

Request for the formation of a Digital WG,

Initial focus on the Use of Drones and Drone-Based Technology in Road Projects

Richard Matchett (PFEng)
Digital Lead - Africa



Engineering | Digital Disruption

"All companies fit into one of two buckets: either becoming a software company or being disrupted by one. Every industry is being fundamentally altered by software."

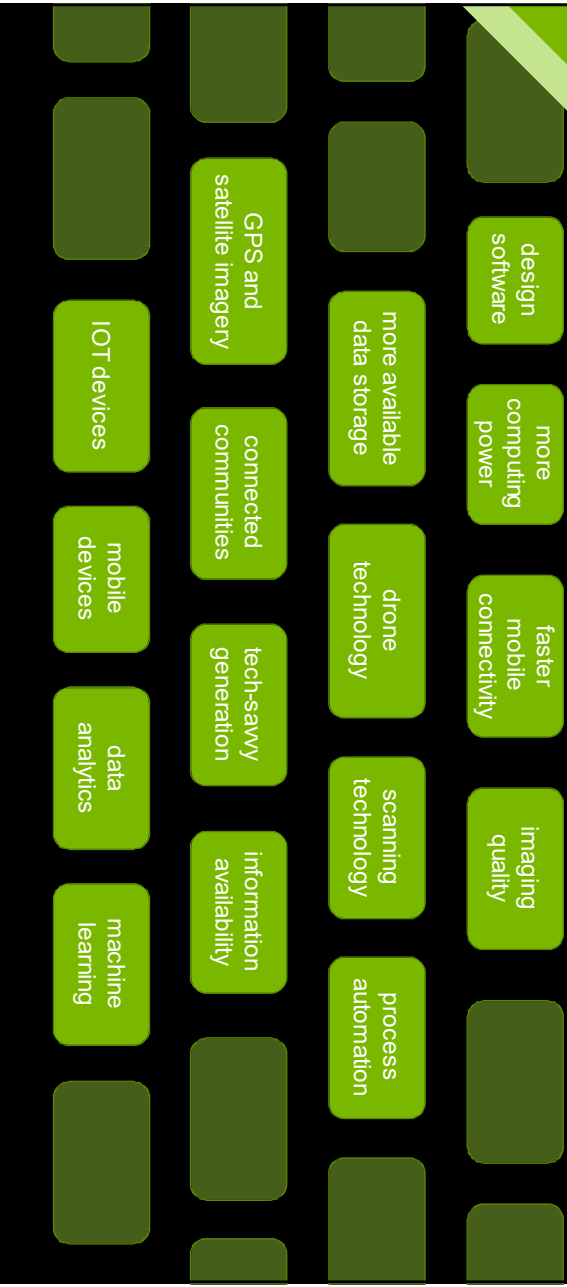
Mike Cannon-Brooks | Founder, Atlassian

"Digital is the main reason just over half of the companies on the Fortune 500 have disappeared since the year 2000."

Pierre Nanterme | CEO, Accenture

"Every industry is being fundamentally altered by software"
... and technology

Engineering | What is “Digital”



Evolution of CAD | Drafting and design pre 1990s



Evolution of CAD | Automation of the drawing board



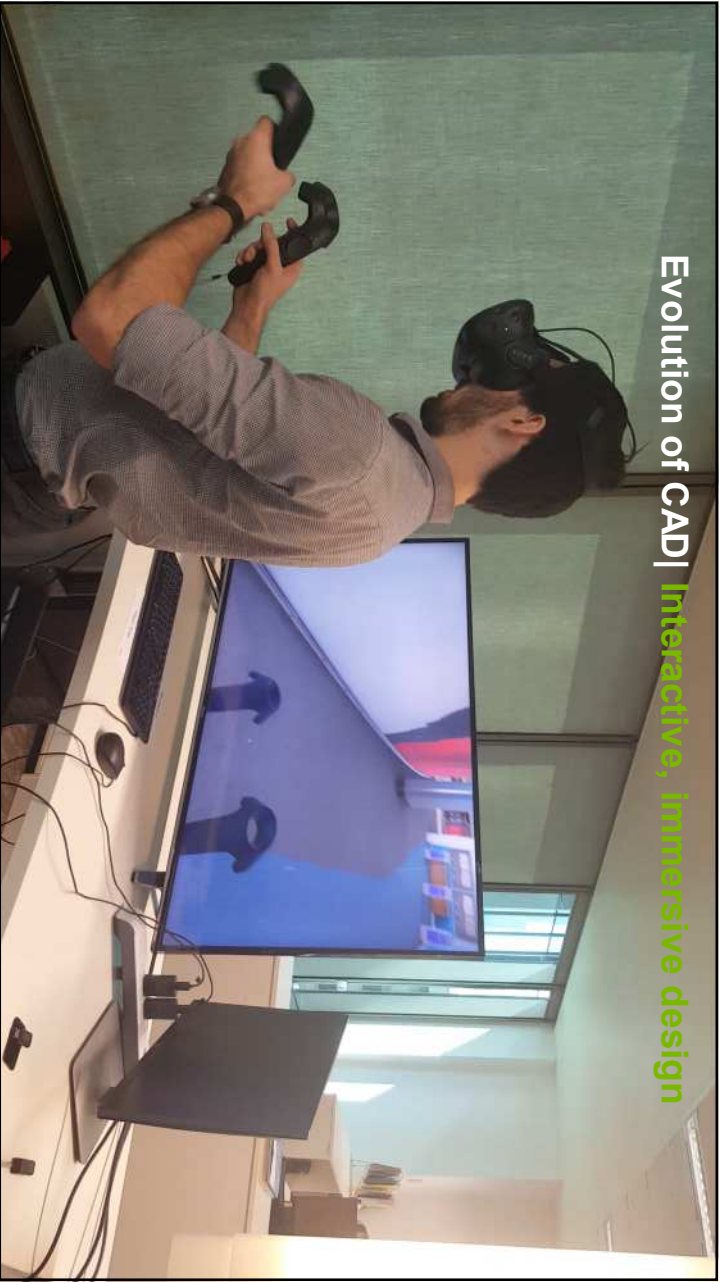
Essentially the same thing, just not on paper with pens, rulers and stencils!

Computers made drafting and tracing easier and more efficient, but didn't change the basic principle of creating **DRAWINGS**



So what is next? What is our **Future Ready** Aspiration?

Evolution of CAD | **Interactive, Immersive design**





Engineering | What is being affected by “digital”?

How we

gather

- generate
- organise
- use
- share
- store
- retrieve
- ...

information

Digital WG | Focus Areas



Drones – data capture,
mapping and records

Laser scanning – static,
mobile and SLAM

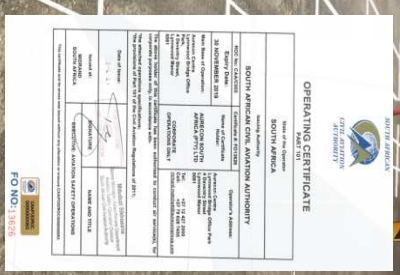
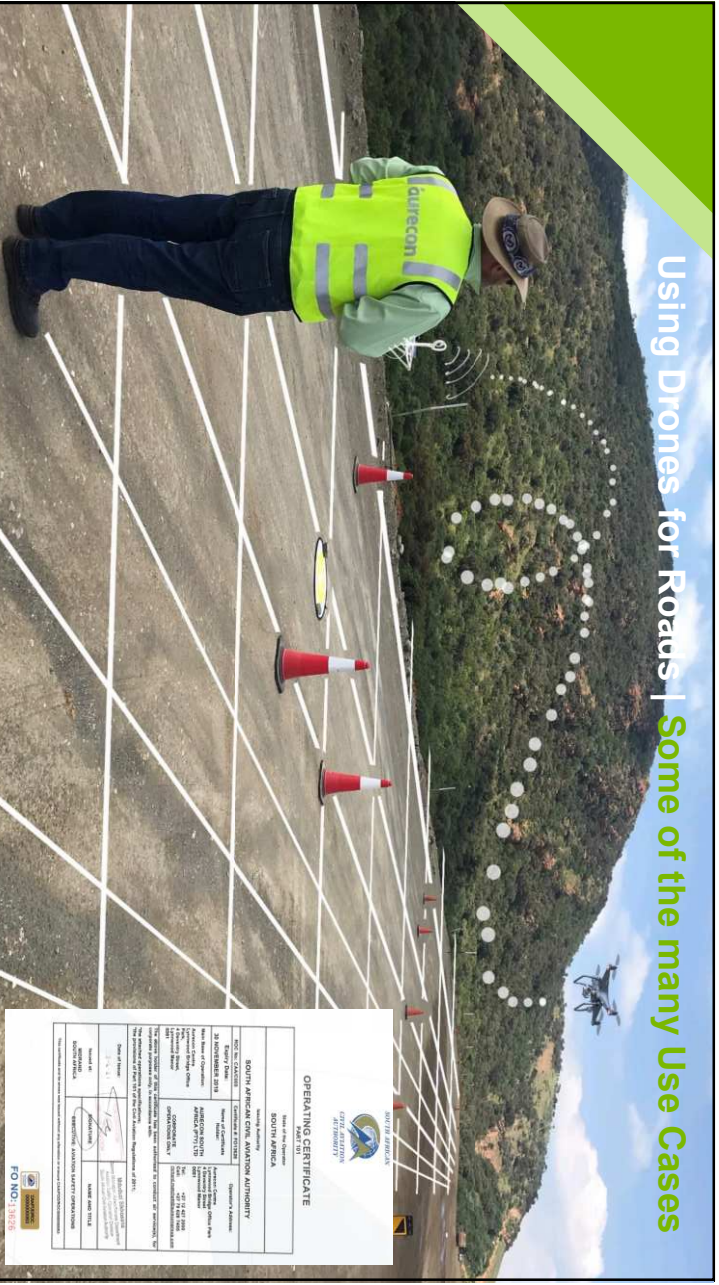
IOT devices – real time data collection
for optimisation



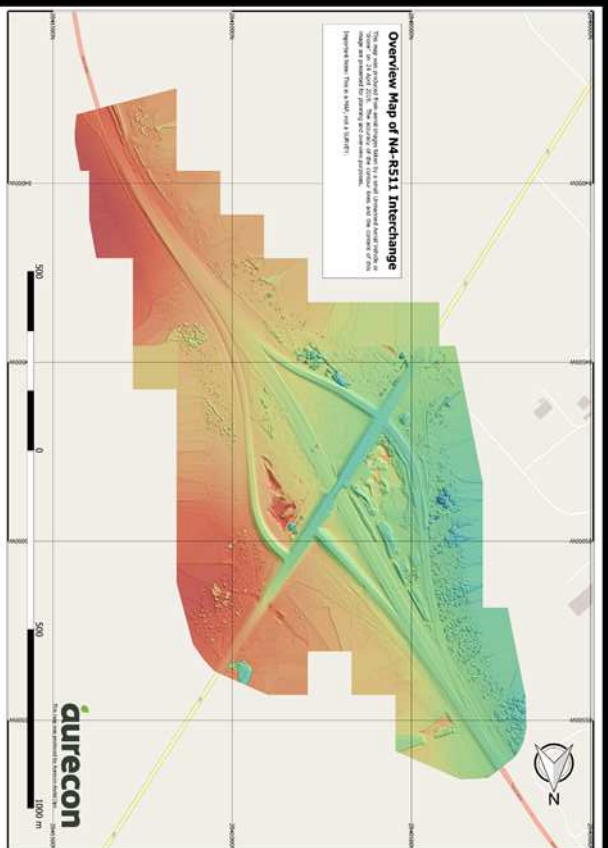
Mobile data capture – using
the smart phone as a
computing device



Using Drones for Roads | Some of the many Use Cases



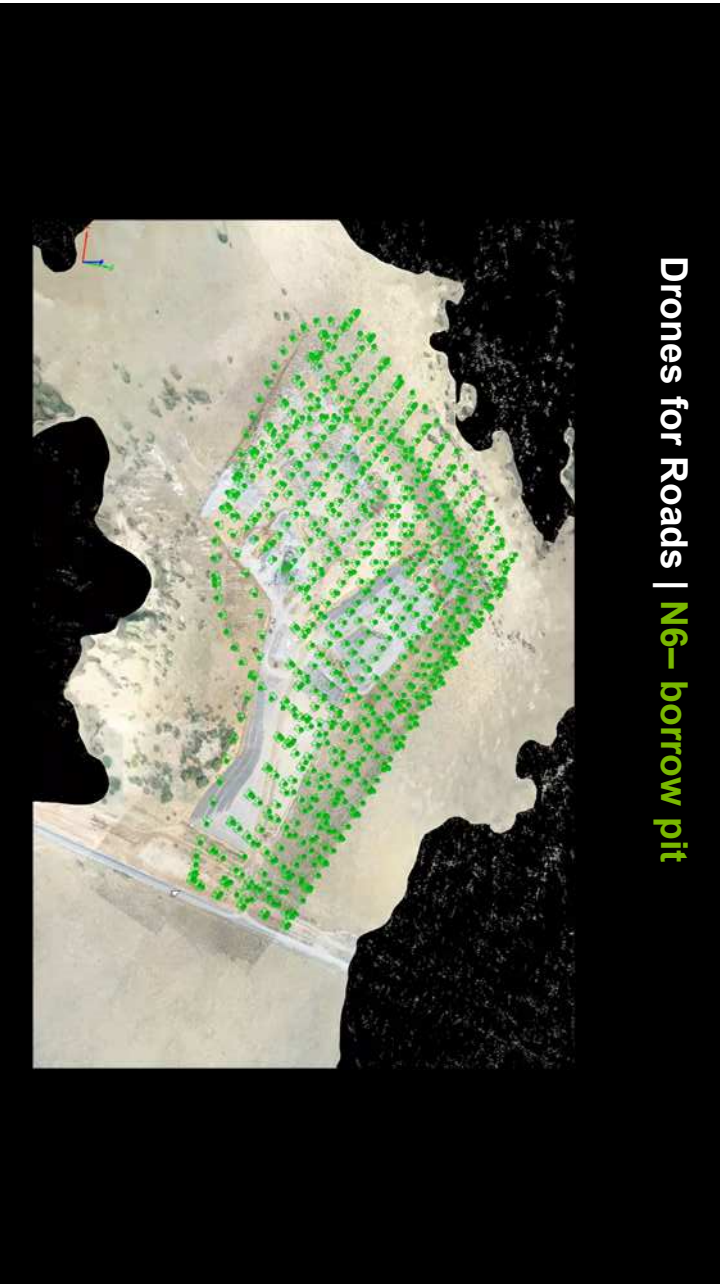
Drones for Roads | Bakwena N4-R511



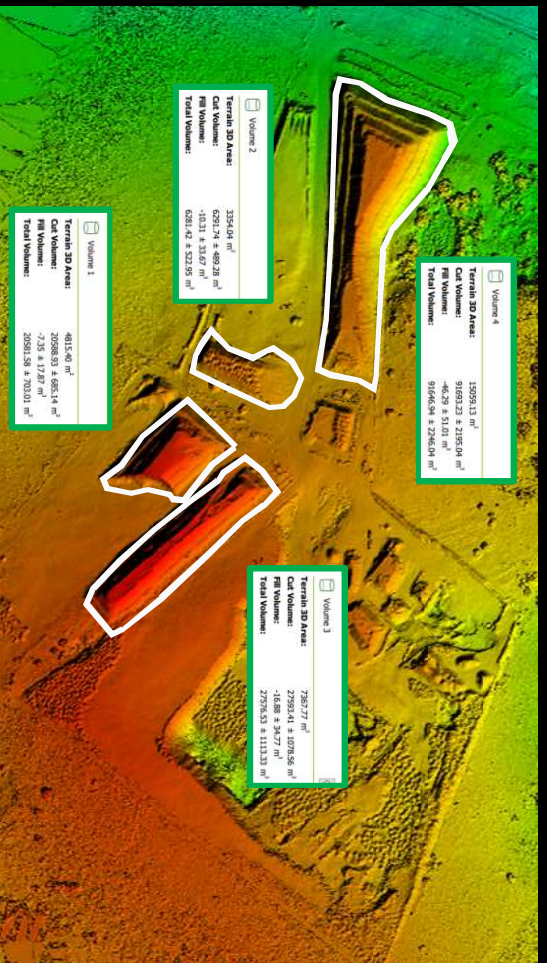
Drones for Roads | N6 – borrow pit



Drones for Roads | N6- borrow pit



Drones for Roads | N6- borrow pit volumes



Drones for Roads | N6- Caledon River Bridge



Drones for Roads | N6 – Cutting Investigation



Drones for Roads | Cato Ridge



Drones for Roads | Bakwena Crocodile River Bridge

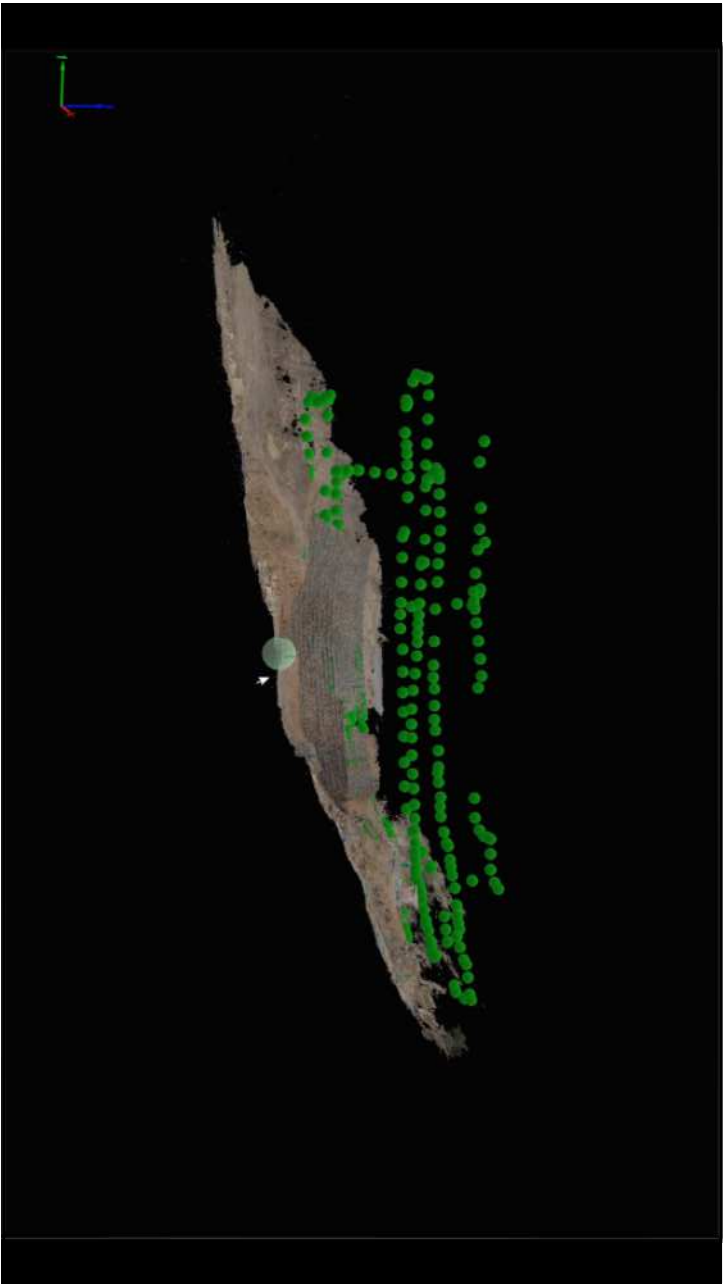
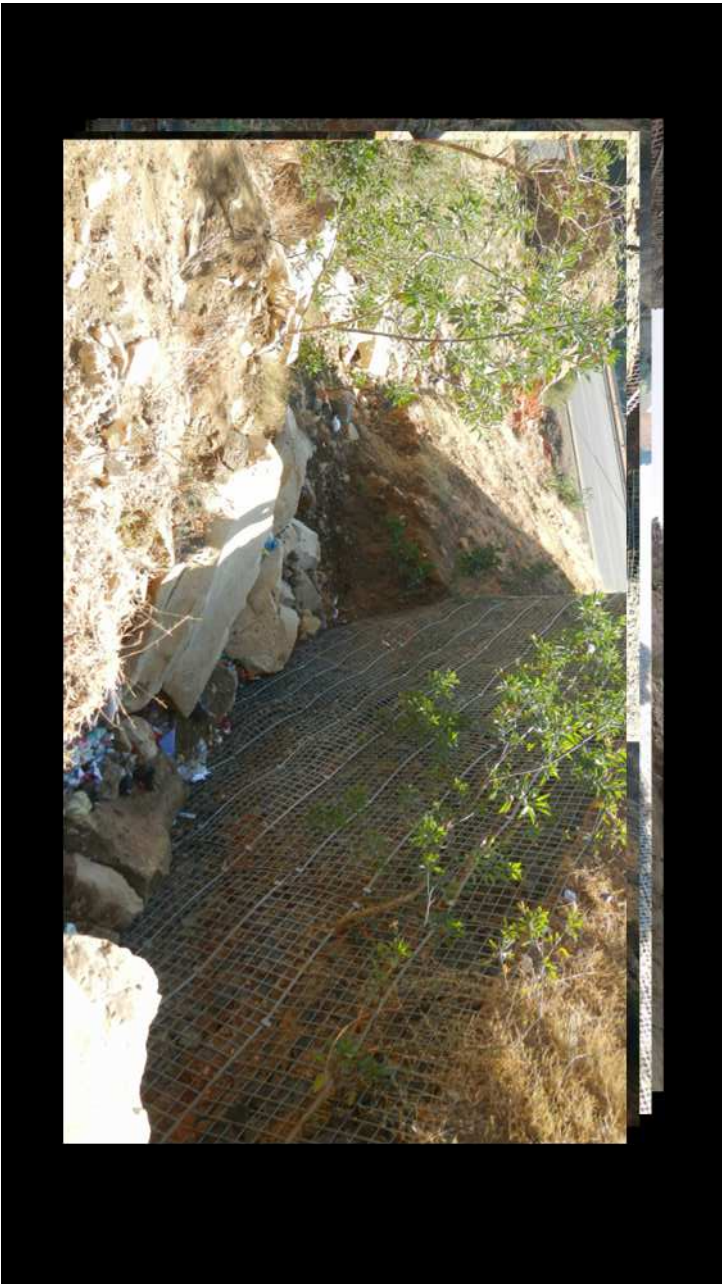


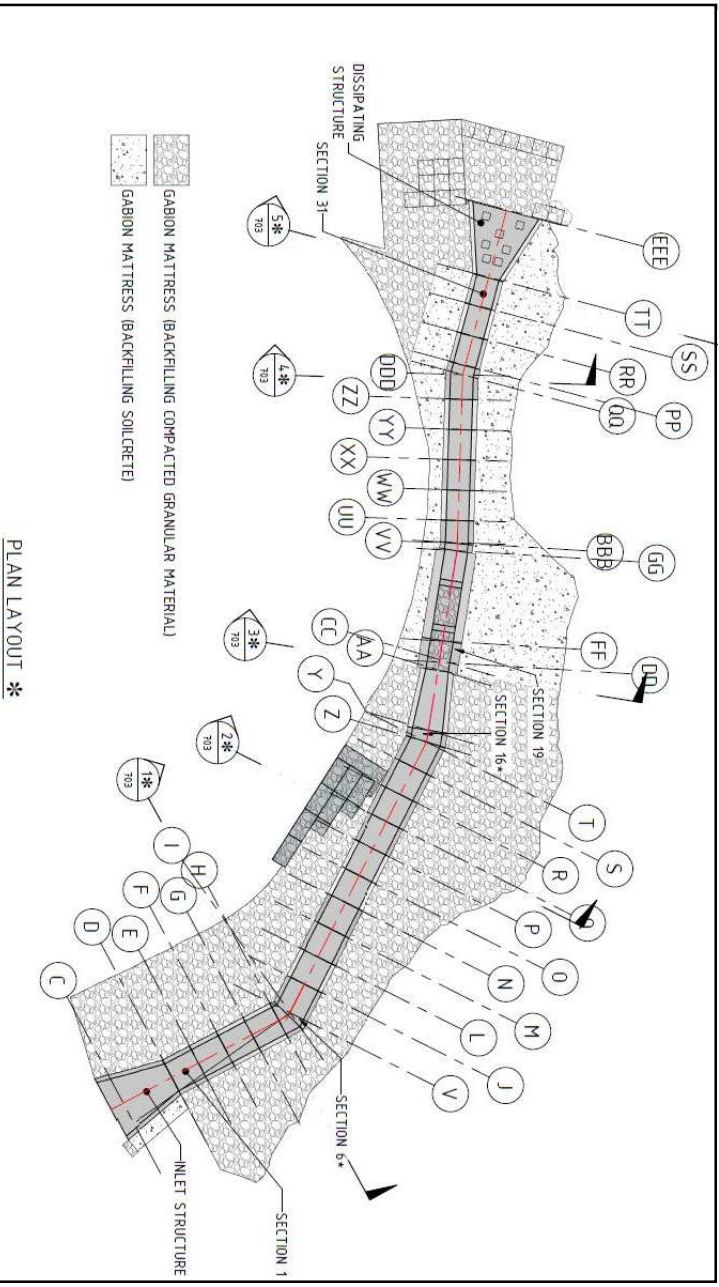
Drones for Roads | Bakwena Crocodile River Bridge



Drones for Roads | Bakwena Crocodile River Bridge

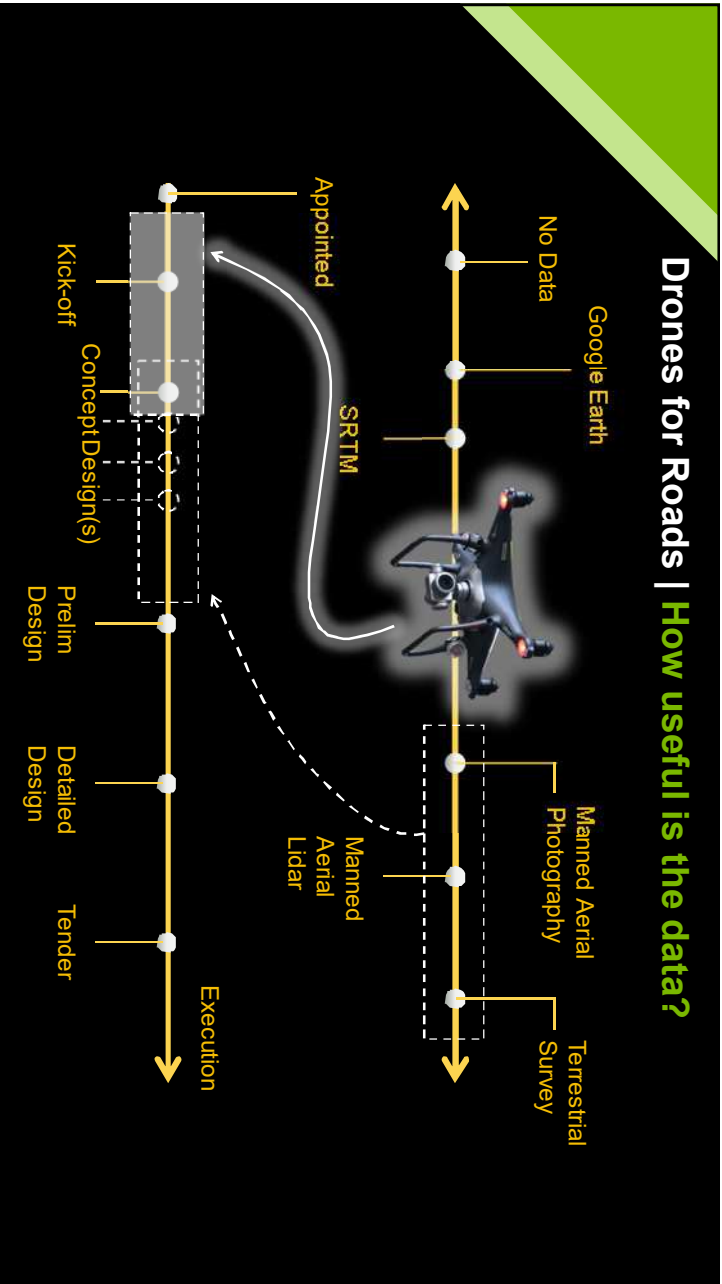






PLAN LAYOUT *





Engineering | What does not change?

The Digital Age / 4IR doesn't change the fundamentals of engineering,

it changes the way we do those basics...

and how much we can do.

RPF - Digital WG | What we propose

Establish a Digital Working Group; initial focus on Drones and Drone-Based Technology



Collect use cases (and lessons learned) from RSA and abroad;



Develop best practise guidelines for applying digital approaches to roads-related projects;



Consider changes to existing technical standards and specifications to include the use of digital technologies data;



Represent the roads sector at aviation forums and regulatory working groups;



Represent the roads sector at broader technology forums.

RPF - Drones WG | Representation

The WG should have representation from:



Government Departments



Academia



Contractors



Consultants



Associated Specialists



Suppliers



richard.matchett@auerecongroup.com