the WRDAs. Sediment basins will be sized for the annual estimated sediment yield from the WRDAs.

The final configurations of both WRDAs have been designed to blend with the surrounding topography with a stable hydrologic configuration to improve surface run-off. The final surface will also prevent ponding of water, promote long-term stability over time, and limit erosion and channel scour.

4.3 Process Facilities

Mined ore will be hauled via trucks to the primary crusher located just outside of the North and South Pan pits. Ore will be directly deposited into the primary crusher or stockpiled adjacent to the crusher. Ore from stockpiles may be fed via loaders into the crusher. Ore will be transported by conveyors from the primary crusher to the secondary crusher. Ore crushed at the secondary crusher will be placed on the heap via conveyors.

Screening at the secondary crushing station will control the crush size. The fines will be agglomerated with cement and lime and sent to the heap leach pad. Before placement on the heap, leach material will be amended with lime for pH control as necessary. Cement for agglomeration, and lime for pH control will be added at the secondary crusher located just east of the heap facilities.

The heap leach facilities will be designed to contain leach material and solution in accordance with NAC 445A.432 and following. Facilities will employ the design principle of 100 percent containment (zero-discharge design) under both normal operating and specific emergency conditions.

Dilute sodium cyanide solution will be applied to the leach material on the pad. Solution will percolate through the leach material to the synthetic liner, flowing via solid-walled pipes in lined ditches to the lined pregnant solution pond. Cyanide will be added to the barren solution, which will be re-circulated back to the heap to continue the leaching process.

Barren solution will be distributed on the leach pad with drip tube emitters. Pregnant solutions will be treated in a conventional adsorption/desorption refining (ADR) plant which includes the following unit processes:

- Carbon-in-Columns
- Acid wash
- Carbon elution
- Electrowinning
- Carbon regeneration
- Carbon handling and sizing
- Reagent mixing and storage
- Refinery

Process facilities have the potential to create stormwater pollution in the form of suspended solids from cleared yard areas, ore stockpiles, and crushing facilities. Although most of the material has been determined to be NAG and have a low potential for leaching metals, some potential for GC contamination may exist.

Fuels and reagents are used on a daily basis in the process system and for processing equipment. Therefore, the potential for petroleum, solvent, and reagent stormwater pollution will exist.

4.3.1 Stormwater Controls and Best Management Practices

Stormwater run-off will be diverted around the heap and returned to natural drainages. The diversions will be designed to handle the 100-year, 24-hour storm event. In addition, culverts and diversion ditches may be placed in and around the process facilities as necessary for further stormwater control. Stormwater runoff from the heap will be channeled to the process ponds. Stormwater collected in the ponds will be handled in accordance with the water pollution control permit, which will allow for utilizing collected stormwater in the process circuit.

At a minimum, the solution ponds will be sized and operated to withstand and fully contain process fluids as well as projected accumulations from a 100-year, 24-hour storm event. Solution that could be toxic to wildlife and domestic animals will be fenced and covered to prevent access as required by the Nevada Department of Wildlife (NDOW) Industrial Artificial Pond Permit.

The liner system for the process ponds will consist of a 12-inch thick (minimum) underliner overlain by an 80-mil geomembrane liner. The LCRS sump design consists of a geotextile-wrapped, gravel filled sump between the primary and secondary liners with an 8-inch diameter riser pipe, perforated within the gravel, for leak detection and removal. The underliner layer within the sump area will consist of 24 inches of soil with a maximum permeability of $1x10^{-7}$ cm/s to provide additional containment of fluids in the sump over the design life of the facility.

Containment within the process building will include tanks, pipes, and vessels; and sealed concrete floor slabs and walls as secondary containment. The concrete floors will be sealed to prevent leakage outside of containment. Secondary containment will accommodate 110 percent of the largest tank or series of tanks located within each

building. Solution contained within the concrete containment will be pumped through a double-walled pipe to a process pond.

4.4 Haul Roads, Secondary Roads, and Conveyor Corridors

Haul roads and secondary roads are situated throughout the project area as shown on Figure 3. Conveyor corridors will be located between the crushing facilities and the process facilities. The roads would be constructed according to MSHA standards which include a berm at least the height of half the wheel height of the largest vehicle utilizing the road. Secondary roads would also be bermed in accordance with MSHA regulations.

Stormwater run-on to haul roads, secondary roads, and conveyor corridors can originate from precipitation and from up-gradient disturbance areas. Scouring and gully erosion can occur on the surface and sides of haul roads during severe storm events. Therefore, haul roads, secondary roads, and conveyor corridors have been identified as potential pollution sources for suspended solids during a storm event or period of runoff.

4.4.1 Stormwater Controls and Best Management Practices

Roads and conveyor corridors would be constructed, graded, and maintained to minimize ponding. Approved dust suppressants will be applied to the roads when required.

Stormwater runoff originating on haul and access roads will be routed into the side channels and diverted at engineered structures to sediment basins. Stormwater channel beds will be reinforced with rip-rap where necessary to reduce velocity and potential for scouring. The determination of where to place rip-rap will occur as part of the channel design and where erosion may have occurred after storm events. Roadside diversion channel banks will be constructed with 1.5:1V slopes on the up-gradient side, and designed to contain the 25-year, 24-hour storm event.

Light vehicles will use the truck wash at the truck shop.

4.5 Growth Medium and Woody Debris Stockpiles

Five growth medium stockpiles will be placed as shown on Figure 3. These piles will contain growth medium which has been salvaged from facility footprints prior to facility construction. Woody debris removed from facility footprints will be windrowed or stockpiled and will contain tree stumps, bushes, and other large natural vegetative remains.

Since the growth medium stockpiles consist of disturbed soil that will lack vegetation during early construction, the stockpiles have been identified as potential pollution sources for suspended solids during a storm event or period of runoff. Woody debris stockpiles may also contain loose soil which could be released during storm events.

4.5.1 Stormwater Controls and Best Management Practices

Stormwater diversions will be constructed up-gradient of each stockpile and berms will be constructed around their perimeters to retain transported sediments from the stockpiles. Growth medium stockpiles will be revegetated as soon as practicable to minimize erosion and non-native or noxious weed infestations.

4.6 Borrow Areas

Borrow sources will be required for construction materials including heap leach pad underliner and overliner, prepared subgrade materials, drainage materials, pipe bedding materials, road surfacing materials, closure materials, and riprap. Construction-related borrow areas will be located as shown on Figure 3. Depth of potential borrows are expected to be between 5 and 15 feet. Borrow areas may be revisited over the mine life.

Borrow areas will generally be designed as free draining. Because borrow areas may involve temporary storage of excavated material near the borrow excavation, and because they will lack vegetation for the time period between initial excavation and reclamation, these areas have been identified as potential pollution sources for suspended solids during a storm event or period of runoff.

4.6.1 Stormwater Controls and Best Management Practices

In general, borrow areas will be graded to prevent erosion from stormwater origination on the borrow area surface. Borrow areas outside of facility footprints that would be dormant will be seeded with an interim seed mix to control dust, erosion, and prevent the encroachment of invasive, non-native species.

4.7 Exploration Activities

Exploration activities will consist of drill road and pad construction, surface sampling, trenching, bulk sampling, and drilling using both RC and core rigs. Exploration activities may also include geotechnical investigations, geophysical surveys, water exploration, and monitor well installation.

Exploration activities that disturb areas exposed to precipitation and/or stormwater flow may be considered a potential source of stormwater pollution related to suspended solids.

4.7.1 Stormwater Controls and Best Management Practices

Best management practices that will be used to minimize erosion and control sediment runoff and may include:

- Surface stabilization measures – dust control, mulching, riprap, temporary gravel construction access, temporary and permanent revegetation/reclamation, and placing growth medium;
- Runoff control and conveyance measures – hardened channels, runoff diversions; and
- Sediment traps and barriers – check dams, grade stabilization structures, sediment detention basins, sediment/silt fence and straw bale barriers, and sediment traps.

Revegetation of disturbed areas will reduce the potential for wind and water erosion. Concurrent reclamation will be maximized to the extent practicable to accelerate revegetation of disturbed areas. Sediment and erosion control measures will be inspected periodically, and repairs performed as needed.

4.8 Reagent, Fuel, and Explosives Storage

Smaller quantities of hydrocarbons and regulated materials will be located at the truck shop, warehouse, and process area. These will be kept indoors in proper storage and

secondary containment systems and are considered stormwater pollution sources. Most reagent tanks will be located inside of the process facilities in secondary containment and are not considered potential stormwater pollution sources. Bulk fuel storage will be outside in double-walled tanks, and therefore are not considered potential stormwater pollution sources.

Explosive agents will be purchased, transported, stored, and used in accordance with the Bureau of Alcohol, Tobacco, and Firearms; Department of Homeland Security provisions; and MSHA regulations. The primary explosive used will be a mixture of ammonium nitrate and fuel oil (ANFO). Ammonium nitrate prill will be stored in a silo in a secure area. Explosive agents, boosters, and blasting caps will be stored within a secured area as shown on Figure 3.

4.8.1 Stormwater Controls and Best Management Practices

Liquid fuels stored outside of buildings will be stored in double-walled tanks. The floor of the reagent areas will be sealed to prevent spills from entering cracks or permeating the concrete and being released to the environment.

Fittings connecting the delivery truck hoses to the unloading systems would be located within the containment areas or spill collection structures to contain minor leaks as well as catastrophic failures of the delivery system. Containers and tanks will be inspected on a scheduled basis, and maintenance will be performed to avoid leakage from container ports or dispensing devices. Spill kits will be located at or near storage areas to contain and absorb spills. Storage areas will be placed away from potential run-on stormwater.

4.9 Buildings

The administrative building and safety/security will be located along the access road. These buildings are not considered to be stormwater pollution sources.

An enclosed truck wash facility will be located adjacent to the truck shop. Wash water will be directed to a settling basin where water and solids will be separated. Water will be treated with an oil-water separator and re-circulated. Solids collected from the settling basin will be tested and handled as petroleum contaminated soil if necessary. As the truck will be enclosed and wash water will be kept in containment, it is not considered to be a stormwater pollution source.

A warehouse will be located near the truck shop and will be used for the storage of supplies and small equipment. The laboratory will be located near the administration building. The laboratory will include separate areas for sample preparation, wet analysis, a metallurgical laboratory, a balance room, and offices. The laboratory will operate seven days per week and will be capable of processing mine and process samples. As the laboratory will be covered and reagents and chemicals kept within secondary containment, it is not considered to be a stormwater pollutant source.

The truck shop will include maintenance bays to support mobile equipment maintenance. Lubricants and antifreeze will be managed and stored in the area as required by MSHA and other state and federal regulations. Oil totes of different size for certain type oils will be used throughout the shop area. Small quantities of solvents, paints, and other materials

will be stored at the truck shop and managed according to state and federal regulations. Materials stored outside of the buildings are discussed under section 4.8.

Parking lots around the buildings will be unvegetated areas which may experience traffic. Loose sediment from the parking lots may become loose during storm events increasing the potential for an increase in suspended solids.

4.9.1 Stormwater Controls and Best Management Practices

Approved dust suppressants will be applied to the parking areas as well as roads when required. Stormwater runoff originating on parking areas will be routed into the side channels and diverted at engineered structures to sediment basins. Stormwater channel beds will be reinforced with rip-rap where necessary to reduce velocity and potential for scouring. The determination of where to place rip-rap will occur as part of the channel design and where erosion may have occurred after storm events. Roadside diversion channel banks will be constructed with 1.5:1V slopes on the up-gradient side, and designed to contain the 25-year, 24-hour storm event.

4.10 Waste Management Facilities

Used lubricants and solvents will be characterized according to the Resource Conservation and Recovery Act (RCRA) requirements and will be stored appropriately. Midway will obtain a Hazardous Waste Identification Number from the Environmental Protection Agency (EPA). The mine is expected to be in the “small quantity generator” category as defined by the EPA. Used solvents and fire assay cupels are the only identified potential hazardous wastes at this time. Midway will institute a waste management plan that will identify the wastes generated at the site and their appropriate means of disposal.

Small quantities of hazardous waste will be stored according to state, federal, and local regulations on a covered and sealed concrete pad with secondary containment berms near the truck shop until removal and disposal at an authorized facility. Used oil and coolant will also be stored at the truck shop in secondary containment. As these waste sources will be covered and in secondary containment, they are not anticipated to be stormwater pollution sources.

Industrial solid waste will be generated during construction and operations. Solid waste generated by the mine and process departments will be collected in dumpsters near the point of generation. Industrial solid waste will be disposed in an onsite Class III industrial landfill in accordance with NAC 444.731 through 444.737. The landfill will be constructed as a trench within an active lift of the South WRDA.

4.10.1 Stormwater Controls and Best Management Practices

The landfill will be covered weekly, and its location surveyed and documented throughout the mine life. Stormwater control measures for this facility are the same as for the WRDAs. A training program will be implemented to inform employees of their responsibilities in proper waste disposal procedures. Waste disposal practices will include:

- Proper storage, disposal and transport requirements for hazardous materials, liquid wastes, and petroleum products;

- Used antifreeze will be collected and stored in a "Used Antifreeze" tank located at the truck shop. Used antifreeze will be sent to a licensed recycling facility via a licensed trucking company;
- Used oil will be collected and stored in a "Used Oil" tank located at the truck shop. Used oil will be tested to determine its status prior to shipping to a recycling facility or other appropriate destination;
- Used aerosol cans will be emptied in satellite accumulation can-puncturing devices located in the truck shop and process building, core shed, and other areas where aerosol cans are used extensively. The can puncturing devices will be equipped with closed-top drums to collect the contents of the punctured can. The contents collected in the drum will be shipped off-site for disposal in accordance with the RCRA. Empty, punctured cans will be disposed in the landfill or recycled as light scrap steel;
- Used haul truck tires will be placed in specific locations within the WRDAs and buried. Only one layer of tires will be placed in each bench. The locations will be surveyed. Alternatively, haul truck tires may be recycled if a suitable recycling facility is available;
- Used fluorescent light bulbs will be collected and sent off site to a recycling facility;
- Used oil filters will be drained prior to being crushed and recycled;
- Shop wipes will be collected in metal receptacles near the point of use and then disposed in accordance with state and federal regulations;
- Used containers that held reagents or petroleum products will be drained, rinsed, and recycled; and
- Used oil will be collected at the used oil tank at the truck shop and transported off site using a licensed used oil transporter.

4.11 Ready Line

Haul trucks and other mobile mine equipment will be temporary staged when not in use at the ready line as shown on Figure 3. The equipment will be parked here during shift changes and when required for light maintenance. As this area will be cleared of vegetation and will experience heavy traffic, the potential for suspended solids to be created during storm events as a stormwater pollutant exists.

4.11.1 Stormwater Controls and Best Management Practices

Roads and conveyor corridors would be constructed, graded, and maintained to minimize ponding. Approved dust suppressants will be applied to the roads when required.

Stormwater runoff originating on haul and access roads will be routed into the side channels and diverted at engineered structures to sediment basins. Stormwater channel beds will be reinforced with rip-rap where necessary to reduce velocity and potential for scouring. The determination of where to place rip-rap will occur as part of the channel design and where erosion may have occurred after storm events. Roadside diversion channel banks will be constructed with 1.5:1V slopes on the up-gradient side, and designed to contain the 25-year, 24-hour storm event.

4.12 Yards and Inter-facility Disturbance

Yards are defined as relatively flat areas that may be used for equipment storage, access, supplies, and buffer areas between facilities. Undisturbed "islands" of vegetation will typically remain between the facilities; however, for permitting and bonding purposes, land within the Mine area not otherwise designated on Figure 3 as another facility is assumed to be disturbed and will be designated as yard.

4.12.1 Stormwater Controls and Best Management Practices

Best management practices will be used to limit erosion and reduce sediment in precipitation runoff from yards and disturbed inter-facility areas. Best management practices that will be used may include:

- Surface stabilization measures – dust control, mulching, riprap, temporary gravel construction access, temporary and permanent revegetation/reclamation, and placing growth medium;
- Runoff control and conveyance measures – hardened channels, runoff diversions; and
- Sediment traps and barriers – check dams, grade stabilization structures, sediment detention basins, sediment/silt fence and straw bale barriers, and sediment traps.

Revegetation of disturbed areas will reduce the potential for wind and water erosion. Following disturbance, areas such as cut-and-fill embankments and growth medium/cover stockpiles will be seeded as soon as practicable and safe. Concurrent reclamation will be maximized to the extent practicable to accelerate revegetation of disturbed areas. Sediment and erosion control measures will be inspected periodically, and repairs performed as needed.

4.13 Construction Activities

Construction of facilities would be performed by contractors during a period of time prior to the full commencement of operations. During this time, pre-stripping would be performed. Construction activities that disturb areas exposed to precipitation and/or stormwater flow may be considered a potential source of stormwater pollution.

4.13.1 Stormwater Controls and Best Management Practices

Best management practices will be used to limit erosion and reduce sediment in precipitation runoff from proposed Project facilities and disturbed areas during construction.

Best management practices will be used during construction to minimize erosion and control sediment runoff and may include:

- Surface stabilization measures – dust control, mulching, riprap, temporary gravel construction access, temporary and permanent revegetation/reclamation, and placing growth medium;
- Runoff control and conveyance measures – hardened channels, runoff diversions; and
- Sediment traps and barriers – check dams, grade stabilization structures, sediment detention basins, sediment/silt fence and straw bale barriers, and sediment traps.

Revegetation of disturbed areas will reduce the potential for wind and water erosion. Following construction activities, areas such as cut-and-fill embankments and growth medium/cover stockpiles will be seeded as soon as practicable and safe. Concurrent reclamation will be maximized to the extent practicable to accelerate revegetation of disturbed areas. Sediment and erosion control measures will be inspected periodically, and repairs performed as needed.

5 RECLAMATION AND REVEGETATION

Reclamation of disturbed areas will be completed in accordance with BLM and NDEP regulations and the Project Plan of Operations and Reclamation Permit Application. The Plan of Operations addresses earthwork and recontouring, revegetation and stabilization, and monitoring operations necessary to satisfactorily reclaim disturbed areas.

Reclaimed surfaces will be seeded to control runoff and reduce erosion. Seedbed preparation and seeding would take place after grading and topsoiling of reclaimed areas. Reclamation seed mixtures and application rates will be based on BLM requirements and on the species' effectiveness in providing erosion protection, the ability to grow within the constraints of the low annual precipitation experienced in the region, its suitability for site aspect, and the elevation and soil type.

6 NON STORMWATER DISCHARGE MANAGEMENT

Sources of non-storm water that could become combined with stormwater discharges (except for flows from fire-fighting activities) are identified in this section. This section identifies the implementation of appropriate management measures for the non-storm water component(s) of the discharge. Sources of non-stormwater discharges which could occur include:

- Occasional flushing of wells or water pipelines for testing;
- Washing of buildings or pavement to maintain housekeeping;
- Irrigation for landscaping; and
- Application of water or dust suppressants to roads.

The BMPs for management of these non-stormwater discharges include:

- *Well and Pipeline Flushing:* The amount of water used to conduct occasional flushing of wells or pipelines is not normally of sufficient volume to cause significant erosion or sediment transport. Flushing activities are completed as quickly as possible, to minimize any potential for overflow.
- *Washing Buildings or Pavement:* The amount of water used to conduct occasional washing of buildings or pavement is not normally of sufficient volume to cause significant erosion or sediment transport. The use of detergents for washing buildings or pavement is prohibited.
- *Dust Suppressants on Roads:* Dust suppressants are applied to unpaved haul roads and access roads, as needed. Application is to road surfaces only. Water from direct precipitation and from water sprayed as routine dust control will come into contact with the suppressants on the roads and may contribute to stormwater pollution.

7 MONITORING AND REPORTING

Stormwater management for the Project will be regulated under the Project's water pollution control permit (WPCP). Currently, there are no requirements to monitor stormwater discharges since there are no waters of the United States identified within or connected to the Project area.

Midway will observe stormwater structural controls if feasible during storm events to ensure that the integrity of the structures is maintained. In addition, Midway will inspect disturbed areas, control structures, and storage areas exposed to precipitation or stormwater after any storm event that is equal to or greater than a 25-year, 24-hour event, to ensure that overtopping and erosion has not occurred and that proper sedimentation control is taking place. Staff conducting the inspections will report their findings to management.

Annual Inspections: Inspection and evaluation of all BMPs and disturbed areas will be conducted annually, preferably following the spring runoff period. Inspections of the BMPs and the disturbed areas may be conducted separately or concurrently. This evaluation will result in the preparation of a written report documenting the following:

- Evaluation of all areas of disturbance and their current status;
- Evaluation of BMPs for their effectiveness in reducing stormwater pollutant loads; and
- Schedule for modifying the BMPs and revisions to the stormwater management plan, if practical reductions of pollutants can be achieved.

Table 3 outlines the general requirements for inspection and monitoring by the Project Stormwater Management Team.

Construction Inspections. During construction activities, Midway will inspect disturbed areas, storage areas, and structural controls associated with construction that are exposed to precipitation at least once every seven calendar days and within 24 hours after the end of a 10-year, 24-hour storm event.

Inspection of primary containment and secondary containment structures for oil and petroleum products is described in the Project Spill Contingency Plan included as an Appendix in the Project Plan of Operations.

Records of all inspections and maintenance shall be maintained as part of this stormwater management plan.

Table 3: Inspection and Monitoring Requirements (for Non-Construction Operations)

Location or Component (exposed to precipitation or stormwater)	Inspection and Monitoring Schedule
Disturbed Areas	• Annually • After 25-year, 24-hour storm event
Storage Areas	• Annually • After 25-year, 24-hour storm event
Structural Stormwater Controls	• Annually • After 25-year, 24-hour storm event • During storm events as practicable

8 CHANGES TO STORMWATER MANAGEMENT

This stormwater management plan identifies protocols for performing periodic inspections and evaluations, which could have one or more of the following outcomes. For any of these outcomes, the plan will require revision:

- "Undocumented" potential pollutant sources (not identified in the plan) are identified on the property;
- Potential pollutant sources described in the plan have been removed from the property; or
- A determination is made that additional BMPs are required to effectively control stormwater and reduce the potential for pollutant migration.

9 REFERENCES

Eakin, T.E. 1960. Ground-water appraisal of Newark Valley, White Pine County, Nevada: Nevada Department of Conservation and Natural Resources. (Ground-Water Resources-Reconnaissance Report 1), 33 p.

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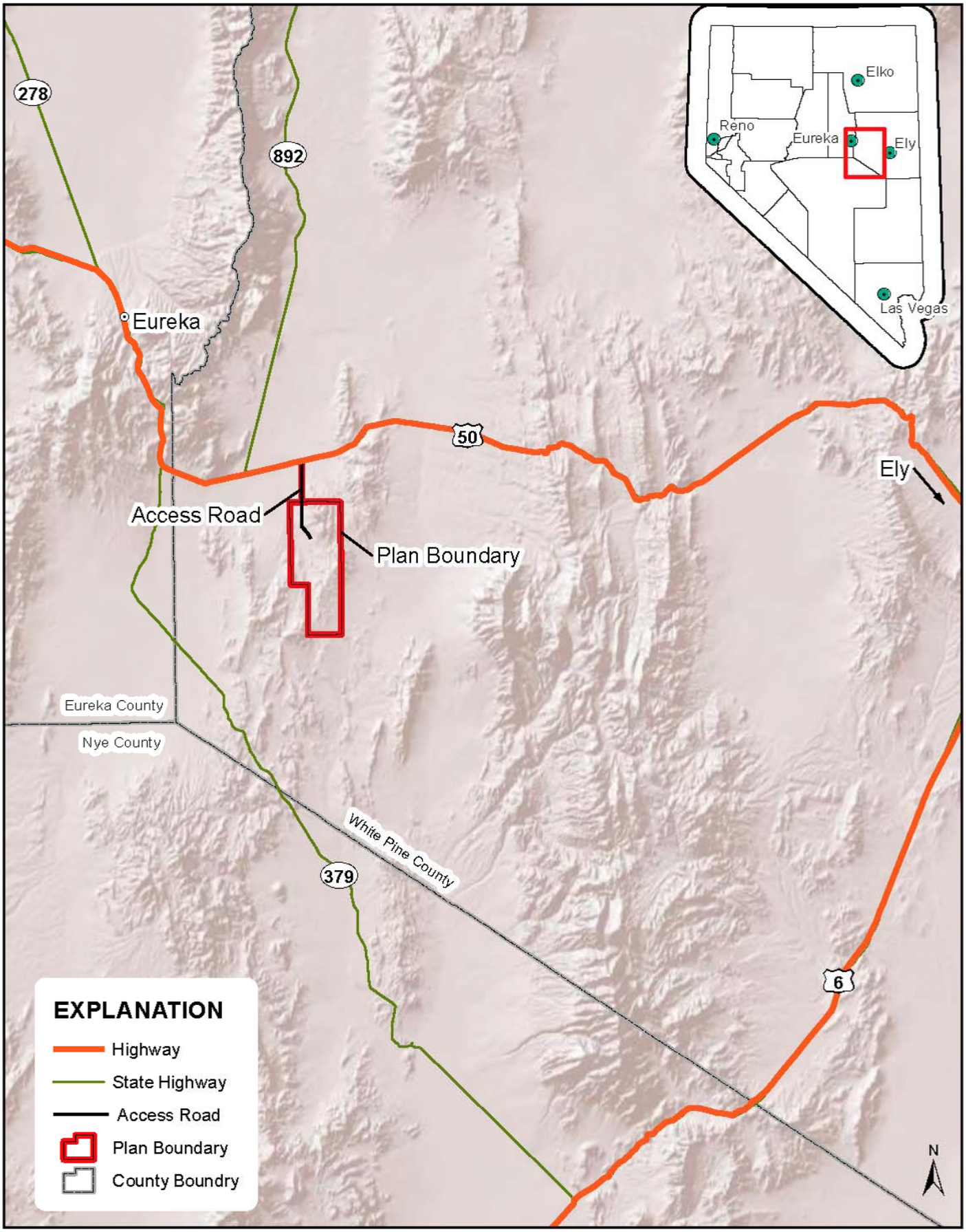
WRCC. 2008. Western Regional Climate Center online data; www.wrcc.dri.edu/htmlfiles/westevap.ginal.html.



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MIDWAY GOLD

PAN PROJECT

DRAWING TITLE:

LOCATION MAP

Stormwater Management Plan

DRAWING NO. FIGURE 1

REVISION A

JOB NO. 160700.080

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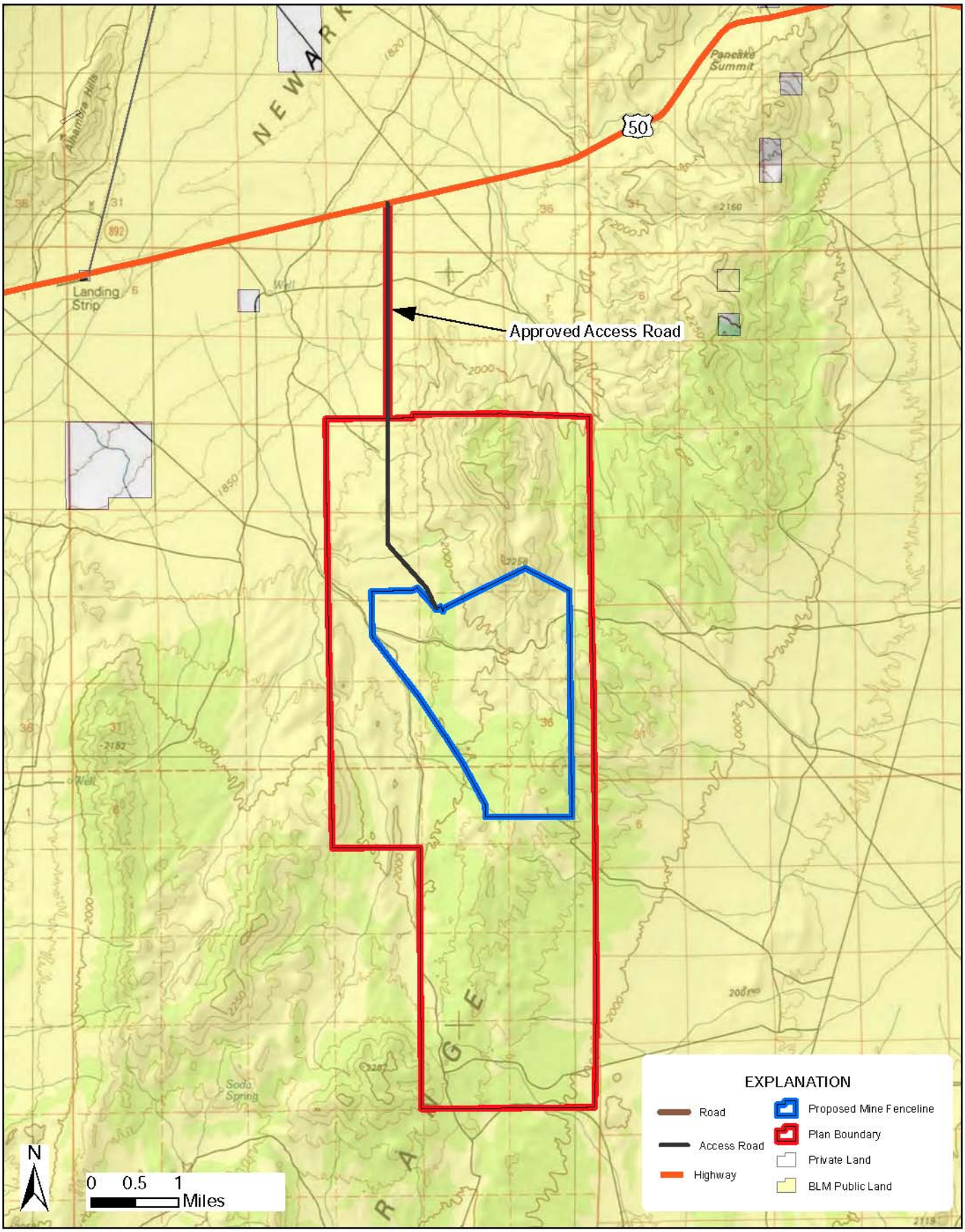

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MIDWAY GOLD

PAN PROJECT

DRAWING TITLE: LAND STATUS MAP

ISSUED FOR: Stormwater Management Plan

DRAWING NO. FIGURE 2

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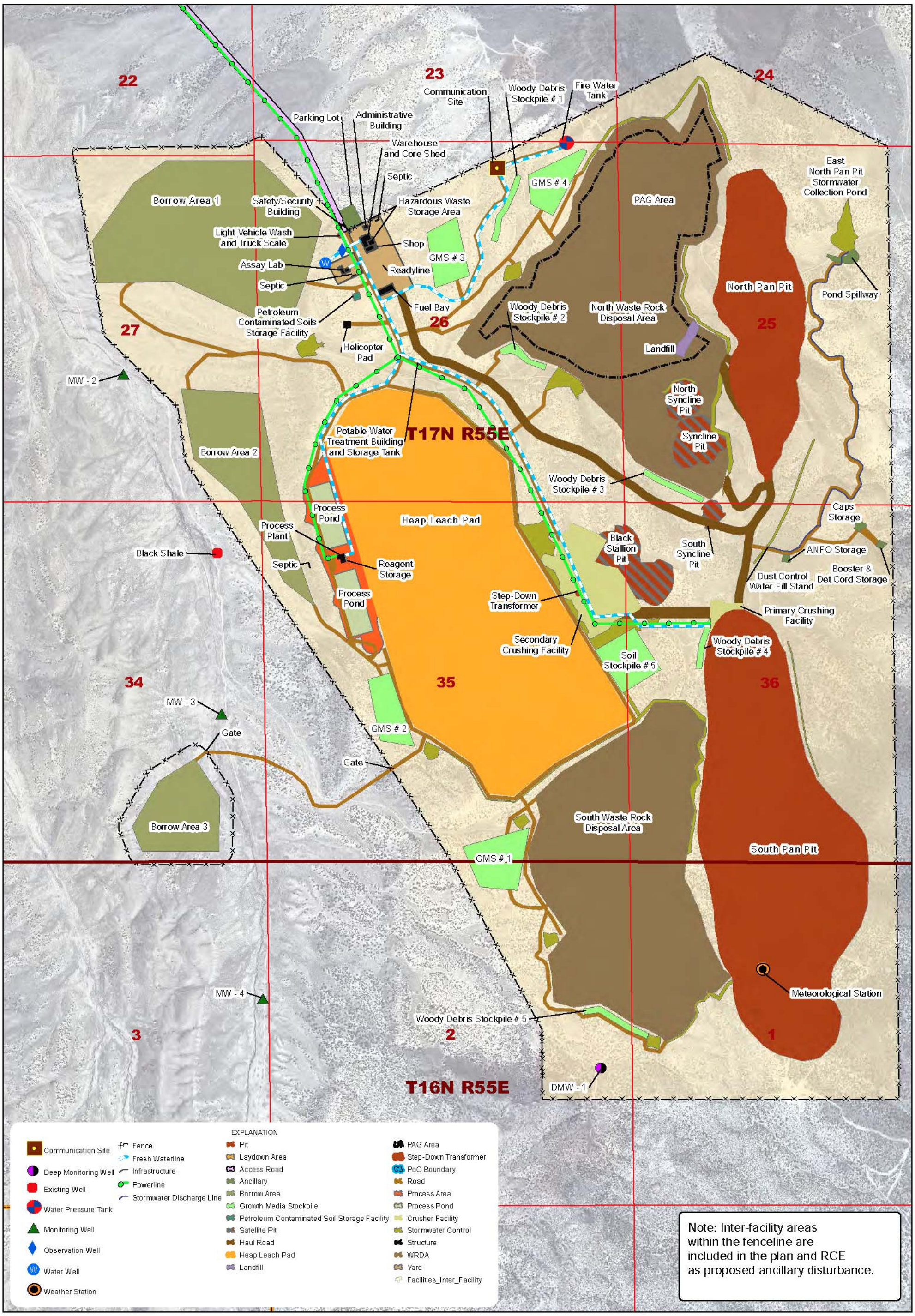

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srk consulting

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MIDWAY GOLD

PAN PROJECT

DRAWING TITLE: APPENDIX I- PROPOSED FACILITIES

ISSUED FOR: Plan Of Operations

DRAWING NO. FIGURE 3

SRK JOB NO. 160700.080

REVISION NO. B

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