



Belgisch **Wegen**congres Congrès belge de la **Route**

LEUVEN · 4-7.04.2022

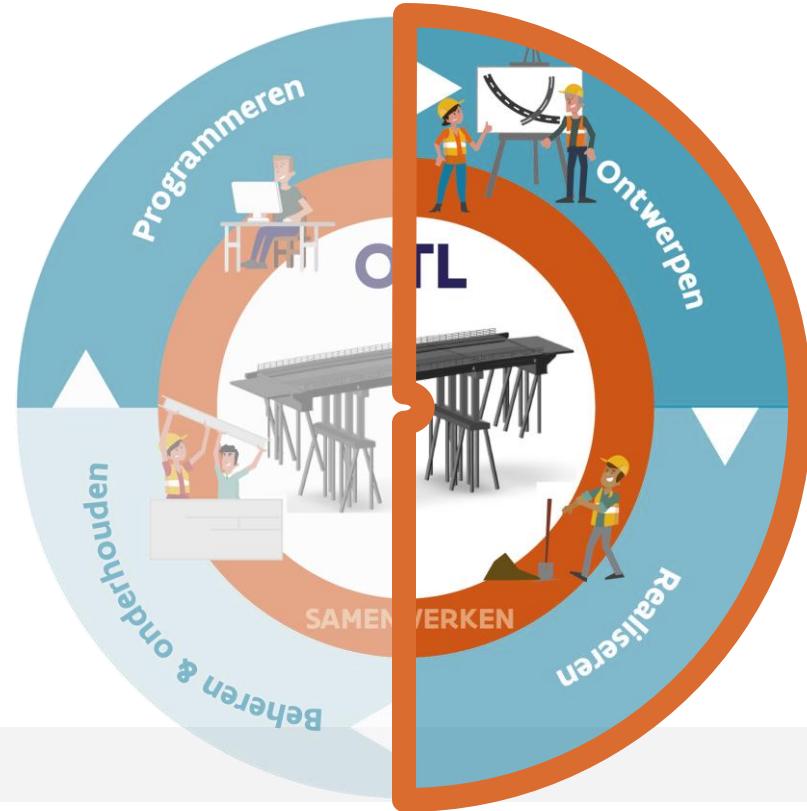
AWV met le BIM en pratique

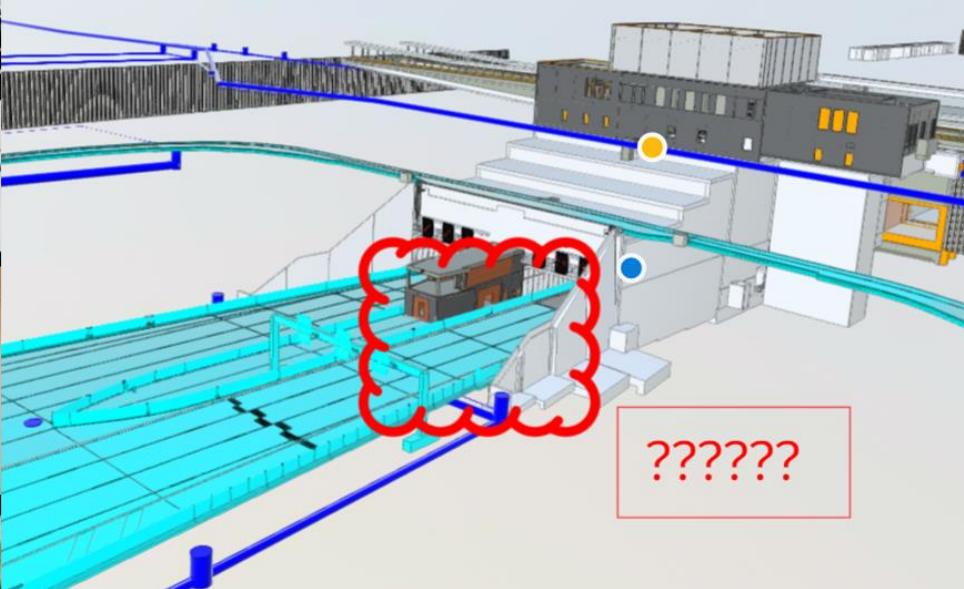




Modélisation BIM

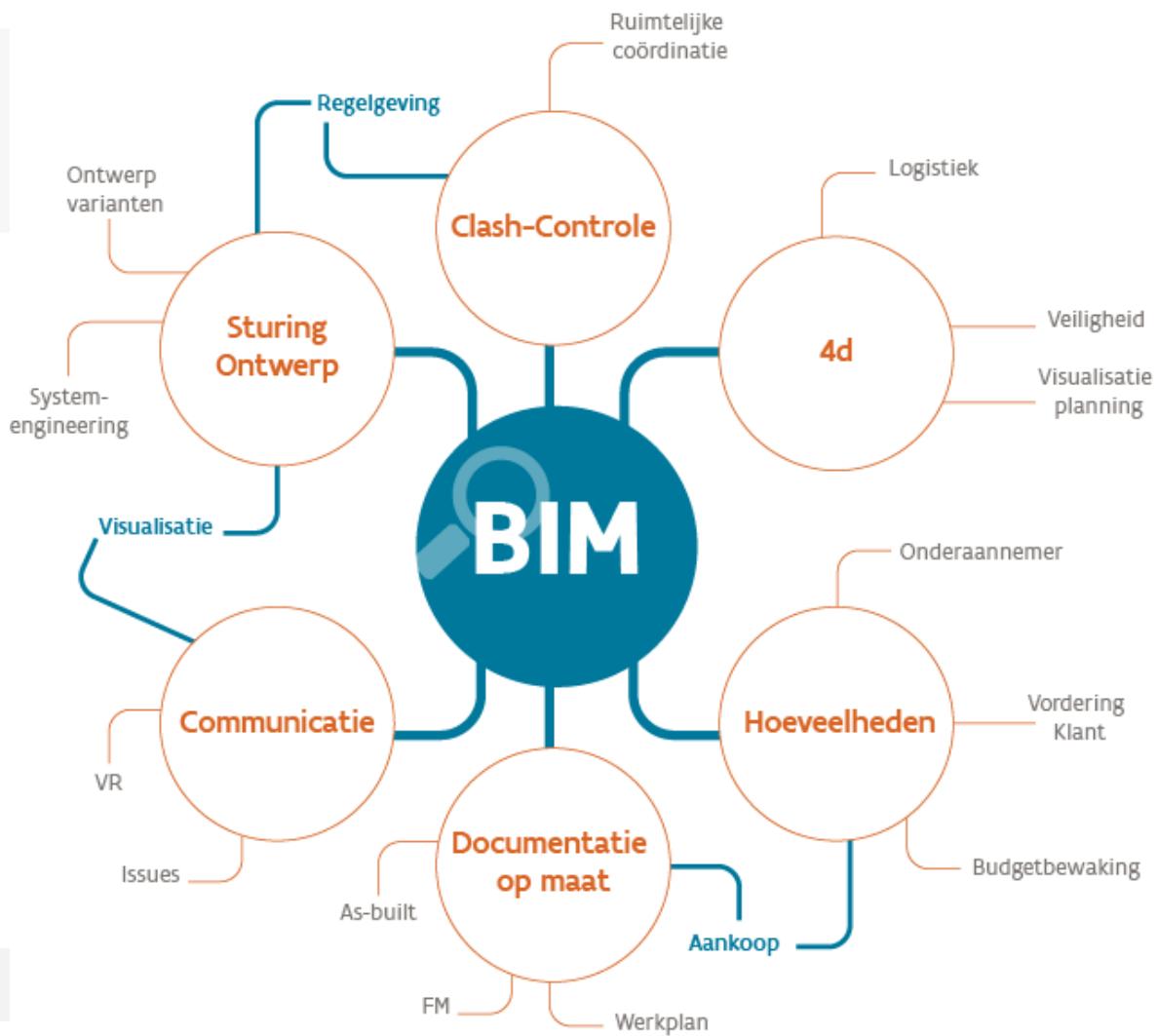
L'accent sur le niveau du projet







Modélisation BIM est:



Besoin de standardisation



Des documents de référence nous aident...

- Norme de données **OTL + Artefacts**
- Établir des règles générales et une vision **BIM-protocol**
- Enregistrer et conclure des ententes concrètes
Les applications BIM, LOG... **BIM-plan d'exécution**
- Spécifications détaillées sur la façon dont les mesures sur le terrain et les livraisons doivent être effectuées **“Instructiebundel” et Légende Topographique**
- Établir et organiser une plate-forme de collaboration (CDE) **BIM360**

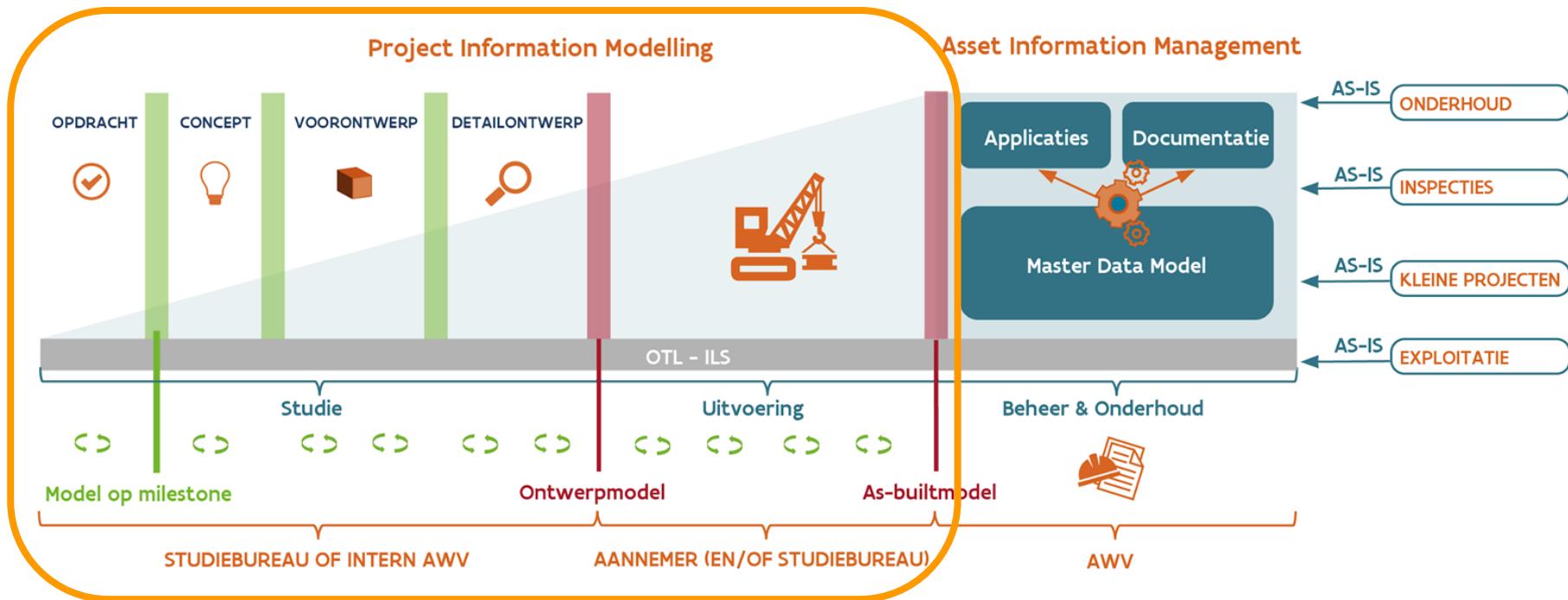


... Mais nous avons besoin d'une approche spécifique par projet

Quelle est la valeur ajoutée du BIM pour CE projet?



1. Quand pouvons-nous appliquer le BIM?

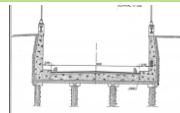




2. Applications BIM: Comment nous allons utiliser le BIM?



Plans existants



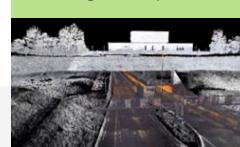
L'état existant



Données SIG



Nuages de points



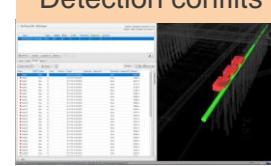
Estimation et relevé des quantités (5D)

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	U234-05-76 QUANTITY
0010	204.0115	REMOVAL ASPHALTIC SURFACE, BUTT JOINT	SY	490.000	490.000
0020	211.0100	PREPARE FOUNDATION FOR PAVING (PROJECT)	LS	1.000	1.000
0030	305.0110	S4-INCH BASE AGGREGATE DENSE	TON	390.000	390.000
0040	305.0120	S4-INCH BASE AGGREGATE DENSE	TON	1.500.000	1.500.000
0050	455.0105	ASPHALTIC MATERIAL POSB-28	TON	285.000	285.000

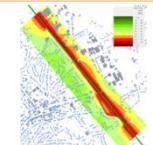
Guidage machine GPS



Détection conflits



Simulation & analyses



Planification (4D)



Documentation & As-built

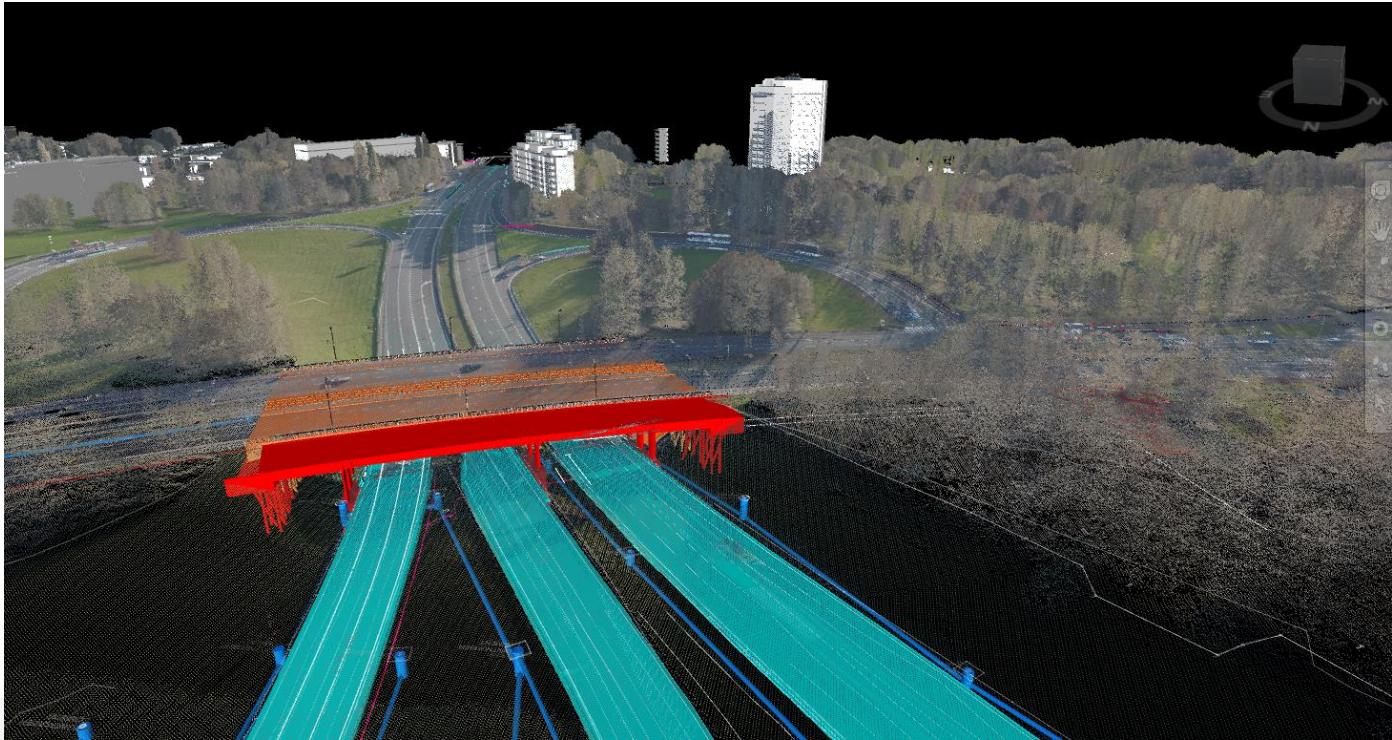


Visualisation - Communication



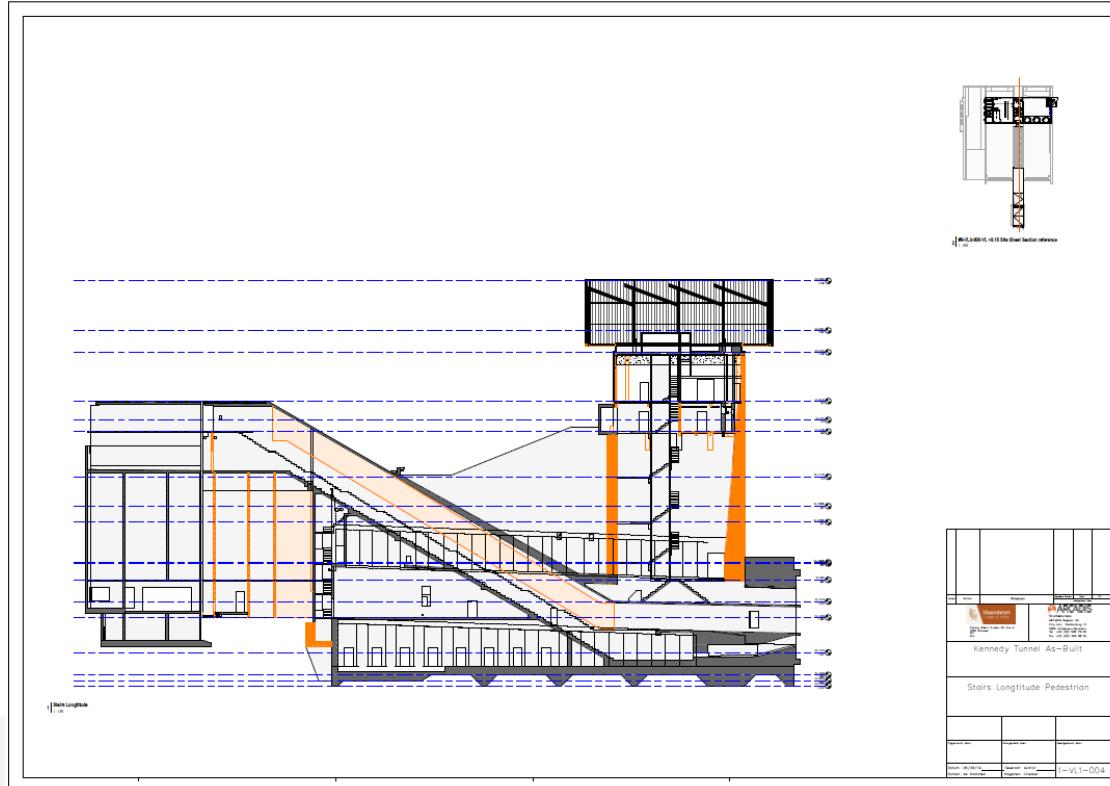


Modélisation - L'état existant et conception



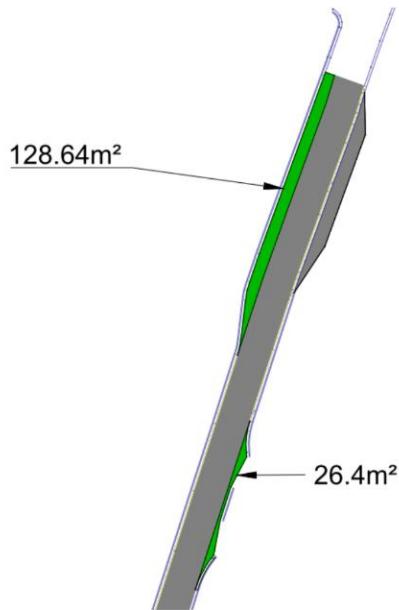


Output - Plans





Output - Quantités



The screenshot displays three windows from a construction management software:

- Arquimedes and job control - 2015.m [BUILDING] (Decomposition tree)**: A hierarchical tree view of building components. The selected node is "CCS010 m³ Basement wall, H<=3 m".

Code	CC	Ut	Summary	Supplier	SalesQuant	ExecQuant	StudyQuant	OrigCertQuant	SalePrice	ExecPrice	ProbablePrice
CR	00	00	Leveling		1.000	1.000		10.613	143.60		
L	CRL010	00	m ² Blinding concrete		10.613					13.26	
CC	00	00	Retaining elements		1.000	1.000				12.245.73	
CCS010	00	00	m ³ Basement wall, H<=3 m		49.489			49.489	267.65		
CS	00	00	Surface Elements		1.000	1.000			9.847.47		
LS	CSZ010	00	m ² Reinforced concrete		59.469			59.469	165.59		
CA	00	00	Ties		1.000	1.000			1.127.69		
LC	CAV010	00	m ³ Tie beams		4.585			4.585	247.54		
E	EH	00	Structures		1.000	1.000			39.334.80		
EH	EHE010	00	m ² Reinforced concrete		1.000	1.000		10.400	130.85		
EHU020	00	00	m ³ Stair slab		18.400					85.29	
					432.960						
- Assign job items and quantity extraction**: A dialog box showing the selection of "Basement wall, H<=3 m" for extraction.
- BUILDING**: A detailed view of the "Types of Wall Foundation" table, showing a single entry for "Strip footings" under "Exterior".

Type Name	Type Mark	Keynote	Type_CodMed
Strip footings			

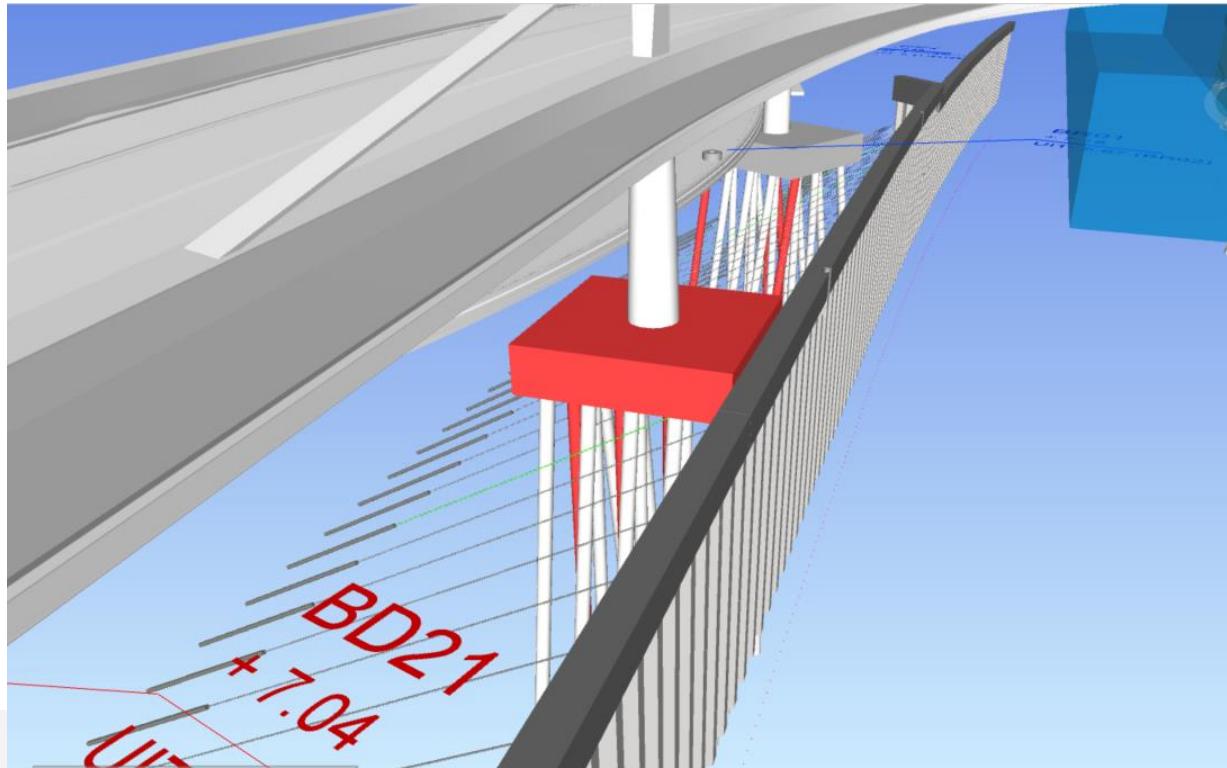


Output - Visualisations et communication



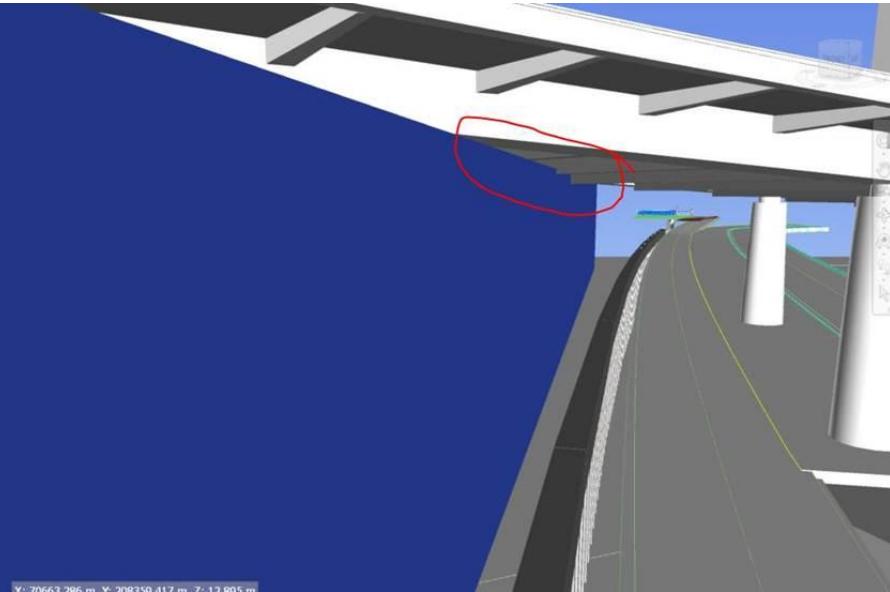
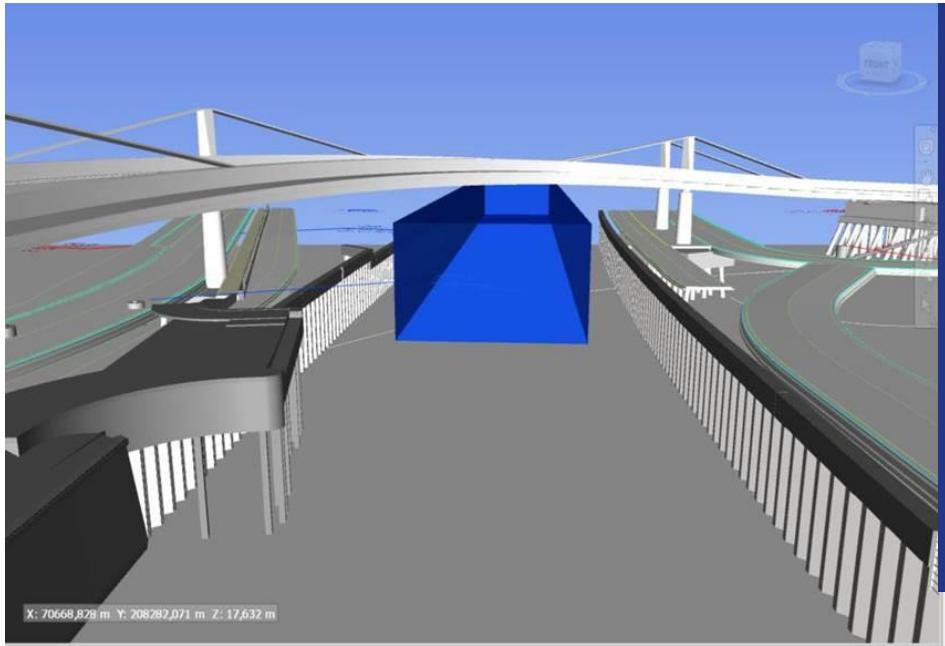


Analyses - Détection de conflits et problèmes



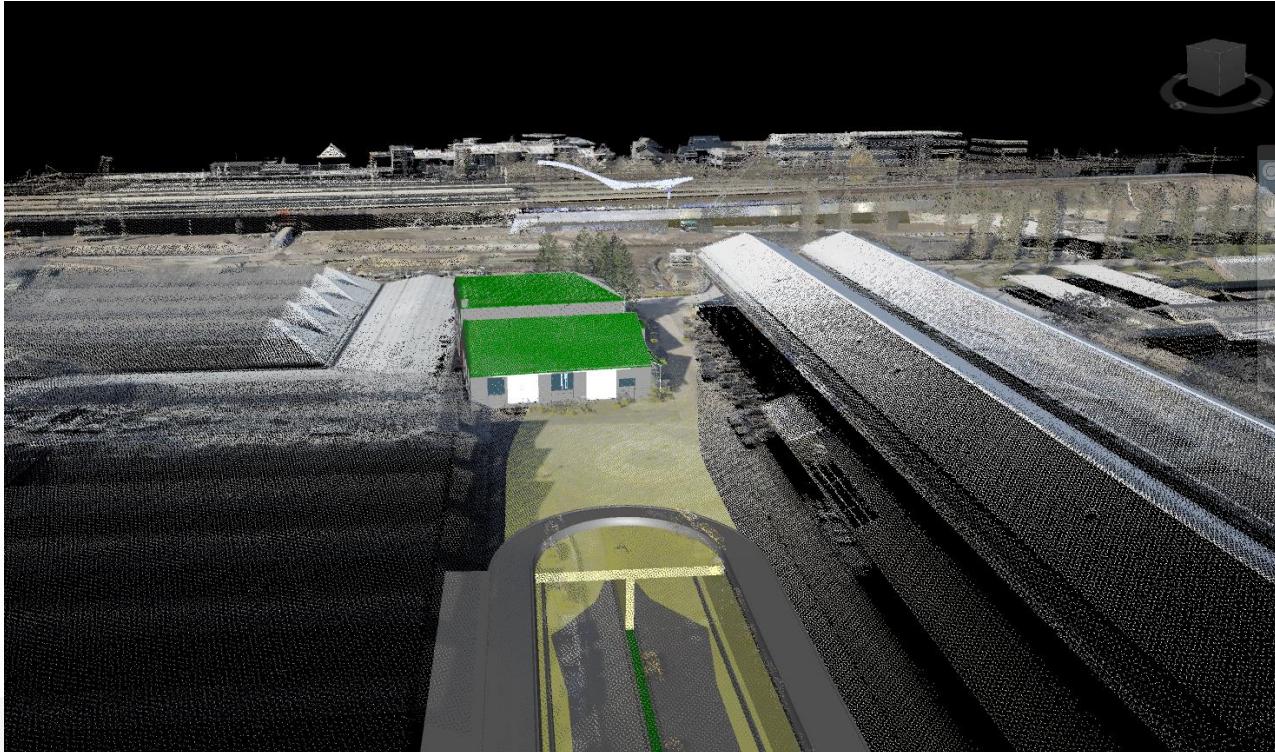


Analyses - Détection de conflits et problèmes





Analyses - Détection de conflits et problèmes





Autres applications BIM

4D (mise en phase)

Évacuation des eaux

Murs anti-bruits

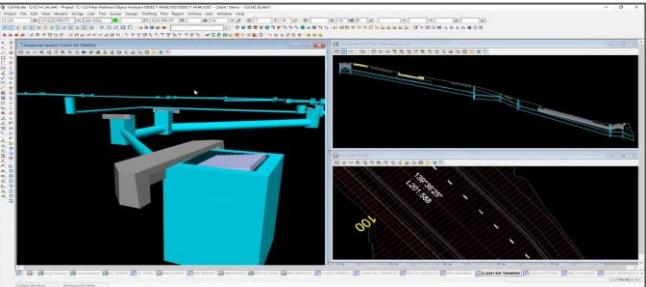
Analyses de visibilité

Analyse de lumière et d'ombre

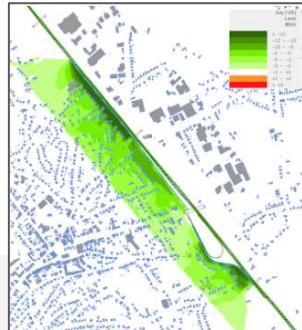
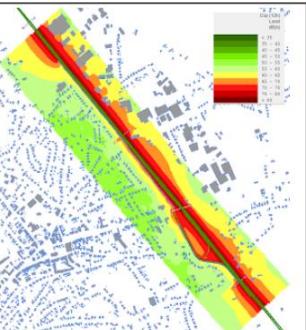
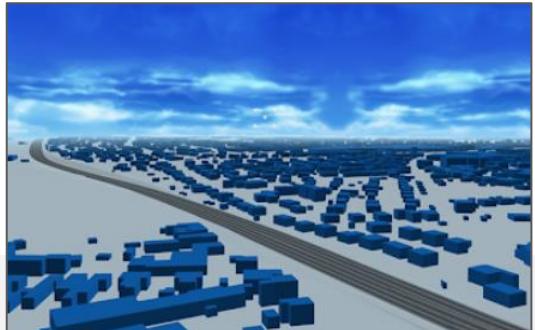
Flux logistiques sur le chantier



www.pinnacleconsultingengineers.com



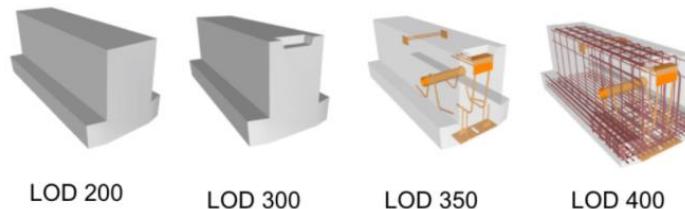
www.youtube.com - Drainage and Object 3D Clash Detection - Training Webinar Series





3. Qu'est-ce que nous allons exactement "bimmer"?

LOD - Level of Development



LOD 200

LOD 300

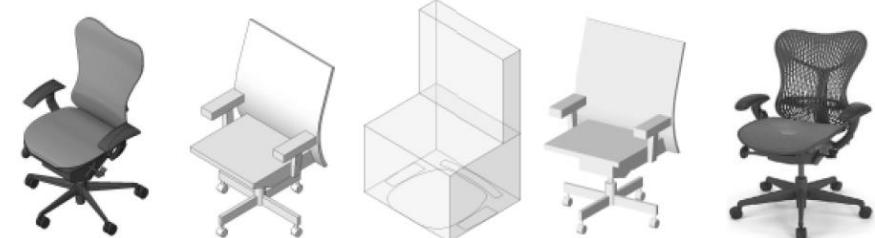
LOD 350

LOD 400

<https://revitiq.com/level-of-development/>

LEVEL of DEVELOPMENT

LOD 100 LOD 200 LOD 300 LOD 400 LOD 500



Concept (Presentation)

DESCRIPTION:
Office Chair
Arms, Wheels
WIDTH:
1000

DEPTH:

HEIGHT:

MANUFACTURER:
Herman Miller, Inc.
MODEL:
Mirra
LOD:
100

Design Development

DESCRIPTION:
Office Chair
Arms, Wheels
WIDTH:
700

DEPTH:

HEIGHT:

MANUFACTURER:
Herman Miller, Inc.
MODEL:
Mirra
LOD:
200

Documentation

DESCRIPTION:
Office Chair
Arms, Wheels
WIDTH:
700

DEPTH:

HEIGHT:

MANUFACTURER:
Herman Miller, Inc.
MODEL:
Mirra
LOD:
300

Construction

DESCRIPTION:
Office Chair
Arms, Wheels
WIDTH:
685

DEPTH:

HEIGHT:

MANUFACTURER:
Herman Miller, Inc
MODEL:
Mirra
LOD:
400

Facilities Management

DESCRIPTION:
Office Chair
Arms, Wheels
WIDTH:
685

DEPTH:

HEIGHT:

MANUFACTURER:
Herman Miller, Inc
MODEL:
Mirra
PURCHASE DATE:
01/02/2013

(Only data in red is useable)



3. Qu'est-ce que nous allons exactement "bimmer"?

LOD - Level of Development

LOI - Level of Information

- Décrit dans la norme de données (p.e. l'OTL)
- Une sélection basé sur les besoin du projet
 - p.e. un 'subset' des types d'objet, attributs, relations de l'OTL
- Dépendant de la phase et le scope du projet

LOG - Level of Geometry

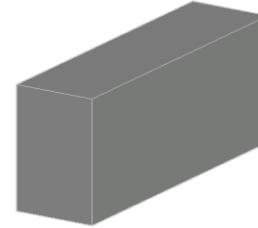
- Une géométrie par type d'objet, plus ou moins détaillée
- P.ex. LOG -1 jusqu'à LOG 4



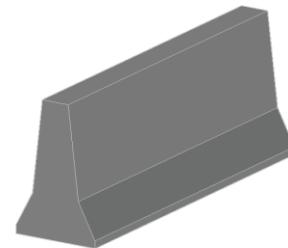
LOG Niveau 0



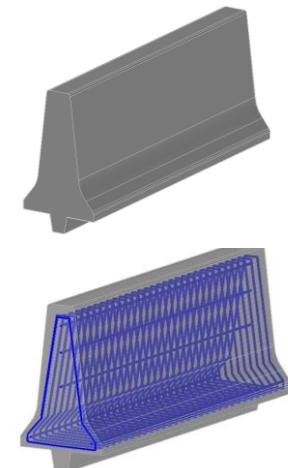
LOG Niveau 1



LOG Niveau 2



LOG Niveau 3-4





BIM dans un projet = travail sur mesure



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EEN ORGANISATIE VAN



BWV | Belgische
Wegenvereniging



AGENTSCHAP
WEGEN & VERKEER

MET DE STEUN VAN

Plus d'info <https://wegenenverkeer.be/zakelijk/bim>



Opzoekingscentrum
voor de Wegenbouw



BRUSSEL MOBILITEIT
GEWESTELIJKE OVERHEIDS Dienst BRUSSEL

 **Wallonie**
mobilité infrastructures
SPW



BFAW
Belgische Federatie van Aannemers van Wegenwerken vzw



Contact

 Timo Nuttens

 0485/85.89.45

 [timothy.nuttens@mow.vlaanderen.be](mailto:timo.nuttens@mow.vlaanderen.be)

