KWARA STATE POLYTECHNIC, ILORIN
INSTITUTE OF ENVIRONMENTAL STUDIES
DEPARTMENT OF SURVEYING AND GEO-INFORMATICS

A PROJECT REPORT ON :

PERIMETER AND DETAILING SURVEY

OF

OLD INSTITUTE OF ENVIRONMENTAL STUDIES (IES) AND VILLAGE, KWARA STATE POLYTECHNIC ILORIN ALONG OLD JEBBA ROAD,MORO LOCAL GOVERNMENT AREA, KWARA STATE.

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INSTITUTION: INSTITUTE OF ENVIRONMENTAL STUDIES

DATE: JUNE, 2025

CERTIFICATE

I, **AWOYEMI DEBORAH MARIAM** with Matric Number **ND/23/SGI/FT/025** hereby certify that the information contained in this project report were obtained as a result of observations and movements taken by me and the Perimeter and Detailing was done in accordance to Surveying rules and regulations and Departmental instructions.

Signature of student: _____

Name of student: _____

Date of completion: _____

Matric Number: **ND/23/SGI/FT/025**

CERTIFICATION

This is to certify that **AWOYEMI MARIAM DEBORAH** with Matric number **ND/23/SGI/FT/025** carried out this project work and has been approved as meeting the requirement for the award of National Diploma (ND) in Surveying and Geo-informatics in the Department of Surveying and Geo-informatics of the Institute of Environmental Studies, Kwara state polytechnic, Ilorin.

Project supervisor _____

SURV. ABDULSALAM AYUBA Signature and Date

Project Cordinator _____

SURV. AWOLEYE RAPHAEL

Signature and Date

Head of Department _____

SURV. AMBIMBOLA ISAU Signature and Date

_____

External Moderator Signature and Date

J.O OPALEYE

.....

DEDICATION

This project is dedicated to Almighty God, the creator of heaven and earth, ancient of days, the I am that I am the beginning and the end whose supremacy in the knowledge of everything is absolute

ACKNOWLEDGMENT

I will like to express my profound appreciation to almighty God who in his infinite mercy gave me the ability to commence and complete my program in peace and God health, if not for God, where will I be today? All things are possible through him for the knowledge, wisdom and understanding and also his moral, protection and provision on me through my ND programme thank God for the great things he has done, most especially for the success of this project work God be the glory.

My appreciation goes to my lovely parent in person of MR & MRS AWOYEMI for their prayer and support, financially and morally throughout this journey thank for all the beautiful star and end through my ND program. I know I can't repay you back but I have special prayer to offer you both, wishing you both long life and prosperity in good health and wealth, more success, blessing and happiness along with a lot of luck

I also give thanks to my project supervisors in the of **Surv. Abdulsalam Ayuba And Suvr. Benard Oguntayo** for their strictly and through supervision. I will like to thank all lecturers of this noble department starting from H.O.**D Surv. Abinbola isau, Surv. A. Ayube, Mr. Bello Felix Diran, Surv. Williams Kzeem, Surv. A.O. Akinyede,** and also the Director of Special Duty

Surv. A.G. Aremu and other supportive staff of the department of Surveying and Geo-informatics, Kwara State Polytechnic, Ilorin.

To my group I appreciate all members of the starting from **Fagbohun Isaac Olamide Oyeniyi moshood Akinola, Awoyemi Mariam Deborah, Niniola Mutiat Omowumi, Musa Oladimeji Zulu, Raheem Rokibat Anike, Abdulrosheed Olayinka, Sheu Rokibat Ayoka,** I pray all our effort shall not be in vain and we shall all meet in our dreamlands (Amen).

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ABSTRACT

This project is based on perimeter and detailing survey of part of environmental studies [I.E.S], Kwara State Polytechnic, Moro Local Government Area, Ilorin, Kwara State. This project has been divided into different chapters.Chapter one of this project gives an introduction about the project topic as a whole.This enablesbetter understanding of the project so as to know what perimeter and detailing entails as well as the scope and aim of the project.Chapter two is the literature review i.e. the works of past professionals and projects that had been done in the past as regards this specific topic which were examined in order to help to shed more light on what perimeter and detailing survey is all about. Chapter three of this project is the methodology which describes how the project was carried out using digital instrument e.g. Total Station and its accessories from the first stage to the final stage.Chapter four of this project is Data presentation which consists of all the data acquired from site during the project execution. Chapter five comprises of summary, problems encountered, conclusion and recommendations. Reference comprises of list ofnames and works of prominent authors or professionals whose works on survey as regards this specific topic were used in the course of this project.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Detailing survey is used to determine and locate the features and improvements on a parcel of land. The word features here means both natural and man – made structures on a piece of land, such as vegetation, type of soil, buildings, land utilities, fences and boundaries roads, land marks and so on.

This kind of survey is usually confirmed to the boundaries of the parcel of land. The survey will often include data such as the elevation of land, that is, how high the land is above an arbitrary datum {level}. A commonly used arbitrary level is the mean sea level which is taken as zero meters high. The Eating and Northing coordinate of the land {exact position in relation to the earth's surface} may have to be taken too.

Detailing surveying is carried out wth some surveying instrument or equipment e.g total station and theodolites with requireable insttrument along with it. The data is then carried to the office for analysis and preparation of detail of detail maps i:e digital terrain models which provide the details have been collected in the form of a map or plan. Then there maps are usesful for engineer and achitect who used them in their design and plan. The survey who will be assisted by a chain man or assistant surveyor for the property owner or developer this is value able information for construction planning. Property developed could accurately access the potential of a land. In addittion they can also build fences or wall of that are positioned more accurately to better protect their property. This survey is also valuable for further references.

Surveying has been and would always be the bedrock of every meaning development in any nation because it play a vital role in human development and always proceeds every societal development activities. It has various branches of which cadastral survey is one.

PERIMETER SURVEY: Can be defined as a type of survey which map a trip along the boundaries. The purpose of this type of survey is to document the boundary location by depicting and northing their position with respect to.

1. Location of all boundary monument found or set
2. Apparent improvement and features, including as a minimum dwelling, barns, garages, sheds, drive way, roadway, surface utilities, visible bodies of water and swimming pools
3. Record easement and visible evidence of thereof
4. Record and visible means of ingress and egress
5. Lines of occupation including as a minimum fences, walls, hedges and yards.

DETAILING SURVEY: can be defined as a type of survey which is used to determine and locate the features and improvements on a parcel of land. The word features here means both natural and man – made structures on a piece of land, such as vegetation, type of soil, buildings, land utilities, fences and boundaries roads, land marks and so on.

This kind of survey is usually confirmed to the boundaries of the parcel of land. The survey will often include data such as the elevation of land, that is, how high the land is above an arbitrary datum {level}.

A commonly used arbitrary level is the mean sea level which is taken as zero meters high. The Eating and Northing coordinate of the land {exact position in relation to the earth's surface} may have to be taken too.

PERIMETER SURVEY AND DETAILING SURVEY: Are carried out for the purpose of delineating the boundary of a parcel of land, determining it area and details, and preparation of survey plan. The survey plan is usually the end product of a boundary survey. The survey plan show ownership and describes the land. It is a document required by law during processing of any land title. We will help you prepare your survey plan and lodge the record {RED} copy in the office of the Surveyor General of the state.

It is very important to request for a perimeter survey before acquisition of land. Perimeter and detailing survey are usually carried out for other purpose such as, setting a land dispute, determining encroachment, subdivision of land and re - establishing missing beacons.

THERE ARE THREE PRINCIPLE WHICH BASICALLY QUIDE THE CONDUCT AND OPERATION IN SURVEY

- Working from whole to part.
- Choosing the method of survey and appropriate to meet the desire result.
- Provision of adequate check to all survey operations.

i. WORKING FROM WHOLE TO PART: This means any particular survey operation, whether it is for an entire country or an area of small extent, it must be connected to the main frame works of higher accuracy that could be made once the frame work has been establishes.
ii. CHOOSING THE METHOD OF SURVEYING: This is adopted in order to meet the desired and required accuracy which the more refined techniques and instrument employed, the greater the accuracy that will be obtained.
iii. PROVISION OF ADEQUATE CHECK: This is an important aspect of surveying exercise as it will show the possibility of detecting error and how it will show the possibilities of detecting error and how it will be handle. Therefore, survey as well as estate survey involves stages such as planning data acquisition processing and information presentation. Survey can be divided in to two main types.

- The plan surveying
- The geodetic surveying

Perimeter survey does not identify the features and improvement that exist within a property such as barns, garages, dwelling, surface utilities, road ways pool and visible bodies of water, only features that fall within the 15foot width around the boundary perimeter will be depicted. Also perimeter survey resolve

conflicts on maps and deeds description and shoes structures such as fences, hedges, yards, and walls.

Detailing survey is used to determine and locate the features and improvement on a parcel of land, the word ‘’ features’’ here means nothing natural and man – made features on a piece of land. In this project, perimeter and detailing survey is the main aspect of survey that would be considered. In new of this perimeter survey is a specific type of survey that measures the distance along the boundary line of a given land.

A perimeter survey is important to find out the exists location of the landed property and properly determine the extent of such land and also extent of encroachment can be evaluated in case of the landed property is in dispute. Perimeter and detailing survey is a survey that requires transferring of the details on the limits of the heights, depicting all details on the limit of the landed property, which consists of both natural and artificial features. It also refers to as cadastral survey because it contain coordinate all corners point of the boundaries and determination of relative position of point of both natural and artificial features on the earth’s surface and addicting them by means of conversational symbols on the plan.

- **HOW ARE THEY CARRIED OUT**

They are generally carried out using survey equipment such as total station and theodolite. The data is then carried out at the office for analysis and preparation of details plan are usually useful for engineers and architects who use them in their design and plan. The surveyor should be carried out by a qualified register surveyor.

1.2 AIM OF THE PROJECT

The aim of this project is to carryout detail the infrastructural both natural and man-made feature on the site

1.2.1 OBJECTIVES

This are the objectives used in accordance to accomplish the project listed below.

i. Reconnaissance: This is site visitation to be more familiar to the site and to known the types of equipment and material to be used to carryout the project.
ii. Planning: This is to plan on how to execute the project successfully
iii. Perimeter traversity: This is known the total area of land to be detailed or site of the project.
iv. Fixing of detail (i.e) detailling of the structure on both natural and man made feature on the site

1.3 SCOPE OF THE STUDY

The scope of the project include the following:

i. Reconnaissance
ii. Office reconnaissance
iii. Field reconnaissance
iv. Perimeter traversity of the project
v. Fixing of the detailed structure (i.e) detailing of feature
vi. Data processing
vii. Data Analysis
viii. Plan or map presentation

1.4 PROJECT SPECIFICATION

Project specification is as follow:

i. The singular disclosure for the traverse leg should not more than thirty second (i.e 30")

ii. Linear measurement should be measure with a steel band or standardize steel type.
iii. Those measurement should be recorded to the third decimal place of a meter are nearest millimeter e.g 30.050m
iv. All the detail i.e those featured and structure on should be fixed using total station. Equipment

1.5 PERSONAL INVOLVE

The under listed student of ND II 2023/2025 session are those who participated in the execution of the project.

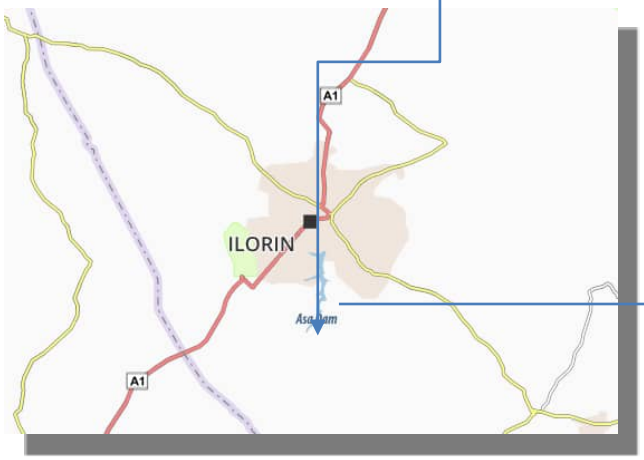
They are:

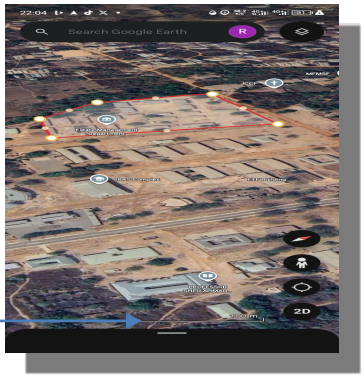
S/N	NAMES	MATRIC NO	REMARKS
1	AWOYEMI DEBORAH MARIAM	ND/23/SGI/FT/025	WRITER
2	MUSA ZULU OLADIMEJI	ND/23/SGI/FT/017	MEMBER
3	OYENIYI MASHOOD AKINOLA	ND/23/SGI/FT/019	MEMBER
4	SHEU ROKIBAT AYOKA	ND/23/SGI/FT/020	MEMBER
5	OJO SERAH ADESOLA	ND/23/SGI/FT/021	MEMBER
6	NINIOLA MUTIAT OMOWUNMI	ND/23/SGI/FT/024	MEMBER
7	FAGBOHUN ISAAC OLAMIDE	ND/23/SGI/FT/014	MEMBER
8	RAHEEM ROKIBAT ANIKE	ND/23/SGI/FT/026	MEMBER
9	ISHOLA ABDULROSHEED .O	ND/22/SGI/FT/028	MEMBER

1.6 STUDY AREA

- OLD INSTITUTE OF ENVIRONMENTAL STUDIES (IES) AND VILLAGE, KWARA STATE POLYTECHNIC ILORIN ALONG OLD JEBBA ROAD,MORO LOCAL GOVERNMENT AREA, KWARA STATE.
- $8^0$33’ 20.1336’’N $4^0$38’14.028”E
- $8^0$33’ 21. 459” N $4^0$38’14.584”E
- $8^0$33’18. 942’N $4^0$38’14.364” E

MAP OF THE STUDY AREA.





CHAPTER TWO

2.0 LITERATURE REVIEW

Anderson and Michacl {1985} State that " surveying has to do with the determination of the relative spatial location of point on a near the surface of the earth " they further buttressed the above definition by saying that it is the art of measuring angles between lines, determining angular and linear measurements.

Surveying is generally considered as the foundation for socio – economic and environmental development in the worlds. It play a vital role in every aspect of physical development because all the activities of other professions in environment upgrading are based on land download foundation by surveyor.

ENCYCLOPEDIA BRITANNIA {2011} Defined surveying as a means of making relatively scale accurate measurement of the earth's surface. It include the determination of the measurement data the reduction and interpretation of the data to usable form and conversely, the establishment of relative position and size according to given measurement requirement.

Many improvement and refinements have been incorporated in all the basic surveying instruments. These have resulted in all the basic surveying instruments. These have resulted in increased accuracy and speed of operation and have opened up possibilities for improved method in the field, two revolutionary mapping and surveying changes have been introduced photogrammetric or mapping from aerial photograph and distance measurement includes the adoption of the laser for this purpose as well as for alignment in the 1960s. Important technological development benefiting surveying in the 1970s included the use of satellites as reference points for geodetic to achieve a will planned perimeter and detail survey were reconnaissance, traverse, tachometry and detailing.

Reconnaissance could be office reconnaissance which has to do with the putting in place of every necessary strategy and equipment [instrument] needed

in the process of accomplishing the survey operation and field reconnaissance which involve the actual visited, proper positioning of nails and pegs are done and finally operation. To this effect, an expert surveyor must carry out recce diagram.

TRAVERSING: Is referred to as series of straight lines connecting successive established points along the route of survey. “Anderson and Mikhail “ [1985]. Buford [1984] stated the traversing involves the process of measuring of angles and distances in sequence over a series of established points on the ground.

TRAVERSING: Was also defined as an orderly sequence of determination of length and direction of length and direction of lines between points. Traversing is classified in to two process CLOSE and OPEN TRAVERSE. In the case of this project, A closed traverseis the traverse that originates at a point of known positions [coordinate] and closes or terminate on another point of known horizontal position [coordinate] while A open traverse is a traverse that doesn’t closes back from it starting point.

DETAILING : Could be referred to as man - made [artificial] and natural features on the ground within the project site which are determined and obtained with the use of the total station and finally representation with a suitable scale on plan. The procedure chosen for a particular job depends on the personnel and instructions given by the project supervisor and also based on the availability of equipments [instruments] applicable for the task and hand survey and electronics to speed the processing and recording of survey data.

Microsoft Encarta [2009] Defined surveying as the mathematical science of features on or beneath the surface of the earth for control purpose that is, for aligning land and construction boundaries and for providing CCKS of construction dimensions. Land boundaries are set or measured for proper description : the topography of land forms and natural or artificial objects are depicted on map : and major construction and civil engineering work such as dams, bridges, railway roads, and high ways are controlled by surveying methods. The measurement of a survey linear or angular and principles of geometry and trigonometry are usually applied.

Accompanying the actual measurement of surveying are mathematical calculation. Distances, angle directions, locations, elevations, areas and volumes are thus determined from data of the survey.

Also much of the information of the survey is portrayed graphically by the construction of maps, profiles, cross section and diagrams.

The equipment available and methods application for measurement and calculation have changed tremendously in the past decade. Aerial photogrammetric, satellite observations, remote sensing, inertial surveying and electronic distance measurement and laser techniques are examples of mother system utilized to collect data reliable in the surveying process with the development of these data acquisition and processing system, the duties of the surveyors have expanded beyond the traditional task of the field work of taking measurements and office work of computing and digital drawing. The essential operation carried out on the field in order.

DETAILING: Can also be said to be the process of fixing bath naturals and artificial features to the corresponding traverse line or control are fixed and represented to scale on the plan.

THE SURVEY HAS TWO SIMILAR BITS OPPOSITE FUNCTIONS

- The determination of existing relative horizontal and vertical position, such as that used for the process of mapping and
- The establishment of marks to control construction or to indicate land boundaries further analyzed that surveying has been on essential element countries that its importance is often forgotten.

It is imperative requirement in the planning and execution of nearly every form of constructions. Surveying was essential at the door of history and some of the significant scientific discoveries could never have been implemented were its not for the contribution of surveying. So believed that as principle modern uses are in the field of transportation building appointment of land and communication inside which man can do without development is to be mention in man environment.

This due to the above started and confirmed facts: I discover the perimeter and detail survey cannot be carried out without some notable terminology which have to be defined.

SURCON [1989] Defined Beacon as a permanent survey work of any kind made of concrete iron or stone and include pillar and boundary point so made.

SURCON [1989] Defined Beacon as making of the boundary line on the ground by emplacement of beams or by such other methods as these regulations.

BOUNDARY: Means a line making the limit of an area or imaging which mark the confines or line division of two contiguous plots.

PROPERTY: Means a thing or things belong to someone or a building and land belong to someone.

SURCON [1989] Defined Property Beacon as emplacement on the boundaries of parcel of land for the purpose of defining or demarcating the boundaries.

CORDINATION: Means each of the numbers used to indicate the position of a point. The position of any point relation to some axes usually intersected at right angle.

CONTROL: Is the system of relatively precise measurement by triangulation, traversing or leveling to determine the direction or different type of control.

- HORIZONTAL CONTROL [X, Y]: This is the determination of horizontal location only. This is a network of triangulation and traverse station whose positions have been located and adjusted most accurately with the respect to a fixed point [ORIGIN].
- VERTICAL CONTROL [Z]: This is to determine only the elevation. This is a network of bench marks who elevation have been precisely measured and adjusted to a known tidal bench mark.

ENCYLOPEDIA BRITANNIEA [1973 – 1974]: Commented that bench marks or marked point on the surface of the earthly, connected by the elevation of bench

marks are given in term of their height above a selected level surface called a datum limited to horizontal and vertical control only because it is the only two type and among others. Northing and these controls used are in order depending on the specification given for the establishment ranging from first order, second order and third order respectively. This is aided by the survey operation known specification. The network of first and second order triangulation and traversing when the need arises to provide enough or sufficient control.

ALAKEDE [2006]: As believe that projections of land contains north line with respect to which the relative directions of the different land features maybe ascertained. It contains a scale with the help of which the actual distance between any two and factors can be read from the drawing. It contains no information from which geographic location of the area may be determined. It covered small extent where compared to map.

ALAKEDE [2006]: Map: Said in a map very large actual distance is represented by a very small line segment, I.E the scale of the map is very small in compared that of a plan. As such as the case the map can show the map, can show the areas as a whole and cannot reveal the details of the features like that in a plan. Map also contains a longitude line with respect to which the area can be uniquely on the globe.

CHAPTER THREE

3.0 METHODOLOGY

Methodology is a system or principle used is solving problem, with specific component such as task, method technique and tools.

This is also the techniques used to achieve the aims and objectives of this project work, the execution of this project was based on the following basic principles of surveying.

- Working from whole to part.
- The principle of choosing the method of survey most appropriate to meet the desire result.
- The principle of provision of adequate check to meet the require accuracy.

3.1 RECONNAISSANCE

Reconnaissance which is the first stage and vital aspect of any survey work

Carried out is as well the preliminary stage of this project.

This also is the initial operation or preliminary investigation undertaken by the surveyor in order to have a thorough overview of the site before the commencement of the actual survey ,it can also be abbreviated as "recci" as the project was concerned the reconnaissance was carried out in two ways.

3.1 field reconnaissance

4.1 Office reconnaissance

3.1.1 Field or Site Reconnaissance

This involves the actual [physical] visit to the site and was carried out before the actual operation. This project site was visited by the group in order to have a prior knowledge as well as true picture of the site and to ascertain the information collected during the office planning. The boundaries were marked with wooden peg driven into the ground to avoid disturbance or removal, taking into consideration the following factors.

- Inter-visibility of the selected traverse station.
- Safety of the selected station for future reference.
- Accessibility of the stations.

3.1.2 Office Reconnaissance

This involves knowing the type of instrument, purpose and accuracy required for the survey to be carried out. Information related to the given project was collected from various sources such as project supervisor. The specification/ instructions and coordinates of the control stations were collected from the department of surveying and geo-informatics Kwara State Polytechnic.

Table 3.1.3 Co-ordinates of control used.

STATION	EASTINGS (M)	NORTHINGS(M)	
KW/PT/2001	679647.447	946677.273	
SC/KW/FRS/4404	679449.408	946699.489	

3.2 INSTRUMENT TEST

HORIZONTAL COLLIMATION TEST

The aim of this test was to be sure that the line of sight is perpendicular to the trunion axis.

Procedure:

The Total Station instrument was set over a point and all necessary temporary adjustments (centering, leveling and focusing) performed. Then the configuration menu of the total station was accessed by pressing down the menu key for about two seconds and the calibration sub-menu and consequently the horizontal collimation test was chosen. This test was done by sighting and bisecting a well-defined vertical target about 100m away and taking the horizontal readings on face left and face right. From the analysis of the results, the total station was in good adjustment.

VERTICAL INDEX ERROR TEST

This adjustment ensures that the vertical circle reading is exactly 90° when the line of sight is horizontal. Any deviation from this figure is termed vertical index error.

Procedure:

The instrument was set over a point and necessary temporary adjustments (centering, leveling and focusing) performed. The vertical index error test was carried out by sighting a target at a distance of about 120m on face left. The vertical circle reading was recorded and on face right the target was sighted and bisected again and the vertical circle reading recorded.

3.2.1 IN-SITU CHECK FOR CONTROL

In-situ checks observations (angular and linear) were executed for the purpose of verifying the integrity of the existing controls. The following observational schedules were executed:

The instrument was set on KW3001PT and angular observations were made to targets on KW3002PT as back station and BPM1500 as forward station.

The results of the observations as shown below confirm that the controls were still in their original positions and therefore suitable for use.

TABLE 3.2.1 IN-SITU CHECK DATA ANALYSIS(control pillars).

STATION	**COORDINATE (m)**	**KNOWN VALUES (m)**	**MEASURED VALUES (m)**	**DIFFERENCE (m)**
SC/KW/FRS/4404	**NORTHING** **EASTING**	946677.273 679467.447	946699.489 679449.408	0 0 0
KW/PT/2001	**NORTHING** **EASTING**	946677.273 679467.447	946699.489 679449.408	-0.005m +0.004m

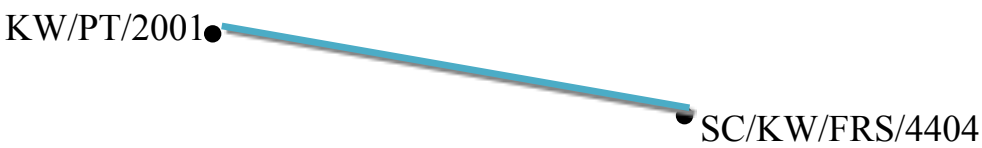


FIGURE 3.2.1 *Diagram Showing Control Used*

3.2.2 DATA ACQUISITION

This involves the processes in acquiring the data needed for the project. This involves the actual making of measurements and recording of

observed data on the field. There are different methods of acquiring data in the site with different instrument such as Total station, Theodolite, Compass, Level Instrument etc.

3.2.3 Geometric Data Acquisition.

These are positional data, that is, they are data having the [x, y, and z] coordinates which is possible to locate their position on the surface of the earth.

3.2.4 Attribute Data Acquisition.

These data are acquired by social survey, these are data used for defining the purpose of features located on the earth surface.

3.2.5 EQUIPMENT USED/SYSTEM SELECTION AND SOFTWARE

This comprises of two components, namely: the hardware components and software components.

HARDWARE COMPONENT: These are the physical equipment used for the execution of the project and they are:

1. Total station (MATO)and its accessories
2. Steel tape
3. Nails and bottle corks
4. Field book and pen
5. Personal computer

6. pegs

SOFTWARE USED FOR DATA PROCESSING

1. AutoCAD 2017 for plotting the boundary and detailing
2. Note Pad, and Microsoft Excel (for Script preparation, editing and restructuring of data and report writing).

3.2.6 SETTING OUT OF PERIMETER BOUNDARY

Based on the office planning and field reconnaissance conducted, the instrument was first set on Control Pillar KW3001PT being the closest control and all temporary adjustment performed. The coordinate of the control point KW3001PT was key into the instrument.KW3002PT was sighted as back sight.

The coordinates of the station KW3002PT was key-in the instrument via the keyboard. The instrument then computed the bearing between the two stations for orientation. Then coordinates of points to be set out were entered into the total station and the setting out program of the instrument was used to get the angle to turn in order to face the direction of the point after orientation, the instrument was rotated until horizontal angle read 0° 00′ 00″,

reflector was held along the direction and distance between the instrument and the reflector was measured. The instrument displayed the remaining of the point to be fixed distance as either positive or negative. Positive distance means that the reflector should move away from the instrument by that amount while negative distance means that the reflector should move towards the instrument. When the horizontal angle read 0°00′ 00″ and measured distance displayed 0.000m this marked the exact position to be set out.

3.3 MONUMENTATION

The beacons measuring 18cm by 18cm by 75 cm were molded in-situ with a mixture of 1:2:3 of cement, sand and gravel respectively. A 12mm diameter Iron rod defines the center of the beacon was placed. The perimeter boundary line was cleared to ensure inter-visibility between the beacons. The numbering of the beacons was carried out after molding in a clockwise pattern with an arrow pointing to the succeeding station. Also, numbering as carried out accordingly as they were in the Title Deed Plan (TDP).However, the beacons were prefixed with identification mark KP220 where KP represents Kwara State Polytechnic.

FIGURE 3.2.2: PLAN VIEW

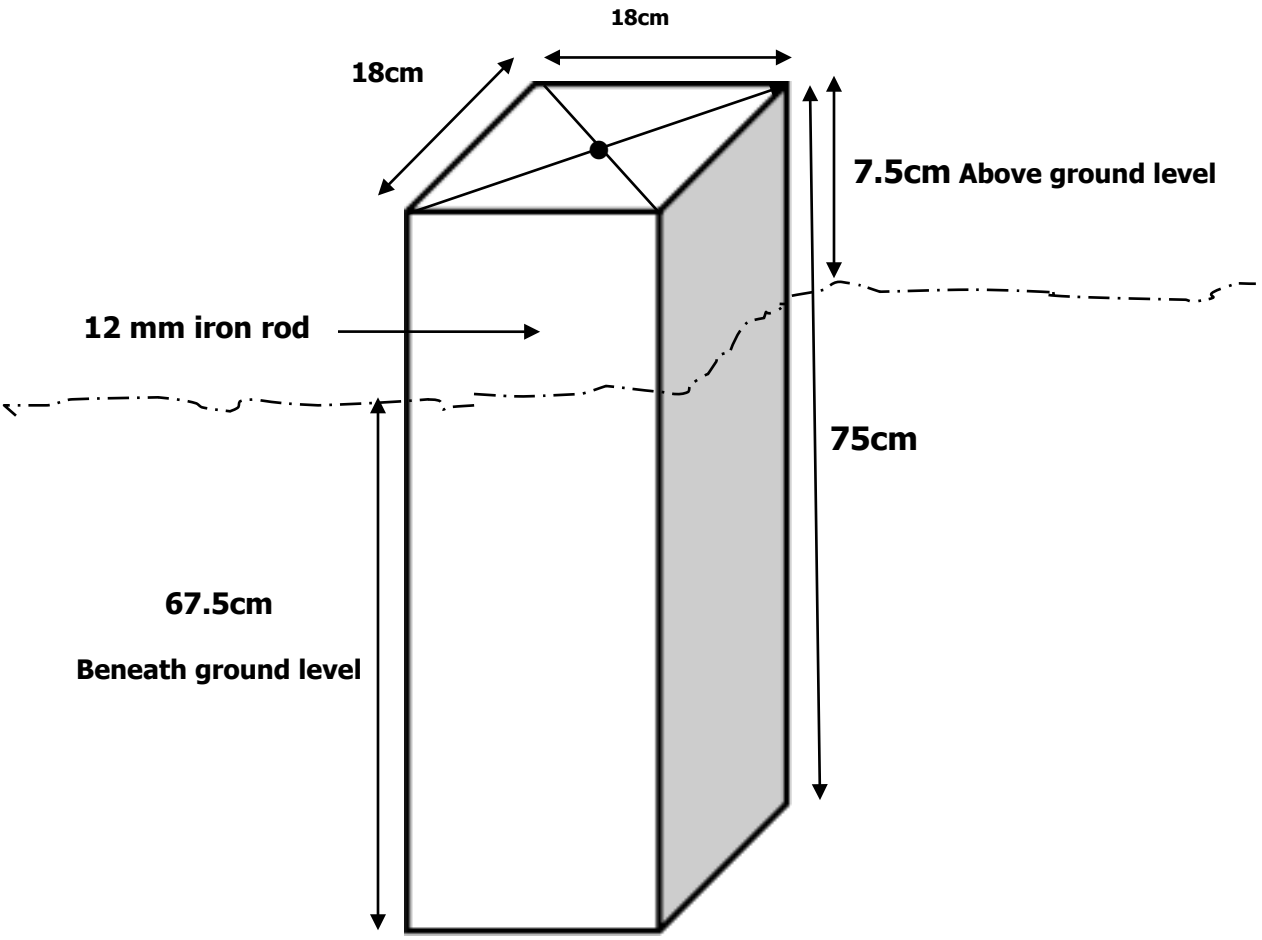


FIGURE 3.3: PROPERTY BEACON

3.4 PERIMETER TRAVERSING

After the demarcation, capping and numbering of the beacons, the actual data acquisition using the total station MATO TC1010 commenced. The traverse started from KW3001PT with KW3002PT as reference point. The total station was set up over control KW3001PT, centered, leveled and telescope focused to eliminate parallax. The parameters of the instrument station i.e. station name, height of instrument over the station mark, and the XYZ coordinates of the station were keyed in. The reference control point was then bisected and the station name KW3002PT, height of target over the station mark, and the XYZ coordinates of the station were key in. Though the total station was set in coordinate mode it actually measured and recorded horizontal readings, vertical readings and distances automatically into the internal memory of the instrument on both faces which it used to compute and display coordinates. At every set up of the total station, the temporary adjustment was carried out and the following parameters measured:

- Height of instrument
- Height of the back target
- Height of the fore target
- Distance to back and fore station

This is the determination of bearing and distance of series of connected lines from known coordinated point so as to obtain coordinate of the newly established station.

This include the following with formula

- Linear measurement : the difference between the coordinates were first derived using (ΔE=E2-E1, E3-E2) etc. and the distance of end traverse leg was obtained using the formula: distance =√(ΔE)^2 +(ΔN)^2
- Angular measurement: to calculated the bearing after the difference in coordinates has been derived, the formula is Bearing=Tan-1 ΔE/ΔN.

3.4.1. Coordinates of the boundary

The coordinates are as follows

S/n	Easting	Northing
1	679582.728	946429.840
2	679448.029	946465.672
3	679434.376	946560.036
4	679449.408	946699.489
5	679647.447	946677.273

3.5 DETAIL SURVEY

Detailing of all features (both natural and man-made) within the site was made by shooting ray to fixing with the instrument.

The instrument was set up on station PB220,switched on and adjustments were carried out. Then, "Job" and "Station Name" were set in the instrument so as to recall the coordinates of the boundary point from the instrument's memory. Also, heights of instrument above the instrument station and heights of reflectors were measured with steel tape and stored in the instrument's memory. A reflector placed on beacon PB221 was bisected for orientation. The Total station was instructed to compute the bearing between the two stations after input of the orientation station name PB221. One of the site assistant placed a reflector at the edge of a building , the reflector's cross hair was bisected with that of the telescope of the total station and "DIST" key was pressed for measurement, display and recording. Then the width of the scream was measured with a 50meter steel tape. The same procedure was adopted in detailing the express way by setting on a boundary beacon PB221 and orienting PB222.In this case, all the edges of the carriage way and some buildings were picked.

CHAPTER FOUR

4.0 DATA PROCESSING

After the acquisition of data from the study are , Microsoft Excel 2007 Software was used to type the final coordinates of all points except the unwanted part of the data like the temporary controls which were later transported to Note pad and AutoCAD software 2017.

4.1 RESULT ANALYSIS

The data was analyzed and found to meet with the departmental standards and this is the main traverse result extracted from field, then it was arranged accordingly as the observation was held in the field. The results are as follows.

4.2 Table: Back Computation

From Station	Observer d Bearing	Horizo ntal Distan ce(m)	- (E)	- (E)	Sum	- (N)	+ (N)	Sum	Easting	Northing
									679582.728	946429.840
A	284°45'	139.38 0		134.69 9	134	35.832		35	679448.029	946465.672
B	351°1646'	95.450		13.653	147	94.364		129	679434.376	946560.036
C	06°09'	140.26 0	15. 032		162	139.4 5 3		268	679449.408	946699.489
D	96°24'	199.28 0	198 .03 9		360		22.21 6	290	679647.447	946677.273
E	194°39	255.76 0		64.719	424		247.4 33	537	679647.447	946429.840

4.3 COMPUTE FOR TOTAL AREA USING DNEOUBLE LATITUDE AND DEPARTURE

ΔE	ΔN	Easting	Northing
+134.699	-35.832	679582.728	946429.840
+ 13.653	-94.364	679448.029	946465.672
-15.032	-139.453	679434.376	946560.036
-198.039	+22.216	679449.408	946699.489
+64.719	+247.433	679647.447	946677.273

Source: Writer, 2025

+134.699

+134.699 × -35.832 = -4826.535

+269.398

+013.653

+283.051

+013.653 × -94.364= 1288.352

+296.704

- 015.032

+281.672

-015.032 × 139.453= +2096.257

+266.640

-198.039

+068.601

-198.039+068.601

-198.039 × +22.216 =-4399.634

-129.438

+ 064.719

-064.719

+ 0.64.719 × +247.433 = +16013.616

0.00

SUM OF POSITIVE (+) - SUM OF NEGATIVE (-)

$$= \frac{7595.352 - 10514.521}{2}$$

AREA = 4.265 square meters

1.4 GRAPHIC PLOTTING

This simply refers to the graphically representation i.e. plotting of plan. It was plotted using AutoCAD and other software in a computer system and a suitable scale was used to for the hard copy format.

Presented information include boundary details and beg, conventional sign and symbol were also used in the plan.

The digital plan was produced using AutoCAD software and these are procedures followed.

- Switch on the computer and allow it to boost
- Select notepad, from notepad, a script file for the coordinate p -line easting, northing was structured.
- File was saved with extension. SCR
- AutoCAD was launched.
- Format was clicked and set the unit then press "OK"
- Press "Tool" and select Run script to pick your saved file then press escape and press zoom, extent and the image was displayed.
- The boundary line was changed to Red and necessary editing was done.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY

The project ‘’ perimeter and detailing survey’’ was carried out at part of Kwara state polytechnic, Ilorin pacifically institute of environmental studies located in Moro local government area Ilorin, Kwara state, Nigeria.

The project is carried out in accordance with third order specifications. The reconnaissance survey was properly carried out in the office and field work was done for proper planning of the operation by locating initial control that is within the project site for proper orientation, the instrument to be used and selection of traverse station in which the indivisibility of the selections were put in to consideration and finally drawing of sketched diagram of the area to be surveys.

The field operation included [traversing and detailing]. Therefore, data processing was done and the plan was produced in digital format tittle plan showing perimeter and details of all project area.

Finally, report was written on how the entire project was execute.

5.2 PROBLEM ENCOUNTERED

The problem encountered on site were unavoidable especially the movement of vehicles and students which disturbs the work since there is no free flow of traffic

5.3 CONCLUSION

Having gone through all stages of this project, its right to say that the task had much interesting particularly at the planning and execution stage, through the field procedure was very tedious and time consuming.

From all indications, the project as being successfully executed and adequate data acquired, processed and represented in plans, all necessary computation were carried out to meet specification given.

Finally, the following terms were submitted to the SIWES [Student Industrial Work Experience Scheme] units field book, computation sheet, extract of result, plans [Traverse] and the project report.

5.4 RECOMMENDATIONS

Having participate in this practical work and due to the experience I had acquired during the course of this project, I hereby recommend the following observationApplication of computer programming should be fully implemented in other to make the students to carry out the data processing exercise more efficiently and faster

- Digital instrument such as DGPS, digital level and EDM should be accessible to student for practical.
- I also recommend that instrument should be released to the student on time for quick execution of the project.
- I therefore recommend that this paper is open for reviewing and the result analysis can further be used for project execution of the site.

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APPENDIX

ID	EASTING	NORTHING
PL1	679582.728	946429.840
PL2	679448.029	946465.672
PL3	679434.376	946560.036
PL4	679449.408	946699.489
PL5	679647.447	946677.273
BLD1	679549.274	946642.233
BLD1	679541.227	946644.456
BLD1	679549.407	946673.891
BLD1	679557.454	946671.668
BLD2	679606.155	946611.461
BLD2	679615.524	946608.893
BLD2	679605.691	946573.081
BLD2	679596.322	946575.649
BLD3	679564.348	946602.906
BLD3	679557.622	946604.990
BLD3	679563.626	946623.263
BLD3	679570.352	946621.179
BLD4	679541.131	946609.275
BLD4	679533.505	946611.284
BLD4	679538.580	946629.766
BLD4	679546.206	946627.757
BLD5	679498.379	946640.771
BLD5	679523.756	946633.877
BLD5	679520.271	946620.744
BLD5	679494.894	946627.638
BLD6	679463.996	946650.142
BLD6	679489.373	946643.248
BLD6	679485.888	946630.115
BLD6	679460.511	946637.009
BLD7	679457.544	946625.842
BLD7	679472.023	946621.924
BLD7	679465.087	946596.289
BLD7	679450.608	946600.207
BLD8	679529.818	946596.942

BLD8	679537.413	946594.907
BLD8	679531.409	946576.634
BLD8	679523.814	946578.669
BLD9	679554.668	946590.470
BLD9	679561.394	946588.386
BLD9	679555.390	946570.113
BLD9	679548.664	946572.197
BLD10	679592.068	946560.674
BLD10	679599.873	946559.664
BLD10	679593.075	946538.68
BLD10	679585.270	946539.689
BLD11	679519.000	946565.197
BLD11	679528.569	946563.532
BLD11	679525.179	946544.786
BLD11	679515.610	946546.451
BLD12	679478.939	946569.537
BLD12	679504.880	946562.819
BLD12	679501.237	946549.083
BLD12	679475.296	946555.801
BLD13	679444.388	946578.416
BLD13	679470.160	946571.719
BLD13	679465.756	946554.842
BLD13	679439.984	946561.539
BLD14	679510.302	946527.118
BLD14	679514.054	946537.943
BLD14	679534.343	946533.641
BLD14	679531.147	946521.705
BLD14	679521.697	946523.093
BLD14	679522.114	946524.897
BLD15	679509.302	946524.064
BLD15	679541.890	946519.170
BLD15	679539.930	946509.505
BLD15	679506.975	946515.133
BLD16	679553.651	946516.785
BLD16	679586.238	946511.89
BLD16	679584.278	946502.226
BLD16	679551.323	946507.854
BLD17	679504.954	946503.304

BLD17	679537.91	946497.676
BLD17	679536.226	946487.819
BLD17	679503.271	946493.447
BLD18	679549.303	946496.025
BLD18	679582.258	946490.397
BLD18	679580.575	946480.54
BLD18	679547.619	946486.168
BLD19	679545.936	946476.31
BLD19	679578.891	946470.682
BLD19	679577.208	946460.825
BLD19	679544.253	946466.453
BLD20	679501.588	946483.590
BLD20	679534.543	946477.961
BLD20	679532.859	946468.104
BLD20	679499.904	946473.732
BLD21	679498.221	946463.875
BLD21	679531.176	946458.24
BLD21	679529.493	946448.390
BLD21	679496.537	946454.018
BLD22	679542.569	946456.596
BLD22	679575.524	946450.968
BLD22	679573.841	946441.111
BLD22	679540.886	946446.739
MSQ	679496.29	946502.143
MSQ	679496.168	946499.145
MSQ	679477.014	946499.605
MSQ	679477.641	946514.971
MSQ	679496.779	946514.133
MSQ	679496.657	946511.135
MSQ	679499.882	946506.709
TOI1	679447.828	946594.614
TOI1	679452.651	946593.297
TOI1	679450.521	946585.496
TOI1	679445.698	946586.813
TOI2	679593.536	946572.708
TOI2	679598.359	946571.391
TOI2	679596.229	946563.590
TOI2	679591.406	946564.907

E.P	679492.26	946690.694
E.P	679562.54	946684.428
E.P	679610.758	946683.743
E.P	679445.846	946617.55
E.P	679483.807	946478.219
E.P	679549.084	946628.813
RD	679445.277	946712.177
RD	679643.316	946689.961
RD	679652.008	946683.482
RD	679579.403	946403.808
RD	679698.787	946684.724
RD	679671.309	946687.806
RD	679662.698	946681.966
RD	679659.235	946674.342
RD	679588.012	946402.041
RD	679446.392	946722.115
RD	679700.67	946694.575