

Innovation
In Process
People Platform
BIM
interactive
parametric
dynamic

**Construction Modeling and Control Plan
Workflow and Customer Case Study**

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Construction Modeling and Control Plan

Appendix 1.43
Construction Modeling and Control Plan
(CMC Plan)

Design Coordination,
identify clash and plan
Construction works

1. INTRODUCTION

1.1. The Contractor shall provide CMC Plan 3D and 4D Models for design co-ordination, to identify clashes and to plan the construction works in the co-ordination of civil, structural, drainage, temporary structural components and site logistic for CWB Middle Ventilation Building Substructure in order to avoid any unnecessary re-working and delays on site during construction. The Contractor shall establish a CMC team to prepare and develop 3D and 4D Models as a digital prototype for construction programming, construction co-ordination, conflicts / clashes identification, planning of construction activities, and demonstrating the method statement of the major construction activities.

Demonstrate Method statement
Coordinate Construction program

2. OBJECTIVE

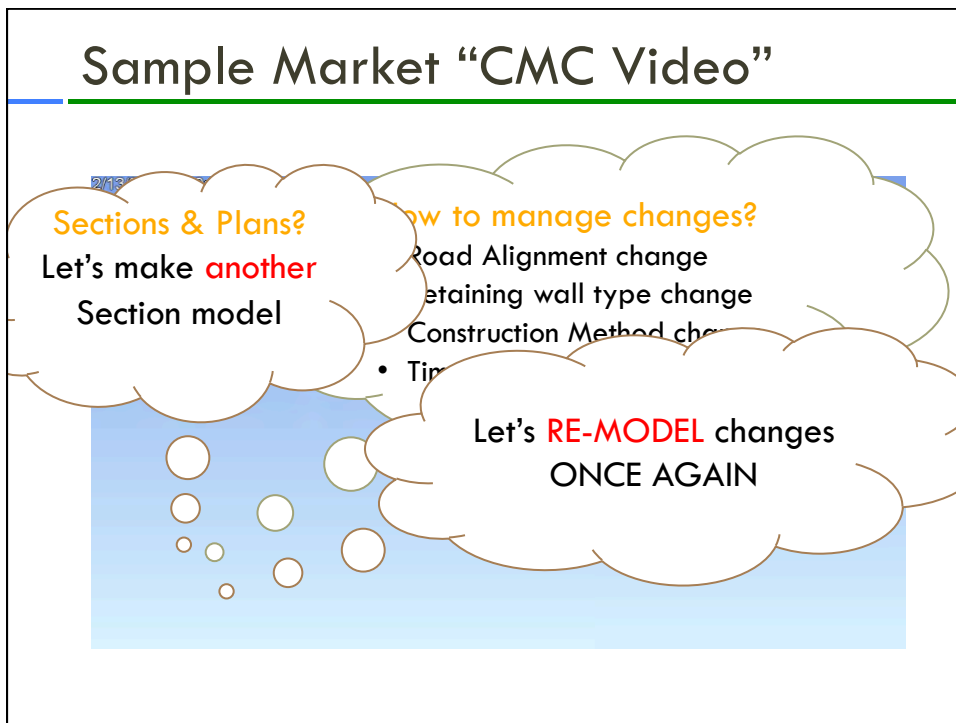
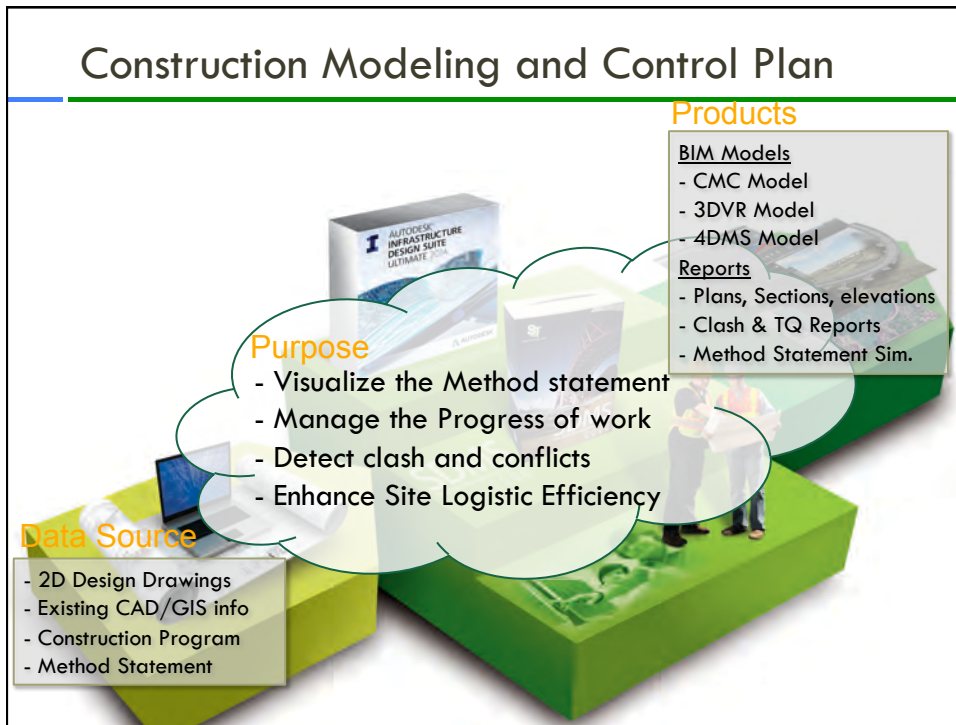
2.1. The intent of the development of CMC Models is to show the elements in a true representation of the actual condition for construction.

..True Representation of the
actual condition

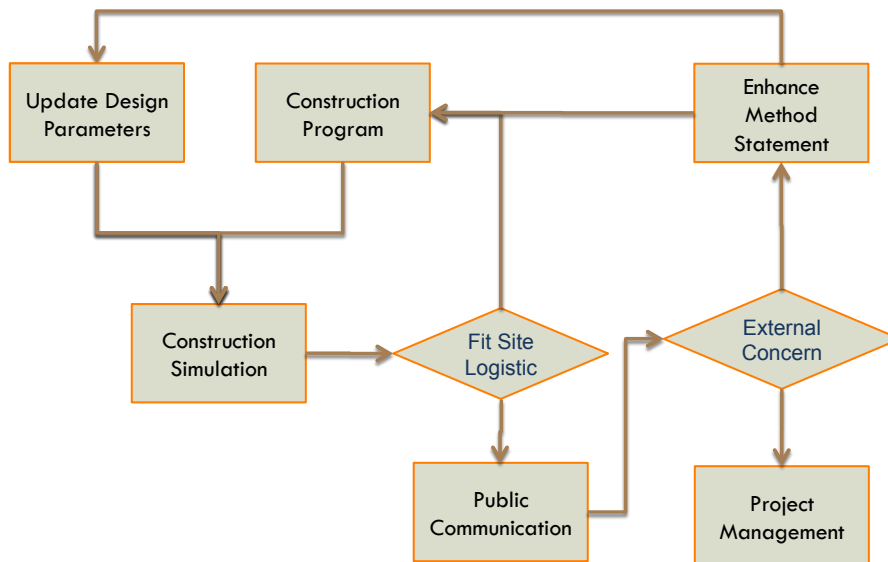
2.2. The CMC model(s) shall be used to determine if there are physical clashes or conflicts among the different civil, structural, drainage, temporary structural components and site logistic.

2.3. The CMC model(s) shall be used to check critical dimensions and it shall be used to ensure there are no spatial conflicts such as head-room problems and to verify the constructability of construction methods.

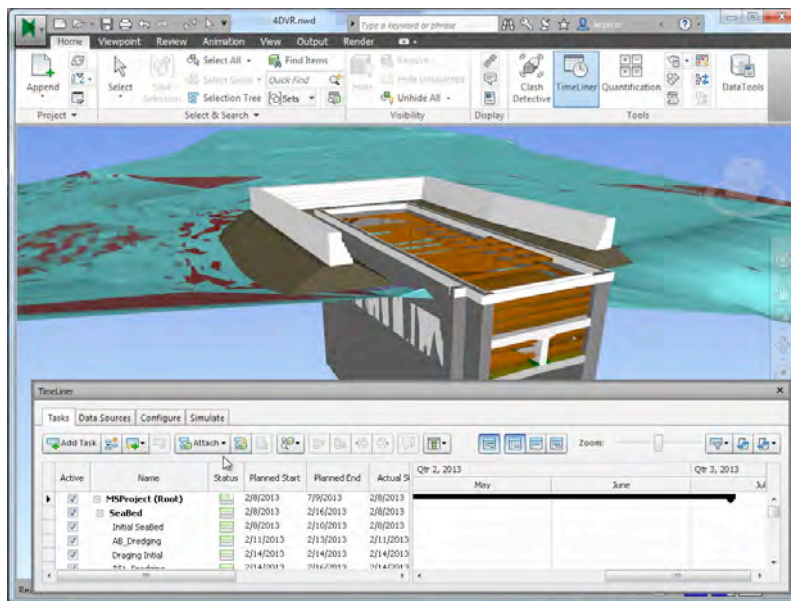
2.4. The Contractor shall make use of the detailed CMC model(s) in co-ordination with all relevant civil infrastructure, drainage, temporary structural components and site logistic for CWB Middle Ventilation Building Substructure in order to avoid any unnecessary remedial works and delays during construction.



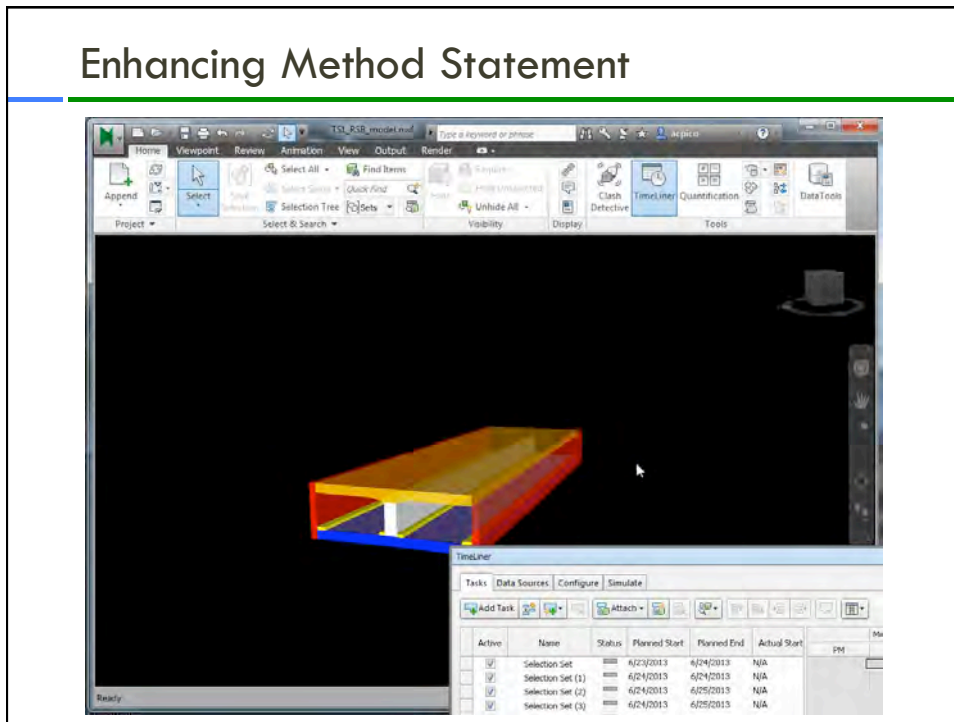
CMC Plan: The BIM Workflow



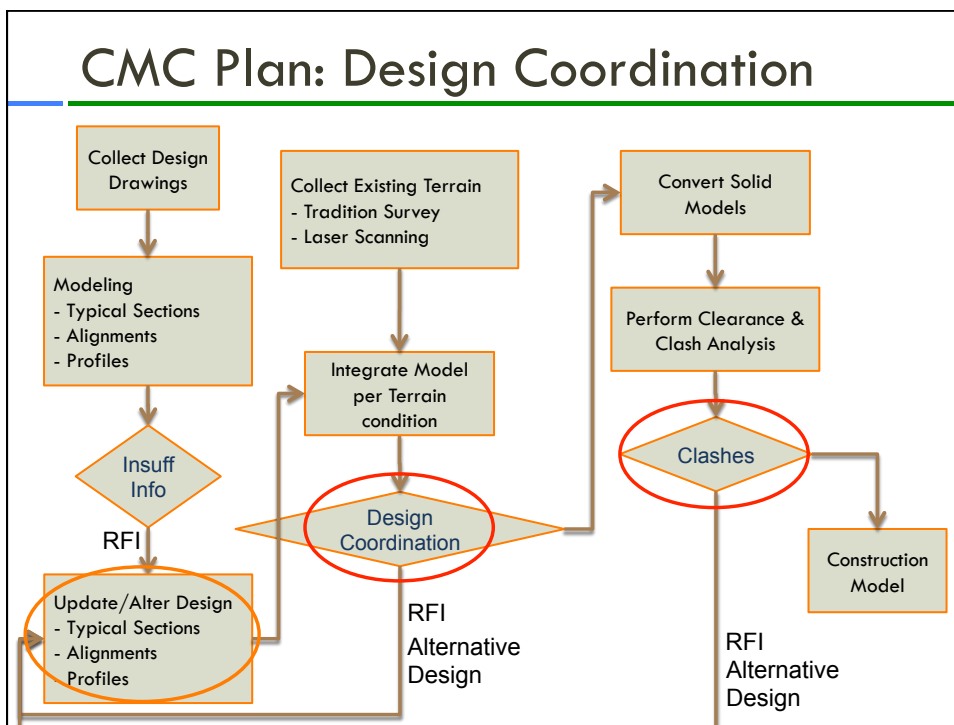
Update Construction Program



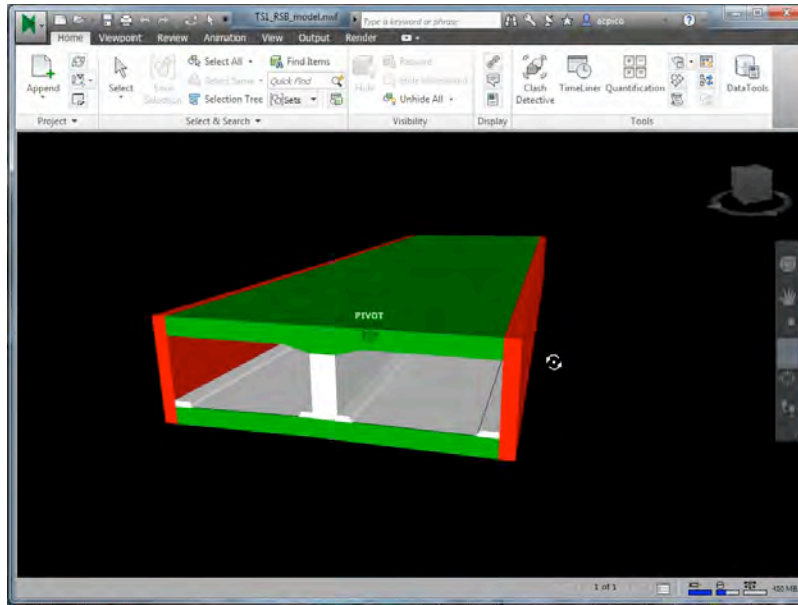
Enhancing Method Statement



CMC Plan: Design Coordination



Update Design Parameters



A Customer Case Study

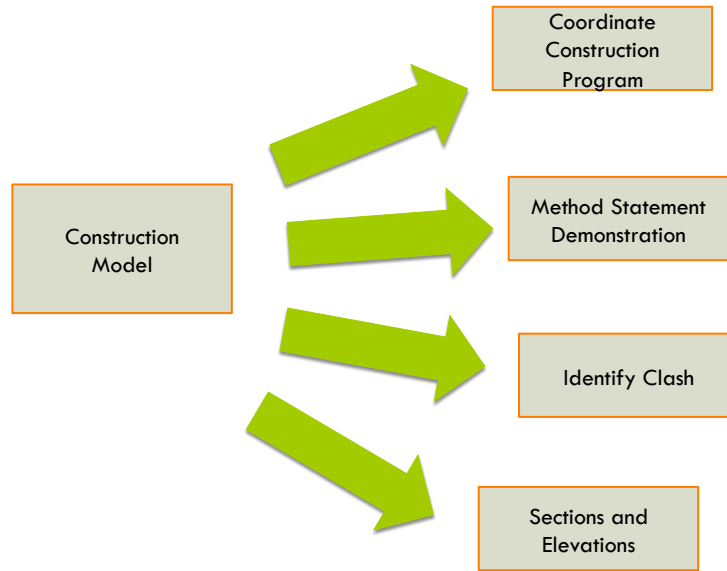
The Pilot Project

- 350m Tunnel
- 150m slip road with Retaining wall
- One 3-storey building

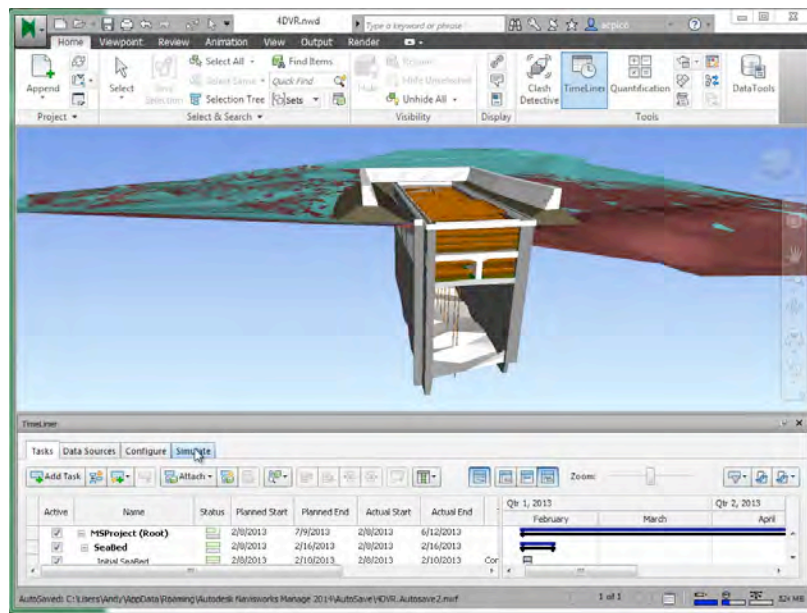
Pilot Project Objectives

- Construct **parametric 3D** CMC requirements as **natural**
- **Conduct** Clash Analysis **products** through the BIM process
physical construction
- Generate Setting Out Data
- Generate **Cross-Section** and Provide Quantity take-off
- Perform 3D Animation in terms of the **construction sequences**

From BIM to CMC Plan



Coordinate Construction Program

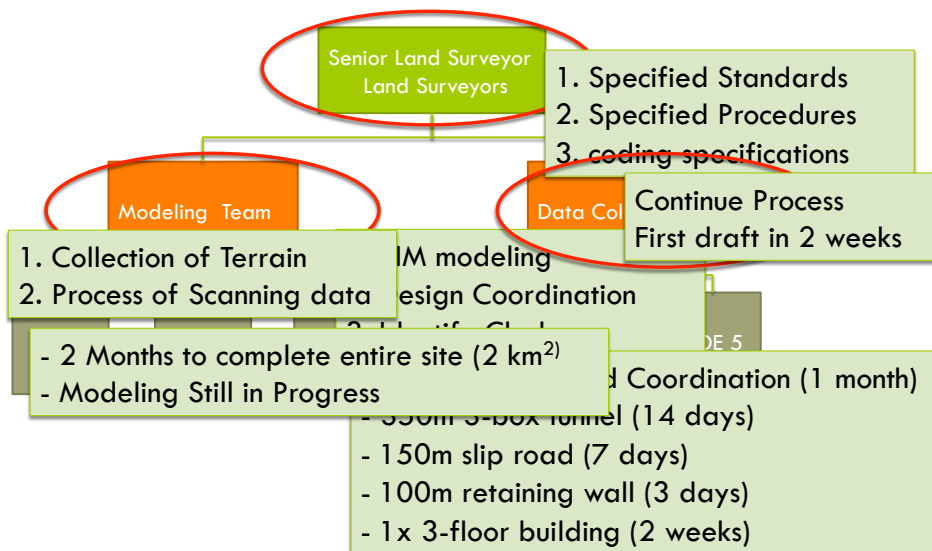


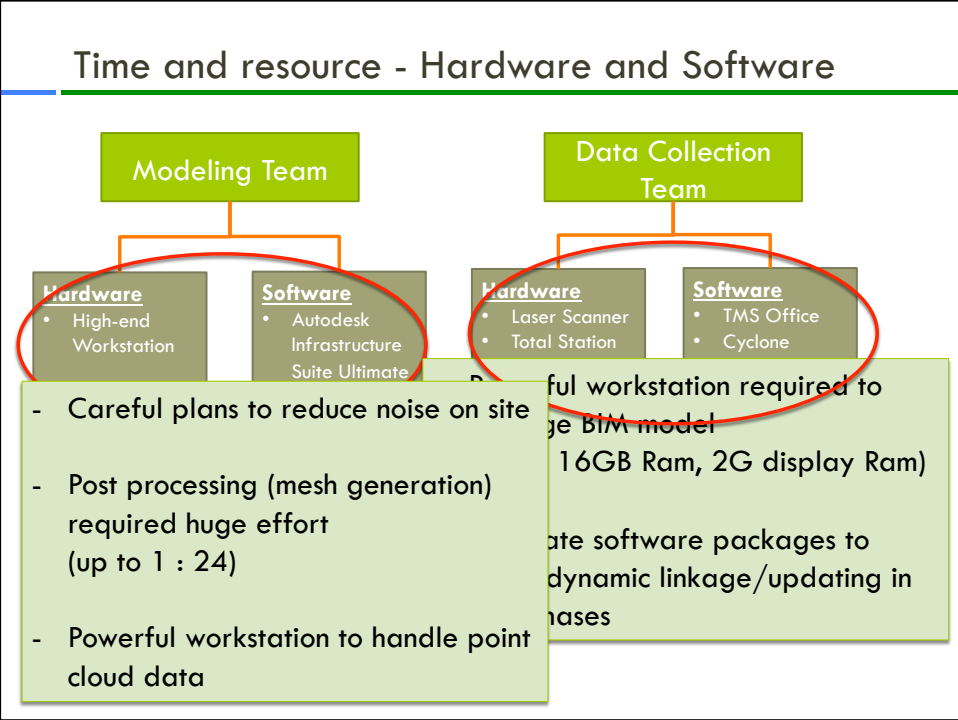
Major Problem Encountered

- Modelers don't understand the construction requirements or sequence
 - ▣ Specification required before project start
 - ▣ Operation team must work together at earlier stage

- Construction modeling/simulation is a refining process
 - ▣ Documentation of Parameters and their relations
 - ▣ Dedicated time and man power resources required
 - ▣ Detail Method statement simulation required additional gaming/rendering software

Time and resource - Human Resources






Summary

Summary

- CMC Plan is more the CG Visualization
 - ✓ Project Management Tool

- CMC Plan are naturally produced from a true BIM workflow
 - ✓ Integrated process and technology required

- Reveal the true Potential of CMC Plan
 - ✓ Start with a True BIM consultant



Thank You

ST

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