

**APPENDIX 1.6**

**DESCRIPTION OF AGC FACILITIES**  
**AT TIME OF PROPOSED CLOSURE, 2004**

## TABLE OF CONTENTS

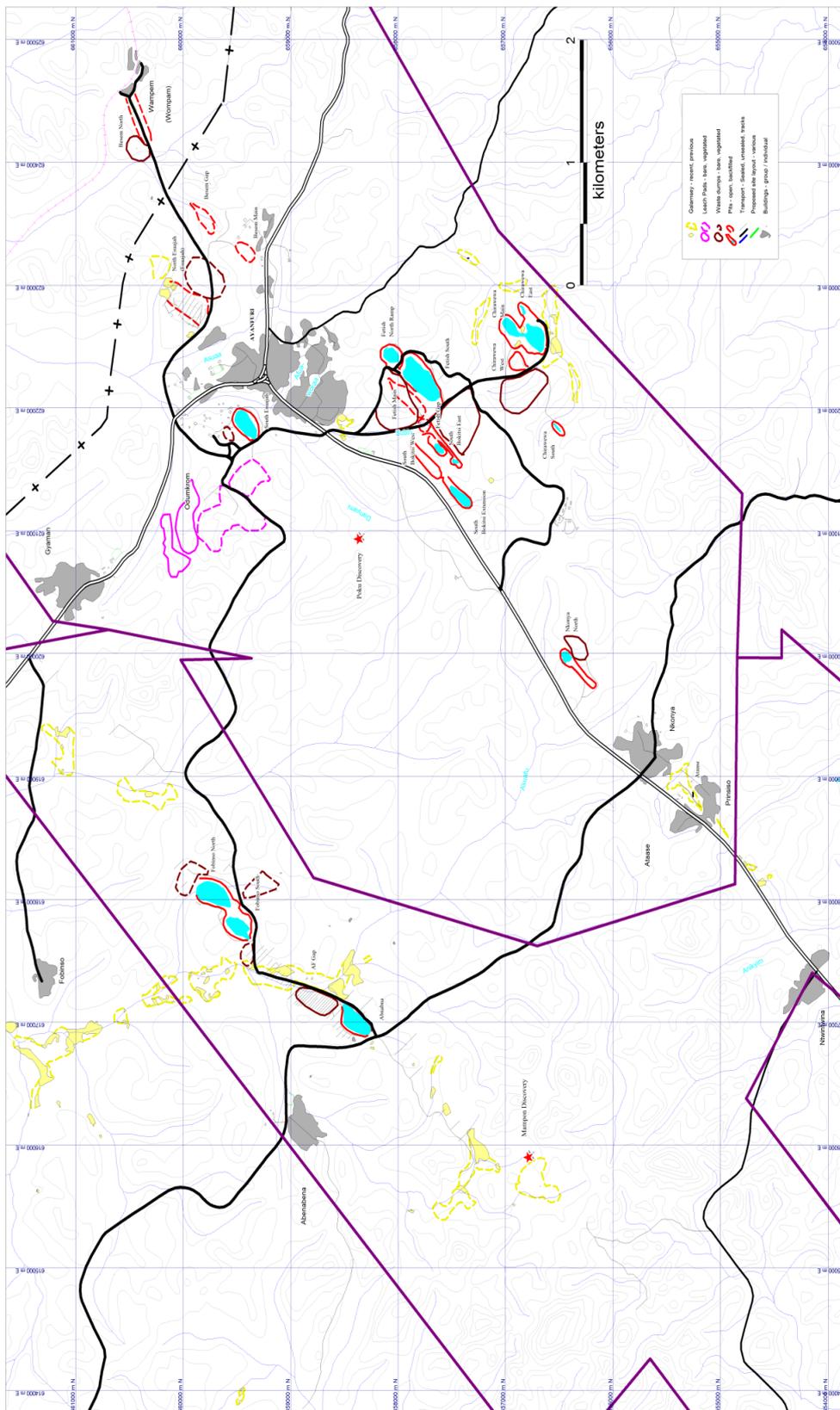
<b>1.0</b>	<b>DESCRIPTION OF THE SITES .....</b>	<b>3</b>
<b>1.2</b>	<b>ABNABNA WASTE DUMP .....</b>	<b>6</b>
<b>1.3</b>	<b>BESEM NORTH PIT AREA .....</b>	<b>7</b>
<b>1.4</b>	<b>BESEM NORTH WASTE DUMP .....</b>	<b>8</b>
<b>1.5</b>	<b>BESEM GAP PIT .....</b>	<b>8</b>
<b>1.6</b>	<b>BESEM MAIN PIT .....</b>	<b>9</b>
<b>1.7</b>	<b>BOKITSI SOUTH - EAST PIT .....</b>	<b>10</b>
<b>1.8</b>	<b>BOKITSI SOUTH - WEST PIT .....</b>	<b>11</b>
<b>1.9</b>	<b>SOUTH BOKITSI - WEST EXTENSION PIT .....</b>	<b>11</b>
<b>1.10</b>	<b>SOUTH BOKITSI SOUTH - EAST EXTENSION PIT .....</b>	<b>12</b>
<b>1.11</b>	<b>CHIRAWEWA WEST PIT .....</b>	<b>13</b>
<b>1.12</b>	<b>CHIRAWEWA MAIN PIT .....</b>	<b>14</b>
<b>1.13</b>	<b>CHIRAWEWA WASTE DUMP .....</b>	<b>15</b>
<b>1.14</b>	<b>CHIRAWEWA SOUTH PIT .....</b>	<b>16</b>
<b>1.15</b>	<b>DADIESO PIT AREA .....</b>	<b>16</b>
<b>1.16</b>	<b>DADIESO WASTE DUMP .....</b>	<b>17</b>
<b>1.17</b>	<b>ESUAJAH NORTH PIT .....</b>	<b>18</b>
<b>1.18</b>	<b>ESUAJAH NORTH WASTE DUMP .....</b>	<b>19</b>
<b>1.19</b>	<b>ESUAJAH SOUTH PIT .....</b>	<b>20</b>
<b>1.20</b>	<b>ESUAJAH SOUTH WASTE DUMP .....</b>	<b>21</b>
<b>1.21</b>	<b>FETISH MAIN AND FETISH GAP PITS .....</b>	<b>22</b>
<b>1.22</b>	<b>FETISH MAIN WASTE DUMP .....</b>	<b>24</b>
<b>1.23</b>	<b>FETISH NORTH AND SOUTH .....</b>	<b>24</b>
<b>1.24</b>	<b>FETISH WASTE DUMP .....</b>	<b>26</b>
<b>1.25</b>	<b>FOBINSO NORTH AND SOUTH PITS .....</b>	<b>27</b>
<b>1.26</b>	<b>FOBINSO WASTE DUMPS .....</b>	<b>28</b>
<b>1.27</b>	<b>NKONYA PIT .....</b>	<b>29</b>
<b>1.28</b>	<b>NKONYA WASTE DUMP .....</b>	<b>30</b>
<b>1.29</b>	<b>NTWINTWINA EAST PIT .....</b>	<b>30</b>
<b>1.30</b>	<b>NTWINTWINA EAST WASTE DUMP .....</b>	<b>31</b>
<b>1.31</b>	<b>NTWINTWINA WEST PIT .....</b>	<b>32</b>
<b>1.32</b>	<b>PROCESSING SITES .....</b>	<b>33</b>
	1.32.1 <i>Heap Leach Pad .....</i>	<i>33</i>
	1.32.2 <i>Process Ponds .....</i>	<i>35</i>
	1.32.3 <i>Plant Area .....</i>	<i>36</i>
<b>1.33</b>	<b>STRUCTURES .....</b>	<b>36</b>
	1.33.1 <i>Office Area .....</i>	<i>36</i>
	1.33.2 <i>Junior Staff Camp .....</i>	<i>37</i>
	1.33.3 <i>Senior Staff Camp .....</i>	<i>37</i>
	1.33.4 <i>Haulage and Access Roads .....</i>	<i>38</i>
	1.33.5 <i>Control Posts 1, 2 &amp; 3 .....</i>	<i>39</i>
<b>1.34</b>	<b>WETLANDS .....</b>	<b>39</b>

## 1.0 DESCRIPTION OF THE SITES<sup>1</sup>

The 24 mining sites with pits and their accompanying 13 waste dumps, the heap leach pads, associated facilities areas and wetlands are described as to their physical status at time of proposed closure in April 2004. Their relative positions are indicated on Map 1.1. Brief details of the pits, waste dumps and other associated facilities are presented in the table below. The end use proposed by AGC at the time is also given.

<b>Summary of AGC Status of Pits, Rock Dumps and Heap Leach Pads at Proposed Closure 2004</b>					
	<b>FACILITY</b>	<b>LOCATION</b>	<b>AREA (HA)<sup>1</sup></b>	<b>BACK-FILLED</b>	<b>AGA PROPOSED END USE<sup>2</sup></b>
	<b>PITS</b>				
23	Abnabna	1km S of Fobinso pits	8	No	Fence for aquaculture, forestry
1	Besem North	2.5km NNE of Ayanfuri	15	Yes	Backfilled for agroforestry
2	Besem Gap	750m S of Besem North	5	Yes	Backfilled for agroforestry
3	Besem Main	200m S of Besem Gap	5	Yes	Backfilled for agroforestry
14	South Bokitsi West	420m SW of Fetish South pit	4	?	Backfill for forestry
15	South Bokitsi W. Extension	80m S of South Bokitsi west	4	Yes	Fence for aquaculture, forestry
16	South Bokitsi East	100m E of Bokitsi West	3	No	Fence for aquaculture, forestry
17	South Bokitsi East Extension	100m S of Bokitsi East	1	No	Backfill for agroforestry
10	Chirawewa Main	800m SE of Fetish South pit	25	No	Fence for aquaculture, forestry
11	Chirawewa South	600m SW of Chirawewa Main	1	Yes	Backfilled for agroforestry
12	Chirawewa West	80m W of Chirawewa Main	10	Yes	Backfilled for forestry
13	Chirawewa East	5m E of Chirawewa Main	2	No	Fence for aquaculture, forestry
24	Dadieso	17km S of Ayanfuri	4	Yes	Backfilled for forestry
4	North Esuajah	2km NNE of Ayanfuri	15	Minor	Backfilled for agroforestry
5	South Esuajah	400m SW of Ayanfuri	5	No	Fence for aquaculture, forestry
6	Fetish Main/Fetish Gap	700m SE of control post 2	6.5	Yes	Backfilled for forestry
7	Fetish North Ramp	100m NE of Fetish Main pit	19	No	Fence for aquaculture, forestry
8	Fetish	50m S of Fetish North pit			Fence for aquaculture, forestry
21	Fobinso North	2km S of heap leach pad	15	No	Fence for aquaculture, forestry
22	Fobinso South	100m south of Fobinso North	1	No	Fence for aquaculture, forestry
18	Nkonya	2km S of Bokitsi pits			Backfilled, agroforestry
19	Ntwintwina East	3km S of Nkonya Pit	1	Yes	Backfilled, agroforestry
20	Ntwintwina West	1km SW of the east pit	3	Yes	Backfilled for agroforestry
	<b>WASTE DUMPS</b>				
12	Abnabna	20m N of Abnabna pit	5	N/A	Batter for forestry
1	Besem North	300m W of Besem North Pit	5		Battered for forestry
6	Chirawewa	50m SE of Chirawewa W pit	11		Batter for agroforestry
13	Dadieso	17km SW of Ayanfuri	1		Battered for forestry
2	North Esuajah	50m W of N. Esuajah Pit	18		Battered for agroforestry
3	South Esuajah	50m SW of S.Esuajah Pit	1		Battered for forestry
4	Fetish Main	600m E of Control Post 2	6		Battered for forestry
5	Fetish	200m S of Fetish South pit	15		Batter for agroforestry
10	Fobinso North	40m SE of Fobinso N pit	7		Batter for forestry
11	Fobinso South	30m S of Fobinso S pit			Batter for forestry
7	Nkonya	20m SW of Nkonya Pit	5		Batter for agroforestry
8	Ntwintwina East	50m NW the east pit	1		Battered for forestry
9	Ntwintwina West	50 SW of the west pit	3		Batter for forestry
	<b>HEAP LEACH PAD</b>				
1	Phase 1	1.2km W of Ayanfuri	133	N/A	Batter for forestry
2	Phase 2 & 3	50m SE of Phase 1			Batter for forestry
4	Phase 4	60m E of Phase 5			Batter for forestry
5	Phase 5	200m SW of South Esuajah			Batter for forestry

<sup>1</sup> This description has been taken from the Ashanti Goldfields Company "Decommissioning Plan for Ayanfuri Mine, April 2004. It has also been supplemented with information from Tagit Consult "Environmental Audit Report on the Ayanfuri Mine, 2006(?). Satellite photos of various areas obtained by CAGL in 2007 have been added to assist the description.



## 1.1 Abnabna Pit

### Location

The Abnabna Pit (Photo 1.1) is located 2 km southeast of the Abnabna village (Map 1.1).



Photo 1.1



Photo 1.2

### Shape and Size of Pit

The pit has an oval shape elongated in the northeast–southwest direction (Photo 1.2). The major axis is about 400m and the minor axis is 200m with a depth of 40m, which is below the water table. The total coverage area is 8.2 hectares. The volume of material mined out has been estimated to be 689,652 m<sup>3</sup>.

### Status of Pit

The pit is filled with water to a depth of 40m with 25m high of the NW pit walls above the water level, while the SE wall in contact with the access road has been reduced to about 7m above the water level.

The slope faces have developed small gullies as a result of erosion. Vegetation has developed around the pit perimeter in addition to the secondary forest at the background of the NW wall (Photo 1.1).

### **Slope Stability of Pit Walls**

The walls of the pit are generally fairly stable with an average slope of 65°. However the northern wall has developed weak zones across the mid-portion of the face, which requires battering and re-contouring to stabilize it.

### **Proposed End Use for the Pit**

The pit is earmarked for development of aquaculture and forestry. The area is also designated for one of the sustainable livelihood support programmes.

## **1.2 ABNABNA WASTE DUMP**



**Photo 1.3**

### **Location**

Abnabna Waste Dump is about 20m north of the Abnabna Pit, accessed by the haul road to the heap leach pad pit and is about 500 meters south of Fobinso South pit. It was built out of a large low lying marshy ground. It is elongated in the northeast-southwest direction, with a height of about 15m. Its total coverage area is 4.8 hectares and a volume of 517239 m<sup>3</sup>.

### **Nature of Material Dumped**

Waste material dumped was from the Abnabna pit and made up mainly of pieces, fragments and some boulders of phyllites and metasediments set in tuffaceous clayey groundmass. Material is all weathered, no sulphide minerals are present

### **Proposed End Use for the Waste Dump**

Battered and planted to forest trees.

### 1.3 BESEM NORTH PIT AREA

#### Location

The Besem North Mine Site is 2.5km NNE of Ayanfuri road intersection and is 50m south of Wampam railway station. The area lies within a crop farmland bounded by farms to the east and west with a secondary forest to the south along the southern bank of the Asanka stream.



Photo 1.4



Photo 1.5

#### Shape and Size of Pit

The pit was mined sub-parallel through an existing hill running NNE which gave it an oblong shape. The major axis is about 405m and the minor axis is 100m giving an approximate area of 14.9hectares with a perimeter of 1.5km. The volume of material mined out of the pit is estimated to be approximately 339,869 m<sup>3</sup>.

#### Present Status of Pit

The pit has been reclaimed by backfilling above the daylight elevation, leaving 20m high pit walls to the east and the west flanks of 2 benches of 10m high. A portion of the reclaimed pit area has been turned into agro-forestry after the spread of topsoil and the provision of erosion control structures while the remaining land has been turned into a playing field (Plate 1a).

#### Slope Stability of Pit Walls

The west wall has a slope of 70° eastwards, is generally stable with small ditches formed parallel to slope face due to surface run-offs (erosion). The east wall has a slope of 75° westwards with weak zones developed across the mid-section of the face, requiring battering and re-contouring to stabilize it.

#### **Proposed End Use for Pit Area**

The proposed end use for the reclaimed pit is agroforestry. Already grass species, Cassia species, Ceiba pentandra, Mangifera species, etc. have been planted and are doing well.

### **1.4 BESEM NORTH WASTE DUMP**

#### **Location**

The Besem North Waste Dump is situated in a depression about 300m west of the Besem North Pit and about 100m north of the Asanka stream valley. It hosts material mined from the Besem North Pit. Area occupied: 5.1 hectares.



**Photo 1.6**

#### **Nature of Material Dumped**

The material in the dump came from the Besem North pit and it consists of weathered and semi-weathered pieces of Birimian metasediments mostly of sizes between 50mm and 100mm.

#### **Present Status**

Part of the material dumped on top has been used to back-fill the Besem North Pit, creating substantial reduction in the dump height and volume. This has been followed with surface preparation by contouring, re-deposition of topsoil to sustain re-vegetation and provision of erosion control structures. The waste dump is now overgrown with nitrogen fixing plant species (Plate 1b).

#### **Proposed End Use for Waste Dump Area**

The waste dump has been earmarked for forestation to serve as the northern protection to the Asanka stream

### **1.5 BESEM GAP PIT**

#### **Location**

Besem Gap lays in between Besem North and Besem Main pits (Photo 1.x). The pit has its periphery surrounded by palm plantation. The entry ramp is about 300meters off the haul road from North Esuajah to Besem North pit. It is about 750m south of Besem North Pit.



Photo 1.7

### **Shape and Size of Pit**

Besem Gap is also oblong in shape and has its major axis running northerly as it widens approximately 100 meter across the minor axis. An approximate area of 5 hectares is affected by mining. The pit perimeter is 1.0 km. The volume of material mined out of the pit is estimated to be approximately 350,000m<sup>3</sup>.

### **Present Status of Pit**

Backfilling has been completed. Topsoil spread and vegetative cover put in place with the encouragement of natural fauna growth. The absence of high pit walls coupled with improved drainage makes the reclaimed pit ideal for re-institution of original land use namely, oil palm plantation. The reclaimed pit area is currently been prepared for soil structure resuscitation (Plate 2a).

### **Slope Stability of Pit Walls**

All pit walls have been successfully battered and stable slope angles achieved. The land is gentle rolling and soil movement checked through consistent erosion control measures.

### **Proposed End Use for Pit Area**

In consultation with the landowners, agroforestry has been chosen as the land end use. The crop will include palm plantation. Meanwhile, emphasis is now on secondary completion works to establish a stable soil structure that will support the desired end use.

## **1.6 BESEM MAIN PIT**

### **Location**

At 200 meters to the south of Besem Gap lies the Besem Main pit. The entry ramp is the same for Besem Gap and also about 300 meters off the haul road from North Esuajah to Besem North pit.



**Photo 1.8**

### **Shape and Size of Pit**

Besem Main assumes an oblong shape after mining spanning a distance of 400 meters along its major axis running NNE and widening approximately 100 meter across the minor axis. The area in plan is about 5 hectares to include effective disturbed zones. The pit perimeter is approximately 850 meters. The total volume of material mined-out of the pit is estimated to be approximately 488,800m<sup>3</sup>.

### **Present Status of Pit**

Extensive backfilling has been carried out with pit walls battered to gentle and stable slopes. Topsoil has been spread and vegetative cover put in place. Nitrogen fixing plant species have been introduced over a year ago and the growth performance is being monitored for improvement. Erosion control measures towards the northern slope have to be improved upon with reinforcement of undergrowth vegetation (Plate 2b).

### **Slope Stability of Pit Walls**

All pit walls have been successfully battered and stable slope angles achieved. The land is gentle rolling and soil movement checked through consistent erosion control measures.

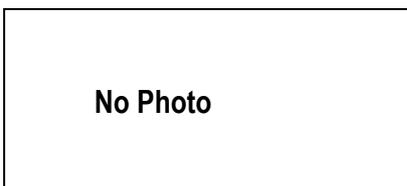
### **Proposed End Use for Pit Area**

Food crop farming was the main agricultural activity in the area before the mining. The remnant farms are indicative of the previous crop farming namely, pineapple, citrus and cassava. Agroforestry has therefore been chosen as the end use for this pit area.

## **1.7 BOKITSI SOUTH - EAST PIT**

### **Location**

The South Bokitsi East Pit is about 170m south southwest of the Fetish Main Pit south of the Chirawewa haul road.



**Shape and Size of Pit**

The pit is oval in shape elongated in the north – south direction. The major axis is about 120m, the minor axis about 50m with a maximum depth of about 30m. Perimeter: about 400m. Volume of material mined out: 850,000m<sup>3</sup>. Total area coverage: about 3.4 hectares/

**Present Status of Pit**

The northern end of the pit has been back-filled to the daylight elevation with about 10m high of the west wall left standing, while the eastern wall has been reduced to a height of about 2m. The southern end about 40m length contains clear water. All round the pit perimeter is covered with vegetation while gullies have developed on the reclaimed surface. The illegal mining activity (galamsey) in the pit is disturbing the reclaimed land. Revegetation and land restoration is yet to be started.

**Slope Stability of Pit Walls**

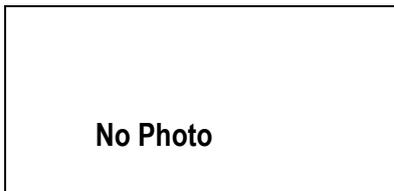
The standing walls, though steep with an average slope of 70° are fairly stable with some vegetation and small gullies developed on the slope faces.

**Proposed End Use for the Pit**

The proposed end use includes return to forest trees.

**1.8 BOKITSI SOUTH - WEST PIT****Location**

The South Bokitsi West pit is located about 100m west of South Bokitsi East, west of the haul road.

**Shape and Size of Pit**

The pit is elongated in the north – south direction. Major axis is 400m long and the minor axis is 100m long with a maximum depth of about 35m. Pit perimeter: about 900m. Volume of material mined out: 867900 m<sup>3</sup>. Total area coverage: 4.2 hectares

**Present Status of Pit**

The pit has been back-filled to daylight elevation from the north with about 5m high walls towards the southern end and is ready for land preparation and restoration. Portions are covered with some vegetation including ferns creepers, grass species and other weeds. Erosion has created gullies on the surface of the reclaimed land.

**Slope Stability of Pit Walls**

The slope of the remaining walls of the pit is about 65°, relatively stable with small erosional gullies at the faces.

**Proposed End Use for the Pit**

The reclaimed pit will be converted into agroforestry to fit into the surrounding ecosystem.

**1.9 SOUTH BOKITSI - WEST EXTENSION PIT****Location**

South Bokitsi West Extension is about 100m south of the South Bokitsi West. It was set in a farmland with food crop farms.



**Photo 1.9**

### **Shape and Size of Pit**

The pit has almost the same shape as the South Bokitsi West pit, elongated in the north – south direction but shorter in length. The major axis is about 300m and the minor axis is 120m long. The depth of the pit is about 40m, with a perimeter of about 850m. The volume of material mined out: is estimated to be 850,000m<sup>3</sup>. The total area coverage is about 4.2 hectares.

### **Present Status of Pit**

The pit is filled with water to a depth of 15m, leaving 25m of the pit wall above water. The water is clear and the results from the samples taken indicate that it is free from any harmful elements (Appendix 5). The eastern pit wall has collapsed and the remnants of a temporary fence are now engulfed by vegetation (Plate 9).

### **Slope Stability of Pit Walls**

The walls of the pit are steep with an average slope of about 65° and are generally unstable. Weak zones and faults have developed in the east, west and north walls, with failures in the north and east walls. Erosion has caused gully developments in the slope faces. Manual remedial work would be undertaken to improve erosion and prevent any adverse instability problems.

### **Proposed End Use for the Pit**

The reclaimed pit will be converted into agroforestry to fit into the surrounding ecosystem.

## **1.10 SOUTH BOKITSI SOUTH - EAST EXTENSION PIT**

### **Location**

The South Bokitsi East Extension Pit is located about 130m northeast of the South Bokitsi West Extension Pit and about 80m south of the South Bokitsi East Pit.

**No Photo**

**Shape and Size of Pit**

The pit is relatively small and elongated in the north – south direction. Major axis: about 100m; Minor axis: about 50m; Depth: about 20m. Perimeter: about 350m. Total coverage area: 1.0 hectare. Volume of material mined out: 455,950m<sup>3</sup>

**Present Status of Pit**

The pit has been backfilled to daylight elevation with walls ranging in height between 3m and 15m high and is awaiting revegetation.

**Slope Stability of Pit Walls**

The pit slopes have angles between 60° and 65° and are relatively stable.

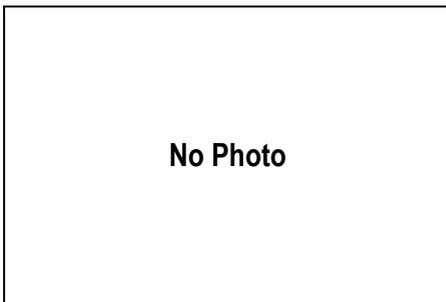
**Proposed End Use for the Pit**

The reclaimed pit area will be converted in forestry.

**1.11 CHIRAWEWA WEST PIT**

**Location**

Chirawewa West Pit is the first of the 4 Chirawewa pits along the haul road about 750m to the southeast of Fetish South pit and about 200m west of the Chirawewa Main Pit.



**Photo 1.10**

**Shape and Size of Pit**

The pit is elongated in the northerly direction with a major axis of about 150m and a minor axis of about 100m and was mined to a depth of about 45m. Perimeter: about 500m. Volume of material mined out: 350000 m<sup>3</sup>. Total area coverage: about 9.6 hectares.

### Present Status of Pit

The pit has been back-filled to daylight elevation with about 15m of the west and about 25m of east wall above it. Ground preparation has been done and some nitrogen fixing plants (Cassia, Acacia) have been planted.

### Slope Stability of Pit Walls

The circular wall of the pit has an average slope of 65°. There is only a bench of maximum height of about 25m and is in a stable condition. However, the illegal activity may create an unstable situation where they are working.

### Proposed End Use for the Pit

The backfilled pit will be turned into a woodlot plot, since trees in the area have been removed due to farming activity.

## 1.12 CHIRAWEWA MAIN PIT

### Location

At the dead end of the Chirawewa haul road, lies the twin Chirawewa Main pit, which is about 800m southeast of Fetish South pit.



Photo 1.11

### Shape and Size of Pit

The twin pit is elongated in the north – south direction with a dumb bell shape. A smaller pit (Chirawewa East Pit) adjoining the east wall is elongated sub parallel to it. The main pit has the following parameters:

Average Length: 500m; Average Width: 250m; Depth: 87m

Perimeter: about 1.95km

Volume of material mined out: 2,498,788 m<sup>3</sup>

Total area coverage: 25.4 hectares

The east pit has a major axis of about 200m and a minor axis of about 80 m.

### Present Status of Pit

The main twin pit is filled with water to a depth of about 30m with walls ranging between 30 and 60m above it. The accumulated water in the pit is clear and routine sampling indicates that it is free from cyanide, arsenic and iron (Appendix 5). Irregularly disturbed grounds nearby are evidence of illegal mining activity ('galamsey') which once thrived there.

The east pit has its southern end backfilled to daylight elevation with about 18m high wall above it, leaving about 60m length of the northern part filled with clear water. The pits perimeter is covered with secondary vegetation except the eastern end, which has farms.

### Slope Stability of Pit Walls

The walls of the main pit are steep with an average slope of about 70°. At the southwest wall there are 4 benches, 3 of which have regular 7m heights above the water with the first bench about 25m high. The northern wall has very high bench of about 24m. The NW wall is about 60m high of 3 benches of about 20m high with 3 levels of narrow interrupting berms. All the pit walls including those of the east pit are in stable condition. Manual remedial work would be undertaken to improve erosion and prevent any adverse instability problems.

### Proposed End Use for the Pit

The reclaimed pit area will be converted in forestry.

## 1.13 CHIRAWEWA WASTE DUMP

### Location

The Chirawewa Waste Dump is a large dump located about 50m southwest of the Chirawewa West Pit. It is also 200m southeast of the Fetish North Waste Dump, with which it shares the same lower ground. Both dumps are to the southwest of the haulage road and parallel to it.



Photo 1.12

### Shape and Size of Pit

It has approximate pear shape pointing southeastwards. Area occupied: about 11.3 hectares. Perimeter: 1500 m. Volume: about 1,300,000m<sup>3</sup> Height and Shape: It has an average height of 20m and is oblong in shape.

### Nature of Material Dumped

Waste material dumped was mainly from the Chirawewa pits. The material consists mainly of pieces, fragments and some boulders of phyllites and metasediments set in tuffaceous clayey groundmass. Material is all weathered, no sulphide minerals are present

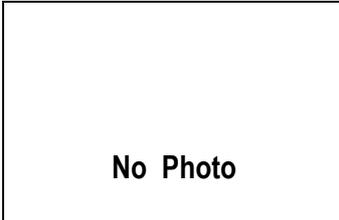
### Present Status

There is partial reclamation and revegetation of the NE slop of the waste dump with the trees growing close to the NE foot of the dump and other vegetation growing elsewhere on it (Plate 8b).

### Proposed End Use for the waste Dump

This waste dump was one of those selected as a demonstration site for waste dump restoration in the early part of the mine life and currently serves as the vertiver grass bank for the on-going restoration project. The proposed end use is agroforestry.

#### 1.14 CHIRAWEWA SOUTH PIT



#### Location

The Chirawewa south pit is about 500m to the south of the Chirawewa Waste dump.

#### Shape and Size of Pit

The pit is relatively small and elongated in the north-northeast–south- southwest direction.

Major axis: about 100m; Minor axis: about 50m; Depth: about 30m

Perimeter: about 400m Total coverage area: 1.0 hectare

Volume of material mined out: about 460,950m<sup>3</sup>

#### Present Status of Pit

The northern end of the pit has been backfilled to day light elevation for about 30m, leaving about 70m length filled wit clear water. The wall above the water has an average height of about 25m. The land adjacent to the northern end is marshy, blocked by the access road failed culvert.

#### Slope Stability of Pit Walls

The pit slopes have angles between 60° and 65° and are relatively stable.

#### Proposed End Use for the Pit

The pit will be fenced off and the water developed into aquaculture.

#### 1.15 DADIESO PIT AREA

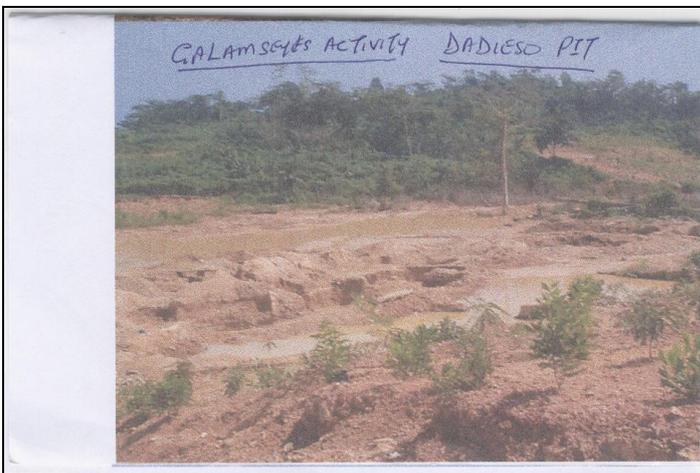
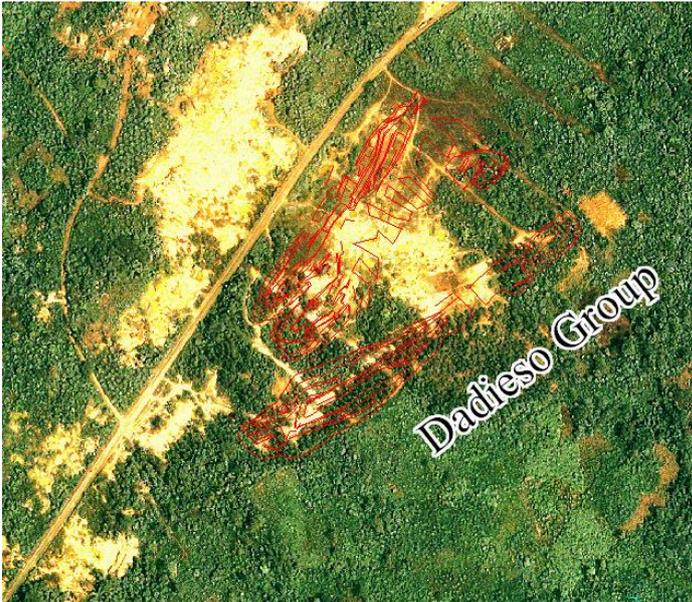


Photo 1.13



**Photo 1.14**

#### **Location**

The Dadieso is about 17km along the Boguso road to the southwest of the plant site at Ayanfuri

#### **Shape and Size of Pit**

The pit is elongated in the north northeast – south southwest direction to give an oval shape whose major and minor axes are 400m and 150m respectively with a maximum depth of about 30m. The perimeter of the pit is about 1.1km with a total coverage area of about 4.0 hectares. The volume of material mined out of the pit is about 469,620m<sup>3</sup>.

#### **Present Status of Pit**

The pit has been back-filled above the daylight elevation, with all the walls battered to give a gentle rolling landscape. Although the reclaimed pit area has been afforested to restore the land, the galamsey operators are very actively mining the area (Plate 13a).

#### **Slope Stability of Pit Walls**

The pit walls, which have been battered to a gentle slope of about 25°, are very stable with small gullies on the slope faces due to surface run-offs.

#### **Proposed End Use for the Pit**

Where possible the pits will be backfilled and reforested

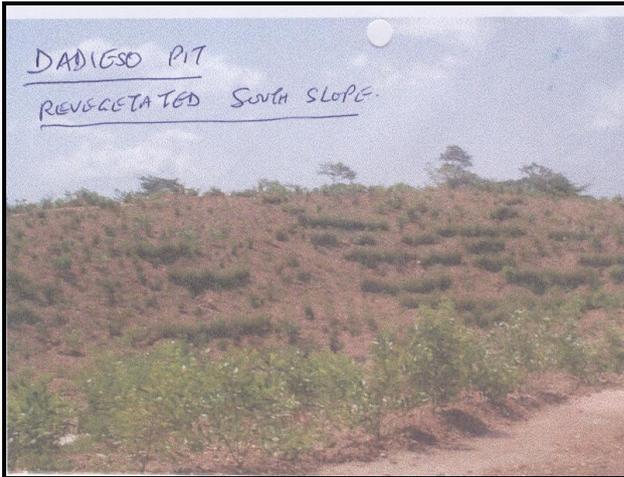
### **1.16 DADIESO WASTE DUMP**

#### **Location**

Dadieso Waste Dump is about 20m southeast of the Dadieso pit and runs sub-parallel to it.

#### **Size and Shape of Pit**

Area occupied: 1.4 hectares. Perimeter: 1.6km. Height and Shape: It has an average height of 10m and is lenticular in shape.



**Photo 1.15**

#### **Nature of Material Dumped**

Waste material dumped was from Dadieso pit. The material consists mainly of pieces and fragments of phyllites and metasediments with quartz in clayey groundmass. Material is all weathered, no sulphide minerals are present

#### **Present Status of Dump**

Greater part of the material from the waste dump has been used to backfill the Dadieso pit. The remaining material has been recontoured and the whole area afforested in order to restore the land but galamsey operators are busily mining the reclaimed land .

### **1.17 ESUAJAH NORTH PIT**

#### **Location**

On the Ayanfuri - Wampame haul road, the North Esuajah pit stretches from 2000 to 2500N/S and 7000 to 7500E/W and its entry ramp can be located 2.0km NNE of Ayanfuri road intersection and is about 800m south of Wampame railway station and surrounded by cash crop farms.



**Photo 1.16**

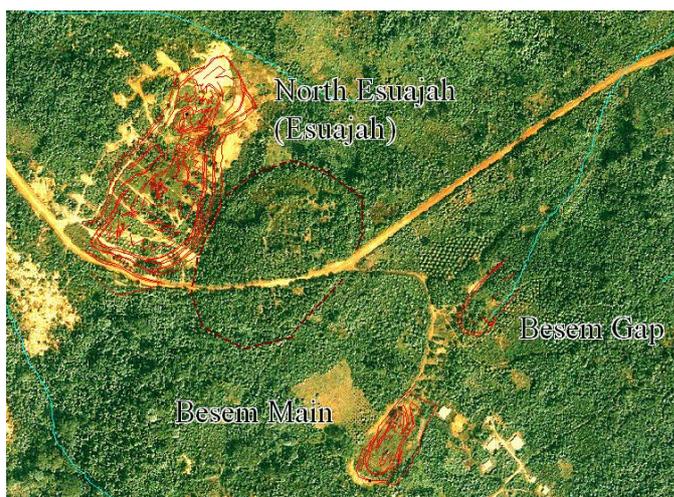


Photo 1.17

### Shape and Size of Pit

North Esuajah pit assumes a much more circular shape with an average radius of 200 meters. The planar area measured is 15,3063 square meters. There exists a rocky intrusion northerly that protrudes some 5 meters above water level of 135m RL. The walk around distance is about 2000m. The volume of ore and waste mined out of the pit is estimated to be 2,170,553 m<sup>3</sup>. The east and west wall had maximum elevations 172m and 165m respectively.

### Present Status of Pit

Backfilling and recontouring work commenced in October 2002 and by April 2003, a fair 90% of the work programme had been achieved. Spot height taken after the primary completion indicates a gentle sloping terrain, rising from 145mRL at the ramp entry to 135mRL at the northern daylight end. Massive recontouring of existing pit walls has resulted in a generally, gentle rolling landscape. Final settlement of backfill has eventually given way to improved topographic improvement and progressive erosion control activities are being carried out. Topsoil has been placed and undergrowth vegetation is being encouraged. To date, a variety of cash crops (cacao, plantain, banana and citrus) have been introduced as part of a demonstration farm program (Plate 3a).

### Slope Stability of Pit Walls

Generally, the re-profiled walls have achieved stability and are being monitored for development of any bad land topography.

### Proposed End Use for Pit Area

Pit area has been selected for an experimental agroforestry programme. Plants introduced include: *Ceiba pentandra* (Oyina), *Terminalia superba* (Ofram), *Cassia* species, grass species, *Cajanus cajan* (Ase), *Theobroma cacao* (Cocoa tree), *Elaeis guineensis* (Oil palm), *Mangifera* species (Mango tree), plantain, banana, etc.

## 1.18 ESUAJAH NORTH WASTE DUMP

### Location

The North Esuajah Waste Dump was created some 50m to the west of the North Esuajah pit. The area covered is on a much higher elevation and covers approximately 18 hectares. Majority of the material had been dumped from the North Esuajah pit and the rest from Besem Gap and Main pits.



Photo 1.18

### **Nature of Material Dumped**

Weathered and semi-weathered metasediments with rock pieces mostly of sizes between 50mm and 100mm.

### **Present Status**

In backfilling North Esuajah pit, some of the material from this waste dump was recovered and used. The remaining heap of waste material was battered to obtain slope stability and topsoil spread on top for revegetation. Continuous erosion control activities have been designed to prevent soil damage and restore vegetation. Most of the species planted are nitrogen-fixing plants. To accelerate early vegetative undergrowth, both organic and inorganic fertilizers have been introduced. Deep ripping has reduced erosion considerably and there is a regular maintenance program in place to mitigate any negative topographic development (Plate 3b).

### **Proposed End Use for the Waste Dump**

The proposed end use is agroforestry.

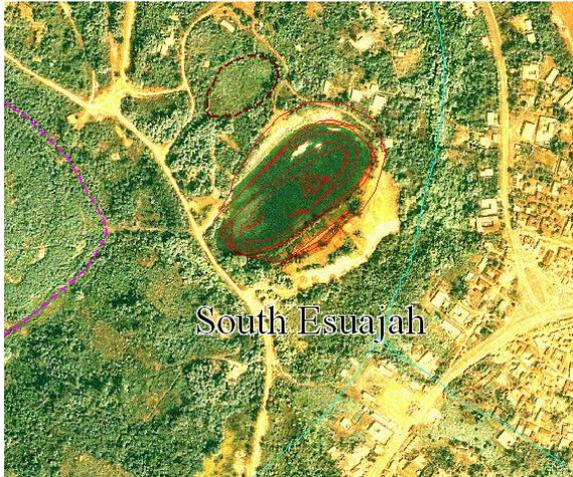
## **1.19 ESUAJAH SOUTH PIT**

### **Location**

It is about 400m southwest of the Ayanfuri road intersection and about 200m to the west of the Ayanfuri community market.



Photo 1.19



**Photo 1.20**

### **Shape and Size of Pit**

The pit was developed from a crest of elevation 172m above msl to a designed pit floor of 104 m above msl, (a depth of 68m) and ellipsoidal in shape with the major axis of about 250m running approximately northerly. The minor axis is about 150m. It has a perimeter of about 800m and an area of 5 hectares. The volume of material mined out of the pit is estimated to be approximately 2 million m<sup>3</sup>.

### **Present Status of Pit**

The pit is filled with water up to 132m above mean sea level (a depth > 20m) with high pit walls ranging between 10m and 25m. The overflow from the pit water joins the nearby Danyami stream, which flows northerly to join the Ofin River. The pit periphery is overgrown with thick vegetation while creeping plants grow on parts of the pit slopes, making access to the pit only through the ramp (Plate 4a). The pit has already acquired wetland ecology with aquatic life in the clear water and birds have made their nest in the vegetation around the pit. Present water sampling results indicate acceptable cyanide levels (Appendix 5).

### **Slope Stability of Pit Walls**

The pit walls have average general slope angle between 60° and 65°. Iron oxide incrustation has rendered the pit slope faces resistant to erosion and thus stabilizing the pit walls.

### **Proposed End Use for Pit**

The pit might be back filled as part of the CAGP, if not the pit would be suitable for Aquaculture or irrigation

## **1.20 ESUAJAH SOUTH WASTE DUMP**

### **Location**

South Esuajah Waste Dump was created some 50m to the southwest of the South Esuajah pit and is quite close to the topsoil bank, about 45m to the east mine clinic. It is in close proximity to the phase 5 heap leach to the north.

### **Dump Area**

Area occupied: 14452 m<sup>2</sup>. Perimeter: 420 m



Photo 1.21

**Nature of Material Dumped**

Weathered and semi-weathered metasediments rock pieces of various sizes, all of which came from the South Esuajah Pit. Material is all weathered, no sulphide minerals are present

**Present Status**

Extensive reclamation works were carried out on this dump during the mine operation. Pilot and demonstration restoration projects were established on the battered dump and to date, the entire area is overgrown with mature trees majority of which are Mangium and Acacia species (Plate 4b).

**Proposed End Use for Waste Dump**

This waste dump is being turned into forestry with nitrogen fixing plants (Cassia species) having been planted already. Indigenous species will be introduced to attain the 40% plant population. . Meanwhile, the existing tree growth is being protected and enriched to improve the ecological restoration around the South Esuajah pit. The location of the dump makes it suitable for the creation of a forest belt to compliment the restoration work to be embarked on at the heap leach site.

**1.21 FETISH MAIN AND FETISH GAP PITS**



Photo 1.22

## Fetish Main and Fetish Gap Pits

### Location

The Fetish Main pit (Photo 1.x) was developed during the early stages of the mine operation and can be located on the haul road leading to Chirawewa pit. It is about 700m to the southeast of the control post 2. The pit is adjoined at its south end by the Fetish Gap Pit and in close proximity to the Fetish South Pit about 20m to the west of it.



Photo 1.23

### Shape and Size of Pits

The main pit is elongated in the north-south direction with the gap as a bent tail at its south to the west. Its major axis is about 500m long with the minor axis about 160m. The combined perimeter is approximately 1.5km and covers an area of 6.5 hectares. The volume of material mined out of these two pits is estimated to be 3.4 million m<sup>3</sup>.

### Present Status of Pits

Both pits were backfilled when the mine was in operation and the reclaimed area has since stabilized with natural vegetative growth (Plate 5a). Further soil improvement works will to be carried out before the introduction of plant species to enhance the ecological potential.

### Slope Stability of Pit Walls

All pit walls have been re-contoured and there are no stability problems.

### Proposed End Use for Pit

As part of the restoration programme, the reclaimed land will be converted to agroforestry for economic foodstuff production.

## 1.22 FETISH MAIN WASTE DUMP

### Location

The waste dump is also along the haul road to Chirawewa, some 600 metres to the southeast of Bogoso road intersection. It lies to the west of Fetish Main about 40m away. Area occupied: 58000 m<sup>2</sup>. Perimeter: 965 m



Photo 1.24

### Nature of Material Dumped

The material dump was from the Fetish Main pit. The state of the material is weathered and semi-weathered metasediments with some rock pieces. Material is all weathered, no sulphide minerals are present

### Present Status

Reclamation works on the waste dump is well advanced and the tree species mainly exotic ones have successfully provided a secondary forest belt (Plate 5b). Over the years, there has been noticeable erosion problem due to lack of project maintenance and this requires re-enforcement and replanting of erosion control species.

### Proposed End Use for Waste Dump

The current growth shall be maintained. It is planned that, after the tertiary earthworks, indigenous plant species will be introduced to attain the 40% plant population. This site shall continue to serve as a demonstration area and also as a Vertiver grass bank. Nonetheless, the dominant activities here shall be forestry, taking advantage of water in the Fetish South Pit.

## 1.23 FETISH NORTH AND SOUTH

### Location

The Fetish North Pit is about 100m to the northeast of Fetish Main Pit and about 50m to the north of Fetish South Pit, which is about 50m to the north of the Chirawewa haul road and about 30m west of the junior staff camp.



**Photo 1.25 Fetish North**



**Photo 1.26 Fetish South**

### **Shape and Size of Pit**

The total length from the road to the north wall is approximately 600m with the widest portion measuring about 350m. The combined perimeter along the vehicular access is approximately 2000m and covers an area of 18.6 hectares. The volume of material mined out of these two pits is estimated to be 4.4 million m<sup>3</sup>.

### **Present Status of Pit**

All the two pits have water accumulated up to 135m above msl (a depth > 40m) with high pit walls ranging between 10m and 40m. The accumulated water in Fetish North is undisturbed and fairly clear (Plate 6a) The Fetish South pit water has high suspended solids resulting in high turbidity (Plate 6b). This is partly due to the type of material pushed into it in an attempt to backfill it and the activities of illegal miners (galamsey operators) that existed in the area. The overflow water from the Fetish South pit is controlled by means of a spillway constructed towards the haul road and is directed to the Danyami stream, which joins the Subin stream. Partial backfilling has been undertaken and the west walls re-contoured.

### **Slope Stability of Pit Walls**

The north and east walls have average slope angles between 60° and 75°. The walls are stable and have sparse vegetative growth on both eastern and western walls. The southern wall of the Fetish North pit will be reduced to improve the stability of the slope.

### Proposed End Use for the Pit

The two pits will be fenced off as protection against any accidental falls and possible drowning to enable the area to be used for Aquaculture and preserve as water bank for vegetable farming.

### 1.24 FETISH WASTE DUMP

#### Location

Fetish Waste Dump is 200m south of the Fetish South pit, accessed by the haul road to Chirewewa pit and is about 580 meters southeastwards of Control Post 2. It is a large twin waste dump built out of a large marshy area about 100m to the southeast of the South Bokitsi East pit. This marshy ground, which extends southeastwards, hosts the Chirawewa Waste Dump about 200m to the southeast of the Fetish Dump. Both dumps are to the southwest of the haulage road and parallel to it.



Photo 1.27

Area occupied: 146000 m<sup>2</sup>. Perimeter: 1528 m/ Volume: about 1,500,000m<sup>3</sup> / Height and Shape: It has an average height of 20m and is approximately rectangular in shape.

#### Nature of Material Dumped

Waste material dumped was from both Fetish South and South Bokitsi East pits. The material consists mainly of pieces, fragments and some boulders of phyllites and metasediments set in tuffaceous clayey groundmass. Material is all weathered, no sulphide minerals are present

#### Present Status

This dump was selected as a demonstration site for waste dump restoration in the early part of the mine life and currently serves as the vertiver grass bank for the on-going restoration project. There is not much vegetative growth apart from the surviving vertiver clumps (Plate 7a). With placement of topsoil and some slope battering in conformity with EPA criteria, the dump can easily be restored.

#### Proposed End Use for the Waste Dump

The entire waste dump together with the surrounding farmlands has been earmarked for agroforestry. The opportunity also exists for a successful vegetable farming all year round.

## 1.25 FOBINSO NORTH AND SOUTH PITS

### Location

At the Fobinso mine site the two pits developed are adjacent to each other and share a common boundary (Photo 1.2). They have been named Fobinso North and Fobinso South pits. They are located in a farming area about 2km south of the heap leach pad and are surrounded by crop farms.



Photo 1.28 Fobinso North



Photo 1.29 Fobinso South

### Shape and Size of Pits

Together, they run in the northeast southwest direction, each having a shape of a mango.

The parameters on the north pit are as follows:

Major axis: 450m; Minor axis: 200m; Perimeter: 1.4km; Maximum depth: 65m; Total area coverage: 15.1hectares; Volume of material mined out: 1,907,326 m<sup>3</sup> The parameters on the south pit are as follows: Major axis: 100m; Minor axis: 60m; Perimeter: 0.42km; Maximum depth: 45m; Total area coverage: 1.4hectares; Volume of material mined out: 280,905 m<sup>3</sup>

### Present Status of Pits

Erosion has created small gullies on the wall faces. Remnants of a hedge planted around the north and south pits only remain with some grass and weeds with a background vegetation of secondary forest. Occasionally illegal mining ('galamsey') operators come to work around both pits. The north and south

pits, which were mined to below the water table are filled with water leaving about 20m of the pit walls above the water.

### Slope Stability of Pit Walls

The walls of the pits are steep with an average slope of 65°. While the slopes of the north pit are fairly stable, the south pit walls have developed weak zones and minor slope failures. The effect of erosion is evidenced by the presence of gullies all over the slope faces. Manual remedial work would be undertaken to improve erosion and prevent any adverse instability problems.

### Proposed End Use for the Pits

The two pits will be fenced off and used for aquaculture and forestry development.

## 1.26 FOBINSO WASTE DUMPS

There are two waste dumps at the Fobinso pits area, the north and the south waste dumps. The north dump is about 40m southeast of the Fobinso North pit across the Fobinso haul road to the heap leach pad. It was created out of a low lying valley containing water. It has an oblong shape and about 7m high from the road level. The south dump is about 50m southwest of the Fobinso South pit within a low-lying ground/ Total coverage area for the 2 dumps: 7.0 hectares; Perimeter: 1.1km; Volume: about 2,500,000m<sup>3</sup>



Photo 1.30 Fobinso North Dump Pond

### Location

### Nature of Material Dumped

Waste material dumped came from both Fobinso North and South pits. The material consists mainly of pieces, fragments and some boulders of phyllites and metasediments mixed with tuffaceous clayey matrix. Material is all weathered, no sulphide minerals are present

### Present Status

The slopes have been battered to about 15° to make them stable. Their surfaces are covered with weeds like grass and ferns with gullies developed as a result of erosion. Since the north waste dump was dumped in a valley impoundment of water has occurred behind it (Plate11c).

### Proposed End Use for the Waste Dumps

The two waste dumped are already covered with natural vegetation and these will be re-enforced with the introduction of both indigenous plant as well as exotic species to create a forestry in the area.

## 1.27 NKONYA PIT

### Location

From the Ayanfuri road intersection, the Nkonya pit can be accessed along the Bogosu road for about 5km then turn eastwards for about 350m. It is about 2km south of the Bokitsi pits. Farmland and farms surround it.



Photo 1.31 (CAGL 2008)

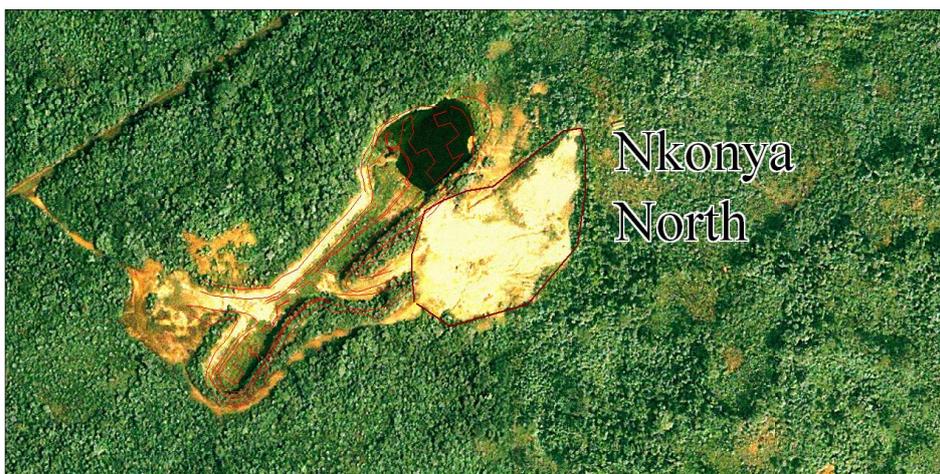


Photo 1.32

### Shape and Size of Pit

The Nkonya Pit is elongated in the north – south direction, which gives it an oblong shape. The major axis is about 300m; the minor axis is 100m and has a maximum depth of 40m. The pit perimeter is about 900m with total area coverage of 5.2 hectares. Volume of material mined out: 589,875 m<sup>3</sup>

### Present Status of Pit

The pit has been partially back-filled above daylight elevation, leaving 15m high pit wall running from the west to the north with water to a depth of 10m. The accumulated water in the pit is clear and routine sampling indicates that apart the slight alkalinity of the water it is free fro heavy metals and cyanide (Appendix 6).

### Slope Stability of Pit Walls

The walls of the pit are steep with an average slope of 65°. All the pit walls are in stable condition.

### Proposed End Use for the Pit

The pit will be fenced off and developed into aquaculture and forestry.

## 1.28 NKONYA WASTE DUMP

### Location

Nkonya Waste Dump was built on low lying ground 20m to the southwest of the Nkonya pit with an average height of 15m. It has an ellipsoidal shape. Area occupied: 4.8 hectares; Perimeter: 600m; Material volume: about 500,000m<sup>3</sup>



Photo 1.33 (CAGL 2008)

### Nature of Material Dumped

Waste material dumped came from the Nkonya pit. The material consists mainly of pieces, fragments and some boulders of phyllites and metasediments set in tuffaceous clayey groundmass. Material is all weathered, no sulphide minerals are present

### Present Status

The surface of the dump is covered with heaps of material and overgrown with weeds. Erosion has created a number of gullies on the surface (Plate 17a). No reclamation work has been done on it. With topsoil placement and some slope battering in conformity to EPA criteria, the dump can easily be restored.

### Proposed End Use

The waste dump area will be converted into agroforestry.

## 1.29 NTWINTWINA EAST PIT

### Location

From the Ayanfuri road intersection, the Ntwintwina East Pit can be accessed along the Bogosu road for about 8km then turn eastwards for about 400m. It is about 3km south of the Nkonya pit and is surrounded by farmlands.

No Photo



**Photo 1.34**

### **Shape and Size of Pit**

The pit is elongated in the north – south direction to give an oval shape whose major and minor axes are 80m and 20m respectively with a maximum depth of about 20m. The perimeter of the pit is about 200m with a total coverage area of about 1.1 hectares. The volume of material mined out of the pit is about 225000 m<sup>3</sup>.

### **Present Status of Pit**

The pit has been back-filled above the daylight elevation, leaving 5m high pit walls on the east and the west flanks. The reclaimed pit area is yet to be restored and is covered with vegetation and erosion features (Plate 5b).

### **Slope Stability of Pit Walls**

The pit walls have average slope of about 65°, are generally stable with small gullies on the slope faces due to surface run-offs.

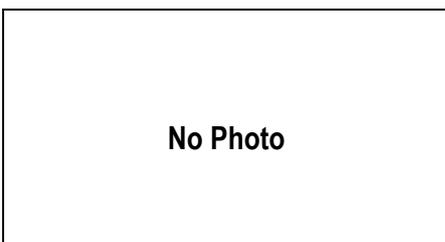
### **Proposed End Use for the Pit**

The proposed end use for the pit is agroforestry.

## **1.30 NTWINTWINA EAST WASTE DUMP**

### **Location**

Ntwintwina East Dump was created 50m west to the northwest of the pit in a depressed swampy area surrounded by farmlands



Area occupied: 10000 m<sup>2</sup>. Perimeter: 200 m. Volume: about 150,000 m<sup>3</sup>. Height and Shape: It has an average height of 20m and is circular in shape.

### **Nature of Material Dumped**

Waste material dumped was from Ntwintwina East pit. The material consists mainly of pieces, fragments and some boulders of phyllites and metasediments set in tuffaceous clayey groundmass. Material is all weathered, no sulphide minerals are present

### **Present Status of Dump**

Much of the material has been used to reclaim the Ntwintwina East pit resulting in the reclamation of the area ready for restoration.

### **Proposed End Use for the Waste Dump**

The proposed end use for the waste dump is forestry.

## **1.31 NTWINTWINA WEST PIT**

### **Location**

Ntwintwina Main Pit is about 1km southwest of Ntwintwina East Pit and is about 6km south of the Bokitsi area. The area lies within a large farmland with both crop and cocoa farms around it.



**Photo 1.35**

### **Shape and Size of Pit**

The long axis of the pit is elongated in the north–south direction. The major axis is about 350m and the minor axis is about 100m with a maximum depth of 40m. The pit perimeter is about 625m and the total area coverage is 2.6 hectares. The volume of material mined from the pit has been estimated to be 682178m<sup>3</sup>.

### **Present Status of Pit**

The pit is partially reclaimed by backfilling the southern end above daylight elevation, and the northern end filled with water to 10m deep leaving 30m of the wall above it. The area beyond the pit is covered with secondary forest and other vegetation (Plate10a). Illegal mining operation going on there is causing further land degradation in the area.

### **Slope Stability of Pit Walls**

The remaining walls have slopes of about 65° and are generally stable with gullies developed on the slope faces as result of erosion.

### **Proposed End Use for the Pit**

The pit has been handed over to small scale mining.

## Ntwintwina West Waste Dump



**Photo 1.36**

### **Location**

Ntwintwina West Waste Dump was created some 50m southwest of the pit in a marshy valley. It is rectangular in shape, about 30m high with a perimeter of about 650m. Its total coverage area is about 2.85 hectares and contains about 460,000m<sup>3</sup> waste materials.

### **Nature of Material Dumped**

Waste material dumped came from the Ntwintwina West Pit and consists mainly of pieces, fragments and some boulders of phyllites and metasediments set in clayey groundmass. Material is all weathered, no sulphide minerals are present

### **Present Status**

This dump has created a blockage to the flow of water in the valley causing water impoundment behind the waste dump. Part of the dump has been removed to be used as material for the partial reclamation of Ntwintwina West Pit. Adjacent to the dump beyond the valley are cocoa and other crop farms as well as secondary forest and thicket (Plate 10b).

### **Proposed End Use for the Waste Dump**

The blockage in the valley will be cut open to reduce the water behind it as part of the reclamation process. Then the waste dump will be planted with various species of trees to develop forestry.

## **1.32 PROCESSING SITES**

The processing sites include: the heap leach pads, the process ponds area and the plant area.

### **1.32.1 Heap Leach Pad**

#### **Location**

The western side of the heap leach pad is approximately 950m from the Ayanfuri road intersection. The northern section is conspicuous along the Nkotumso-Gyaman road. The southern and eastern faces of the pad can also be accessed through the Fobinso-Abnabna haul road. It is approximately 3km along the road to Fobinso pit. There are 5 pad corresponding to 5 phases of the processing period, which have been designated as Heap leach pads phases 1- 5.



Photo 1.37 Heap Leach Pad Phase 5



Photo 1.38 Unreclaimed Heap Leach Pad (Phase not specified)

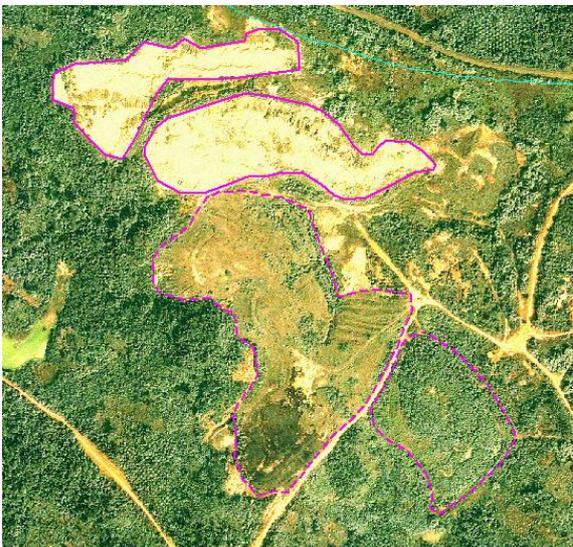


Photo 1.39

### Shape and Size of the Heap Leach Pad

The planar area of the pad surveyed is approximately 133.3 hectares. All the heaps assume a plateau-like shape and are benched in lifts of 15 – 20m. The surfaces of these pads are rough with heaps of oxide material. The perimeter along the motorable access is approximately 4km. The volume of material on the heap had all come from the oxide pits and it is estimated to be over 30 million tonnes.

### Present Status of the Heap Leach Pad

The heaps are considered spent but routine sampling sometimes indicates traces of cyanide levels as presented in Appendix 5. There has been natural colonization of ferns and brachiaria grass on and around the slopes. Meanwhile, the phase 5 has been battered to an overall average slope of 18°. Various species of plants (Cassia spp.) have been introduced in addition to brachiaria grass and vertiver barriers, which control primary erosion. (*AGC Report*) (Storm drains and silt traps have also been constructed to manage storm water and all attendant topographical features. However the phases 1 – 4 with general slope angle of 70° have highly eroded faces with badland topography as a result of erosion and denudation with some natural vegetation around the small gullies (Plate 14b).

### Slope stability of the Heap Leach Pad

The 70° heap faces are generally unstable. Gully formation could undermine the berms provided and consequently accelerate slope failure. As part of the restoration, stability designs and works have tentatively been developed to address the negative impact.

### Proposed End Use for the Heap Leach Pad

If the material is removed or remains in place the vast area (> 100hectares) will be converted to agroforestry where plant species like Cassia spp., Cajanus cajan, Centrocemma spp., Tectona grandis (Teak), Terminalia superba (Ofram), Jettrophia spp. (Nkrangyedua), etc. will be planted to attain a density of 1000 trees per hectare with more than 40% of indigenous species.

The programme for the heap leach pad shall initially be a development of a secondary forest with the potential of woodlot bank to provide the fuel needs of the community. A greater portion has also been earmarked for extensive cash crop and teak plantation as requested by the community.

## 1.32.2 Process Ponds

### Location

Eleven (11) process ponds were constructed in close proximity to the process plant for solution management. It was in close proximity to phase1 heap leach pad and about 300 metres off the Ayanfuri-Gyaman road.

### Present Status of Ponds

The ponds have been reclaimed by backfilling. The site used to attract illegal miners due to the presence of buried HDPE liner (“felt” material). The total land reclaimed is approximately 1.0 hectare and material from the heap leach pad was used to backfill all the process ponds. Although, the illegal operators keep digging the backfill, all the areas continue to be tidied up.

### Soil Stability

Soil stability monitoring is ongoing and effective drainage structures have been put in place to check erosion.

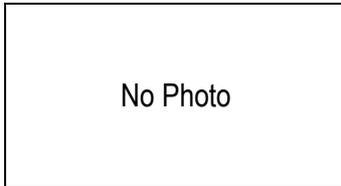
### Proposed End Use for the Process Pond Area

The area is flat lying and large enough to host a football field with shade trees around it and work has already started to reclaim the area for this purpose.

### 1.32.3 Plant Area

#### Location

The Plant area contained the Process Plant (ADIR plant), the Workshop, the Power station, the fuel depot, the cement silos and all the associated structures constructed to process the leached solution. It was located about 400m west of the office area in between the process ponds and the Phase 1 leach pad.



#### Present Status

The structures have completely been demolished and the plant dismantled and sent to the Obuasi mine. The remnant footings have been bulldozed into the process pond during backfilling. Soil material from the workshop area with hydrocarbon contamination was encapsulated and buried before leveling up the site, which is now overgrown with the Brachiaria grass.

#### Proposed End Use for the Plant Area

The plant area had sampling points used for monitoring during the life of the mine and a permanent sampling point would be maintained to serve monitoring purposes.

### 1.33 STRUCTURES

The structures on the Ayanfuri mine include: the buildings in the office area, junior staff camp, senior staff camp, haulage and access roads, and control posts.

#### 1.33.1 Office Area

##### Location

The office area consists of an Administration block of 10 offices, a clinic, stores and water treatment area and overhead tank storage reservoir. The area is close to the Ayanfuri town about 500m to the west of the Ayanfuri road intersection on a raised ground behind the South Esuajah Pit.



Photo 1.40

**Present Status**

The facilities in this area are all in good structural conditions, but the inside of the clinic and the stores have been stripped of everything including the ceilings (Plate 15a).

**Proposed End Use for the Office Area**

The area will be finally handed over to the Government of Ghana. In the mean time it will be used as the offices and training centre for the sustainable livelihood support programmes to be instituted.

It must be noted that it is among the facilities, which have been taken over by the District Assembly.

**1.33.2 Junior Staff Camp**

**Photo 1.41**

**Location**

The junior staff camp is located 30 meters from the east wall of Fetish South pit. The area is about a hectare and functioned as a residential facility for the junior staffs. There are four sets of six-cubicle housing units (each of the cubicle measuring 10 square meters) a mess serving as canteen and club, core shed and a power station.

**Present Status**

All the buildings are in good structural condition and can be used for any suitable activity (Plate 16a). However, most of the fittings and the utility facilities (louver blades and holders, plumbing accessories, electrical fittings, etc.) have either been destroyed or stolen.

**Proposed End Use for the Junior Staff Camp**

This camp is very close to the Fetish pits earmarked for aquaculture development and can serve as facility for the proposed project. Otherwise it will be handed over to the Government of Ghana.

**1.33.3 Senior Staff Camp****Location**

On the road towards Bogosu at approximately 3km from the Ayanfuri road intersection, and 750 meters eastwards is the Senior Staff Camp. The setup consists of nine semi-detached bungalows, a mess, a swimming pool and parks rich with exotic flowers. The limits of the facility are fenced with only one access at the main gate manned by a security guard.



Photo 1.42

### Present Status

Service utilities are intact with camp maintenance being undertaken by the Estates Department of AGC (Plate 16b). The access road is constantly kept in good condition through the ongoing environmental management process.

### Proposed End Use for the Senior Staff Camp

The camp will be handed over to the Government of Ghana but two bungalows will be kept for the decommissioning period.

## 1.33.4 Haulage and Access Roads

### Location

Three principal haul roads were constructed to transport ore material to the heap leach ROM pad. These are the North Besem haulage road (R1), Chirawewa haulage road (R2) and the Abnabna haulage road (R3). The other road networks include the link roads to Administration (R4), Junior Staff Camp (R5), Senior Staff Camp (R6), Bokitsi pits (R7), Nkonya pit (R8) and the Ntwintwina pits (R9)..

ROAD	LENGTH (km)	PRESENT STATUS
Besem road (R1)	3.6	Small gullies, Asanka culvert failed
Chirawewa road (R2)	3.1	Small gullies, 2 culverts failed
Abnabna road (R3)	3.2	Small gullies, 4 culverts failed
Administration road (R4)	0.24	Small gullies
Junior Staff road (R5)	0.63	Small gullies
Senior Staff road (R6)	2.3	Small gullies
Bokitsi pit road (R7)	0.9	Small gullies, 1 culvert failed
Nkonya pit road (R8)	0.35	Small gullies, 1 culverts failed
Ntwintwina West rd. (R9)	0.14	Small gullies, 1 culverts failed
Ntwintwina East rd. (10)	0.4	Small gullies, 1 culvert failed

### Proposed End Use for the Roads

About 16 km of roads constructed for the Ayanfuri project now serves as important farm route for the communities. They will be used as access to the sustainable livelihood support project sites located in the mine out areas.

### Present Status

The present status of the haulage and link roads is presented below.

### 1.33.5 Control Posts 1, 2 & 3

#### Location

Control Point 1 is located about 300m from the Nkotumso road southward along the road to the office area. The Control Post 2 is on the Chirawewa haulage road about 10m west across the Bogosu road and Control Post 3 is 600m northwest of the control post 2 along the Chirawewa haulage road.

#### Present Status

All the control posts had boom gates and security shelters attached to them for vehicular and access control purposes. The superstructures of the buildings of these facilities are intact. However, the metal pipe making the booms are rusted and would have to be reconstructed.

#### Proposed End Use for the Control Posts

Due to the strategic locations of the Control posts, their original functions would be re-instituted.

### 1.34 WETLANDS

The wetlands affected by the Ayanfuri mining project or created by the project aside water in the mine-out pits are listed below.

	NAME	LOCATION	END USE
1	Asanka stream pond	In the Besem North area	Restore for drainage system
2	Asuaa Stream	In the North Esuajah area	Restore for drainage system
3	Subin Stream (upstream)	South Esuajah, Fetish Area	Restore for drainage system
4	Danyami Stream	Between Bokitsi & Ayanfuri	Restore for drainage system
5	S Esuajah marshy ground	Between South Esuajah & Control post 2	Restore for drainage system
6	Fetish road marshy ground	20m east of Control post 2	Restore for drainage system
7	Chirawewa stream	In the Chirawewa Main pit area	Restore for drainage system
8	Anikyim Stream	In the Ntwintwina village area	Restore for drainage system
9	Ntwintwina stream pond	In the Ntwintwina West pit area	Restore for drainage system
10	Fobin Stream	Between Abnabna and Fobinso	Restore for drainage system
11	Abnabna road pond 1	200m south of the heap leach pad 4	Restore for drainage system
12	Abnabna road pond 2	600 m north of Fobinso pit	Restore for drainage system
13	Abnabna road pond 3	120m northeast of Abnabna dump	Restore for drainage system
14	Fobinso Waste dump pond	About 50m southeast of Fobinso pits	To be left as natural wetland
15	Fetish waste dump pond	Between S. Bokitsi East pit and Fetish dump	To be left as natural wetland
16	Chirawewa South pond	10m north of Chirawewa south pit	To be left as natural wetland
17	Chirawewa waste dump pond	10m south of Chirawewa waste dump	To be left as natural wetland