CHAPTER 1: DEFINING LOCATION

OBJECTIVES OF THE UNIT

At the end of this unit, the reader must be able to:

- Define geographic location.
- Differentiate absolute from relative location.
- Locate properties from Google Earth or Google maps using absolute and relative location and
- Describe and communicate the location of a property using relative an absolute location.

RATIONALE FOR THE UNIT

The rationale of this unit is to develop the students' technical skills and competences required in property location by explaining the concept of geographic location in a simplified and accessible manner. Upon completion of this unit, students should be able to define geographic location and differentiate absolute from relative location.

ASPECTS AND ISSUES

Location provides an answer to the where question, that is where something is situated. For example, one can tell their friend about the folder where their favourite music is located in their computer, memory stick or phone. In real estate and planning, location refers to where a property is located on the earth surface, that can be absolute or relative. This is commonly referred to as spatial location. Figure 1 is a pictorial representation of how features are located on the earth surface (the globe).

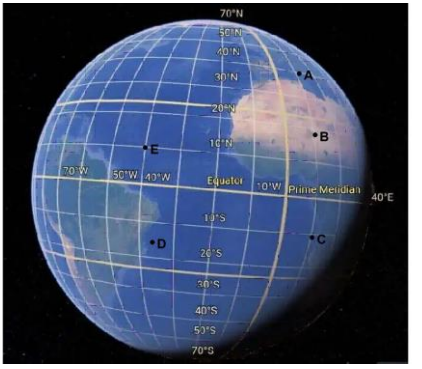

Figure 1: Location of geographic features on the earth's surface (Adapted and Modified from Vlok, Harmse and de Jager, 2009:55)

As depicted in Figure 1, points A to E are features that are found on the earth surface. In the built environment, a key notable spatial feature is real estate (land and buildings). One can describe the location of properties A to E in two ways, that is relative or absolute location as discussed in the next section. Before explaining the difference between absolute and relative location, it is important to briefly introduce and define the term 'datum to the rescue' which is key in location.

DATUM TO THE RESCUE

A datum, or starting point, provides a context to locations and heights on the Earth's surface (Ghilani and Wolf, 2012). Coordinates without a specified datum are vague. It means that questions like "Height above what?" "Where is the origin?" and "On what surface do they lie?" go unanswered. When that occurs, coordinates are of no real use. An origin, or a starting place, is a necessity for them to be meaningful. Not only must they have an origin, but they must also be on a clearly defined surface. These foundations constitute the datum. Datums have been in use for a very long time and are generally called Cartesian (Van Sickle, 2004).

RELATIVE LOCATION

With relative location, the subject property is located by relating it to other key features (landmarks) adjacent to that property. For example, with reference to Figure 2, one can describe the location of BA ISAGO University Gaborone Campus as: *BA ISAGO University Gaborone campus is located along Willie Seboni Road, approximately 3 kilometres, North-West of the Gaborone Central Business District.*

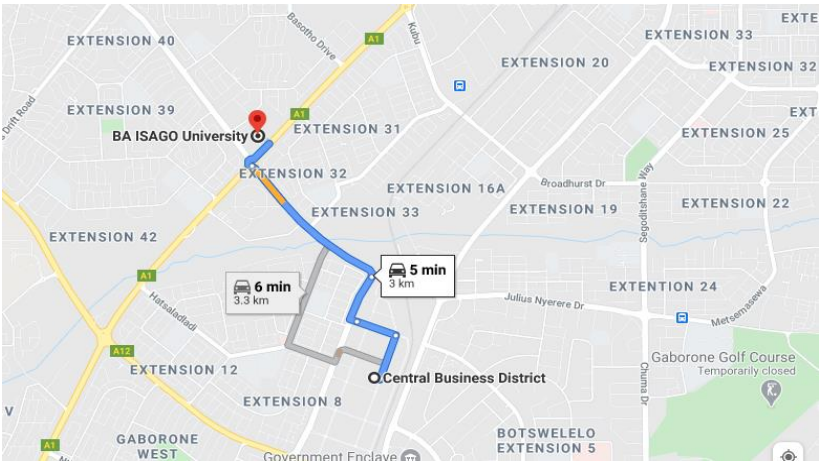

Figure 2: Location Map of BA ISAGO University from the CBD of Gaborone : Google Maps (Accessed: 30 August 2020)

The description above reflects the relationship of the BA ISAGO Gaborone campus to the CBD hence for one to locate the university, he/she must locate the CBD first. Equally important in this description are the distance and direction of the university from the CBD. Let us proceed to discuss absolute location.

ABSOLUTE LOCATION

Geographic coordinates provide an absolute location that is the identification of places by a precise and accepted system of coordinates (an address for the point). Absolute location provides us a definitive, measurable and fixed point in space. If one search BAISAGO University Gaborone Campus on Google Earth, one will get a map that is like the one in Figure 3.

Figure 3: BA ISAGO University Location Map Google Earth, 2020) Accessed 22 August 2020.

With reference to Figure 3, please pay attention to the numbers at the bottom of the map. There is the imagery date that is 2/3/2019 but our discussion is not going to dwell on this date discussion. What is important at this time are geographic coordinates that are 24°37'48.04"S 25°53'38.42"E elev 1016m. These are geographic coordinates or the exact address of BA ISAGO University on the earth surface. If one sends these geographic coordinates to anyone anywhere, he/she is supposed to be able to locate the university on Google Earth and use the map to locate the university physically. At this point one might not have an idea of what this information means but it is important to remember that this is the 'physical address' of BA ISAGO University Gaborone campus on the earth surface. Each spatial feature has its own unique physical address that shows where it is located.

HOW TO LOCATE A PROPERTY OF GOOGLE EARTH AND GOOGLE MAPS

Google Earth and Google Maps use the same satellite/aerial and street view imagery to give you some amazing data on our planet. Few aspects like searching and directions are also similar in both (Basu, 2020). There are however important differences between the two (ibid 2020);

- Google Earth is a 3D virtual globe while Google Maps is used more like a 2D map even though it has 3D features; Google Maps allows you to find and share directions and explore your locality with a fine-toothed comb. Google Earth and its satellite imagery may look the same when you compare it with Google Maps, but it offers a better set of Layers.
- In short, when you want to go from Point A to Point B, use Google Maps. When you want to explore the world in all its high-resolution 3D glory, use Google Earth.
- To locate a property on Google Earth, one must search for the property on the search bar on the top left corner of the interface shown in the Figure 4.

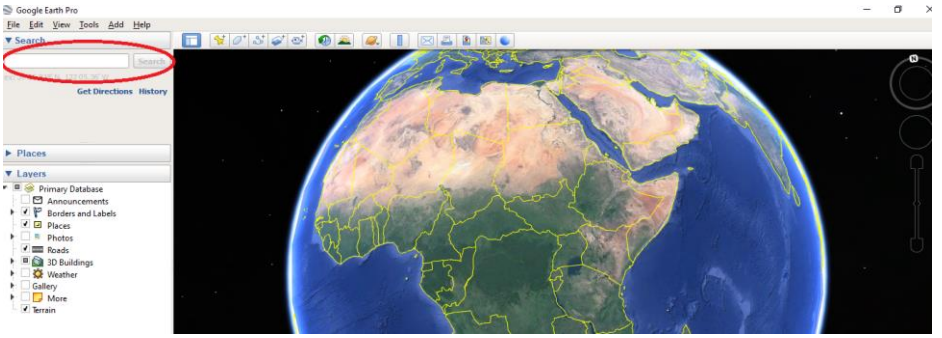

Figure 4: Example of locating property of Google Earth: Google Earth (2020) Accessed 22 August 2020

When searching, one can make use one of the options below, among others:

- City, Country: Gaborone, Botswana
- Street name: Koi Street, Gaborone, Botswana
- Specific address: plot number, street name, city, and country: 11 Koi Street, Gaborone, Botswana
- Property/Company name, city, and Country: BA ISAGO University, Gaborone, Botswana
- Longitude, Latitude: in DMS format, 24°37'45.57"S, 25°53'48.35"E or in decimal format, -24.629119, 25.896694
- General places: Universities in Gaborone, Botswana

The same search options can be employed in Google Maps. However, it is easier to obtain the coordinates from Google earth using the pin, then transfer the coordinates to Google Maps for greater details on directions and sharing with others.

SHARING A LOCATION

Location can be shared easily on Google Maps with others (colleagues, clients etc). However, as noted above, the exact location (coordinates) of a property, especially undeveloped property is easier to determine in Google Earth. Therefore, the process involves using both systems and the steps can be outlined below.

Step 1: Locate the property on Google Earth (Highlighted in blue in Figure 5).

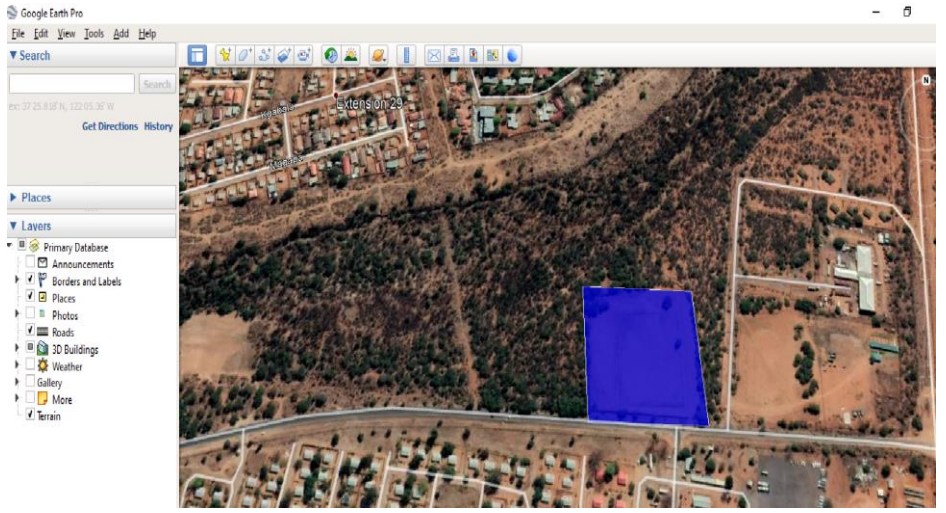

Figure 5: Step 1 of locating a property on Google Earth : Google Earth (2020) Accessed 22 August 2020

Step 2: Click the 'Add Placement' key (yellow pin) located on the ribbon at the top of the interface as shown in Figure 6.

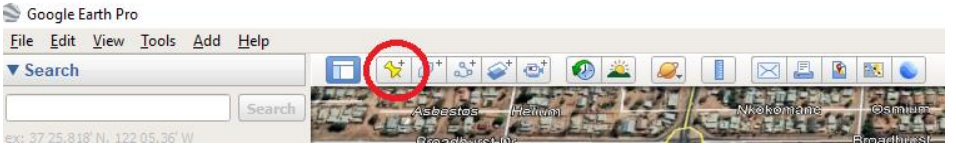

Figure 6: Step 2 of locating a property on Google Earth (Google Earth (2020) Accessed 22 August 2020

A yellow pin will appear on the screen together with a pop-up window showing the coordinates of the point with the yellow pin.

Step 3: Drag the yellow pin on to the subject property, and the coordinates in the pop-up window will also change to reflect the new location of the pin (subject property) as shown below as shown in Figure 7.

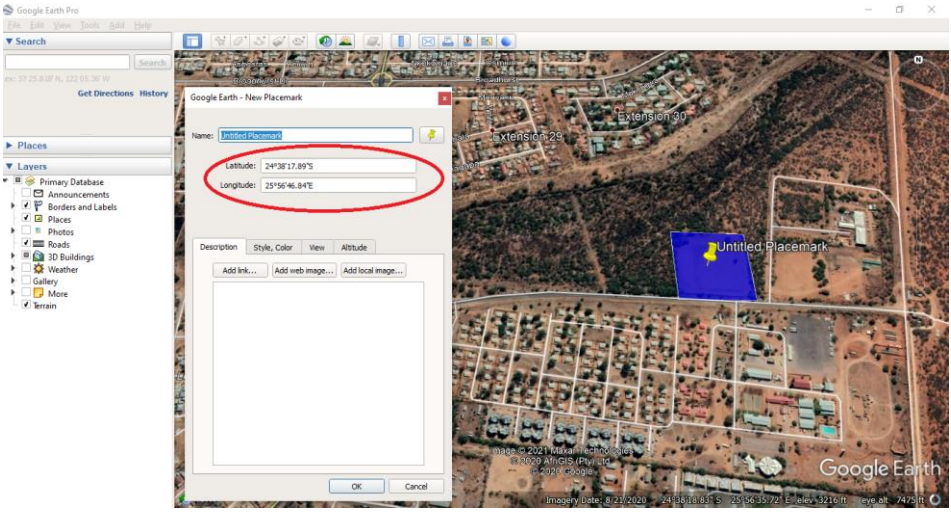

Figure 7: Step 3 of locating a property on Google Earth (Google Earth (2020) Accessed 22 August 2020

Step 4: Copy the coordinates (highlighted in red above), paste them in Google Maps search bar, and search the location. Alternatively, simply share the coordinates with the other user if he/she is using a GPS device, otherwise, use the processes to follow (see Figure 8).

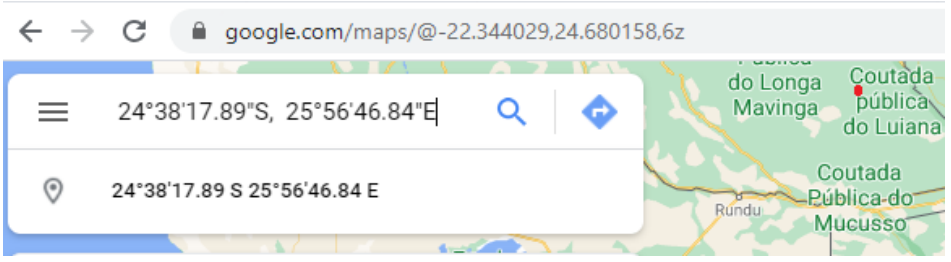

Figure 8: Step 4 of locating a property on Google Earth (Google Earth (2020) Accessed 22 August 2020.

Google Maps will navigate to the exact location which was shown on Google Earth as shown in Figure 9.

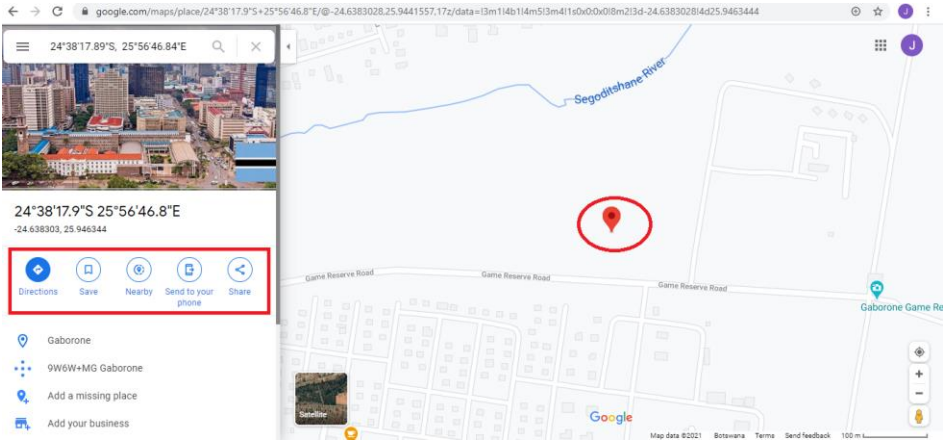

Figure 9: Step 4 of locating a property on Google Earth (Google Earth (2020) Accessed 22 August 2020

Step 5: The user can use the functions highlighted in the red box to get directions to the subject property, save the location, send to phone, or share the location with other users. To share, simply click the share option, copy the link (https://goo.gl/maps/RHSzvd698oZVAVSX6), and send to the other users.

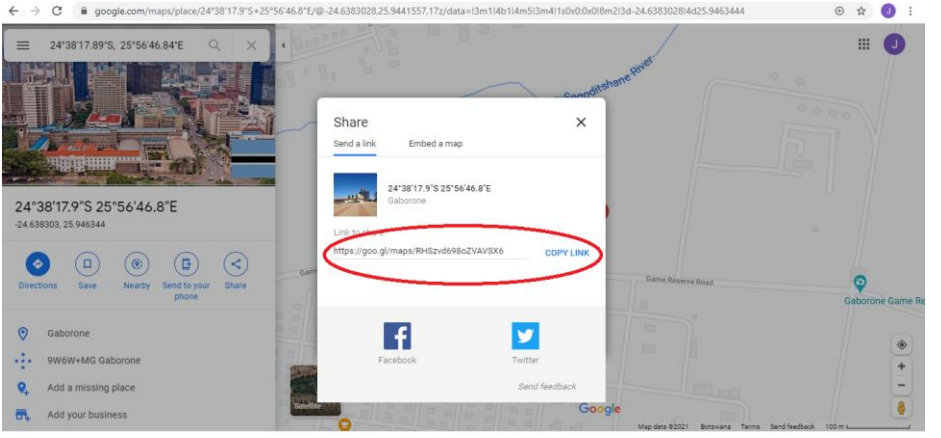

Figure 10: Step 5 of locating a property on Google Earth (Google Earth (2020) Accessed 22 August 2020

How to Prepare a Locality/Location Map

Generating a locality map from Google Earth simply involves capturing images from the interface since it is already in aerial view. This involves capturing the

images at different scales (resolutions) depending on the level of detail required on the map. To capture the images, one can use the inbuilt 'save image' functionality found on the top ribbon of the interface, highlighted in red below. To create the map:

- Click the same image icon as shown in Figure 11.

Figure 11: Click the image (Google Earth (2020) Accessed 22 August 2020

- Click on the 'untitled map' and edit the name of the map, then click on the 'save image' icon that appears below the ribbon, as indicated in Figure 12.

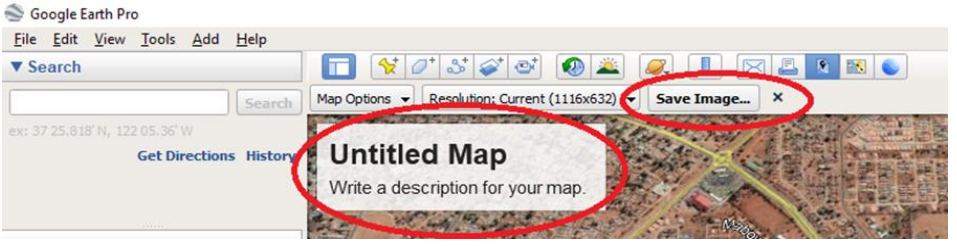

Figure 12: Click on the untitled map (Google Earth (2020) Accessed 22 August 2020.

- Browse the folder to save on, enter the name of the map and save. The map will save with a legend (key) showing any notable features captured on the map.

An example is shown in Figure 13, of the locality map of BA ISAGO University (Gaborone campus).

Figure 13: Locality Map of BA ISAGO University (Gaborone Campus) **(Google Earth (2020) Accessed 22 August 2020.**

User can play around with some labelling and the legend so that the map may communicate better, depending on the intention of the locality map. He/she can make use of the 'Add Polygon' and the 'Add Placement' keys to label the map and adjust the legend to show the desired information. An edited locality map is shown in Figure 14.

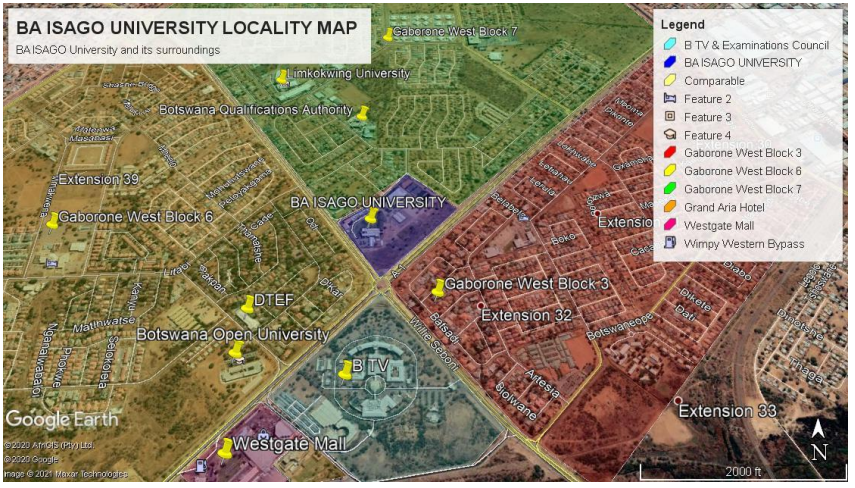

Figure 14: Edited Locality Map of BA ISAGO University (Gaborone Campus) Google Earth (2020) Accessed 22 August 2020

ACTIVITIES FOR THE READER

i. Define geographic location,
ii. With the aid of examples, differentiate relative from absolute location.
iii. Use Google Maps to locate your nearest shopping centre,
iv. Describe the location of your nearest shopping centre using relative location,
v. Use Google Earth to locate your learning institution,
vi. Describe the location of your learning institution using absolute location.
vii. Prepare 2 location maps of your house (1 from Google Earth and another one from Google Maps).

CONCLUSION

By now learners should be able to accurately locate properties online and describe the located properties with confidence. The knowledge, skills and competencies acquired will be used when designing location/locality maps which are used to communicate the location of subject properties with different stakeholders.

SUGGESTIONS FOR FURTHER READINGS

Anson, R., W. and Ormeling, F., J. (Eds.). 1991. Basic cartography for students and technicians: Exercise manual. London and New York, Elsevier applied science.

Basu, S. 2020. How to Get a Satellite View of Your House Using Google Earth. Online available from https://www.makeuseof.com/tag/globe-in-your-pc/ Accessed 25/01/2021.

Buckley, D., J. 1997. The GIS Primer: An introduction to GIS. Pacific Meridian Resources.

Kiel, K.A. and Zabel, J.E., 2008. Location, location, location: The 3L Approach to house price determination. Journal of Housing Economics, 17(2), pp.175-190.

Minchin, M. 2016. Introduction to Surveying, Second Edition. Australia. Government of Western Australia. Online available from www.dtwd.wa.gov.au Accessed 20/07/2018.

Van Sickle, J. 2004. Basic GIS coordinates. Florida, CRC Press.

Vlok, C., Harmse, A and de Jager, A. 2009. Geographical thinking and spatial perspectives: Study guide for EGIS01J. Pretoria, University of South Africa.