



17th WEDC Conference  
 Infrastructure, environment,  
 water and people  
 Nairobi, Kenya 1991

### Low-cost road (earth road)

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#### 1. DESIGN STANDARD

Through discussion by all the concerned, standard and type of constructional method have been determined.

The nature and low costness of the road does not necessitate for layers to be structurally designed. Practical field experience rather than design and projection has to be applied, hence the following Gometric requirements.

- Type of Road - Earth Road.
- Road Length - 3KM.
- Carriage Way Width - 3M.
- Camber - 5% Cross Fall
- Side Drain - 1.6M.

Run Offs - Not less than 1.6M.

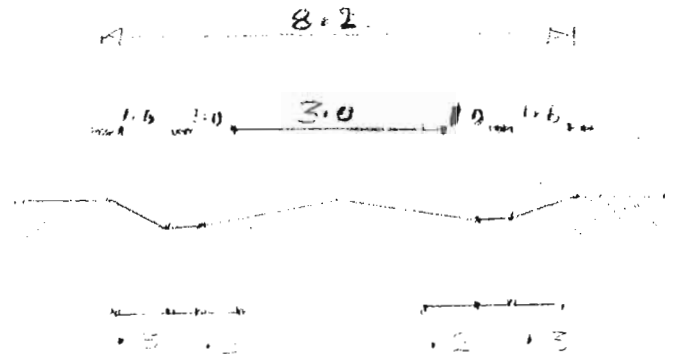
#### 1(B) MACHINERY BASED

- It is very difficult to have neither Bull Dozer nor a Grader and related Heavy plants.
- It is also impossible to hire such heavy plants from other District or Provinces because of high costs involved.

#### 1(c) LABOUR INTENSIVE BASED

- Response to the concepts of employment creation and Rural Development.

#### STANDARD CROSS SECTION FOR EARTH ROAD



Width of earth formation 3M for less than 30 vehicles per day

2. ALIGNMENT - to make labour intensive method in the construction of low cost road feasible, the route should avoid as much as possible areas where big fills over long distances are to be applied, stretches which are extremely impervious and loose soil.

#### 3. IMMEDIATE OBJECTIVE -

Is to avoid unnecessary cost and time wasting.

- To suit Socio Economic Environment of the area

- To make the road efficient and passable throughout the year.
- To minimise maintenance frequencies.

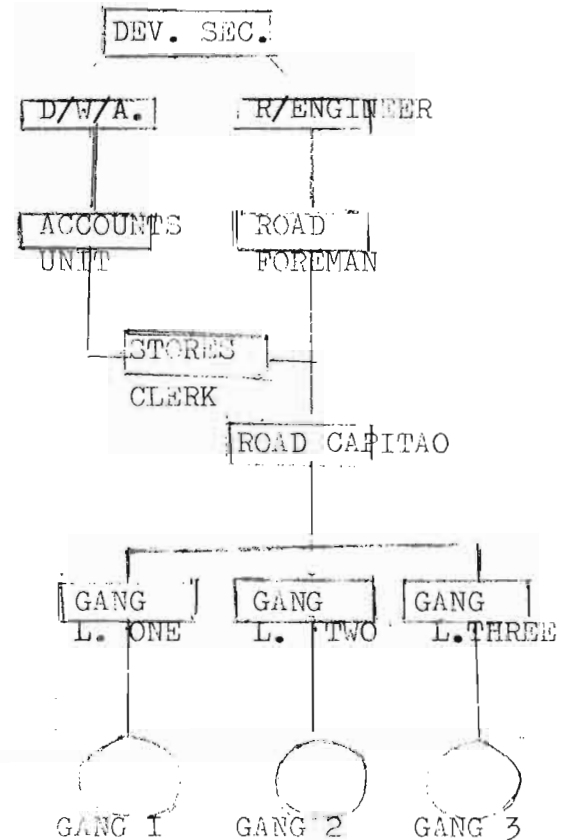
#### 4. BUSH CLEARING

- From the start to the end of the road, atleast 8M. wide has to be cleared. This is to allow enough space for actual marking of the road and other technicalities.

#### 5. IMPLEMENTATION

Depending on the length of the road, there is need to put up a road camp. But since the road distance is short, and passing near villages, the camp is therefore unnecessary. People to be coming from their homes. The road construction is to be managed by qualified personnel.

#### PROJECT ORGANISATION CHART



#### 6. CONDITIONS OF WORK FOR CASUAL EMPLOYEES

The wages would be calculated on daily basis. They have to be paid only for the days on which they actually worked. They enjoyed no social benefits and could be laid off when they were no longer required. To ensure the condition's acceptance, all workers will first agree and thereafter sign.

## 7. ACTIVITIES

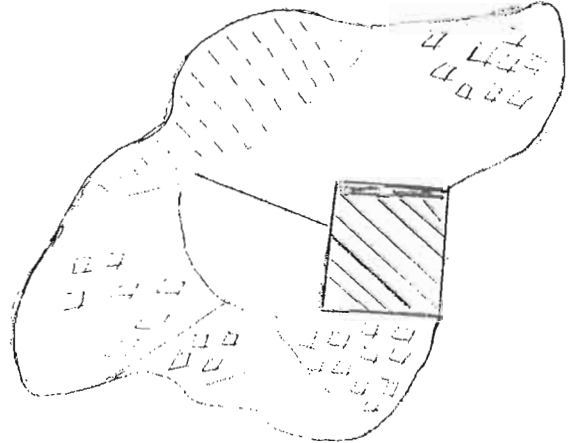
The road being free from rivers, streams, hills, thick bush and slopes, the listed could therefore be the activities.

- Clearing of trees, branches and roots.
- Striping of top soil for at least 8 metres from centre of the road.
- To dig wide ditches and dup sub soil towards centre line to raise road level.
- Complete the ditches and compact the formation.
- To ensure correct flow of water, slopes and along ditches must be checked.

## 8. TARGET AND OBJECTIVES

- To provide and produce a relatively good quality and dependable earth road.
- To link two important areas.
- Financial and project management to be properly maintained.

## AREA SITE MAP



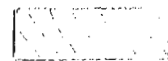
### KEY



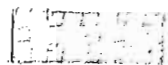
RESETTLEMENT AREA



PROPOSED NEW 3KM. EARTH ROAD



MALOLE DEVELOPMENT CENTRE



NEAREST EXISTING VILLAGE S.

## 9. OPERATING AND COST BENEFIT

In the event of completing the road under the adopted labour based method which is likely to justify its feasibility, the possible achievements would be reduced.

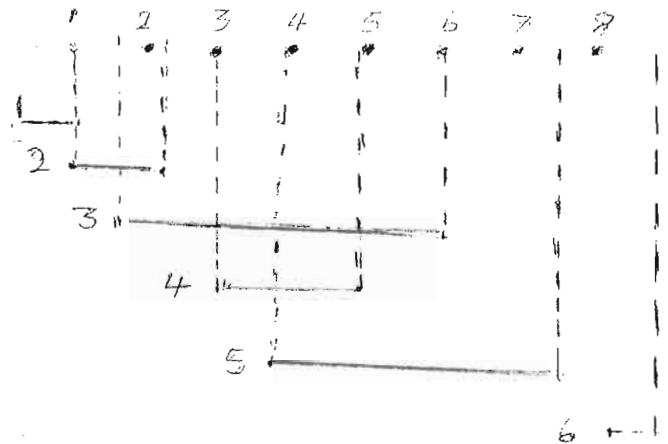
Agricultural output would be improved.

- Easy and safe Accessibility.
- Longer distances to and from School by School Children was no longer there.

10. PROJECT BUDGET

Bill of quantity is to be worked out. In this respect standard cost per KM. currently enforce in Zambia and other Developing Countries is to be applied.

- \$ 6,500 (K325,000) per KM.
- Length of Road - 3 KM.
- Cost per KM. - \$ 6,500 = \$ 19,500 (K975,000).

TIMINGPROGRESS STAGES DIVIDED IN WEEKS

1. Project Administration preparations prior to starting.
2. Surveys
3. Bush Clearing
4. Setting and Pegging
5. Formation
6. Evaluation

11. CONCLUSION

If roads are not there or simply not maintained, social and economic problems among human communities would be numerous. Roads to be of good service the following must be observed:-

- Shrubs must be removed from Drains.
- Drainages must be in good conditions before on set of rains.
- Cambers, cross falls and super elevation on the road must be maintained.
- Inspection of Drains to be encouraged during heavy rains.