SASTEP – The EarthAuger

Lessons learned from the EarthAuger demonstration in the South African Sanitation Technology Demonstration Programme

20 February 2017

SASTEP – Aims

- Determine the performance and acceptability of new sanitation technologies in South Africa, through demonstration.
- Support commercialisation and uptake of technologies appropriate for South Africa.
- Bilateral partnership between Gates & DST
- Implementing agent: WRC





SASTEP – Scope

Deliverable Clusters:

- Selection of technologies
- Selection of municipalities & demonstration sites
- Implementation
- Demonstration
- Dissemination
- Localisation Support





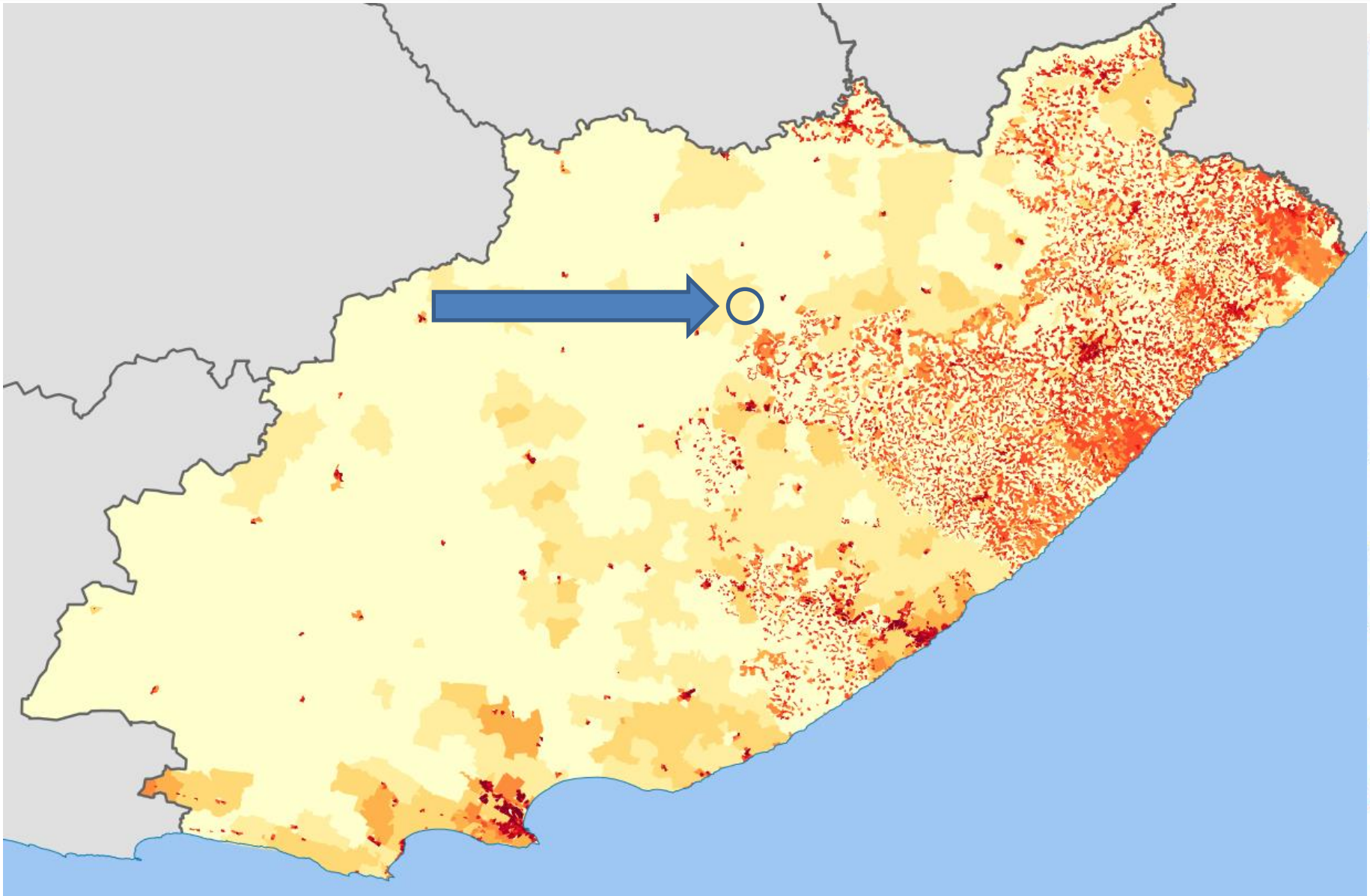
Site Selection

- Chris Hani District Municipality

- Ida, Eastern Cape
  - Rural
  - Isolated
  - Low income
  - Agricultural community
  - No service delivery

Site Selection

Site Selection



Contractor Selection

- Tender Process

- Awarded: Kukho Consulting Engineers
  - Local BEE company
  - First on-site sanitation project
  - First ‘large’ project
  - Capacitation required





Superstructure Supplier Selection

ROCLA
OUR DIFFERENCE IS CONCRETE

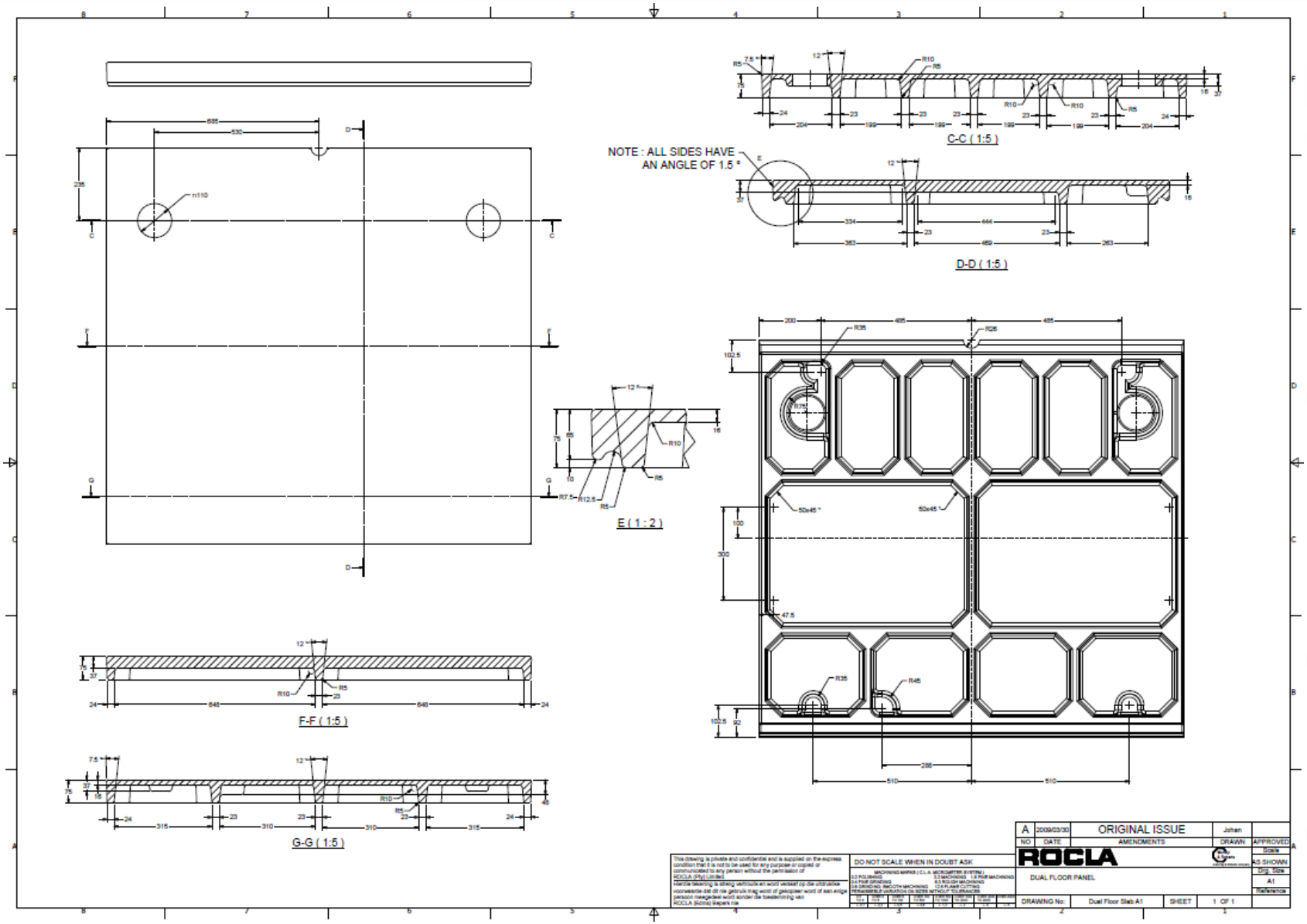
Prefabricated

- Available immediately
- Available in larger sizes
- More costly
- Factory built
- Community assembled

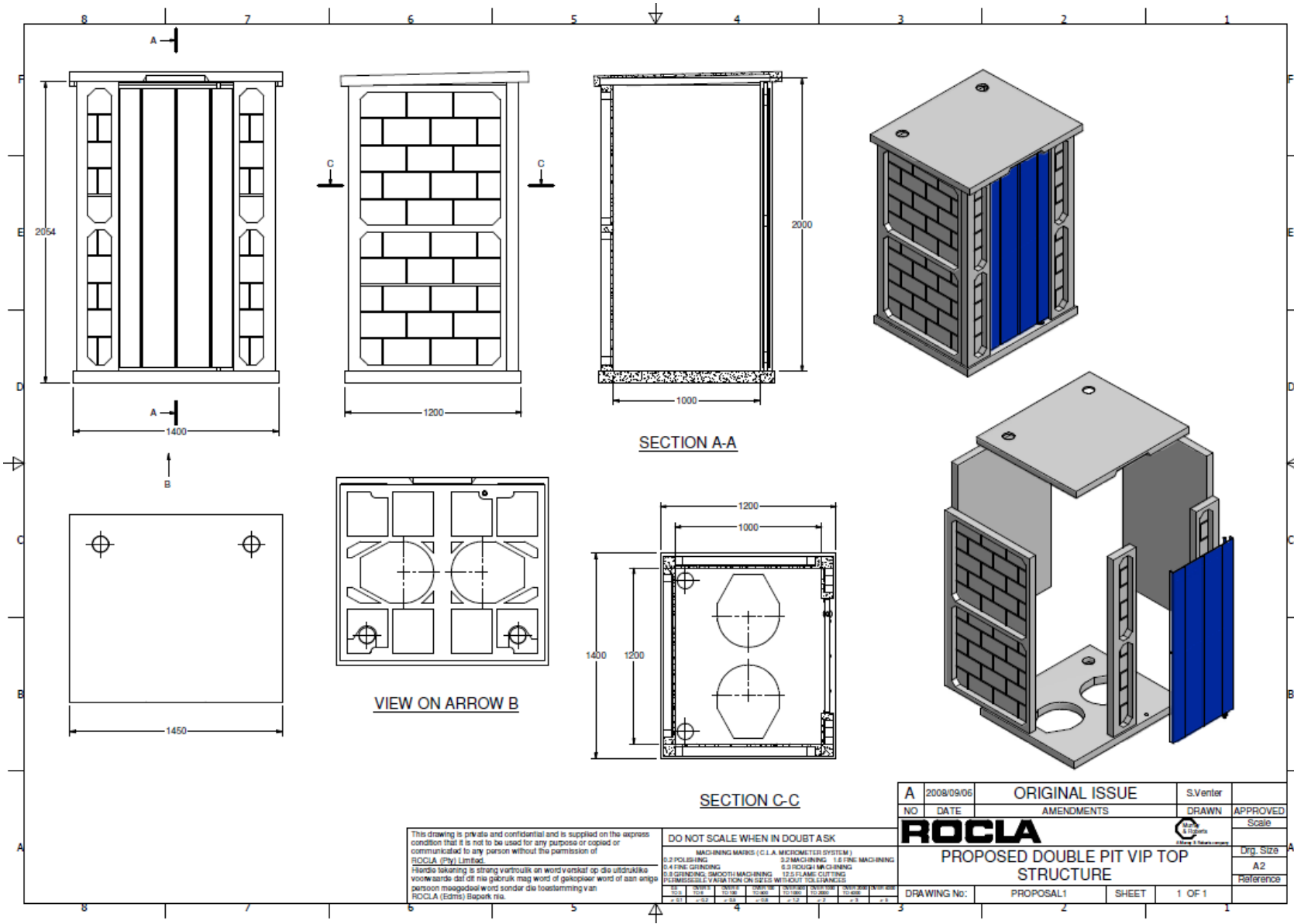
Community Built

- Availability uncertain
- Available in std. sizes
- Less costly
- Community built
- Community assembled

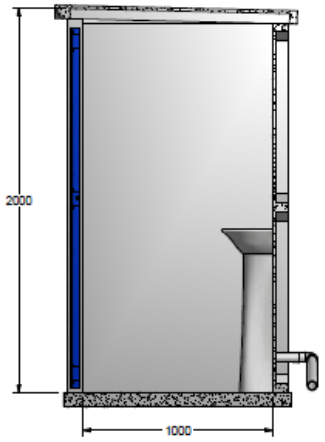
Superstructure Design



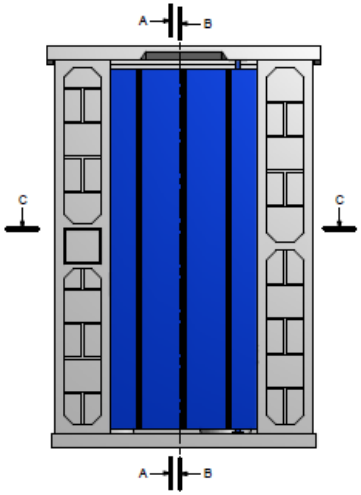
Superstructure Design



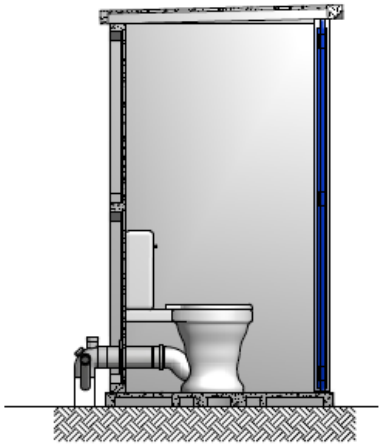
Superstructure Design



SECTION B-B
SCALE (1 : 15)



FRONT VIEW
SCALE (1 : 15)



SECTION A-A
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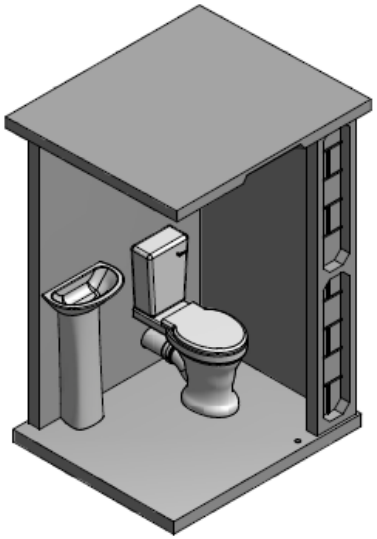

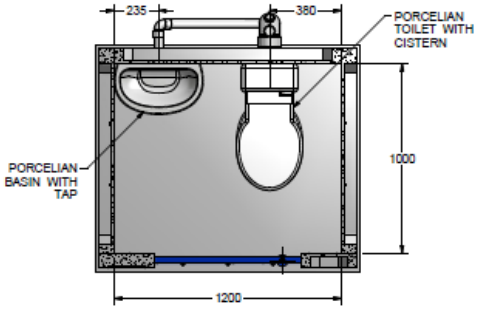

SECTION C-C
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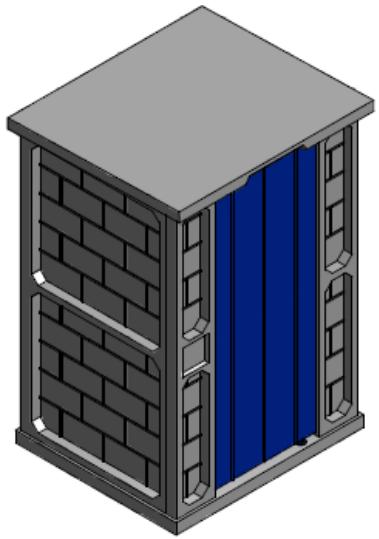

NO	DATE	AMENDMENTS	DRAWN	CHECKED	APPROVED
A	2014/03/20	ORIGINAL ISSUE	S. Venter		

DO NOT SCALE WHEN IN DOUBT ASK

MACHINING MARKS (C.L.A. MICROMETER SYSTEM)
0.2 POLISHING 3.2 MACHINING 1.6 FINE MACHINING
0.4 FINE GRINDING 6.3 ROUGH MACHINING
0.8 GRINDING: SMOOTH MACHINING 12.5 FLAME CUTTING
PERMISSIBLE VARIATION ON SIZES WITHOUT TOLERANCES

OVER	TO	OVER	TO	OVER	TO	OVER	TO	OVER	TO	OVER	TO	OVER	TO	OVER	TO
0.5	10.0	OVER 3	TO 6	OVER 6	TO 30	OVER 30	TO 120	OVER 120	TO 400	OVER 400	TO 1000	OVER 1000	TO 3000	OVER 3000	TO 4000	OVER 4000	
± 0.1		± 0.2		± 0.3		± 0.5		± 0.8		± 1.2		± 2		± 3		± 4	

ROCLA

PANEL TOILET WITH PORCELAIN TOILET AND BASIN

Scale	
Drg. Size	A2
Reference	

DRAWING No: EA09451AD1 SHEET 1 OF 1

Superstructure Design

Social Facilitation

- Partnered with Chris Hani DM (local government)
  - ISD Specialists
- Facilitation during design phase
- ‘Illusion’ of choice
- Intensive training and follow-ups
- Contracted items with contractors
  - Community meetings
  - Local employment
  - Conduct





Social Facilitation

Implementation

Faecal Sludge Management

- Assembly
- Construction
- Social Facilitation
- Project Management
- Transportation
- Security

Implementation

Implementation

Implementation

Implementation

Implementation

Implementation

Implementation Environment:

- Households: 198
  - Standalone: 154
  - Clustered: 41
  - Communal: 3
- Schools: 2





User Behaviour

Perceptions and Location:

- Initially 30m + from household
  - Some over 150m
- Typically next to old VIPInitially 30m +
  - Some over 150m
  - Typically next to old VIP
- Gradual acceptance to locating units closer
- Willingness to relocate unit post-installation





User Behaviour

Compost (Faecal Sludge) Management:

- Subsistance farming (Own use)
- Sold to farmers
- Given to farmers
- Sold to community
- “I thought that was your job…”





User Behaviour – Ownership

- Painting/personalisation of superstructure
- Because "…it can't be stolen."
- "This one is mine."
- Two recorded cases

Project Cost per EarthAuger

EarthAuger	$ 150
Importing + Forwarding	$ 77
Superstructure	$ 400
Assembly	$ 0
Installation	$ 352
Training	$ 14
Total	**$ 1 070**

Takeaways

- Larger superstructures = greater satisfaction
- Incorporation of handwashing = 👍
- Urinals aided urine diversion
- Ownership sparked through contextually appropriate designs that make sense.
- Localisation saw quick uptake





Takeaways

- Continuous social facilitation <u>from the start</u>
  - Strong plan with specialised ISD partner
  - Community involved in decision on technology
  - Transparent structure for coms with team
  - Contractor – contracted obligations
  - Local employment





With Thanks!

Funders:

BILL & MELINDA GATES foundation

science & technology
Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

Partners:

CHRIS HANI DISTRICT MUNICIPALITY
SUSTAINING GROWTH THROUGH OUR PEOPLE

KCE KUKHO Consulting Engineers

EARTHAUGER

TLIU TECHNOLOGY LOCALISATION IMPLEMENTATION UNIT

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