

#### 4. 討議議事録(M/D)

##### 4-1 概略設計現地調査 1

**MINUTES OF DISCUSSIONS  
ON  
PREPARATORY SURVEY  
ON  
THE PROJECT FOR RE-CONSTRUCTION AND EXPANSION  
OF  
SELECTED COMMUNITY DAY SECONDARY SCHOOLS (CDSSs)  
IN  
THE REPUBLIC OF MALAWI**

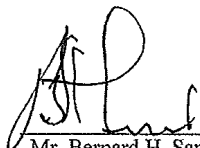
In response to the request from the Government of the Republic of Malawi (hereinafter referred to as "Malawi"), the Government of Japan decided to conduct a Preparatory Survey on the Project for Re-construction and Expansion of Selected Community Day Secondary Schools (CDSSs) (hereinafter referred to as "the Project") and entrusted the survey to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Malawi the Preparatory Survey Team (hereinafter referred to as "the Team"), which is headed by Mr. Yuki ARATSU, Senior Advisor to the Director General for Human Development Department, JICA and is scheduled to stay in the country from September 14, 2009 to October 8, 2009.


The Team had a series of discussions with the Malawian officials concerned and conducted field surveys.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets.

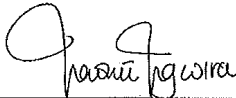
Lilongwe, Malawi  
September 28, 2009



Mr. Bernard H. Sande  
Secretary for Education, Science and  
Technology  
Ministry of Education, Science and  
Technology  
The Republic of Malawi



Mr. Yuki ARATSU  
Leader  
Preparatory Survey Team  
Japan International Cooperation Agency



Dr. Naomi Ngwira  
Director of Debt and Aid  
Ministry of Finance  
The Republic of Malawi

## ATTACHMENT

### 1. Objective of the Project

The objective of the Project is to improve learning and teaching environments of secondary education in the selected schools by re-constructing and expanding the facilities of selected Community Day Secondary Schools (CDSSs) in the Republic of Malawi. By achieving this objective, it is expected that the Project would contribute to improving the access to and the quality of secondary education in the country, which is stipulated as one of the main targets of "National Education Sector Plan 2008 – 2017."

### 2. Project Sites

Both sides agreed that the final candidate sites of the Project would be selected from the following list (for the location of those sites, see ANNEX1):

#### 1<sup>st</sup> Priority

	Name of School	District	Education Division
1	Chikwaza	Mulanje	Shire Highlands Education Division
2	Dziwe	Balaka	Southern East Education Division
3	Nankumba	Blantyre Rural	Southern West Education Division
4	Bilira	Ntcheu	Central West Education Division
5	Kango'ma	Lilongwe Rural	

#### 2<sup>nd</sup> Priority

	Name of School	District	Education Division
1	Namalomba	Balaka	Southern East Education Division
2	Nanjiriri	Blantyre Urban	Southern West Education Division
3	Chifunga	Mwanza	Southern West Education Division
4	Nseche	Lilongwe Rural East	Central West Education Division

The final candidate school will be selected based on the criteria shown in ANNEX 2 and finalized based on the result of the next field survey.

### 3. Responsible and Implementing Organization

The responsible and implementing organization of the Project is the Ministry of Education, Science and Technology (hereinafter referred to as "MOEST"), of which Organizational Chart is shown in ANNEX 3.

### 4. Project Components

Both sides agreed that the Project components would include following items, which are required as Conventional Secondary School (CSS):

- 1) classrooms

*Chasiri Ngoma*  
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*PS*

*BA*

- 2) science laboratories
- 3) library
- 4) staff houses
- 5) administration block
- 6) dormitories
- 7) kitchen and dining
- 8) borehole
- 9) ablution blocks (toilet)
- 10) home economics laboratory (where it is applicable)
- 11) school furniture

If some of the existing facilities of candidate schools are in good condition and can be utilized, those facilities will be excluded from the Project components. Such details will be examined by the Team in the next field survey, which will be conducted from early November to December.

#### **5. Japan's Grant Aid Scheme**

- 5-1. The Malawi side understands the Japan's Grant Aid for Community Empowerment described in ANNEX 4, ANNEX 5, ANNEX 6, and ANNEX 7, which were explained by the Team.
- 5-2. The Malawi side assured to take the necessary measures, as described in ANNEX 8, for the smooth implementation of the Project.

#### **6. Framework of Project Implementation and Scope of Works**

The Team explained the following framework of implementation.

- 6-1. Japan's Grant Aid is extended in accordance with the "Exchange Notes" by the two governments concerned and with the "Grant Agreement" between JICA and the Government of Malawi, in which the objectives of the Project, period of execution, conditions and amount of Grant Aid, etc., are confirmed.
- 6-2. After concluding the Exchange Notes and Grant Agreement, the Malawi side shall make the Agent Agreement with Japan International Cooperation System (hereinafter referred to as "JICS"). In accordance with "Procurements Guideline for Grand Aid for Community Empowerment (Type I -C)" of JICA, JICS shall conduct the following works on behalf of the Government of Malawi:
  - (1) Administration of the Grant;
  - (2) Preparation for and evaluation of tender;
  - (3) Signing contracts with suppliers and service providers;
  - (4) Procurement of necessary goods;
  - (5) Payment to suppliers and service providers;

- (6) Assisting to organize committee meetings; and
  - (7) Management of the progress of the project.
- 6-3. To implement the project smoothly, both sides confirmed to facilitate a committee composed of the Government of Malawi, the Government of Japan and JICA. The members of the committee shall be as follows:
- (1) Representative of Embassy of Japan in Malawi;
  - (2) Representative(s) of MOEST;
  - (3) Representative(s) of the Ministry of Transportation and Public Works; and
  - (4) Representative(s) of JICA Malawi Office.
- Major functions of the committee are examining major changes of the Project, receiving the report of the progress, and examining the utilization plan of additional procurement (if any),etc.

#### 7. Schedule of the Survey

The consultants will proceed to further studies in Malawi until October 8, 2009. If the analysis of the field survey discovers no administrative and technical difficulties in implementing the Project by adopting the Japan's Grant Aid for Community Empowerment, JICA will send another preparatory survey team in November.

#### 8. Other Relevant Issues

MOEST has made a strong request to Japanese side to proceed the second phase of the Project as earliest as possible, which has already been requested from the Government of Malawi to the Government of Japan in 2009.

END

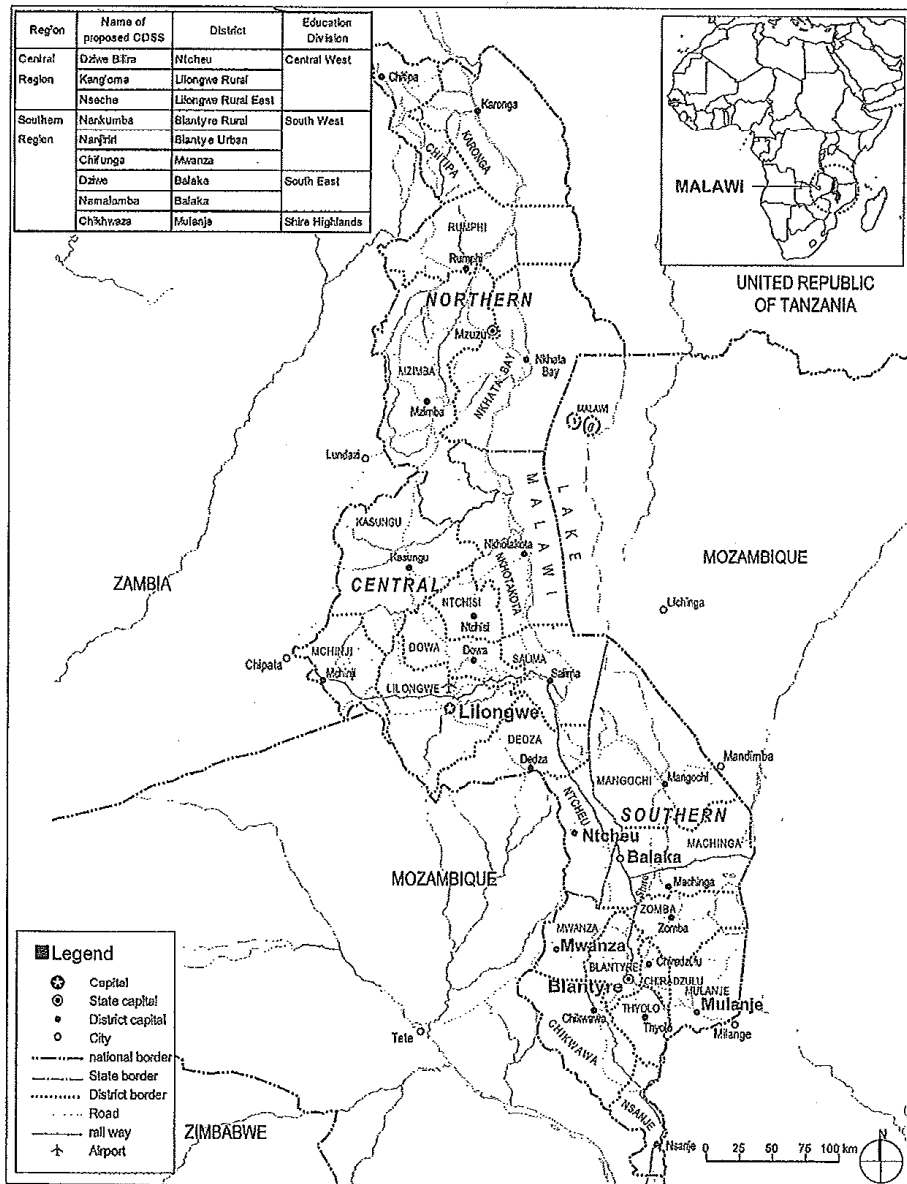
- ANNEX 1: Site Location Map of the Proposed Sites for the Project
- ANNEX 2: Criteria of Selecting the Project Sites and the Candidate Schools
- ANNEX 3: Organizational Chart of MOEST
- ANNEX 4: Grant Aid for Community Empowerment of the Government of Japan
- ANNEX 5: Implementation Flow of Japan's Grant Aid for Community Empowerment after E/N and G/A
- ANNEX 6: Flow Chart of Japan's Grant Aid Procedures for Community Empowerment
- ANNEX 7: Flow of Funds for implementation under the Japan's Grant Aid for Community Empowerment
- ANNEX 8: Major Undertakings to be Taken by Each Government



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### Annex 1 Site Location Map of the Proposed Sites for the Project



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## ANNEX 2

### Criteria of Selecting the Project Sites and the Candidate Schools

#### [Minimum requirements]

1. MOEST (or Divisional Education Office) can present (an) effective official document(s) that verify its ownership or land-use right over the site.
2. There is no other plan of renovation/rehabilitation/extension of the candidate schools, which is supported either by the Government or other development partners.
3. There is no serious risk of being damaged by natural disasters (or no record of such damages) and no security concerns around the site.
4. There are no hindrances or difficulties for construction and supervision in terms of physical access to the site, working space, geographical conditions, etc.
5. Enrollment demand for the candidate school is high enough to be considered for re-construction or extension.
6. MOEST can make a commitment on securing sufficient government budget and allocate it to the candidate schools.

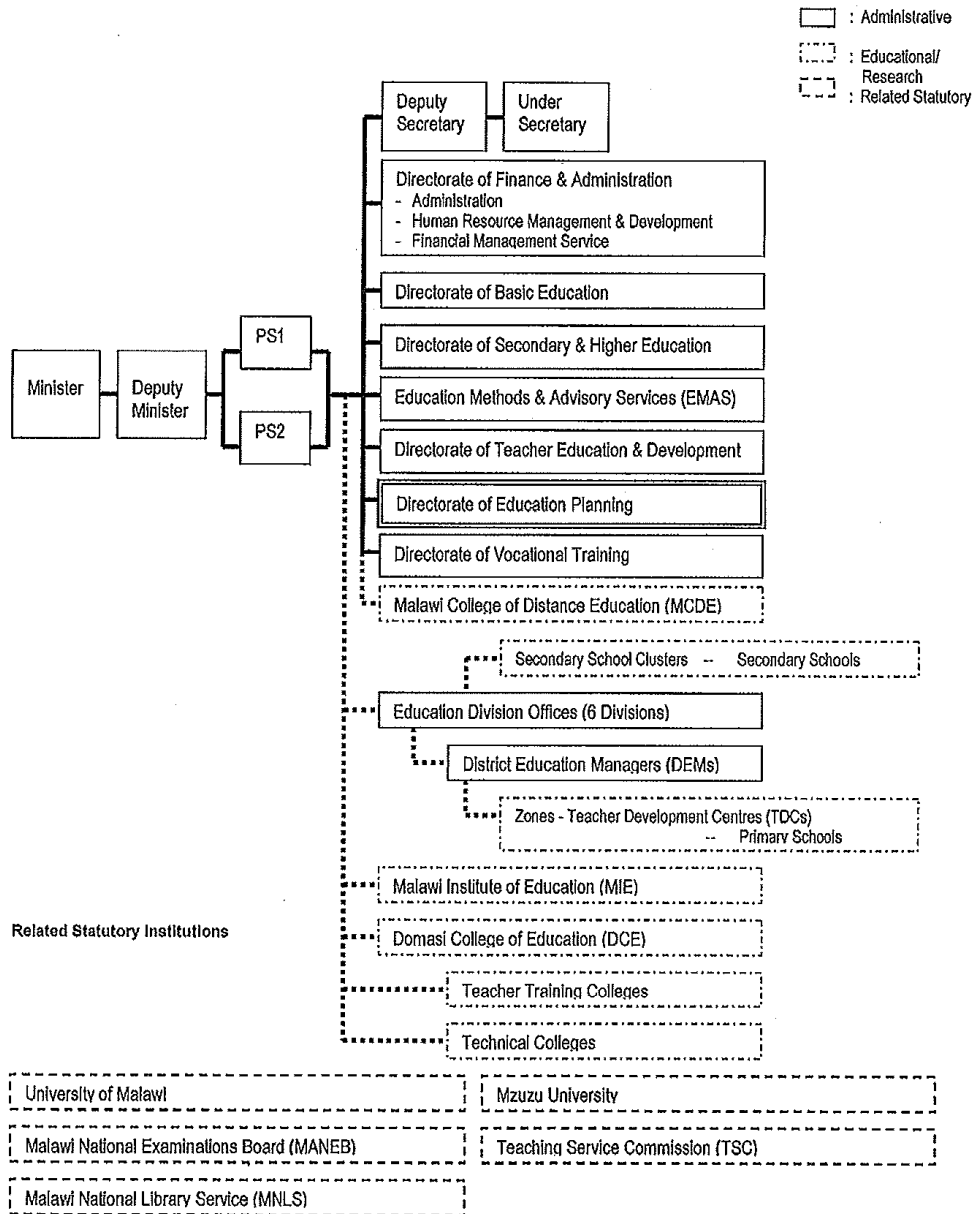
#### [Criteria of prioritizing several candidate schools]

The candidate school should be prioritized if;

1. it lacks enough number of permanent buildings with emphasis on classrooms,
2. the number of students per classroom is over the government's standard (40 per classroom), and
3. it might be designated as the local training center for In-Service Training (e.g. SMASSE) in the future.



**ANNEX 3 Organization Charts of the Ministry of Education, Science and Technology (MoEST)**



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ANNEX 4

**Grant Aid for Community Empowerment**  
**of the Government of Japan**  
(Provisional)

The Government of Japan (hereinafter referred to as “the GOJ”) is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, the new JICA law was entered into effect on October 1, 2008. Based on the law and the decision of the Government of Japan (hereinafter referred to as “the GOJ”), JICA has become the executing agency of Grant Aid for Community Empowerment (hereinafter referred to as “GACE”).

The Grant Aid provides the government of a recipient country (hereinafter referred to as “the Recipient”) with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

**1. Procedures for GACE**

GACE is executed through the following procedures.

Application	Request made by a recipient country
Survey	Preparatory Survey conducted by JICA
Appraisal & Approval	Appraisal by the Government of Japan and JICA, and Approval by the Japanese Cabinet
Determination of Implementation	The Notes (hereinafter referred to as “E/N”) exchanged between the Governments of Japan and the recipient country
Grant Agreement (hereinafter referred to as “the G/A”)	Agreement concluded between JICA and a recipient country
Implementation	Implementation of the Project on the basis of the G/A

Firstly, the application or request for a GACE Project submitted by the Recipient is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for GACE.





Secondly, if the request is deemed appropriate, the Government of Japan entrusts JICA (Japan International Cooperation Agency) to conduct the Preparatory Survey, using a Japanese consulting firm.

Thirdly, the Government of Japan and JICA appraise the Project to see whether or not it is suitable for Japan's GACE, based on the Preparatory Survey report prepared by JICA, and the results are then submitted to the Japanese Cabinet for approval.

Fourthly, the Project, once approved by the Cabinet, becomes official with the Exchange of Notes (E/N) signed by the Governments of Japan and the Recipient.

Simultaneously, the Grant will be made available by concluding a Grant Agreement (hereinafter referred to as "G/A") between the Government of the Recipient Country or its designated authority and the Japan International Cooperation Agency (JICA). JICA is designated by the Government of Japan as an organization responsible for the proper execution of the Grant.

Procurement Agent ("the Agent") is designated to conduct the procurement services of products and services (including fund management, preparing tenders, contracts and so on) for GACE on behalf of the Recipient. The Agent is an impartial and specialized organization and shall render services according to the Agent Agreement with the Recipient. The Agent is recommended to the Recipient by the Government of Japan and agreed between the two Governments in the Agreed Minutes ("A/M").

## 2. Preparatory Survey

### 1) Contents of the Survey

The aim of the Preparatory Survey ("the Survey"), conducted by JICA on a requested Project ("the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan and JICA. The contents of the Survey are as follows:

- (1) Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies and communities concerned of the recipient country necessary for the Project's implementation;
- (2) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme for Community Empowerment from a technical, social and economic point of view;
- (3) Confirmation of items agreed upon by both parties concerning the basic concept of the Project;
- (4) Preparation of an outline design of the Project ;
- (5) Estimation of cost for the Project ; and



(6) Preparation of reference documents for tender.

The contents of the original request by the Government of the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Outline Design of the Project is confirmed considering the guidelines of Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Survey, JICA uses registered consulting firms. JICA selects firms based on the proposals submitted by interested firms. The firms selected carry out a Preparatory Survey and write a report, based upon terms of reference set by JICA. The consulting firms used for the Survey shall be nominated as a responsible Japanese consultant (hereinafter referred to as "the Japanese Consultant") for proceeding construction supervision for the Project under the Agent in order to maintain technical consistency. The Japanese Consultant shall organize an appropriate construction supervision team utilizing local consultants.

3) Result of the Survey

The Report on the Survey is reviewed by JICA. The appropriateness and feasibility of the Project is confirmed, JICA recommends the GOJ to appraise the implementation of the Project.

3. Implementation of GACE after the E/N and G/A

1) Exchange of Notes (E/N) and Grant Agreement (G/A)

After the project approved by the Cabinet of Japan, the E/N will be signed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient

country, and procurement conditions.

2) Procedural details

Procedural details on the procurement of products and services under GACE will be agreed upon between the Recipient and JICA at the time of the signing of the G/A. Essential points to be agreed upon are outlined as follows:

- a) JICA executes the Grant by making payments of the amount agreed upon in the E/N and pays serious attention to ensure the accountability on proper and effective use of the Grant for the Project.
- b) The products and services shall be procured and provided in accordance with "Procurement Guidelines of Japan's Grant Aid for Community Empowerment (Type I - C)".
- c) The Government of the recipient country shall conclude an employment contract with the Agent.
- d) The Government of the recipient country shall designate the Agent as the representative acting in the name of the Government of the recipient country concerning all transfers of funds to the Agent.

3) Focal Points of JICA's "Procurement Guidelines of Japan's Grant Aid for Community Empowerment (Type I - C)"

a) The Agent

The Agent is the organization which provides procurement services of products and services on behalf of the Recipient according to the Agent Agreement with the Recipient. The Agent is recommended to the Recipient by the Government of Japan and agreed between the two Governments in the A/M.

b) Agent Agreement

The Recipient shall conclude an Agent Agreement, within two (2) months after the date of entry into force of the G/A, in accordance with the A/M. The scope of the Agent's services shall be clearly specified in the Agent Agreement.

c) Approval of the Agent Agreement

The Agent Agreement, which is prepared as two identical documents, shall be submitted to JICA by the Recipient through the Agent. JICA confirms whether or not the Agent Agreement is concluded in conformity with the E/N, the G/A, and the JICA's Procurement Guidelines of Japan's Grant Aid for Community Empowerment,

and approves the Agreement. The Agent Agreement concluded between the Recipient and the Agent shall become effective after the approval by JICA in a written form.

d) Payment Methods

The Agent Agreement shall stipulate that "regarding all transfers of the fund to the Agent, the Recipient shall designate the Agent to act on behalf of the Recipient and issue a Blanket Disbursement Authorization ("the BDA") to conduct the transfer of the fund (Advances) to the Procurement Account from the Recipient Account."

The Agent Agreement shall clearly state that the payment to the Agent shall be made in Japanese yen from the Advances and that the final payment to the Agent shall be made when the total Remaining Amount becomes less than 3 % of the Grant and its accrued interest excluding the Agent's fees.

e) Products and Services Eligible for Procurement

Products and services to be procured shall be selected from those defined in the G/A.

f) Firms

In principle, the consultant firm who carried out the Preparatory Survey will be recommended by JICA to the recipient country as the supervisor of the Project's implementation after the E/N and the G/A signing, in order to maintain technical consistency. Besides, consultants of any nationality will be contracted for detailed design study and supervising works. Firms of any nationality could be contracted as contractors and suppliers as long as the firm satisfies the conditions specified in the tender documents.

g) Method of Procurement

In implementing procurement, sufficient attention shall be paid so that there is no unfairness among tenderers who are eligible for the procurement of products and services. For this purpose, competitive tendering shall be employed in principle.

h) Tender Documents

The tender documents should contain all information necessary to enable tenderers to prepare valid offers for the products and services to be procured by GACE. The

rights and obligations of the Recipient, the Agent and the Suppliers of the products and services should be stipulated in the tender documents to be prepared by the Agent. Besides this, the tender documents shall be prepared in consultation with the Recipient.

i) Pre-qualification Examination of Tenderers

The Agent may conduct a pre-qualification examination of tenderers in advance of the tender so that the invitation to the tender can be extended only to eligible firms. The pre-qualification examination should be performed only with respect to whether or not the prospective tenderers have the capability of accomplishing the contracts concerned without fail. In this case, the following points should be taken into consideration:

- (1) Experience and past performance in contracts of a similar kind;
- (2) Property foundation or financial credibility; and
- (3) Existence of offices, etc. to be specified in the tender documents.

j) Tender Evaluation

The tender evaluation should be implemented on the basis of the conditions specified in the tender documents. Those tenders, which substantially conform to the technical specifications, and are responsive to other stipulations of the tender documents, shall be judged in principle on the basis of the submitted price, and the tenderer who offers the lowest price shall be designated as the successful tenderer.

The Agent shall prepare a detailed tender evaluation report clarifying the reasons for the successful tender and the disqualification and submit it to the Recipient to obtain confirmation before concluding the contract with the successful tenderer. The Agent shall, before a final decision on the awards is made, furnish JICA with a detailed evaluation report of tenders, giving the reasons for the acceptance or rejection of tenders.

k) Additional Procurement

If there is an additional procurement fund after competitive and / or selective tendering and / or direct negotiation for a contract, and the Recipient would like an additional procurement, the Agent is allowed to conduct an additional procurement, following the points mentioned below:

- (1) Procurement of the same products and services

When the products and services to be additionally procured are identical with the initial tender and a competitive tendering is judged to be disadvantageous, the additional procurement can be implemented by a direct contract with the successful tenderer of the initial tender.

(2) Other procurements

When products and services other than those mentioned above in (1) are to be procured, the procurement should be implemented through a competitive tendering. In this case, the products and services for additional procurement shall be selected from among those in accordance with the E/N and the G/A.

l) Conclusion of the Contracts

In order to procure products and services in accordance with the G/A, the Agent shall conclude contracts with firms selected by tendering or other methods.

m) Terms of Payment

The contract shall clearly state the terms of payment. The Agent shall make payment from the "Advances", against the submission of the necessary documents from the Firm on the basis of the conditions specified in the contract, after the obligations of the Firm have been fulfilled. When the services are the object of procurement, the Agent may pay certain portion of the contract amount in advance to the firms on the conditions that such firms submit the advance payment guarantee worth the amount of the advance payment to the Agent.

4) Major Undertakings to be taken by the Government of the recipient country

(a) In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as the following:

- (1) to secure lots of land necessary for the implementation of the Project and to clear the sites ;
- (2) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the sites referred to in (a) above;
- (3) to ensure prompt customs clearance and to assist internal transportation in the recipient country and to assist internal transportation therein of the products;



(4) to ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the Components as well as the employment of the Agent be exempted/be borne by its designated authority without using the Grant and its accrued interest;

(5) to accord Japanese nationals and / or nationals of third countries, including such nationals employed by the Agent, whose services may be required in connection with the supply of the Components such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work (The term "nationals" whenever used in the G/A means Japanese physical persons or Japanese juridical persons controlled by Japanese physical persons in the case of Japanese nationals, and physical or juridical persons of third countries in the case of nationals of third countries.);

(6) to ensure that the Facilities and the Components be maintained and used properly and effectively for the implementation of the Project;

(7) to bear all the expenses, other than those covered by the Grant and its accrued interest, necessary for the implementation of the Project; and

(8) to give due environmental and social consideration in the implementation of the Project.

(b) Upon the request of JICA, the Recipient shall provide JICA with necessary information on the Project.

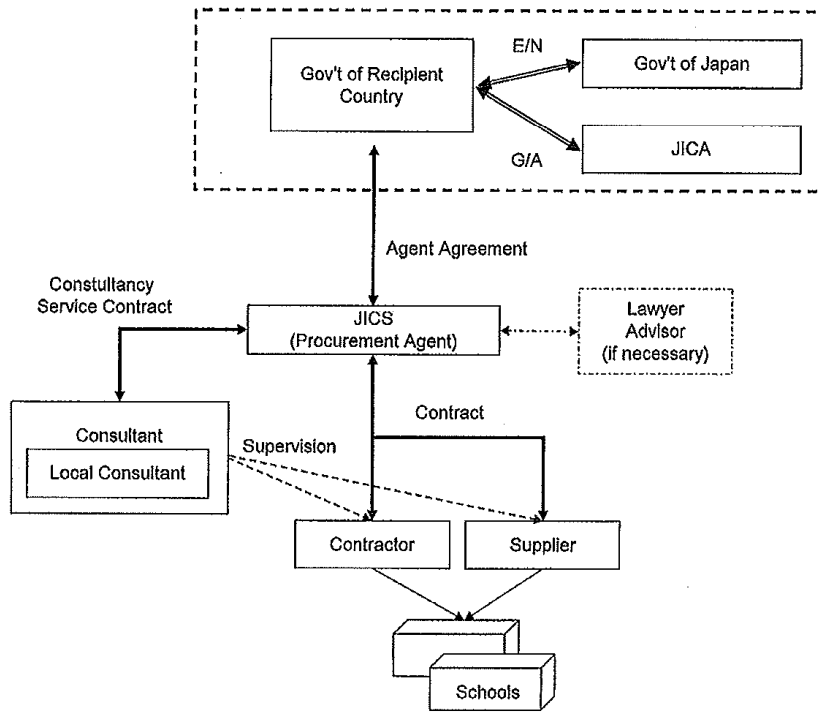
(c) With regard to the shipping and marine insurance of the products procured by the Project, the Recipient shall refrain from imposing any restrictions that may hinder fair and free competition among the shipping and marine insurance companies.

(d) The products procured by the Project shall not be exported or re-exported from the recipient country.

(e) The Recipient shall ensure that any official of its government does not undertake any part of the Japanese nationals' work and / or the work of nationals of third countries on purchase of the Components.



ANNEX 5 Implementation Flow of Japan's Grant Aid for Community Empowerment after E/N and G/A



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Annex 6 Flow Chart of Japan's Grant Aid Procedures for Community Empowerment

Stages	Flow & Works	Recipient Government	Japanese Government	JICA	JCS(Agent)	Consultant	Contractor	Others
Application	Request ↓ Screening of Project ↓ Evaluation of TOR ↓ Project Identification Survey (TOR: Terms of Reference)	○						
(Project Formulation & Preparation) Field Survey 1 Field Survey 2 Field Survey 3 Field Survey 4	Project's Feasibility under OMCB ↓ Set the Scope of the Project ↓ Explanation of Draft Report ↓ Explanation of Draft Tender Documents ↓ Final Report	○	○	○		○		
Appraisal & Approval	Appraisal of Project ↓ Non-Material Conclusion ↓ Presentation of Draft Notes ↓ Approval by the Cabinet		○					
Implementation	EN (EN: Exchange of Note) ↓ GA (GA: Grant Agreement) ↓ Banking Arrangement ↓ Agmt Agreement ↓ Issuance of BDA (BDA: Budget Disbursement Authorization) ↓ Contract Contract ↓ Decided Design & Tender Documents ↓ Tendering & Evaluation ↓ Construction/Procurement Contract ↓ Construction/Procurement ↓ Operation ↓ Post Evaluation Study	○	○	○	○	○	○	★
Evaluation & Follow up	Ex-Post Evaluation ↓ Follow up	○	○	○				

\* The field survey 4 and appraisal process will be implemented simultaneously.

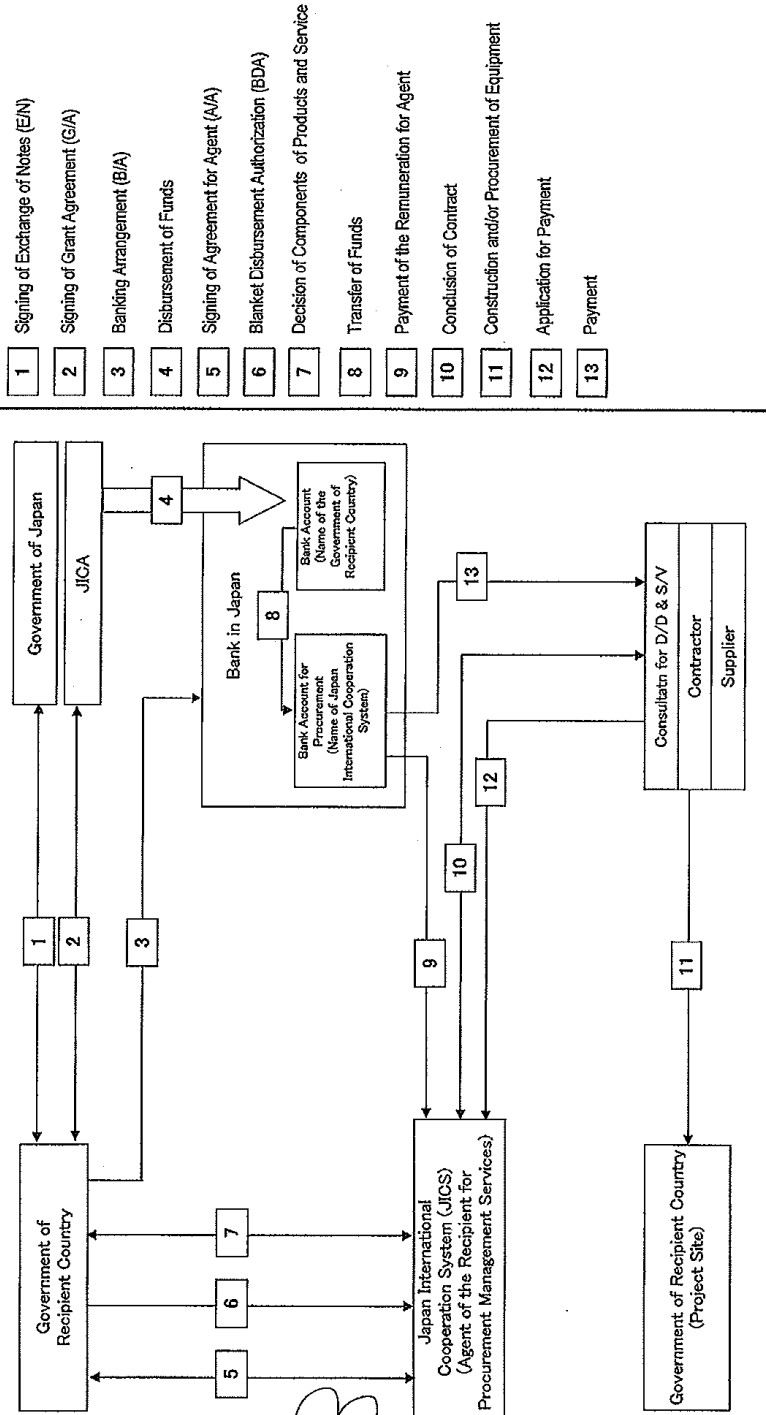
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ANNEX 7 Flow of Funds for Implementation under the Japan's Grant Aid for Community Empowerment



- |    |  |
|----|--|
| 1  | Signing of Exchange of Notes (E/N)             |
| 2  | Signing of Grant Agreement (G/A)               |
| 3  | Banking Arrangement (B/A)                      |
| 4  | Disbursement of Funds                          |
| 5  | Signing of Agreement for Agent (A/A)           |
| 6  | Blanket Disbursement Authorization (BDA)       |
| 7  | Decision of Components of Products and Service |
| 8  | Transfer of Funds                              |
| 9  | Payment of the Remuneration for Agent          |
| 10 | Conclusion of Contract                         |
| 11 | Construction and/or Procurement of Equipment   |
| 12 | Application for Payment                        |
| 13 | Payment  |

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Annex 8 Major Undertakings to be Taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure land		●
2	To clear level and reclaim the site when needed		●
3	To construct gates and fences in and around the site		●
4	To Construct the Parking lot		●
5	To construct roads		
	1) Within the site	●	
	2) Outside the site		●
6	To construct the building	●	
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. The distributing line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm sewer and others to the site)		●
	b. The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project equipment	●	
8	To bear the commissions to the Japanese bank for banking services based upon the B/A		●
9	To ensure prompt customs clearance and to assist internal transportation in the recipient country and to assist internal transportation therein of the products		●
10	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the Components as well as the employment of the Agent be exempted/be borne by its designated authority without using the Grant and its accrued interest.		●
11	To accord Japanese nationals and / or nationals of third countries, including such nationals employed by the Agent, whose services may be required in connection with the supply of the Components such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work (The term "nationals" whenever used in the G/A means Japanese physical persons or Japanese juridical persons controlled by Japanese physical persons in the case of Japanese nationals, and physical or juridical persons of third countries in the case of nationals of third countries.)		●
12	To ensure that the Facilities and the Components be maintained and used properly and effectively for the implementation of the Project		●
13	To bear all the expenses, other than those covered by the Grant and its accrued interest, necessary for the implementation of the Project		●
14	To give due environmental and social consideration in the implementation of the Project		●

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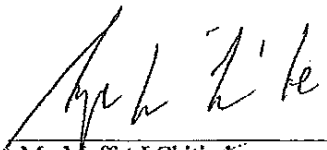
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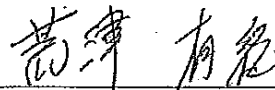
JICA sent to Malawi the Preparatory Survey Team (hereinafter referred to as "the Team"), which is headed by Mr. Yuki ARATSU, Senior Advisor to the Director General for Human Development Department, JICA and is scheduled to stay in the country from November 15, 2009 to December 16, 2009. The Team had a series of discussions with the Malawian officials concerned and conducted field surveys.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets.

Lilongwe, Malawi  
November 30, 2009



Mr. Moffat J Chitimbe  
Principal Secretary  
Ministry of Education, Science and  
Technology  
The Republic of Malawi



Mr. Yuki ARATSU  
Leader  
Preparatory Survey Team  
Japan International Cooperation Agency



## ATTACHMENT

### 1. Objective of the Project

The objective of the Project is to improve learning and teaching environment of secondary education in the selected Community Day Secondary Schools (CDSSs) by re-constructing and expanding their facilities. By achieving this objective, it is expected that the Project would contribute to improving the access to and the quality of secondary education in target areas in the Republic of Malawi, which is stipulated as one of the main targets of "National Education Sector Plan (NESP) 2008 – 2017."

### 2. Project Sites

The Ministry of Education, Science and Technology (hereinafter referred to as "MOEST") agreed that the final candidate schools would be selected from the list below. The selection of the final candidate schools will be made based on the result of this survey and within the budget limitation of the Government of Japan. The order of priority shown below will be taken into consideration when selecting the final candidate schools.

**List of Candidate Schools**

Pr.	Name of School	District	Education Division
1	Chikwaza	Mulanje	Shire Highlands Education Division
2	Dziwe	Balaka	Southern East Education Division
3	Mseche	Lilongwe Rural East	Central West Education Division
4	Namalomba	Balaka	Southern East Education Division
5	Nanjiriri	Blantyre Urban	Southern West Education Division
6	Nankumba	Blantyre Rural	Southern West Education Division

### 3. Project Components requested by the Government of Malawi

After discussions with the Team, the items indicated in ANNEX 1 and ANNEX 2 were finally requested by Malawi side. JICA will further assess the appropriateness of the request and technical and financial feasibility of the Project based on the result of this survey.

1) Construction of Buildings and Facilities

Detailed items are listed in ANNEX 1.

2) Procurement of Equipment

Detailed items are listed in ANNEX 2.

### 4. Japan's Grant Aid Scheme

The Malawi side understands the Japan's Grant Aid for Community Empowerment

and the necessary measures to be taken by the Government of Malawi as explained by the Team and described in the Minutes of Discussions signed by both parties on September 28, 2009. The details of the measures that the Government of Malawi needs to take for each construction site, such as electricity and water supply, will be further assessed and reported to MOEST by the consultants by the end of this survey.

#### **5. Schedule of the Survey and Further Steps**

The consultants will proceed to further studies in Malawi until December 16, 2009. The Team will prepare the draft report of this survey, which includes the outline designs of each school, based on the technical survey by the consultants. The draft report will be presented to MOEST in the middle of April 2010.

After the contents of the report are accepted in principle by the Government of Malawi, JICA will recommend to the Government of Japan for the final approval of the Project. Simultaneously, the Team will proceed to prepare the draft tender documents for the Project.

#### **6. Other Relevant Issues**

##### **1) Basic concept of hostels**

MOEST explained that all secondary schools ideally should have boarding facilities for both boys and girls, considering long distance for commuting to secondary schools and convenience for learning of students who stay at school premises. In particular, MOEST puts a high priority on the construction of girls' hostels in order to encourage more female students to enter and complete secondary education as stipulated in NESP. Considering MOEST's policy and the limitation of the budget for the Project, both sides agreed that each selected CDSS would have boarding facilities only for female students with the provision of future expansion regarding boys' hostels. The capacity of the boarding facility will be further examined by the Team referring to the case of similar CDSSs, where were provided girls hostels by MOEST.


##### **2) Selection of students**

The Team emphasized that the selected CDSSs for the Project should serve their neighboring communities in principle, even after their enrollment capacity will be expanded by the Project. Both sides shared the view that it is necessary to give a priority to eligible students who are graduated from the feeder schools of each school, in order to encourage local students' enrollment.

**END**

**ANNEX 1: The List of Components and Facilities for Each Candidate School**

**ANNEX 2: The List of Equipment**



ANNEX1: The List of Components and Facilities for Each Candidate Schools

Candidate Schools (in order of priority)	Buildings										External Works			Infrastructures				
	Classroom 2Rooms /Block	Laboratory/ 2Rooms /Block	Administ- ration /Library	Toilet /Lanline	Boys' Hostel 5person /Block	Girls' Hostel 5person /Block	Dining/Hall /Kitchen	Staff House Zhouses /Block	Wall Fence/ Pati & Pave.	Sports Ground	Planting	Escom Connection	Solar Panel	City Water Connection	Borehole	Other incidental facilities, equipment		
1 Chidiwaza CDSS /SEED	A (2)	A (1)	A (1)	A (5)	C (2)	A (2)	A (1)	A (4)	B	GOM	GOM	—	—	A	A			
2 Dzawe CDSS /SEED	A (2)	A (1)	A (1)	A (5)	C (2)	A (2)	A (1)	A (4)	B	GOM	GOM	—	—	A	A			
3 Maseche CDSS /CWED	A (2)	A (1)	A (1)	A (5)	C (2)	A (2)	A (1)	A (4)	B	GOM	—	A	—	A	A			
4 Nanalomba CDSS /SEED	A (2)	A (1)	A (1)	A (5)	C (2)	A (2)	A (1)	A (4)	B	GOM	—	A	GOM	—	A			
5 Nagiri CDSS /SWED	A (3)	A (1)	A (1)	A (5)	—	—	—	C (1)	B	GOM	GOM	—	GOM (Check Water Pressure)	—	A			
6 Nankamba CDSS /SWED	A (2)	A (1)	A (1)	A (5)	—	—	—	C (1)	B	GOM	GOM	—	GOM	—	A			

Remarks: A : Highest priority as essential facility.  
 B : Second highest priority as necessary facility.  
 C : Third highest priority as necessary facility.  
 GOM : To be covered by Malawi Government

ANNEX 2: The list of Equipment

Biology

No.	ITEM	DESCRIPTION	Quantity
1	Microscope	Student range, student inclined type	10
2	Microscope slides	1.0-1.2 mm thick. Size 76 x 26mm. Boxes of 72 pcs.	5
3	Cover slips	Number 1.5. Thickness 0.160/0.190mm, 40 x 22mm, Box of 100	10
4	Specimen prepared	Blood sample, chromosome, etc.	5
5	Dissecting set	Comprising dish, scissors, pin, scalpel, tweezers, etc.	5
6	Hand lens	Approx. 75mm, focal length approx. 250mm	10
7	Evaporating Basin	Porcelain, round bottom, capacity 50ml or more	5
8	Test tube stand	Single row of holes with pegs, hole 20mm, 12 holes	10
9	Test tube	Glass 125mm x 16 mm without rim and printing	20
10	Beaker	Glass with gradations, capacity 100ml, 300ml	10
11	Flask, conical	Glass, with gradations, capacity 100ml, 300ml	10
12	Flask, round bottom	Glass, capacity, 200ml, 500ml	5
13	Measuring cylinder	Graduated, Glass, 100 x 1ml, 25 x 0.5ml capacity	10
14	Glass tube	Approx. 6mm x 120cm length or more, pack of 10	10
15	Mirror	Square with frame, 200 x 140mm or more	5
16	Spirit burner	Glass type, capacity 70ml or more	10
17	Human skeleton	Plastic, full size replica fully articulated	1
18	Teeth model	Human teeth set model	1
19	Eye and ear models	Human eye and ear models	1
20	Petri dish	Polystyrene, sterile, single vent. 90mm diameter	10
21	Pressure sterilizer	Small pressure vessel for sterilizing, max. 125°C, capacity Approx. 10L	1
22	Pipettes	Whole pipettes, capa. 20ml, 10ml	5
23	Burner	For LPG or Butane with gas cock and base, accessories: socket, plug and rubber tube	5
24	Photosynthesis appara.	Photosynthesis apparatus	3

Physical Science

25	Test tube stand	Wood, with steel spring for closing jaw, 180mm long	10
26	Test tube	Glass 16 x 125mm without rim and printing	40
27	Wash bottle	Polyethylene, narrow neck, colour, 250ml capacity	10
28	Reagent bottle	Clear/brown glass, narrow neck, glass stopper, capa. 250ml	5
29	Evaporating basin	Porcelain, round bottom, capa. 50ml or more	10
30	Pipette	Class B, 25ml capacity, soda glass	5
31	Dropping pipette	With teat	2
32	Pipette filler	Pi-pump, 25ml capacity	2
33	Spatula	Spoon, stainless steel	10
34	Beaker	Glass with gradations, capa. 100ml, 300ml	10
35	Flask, conical	Glass with gradations, capa. 100ml, 300ml	10
36	Flask, round bottom	Glass, capa. 200ml, 500ml	5
37	Flask, volumetric	Glass, whole gradations, with stopper	5
38	Stirring rod	Dia. 6mm x 200mm or more, glass, pack of 10	10
39	Washing brush	For beakers, flasks, and test tubes	10
40	Funnel	120mm diameter, soda glass, short stem	5
41	Measuring cylinder	Graduated, glass, 100 x 1ml, 25 x 0.5ml capacity	10
42	Thermometer	General purpose, -20 to 105°C, 0 to 360°C, 1 each, mercury	10
43	Thermo-hygrometer	Analog type, temp. -10 to 50°C, humidity 0 to 100%	10
44	Stop watch	LCD digital, upto 9h59min.59.99seconds	5
45	Spring balance	10 x 0.2N, 1x 0.02N, Newton scale	5
46	Optical lens set	Spherical, bi-concave, bi-convex, etc. total 6 kinds	5
47	Prism	Right angle prism, (L)40mm x (T)20mm or more, pair	5
48	Glass tube	Approx. 6mm x 120cm length or more, pack of 10	20
49	Spirit burner	Glass type, capa. 70ml or more	10
50	Rubber stoppers	No 1, 3, 5, 7, 9 10pcs each	5
51	Burner	For LPG with gas cock and base, accessories: socket, plug and rubber tube	5
52	Bunsen burner	For butane/propane gas with 13mm outside diameter, tube, air regulator	10
53	Gauze	Iron wire, square, stainless steel, approx. 150 x 150mm	10
54	Laboratory tool kit	Hammer, Plier, etc. 16 tools or more with case	1
55	Tripod stand	For spirit lamp, gas burner	10
56	Pulley set	Single, double pulley, string and weights, etc.	5
57	Bar magnet	Approx. 150 x 18 x 6mm, in pairs with keepers	5
58	Voltmeter	Analog DC voltmeter, -1~+3V, .5~+15V, .100~+300V	5
59	Ammeter	Analog DC .10~+50mA, .100~+500mA, .1~+5A	5
60	Slide resistor	Single tube, 2A, 30ohms	5
61	Resistor	Carbon film, 1/3 Watts, 2.2ohms, 4.7 ohms, 5.6 ohms	2
62	Electric circuit	Electric circuit board kit (Worcester Circuit board Kit)	2
63	Motor	Small motor/generator unit	2
64	Inclined plane set	Inclined plane, cart, stirrup, weight, etc.	5
65	knife switch	With plastic base, knife-shaped switch, with clips	5
66	Transistor	p-n-p, n-p-n, 1 pc each	5
67	Table balance	Capacity 200g, readability 200mg, with weights	5
68	Periodic table	Chart	2

It should be noted that the Japan's Grant Aid shall not be extended to the procurement of consumable goods, such as textbooks, chemicals for science experiment, and computers and those are excluded from the list shown above.



## ANNEX 2: The list of Equipment

## Biology

No.	ITEM	DESCRIPTION	Quantity
1	Microscope	Student range, student inclined type	10
2	Microscope slides	1.0-1.2 mm thick. Size 76 x 26mm. Boxes of 72 pcs.	5
3	Cover slips	Number 1.5. Thickness 0.160/0.190mm, 40 x 22mm, Box of 100	10
4	Specimen prepared	Blood sample, chromosome, etc.	5
5	Dissecting set	Comprising dish, scissors, pin, scalpel, tweezers, etc.	5
6	Hand lens	Approx. 75mm, focal length approx. 250mm	10
7	Evaporating Basin	Porcelain, round bottom, capacity 50ml or more	5
8	Test tube stand	Single row of holes with pegs, hole 20mm, 12 holes	10
9	Test tube	Glass 125mm x 16 mm without rim and printing	20
10	Beaker	Glass with gradations, capacity 100ml, 300ml	10
11	Flask, conical	Glass, with gradations, capacity 100ml, 300ml	10
12	Flask, round bottom	Glass, capacity, 200ml, 500ml	5
13	Measuring cylinder	Graduated, Glass, 100 x 1ml, 25 x 0.5ml capacity	10
14	Glass tube	Approx. 6mm x 120cm length or more, pack of 10	10
15	Mirror	Square with frame, 200 x 140mm or more	5
16	Spirit burner	Glass type, capacity 70ml or more	10
17	Human skeleton	Plastic, full size replica fully articulated	1
18	Teeth model	Human teeth set model	1
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20	Petri dish	Polystyrene, sterile, single vent. 90mm diameter	10
21	Pressure sterilizer	Small pressure vessel for sterilizing, max. 125°C, capacity Approx. 10L	1
22	Pipettes	Whole pipettes, capa. 20ml, 10ml	5
23	Burner	For LPG or Butane with gas cock and base, accessories: socket, plug and rubber tube	5
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## Physical Science

25	Test tube stand	Wood, with steel spring for closing jaw, 180mm long	10
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28	Reagent bottle	Clear/brown glass, narrow neck, glass stopper, capa. 250ml	5
29	Evaporating basin	Porcelain, round bottom, capa. 50ml or more	10
30	Pipette	Class B, 25ml capacity, soda glass	5
31	Dropping pipette	With teat	2
32	Pipette filler	Pi-pump, 25ml capacity	2
33	Spatula	Spoon, stainless steel	10
34	Beaker	Glass with gradations, capa. 100ml, 300ml	10
35	Flask, conical	Glass with gradations, capa. 100ml, 300ml	10
36	Flask, round bottom	Glass, capa. 200ml, 500ml	5
37	Flask, volumetric	Glass, whole gradations, with stopper	5
38	Stirring rod	Dia. 6mm x 200mm or more, glass, pack of 10	10
39	Washing brush	For beakers, flasks, and test tubes	10
40	Funnel	120mm diameter, soda glass, short stem	5
41	Measuring cylinder	Graduated, glass, 100 x 1ml, 25 x 0.5ml capacity	10
42	Thermometer	General purpose, -20 to 105°C, 0 to 360°C, 1 each, mercury	10
43	Thermo-hygrometer	Analog type, temp. -10 to 50°C, humidity 0 to 100%	10
44	Stop watch	LCD digital, upto 9h59min.59.99seconds	5
45	Spring balance	10 x 0.2N, 1x 0.02N, Newton scale	5
46	Optical lens set	Spherical, bi-concave, bi-convex, etc. total 6 kinds	5
47	Prism	Right angle prism, (L)40mm x (T)20mm or more, pair	5
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53	Gauze	Iron wire, square, stainless steel, approx. 150 x 150mm	10
54	Laboratory tool kit	Hammer, Plier, etc. 16 tools or more with case	1
55	Tripod stand	For spirit lamp, gas burner	10
56	Pulley set	Single, double pulley, string and weights, etc.	5
57	Bar magnet	Approx. 150 x 18 x 6mm, in pairs with keepers	5
58	Voltmeter	Analog DC voltmeter, -1~+3V, -5~+15V, -100~+300V	5
59	Ammeter	Analog DC -10~+50mA, -100~+500mA, -1~+5A	5
60	Slide resistor	Single tube, 2A, 30ohms	5
61	Resistor	Carbon film, 1/3 Watts, 2.2ohms, 4.7 ohms, 5.6 ohms	2
62	Electric circuit	Electric circuit board kit (Worcester Circuit board Kit)	2
63	Motor	Small motor/ generator unit	2
64	Inclined plane set	Inclined plane, cart, stirup, weight, etc.	5
65	knife switch	With plastic base, knife-shaped switch, with clips	5
66	Transistor	p-n-p, n-p-n, 1 pc each	5
67	Table balance	Capacity 200g, readability 200mg, with weights	5
68	Periodic table	Chart	2

It should be noted that the Japan's Grant Aid shall not be extended to the procurement of consumable goods, such as textbooks, chemicals for science experiment, and computers and those are excluded from the list shown above.

4-3 概略設計概要説明調査

**MINUTES OF DISCUSSIONS**  
**ON**  
**PREPARATORY SURVEY**  
**(EXPLANATION OF DRAFT REPORT)**  
**ON**  
**THE PROJECT FOR RE-CONSTRUCTION AND EXPANSION**  
**OF**  
**SELECTED COMMUNITY DAY SECONDARY SCHOOLS (CDSSs)**  
**IN**  
**THE REPUBLIC OF MALAWI**


From September 2009 to December 2009, the Japan International Cooperation Agency (hereinafter referred to as "JICA") had conducted two field surveys as a part of the Preparatory Survey on the Project for Re-construction and Expansion of Selected Community Day Secondary Schools (CDSSs) (hereinafter referred to as "the Project") in the Republic of Malawi. Based on the results of these field surveys and subsequent technical examination conducted in Japan, JICA prepared the Draft Preparatory Survey Report.

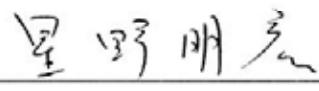
In order to explain the contents of the report and discuss with the officials concerned of the Government of Malawi, JICA sent the Survey Team (hereinafter referred to as "the Team"), which was headed by Mr. Akihiko Hoshino, Deputy Representative of JICA Malawi Office, from 24<sup>th</sup> April to 9<sup>th</sup> May 2010.

As a result of discussions, both sides have confirmed the main items described in the attached sheet.

Lilongwe, Malawi

30 April 2010

  
Bernard H. Sande  
Secretary for Education, Science and Technology  
Ministry of Education, Science and Technology  
The Republic of Malawi

  
Akihiko Hoshino  
Leader,  
Preparatory Survey Team  
Japan International Cooperation Agency (JICA)

## ATTACHMENT

### 1. Contents of the Draft Report

The Malawian side agreed and accepted in principle the contents of the draft report as explained by the Team.

### 2. Japan's Grant Aid Scheme and Major Undertakings

The Malawian side understood the Japan's Grant Aid Scheme, and the Malawian side assured that it shall take necessary measures, as described in ANNEX-8 of the Minutes of Discussion signed by both parties on September 28<sup>th</sup>, 2009. Particularly, the Malawian side ensured that it would complete the site clearance before the commencement of construction works (around the middle of April 2011) at all sites and acquire the necessary certificate for the construction at Nanjiriri before the public notice of procurement.

### 3. Final Report of the Preparatory Survey

JICA will complete the final report in accordance with the result of discussions and forward it to the Malawian side by the end of September 2010.

### 4. Confidentiality of the Information Related to the Project

Both sides confirmed that all information related to the Project including design documents of facilities and furniture shall not be released to any outside parties before concluding all contracts for the Project. Furthermore, both sides agreed that the estimated cost of the Project as described in ANNEX-1 shall never be duplicated or released to any outside parties before concluding all contracts for the Project.

### 5. Other relevant issues

#### 5-1. Components and Facilities Covered by the Project

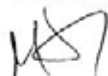
Both sides agreed on the list of components and facilities for each candidate schools to be covered by the Project as shown in ANNEX-2. The Malawian side agreed that the Japanese side would make a final decision on this matter through further study in Japan.

#### 5-2. Project Cost Estimation

The Malawian side understood that the Project cost estimation described in ANNEX-1 was not final at this stage and would be set and approved by the Government of Japan after thorough examinations.

#### 5-3. Allocation of Necessary Budget and Personnel

The Malawian side agreed to allocate necessary budget and personnel for the proper operation and maintenance of the facilities to be covered by the Project. Particularly, the Malawian side understood that it needs to register all schools covered by the Project as Cost



1 ah

Centres in order to facilitate the smooth budget allocation.

**5-4. Proper Use and Maintenance**

Both sides understood that proper use and maintenance of the facilities was indispensable for their long-term use. The Malawian side assured the Team that it would facilitate the proper use and maintenance of the facilities in the schools to be covered by the Project with the active involvement of concerned parties such as Education Division Managers and head masters, and other concerned organizations.

ANNEX-1 Project cost estimation

ANNEX-2 School and Facilities to be covered by the Project

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ANNEX-2 School and Facilities to be covered by the Project

Candidate Schools (in order of priority)	Buildings								External Works				Infrastructures				Equipment	
	Classroom 2/Rooms /Block	Laboratory 2/Rooms /Block	Administ- ration /Library	Toilet /Latrine	Girls' Hostel 80person /Block	Dining-Hall /Kitchen	Staff House 2houses /Block	Wall Fence/ Path & Pave.	Sports Ground	Planting	Escom Connection	Solar Panel Connection	City Water Connection	Borehole	Other incidental facilities, equipment	Educational Furniture	Laboratory equipment	
1 Chikhwaza CDSS /S/IED	A (2)	A (1)	A (1)	A (5)	A (2)	A (1)	B (4)	GoM	GoM	GoM	—	—	A	A	A	A		
2 Dzwe CDSS /S/IED	A (2)	A (1)	A (1)	A (5)	A (2)	A (1)	B (4)	GoM	GoM	GoM	—	—	A	A	A	A		
3 Mesche CDSS /S/IED	A (2)	A (1)	A (1)	A (5)	A (2)	A (1)	B (4)	GoM	GoM	—	A	—	A	A	A	A		
4 Namatombi a CDSS /S/IED	A (2)	A (1)	A (1)	A (5)	A (2)	A (1)	B (4)	GoM	GoM	—	A	—	A	A	A	A		
5 Nanjiri CDSS /S/IED	A (3)	A (1)	A (1)	A (8)	—	—	—	GoM	GoM	GoM	—	GoM	—	A	A	A		
6 Nankumbi CDSS /S/IED	A (2)	A (1)	A (1)	A (5)	—	—	—	GoM	GoM	GoM	—	GoM	—	A	A	A		

Remarks: A : Highest priority as essential facility.  
B : Second highest priority as necessary facility.  
GoM : To be covered by Malawi Government

## 5. 入手資料リスト

	資料名	発行年	種類	発行/著作者
1	Education Sector Implementation Plan- Towards Quality Education: Implementing the National Education Sector Plan 2009-2013	2009.9	データ	Ministry of Education, Science and Technology
2	National Education Sector Plan 2008-2017 (Ultimate Document)	2008.10	データ	Ministry of Education, Science and Technology
3	Quarterly Progress Report - 2008/09 2nd/3rd/4th Quarter	2009	データ	Ministry of Education, Science and Technology
4	Education Management Information System- Consolidated Data+ Data Manager (2008)	2008.11	データ	Ministry of Education, Science and Technology
5	Education Statistics 2008	2008.11	書籍	Ministry of Education, Science and Technology
6	Malawi/ADF Education IV Secondary Schools Quarterly Progress Report No.17 April to June 2009	2009.7	コピー	Ministry of Education, Science and Technology
7	Schedule of Established Offices With Effect from 1st July 2009 Secretary for Human Resource Management and Development	2009.10	コピー	Ministry of Education, Science and Technology
8	Statistical Yearbook 2008	2009	書籍	National Statistical Office
9	2008 Population and Housing Census Preliminary Report	2009	書籍	National Statistical Office
10	Quarterly Statistical Bulletin- June 2009	2009	書籍	National Statistical Office
11	Public Procurement Act No.8 of 2003	2003	書籍	Office of the Director of Public Procurement
12	Public procurement regulations	2004	書籍	Office of the Director of Public Procurement
13	Desk Instruction for public Procurement	2004	書籍	Office of the Director of Public Procurement
14	Standard Bidding Document for the Procurement of Works		データ	Office of the Director of Public Procurement
15	User Guide to the Standard Bidding Document for the Procurement of Works		データ	Office of the Director of Public Procurement
16	Standard Bidding Document for the Procurement of Goods		データ	Office of the Director of Public Procurement
17	User Guide to the Standard Bidding Document for the Procurement of Goods		データ	Office of the Director of Public Procurement
18	Standard Bidding Document for the Procurement of Consultancy Service		データ	Office of the Director of Public Procurement
19	User Guide to the Standard Bidding Document for the Procurement of Consultancy Service		データ	Office of the Director of Public Procurement
20	Bidding Document for the Procurement of Goods by National Competitive Bidding		コピー	Ministry of Education, Science and Technology Special Procurement unit

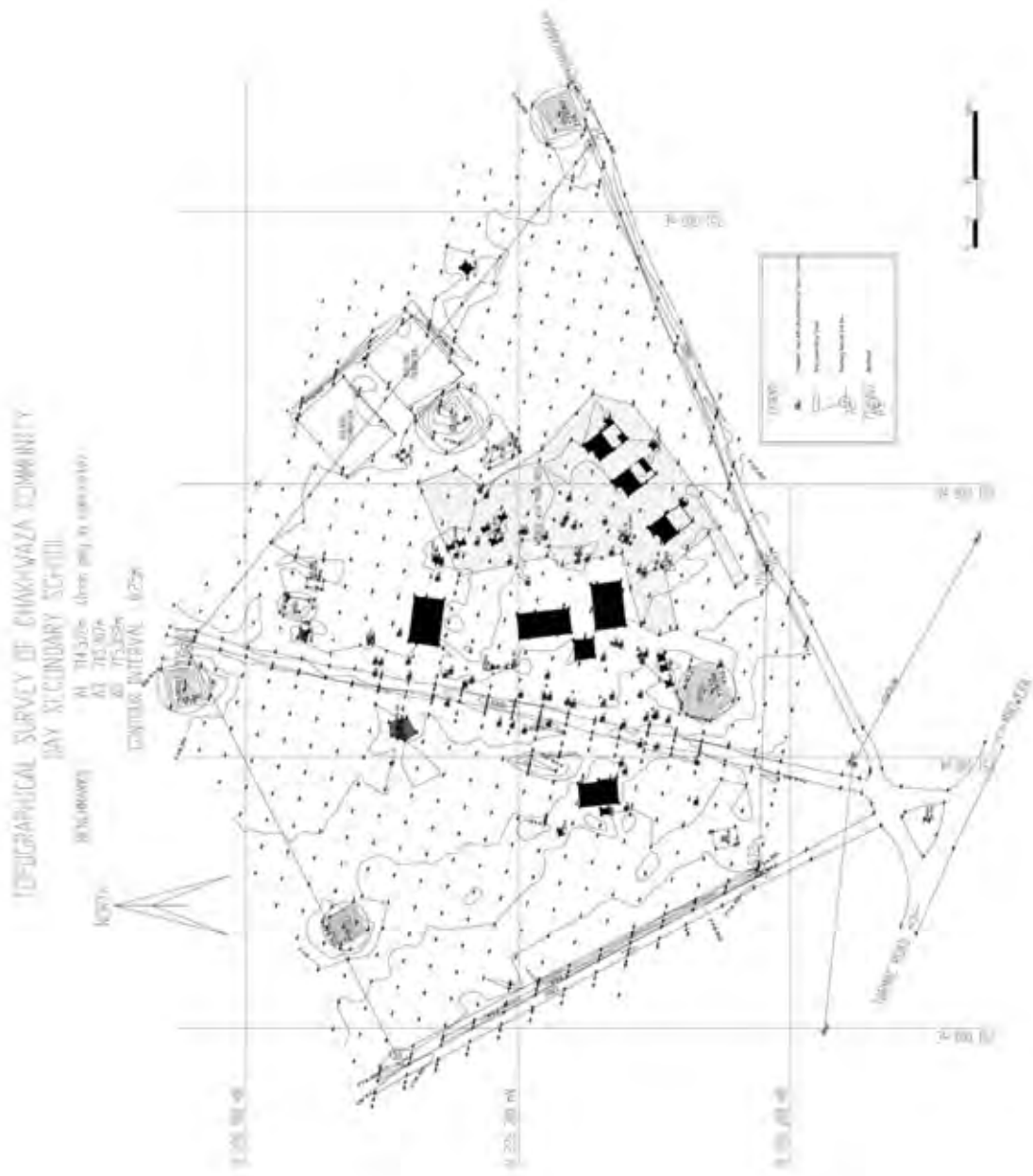
	資料名	発行年	種類	発行/著作者
21	Lump Sum Consultancy_Request for Proposal		PDF	Building Department of MoTPW
22	Complex Time Based Consultancy_Request for Proposal		PDF	Building Department of MoTPW
23	Act No.19 of 1996	1996	コピー	National Construction Industry Council
24	Application for Registration as a Consultant	1996	コピー	National Construction Industry Council
25	Application for Registration as a Contractor	1996	コピー	National Construction Industry Council
26	Standard Bidding Documents Malawi/ADF Education V Project Support to Secondary Education	1997	コピー	The African Development Bank
27	Support to Community Day Secondary Schools (Education IV)Mid-term Review and Support to Secondary Education (Education V) Project Supervision Mission	2007	コピー	The African Development Bank
28	ADF V Education Project Lowest/Recommend Bid Price Analys		コピー	The African Development Bank
29	4 <sup>th</sup> ADF Education project. Chichiri Blantyre 3 Drawings		データ	The African Development Bank
30	Chimbowe BQ		データ	The African Development Bank
31	Civil/Structural Engineering Specifications	2006	データ	The African Development Bank
32	Bidding Document Bills of Quantities 抜粋 Thumu, Chiphoola & Lowonde CDSS Luwelezi CDSS, Chikhwaza CDSS	2009	コピー	The African Development Bank :
33	Bidding Document 抜粋 教育家具、実験用機材、コンピューター	2009	コピー	The African Development Bank :
34	EDMU Drawings		データ	EDMU(Word Bank)
35	Request For Proposal and Short list and Evaluation Report for consultants	2005	データ	EDMU(Word Bank)
36	Bid Evaluation Report and Recommendation for Award of Contract shool furniture	2009	データ	EDMU(Word Bank)
37	Bidding Document for the Procurement of Furniture for Blantyre, Dedza, Lilongwe Girls and Muzuzu, Govt Secondary Schools	2009	データ	EDMU(Word Bank)
38	Bid Evaluation Report. Construction of proposed Teachers Training College at Liwonde Township	2007	データ	EDMU(Word Bank)
39	Bid Evaluation Report and Recommendation for Award of Contract for the proposed Teachers Training College at Liwonde Township	2007	データ	EDMU(Word Bank)
40	Contract Document – Volume II Bills of Quantities IDA CREDIT No. 3051 – MAI 抜粋		コピー	EDMU(Word Bank)
41	Town and Country planning Standards and Guidelines for Development	1987	データ	Town and Country Planning Department/Malawi Government,
42	Blantyre City Assembly Building Bylaws		データ	Blantyre City Assembly

	資料名	発行年	種類	発行/著作者
43	Schedule of standard Conditions to be Applied to Planning Approval	1996	データ	Blantyre City Assembly
44	Malawi Standard: Stabilised soil blocks- specification		書籍	Malawi standard board
45	Malawi Standard: burnt bricks- Code of practice for moulding and firing		書籍	Malawi standard board
46	Malawi Standard: Timber, stress graded softwood General structural- specification		書籍	Malawi standard board
47	Malawi Standard: Burnt Bricks - specification		書籍	Malawi standard board
48	Malawi Standard: Mechanical stress grading of softwood timber (flexural method)- code of practice		書籍	Malawi standard board
49	Malawi Standard: Timber, hardwood furniture - specification		書籍	Malawi standard board
50	Malawi Standard: Softwood Joinert Timber - Specification		書籍	Malawi standard board
51	Malawi Standard: Iron sheets, Galvanized - Specification		書籍	Malawi standard board
52	The Geology and the Mineral Resources of Malawi	1973	書籍	Ministry of Forestry and Natural Resources, Geological survey Department
53	Consultancy report for Lilongwe city council for soil investigation in Area 36/1, Lilongwe City		書籍	Ministry of Forestry and Natural Resources, Geological survey Department
54	Geological Map of Malawi	1966	コピー	Ministry of Forestry and Natural Resources, Geological survey Department
55	Mineral construction raw material supply for the Blantyre City region	2005	コピー	Republic of Germany federal Institute for geosciences and natural Resources Hanover
56	State of Stress in East and Southern Africa and Seismic Hazard Analysis of Malawi		コピー	Lostina S. Chapola
57	Budget Document No.2 2008-09 Approved Financial Statement	2009	コピー	Ministry of Finance
58	Budget Document No.3 2009/10 Approved Financial Statement	2009	コピー	Ministry of Finance
59	The Malawi Gazette Supplement Government Notice No.42 Customs and Excise (Tariffs) Order, 2007	2007.12	データ	Malawi Revenue Authority
60	Population and Housing Census 2008 Main Report	2009.9	書籍	National Statistical Office
61	Population and Housing Census 2008 TA population	2009. 12	データ	National Statistical Office
62	地震データ 1901年～2009年		データ	Geological Survey Department
63	気象データ(温度、降雨量、風速)		データ	Blantyre City Assembly



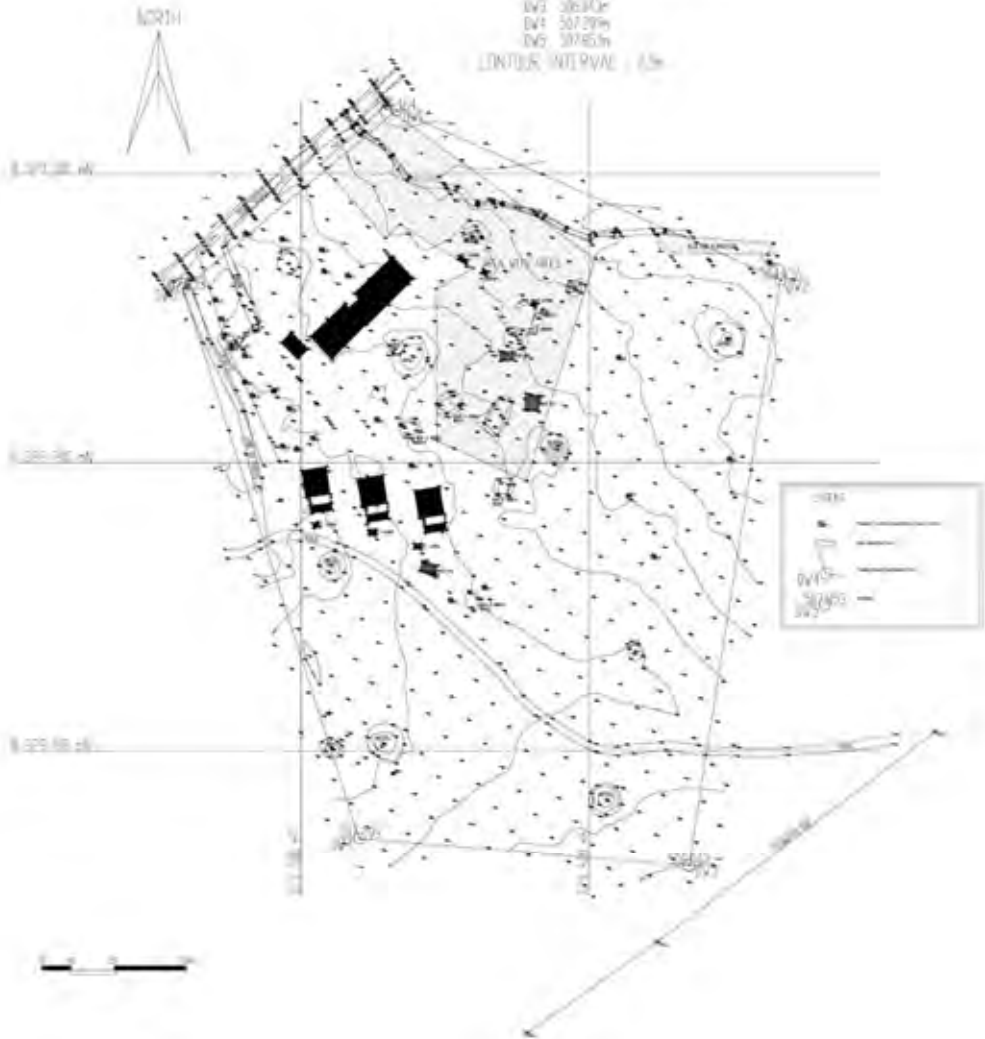
## 6 その他の資料・情報

### □敷地測量図



TOPOGRAPHICAL SURVEY OF DZIWE COMMUNITY  
DAY SECONDARY SCHOOL

BENCHMARK : BM 38104m (level top of concrete)  
 DV1 38455m  
 DV2 38455m  
 DV3 38455m  
 DV4 38729m  
 DV5 38785m  
 CONTOUR INTERVAL : 1.5m



TOPOGRAPHICAL SURVEY OF MSECHE COMMUNITY  
DAY SECONDARY SCHOOL

BENCHMARKS: M1 1151.876, Circle peg at ...  
M2 1152.644  
M3 1162.075  
M4 1151.490  
M5 1153.720

GRID INTERVAL 10m



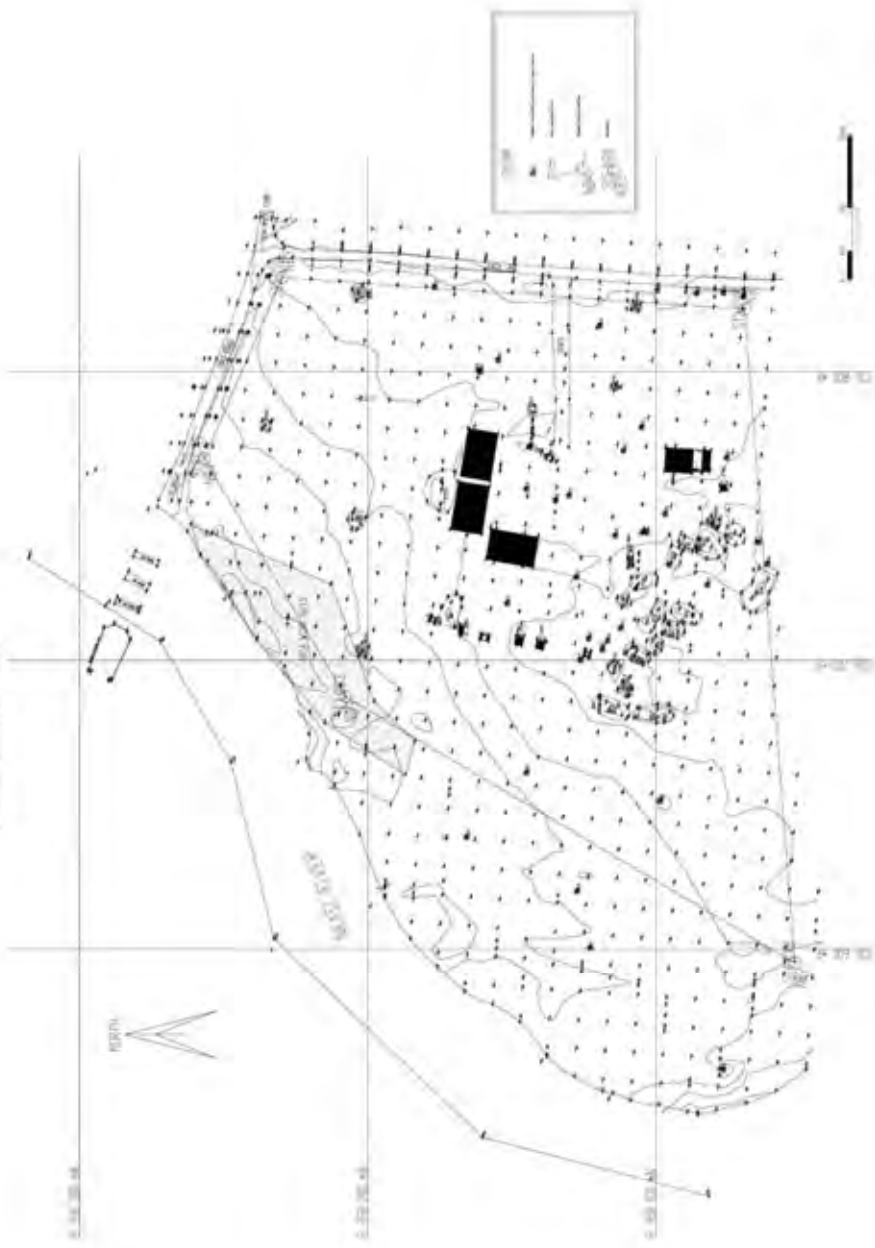
TOPOGRAPHICAL SURVEY OF NAWALTIMBA COMMUNITY  
DAY SECONDARY SCHOOL

DATE: 2024

BY: [Name]

- 1. [Name]
- 2. [Name]
- 3. [Name]
- 4. [Name]

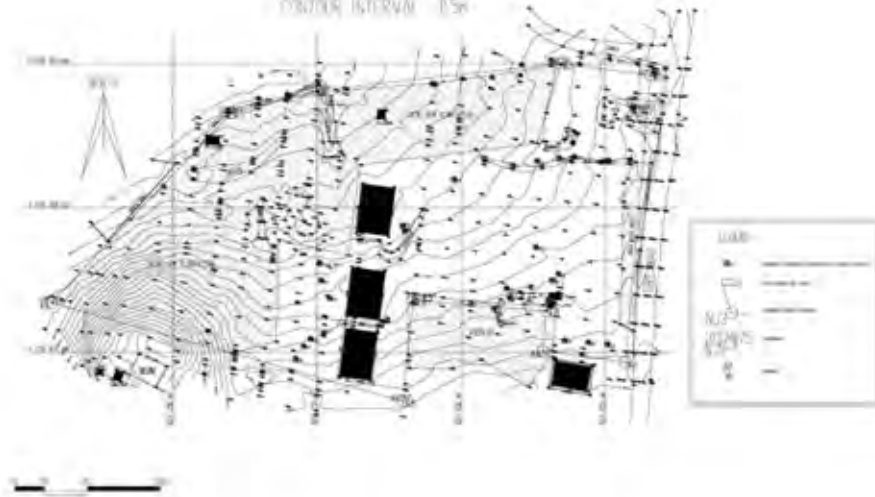
SCALE: 1:5000



TOPOGRAPHICAL SURVEY OF BANJIRI COMMUNITY  
 DAY SECONDARY SCHOOL

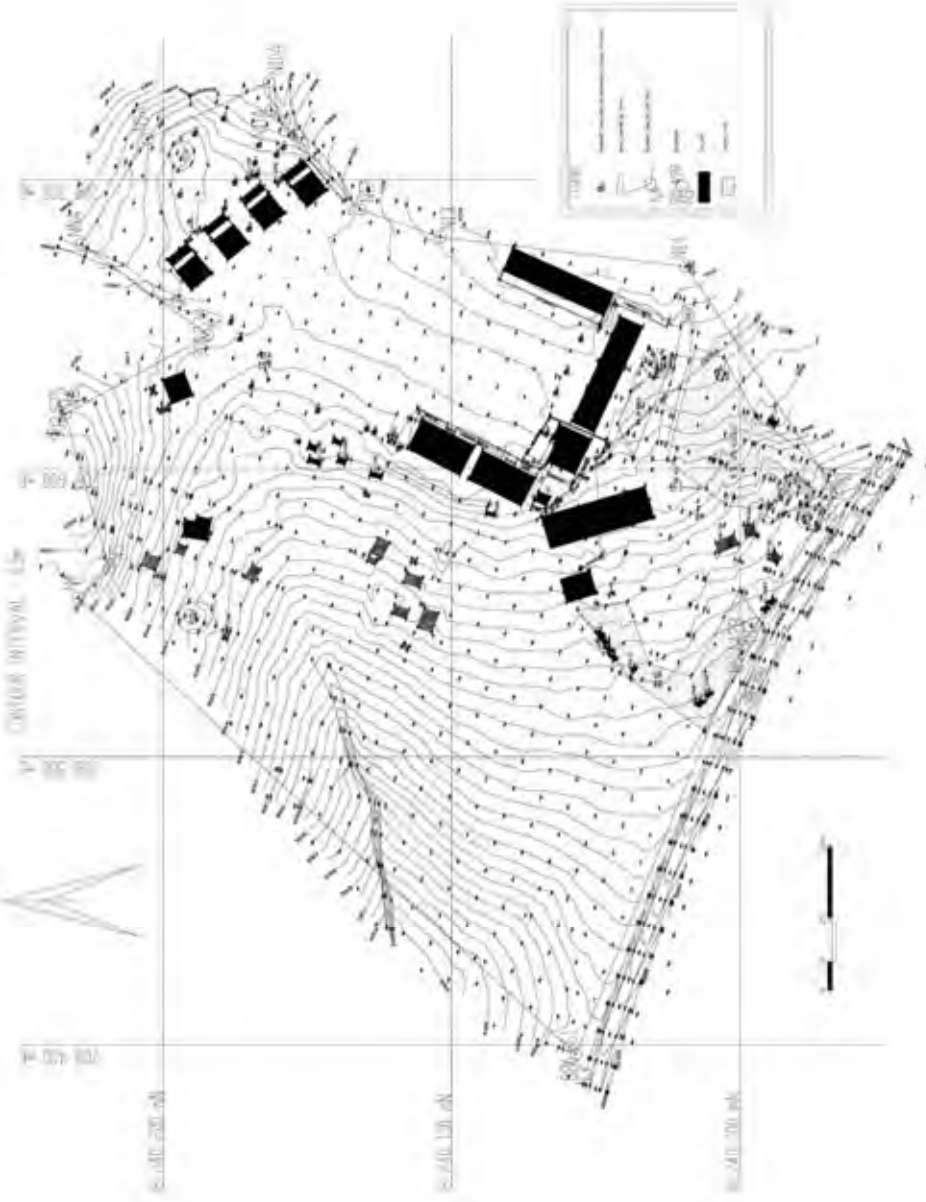
BANJIRI	N.11	1078754	(from top of mountain)
	N.6	1078294	
	N.7	1078445	
	N.8	1078464	
	N.9	1078324	
	N.10	1078213	

CONTour INTERVAL 0.5m



TOPOGRAPHICAL SURVEY OF NANKUMBA COMMUNITY  
 - GAY SECONDARY SCHOOL

Scale: 1:5000  
 Contour Interval: 4.5m  
 Datum: Mean Sea Level





DMR 515

**MINISTRY OF TRANSPORT & PUBLIC INFRASTRUCTURE  
CENTRAL MATERIALS LABORATORY**

**Reconstruction & Expansion  
of Selected Community Day Secondary Schools  
In Republic of Malawi  
REPORT ON**

**GEOTECHNICAL INVESTIGATIONS**

January, 2010

Secretary for Transport & Public Infrastructure  
Private Bag 322  
LILONGWE 3

Central Materials Laboratory  
Private Bag 16  
LILONGWE

## **TABLE OF CONTENTS**

- 1.0 Introduction
- 2.0 Field Works
- 3.0 Site Location
- 4.0 Environmental Conditions
- 5.0 Field and Laboratory Tests Results
- 6.0 Analysis of Test Results

## **APPENDICES**

- Appendix A Site Location
- Appendix B Borehole logs
- Appendix C Estimated Ultimate Bearing Capacities
- Appendix D Test Results
- Appendix E Percolation Test results



## **SELECTED COMMUNITY DAY SECONDARY SCHOOLS**

### **1.0 INTRODUCTION**

This report covers soil investigations for the Selected Community Day Secondary Schools. There are a total of six sites which cover the two out of three regions of Malawi. The two are the Central and the Southern Regions. In the Southern Region, three districts were proposed for the project which included Mulanje allocated Lot 1 at Chakhwaza, Balaka which was allocated Lot 2 at Dziwe and Lot 5 at Namalomba. Blantyre District was allocated Lot 3 at Nankumba which is in rural area and Lot 6 at Nanjiriri in urban area. In the Central region Lilongwe was allocated Lot 4 at Mseche which is in rural area. The project is under Education Development Management (EDMU) of Ministry of Education, Science and Technology. The Japanese Government wants to assist the Government of the Republic of Malawi to implement the project. In order to do this, the Government of Japan identified Matsuda Consultants International Company Limited to carry out the design and supervision works. Central Materials Laboratory in Ministry of Transport and Public Infrastructure was sub-contracted to carry out Soil Investigations on the proposed sites and subsequent testing in order to furnish the client with the information leading to proper designing of the structures. The sites Investigations commenced on 27<sup>th</sup> November, 2009 and were completed on 12<sup>th</sup> December, 2009 while laboratory testing was completed on 22<sup>nd</sup> December, 2009.

### **2.0 FIELD WORKS**

This involved the drilling of three boreholes to depth of 5.00 metres on each proposed site and carrying out percolation test at a depth of 1 metre. In each borehole, disturbed at soil change and undisturbed samples before Standard Penetration Test (SPT) were collected for classification and Shear strength testing respectively. Soil profiles were also recorded in each trial pit. The sampling was done in accordance to BS 5930. The Borehole logs are appended in appendix B and Percolation test results are appended in Appendix E.

### **3.0 SITE LOCATIONS**

#### **(a) MULANJE**

Chikhwaza Community Day Secondary School site which is Lot 1, lies on the South West of Mulanje and is about twelve kilometres from Mulanje District Headquarters.

#### **(b) BALAKA**

This district has two sites. Dziwe Community Day Secondary School which is Lot 2 is situated to the South East of Balaka. The site is about 30 Kilometres from Balaka Headquarters and about 10 Kilometres south of Liwonde Township along Shire River.

Namalomba Community Day Secondary School labelled Lot 5 is situated to the East of Balaka is about 40 Kilometres away. The site is close at Ulongwe Trading Centre on Lilonde – Mangochi Road.

#### **(c) BLANTYRE**

Blantyre District also has two sites. Nankumba Community Day Secondary School is in the rural area south of Blantyre District Headquarters. The site is about 20 Kilometres from the City on Blantyre – Chikwawa Road at Chadzunda in Mpemba.

Nanjiriri Community Day Secondary School is Lot 6 and is in the urban area. The school is situated to the north of the City of Blantyre and is about 7 Kilometres. The school is in Machinjiri Location.

#### **(d) LILONGWE**

Mseche Community Day Secondary School site labelled Lot 4 lies to the east of Lilongwe City. The distance to the site is about 35 Kilometres and is on Lilongwe - Salima Road.

The site locations are appended in appendix A.

### **3.1 GEOLOGY OF THE SITES (AREAS)**

#### **(i) MULANJE**

Chikhwaza CDSS site is geologically dominated by Greyish to Reddish brown sandy silt CLAY which is underlain by Semi-pelitic rocks: biotite- and hornblende-gneiss, commonly garnetiferous and locally graphitic.

#### **(ii) BALAKA**

Dziwe CDSS site has some clayey quartz GRAVEL and sandy silt CLAY while Namalomba CDSS site has also clayey SILT and clayey SAND. Both sites are underlain by Alluvium.

#### **(iii) BLANTYRE**

Both sites Nankumba and Nanjiriri CDSS have sandy silt CLAY but Nankumba has also some clayey GRAVEL while Nanjiriri in addition has some weathered ROCK. The two sites are underlain by Charnockitic suite: banded pyroxene - granulites and gneisses, hypersthene-granite.

#### **(iv) LILONGWE**

Mseche CDSS site has a number of soils ranging from sandy silt CLAY, clayey silt SAND, quartz GRAVEL and weathered ROCK. Generally the site is geologically underlain by semi-pelitic rocks: - biotite and horn-blend gneisses commonly garnetiferous and locally graphitic.

### **4.0 ENVIRONMENTAL CONDITIONS**

Since environment conditions play an important role in the design assumptions, here are some meteorological data for the sites:-

#### **(i) LOT 1 CHIKHWAZA CDSS IN MULANJE:**

Mean rainfall	=	1200mm
Mean temperatures	=	28 °C
Mean relative humidity	=	70%

#### **(ii) LOT 2 DZIWE CDSS IN BALAKA**

Mean rainfall	=	816mm
Mean temperatures	=	32 °C
Mean relative humidity	=	72%

**(iii) LOT 3 NANKUMBA CDSS IN BLANTYRE RURAL**

Mean rainfall	=	1140mm
Mean temperatures	=	19.1 °C
Mean relative humidity	=	74%

**(iv) LOT 4 MSECHE CDSS IN LILONGWE RURAL**

Mean rainfall	=	848mm
Mean temperatures	=	20 °C
Mean relative humidity	=	70%

**(v) LOT 5 NAMALOMBA CDSS IN BALAKA**

Mean rainfall	=	816mm
Mean temperatures	=	32 °C
Mean relative humidity	=	72%

**(vi) LOT 6 NANJIRIRI CDSS IN BLANTYRE URBAN**

Mean rainfall	=	1140mm
Mean temperatures	=	19.0 °C
Mean relative humidity	=	74%

**5.0 FIELD AND LABORATORY TEST RESULTS**

In the field Standard Penetration Tests (SPT) were performed in the borehole at an average depth of 1,5 metres in accordance with BS 5930 of 1990. The N-Values derived from the SPT have been calculated to Estimated Ultimate Bearing Capacities. The Bearing Capacities are appended in appendix C.

In the Laboratory the following tests were performed in accordance with BS 1377 of 1990.

- (i) Atterberg Limits
- (ii) Sieve Analysis (Particle Size Distribution)
- (iii) Shear strength parameters on undisturbed samples.

The results are appended in appendix D.

## 6.0 ANALYSIS OF THE RESULTS

Field description, Standard Penetration Tests (SPT) N-Values and laboratory test results confirm that:

- (i) Chikhwaza CDSS site is underlain by clayey soils with classifications of A-7-5 and A-7-6 with group indices ranging from 4 to 19. Soils with A-7 are rated poor materials.
- (ii) Dziwe CDSS site has very poor material close to the surface with classification of A-7-5 at BH 1, A-6 at BH2 and A-7-6 at BH3. Below these soils, the site has clayey gravels with classification of A-2-7 having group indices ranging from 0 to 3. Samples with classification of A-2-7 group are rated fair materials.
- (iii) Nankumba CDSS site has clayey soils except in BH1 where soil with classification of A-2-4 was encountered from 0.00 to 0.40. In BH2, soil with classification of A-4 was encountered from 1.50 to 1.95. The material is silt. Both of them are non plastic while in BH3, all are clayey soils with classification of A-7-6 which are rated poor soils.
- (iv) Mseche CDSS site generally has clayey gravel with classification ranging from A-2-4 to A-2-7 which are rated good to fair soils except in BH2 where clayey material was encountered from 0.40 to 1.60 metres. In BH3, clayey soils were encountered from 0.00 to 1.80 metres.
- (v) Namalomba CDSS site generally has clayey soils as indicated in BH1 and BH3 with classification of A-6 with exceptional of A-4 in BH1 from 0.00 to 0.64 of a metre which is silt material. BH2 has a very different materials compared to BH1 and BH3. The soils classification in BH2 from 0.00 to 0.70m is A-2-4 which is rated good material, from 0.70 – 3.00m the material has a classification of A-2-6 and is rating as fair material while from 3.00 to 5.00 the soil has a classification of A-1-b which is excellent material.
- (vi) Nanjiriri CDSS site has different soils as encountered during boring. BH1 was drilled down to 5.00 metres with clayey soil from 0.00 to 0.45m. From 0.45 to 0.95 the material changes from clayey to silt gravel which is rated as good. From 0.90 to 1.60 metres, the material is fine sand which is also rated as good subgrade with a classification of A-3. From 1.60 to 5.00, the soil has been classified as A-2-6 which shows that the material is clayey gravel and is rated

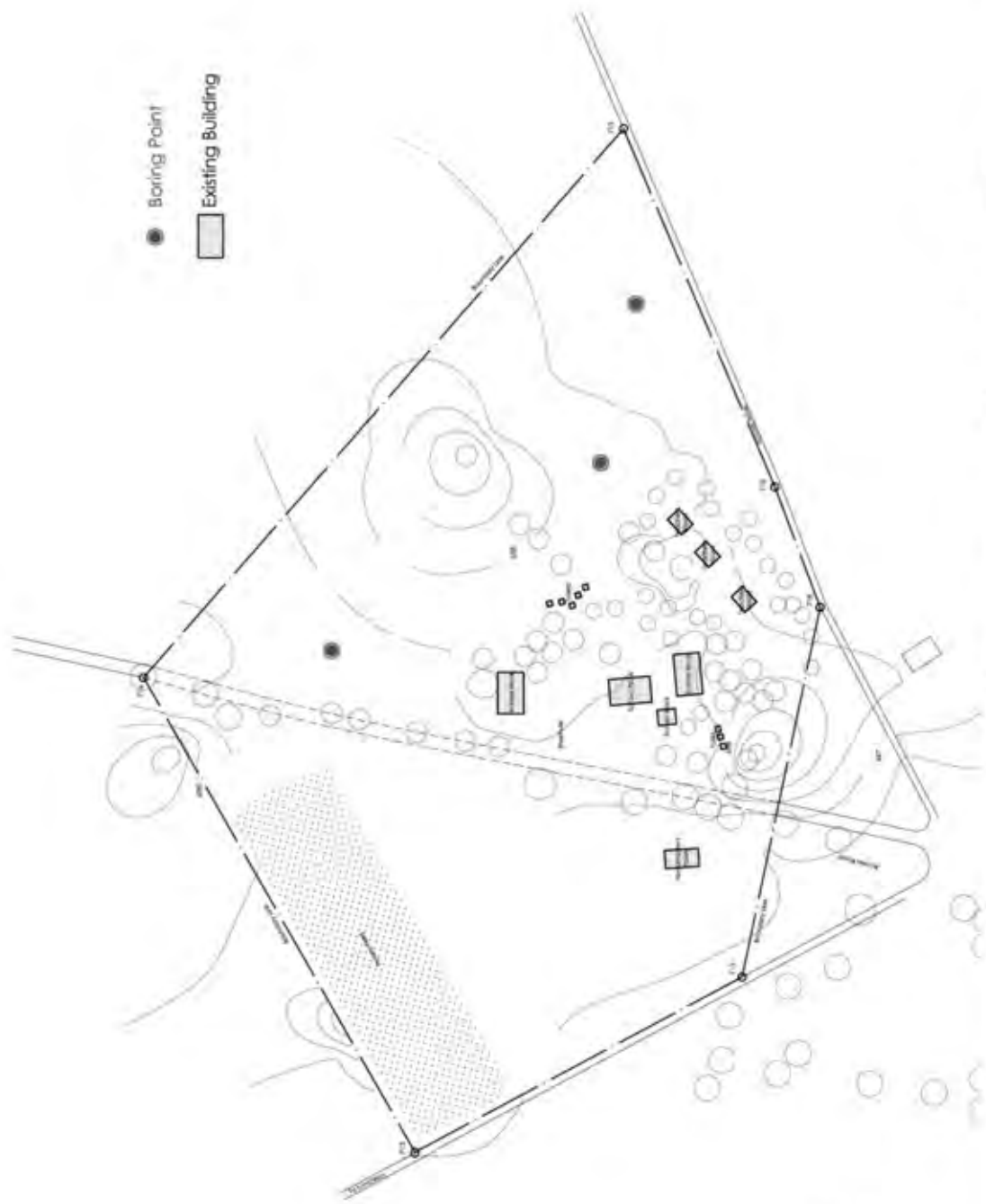
as fair subgrade. In BH2 there is clayey soil from 0.00 to 0.50m with a classification of A-6 but from 0.50 to 2.15, the materials are good to fair with classifications of A-2-4 and A-2-6. The two samples are silt and clayey gravels respectively. In BH3, from 0.00 to 0.22 the material is silt gravel with classification of A-2-4 while from 0.22 to 1.50 metres the soils have a classification of A-6 which is rated poor subgrade.

(vii) Estimated Ultimate Bearing Capacities:

The bearing capacities have been calculated from Standard Penetration Test (SPT) N-Values for continuous and squarely foundations to assist the designer to make a sound judgement on design assumptions. It should also be noted that when calculating the Estimated Ultimate Bearing Capacities the ratio of water was one.

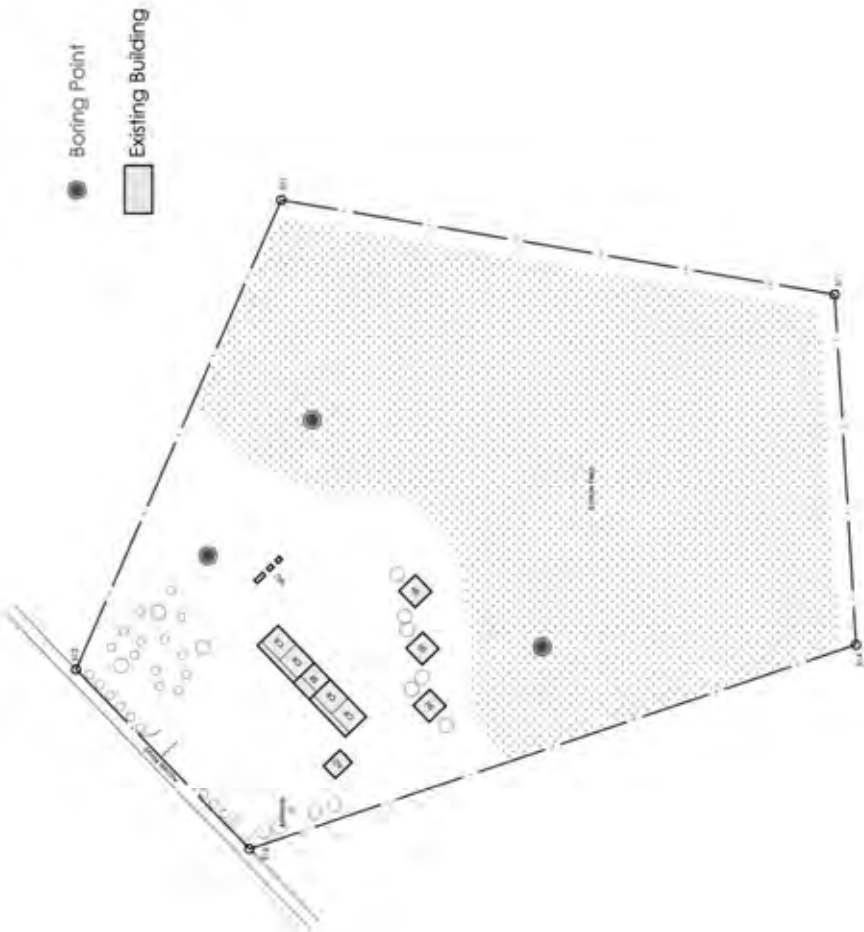
**APPENDIX A**

**Site Location**



 <b>MATHUSA CONSULTANTS INTERNATIONAL, LLC</b> <small>10000 W. 10th Avenue, Suite 100, Denver, CO 80202</small>		<b>PRELIMINARY SURVEY FOR RE-CONSTRUCTION AND EXPANSION OF SELECTED COMMUNITY DAY SECONDARY SCHOOLS</b>		<b>Lot-1</b>	
<b>DATE:</b> 10/20/2023	<b>SCALE:</b> 1" = 50'	<b>DATE:</b> 10/20/2023	<b>SCALE:</b> 1" = 50'	<b>PROJECT NO.:</b> 2023-001	
<b>DATE:</b> 10/20/2023	<b>SCALE:</b> 1" = 50'	<b>DATE:</b> 10/20/2023	<b>SCALE:</b> 1" = 50'	<b>PROJECT NO.:</b> 2023-001	
<b>DATE:</b> 10/20/2023	<b>SCALE:</b> 1" = 50'	<b>DATE:</b> 10/20/2023	<b>SCALE:</b> 1" = 50'	<b>PROJECT NO.:</b> 2023-001	

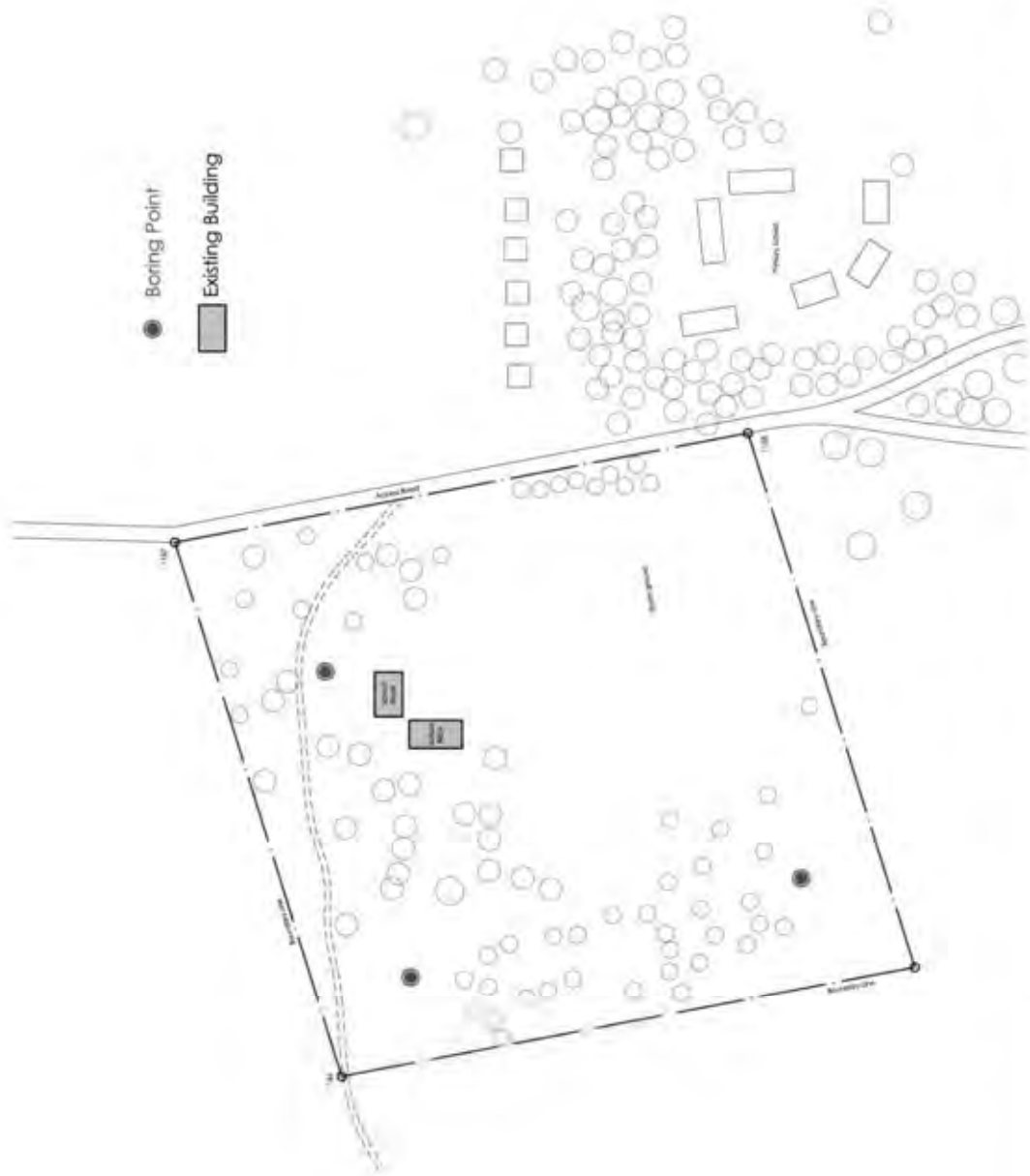




PROJECT TITLE: <b>PRE-FEASIBILITY STUDY ON RE-CONSTRUCTION AND EXPANSION          OF SELECTED COMMUNITY DAY SECONDARY SCHOOLS</b>		DRAWING NO. 1: <b>GENERAL LAYOUT - SCHOOL GATE          SITE PLAN</b>		SHEET NO. <b>Lot-2</b>
CLIENT: <b>MACHAKOS COUNTY COUNCIL          INTERNATIONAL COLLEGE</b>		DATE: <b>11.11.2024</b>		
PROJECT LOCATION: <b>MACHAKOS COUNTY, KENYA</b>		SCALE: <b>1:500</b>		
PROJECT NO. <b>MACHAKOS/2024/001</b>		DRAWING NO. <b>1</b>		
PROJECT NAME: <b>RE-CONSTRUCTION AND EXPANSION          OF SELECTED COMMUNITY DAY SECONDARY SCHOOLS</b>		SHEET NO. <b>Lot-2</b>		



 MATEUSA CONSULTANTS INTERNATIONAL CO., LTD. <small>Professional Engineers and Architects</small>		PROJECT TITLE: RECONSTRUCTION AND EXPANSION OF SELECTED COMMUNITY JUNIOR SECONDARY SCHOOLS		DRAWING NO.: 1.1.1		SHEET NO.: 1.1.1		DATE: 11/2023		PROJECT NO.: 1.1.1		CLIENT: MATAMORA CROSS SITE PLAN		Lot-3	
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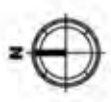
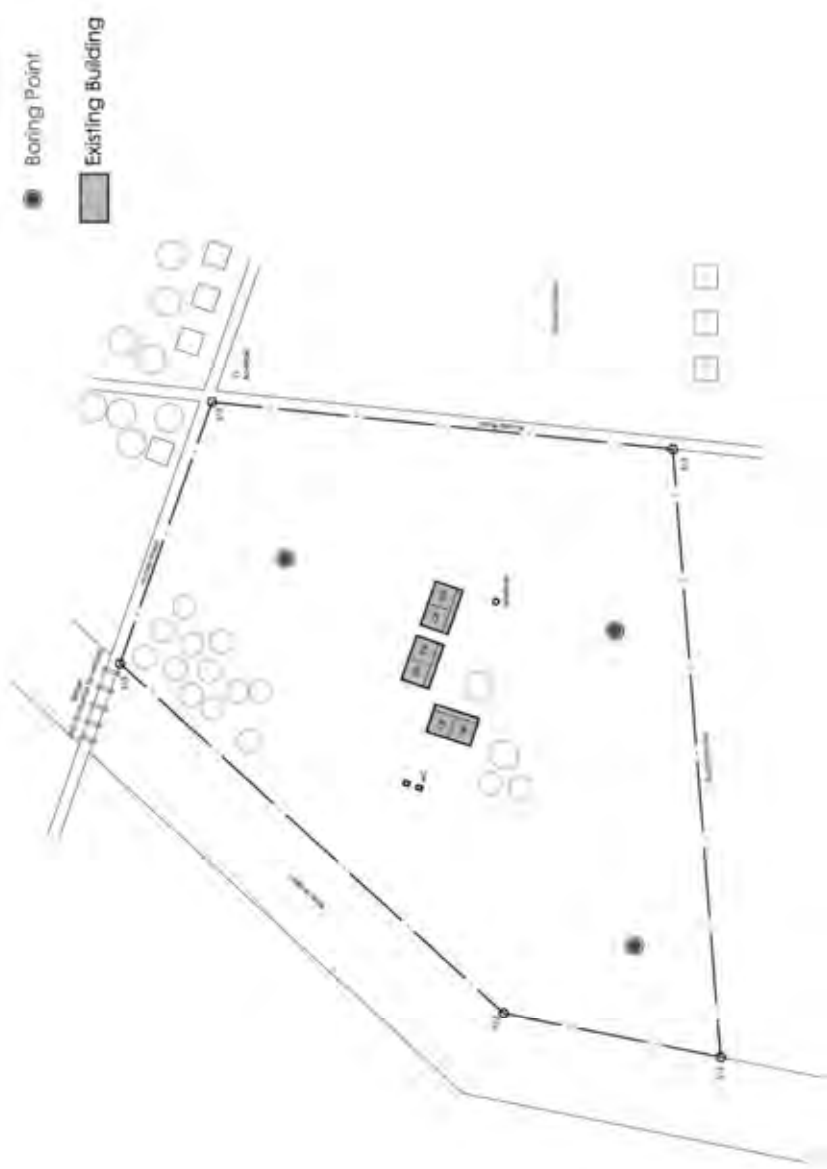


● Boring Point

■ Existing Building

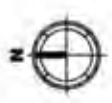
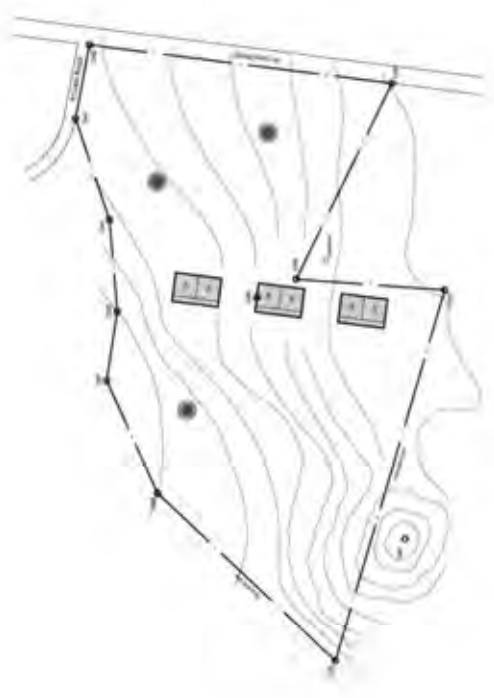


 M. T. S. CONSULTANTS INTERNATIONAL CO. LTD. <small>Professional Engineers &amp; Architects</small>	PRELIMINARY SERVICE DRAWING CONSTRUCTION AND EXPANSION OF SELECTED COMMUNITY DAY SECONDARY SCHOOLS		SHEET NO. 1 OF 1	DATE: 11/2024	DRAWN BY: [Name] CHECKED BY: [Name]	APPROVED BY: [Name] TITLE: [Title]	Lot-4
	[Additional drawing information or notes]						



 MATELA CONNA LANTE INTERNATIONAL CO., LTD. <small>ESTABLISHED IN 1982</small>		PROJECT: CONSTRUCTION AND EXPANSION OF SELECTED COMMUNITY DAY SECONDARY SCHOOLS		SHEET NO. 1 SHEET NO. 2 SHEET NO. 3 SHEET NO. 4 SHEET NO. 5 SHEET NO. 6 SHEET NO. 7 SHEET NO. 8 SHEET NO. 9 SHEET NO. 10 SHEET NO. 11 SHEET NO. 12 SHEET NO. 13 SHEET NO. 14 SHEET NO. 15 SHEET NO. 16 SHEET NO. 17 SHEET NO. 18 SHEET NO. 19 SHEET NO. 20 SHEET NO. 21 SHEET NO. 22 SHEET NO. 23 SHEET NO. 24 SHEET NO. 25 SHEET NO. 26 SHEET NO. 27 SHEET NO. 28 SHEET NO. 29 SHEET NO. 30 SHEET NO. 31 SHEET NO. 32 SHEET NO. 33 SHEET NO. 34 SHEET NO. 35 SHEET NO. 36 SHEET NO. 37 SHEET NO. 38 SHEET NO. 39 SHEET NO. 40 SHEET NO. 41 SHEET NO. 42 SHEET NO. 43 SHEET NO. 44 SHEET NO. 45 SHEET NO. 46 SHEET NO. 47 SHEET NO. 48 SHEET NO. 49 SHEET NO. 50 SHEET NO. 51 SHEET NO. 52 SHEET NO. 53 SHEET NO. 54 SHEET NO. 55 SHEET NO. 56 SHEET NO. 57 SHEET NO. 58 SHEET NO. 59 SHEET NO. 60 SHEET NO. 61 SHEET NO. 62 SHEET NO. 63 SHEET NO. 64 SHEET NO. 65 SHEET NO. 66 SHEET NO. 67 SHEET NO. 68 SHEET NO. 69 SHEET NO. 70 SHEET NO. 71 SHEET NO. 72 SHEET NO. 73 SHEET NO. 74 SHEET NO. 75 SHEET NO. 76 SHEET NO. 77 SHEET NO. 78 SHEET NO. 79 SHEET NO. 80 SHEET NO. 81 SHEET NO. 82 SHEET NO. 83 SHEET NO. 84 SHEET NO. 85 SHEET NO. 86 SHEET NO. 87 SHEET NO. 88 SHEET NO. 89 SHEET NO. 90 SHEET NO. 91 SHEET NO. 92 SHEET NO. 93 SHEET NO. 94 SHEET NO. 95 SHEET NO. 96 SHEET NO. 97 SHEET NO. 98 SHEET NO. 99 SHEET NO. 100		MATELA CONNA LANTE INTERNATIONAL CO., LTD. MATHEMATICAL CONSULTANTS SITE PLAN		Lot 5	
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● Boring Point  
 ■ Existing Building



MATTHEW CONNELL ENGINEERING 1000 14th Street, Suite 100 Boulder, CO 80502 Phone: (303) 440-1234 Fax: (303) 440-1235 Email: mconnell@mattheconnell.com		PRELIMINARY QUANTITY ON RECONSTRUCTION AND EXISTENCE OF THE EXISTING CONCRETE AND REINFORCEMENT STRUCTURE		SHEET NO. 1 TOTAL SHEETS 1		PROJECT NO. 1000 DATE 10/15/2010		DRAWN BY: J. SMITH CHECKED BY: M. CONNELL		PROJECT NAME: 1000 14th Street - South Phase SITE PLAN		LOT NO. 6	
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**APPENDIX B**

**Bore Hole Logs**

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT :		Selected CDSS			AREA: Mutanje				
LOCATION :		Chikwaza Lot 1			GWL:				
GROUND ELEV :					RECORDED BY: P.G. Gotsa				
COORDINATES :					LOGGED BY: E.G.S. Machija				
BORE HOLE NO. :		1			DATE: 3/12/2009				
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00		0.48						Very loose dark brown silty sandy CLAY	
1.00		1.95	UD					Very loose reddish brown silty sandy CLAY	
2.00		2.40	SPT	1	2	2	4		
		2.50	D						
3.00		3.45	UD						
4.00		3.90	SPT	4	6	6	12	Medium to dense reddish brown silty sandy CLAY	
5.00		5.25	D						
			SPT	6	9	10	19		END OF B.H.
6.00									
UD =		Undisturbed Sample		**** =		Silty Fine SAND			
N =		SPT N-Value		..... =		Fill Material			
D =		Disturbed Sample		-o*o* =		Sand with Pebbles			
		Clayey SILT				Clayey SAND			
		Silty Sandy CLAY				Decomposed ROCK/Weathered ROCK			

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**











PROJECT : Selected CDSS		AREA: Mutanje							
LOCATION : Chikwaza Lot 1		GWL:							
GROUND ELEV :		RECORDED BY: P.G. Goba							
COORDINATES :		LOGGED BY: E.G.S. Machiza							
BORE HOLE NO. : 2		DATE: 4/12/2009							
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00		0.45						Loose dark brown sandy silty CLAY	
1.00									
2.00		1.95	UD						
		2.40	SPT	4	5	5	10		
3.00								Medium to dense reddish brown silty sandy CLAY	
		3.55	UD						
4.00		4.00	SPT	8	9	9	18		
		4.95	SPT	9	6	6	12		
5.00		5.00	D						END OF B.H.
6.00									
UD = Undisturbed Sample		SPT N-Value		..... = Silty Fine SAND		..... = Fill Material			
D = Disturbed Sample		Clayey SILT		-*o*- = Sand with Pebbles		**:** = Clayey SAND			
..... = Silty Sandy CLAY		Decomposed ROCK/Weathered ROCK							



**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT :		Selected CDSS			AREA: Mutanje				
LOCATION :		Chikwaza Lot 1			GWL:				
GROUND ELEV :					RECORDED BY: P.G. Gotsa				
COORDINATES :					LOGGED BY: E.G.S. Machija				
BORE HOLE NO. :		3			DATE: 4/12/2009				
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00			D					Very loose greyish brown sandy silty CLAY	
		0.90							
1.00								Loose reddish brown silty sandy CLAY	
		1.50	D						
		1.95	UD						
2.00									
		2.40	SPT	3	4	4	8		
		3.45	UD						
		3.90	SPT	5	7	6	13		
4.00		4.00	SPT	6	9	9	18	Firm to stiff reddish brown sandy silty CLAY	
5.00									
			D						
		5.40	SPT	6	8	11	19		END OF B.H.
6.00									
UD = Undisturbed Sample				* ** = Silty Fine SAND					
N = SPT N-Value				..... = Fill Material					
D = Disturbed Sample				- * o * = Sand with Pebbles					
= Clayey SILT				= Clayey SAND					
= Silty Sandy CLAY				= Decomposed ROCK/Weathered ROCK					

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT : Selected CDSS		AREA: Bataka							
LOCATION : Dziwe Lot 2		GWL:							
GROUND ELEV :		RECORDED BY: P.G. Goba							
COORDINATES :		LOGGED BY: E.G.S. Machila							
BORE HOLE NO. : 1		DATE: 5/12/2009							
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00								Soft to firm dark brown sandy silty CLAY	
1.00		1.30						Stiff darkish grey sandy silty CLAY with quartz	
2.00		1.90 D							
		1.95 SPT		21	22	10	32		
		2.65 SPT		13	17	13	30		
3.00									
		3.45 SPT		27	23	51	74		
4.00								Very dense dark grey quartz GRAVEL	
		4.95 SPT		30	41	55	96		
5.00		5.00 D							END OF B.H.
6.00									
UD = Undisturbed Sample		N = SPT N-Value		D = Disturbed Sample		Silty Fine SAND			
N = SPT N-Value		D = Disturbed Sample		Silty SAND		Fill Material			
Silty SAND		Silty SAND		Silty SAND		Sand with Pebbles			
Silty SAND		Silty SAND		Silty SAND		Clayey SAND			
Silty SAND		Silty SAND		Silty SAND		Decomposed ROCK/Weathered ROCK			

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT : Selected CDSS		AREA: Bataka							
LOCATION : Dziwe Lot 2		GWL:							
GROUND ELEV :		RECORDED BY P.G. Goba							
COORDINATES :		LOGGED BY: E.G.S. Machija							
BORE HOLE NO. : 2		DATE: 5/12/2009							
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00		0.30	D					Firm to stiff darkish grey sandy silty CLAY	
1.00		1.50	D					Firm yellowish brown clayey quartz GRAVEL	
2.00		1.95	SPT	5	6	10	16	Dense to very dense greyish brown sandy silty CLAY	
3.00		3.22	SPT	40	55++				
4.00									
5.00									
6.00									
UD = Undisturbed Sample		N = SPT N-Value		D = Disturbed Sample		*..** = Silty Fine SAND			
= Clayey SILT		= Silty Sandy CLAY		= Fill Material		= Sand with Pebbles			
				= Clayey SAND		= Decomposed ROCK/Weathered ROCK			

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT :		Selected CDSS			AREA: Bataka				
LOCATION :		Dziwe Lot 2			GWL:				
GROUND ELEV :					RECORDED BY: P.G. Goba				
COORDINATES :					LOGGED BY: E.G.S. Machija				
BORE HOLE NO. :		3			DATE: 5/12/2009				
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00			D					Medium to dense dark brown sandy silty CLAY	
		0.20	D					Stiff greyish brown sandy CLAY with quartz	
		0.60	D					Dense yellowish brown sandy CLAY with quartz	
1.00		1.10	D					Dense yellowish brown sandy CLAY with quartz	
2.00		1.95	SPT	12	13	12	25	Medium to dense micaceous decomposed ROCK	
3.00								Medium to dense micaceous decomposed ROCK	
		3.45	D						
			SPT	7	16	14	30		
4.00									
5.00		5.00	SPT	7	0	11	20		END OF B.H.
6.00									
UD = Undisturbed Sample		N = SPT N-Value		D = Disturbed Sample		Clayey SILT		Silty Sandy CLAY	
*..** = Silty Fine SAND		..... = Fill Material		-o-o- = Sand with Pebbles		**..* = Clayey SAND		-.-.- = Decomposed ROCK/Weathered ROCK	

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT :		Selected CDSS			AREA: Blantyre Rural				
LOCATION :		Nankumbwa Lot 3			GWL:				
GROUND ELEV :					RECORDED BY: P.G. Gotsa				
COORDINATES :					LOGGED BY: E.G.S. Machija				
BORE HOLE NO. :		1			DATE: 27/11/2009				
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00	-o-o-o-		D					Loose dark brown silty clayey GRAVEL.	
1.00	-o-o-o-	0.40							
2.00	-o-o-o-	1.05	SPT	9	7	11	18		
3.00	-o-o-o-	3.45	SPT	7	8	10	18		
4.00	-o-o-o-							Medium to dense reddish brown sandy silty CLAY	
5.00	-o-o-o-	5.05	SPT	5	6	9	15		END OF B.H.
6.00									
UD =		Undisturbed Sample		*o*o*		=		Silty Fine SAND	
N =		SPT N-Value		o-o-o-o-o		=		Fill Material	
D =		Disturbed Sample		-o*o*-		=		Sand with Pebbles	
o-o-o-o =		Clayey SILT		*o*o*		=		Clayey SAND	
o-o-o-o =		Silty Sandy CLAY		-o*o*-		=		Decomposed ROCK/Weathered ROCK	

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT :		Selected CDSS			AREA: Blantyre Rural				
LOCATION :		Nankumbwa Lot 3			GWL:				
GROUND ELEV :					RECORDED BY: P.G. Goba				
COORDINATES :					LOGGED BY: E.G.S. Machisa				
BORE HOLE NO. :		2			DATE: 28/11/2009				
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00		0.49	Dr					Loose greyish brown sandy silty CLAY	
1.00			UD						
2.00		1.95	UD						
		2.40	SPT	5	5	6	11		
3.00		3.45	SPT	5	9	12	21		
4.00		4.95	SPT	7	16	14	39	Medium to dense reddish brown sandy silty CLAY	
5.00		5.05	D						END OF B.H.
6.00									
UD =		Undisturbed Sample		*..** =		Silty Fine SAND			
N =		SPT N-Value		..... =		Fill Material			
D =		Disturbed Sample		-o*o* =		Sand with Pebbles			
		Clayey SILT		**..** =		Clayey SAND			
		Silty Sandy CLAY		-..*.. =		Decomposed ROCK/Weathered ROCK			

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT :		Selected CDSS			AREA: Blantyre Rural				
LOCATION :		Nankumbwa Lot 3			GWL:				
GROUND ELEV :					RECORDED BY: P.G. Gotsa				
COORDINATES :					LOGGED BY: E.G.S. Machija				
BORE HOLE NO. :		3			DATE: 29/11/2009				
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00		0.65	D					Loose dark brown silty sandy CLAY	
1.00			UD						
2.00		1.95	UD						
		2.40	SPT	3	5	6	11		
3.00		3.45	SPT	5	5	8	14		
4.00								Medium to dense reddish brown sandy silty CLAY	
5.00		5.15	D						
			SPT	6	8	9	17		END OF B.H.
6.00									
UD		Undisturbed Sample		*..*..*			Silty Fine SAND		
N		SPT N-Value		.....			Fill Material		
D		Disturbed Sample		-o*o*			Sand with Pebbles		
		Clayey SILT		**..**			Clayey SAND		
		Silty Sandy CLAY		-..-..			Decomposed ROCK/Weathered ROCK		

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT :		Selected CDSS			AREA: Lilongwe Rural				
LOCATION :		Msecire Lot 4			GWL:				
GROUND ELEV :					RECORDED BY: P.G. Goba				
COORDINATES :					LOGGED BY: E.G.S. Machila				
BORE HOLE NO. :		1			DATE: 9/12/2009				
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00								Medium to dense reddish brown clayey silty SAND	
1.00		1.70	D						
2.00								Medium to dense reddish brown quartz GRAVEL	
		1.95	SPT	4	8	11	17		
3.00								Medium to dense greyish brown sandy clayey SILT	
		3.30	D						
4.00								Medium to dense greyish brown sandy clayey SILT	
		3.45	SPT	6	8	9	17		
5.00									END OF B.H.
6.00									
UD		Undisturbed Sample		*..**		= Silty Fine SAND			
N		SPT N-Value		.....		= Fill Material			
D		Disturbed Sample		-o*o*		= Sand with Pebbles			
		Clayey SILT		**..*		= Clayey SAND			
		Silty Sandy CLAY		-..*		= Decomposed ROCK/Weathered ROCK			



**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT : Selected CDSS		AREA: Lilongwe Rural							
LOCATION : Msectre Lot 4		GWL: -							
GROUND ELEV : -		RECORDED BY: P.G. Gotsa							
COORDINATES : -		LOGGED BY: E.G.S. Machija							
BORE HOLE NO. : 2		DATE: 10/12/2009							
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00			D					Loose greyish brown clayey SAND	
		0.40							
1.00			D					Medium to dense reddish brown sandy silty CLAY	
		1.60							
2.00			UD						
		1.95							
			SPT						
		2.40		10	7	6	13		
3.00			SPT					Very hard yellowish brown completely weathered micaceous ROCK	
		3.45		13	14	16	30		
4.00			SPT						
		4.85		17	26	41	67		
5.00			D						END OF B.H.
		5.00							
6.00									
UD = Undisturbed Sample		SPT N-Value		*..** = Silty Fine SAND		..... = Fill Material			
D = Disturbed Sample		-°°°- = Sand with Pebbles		**..* = Clayey SAND		-..- = Decomposed ROCK/Weathered ROCK			
-°-°- = Clayey SILT		*..** = Silty Sandy CLAY							

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT : Selected CDSS		AREA: Lilongwe Rural							
LOCATION : Mseche Lot 4		GWL: -							
GROUND ELEV : -		RECORDED BY: P.G. Goba							
COORDINATES : -		LOGGED BY: E.G.S. Machiza							
BORE HOLE NO. : 3		DATE: 11/12/2009							
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00			D					Loose greyish brown sandy silty CLAY	
		0.50							
1.00			D					Loose reddish brown sandy silty CLAY	
		1.80							
2.00			SPT	11	8	3	3	Medium to dense reddish brown clayey quartz GRAVEL	
		1.95							
3.00			D					Medium to dense greyish brown completely weathered ROCK	
		3.00							
4.00			SPT	6	7	8	15	Medium to dense greyish brown completely weathered ROCK	
		3.55							
5.00			UD					Medium to dense greyish brown completely weathered ROCK	
		4.95							
5.00			D					Medium to dense greyish brown completely weathered ROCK	
		5.40							
			SPT	6	9	12	21		END OF B.H.
6.00									
UD = Undisturbed Sample		SPT N-Value		*..** = Silty Fine SAND		..... = Fill Material			
N = SPT N-Value		Disturbed Sample		-o*o* = Sand with Pebbles		**..** = Clayey SAND			
D = Disturbed Sample		Clayey SILT		**..** = Clayey SAND		-..-.. = Decomposed ROCK/Weathered ROCK			
= Clayey SILT		Silty Sandy CLAY		= Silty Sandy CLAY					

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT :		Selected CDSS			AREA: Balaka				
LOCATION :		Namalomba Lot 5			GWL:				
GROUND ELEV :					RECORDED BY: P.G. Goba				
COORDINATES :					LOGGED BY: E.G.S. Machila				
BORE HOLE NO. :		1			DATE: 7/12/2009				
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00			D					Very loose yellowish brown clayey SILT	
		0.64							
1.00			UD						
		1.95							
2.00			SPT	5	6	6	12	Medium to dense dark grey silty sandy CLAY	
		2.40							
3.00			D						
		3.10							
		3.45	UD						
		3.90	SPT	5	9	12	21		
4.00			UD					Medium to dense greyish brown sandy silty CLAY	
		4.95							
5.00			D						
		5.40	SPT	6	10	14	24		END OF B.H.
6.00									
UD =		Undisturbed Sample			*..** =		Silty Fine SAND		
N =		SPT N-Value			..... =		Fill Material		
D =		Disturbed Sample			-o*o* =		Sand with Pebbles		
		Clayey SILT			**..** =		Clayey SAND		
		Silty Sandy CLAY			-..-.. =		Decomposed ROCK/Weathered ROCK		

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT :		Selected CDSS			AREA: Bataka				
LOCATION :		Namalomba Lot 5			GWL:				
GROUND ELEV :					RECORDED BY: P.G. Gotsa				
COORDINATES :					LOGGED BY: E.G.S. Machija				
BORE HOLE NO. :		2			DATE: 9/12/2009				
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00			D					Medium to dense yellowish brown clayey SAND	
1.00		0.70							
2.00		1.95	UD					Medium to dense clayey quartz GRAVEL	
		2.40	SPT	8	11	8	19		
3.00		3.00	D						
		3.45	UD						
4.00		3.90	SPT	8	10	8	19		
		4.85	SPT	9	13	15	28	Medium to dense yellowish brown clayey SAND	
5.00		5.00	D						END OF B.H.
6.00									
UD		Undisturbed Sample		*..**		= Silty Fine SAND			
N		= SPT N-Value		.....		= Fill Material			
D		= Disturbed Sample		-o*o*		= Sand with Pebbles			
-o-o-		= Clayey SILT		**..*		= Clayey SAND			
-o*o*		= Silty Sandy CLAY		-o*o*		= Decomposed ROCK/Weathered ROCK			

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT :		Selected CDSS			AREA: Bataka				
LOCATION :		Namalomba Lot 5			GWL:				
GROUND ELEV :					RECORDED BY P.G. Goba				
COORDINATES :					LOGGED BY: E.G.S. Machija				
BORE HOLE NO. :		3			DATE: 7/12/2009				
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00		0.40	D					Loose yellowish brown sandy silty CLAY	
1.00									
2.00		1.95	SPT	6	8	7	13	Medium to dense greyish brown silty sandy CLAY	
		2.70	D						
3.00									
4.00		3.45	SPT	5	8	9	17	Medium to dense dark brown sandy silty CLAY	
		4.95	SPT	4	7	10	17		
5.00		5.00	D						END OF B.H.
6.00									
UD		Undisturbed Sample			*..** = Silty Fine SAND				
N		SPT N-Value			..... = Fill Material				
D		Disturbed Sample			-o*o- = Sand with Pebbles				
		Clayey SILT			**..** = Clayey SAND				
		Silty Sandy CLAY			-..-.. = Decomposed ROCK/Weathered ROCK				








**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT :		Selected CDSS			AREA: Blantyre Urban				
LOCATION :		Nanjira Lot 6			GWL:				
GROUND ELEV :					RECORDED BY: P.G. Goba				
COORDINATES :					LOGGED BY: E.G.S. Machira				
BORE HOLE NO. :		1			DATE: 1/12/2009				
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00			D					Loose yellowish brown sandy silty CLAY	
		0.45	D					Medium dense yellowish brown weathered ROCK	
		0.90	D					Medium dense greyish brown weathered ROCK	
1.00									
		1.60	D						
		1.95	SPT	8	12	16	28		
2.00									
3.00									
		3.45	SPT	8	11	14	25	Dense to very dense yellowish brown completely weathered ROCK.	
4.00									
		4.85	SPT	20	21	39	60		
5.00		5.00	D						END OF B.H.
6.00									
UD =		Undisturbed Sample		*..** =		Silty Fine SAND			
N =		SPT N-Value		..... =		Fill Material			
D =		Disturbed Sample		-o*o- =		Sand with Pebbles			
		Clayey SILT		**..* =		Clayey SAND			
		Silty Sandy CLAY		-..- =		Decomposed ROCK/Weathered ROCK			

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT :		Selected CDSS			AREA: Blantyre Urban				
LOCATION :		Nanjira Lot 6			GWL:				
GROUND ELEV :					RECORDED BY: P.G. Goba				
COORDINATES :					LOGGED BY: E.G.S. Machira				
BORE HOLE NO. :		2			DATE: 2/12/2009				
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00		0.50	D					Very loose yellowish brown sandy silty CLAY	
1.00								Loose greyish brown completely weathered ROCK	
		1.50	D					Dense greyish brown completely weathered ROCK	
2.00		1.95	UD					Dense greyish brown completely weathered ROCK	
		2.15	D					Dense greyish brown completely weathered ROCK	
		2.40	SPT	9	15	17	32	Very hard weathered ROCK	
3.00		3.23	SPT	18	41	55	96	Very hard weathered ROCK	
		3.50	SPT	55++				Very hard weathered ROCK	END OF B.H.
4.00									
5.00									
6.00									
UD		Undisturbed Sample			S... = Silty Fine SAND				
N		SPT N-Value			..... = Fill Material				
D		Disturbed Sample			-p-o- = Sand with Pebbles				
		Clayey SILT			**... = Clayey SAND				
		Silty Sandy CLAY			-o-o- = Decomposed ROCK/Weathered ROCK				

**MINISTRY OF TRANSPORT AND PUBLIC INFRASTRUCTURE  
MATERIALS LABORATORY  
DRILLING HOLE LOG**

PROJECT : Selected CDSS				AREA: Blantyre Urban					
LOCATION : Nanjan Lot 6				GWL:					
GROUND ELEV :				RECORDED BY P.G. Goba					
COORDINATES :				LOGGED BY: E.G.S. Machira					
BORE HOLE NO. : 3				DATE: 3/12/2009					
DEPTH (m)	GRAPHIC	DEPTH (m)	SAMPLE TYPE	NUMBER OF BLOWS			SPT N IN 300mm	DESCRIPTION OF MATERIAL	REMARKS
				IN 150mm	IN 150mm	IN 150mm			
0.00								Greyish brown silty clayey SAND	
		0.22	D					Yellowish brown sandy silty CLAY	
		0.70	D					Very dense greyish brown weathered ROCK	
1.00			D						
		1.32	SPT	65++				ROCK	END OF B.H.
2.00									
3.00									
4.00									
5.00									
6.00									
UD = Undisturbed Sample N = SPT N-Value D = Disturbed Sample  = Clayey SILT  = Silty Sandy CLAY				*..** = Silty Fine SAND ..... = Fill Material -o*o- = Sand with Pebbles **..* = Clayey SAND ++..+ = Decomposed ROCK/Weathered ROCK					