

Regler for plotning af 3D model drawings

Bentleyuser.dk årsmøde 12.11.2013

Frank Møller Christensen



Regler for plotning af 3D model drawings

Denne præsentation vil gennemgå nogle af de spilleregler, som du må overholde for at få skabt korrekte tegninger fra dine 3D modeller.



Regler for plotning af 3D model drawings

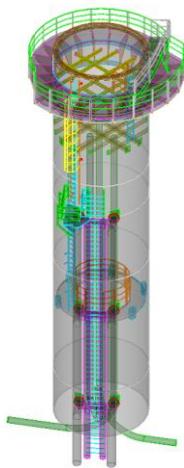
Bentley har udarbejdet et notat "Plotting 3D Model FAQ", hvor emnet delvist er berørt. Du kan finde notatet på:

http://communities.bentley.com/products/microstation/microstation_printing/w/wiki/plotting-3d-models-faq.aspx

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Regler for plotning af 3D model drawings



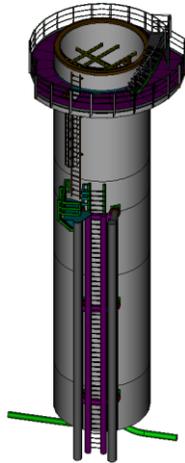
Grafikkort er i dag så kraftige, at 3D modelering kan gøres i reel tid ved at grafikkortet laver alt arbejdet. Både renderinger og snit i modellerne.

- Grafikkort arbejder med prikker (pixels).
- Tegninger (plots) består af eksakt definerede streger.
- Snit til tegninger defineres som Dynamic Views, og disse snits udseende bestemmes af Display Styles.
- Plottets udseende bestemmes af pentabeller

**Udfordringen bliver så:
At prikker skal oversættes til streger.**

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Udfordringerne kan være:

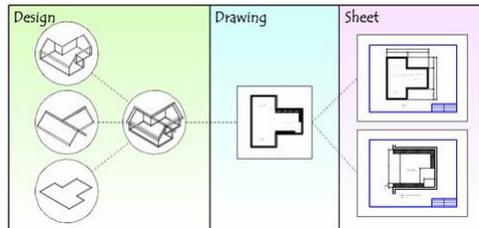
- Tidsforbrug.
- Resymbolisering.
- Plottets opsætning/layout.
- Kontrolprocedurer.
- Aflevering og arkivering.

Hvilke værktøjer har vi, og hvordan skal de kombineres?

Dynamic Views

Dynamic Views

Typisk 3D workflow.

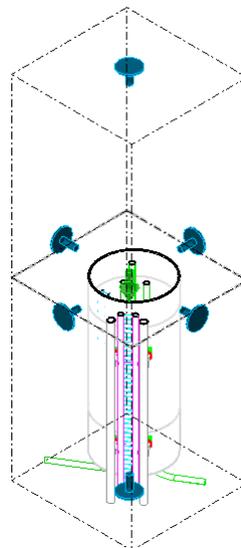
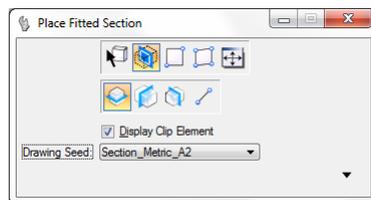


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Dynamic Views

Dynamic Views kan f.eks. skabes med Placed Fitted Section.

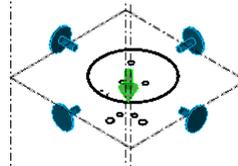
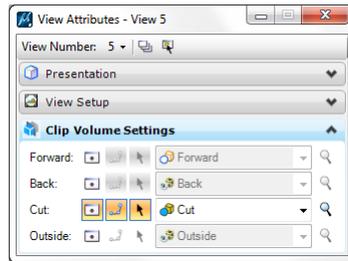


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Dynamic Views

Du skal vælge hvad du vil se.
Cut section:

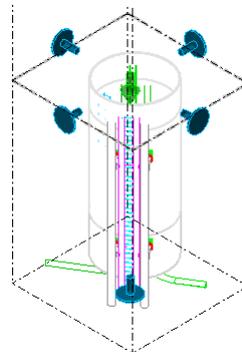
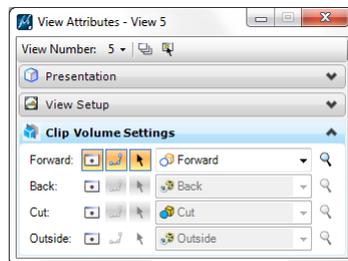


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Dynamic Views

Forward section:

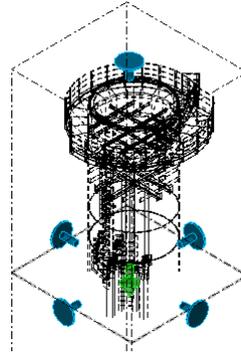
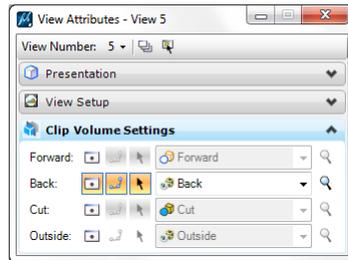


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Dynamic Views

Back section:

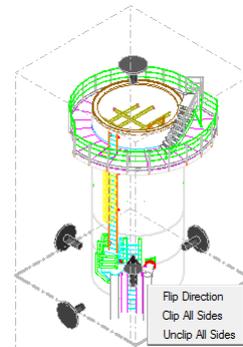
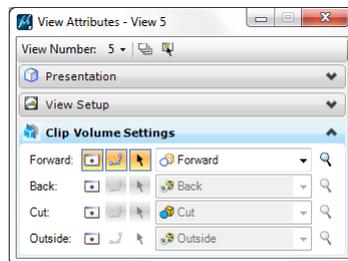


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Dynamic Views

Den grønne pil definerer retningen

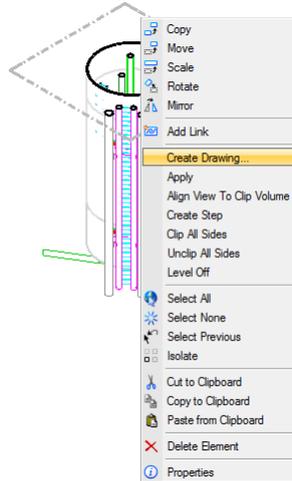


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Dynamic Views

Brug dernæst view'et til at skabe tegningen.



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Dynamic Views

Dvs., skab en Drawing Model (2D)

Create Drawing

Name: Snit 1 - Cut and Forward
Drawing Seed: Section_Metric_A2
View Type: Section View
Discipline: General
Purpose: Section View

Create Drawing Model
Seed Model: DrawingSeed.dgnlib, Section_Metric
 Filename: (Active File)
Scale: 1:100

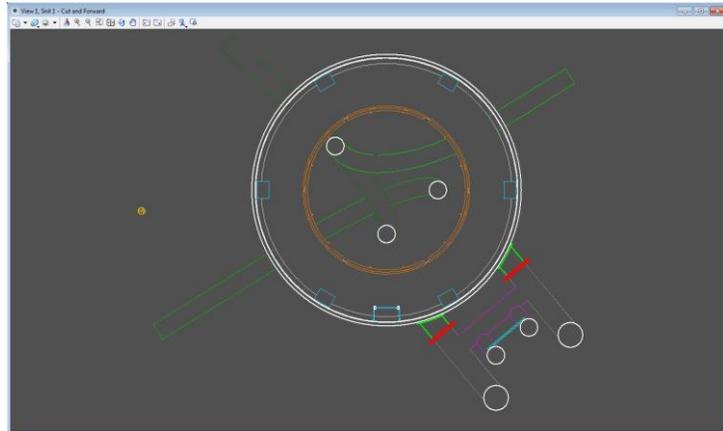
Create Sheet Model
Seed Model: DrawingSeed.dgnlib, Section_Metric [S]
 Filename: (Active File)
Detail Scale: 1:100
 Make Sheet Coincident
 Open Model

OK Cancel

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Modellen



**Nu skal du tænke dig om,
og sørge for at få sat
Display Styles fornuftigt**

Dynamic Views

Tiden til plotning bestemmes hovedsagelig af renderingsmetoden.

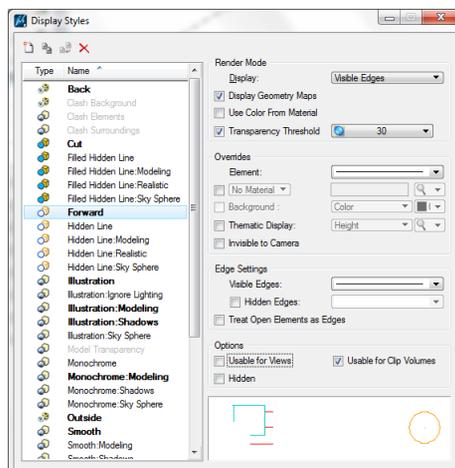
- Regulær Hidden Line (ikke rasterized).
- Filled Hidden Line (rasterized skal vælges). Benyttes f.eks. ved udfyldte snit. Benyt evt. element templates.
- Hvis et plot er sammensat af forskellige display typer benyttes højst renderingsmetode. Dvs., at hvis et enkelt view på plottet er shaded, bliver hele plottet rasterized.

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Dynamic Views

Regulær Visible Edges benyttes i stilen Forward.

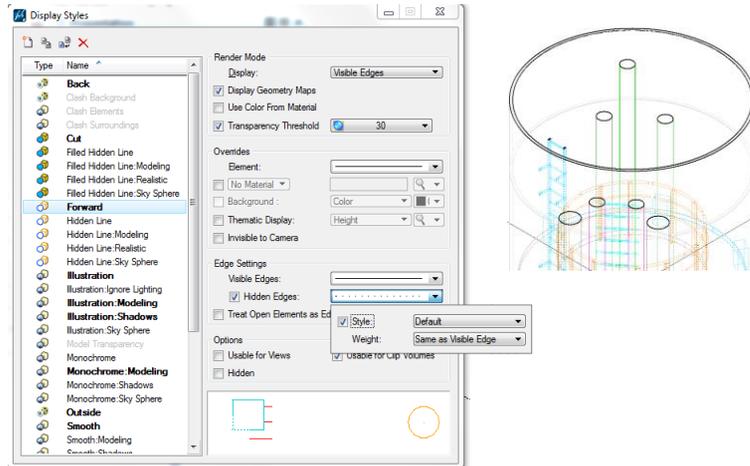


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Dynamic Views

Hidden Edges opsætninger skal resymboliseres i en pentabel.

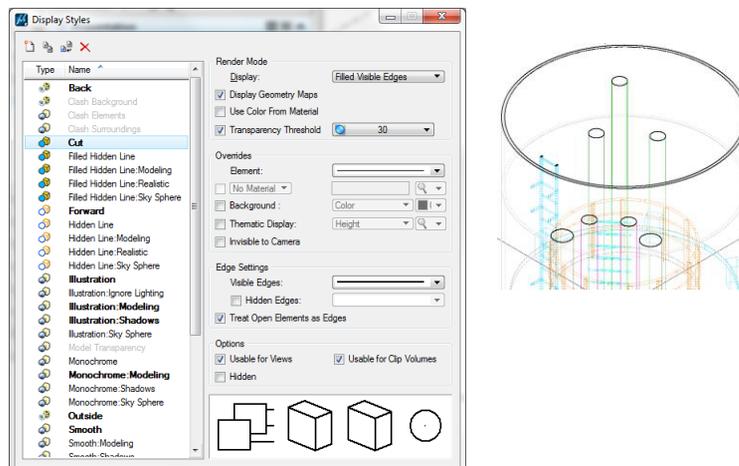


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Dynamic Views

Filled Visible Edges benyttes i stilen Cut.

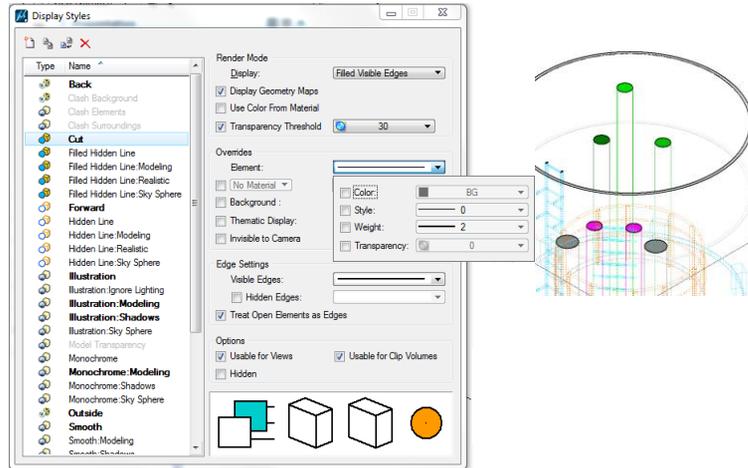


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Dynamic Views

Filled Visible Edges benyttes i stilen Cut.

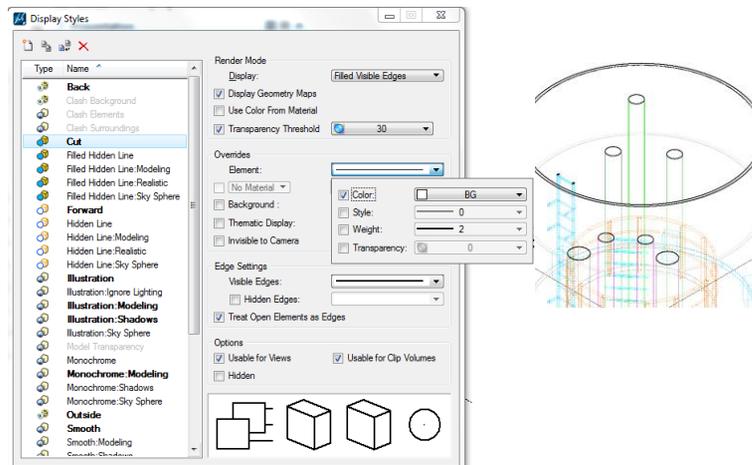


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Dynamic Views

Filled Visible Edges benyttes i stilen Cut



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Tidsforbrug

Tidsforbrug

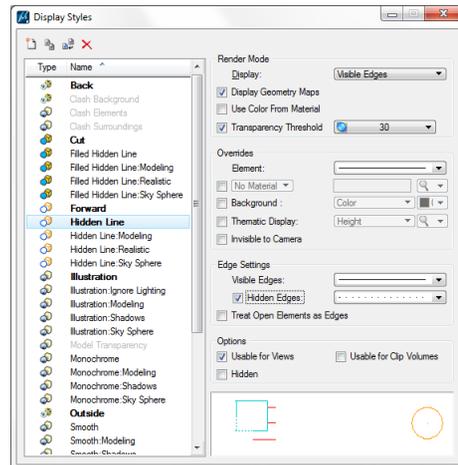
Tiden til plotning bestemmes hovedsagelig af de "Render Modes" som benyttes i Display Styles.

For de forskellige snit benyttes oftest:

- **Back (wireframe)**
- **Cut (filled visible edges eller element templates)**
- **Forward (visible edges)**
- **Hidden Line (visible edges)**
- **Outside (wireframe)**
- **Illustration (shaded)**

Regulær Visible Edges

Optimering af Visible Edges.



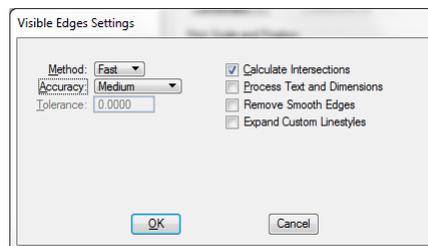
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Regulær Visible Edges

Opsætningerne for (regulær) Visible Edges gemmes i modellen i DGN filen.

Kald dialogboksen frem med <Ctrl>P > Settings > Visible Edges Settings



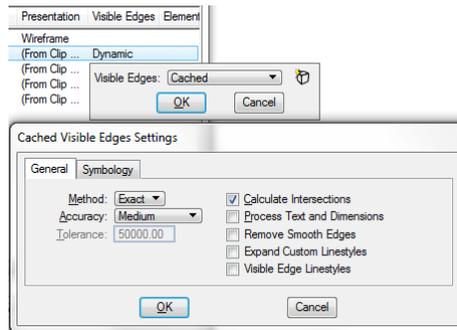
Juster opsætningerne og afslut med Save Settings (<Ctrl>F)

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Regulær Visible Edges

For Cached Visible Edges gemmes opsætningerne sammen med den cached model.



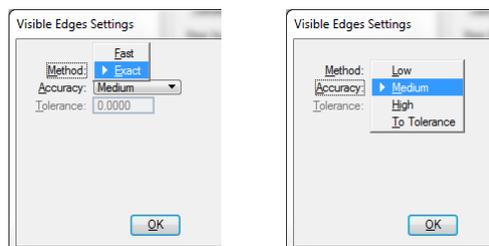
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Regulær Visible Edges

Oftest vil Method Fast og Accuracy Medium være passende.

Andre valgmuligheder har begrænset virkning.

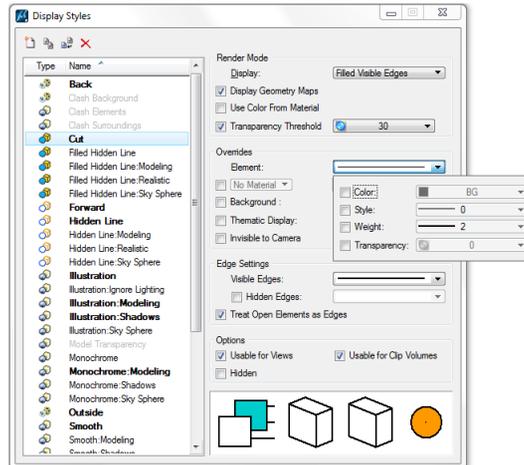


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Filled Visible Edges

Optimizing of Filled Visible Edges.

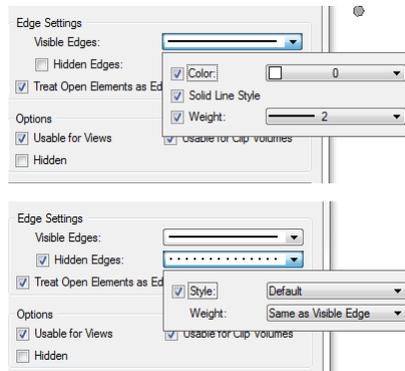


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Filled Visible Edges

Optimizing of Filled Visible Edges.

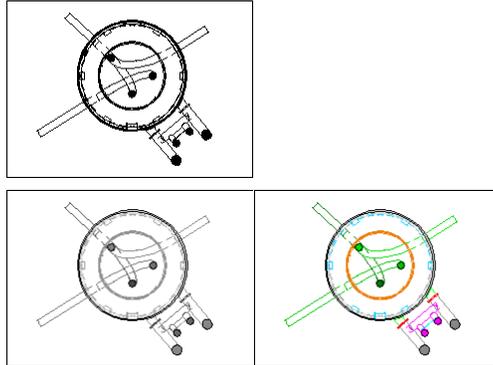


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Filled Visible Edges

Vær opmærksom på, at du i MicroStation Print ikke kan specificere en color tabel. Så udfyldte flader bliver helt sorte, medmindre de plottes i gråtone eller i farve.

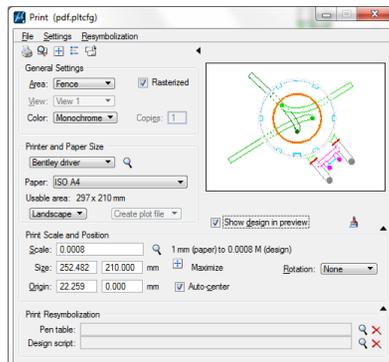


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Filled Visible Edges

Vær opmærksom på at du kan få problemer med, at Print eller Print Organizer fejler, når du har udfyldte flader forskellig for baggrundsfarven (BG). Du kan ofte undgå problemet ved at vælge Rasterized, men når du benytter Rasterized, vil dit plot ofte være i farver.

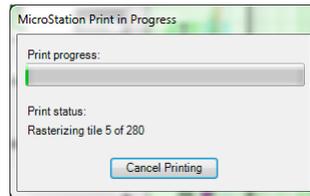


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Filled Visible Edges

Vær også opmærksom på at tiden, til at generere et Rasterized plot, ofte vil være i størrelsesorden mange minutter.



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Regler for plotning af 3D model drawings

Resymbolisering

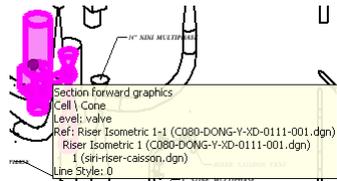
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Resymbolisering

Resymbolisering udføres normalt ved brug af en pentabel. For at et element kan resymboliseres, skal pentabellen kunne fortolke elementet.

Et element på formen "Section forward graphics"



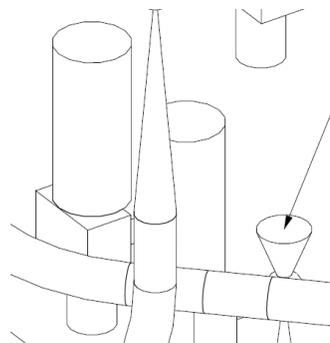
kan ikke resymboliseres i alle pentabeller, da elementet er en del af et dynamisk view.

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Resymbolisering

"Section forward graphics"

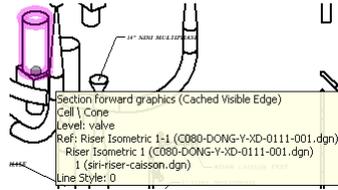


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Resymbolisering

Et element på formen "Section forward graphics (Cached Visible Edge)"



kan resymboliseres i alle pentabeller, da elementet er cached.

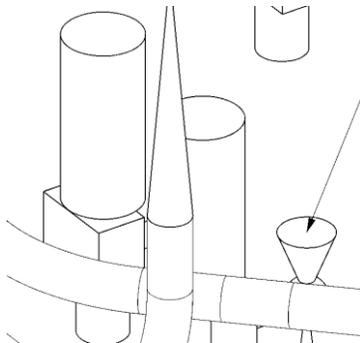
Bemærk også, at "Section forward graphics" er splittet op i mindre enheder.

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Resymbolisering

Section forward graphics (Cached Visible Edge)

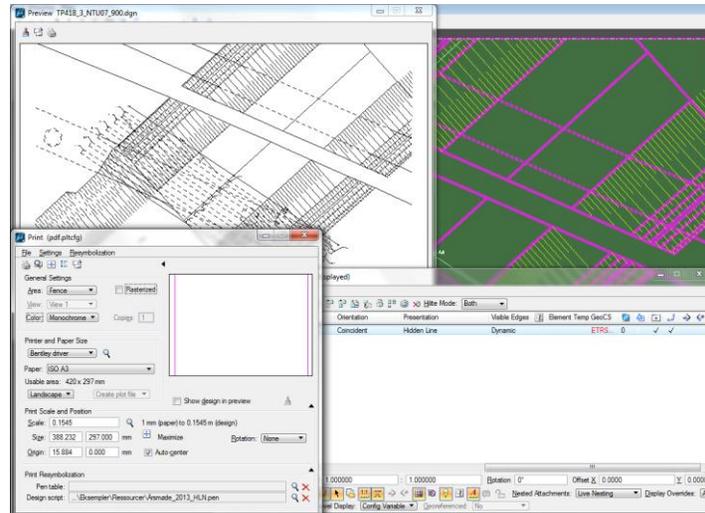


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Resymbolising

Print - Visible Edges - Pentabel

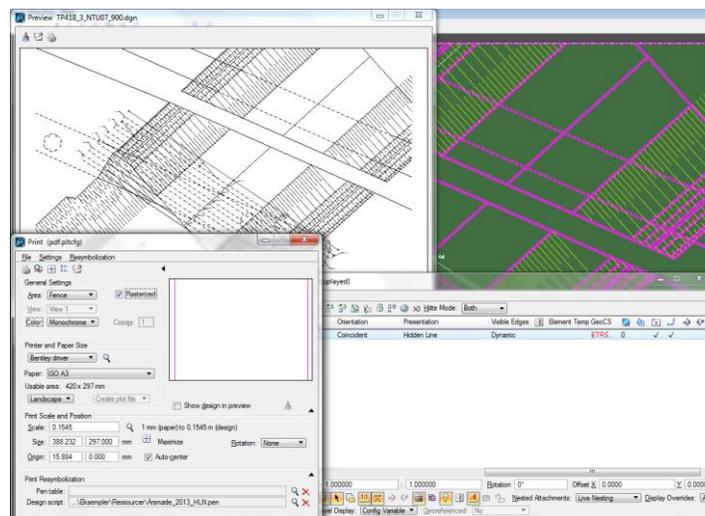


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Resymbolising

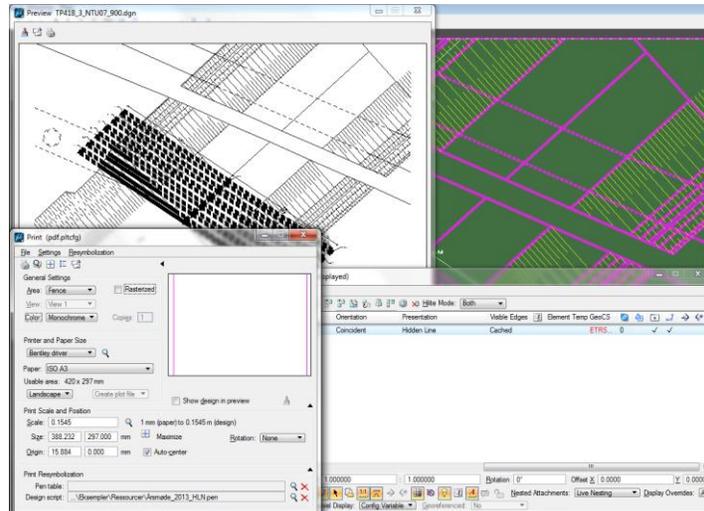
Print - Visible Edges - Pentabel - Rasterized



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Print – Cached Visible Edges – Pentabel



Indeholder pentabellen syntaks så som ***thickness = 0.018*** virker strektykkelser ikke for dynamiske views.

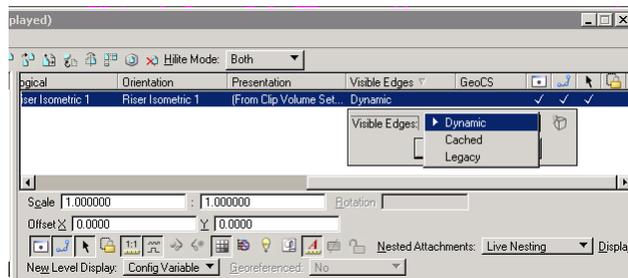
Kan du klare dig med ***weight_base = 0.018*** vil strektykkelsen blive korrekt.

Da du kan finde andet som ikke virker, bør du benytte **Cached Visible Edges**.

Cached Visible Edges

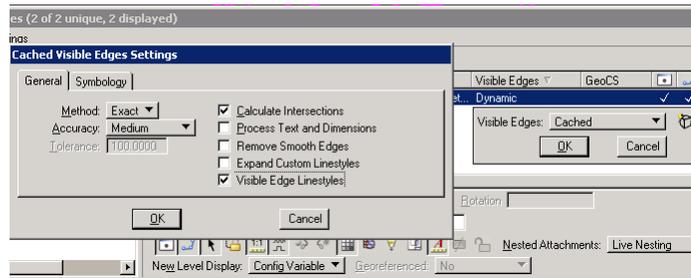
Cached Visible Edges

Skift til Cached Visible Edge sker via reference dialog boksen.



Cached Visible Edges

Symbolet til venstre for Cached aktiverer Cached Visible Edges Settings dialog boksen.

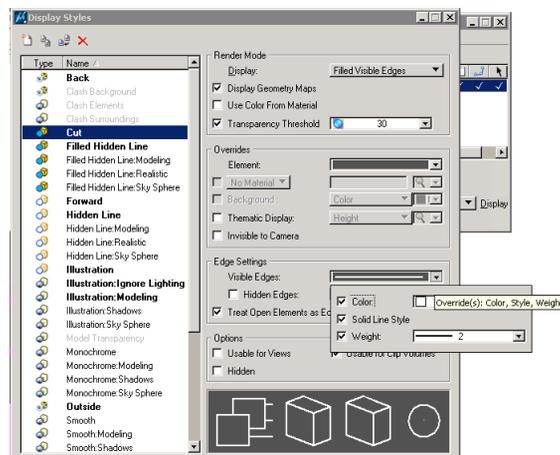


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Cached Visible Edges

Ved valg af Visible Edge Linestyles.

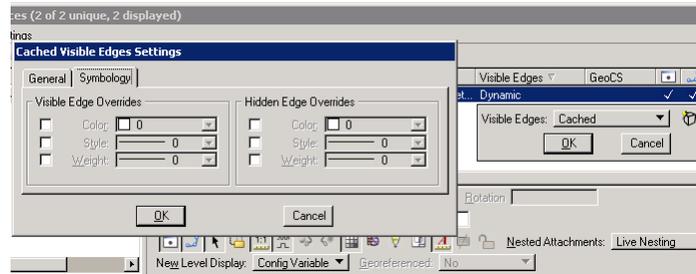


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Cached Visible Edges

Ved valg fra Symbology fanebladet.



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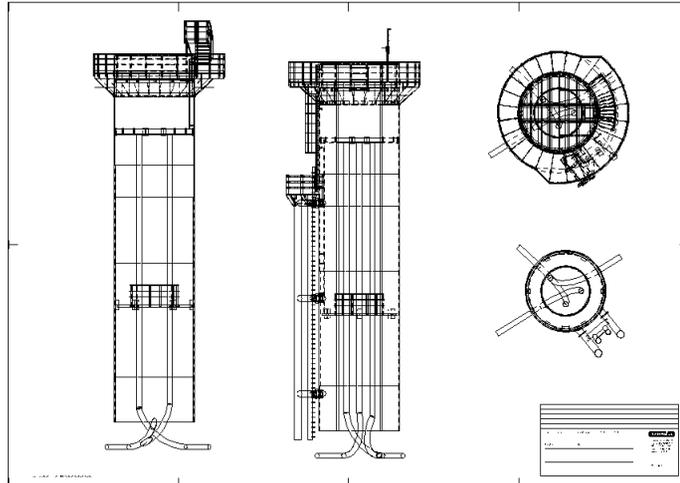
Opbygning af tegning

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Regler for plotning af 3D model drawings

Opbyg din tegning uden renderede flader.

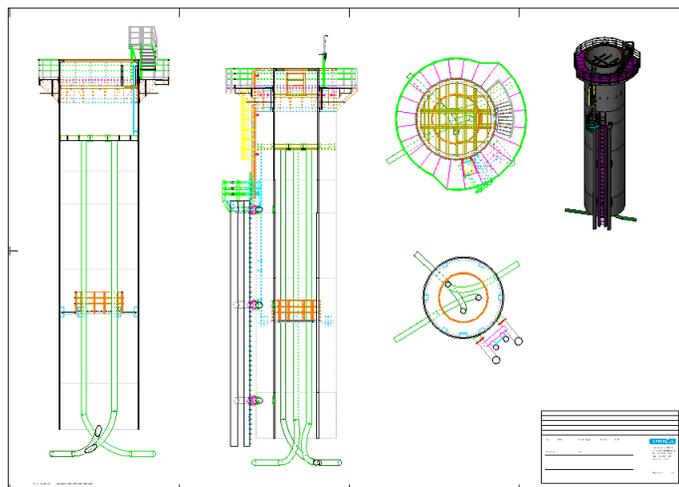


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Regler for plotning af 3D model drawings

Renderede flader i indsatte views medfører rasterized tegninger.

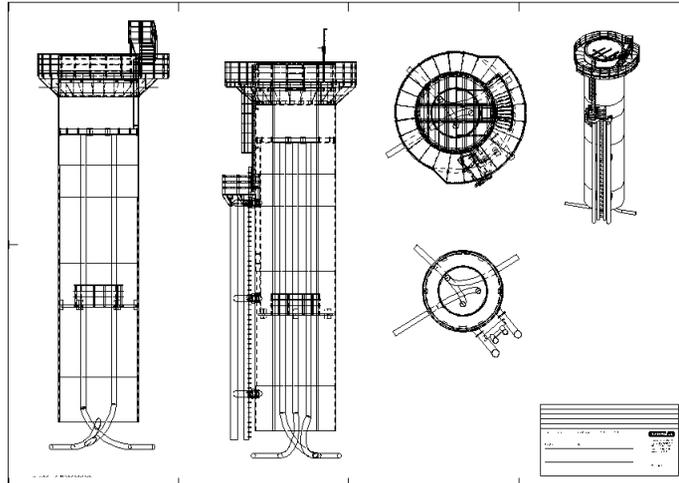


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Regler for plotning af 3D model drawings

Som monokrom bliver renderingen visible edges.

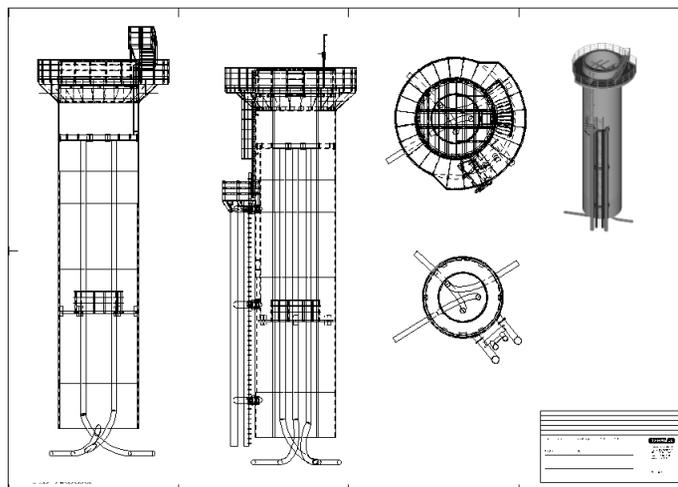


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Regler for plotning af 3D model drawings

Overvej om indsættelse af en renderet rasterfil ikke er en bedre løsning.



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Kontrolprocedure

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Kontrolprocedure

**Kontroller at Visible Edges er Cached, og at Visible Edges feltet ikke er rødt. Benyt evt. kommandoerne:
REFERENCE VISIBLEEDGES CACHED ALL
REFERENCE VISIBLEEDGES CACHED SYNCHRONIZE ALL**

File Name	Model	Description	Logical	Orientation	Presentation	Visible Edges
dkram_notation.dgn	Notation	A1 liggende - stand...	Std_594x840_ramme	Std_594x840	Wireframe	
Mølefundament.dgn	Default	Master Model	Snit 2 - Lodret	Snit 2 - Lodret	(From Clip Volume Settings)	Cached
Mølefundament.dgn	Default	Master Model	Section 2	Section 2	(From Clip Volume Settings)	Cached
Mølefundament.dgn	Default	Master Model	Plan 2	Plan 2	(From Clip Volume Settings)	Cached
Mølefundament.dgn	Default	Master Model	Snit 1 - Cut and Fo...	Snit 1 - Cut and Fo...	(From Clip Volume Settings)	Cached

Scale	1.000000	1000.000000	Rotation	0°	Offset X	0.4130	Y	-0.2859	
Level Display:	Config Variable	Georeferenced:	No	Nested Attachments:	No Nesting	Display Overrides:	Always	Nesting Depth:	1

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Aflevering

Aflevering

Ved skift i revisioner og ved afleveringer bør dynamiske views låses. Dette udføres ved at skifte fra den dynamiske metode til den cached metode.

Afleveres en tegning hvor alle dynamiske views er ændret til cached views, er der ikke behov for også at aflevere de modeller der danner grundlag for snittene.

Der findes en del kommandoer som skifter mellem dynamisk og cached views.

Aflevering

Konverter alle referencer i den aktive model til cached: **REFERENCE VISIBLEEDGES CACHED ALL**

Konverter alle referencer i alle modeller i den aktive fil til cached: **REFERENCE VISIBLEEDGES ALLMODELS CACHED**

Og konvertering tilbage til dynamisk views:
REFERENCE VISIBLEEDGES DYNAMIC ALL
REFERENCE VISIBLEEDGES ALLMODELS DYNAMIC

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Regler for plotning af 3D model drawings

Spørgsmål.

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