

## **APPENDIX 3.5.7**

### **SOIL SERIES DESCRIPTION CAGL PROJECT AREA**

## BEKWAI SERIES



### I GENERAL INFORMATION

- i. Profile number: 1
- ii. Date of description: 24/04/09
- iii. Authors: E. Boateng and D. F. K Allotey
- iv. Soil unit: *Bekwai series*
- v. Location: N 05.95996, W 01.91427

#### Soil classification

- i. FAO 1990: Ferric Acrisol
- ii. Soil Taxonomy:

#### Soil climate

- iii. Soil temperature regime: Isohyperthermic
- iv. Soil moisture regime: Udic

#### Landform and topography

- i. Landform: Sloping land
- ii. Position: Summit
- iii. Slope/gradient: Very gently sloping (0 – 2%)
- iv. Form of slope: Straight
- v. Micro - topography: Nil

#### Land use and vegetation

- i. Land use: Fallow
- ii. Human influence: Ridging and mounding
- iii. Vegetation: Moist semi-deciduous forest

#### Parent material

- i. Parent material: Birrimian phyllite
- ii. Effective soil depth: 190 +cm

#### Surface features

- i. Rock outcrops: Nil
- ii. Evidence of erosion: Sheet

#### Soil – water relationships

- i. Drainage class: Well drained
- ii. Depth of groundwater table: Not encountered
- iii. Flooding: Nil
- iv. Moisture condition in profile: Moist throughout

### II BRIEF DESCRIPTION OF PROFILE

The profile has strong brown clay loam topsoil with granular structure. The subsoil is light yellowish brown grading into red clay which is sub angular blocky.

### III Profile description

Horizon	Description
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Ap	0 – 7 Strong brown (7.5YR 4/6) moist; clay loam, weak, fine, medium granular; loose, non- sticky, non- plastic; many very fine, very few coarse, common fine roots; common worm cast, clear and smooth boundary .
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ABs	7–16 Strong brown (7.5YR 5/6) moist; clay loam; fine and medium, angular blocky, slightly sticky, slightly plastic, few medium angular quartz gravel; very few coarse, common fine and very fine roots; clear and smooth boundary.
Btcs1	16 – 30 Yellowish red (5YR 5/6) moist; clay; moderate coarse sub angular blocky; slightly sticky, slightly plastic; common medium reticulate hard MnO <sub>2</sub> concretions, few coarse, common medium angular quartz gravel; few coarse, common medium and fine roots; clear and smooth boundary.
Bts2	30 – 82 Dark red (2.5YR 4/8) moist; clay; moderate coarse and very coarse Sub angular blocky; slightly sticky, slightly plastic; few coarse angular quart gravel few coarse, moderately few medium and fine roots; diffuse and smooth boundary
Bt3	82-109 Dark red (2.5YR 4/8) moist; clay; moderate coarse and very coarse sub angular blocky; slightly sticky, slightly plastic; few medium, very few fine roots; diffuse and smooth boundary
Bt4	109-124 Red (2.5YR 5/8) moist; clay; strong coarse and very coarse sub angular blocky, slightly sticky, slightly plastic, few medium, few fine and very fine roots; diffuse and smooth boundary.
BC	124-190 + Red (2.5YR 5/8) moist; clay; strong coarse and very coarse sub angular blocky slightly sticky, slightly plastic, few medium, few fine and very fine roots; traces of decomposed phyllite.

## NZIMA SERIES



### I GENERAL INFORMATION

- i. Profile number: 2
- ii. Date of description: 24/04/09
- iii. Authors: E. Boateng and D. F. K Allotey
- iv. Soil unit: *Nzima series*
- v. Location: N 05.94953, W 01.92065

#### Soil classification

- i. FAO 1990: Ferric Acrisol
- iii. Soil Taxonomy:

#### Soil climate

- iii. Soil temperature regime: Isohyperthermic
- iv. Soil moisture regime: Udic

#### Landform and topography

- i. Landform: Sloping land
- ii. Position: Middle
- iii. Slope/gradient: Very gently sloping (0 – 2%)
- iv. Form of slope: Straight
- v. Micro - topography: Nil

#### Land use and vegetation

- i. Land use: Cocoa
- ii. Human influence: Nil
- iii. Vegetation: Moist semi-deciduous forest

#### Parent material

- i. Parent material: Birrimian phyllite
- ii. Effective soil depth: 185 +cm

#### Surface characteristics

- i. Rock outcrops: Nil
- ii. Evidence of erosion: Sheet

#### Soil – water relationships

- i. Drainage class: Well drained
- ii. Depth of groundwater table: Not encountered
- iii. Flooding: Nil
- iv. Moisture condition in profile: Moist throughout

### II BRIEF DESCRIPTION OF PROFILE

The profile has light brownish grey clay loam topsoil with fine granular structure. The subsoil is light yellowish brown clay which is sub angular blocky to massive.

### III Profile description

Horizon Description

- A1 0 – 6 Dark yellowish brown (10YR 4/4) moist; clay loam; moderately medium and fine granular; loose, non- sticky, non- plastic; very few coarse, many very fine and fine, few medium roots; clear and smooth boundary.

- AB 6 – 25 Yellowish brown (10YR 5/6) moist; clay loam weak, fine and medium, sub angular blocky; loose, non – sticky and non – plastic; very few very coarse and coarse and few very fine, roots; clear and smooth boundary.
- Btcs1 25 – 60 Yellowish brown (10YR 5/6) moist; clay; strong coarse and very coarse Sub angular blocky; few fine and medium reticulate hard MnO<sub>2</sub> concretions, few coarse common medium and fine irregular quartz gravel; soft, very friable, slightly sticky, slightly plastic; very few very fine and fine roots; clear and smooth boundary.
- Btcs2 60 – 85 Strong brown (7.5YR 5/8) moist, clay; strong coarse and very coarse sub angular blocky; few fine spherical hard MnO<sub>2</sub> concretions, very few medium irregular quartz gravel; strong coarse and very coarse sub angular blocky; friable and slightly sticky and slightly plastic; medium interstitial pores; few soft reddish iron concretions; very few very fine roots; diffuse and smooth boundary.
- Btc3 85 – 140 Yellowish red (5YR 5/8) moist; clay; moderate coarse and medium Sub angular blocky; friable, slightly sticky and slightly plastic; few soft and medium reddish iron concretions; very few very fine roots; gradual and smooth boundary.
- Bv 140 – 185 Strong brown (7.5YR 5/8) moist; clay; moderate coarse and medium sub angular blocky; very firm, slightly sticky and slightly plastic; common medium soft reddish iron pan (plinthite), very few very fine roots.

## KOKOFU SERIES



### GENERAL INFORMATION

- i. Profile number: 3
- ii. Date of description: 24/04/09
- iii. Authors: E. Boateng and D. F. K Allotey
- iv. Soil unit: *Kokofu series*
- v. Location: N 05.95974 W, 01.93154

#### Soil classification

- i. FAO 1990: Haplic Acrisol
- iv. Soil Taxonomy:

#### Soil climate

- iii. Soil temperature regime: Isohyperthermic
- iv. Soil moisture regime: Udic

#### Landform and topography

- i. Landform: Sloping land
- ii. Position: Lower
- iii. Slope/gradient: Very gently sloping (0 – 2%)
- iv. Form of slope: Straight
- v. Micro - topography: Nil

#### Land use and vegetation

- i. Land use: Cocoa
- ii. Human influence: Nil
- iii. Vegetation: Moist semi-deciduous forest

#### Parent material

- i. Parent material: Colluvial material from Birrimian phyllite
- ii. Effective soil depth: 185 +cm

#### Surface Characteristics

- i. Rock outcrops: Nil
- ii. Evidence of erosion: Sheet

#### Soil – water relationships

- i. Drainage class: Moderately well drained
- ii. Depth of groundwater table: Not encountered
- iii. Flooding: Nil
- iv. Moisture condition in profile: Moist throughout

### II BRIEF DESCRIPTION OF PROFILE

The profile has dark yellowish brown clay loam topsoil with granular structure. The subsoil is strong brown to yellowish brown clay which is sub angular blocky to massive.

### III Profile description

#### Horizon Description

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| A1  | 0 – 5 Dark yellowish brown (10YR 3/4) moist; clay loam; moderate, medium granular; loose, non- sticky, non- plastic; common coarse and medium, many very fine and fine roots; clear and smooth boundary. |
| A11 | 5 – 12 Yellowish brown (10YR 5/6) moist; clay loam; moderate, medium, Granular; loose, non – sticky and non – plastic; few coarse, common medium and fine roots; clear and smooth boundary.              |

- Bt1 12 – 28 Strong brown (7.5YR 5/8) moist; clay; moderate medium and finesub angular blocky; soft, very friable, slightly sticky, slightly plastic; few coarse common very fine and fine roots; gradual and smooth boundary.
- Bt2 28 – 64 Strong brown (7.5YR 5/6) moist; clay; strong coarse sub angular blocky;slightly hard, friable and slightly sticky and slightly plastic; few medium and very few fine roots; gradual and smooth boundary.
- Bt3 64 – 98 Yellowish brown (10YR 5/6) moist; clay; strong coarse sub angular Blocky; friable, slightly sticky and slightly plastic; few medium, few fine and very fine roots; gradual and smooth boundary.
- Bt4 98 –127 Reddish yellow (7.5YR 6/8) moist; clay; strong, coarse, sub angular blocky; slightly sticky and slightly plastic; very few fine and fine roots; gradual and smooth boundary.
- Btc1 127 –150/160 Strong brown (7.5YR 5/8); clay; strong coarse sub angular blocky; slightly sticky, slightly plastic; few, fine soft iron oxide concretions; few very fine and fine roots; abrupt and wavy boundary.
- Btc2 150/160- 185 Brownish Yellow (10YR 6/8) moist; clay, massive; common medium and few coarse iron oxide concretions; very few very fine roots.