ABBREVIATIONS

AADT	Annual Average Daily Traffic
AD	Active Directory
ADT	Average Daily Traffic
CDRC	Current Depreciated Replacement Cost
CIBPAVE	Condition Index – Block Pavement Structure
CIbridge	Bridge Condition Index
CICPAVE	Condition Index – Concrete Pavement Structure
CIFPAVE	Surfacing Condition Index
CISURF	Surfacing Condition Index
Clunpaved	Condition Index – Unpaved Roads
COLTO	Committee of Land Transport Officials
СОТО	National Committee of Transport Officials
CRC	Current Replacement Cost
DM	District Municipality
DMBS	Database Management System
DORA	Division of Revenue Bill
DOT	Department of Transport
ECI	Engineering Condition Indices
EVU	Equivalent Vehicle Units
FI	Functional Indices
GeoRAMS	Geographical Road Asset Management System

GIS	Geographical Information System		
GPS	Global Positioning System		
HV	Heavy Vehicles		
KML	Keyhole Mark-up Language		
LM	Local Municipality		
MSSQL	Microsoft SQL Server		
NCN	Network Condition Number		
OGC	Open Geospatial Consortium		
PIBRIDGE	Priority Index for Bridge		
PIroad	Priority Index for Road		
PNG	Portable Network Graphics		
RAMS	Road Asset Management System		
RCI	Reseal Condition Index		
RISFSA	Road Infrastructure Strategic Framework for South Africa		
RNI	Road Network Inventory		
RRAMS	Rural Roads Asset Management System		
SDI	Spatial Data Infrastructure		
SHP	ESRI shapefile format		
SLD	Styled Layer Descriptor		
ТМН	Technical Methods for Highways		
TRH	Technical Recommendations for Highways		
VCI	Visual Condition Index		
Vkm	Vehicle Kilometres		

WFS Web Feature Service

WMS Web Map Service

XMLExtensible Mark-up Language

2. INTRODUCTION

2.1 Background to RRAMS

The Rural Roads Asset Management System (RRAMS) grant has been established to ensure efficient and effective investment in rural municipal roads, through the development of a Road Asset Management Systems (RAMS). The grant is provided by National Treasury and administered by the National Department of Transport. The aim is to capacitate district municipalities to set up rural a RAMS and collect road and traffic data on municipal road networks, in line with the Road Infrastructure Strategic Framework for South Africa (RISFSA)

GeoRAMS is a web based enterprise GIS platform, that was specifically developed to store, process, analyse and present RRAMS data. This document is a guideline for users of GeoRAMS and explains the different features and functions of the platform.

2.2 What is GIS?

A geographic information system (GIS) is a system designed to capture, store, manipulate, analyse, manage, and present spatial or geographic data.

GIS applications are tools that allow users to create interactive queries (user-created searches), analyse spatial information, edit data in maps, and present the results of all these operations.



2.2.1 GIS Terminology

• **Raster data:** raster data is made up of pixels where each pixel value corresponds to a specific colour. The data is represented in a grid of cells (usually square). Putting these grids together allows the GIS to build a map. Examples of raster data is satellite images or aerial photographs

• Vector data: vector data consists of individual points that can be joined together to form lines and polygons



• Attribute data: attribute data is information appended in tabular format to spatial features that describes the spatial data. Spatial data represents the "where" and attribute data can contain information about the "what", "where" and "why".

eature Info		×
eorams_network		
Name	Value	
road_id	XDM1202	
road_id_group	XDM1202Springfontein	In l
name	RD 3041	
description		
route		
route_seq		Provide Art

- **Feature**: a feature is a representation of a real-world object on a map, such as a town or a road. It is a point, line or polygon object that can be used in a GIS for storage, visualization and analysis.
- **Layer:** a layer is a group of features of the same type, for example, a district boundary will have a number of line features demarcating different districts)
- **Map:** a map is an interactive presentation of different layers that is aimed at communicating a specific theme, for example, a map of all the roads in a specific municipality

3. RAMS BACKGROUND

3.1 Introduction

South Africa is highly reliant on a sufficient and effective road network, which serves as a backbone for the movement of people, goods and services. The roads infrastructure links economic hubs to each other and is vital to the economy of the country. In order to ensure that the road network is maintained at an optimal level, the South African Government, through the National Treasury, has allocated funding for the establishment of a Rural Roads Asset Management (RRAMS). The objective of this allocation is to ensure effective investment in rural and municipal roads, through the development of a Rural Roads Asset Management. This allocation is to assist district municipalities to:

- implement an RRAMS
- establish a road network inventory
- collect road condition data
- collect traffic data
- collect data on rural access bridges and culverts

According to the RRAMS grant, the system shall be utilised, in compliance with COTO, TRH and TMH standards, to identify and prioritise the maintenance requirements within the relevant budget limit, to improve condition of the roads and extend the lifespan of road infrastructure.

3.2 **RRAMS Grant Requirements**

The detailed requirements and conditions of the RRAMS grant, as published in the Division of Revenue Bill (DORA), is summarised below:

	Rural Roads Asset Management Systems Grant	
Strategic goal	 Ensure efficient and effective investment in rural municipal roads through development of Road Asset Management Systems (RAMS) and collection of data 	
Grant purpose	• To assist rural district municipalities to set up rural RAMS, and collect road and traffic data on municipal road networks in line with the Road Infrastructure Strategic Framework for South Africa (RISFSA)	
Outcome statements	 Improved data on municipal rural roads to guide infrastructure maintenance and investments Reduced vehicle operating costs 	
Outputs	 Road inventory data Condition assessment, traffic data and rural access bridges Pavement and bridge management systems compatible with national standards 	
Priority outcome(s) of government that this grant primarily contributes to	 Outcome 6: An efficient, competitive and responsive economic infrastructure network Outcome 7: Vibrant, equitable and sustainable rural communities with food security for all Outcome 9: A responsive, accountable, effective and efficient local government 	
Details contained in the business plan	 This grant uses Road Asset Management Business Plans which contain the following details: network data collection plan network condition and traffic volumes organisational and support plan financial summary 	

Conditions	 For RISFSA Class R1, R2 and R3 roads, data collection requirements are: visual condition data not older than two years for pavements and five years for bridges instrumental pavement data for roughness, rut depth and macro texture not older than two years instrumental pavement data for structural strength not older than five years, and traffic data not older than three years For RISFSA Class R4 and R5 roads, data requirements are: visual condition data not older than three years For RISFSA Class R4 and R5 roads, data requirements are: visual condition data not older than three years for pavements and five years for bridges traffic data not older than five years The above condition data shall be utilised according to applicable national Committee of Transport Officials (COTO) standards, according to Technical Recommendations for Highways (TRH) and Technical Methods for Highways (TMH) to identify and prioritise the maintenance requirements within the relevant budget limit, to improve condition of the roads and extend the lifespan of road infrastructure All road condition report and data collected must be submitted to the national Department of Transport (DoT), and the relevant Provincial Roads Authorities Systems developed to record data must be compatible with DoT specifications (TRH26 and TMH22) for uniformity and standards
Responsibilities of the transferring national officer and receiving officer	 Responsibilities of national department Performance evaluation reporting Monitoring implementation of RAMS together with provincial road authorities Data integrity will be checked by DoT and Provincial Road Authorities Provide guidance on sustainable RAMS operations and standards Facilitate training to local municipalities and assist them to acquire RAMS data from DMs, provinces or DoT Check the quality of data captured on municipalities' RAMS in collaboration with Provincial Road Authorities
	 Responsibilities of municipalities Municipalities must make provision to maintain RAMS after the lifespan of the grant Data for all rural roads to be updated within two years Employ unemployed youth Ensure human capacity at municipalities for the operation of RAMS is developed Road quality data on RAMS must be used for planning Municipal Infrastructure Grant (roads) investments as well as road maintenance funded from other sources
Process for approval of business plans	 DMs must submit a road conditions report for every year to DoT by 15 March of that year or the next working day Road condition reports must contain the following: the extent of the road network in the municipality the condition of the network in the municipality the status of the municipality's RAMS the proportion of municipal roads with updated data captured on its RAMS DoT, together with Provincial Roads Authorities will evaluate the business plans and progress reports by 30 April or the next working day of every year

The objectives of the RRAMS grant can be summarised as follow:

- improved data on rural roads to guide infrastructure investments
- efficient use can be made of available budgets in order to reduce vehicle operating costs and extend the remaining life of rural roads by means of scientific network management techniques
- creation of employment an enhancing the human capacity at municipalities for the operation of RAMS within local municipalities

3.3 RAMS Maturity Levels

RAMS operate at different maturity levels, ranging from simple systems to extremely complex integrated systems, as depicted in the diagram below. As complexity increases so does the cost, expertise and manpower to operate and maintain the system. According to TMH22, the minimum COLTO requirement is that all Provincial Authorities operate Level II RAMS and Municipal Authorities a Level I RAMS. The GeoRAMS platform is a Level 1 RAMS.



The table below describes the differences between the maturity levels, from basic (level 1) to advanced (level 4).

Section	Level I	Level II	Level III	Level IV
Inventory	Detailed listing of all roads	Integrated GIS and road and bridge inventory together with engineering details of each link	All road assets divided into components with different expected useful lives together with construction details	Inventory seamlessly integrated with planned roads, asset register, all acquisition data and related information material to performance
Valuation	Valuations per km or sq m of each road type	Valuations per sq m of road type adjusted for expected useful life	Valuation per component adjusted with estimates of remaining useful life and estimates of unit costs.	Valuation per component reliably adjusted for remaining useful life and unit costs based on detailed statistics of current construction costs.
Condition and Usage	Visual evaluations of condition of each road. Traffic counts at selected positions	Detailed, objective visual evaluations of each road and bridge with some instrument measurements. Traffic counts cover entire road network on a regular basis	Integrated visual and instrument evaluations taken at the minimum frequencies defined in Section D.5.3. Traffic count histories to reliably project future volumes	Reliable and credible condition and usage data that is used to accurately determine excess user costs and predict future excess user costs and related risks
Decision Support	Judgement of future condition and departmental priorities	Decisions based on reliable strategies and rankings based on condition and importance	Optimisation used to adapt strategies and improve returns on rehabilitation expenditure	Optimisation based on reliable performance predictions and linked to confirmation of performance based on past history
Management Plans	Minimal information on planned service levels and future expenditure forecasts	Impacts of plans shown in terms of future service levels with basic information on expenditure forecasting	Plans demonstrate achievement of objectives and likely service levels subject to budget constraints	Fully integrated with customer expectations of service levels and comprehensive risk analysis and trade- offs related to budget constraints
Feedback Loop	Anecdotal feedback of performance of actions.	Performance of actions measured as part of ongoing condition evaluation and linked to strategy	Specifically planned activities implemented to assess performance and risk and to feed into prediction models and tactics	Regular measured performance of all actions integrated into prediction models and planned actions

3.4 **RRAMS Data Collection Process**

The roads infrastructure is dynamic and is continuously changing; new roads are being built, roads are rehabilitated, roads deteriorate over time etc. In order to ensure that the information in RRAMS remains valid and current, data about roads infrastructure must be collected on an ongoing basis. The RRAMS grant conditions stipulate that:

- for RISFSA Class R1, R2 and R3 roads, visual condition data must not be older than two years
- for RISFSA Class R4 and R5 roads, visual condition data must not be older than three years

Given the dynamic status of the roads infrastructure and the cyclic nature of the data collection process, it is important to understand that the accuracy of the data in RRAMS improves over time (on condition that regular data collection exercises are conducted).

The type and methods used to collect data for RRAMS are briefly described below:

3.4.1 Road Network Inventory (RNI)

A road network inventory (RNI) is established by collecting the following information about roads:

- road geometry (spatial definition)
- road name
- road length
- the surface type (paved/gravel/block/concrete)
- administrative regions (such as town, district and local municipality)
- the road classification (RISFSA)

This information can either be sourced from third parties, collected in the field using GPS devices or digitised using Google Maps or ortho-imagery, for example.

Roads are segmented into discrete sections, referred to as road links and defined as follows:

- an intersection another road
- a change of surface from paved to gravel (or vice versa)
- the start or end of a roadway
- the start or end of a dual carriageway
- the start or end of a subsidy

Each road link is assigned attribution with information pertaining to the road link and its ordinal position within the road chainage. This includes:

- an incremental link identifier number
- the from_km and to_km
- the length of the road_link in km
- the from and to descriptions
- the from and to node types

3.4.2 Road Classification

All roads are allocated classes according to the Road Infrastructure Strategic Framework for South Africa (RISFSA) (Department of Transport, 2006), as per the table below:

Road Class	Description
	Primary Distributors, providing high mobility with limited access for rapid movement of large
1	volumes of people, raw materials, manufactured goods and agricultural produce of national
	importance.
	Regional Distributors providing relatively high mobility with lower levels of access for the
2	movement of large volumes of people, raw materials, manufactured goods and agricultural
	produce of regional importance in rural and urban areas.
	District Distributors, providing moderate mobility with controlled higher levels of access for the
3	movement of people, raw materials, manufactured goods, agricultural produce in rural and urban
	areas of regional importance.
	District Collectors, providing high levels of access and lower levels of mobility for lower traffic
4	volumes of people, raw materials, manufactured goods and agricultural produce in rural and urban
	areas of local importance.
E	Access Roads, providing high access and very low mobility routes for the movement of people and
5	goods within urban and rural areas.

Road classification is an indication of the economic importance of a road, the lower the class the higher the importance.

3.4.3 Road Condition Data

Road condition assessments are carried out by means of visual condition surveys in accordance with TMH9 (flexible roads) and TMH12 guidelines (gravel roads). Assessors assign degree and extent ratings to surfacing and structural defects (such as surface cracking and potholes) as well as functional characteristics such as riding quality and skid resistance.





<u>Extent</u>



3.4.4 Traffic Data

Traffic volume is one of the most important parameters in RAMS related models such as performance modelling and road deterioration, treatment selection, prioritisation and optimisation. Traffic data reflect both economic activity and factors that directly affect and accelerate pavement deterioration.

The data are normally reported by calculating the following:

- average daily traffic (ADT)
- annual average daily traffic (AADT)
- vehicle kilometres (AADT x length of the road)
- percentage heavy vehicles (as these are the vehicles that have the most adverse effect on road deterioration)

AADT is by far the most important representation of traffic on a road network and is used as a base input to many RAMS calculations and models. Calculating AADT is, however, complex as account needs to be made for seasonal, weekly and day/night distributions as well as traffic volume drift over time in relation to economic stimuli.

Gathering data on traffic is costly and needs to occur frequently in specified cycles. Due to budget constraints, it is not possible to collect 24/7/365 traffic data on all roads. For this reason, a sampling approach is typically adopted. Good results can be obtained by manually counting traffic (via 12hr (06:00 to 18:00) counts) on a third of the network nodes each year and supplementing these data with 7-day automatic temporary counts in order to calculate day/night distributions (for the calculation of ADT) and weekly distributions (for the calculation of AADT). The calculation of AADT can be greatly improved by including seasonal distribution and growth rate factors calculated from permanent count stations.

Counts are typically classified such that traffic is counted according to the five vehicle classes as indicated in the table below. To avoid pseudo growth trends, counts are typically not conducted during holiday periods (such as school and public holidays) or weekends.

Classification		Description
**************************************	Light	Light vehicles are motor vehicles with a gross vehicle mass of less than 3 tonnes. It includes motorcycles and motor cars with or without trailers and caravans.

	Heavy	The heavy vehicle class includes single-chassis or articulated heavy vehicle (truck or bus) with a gross vehicle mass of between 3 tonnes and 16 tonnes. The heavy vehicles in this class have up to 3 axles, at least one of which has more than one wheel on each side.
,	Very Heavy	Very heavy vehicles are articulated heavy vehicles with a gross vehicle mass of greater than 16 tonnes. The heavy vehicles in this class have more than 3 axles, at least one of which has more than one wheel on each side.
	Bus	Buses are heavy vehicles adapted for the conveyance of groups of people with a seating capacity of 40 or more.
	Taxi	Taxis are light vehicles adapted for the conveyance of groups of people with a seating capacity of up to 40.

Class	Functional Classification	Description	Speed (km/h)
1	Freeway / Expressway	Freeway with no at grade intersections, regional traffic, high design speed and exclusive mobility function	120
2	Major Arterial Street Regional Distributor Road	Typically provide a link between cities / towns or a major distributor within a city, high mobility function	80 - 100
3	Arterial Street	Link between major suburbs and the CBD or between 2 suburbs, mobility function	60 - 80
4	Collector Street	Important link between class 5 and 3 roads, access function with limited mobility	60
5	Access Street	Provide access to private erven	50 -60

3.4.5 Road-side Furniture

The collection of data regarding road-side furniture is considered a lower priority for RRAMS and is typically only gathered after RNI, road condition and traffic data has been collected. Road-side furniture to be captured (as per THM22 (Committee of Transport Officials, 2013b)) include:

- Guardrails
- Road signs
- Road markings
- Bus shelters

• Minor retaining structures

3.4.6 Bridge data collection

Data on the condition of bridges must also be captured as part of RRAMS, however RRAMS is not a bridge management system. Condition assessment of bridge structures can only be carried out by qualified and registered bridge inspectors.

3.5 **RRAMS Output**

According to the RRAMS grant, the system must be utilised, to identify and prioritise the maintenance requirements within the relevant budget limit, to improve condition of the roads and extend the lifespan of road infrastructure.

3.5.1 Calculations

In order to determine treatment actions, the system must perform calculations from the visual condition and traffic data. Several indices are calculated from the data.

These indices, comprising engineering condition indices (ECIs) and functional indices (FIs), allow various problems on the road network to be highlighted to assist in identifying possible remedial measures and the prioritisation thereof. The EIs are based on the condition of individual components of the asset, rated from an engineering point of view with the view of maintaining the asset in an acceptable condition. The FIs are based on an appraisal of the asset in terms of functional characteristics that affect the quality of use, notably comfort (convenience) safety, congestion and operating cost (TMH22). The table below lists the items that are calculated by the system:

Calculation/Index	Description
VCI	Visual Condition Index (Aggregation method per TRH22)
RCI	Reseal Condition Index (Aggregation method per TRH22)
CI _{SURF}	Surfacing Condition Index (Deduct method per TMH22)
CIFPAVE	Condition Index – Flexible Pavement Structure (Deduct method per TMH22)
CICPAVE	Condition Index – Concrete Pavement Structure (Deduct method per TMH22)
CIBPAVE	Condition Index – Block Pavement Structure (Deduct method per TMH22)
Clunpaved	Condition Index – Unpaved Roads (Deduct method per TMH22)
	Bridge Condition Index (Struman DERU algorithm)
PIROAD	Priority Index for Road (TRH22) – uses weighting factor of the selected remedial action for each road section together with the road class
PIBRIDGE	Priority Index for Bridge (Struman PI algorithm)
EVU	Equivalent Vehicle Units

V _{km}	Vehicle Kilometres	
AADT	Annual Average Daily Traffic	
%HV	Percentage Heavy Vehicles	
Road Capacity	Equivalent Vehicle Units (EVUs) per day	
CRC	Current Replacement Cost	
CDRC	Current Depreciated Replacement Cost	
NCN	Network Condition Number	

All condition-based indices are presented in summarised form, expressed per LM, town, RISFSA class, and surface type and is presented according to the categories listed in the table below:

Condition Category	Index Range	Condition Category Description	Functional Category Description	Colour Code	Structures
Very Good	85 - 100	Asset is still like new and no problems are expected.	Good service levels at all times	Blue	Good
Good	70 – <85	Asset is still in a condition that only requires routine maintenance to retain its condition.	Mostly good service levels with isolated problems occurring at certain times.	Green	70 – 100 Green
Fair	50 – <70	Some clearly evident deterioration and would benefit from preventative maintenance or requires renewal of isolated areas.	Reasonable service but with intermittent poor service.	Orange	Warning 50 – <70 Orange
Poor	30 - <50	Asset needs significant renewal or rehabilitation to improve its structural integrity	Generally poor service levels with occasional very poor service being provided.	Red	Critical
Very Poor	0 - <30	Asset is in imminent danger of structural failure and requires substantial renewal or upgrading with less than 10% of EUL remaining.	Very poor service levels at most times.	Purple	0 – <50 Red

3.5.2 RRAMS Report and Data

According to the conditions of the RRAMS grant, a road condition report must be submitted to the National Department of Transport (NDoT) on an annual basis, contain the following:

- the extent of the road network in the municipality
- the condition of the network in the municipality
- the status of the municipality's RAMS
- the proportion of municipal roads with updated data captured on its RAMS

The municipality is also responsible for submitting RRAMS data to NDoT on an annual basis.

3.6 Capacity Building

One of the objectives of the RRAMS grant is to build human capacity for the operations of the system within municipalities. The grant provides opportunities for unemployed civil technicians to be employed and capacitated under the project. With the required training and support, graduates become responsible for collecting information, such as condition and traffic data, as required by the system.

4. WEB INTERFACE

Web GIS is defined as any Geographic Information System that uses Web technology to communicate between components. Web GIS is synonymous to a distributed information system. A Web GIS should at least consist of a server and a user, where the server is a Web application server, and the user is a Web browser - either through a desktop or mobile application.

The server has a URL so that users are able to find the Web Interface from the Internet. The user relies on HTTP specifications to send requests to the server (*Figure*). The server performs the requested in GIS operation and sends a response to the user via HTTP. In addition, the format of the response to the Web browser user can also be done in the following formats: HTML, binary image, XML (Extensible Markup Language), or JSON (JavaScript Object Notation) (GIS in the Web Era, n.d.).



Figure 4: A Web GIS consists of a Web application server and a user, which can be a Web browser. The server and the user communicates through HTTP

However, the Department's Web GIS architecture consist of a three tier user/server Web GIS mode architecture system, which is divided into three levels of function logic. The three levels consist of the following: the first level consists of the user interface; the second level consists of GIS transaction processing business logic; and the third level consists of GIS spatial data storage (Luqun, Jian & Yu, 2002).



Figure 5: The Web Interface

4.1 OPERATIONAL



4.1.1 Create user

The Admin user will login to the system and use the Admin interface to create a new user and assign privileges. Go to the menu bar to get access to the admin interface. Click on **Admin**.

Search		glenn ≡
Menu	×	
GeoRAMS Wiki		
★ Favorites		
Profile		
▲ Recent Activity		
🕒 Inbox		
Announcements		
🌣 GeoServer		
🌣 Admin		
Import Data		

Scroll down to People and click on Profiles.



Select Add profile

Но	ome / profiles									
4	profiles 🛿 Bookmark +	▼ Filters -	Search profile	٩				► Add	profik	•
25	profiles						📾 Columns 🕶		ш	/
	username 🔺	email address			first name	last name	staff status			
	AnonymousUser						0			100
	Antoinette				Antoinette	Nkuna	0			100
	Athalia				Athalia	Ngwenya	0			100
	Bakhele				Bakhele	Shongwe	0			100

Create a username and password and save the profile.

Add profile	
Username*	Required. 30 characters or fewer. Letters, digits and @/./+/-/_ only.
Password*	
Password confirmation*	Enter the same password as above, for verification.
Save Save and a	dd another Save and continue editing

Back in the Profile window, select the new user to set the permissions.

	Emmanuel	
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Select the **group** that this user belongs to and select the **User permissions**. Complete the rest of the form and **Save** all changes when done.

Permissions		^
Groups	anonymous Extension-Officers Bulk-Water-Supply Junior-Farm-Managers v The groups this user belongs to. A user	will get all permissions granted to each of their groups.
User permissions	Available user permissions	Chosen user permissions +
	Can add account Can change account Can delete account Can view account Can change account deletion Can change account deletion Can delete account deletion Can view account deletion Can add email address Can change email address Can change email address	Can view team Can add note Can change note Can delete note Can add project Can add project Can add project Can export data in project Can change project Can delete project Can make submissions to the projec

4.1.2 Create GeoRAMS Group

Any user can create their own groups that can be used for collaboration - for example, the sharing of maps and documents with focus groups.

Create group

With the aim of creating a new group the following link must first be opened: <u>http://</u><u>youraddress.georams.co.za/groups</u>. After this page opens, the **Create a New Group** option must be selected on the Web browser.

Home Maps Layers 👩 Docu	nents People Groups	Search Q	O jacques =
Explore Groups			Create a New Group
			↓ ^A ∽
Kapanong LM Kapanong Local Municipality			
1 Member 1 Manager			
			< page 1 of 1 >
https:/ jeorams.co.za/groups/create/			•

After the **Create a New Group** option has been select a **Create a Group** dialogue box will open. The various fields that are shown in the Create a Group dialogue box should then be filled in and completed, where after the **Create** option should then be selected.

Create a Group	
Title	
New Group	
Loro	
Chaose File No file chasen	
Leschpaon of New group	
<i>li</i>	
Email	
new_group@somehwere.co.za	
Email used to contact one or all group members, such as a mailing list, shared email, or exchange group.	
Access	
Public T	
Public: Any registered user can view and join a public group.	
Public [Imite-only]Amy registered user can view the proup. Only invited users can join. Private: Registered users cannot see any details about the provum including membership. Only invited users can join.	
Coléiter	
er en	
/	
Keywords	
A space or comma-separated list of keywords	
Create	

After the **Create** option has been selected, the new group will then appear in the Group list.

Explore Groups	Create a New Group
Kapanong LM Kapanong Local Municipality	↓2 ~ New Group Description of New group
1 Member 1 Manager	1 Member 1 Manager
	< page 1 of 1 >

Add users

Ē

To add users to a group, a particular group must first be selected in order to enable an editing session. After a particular group has been selected (for example, New Group), the Manage Group Members option should then be selected.



After the **Manage Group Members** option have been selected, the **Edit Members for New Group** dialogue box opens. Users with rights to manage the group should first be added. After the managers have been added the **All** tab should then be selected, where after a role should be selected for each member that have been added to the group (i.e. select Role: **Manager**).

Once the roles have been allocated to each manager member added to the group, one should then start typing the User identifiers, which entail typing the names of the users to add. A drop down menu will appear with username matches to the characters typed. Click on a correct match to add the user to the list.

Edit Members for New Group	
Add members	
Role	
Manager	•
User identifiers	
😠 glenn) t	
test_user	
testuser	
Add Group Members	
Members	
All Managers Members	
Sacques Manager Remove	
Role: manager	

Once all group manager users have been added to User identifiers, click Add Group Members. Once the Add Group Members selection have been made, select Manage Group Members again.

	Luit Group Details
⊠ new_group@somenwere.co.za	Manage Group Members
	Delete this Group
	Group Activities
	Permissions
	This group is Public . Anyone may join this group.
	Managers
	No Group
	(D) testuser
	jacques
	No Group

After the **Manage Group Member** selection have been made, standard members to the group can now be added. In the All tab, under add members, select Role: **Member**. In **User Identifiers** start typing the name of the users to add. A drop down menu will appear with username matches to the characters typed. Click on a correct match to add the user to the list.

Edit Members for New Group
Add members Role Member Veridentifiers
Add Group Members Members
All Managers Members
A glenn Manager Remove Role: manager
La test_user Manager Denous

Once all the standard users have been added to User Identifiers, click Add Group Members.

New Group			
Description of new group		Edit Group Details Manage Group Members	
		Delete this Group Group Activities	
×		Permissions This group is Public. Anyone may join this group.	
*		Managers glenn No Group	
Members			
Vo Organization info	No Organization info	testuser No Organization info	
○17 ♀3 ≧0	⊘0 9 0 ≧0	⊘0 9 0 ≧0	

The edited group will appear in the Groups list with updated Members and Manager counts.

plore Groups		Create a New Group
Highway Engineers Group for sharing maps with highway engineers.	New Group Description of new group	↓ ^A _z ∼
4 Members 1 Manager	3 Members 1 Manager	
		< page 1 of 1 >

4.1.3 Import layer into GeoRAMS

Spatial data are available in many different formats both as raster and vector data. GeoRAMS can connect to many spatial data formats (all those supported by GDAL – see http://www.gdal.org/ogr formats.html and http://www.gdal.org/formats_list.html, provided the relevant dependencies have been configured). GeoRAMS is currently configured to use PostgreSql to manage the various vector datasets and, as such, if datasets are to be incorporated into the GIS, they need to be converted and imported into PostgreSql. This section provides several methods for conducting such data conversion and import.

Import to SQL Server

Using the Upload Layer utility in GeoRAMS. This utility currently only supports importing **shp** files and **GeoTiff** images. It uses Geoserver's Import Data feature in the backend. As such, if errors are encountered, the detailed messages can be accessed via that interface (see the next section).

Data conversion/import between disparate formats and systems can often be tricky as several issues can arise. To avoid possible complications during the data import, ensure that the shp file is free of topological errors – you can use the Geometry Validity tool in QGIS to test this:

🔏 QGI	S 2.14.3-Essen				
Project	Edit View Layer Settings Plugins	Vect	or Raster Database	Web	Progessing Help
	📛 🔜 🕞 🖓 📉 🖑		<u>C</u> oordinate Capture <u>D</u> xf2Shp	•	
11.	/局16-13次面		GPS	•	- NH, MH, MH, 🛃 💕 📓 🔍 🖉 📢 💷 🔥 🍕
N	300000000000000000000000000000000000000		OpenStreetMap Road crash	2	@ L C 8
9,90	Layers Panel		Snatial Query	÷.	
VO.	小 · · · · · · · · · · · · · · · · · · ·		Topology Checker	•	
-0	Veld Fire Risk	1	Analysis Tools	•	
WP D		2	Research Tools	•	
Po		0	Geoprocessing Tools	•	
		2	Geometry Tools	•	The Check Geometry Validity
0		6	Data Management Tools	•	The Export/Add Geometry Columns
9					Polygon Centroids
•					Delaunay Triangulation
(9)					Voronoi Polygons
					Simplify Geometries
68					Densify Geometries
₩.					Multipart to Singleparts
2.					Singleparts to Multipart
(Ch)					Lines to Debugger
NO.					V. Ethes to Polygons
- 🖷					Part B
-					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
-\$-					est a start
ĉ					J.
					8

The tool will report all encountered errors and will highlight/zoom to the selected issue. Edit the shp file and resolve the reported issues.



It also helps to unproject the data to **EPSG:4326** (WGS84). You can do this from QGIS by selecting **Save As** (from the right-click context menu on the layer in question):



In the Save As dialogue, select EPSG:4326 – WGS 84 as the output CRS:

Save v	ector layer as		r
Format	ESRI Shapefile		•
Save as	c:\temp\farms.shp		Browse
CRS	Default CRS (EPSG: 4326 - WGS 8	Ð	▼ 🌏
Encoding	ı	UTF-8	•
Save	only selected features		
Skin	attribute creation		

Now we are ready to import the data. In <u>http://youraddress.georams.co.za/layers</u>, click on the **Upload Layers** button.

Explore Layers			Uploand Layers
Cart	Total: 9		↓ _z ∼
Add resources through the "Add to cart" buttons.		morraw mainture appo	P
Create a map		No abstract provided	
Filters Clear		🎍 glenn 📋 1 May 2017 👁 0 📌 0 🛊 0 ♀ Create a Map	
✓ TEXT Search by text Q	. 0	georams_province No abstract provided	R
▼ TYPE Vector	J~33	🎍 glenn 👚 1 May 2017 👁 0 🏕 0 🛠 0 🗣 Create a Map	
> CATEGORIES	harry		
KEYWORDS OWNERS	Charge and a second second		

Drag and drop shp file members to the grey block (or use the file browse). You need to add the main files from the shp file: **.shp**, **.dbf**, **.shx**, **.prj**

Upload Layers				Explore La
	-		Permissions	
			Who can view it?	
	Dr 🥑 File Upload			
	← → ~ ↑ <mark>↓</mark> > TI	nis PC → Data (D:) → GIS_Data → Survey	orGeneral > 🗸 진	Search SurveyorGeneral
or select them one by one:	Organize 👻 New fold	er		
Browse No files selected.	TUERC	Name	Date modified	Type Size
Files to be upleaded	Inis PC	Coms.zip	2009/10/07 11:50	WinZip File
r lies to be uploaded	Desktop	grid.mxd	2010/06/25 1:59 PM	ArcGIS ArcMap D
Select the charset or leave default	Documents	grid50_geo.dbf	1999/03/30 8:47 AM	DBF File 4
UTF-8/Unicode 🗸	- Downloads	☐ grid50_geo.prj	2005/02/24 1:42 PM	PRJ File
	J Music	grid50_geo.sbn	2007/07/31 3:50 PM	SBN File
Clear Upload files	Pictures	grid50_geo.sbx	2007/07/31 3:50 PM	SBX File
	Videos	grid50_geo.shp	2010/12/01 8:39 AM	SHP File
	S_Install (C:)	grid50_geo.shp.xml	2005/02/24 2:00 PM	XML Document
	Data (D:)	grid50_geo.shx	2010/12/01 8:39 AM	SHX File
	🔫 GIS (\\zz2-gis) (C	grid50_geo_points_label.dbf	2010/07/12 7:46 AM	DBF File 2
	AC232 (I:)	grid50_geo_points_label.prj	2010/07/12 7:46 AM	PRJ File
		grid50_geo_points_label.sbn	2010/07/12 7:46 AM	SBIV FILE
	AC232 (I:)	gridov_geo_points_label.sbx	2010/07/12 7:46 AM	20X FIIE

Click on Upload Files.

On a successful upload, you should be greeted with the following:



With a successful upload, the tool has:

- created a new table in PostgreSql
- converted and inserted the data from the shp file into the table
- published the table as a new Geoserver layer
- assigned a default style to the layer
- synchronised the new layer with GeoRAMS

You can now capture metadata for the layer and manage the layer's styles.

If it looks like it gets stuck, or returns an error, check the messages in Geoserver's Import Data utility.

4.1.4 Set permissions

All resources in the GIS can be assigned permissions in terms of who can view, edit and download what resource. These permissions can be assigned by a user or group (or both). In a Detail view, click on the **Change Permissions** button.



In the **Set permissions for this resource** popup window, click on the grey bar titles. Clicking on each of the grey bar titles will open each item.

t permissions for this resource	
Who can view it?	
🗷 Anyone	
The following users:	
# dewald	
The following groups:	
Who can download it? Who can change metadata for it?	
Who can manage it? (update, delete, change permis publish/unpublish it)	ons.
	ancel Apply Champes
	ancel Apply Changes

The following steps should be followed in setting up who can view or read the content of the GIS. Read permission are set up as follows:

- First, start typing the name of the users to add.
- A drop down will appear with username/groupname matches to the characters typed.
- Click on a correct match to add the user/group to the list.

Who can view it?	
Anyone The following users:	
The following groups:	
si SystemUsers	

The following steps should be followed in setting up who can download the content of the GIS. **Download permission** are set up as follows:

Who can download it?	
Anyone	
× dewald	
The following groups:	

The following steps should be followed in setting up who can edit the metadata of the content of the GIS. **Metadata edition permission** are set up as follows:

vno can change metadata for	<u>It:</u>	
The following users:		
× dewald × glenn		
The following groups:		

The following steps should be followed in setting up who can manage the content of the GIS. **Management permission** are set up as follows:
Who can manag publish/unpubli	<u>e it? (update, delete, change pern h it)</u>	nissions.
The following use	5:	
× dewald × g	enn	
The following gro	ps:	
L		

The following steps should be followed in setting up who can add, edit or manage the data of the GIS. **Data edition/ management permission** are set up as follows (Layers only):

Who can edit data for this la	yer?
The following users:	
× dewald	
The following groups:	

The following steps should be followed in setting up who is responsible for styling the layers of the GIS. **Style management permission (Layers** only) are set up as follows:

The following users:	
× dewald	
The following groups:	1

4.1.5 Thumbnails

Thumbnails should automatically be generated. You can force the recreation of a thumbnail -from a resource **Detail view**, click on **Edit Map/Layer**. Click on **Edit** under Set Thumbnail in the popup window.

	Edit Layer			×	Q
ondition_u		٥		\diamond	
↔ → X M 0	Metadata	Styles	Thumbnail	Layer	
	Edit	Edit	Set	Replace	Download Layer
2-15-11 1		Manage		Edit data	
and all serve				Remove	Edit Layer
Contra 1					Download Metadata
an c			I ESOTHO	Close	d Good (>85)

You may need to clear the browser cache for the new thumbnail to show. In **Chrome**, open the History window (Ctrl + H).

Home Maps 🕢 Layer	s Documents People Groups Search	New tab New window	Ctrl+T Ctrl+N
georams_visualcondition_unpaved	History Ctrl+H CRCently closed Install Ubuntu Linux In Windows Using VirtualBox Ctrl+Shift+T Making a bootable USB of Ubuntu Getting Ubuntu Getting Ubuntu Getting Ubuntu installing Ubuntu Kindows using VirtualBox Oracle VM VirtualBox - Downloads Oracle Technology Network Oracle	Hew Integrite window History Bookmarks Zoom - 100 Print Čast Find	Ctrl+J Ctrl+J % + C Ctrl+P Ctrl+F
Trootinging Network		More tools Edit Cut Settings Help Exit	Copy Paste

Click on Clear browsing data:

$\boldsymbol{\leftarrow} \Rightarrow \mathbf{G}$	chrome://history
Chrome	History
History	Clear browsing data. Remove selected items
Extensions	w w w w w w w w w w w w w w w w w w w
Settings	Today - Saturday, September 24, 2016
	2:38 PM G Google Image Result for https://biz
About	🛄 2:38 PM 🛛 🔓 deathstar plans meme - Google Sea

Select from the beginning of time and ensure Cache images and files is selected:

Psst! Incognito mode (Ctrl+Shift+	•N) may come in handy next time.
Obliterate the following items from:	the beginning of time 💌
Browsing history	
Download history	
Cookies and other site and plug	in data
Cached images and files – 32.8	MB
Passwords	
Autofill form data	
Hosted app data	
Media licenses	
	Clear browsing data Cancel

The updated thumbnail should now show:

Cart	Total: 15
Add resources through the "Add to cart" outtons.	georams_moisture_zone No abstract provided
Create a map ilters Clear	a glenn 🗂 1 May 2017 ↔
✓ TEXT	10, 2 2:59

4.1.6 Resource metadata

Metadata needs to be captured for every resource loaded into the GIS, be it a layer, map or document. The metadata facilitates quick searching and filtering of information, allowing users to find datasets that closely meet their needs. Metadata also provides the ability to evaluate identified resources according to fitness for purpose as each dataset will have information about temporal extent (time period the dataset is applicable to or its recentness) and a measure of data accuracy.

Edit Metadata

From a resource **Detail view**, click on **Edit Map/Layer/Document**. Click on **Edit** under Metadata in the popup window.

	Edit Map			e Gro ×
/isual Condit			•	
· • • • • • • • • • • • • • • • • • • •	Metadata	Thumbnail	Map	wnload
	Edit	Set	Remove	
0				Edit Ma
				Close View Ma



) Layer	×Edit Document	t People	Groups	Jean UI	
Road					
ad Asset Dat	Metadata	Document			
	Edit	Replace			
atings (40	Remove			
FO TMH 18 abstract pro					
a 23, 2017, 9					Close

Populate the various metadata fields. Fields denoted with NB! must be populated.

1. NB! Resource Title

Title		1
Water Utilization v1	name by which the cited resource is known	
		4

2. **NB!** Resource Date

Date	
2016-03-14 07:40 AM	8

3. NB! Date Type

Date type	
Publication	identification of when a given event
Creation	W
Publication	
Revision	

4. NB! Edition

Edition	
2nd Edition	version of the cited resource

5. NB! Abstract (Description)

Ap of the Visual Condition Index for the Municipality		
	/	brief narrative summary of the content of the resource(s)

6. NB! Purpose

Purpose	
In ensuring management decisions concerning the allocation of funds to upgrade and maintenance of roads	
	summary of the intentions with which the resource(s) was developed

7. **NB!** Maintenance Frequency

Maintenance frequency	frequency with which modifications a
	 deletions are made to the data after it
Real Provide State Stat	first produced
frequency of maintenance for the data is not known	
data is repeatedly and frequently updated	
there are no plans to update the data	
data is updated each day	
data is updated every year	
data is updated as deemed necessary	
data is updated each month	
data is updated every two weeks	
data is updated in intervals that are uneven in duration	
data is updated on a weekly basis	
data is updated twice each year	
data is updated every three months	

8. NB! Region(s)

Regions		
Limpopo Laeveld		·
	ß	
		Hold down "Control", or "Command" on a Mac, to select more than one.

9. Restrictions

Restrictions		
	13 .	limitation(s) placed upon the access or use of the data.
	COMU .	

10. Restrictions (Other)

Not all road link have yet been captured	
	other restrictions and legal prerequisites for accessing and using the resource or metadata
	L

11. License

License			
	N	•	license of the dataset
	~~~~		

#### 12. Language

Language			
English	N	• {	language used within the dataset
Abkhazian	63°		
Afar			
Afrikaans			
Amharic			
Arabic			
Assamese			
Aymara			
Azerbaijani			
Daeble			

## 13. Spatial Representation

Spatial representation type	
······	method used to represent geographic information in the dataset.

# 14. **NB!** Temporal extent (Date range to which the resource applies e.g. yield stats for 2014)

Temperal extent and	
Temperal extent and	<b></b>
lemporal extent end	
	<b>#</b>

# 15. Supplemental Information

Supplemental information	
For any enquiries please contact Johann Nöffke	any other descriptive information about the dataset

16. Distribution URL

Distribution URL	
	information about on-line sources from
	which the dataset, specification, or community profile name and extended metadata elements can be obtained
	1

# 17. Distribution Description

Distribution description	
	detailed text description of what the online resource is/does

# 18. NB! Data Quality Statement

Data quality statement	
	general explanation of the data producer's knowledge about the lineage
	of a dataset

# 19. Feature Resource on Home Page?

# 20. **NB!** Is the resource published in the GIS Interface?

### 21. Thumbnail URL

https://xdm.georams.co.ztygeoserver /wms/reflect?layers=georams_xdm:georams_visualconditi on_concrete&width=200&height=150&TIME=- 999999999999-01-01T00:00:00.0Z /999999999999-01-01T00:00:00.0Z&format=image/png8

22. Site URL

Site URL

## 23. Featured Map URL

Featured Map URL						
0						

### 24. NB! Keywords

Keywords	
Type some text to search in this autocomplete	A space or comma-separated list of keywords

## 25. NB! Contact person for the resource



# 26. Author/ Maintainer of the resource's metadata



#### 27. NB! Resource category

O Inventory	Category
○ Imagery Base Maps Earth Cover	<ul> <li>Society</li> </ul>
⊖ Economy	O Utilities Communication
O Environment	O Oceans
O Biota	O Health
○ Elevation	<ul> <li>Geoscientific Information</li> </ul>
O Planning Cadastre	O Inland Waters
○ AdminBoundary	O Boundaries
⊖ Structure	<ul> <li>Transportation</li> </ul>
O Intelligence Military	O Location
O Climatology Meteorology Atmosphere	○ Farming
○ Condition	○ Traffic
○ Other	

# 28. Layer attributes (Layers only)

Attributes								
Attribute	Label	Description	Display Orde	r				
lane_code			1	•				
start_km			2	\$				
end_km			3	٢				
terr_class			4	•				

Add Metadata Topic Categories

In order to Add Metadata Regions, the Admin Interface must first be opened.



In the Admin Interface, select Categorys.



Click Add category in the Metadata Categories window.

+ Add category			
description	id		
a.m.	1		

The add category window will open, wherein the following fields will need to be populated:

- Name (must be one word),
- Description, and
- Parent

After these fields have been populated, you can click Save.

Home / categorys / A	Home / categorys / Add category							
Add category								
Name*	Name* Inventory							
Description	All road network inventory layers							
Parent	Parent •							
Save and add another Save and continue editing								

The new category will be added to the list of Metadata Topics.

Home / categorys										
Categorys Bookmark -										
The category "Condition" was added successfully.										
3 cate	gorys					← Export -	Columns 🗸		ш	~
	name	ref	created -	last updated	description		id			
	Condition	condition	June 26, 2017, 9:55 p.m.	June 26, 2017, 9:55 p.m.	Condition information			3		
	nventory	inventory	June 26, 2017, 9:54 p.m.	June 26, 2017, 9:54 p.m.	All road network inventory layers			2		
Uncategorized uncategorized June 13, 2017, 9:51 a.m. June 13, 2017, 9:51 a.m.						1				
F0 of 3 selected -										

# When **editing** a resource's metadata, the new category will appear as a radio button.

○ Inventory	Category
O Imagery Base Maps Earth Cover	<ul> <li>Society</li> </ul>
⊖ Economy	O Utilities Communication
○ Environment	O Oceans

#### 4.1.7 GeoRAMS Announcements

GeoRAMS has an announcements mechanism that allows system administrators to communicate information to the system users. Communications could include a notification of system downtime due to scheduled maintenance, or notification regarding a new feature that has been added.

#### Creating an announcement

To create an announcement, choose the Announcements item on the user menu.



On the Announcements page, click the New Announcement button.

Annound	cements			New Announcement
Title	Level	Announcement	Published From	

On the Create Announcement page, first fill in a title for your announcement. This will be displayed as a heading for the announcement.

Create Announcement	
Title	
Example Announcement	
Level	
General	•
Content	

Next, choose the level of the announcement. The levels refer to the urgency of the announcement. The announcement background colour will change according to the level. General is white, Warning is orange, and Critical is red.

Create Announcement	
le	_
Example Announcement	
vel	
General	• •
eneral	- 0
/arning	
ritical	

Now type in the text of your announcement into the Content box. Content is compulsory, you cannot leave this empty.

Level	
Warning	-
Content	
Text to be typed here. This box can contain long or short messages.	

The next two options determine where and to whom the announcement will be displayed.

If Site Wide is ticked, the announcement will be shown at the top of every page; otherwise it will only be shown on the Home page.

If Members only is ticked, the announcement will only be shown to logged in users; otherwise it will be shown to all visitors to the site.



The Dismissal type sets whether a user can dismiss the announcement or not.

No Dismissals Allowed means that the user can not close / dismiss the announcement.

Session Only Dismissal means that the user can close the announcement, but it will be shown again when the user logs in at another time.

Permanent Dismissal Allowed means that the user can permanently close the announcement. It will not be shown again to that user.

Dismissa	al type	
Sessio	on Only Dismissal	-
No Dism	nissals Allowed	굲
Session	Only Dismissal	
Perman	ent Dismissal Allowed	

Publish Start defines the date and time that the announcement will start showing. The system fills in the current date and time for you, but you can edit this if you want to have the announcement show at some other date and time in future. You can therefore schedule the publication date and time for each announcement.

Please note that there is no date and time picker yet, you have to type the value into the box in the correct format: **yyyy-mm-dd hh:mm:ss** 

Publish End defines the time that the announcement will stop showing. You have to type in the date and time at which the announcement expires. As above you will have to type in the value into the box in the correct format.

Publish_start	
2016-09-22 22:05:06	
Publish and	
r ubrish_enu	
2016-09-22 23:05:06	

Finally click the Save button to create the announcement.

Publish_start			
2016-09-22 22:05:06			
Publish_end 2016-09-22 23:05:06 Cancel Save			]

The main announcements page will load. Because we have chosen a site wide announcement, you can now see the orange announcement at the top of the page.

Home	Maps 🌒	Layers 📧	Documents	People	Groups	Search
Example announcement						
June 13, 2017, 10:32 a.m. Text to be typed here. This box can contain long or short messages						

You can click the cross in the top right corner of the announcement to dismiss it if dismissals are allowed.



#### Editing an announcement

The main announcements page contains a listing of current announcements. You can click the blue announcement title to enter the Edit Announcement screen.

		Home Maps 🍈	Layers 📧	Documents	People	Groups	Search	٩	jacques ≡
Example announcement									×
Text to be typed here. This box ca	n contain long or short n	nessages.							
Announcements									New Announcement
Title	Level	Announcement			Pu	blished From			
Example announcement	General	Text to be typed he	ere. This box can	e	Pu	blished from J	une 13, 2017 to Jun	e 14, 2017.	

On the Edit Announcement screen, you can change any of the settings or content as discussed above. You can then Save the edited announcement, or you can choose to Delete the announcement by clicking the red Delete button.

Edit Announcement	
Title	
Example Announcement	
Level Varning	
Warning	
Content	
Text to be typed here. This box can contain long or short messages.	
i.	
✓ Site wide	
Members only	
V Membersoniy	
Dismissal type	
Session Only Dismissal 🔹	
Publish start	
2016-09-22 22:05:06	
Publish_end	
2016-09-22 23:05:06	
Cancel Delete Save	

A confirmation page will open. If you are sure you want to delete the announcement, click Delete, otherwise click Cancel.

Delete Announcement?
Are you sure you want to delete this announcement?
Example Announcement Text to be typed here. This box can contain long or short messages. Cancel Delete

# IMPORTING DATA INTO GEORAMS DATABASE

Search	Menu ×
	🕑 Help
	★ Favorites
	A Profile
	🛃 Recent Activity
	🖬 Inbox
	Announcements
	🕸 GeoServer
	Admin
	Import Data
	Log out

Log in to georams and navigate to main menu. Click on import data.

On Import data page, fill in required fields:

# Import data

Name:	Enter name here:	
Import file:	Choose File No file chosen	
Import type:		۲
Model:		٧

Name - Give a name for your import

Import file – navigate to the file and select it

Import type – Select whether to create new records, create and update records or update records only Model – select relevant model(type of data) as per data set Click next

# Import data



On the match columns page, verify that all columns are mapped to the correct table fields. **Ensure** road_id is mapped to 'road_id(related)'. Click next.

						shufosteurfock		
Match Columns				suit, dollarm, ast	surt_deform_det +	ø		
				10	nutting_cog	rutting_deg +	0	
				Clear field on blank cell	rating.ed	rotting ed	9	
mat.it	road_id (kelated)	M07762		10	undulation_deg	aradialation slog	9	0,
town	Ue Net Use +	Wollipm		10	undulation est	enduktion_cot •	0	
longthuitm	length, km +	0.34248192		ú.	patizing dag	potching_dog +	5	
read, width	road witch T	1		0	pairting, pairting	patching_out .	4	
rtam_dess	Fin Net Use T	83		0	potholes_deg	potholes deg *	0	
ward	En Not Use +	- 16		0	potholes_ent	perfectes ant	9	0
Lexing	tosture +	Median		0	riding quisities	oling.qualities	0	
netice	surface *	MC.		0	skit tesistense deg	stid_restitance_deg *	0	
aution failure dag	surface_fallure_cog *	à.		10	desinage, surf	draitage_skitt +	0	(a)
surface_felture_oxeest	surface_tallure_ext +	a		<u></u>	measure_date	measure_date +	0	4
surface_falpatch_dog	surface_fallpatch_deg *	8			marie	Eu Not Use *	1	-
sufface_fallpatch_extent	unface failpatch est Y	0		0				Next

On the match relations page open the drop down list that's besides road_id. Select **Road ID** from the dropdown list.

## Match Relations and Prepare to Run Import



Click simulate import or run actual import as desired. The importer will display number of failed and created records.

The image below shows results of running the actually import.

✓Created: 6183
×Failed: 3776

There is an option to undo the import or download failed records.

The image below shows results of simulating the import.

Im	port Resu	Ilts
	✓Created: 6183	
	xFailed: 3776	
This	was only a simula	tion.
Download Failed Records		Run Actual Import

There is an option to run the actual import or download failed records.

The failed records file lists the errors in the data. The errors can be fixed and the data imported again.

The image below shows results of undoing an import.

Im	port Results
Import was undone. This is n	ow a simulation, you can run the import again.
	✓Created: 6183
	<b>x</b> Failed: 3776
Download Failed Records	Run Actual Import

# The image below is an example of errors in an error file that was downloaded.

BF	BE	BD	BC	BB	BA	AZ	AY	AX	AW	U
				1	1			Error Details	k Error Type	erosio
								['Error(10): texture(coarse) conflicts with bleeding(4)']	Conflict Error	
								['Error(11): texture(coarse) conflicts with skid resistance(3)']	Conflict Error	
								['Error(11): texture(fine) conflicts with skid resistance(0)']	Conflict Error	
								['Error(12): voids(none) conflicts with skid resistance(0)']	Conflict Error	
								['Error(13): voids(many) conflicts with bleeding(2)']	Conflict Error	
								['Error(12): voids(many) conflicts with skid resistance(4)']	Conflict Error	
								['Error(14): patching(4) conflicts with riding quality(0)']	Conflict Error	
								['Error(15): binder(4) conflicts with bleeding(4)']	Conflict Error	
								['Error(16): bleeding(3) conflicts with skid resistance(1)']	Conflict Error	
								['Error(20): crocodile cracking(4) conflicts with riding quality(0)']	Conflict Error	
								['Error(21): pumping(4) conflicts with cracking(0)']	Conflict Error	
								['Error(23): rutting(4) conflicts with surface drainage(adequate)']	Conflict Error	
								['Error(24): rutting(4) conflicts with riding quality(0)']	Conflict Error	
								['Error(25): undulation(3) conflicts with riding quality(1)']	Conflict Error	
								['Error(26): undulation(5) conflicts with surface drainage(adequate)']	Conflict Error	
								['Error(27): patching(4) conflicts with riding quality(2)']	Conflict Error	
								['Error(28): potholing(failures)(3) conflict with riding quality(2)']	Conflict Error	
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#### 4.1.9 **TMH18**

TMH18 export sheets are generated by the GeoRAMS system. These reports can easily be exported from the system in the required formats. Click on the landing page the TMH18 tab.

🔟 Dashboard	<b>≡</b> Reports	★ Favourites	■TMH18	⊞Treatments

Click on the green Download tab to download the .csv files

TMH18 Exports CSV Downloads					
Туре	Description	Size	How to open downloads Download		
TMH18.vcu	Unsurfaced Visual Condition Summary	500.71 KB	±,		
TMH18.vcb	Block Visual Condition Summary	23.63 KB	±		
TMH18.rcl	Road Classification File	185.82 KB	*		
TMH18.net	Network Definition File	1.29 MB	*		
TMH18.lan	Lane Configuration Information	290.27 KB	*		
TMH18.vcf	Flexible Visual Condition Summary	318.7 KB	*		
TMH18.vcc	Concrete Visual Condition Summary	804 B	*		
all_tmh18	All the above	2.58 MB	*		

### How to import a TMH CSV file in MS Excel

In MS Excel, click on the File tab in the menu bar.

A new window will open. Click on the **Browse** tab at the bottom of the screen.



A new window will open where you can navigate to the specified file, you will notice that it will display **No items**.

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A Text Import Wizard (Step 1 of 3) window will be displayed, select the **Delimited** option.

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Navigate to the bottom of the window and click on **Next**.

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Click on the **Finish** button at the bottom right of the screen to import the file into Excel.

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The CSV file will now be converted correctly into Excel and the date presented under column headers

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## Download a shapefile or KML file.

Click on the TMH10 tab on the landing page and scroll down to the Kml and Shp file Downloads list. Click on the green download button.

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Туре	Description	Download
Shape File	Esri Shape File	Activate Window
KMZ File	Google earth KML File	Go to Settings to activate Window

#### How to open KMZ file in Google Earth

Open Google Earth program (install from <a href="https://www.google.com/earth">https://www.google.com/earth</a>)

When you are on the landing page click on File in the top left corner, and Open.



Navigate to the to the folder where you have downloaded the kmz file (normally this will be in the **Downloads** folder)

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Select the file and click on the **Open** button in the bottom right of the screen.

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This will load the road network in Google Earth



You can get a better look by zooming in using the mouse wheel or by using the plus at the top right.



When you zoomed enough you should be able to see the location clearly.



## How to open a SHP file in QGIS

Open the QGIS program (install from <a href="https://download.qgis.org/">https://download.qgis.org/</a>)

After the program loads you will reach a landing page.

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You will see a new window with more options, click on **Vector**.



Navigate to the right of the window and click on the browse more (...) button.

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Navigate to where the zip file was downloaded (normally **Downloads** folder), select the file and click on **Open** at the bottom right of the window

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You will notice that the file's location will be displayed in the Vector Dataset(s) dialog box. Click on the **Add** button at the bottom of the window.

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Then click on the **Close** button at the bottom of the window.



The SHP file will now be loaded in QGIS, ready for editing.

#### 4.1.10 Treatments

The treatment programs are generated from the system and can be downloaded from this page as an excel spreadsheet. Click on the Treatments tab.

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Click on the green Download tab to download, which will download a .zip file.

Treatment Exports					
Name	Description	Size	Download		
Flexible Treatments	Recommended Treatments for Flexible surface type	1.66 MB	<u>ع</u>		
Unpaved Treatments	Recommended Treatments for Unpaved surface type	2.29 MB	4		
All Treatments	Recommended Treatments for All surface types	95.98 MB	*		
Local Municipalities					
Name	Description	Size	Download		



Unzip the file and open it in Microsoft Excel.

> This PC > Downloads >	treatme	nts_flexible.zip
	^	Name
	*	Treatments_flexible.xlsm

# 4.2 INTERFACE COMPONENTS

The GIS web interface offers a comprehensive set of functionalities and tools to find, filter and interact with the information stored in the GIS database. The interface also offers tools facilitating collaboration and information sharing. This section provides a brief overview of the various screens and functions available therein
## 4.2.1 Landing page



Sign in to use the District Municipality's GeoRAMS interface.



## 4.2.2 Dashboard

#### Reports

Log in to see the dashboard items.

Click on **Reports** to see all existing Dashlets and Queries.





Overview 🛞	
Dashlets:	
📾 Average RCI by Year 🛛 📾 Average VCI by Year 🛛 🕍 Distress Summary Flexible 🛛 🕍 Distress Summary Gravel	
Km by surface type MNetwork Summary RTraffic Summary RTraffic Summary Results Flexible	
Bil Triggered Treatments Gravel	
Road network	•
Dashlets:	
ffl Network Summary	
Treatments 👔	•
Dashlets:	
Triggered Treatments Flexible Triggered Treatments Gravel	
Traffic 🚯	
Dashlets:	
Average Annual Daily Traffic (AADT)     Average Daily Traffic (ADT)     Average Annual Daily Traffic (ADT)     Average Annual Daily Traffic (ADT)	
Be traine calculations at Peak Hour	

2	Construction		•	M Dashboard	≡Reports <b>★</b> Favouri	es IIITMH18	IIITreatments
٩	ANGOLA	ZAMBIA MALAWI CLilongwe Lusaka	0	Dashboar	rd		
Q		Harare		Network Sum	nmary		¥ ∧ 2 0
•	- The	MOZAMBIQ     ZIMBABWE	UE More	surf_type	13	length_km	19 🔔
	3	2	C.	BLOC		46.13	
(3)°	NA MIBIA	21		EARTH		526.43	
6	BOTSWANA	1-1-1	•	FLEX		353.01	
-	* KALAHARI DETERT	1.1.1.1		GRAV		230.75	
A		Pretoria Maputo		UNVERIFIED		16.22	
-		switzILAND		Showing 1 to 5 of 5	i entries		
	Bloemfontein	Maseru Durban		Km by surface	e type		5 E # A Z O
		цеотно		Stacked Bar Chart	Show columns		-
	SOUTH AFRIC	A	e fiette				=
-	Q Layer Slider	© Time Slider		2 46.1			

Click on **Reports** to go back to the Dashlet Category list.

You can create your own **Queries** and **Dashlets** for quick access. These **Dashlets** created from queries can be pinned and unpinned as per the user's preference.

To have a new **Dashlet** pinned on the dashboard the user first need to create a query. The **queries** created can then be displayed as **Dashlets** on the **Dashboard**. When the Dashlet is saved a category can be allocated which will add it to the category list under reports.

#### Road Explorer



Click on the **Road Explore** button to go to the road network data list where you'll be able to filter and zoom to a record in the list. This function also enables a detail view of the selected road link feature.

🔟 Dashboard	Q Explore	<b>≔</b> Reports	★ Favourites	<b>⊞</b> TMH18	⊞Treatments	1		
Click on a rov	v to <b>zoom</b> to the	road link. Detail i	information for the	e road link will als	o be <b>loaded</b> and	minimise	d.	
surf_type		👼 rcam_cla	55	👼 munic		to:	wn	
BLOC	1146	NULL	28 ^	MP301	5664 ^		Aankomst	31 4
EARTH	1	R3	121	MP302	2991		Allandale	2
FLEX	7087	R4	3017	MP303	2942		Amersfoort	329
GRAV	15822	R5	2080	MP304	2002		Amsterdam	358
UTCRC	1	R5B	2	MP305	2587		Arthurs-Seat	17
		R6	83	MP306	1204		Avontuur	49
4	•	4	,	MP307	6667		Badolaas	302
140070 1004.0					S	earch:		
road_id 19 :	surf_type 🕼	rcam_class 1	length_km 🕼	town 10	munic 🕼 wa	rd ↓‡		
GSDM44870	GRAV	R5	0.04	G	rootvlei N	4P306	5	Î
GSDM44869	GRAV	R5	0.04	Es	sizameleni N	4P306	5	
GSDM3933	GRAV	R5	0.17	Es	sizameleni N	4P306	5	

Use the column filter panes at the top of the view to filter the records. You might want to see all the **FLEX** roads of RCAM class R6. Click on **FLEX** in the **Surf_type** block, then click on **R6** in the **rcab_class** block. This will give you a list of the filtered records.

N2.								
🔊 surf_type 🛛 💌	👼 rcam_class	×	👼 munic		👼 town		👼 ward	
BLOC 1146	R4	3017 -	MP301	5664 *	Aankomst	31 -	1	
EARTH 1	R5	2080	MP302	2991	Allandale	2	10	
FLEX 7087	R58	2	MP303	2942	Amersfoort	329	11	
GRAV 1582	R6	83	MP304	2002	Amsterdam	358	12	
UTCRC 1	U1	1	MP305	2587	Arthurs-Seat	17	13	
	r5	2 -	MP306	1204	Avontuur	49	14	
< >	4	- (P)	MP307	6667	Badolaas	302	15	
road_id ↓∳ surf_ty	rpe ↓∳ rcam_cla	ISS	↓∯ length_km	.↓∯ to	own ↓∲	Search: munic	.↓∲ ward	L#
GSDM13598 FLEX	R6		0.25	Err	melo	MP302	7	
GSDM13600 FLEX	R6		0.26	Err	melo	MP302	7	
GSDM53447 FLEX	R6		0.25	Err	melo	MP302	7	

Now if you select one of these roads it will zoom to the Dashboard map in the lefthand side and create a detail information view of the selected road link.



GSDM13598								* •	× 2. 0
Road ID Road Name	GSDM13598 Info not available	Chatlan	Light	1	Fraffic E	Details	Small	Medium	Large
Surface Type Length (km)	FLEX 0.250	Station	Vehicles	MI	nibuses	buses	Trucks	Trucks	Trucks
Municipality Road Width	Msukaligwa LM Info not available	2		R	oad Co	ndition			_
Town	Ermelo	Assessmer	nt Date	VCI	RCI	VCI Cat	egory	RCI Category	.
Ward	nto not available	2016-09-13	;	70.18	65.91	Good		Fair	
				Trigg	gered Ti	reatmen	its		
		Treatment			Cos	st (ZAR)			- 1
		RESURFACE	E		N/A				
- 7	KOPPY NO	CRACK SEA	L		1287	750.000000	0		
3	IMAGE			Dis	stress S	ummary	/		

## 4.2.3 How to build and work with Queries

To have a new **Dashlet** pinned on the dashboard the user first need to create a query. The **queries** created can then be displayed as **Dashlets** on the **Dashboard**.

Click on **Queries** to see a list of existing queries or create new queries.



In the query window, the user will see a list of existing queries under:

Queries			
My Queries	Standard Queries	Shared Queries	All Queries
My Queries -	All the queries (	created by the logg	ed in user

iviy Queries -	All the queries created by the logged in user,
Standard Queries -	Queries created by any user, set to standard, these queries can be accessed
	by all users but only be modified or deleted by the user that created it.
Shared Queries -	Queries shared by the user, can be accessed by all users.
All Queries -	Lists all queries

## The query: Show the total length in km of the road network inventory per surface type.

To Create a new query, click on New Query



Choose the layer to use for your query. The query window will open listing the selected layer and all other layers linked to the selected layer.



#### The query window will open listing the network layer and all other layers linked to it.

Entities	¥ 21	Columns			# 2
georams_network	*	[Add new column]			
<ul> <li>georams_traffic_c</li> <li>georams_visualco</li> </ul>	ount_station ndition_block	Conditions			¥ 2
georams_visualco	ndition_flexible	Select records where	e all of the following ap	ply	
*		[Add new condition]			Powered by EasyQuery
Results		ß	¥ 2	Chart	¥ 2

**Entities -** this is the window that list the layers and linked/joined layers.

**Columns -** here the user will list the columns from the database table query from and to view in the Dashlet on the dashboard.

# **Condition** - In this area the user can set the condition of the query, like eg. Show all the values where the Municipality is equal to "the Municipality name"

#### Selecting query columns

To start creating query click on Add new column in the Columns block and select a database table and column you would like to be included in your query. *Tip:* to quickly find a column you can type the name of the column in the search dialog box. The list will be filtered as you type.



Now we have 2 columns listed for the query. To calculate the total length per km of the road length we need to **sum** the values.

The function symbol at the end of each row, allows you to perform a list of mathematical functions for the data in the selected column.

Columns	* 2
Expression	Title
<pre>tt georams_network length_km</pre>	georams_network length_km
georams_network surf_type	georams_network surf_type Change to aggregate colu
[Add new column]	Image: Count     Average       Minimum       Maximum
Columns	
Expression	Title
georams_network length_km	georams_network length_km
<pre>tl georams_network surf_type</pre>	surf_type

The selected column will be listed in the columns window. You can change the title of the column by clicking on it. The information you type under the title heading will be displayed on charts, tables and pivot tables, so make it short and descriptive. Follow the same steps to add more columns.

Please note that the functions available are dependent on the data type of the column e.g. a text data type cannot be summed.

Functions are useful if you have time series data (i.e. yield results taken over a period of time) that you would like to summarise, for example, the average yield per borehole. If you do not use the function feature, you will get a list of all the yield results for a borehole collected over time.

Expression	Title	
Sum of georams_network length_km	length_km Sum	/ ×
man network surf type	surf_type	

If a function has been used, you will see a description of the type of function appended to the description as shown above. Cancel the function by clicking on the function button.

#### Adding conditions to your query

You can add multiple conditions to your query. This filters the results to only the records matching your query condition(s). Click on Add new condition and select a database table and column you would like to set a condition for. Once a field has been added, you can select a condition and enter a value.

Conditions		
Select records where	all of the following apply	
georams_network muni	contains [enter value]	0 × ¢
[Add new condition]	starts with contains	Powered by EasyQuery
	does not start with	* 2
	does not contain	
	is not equal to	
	in sub query	
100 rows Inclu	de is null	Execute

Conditions	* 2
Select records where all of the following apply	
georams_network munic contains NW383	0 × ‡
[Add new condition]	
	Powered by EasyQuery

You can add more conditions in the same way. Click on **Add new condition** to add more conditions or filters.

#### Executing the query

If you are satisfied with your query you can click on the **Execute** button The query will run and return three types of results:



Copy Excel PDF	Print	Search:	
length_km Sum	↓≟ surf_type	11 georams_network munic	1
14.414	EARTH	NW383	
628.36	FLEX	NW383	
3911.754	GRAV	NW383	

Once the query is created it can now be saved. Click on **Save query.** 



Type a name and description for the query and configure the rest of the properties as indicated below. Ignore the properties not shown in this document (for admin users).

ame*	
Total km by surface type	
escription	
Total km by surface type, testing purposes	
ow limit	2

**Row limit** – this setting limits the number of rows the query returns. Leave blank unless you want to override the settings when you ran the query.

**Is active** – this is a setting to enable or disable a query. Make inactive if you do not want users to use the query.

**Is shared** – The query is shared and can be used by all users. Don't select if you want this query only to be visible to you.

**Is standard** - The query is listed under standard, can only be modified or deleted by the user that created is. This is typically used by the administrator of the system to create standard queries for all to use.

Click on **SAVE** to and close the query window.



#### Editing or deleting a query

To view the saved query, go to Dashboards and click the Queries button



The new query is appended to the bottom of the query list. If you click on the menu button, you will be able to delete the query or open the query for editing.

Querie	es			~ ~ •
My Qu	veries Standard Queries Shared Queries	All Queries	New	Query
			Search:	
id 11	name II	description	$\downarrow\uparrow$ dashlets_using_query $\downarrow\uparrow$	11
9	Km summary by Surface type and Municipality	New Query for georams_network	0	
11	Yet another KM Summary	New Query for georams_network	0	
13	georams.data.georams_visualcondition_nmmdm	georams.data.georams_visualcondition_nmmdm	0	
14	visualcondition_tswaing_Im		22	=
15	visualcondition_ditsobotla_Im		22 Delete	luery
				Cancel
_				Concel

## 4.2.4 Dashlets

Dashlets allow users to display query results on their Dashboard in four ways:

- Charts
- Tables
- Pivot tables
- Maps (future)

To be able to see the query on the Dashboard, a Dashlet needs to be created and pinned to the dashboard. In the Dashboard, click on Dashlets.



The Dashlet window lists the Dashlets in the same way as the queries with **My Dashlets, Standard Dashlets, Shared Dashlets** and **All Dashlets**. Click on **New Dashlet**.

Create/E	dit Dashlets			∧ Z 8
My Dashl	ets Standard Dashlets Shared Dashlets	All Dashlets	Caracha	New Dashlet
id ↓≟	name	<b>↓</b> ↑ description	searcn:	11 11
2	TestDashlet	My Description Renamed Again	۲	
3	km summary by surface type and Municipality	Testing chart	•	
19	VCI Summary Flexible		•	
20	Network Condition by Surface Type		•	
21	Distress Summary Gravel			
				Cancel

The Dashlet window lists the Dashlets in the same way as the queries. There are four tabs:

- My Dashlets list of dashlets that you have created
- Standard Dashlets standard dashlets that the administrator has created for all users
- Shared Dashlets dashlets that has been shared by other users
- All Dashlets all dashlets available to you

#### Creating a new Dashlet



To create a new dashlet click on **New Dashlet** button. A dialog box will appear where you can give your new dashlet a name and add a description.

Give the new Dashlet a name and configure properties. Set the height to 300, width to 10.

Dashlet: undefined			
Name*			
Km summary by surface type			
Description			
Km summary by surface type. testing Dashlet			
Height*			
300			

**Height setting** – the height of the dashlet as it appears on the dashboard. Increase the height by increasing the height value.

**Width setting** – the width of the dashlet as it appears on the dashboard. Set the width to 12 if you want you dashlet to take up the full width of the dashboard.

**Css class** - this displays the dashlet in different colours:

- Default = light grey
- Primary = dark blue
- Info = light blue
- Success = light green
- Warning = light red
- Danger = darker red
- Muted = white, no colour

Dashlet: undefined		
Width*		
10	¥	
Css class		
info	÷	
 default primary		
info		
success warning danger muted		
Update interval*		
0		
✓ Is shared		

**Query** - select the query you would like the dashboard to use from the drop-down list. You will see all queries that has been created in the system, to which you have access. Typing the name of the query filters the list of queries for easier selection.

Query		
		*
Total km by surface type	N	
VCI Dalitso test	3	
VCI Higher than 70		
VCI Summary Flexible		
Network Condition by Surface Type		
Km by Municipality		

Is snapshot	*
Is active	
Update interval*	
0	
✓ Is shared	

**Is snapshot** - this setting makes the dashlet either dynamic or static. When you select snapshot, the query will be fixed in time and not update as data is updated in the database.

Is active - this setting enables or disables the dashlet.

**Update interval -** set the interval (in seconds) to update the data in the dashlet if snapshot is not selected.

Is shared - set the dashlet shared if you want other users to have access to it.

Is standard	
/idget*	
Chart	•
Chart	N
Table	ю
Pivot	
Map	

Is standard – Keep this un-ticked

Widget - select what format you would like the dashlet to appear on the dashboard

Select Category as Inventory.

Category*	
Uncategorized	•
Uncategorized	
Inventory	N
Condition	63
	•

The new Dashlet can be linked to a map and/or layer. Whith this option the selected layer and map will have the Dashlet linked/reference to it.

Layer		
	÷	•
Мар		
		T

For this exercise, we will select **georams_network** as the **Layer**, and **Madikgetla RNI Condition map** as the **Map**.

tmp_farms georams erven		
georams_network		
tmp_portions georams suburb	20	
georams visualcondition block		

Лар	
	۲
RSA Map by glenn	
Visual Condition (VCI) by glenn	
GeoRAMS by jacques	
Moisture Zones by glenn	
Madikgetla RNI Condition map by glenn	N
Visual Condition (VCI) by glenn	13
Test Map by glenn	
Visual Condition (VCI) by glenn	
11 111	

## Click on **SAVE**, when done.



Refresh the Dashlet window to list the newly created Dashlet by closing the window, then Open the Dashlet window again. Click on **My Dashlets.** The new Dashlet is listed as **id 4.** 

	Create/	Edit Dashlets			∧ 2 0
	My Dash	lets Standard Dashlets Shared Dashlets	All Dashlets		New Dashlet
				Search:	
	id <u>∥</u> ≜	name	1 description	.↓↑ is_pinned	11 II
	2	TestDashlet	My Description Renamed Again	۲	
	3	km summary by surface type and Municipality	Testing chart	۲	
	4	Km summary by surface type	Km summary by surface type, testing Dashlet	÷	
	19	VCI Summary Flexible		۲	
	20	Network Condition by Surface Type		•	
-					-
					Cancel

You will see that it does not have a **is pinned** mark.



To Pin this Dashlet to the dashboard, click on the blue button on the right-hand side, and select Pin.



This is also the place where you can **Unpin**, **Edit Dashlet**, **Edit Chart** or **Delete** it. If this Dashlet is set to **Standard** when it was created, only the user that created it will have these options. Close the Dashlet window and reload the browser to see the updated Dashboard.



Da	shb	oard					Queries
Kr	n sumi	mary by surfac	ce type			I ∓ ∧ 2 0	
			Qu	ery Results		=	
	750 —						
ts	500					484.619	
U	250 —	115 876					
+	0	115.870	64.848	5.056	30.196		
		FLEX	EARTH	UNK	BLOC	GRAV	
			georams_	network length_km Si	um	Highcharts.com	

## **Create a Pivot**

Click on Dashlets, Create Dashlet and select a query to use as a Pivot table. For the purpose of this exercise we will use **"Km summary by Surface type and Municipality"** as the query.

me*
m summary by surface type and Municipality
scription
locting chart



## Select **Pivot** as the Widget option

Chart Chart Table Pivot Map	Widget*		
Chart Table Pivot Map	Chart		Ŧ
Pivot Map	Chart Table		
Map 🗟	Pivot	N	
r . redle	Map	4	

Close the Dashlet window and open it again to reload the newly created Dashlet. Click on **Pin** to add it to the Dashboard.

-	F Pin Im
S	I Edit DashIe√ I Delete

Reload the Browser to load the newly created Pivot Dashlet. Click on **FullScreen** to see the columns.

km summary by ያ ቾ	Fullscreen	8
Table	•	s
Count	▼ ↓ ↔	
		То

Click and drag the columns around to display the results.

km summary by surface type and Municipality								
Table 🔹		surfacetype * municipality * Length (Km) *						
Count	$\uparrow \leftrightarrow$							
		Totals 12						

We need to see the total sum of the length in km. Select **Sum** in the dropdown list. Click below **Sum**, the column to sum, in this case **Length(Km)** 

Table	km summary by surface type			
Count	• :	Table •		
- Count Count Unique Values List Unique Values		Sum ▼ ↓ ↔ Length (Km) ▼		
Sum Integer Sum	<i>z</i>	surfacetype *		

Drag the column name **municipality** to the left and **surfacetype** to the bottom. This will give the result for total km of road per surface type and Municipality.

km summary by surface type and Municipality										
Table 🔻	Length (K	Length (Km) *								
Sum ▼ ↓ ↔ Length (Km) ▼	surfacetype *									
municipality *	municipality	surfacetype	BLOC	EARTH	FLEX	GRAV	UNK	Totals		
	FS161		2.15		47.78	136.22	5.06	191.21		
	FS162		25.09	46.88	53.86	220.22		346.04		
	FS163		2.95	17.97	14.24	128.18		163.34		
		Totals	30.20	64.85	115.88	484.62	5.06	700.59		

This can now be viewed in many different ways. Click on the **Table** drop down to select one of the options.

km summary by surface	e typ	oe a	an
Table 🔻			
Table Table Barchart Heatmap Row Heatmap Col Heatmap	1	↔	(
Horizontal Bar Chart Horizontal Stacked Bar Chart Bar Chart Stacked Bar Chart Line Chart Area Chart Scatter Chart			r F F



Click on the **minimize** button to close the **full screen** view or Click on the **Pin** button to pin it back to the Dashboard

#### Dashlet navigation bar





Pin or unpin the dashlet from the dashboards. When unpinned the dashlet window can be moved anywhere on the screen



Minimises the dashlet so that just the dashboard title bas is visible. This reduces clutter on the dashboard



Resizes the dashlet into a full screen window



Closes the dashlet window. The dashlet will reload when the screen is refreshed.



Shows the geometries of the features listed in the dashlet on the dashboard map

Dashlets that are linked to Layers and/or Maps

Click on Maps to open the map that you want to work with



Select View Map of the Map that we linked to the Dashlet. "Madikgetla RNI Condition map".



In the Map window, the left hand side indicates the layers that are loaded in the map, and the right hand side displays the map.



Click on the **georams_network** layer. The layer will highlight. Click on **Layer Info** to see the Dashlets that are linked to the layer in the map.



In this layer information window click on **Queries** and **Dashlets** to see a list of queries and Dashlets that are linked to this layer.

LAYERS	″ @ <u>+</u> Q	Q Q ← → X		1			
O - O & I 4 Overlays	Information	for georams_network					~ 2 0
georams_network Legend //UNKNOVN //BLOC	Dashlets Km su	Table mmary by surface type				<b>*</b> * ~ 2 0	Queries Dashlets
// EARTH // FLEX // GRAV	750		C	uery Results	- Charlende	=^	
georams_visualcondition_unpaved Legend	3 1 500 1 2 500					484.619	
Good (70 - 85) Fair (50 - 70)	0	115.876	64.848	5.056	30.196		
Poor (30 - 50) Very Poor (0 - 30)		FLEX	EARTH	UNK	BLOC	GRAV	
✓georams_visualcondition_flexible Legend ✓rery Good (>85) ✓rery Good (>85) ✓rer (50 - 70) ✓rer (50 - 70) ✓rery Poor (0 - 30)	¢		georar	is_network length_km Sun	n 	,	

In this case only one Dashlet is linked. New Dashlets can also be created in this view/window.

My Dashlets	Standard Dashlets	Shared Dashlets	All Dashlets				New Das
			<i>₽</i>			Search:	
id	J≞ name	11	description	11	is_pinned	ţţ.	
4	Km summary	/ by surface type	Km summary by surface tyr	pe, testing Dashlet	•		

## 4.2.5 Dashboard map

The map on the left-hand side of the screen, indicates the last map that was created by the user or admin person. This map can be used to view and identify information, add layers, and change styles.



#### Map tools



Use this tool to zoom in to the map. Press the tool more than once to zoom in more.



Use this too to zoom out of the map. Press the tool to zoom out more.



Use this tool to zoom back to the extent of the layer.



This tool switches to 3D view. Use your shift key and mouse scroll button to navigate in this view.





Click on the North arrow to turn the map back to its original position. North facing up.



Switch the map back to 2D view with this tool.



Print your map as a Pdf file.



The user can add other layers to the map and save it.



Add or manage layers.



Click on the Layers tool to select the layers to be on or off, zoom to the layer, delete the layer from your map. In this map the user can also view the attributes in the database table.



Click on Show table to look at the attribute data/records in the database

Ontic	ne				~
Optic	id	layer_name	label	popup_html	,
q.	1	weather_stations	Komati Mill - Squamans 456	<div><div class="&lt;/td" id="masterContent"><td></td></div></div>	
S.	2	weather_stations	Komati - Tenbosch 464	<div><div class="&lt;/td" id="masterContent"><td></td></div></div>	
	3	weather_stations	Malelane - Mhlati 465	<div><div class="&lt;/td" id="masterContent"><td></td></div></div>	
	4	weather_stations	Kaalrug - Inala 466	<div><div class="&lt;/td" id="masterContent"><td></td></div></div>	
	5	weather_stations	Komati - SASRI 474	<div><div class="&lt;/td" id="masterContent"><td></td></div></div>	

Select the records that you want to see on the map. Click on **Options**, then on **Selected only**.

Table	e		-	Filt	er		0	
Optio	ons	-	1_	Y	Selected only			
	2	weather_star		C	Z ZOOM		× CLEAR	
ď	3	weather_star	_	id	layer_name	label	popup_html	-
	4	weather_star		5	weather_stations	Komati - SASRI 474	<div>&lt;div id="masterContent" class="pane&lt;/td&gt;<td></td></div>	
	5	weather_sta		2	weather_stations	Komati - Tenbosch 464	<div>&lt;div id="masterContent" class="pane&lt;/td&gt;<td>¥</td></div>	¥

Click on **Zoom** to display the selected records on the map. Click on **Close** to close the **Table Option** view. Click on the **Layer** tool in the map to close the layer list. Now you will see the selected records in the map.





This map is also interactive with the Dashlets from queries that was saved with geometries





Click on Show on Map to display the records from the query/Dashlet on the map



Click on the Layer tool to show the layers. Here the selection can be turned off and on



Click on the View Table tool to go through the attribute list.

## 4.2.6 List pages

The menu at the top of the interface page lists the GIS layers, Documents, compiled interactive maps that are visible to the user and users and groups that have permission to use the system. Each list page has comprehensive functionality to search/filter/sort the list to find resources of interest.



#	ELEMENT	DESCRIPTION	SCREENSHOT
1	Dashboard	Back to Dashboard	
2	Maps	Page listing the available interactive maps	
3	Layers	Page listing the available GIS layers.	
4	Documents	Page listing the available documents	

5	People	Page listing user accounts (people) active in the system.	
6	Groups	Page listing user/collaboration groups active in the system.	
7	Search Bar	Typing in the search bar will list layers/maps/documents matching the search term. Clicking on the search icon will open a page listing the layers/maps/documents found.	<complex-block></complex-block>
8	User Menu	Items in the menu will depend on the user permissions level. A standard user has the ability to update their profile, see a log of their recent activities and access their GIS system mailbox.	Lture     Kers       - Help     -       - Favorises     -       - Profile     -       - North     -       - Monort Activity     -       - Infoort Activity     -       - Infoort Activity     -       - Infoort Data     -

## 4.2.7 Explore pages

These Maps, Layers and Documents pages (<u>http://clientpage/maps</u>, <u>http://clientpage/layers</u>, and <u>http://clientpage/documents</u>) list GIS layers, Documents and compiled interactive maps that are visible to the user. Each list/Explore page has comprehensive functionality to search/filter/sort the list to find resources of interest.

Explore Maps		3 Distanta New Map
Filters Clear	36685 2 D	A 12~
text      Search(d)s text     Articlateles      Articlateles      Articlateles      orwnees      ownees      ownees      ownees	6	GeoRAMS \$ jacours 221May 2017 * 0 * 0 * 0 * View Map 8 9 10 12
<ul> <li>HEGRAG</li> <li>S EXTENT</li> </ul>		Test Map testing
Explore Layers		Upwood Lawren
Cart	Total: 57	11~
Add resources through the "Add to cart" buttons.		aeorams_visualcondition_cogcrete
Create arrays Filters Caur Toot Search by text Q		▲gern = 13 Jun 2017 • 3 • 0 • 0 • Gradue = Map 11 13
		< page 1 of 1 >

#	ELEMENT	DESCRIPTION	SCREENSHOT
1	Search / Filter Panel	See section: 4.2.4. LEFT SEARCH PANEL	Search by text Q
2	Item Count	Count of the resources in the list. The count number is updated as filters are applied to the list.	Total: 10

3	Upload/New	Depending on the list page, upload Layer/Document or Create a New Map.	Upload Layers Upload Documents
4	List Sort	Sort the resource list alphabetically, popularity or recentness.	Most recent Less recent A - Z Z - A Fin Most popular
5	Cart button	Add the resource to the Cart section.	Cart georams_province georams_district georams_visualcondition_c Create a map
6	Resource Item	Shows the resource's Category, Name, Description and loaded Thumbnail. Clicking on the Thumbnail or Name open's the resource's detail view.	Visual Corc Visual Corc ▲ glenn
7	List Pager	Moves on to the next page of listed resources.	<pre>&lt; page 1 of 1 &gt;</pre>

8	Owner / Originator	Opens the profile page of the resource originator/owner	
9	Publication Date	The resource's date of publication. Clicking the link opens the resource detail view with the Info tab activated	<image/> <section-header><section-header><section-header><image/><image/><image/><image/><image/><image/><image/><image/><image/></section-header></section-header></section-header>
10	Popularity	Shows the resource popularity/views. Clicking the link opens the resource detail view.	
11	Sharing	Shows the number of times the resource has been shared. Clicking the link opens the resource detail view with the Sharing tab activated.	● Info ● Share   ★ Ratings ○ Comments     Share This Map   Email   Facebook   Twitter   Google +

12	Rating	Shows the user rating of the resource. Clicking the link opens the resource detail view with the Rating tab activated.	<ul> <li>● Info ● Share ★ Ratings ○ Comments</li> <li>Rate this Map</li> <li>● ★ ★ ★ ★</li> <li>Average Rating</li> <li>★ ★ ★ ★ (0)</li> </ul>
13	View	Clicking the link opens an interactive map.	<image/>
## 4.2.8 Left search panel

This panel allows for searching and filtering of Layers/Maps/Documents according to their metadata entries, such as Description, Category, Date, Keywords, Date, Region and Bounding Box.



#	ELEMENT	DESCRIPTION	SCREENSHOT
---	---------	-------------	------------

1	Cart	Allows for doing operations on multiple resources. These are added to the list by clicking the cart 😭 button In Maps and Documents, the Cart can be used to set permissions for all selected resources. In Layers, there is an additional option to create a new map with the selected layers.	Cart         Add resources through the "Add to cart" buttons.         Create a map
2	Clear	Clear any filters currently applied.	Filters <u>Clear</u>
3	Filter - Text	Search for Layers/Maps/Documents with the entered text in the Title or Description	Filters Clear TEXT visual georams_visualcondition_block georams_visualcondition_concrete georams_visualcondition_unpaved Visual Condition (VCI) Visual Condition (VCI) Visual Condition (VCI)
4	Filter - Category	List of Categories showing counts of Layers/Maps/Documents assigned to each category (in the resource's metadata)	CATEGORIES         AdminBoundary         G         Condition         Inventory         3         Other
5	Filter - Keywords	List of Keywords showing counts of Layers/Maps/Documents assigned to each keyword (in the resource's metadata)	KEYWORDS

6	Filter - Owners	List of Layers/Maps/Documents owners	V OWNERS
7	Filter - Date	Filter Layers/Maps/Documents by date published	<ul> <li>✓ DATE</li> <li>Date begins after:</li> <li>2016-02-01</li> <li>Date ends before:</li> <li>2016-06-04</li> </ul>
8	Filter - Regions	Search for and filter Layers/Maps/Documents according to selected Region	✓ REGIONS       I     Q       Limpopo       Laeveld
9	Filter - Extent	Filter the Layers/Maps/Documents list according to the extent shown in the map widget. Double clicking on the Map or Mouse Wheel up/down will zoom the map in or out. Clicking and dragging will pan the map.	EXTENT      Botswana     Gaborone     Pretoria     Johannesburg     Swazilanc     Lesotho     Durban     Lesotho     Leaflet   Map tiles by Stamen Design

#### 4.2.9 Detail Pages

The detail pages comprise overview information such as an embedded interactive map and resource metadata. They also provide collaboration functionality for sharing and commenting as well as functions to download the resource and set permissions.

#### Map Detail View



#	ELEMENT	DESCRIPTION	SCREENSHOT
1	Interactive Embedded Map	See section 4.2.7 DETAIL PAGE EMBEDDED MAP	

2	Map Information	Provides detail information about the map.	Buts         # Suns         # Calling         © Comments           The         Water Utilization via dissurption         Maximum         Supervision           Butson         Supervision         Supervision         Supervision           Butson         Maximum         Supervision         Supervision           Butson         Maximum         Supervision         Supervision           Butson         Maximum         Maximum         Decision           Butson         Supervision         Supervision         Supervision           Butson         Supervision         Supervision         Supervision           Butson         Supervision         Supervision         Supervision           Butson         Supervision         Supervision         Supervision         Supervision           Butson         Supervision         Supervision         Supervision         Supervision         Supervision         Supervision
3	Sharing	Has various options for sharing the map, such as sharing the map URL via email.	Visual Condition (VCI)
4	Ratings	Set a rating (5-point scale) for the map. See section 4.3.9. RATINGS	<ul> <li>● Info</li> <li>Pate this Map</li> <li>● ★ ★ ★ ★ ★</li> <li>Average Rating</li> <li>★ ★ ★ ★ ★ (1)</li> </ul>
5	Comments	Add comments to the map, such as corrections that the need to be made. See section 4.3.8. COMMENTING	Map created for demo purposes By gienn on Jun 28, 2017 Celete
6	Download Map	Download the map's comprising layers as ESRI shp files. See section 4.3.12. DOWNLOAD MAP	Download Map Download Carls Learns Download Web Dup Context Cone

7	Edit Map	<ul> <li>Opens a window presenting various actions that can be done on the map:</li> <li>Edit the map's metadata</li> <li>Edit the map configuration</li> <li>Remove the map</li> </ul>	Cos
8	View Map	Open the map in view-only mode. Changes made can be saved to a new map.	
9	Layers	Lists the map's comprising layers, with a link to each one.	Map Layers This map uses the following layers: georams_visualcondition_block georams_visualcondition_flexible georams_visualcondition_unpaved georams_network
10	Permissions	Set the map's permissions.	Set permissions for this resource
11	Сору Мар	Make a copy of the map and save to a new map.	
12	Publish as WMS	Create a Geoserver group WMS from the map.	TODO: Feature not implemented in GGW core yet.

			<b>TODO</b> Agrams encountered with this function. It is has been added to the last of defects to be resolved. After resolution, this section of the manual will be updated.
13	About Map	General information about the map such as the originator and maintainer (i.e. point of contact)	About Owner, Point of Contact, Metadata Author Oglenn No Group
14	Favourite	Set a map, Layer or Document as your favourite. This will display in the landing page for quick access.	Info

#### Layer Detail View



#	Element	Description	Screenshot
1	Interactive Embedded Map showing layer	See section 4.2.7. DETAIL PAGE EMBEDDED MAP	

2	Map Information	Provides detail information about the map.	Info ■Attributes ← Share ★ Ratings C Title georams_visualcondition_flexible Abstract No abstract provided Publication Date June 8, 2017, 7:51 p.m. Type Vector Data Owner glenn More info -
3	Attributes	Lists the Layer's attributes along with any metrics such as standard deviation	O Info         III Attributes         # Share         * Ratings         Comments         # Favourite           Attribute Name         Label         Description           Year         None         None           vol_deduct_classified         None         None           vol_deduct_classified         None         None           stic_classified         None         None           stic_classified         None         None           rol_deduct_classified         None         None           rol_deduct_classified         None         None           rol_deduct_classified         None         None           rol_desct         None         None           rol_desct_classified         None         None           noine_inclassified         None         None
4	Sharing	Has various options for sharing the layer, such as sharing the layer URL via email.	georams_visualcondition_flexible
5	Ratings	Set a rating (5-point scale) for the layer. See section <i>4.3.9. RATINGS</i>	<ul> <li>Info ≡ Attributes ← Share ★ Ratings</li> <li>Rate this layer</li> <li>★★★★★</li> <li>Average Rating</li> <li>★★★★★</li> <li>(0)</li> </ul>
6	Comments	Add comments to the layer, such as corrections that the need to be made. See section 4.3.8. COMMENTING	Comments (4 total) Map created for demo purposes Pr giern on Jun 28, 2017 Deter Deter

7	Download Layer	Download the layer in various supported formats such as ESRI shp and Google Earth KML. See section 4.3.13. GOOGLE EARTH	Xipped Shapefile GML 2.0 GML 3.1.1 CSV Excel GeoJSON KML View in Google Earth Tiles
8	Edit Layer	Opens a window presenting various actions that can be done on the layer: Edit the layer's metadata Edit/manage the layer's styles Set a Thumbnail Replace the layer Edit the Layer's data (both spatial and attributes) Remove the layer	Edit Layer         Metadata       Styles         Edit       Exer         Edit       Marage         Edit       Marage         Ecor       Ecor         Core       Core
9	Download Metadata	Download the layer's metadata in the six most common international metadata formats.	×Download Metadata Atom DIF Dublin Core eRIM FGDC ISO
10	Legend	The layer's legend (using its default style)	Legend
11	Maps	List of maps in the system that are using this layer	Maps using this layer List of maps using this layer: Visual Condition (VCI) Visual Condition (VCI) Visual Condition (VCI)

12	Create Map	Opens a new map window with the layer added to the TOC.	
13	Styles	The styles that are available for the layer.	Styles         The following styles are associated with this layer.         Choose a style to view it in the preview map.         Provincial Boundary
14	Permissions	Set the layer's permissions.	Set permissions for this resource
15	About Map	General information about the map such as the originator and maintainer (i.e. point of contact)	About Owner, Point of Contact, Metadata Author glenn No Group
16	Favourites	Create favourite layer to view in the landing page	O Info r≠ Share ★ Ratings © Comments ★ Favourite  Add to Favorites  Go to Favorites

#### Document Detail View

COTO TMH 18 Road Asset Data Electronic Exchange Forma	ats Version 4.pdf
Download the COTO TMH 18 Road Asset Data Electronic Exchange Formats Version 4.pdf document	Download Document
O Info ←Share ★Ratings ○ Comments ★Favourite	Edit Document 7
2 AS te No. Act provider Publication Date June 23, 2017, 9:25 a.m.	Download Metadata
Owner glenn More info -	Resource using this document This document is not related to any maps or layers
<b>†</b> ζ	Permissions 9 Click the button below to change the permissions of this document. Change Document Permissions 100
Q	About Owner, Point of Contact, Metadata Author of Group

#	ELEMENT	DESCRIPTION	SCREENSHOT
1	File preview	Document preview. If no preview is available, a download link is provided.	
2	Document Information	Provides detail information about the document.	Download the COTO TMH 18 Road Asset Data Electronic Exchange Formats Ver           Imfo         Imfo         Asset Data Electronic Exchange Formats Ver           Imfo         Imfo         Reset Data Electronic Exchange Formats Ver           Title         COTO TMH 18 Road Asset Data Electronic Exchange Formats Ver           Abstract         No abstract provided           Publication Data         June 23, 2017, 9:25 a.m.           Owner         ginn           More info         -
3	Sharing	Has various options for sharing the document, such as sharing the file URL via email.	Downlad the COTO THP118 Raad Acced Data Electronic Exchange Formats; Version A part document internal Participant in Comments in Comments in Comments internal Participant in Comments i
4	Ratings	Set a rating (5-point scale) for the document. See section 4.3.10. FAVOURITING	● Info ← Share ★ Ratings Rate this document ● ★ ★ ★ ★ flm Average Rating ★ ★ ★ ★ (0)

5	Comments Download Document	Add comments to the document, such as corrections that the need to be made. See section <i>4.3.8. COMMENTING</i> Download the file	Info Share ★ Ratings   Comments (1 total)   Everytem on Jun 8, 2016   Verytem on Jun 8, 2016     Verytem on Jun 8, 2016     Introduction_to_Wepptx
7	Edit Document	<ul> <li>Opens a window presenting various actions that can be done on the map:</li> <li>Edit the document's metadata</li> <li>Replace the document</li> <li>Remove the document</li> </ul>	*Edit Document         Image: Construction of the second
8	Download Metadata	Download the document's metadata in the six most common international metadata formats.	×Download Metadata Atom DIF Dublin Core ebRIM FGDC ISO
9	Resources	List of resources in the system that are linked to this document	Resource using this document This document is not related to any maps or layers
10	Permissions	Set the document's permissions.	Set permissions for this resource          Who can view it?         Anyone         The following users:         glenn         The following groups:         Who can download it?         Who can change metadata for it?         Who can manage it? (update, delete, change permissions, publish/unpublish it)         Cancel

11	About Document	General information about the document such as the originator and maintainer (i.e. point of contact)	About Owner, Point of Contact, Metadata Author Image glenn No Group
12	Favourite	Set your document as favourite to view on the landing page for easy and quick access.	O Info



#	ELEMENT	DESCRIPTION	SCREENSHOT
1	Interactive Map	<ul> <li>If the pan tool is active, clicking and dragging on the canvas will pan the map</li> <li>Double clicking on the canvas will zoom in</li> <li>Mouse wheel in/out will zoom in/out</li> </ul>	RSA Boundaries
2	Main Toolbar	<ul> <li>Toolbar for navigating on map</li> <li>Set styles</li> <li>Identify features</li> <li>Measure area and length</li> </ul>	
3	Scale bar	The current map scale	1000 m 2000 ft 1 : 68247

## 4.2.10 Detail page embedded map

4	Map Scale and navigation arrows	<ul> <li>Scale map and use arrows to pan in map</li> </ul>	
5	Map Attribution	<ul> <li>Attribution passed through from web GIS servers where such attribution has been configured.</li> <li>Attribution usually details relevant copyright and terms of usage.</li> </ul>	Tiles © Esri, glenn

## 4.2.11 Main Toolbar



#	ELEMENT	DESCRIPTION	SCREENSHOT
1	Layers	<ul> <li>Turn component map layers on and off</li> <li>Switch between different base layers</li> </ul>	
2	Print	Print the map to PDF Due to EULA, widget cannot print Google Layers.	Plat Proving

3	Drag / Pan	When active, click and drag on the map to pan	
4	Feature Info	<ul><li>When active, clicking on a feature</li><li>on the map will return</li><li>information.</li><li>4.2.10 FEATURE INFO</li></ul>	
5	Layer Style	Allows switching between different available styles and adjusting styles	Tiles © Esri, glenn
6	Measure	Measure 2D length and area. Double click when at last point to end the measurement.	Measure area × 1.87 km ² 20138839.61 ft ²
7	Zoom in / out	Clicking on the icon will zoom the map canvas un / out	

			Provide the second seco
8	Previous / Next	Similar to the back and forward buttons of a web browser. This tool pans/zooms the map canvas back / forward to the previous extent.	
9	Zoom to Max Extent	Zoom to the farthest extent of all layers.	
10	Legend	Show a legend panel	Show legend Show legend rsa_province rsa_district
11	3D viewer	Change the 2D map canvas	TODO: Google Earth Plugin has beendiscontinued. Need to rewrite widget.Image: State of the state

### 4.2.12 Interactive map



To access the full-screen interactive map, click the View Map button om the map screen:





Map	⊷ 🖶 Print   🕄 k	lentify ¶ [™] Measure - @Add <mark>∭</mark> Edit C d e f	
#	Element	Description	Screenshot
a	Map ▼	<ul> <li>The Map button gives you the option to either export or save the map.</li> <li>Export map is used to create an embedded version of the map for use on other web pages.</li> <li>"Save as copy" and</li> <li>"Save" does the same thing. The Publish Map dialog opens with the HTML code to embed in another web page. You have the option to change the map size.</li> <li>Save Map will save any changes you have made to the map back to the system. "Save as copy" in this case makes a new version of the map and preserves the original, while "Save" will overwrite the original with the new version.</li> </ul>	Map Print   Export map   Save map    About this Hap   About this Hap   About data and purpose of the map here Write a description, detail and purpose of the map here Bave as Copy Save Cancel About the map in your webaits: Correct angle in Height 400 width 600 Nor map is ready to be published to the webl Simply copy the following HTML to embed the map in your webaits: Cframe style="border: none;" height="400" width="600"
b	Print	<ul> <li>The Print Map dialog allows you to choose a paper size and print resolution.</li> <li>You can edit the title and description of the map and choose to include the legend or not.</li> </ul>	Properties: (A) bancage of Beaudien (St. dor) (A) RSA Boundaries Enter comments here.

		<ul> <li>You can change the scale of the map in the Scale widget at the bottom.</li> <li>When you are satisfied with the map setup, click the Print button.</li> <li>Print</li> <li>Then choose a location to save the resulting PDF file to your computer.</li> </ul>	
C	Identify Identify	<ul> <li>Click the Identify button to view information about selected features.</li> <li>Click on a feature on the map and the Feature Info dialog will open.</li> <li>Click on the pin = to unpin the information window. This will enable you to move the window around on the screen.</li> <li>When you click on more than one feature, all elements will be listed in the identify window. Click on the = to minimise the items in the list.</li> <li>Click on the X to close the window</li> </ul>	Feature Info       Image: Contract of the second of the seco
d	Measure	<ul> <li>The measure button lets you measure either length or area on the map.</li> <li>Choose the desired tool from the dropdown.</li> <li>To measure length, click on the start point of the line you want to</li> </ul>	Length Area

		measure. Move the mouse to the end point. Click on each turn or corner. The length is shown in km and miles. End measuring by double-clicking. The measuring line will stay there until you click the Measure button again. To measure area, click around the area to build op a polygon. The area is displayed in km ² and mi ² . Click the Measure button again to remove the polygon.		Keasare ama X 1.47 hr
f	Edit	The Edit button allows you to modify existing	georams_province.2	Value
	🕜 Add 💓 Edit	features on the map.	province	FS
		Click on the feature you	name	Free State
		want to modify.	source	
		A dialog opens with the	district	
		feature's information.	ward	
		Click Save when done or		
		Cancel to exit without	Edit Delete	
		saving.	ward	
		To create a feature, click	waru	
		on the <b>Add</b> tool. The	Save 🙆 Cancel	
		mouse pointer on the	A B	13h Am
		map will change to show	SC Lak	
		a small blue circle 😽 .	M	
		to the desired leasting	<b>&gt;</b>	
		to the desired location		
		A dialog opens where		
		you can type in the data		
		associated with the		
		feature. Click Save when		



		where you can remove	View a My Ge	available data from: coServer WMS	
		it.	Ti	tle	ld
		This also gives you	⊞ g	eorams_district	georams
		access to Layer	±g	eorams_erven	georams
		Properties, Layer Styles	±g	eorams_local_muni	georams
		and Layer Info, discussed	⊞ g	eorams_moisture_z	georams
		below.	⊞ g	eorams_network	georams
			± g	eorams_province	georams
			±g	eorams_suburb	georams
			±g	eorams_town_area	georams
			±g	eorams_town_point	georams
			± g	eorams_traffic_cou	georams
			⊕ g	eorams_visualcondi	georams
			±g	eorams_visualcondi	georams
			±g	eorams_visualcondi	georams
			±g	eorams_visualcondi	georams
			±g	eorams_ward	georams
			⊞ tn	np_farms	georams
			⊞ tn	np portions	georams
			0-	0 / 1	
			⊿ Ove	erlays	
				⊴georams_erven	
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			ĺ	georams_network Legend	
			Į	georams_network Legend //UNKNOWN	
			Ĩ	georams_network Legend //UNKNOWN //BLOC //EARTH	
				georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV	
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				georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV	
			٩	georams_network Legend UNKNOWN ØBLOC EARTH FLEX ØGRAV	- Churr
			0	georams_network Legend //UNKNOWN //BLOC //EARTH //FLEX //GRAV Zoom to layer extent Remove layer	£.
			0 4	georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV Zoom to layer extent Remove layer Layer Properties	£.
			0 0 4 4	georams_network Legend //UNKNOWN //BLOC //EARTH //FLEX //GRAV Zoom to layer extent Remove layer Layer Properties Layer Styles	( <u>1</u>
			0444	georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV Zoom to layer extent Remove layer Layer Properties Layer Styles Layer Info	Æ
	<b>D</b>	Removes the currently	0 0 4 4 4	georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV Zoom to layer extent Remove layer Layer Properties Layer Styles Layer Info	₹)
b	Remove	Removes the currently selected layer from the	0 0 4 4 4	georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV Zoom to layer extent Remove layer Layer Properties Layer Styles Layer Info	₹.
b	Remove Layer	Removes the currently selected layer from the map.	0 0 4 4 4	georams_network Legend UNKNOWN BLOC EARTH FFLEX GRAV Zoom to layer extent Remove layer Layer Properties Layer Styles Layer Info	E)
b	Remove Layer	Removes the currently selected layer from the map.	0444	georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV Zoom to layer extent Remove layer Layer Properties Layer Styles Layer Info	
b	Remove Layer	Removes the currently selected layer from the map.	0 0 4 4 4	georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV Zoom to layer extent Remove layer Layer Properties Layer Styles Layer Info	1
b	Remove Layer	Removes the currently selected layer from the map.		georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV Zoom to layer extent Remove layer Layer Properties Layer Styles Layer Info	
b	Remove Layer	Removes the currently selected layer from the map.	0444	georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV Zoom to layer extent Remove layer Layer Properties Layer Styles Layer Info	
b	Remove Layer	Removes the currently selected layer from the map.		georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV Zoom to layer extent Remove layer Layer Properties Layer Styles Layer Info	
b	Remove Layer	Removes the currently selected layer from the map. Opens the Layer		georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV Zoom to layer extent Remove layer Layer Properties Layer Styles Layer Info	
b	Remove Layer	Removes the currently selected layer from the map. Opens the Layer Properties dialog.		georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV Zoom to layer extent Remove layer Layer Properties Layer Styles Layer Info	
b	Remove Layer Layer Layer Properties	Removes the currently selected layer from the map. Opens the Layer Properties dialog. On the About tab you		georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV Zoom to layer extent Remove layer Layer Properties Layer Styles Layer Info	
b c	Remove Layer Layer Layer Properties	Removes the currently selected layer from the map. Opens the Layer Properties dialog. On the About tab you		georams_network Legend UNKNOWN BLOC EARTH FLEX GRAV Zoom to layer extent Remove layer Layer Properties Layer Styles Layer Info	

		information about thelayer.On the Display tab youcan edit certain optionsto fine-tune how thelayer should bedisplayed.Drag the Opacity sliderto adjust the layeropacity.Untick the Cache optionto force the system toload the layer fresh.The two formatdropdowns can be usedto specify the type ofdata format to be used.You can filter your layerby adding conditionssimilarly to the Queryconditions discussedbefore.You can also limit thelayer display to a rangeor scales, outside ofwhich the layer will notbe shown.Available Styles tabshows a dropdown ofstyles for this layer. Youcan create new stylesbutton discussed next.	Layers y georams_network   About Deplay Available Styles   Ttle: georams_network   Name: georams_network   Description: No abstract provided     Verget y   Goadty: Transparent   Single tile: Use a single tile   Cache: Use cached version   Info Select a format   format: Use cached version   Info Select a format     Min scale: 1:     Name: y   georams_network     Min scale:   1:   Max scale:   1:     Notes by georams_network     Imit by scale     Verget   y   georams_network     Imit by scale     Verget   y   Imit by scale     Verget   y   Goads   Imit by scale     Verget   y   Imit by scale     Verget     Verget
d	Layer Styles	The Layer Styles button opens the Styles dialog. Here you can choose an existing style, edit it, duplicate it, remove it or add a new style. You can also create rules that allows conditional	Styles Choose style: georams_network

formatting of your style depending on attribute values. A style can have many rules.

- Add a style: This allows you to create a new style. Choose a title and description and click Save at the bottom of the screen.
- Edit a style: This allows you to change the title and description of the selected style. Click Save at the bottom when done.
- Duplicate lets you make a copy of the selected style, giving it a new name.
- When you add a new rule, it is added as "untitled 1", but then you have to Edit it to give it a name and set all the options.
- On the Basic tab, set the name, choose a symbol, set the symbol size and colours as desired.
- On the Labels tab you can set which attribute to use as label, as well as the formatting of the label.
- On the Advanced tab you can set the conditions for your rule to apply. This can be used to format different

BASIC	Labels Advanced
Name:	Symbol:
My rule	
c	_
Symbol:	1 
Size:	dirde 🕚
Rotation:	square
- cill	thangle
V FIII	star
	v
Color:	evternal
Opacity:	
J Stroke	
Style:	•
Color:	#000000
Width:	2
0	
Opacity:	
BASIC Labels	Advanced
Name: My rule	Symbol:
Symbol: triangle	
Size: 20	
Rotation:	
✓ Fill	
Color:	#CA2323
Opacity:	
✓ Stroke	
	_
Style:	sold
Width:	2
Opacity:	
Basic	Labels ADVANCED
Lim	it by scale

#### Limit by condition

		<ul> <li>subsets of data in different ways on the map.</li> <li>Click Save at the bottom of the screen when</li> </ul>
3	Overlays	done.       Overlays refer to the layers
,	,.	you have added to the map. Right-click an overlay for specific options, or click to select it and use the Layers toolbar options discussed previously.
4	Base Maps	<ul> <li>Base maps refer to the background imagery of the map. You can choose not to have a background by selecting "No background" in this list.</li> <li>Right-click these items for options to remove and zoom to extent.</li> </ul>
5	Map Toolbar	abcdef8h ⊛ + q q q ← → x
6	Interactive Ma	ıp



#	Element	Description	Screenshot
а	Switch to 3D viewer	<ul> <li>This will be implemented as a WebGL viewer.</li> </ul>	
b	Pan Map	<ul> <li>Click this button and then click and drag the map to pan.</li> </ul>	Sekgopo
С	Zoom by dragging box	<ul> <li>Click this button to zoom by drawing a box on the map.</li> </ul>	rthere cape
d	Zoom in	<ul> <li>Click to zoom into the map incrementally.</li> </ul>	

	е	Zoom out Q	<ul> <li>Click to zoom out of the map incrementally.</li> </ul>
	f	Zoom to previous extent	<ul> <li>This zooms back to whatever the previous view was.</li> </ul>
	g	Zoom to next extent	<ul> <li>This zooms to the next extent, if you have already zoomed back to the previous extent.</li> </ul>
	h	Zoom to max extent	<ul> <li>This zooms out to fit the entire data set.</li> </ul>
7			The map area has three controls that allow you to open and close sections on the screen. The one to the left closes the Layers area. The one on the right closes the Bookmarks.

8	Map Scale	Use the map Scale widget	<u> </u>
Ŭ		to change the scale.	2 km 1; 108336
			1:846
			1:1692
			1:3385
			1:6771
			1 : 13542
			1:27084
			1:54168
			1 : 108336
			1:216672
			1:433344
			1:866688
			1 : 1733376
			Location: 2: 1 : 3466752
			1 · 6022504
			10 mi 1 : 866688

# 4.3 USAGE



## 4.3.1 Logging in

Open *http://yourdm.georams.co.za* in your web browser (works best in Chrome and Firefox web browsers):



Click on the Sign In link on the right:



A login window will appear. Enter your Windows Username and Password:



Once logged in, you'll be redirected to the home page. The green buttons will be updated with counts of the **GIS Layers**, **Maps** and **Documents** that your user account has been given access to:

ŀ	Home	Maps 🗿	Layers 17	Documents 🚺	People	Groups

## 4.3.2 Editing user profile

You can access and edit your user profile from the Profile option on the user menu.

Menu X	
★ Favorites	
<ul> <li>Profile</li> <li>Recent Activity</li> <li>Inbox</li> <li>✓ Announcements</li> <li>④ Remote Services</li> </ul>	
Invite User	
GeoServer     Admin     Import Data	
Log out	

Click Edit profile on the right to fill in all your relevant information.

leoni			
	leoni		A Message User
	Email	Not provided.	Edit profile
	Position	Not provided.	▲ Change password
	Organization	Not provided.	
	Location	Not provided.	Create a new map
	Voice	Not provided.	My Activities
	Fax	Not provided.	
	Description	Not provided.	* Favourites
	Keywords	Not provided	

On the Edit Profile screen, you can fill in all the relevant fields. Each field has a description of the type of information it requires.

Edit Your Prof	ile
	First name
$(\mathbf{U})$	Last name
	Email address
Change your avatar	Organization Name
	name of the responsible organization Profile
	Position Name
	role or position of the responsible person Voice
	telephone number by which individuals can speak to the responsible organization or individual

You can change your Avatar (your user picture) by clicking on the Change your avatar option on the picture. You can upload a picture by browsing to it and then clicking the Upload New Image button. You can also delete your avatar by clicking the Delete Your Avatar button.
Your current avata	r:	
Vou haven't unload	ed an avatar vet. Please ur	load one now.
Avatar:		
Avatar:	file selected.	

You can upload multiple pictures. The system will store them and you can choose which one to use as your avatar.

Successfully uploaded a new avatar.
Back to edit your profile information
Your current avatar:
o ⊙ o ⊙
Choose new Default
Browse No file selected.
Upload New Image
Delete Your Avatar

Once you have chosen your avatar, go back to Edit your profile information.

When you have entered all the relevant information, click Update profile to save your changes.

7IP or other portal code			
LIP OF OUTER postal code			
Country			
South Africa			-
country of the physical addre	ess		
Keywords			
A space or comma-separated	l list of keywords		

Your updated profile will be displayed.

Leoni Mullett (	leoni)		
	Leoni		🐔 Message User
	Email	leoni@email.com	☑ Edit profile
	Position	Not provided.	Change password
A share	Organization	itGISworx	Ē
Vision et al	Location	Nelspruit ZAF	Create a new map
	Voice	Not provided.	My Activities
	Fax	Not provided.	
	Description	dhgkjhsgjh whefhwoi hfgowhg woh woehfg woeihg	★ Favourites
	Keywords	Not provided	

Note: Password change is not possible from this screen because authentication is being handled by Active Directory. The link will be removed in the next update.

## 4.3.3 Sending messages (inbox)

Messages are created and read in the Inbox on the user menu.



#### Creating a message

On the Inbox screen, click the Create Message button.



The Create Message screen opens. You can now choose to go back to the Inbox using the button in the top right corner, or you can fill in the various fields to create your message.

Create Message		Back to Inbox
То		
	•	
Subject		
Content		
	.::	
Send message		

The **To field** is used to choose the user to whom you are sending the message. It is a dropdown box so if you click on the down arrow you will get a list of users to choose from.

Create Message	
То	
	Ľ
testuser	
glenn	
katie	
jacques	
test_user	
Delete profile	

You can only choose one user to send each message to. If you need to reach many users, it may be better to use an announcement instead.

Next type in a subject line for your message.

Create Message	
То	
glenn1	-
Subject	
Example message subject	
Content	

Next, type the message into the Content box. This field is required so you cannot send an empty message.

Create Message	
То	
glenn1	•
Subject	
Example message subject	
Content	
This is the message text.	
Send message	

Finally send the message by clicking the Send message button. You will be taken to the message, where you have the opportunity to immediately send another by using the Reply box. Or you can just go back to the Inbox using the button in the top right corner.

Example message subject	Back to Inbox
Sept. 22, 2016, 10:51 p.m. by me This is the message text.	
I forgot to say this bit. .:: Send Reply	

### Reading messages

Access your Inbox from the user menu. The Inbox tab shows messages that you have not read yet. It shows each message with Sender, Subject and Preview. You can open the message by clicking the subject line, or you can delete the message by clicking the Delete button.

If you have read all your messages the Inbox will show nothing. You can access your previous messages by clicking the All tab.

Inbox	All			
With	Subject	Last Sender	Preview	Delete?
୯	Example message subject	leoni	I forgot to say this bit	Delete
eoni				

When you open the message you will see the message as well as any replies that have been made. You have an opportunity to send a reply back to the sender.

Example message subject	Back to Inbox	
Sept. 22, 2016, 10:51 p.m. by leoni This is the message text.		
Sept. 22, 2016, 10:53 p.m. by leoni I forgot to say this bit.		
Send Reply		

## 4.3.4 Searching (metadata)

Various functions are available in the web interface to allow for quick filtering and searching for required information. Some of these features have already been introduced, but are included here again for further clarity.

#### Searching from the Search bar

You can access the Search bar at the top of every page.



As you type your search topic, the bar will display a drop-down list with matching items. You can choose to click any of these items directly and will be taken to the resource.



Alternatively, you can click the blue button to be taken to a page with the search results.

Filters	Clear	Total: 7	14
✓ TEXT			
visual	٩	Visual Condition (VCI)	
✓ TYPE		visual Condition Index	
Мар	3		
Vector	0		
> CATEGORIES			
KEYWORDS			
> OWNERS		Visual Condition (VCI)	
> DATE		visuar contrition index	
> EXTENT			
		georams_visualcondition_concrete	
		No abstract provided	
		🌲 glenn  🗂 13 Jun 2017 💿 3 🏓 0 🛊 0 💡 Create a Map	

You can click the title or thumbnail of any result to go to that resource.

## Searching by filtering metadata

You can search for resources on any page with a listing such as maps or layers, using the Filters on the left.

These allow you to define metadata search criteria such as owner, keywords, date and region to specify the type of results to be displayed.

The different pages have slightly different lists of filters depending on what metadata is available, however they all work in similar fashion.



- Text
  - Text search gives the same results as typing a search topic into the top Search bar. It will return resources that contain the word you typed in the title
- Type
  - Type allows you to choose either Vector or Raster data if there are resources of each type.
- Categories

	ķ
AdminBoundary	6
Condition	10
Inventory	3
Other	1

- Categories will give you a list of defined categories. Click on the desired category to see all resources assigned to it.
- Keywords

- $\circ$   $\;$  Resources can be assigned keywords that can then be selected here.
- Owners

✓ OWNERS	
glenn	4
jacques	1

- $\circ$   $\;$  Here you can choose to see all resources owned by a specific user.
- Date

► DATE
Date begins after:
yyyy-mm-dd
Date ends before:
yyyy-mm-dd

 $\circ$   $\;$  You can specify a date range to find al resources uploaded in a certain time period.

### • Regions



- You can type the name of a region to search for. The dropdown will give you a list of all matching items.
- Extent



Extent allows you to narrow your search by zooming into a map. Only resources that fall within the visible zoomed area will be displayed in the results list. You zoom in and out using the scroll wheel of your mouse, and move the view by clicking and holding the left mouse button while moving the mouse. If you are using a tablet or touch screen, you can zoon in and out by pinching (two-finger move) or pan across by touching and dragging across the map.

## 4.3.5 Create map

#### Method 1 – Using the layer cart

In the Layers List page, add layers to the cart using the cart button. You can use the filter/searcher to find specific layers.

Explore Layers				Upload Layers
Cart		Total: 17		↓ ^A _Z ∼
georams_visualcondition_f	×		georams_district No abstract provided	×
georams_province	×	~ 222	🔰 🛎 glenn 🛗 1 May 2017 💿 0 🏕 0 🖈 0 🗣 Create a Map	
georams_district	×	h		
Create a map		At the second		

## Click on Create Map

Cart	
georams_visualcondition_f	×
georams_moisture_zone	×
georams_province	×
georams_district	×

If required, re-organise layers, zoom into your area of choice or apply layer filters/style adjustments.



Save the map, adding a name to identify it by, as well as a description.

swar mo nap	Man - D Print
Title:	map - Errint
RSA Boundaries	վող
Abstract:	Export map
white a description, decay and purpose of the map here	Save map

On successful save, a hyperlink to the map will appear at the top right-hand corner of the map.



The new map will appear in the map list:



### 4.3.6 Publish Map to Microsoft Word

#### Same steps as previous, except select Export Map

	Мар≁	Print
5	Expo	ort map
	Save	e map

Fill in the map name and description and click on Save.

About this Map	×
Title:	
RSA Boundaries	
Abstract:	
Write a description, detail and purpose of the map here	
Save as Copy Save	Cancel

Copy the text in the textbox to the clipboard. Press <Ctrl + c>



Open a Word document and select Insert  $\rightarrow$  Online Video



Paste the copied text in from a Video Embed Code

You YouTube The largest worldwide video-sharing community!
From a Video Embed Code Paste the embed code to insert a video from a web site iis/maps/81/embed"> ×

An object with a **Play** button will be added to the document.



Clicking on the **Play** button will open an interactive embedded map.

## 4.3.7 Map sharing

Underneath each map there is a Share button that you can use to send a link of the map to someone by email.



#### Share your map



When you click on the blue "Email" link, your default email client will open a new message with the map's URL in the message body.



## 4.3.8 Commenting

In the **Comments** section of a detail page, click on **Add Comment**.

		1 8		200 mi	
1 Info	A Share	🖈 Ratings	♀ Comments	★ Favourite	
Comm	ents (0 t	otal)			
					Add Comment

#### Enter a comment and select Submit Comment

Comment	
Add a comment to your map or layer	

The entered comment will now show in the resource's comments section. The comment entry shows the comment author as well as the date the comment was submitted. Click on the Delete button to remove the comment from the layer or map.

Còm	iments (1 total)	
C	Add a comment to your map or layer By glenn on Jun 28, 2017	
	Delete	

## 4.3.9 Ratings

In the Ratings section of a detail page, select a star rating



The resources' star ratings can be used in the list pages' sorting options to sort by popularity



### 4.3.10 Favourites

Your Home page will have a list of favourites if you have any, otherwise it will show No favourites. You can access your Favourites from the user menu or on any map or layer page.

Menu	
★ Favorites	
A Profile	
▲ Recent Activity	
Inbox	
Announcements	
Remote Services	
Invite User	
🎎 GeoServer	
🌣 Admin	
🌣 Import Data	

You can add favourite maps and layers. Navigate to the resource, for example, a map. Click on the Favourite link below the map.



Then click on the Add to Favourites.

1 Info	r Share	★ Ratings	★ Favourite
Add to Favorite	vorites		

Any resource that has already been added to Favourites will have a red Delete from Favourites button instead.

0 Info	Arre Share	🖈 Ratings	♥ Comments	★ Favourite
Favorite				
Delete fro Go to Favor	om Favorites ites	\$		

If you click on Go to Favourites the Favourites screen will open with all the resources that you have added. You can easily remove items by clicking Delete from Favourites here.

Favorites for glenn		
Item	Туре	
georams_moisture_zone	layer	Delete from Favorites
Visual Condition (VCI)	map	Delete from Favorites
RSA Map	map	Delete from Favorites

And your Home screen will now have your favourites tiled for easy access.



## 4.3.11 Recent activity

You can access a listing of all recent activities on the system through the Recent Activity item on the user menu.



You can either see the full list of activity on the All tab, or narrow it down to see only map, layer or comment activity by choosing any of the other tabs.

Hor	me Ma	aps 👩	Layers 🗊	Documents 📵	People	Groups
Rece	ent ac ⊘Layers	ctivit oma	ips ©Com	ments		
		glenn cr 12 hour	eated <mark>RSA Map</mark> s, 7 minutes ago	by glenn		
0	glenn ado 13 hours,	led a com ,43 minut	ment on <mark>Visual (</mark> es ago	Condition (VCI) by gler	n	
0		glenn cr 1 week a	eated Visual Co ago	ndition (VCI) by glenn		
•	<b>glenn</b> del 1 week aj	eted ds go				
0		glenn cr 1 week a	eated <b>Visual Co</b> ago	ndition (VCI) by glenn		
0		glenn up 2 weeks	oloaded <b>georams</b> , 1 day ago	s_visualcondition_cond	rete	
0		glenn up	loaded georams	s_traffic_count_station		
Recent	activit	У				

All	♦Layers	♥ Maps	© Comments
0	glenn adde 13 hours, 4	d a comment ¦3 minutes ag	on Visual Condition (VCI) by glee
0	glenn adde 3 weeks, 1	d a comment day ago	on georams_moisture_zone

You can click on any of the **blue usernames** to see the user profile, or on the **blue resource** names to be taken to that resource or comment.

#### 4.3.12 Download map

In the Map detail view, select **Download Map**.



A window will open, displaying the various download options. Select Download Data Layers.

17	Documents 🙉 People Groups	Search
	×Download Map	
	Download Data Layers Download Web Map Context	
TSW		Close
	Gaborone	

A page will open listing the map's comprising layers that will be downloaded. Click on **Start** downloading this map



A zip file will be downloaded that contains shapefiles of all the map's downloadable component layers. The README.txt file contains a description of the layer(s).



**Open** the zip file in QGIS (Add Vector Layer)

Select File

Select Browse

Select downloaded zip file.

🔏 Add vector layer		? ×		
🕺 Open an OGR Supported V	/ector Layer			×
$\leftarrow \rightarrow \cdot \uparrow \square$ > This	PC > Downloads > Georams_data >	~ (	5 Search Georan	ns_data 🔎
Organize 🔻 New folder				····
▲ OneDrive	Name	Date modified	Туре	Size
Documents	aeorams moisture zones.dbf	2012/09/27 10:49	DBF File	8 KB
Distures	georams moisture zones.pri	2012/09/27 10:49	PRJ File	1 KB
	georams_moisture_zones.sbn	2012/09/27 10:49	SBN File	1 KB
2 Projects	georams_moisture_zones.sbx	2012/09/27 10:49	SBX File	1 KB
💻 This PC	georams_moisture_zones.shp	2012/09/27 10:49	SHP File	44 KB
BlackBerry STV1	📄 georams_moisture_zones.shx	2012/09/27 10:49	SHX File	1 KB
Desktop	💐 georams_moisture_zones.zip	2017/06/28 11:10	WinZip File	24 KB
Documents	README.txt	2017/06/28 11:08	TXT File	0 KB
- Downloads				
Music				
Distance				
Pictures				
Videos V				
File nar	me: georams_moisture_zones.zip		✓ All files (*) (*.*	) ~
			Open	Cancel
			open	

QGIS will automatically read the zip file and add the comprising shapefiles to the map canvas.



# 4.3.13 Google Earth

In the Layer Detail view, click on Download Layer



## Select View in Google Earth

	×Download Layer
z	Zipped Shapefile GML 2.0
S	GML 3.1.1 CSV Excel
e	GeoJSON KML
l	View in Google Earth Tiles

Open the downloaded file in Google Earth or save the **kml** file to your data directory.

Opening georams_xdr	n-georams_moisture_zone.kml	×
You have chosen to c	ppen:	
📚 georams_xdm	georams_moisture_zone.kml	
which is: KML		
from: https://x	dm.georams.co.za	
What should Firefox	do with this file?	
Open with	Google Earth (default) $$	
<ul> <li><u>Save File</u></li> <li>Do this <u>a</u>uton</li> </ul>	natically for files like this from now on.	
	OK Cancel	I

# Google Earth view.



# 5. MOBILE INTERFACE

The GeoRams can also be accessed on a mobile device. Use the mobile browser and go to <a href="http://yourdm.georams.co.za">http://yourdm.georams.co.za</a>



Sign in with your user name and password. This will take you to your dashboard showing your presetup charts and queries, favourite maps and documents.



# 6. MOBILE APP

The **GeoForm** mobile app allows for data collection in the field, using tablets and smartphones. Forms are designed with content logic for any business requirement and are downloaded to mobile devices in the field. Completed forms are automatically uploaded to the platform in near real-time. The mobile app supports multimedia and can be used to collect photos, video clips, signatures, bar codes, points, lines and polygons in the field. Any of these can be included into a form, so that, for example, a report could require the user to take a geo-location, capture information about a feature at the location and take a photo of the feature.

The application supports the collection of various types of data such as:

- Text and numbers
- Photos
- Videos
- Sound clips
- Bar codes
- Points, lines and polygons

The application can be installed on any Android device that supports location services (i.e. GPS receiver). The application connects to the server via a WiFi or GSM network to:

- Authenticate a user
- Download layers and forms
- Upload completed forms

The off-line view function allows the user to download and manage maps and features on a mobile device, whilst not connected to a WiFi or GSM network. Detailed information about features on the map can be presented in graphical and tabular formats. This is useful when you need to access information on a map when in the field and not connected to a network. The application supports a user-friendly and easy to use synchronisation function, that allows the off-line data (maps and features) to be refreshed on the mobile device when back at the office, ensuring that off-line information is always up to date. The advanced off-line function provides the ability to edit and capture new data in the field in off-line mode. New features or changes to features are stored on the device until a network is available to upload the information to the server. The benefit of this function is that users can edit, update or capture new spatial features (such as points, lines and polygons) while off-line. Changes made are directly uploaded into the system without any time-consuming and costly post-processing by the GIS office.

# 6.1 GeoForm

When opening the application, you will be required to enter your username and password. If you are not authenticated, you will not be able to connect to the server to download or submit forms. You will still be able to use all the functions of the application. This will allow you to work in off-line mode (see description of layers section below). Once you have logged in, you will see the main screen of the application.



After tapping on the menu bar (or sliding your finger left to right, starting from the left edge of the screen) you will have access to the following:



## 6.1.1 Forms menu



Search – opens a pop-up dialog you can type in a feature to search for. The search looks for any feature with the same label as your search term. Only active feature layers are considered. The map will centre on the feature if found.

Forms – Opens a window to download a list of forms to collect or edit data

**Layers** – Opens a window to download a list of available layers on the server that can be downloaded as off-line layers.

Settings - Opens a window to change app settings

**Download** – list of forms that are available to download from from the server. You need to download a form in order to collect information.

**Collect** – list of form downloaded from the server. If you select a form, it will open the form for you to start collecting information.

Edit – you can edit forms that you have captured but not submitted to the server yet.

Submit – allows you to select forms to be submitted to the server. When the auto send option is selected (settings, Main) formas will automatically be submitted to the server.

**Delete** – delete either saved or blank forms from your device.

6.1.2 Settings menu (main)



	0 0 🛪 🖓 🗚	78% 14:3
Auto Download		
Auto Sync Layers of	ver wifi	
AutomaticIly sync laye	ers on app start	
Auto Send		
Auto send with Wi-F	FI	
Auto send when Wi-Fi	is available	-
Auto send with netv	work	
Auto send when netwo	ork is available	
Functional Settings		
Radius		
The distance for close	feature search (m)	
Target accuracy		
Required accuracy wh	en capturing gps points in	meters (m)
Notification Interval	D.	
How often should app minutes)	notify of new jobcards on	server (in
Enable automatic s	avepoint	_
If enabled, form will be	e automatically saved ever	у 🗹

0

 $\triangleleft$ 

Auto sync layers – allows the application to automatically update offline layers on start-up

Auto send WiFi – will automatically send forms when connected to a WiFi network.

Auto send network – will automatically send forms when cannected to a GSM network.

Radius – set the feature edit radius meters. You will not be allowed to edit features dalling outside tha radius.

Target accuracy – The GPS accuracy when capturing a point.

Notification interval – How often the a notification comes through for new jobcards. (in minutes)

Enable automatic save point – if enabled, form will automatically be saved every time you swipe between screens
	3% 14:37	Auto start App – Start app when phone restarts
Auto Start App Start app when phone restarts		Feature marker scale – set the size of the feature marker based on the screen resolution of your device. The larger the number the bigger the feature marker.
Feature marker scale		Hide forms interface – hides the form functions from the main screen when selected.
Hide forms interface		Hide jobcards interface – hides the jobcard functions from the main screen when selected.
Hide jobcards interface Only show forms options. (App will restart)		<b>Disable audible feedback</b> – The app provides an audible beep when recording location. This can be disabled
Disable audible feedback		<b>Disable long-click Point</b> – disable the ability to record location anywhere on the map with a long press.
Disable Long-click Point Disables ability to fix a location with a long-press		<b>Constraint processing behavior</b> – defines how the appmust handel constraints within forms. i.e. cannot complete forms until cartain mandatory information has been captured.
Constraint processing behavior Validate upon forward swipe	U	Navigation – defines how the user can page through the form, horizontal swipes, buttons or both.
Navigation Use horizontal swipes		Text font size – size of the text within a form Default photo size – defines the resolution of the
Text font size Medium		photo that is captured in a form. <b>Default to finalize</b> – automatically marks the form as finalised. If disabled the user must manually mark the
Default photo size		form as finalised. The form can be partially done in field and then completed at a later stage.
Default to finalized Mark form as finalized by default		<b>Delete after send</b> – thes will delete the form from the mobile device after it has been sent the server.
Delete after send Deletes finalized forms and media after sending to server		<b>Enable hi-res video</b> – allows user to capture high resolution video recording when enabled in a form.
Enable hi-res video Enable high-resolution video recordings		

# 6.1.3 Settings menu (map)

	र ⁴⁶ 📶 🗎 78% 14:38
Online-Offline Options	
Online Maps	
Maps are ONLINE	<b>—</b>
Offline Layers Path	
Basemap Options	
Select default Basemap	
Default	

**Online maps** – This setting allows you to turn the loading of the basemap off even when youe are online.

**Off-line layer path** – path where off-line layers are stored on your device. You can choose an external storage device if internal storage capacity is limited.

Select default basemap – You can choose from a list of basemaps to be displayed as backdrop on the main screen.

## 6.1.4 Layers menu



**Off-line layers** – tap to see a list of off-line layers available on the server for downloading to the device. You must download an off-line layer to view a map on the main screen when your device is not connected to a WiFi or GSM network.

**Delete** – tap on delete to delete offline layers from your device.

Layer Manager – Utility for managing off-line layers and features downloaded to the devices.

## *Off-line layers*

Tap on Offline layes of the Layers menu to see the available layers that can be downloaded from the server. Tick the layers that you need and press on the back button. The download log will list the process.



## Layers menu (layer manager):

Use the layer manager to add, delete and manage layer groups. A layer typically includes:

- raster map image tiles (raster) that provides a backdrop map in the main screen. This map will only be available if you are connected to a network.
- Off-line features features (vectors) that can be viewed and edited e.g. a building.
- Forms forms associated (or linked) with features that allow you to update existing features or capture new features.



Once the layer group has been created you can add an off-line layer (map and associated features) and associated form that has been downloaded from the server. Tap on the **plus (+)** button to open the layer group. Tap on the add off-line layer button, to list the downloaded off-line layers that needs to be added to the layer group. The layers need to be added to a group to be visible in the map view. Note that you can have any number of layers in a layer group. Swipe to the right to delete an off-line layer map or form from your layer group.



You can change the format of the feature markers in forms by tapping on the menu tab and selecting your preferred marker. Just press the back button to save your changes.

At the top of the Edit Layer screen are two checkboxes.

Layer visible: Untick to hide the layer on the map but keep it active for searches. This can help to

unclutter your map. **Show label:** Untick to hide the label but still show the marker on the map.



Layer groups can be disabled or enabled by tapping on the green button next to the layer group name. Disabled layer groups will not show on the main map or be used in searches. (All forms will still show if you go to the Forms -> Collect option in the side menu.)

Within a layer group, you can re-order the layers by dragging them by the re-order handles. In this way you can ensure that your features appear on top of your off-line map on the mains screen of the app.



## 6.1.5 Feature information

Once the layer manager has been configured, the features will appear on the main screen. Tapping on the feature will open a detailed view, showing attribute information about the feature.

When tapping inside the feature search radius, the app looks for any active features in that radius. If more that one record is found the app will list all the features in the radius. Tap on a feature to see the detail information.



Swipe screen to the left to see the edit data forms. Tap on the information that needs to be edited, and continue to update the information in the form. These forms will be pre-filled with information existing in the database



If none are found, the capture new feature screen will open with all forms tagged as capture new feature forms in the list. Tap on the form that needs to be captured. Move screen from right to left to continue on the next page until you get to the end of the form. Click on Save Form when data has been captured. The information will be sent/submitted to the database once the device is connected to a network.



The mobile application supports the ability to capture a location (point) or a geometry (line or polygon with many points) within a form. When configured in a form, you will see the following screen appear within the form. Tap the "Play" button at the top right of the screen to enable auto-recording of points. The GeoTrace Instructions dialog opens. Here you can set the recording interval and frequency as you desire.



Once the recording has started, a point is recorded (while walking or driving) every so many seconds with a beep sound. (you can disable the sound in Settings). You can pause the recording by tapping on the "Pause" button. To save your line, point or shape you must first pause your recording.



While Paused, there are a few options available to you:

- Save this exits the map and returns to the form.
- **Resume** Resume recording using the Play button.
- Select touch a marker to select it.

Once a marker is selected, you can :

• **Delete** – Click the Marker delete button to remove the selected marker

To deselect a marker, just touch it again.

A manual recording can also be done by tapping on the **manual record button**. Long-press on the map (if enabled in Settings). This is useful if you are tracing features from a satellite basemap instead of walking or driving around them. When adding points like this, the Clear button appears. This deletes the points one-by-one from the last one added, backwards. To change your basemap, tap on the Layers button in the bottom right corner. Be aware that you will need a network connection (GSM or WiFi) for basemaps to load.

## 6.2 Form Management

The form management module allows the GIS system administrator to create, publish and manage GeoForms. When downloaded to mobile devices, these forms are used to collect data in the field. The form management module supports the following functionality:

- Upload and publish XLS forms
- Manage form sharing
- Manage form permissions
- Downloading forms

When uploading a form, a database table and layer is automatically created by the system. Data collected in the field using this form are then automatically loaded into the database and available for viewing/editing within the web server.

## 6.2.1 Available forms

Click on Forms in the menu bar to go to the Forms Modal.

Maps 1	Laye	ers 56	Do	ocumen	nts 1	Forms	8				
Form Management											
Available Forms F	Publish a Form	Linked	Submissions	Enter Data	Data Reviewer	Last Submission	Active	Permissions	Media	Download XI SForm	Delete XI SForm
Road Verification CREATED: July 26, 2018		Layer	0	C Web	Review Data		Yes	Permissions	Media	Ŀ	
Traditional Land Survey CREATED: July 26, 2018		Layer	0	S Web	Review Data		Yes	Permissions	Media	Ł	â
GeoRAMS Visual Condition Assessment CREATED: July 26, 2018		Layer	0	S Web	Review Data		Yes	Permissions	Media	Ł	Î

Under the available forms tab, you will see a list of published forms with the following headings:

- **Name** the name of the form and the creation date. The shared indicator shows that the form is shared with other users and they can use the form to capture and submit data to the server.
- Linked Layer Redirects to a layer that is linked to the XLS form.
- Submissions number of submissions received by the server for this form since date of creation
- Enter data this opens a link to a web version of the form that can be completed using a web browser.
- Last submission date of last submission

- **Data Reviewer** Will take you to the data Review page. Review, accept or reject captured data before it uploads to the database.
- Active the form is active and can receive submissions. You can deactivate the form if you do not want users to download or submit data using the form.
- **Permissions** sets the permissions for the form. This allows the administrator to configure who can view, download and use the form.
- Media view, upload or delete the media files associated with the form
- **Download** download the XLS form
- **Delete** delete the XLS form

On this page the Forms can be managed by doing the following:

- Activate or deactivate a form
- Delete a form
- Set permissions for a form
- Download the XLS version of the form
- Manage media associated with the form

#### 6.2.2 Form permissions

Click on Permissions to manage user permissions on Forms.

Form Management											
Available Forms Publish a Form											
Name	Description	Linked Layer	Submissions	Enter Data	Data Reviewer	Last Submission	Active	Permissions	Media	Download XLSForm	Delete XLSForm
Road Verification CREATED: July 26, 2018		Layer	0	🛛 Web	Review Data		Yes	Permissions	Media	Ł	â

×	Permissions			
User	View	Edit	Submit	
Yurnerro2				
rudolf.meyer				
ewaldsam	Ø	<b>V</b>		
willie.robberts				
lindiwe.mnguni				

Thie Permissions window displays a list of all the users. Click on a checkbox to apply or revoke permissions. Once clicked, the permissions are updated immediately.

## 6.2.3 Form media

Form Management Publish a Form Linked Last Download Delete Description Submissions Enter Data Data Reviewer Submission Active Permissions Media XLSForm Name Layer XLSForm Road Verification 0 🙁 Web CREATED: July 26, 2018 Media Traditional Land 0 🙁 Web Yes Survey CREATED: July 26, 2018 GeoRAMS Visual 0 Ł â 🔇 Web Yes Condition Assessment CREATED: July 26, 2018

Click on the Media button to view, upload and manage media files associated with a form.

		1	Media		
		Me	dia upload:		
		Choose Files	No file chosen		
File <mark>I</mark> D	Filename		Upload	Date Created	Remove File
×	cod_fields.csv			2018-10-11T13:31:11.481	Delete
	andreas-gucklhor	andreas-gucklhorn-285567-1024x576.jpg		2018-10-12T10:49:57.845	Delete
alere (c)	ivana-cajina-312347.jpg		2018-10-12T10:50:11.107	Delete	

GeoForm supports multi-media files i.e. you can embed pictures, video clips and sound clips within a form. Media files associated with a form are stored as separate files. Browse to the file that needs to be uploaded. Click on **Upload**.

If you would like to download specific related media, click on the preview of the file. Media files will be downloaded to a mobile device with the associated form when selected for download by a user.

Click on the **Delete** button to remove the a specific multi-media file embedded in a form. Note: This action will only remove the multi-media and will not delete the form.

## 6.3 Publish a Form

Click on the Publish a Form tab to upload and publish forms to the server.

Form	Form Management				
Available For	ms Publish a Form				
Upload a XLS	Form. An example XLSform is available h	ere.			
Upload					
XLS File:	Choose File No file chosen				
Publish					

When you click on Choose File, a dialog box will open for you to select an XLS file to upload to the server. The system will validate the syntax of the form and give an error if there are syntax problems.

Form Management	
Successfully published Pest_Disease. Enter Web Form or Preview Web Form	×

A successfully published message will appear when the form has successfully been published to the server.

Once the form has been published, it will appear in the available forms list. You must then go to the form settings menu to:

- activate the form
- set permissions
- upload media files (if applicable)

## 6.4 XLS Forms

XLS Form is a standard form created to simplify the authoring of forms in Excel in a readable format. They are simple to get started with but also allow for complex XForms by someone familiar with the syntax. You need to understand how XLS Forms work, in order to create a form that can be used by the form management module. This manual covers the very basics of XLS Forms, for further information, visit <u>http://xlsform.org/</u>.

#### Basic Format

Each Excel workbook usually has three worksheets:

- survey
- choices
- settings

#### Survey sheet

This worksheet gives the form its overall structure and contains most of the content of the form. It contains the full list of questions and information about how they should appear in the form. Each row usually represents one question; however, there are certain other features described below that one can add to the form which enables the user to incorporate complex questions (tables, ranking questions).

The survey worksheet has 3 mandatory columns: **type**, **name**, and **label**. The type column specifies the type of entry you are adding. The name column specifies the unique variable name for that entry. No two entries can have the same name. The label column contains the actual text you see in the XLSForm.

A	В	С
type	name	label
begin group	structure_info	Structure Info
select_one structure	structure	Select Structure
text	structure_name	Structure Name

#### Choices sheet

This worksheet is used to specify the choices for multiple choice questions. Each row represents an answer choice. Answer choices with the same list name are considered part of a related set of choices and will appear together for a question. This also allows a set of choices to be reused for multiple questions (for example, yes/no questions).

The choices worksheet has 3 mandatory columns: **list name**, **name**, and **label**. The list name column lets you group together a set of related answer choices, i.e., answer choices that should appear together under a question. The name column specifies the unique variable name for that answer choice. The label column shows the answer choice exactly as one want it to appear on the form. This choices sheet corresponds to the survey sheet mentioned above.

A	B	U		
list_name	name	label		
bridge	general	General		
culvert	Culvert Major	Major		
culvert	Culvert Lesser	Lesser		
type	precast_portal_frame	Precast Portal Frame		
type	concrete_pipe	Concrete Pipe		
type	other	Other		
feature	river	River		
feature	railway line	Railway Line		
feature	road	Road		
feature	other	Other		
feature	canal	Canal		
structure	Bridge	Bridge		
structure	Culvert	Culvert		
structure	Retaining Wall	Retaining Wall		
yes_no	Y	Yes		
yes_no	N	No		
defect	Scouring	1. Scouring		
defect	Settlement of approach fill	2. Settlement of approach f		

Keep in mind that the syntax used must be precise. For example, if you write Choices or choice instead of choices, the form won't work.

#### Setting sheet

This worksheet allows one to further customize the form. An example of settings worksheet is below. The column headings in this example settings worksheet do the following:

A	В	C	D	E	F	G
form_title	form_id	is_moderate	db_table_name	db_name	use_app_label	db_schema_name
GeoRAMS Basic Bridge assessment	basic_bridge_assessment	yes	bridge_assessment	georams_xxxx	no	data

- **form_title** the title of the form that is shown to users. The form title is pulled from form_id if form_title is blank or missing.
- **form_id** the name used to identify the form submission. The form id is pulled from the XLS file name if form_id is blank or missing.
- **is_moderated** if yes, submissions made on this form will undergo a review process (data handler) prior to being committed to the database. If no, submissions will bypass the review process and be directly loaded in the database.
- **db_table_name** the name of the database table that will automatically be generated by the system when the form is published by the administrator for the first time.
- **db_name** this is the name of the existing database in which the above table will be created. To be provided by the database administrator
- db_schema_name only used for PostgresSQL database. Default must be set to data
- **use_app_label** used in labelling of tables. Must always be set to no.

#### Question types

XLS Form supports different data types that can be used to to develop a form for capturing data. Below are a few simple question types. These questions are used in the survey sheet of the XLS Form.

integer	Integer (i.e., whole number) input.
decimal	Decimal input.
text	Free text response.
string	Under this input words, numbers, decimals all are allowed.
select_one [options]	Multiple choice question; only one answer can be selected.
select_multiple [options]	Multiple choice question; multiple answers can be selected.
note	Display a note on the screen, takes no input.
date	Date input.
time	Time input.
today	Automatically captures date and time of the day of survey from android.

#### Numbers

Use the "Integer" type when the response to the question is a whole number i.e. 1,2,3 etc. Use the "Decimal" type for decimal numbers like 1,2. Use the "String" type if the response is both decimal and integer.

#### Multiple choice questions

The following multiple-choice questions are supported:

- select_one provide a list of choices but you can select only one answer
- **select_multiple** provide a list of choices but you can select multiple answers

With this type of question you need to specify the available options for that particular multiple choice question in the **choices** worksheet.

Here is an example of a **select_one** question:

A	B	C	D
type	name	label	appearance
select_one wall_defect	wall_defect	Defect name or type	minimal
select_one culvert_defect	culvert_defect	Defect name or type	minimal
text	defect_descr	Description and location of defect	a

A	В	C
list_name	name	label
culvert_defect	Scouring	4. Scouring
culvert_defect	Shrinkage and restraint cracks including AA	5. Shrinkage and restraint cracks including AAR
culvert_defect	Lack of cover to reinforcement	6. Lack of cover to reinforcement
culvert_defect	Flood debris accumulation	7. Flood debris accumulation
culvert_defect	Defective scour protection works	8. Defective scour protection works
culvert_defect	kerbs, berms and/or down chutes	9. kerbs, berms and/or down chutes
culvert_defect	Trees and vegetation	10. Trees and vegetation
culvert_defect	Siltation	11. Siltation
culvert_defect	Spalling	12. Spalling
culvert defect	Cracking	13. Cracking

Notes that "culvert_defect" in the survey sheet must match the "culvert_defect" in the list name column of the choices worksheet i.e. options written after **select_one** under survey sheet and list name under **choices** sheet both must be same. This ensures that the form displays the correct list of answer choices for a particular question.

#### Display of a note

Use the "note" type if you would like to display text to the user and don't need a response.

type	name	label
end group		
begin group	defects_landing	
note	bridge_photo	Bridge Defects

#### Grouping questions

If multiple questions are related to one particular category, then you can add them to a group, for example:

Δ	D	U U	
type	name	label	
begin group	bridge_info	Bridges	
begin group	bridge_info_basic	Basic Bridge Info	
select_one bridge	bridge_type	Select Bridge type	
integer 🗘	spans	No. of Spans	
select_one feature	feat_crossed	Feature Crossed	
text	feat_name_id	Feature Name/ID	
text	bridge_comment	Comment	
end group			
end group			

Make sure that each group has a "begin group" and "end group" statement.

#### 6.4.1 XLS Forms Functions

There are additional functions in the XLS Form that can determine aspects such as; how the information in the form is presented, form logic, calculations, constraints etc.

## Hints

If you want to add an instruction or hint in a form to guide the user in answering the question you can use the "hint" column. In the example below, the hint provides more information about what is required by the user.

A	В	C	D	
type	name	label	appearance	hint
text	inspect_type	Inspection Type		
text	assessor	Inspector Name		
date	measure_date	Inspection Date		
text	road_id	Road_ID		
text	munic	Local Municipality		
geopoint	the_geom	Location		
select_one orient	orientation	Structure Orientation	minimal	
decimal	length	Overall Length (m)		
decimal	width	Overall Width (m)		
decimal	cell_length	Cell Length (m)		
decimal	height_fill	Height Fill (m)		
decimal	height	Min height (m)		Road-over-road Structures only
date	year_construct	Year Constructed	year	
photo	photo aprch	Photo	annotate	Angle: Approach
text	photo desc aprch	Comment		
photo	photo side1	Photo	annotate	Angle: Side 1
text	photo desc side1	Comment		
photo	photo side2	Photo	annotate	Angle: Side 2
text	photo_desc_side2	Comment		
photo	photo side3	Photo	annotate	Angle: Other
tout	photo dece oide?	Commont		

#### Skip logic

It is possible to skip a group of questions based on the result of the selection made by the user from a select one question, by using a function (in the case the "relevant" function). In the example below, the result of the selection is tested and the group of questions only processed if the result is true.

type	name	label	appearance	relevant	required
select_one wall	wall_type	Select Retaining Wa	Select Retaining Wall type		
vecimal	max_height	Maximum height			
decimal	area	Total area of wall in	elevation (m2)		
text	wall_comment	Comment			
end group					
end group					
begin group	culvert info	Culverts		\${structure}='culvert'	
begin group	culverts	Culvert Info	field-list		
select_one culvert	struct_class	Select Structure Class compact-2			
select_one type	culvert_type	Select Culvert type			
text	culvert_comment	Comment			
end group					
end group					
begin group	defects landing			\${structure}=	'bridge'
note	bridge photo	Bridge Defects			
end aroun			1	1	

If the user selects "culvert" on the question "What type of structure", the "bridge" group is skipped.

## Required

The "required" column is used to restrict the user from moving to next question if he/she tries to skip any question. If required is set to "yes", the user will be unable to move on to the next question or submit the form without entering an answer for that question.

#### Appearance

The "appearance" column allows you to change the appearance of questions in the form. The following table lists the possible appearance attributes and how the question appears in the form.

Appearance attribute	Question type	Description
Minimal	<pre>select_one, select_multiple</pre>	Answer choices appear in a pull- down menu.
field-list	Groups	Entire group of questions appear on one screen (for mobile clients only).

# 7. DATA MANAGEMENT

The Data Reviewer is a function build into the system for approving data submissions that comes in from GeoForm data capturing. The Data Handler lists the forms that's available for data capture and indicated and highlighted in blue are the number of submissions that needs to be reviewed.

## 7.1 Data Handler



Click on the blue button next to each form. This wil give a list of the submissions, indicating the person that did the survey and also the data it was submitted. Click on each item individually to aprove the submission.



- GeoRAMS Basic Bridge assessment 3 submission(s)					
+ Submission from	+ Submission from Glenn on 2018-10-08 11:27:48.281494 New Feature 3574				
- Submission from	m Glenn on 2018-10-08 14:33:57.090787 New Feature 21345CD				
Reject	Submission Value	Current Value	Previous Value	Approve Override Value	
Structure	Culvert	New feature	No previous value		
Structure_Name	Test	New feature	No previous value		
Inspect_Type	Basic	New feature	No previous value		
Assessor	NickTest	New feature	No previous value		
Measure_Date	2018-10-08	New feature	No previous value		
Road_Id	21345CD	New feature	No previous value		
Munic	Gdjhwuvjwg	New feature	No previous value		
The_Geom	SRID=4326;POINT (27.5746854867678870 -28.6021916466831634)	New feature	No previous value		
Orientation	E/W	New feature	No previous value	Ağtivate Go to Setti	

Field = column name in the database

**Submission Value** = The information submitted/captured in the form.

**Current value** = This will be the value if it already exists in the database. For new captured data it will show "New Feature".

**Previous Value** = If it is an existing record in the database and has a previous value, it will be shown here.

**Overide Value** = This is the space where you can overide values, if you don't agree with the data that was captured.

- GeoRAMS RNI 4 submission(s)					
- Submission from Te	am1 on 2018-10-03 15:29:09.238211 Update	to road_network_inventory feature = GSDM44140 id = 138	8952		
Reject				Approve	
Field	Submission Value	Current Value	Previous Value	Override Value	
Road_Id	GSDM44140	GSDM44140	No previous value		
Rcam_Class	U1	R5	No previous value	<u>R4</u>	
Terr_Class	R <b>0</b>		No previous value		
No_Lanes	2.000000000 0		No		

Click on Approve (right hand side of the window) to accept the data and this will then be loaded into the database.

Click on Reject (left hand side of the window) if you don't want the data to be loaded into the database.

# 5. REFERENCES

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