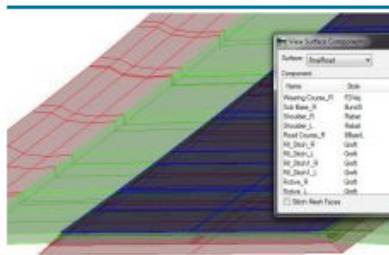


# Nordic Civil User Conference 2018

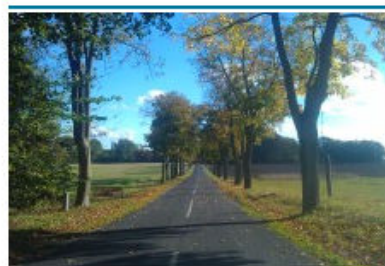
## E4 How to supplement the Danish workspace

Marianne Rask

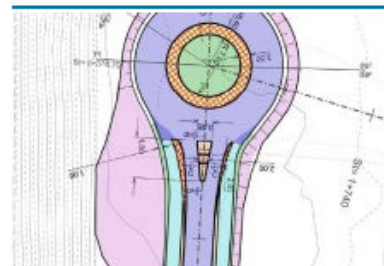
MR@vex-consult.dk, Ph: +45 20 36 20 14



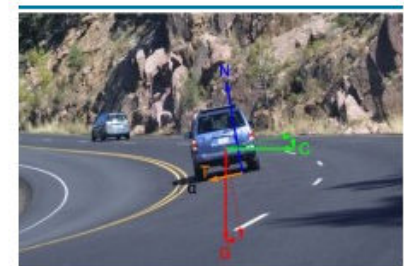
CAD STANDARD



TRAFIKSIKKERHED &  
TILGÆNGELIGHED



PROJETERING



VEJLEDNING &  
UNDERVISNING

## How to supplement the Danish workspace

- The Danish dataset for OpenRoads Designer is based on the delivered workspace from Bentley.  
Feature Definitions are named according to Bentley but symbology use DDA-levels.  
But what if you need extra Feature Definitions or another Profile annotation?  
Join this session to learn how to create additional standards.

# How to supplement the Danish workspace

- You will need to create extra
  - Features DGNLib
  - Annotation DGNLib
- These settings were previously (InRoads SS2) defined in the XIN

# Features in ORD/ORLD CE

- Feature symbology
  1. Level, style, weight, ...
  2. Element Template (ET)
  3. Feature Symbology (FS)
    - Linear
    - Point
    - Profile
    - Surface
  4. Feature Definition (FD)
    - **12** types
    - +3 for SUE
    - +3 for Rail
    - +1 for Survey

SELECTseries 3/4	OpenRoads Designer CONNECT Edition	
Point Features	→	Point Features
Linear Features	→	Linear Features
	→	Alignment Features <i>(New Feature Type)</i>
Surface Features	→	Mesh Features <i>(Renamed from "Surface")</i>
	→	Terrain Features <i>(New Feature Type)</i>
Project Settings	→	Corridor Feature <i>(New Feature Type)</i>
	→	Linear Template <i>(New Feature Type)</i>
	→	Surface Feature <i>(New Feature Type)</i>
		Superelevation Feature <i>(New Feature Type)</i>

- Feature Definition (Features)
  - ▷ Alignment
  - ▷ Terrain
  - ▷ Corridor
  - ▷ Superelevation
  - ▷ Linear Template
  - ▷ Surface Template
  - ▷ Linear
  - ▷ Point
  - ▷ Mesh
  - ▷ Trace Slope
  - ▷ Aquaplaning
  - ▷ Sight Visibility
- Feature Definition (SU\_)
  - ▷ Node
  - ▷ Conduit
  - ▷ Drainage Area
- Feature Definition (Rail)
  - ▷ Cant
  - ▷ Crossing
  - ▷ Turnout
- Survey
  - ▷ Survey

# Features in a Corridor

- Example  
Edge of Pavement (*Linear\Template Points\Pavement\TL\_Edge of Pavt*)

The image shows a software interface for defining a point in a corridor. On the left is a 'Point Properties' dialog box with the following fields:

- Name:  [Apply]
- Use Feature Name Override:  [Close]
- Feature Definition:  [< Previous]
- Superelevation Flag
- Alternate Surface:  [Help]
- Member of:
  - TC\_Asph Conc Wearing Cse
  - TC\_Asph Conc Wearing Cse Shld\_R

On the right is a plan view of a road corridor with various colored lines representing different features. A red point labeled 'EOP\_R' is highlighted with a red square. A tooltip for this point displays the following information:

```
Complex Element: EOP_R
Belongs To: GeomBL
Feature: Linear\Template Points\Pavement\TL_Edge of Pavt
Active Profile: ProfileByTemplate
Level: TV_G_KRN_KBK-- (Road-Geometry-Backbone-Edge of pavement)
```

# Feature Definition

- FD *TL\_Edge of Pavt* uses Feature Symbology *TL\_Edge of Pavt*

Feature Definitions

- Alignment
- Terrain
- ▷  Corridor
  - Superelevation
  - Linear Template
  - Surface Template
- ◀  Linear
  - ◀  Template Points
    - ▷  DNC
    - ▷  Grading
    - ◀  Pavement
      - TL\_Base Ext
      - TL\_Base Ext 1
      - TL\_Centerline
      - TL\_Centerline 1
      - TL\_Centerline 2
      - TL\_Centerline 3
      - TL\_Centerline 4
      - TL\_Edge of Pavt

Properties (OpenRoads Standards)

Selection (1)

- TL\_Edge of Pavt

---

**Feature Definition**

Name	TL_Edge of Pavt
Description	Edge of Pavt
Name Seed	TL_Edge of Pavt

---

**Item Type**

Item Type	No Item Type
-----------	--------------

---

**Linear**

Create Template Geometry	True
Linear Feature Symbology	TL_Edge of Pavt
Profile Feature Symbology	TL_Edge of Pavt

# Feature Symbology

- FS *TL\_Edge of Pavt* uses Element Template *TL\_Edge of Pavt*

Feature Symbologies

- Linear
  - Template Points
    - DNC
    - Grading
    - Pavement
      - TL\_Base Ext
      - TL\_Base Ext 1
      - TL\_Centerline
      - TL\_Centerline Sub
      - TL\_Edge of Pavt**
      - TL\_Edge of Pavt Sub
      - TL\_Edge of Shld
      - TL\_Edge of Shld Sub

Properties (OpenRoads Standards)

Selection (1)

- TL\_Edge of Pavt

---

**Defaults**

Default Element Template	Modeling\Template Points\Pavement\TL_Edge of Pavt
--------------------------	---

**Plan**

Annotation Group	None
Element Template	None
Arc Element Template	None
Spiral Element Template	None

**Profile Intersection**

Element Template	Modeling\Points\Intersecting Profile
------------------	--------------------------------------

**3D**

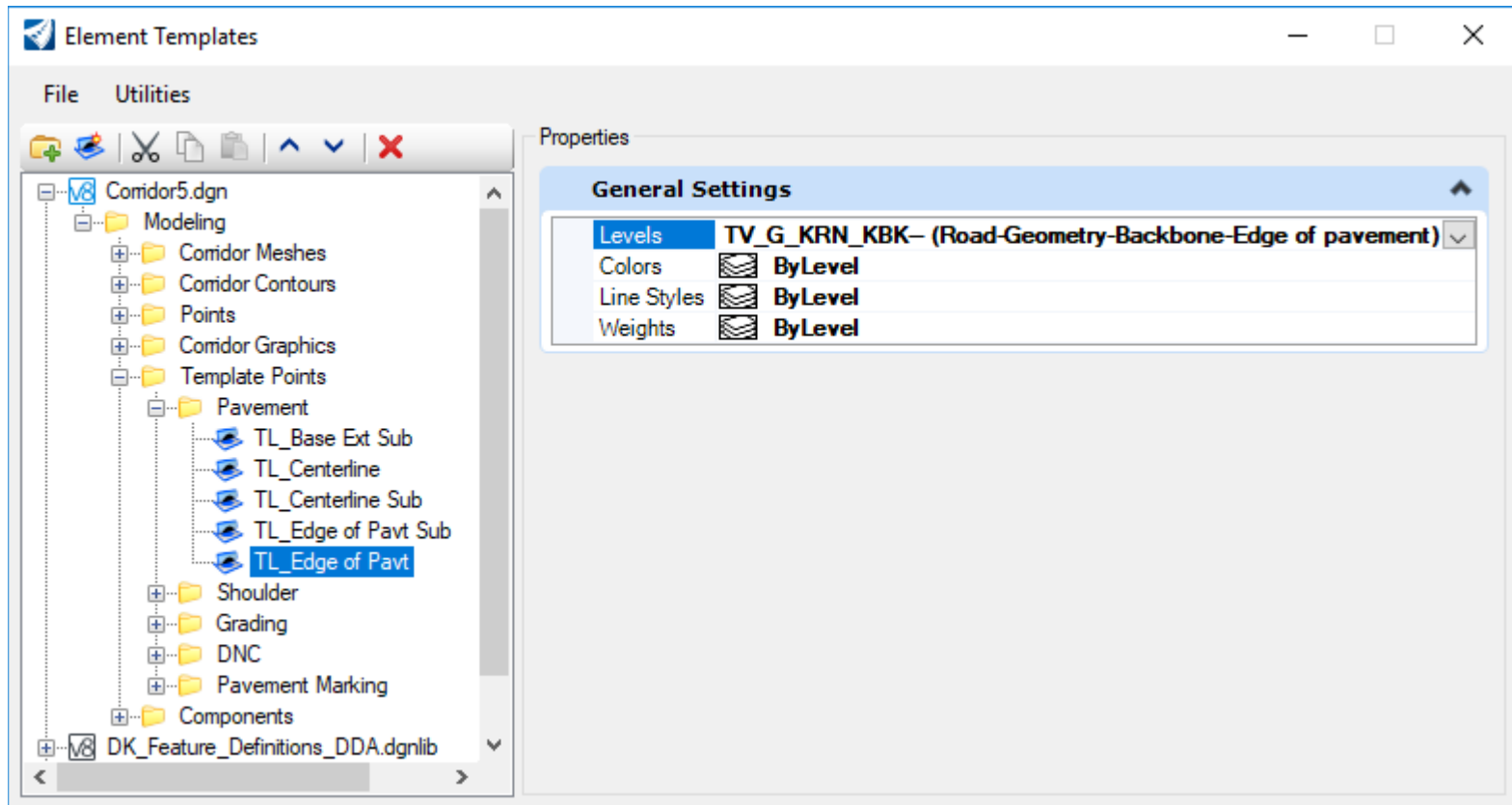
Annotation Group	None
Element Template	None

**Dynamic Cross Section**

Crossing Point Element Template	None
---------------------------------	------

# Element Template

- Element Template *TL\_Edge of Pavt* uses level *TV\_G\_KRN\_KBK--*





# Where are the Features defined?

- Feature Definitions, Feature Symbolologies and Element Templates are defined in the same DGNLib
- Copied into the active file when used
- Denmark standards: **DK\_Feature\_Definitions\_DDA.dgnlib**

## Standards

### Libraries

#### Feature Definitions

- ▷ Feature Definition (Company\_Feature\_Definitions.dgnlib (Default))
- ▷ Feature Definition (DK\_Feature\_Definitions\_DDA.dgnlib (Default))
- ▷ Feature Definition (ProjectXYZ\_Feature\_Definitions.dgnlib (Default))
- ▷ Feature Definition (DK\_Text\_Favorites\_Text\_Styles\_Dimension\_Styles.dgnlib (Default))

#### Feature Symbolologies

- ▷ Feature Symbology Model (Company\_Feature\_Definitions.dgnlib (Default))
- ▷ Feature Symbology Model (DK\_Feature\_Definitions\_DDA.dgnlib (Default))
- ▷ Feature Symbology Model (ProjectXYZ\_Feature\_Definitions.dgnlib (Default))
- ▷ Feature Symbology Model (DK\_Text\_Favorites\_Text\_Styles\_Dimension\_Styles.dgnlib (Default))

# Additional Features for Company (WorkSpace) & Project (WorkSet)

Windows (C:) > ProgramData > Bentley > OpenRoads Designer CE > Configuration > Organization-Civil > Denmark Standards > Dgnlib > Feature Definitions

Name	Date modified	Type	Size
Level	2018-04-25 08:19	File folder	
Rail	2018-04-25 08:19	File folder	
Subsurface	2018-04-25 08:19	File folder	
DK_Dim_Styles.dgnlib	2018-04-24 12:13	Bentley MicroStati...	65 KB
DK_Feature_Definitions_DDA.dgnlib	2018-07-06 17:35	Bentley MicroStati...	466 KB
DK_Text_Favorites_Text_Styles_Dimension_Styles.dgnlib	2018-04-24 12:13	Bentley MicroStati...	222 KB
DK_Text_Styles.dgnlib	2018-04-24 12:13	Bentley MicroStati...	63 KB

- WorkSpace (Company/Discipline)

Windows (C:) > ProgramData > Bentley > OpenRoads Designer CE > Configuration > WorkSpaces > BentleyUserDK > Standards > Dgnlib > Feature Definitions

Name	Date modified	Type	Size
Company_Feature_Definitions.dgnlib	2018-07-06 17:35	Bentley MicroStati...	466 KB
Readme.txt	2018-04-24 12:13	Text Document	1 KB

- WorkSet (Project)

DATA (E:) > VEX > Kunde > 2018-12\_ORD-demo > Standards > Dgnlib > Feature Definitions

Name	Date modified	Type	Size
ProjectXYZ_Feature_Definitions.dgnlib	2018-07-06 17:35	Bentley MicroStati...	466 KB

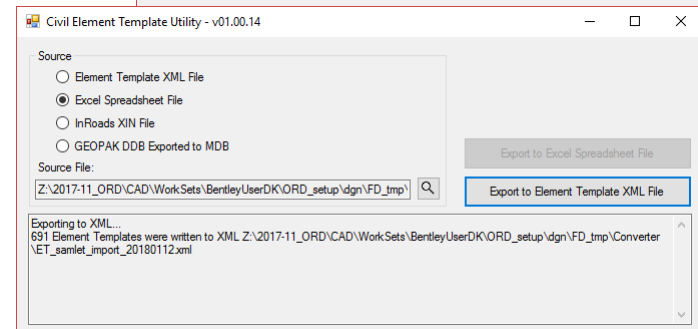
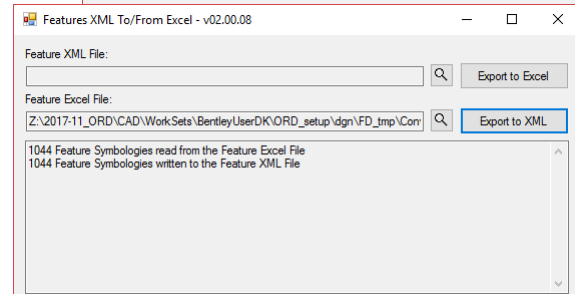
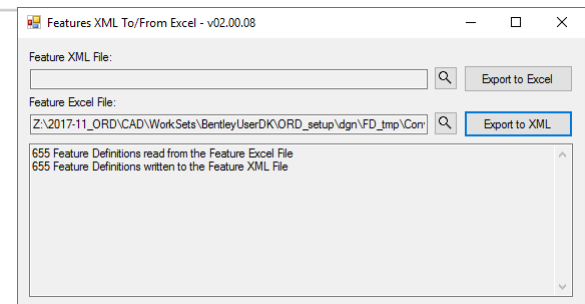
# Tool for exporting and importing

- Migration Utilities

Windows (C:) > ProgramData > Bentley > OpenRoads Designer CE > Configuration > Organization-Civil > Migration Utilities > Features Import Export

Name	Date modified	Type	Size
closedxml.dll	2018-04-03 08:18	Application extens...	787 KB
closedxml.xml	2018-04-03 08:18	XML Document	141 KB
ContentManagement.xsd	2018-04-03 08:18	XSD File	29 KB
documentformat.openxml.dll	2018-04-03 08:18	Application extens...	5 111 KB
FDIE.cfg	2018-04-03 08:18	CFG File	1 KB
features_importexport_excel.exe	2018-04-03 08:18	Application	92 KB
README.txt	2018-04-03 08:18	Text Document	3 KB

- To be able to import and export set  
`_CIVIL_STANDARDS_IMPORTEXPORT = 1`



# Editing ET, FS, FD with Excel and XML

- Element Templates:

Template Path	Template Name	Level Name
\\Modeling\Template Points\Pavement\	TL_Edge of Milling	TV_G_--_---
\\Modeling\Template Points\Pavement\	TL_Edge of Pavt	TV_G_KRN_KBK--
\\Modeling\Template Points\Pavement\	TL_Edge of Pavt Exist	TK_G_TRF_KBK--

- Feature Symbologies:

Feature Symbology Name	Feature Symbol	Feature Symbology Default Element	Annotation	Annotation Plan Element Template	Plan Arc Element Template	Plan Spiral Element
TL_Edge of Milling	Template Point	\\Modeling\Template Points\Pavement\TL_Edge of Milling				
TL_Edge of Pavt	Template Point	\\Modeling\Template Points\Pavement\TL_Edge of Pavt				
TL_Edge of Pavt Exist	Template Point	\\Modeling\Template Points\Pavement\TL_Edge of Pavt Exist				
TL_Edge of Pavt Sub	Template Point	\\Modeling\Template Points\Pavement\TL_Edge of Pavt Sub				

Navigation: Point | **Linear** | Profile | Surface | Solid | (+)

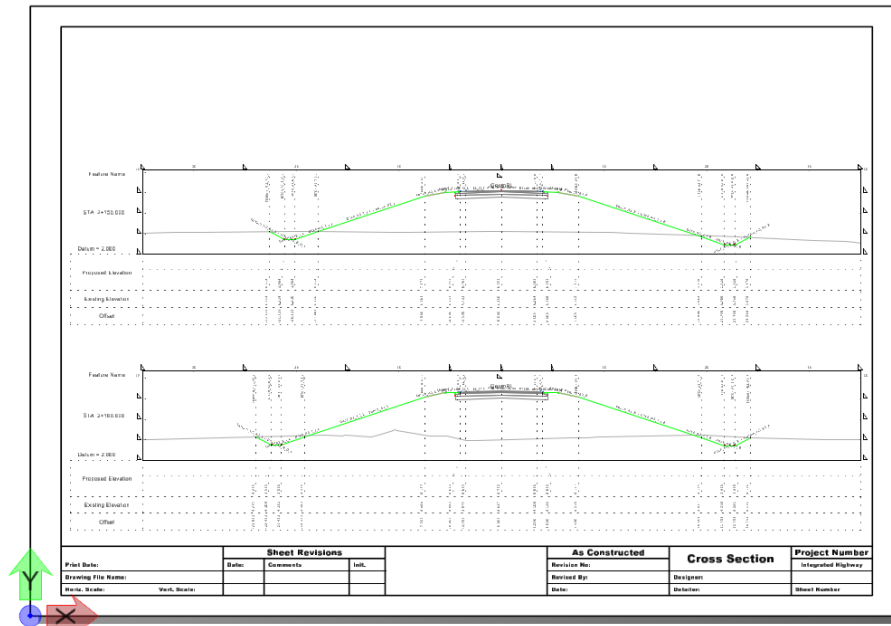
- Feature Definitions:

Feature Definition Name	Feature Definition Path	Feature Definition Description	Feature Definition Name	Feature Definition It	Create Template	Linear Feature Symbology
TL_Edge of Milling	Template Points\Pavement	Edge of Milling	TL_Edge of Milling		False	Linear\Template Points\P
TL_Edge of Pavt	Template Points\Pavement	Edge of Pavt	TL_Edge of Pavt		True	Linear\Template Points\P
TL_Edge of Pavt 1	Template Points\Pavement	Edge of Pavt Bottom of Layer 1	TL_Edge of Pavt 1		False	Linear\Template Points\P
TL_Edge of Pavt 2	Template Points\Pavement	Edge of Pavt Bottom of Layer 2	TL_Edge of Pavt 2		False	Linear\Template Points\P

Navigation: Point | **Linear** | Alignment | Superelevation | Corridor | Linear Template | Surface Template | Terrain | Mesh

# Annotation and drawing setup in ORD/ORLD CE

- Defined via
  - Drawing sheets
  - Border cells
  - Element Templates
  - Text Favourites
  - Dimension Styles
  - Annotation Definitions
  - Annotation Groups

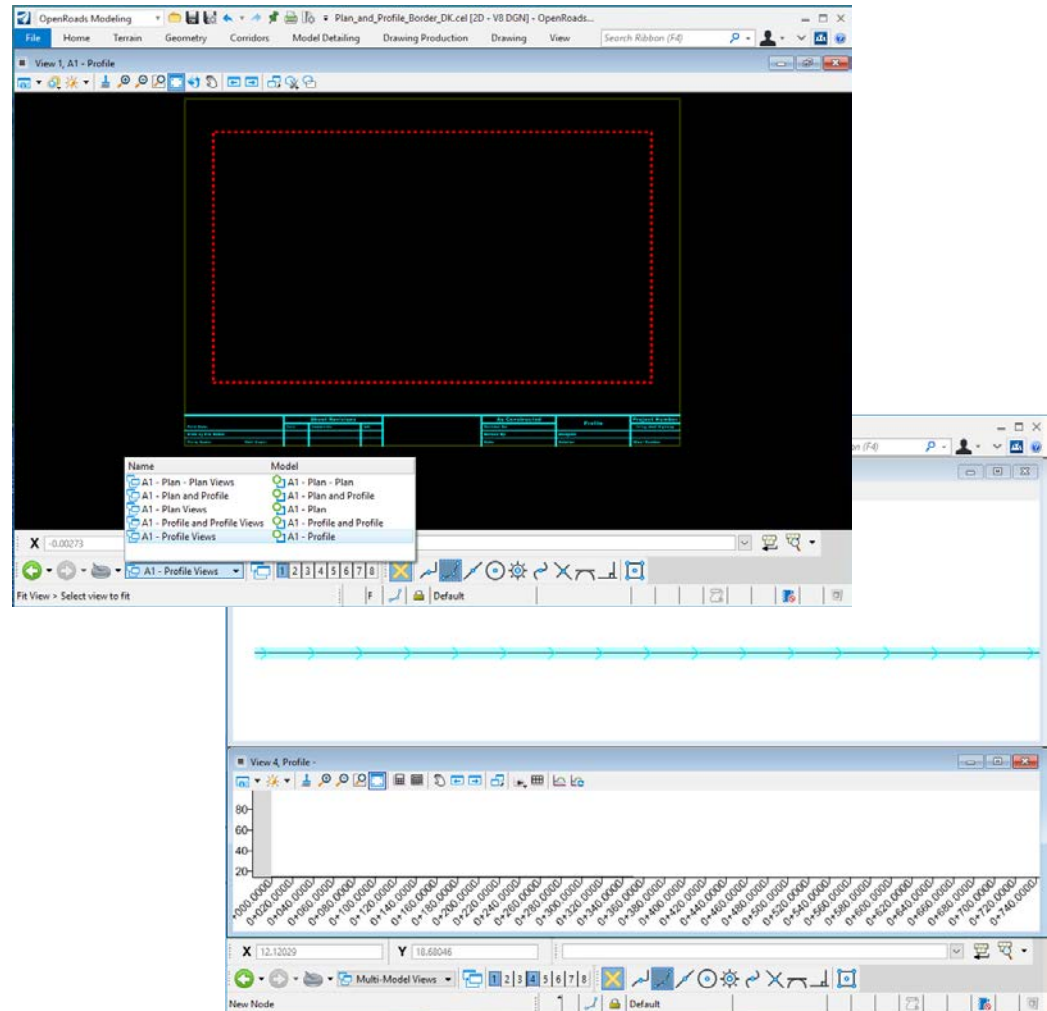


# Drawing sheets and borders

- Border cells
- Drawing sheets

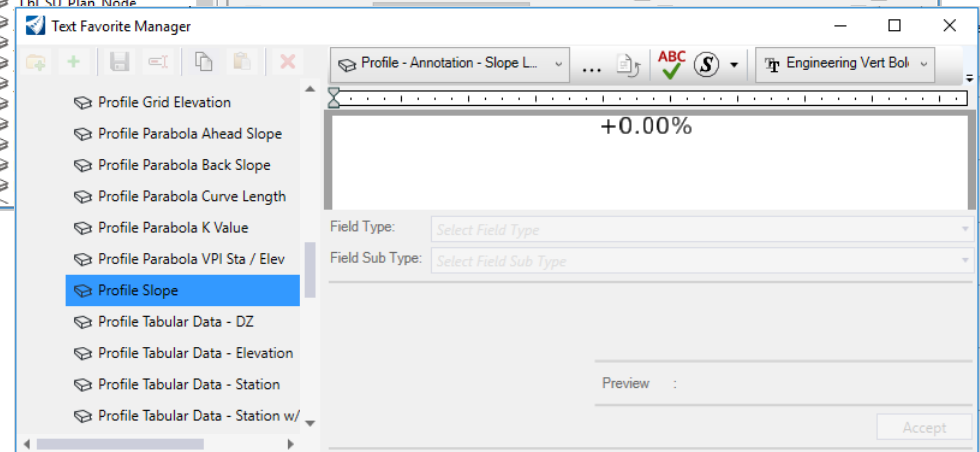
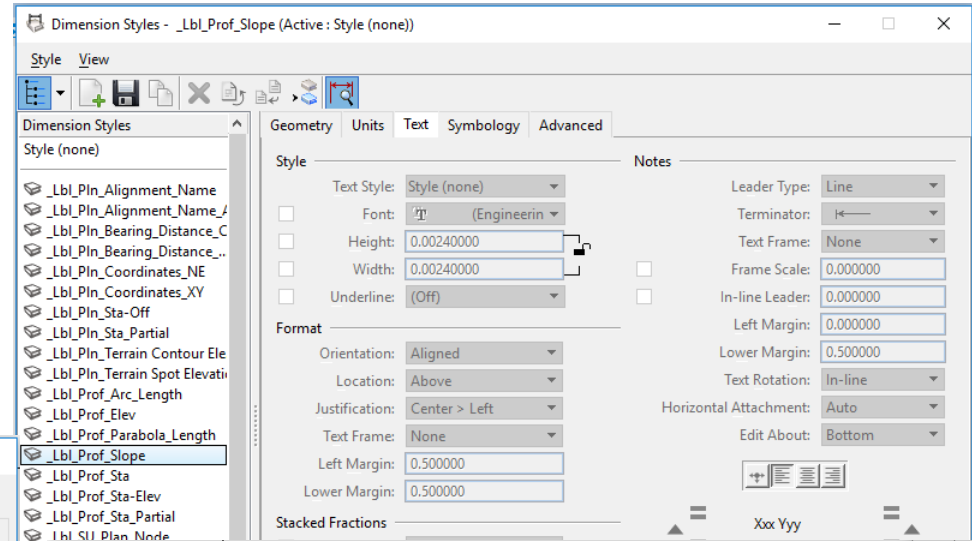
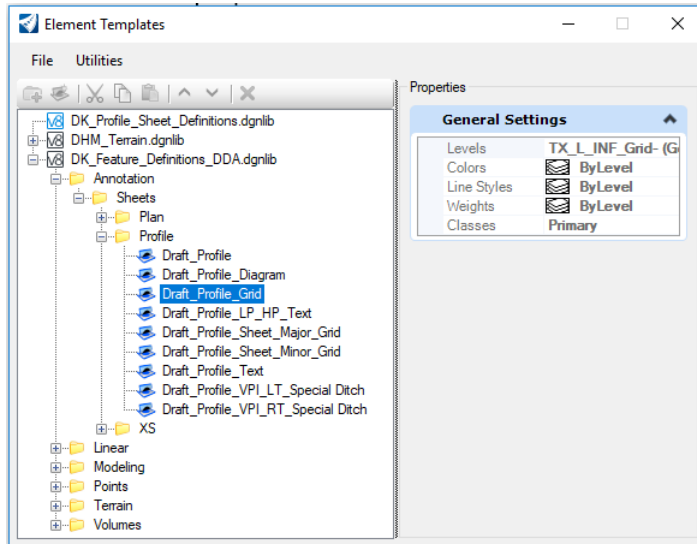
- BDK\_Frames.cel
- BDK\_TitleBlock.cel
- Cross\_Section\_Border\_DK.cel
- Cross\_Section\_Border\_DK.dgn
- Plan\_and\_Profile\_Border\_DK.cel
- Plan\_and\_Profile\_Border\_DK.dgn
- VD\_Frames\_and\_TitleBlock.cel

- DK\_Cross\_Section\_Frame\_Sheet\_Definitions.dgnlib
- DK\_Cross\_Section\_Sheet\_Definitions.dgnlib
- DK\_Plan\_and\_Profile\_Sheet\_Definitions.dgnlib
- DK\_Plan\_Plan\_Sheet\_Definitions.dgnlib
- DK\_Plan\_Sheet\_Definitions.dgnlib
- DK\_Profile\_Profile\_Sheet\_Definitions.dgnlib
- DK\_Profile\_Sheet\_Definitions.dgnlib
- DK\_Profile\_Sheet\_Frame\_Annotation\_Definitions.dgnlib



# Annotation

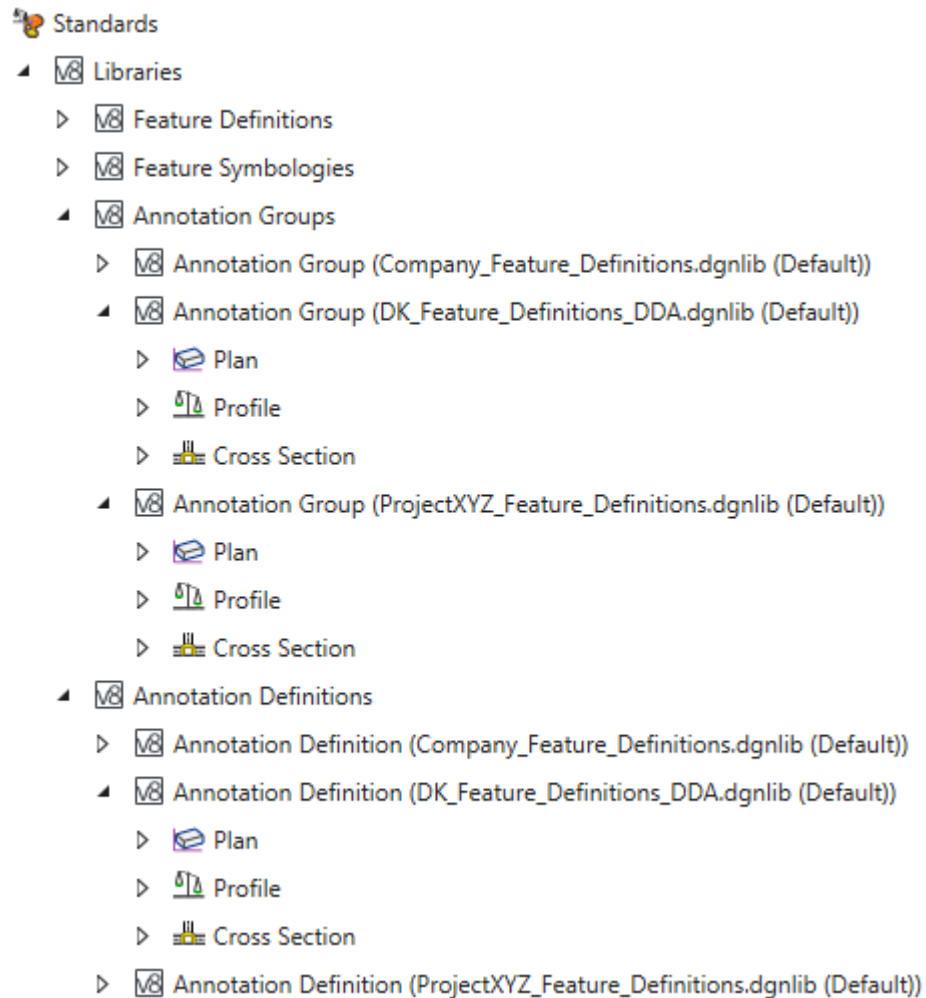
- Element Templates
- Text Favorites
- Dimension Styles



- DK\_Feature\_Definitions\_DDA.dgnlib
- DK\_Text\_Favorites\_Text\_Styles\_Dimension\_Styles.dgnlib

# Annotation

- Annotation Definitions
- Annotation Groups



- **DK\_Feature\_Definitions\_DDA.dgnlib**



# Export and import Annotation Group

**ProjectXYZ\_Annotation.dgnlib (Default)**

- Feature Definitions
- Feature Symbolologies
- Annotation Groups
  - Plan
    - Linear
      - Stationing**
      - Linear3d
      - Point
    - Profile
      - Drawing
      - Linear
    - Cross Section
  - Annotation Definitions
    - Plan
    - Profile
    - Cross Section

**Manage Annotations**

Annotation Group: Stationing

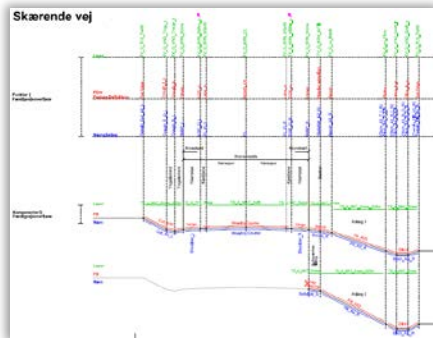
Property	Value
<b>Location</b>	Stations
<b>Annotate</b>	Text
With	Text
Template	Annotation\Sheets\Plan\Station Labels Major
<b>Leader</b>	
Place Leader	False
Offset Begin	0.0000
Offset End	0.0000
Arrow Size	0.0100
Arrow Width	0.0000
Circle Size	0.0000
Square Size	0.0000
Triangle Size	0.0000
Extension Size	0.0000
Template	
<b>Placement</b>	
Rotation Option	Perpendicular
Rotation	00°00'00.0"
Perpendicular Offset Option	Offset Value
Perpendicular Offset	0.0110
Tangential Offset Option	Offset Value
Tangential Offset	0.0000
View Independent	
<b>Line</b>	
Length	0.0000
<b>Cell</b>	
Name	
X Scale	1.0000
Y Scale	1.0000
Z Scale	1.0000

## Workflow for creating a new DGNLib

- Copy Seed3D\_DK.dgn to XYZ\_Feature\_Definitions.dgnlib
- Import Element Templates from XML
- Create Annotation Groups
- Import Annotation Groups from XML
- Import Feature Symbologies from XML
- Import Feature Definitions from XML
- Close and reopen file to see the new FSs and FDs
- Set for all FDs in Corridor & Linear Template:  
Mesh Feature Definitions: Mesh\Modeling\Top Mesh & Bottom Mesh
- Add text with date and description on level Default
- DO NOT COMPRESS! (or ETs for Annotation will disappear)
  
- ET, AG, FS, FD must be imported IN THAT ORDER.

# Recommendation

- Use the Features from the Danish workspace as much as possible
  - It will have FDs (and in time; annotation) recommended by Vejdirektoratet



- If you create your own FDs then use the same folder structure and naming convention (e.g. FD: *Linear\Template Points\Pavement\TL\_Edge of Pavt Gravel*)