KWARA STATE POLYTECHNIC, ILORIN KWARA STATE

TOPOGRAPHICAL SURVEY OF PART OF IFMS, KWARA STATE POLYTECHNIC ILORIN

BY

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BEING A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF SURVEYING & GEO-INFORMATICS INSTITUTE OF ENVIRONMENTAL STUDIES

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF NATIONAL DIPLOMA (ND) IN SURVEYING & GEO-INFORMATICS

MAY 2025

CERTIFICATE

I hereby certify that the field work and information given in this project were obtained as a result of my observation and measurement and were carried out in accordance with survey laws and departmental institution.

______________________________ __________________________

Student name **Date of Completion**

CERTIFICATION

This is to certify that AKURUYEJO DALYAN TOBI with matric number **ND/23/SGI/FT/0032** surveying and Geo-informatics, Institute of Environment Studies carried out this project under my supervision and the project has been read and approved as part of the requirement for the award of National Diploma (ND).

___________________________ ___________________________

SURV. WILLIAMS KAREEM
SURV. R.S AWOLEYE

DATE

(Project Supervisors)

___________________________ ___________________________

SURV. R.S AWOLEYE **DATE**
(Project Coordinator)

___________________________ ___________________________

SURV. ABINBOLA ISAU **DATE**
(Head of Department)

DEDICATION

I dedicate this project to Almighty God for his mercy on me and for giving me strength, wisdom, knowledge, skills and understanding in working towards my arms and objectives through this project period and also to my Dad **Mr. Akuruyejo Ibrahim** who has been giving me financial support, in my academics, may God continue to Enrich your pocket (Amen).

ACKNOWLEDGEMENT

My utmost gratitude goes to the Almighty and ever living God, for his divine grace from which I have always benefited from. I also appreciate him for giving me the inspiration and ability which cannot be qualified to face all challenges from the beginning of my life bill now, in him I live, move and have my being.

My profound gratitude and appreciation to those who contributed indirectly or directly in making my project possible and successful. I like to use this medium to thank my dad for his financial and moral support and also for his care and love over me, I pray you shall reap the fruit of your labour (Amen).

Also, appreciation goes to my guidance **Mr. and Mrs. AKURUYEJO** for their advices prayers & financial support, and to my **Grand parents and Brothers** for their love, care, advices, prayers and moral supports. I love you.

I also give thanks to my project supervisor and coordinator **Surv. Williams Kazeem** and **Surv. R.S Awoleye** for their strictly and through supervision. I will like to thank all lecturers of this noble department and H.O.**D Surv. Abimbola Isau** and other supportive staff of the department of Surveying and Geo-informatics, Kwara State Polytechnic, Ilorin.

To my group right from the (group leader) **Olanrewaju Sodiq Adebayo** you are one in a million may continue to bless you, **Adeyeye Fatimoh Oluwatosin, Nurudeen Mubaraq Opeyemi, Ayodele Boluwatife Victor, Yahaya Roheemat Kofoworola, Ibrahim Olamide Rukayat, Abdulrosheed Olayinka.** I pray all our effort shall not be in vain and we shall all meet in our dreamlands (Amen).

Finally, I appreciate the effort of all my colleagues in the department of surveying and Geo-informatics and those who help me in one way or the other. I love you all. And to those whose name were not mentioned who had one way or the other contributed towards the success of this project and those who stayed with me on campus right from day one up till this moments it's not been easy, everyone I say a big thank you, I love you all. To be a surveyor is not easy.

ABSTRACT

This project report focused on various methods used in exclusion of "Topographical survey" of part of IFMS of Kwara state polytechnic Ilorin, Moro local government area, Kwara state.

The project was carried out using the basic survey operation include reconnaissance which involves filed and office reconnaissance survey, followed by data acquisition which involves third order theodolite traversing, total station for detailing, but we use total station.

All the data acquired from the field were deduced, computed and adjusted according to specification and result were analyzed and found to be within the expected accuracy.

Finally computed data were presented in graphical form in digital using Civil CAD software and a comprehensive report on how the whole operation was carried out was finally written.

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CHAPTER ONE

INTRODUCTION

BACKGROUND TO STUDY

A topographical survey is a detailed mapping process that captures the physical features and elevation changes of a land area. This information is crucial for various applications, including construction planning, infrastructure development, and environmental studies.

Topographic surveys provide a clear and accurate representation of the landscape, enabling engineers, architects, and land managers to make informed decisions about how to best utilize and develop the land.

The primary output of a topographical survey is a map, often called a contour map, which uses contour lines to represent elevation changes. These contour lines show the height of the land at regular intervals, providing a visual representation of the land's shape.

It is sub-divided into three aspects. Namely;

I. Hypsography – i.e. relief features.
II. Hydrography – i.e. the water and drainage features.
III. Culture – i.e. the man-made features.

Topographical surveys play a vital role in:

1. Land Development: Informing design and planning for construction projects.
2. Infrastructure Development: Supporting the development of roads, bridges, and utilities.
3. Environmental Management: Tracking changes in land use, land cover, and terrain.

Topographical surveying is the main aspect of surveying to be considered. Topography means the shape or configuration of the earth's surface. It is an aspect of surveying which deals with the determination of the undulating nature of the terrain in 3 dimension(x, y, z coordinates).

Importance in Various Fields:

1. Civil Engineering: Topographical surveys are crucial for designing infrastructure projects. They provide the necessary data for planning roads, bridges, tunnels, and other structures. The data helps engineers understand the terrain, plan for earthworks, and ensure the project's structural integrity.

2. Construction: In construction, topographical surveys help in site planning, setting out, and monitoring. They ensure that buildings and other structures are accurately positioned according to the design plans. These surveys also help in volume calculations for earthmoving and in monitoring the site for any changes during construction.

3. Environmental Studies: Topographical surveys are used in environmental studies to map and analyze the landscape. This helps in assessing environmental impacts, managing natural resources, and planning conservation efforts.

They provide essential data for understanding watersheds, monitoring erosion, and mapping habitats.

A topographic survey gathers data about the natural and man-made features of an area of land. A type of land survey, topographical surveys measure the features, boundaries and levels of a site. Topographical map involves measuring the horizontal and vertical position of point on the ground. The information is then used to create a map or model that represent the topography.

1.2 STATEMENT OF PROBLEM

Owning to the present growth of human population and the demand for topographical map by individual, co-operate, bodies, companies and government agency for various developmental uses at various times, there was need to carry out topographic survey to provide basic map for future planning and development of Kwara state polytechnic, Ilorin.

1.3 AIM AND OBJECTIVES

1.3.1 AIM OF PROJECT

The aim of this project is to carry out a topographical survey to produce the topographical plan of part of Kwara state polytechnic, Ilorin.

1.3.2 OBJECTIVES

The following objectives were pursued for the achievement of the aim as stated above

I. Reconnaissance operation which was done in two stages i.e. Office and field reconnaissance.
II. Third order theodolite Traversing
III. Detailing by radiation method
IV. Spot heightening
V. Data processing
VI. Plan production
VII. Comprehensive report writing

1.4 PROJECT SPECIFICATION

The project specification refers to the requirement to be satisfied while carrying out surveying operation of any order. The specification that was put into consideration for this project goes thus;

I. The traverse should be a third order theodolite traverse which should start from a known control point and close back on the same known point or another control points of the same order.

II. All linear measurement should be carried out using steel tape or an Electronic Distance Measurement by tachometry method.

III. Horizontal length should be given to the nearest three decimal places and height of each traverse station should be determined by second order leveling.

IV. The linear accuracy must not less than 1:5000.

V. Detailing should be fixed by tachometry.

1.5 SCOPE OF THE PROJECT

The scope of this project exercise covered the following operations:

I. Reconnaissance
II. Control check
III. Selection of station
IV. Perimeter traversing
V. Test of instrument
VI. Detailing and spot heightening
VII. Data processing and computation
VIII. Data presentation
IX. Comprehensive report writing

1.6 PERSONNEL

The following are the personnel that participated actively during the execution of the project.

S/N	NAMES	MATRIC NO	POSITION
1.	AKURUYEJO DALYAN TOBI	ND/23/SGI/FT/0032	AUTHOR
2.	ADEYEYE FATIMOH OLUWATOSIN	ND/23/SGI/FT/0034	MEMBER
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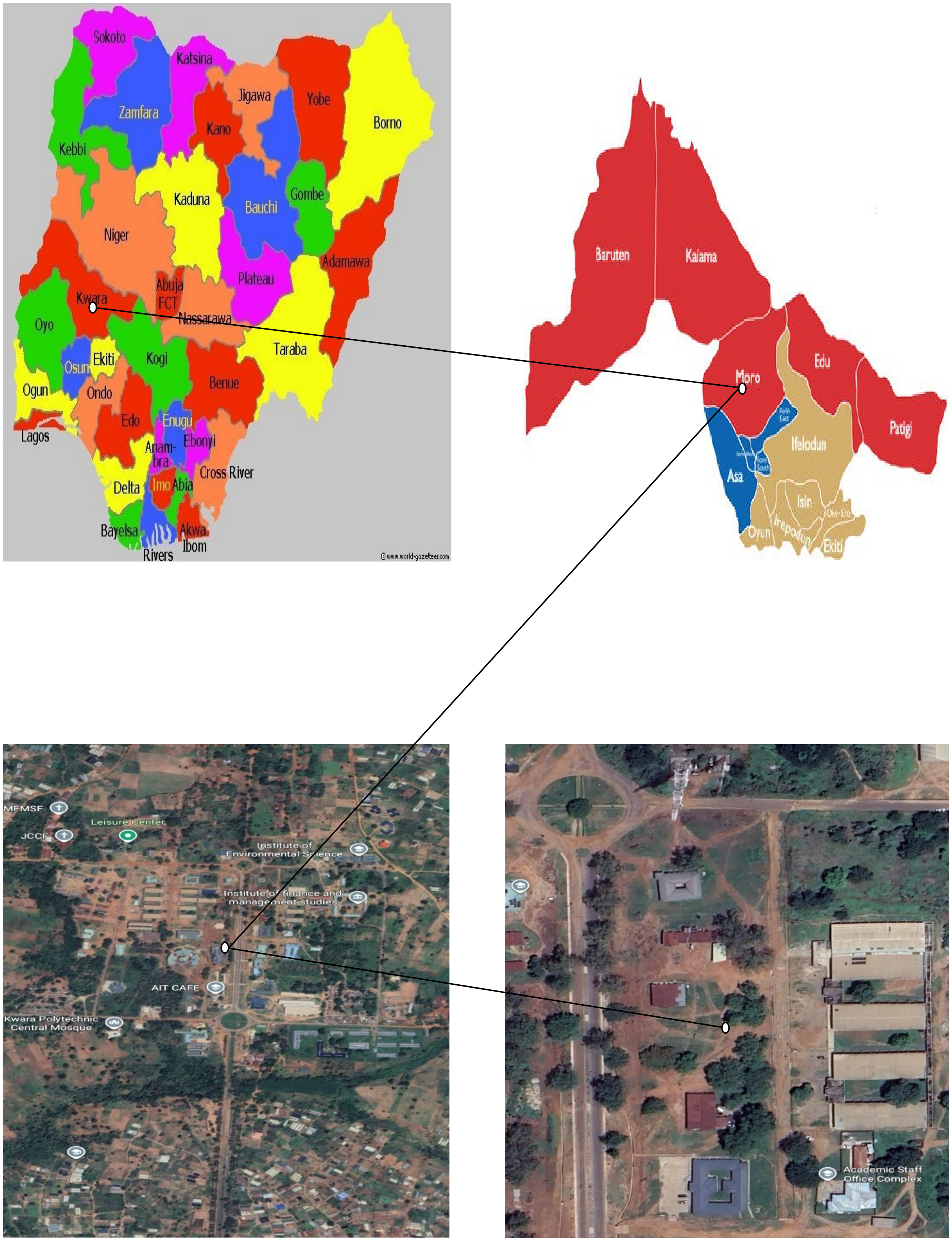
7.	IBRAHIM OLAMIDE RUKAYAT	ND/23/SGI/FT/0038	MEMBER
8.		ND/23/SGI/FT/0036	MEMBER

1.7 STUDY AREA

The study area is part of IFMS Kwara State Polytechnic, Ilorin Moro Local Government Area Ilorin Kwara state.

MAP OF THE STUDY AREA



CHAPTER TWO

2.0 LITERATURE REVIEW

Surveying was essential in ancient civilizations like Egypt and Mesopotamia for land management, infrastructure, and construction. Ancient Egyptians used simple geometry to re-establish boundaries after the Nile floods, and the Great Pyramid of Giza demonstrates their mastery of surveying. The groma, an early surveying instrument, is thought to have originated in Mesopotamia.

In 1977, survey was defined as a systematic gathering of information from a sample of individuals to describe or understand aspects of a larger population, often using questionnaires or interviews. The focus was on collecting data to identify patterns, relationship and trends.

Surveying can be defined as the science and art of making measurements of relative position of points above, on or beneath the earth's surface and the plotting of these measurements to some suitable scale to form a map, plan or chart. Ramsey,(1978).

According to Banister and Raymond(1998), surveying is defined as the act of making measurements of relative position of natural and artificial features of the earth and the representation of these information either graphically or numerically. But, much emphasis will be laid on topographical surveying as survey which is concern with the determination of the location both in plane and elevation of selected ground points which are necessary for contour lines and production of topographical maps.

In 2003, the definition of surveying was provided by the American Congress on Surveying and Mapping (ACSM) and the American Society for Photogrammetry and Remote Sensing (ASPRS). It was defined as the science and art of determining the relative positions of points above, on, or beneath the Earth's surface, or establishing such points, and of depicting those positions in a usable form.

Topographical survey is a detailed survey that measures and maps the elevations and positions of natural and man-made features on a piece of land. These surveys create a 2D or 3D representation of the Earth's surface, including features like buildings, roads, trees, and variations in elevation.

Ramsay J.P.W (1971) defined topographical surveying as the survey where physical features of the earth are measured and maps/plans are preferred to show their relative positions both horizontally and vertically. Basically topographical surveying entails the establishment of a basic framework of horizontal and vertical location of details in the vicinity of each station point.

(Agor, 1992) defined topographical map as map produced on large scale to enable individual features shown on the map to be identified on the ground by shape and position.

Brinker and wolf (1997) analyze the subject of topographical survey as a surveying which is made to determine the configuration (relief) of the surface of the earth and to locate the natural and cultural features and thereon by means of conventional symbols.

It is also defined topographical surveying as the process of determining the position of natural and artificial features of a locality both on plan and elevation for the purpose of delineating them by means of conventional sign upon a topographic map.

Topographical surveying has a rich history that spans thousands of years, evolving from simple land measurement techniques to sophisticated technologies. The earliest recorded evidence of surveying dates back to ancient civilizations in Egypt, Greece, and Rome, where surveyors used basic instruments to measure land boundaries and layouts.

The main objective of topographical survey is to locate the three dimensional relationship of a particular area. Hence, on a topographic map, the relative position of points are represented both horizontally and vertically.

This project essentially deals with topographical surveying There are two primary methods for conducting a topographical survey for your project:

Total Station Surveying:

This method uses a total station, which is an electronic instrument that combines an electronic theodolite (for measuring angles) and an electronic distance meter (EDM). The total station is set up over a known point, and measurements are taken to various points in the survey area. The instrument measures horizontal and vertical angles, as well as distances, allowing for the precise determination of the 3D coordinates (northing, easting, and elevation) of each point. Data is typically stored electronically and can be downloaded for processing. This method is highly accurate and efficient, making it suitable for projects requiring detailed topographic information.

GPS (Global Positioning System) Surveying:

GPS surveying uses satellite signals to determine the position of points on the Earth's surface. There are several types of GPS surveying, including:

Static GPS: This involves placing GPS receivers on known points and allowing them to collect data for a specified period. This method is used for establishing control points and is highly accurate.

Kinematic GPS: This involves moving a GPS receiver while collecting data. Real-time kinematic (RTK) GPS uses a base station to transmit corrections to a rover, allowing for real-time positioning with high accuracy.

Post-processing Kinematic (PPK) GPS: This method involves collecting data with GPS receivers and then processing the data after the survey to improve accuracy.

GPS surveying is particularly useful for large areas or areas with difficult terrain. However, the accuracy of GPS can be affected by factors like satellite visibility and atmospheric conditions.

The choice between these methods depends on your project's specific requirements, including the required accuracy, the size of the area, the terrain, and budget constraints.

Topographical survey when properly performed is very useful and is applicable and important in the under listed fields:

Civil Engineering: Topographical surveys are crucial for designing infrastructure projects. They provide the necessary data for planning roads, bridges, tunnels, and other structures. The data helps engineers understand the terrain, plan for earthworks, and ensure the project's structural integrity.

Construction: In construction, topographical surveys help in site planning, setting out, and monitoring. They ensure that buildings and other structures are accurately positioned according to the design plans. These surveys also help in volume calculations for earthmoving and in monitoring the site for any changes during construction.

Environmental Studies: Topographical surveys are used in environmental studies to map and analyze the landscape. This helps in assessing environmental impacts, managing natural resources, and planning conservation efforts. They provide essential data for understanding watersheds, monitoring erosion, and mapping habitats.

Mining: Planning and monitoring mining operations.

Agriculture: Planning and managing land for agricultural purposes.

Archaeology: Mapping archaeological sites.

Military: Planning and executing military operations.

Topographical surveys come with their own set of challenges and limitations:

* Accuracy: Achieving high accuracy can be challenging, especially in areas with dense vegetation or difficult terrain. Errors can arise from instrument limitations, atmospheric conditions, and human error.
* Accessibility: Accessing the survey area can be difficult due to terrain, weather, or legal restrictions.
* Cost: The cost of equipment, labor, and processing can be significant, especially for large or complex projects.
* Time: Conducting a survey and processing the data can be time-consuming, particularly for large areas or when high accuracy is required.
* Vegetation: Dense vegetation can obstruct line of sight, making it difficult to measure points accurately.
* Weather: Adverse weather conditions, such as rain, snow, or fog, can disrupt surveying operations and affect accuracy.
* Data Processing: Processing the collected data can be complex, requiring specialized software and expertise.
* Technology Limitations: While technology has advanced, limitations still exist, such as the availability of GPS signals in certain areas or the need for line-of-sight in some surveying methods.

There are various procedures involved in accomplishing topographical survey on ground. They are:

Traversing: - This is the act of establishing traverse station in a series and making the necessary measurement (Brinker and Wolf, 1977). It is also used to determine the position of points on the earth surface.

Leveling: - It is the act of determining the relative heights of different points on or below the surface of the earth (Basak, 2000). Thus leveling deals with measurement in the vertical plane.

Tachometry:- This is the branch of survey where distances and height difference between ground points are obtained by optical means only with a special theodolite called tachometer in conjunction with graduated staff in field observation(Ramsay,1976).

Early Methodsm (Pre-20th Century)

The earliest topographical surveys relied on basic tools and techniques. Surveyors used chains, measuring tapes, and plane tables to measure distances, angles, and elevations. These methods were time-consuming and labor-intensive. However, they were essential for creating maps and plans for various purposes, including land ownership, military campaigns, and infrastructure development.

Modern Advancements (21st Century)

Today, topographical surveying continues to evolve with advancements in technology. Unmanned aerial vehicles (drones) equipped with GPS and LiDAR are becoming increasingly popular. These drones offer a cost-effective and efficient way to collect data for various applications. Furthermore, advancements in data processing and analysis, such as the use of artificial intelligence and machine learning, are enhancing the accuracy and efficiency of topographical surveys.

Conclusively, topographical map/plans produced are very useful for: Planning, design, sitting of projects and engineering works, Location of natural and artificial features on the earth’s surface, Determining property boundaries and elevation of control points by operation of leveling.

CHAPTER THREE

3.0 METHODOLOGY

Different survey operations and techniques were employed in the execution of this topographic survey. The operations comprises the followings; reconnaissance, location of controls and checks, selection of stations, test of instrument, data acquisition which included traversing leveling, detailing by radiation method, data processing and information presentation.

3.1 RECONNAISSANCE

This is an essential of planning in surveying. It involves inspection by preliminary examination of the project site. It is a process in which analysis of the available information concerning the area to be surveyed (documents like topographical map, aerial photographs, plans etc) was made. It involves deciding the purpose of the survey, determining the accuracy expected and establishing the method to be used arrangement of work was done in order to accomplish the task in the shortest possible time as well as to efficiently use the available resources.

There are two aspects of reconnaissance carried out before any work on the field was embarked on. These are office and field planning.

3.1.1 OFFICE PLANNING

This is an office work carried out before the actual field work. It entails the searching and collection of the necessary information relating to the project area vie; charts, maps, controls values and description, equipment to be used, deciding the choice of the method of technologies and continuous demand from library patrons. However, good leadership and cooperation among membership plays a bigger role in achieving a common goal. Having and working toward, a common goal, under dedicated, dynamic and faithful leadership with an active and energetic membership plays a great role in the success of a consortium field work. It entails the searching and collection of the necessary information relating to the project area visa; charts, maps, controls, values and description, equipment to be used, deciding the choice of the method of techniques to be used for measurement and the cost of the execution of the project. The project and practical unit of the school provided the coordinates of the control pillars used as shown in table below.

Table 3.1 shows the list of control coordinates collect from the office

STN	NORTHING(m)	EASTING(m)	HEIGHT(m)
KWPT 704	946555.504	680444.774	335.900
KWPT 727	945935.453	680445.930	334.561
KWPT 705	946400.317	680440.699	334.121

3.1.2 FIELD RECONNAISSANCE

The study area was visited for inspection by all members of the group so as to have a general view of the site for better planning and execution while the station points were selected and marked with pegs taking into consideration the intervisibility of such points.

3.2 EQUIPMENT USED

i. Total station and its accessories
ii. Tripod
iii. Reflector pole with prism
iv. Field book
v. Cutlass
vi. Concrete nail
vii. Wooden peg
viii. Linen tape 30m/5m
ix. Beacon

3.3 INSTRUMENT TEST AND ADJUSTMENT

For the total station instrument temporary adjustment was carried out which involves the following;

i. Centering the total station on control point
ii. Clearing of base plate using the 3 foot crew

iii. Clearing of parallax by the making cross-hair visible

iv. focusing of the object by adjusting the focusing knob until the objects becomes clear.

3.4 CONTROL CHECK

The essence of carrying out this operation was to ascertain the reliability of all the controls to be used for the project. Because this will go a long way toward determining the accuracy of the project the check involved both angular and linear measurement using the total station and steel tape respectively. The instrument was set up on KWPT704 and all the necessary temporary adjustments (centering, leveling and focusing) performed on it. The target at back station was bisected on face left and the horizontal reading was recorded. The telescope was then pointed to fore station KWPT727 on the same face; target bisected and horizontal circle reading recorded. The face was then change to right and the target bisected on the same fore station. The horizontal circle reading was recorded. The back station target was re-bisected, the time on face right and the horizontal circle reading was recording.

Table 3.2 Shows the table for the result of control check.

	STN	**N**	**E**	**Z**
Given	KWPT 704	946555.504	680444.774	335.900
Observed	KWPT 704	946555.501	680444.773	335.899
Difference	KWPT 704	0.003	0.001	0.001
Given	KWPT 727	945935.453	680445.930	334.561
Observed	KWPT 727	945935.451	680445.928	334.560
Difference	KWPT 727	0.002	0.002	0.001
Given	KWPT705	946400.317	680440.699	334.121
Observed	KWPT 705	946400.319	680440.695	334.119
Difference	KWPT 705	-0.002	0.004	0.002

Source: Author, 2025

3.5 GEOMETIC DATA ACQUISITION

Three existing control points' kwpt704, kwpt727 and kwpt705 were established control point used and they established beside the study area.

The job commenced by setting up the total station on kwpt 704 with all necessary temporary adjustments performed. Having set on kwpt 704, the instrument was oriented.

The following were the procedures:

- Setting up (centering and leveling were perfectly performed on kwpt 704).
- The instrument was powered ON.
- MENU was pressed and the following were set into instrument.
- Job topographic survey
- OPERATOR – FATIMA
- DATE and TIME – this was automatically set by the instrument.
- DATA CAPTURE was selected and these options were displayed INST, STATION, BACKSIGHT and FORWARD- SIGHT
- From this INST Station was clicked
- Then input was clicked and point ID and coordinates but also INST. HT
- After this, the REC was pressed
- The height of inst was measured from the trunnion axis of the instrument to the tip of the nail on the pillar & height
- The ESC key was pressed in order to get back to the BACKSIGHT
- ON this Backsight, input was clicked, Backsight ID, Reflector Height and coordinate of Backsight (kwpt 727) were keyed in.
- Having perfectly done this I turned the telescope to bisect the reflector and measure was clicked on.
- The coordinate were displayed in order to confirm whether it was the same or different from the given one.
- Yes option was clicked
- Following these steps: The ESC key was pressed to go back to the fore sight.
- On the foresight the reflector was set on the control (kwpt 705) and the observation was made to it.

- At this junction "All" was pressed when the cross hair had accurately bisected the reflector.
- After these, the point ID was changed to pt01
- Then, the reflector was set in point 1 and the observation was made and "All" was clicked on
- And point ID as automatically change to PIL2 and reflector was set on the point 2, observation was made on it.

The same procedure was repeated for the capturing of all the details in the project site. All in all these procedure were repeatedly followed

3.5.1 PERIMETER SURVEY USING TOTAL STATION

Perimeter survey by traversing was carried out round the site area using total station, Easting and Northing of pillars were all measured on the field, stored and was later downloaded for further AutoCAD.

Table 3.3 Show Established co-ordinates of Boundary pillar.

STN	NORTHING(m)	EASTING(m)	HEIGHT(m)	CODE
KWPT 727	946654.018	680157.867	338.857	Pillar
SGIFT 001	946547.726	680283.226	334.795	Pillar
SGIFT 002	946540.574	680431.297	334.560	Pillar
KWPT 704	946356.494	680428.919	338.360	Pillar

SOURCE: AUTHOR 2025

3.5.2 CONTOURING

A contour is a line that is used to the topography area of training of equal height is also a method of dictating relief on flat surface of a map and are essential if the map is to provide a complete picture of the earth surface.

3.5.3 SPOT HIGHTENING

The site was gridded into 20meters griddles horizontally and vertical with spot height measured at every 25meters the spot height from the basics of contouring.

3.5.4 DETAILING

Detailing of all natural, artificial such as roads, buildings, electric poles, trees using radiation method of traversing from known point rays shot to feature by obtaining the features coordinate which will be used in plotting.

3.5.5 ATTRIBUTE DATA

This data is acquired inform of question, which questions are asked from the people around the study about the name of buildings and some features in study area.

3.6 DATA DOWNLOADING

First and foremost, the field observations were downloading from the station by connecting the data transfer cable to the laptop with application of the downloading software.

3.7 DATA PROCESSING AND ANALYSIS

The data were downloaded into notebook which is then run script into excel file to obtain the coordinate (Northings, Easting and Height) of all the measured points. The coordinate were then input into AutoCAD software which enable it to carryout plotting of all detailed features and contouring of the landscape. Suffer software was used for the contour lines generation to show the land configuration.

With the AutoCAD the total area of the site was computed as.

USING SURFER

The general steps to progress from a XYZ data set to finished, grid-based map are as follow:

1. Create a XYZ data file. This can be created in a surfer worksheet window or outside of surfer (using an ASCII text editor, for example)
2. Create a grid file (GRD) from the XYZ data file using the grid/data command.
3. To create a map, select the map type from the map menu and use the grid file from step two. Grid based maps include contour, image, shaded relief, vector, wise frame and surface map.
4. Use file/save to save the map as a surfer file/SRF/ that contains all the information needed to create the map, including the data file.

USING AUTOCAD

One of the quickest method to start Autocad is to double click on the Autocad 2013 or 2001, 2008 windows desktop icon. A second option is to pick the start button in the lower left corner of the windows desktop, then over or pick all programs then select the coordinate of what you need to plot by Easting and Northing distance then enter after that, Z enter, E enter C enter it will display your work then you safe it.

3.8 AREA COMPUTATION

The area was executed using double latitude method and checked by cross coordinate method.

ΔN	ΔE	PRODUCT (+ve)	PRODUCT (-ve)
-6.292			
-6.292	×125.359		788.759
-12.584			
-7.152			
-19.736			
-7.152	×148.071		1059.004
-26.888			
-184.080			
-211.688			
-184.080	×-2.378	437.742	
-396.488			
-104.980			

-501.468

-104.980 ×-2.522 264.703

-606.448

+1.235

-605.213

+1.235 ×-275.430 340.156

-603.978

+301.269

-302.709

301.269 ×+6.903 2079.660

301.269

0.000

2 × AREA= SUMATION OF POSITIVE – SUMATION OF NEGATIVE

2 × AREA = 168841.916 – 5800.690

$$\text{AREA} = \frac{163041.226}{2}$$

AREA = 81520.613 square meters

In hectares 81520.613/10,000

= 8.152 Hectares

3.9 BACK COMPUTATION

Table 3.5 showing the computation of boundary pillar

From station	Bearing	Dist(m)	DN	DE	Northing	Easting	To station
					946654.018	680157.867	KWPT 727
KWPT 727	95° 36’	252.61	-6.292	125.359	946547.726	680283.226	SGIFT001
SGIFT001	181° 52’	311.89	-71.520	148.244	946540.574	680431.297	SGIFT002
SGIFT002	270° 33’	252.90	-184.080	-2.378	946356.494	680428.919	KWPT 704
KWPT 704	02° 40’	312.38	-104.980	-2.525	946654.018	680157.867	KWPT 727

3.9.1 DATA BASE MANAGEMENT

The created database must be maintained and managed to retain its value. Data base maintained is vital from the beginning the maintenance routine should involve deletion of duplicate entries, Ibe (2006) maintained that database must be well manage with respect to quality, integrity and security and these was archived by making sure that all the data acquired was in conforming with the project and those data were saved to see that no repetition was done.

3.9.2 DATA SECURITY

The security of any database is almost important to the database administrations in a similar way, the topographical database is of paramount importance to the land administrators and this database was controlled by pass wording the system.

3.9.3 DATA INTEGRITY

Without given saying the use of digital total station to run the field job, these enable us to achieve good accuracy for the job. Because observation error is reduced to barest nominal unlike if theodolite is used to run the job.

Distance measurement is surveying is another major source of error if not property carried out. But with the use of total station, accurate distance measurement was achieved, hence error were minimized.

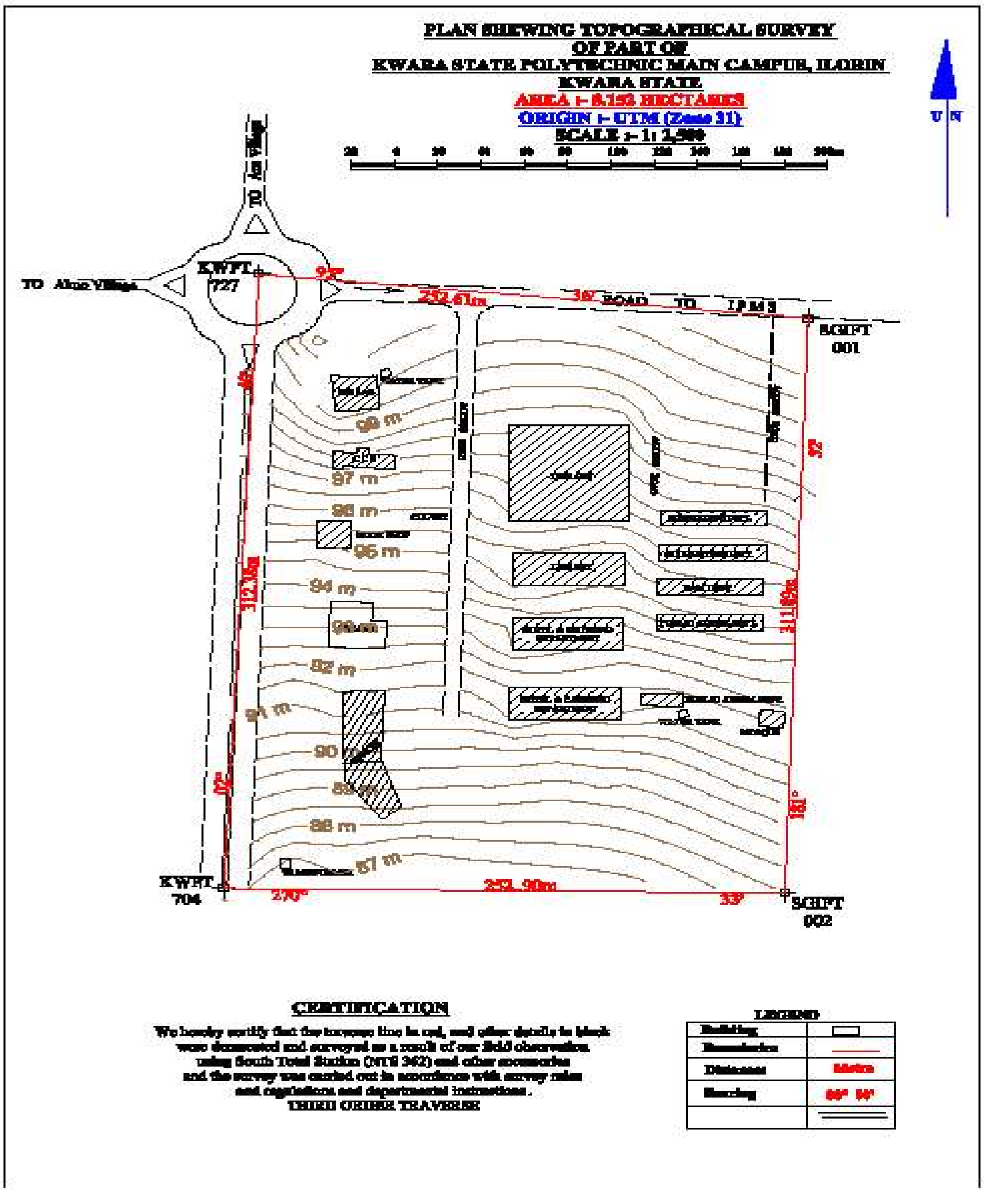
CHAPTER FOUR

4.0 INFORMATION PRESENTATION AND RESULT ANALYSIS

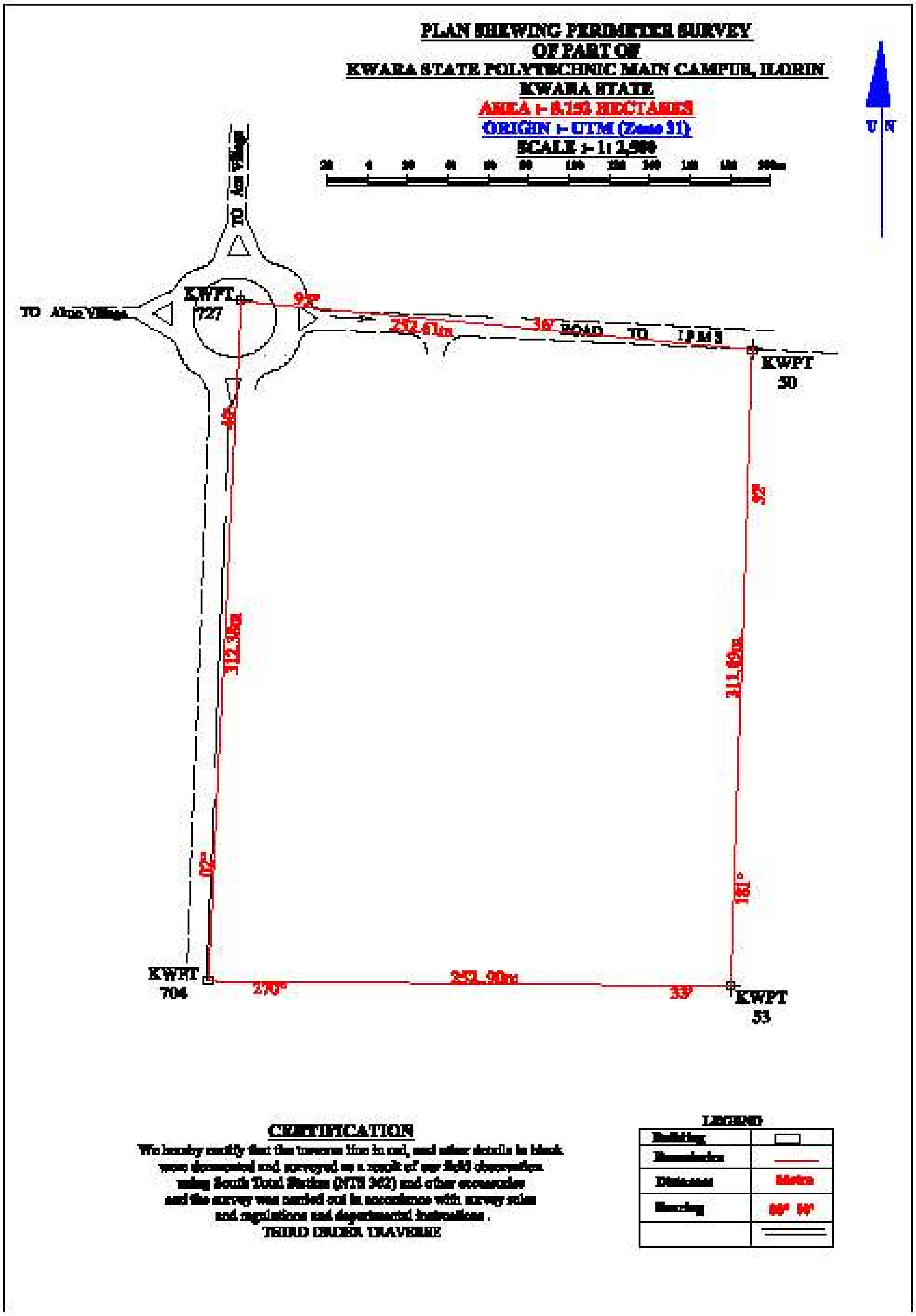
4.1 TOPOGRAPHIC OPERATIONS

The following plans were produced from the data took from the site

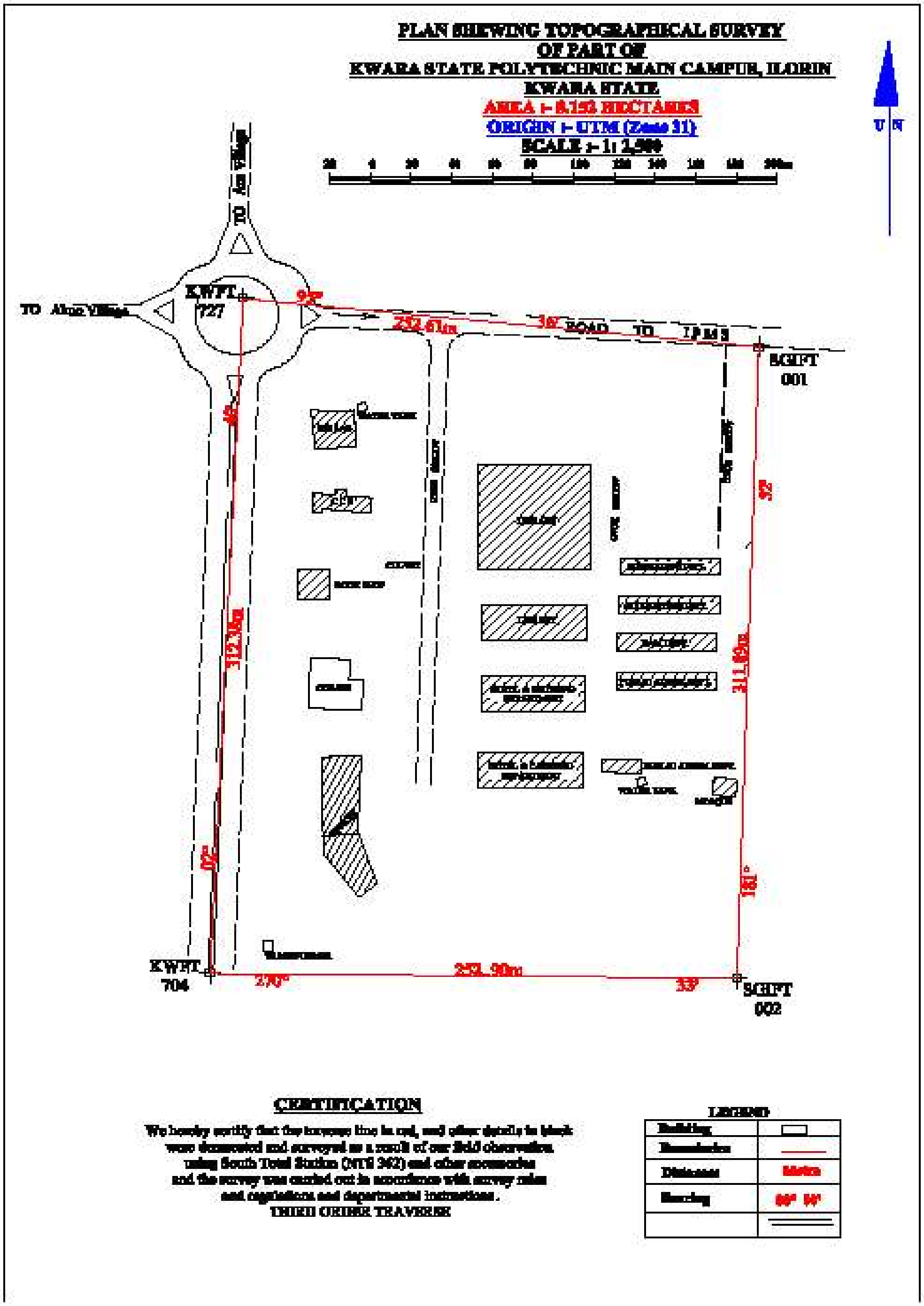
4.1.1 THE TOPOGRAPHIC PLAN (COMPOSITE PLAN)



4.1.2 THE PERIMETER PLAN



4.1.3 THE DETAILED PLAN



4.2 APPLICATION OF THE PRODUCT

The topographic plans and maps are drawings which show the main physical features on the ground such as buildings, fences, roads, rivers, lakes and forests, as well as the changes in elevation between land forms such as valleys and hill (called vertical relief).

- The perimeter plan is a plan start from your control point extend to your site and carried out the boundary survey first with the suitable instrument you use.
- The detailed plan 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, types of soil, buildings, land utilities, fences and boundaries, roads, land marks and so on.

  The details is how and method adopt to fix all the entity (features) within your site the equipment use.
- Spot height the site was gridded into 20meter griddles horizontally and vertical with spot height measured at every 25 meters. The spot height from the basic of contouring.
- Details plan can be defined as the man-made and natural features on the ground within the project site which are determined and obtained by the method using of total station and are finally represented with a suitable scale on plan.

CHAPTER FIVE

SUMMERY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY

The project "Topographical survey" was carried out at Kwara state polytechnic (part of IFMS Kwara state polytechnic Moro local government area, Ilorin Kwara state). This project involved conducting a comprehensive topographical survey within Kwara State Polytechnic to analyze the natural and man-made features of the terrain. The primary objective was to produce an accurate representation of the land's surface, including elevations, contours, and existing infrastructure.

Using standard surveying instruments such as the total station, leveling staff, and GPS, data was systematically collected from the designated area. The survey team established control points and carried out traversing, leveling, and detail survey procedures. The field data was processed and plotted using appropriate software (e.g., AutoCAD Civil 3D or GIS tools), resulting in a detailed topographic map of the surveyed area.

The output of this project serves various purposes including campus development planning, infrastructure upgrades, drainage design, and land management. Overall, the project not only met academic objectives but also provided practical field experience in modern surveying techniques.

PROBLEM ENCOUNTER

The problem encountered during the process of the execution of this project

1. Student passing by were obstructing the right of observer and causing disturbance.
2. The weather was not conducive and it was sunny through all day.

5.2 RECOMMENDATIONS

I hereby recommend this particular project practical to be done often to update the campus development planning, infrastructure features, drainage and land management and the society for the development of the particular area, also it should be carried out in school for the next development in the premises, moreover it is necessary for every Survey & Geo-Informatics Students to be able to carry out this particular practical.

5.3 CONCLUSION

In conclusion, the project carried out within Kwara state polytechnic, Ilorin has provided detailed and accurate data regarding the natural and man-made features of the area. This survey is vital for effective planning, design and execution of future engineering and construction projects within the campus. Through the use of Total station we were able to capture precise elevation data, contour lines and feature locations, which are essential for infrastructural development and land management.

The results of this project will serve as a valuable reference for architects, engineers, and planners, ensuring that future developments are both sustainable and aligned with the existing terrain , the survey was executed in the accordance and respect with survey rules and the departmental instruction in carrying out the project topics. And conclusively the report written was done on how the entire project was executed both field and office work.

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APPENDIX

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PT04	679872.96	946563.27	353.84
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BLD2	679821.61	945891.27	327.62
BLD3	679794.93	945892.33	328.88
BLD4	679768.08	945943.81	272.52
BLD5	679798.14	945942.63	299.43
BLD6	679794.93	945892.33	331.86
BLD7	679766.21	945893.47	334
BLD8	679683.61	946011.35	329.89
BLD9	679683.61	946011.35	333.7
BLD10	679686.79	946014.7	333.48
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BLD24	679707.67	946040.31	346.63
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BLD26	679716.23	946041.35	354.41
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