Orbital
Geospatial Services

We Map, You Explore!

- Geographical Information Systems (GIS)
- Land Engineering and Topographical Surveys
- Drone/Aerial Mapping & Remote Sensing
- High Resolution Satellite & Drone/UAV images
- Bathymetric/Hydrographic Survey Services
- Mobile & Web Mapping Applications
- Navigation and Geo-Location Analytics
- Ground Penetrating Radar (GPR) Services
- Geospatial Intelligence Solutions
- Geoinformation (GIS) Training Services
- Geospatial Project Execution & Consultancy

PROFILE

Physical Address	1st Floor, Africa Creative Centre, Karen
Street Address	Karen-Ngong Road
Postal Address	P.O. Box 9249 – 00200 Nairobi, KENYA
Mobile Number	+254-719-672296
E-mail Address	geo@orbital.co.ke
Company Website	www.orbital.co.ke

COMPANY PROFILE

ORBITAL AFRICA

2023

Table of Contents

List of Abbreviations

EIA	Environmental Impact Assessment
GIS	Geographic Information system
GPS	Global Positioning System
ICT	Information Communication Technology
ISK	Institution of Surveyors of Kenya
LIS	Land Information System
RTK	Real Time Kinematics
UTM	Universal Transverse Mercator

A. INTRODUCTION

1.0. About Orbital Africa

As a registered company under the laws of the Republic of Kenya, Orbital Africa helps in delivering robust and reliable geospatial solutions that enable our clients to become high-performance businesses. Orbital offers Geospatial consulting services and solutions in Kenya and Africa at large. With more than 13+ years of proven experience and track record in the delivery of ideal geosolutions, Orbital is an award-winning and ranks among best top five (5) rated Geospatial companies in Africa.

As a leading Geospatial consulting company in Africa, Orbital offers services and solutions in realms of:

- **G**eographical Information Systems (GIS)
- **L**and Engineering and Topographical Surveys
- **D**rone/Aerial Mapping and Remote Sensing
- **B**athymetric/Hydrographic Survey Services
- **M**obile & Web Mapping Applications
- **N**avigation and Geo-Location Analytics
- **G**round Penetrating Radar (GPR) Services
- **G**eospatial Intelligence Solutions
- **G**eoinformation (GIS) Training Services
- **G**eospatial Project Execution and Consultancy

Established in the year 2008, Orbital was incorporated in 2nd August 2011 and began operations thereafter. By providing outstanding client-tailored Geospatial services, we ensure customer satisfaction at all stages of project planning and execution. Orbital has undertaken several GIS, mapping and engineering design projects to a wide range of clients in Kenya and Africa at large. We pride with a proven track record in areas of capacity building and systems development.

Orbital is differentiated in the marketplace by consistency in building long-term, trust-based relationships with clients; focusing on value creation and business outcomes; fostering a culture of innovation, collaboration and teaming, leveraging on our delivery networks and project

management for quality, speed and cost effectiveness; attracting, developing and retaining the best talent in execution of wide of projects within and outside the boarders of Kenya.

1.1. Why Orbital Africa?

Orbital is led by a diverse management team with a broad base of business and technical industry experience in Geospatial service delivery. Our management team provides strategic and operational direction to the staff members of the company thus fostering competency in service delivery and execution of big projects thus providing the best compromise between cost, speed, and reliability. Here are reasons why you should choose Orbital Africa:

i. **Timelines in Project Execution:** By providing our clients with a well stipulated project timeline, this ensures that project execution time is minimized thus delivering project output on time.

ii. **Integrity and Accountability:** We are honest to ourselves and clients in all that we undertake. By ensuring that we keep our word, our clients are ever satisfied with our services! As well, we uphold high level of integrity and professionalism.

iii. **We Respect All our Clients:** We also respect and value all our clients in all our interactions both in and out of business environment. We anchor our day-to-day undertakings on the saying that "The Customer is Always Right." Thus, we value our clients' opinions time to time.

iv. **We Strife to Beat Deadlines:** We always work together as a team to achieve best results for our esteemed customers at minimal cost without compromising the quality of the project outputs. We value TIME! and QUALITY services, thus attract and retain more clients.

v. **We're Technologically Compliant:** We employ latest technologies in all project execution stages including client after-sale training services. We ensure that our clients get up-to-date products and services. We also offer after-sale services including technical support.

vi. **Competent & Experienced Team:** Our team of experts are highly skilled professionals who combine academic and work expertise (With PhD and MSc. degrees in GIS and mapping), augmented with significant industry experience.

vii. **13+ Years of Experience:** We have offered Geoinformation consultancy services including training and capacity development to various happy clients within Kenya and Africa at large.

1.2. Vision and Mission

Our Vision: To be a company of choice in dispensation of cutting-edge geospatial technology as well as provision of spatial products, services and solutions in Kenya and Africa at large.

Our Mission: To Design, Develop, Deliver and Deploy (4Ds) geospatial technologies and solutions in Africa for long lasting profitable partnerships, through creativity, innovation and synergy leveraging on customer satisfaction throughout the projects execution life cycle thus supporting decision making in all spheres of the society.

1.3. Core Values

- **Honesty and Integrity** – In all that we undertake in and out of the office environment.
- **Accountability** – To ourselves as well as our esteemed clients.
- **Respect** – For clients in all our interactions both in and out of business.
- **Innovative** – to create, invent ideas, learn and solve problems.
- **Strife to Beat Deadlines** – So that we all benefit from our collective efforts.
- **Working as a Team** – To achieve excellent results for our clients, thus positive image!

1.4. Service Philosophy

We deeply believe in quality, honest, reliable and accurate service delivery to our clients within agreed time period - that by taking care of our clients' needs so that we make greater achievements in every interaction.

1.5. Tagline

We **MAP**. You **EXPLORE**!

Fig 1: Orbital Africa Offices in Karen, Nairobi

B. OUR CLIENTS

www.usaid.gov	www.tadegroup.com	www.pciglobal.org
www.voltalia.com	www.kenha.co.ke	www.hydrobox.africa
www.technobraingroup.com	www.powergen-renewable-energy.com	www.mygov.go.ke
www.ugcafrica.com	www.ugcafrica.com	www.rerec.co.ke
www.wvi.org/kenya	www.wvi.org/kenya	www.nrc.no

www.cbu.ac.zm	ewbs.co.ke	www.digireg.nl
www. polyphase.co.ke	www. unhcr.org	www.kenya-airways.com
www. gmds.co.tz	www.synergeticenergy.co.ke	https://nakuruwater.co.ke
www.badea.org	www.geodev.co.ke	www.naivashawater.co.ke

ICS Agribusiness www.icsagribusiness.com	CROSSBOUNDARY www.crossboundary.com	BUILDX www.buildxstudio.com
Cybermarine www.icsagribusiness.com	SANERGY www.sanergy.com	KENYA MEDICAL RESEARCH INSTITUTE KEMRI www.kemri.go.ke
structurflex middle east contracting		

C. OUR PARTNERS

STONEX www.stonex.it	Boundless OUR WORLD IS OPEN www.boundlessgeo.com	SIIS www.si-imaging.com
Blue Marble GEOGRAPHICS www.bluemarblegeo.com	GARMIN www.garmin.com	senseFly Parrot Group www.sensefly.com
mapbox www.mapbox.com	GeoNode www.geonode.org	ENVI www.harrisgeospatial.com
GPS-SERVER RELIABLE GPS TRACKING SOLUTION www.gps-server.net	USRADAR INC. SUBSURFACE IMAGING SYSTEMS www.usradar.com	 www.openstreetmap.org

PIX4D www.pix4d.com	Drone Deploy www.dronedeploy.com	Agisoft Metashape www.agisoft.com
OpenDroneMap www.opendronemap.org	dji www.dji.com	TOPCON www.topconpositioning.com

D. PRODUCTS AND SERVICES

We offer various Geospatial products, services and solutions in Kenya and Africa at large. Our specific areas of expertise include:

4.1. Geospatial Products

- **GIS and Mapping Software:** We offer a wide range of GIS, remote sensing, drone and mapping software including ArcGIS Pro, VertiGIS, Pix4D, Global Mapper and ENVI. As well, our wide range of GIS training courses augment the delivery of these software solutions.

- **Drone and Satellite Images:** Both high resolution satellite and drone/UAV images are available at Orbital Africa. The satellite and drone images are available at 30 cm and 3 – 5 cm spatial resolution respectively. Additionally, we offer LiDAR images for cities & major towns in Kenya.

- **Map Design and Production:** We offer highly imaginative and innovative customized map design and production services to wide range of clients in Kenya and Africa region at large. Some of the maps we produce include but not limited to:

  - Topographical maps;
  - Thematic maps;
  - Soil/geological maps;
  - Tourist maps;
  - County and town maps etc.

- **Drones and UAVs:** At Orbital, we're at forefront in employing latest drone/UAV technology incorporating multi-rotor (DJI drones), fixed-wing (SenseFly drones) and VTOL (Wingtra drones) as well drone image processing software e.g. Pix4D, Agisoft and Drone Deploy.

- **Survey Equipment:** The survey technology is changing at unprecedented rate. At Orbital, we're authorized distributors of Stonex equipment in Kenya at East Africa region. The survey equipment includes: GNSS receivers, Total Stations, Level machines, 3D Laser scanners, Mobile GNSS (Mobile mappers), Echosounders & Continuous Operating Reference Stations (CORS).

Fig. 2: Modern Survey Equipment

4.2. Geospatial Services

Land and Aerial Survey Solutions: Our land survey services employ high precision survey equipment such as GNSS/RTK, drones 3D scanners etc. These services include:

- Land and cadastral Surveying;
- Topographical and Profile surveys;
- Geodetic and control Surveys;
- Bathymetric/Hydrographic surveys;
- Engineering/Construction surveys;
- 3D Terrestrial Laser Scanning;
- GPR underground utility surveys etc.

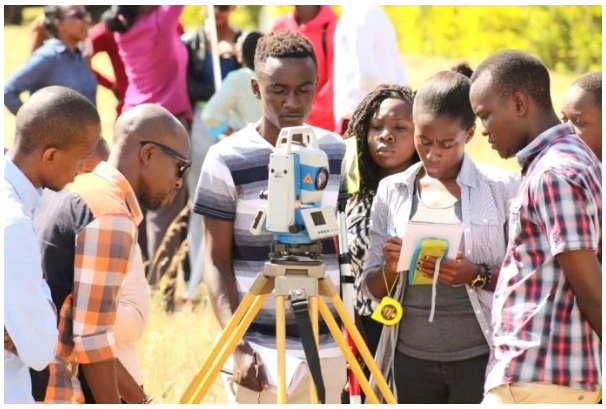
For Aerial surveys, we utilise latest drone or UAV technology to execute various projects including the 3D LiDAR and thermal mapping/imaging assignments in the region.

Geospatial Training Services: Apart from offering GIS products and survey solutions, our Orbital Geospatial College (OGC) offers wide range of Geospatial courses to employed work force and those in geo industry in order to upskill or reskill with latest technology in the market. You can access our geoinformation course catalogue here >>> https://catalogue.orbital.co.ke.

Enterprise Geospatial Services: GIS is rapidly changing! From time to time, we get special requests from clients who require tailor-made or customized solutions such as web mapping applications, geoportal and GIS mobile app developments. If you require such solutions, just talk to us. We'll listen. And serve you accordingly!

Mobile and Web GIS Services: We design, develop, demonstrate and deliver (4Ds) mobile and web/online mapping applications employing the latest cutting-edge proprietary or Commercial-Off-The-shelf (COTs) as well as open source software tools.

Geospatial Project Management: We're endowed with experienced consulting project execution and management team provide services to support GIS project implementation ensuring that we cater for specific needs such as: strategic planning, requirements definition details, change management and user needs assessment.



Mobile GIS Data Collection: Our integral inhouse developed smartphone apps are utilized in field data collection and mapping exercises. The ODK, KoboToolBox and other APIs are employed.

4.3. Geospatial Solutions

Our custom-made, tried-and-tested in-house approaches ensure that our esteemed clients get best results. Always!

- CORS & GNSS Antenna Solutions;
- GPR Underground Utility Scanning;
- Bathymetric Echosounders;
- 3D LiDAR Mapping Solutions;
- Thermal Mapping and Imaging;
- Geospatial Intelligence;
- Geo-Location Analytics;
- Geodatabase Design and development.

4.4. Other Services & Solutions

- GIS Navigational, Routing and Mapping Services;
- Tailor-made GIS Mobile app Development and Deployment;
- Development of Interactive 3D Web Map Applications.

Fig. 3: A 3D Web Map Application

E. KEY DIFFERENTIATORS

- A leading and best ranked Geospatial consulting company in Kenya & Africa region at large.
- Authorised Stonex Business Partner & distributor of Global Navigation Satellite Systems (GNSS).
- An award winning and best ranked (top 5) company in offering Geospatial services and solutions including GIS training in Kenya and Africa.
- Owns a leading Geospatial Training Centre in Africa (Orbital Geospatial College – OGC).

F. PROFESSIONAL BODIES

Orbital Africa is a corporate member of Institution of Surveyors of Kenya (ISK); International Federation of Surveyors (FIG); Commonwealth Association of Surveyors and Land Economists (CASLE) and a member of Open Geospatial Consortium (OGC).

G.

PROJECTS REFERENCES

1. STRUCTURFLEX

Project Name: Survey Consultancy Services to Perform Levelling Works, and Conduct Check on the Levels of As-Built Steel Structure in Karen, Nairobi.	**Client's Country of Origin:** United Arab Emirates (UAE)
Name of Client: StructurFlex Middle East Contracting	**Professional Staff Provided by our Firm/Entity (profiles):** Two (4)
Project Location within the Country: Nairobi, KENYA	**Client Representative:** Name: Mark Fernandez Phone: +971 (0)50 186 3500 E-mail: mark@structurflex.ae
Address: P.O. Box 98477, Dubai, United Arab Emirates	**No of Staff-Months; Duration of Assignment:** 1 Week
Start Date (Month/Year): Jan, 2023 **Completion Date (Month/Year):** Jan, 2023	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Total Station, GNSS & Auto Level Machine || **Software:** AutoCAD Civil 3D and MS Excel	
Description of Project: Consultancy Services to Establish Ground Control Points/Benchmarks; and Perform Levelling Works to Check and Compare the Levels between As-Built and As-Designed Steel Structure in Karen.	
Description of Actual Services Provided by Our Company: The project scope of works entailed establishment of the Ground Control Points or Benchmarks; Checking the accuracy of control points; performing levelling works using Stonex STAL 1000 Auto Level Machine; Reducing the levels obtained using Rise-and-Fall method; Performing accuracy assessment of the as-built levels of the steel structure in comparison to the as-designed drawings. For accuracy assessment done, the error on the levels of the structure was found to be approximately ±0.005 m or 5mm, this implies that the structure was built whilst maintaining high precision. Project report and submission.	
Source of Funding: StructurFlex Middle East Consulting	

2. KEMRI WELLCOME TRUST, KILIFI

Project Name: Consultancy Services to Conduct GIS Training and Capacity Development for Two (2) KEMRI Staff Members	**Client's Country of Origin:** Kenya
Name of Client: KEMRI Wellcome Trust	**Professional Staff Provided by our Firm/Entity (profiles):** Two (2)
Project Location within the Country: Nairobi, KENYA	**Client Representative:** Name: Ms. Gabriel Mali Kahindi Phone: +254 727 756 331 E-mail: maligabriel61@gmail.com
Address: P.O. Box 230-80108, Kilifi, Kenya	**No of Staff-Months; Duration of Assignment:** 3 Weeks
Start Date (Month/Year): Oct, 2022 **Completion Date (Month/Year):** Nov, 2022	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Stonex Mobile Mapper | | **Software:** ArcGIS Desktop, QGIS, ENVI and Python IDE	
Description of Project: Consultancy Services to Conduct Training and Capacity Development for Two (2) Staff Members in Advanced Introduction and Fundamentals of Geographical Information Systems (GIS).	
Description of Actual Services Provided by Our Company: The project scope of works entailed preparation of GIS training materials including user manuals and guides; customization/localization of training data; The course content/online include: Introduction to GIS and data models; Adding and plotting data in GIS (vector and raster data); Building the geodatabases; Projections and Transformations; UTM and Cassini; Geoprocessing and spatial querying; Georeferencing and mosaicking images; Digitizing in GIS; Introduction to Geodatabase Topology; GIS Model Builder i.e., Automating geoprocesses in GIS; Cartography – Map design and production; Summary of the training, training assessment and Q&A; Project report and submission.	
Source of Funding: KEMRI Wellcome Trust	

3. SANERGY LIMITED

Project Name: Geospatial Consultancy Services to Conduct the Control and Topographical Survey Services.	**Client's Country of Origin:** Kenya
Name of Client: Sanergy Limited SANERGY	**Professional Staff Provided by our Firm/Entity (profiles):** Three (3)
Project Location within the Country: Kisumu, KENYA	**Client Representative:** Name: Mr. Heikal Balala Phone: +254 725 945 031 E-mail: structura.ke@gmail.com
Address: P.O. Box 35682 – 00100 Nairobi	**No of Staff-Months; Duration of Assignment:** 2 Week
Start Date (Month/Year): Oct, 2022 / **Completion Date (Month/Year):** Nov, 2022	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Stonex S800A & KQ Geo GNSS || **Software:** Field Genius, Google Earth Pro, AutoCAD Civil 3D, Opus, RTKLib & ArcGIS Pro	
Description of Project: Consultancy for Geodetic Control, Engineering and Detailed Topographical Survey in Kisumu	
Description of Actual Services Provided by Our Staff: The objectives of the projects were: To Establish Ground Control Points/Benchmarks for the purpose of detailed topographical survey; To determine site boundaries and establishment of beacons; To conduct Planimetric survey within the established site boundary; To identify and measure any permanent landmarks within the proposed construction area, including but not limited to; powerlines, pylons, houses, wells, rivers, protected trees, swampy areas, internal paths, gas pipelines, telecommunications lines, large vegetation areas, infrastructure, towers, drainage, roads, boreholes, along with any other notable features considered relevant to construction; Project report writing etc.	
Source of Funding: Sanergy Limited	

4. CYBERMARINE TECHNOLOGIES PTE. LTD.

Project Name: Consultancy Services to Conduct Detailed 3D Terrestrial Laser Scanning of 15,000M³ Double Hull Shallow Water Tanks including Data Processing.	**Client's Country of Origin:** Singapore
Name of Client: CyberMarine	**Professional Staff Provided by our Firm/Entity (profiles):** Two (2)
Project Location within the Country: Kampala, UGANDA	**Client Representative:** Name: Vikash Thakur Phone: +91 989 235 4140 E-mail: vikash_t@cybermarine.org
Address: 10 Bukit Batok Crescent #12-01, The SPIRE Building Singapore 658079	**No of Staff-Months; Duration of Assignment:** 2 Weeks
Start Date (Month/Year): Sep, 2022 **Completion Date (Month/Year):** Oct, 2022	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None

Survey Equipment, Software and Technology Used:

Equipment: Leica BLK360 Laser Scanner, Topcon ES 101 total station | | **Software:** Google Earth Pro, Leica Cyclone 3D Point Cloud Processing Software.

Description of Project:

Project Planning, Establishment of 3D Scan Plans, Detailed 3D Terrestrial Laser Scanning of 15,000M³ Double Hull Shallow Water Tanks using Leica BLK 260 Laser Scanner including Data Processing.

Description of Actual Services Provided by Our Staff:

The project scope of works entailed project planning (Mobilization for equipment, software, flight logistics to and from Kampala etc); Establishment of 3D scan plans and Ground Control Points (GCPs) using Topcon ES 101 total station; Detailed 3D terrestrial laser scanning of the 15,000M³ double hull shallow water tanks using Leica BLK 260 Laser Scanner capturing the dimensions and angles of existing walls, floors and roof structure; the exact door and window positions including level heights of the building in relation to the site; our geospatial engineers obtained scan density of ¼ with 3x zoom and scan quality of 3x optical zoom; the raw scans were registered individual in ".ptx" , ".e57" and ".fls" file formats; Registered point cloud was placed in the vessel's UTM coordinate system; RCP was done in one single file; 3D scanning was accomplished both in colour and monochrome; including Data Processing.

Source of Funding: CyberMarine

5. BUILDX STUDIO

Project Name: Consultancy Services to conduct control and topographical survey at Makini School, located along Ngong Road in Nairobi County.	**Client's Country of Origin:** Kenya
Name of Client: BuildX Studio	**Professional Staff Provided by our Firm/Entity (profiles):** Four (4)
Project Location within the Country: Nairobi	**Client Representative:** Name: Ms. Janet Kangethe Phone: +254 706 122 307 E-mail: janet@buildxstudio.com
Address: P.O. Box 24504 - 00100 Nairobi	**No of Staff-Months; Duration of Assignment:** 2 Weeks
Start Date (Month/Year): Sep, 2022 **Completion Date (Month/Year):** Sep, 2022	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None

Survey Equipment, Software and Technology Used:

Equipment: Stonex S800A; KQ Geo GNSS; CORS || **Software:** Field Genius, eSurvey SurPad, Google Earth Pro, AutoCAD Civil 3D, Opus, RTKLib and ArcGIS Pro.

Description of Project:

Consultancy for Geodetic Control and Detailed Topographical Survey in Makini School, Nairobi

Description of Actual Services Provided by Our Staff:

The project scope of works entailed project planning; Establishment of New survey benchmarks/ beacons/GCPs at the top and bottom of the embankments detailed topographical survey of the following localised site locations: River embankments; Embankment slip failure; Property pegs; Riparian Marking; Outlines of existing buildings and structures; Swimming pool, including depths. Survey of the embankment slip failure; Survey to extend at least 10m beyond the highest point of the river embankment; Spot levels at intervals to form a grid of not more than 2m × 2m apart; Physical features – rock clusters, trees, vegetation, holes, sudden changes in topography and obvious obstructions etc.; office field data processing using AutoCAD Civil 3D and ArcGIS Pro software to generate the topographical maps, profiles, plans and reports.

Source of Funding: BuildX Studio

6. CROSSBOUNDARY ENERGY (KE)

Project Name: Consultancy for Geodetic Control and Detailed Topographical Survey at: (1) Devki Steel Site in Samburu; (2) National Cement Site in Kaloleni and (3) Simba Cement Site in Nakuru.	**Client's Country of Origin:** Kenya
Name of Client: CrossBoundary Energy Group CROSSBOUNDARY	**Professional Staff Provided by our Firm/Entity (profiles):** Four (4)
Project Location within the Country: Mombasa and Nakuru	**Client Representative:** Name: Mr. Lenny Matei Phone: +254-714-840227 E-mail: lenny.matei@crossboundary.com
Address: P.O. Box 14365 – 00800 Nairobi, Kenya	**No of Staff-Months; Duration of Assignment:** 3 Months
Start Date (Month/Year): Jun, 2022 **Completion Date (Month/Year):** Sep, 2022	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Stonex S800A & KQ Geo GNSS || **Software:** Google Earth Pro, ArcGIS Pro, Field Genius, AutoCAD Civil 3D, Opus & RTKLib.	
Description of Project: Consultancy for Geodetic Control, Engineering and Detailed Topographical Survey in Mombasa	
Description of Actual Services Provided by Our Staff: The project scope of works entailed project planning; Establishment of permanent benchmarks/BMs; Conducting Planimetric survey within the provided site boundary; executing Altimetric survey with 0.25m contour lines, showing line breaks and other breaking points as required; Identification and measurement of any permanent landmarks within the proposed construction area, including but not limited to; powerlines, pylons, houses, wells, rivers, protected trees, swampy areas, internal paths, gas pipelines, telecommunications lines, large vegetation areas, infrastructure, towers, drainage, roads, boreholes, along with any other notable features considered relevant to construction. Data processing using AutoCAD Civil 3D and ArcGIS Pro software to generate the topographical maps, cross-sectional and longitudinal profiles, plans and reports.	
Source of Funding: CrossBoundary Energy Group	

7. KENYA NATIONAL HIGHWAYS AUTHORITY (KeNHA)

Project Name: Training of Six (6) KeNHA Project Surveyors on Operation of a Global Navigation Satellite System (GNSS)/RTK Equipment and AutoCAD Civil 3D	**Client's Country of Origin:** Kenya
Name of Client: Kenya National Highways Authority (KeNHA) Kenya National Highways Authority	**Professional Staff Provided by our Firm/Entity (profiles):** Three (3)
Project Location within the Country: Nairobi	**Client Representative:** Name: Mr. David Chege Phone: +254-721-911957 E-mail: chegedavid8717@gmail.com
Address: P.O. Box 49712 – 00100, Nairobi, Kenya	**No of Staff-Months; Duration of Assignment:** 2 Weeks
Start Date (Month/Year): Apr, 2022 **Completion Date (Month/Year):** May 2022	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None

Survey Equipment, Software and Technology Used:

Equipment: Stonex S800A & KQ Geo GNSS | | **Software:** Field Genius, Google Earth Pro, AutoCAD Civil 3D & ArcGIS Pro

Description of Project:

Consultancy to offer Training Services to Six (6) KeNHA Project Staff on Operation of a Global Navigation Satellite System (GNSS)/RTK Equipment and AutoCAD Civil 3D

Description of Actual Services Provided by Our Staff:

The project scope of works entailed training on the following topics: introduction to the GNSS/RTK technology; Planning a project/creating a project; Understanding Ground Control Points (GCPs); Application of the Continuous Operating Reference Station (CORS); using Base + Rover (RTK) to conduct topo surveys; Understanding GNSS components and RTK fundamentals; configuration, set-up and operation of an RTK system; Applying local and global coordinate systems; datums; GNSS site calibration theory to a Real-Time Kinematic survey; use of feature codes during field data collection; Performing field data collection procedures/topo survey and office data processing; Using the AutoCAD Civil 3D and ArcGIS Pro to generate the topographical maps, profiles, plans and survey reports.

Source of Funding: Kenya National Highways Authority (KeNHA)

8. ICS AGRIBUSINESS LTD.

Project Name: Consultancy for Detailed Topographical, Land, Control and Engineering Survey on a 977 Acre Block of Land Parcels to Support the Agribusiness Activities.	**Client's Country of Origin:** United States (USA)
Name of Client: ICS AgriBusiness Ltd.	**Professional Staff Provided by our Firm/Entity (profiles):** Six (6)
Project Location within the Country: Dakacha Locality in Kilifi County	**Client Representative:** Name: Ms. Julliet Ligaga Phone: +254 769 221 338 E-mail: julliet.ligaga@icsagribusiness.com
Address: Riana Gardens, Suite D3, Maalim Juma Road, Kilimani P.O. Box 80 – 30205 Matunda Kenya	**No of Staff-Months; Duration of Assignment:** 3 Months – (ongoing)
Start Date (Month/Year): Apr, 2022 **Completion Date (Month/Year):** On-going	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Stonex S800A & KQ Geo GNSS || **Software:** Field Genius, AutoCAD Civil 3D & ArcGIS	
Description of Project: Control, topo, land and engineering survey; staking/setting out; alignments & profiles; levelling work.	
Description of Actual Services Provided by Our Staff: The consultancy to conduct a detailed topographical survey on 977-acre to support agri-business activities was executed at Dakacha village in Kilifi County entailed organizing the stakeholder meeting and sensitization of the locals on the nature and scope of the topo survey project. In particular, the following tasks and activities were successfully executed: Bush clearing, General surveys to ascertain the location of beacons and the area of property parcels; Static Survey for the establishment of local GCPs and BMs using Stonex 800A and KQ Geo GNSS; conducted a detailed topographical, land and engineering survey works for entire 977-Acre, picking features such as roads, trees, spot heights, rivers, easements etc. The identification of notable landmarks such as trees with dimeter (> 20 cm) diameter were mapped and documented. The topographical and terrain data processing was done using AutoCAD and ArcGIS software. A detailed topographical, contour, terrain maps and layouts both cross and longitudinal were generated including project report.	
Source of Funding: ICS AgriBusiness	

9. ENGINEERS WITHOUT BORDERS (EWB)

Project Name: Control, topographical and engineering survey for Rumbiye Water Supply Project	**Client's Country of Origin:** Kenya
Name of Client: Engineers Without Boarders, Kenya	**Professional Staff Provided by our Firm/Entity (profiles):** Four (4)
Project Location within the Country: Funyula Constituency, Kenya	**Client Representative:** Name: Eng. Nicholas Kitivi Phone: +254 712 307678 E-mail: olekitivi@gmail.com
Address: Ring Road, Westlands Off Waiyaki Way	**No of Staff-Months; Duration of Assignment:** 1 Week
Start Date (Month/Year): Mar, 2022 **Completion Date (Month/Year):** Mar, 2022	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** *Stonex S800A & KQ Geo GNSS* || **Software:** *Field Genius, AutoCAD Civil 3D & ArcGIS*	
Description of Project: Control, topo and engineering survey; staking/setting out; alignments & profiles; levelling works etc.	
Description of Actual Services Provided by Your Staff: The 52-hectare Rumbiye water supply project at Rumbiye village in Funyula Constituency, Busia County entailed organizing for stakeholder meeting, sensitization of the locals on the nature and scope of the topo survey project. In a broader perspective, the following tasks and activities were successfully executed: Establishment of local GCPs and BMs using Stonex 800A and KQ Geo GNSS; detailed topographical, land and engineering survey works for entire 52 Ha catchment including one (1) school and one (1) hospital where water will be supplied to; levelling works was also done along proposed one (1) inlet pipeline and five (5) outlet pipelines; water distribution tank and water kiosks. The topographical data processing was done using AutoCAD Civil 3D. A detailed topographical map and layouts (cross/longitudinal) were generated including project report which were handed to the client.	
Source of Funding: Engineers Without Boarders, Kenya	

10. ARAB BANK FOR ECONOMIC DEVELOPMENT IN AFRICA (BADEA)

Project Name: Training of 15 BADEA Engineers on Application of GIS in Monitoring and Evaluation of Projects	**Client's Country of Origin:** Sudan
Name of Client: Arab Bank for Economic Development in Africa (BADEA)	**Professional Staff Provided by our Firm/Entity (profiles):** Three (3)
Project Location within the Country: Virtual/Online: 1. Nairobi, Kenya – Trainer 2. Khartoum, Sudan – Trainees	**Client Representative:** Name: Ms. Gada Fidail Phone: +254 711 620 264 E-mail: gada.fidail@badea.org
Address: Sayed Abdul Rahman Ave, Khartoum 11111 P. O. Box 2640 Khartoum – Sudan	**No of Staff-Months; Duration of Assignment:** 1 Month
Start Date (Month/Year): Jan, 2022 **Completion Date (Month/Year):** Feb, 2022	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Handheld GNSS, Smartphones | | **Software:** ArcGIS/QGIS, EpiCollect5 and Pix4D	
Description of Project: Training of 15 BADEA Engineers on the Applications of Geographical Information Systems (GIS) in Monitoring and Evaluation of Projects	
Description of Actual Services Provided by Our Staff: The project scope entailed provision of consultancy training and capacity development services to BADEA's Fifteen (15) Engineers in the use and applications of GIS in the monitoring and evaluation of construction projects. Some of the key topic covered include: Introduction to GIS and GPS concepts; Use of Mobile phones and GPS Devices in M&E of Projects; Participatory GIS for M&E; ICT Support tools for M&E; M&E field data collection using Smartphone & GIS Apps; Monitoring Project Progress using RS/UAV Technology; Assessing and Presenting Project Changes using Maps, Charts etc. Case Study: Using GIS & M&E tools in Project Management, Case of Nairobi Expressway Project.	
Source of Funding: BADEA	

11. GEODEV (K) LTD.

Project Name: GPR Underground Utility Scanning and Services along The Landhis – Jogoo Road Roundabouts in Nairobi City.	**Client's Country of Origin:** Kenya
Name of Client: Geodev (K) Limited	**Professional Staff Provided by our Firm/Entity (profiles):** Six (6)
Project Location within the Country: Nairobi, Kenya	**Client Representative:** Name: Mr. Isaiah Mulaku Phone: +254 720 021 518 E-mail: i.mulaku@geodev.co.ke
Address: 2nd Flr, Allbid House, Mombasa Road P.O. Box 14066-00100, Nairobi	**No of Staff-Months; Duration of Assignment:** 1 Month
Start Date (Month/Year): Aug, 2021 **Completion Date (Month/Year):** Sep, 2021	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None

Survey Equipment, Software and Technology Used:

Equipment: Ground Penetrating Radar (GPR) and GNSS | | **Software:** Radar Studio, AutoCAD Civil 3D and ArcGIS.

Description of Project:

Provision of GPR Underground Utility Scanning and Mapping Services along the Landhis Road, Haile Selassie Avenue, Jogoo Road Roundabouts and Intersections in Nairobi County.

Description of Actual Services Provided by Our Staff:

The project scope entailed provision GPR underground utility scanning & Survey Services for Landhis and Jogoo Road Sections, including sections of roads intersecting at the following roundabouts;

a) Haile Selassie Avenue – Landhies Road – Ring Road Ngara Roundabout;
b) City Stadium Roundabout and Intersections/Interchanges;
c) Jogoo Road Section– First Avenue Eastleigh Intersection, Likoni – Jogoo road Intersection and Rabai Road Intersection.

GPR data processing was also done using Radar Studio as well as training of the client's surveyors.

Source of Funding: GeoDev (K) Ltd.

12. GEO-DATA MOBILE SOLUTIONS (GMS) AFRICA

Project Name: Development of a Mobile Survey App and a Web-Based Land Information System.	**Client's Country of Origin:** Tanzania
Name of Client: Geo-Data Mobile Solutions (GMS) Africa	**Professional Staff Provided by our Firm/Entity (profiles):** Five (5)
Project Location within the Country: Dar es Salaam, Tanzania	**Client Representative:** Name: Mr. Ibrahim Hape Phone: +1 303 808 1955 E-mail: i.hape@gmds.co.tz
Address: Mori Street, P. O Box, Kinondoni, Dar es Salaam, Tanzania	**No of Staff-Months; Duration of Assignment:** 4 Months (On-going)
Start Date (Month/Year): Jul, 2021 **Completion Date (Month/Year):** Nov, 2021	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None

Survey Equipment, Software and Technology Used:

Equipment: Laptops & Android phones || **Software & Frameworks:** Linux (Ubuntu Server 20); KoboCollect; ODK; MySQL; Postgres & PostGIS; Javascript; PHP; Java; Kotlin; Geodjango; Python

Description of Project:

GIS services to support client's work in GeoMobile data Solutions development of a mobile- Land Survey application and a Land Information Management System to link farmers to buyers.

Description of Actual Services Provided by Our Staff:

The project entails development and setting up of the LIS app cloud hosting of GIS databases and mobile survey data collection app; Development of a web map interface; Land Information System (LIS); GIS portals for the admins & users; and dashboard; Android apps for surveyors, buyers, sellers; Integration of the platform with bulk SMS system, security features etc. Training of client's five (5) technical staff on use of platform.

Source of Funding: GMS Africa

13. KENYA AIRWAYS

Project Name: Training Seven (7) KQ Engineers on Advanced Drone / UAV Mapping and Data Processing	**Client's Country of Origin:** Kenya
Name of Client: Kenya Airways Ltd	**Professional Staff Provided by our Firm/Entity (profiles):** Four (4)
Project Location within the Country: Karen, Nairobi, Kenya	**Client Representative:** Name: Ms. Eunice Chepkemboi Phone: +254 721 501 708 E-mail: Eunice.Chepkemboi@kenya-airways.com
Address: Airport North Road, Embakasi P.O. Box: 19002 – 00501 Nairobi, Kenya	**No of Staff-Months; Duration of Assignment:** 1 Month
Start Date (Month/Year): Jul, 2021 **Completion Date (Month/Year):** Aug, 2021	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Drones (eBee SQ, DJI Phantom 4 Pro, Matrice 300 RTK) || **Software:** Pix4D, DJI Go, ArcGIS, eMotion, DroneDeploy, Open Drone Map (ODM), Geoserver, Geonode, ArcGIS online etc.	
Description of Project: Training of Seven Engineers on Drone/UAV data collection and mapping; Data processing workflows; and Data storage/cataloguing in Geoportals.	
Description of Actual Services Provided by Our Staff: The project entailed advanced training of 7 KQ engineers on drones/UAV/UAS data collection and mapping using DJI Go, Pix4D field and DroneDeploy apps; Data processing workflows (local and cloud) using Pix4D mapper, Drone Deploy Cloud, Agisoft, ODM etc; and Data storage/cataloguing in open and COTS Geoportals (Orbital Geoportal, Geonode and ArcGIS Online).	
Source of Funding: Kenya Airways Ltd.	

14.SYNEGETIC ENERGY PARTNERS CO. LTD.

Project Name: Training of Six (6) Geospatial Engineers on the Operation of Underground Utility Scanning using US Radar GPR	**Client's Country of Origin:** Kenya
Name of Client: Synergetic Energy Partners Co. Ltd.	**Professional Staff Provided by our Firm/Entity (profiles):** 2
Project Location within the Country: Mombasa, Kenya	**Client Representative:** Name: Stephen Mwai Phone: +254 723 529 202 E-mail: smwai@synergeticenergy.co.ke
Address: 6th Floor, Daykio Plaza, Ngong Rd. P.O. Box 14236 – 00100 Nairobi	**No of Staff-Months; Duration of Assignment:** 1 Month
Start Date (Month/Year): Apr, 2021 **Completion Date (Month/Year):** May, 2021	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Ground Penetrating Radar (GPR); GNSS | | **Software:** Radar Studio, AutoCAD Civil 3D	
Description of Project: Training of 6 Engineers on Underground Utility Scanning and Survey using Ground Penetrating Radar (GPR) and EziCAT 200 equipment.	
Description of Actual Services Provided by Our Staff: The project scope entailed training of Six (6) Synergetic Engineers on the applications of Ground Penetrating Radar (GPR) and EziCAT 200 equipment in underground utility scanning, mapping and survey to locate buried water pipes, electric cables, tanks and other utilities; the GPR data post-processing was done using Radar Studio software; GPR 3D data presentation on Google Earth and AutoCAD Civil 3D. Other areas covered include parts of a GPR and their uses, maintenance and serving of a GPR among other topics.	
Source of Funding: Synergetic Energy Partners Co. Ltd.	

15. NAIVASHA WATER AND SANITATION CO. (NAWASCO)

Project Name: Provision of Engineering Survey and Technical Services for Proposed Parkview, Mirema and Kayole Water Extensions in Naivasha	**Client's Country of Origin:** Kenya
Name of Client: Naivasha Water and Sanitation Company	**Professional Staff Provided by our Firm/Entity (profiles):** Six (6)
Project Location within the Country: Naivasha, Kenya	**Client Representative:** Name: Mr. Henry Munyaka Phone: +254 725 797171 E-mail: henry.munyaka@gmail.com
Address: Kenyatta Avenue, P.O. Box 321 Naivasha, Kenya	**No of Staff-Months; Duration of Assignment:** 2 Months
Start Date (Month/Year): Jan, 2021 **Completion Date (Month/Year):** Apr, 2021	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Topcon Total Station, Auto Level and GNSS/RTK || **Software:** Field Genius, AutoCAD Civil 3D 2021 and ArcGIS Desktop.	
Description of Project: Provision of the Technical Services for Proposed Parkview, Mirema and Kayole Water Infrastructure and Pipeline Extensions.	
Description of Actual Services Provided by Our Staff: The project entailed Provision of Engineering Survey Technical Services for Proposed Parkview, Mirema and Kayole water infrastructure and pipeline extensions. The work entailed overseeing the detailed ground topographical and levelling survey as well as staking/setting out works using Topcon total station and levelling using Topcon AT-B3 Auto level machine. Other notable activities/tasks were creation of water distribution maps (using ArcGIS) for the three (3) zones; installation of water tanks, laying of water distribution pipes and provision of other water-related engineering services.	
Source of Funding: Naivasha Water and Sanitation Company (NAWASCO)	

16. NAKURU WATER SEWERAGE & SANITATION CO. (NAWASSCO)

Project Name: Training of 10 Engineers on Underground Utility Scanning and Survey to Locate Buried Water Pipes as well as Sewerlines.	**Client's Country of Origin:** Kenya
Name of Client: Nakuru Water Sewerage and Sanitation Company	**Professional Staff Provided by our Firm/Entity (profiles):** Three (3)
Project Location within the Country: Nakuru, Kenya	**Client Representative:** Name: Mr. Erastus Maina Phone: +254 724 051308 E-mail: erasmaish92@gmail.com
Address: Government Rd, NAWASSCO Plaza P.O. Box 16314 – 20100 Nakuru.	**No of Staff-Months; Duration of Assignment:** 2 Weeks
Start Date (Month/Year): Apr, 2021 **Completion Date (Month/Year):** Apr, 2021	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None

Survey Equipment, Software and Technology Used:

Equipment: Ground Penetrating Radar (GPR), EziCAT 200 | | **Software:** Radar Studio, AutoCAD Civil 3D and ArcGIS

Description of Project:

Training of 10 Engineers on Underground Utility Scanning and Survey using Ground Penetrating Radar (GPR) equipment to Locate Buried Water Pipes and Tanks.

Description of Actual Services Provided by Our Staff:

The scope of the project entailed training of 10 NAWASSCO Engineers on applications of Ground Penetrating Radar (GPR) equipment in underground utility scanning, mapping and survey to locate buried water pipes and tanks; GPR data post-processing using Radar Studio software; GPR 3D data presentation on Google Earth and Civil 3D. Other areas covered include parts of a GPR and their uses, maintenance and serving of the GPR etc.

Source of Funding: Nakuru Water Sewerage and Sanitation Company

17. FLUX DESIGN LTD.

Project Name: GPR Underground Utility Scanning and Survey to Locate Underground Pipes and Manholes	**Client's Country of Origin:** Kenya
Name of Client: Flux Design Kenya	**Professional Staff Provided by our Firm/Entity (profiles):** Three (3)
Project Location within the Country: Nairobi, Kenya	**Client Representative:** Name: Mr. Michael Ngare Phone: +254 700 641308 E-mail: ngare@flux-design.co
Address: 3rd Floor, Greenhouse Building, Ngong Road Nairobi	**No of Staff-Months; Duration of Assignment:** 2 Months
Start Date (Month/Year): Aug, 2020 **Completion Date (Month/Year):** Jul, 2021	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Ground Penetrating Radar (GPR), EziCAT 200 Utility Scanner || **Software:** Radar Studio, AutoCAD Civil 3D & ArcGIS	
Description of Project: GPR Underground Utility Scanning and Survey to Locate Underground Pipes and Manholes.	
Description of Actual Services Provided by Our Staff: The scope of the project entailed the creation of equidistant ground scan lines; use of a Ground Penetrating Radar (GPR) equipment to undertake underground utility scanning, mapping and survey to locate buried water pipes, power cables, manholes and other utilities; the GPR data post-processing using Radar Studio software; GPR 3D data presentation on Google Earth and AutoCAD Civil 3D among others.	
Source of Funding: Flux Design Kenya	

18. COPPERBELT UNIVERSITY

Project Name: Advanced GIS Training of Five (5) PhD Students from Copperbelt University, Zambia	**Client's Country of Origin:** Zambia
Name of Client: Copperbelt University, Zambia	**Professional Staff Provided by our Firm/Entity (profiles):** Three (3)
Project Location within the Country: Nairobi, Kenya	**Client Representative:** Name: Mr. Xavier Takam (Ph.D) Phone: +260 76 2845322 E-mail: xaviertakam@gmail.com
Address: Jambo Drive, Riverside, P.O. Box 21692, Kitwe, Zambia	**No of Staff-Months; Duration of Assignment:** 9 Months
Start Date (Month/Year): Mar, 2020 **Completion Date (Month/Year):** Jan, 2021	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Garmin eTrex 10 GPS || **Software:** ERDAS Imagine, ArcGIS 7 Fragstats, EpiCollect App	
Description of Project: Training on Application of GIS in Land use/ Land Cover Change Modelling; Suitability Analysis, Environmental Management using ERDAS Imagine, ArcGIS and Fragstats.	
Description of Actual Services Provided by Our Staff: The project entailed offering advanced GIS and Remote Sensing training to Five (5) PhD students from Copperbelt University, Zambia on applications of Geospatial technologies in various realms such Land use land cover (LU/LC) change modelling, land fragmentation using Fragstats, spatial multi-criteria evaluation (SMCE), suitability analysis. The training on drone/UAV technology was also conducted as well use of EpiCollect for mobile data collection. The training helped students undertake their Research Thesis with ease!	
Source of Funding: World Bank Group & University of Zambia	

19. ENGINEERS WITHOUT BORDERS

Project Name: Control, topographical and engineering survey for the design of a 5 Km water pipeline.	**Client's Country of Origin:** Kenya
Name of Client: Engineers Without Boarders, Kenya	**Professional Staff Provided by our Firm/Entity (profiles):** Three (3)
Project Location within the Country: Kisii, Kenya	**Client Representative:** Name: Eng. Martin Aluga Phone: +254 729 882693 E-mail: ewbs.ke@gmail.com
Address: Ring Road, Westlands Off Waiyaki Way	**No of Staff-Months; Duration of Assignment:** 2 Weeks
Start Date (Month/Year): Jan, 2021 **Completion Date (Month/Year):** Jan, 2021	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Stonex S800A and KQ Geo GNSS || **Software:** Field Genius, Maps.ME, AutoCAD Civil 3D and ArcGIS	
Description of Project: Control, topo and engineering survey; staking/setting out; alignments & profiles; levelling works	
Description of Actual Services Provided by Our Staff: The 5 Km water pipeline project at Ichuni locality in Kisii county entailed organizing for stakeholder meeting, sensitization of the locals on the scope of the project. In a broader perspective, the following tasks were successfully accomplished: Establishment of local GCPs and BMs using Stonex 800A and KQ Geo GNSS; topographical and engineering survey works for a 50-metre water pipeline corridor including 2 schools where water will be supplied to, levelling works was also done; data processing using AutoCAD Civil 3D. A detailed topographical map/layout and profiles were generated including project report which were handed to the client.	
Source of Funding: Engineers Without Boarders, Kenya	

20. DIGIREG CONSULTING

Project Name: Collection of Data (x,y,z) of the Ground Control Points (GCPs) for use in Orthorectification of Aerial photographs covering Mombasa County	**Client's Country of Origin:** The Netherlands
Name of Client: Digireg Consulting, The Netherlands	**Professional Staff Provided by our Firm/Entity (profiles):** Three (3)
Project Location within the Country: Mombasa, Kenya	**Client Representative:** Name: Mr. Silas Afwamba Phone: +31 6 87361738 E-mail: silla.afwamba@digireg.nl
Address: Schoolstraat 7, 5961 EE Horst, The Netherlands	**No of Staff-Months; Duration of Assignment:** 3 Weeks
Start Date (Month/Year): Jul, 2020 **Completion Date (Month/Year):** Aug, 2020	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Stonex S800A GNSS || **Software:** Field Genius, Google Earth Pro and ArcGIS Pro	
Description of Project: Collection of Data (X, Y & Z) on GCPs for orthorectification of Aerial Photos in Mombasa County	
Description of Actual Services Provided by Our Staff: The project entailed using Stonex S800A GNSS connected to Continuously Operating Reference Stations (CORS) spread across Mombasa County to pick coordinates of identifiable features on the aerial photos such as road edges, buildings, trees etc and their corresponding location on the ground e.g., edge of the street or building structure, streetlights, electricity poles, man holes etc. The UTM coordinates in Arc1960 datum obtained were utilized in orthorectification of aerial photos covering the whole of Mombasa County. The accuracy of the coordinates was 0.01m in x, y and 0.03m in z. The project final report was prepared and submitted.	
Source of Funding: Digireg Consulting, The Netherlands	

21. CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Project Name: Customized Design & Production of Cluster Maps for various Countries in Africa	**Client's Country of Origin:** Kenya
Name of Client: The Church of Jesus Christ of Latter-Day Saints, Kenya	**Professional Staff Provided by your Firm/Entity (profiles):** Four (4)
Project Location within the Country: Malindi, Kenya	**Client Representative:** Name: Mr. Joseph Poche Phone: +254 722 716262 E-mail: pochejo@ChurchofJesusChrist.org
Address: Ring Road, Westlands Off Waiyaki Way	**No of Staff-Months; Duration of Assignment:** 4 Months
Start Date (Month/Year): Jun, 2020 **Completion Date (Month/Year):** Sep, 2020	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Laptops and PC || **Software:** ArcGIS 10.8, Google Earth Pro, Google Maps, Nitro PDF.	
Description of Project: Design and Production of various soft copy Cluster Maps in different countries in Africa.	
Description of Actual Services Provided by Our Staff: The project entailed engagement with the client (The Church of Jesus Christ) to understand the scope of mapping works. The scope of the project entailed the design of A0 map layouts in ArcGIS, adding map layers, working & alignments of map graphics and labels including annotations. The outputs of the maps were softcopy jpg, pdf and ppt as well as the web maps. Here is a link to some of the sample maps produced: https://bit.ly/3qlkPXn. The countries covered include but not limited to: Kenya, Uganda, Tanzania, DRC, Congo Brazzaville, Central Africa Republic, Cameroon, Gabon and many more.	
Source of Funding: The Church of Jesus Christ, Kenya	

22. ENERGICOTEL, RWANDA

Project Name: Consultancy for Topographical and Engineering Survey for the Construction of Lihanda Hydro-power Generation Plant	**Client's Country of Origin:** Rwanda
Name of Client: Energicotel Ltd., Rwanda	**Professional Staff Provided by our Firm/Entity (profiles):** Three (3)
Project Location within the Country: Siaya, Kenya	**Client Representative:** Name: Honoré Mugiraneza Phone: +250 787 562 236 E-mail: hmugiraneza@epcafrica.com
Address: Gasabo – Gacuriro, KG 436St Plot No:6A Kigali, Rwanda	**No of Staff-Months; Duration of Assignment:** 3 Weeks
Start Date (Month/Year): Mar, 2020 **Completion Date (Month/Year):** Apr, 2020	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Stonex S800A and KQ Geo GNSS || **Software:** Field Genius, Maps.ME, AutoCAD Civil 3D and ArcGIS	
Description of Project: Consultancy for Topographical and Engineering Survey for the Construction of Lihanda Hydro-power Generation Plant in Lihanda, Siaya County.	
Description of Actual Services Provided by Our Staff: The scope of work entailed execution of the topographic survey on acceptable scale clearly showing the intake, the canal, the forebay, the penstock, powerhouse and the line route to the nearest substation. The placement of benchmarks and as well as computation of the gross head and net heads. Additionally, terrestrial laser scanning (TLS) using Leica BLK360 laser scanner was done along the channel, penstock and access roads to the site. Execution of the aerial LiDAR of all the surrounding area at a scale of 1:1000 including placement of Ground Control Points (GCPs) and Benchmarks along key project infrastructure positions; intake weir, channel, forebay, penstock, powerhouse and all access roads. The generation of detailed topographical/contour maps and layouts (X-section and longitudinal) were done including preparation of project reports.	
Source of Funding: Energicotel Ltd., Rwanda	

23. POLYPHASE SYSTEMS

Project Name: Topographical, Land and Engineering Survey for Construction and Installation of Solar Power Plant in Malindi.	**Client's Country of Origin:** Kenya
Name of Client: Polyphase Systems Ltd. POLYPHASE SYSTEMS LTD Innovation, Development, Growth	**Professional Staff Provided by our Firm/Entity (profiles):** Three (3)
Project Location within the Country: Malindi, Kenya	**Client Representative:** Name: Mr. Kuttu Kutu Phone: +254-722-207218 E-mail: kuttu@polyphase.co.ke
Address: Ring Road, Westlands Off Waiyaki Way	**No of Staff-Months; Duration of Assignment:** 8 Months
Start Date (Month/Year): Nov, 2019 **Completion Date (Month/Year):** Dec, 2020	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Stonex S800A and KQ Geo GNSS || **Software:** Field Genius, AutoCAD Civil 3D & ArcGIS.	
Description of Project: Topographical and engineering survey; staking/setting out; alignments & volumes; levelling works	
Description of Actual Services Provided by Our Staff: The project entailed establishment of local GCPs and BMs using Stonex 800A and KQ Geo GNSS; Topographical & engineering survey works, levelling and computation of tables; computing of OGL levels (As-designed & As-built); setting out of solar panel structures columns, proposed solar power site, computation of volumes, alignments etc. AutoCAD Civil 3D 2020 was used for drafting the cross sectional and longitudinal sections and the computations. Here are some of the project photos: https://photos.app.goo.gl/oNKZPcoxopX8NEnA9	
Source of Funding: Polyphase Systems, Kenya	

24. EDDIE STEMMET BOUERS BK, SOUTH AFRICA

Project Name: Engineering Survey and Setting-out/Staking for a Construction of Winery and Resort in Naivasha.	**Client's Country of Origin:** Kenya
Name of Client: ESB BK, South Africa	**Professional Staff Provided by our Firm/Entity (profiles):** Six (6)
Project Location within the Country: Naivasha, Kenya	**Client Representative:** Name: Mr. Robert De Bruin Phone: +254-714-346609 E-mail: robert@esbou.co.za
Address: 46 Joubert St, Bergsig, Montagu, 6720, S. Africa	**No of Staff-Months; Duration of Assignment:** 4 Months
Start Date (Month/Year): Sep, 2019 **Completion Date (Month/Year):** Mar, 2020	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Stonex S800A and Pentax Q6 GNSS || **Software:** Field Genius, AutoCAD Civil 3D and ArcGIS	
Description of Project: Consultancy for Detailed Engineering and Topographical survey, Establishment of GCPs, Staking and levelling works.	
Description of Actual Services Provided by Our Staff: The project entitled 'Leleshwa Resort and Winery' entailed establishment of GCPs for topographical & eng. survey, levelling works; setting out utilities and infrastructure e.g., roads, powerlines, building structures, water pipelines, sewer etc.; AutoCAD Civil 3D was used Computations of Volumes, CUT & FILL etc; Large scale Topographical maps of scale 1:200 were also generated which were used for planning of ideal location of the utilities and infrastructure e.g., dam, recreation sites etc. Here are some of the project photos: https://photos.app.goo.gl/Dx8fvZvqDRf9UKjz8	
Source of Funding: ESB BK, South Africa	

25. USAID, GAMBIA

Project Name: Training of Five (5) USAID Staff from Gambia on Application of GIS on Health Information Systems	**Client's Country of Origin:** Gambia
Name of Client: USAID & HRH 2030, Gambia	**Professional Staff Provided by our Firm/Entity (profiles):** Four (4)
Project Location within the Country: Nairobi, Kenya	**Client Representative:** Name: Dr. Dorothy Onyango Phone: +220–2458567 E-mail: donyango@hrh2030program.org
Address: Kanifing Institutional Lay Out, Kanifing, Gambia	**No of Staff-Months; Duration of Assignment:** 1 Month
Start Date (Month/Year): Aug, 2019 **Completion Date (Month/Year):** Sep, 2019	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Phantom 4 Pro Drone, Smartphones || **Software:** ArcGIS, NetLogo, EpiCollect and DHS	
Description of Project: Training of USAID staff on Application GIS on Health Information Systems and Modelling of Health Data using Netlogo etc.	
Description of Actual Services Provided by Our Staff: The project entailed training of five (5) staff from USAID Gambia on Application of GIS and Remote Sensing on Health Information Systems as well as modelling of health data e.g., spread of Ebola epidemic using Netlogo software. Training of DHS platform was also done on mobile data collection using EpiCollect app, upload to DHS platform i.e., Spatial Data Repository and analysis to produce infographs and spatial maps for Gambia. Here are some sample of the training photographs: https://bit.ly/38GQQDk	
Source of Funding: USAID, Gambia	

26. UNHCR, RWANDA

Project Name: GIS & Mapping Training Services to Six (6) UNHCR Staff members from Rwanda	**Client's Country of Origin:** Kenya
Name of Client: UNHCR, Rwanda	**Professional Staff Provided by our Firm/Entity (profiles):** Six (6)
Project Location within the Country: Nairobi, Kenya	**Client Representative:** Name: Name: Mr. Dieudonne Muhire Phone: +250 788 226 343 E-mail: MUHIRE@unhcr.org
Address: KG 9 Av 60 Nyarutarama Road, Kigali RWANDA	**No of Staff-Months; Duration of Assignment:** 4 Months
Start Date (Month/Year): Sep, 2019 **Completion Date (Month/Year):** Mar, 2020	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Phantom 4 Pro Drone, Smartphones || **Software:** ArcGIS, ENVI, EpiCollect, ODK etc.	
Description of Project: Creation of Rwanda Refugee Maps; GIS Training on Mapping and Mobile Data Collection using EpiCollect5 App to six (6) UNHCR Staff from Rwanda.	
Description of Actual Services Provided by Our Staff: The project entailed Creation of Refugee Maps for UNHCR, Rwanda. The training of 3 Rwandese on GIS Mapping; Mobile data collection using EpiCollect 5 and ODK; GIS database development and cartographic map design was also done. Drone/satellite imagery acquisition; Georeferencing and digitization of refugee camps was also done. Other tasks encompassed project planning and management; Refugee Movement GIS Model development, testing and deployment, GIS report writing, map production including training and capacity development in the area of Geospatial Artificial Intelligence and Big Data Analytics.	
Source of Funding: UNHCR, Rwanda	

27. RURAL ELECTRIFICATION & RE-ENERGY CORPORATION

Project Name: Powerline Route Survey, Mapping and Wayleave Acquisition for Rural Electrification Programme.	**Client's Country of Origin:** Kenya
Name of Client: REREC, Kenya	**Professional Staff Provided by your Firm/Entity (profiles):** Eight (8)
Project Location within the Country: Kisumu, Machakos, Meru, Busia, Siaya and other Counties in Kenya	**Client Representative:** Name: Mr. Stanley Muturi Phone: +254-720-226582 E-mail: smuturi@rerec.co.ke
Address: KAWI House, South C P. O. Box 34585 – 00100, Nairobi Kenya	**No of Staff-Months; Duration of Assignment:** 6 Years
Start Date (Month/Year): Nov, 2014 **Completion Date (Month/Year):** Feb, 2020	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Garmin Map 64S GPS || **Software:** Survey123, AutoCAD Civil 3D, MS Excel, and ArcGIS	
Description of Project: Powerline Route Survey, Mapping and Wayleave Acquisition for Rural Electrification Programme.	
Description of Actual Services Provided by Our Staff: The project entailed acquisition of Registry Index Maps (RIMs); Georeferencing and digitizing of RIMs, Identification of Project Affected Persons (PAPs); Signing of Consents by PAPs; Powerline Wayleave acquisition, Powerline Route Survey using Handheld GPS (Garmin Map 64S); Plotting and drafting of the powerline routes, overlying the route survey on cadastral layers, location of transformers and electricity poles and mapping them; delineating of wayleave acreage of affected land parcels using AutoCAD Civil 3D; GIS database creation; report writing and submission.	
Source of Funding: Rural Electrification Authority, Kenya	

28.TADE GROUP LLC, USA

Project Name: GIS Mapping and Analysis of PEPFAR Funded Health Facilities in Kenya's 47 Counties	**Client's Country of Origin:** United States (USA)
Name of Client: Tade Group LLC	**Professional Staff Provided by our Firm/Entity (profiles):** Fifteen (15)
Project Location within the Country: Kenya's 47 Counties	**Client Representative:** Name: Dr. Fred Mairura Phone: +254-722-997898 E-mail: fredm@tadegroup.com
Address: P.O. Box 49712 - 00100, Nairobi, Kenya	**Duration of Assignment:** 4 Months
Start Date (Month/Year): Nov, 2017 **Completion Date (Month/Year):** Feb, 2018	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None

Survey Equipment, Software and Technology Used:

Equipment: Garmin Map 64S GPS, Smartphones | | **Software:** MS Excel, Leaflets JS, Postgres & ArcGIS

Description of Project:

Mapping and Analysis of all PEPFAR Funded Health Facilities across the 47 Counties in Kenya. The map of the facilities can be accessed here: http://www.orbital.co.ke:82/

Description of Actual Services Provided by Our Staff:

The objective of this project was to "Carry out the Mobile Data Collection, Mapping and Analysis of all PEPFAR Sites across the 47 Counties in Kenya" with an approximate number of nine thousand (9,000) sites. This included training of 47 GIS data collectors on how to use GIS Cloud mobile app to collect location of PEPFAR sites. Additionally, the spatial, statistical analysis of all sites was conducted together with map creation and report writing. Amongst other deliverables, the geographic mapping (geospatial analysis) was also carried out to determine the location of each PEPFAR site in relation to other health facilities (PEPFAR related and/or not) to have a better comparative analysis of the sites in proximity to others. A final product included GIS analysis maps, an online interactive map of all PEPFAR sites (www.orbital.co.ke:82) including a final project report.

Source of Funding: TADE Group LLC, USA

29. PCI GLOBAL

Project Name: Creation of Kenya's Arid Areas GIS Layers and Maps for AfriScout Mobile App	**Client's Country of Origin:** Kenya
Name of Client: PCI Global	**Professional Staff Provided by our Firm/Entity (profiles):** Four (4)
Project Location within the Country: Kajiado, Turkana, Isiolo, Marsabit, Samburu, West Pokot, Garissa, Wajir and Laikipia	**Client Representative:** Name: Ms. Hellen Mutogoh Phone: +254-718-615636 E-mail: hmutogoh@pciglobal.org
Address: P.O. Box 21691 – 00200, Nairobi, Kenya	**No of Staff-Months; Duration of Assignment:** 2 Years
Start Date (Month/Year): Aug, 2017 **Completion Date (Month/Year):** On-going	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Software:** ArcGIS desktop; Nitro PDF; Open Street Maps (OSM) and Google Maps	
Description of Project: Creation of GIS Maps and Layers for AfriScout Mobile App: https://www.pciglobal.org/afriscout/	
Description of Actual Services Provided by Our Staff: The project entailed project planning and management; creation of administrative and topographical maps; digitizing of grazing areas; Georeferencing; creation of shapefiles; mapping; training and capacity development; reporting and support in configuring the GIS layers in the AfriScout mobile application (https://www.pciglobal.org/afriscout/) used for pastoralists in identifying the grazing areas in their locality using the smartphones.	
Source of Funding: PCI Global, Kenya	

30. HYDROBOX KENYA

Project Name: Engineering & Topo Survey for Identification of the Ideal Location of Hydro Power Generation Sites	**Client's Country of Origin:** Kenya
Name of Client: Hydrobox Africa	**Professional Staff Provided by our Firm/Entity (profiles):** Four (4)
Project Location within the Country: Murang'a, Kenya	**Client Representative:** Name: Ms. Alice Mumbi Phone: +254-727-442700 E-mail: alice@hydroboxkenya.com
Address: P.O. Box 2691 Murang'a, Kenya	**No of Staff-Months; Duration of Assignment:** 2 Months
Start Date (Month/Year): Jan, 2019 **Completion Date (Month/Year):** On-going	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Garmin 64S GPS, Stonex S800A | | **Software:** AutoCAD Civil 3D, MS Excel, and ArcGIS	
Description of Project: Topographical survey, levelling works and computing of OGL levels; Setting-out of various structures on site and Production Topo Maps and Generation of CAD files.	
Description of Actual Services Provided by Our Staff: The project entailed establishment of local GCPs; topographical survey, levelling and computing of OGL levels for ground structures, rivers, proposed hydropower generation site, spot heights, existing powerhouse, water pipes etc. Contouring and creation of Digital Terrain Model (DTM) was done in AutoCAD Civil 3D. Topographical maps of scale 1:500 was also generated which were used for planning of ideal location of water intake, water pipes routes, new power house among others. Here are some of the project photos: https://photos.app.goo.gl/2dqTLosA746T6oG19	
Source of Funding: Hydrobox, Belgium	

31. POWERGEN-RE KENYA

Project Name: Digitizing 80,000 Buildings from Open Street Maps (OSM) in Countries of Niger and Benin	**Client's Country of Origin:** Kenya
Name of Client: PowerGen Kenya	**Professional Staff Provided by our Firm/Entity (profiles):** Twenty (20)
Project Location within the Country: Approx. 100 Villages and Towns in Republics of Niger and Benin	**Client Representative:** Name: Mr. Brian Jaoko Phone: +254-723-529079 E-mail: bjaoko@powergen-re.com
Address: P.O. Box Karen, Nairobi, Kenya	**No of Staff-Months; Duration of Assignment:** 5 Months
Start Date (Month/Year): Feb, 2019 **Completion Date (Month/Year):** May 2019	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Software:** ArcGIS desktop; MS Excel, Nitro PDF; Open Street Maps (OSM) and Google Maps	
Description of Project: Digitizing 80,000 Buildings from Open Street Maps (OSM) using high resolution Satellite images or Basemaps from Bing, Esri, MapBox and Google. The focus countries were Niger and Benin.	
Description of Actual Services Provided by Our Staff: The project entailed planning and training of GIS Mapping team; creation of OSM online accounts; digitizing the polygons of building/polygons in villages/town centres using defined lat./long. coordinates; categorizing the building structures; uploading the digitized buildings to OSM servers; quality control/quality assurance including accuracy assessment of digitized buildings; generation of a report showing digitized buildings; errors assessment reports; presentation of final project report.	
Source of Funding: PowerGen, Kenya	

32. NIS FOUNDATION, SOMALIA

Project Name: Training of 25 Engineers on Operation of Total Station, AutoCAD Civil 3D and Topo Survey	**Client's Country of Origin:** Somalia
Name of Client: NIS Foundation	**Professional Staff Provided by our Firm/Entity (profiles):** Three (3)
Project Location within the Country: Mogadishu, Somalia	**Client Representative:** Name: Mr. Mohamed Mohamud Nur Phone: +252 616 462 985 E-mail: eng4.somalia@nis-foundation.org
Address: Airport Rd, Wadajir District, Mogadishu SOMALIA	**No of Staff-Months; Duration of Assignment:** 3 Weeks
Start Date (Month/Year): Oct, 2018 **Completion Date (Month/Year):** Nov, 2018	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Topcon GTS Total Station || **Software:** AutoCAD Civil 3D and MS Excel	
Description of Project: Training of 25 Engineers from NIS Foundation on Operation of Topcon GTS 1002 Total Station, AutoCAD Civil 3D Software and Topo Survey Works.	
Description of Actual Services Provided by Our Staff: The project entailed training of 20 Civil Engineers from NIS foundation and 5 from Municipal Council of Mogadishu on the operation of Topcon GTS 1002 total station. The participants were also trained on use of AutoCAD Civil 3D software; field data processing; creation of profiles; topo maps as well as alignments. The training also focused on how to use total station to pick coordinates, distances and angles. Final project report was done and submitted as well as participants' certificates. Here are some of the project photos: https://photos.app.goo.gl/e4N3R999C7KKbxWZ8	
Source of Funding: NIS Foundation, Sweden	

33. URBAN GREEN CONSULTANTS

Project Name: Drone/UAV Mapping in Kiambu County	**Client's Country of Origin:** Uganda
Name of Client: Urban Green Consultants, Uganda	**Professional Staff Provided by our Firm/Entity (profiles):** Six (6)
Project Location within the Country: Kiambu County	**Client Representative:** Name: Mr. Amrish Shah Phone: +254-713-380549 E-mail: amrish@ugcafrica.com
Address: P.O. Box 39676 - 00623 Nairobi, Kenya	**No of Staff-Months; Duration of Assignment:** 1 Month
Start Date (Month/Year): Nov, 2018 / **Completion Date (Month/Year):** Jan, 2019	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None

Survey Equipment, Software and Technology Used:

Equipment: Stonex S800A, Phantom 4 Pro Drone | | **Software:** AutoCAD Civil 3D, MS Excel, and ArcGIS for Desktop.

Description of Project:

Aerial Drone Mapping on a 17-Acre Piece of Land in Kiambu County, Kenya using Phantom 4 Pro v2 UAV.

Description of Actual Services Provided by Our Staff:

The project entailed project planning and management; flight planning using Drone Deploy and Phantom DJI mobile software; field data collection (RTK/GNSSS) and drone mapping using Phantom drone. The generation of a 3cm resolution Orthomosaic, a DEM, DTM, DSM, digital Contours and a topographical map; report writing and topographical map production.

- View Sample Processed Drone images Orthomosaic here: http://www.orbital.co.ke:8080/geoexplorer/viewer/#maps/4)
- Sample project photos: https://photos.app.goo.gl/mgbMCn8f69zggETo7

Source of Funding: Urban Green Consultants, Uganda

34. TECHNOBRAIN GROUP, INDIA

Project Name: GIS-Based AspMap Training to 15 Staff Members from Centre for Geoinformatics Application in Rural Development (CGARD)	**Client's Country of Origin:** India
Name of Client: TechnoBrain Group, Kenya	**Professional Staff Provided by our Firm/Entity (profiles):** Two (2)
Project Location within the Country: Antananarivo, Madagascar	**Client Representative:** Mr. Waweru Gichuhi Phone: +254-724-400648 E-mail: waweru.gichuhi@technobraingroup.com
Address: P.O. Box Antananarivo, Madagascar	**Duration of Assignment:** 2 Weeks
Start Date (Month/Year): Jan, 2018 **Completion Date (Month/Year):** Feb, 2018	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None

Survey Equipment, Software and Technology Used:

Hardware: Servers | | **Software:** MS Visual Studio, .NET; AspMap, Notepad ++

Description of Project:

To design and develop Geospatial Technology Applications using AspMap Software tools for Rural Development sector and develop the capacity, skills and knowledge levels of functionaries at different organizational levels.

Description of Actual Services Provided by Our Staff:

Orbital Africa through TechnoBrain Group, offered AspMap training services to CGARD with an aim of assimilating all the strengths of geospatial technology in GIS, Remote Sensing, Global Positioning System, ICT, and allied sectors, for potential application development for the rural development in emerging areas for scientific, optimum, productive, sustainable, environmental compliant, knowledge-based decision support, timely and need based decision support, for faster development of rural areas and people. The tasks entailed project planning and management; design of customized GIS-based AspMap training materials; offered training to 15 staff members drawn from different departments. You can view sample training photos here: https://bit.ly/2XA2pWz and client's Reference Letter here: https://www.orbital.co.ke/downloads/TechnoBrain.pdf

Source of Funding: National Institute of Rural Development, INDIA

35. RAINTS INTERNATIONAL

Project Name: Consultancy Services for Topographical Survey for Construction of Buildings in USA Embassy, Juba – S. Sudan.	**Client's Country of Origin:** South Sudan
Name of Client: Raints International Ltd.	**Professional Staff Provided by our Firm/Entity (profiles):** Two (2)
Project Location within the Country: Juba, South Sudan	**Client Representative:** Name: Ms. Betty Nyoike Phone: +254-708-593282 E-mail: bnyoike@raints.com
Address: P.O. Box 2691 – 00621, Nairobi, Kenya	**No of Staff-Months; Duration of Assignment:** 2 Months
Start Date (Month/Year): Feb, 2019 **Completion Date (Month/Year):** Mar, 2019	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Stonex S800A, Total Station | | **Software:** Field Genius, AutoCAD Civil 3D, MS Excel and ArcGIS	
Description of Project: Topographical survey, levelling works and computing of OGL levels; Setting-out of various structures on site and Production Topo Maps and Generation of CAD files.	
Description of Actual Services Provided by Our Staff: The project entailed establishment of local GCPs; topographical survey, levelling and computing of OGL levels for building structures, water pipelines, Manholes, roads and pathways, underground electric cables and water pipelines; trees, property boundaries. Generation of longitudinal and cross-sectional profiles, contouring AutoCAD Civil 3D. Topographical maps of scale 1:500 was also generated which were used for excavation and laying out of the pipes.	
Source of Funding: Raints International Ltd, USA	

36. LAFEY CONSTRUCTION COMPANY

Project Name: Bridge Construction Survey Works	**Client's Country of Origin:** Kenya
Name of Client: Lafey Construction Ltd. LAFEY CONSTRUCTION CO. LTD	**Professional Staff Provided by your Firm/Entity (profiles):** Four (4)
Project Location within the Country: Baringo County, Kenya	**Client Representative:** Name: Mr. Kefah Nyakundi Phone: +254-723-393724 E-mail: nyakundikefah8@gmail.com
Address: P.O. Box 66437 - 00100, Nairobi, Kenya	**No of Staff-Months; Duration of Assignment:** 1 year 6 Months
Start Date (Month/Year): Jul, 2018 / **Completion Date (Month/Year):** Jan, 2020	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None

Survey Equipment, Software and Technology Used:

Equipment: Stonex S800A, Total Station | | **Software:** AutoCAD Civil 3D, Surfer & ArcGIS desktop

Description of Project:

Topographical Surveys, levelling works, Setting out of piers, embarkments, road centerline

Description of Actual Services Provided by Our Staff:

The project entails setting out of the 100-metre bridge in Baringo county. The scope of works includes setting out design data i.e., the road diversion, bridge CL & chainages, embarkments, pile caps and pile coordinates among others.

Here are some of the project photos: https://photos.app.goo.gl/bptSWsXbeKDHE2Nn9

Source of Funding: Lafey Construction, Kenya

37. WRIGLEY/DEXTEROUS LTD

Project Name: Consultancy for Water Pipeline Setting/Staking out Works for Engineering Works in Athi River.	**Client's Country of Origin:** Kenya
Name of Client: Wrigley/Dexterous Ltd.	**Professional Staff Provided by your Firm/Entity (profiles):** Two (2)
Project Location within the Country: Athi River, Machakos County	**Client Representative:** Name: Mr. Ezekiel Bosire Phone: +254-722-971407 E-mail: ezekielogao@gmail.com
Address: P.O. Box 5082, Nairobi, Kenya	**No of Staff-Months; Duration of Assignment:** 2 Months
Start Date (Month/Year): Mar, 2018 **Completion Date (Month/Year):** May, 2018	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None
Survey Equipment, Software and Technology Used: **Equipment:** Topcon Total Station || **Software:** AutoCAD Civil 3D and ArcGIS desktop	
Description of Project: Topographical survey, levelling works and computing of OGL levels for pipeline route surveys	
Description of Actual Services Provided by Our Staff: The project entailed topographical survey, levelling and computing of OGL levels for water pipeline route surveys for 15 Km stretch. The longitudinal and cross-sectional profiles for the water pipeline route were prepared in AutoCAD Civil 3D. Topographical maps of scale 1:500 was also generated which were used for excavation and laying out of the pipes. Here are some of the project photos: https://photos.app.goo.gl/bmF8Zxy47gWFRjaL8	
Source of Funding: Wrigleys, Kenya	

38. UN-HABITAT, KENYA

Project Name: Kawangware Slum Mapping **Project**	**Client's Country of Origin:** Kenya
Name of Client: UN-HABITAT UN HABITAT FOR A BETTER URBAN FUTURE	**Professional Staff Provided by your Firm/Entity (profiles):** Two (2)
Project Location within the Country: Nairobi County	**Client Representative:** Name: Mr. Dennis W. Mutiso Phone: +254-721-991506 E-mail: dennis.mutiso@unhabitat.org
Address: P.O. Box 30030 – 00100 Nairobi, Kenya	**No of Staff-Months; Duration of Assignment:** 3 Months
Start Date (Month/Year): Feb, 2017 **Completion Date (Month/Year):** May, 2017	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None

Survey Equipment, Software and Technology Used:

Equipment: eTrex 10 handheld GPS || **Software:** ArcGIS 3D; Arc Scene and City Engine

Description of Project:

Mapping and Development of a GIS Model to predict Urban growth and changes in Kawangware Slums and its environs.

Description of Actual Services Provided by Our Staff:

The project entailed field survey and mapping; satellite imagery acquisition; Georeferencing and digitization of building structures. Development of slum growth prediction model in 30 years to come. Also entailed project planning and management; model development, testing and deployment, GIS database development; project report writing, map production including training and capacity development in the area of GIS.

Source of Funding: UN-Habitat, Kenya

39. ELDAS CONSTITUENCY

Project Name: Mapping of Facilities in Eldas Constituency	**Client's Country of Origin:** Kenya
Name of Client: Eldas Constituency	**Professional Staff Provided by your Firm/Entity (profiles):** Four (4)
Project Location within the Country: Wajir County	**Client Representative:** Name: Mr. Mohamed Bule Phone: +254-722-558523 E-mail: mohamed.bule@gmail.com
Address: P.O. Box 3453 Wajir, Kenya	**No of Staff-Months; Duration of Assignment:** 1 Month
Start Date (Month/Year): Jun, 2018 **Completion Date (Month/Year):** Jul, 2018	**Approx. Value of Services (in equivalent KSh):** N/A
Name of Associated Consultants, If Any: None	**No of Months of Professional Staff Provided by Associated Consultants:** None

Survey Equipment, Software and Technology Used:

Equipment: Smartphones, Garmin handheld GPS | | **Software:** ArcGIS desktop and portal, EpiCollect5 Mobile App

Description of Project:

Mapping and Development of a GIS Database of projects funded by Eldas Constituency Development Fund.

Description of Actual Services Provided by Our Staff:

The project entailed project planning and management; field data collection and mapping using the EpiCollect5 GIS mobile App (https://five.epicollect.net/project/eldas-constituency-mapping/data); Scanning of boundary and admin maps; Georeferencing and digitization of boundaries. Development of GIS database of mapped facilities. Creation of an interactive web mapping application using LeafletJS and GeoJson frameworks; report writing and map production.

Source of Funding: Eldas Constituency Fund

H. SOFTWARE AND SURVEY EQUIPMENT

No	EQUIPMENT/TOOLS/ SOFTWARE	MODEL	MANUFACTURER	QUANTITY/ NO. OF LICENSES
1.	Fieldwork Vehicle	RAV 4	Toyota	1
2.	Fieldwork Vehicle	Landcruiser	Toyota	2
3.	Laptops	Acer 4349Z and HP ProBook	Acer and HP	4
4.	Desktop Computers	HP	HP	6
5.	External Hard Disk for Data Backup (2TB Storage)	WD, EHD 500GB	WD	5
6.	Printers	Epson 545	Epson	1
7.	Plotters	HP Designjet T1300	HP	1
8.	Handheld GPS	Garmin eTrex 10 & 20; Hi-Target iHand 30; Stonex S4.	Garmin, Trimble & Stonex	3
9.	Geodetic GPS (RTK)	Stonex A800 (1 Base and 2 Rovers)	Stonex	3
		KQ Geo (1 Base and 1 Rover)	KQ Geo	2
10.	Digital Levels	Stonex DL100 & Topcon AT-B4	Stonex and Topcon	4
11.	Total Station	i. Topcon GTA 1000 ii. Stonex R1+	Topcon Stonex	3 2
12.	Digital Camera	Sony CyberShot DSC W610	Sony	1
13.	3D Laser Scanner	BLK 360	Leica	1
14.	Drones for Aerial Survey	Phantom 4 RTK & Pro	Phantom	2
		eBee SQ	SenseFly	1
15.	Ground Penetrating Radar (GPR)	GPR-Q5 Series	US Radar	1
16.	Software Packages	- ERDAS Imagine 15 - AutoCAD Civil 3D - Surfer 11 - ENVI 4.6 - ArcGIS Desktop - SuperGIS Server 10 - MapInfo Pro - Global Mapper - Google Earth Pro - Microsoft Office	Integraph Autodesk Golden Software Inc. Harris Geospatial Esri Inc. SuperGeo MapInfo Professional Blue Marble Geographics Google Inc. Microsoft Inc.	2 2 5 4 2 2 4 5 6 10

TOOL/EQUIPMENT	NAME AND MODEL	DESCRIPTION AND USE
	**Garmin eTrex 10 Handheld GPS**	The eTrex 10 handheld GPS can be used to pick general GIS data which does not require high accuracy e.g., the location of football pitches, schools, trees etc. It has 2-5-meter accuracy and expandable external memory for extra data storage. This GPS is easy to use and is capable to collection ready-to-use data (in GPX format) in GIS and Google Earth platforms.
	**S4 II Handheld GPS**	S4 II which offers 1 metre accuracy is the newest generation of GNSS handheld mapping devices introduced by Stonex. Designed for GIS data collection and mapping, the S4 II integrates an open operating system and built-in communications. The Compact and lightweight, S4 II is a complete, easy to use mapping solution for real-time collection of 1-meter accurate data.
	**Topcon GTS 1002 Total Station**	This equipment comes with Bluetooth technology ensuring easy data transmission. It has long battery life and advanced features for angle and distance measurement. This equipment can be used during topographic survey (traversing and levelling) including data collection in X, Y and Z.
	**Stonex Total Station (R1+)**	The Nikon total station is another powerful survey equipment in our possession. The equipment shall also be used in field data collection during topographic survey and mapping projects. It has high accuracies of up to +1mm+1ppm. The equipment is also bundled with field and office software.

	**Stonex GNSS or RTK (S800A)**	S800 is the most cost-effective dual-frequency network RTK rover. S800 solutions include the new Ashtech rugged GNSS receiver running Windows Mobile 6.5 operating system, the comprehensive Ashtech FAST Survey field software and the new Atlas (L1/L2 GNSS) antenna. The equipment can be used where it is difficult to collect data using the total station.
	**Stonex Scan Station 300XL**	Stonex Scan Stations deliver highest quality 3D data and HDR imaging at an extremely fast scan rate of 1 million points per second at ranges of up to 270 metres. Unsurpassed range and angular accuracy paired with low range noise & survey-grade dual-axis compensation form the foundation for highly detailed 3D colour point clouds mapped in realistic clarity. The scanner is often used to collect site data in 3D (X, Y & Z).
	**Stonex Auto Level and Levelling Staff**	Stonex digital levels ensures up to a 50% time saving when compared with conventional levels. The main reasons are the faster data capture preparation as well as the shorter time and safer means of data preparation, thanks to saving measured data on storage devices. Adjustable tolerance checks for the measured data add safety to the measurements taken.
	**eBee SQ Drone Mapper**	More time is saved by using a survey-grade eBee RTK drone. Such GNSS/RTK receiver systems are effectively flying rovers, capable of receiving data corrections streamed from a base station or via VRS to achieve absolute X, Y, Z accuracy of down to 3 cm (1.2 in) – without needing any Ground Control Point (GCP)!

	**Phantom 4 Pro v2**	Featuring a 1-inch CMOS sensor that can shoot 4K/60fps videos and 20MP photos, the Phantom 4 Pro V2.0 grants Surveyors absolute creative freedom. The OcuSync 2.0 HD transmission system ensures stable connectivity and reliability, five directions of obstacle sensing ensures additional safety, and a dedicated remote controller with a built-in screen grants even greater precision and control.
	**US Radar Q5 Ground Penetrating Radar (GPR)**	At Orbital Africa, we combine the knowledge with expertise in using the latest technology, including Ground Penetrating Radar (GPR) equipment. This non-destructive method uses electromagnetic radiation in the microwave band such as (UHF/VHF frequencies) of the radio spectrum, and detects the reflected signals from subsurface and underground structures e.g., water pipes, sewer lines, electric cables etc.
	**Leica BLK 360 3D Terrestrial Laser Scanner**	The Leica BLK360 captures the world around you with full-colour panoramic images overlaid on a high-accuracy point cloud. Simple to use with the single push of one button, the BLK360 is the smallest and lightest imaging laser scanner of its kind. Using Leica Cyclone FIELD 360 mobile-device app, the BLK360 streams image and point cloud data to an iPad/Tablet or final project data to Cyclone REGISTER 360 or Cyclone REGISTER 360 (BLK Edition) via Wi-Fi connection. **Technical Specifications**: • Allows you to scan in high, standard and fast resolutions • Weighs 1 kg / Size 165 mm tall x 100 mm diameter • Less than 3 minutes for full-dome scan (in standard resolution) and 150 MP spherical image generation • 360,000 laser scan setpoints per second • High-Dynamic Range (HDR) and thermal imaging

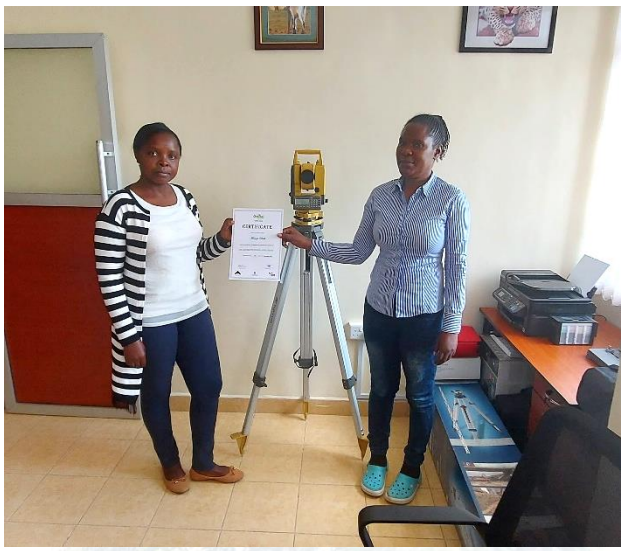
	**DJI Mavic 3 Combo**	Below are Specifications of this drone: • 4/3 CMOS Hasselblad Camera • 46 Minutes of Flight Time; • Omnidirectional Obstacle Sensing; • 15km Max Transmission Range; • Advanced Return to Home.
	**Toyota 4 Wheel Drive**	During the project, we shall put in place vehicles which will be used to avail the staff to the project sites. The vehicles will also be used to carry the project tools and equipment hence facilitating easy movement to and from the field thus ensuring that the project is done and completed within the stipulated timeframe.
	**HP Plotter**	The Plotter will be used in printing large scale maps, survey plans and topographical designs (both A0s, A1s, A2s, A3s etc) obtained from either AutoCAD or ArcGIS. The plotter can print at a resolution of more than 1200 dpi hence quality map output.
	**Epson Printer**	The printer shall be used in printing project documents such as reports and A3/A4 maps during the project execution process.
	**Large Format Scanner**	The scanner is used to scan large scale maps e.g. A4s so that they can used in digital environment during digitization process in the software such as AutoCAD and ArcGIS. Its Ultra-fast scan-to-disk capabilities make it the perfect link between your Contex scanner and popular software for graphics, reprographics, GIS, CAD, DTP and Archival.

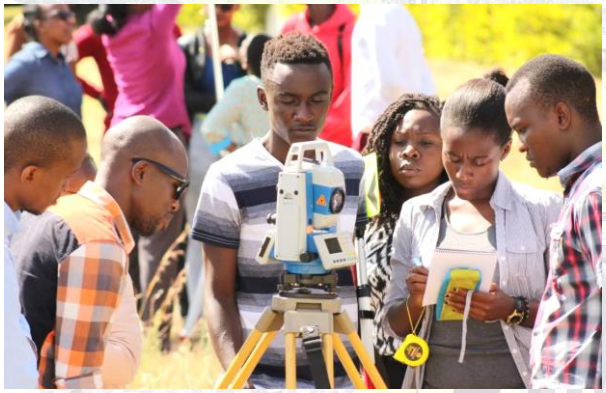
I. APPENDICES

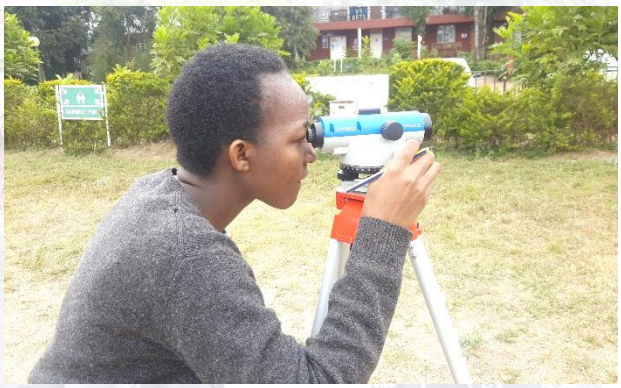
SAMPLE PHOTOS OF KEY PROJECTS

A. DRONE SURVEY AND MAPPING

B. GEOSPATIAL TRAINING SERVICES







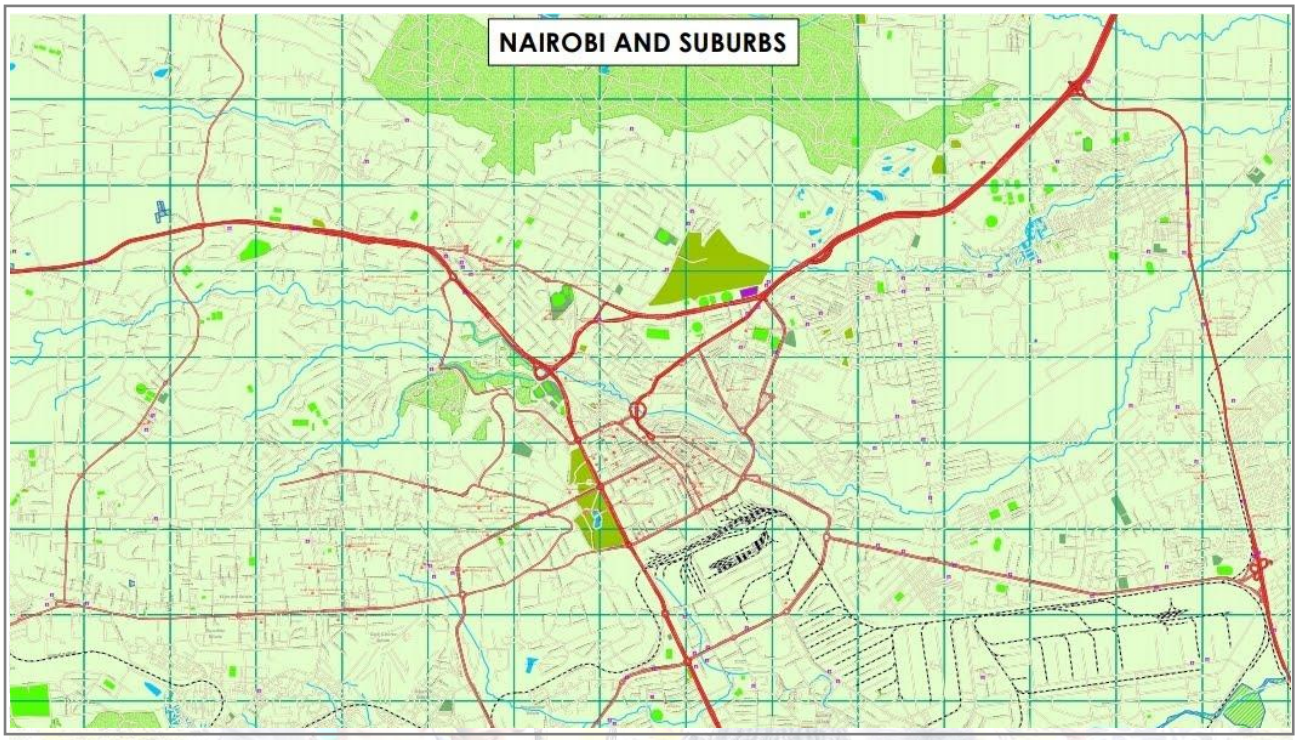
C. TOPOGRAPHICAL SURVEY SERVICES

D. BATHYMETRIC SURVEY SERVICES

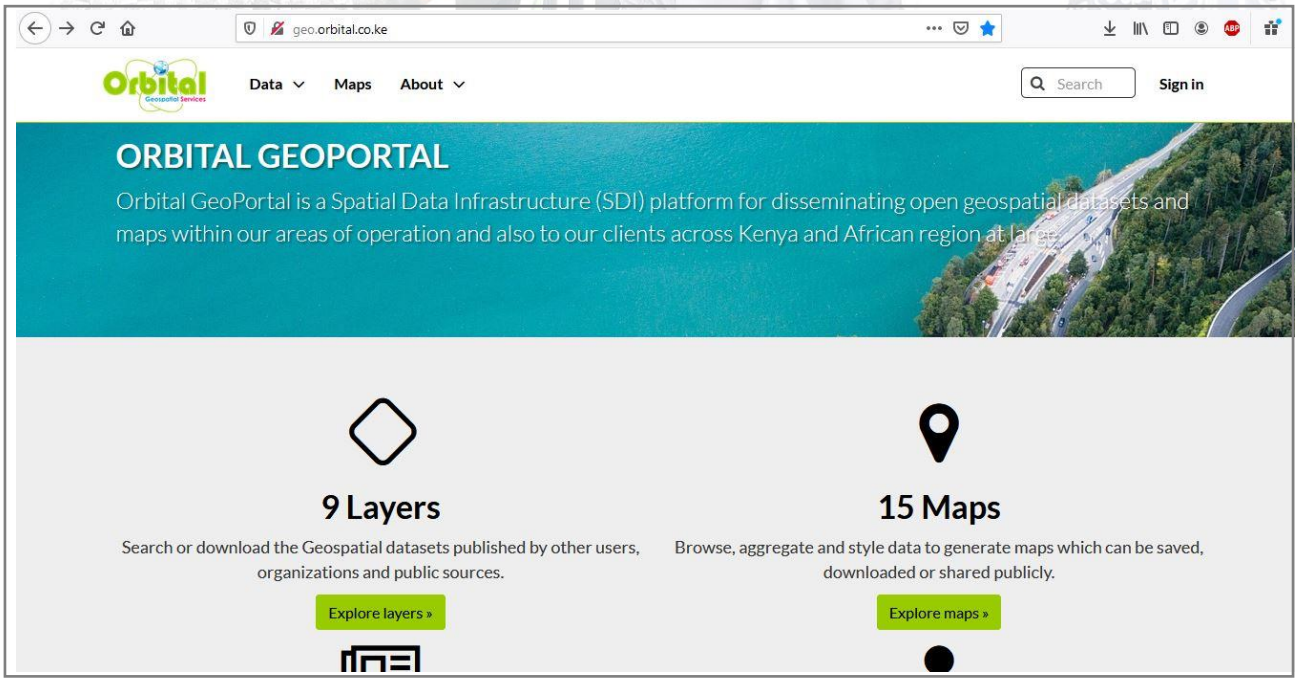
E. ENGINEERING & CONSTRUCTION SURVEY SERVICES

F. MAP DESIGN AND PRODUCTION SERVICES

Maps: www.orbital.co.ke/map



Our GeoPortal: https://gis.orbital.co.ke



ORBITAL AFRICA LTD.

1st Floor, African Creative Centre Building
Karen Village, Karen-Ngong Road
P.O. Box 9249-00200
Nairobi, KENYA

OUR CONTACTS

Tel No.: +254 719 672 296
E-mail: geo@orbital.co.ke
Website: www.orbital.co.ke