E3

VISUALISERING TIL BORGERMØDER

Experiences using context capture to visualise the project for the local community

RAMBØLL Bright ideas. Sustainable change.

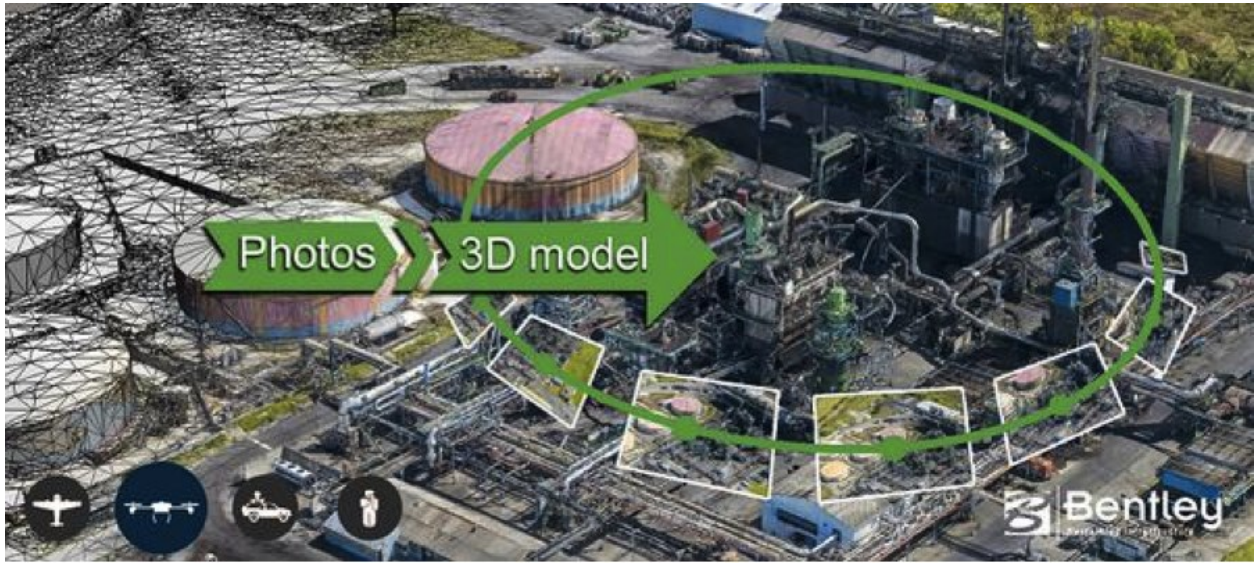
PHOTOGRAMMETRY IN SHORT

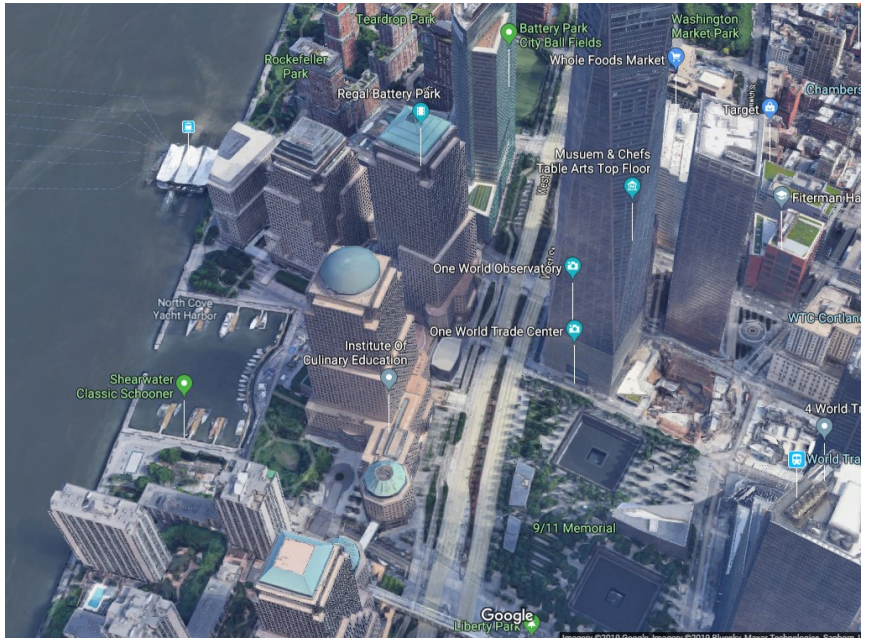
Photogrammetry is as old an technology as the photo.

Photos from different angles can be combined into a 3D model.

Behind there is a mesh model with draped images on.

Google earth 3D view is in basic the same solution.





PUBLIC HEARING OF THE PROPOSED DESIGN
WHICH ISSUES DO WE FACE FROM THE PUBLIC

What issues do the public face when attending a public hearing

- Most people cant understand a drawing.
- Difficult to understand the material presented.
- Difficult visualising the purposed solution.
- Is not able to communicate what they heard and have seen to third party after the event.

The results, from a public view, is then

- When one doesn’t understand the project then any change to status quo is an issue.
- It creates a negative environment for comments.
- Negative feedback spreads faster than positive experience.
- Comments doesn’t get included

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PUBLIC HEARING OF THE PROPOSED SOLUTION
WHICH ISSUES DO WE HAVE PRESENTING THE PROJECT

- Material presented might not be the best solution
- Material takes a long time to prepare and is out of date very quickly
- Expect that some of the public attending isn’t digital so too digital can be a disadvantage.

The result of this is

- Negative comments still needs to be managed
- Misunderstandings still needs to be managed
- Possible second public review
- If the material isn’t digital then changes can’t be easily shared and updated

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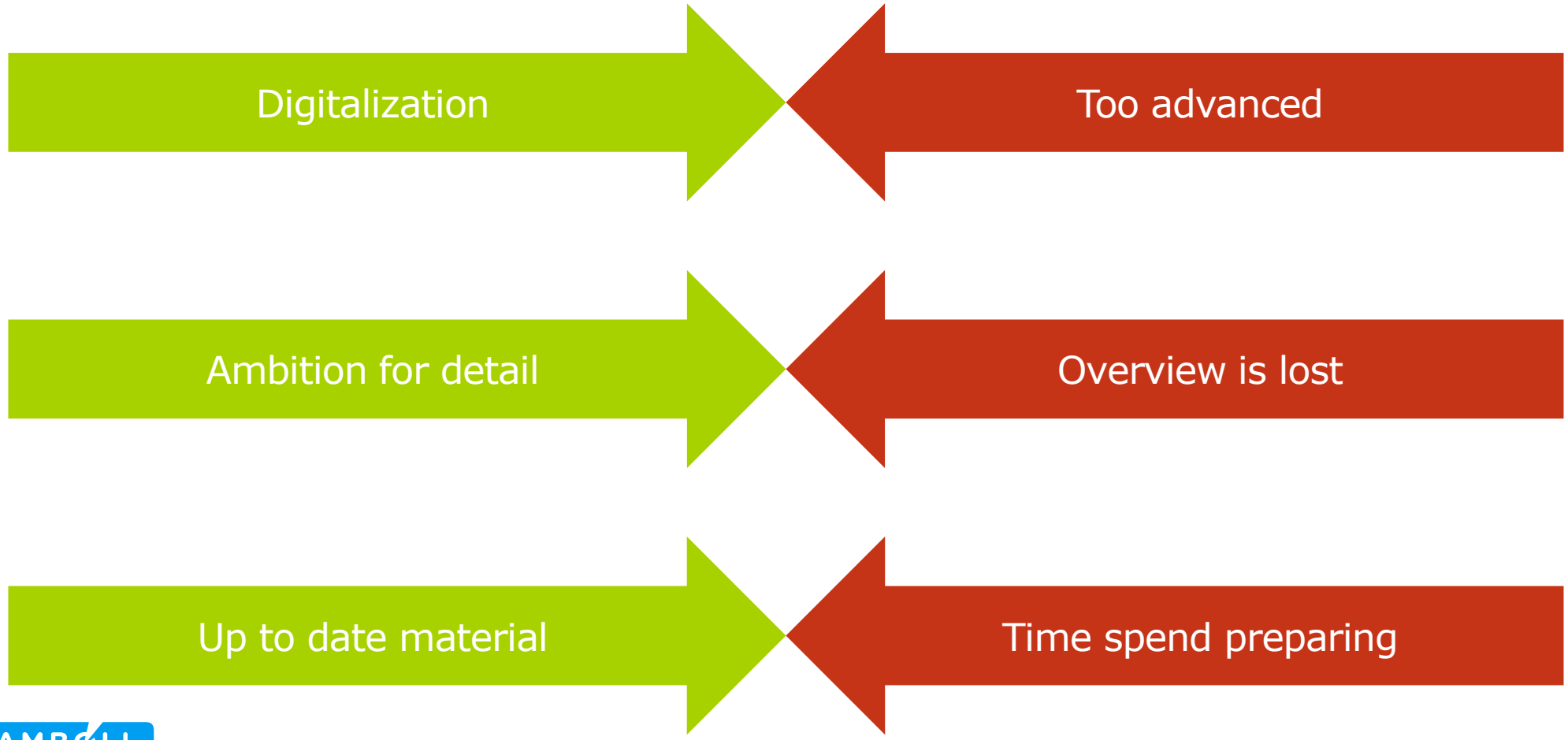
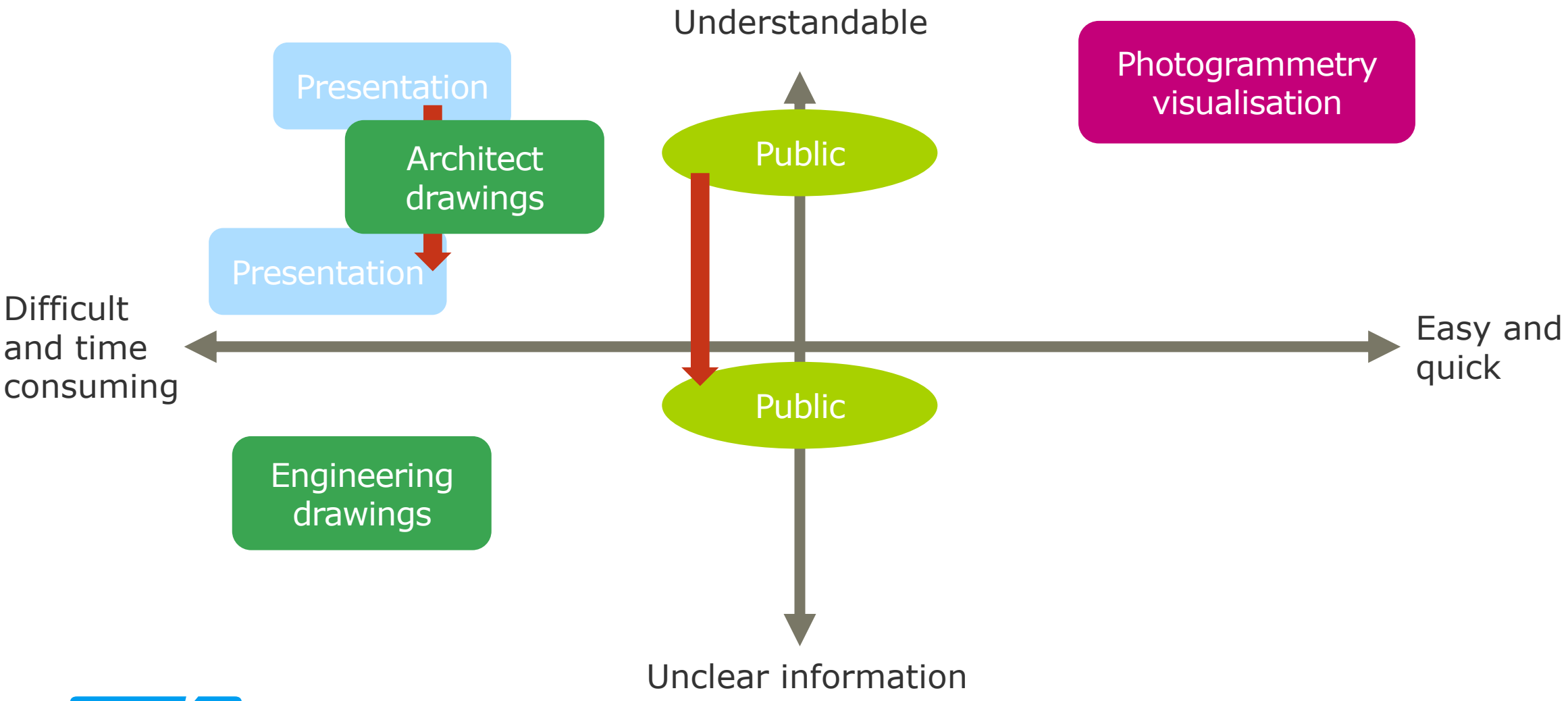
WHAT IS THE SOLUTION FOR BETTER PUBLIC COMMUNICATION



WHAT COULD THE SOLUTION BE



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THEORY AND AMBITION

"The human brain processes images 60.000 times faster than text, and 90 percent of information transmitted to the brain is visual"

Harris Eisenberg
Executive vice president
Thermopylae Science + Technology

We will achieve our target by combining model based design with newest technology, visualising the project and communicating the proposed solution

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CASE FOR RINGSTED-FEHMERN PROJECT

- How can we present the new platform layout for Vordingborg?
- How can we present the new passenger access path to the platforms?
- What can be done in 1 month?

The solution we recommended was

- Do a photogrammetry survey of Vordingborg station and surrounding
- Combine photogrammetry and 3D models to a full 3D model
- Create visualisations from these models

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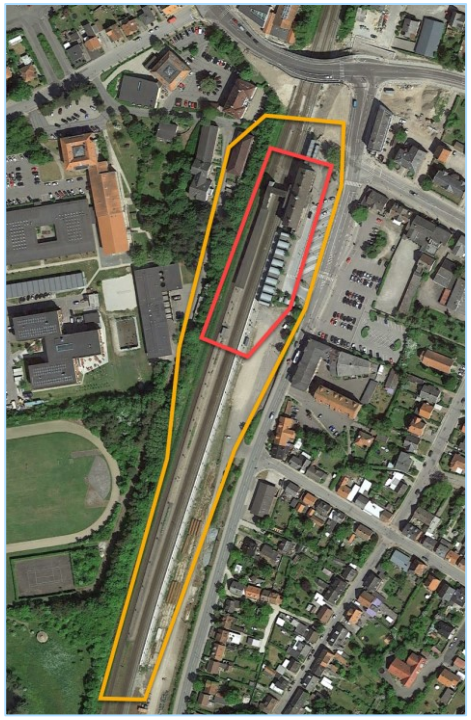
PHOTOGRAMMETRY SURVEY

- Define the area of interest and what area that requires in detail photos
- Establish markers to calibrate the photogrammetry model
- Check with authorities for flight approval. Near track needs special approval and educated pilots flying the drone
- Define which elevations the drone is required to fly in, or handheld if needed.
- Define camera directions

Define the area



Define the quality and equipment

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PHOTOGRAMMETRY DATA MANAGEMENT

- Calibrate the photogrammetry material to be placed correctly in the world
- Clip out the noise mesh in the model, bad vegetation and people
- Clip holes in the mesh to be filled with the designed 3D models

- We used Bentley Context Capture

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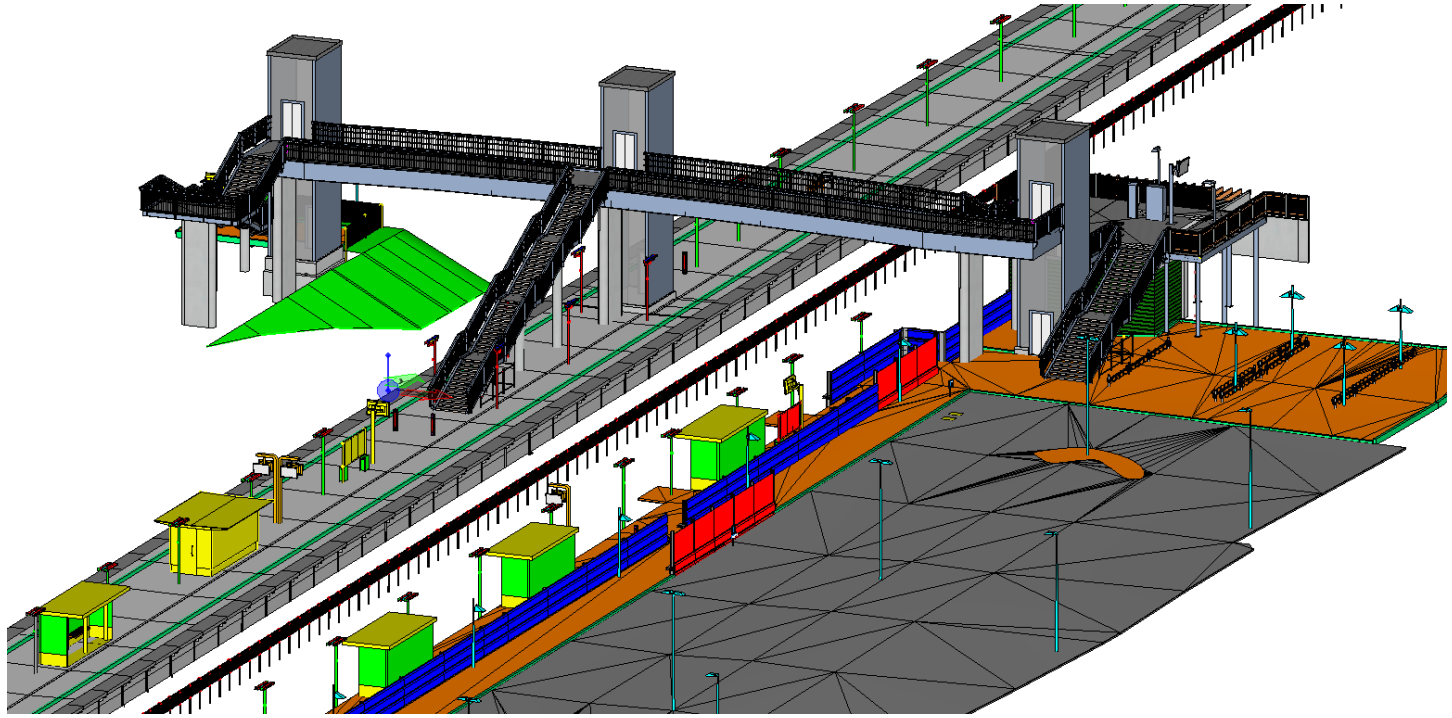
3D MODELS

- 3D models was provided to us
- Amendments was needed
- Layer structure is important when assigning materials



VISUALISATION DIRECTORS CUT

- Define a LOD according to phase and development
- Define a flight path of important elements to highlight
- Place 3D elements in areas where the photogrammetry model might be inaccurate
- Consider replacing existing vegetation with render vegetation
- Put in surrounding elements and a horizon.

- We use Bentley LumenRT

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OUTPUT
RENDER IMAGES

As many render images as you need

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OUTPUT
VISUALISATION

OUTPUT VISUALISATION

When the material is prepared then visualisations can be made, and adjustments are quickly made

The end product can be shared digital or presented at events

Scan this QR code with your phone camera

(works the best on iPhones)

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ACHIEVEMENT AND LESSONS LEARNED

Lessons learned

- We need more focus on preparing flight routes and markers for calibrating the photogrammetry model
- Rather document more area than the bare minimum
- Context Capture is easy to import to, but difficult to correct and amend mesh

Our achievements

- From the time we got contacted to the final visualisation was delivered was 1½month in total
- Comments from the public on the RFB Facebook have been positive about the visual communication
- Solution was tested and improved, and is a cheap method to get quality visualisation

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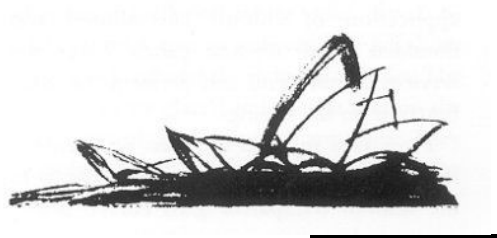
WHAT IS NEXT



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THANK YOU

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