

Working Session 2: **Initial Registration of 3D Parcels**

Chair - Rod Thompson

Scribe - Theo Tijssen

Representation

- Korea
- Argentina
- Trinidad and Tobago
- Israel
- Latvia
- Sweden
- Denmark
- The Netherlands
- Australia

Presentation

- : “3 Dimensional Property Rights in Denmark;
3D Property Design and Registration is
Working - Visualization not”

Esben Munk Sørensen

Observation

- Cases or situations of (initial) registration of 3D parcels/properties were compared between countries, based on the experience of the participants.
- In most countries the process of registration shares some comparable steps and procedures, but at the same time many 'local', sometimes subtle, variations exist.
- Difficult to draw general conclusions or to propose 'final' solutions for initial registration.
- Day 1: difficulties and/or problems encountered
- Day 2: attention is paid to solutions.

Terminology

- The meaning of terms like parcel, lot, property not well defined. In an attempt to alleviate some of the confusion the ISO-LADM model uses the neutral (“vague”) terms such as spatial unit
- Part of the LADM model is a kind of dictionary to explain the clear and unambiguous meaning of terms.

Key issues

- To what extent should a link exist between (property) rights and physical objects? (“right before building”):
- Normally a property must exist (be registered) before one can get e.g. a mortgage.
- In Australia (Queensland) the increasing use of ‘volumetric descriptions’ as opposed to ‘building plans’ appears to be mainly a local phenomenon.

Key issues

- Relationship between 2D (surface) parcels and 3D properties/parcels above or below:
- In some jurisdictions the 3D 'objects' are split up (con: expensive; pro: better defined).
- In others the 3D objects remain a single entity (possibly with easements attached to the 2D parcels).

Scope

- What are the 'limits' of the (cadastral) registration system – are water, mineral, wind, etc. rights separated from land rights?
- Because of the nature (relative, more dynamic) the 'other' types of rights are often treated separately from the land/property rights.
- Outside the scope of this working session (restricted to 3D parcels/properties).

Questions

- Is initial registration of 3D parcels different from 2D?
- In most countries 3D parcels always have a relationship with surface parcels. In rare cases (e.g. Queensland, Australia) the registration of 3D is identical to the 2D situation.

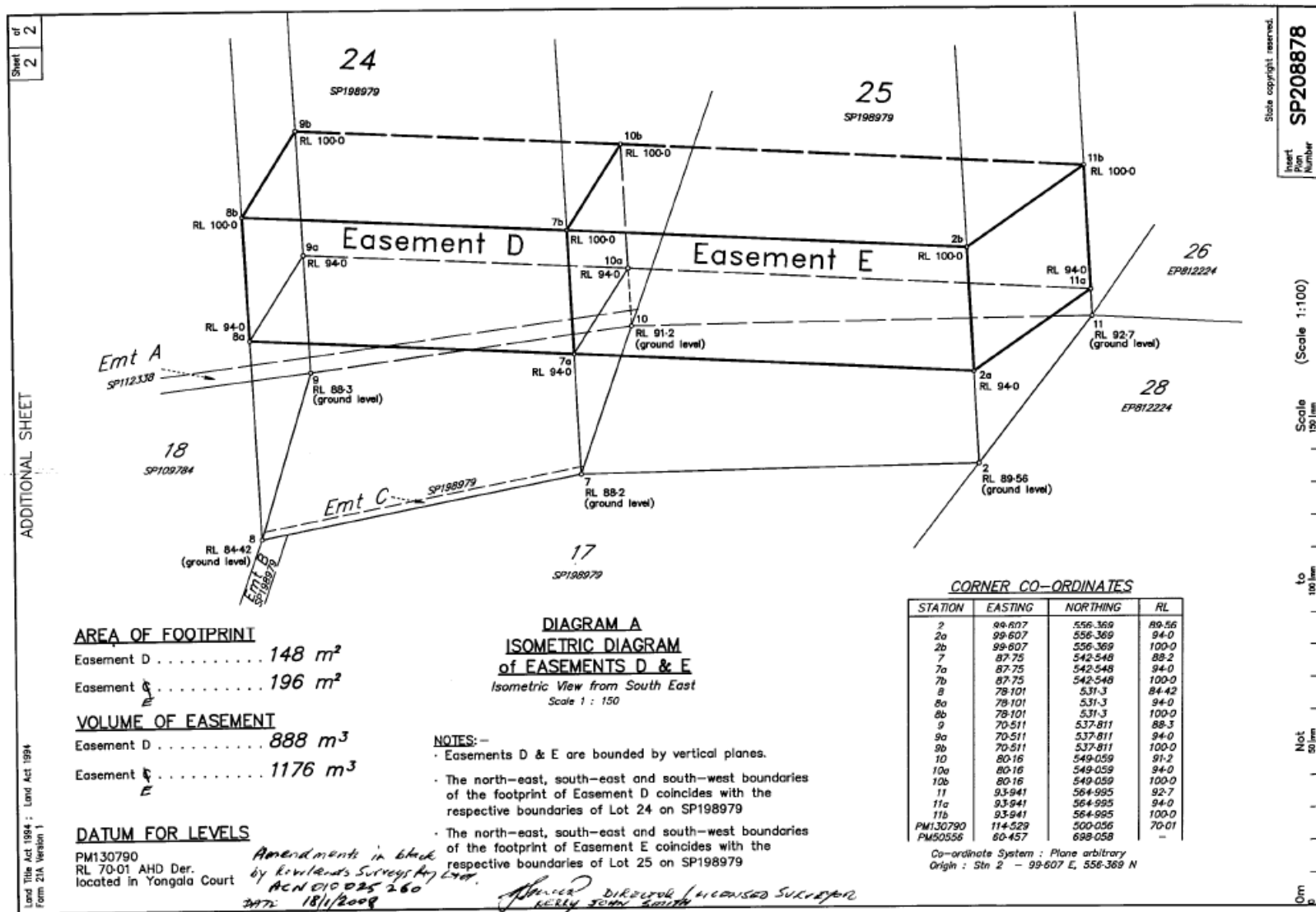
Building Information Models

- Can building models be used? (to supplement / become 3D parcel complexes)
- Participants can see possibilities to use the building models to do this and some experiments to investigate the feasibility are taking place.
- The process is not likely to become fully automatic. Responsible parties (e.g. surveyors) should be involved and be aware of changes ('as built' compared to the plans) and take appropriate actions.
- Validation of plans is problematic, often restricted to visual and 'calculator-based' checks.

Secondary interests

- How do secondary interests transfer from existing parcels to new 3D parcels?
- Practice in various countries differs, related to the question whether 3D parcels/properties are or are not linked to surface parcels.

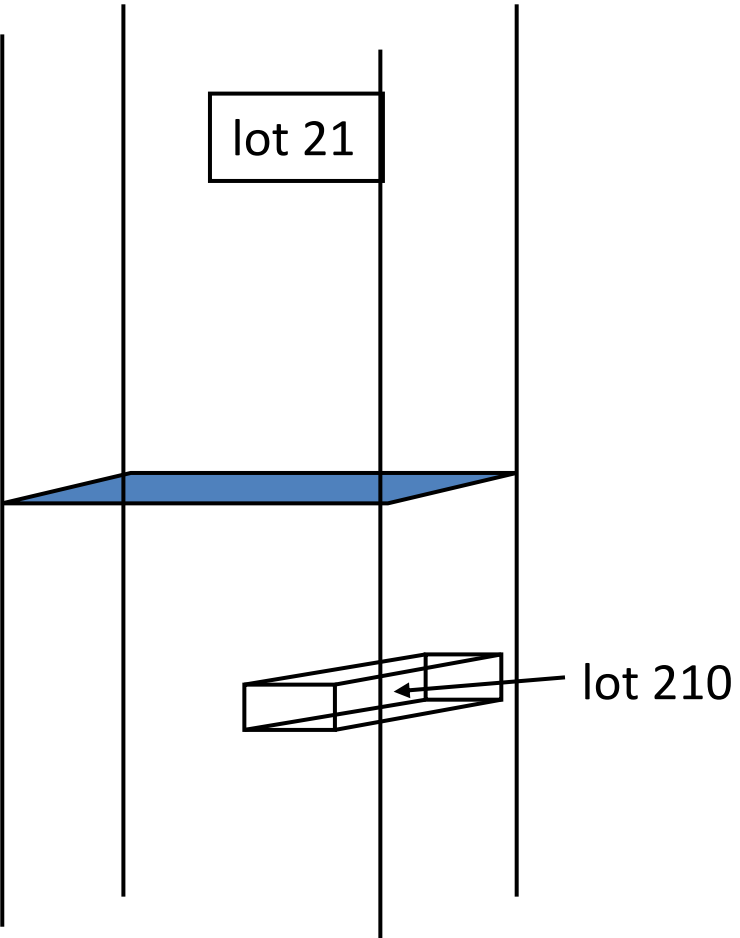
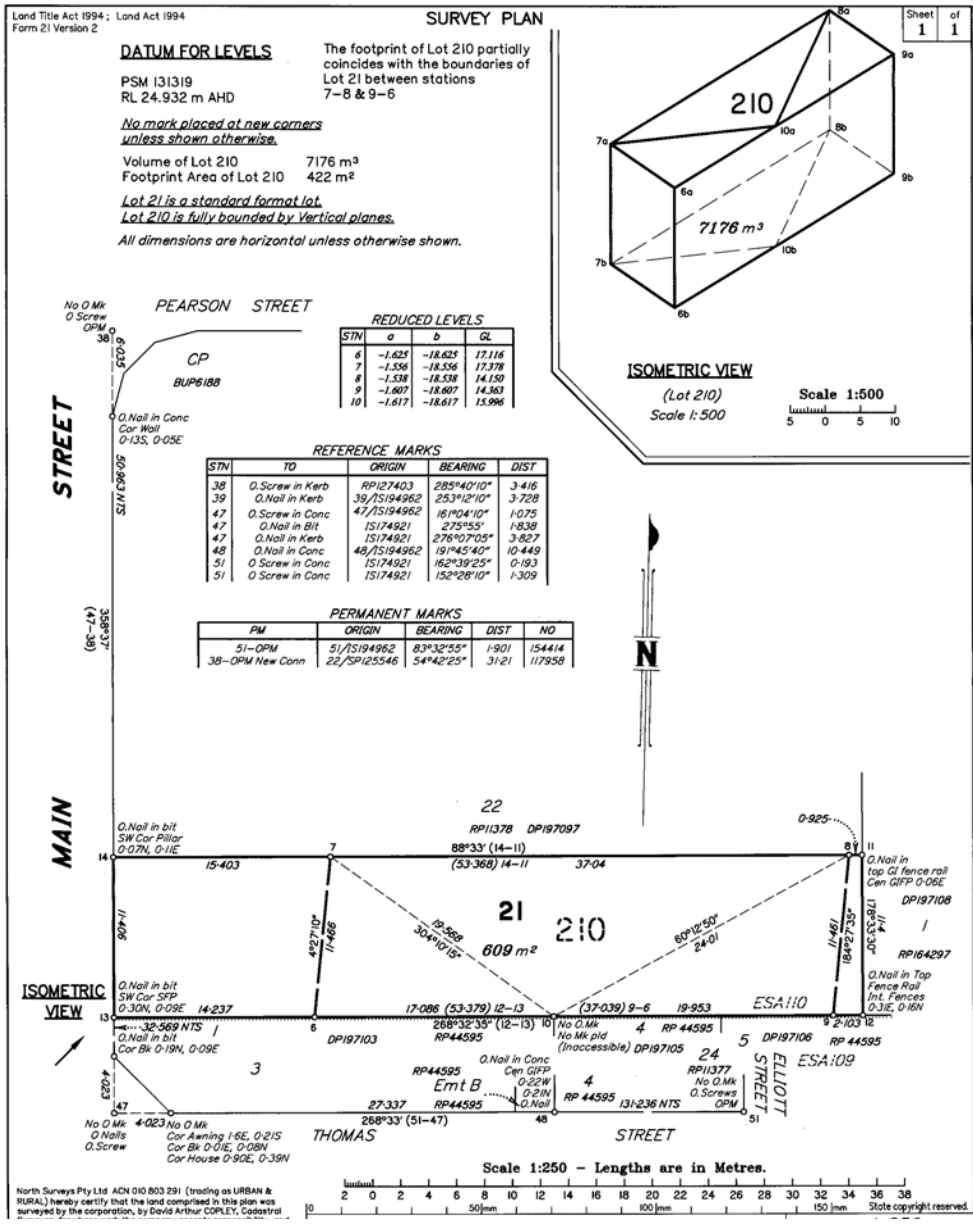
3D Easement on a 2D Lot



2D / 3D Dealings

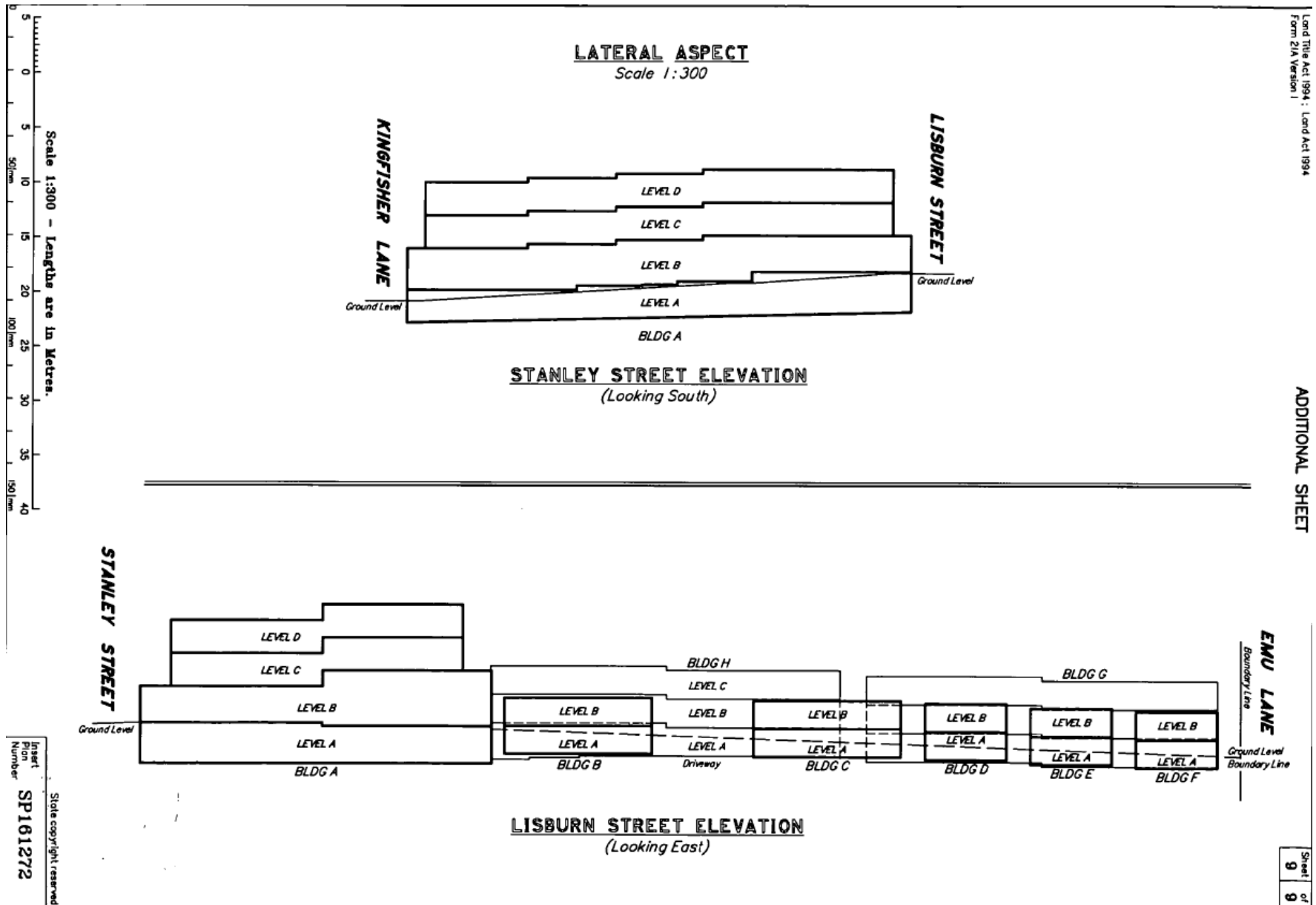
- Is the owner of a 2D parcel inconvenienced or restricted in future dealings due to (say) a tunnel below his property?
- Normally servitudes show up (or can be made visible by combining data sources) in the cadastral map.
- A complicating factor is the difference in accuracy between the 2D maps and the usually quite inaccurate location (in absolute terms) of constructions below the surface.

Excision of a 3D Lot



- Any conversion proposed between building format plans and 3D metes and bounds?
- Not very relevant (Queensland, Australia excepted).

2D Parcel subdivided in 3D

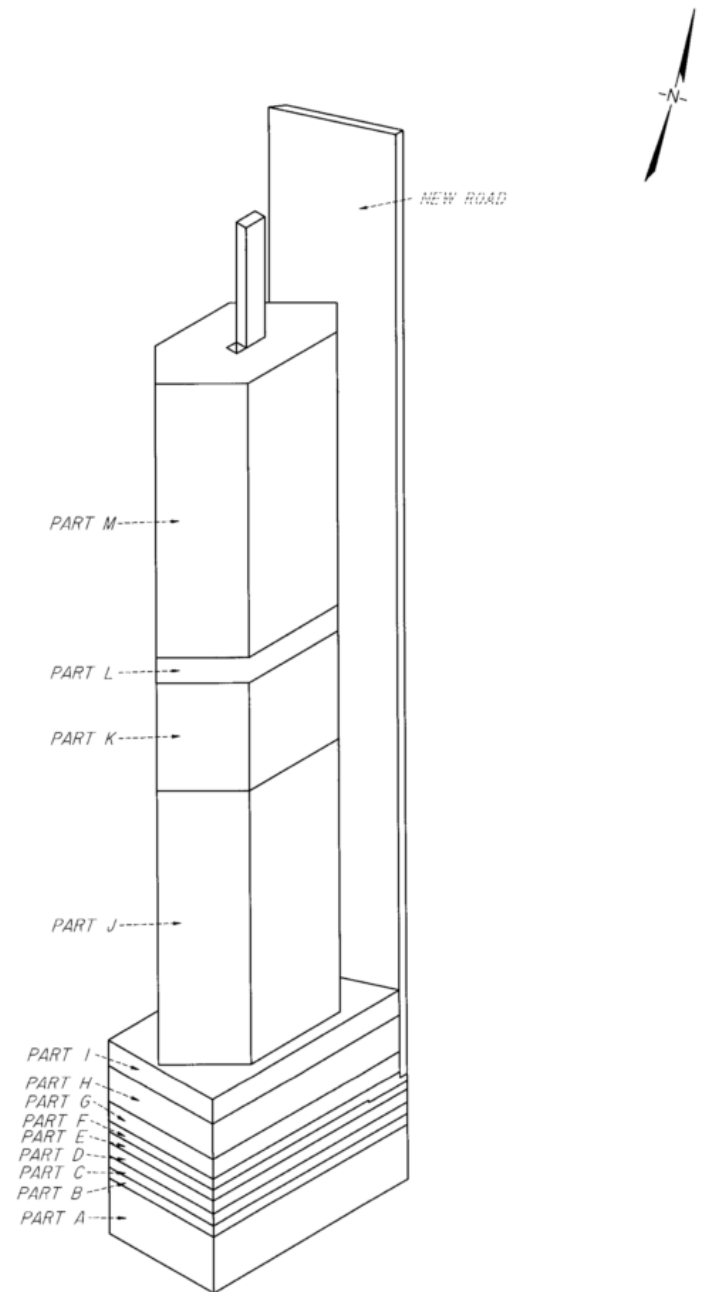


3D Encroachment

- What processes needed/used to prevent encroachment in 3D?
- Best solution will be to go to full 3D spatial partitions.
- Until then the current “paper” checks have to do, but no 100% guarantees.

New volumetric road

Overall Isometric View Lots 2,3,4 & New Road



Possible Solutions

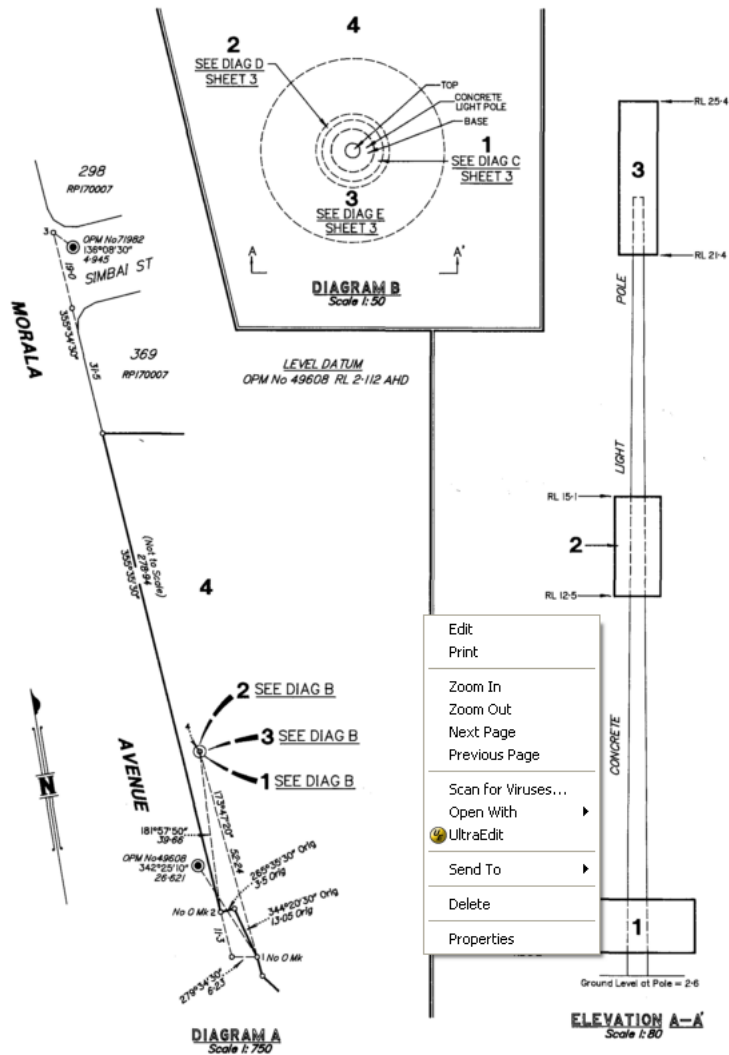
- Are current rules and procedures working well? (Or how to improve them)?
- In most countries a large part of (3D) cadastral registration is working quite well.
- At the same time all report a number of issues and problems.
- Over time the system starts being used for other purposes than it was designed for.
- At the moment the creation of 3D parcels is a bit of “grey zone” that sometimes results in very “creative” use of the system.

Doughnuts

Land Title Act 1994 : Land Act 1994
Form 2/A Version 1

ADDITIONAL SHEET

2 3
B098696

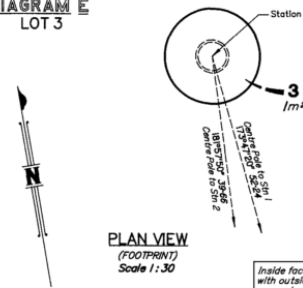


Land Title Act 1994 : Land Act 1994
Form 2/A Version 1

ADDITIONAL SHEET

3 3
B098696

DIAGRAM E
LOT 3



EXTERNAL
DIAMETER=1-0

ISOMETRIC VIEW
Scale 1:40

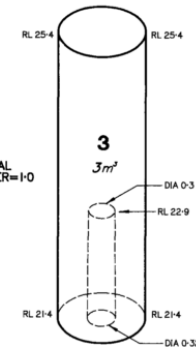
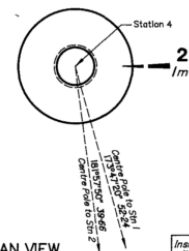


DIAGRAM D
LOT 2



EXTERNAL
DIAMETER=1-2

ISOMETRIC VIEW
Scale 1:40

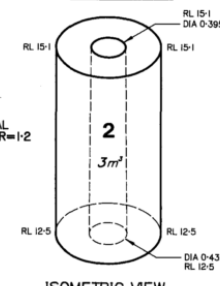
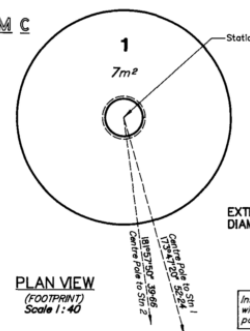
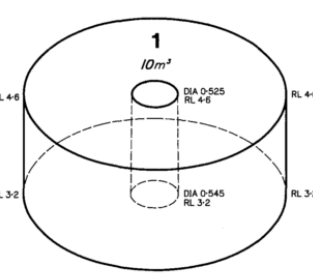


DIAGRAM C
LOT 1



EXTERNAL
DIAMETER=3-0

ISOMETRIC VIEW
Scale 1:40



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SP116505

Best Practice

- Is there a best practice for 3D parcel registration? What alternate procedures are used in different countries?
- Based on the current situation and observations as reported in the working session it is not really possible to single out “the best practice” for 3D parcel registration.
- Improvements and solutions for current issues are expected, but also new problems (e.g. 3D parcels described by curved surfaces).

Digital Lodgement

- Is digital submission of 3D geometry definition: in use? planned? desirable?
- Digital in the sense of using 'digital' documents like PDF is widespread (although "paper" thinking is also reported in combination with digital documents).
- Digital in the sense of submission of data that can be inserted directly into the cadastral database (without additional processing) is only in the experimental phase.
- Experiments are reported from Australia and The Netherlands,
- Initial findings indicate that difficulties can be expected.

Formats

- Format for digital submission (GML, LandXML, other XML?),
- Are 2D and 3D covered in the same standard/guideline?
- See previous point, too early to draw conclusions.

Thanks!

- My thanks to all participants
- And particularly to Theo Tijssen for acting as scribe and capturing so well the flavour of the free ranging discussion.