

# Minutes

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Initialer: GIMO  
Dato: 20. maj 2013

Meeting : Meeting with Bentley Construction Team

Time & place : May 13th 2013, Philadelphia

Referent : Gita Monshizadeh

Participants : Joe Granville, Bentley  
Mike Schellhase, Bentley  
Stefan Sigvardsson, Bentley Scandinavia  
Jette Voigt, Danish Road Directorate  
Michael Jepsen, Grontmij Denmark  
Brian Sheldon, Ag5 Architects Denmark  
Mikkel Bennedbæk, ATKINS Denmark  
Anna-Brita Krakenberger, Sweco Sweden  
Mats Dalberg, Grontmij Sweden  
Gita Monshizadeh, Banedanmark

Agenda :

1. Short presentation
2. The stage of development and focus areas for inspection applications and usage of them on mobile devices
3. Integration between data from the different design applications and mobile devices
4. Registration of the completed construction and any shortcomings
5. Integration of metadata in I-models generated from Civil products (InRoads and Rail Track)
6. Workflow to create and prepare the necessary data for inspection using InRoads/Bentley Rail Track as well as other Civil applications as Autodesk Civil 3D and similar
7. Requirements for usage of applications
8. Training possibilities both on-demand and on-site
9. Clash detection

## **1. Short presentation**

A short presentation of participants was made.

## **2. The stage of development and focus areas for inspection applications and usage of them on mobile devices**

Since last year there have not been new major releases of Navigator. The focus has been on coordinating the development of the different applications and their approach to i-models. A Desktop version of Navigator is under development for better performance. Within a couple of months a minor update will be available, where the following features will be available:

- Support for Windows 8
- SDK for Navigator
- eB integration

Mobile devices and generating data for them have had major focus for the team. A new file format is being developed, which makes it possible to load large size files and handle different formats. Data from different applications will still be stored in i-models. I-models need to be converted to the new SQLite based format, which make them usable in mobile devices.

The apps will be available for iPads at the first stage. There is focus on support of Android devices, but there are several different types of hardware on market, which makes it difficult to make a single solution. The plan is to release apps for Android devices within a week or two after a release for iPad.

## **3. Integration between data from the different design applications and mobile devices**

Data from different software will be stored in i-models and converted to the new SQLite based format, which can be used in mobile devices.

## **4. Registration of the completed construction and any shortcomings**

Right now there has been focus on making a read only visualized 3D model available for the mobile devices. Right now it is possible to navigate free in the model and make measurements.

A new update of Navigator will be released within the next couple of days, which makes the file sizes for mobile devices equal to the original i-models. It has earlier been a problem that the sizes for file formats used in mobile devices were much bigger than the original i-models.

The next steps are:

- Defining properties for similar items and color coding of them
- Isolating a group of items
- Adding information to objects using links
- Capture pictures, videos and notes to specific elements
- Redlining

- Geo coordinates with possibility to use coordinate systems used by survey
- Measuring clearances semi automatic
- Integration with eB
- ACAD plugins

## **5. Integration of metadata in i-models generated from Civil products (InRoads and Rail Track)**

There has been focus on defining what is necessary for using Civil data for inspection purposes. Some of the options could be:

- Adding 2D information as cross-sections, optionally in pdf-format to the 3D models
- Having options as tracking in InRoads, which relates the positioning to station, offset and elevation
- Measuring clearances under bridges
- Integration of intelligent data from the models in mobile devices
- Integration of object data from subsurface utilities

Any suggestions that make the models usable for on-site users are appreciated and can be sending to [Stefan.Sigvardsson@bentley.com](mailto:Stefan.Sigvardsson@bentley.com) or [Joe.Granville@bentley.com](mailto:Joe.Granville@bentley.com).

## **6. Workflow to create and prepare the necessary data for inspection using InRoads/Bentley Rail Track as well as other Civil applications as Autodesk Civil 3D and similar**

The intention for several years has been to develop plugins for Autodesk applications as Civil 3D in order to have direct approach to the intelligent data, but the priority has not been high. It is in road map but there is not defined any time schedule for it. Right now the only option is to convert the geometry to dwg-format and generate i-models in MicroStation.

## **7. Requirements for usage of applications**

Apps are free to download from app-stores. The applications to generate i-models or models for mobile devices are integrated in the relevant applications. To check out models and check in data registered on site ProjectWise and passports are required.

AssetWise passports are required for registering information for asset management. There are plans for using the same passports for Asset management and data management.

## **8. Training possibilities both on-demand and on-site**

A short presentation of the functionalities and some videos will be available through help. It is though necessary to have some on demand trainings and videos as training for beginners, targeting at the supervisors and field workers.

## **9. Clash detection**

We need to be able to define tolerances for clashes, a limit for when a clash need to be defined as a critical clash. Joe suggested that the functionality is already available as suppression tools, but need to be defined with desired tolerances.

Another option is to be able to control weather the specific elements connect and get an alert if there are gaps between the chosen elements. It is an issue for development of Navigator and tool sets.

Item sets can be used to control the clashes as well as levels and reference files.