

**NEWMONT GHANA GOLD LTD.
AHAFO SOUTH PROJECT**

DRAFT RECLAMATION PLAN

APRIL 2006

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AHAFO SOUTH PROJECT
DRAFT RECLAMATION PLAN
MARCH 2005**

Prepared for:

NEWMONT MINING CORPORATION

1700 Lincoln Street
Denver, Colorado 80203

Prepared by:

MFG, INC.

consulting scientists and engineers

3801 Automation Way, Suite 100
Fort Collins, Colorado 80525
(970) 223-9600
Fax: (970) 223-7171

MFG Project No. 181205

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PREFACE

In 2005, Newmont Ghana Gold Ltd (NGGL) developed a conceptual (Draft) closure and reclamation plan for the Ahafo South Mining Project in compliance with requirements of the Ghanaian Environmental Protection Agency (EPA). The conceptual closure and reclamation plan (MFG 2005) outlines existing site conditions; describes ore processing, mining operation, waste rock disposal facilities, water management, tailing storage facility, reclamation of the site including all mine facilities, and short- and long-term monitoring programs.

The conceptual closure and reclamation plan is consistent with requirements of the IFC guidelines which were in-place at the time of plan development. Reclamation objectives include returning as much of the affected area to conditions that existed before mine development and to meet terms of the mining agreement. Under EPA requirements, NGGL will be required to provide updates to the reclamation plan as mine development proceeds. These updates will include revisions or modifications to the conceptual reclamation and closure plan necessary to address actual site conditions.

Under Ghanaian law, NGGL is required to provide security (bonding) to ensure performance of its obligations for reclamation of mining lease land disturbed during development of the Ahafo South Mining Project. The amount of security is determined within six months of project start-up.

NGGL submitted official notice to the Minerals Commission and the EPA that mining commenced on 9 January 2006. During the following six months, NGGL and the EPA will work together to verify the cost estimate and determine the proportion of cash deposit versus bank guarantee. Initial cost estimates for reclamation were based on information known at the time, assumptions defining specific reclamation activities, Ghana EPA reclamation success criteria, and unit rates for performing the work. These closure and reclamation plans were consolidated and updated by MFG, Inc. in 2005 in development of the conceptual reclamation and closure plan (MFG 2005) to support preparation of the Ahafo Environmental and Social Impact Assessment.

Over the next few months, NGGL will update the Closure and Reclamation plan with new information such as updated mine and waste dump plans and updated geochemistry characterization data. NGGL will also reevaluate the assumptions and unit rates to ensure they are consistent with current mining and economic conditions. NGGL will provide this updated information to the EPA in accordance with their (EPA) requirements. Periodic reviews of the Ahafo South Mining Project will occur with the EPA at an agreed upon frequency to ensure that reporting is accurate and up to date in relation to actual conditions with both current and planned activities.

EXECUTIVE SUMMARY

This document outlines the preliminary closure plan for the proposed Newmont Ghana Gold Limited (NGGL) Ahafo - South Project in the Brong Ahafo Region of Ghana, West Africa. This plan is based on information provided by NGGL, Knight-Pièsold Pty. Ltd., Lycopodium Pty, Ltd., and Maxim.

The development plan for the Ahafo-South Project consists of four open pits (Subika, Apensu, Awonsu, and Amama) with five waste dumps adjacent to the respective pits, (Subika – east, Subika – west, Apensu, Awonsu, and Amama). The mill and process plant have been designed to process approximately 7.5 million tonnes of ore per year. The Tailings Storage Facility (TSF) will be constructed in a nearby stream drainage (Subri) and will be operated as a “zero discharge” facility - meaning no water from the TSF will be discharged into the environment. A non-process Water Storage Facility (WSF) will be constructed in the drainage immediately upstream of the TSF. Four Environmental Control Dams (ECDs) are planned for this project, which are designed for stormwater management and sediment control.

The reclamation plan for the Ahafo South Project was developed for the anticipated operational condition of the facilities, tailings characteristics, site climatic conditions, and available construction materials. The reclamation plan was also developed to be consistent with the following guidelines and regulations:

- 1) Standard practices of the International Finance Corporation (IFC),
- 2) Environmental Health and Safety Guidelines for Precious Metal Mining,
- 3) Guidelines addressed in the Government of Ghana Environmental Protection Agency Act 490,
- 4) Newmont Mining environmental guidelines for reclamation of tailings and other mining facilities and,
- 5) State of Nevada Regulations for Mine Reclamation in the absence of other regulations as a guideline.

These parameters include practices for post-operational water management and long-term stability.

The reclamation objectives for the plan include the following:

- 1) Returning as much of the affected area as possible to a condition where its premining usage can resume. The primary premining uses include cropland, livestock grazing, and small residential development.
- 2) All structures will be decontaminated, decommissioned, salvaged or demolished on the site according to the terms of the mining agreement. These include facilities, ancillary equipment and buildings.
- 3) Safe disposal of hazardous material, equipment and contaminated soils and steel structures.

- 4) Regrade and revegetate disturbed areas.
- 5) Implement the water treatment program.
- 6) Implement the environmental monitoring program.

The reclamation objectives for open mine pits will be to assure public safety by restricting access to the pit area. Backfilling or partial backfilling of the open pits is not currently planned, but may be considered during later phases as warranted. It is assumed that after mining, pit walls will ravel to create a stable, final slope and as such, additional stabilization or regrading will not be necessary. Based upon current information, pit lakes may develop passively and partially fill some or all pits over time. However, surface drainage from the pits does not appear likely due to the relatively high annual evaporation rates (with respect to annual precipitation) at the site. Available information suggests an absence of potentially acid generating (PAG) material within the planned pit boundaries, except for minor amounts of sulfide ore. It is assumed that any resulting pit lakes will not require water treatment; however future studies will be required to confirm this assumption in those pits where lake development is likely. Public access to the pit areas will be restricted by constructing earthen berms, brush barriers, and installing warning signs around the perimeters to deter accidental access. Disturbed areas outside the footprint of the open pits will be recontoured such that the final topography is generally consistent with the adjacent landforms and avoid ponding along the pit perimeters.

The short-term reclamation objectives for the Waste Rock Disposal Facilities are to minimize the potential for erosion, slope failures, and sediment transport from the waste rock surface and to facilitate final reclamation. Long-term objectives include preventing ponding, promoting controlled runoff surface water, and preventing erosion from the reclaimed surfaces. In order to achieve the reclamation objectives, reclamation will be performed concurrently as each lift is completed by regrading the waste rock slopes to 3:1 (horizontal:vertical), with 4-meter-wide horizontal drainage benches provided at a vertical spacing of 12 meters (m). The recontoured surfaces will be covered with 0.5 m of growth media on sloped areas and drainage benches, 0.15 m on flat surfaces, and reseeded. The closure plan for Waste Rock Disposal Facilities is based upon available information that indicates these facilities will not contain PAG material. This assumption should be reviewed in subsequent phases of closure plan development and modified as necessary. Additional alternatives that could be considered as more information becomes available include encapsulation of materials with higher acid-generating potential toward the interior of the facility to limit contact with oxygen and meteoric water, and construction of either a low-permeability or a store-and-release type vegetated cover over the waste rock surface.

The mill and process plant will be decommissioned prior to the demolition or salvage of any structures. Portable equipment of value including vehicles, furniture, and computers will be removed from site for subsequent reuse or salvage. Decommissioning the crushing and screening plant will be initiated once the last ore has been processed. The CIL plant will be decommissioned once all economic recoverable gold solution has been processed. Immovable assets that have been properly decommissioned, such as office and plant buildings, shall be transferred to the government of Ghana as described in terms of the mining lease. Contaminated soils from the spillage of oils and lubricants shall also be removed and placed in an approved disposal facility. Stripped areas in the vicinity of the mill and process plant will be scarified, covered with 0.5 m topsoil, graded to match the contours of the surrounding topography, and revegetated.

Reclamation of the TSF will commence upon termination of tailings deposition. Reclamation objectives for the TSF include controlling erosion, managing stormwater runoff, minimizing dust generation, and establishing vegetation on the facility. Based upon testing by Newmont Ghana Gold Ltd. (NGGL), the tailings appear to be non-acid generating. Given currently available information, establishing a vegetated soil cover appears to be the most appropriate long-term reclamation strategy for the TSF. As currently planned, the TSF cover would consist of a 0.5 m thick layer of oxide waste rock over the tailings surface, covered with 50 cm of suitable growth media. This cover would be reseeded with an appropriate native seed mix. The exterior slopes of the tailings embankment will be graded to 3:1 (horizontal:vertical) or flatter using oxide mine waste or other suitable material. The exterior face will be progressively revegetated as the final slope is established in order to reduce erosion and sediment transport from the embankment. The south embankment will be buttressed by the Apensu Waste Dump, which will significantly limit the amount of exposed embankment slope in this area. Stormwater runoff from the top of the reclaimed TSF will be routed through a reclamation spillway constructed through the south embankment and outfall to the Apensu open pit.

Reclamation of the tailings surface will commence upon termination of tailings deposition in the TSF. After removal of the pond in the low area adjacent to the final spillway, the tailings surface will be allowed to dry to the point where cover placement is possible without excessive deformation of the tailings surface. Drying is expected to take several months in the decant/final spillway area and could possibly require completion of capping during the following dry season. The TSF underdrainage system is expected to continue to operate for a number of years after completion of capping and revegetation as excess pore water continues to drain from the tailings.

Tailings within the TSF will be drained via tailings underdrainage system. The underdrainage system will be constructed throughout the tailings basin and will serve to reduce the phreatic surface within the

tailings. The drains will report to a collection sump, which will be dewatered by pumping from an access riser pipe. The tailings underdrainage system will remain in operation after mine closure until tailings underdrainage ceases. The underdrainage system is expected to continue to operate for a number of years after completion of capping and revegetation as excess pore water continues to drain from the tailings. After mining activities have been terminated, water from the drainage will be treated at the process plant and released into the WSF.

The WSF will be created by impounding water against the upstream side of the north embankment of the TSF. The WSF will remain operational after mine closure and reclamation of the site, in perpetuity. Extreme storm events will be managed by the overflow spillway located near the southeastern portion of the reservoir. Water passing through the spillway will be routed via a series of diversions to the Awonsu tributary of the Tano River.

Upon completion of closure and reclamation activities, accumulated sediments will be removed from the areas upstream of the ECDs. Where possible, sediment and topsoil collected from the base of the ECDs will be transported to the nearest topsoil stockpile or redistributed in areas that require additional reclamation growth media. The ECDs will then be breached to restore free flowing conditions.

Ancillary features will be sorted into salvageable versus non-salvageable items. Any non-salvageable and non-saleable materials will be disposed of and buried in the Waste Rock Disposal Facilities. All building structures will be demolished except those as being transferred to the Government of Ghana. Electric power line support structures will be left for public use. High voltage power lines from maintained by the Government of Ghana will remain functional to the main substation. Overhead power lines and substations providing power to the mine are to be removed. Overhead power lines feeding villages shall be kept in place and turned over to public domain. Contaminated soils in fuel station containment areas will be removed and placed in an approved disposal facility.

Final grading and revegetation of the site will involve establishing soil stability, minimizing erosion and establishing a sustainable post-closure land use scenario. Grading of the site shall be consistent with surrounding topography. Grading shall incorporate sufficient drainage channels to divert surface water runoff during high precipitation events and shall avoid ponding of water on site. The final stage will be establishing a safe land use scenario that will sustain subsidence agriculture for the local community.

Procedures for short-term and long-term monitoring of the mine site after closure will be established to ensure that mining activities do not affect surrounding areas and is a continuation of the operational monitoring program. The items scheduled to be monitored should not be considered as an all-inclusive

monitoring list, and will be updated as mining and reclamation activities progress. Periodic reviews of the security liability for the Ahafo South Mining Project will occur with the Environmental Protection Agency (EPA) at an agreed upon frequency to ensure that security bonding is accurate and up to date in relation to actual conditions and the liability associated with both current and planned activities.

Short term monitoring will consist of monitoring the groundwater monitoring wells, dust monitoring, revegetation progress, surface water run off quantity and quality, open pit condition monitoring, pit lake water quality, and TSF effluent quantity and quality. Monitoring will be performed once per month for approximately three years. Monitoring groundwater, surface water, and pit lake water shall consist of sampling for a selected list of parameters. Air monitoring stations will be installed and sampled for airborne dust particles. Revegetation will be inspected for erosion, biodiversity and growth.

Long term monitoring will consist of a combination of observations, well measurements, and sampling for water and air quality on a less intensive schedule than the short term monitoring plan. The proposed schedule for groundwater and surface water sampling, and site observations will be once per month for five years. The proposed schedule for lab testing of pit lake water will be semi-annually for five years. This proposed schedule shall be reconsidered as reclamation and closure activities come to a close. Monitoring of groundwater, surface water, and pit lake water shall consist of sampling for a selected list of parameters.

1.0 INTRODUCTION

This document outlines the preliminary closure plan for the proposed Newmont Ghana Gold Limited (NGGL) Ahafo - South Project in the Brong Ahafo Region of Ghana, West Africa. This plan is based on information provided by NGGL, Knight-Pièsold Pty. Ltd., Lycopodium Pty, Ltd., and Maxim.

The Ahafo-South Project layout is shown on Figure 1. The development plan for the Ahafo-South Project consists of four open pits (Subika, Apensu, Awonsu, and Amama) with five waste dumps adjacent to the respective pits (Subika – east, Subika – west, Apensu, Awonsu, and Amama). The mill and process plant have been designed to process approximately 7.5 million tonnes of run-of-mine (ROM) ore (primary and oxide ore) per year. The Tailings Storage Facility (TSF) will be constructed in a nearby stream drainage (Subri) and will be operated as a “zero discharge” facility - meaning no water from the TSF will be discharged into the environment. Tailings placement and management will be in a sub-aerial manner, which involves maintaining the tailings in a largely unsaturated state during operations. A non-process Water Storage Facility (WSF) will be impounded in the drainage immediately upstream of the TSF. Six Environmental Control Dams (ECDs) are planned for this project, which are designed for stormwater management and sediment control. These elements and their planned reclamation are described in more detail in subsequent sections of this document.

2.0 SITE CONDITIONS

Ghana's climate, as a whole, is warm and humid with temperatures ranging from 23°C to 29°C. In the north, there are two distinctive seasons: a dry season and a wet season. In the south there are four seasons, rain from April to June, a dry period in August, rain again from September to November and then another dry season. Mean annual rainfall ranges between 1,354 and 1,400 mm. March is the hottest month and August is typically the coolest month, with mean temperatures during those months of 27.8°C and 24.6°C, respectively.

The site topography consists of low rolling hills that range in elevation from 540 m to 330 m. The project area is located at the contact between a volcanic belt and a sedimentary basin. The contact between the volcanic belt and basin is where gold mineralization occurred. This contact is a northeast/southwest trending shear zone and part of the Birimian volcanic belt. The volcanic belt consists of rock at various degrees of metamorphism, such as hornblende and phyllite. The sediment belt consists of wackes and siltstones, sandstones and conglomerates. Primary porosity and permeability are low in the volcanic rocks and sediment belt rock types.

Three soil types are present in the Ahafo (South) region. The Bekwai soil or saprolite covers approximately 70 percent of the site and consists of weathered in place volcanics such as phyllite. Within the Bekwai soils are four series: The Bekwai, The Nzima, Kokofu and the Oda series. The Bekwai series consists of clay loam to clay, and is medium to coarse grained. The series is typically well drained. The Bekwai series subsoil contains an abundance of ironstone, gravel and cobbles. This soil has a low affinity for nutrients. The Nzima series is mostly clay loam to clay, contains fewer gravels and is coarse, subangular and blocky. The series is medium to coarse grained. The Kokofu series contains little to no gravels and has little to no structure. The series is medium to fine grained. The Oda series is typically sandy soil with fine to medium grained materials.

The Fwidiem soil covers approximately 20 percent of the area and mostly located on the southeastern portion of the site. This soil has a higher activity than the Bekwai soils, thus is able to hold more nutrients. The Fwidiem soils consist of the Fwidiem, Subin, Ayum and Densu series and are typically imperfectly to well drained, deep to moderately deep and consist of clay loam and clay. These soils contain little to no gravels and cobbles.

The Birim-Chichiwere soil contains the Samfi, Awaham and Birim series and is present on less than 10 percent of the site. The soil type is found mostly on alluvial deposits on the Tano River. This soil type is shallow to very deep, sandy to silty clay and poorly drained.

Vegetation on the Ahafo (south) site consists of a mixture of plants, crops and plantations, patches of second growth forest, and riparian communities along the streams and rivers. Plants on site consist mainly of elephant grass and shrubs. The weed *Chromolaena odorat* also dominates much of the landscape. Crops and plantation on site consist mostly of cassava and cocoyam. The natural vegetation has been impacted by agriculture, fires and human encroachment. The forest typically consists of trees 50 meters in height, consisting of both evergreen and deciduous trees. The forest zone adjacent to the site consists of one of Ghana's most productive timber regions.

3.0 PROCESS, MINE PITS AND TAILINGS FACILITIES DESCRIPTION

This section includes brief descriptions of the mine facilities, environmental controls, ore processing, and associated waste streams and tailings disposal facilities pertinent to reclamation planning.

3.1 Process Description

The metals recovery system planned for the Ahafo (south) project consists of a crushing and grinding and cyanide leaching circuit. The planned plant capacity is 7.5 million tonnes of ore annually. The ore will pass through a washing circuit, followed by a semi-autogenous grinding (SAG), a ball mill circuit, and a 10-mm screen and cone crusher. Lime and dilute cyanide solution will be added to the ore during the crushing process. Thickener tanks, carbon-stripping circuits and electrowinning circuits will then be used to produce doré bars. The residual barren materials to be discharged into the tailings disposal facility will consist of oxide tailings and primary tailings.

3.2 Open Pits

As currently planned, ore will be mined from four proposed open pits at the Ahafo-South Project. Relevant information relating to each pit at the end of mine life is shown on the table below.

Item	Apensu	Awonsu	Subika	Amama
Area (ha)	74	52	88	72
Depth (m)	285	140	270	144
Volume (10 ⁶ m ³)	27.6	18.8	72.6	18.0

General design characteristics for the pits involve:

- 6 m bench height
- 18 m distance between catch-benches
- batter angles varying between 55 degrees and 70 degrees

3.3 Waste Rock Disposal Facilities

Five Waste Rock Disposal Facilities will be developed adjacent to each open pit (two Waste Rock Dumps for the Subika pit) and located approximately 60 to 100 m from the actual open pit crests. The average waste to ore ratio in the pits will be approximately 4.1:1. Diversion channels will be placed on the periphery of each dump to collect and drain surface water runoff. The runoff from the diversion channels will be directed to one of the four ECDs. The runoff will be controlled such that it minimizes sediment transport to receiving bodies of water, prevents runoff back into the pits and prevents erosion-induced failures in the waste dumps.

3.4 Mill and Processing Plant

The mill and processing plant will be capable of processing up to 20,000 tonnes per day using conventional Carbon-in-Pulp (CIP) and Carbon-in-Leach methods (CIL). Mixed ore will be crushed through a Run-of-Mine (ROM) hopper and will then be discharged to a 300 tonne surge hopper. Grinding the ore will be a two part process involving a Semi Autogenous Grinding (SAG) mill and ball mill in closed circuit with hydrocones. Mill discharge from the grinding process will be diluted with water and pumped into classifying cyclones. The mill slurry will then be gravity fed into a concentrator located within the main mill building. Gravity concentrate will then be transferred to a concentrate storage cone and treated in a batch intensive cyanidation reactor. The pregnant solution will then be treated in a dedicated electrowinning circuit.

The CIL circuit will consist of ten tanks. Sodium cyanide will be capable of being staged in the first five tanks. Carbon will be pumped into the slurry flow during the last stage of the CIL circuit. The loaded carbon will be fed to an acid wash and returned to the first adsorption stage via gravity flow.

Gold will be recovered from the solution as current passes through the electrowinning circuit in the gold room. As direct current passes through stainless steel anodes, electrolytic action will cause the gold to plate out on the cathodes. The barren carbon will be then transferred to the kiln circuit and eventually to the tailings management facility.

3.5 Tailings Storage Facility

The TSF will initially consist of two zoned embankments. The main (south) embankment will be initially constructed to a crest elevation of 222.4 mRL and provide 15.7 Million tonnes of storage capacity in the first 24 months. The tailings storage basin will be lined with a 300-mm-thick compacted soil liner with a maximum hydraulic conductivity of 1×10^{-6} cm/s. The downstream section of the tailings storage basin will additionally be lined with an HDPE geomembrane for additional seepage control. A leak detection system will be installed beneath the liner to monitor for potential seepage from the TSF and a tailings underdrainage system installed above the liner to collect and remove pore water from the tailings, thereby reducing the seepage gradients through the liner. The final storage capacity and crest elevation of the main embankment will be 88 Million tonnes and 241.7 mRL, respectively. The dry tailings storage capacity will range from 11.75 Million tonnes to 15.5 Million tonnes. The north embankment will be constructed to a final height of 251.8 mRL. Tailings will be delivered to the main facility via an overland steel pipeline within a trench lined with HDPE. A sub-aerial method of tailings discharge and management will be utilized, removing as much water from the tailings as possible through subsurface drainage and evaporation. The drained water will be sent to the process plant for re-use. In order to

maximize tailings density and evaporation, the area of tailings discharge (active tailings beach) will be regularly rotated around the facility.

3.6 Water Storage Facility

The north embankment of the TSF will also serve as the impounding embankment for the WSF to be located in the Subri Stream drainage. The WSF will provide raw water for plant operations and will divert water around the TSF. The Subri Stream will be impounded and the WSF will have a maximum capacity of approximately 10 million m³ of water. The WSF will have an initial dam crest elevation at 230.6 mRL and will ultimately be raised to 251.8 mRL in a series of raises constructed concurrently with the TMF development. The maximum operating water level for the WSF will be 228.1 mRL; an overflow spillway will be constructed on the southeast corner of the WSF with an invert at 229.1 mRL. The spillway, which discharges to the Awonsu tributary of the Tano River, is designed to safely pass storm flows associated with the PMF while maintaining a pool elevation in the WSF at, or below, 231.6 mRL. A contingency plan to utilize water from the Tano River will be used during periods of drought or periods of excess water consumption.

3.7 Environmental Control Dams and Stormwater Management Facilities

Four ECDs will be constructed downstream from areas disturbed by the project. The ECDs are intended primarily to collect sediment transported from runoff and for water collection and storage (harvesting) during construction and startup of operations. The locations of the ECDs are shown on Figure 1.

4.0 RECLAMATION PLAN DESCRIPTION

4.1 General

The reclamation plan for the Ahafo South Project was developed for the anticipated operational condition of the facilities, tailings characteristics, site climatic conditions, and available construction materials. The reclamation plan was also developed to be consistent with the following guidelines and regulations.

- 1) Standard practices of the International Finance Corporation (IFC),
- 2) Environmental Health and Safety Guidelines for Precious Metal Mining,
- 3) Guidelines addressed in the Government of Ghana Environmental Protection Agency Act 490,
- 4) Newmont Mining environmental guidelines for reclamation of tailings and other mining facilities and,
- 5) State of Nevada Regulations for Mine Reclamation in the absence of other regulations as a guideline.

These parameters include practices for post-operational water management and long-term stability.

4.1.1 Reclamation Objectives

The reclamation objectives for the plan are outlined below.

- 1) Post reclamation land use monitoring.
- 2) All structures will be decontaminated, decommissioned, salvaged or demolished on the site according to the terms of the mining agreement. These include facilities, ancillary equipment and buildings.
- 3) Safe disposal of hazardous material, equipment, and contaminated soils and steel structures.
- 4) Regrade and revegetate disturbed areas
- 5) Implement the water treatment program.
- 6) Implement the environmental monitoring program.

These objectives are addressed under respective sections within the reclamation plan elements described below.

4.1.2 Cover Materials

Cover materials used for the reclamation will be taken from previously stockpiled oxide waste. The oxide waste will be stockpiled during excavation of the waste rock dumps and open pits, in previously designated areas adjacent to each pit or dump. The stockpiles shall be posted to identify the materials, and stabilized as necessary to prevent excessive losses from erosion. The slopes of the stockpiles shall be

no greater than 2:1 (H:V). The creation of a depression due to the stockpiled materials, which may form a pond, must be avoided.

4.1.3 Topsoil (Growth Media) Management

Topsoil used for the reclamation will be taken from previously stockpiled topsoil. The topsoil will be stockpiled during the excavation of the waste rock dumps and open pits, in previously designated areas adjacent to each pit or dump. The stockpiles shall be posted to identify the materials, and stabilized as necessary to prevent excessive losses from erosion. Prior to placement on the cover, topsoil shall contain adequate fertilization and nutrient quantities for the native growth medium and subsistence farming crops. Erosion control techniques, such as seeding shall be used to manage runoff and control rilling on the stockpiles. Topsoil stockpile slopes shall not exceed 2:1. The creation of depressions due to the stockpiled materials, which may form ponds, will be avoided.

4.2 Open Mine Pits

The reclamation objectives for the open mine pits will be to assure public safety by restricting access to the pit area. Backfilling or partial backfilling of the open pits is not currently planned, but may be considered during later phases as warranted. It is assumed that after mining, pit walls will ravel to create a stable, final slope and as such, additional stabilization or regrading will not be necessary. Based upon current information, pit lakes may develop passively and partially fill some or all pits over time. Stormwater runoff from the reclaimed TSF will be routed through the reclamation spillway and outfall into the Apensu open pit, making lake development more likely in this pit. However, surface drainage from the pits does not appear likely due to the high annual evaporation rates (relative to annual precipitation) at the site. Available information suggests an absence of potentially acid generating (PAG) material within the planned pit boundaries, except minor amounts of sulfide ore. It is assumed that any resulting pit lakes will not require water treatment; however future studies will be required to confirm this assumption in the pits where lake development is likely. The merits of rapid, active flooding of individual open pits to promote reducing conditions for pit wall rock should also be reviewed in future studies.

Public access to the pit areas will be restricted by constructing earthen berms and installing brush barriers around the pit perimeter of each pit as shown on Figures 2,3, and 5. In addition, warning signs will be installed around the perimeters to deter accidental access and warn of potential hazards associated with the pits. The perimeter berms will be constructed 2 m in height around each pit at a minimum set-back of 50 m from the pit face when adjacent to rock faces and/or steep slopes within the pits. A typical detail for the open pit access barrier is included as Figure 6. The setback requirement should be reviewed in future

phases of closure plan development and revised as necessary to ensure that access barriers are not constructed in areas that will undercut by long-term slope raveling.

Disturbed areas outside the footprint of the open pits will be recontoured such that the final topography is generally consistent with the adjacent landforms of similar aesthetics to the existing area. The recontoured topography will allow for adequate drainage of precipitation and avoid ponding along the pit perimeters. Upon completion of excavation activities, disturbed areas will be ripped to a depth of 200 mm and covered with 150 mm of topsoil prior to reseeded with a native seed mix. Erosion control best management practices will be employed to prevent erosion of the placed topsoil prior to establishing vegetation.

4.3 Waste Rock Disposal Facilities

The short-term reclamation objectives for the Waste Rock Disposal Facilities (WRDF) are to minimize the potential for erosion, slope failures, and sediment transport from the waste rock surface and to facilitate final reclamation. Long-term objectives include prevention of ponding, promoting controlled runoff surface water, and preventing erosion from the reclaimed surfaces. A detail of a typical reclaimed WRDF section is shown on Figure 7. The WRDF will be constructed in 12-m-high horizontal lifts, with a 24.5-m horizontal setback from the crest of the previous lift. In order to achieve the reclamation objectives, reclamation will be performed concurrently as each lift is completed by regrading the outside waste rock slopes from the angle of repose to 3:1, with 4-m-wide horizontal drainage benches provided at a vertical spacing of twelve meters. The recontoured surfaces will then be ripped to a depth of 200 mm in areas that have been compacted by equipment traffic and covered with suitable growth media prior to reseeded with a native grass seed mix. Current reclamation plans assume that growth media will be placed in thicknesses of 0.5 m on sloped areas and drainage benches, and 0.15 m on flat surfaces.

The closure plan is based upon available information that indicates the WRDFs will not contain PAG material. This assumption should be reviewed in subsequent phases of closure plan development and modified as necessary. Additional alternatives that could be considered as more information becomes available include encapsulation of materials with higher acid-generating potential toward the interior of the facility to limit contact with oxygen and meteoric water, and construction of either a low-permeability or a store-and-release type vegetated cover over the waste rock surface.

4.4 Mill and Process Plant

The mill and process plant will be decommissioned prior to the demolition or salvage of any structures. Portable equipment of value including vehicles, furniture, and computers will be removed from site for subsequent reuse or salvage. Decommissioning of the crushing and screening plant will be initiated once the last ore has been processed. The CIL plant will be decommissioned once all economic recoverable gold solution has been processed. Immovable assets that have been properly decommissioned, such as office and plant buildings, shall be transferred to the government of Ghana as described in terms of the mining lease. Contaminated soils from the spillage of oils and lubricants shall also be removed and placed in an approved disposal facility. Stripped areas in the vicinity of the mill and process plant will be scarified and covered with no less than 0.5 m of graded, contoured topsoil. Revegetation procedures outlined in Section 4.10 will be used after placement of topsoil.

Once decommissioning activities have been completed, salvageable items will be removed from the structures, marked for re-use and placed in a previously designated staging area. All services materials, including piping, electrical/communications wiring and cable that is salvageable is to be stored and sorted in the designated staging area. Foundations shall be demolished and buried with no less than 0.5 m of saprolite cover in the Waste Rock Disposal Facility. Non-salvageable items are to be disposed of by burial in the Waste Rock Disposal Facility.

4.5 Tailings Storage Facility

Reclamation of the TSF will begin after the end of operations. Reclamation objectives for the TSF include controlling erosion, managing stormwater runoff, minimizing dust generation, and establishing vegetation on the facility. The general layout of the reclaimed TSF is shown on Figure 2.

Based upon testing by NGGL, the tailings generally are non-PAG. Given currently available information, establishing a vegetated soil cover appears to be the most appropriate long-term reclamation strategy for the TSF. As currently planned, the TSF cover would consist of a 0.5-m-thick layer of oxide waste rock over the tailings surface, covered with 50 cm of suitable growth media. This cover would be reseeded with an appropriate native seed mix. Revegetation trials will be undertaken during the operating life of the TSF to select the most effective method to reclaim the TSF. The results of the trials will be used in the final design of the reclamation cover.

The exterior slopes of the tailings embankment will be graded to 3:1 (horizontal:vertical) or flatter using oxide mine waste or other suitable material. The exterior face will be progressively revegetated as the final slope is established in order to reduce erosion and sediment transport from the embankment. The

south embankment will be buttressed by the Apensu Waste Rock Dump, which will significantly limit the amount of exposed embankment slope in this area.

Tailings management plans call for discharging tailings in a manner that will produce a final tailings surface that slopes gently toward the decant/final spillway area in the southwest corner of the TSF. This will produce a low point on the tailings surface adjacent to the final spillway, so that recontouring of the final tailings surface will be minimized. The final spillway will be constructed through the embankment near the southwest corner of the TMF to allow rainfall runoff from the reclaimed TMF to be routed to Apensu open pit.

Reclamation of the tailings surface will commence upon termination of tailings deposition in the TSF. After removal of ponded process water in the low area adjacent to the final spillway, the tailings surface will be allowed to dry to allow cover placement without excessive deformation of the tailings surface. Drying is expected to take several months in the decant/final spillway area and could possibly require cover placement in stages, with completion of covering during the following dry season. The TSF underdrainage system is expected to continue to operate for a number of years after completion of capping and revegetation as excess pore water continues to drain from the tailings.

4.6 Water Storage Facility

The WSF will be operated during the life of the mine, and will be operational after mine closure and reclamation and site reclamation. The general post-reclamation layout of the WSF is shown on Figure 4. Extreme storm events will be managed by the overflow spillway (excavated into natural ground) located near the southeastern portion of the reservoir. Water passing through the spillway will be routed via a series of diversion channels, through the reclaimed ECD2, and to the Awonsu tributary of the Tano River.

4.7 Environmental Control Dams and Stormwater Management Facilities

The ECDs will remain in use during the life of the mine. Upon termination of mine closure and completion of reclamation activities, accumulated sediments will be removed from the areas upstream of the ECDs. Where possible, sediment and topsoil collected from the base of the erosion control dams will be transported to the nearest topsoil stockpile or redistributed in areas that require additional reclamation growth media. The ECDs will then be breached to restore free flowing conditions.

4.8 Ancillary Facilities

Ancillary features are to be sorted into salvageable versus non-salvageable items. Salvageable contents from building structures are to be removed and the buildings to be dismantled and stored in a previously designated area. Any non-salvageable and non-saleable materials will be disposed of and buried in the

Waste Rock Disposal Facilities. Fuel storage and dispensing facilities will be removed by the vendor. All building structures will be demolished except those as being transferred to the Government of Ghana. No less than 50 cm of topsoil will be placed over demolition debris and graded. Revegetation procedures described in Section 4.10 will be used after placement of topsoil.

Electric power line support structures will be left for public use. High voltage power lines maintained by the Government of Ghana will remain functional to the main substation. Overhead power lines and substations providing power to the mine are to be removed, collected and stored at the predesignated staging area. Overhead power lines feeding villages will be kept in place and turned over to public domain. All cabling and wiring will be disposed of in a waste dump and control system components are to be salvaged as appropriate. Contaminated soils in fuel station containment areas will be removed and placed in an approved disposal facility.

4.9 Subsurface Drainage Plan

Pore water in tailings within the TSF will be drained from below with a tailings underdrainage system. The underdrainage system will be constructed throughout the tailings basin and will serve to reduce the phreatic surface within the tailings. The drains will report to a collection sump located immediately north of the south embankment. The sump will be dewatered by pumping from an access riser pipe extending from the sump bottom to the crest of the south embankment. Tailings underdrainage will be sent to the process plant and recycled or returned to the TSF during the operations. The tailings underdrainage system will remain in operation after mine closure until tailings underdrainage ceases. The underdrainage system is expected to continue to operate for a number of years after completion of capping and revegetation as pore water continues to drain from the tailings. After mining activities have been terminated, water from the underdrainage system will be treated at the process plant and released into the WSF.

4.10 Final Grading and Revegetation

Final grading and revegetation of the site will involve establishing soil stability, minimizing erosion and establishing a sustainable post-closure land use scenario. Grading of the site will be consistent with surrounding topography. Grading will incorporate sufficient drainage channels to divert surface water runoff during high precipitation events and will avoid ponding of water on site. The final stage will be establishing a safe land use scenario that will sustain subsistence agriculture for the local community. Initial revegetation activity after placement of topsoil will include spreading pioneer species on the topsoil (by hand or hydroseeding). The pioneer species will establish a root system, thus providing initial soil stability. Seeding of the native grasses will be completed at the same time or immediately following the

seeding of the pioneer species. The native grasses (which grow slower than the pioneer species) will provide long-term soil stability. Establishment of nitrogen-fixing species will also increase soil erosion stability and will be considered at this stage of the revegetation activities.

5.0 MONITORING

Procedures for short-term and long-term monitoring of the mine site after closure will be established to ensure that mining activities do not affect surrounding areas and is a continuation of the operational monitoring program. The items scheduled to be monitored below should not be considered as an all-inclusive monitoring list, and will be updated as mining and reclamation activities progress. Prior to termination of reclamation activities, a detoxification program will be implemented for the subsurface drainage water from the tailings management facility. Periodic reviews of the Ahafo South Mining Project will occur with the EPA at an agreed upon frequency to ensure that environmental reporting is accurate and up to date in relation to actual conditions with both current and planned activities.

5.1 Short Term Monitoring

Short term monitoring will consist of monitoring the groundwater monitoring wells, dust monitoring, revegetation progress, surface water run off quantity and quality, open pit condition monitoring, pit lake water quality, and TSF effluent quantity and quality. Monitoring will be performed once per month for approximately three years. Monitoring groundwater, surface water, and pit lake water will consist of sampling for a selected list of parameters. Air monitoring stations will be installed and sampled for airborne dust particles. Revegetation will be inspected for erosion, biodiversity and growth.

5.2 Long Term Monitoring

Long term monitoring will consist of a combination of observations, well measurements, and sampling for water and air quality on a less intensive schedule than the short term monitoring plan. The proposed schedule for groundwater and surface water sampling, and site observations will be once per month for five years. The proposed schedule for lab testing of pit lake water will be semi-annually for five years. This proposed schedule will be reconsidered as reclamation and closure activities come to a close. Monitoring of groundwater, surface water, and pit lake water will consist of sampling for a selected list of parameters.

6.0 RECLAMATION COSTS

Reclamation costs associated with the work described above were estimated using unit rates and costs prepared by NGGL and Lycopodium Pty. Ltd. based upon their experience with similar projects in Ghana. Life of mine facilities configurations and layouts were obtained from NGGL drawings and from design drawings prepared by Knight Piesold Pty. Ltd. The estimated closure and reclamation costs associated with the closure of the facilities described above are summarized in Table 1. These costs are based upon current (2005) U.S. Dollars and have not been adjusted to their present worth or for inflation.

TABLE I				
Summary of Estimated Reclamation Costs				
Facility	Labor	Equipment	Material	Total
<i>Direct Costs</i>				
Roads, Railroads, Airstrips	\$0	\$1,163,775	\$0	\$1,163,775
Drill Hole Abandonment	\$0	\$30,000	\$206,000	\$236,000
Open Pits, Borrow Areas, Trenches	\$0	\$0	\$15,000	\$15,000
Non-Process Ponds & Reservoirs	\$5,000	\$2,594,225	\$0	\$2,599,225
Water Treatment-Tailing Storage Facility	\$0	\$1,500,000	\$0	\$1,500,000
Dumps, Stockpiles, Landfills	\$0	\$10,923,507	\$0	\$10,923,507
Tailing Storage Facility (TSF)	\$0	\$14,996,000	\$0	\$14,996,000
Facilities Demolition	\$4,400,169	\$0	\$0	\$4,400,169
Facility Equip. Disposition & Salvage	\$841,006	\$0	\$0	\$841,006
Inventory Disposition	\$0	\$567,107	\$0	\$567,107
Monitoring	\$1,742,000	\$0	\$0	\$1,742,000
<i>Subtotal Direct Costs</i>	<i>\$6,988,175</i>	<i>\$31,774,615</i>	<i>\$221,000</i>	<i>\$38,983,790</i>
<i>Indirect Costs</i>				
Socio-Economic Activities	\$3,668,122	\$900,000	\$0	\$4,568,122
Consultant Services	\$600,000	\$0	\$0	\$600,000
Owner's Management (Post Closure)	\$1,341,000	\$0	\$0	\$1,341,000
Mobilization & Demobilization	\$0	\$150,000	\$0	\$150,000
Insurance	\$800,000	\$0	\$0	\$800,000
Taxes	\$80,000	\$0	\$0	\$80,000
<i>Subtotal Indirect Costs</i>	<i>\$6,489,122</i>	<i>\$1,050,000</i>	<i>\$0</i>	<i>\$7,539,122</i>
Contingency	\$2,021,594	\$4,923,692	\$33,150	\$6,978,437
<i>TOTAL COST</i>	<i>\$15,489,891</i>	<i>\$37,748,307</i>	<i>\$254,150</i>	<i>\$53,501,348</i>

7.0 REFERENCES

International Finance Corporation “IFC Environmental Health and Safety Guidelines for Precious Metal Mining” Draft Version. July 2004.

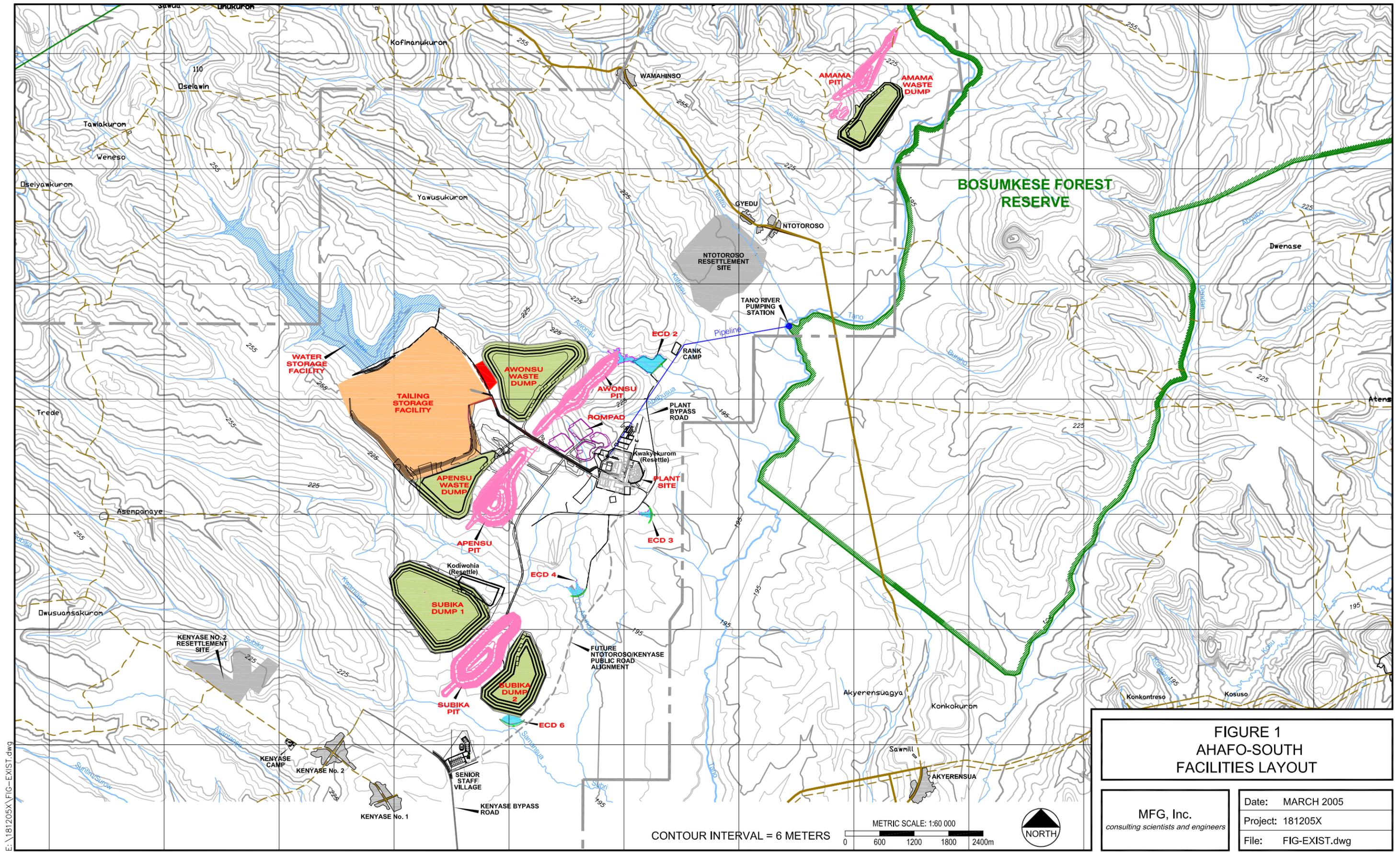
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State of Nevada Legislative Counsel “Nevada Administrative Code: Regulation of Land Subject to Mining, Operations or Exploration Projects” Chapter 519A. Revised October 2002.

The Environmental Protection Agency of the Republic of Ghana. “Environmental Protection Agency Act, 1994 Act 490” Government of Ghana, 1994.

The Environmental Protection Agency of the Republic of Ghana. “Environmental Assessment Regulations 1999”. Government of Ghana, 1999.

The Environmental Protection Agency of the Republic of Ghana. “Reclamation Security Agreement”. Government of Ghana



E:\181205X\FIG-EXIST.dwg

FIGURE 1
AHAF0-SOUTH
FACILITIES LAYOUT

MFG, Inc.
consulting scientists and engineers

Date: MARCH 2005
 Project: 181205X
 File: FIG-EXIST.dwg

CONTOUR INTERVAL = 6 METERS
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 NORTH

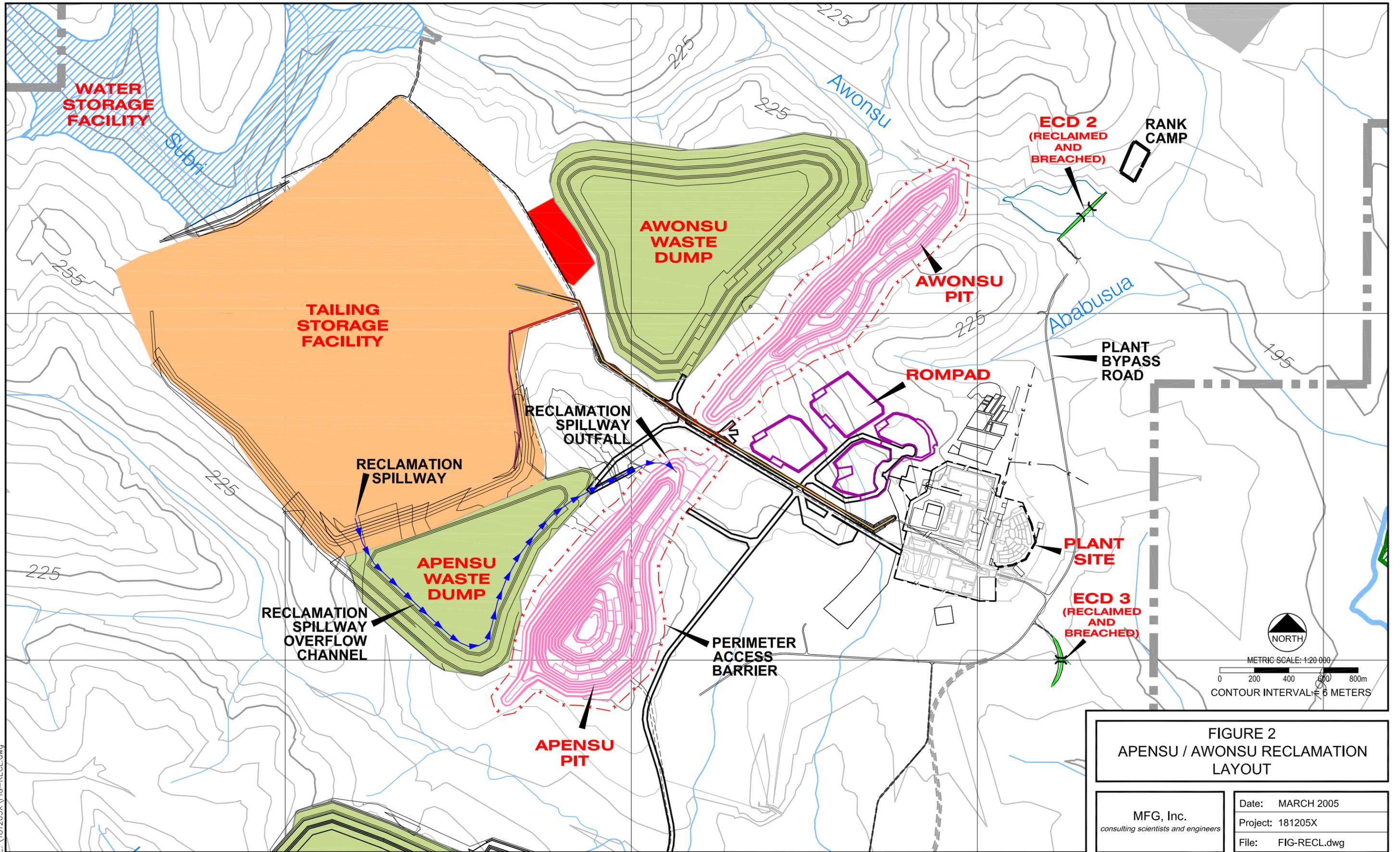
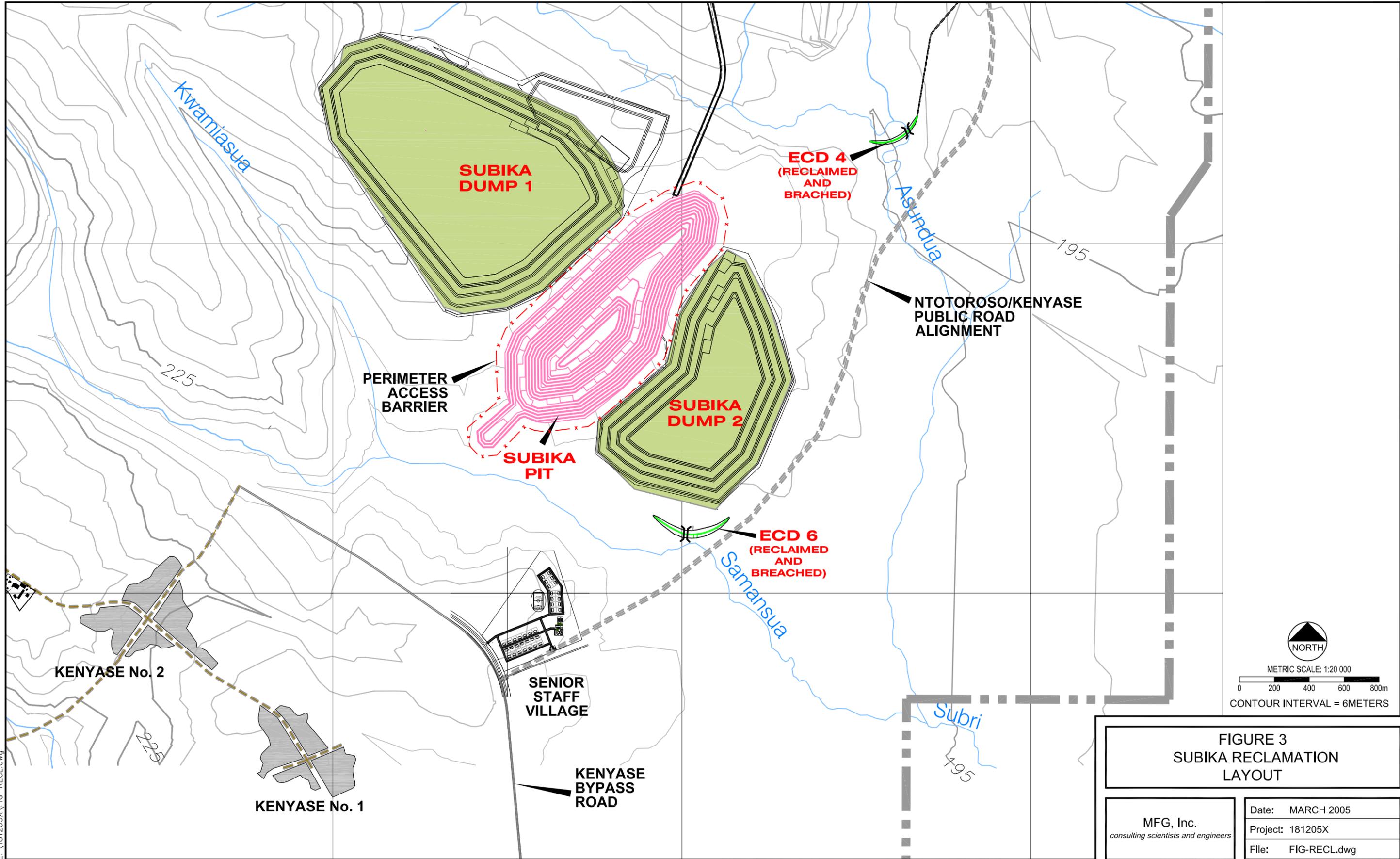


FIGURE 2
APENSU / AWONSU RECLAMATION
LAYOUT

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consulting scientists and engineers

Date: MARCH 2005
 Project: 181205X
 File: FIG-RECL.dwg

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**FIGURE 3
SUBIKA RECLAMATION
LAYOUT**

MFG, Inc. <i>consulting scientists and engineers</i>	Date: MARCH 2005
	Project: 181205X
	File: FIG-RECL.dwg

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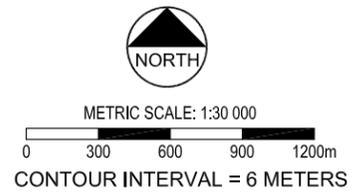
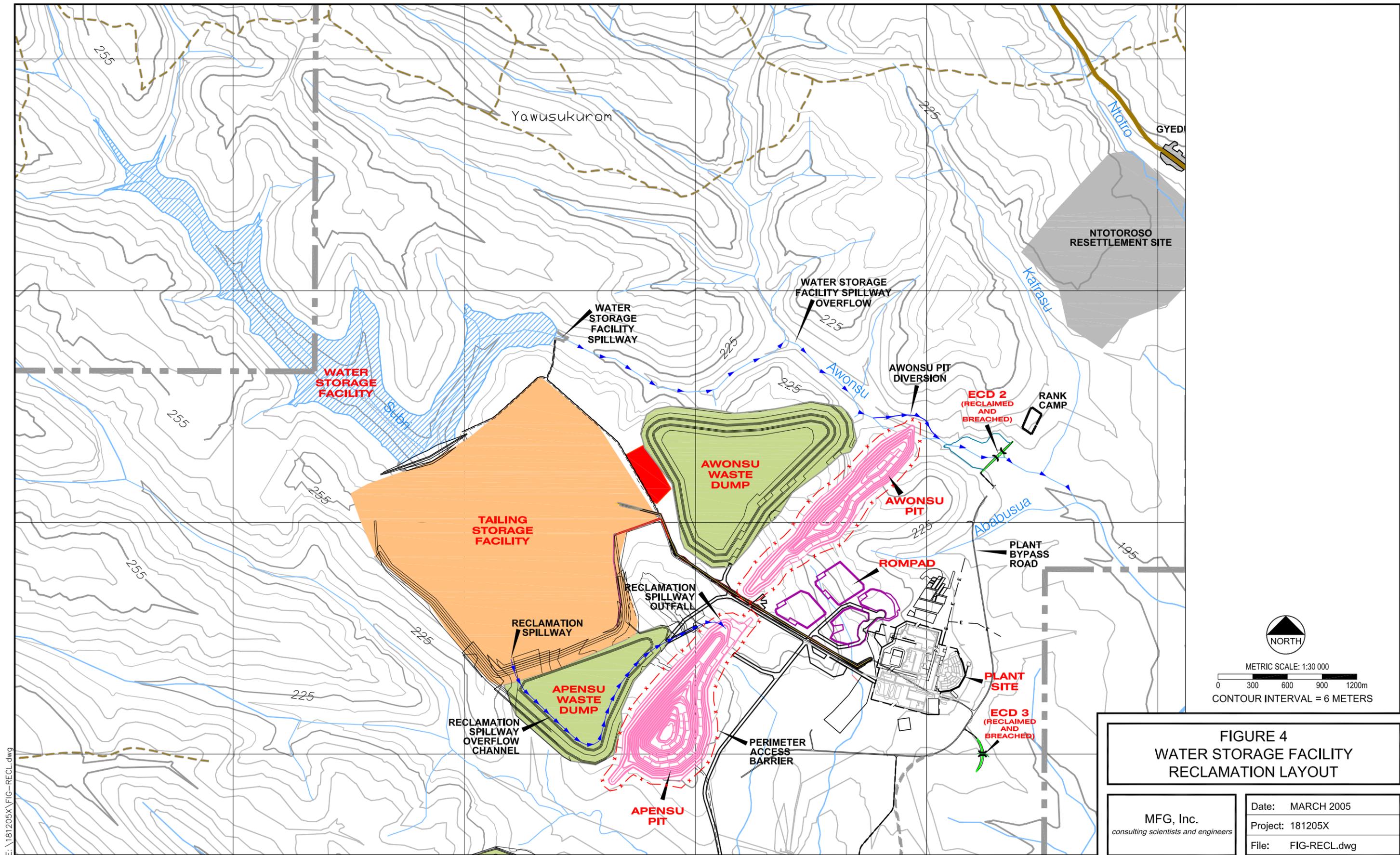
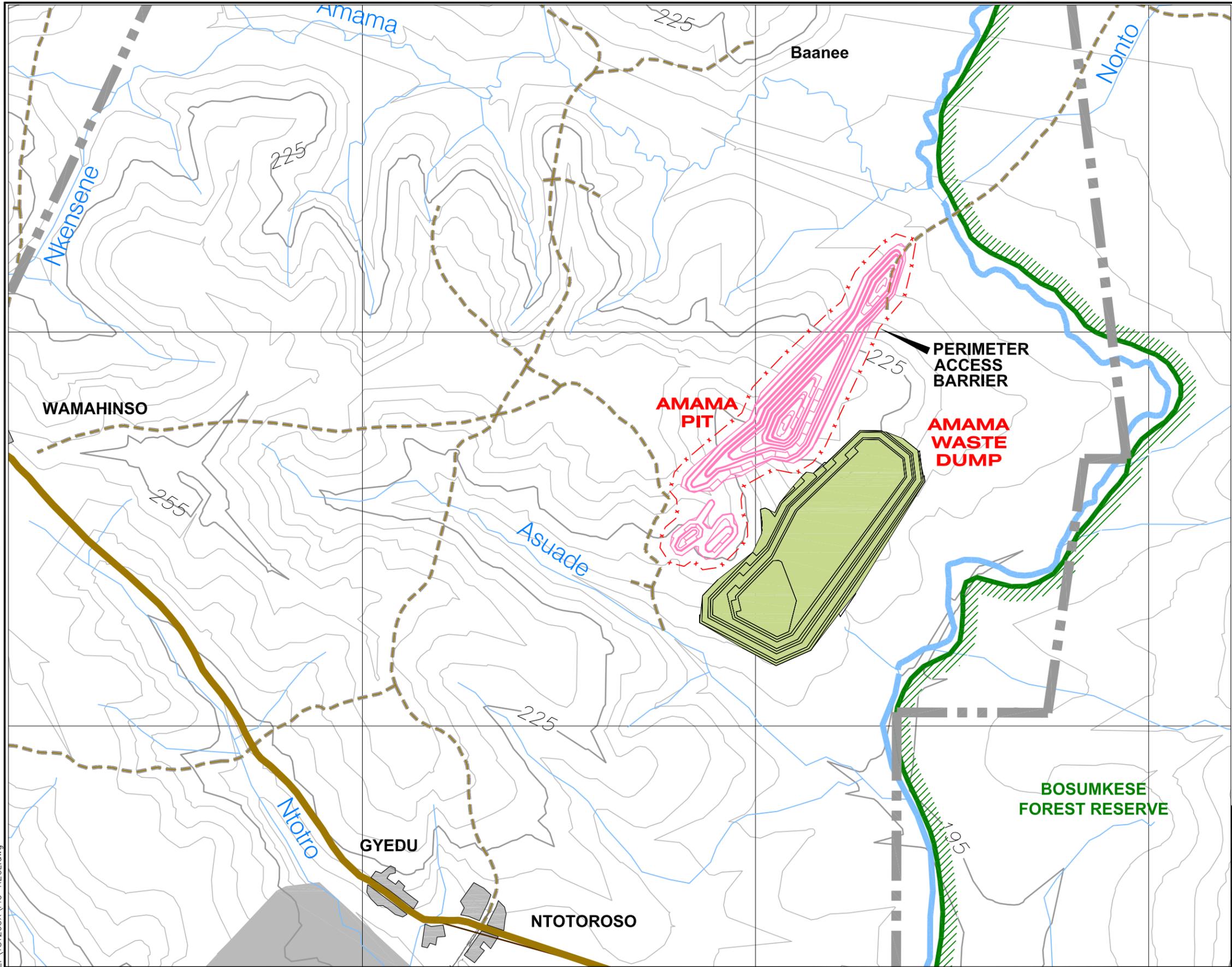


FIGURE 4
WATER STORAGE FACILITY
RECLAMATION LAYOUT

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Date: MARCH 2005
 Project: 181205X
 File: FIG-RECL.dwg

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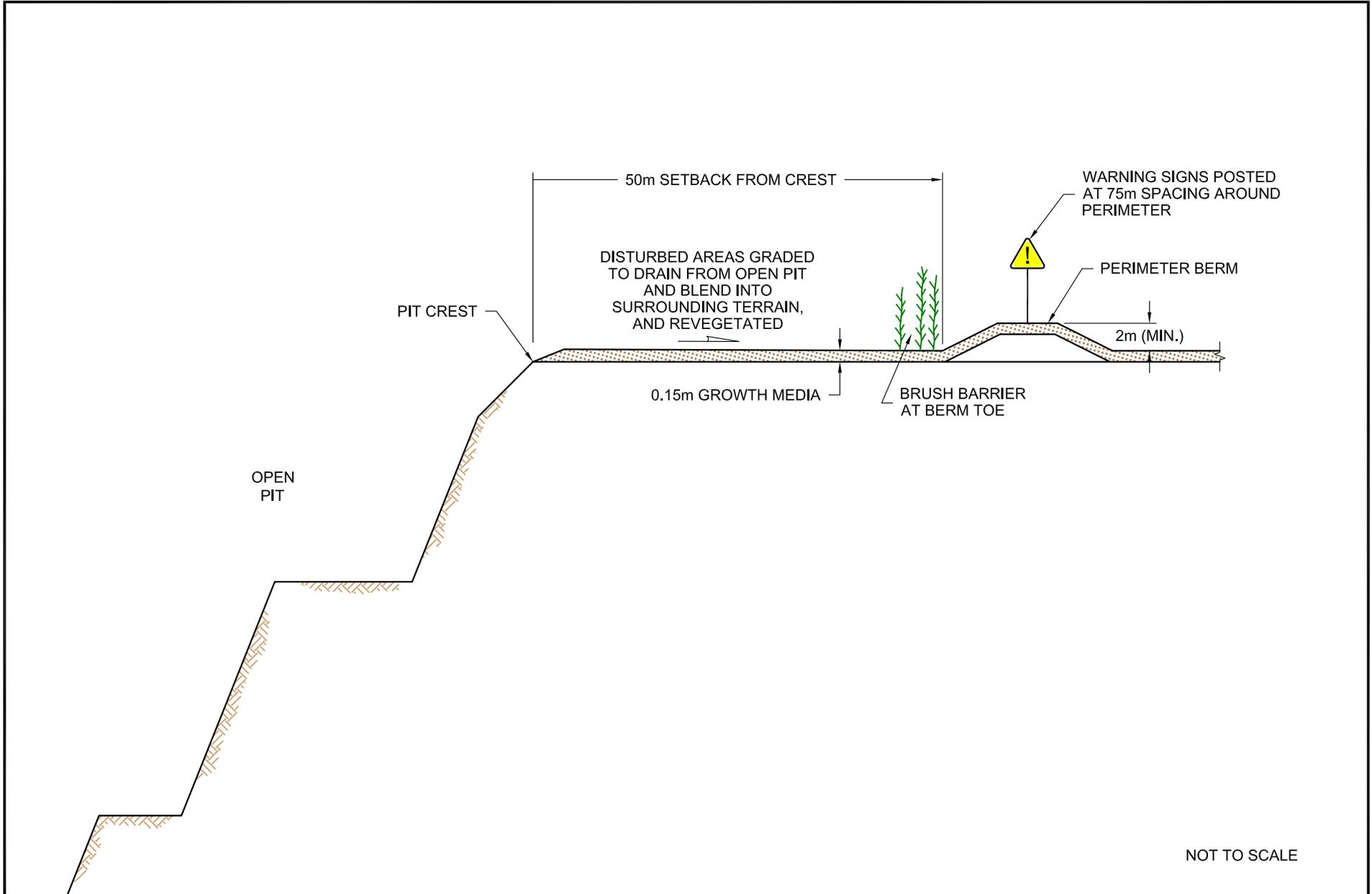


METRIC SCALE: 1:20 000
 0 200 400 600 800m
 CONTOUR INTERVAL = 6 METERS

FIGURE 5
AMAMA RECLAMATION
LAYOUT

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Date: MARCH 2005
 Project: 181205X
 File: FIG-RECL.dwg

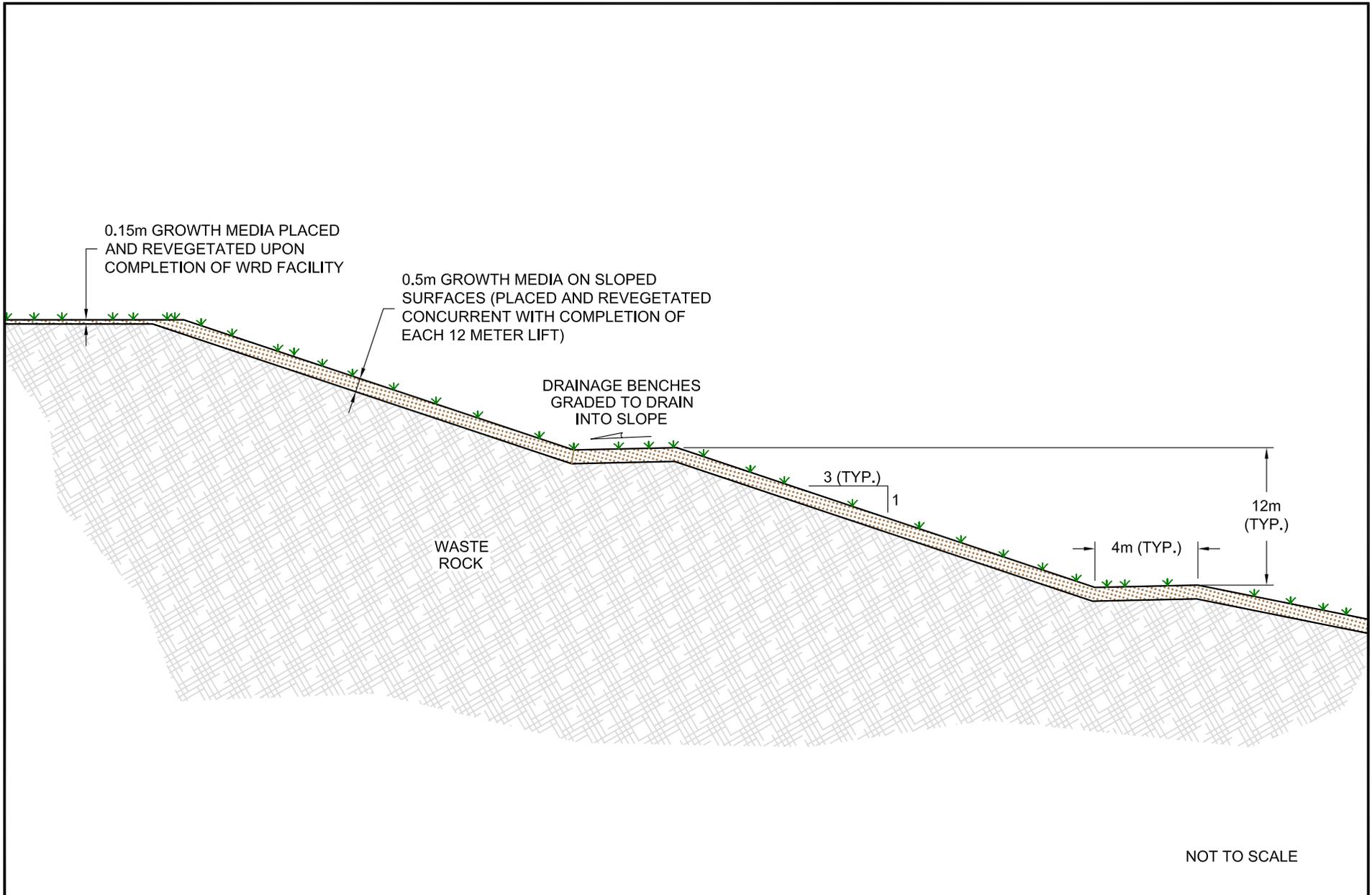


NOT TO SCALE

MFG, Inc.
consulting scientists and engineers

FIGURE 6
TYPICAL SECTION
OPEN PIT ACCESS BARRIER

Date:	MARCH 2005
Project:	181205X
File:	SECTIONS.dwg



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FIGURE 7
TYPICAL SECTION
RECLAIMED WASTE ROCK DISPOSAL FACILITY

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Project:	181205X
File:	SECTIONS.dwg