

CONNECT Seed Files and Naming Conventions

For CONNECT projects there are several seed files for use with OpenBridge Modeler (OBM), OpenRoad Designer(ORD), and ProStructures.

These seed files contain the models needed to develop the layout and modeling of structures and plan sheets.

The OpenBridge Modeler and OpenRoad Designer seed files for structure projects are located in the CONNECT managed workspace at:

pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\IowaDOTStandardsConnect\Configuration\Organization-Civil\IowaDOT_Standards\Seed\

The seed file used for both 2D & 3D plan development and sheeting, is located in the CONNECT managed workspace at:

pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\IowaDOTStandardsConnect\Configuration\Organization-Civil\IowaDOT_Standards\ProStructures\Seed\Imperial3d.dgn

Copy Seed

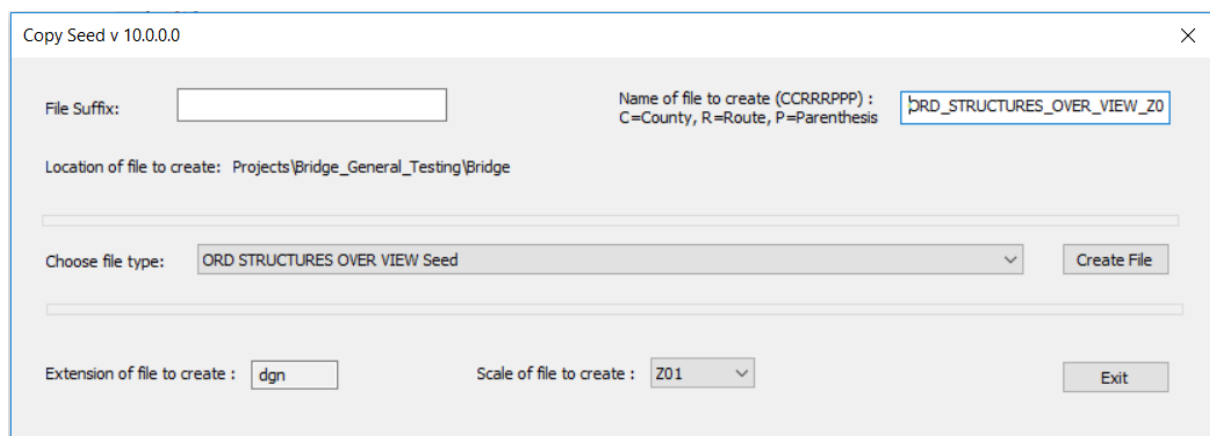
The Copy Seed utility can be used to create the files for modeling and detailing. The CONNECT Copy Seed program is located at:

pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Consultant Data\ProjectWise Custom Tools\CopySeed\

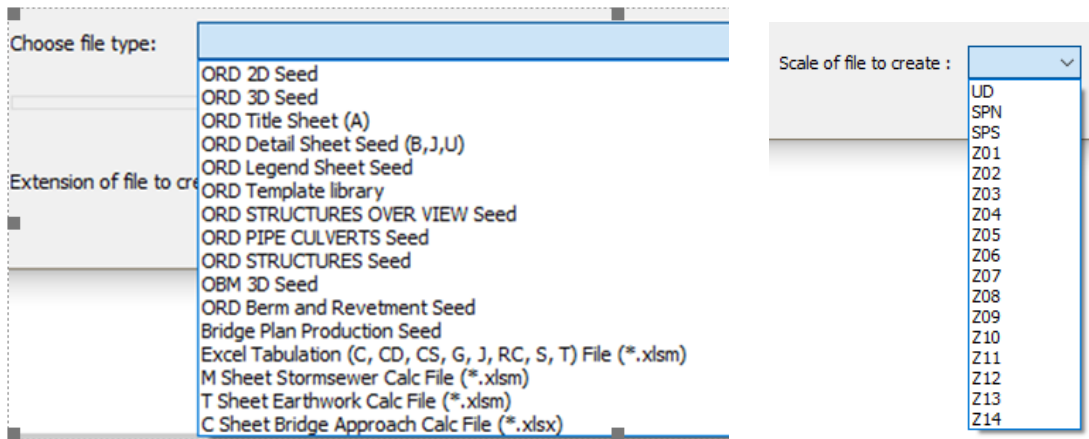
Design consultants will need to install the utility with the provided CopySeedSetup.msi file. Files located in the subfolder CopyFilesToProjectWiseBinFolder also need to be copied to C:\Program Files\Bentley\ProjectWise\bin and C:\Program Files (x86)\Bentley\ProjectWise\bin

To use Copy Seed, right click in the folder and select to launch. Choose file type, the correct zone in Scale of file to create field and complete the Name of the file to create field based on information included in this document. Click Create File.

Images below are showing the **Copy Seed** interface.



Images below are showing drop down options for the file type and scale in **Copy Seed**.



Once a file is created in ProjectWise, in the Description field of the document, (using Rename...) add a logical description to aid in the understand of what the file contains.

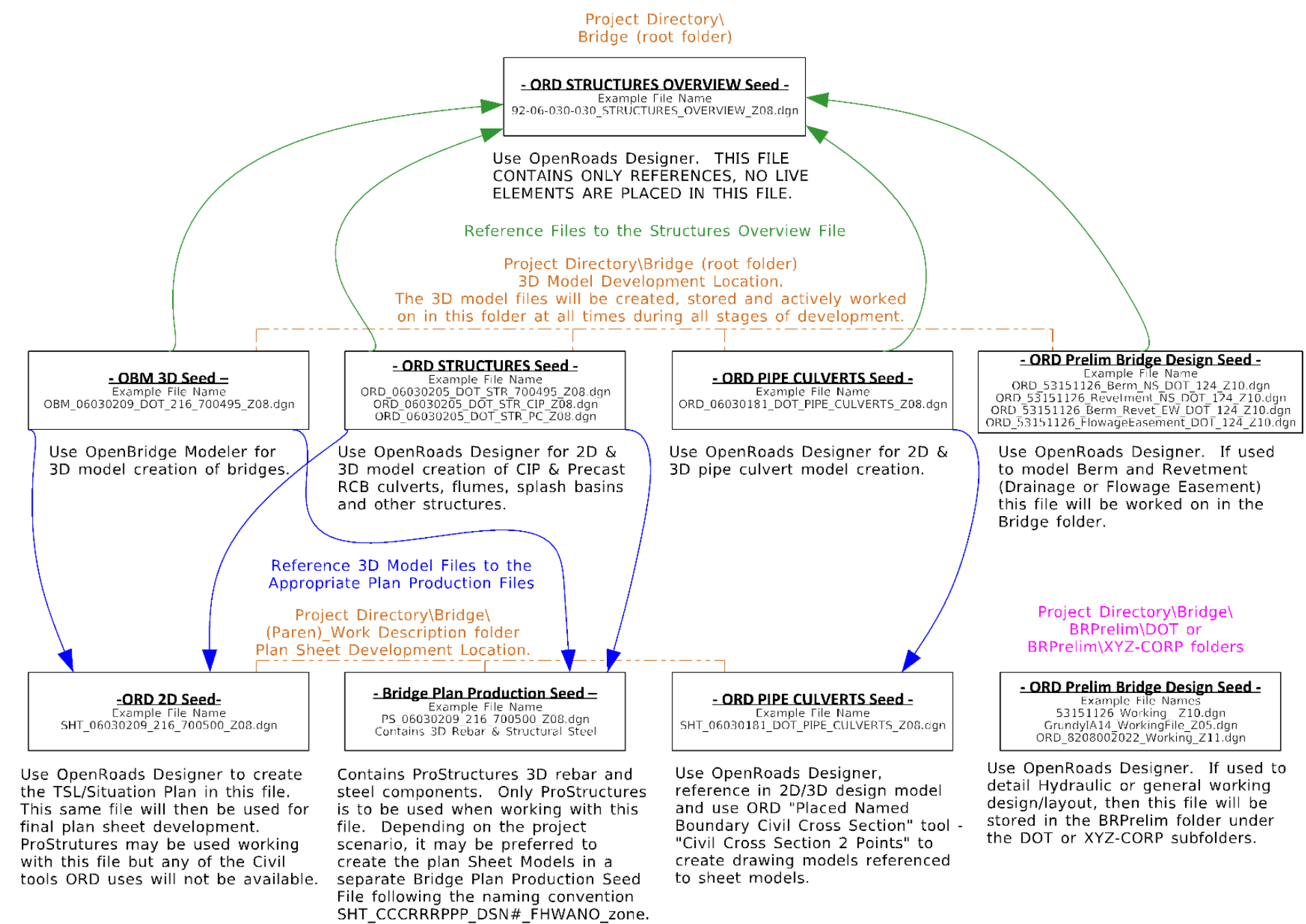
These files are to be developed and kept in their assigned folders, the same modeling file and TSL Situation Plan file is used at all stages of workflow (not copied). The Preliminary Designer starts the files, and the Final Designer actively uses the same files to complete the work. Include the DOT and/or Consultant Firm designation in the file name, this is to serve as an indicator of designers responsible for the files.

The sheeting workflow has been modified to use the **ORD 2D Seed** file for the Prelim Design process of TSL/Situation Plan sheet development. This file does not contain the Drawing and Sheet Models used for Final plan sheet development. Those are contained in the **Bridge Plan Production Seed (BPPS)** file. Please see [CONNECT Models and Naming Convention](#) for additional information.

Since the Prelim Design TSL may exist for some time before Final plan sheet development, the current **BPPS** Drawing and Sheet Models will be added by the Final Designer to update the existing file. It is beneficial to have the Final Designer import the up-to-date versions once the file is taken over for Final plan sheet production.

The seed file use and reference relationships are explained in the flowchart on the next page. The location of the file created from the seed file, naming conventions, application to use, content of the file and references required are provided.

Bridge Bureau Seed File Referencing Flow Chart



-For General Plan Production-
Project Directory\
Bridge\
(Paren)_Work Description folder
Plan Sheet Development Location.



For plan production not necessarily based off a structure model in the Bridge root folder. Work such as repairs or general working design/layout. It may be ideal/preferred to use OpenRoads Designer when working in this file. ProStructures may be used working with this file but any of the Civil tools ORD uses will not be available.

The seed files listed below are organized by application and type of project.

ORD STRUCTURES OVERVIEW Seed

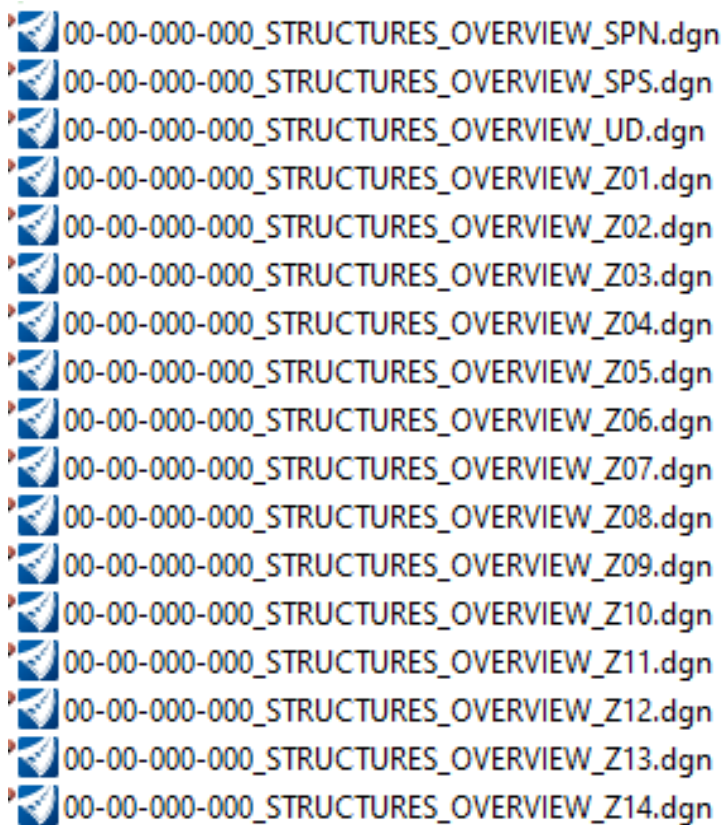
OpenRoads Designer structures overview seed files are used to provide the overview of all structures in the project. All relevant files for the structure models will be referenced to this file.

No live elements should be contained in these files, use only references.

This file is to be located in the **Bridge** root folder of the project directory.

The Copy Seed utility can be used to create the files, choose file type **ORD STRUCTURES OVERVIEW Seed**.

The options provided are for each possible IaRCS survey zone. The correct seed file must be used to appropriately view all structures in the correct locations.



The naming convention is to follow what is shown in the listed options.

Portions of the name are described below.

- 00-00-000-000 used to identify the Project Code (previously known as the PIN) number for the project

File Name

92-06-030-030_STRUCTURES_OVERVIEW_SPN.dgn


















15-77-035-040-01_STRUCTURES_OVERVIEW_Z08.dgn

OBM 3D Seed

OpenBridge Modeler 3D seed files are used to develop the individual bridge models. This file is to be located, and worked on, in the **Bridge** root folder of the project directory.

The Copy Seed utility can be used to create the files, choose file type **OBM 3D Seed**.

The options provided are for each possible IaRCS survey zone. The correct seed file must be used to appropriately place the bridge on the alignment in the model.

 OBM_CCRRRPPP_DOT_DSN#_FWWANO_SPN.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_SPS.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_UD.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_Z01.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_Z02.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_Z03.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_Z04.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_Z05.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_Z06.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_Z07.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_Z08.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_Z09.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_Z10.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_Z11.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_Z12.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_Z13.dgn
 OBM_CCRRRPPP_DOT_DSN#_FWWANO_Z14.dgn

The naming convention is to follow what is as shown in the listed options.

Portions of the name are described below.

- OBM signifies an OpenBridge Modeler file
- CCRRRPPP used to identify County (CC), Route (RRR) and Paren (PPP) number of the specific project
- DOT or consultant firm designation
- DSN# used to list the specific design number of the model
- FHWANO used to list the specific FHWA number of the bridge modeled

File Name

OBM_06030209_DOT_216_700495_SPN.dgn

File Name if DOT starts the prelim work and consultant takes over file for final design work

OBM_06030209_DOT_XYZCORP_216_700495_SPN.dgn

File Name if consultant starts the prelim work and DOT takes over file for final design work

OBM_06030209_XYZCORP_DOT_216_700495_SPN.dgn

ORD PIPE CULVERTS Seed

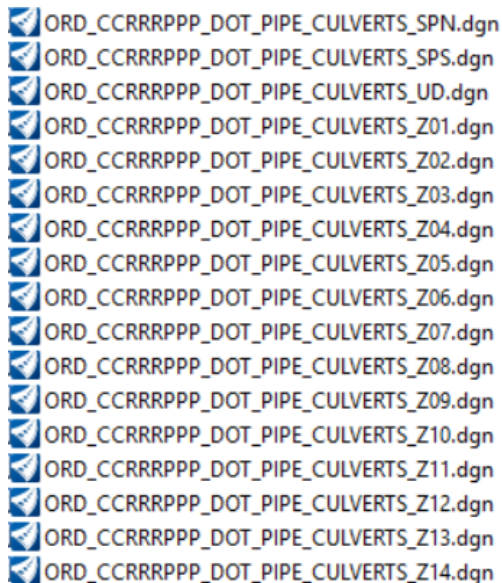
OpenRoads Designer pipe culverts seed files are used to develop the layout and modeling of pipe culvert structures.

This file will be used in two different ways and will be worked on and stored in two different locations.

- For 2D/3D modeling, this file is to be located, and worked on, in the **Bridge** root folder of the project directory.
- For plan sheeting, a separate file is created that references the 2D/3D model file. This file is to be located, and worked on, in the **Bridge\ (Paren)_Work Description** folder of the project directory.

The Copy Seed utility can be used to create the files, choose file type **ORD PIPE CULVERTS Seed**.

The options provided are for each possible laRCS survey zone. The correct seed file must be used to appropriately place the pipe culverts along the alignment.



The naming convention is to follow what is shown in the listed options.

Portions of the name are described below.

- ORD signifies an OpenRoads Designer file
- CCRRRPPP used to identify County (CC), Route (RRR) and Paren (PPP) number of the specific project
- DOT or consultant firm designation

File Name used for 2D/3D Model development

ORD_06030181_DOT_PIPE_CULVERTS_SPN.dgn

File Name used for Cross Section Sheets development

SHT_06030181_DOT_PIPE_CULVERTS_SPN.dgn

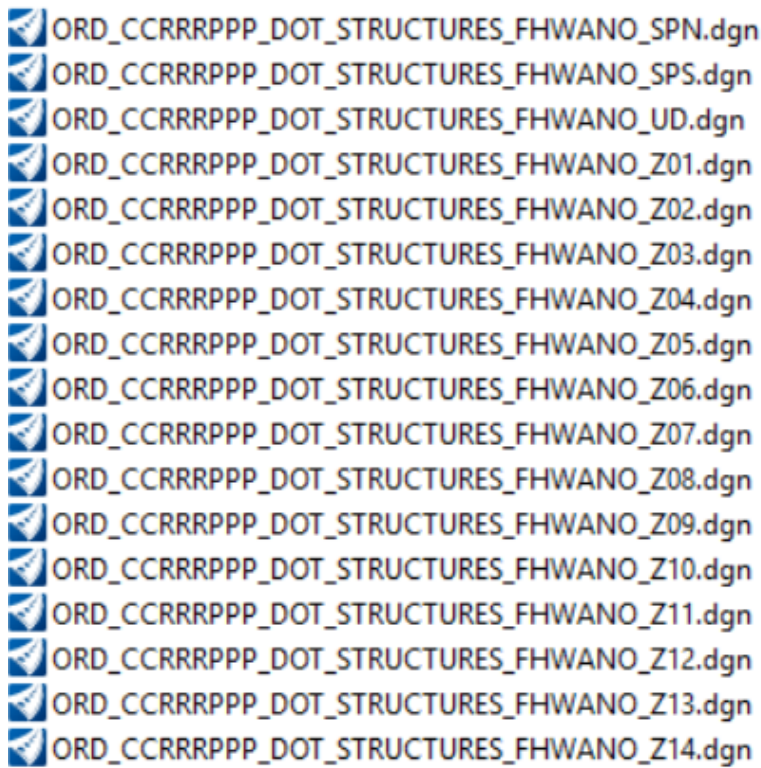
ORD STRUCTURES Seed

OpenRoads Designer structures seed files are used to develop the layout and modeling of box culverts and other structures structures such as flumes and splash basins.

Separate files will need to be created when alternate structures are modeled at the same alignment and station location. This file is to be located, and worked on, in the **Bridge** root folder of the project directory.

The Copy Seed utility can be used to create the files, choose file type **ORD STRUCTURES Seed**.

The options provided are for each possible IaRCS survey zone. The correct seed file must be used to appropriately place the culverts along the alignment.



The naming convention is to follow what is shown in the listed options.

Portions of the name are described below.

- ORD signifies an OpenRoad Designer file
 - CRRRPPP used to identify County (CC), Route (RRR) and Paren (PPP) number of the specific project
 - DOT or consultant firm designation
 - FHWANO used to list the specific FHWA number of a bridge size box culvert
- All other structures and non-bridge sized box culverts have an assigned Asset ID that should be used instead for this portion of the naming convention. **If there are multiple structure models in the same file, it is advised not to include FHWA or Asset ID Numbers in the file name to alleviate a lengthy file name.**

File Name for single structure models

ORD_06030205_DOT_STR_700495_SPN.dgn

File Name if DOT starts the prelim work and consultant takes over file for final design work

ORD_06030205_DOT_XYZCORP_STR_700495_SPN.dgn

File Name if consultant starts the prelim work and DOT takes over file for final design work

ORD_06030205_XYZCORP_DOT_STR_700495_SPN.dgn

Because RCB Culvert models may contain more than one structure, it is advised not to include Design Numbers or Asset ID Numbers. This will alleviate a lengthy file name. However, if there is a single structure, then it is acceptable to have the Design Number or Asset ID Number in the file name.

The following naming convention is used for CIP and Precast Alternate RCBs when alternate structures are modeled at the same station on the same alignment. Separate files are necessary. A similar naming convention may be used for all alternate structure scenarios.

File Name

ORD_06030205_DOT_STR_CIP_SPN.dgn

ORD_06030205_DOT_STR_PC_SPN.dgn

ORD Prelim Bridge Design Seed

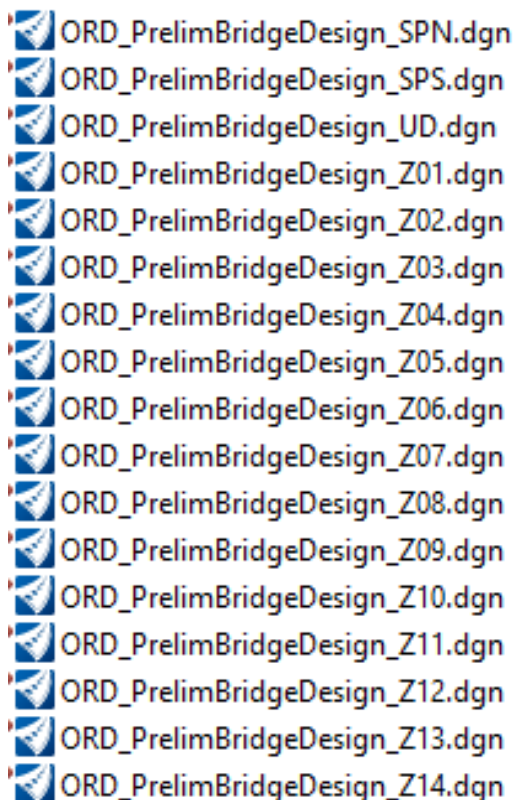
OpenRoads Designer Prelim Bridge Design seed files are used to develop the layout and modeling of berms, revetments, drainage or flowage easement boundary and possible hydraulic layout.

This file may be considered as a multipurpose seed file and will be worked on and stored in two different locations.

- **Location 1; Bridge** folder, when this seed file is to be used for berm, revetment, drainage or flowage easement modeling. Rename accordingly.
- **Location 2; BRPrelim** folder (**DOT** or **XYZ-CORP** subfolders), when this seed file is to be used for general preliminary design (not a deliverable) then this file may be kept as a separate file and renamed accordingly.

The Copy Seed utility can be used to create the files, choose file type **ORD Prelim Bridge Design Seed**.

The options provided are for each possible IaRCS survey zone. The correct seed file must be used to appropriately place the berm and revetment at the location of the structure.



The naming convention is to follow what is shown in the listed options.

Portions of the name are described below.

- ORD signifies an OpenRoads Designer file
- CCRRRPPP used to identify County (CC), Route (RRR) and Paren (PPP) number of the specific project
- NSEW used to indicate directional location of berms (North, South, East, West)
- DOT or consultant firm designation
- DSN# used to list the specific design number(s) of the related bridge design(s)

For **Location 1, Bridge** folder files keep each berm, revetment, flowage easement and Design in its own file.

The following naming convention is used when the file contains a corridor model, grading or revetment models. The file name contains GRADING.

<u>File Name</u>	<u>Description</u>
ORD_53151126_GRADING_DOT_425_Z10.dgn	Grading, Revet EB Bridge Des 425
ORD_53151126_GRADING_DOT_525_Z10.dgn	Berm Revet WB Bridge Des 525

The following naming convention is used when the file contains only a terrain or grading surface. The file name contains TRN.

<u>File Name</u>	<u>Description</u>
ORD_53151126_TRN_E_DOT_425_Z10.dgn	Terrain-East Berm EB Bridge Des 425
ORD_53151126_TRN_W_DOT_425_Z10.dgn	Terrain-West Berm EB Bridge Des 425
ORD_53151126_FlowageEasement_DOT_425_Z10.dgn	Flowage Easement Boundary

For **Location 2, BRPrelim** subfolder files use a logical file name and include the laRCS Zone. Use a logical description of the file.

<u>File Name</u>	<u>Description</u>
53151126_Working_Z10.dgn	Preliminary Layout
ORD_8208002022_Working_Z11.dgn	Site Investigation

PLAN SHEET FILES AND MULTIPLE STRUCTURES

Sheet file names with multiple Design, FHWA/Asset ID number format is no longer preferred. All plan sheet files will contain only a single Design, FHWA/Asset ID number. Although this will create more files overall, it allows a more flexible workflow and may be more ideal for all users that are working with those files. This process keeps the SHT files fairly "clean" with regards to limiting the named boundaries and saved views, minimizing any confusion to the user.

ORD 2D Seed

The OpenRoads Designer 2D seed file is the preferred seed file to be used for Prelim Type, Size, Location (TSL)/Situation Plan sheet creation. The same file will then continue to be used for Final plan sheet development.

This file does not contain the Drawing and Sheet Models used for Final plan sheet development that are in the **Bridge Plan Production Seed (BPPS)** file. The concept is that the TSL file created in the Prelim Design process may exist for a length of time, maybe 2+/- years. The **BPPS** Drawing and Sheet Models format of the file may change, requiring the Final Designer to update the existing file (check for changes in the original seed file vs the current one). Therefore, instead of having the Final Designer update the existing, possibly 2-year-old Drawing and Sheet Models, it may be ideal to have the Final Designer import the up-to-date versions once the file is taken over for Final plan sheet production.

This seed file does not have a Geographic Coordinate System applied. If necessary, apply the appropriate Iowa Regional Coordinate System.

This file is to be located, and worked on, in the **Bridge\(\Paren)_Work Description** folder of the project directory.

The Copy Seed utility can be used to create the files, choose file type **ORD 2D Seed**.

<u>File Name</u>	<u>Description</u>
SHT_06030209_226_700500_SPN.dgn	PPCB Design 226
SHT_06030209_726_001425_CIP_SPN.dgn	Twin 10x10 RCB Culvert Design 726
SHT_06030209_726_001425_PC_SPN.dgn	Twin 10x10 RCB Culvert Design 726

Bridge Plan Production Seed

The ProStructures seed file, Imperial3d.dgn, is used to develop rebar/steel modeling and complete structural details. This file is also used for both 2D & 3D plan development and sheeting. The seed file is located in the CONNECT managed workspace at:
pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\IowaDOTStandardsConnect\Configuration\Organization-Civil\IowaDOT_Standards\ProStructures\Seed\Imperial3d.dgn

This file is to be located, and worked on, in the **Bridge\(\Paren)_Work Description** folder of the project directory.

The Copy Seed utility can be used to create the files for ProStructures. Choose file type **Bridge Plan Production Seed**.

This seed file will be used for two workflows and named differently depending on its use.

- **Workflow 1**, modeling structural concrete, rebar, and steel shapes. File name prefix with **PS_**.
- **Workflow 2**, Prelim/Final Design plan sheet development. File name prefix with **SHT_**.

For **Workflow 1**; When ProStructures tools for 3D concrete, rebar or steel modeling is part of the design and plan development, then use the naming convention as described below.

- **PS** prefix signifies a ProStructures file and indicates the file contains modeled concrete, rebar or steel components. **ProStructures use is required to maintain digital integrity of structural elements.**
- CRRRPPP used to identify County (CC), Route (RRR) and Paren (PPP) number of the specific project
- DSN# used to list the specific design number of the structure details
- FHWANO used to list the specific FHWA number of a bridge or bridge size box culvert
All other structures and non-bridge sized box culverts have an assigned Asset ID that should be used instead for this portion of the naming convention.
- laRCS survey zone

<u>File Name</u>	<u>Description</u>
PS_06030209_216_700495_SPN.dgn	PPCB Bridge Design 216

For **Workflow 2**; When the design and plan development does not make use of ProStructures modeled rebar or steel components, then use the naming convention as described below.

- **SHT** prefix signifies the file is used for plan sheet creation. **ORD use is required if MicroStation Civil tools/capabilities are to be utilized.**
- CRRRPPP used to identify County (CC), Route (RRR) and Paren (PPP) number of the specific project
- DSN# used to list the specific design number of the structure details
- FHWANO used to list the specific FHWA number of a bridge or bridge size box culvert
All other structures and non-bridge sized box culverts have an assigned Asset ID that should be used instead for this portion of the naming convention.
- laRCS survey zone

<u>File Name</u>	<u>Description</u>
SHT_06030209_226_700500_SPN.dgn	PPCB Design 226
SHT_06030209_726_001425_CIP_SPN.dgn	Twin 10x10 RCB Culvert Design 726
SHT_06030209_726_001425_PC_SPN.dgn	Twin 10x10 RCB Culvert Design 726

The following naming convention is used if laRCS is unknown. For repair projects the laRCS may not be known or needed, in this case, then use undefined zone UD.

<u>File Name</u>	<u>Description</u>
SHT_06030209_1328_700500_UD.dgn	Design 1328 Steel Girder Repair

CONNECT Models and Naming Convention

OpenBridge Modeler (OBM) seed files will be used to develop new and replacement bridge projects using OpenBridge Designer (OBD).

OpenRoads Designer (ORD) seed files will be used to develop culvert designs using the Drainage and Utilities workflow tools. As well as berm, revetment, drainage or flowage easement and general plan sheet development.

ProStructures (PS) seed file will be used for structural concrete, rebar, and steel modeling as well as general plan sheet development.

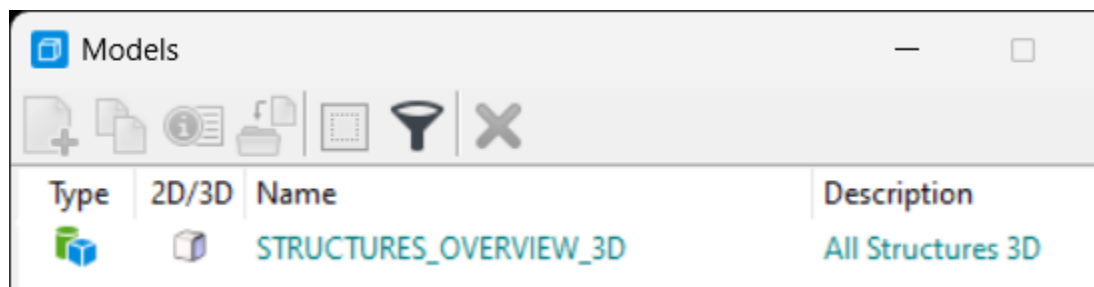
For guidance on naming these seed files and additional information, refer to the [CONNECT Seed Files and Naming Convention](#) document.

The explanation of the specific name and use of models are provided below.

ORD STRUCTURES OVERVIEW Seed

The STRUCTURES OVERVIEW file contains only references, no live/active elements are placed in this file.

One model is provided.



STRUCTURES_OVERVIEW_3D model

- 3D design model

Reference 3D models from the appropriate files for projects related to the specific Project Code (previously known as the PIN).

Potential referenced 3D models for the Overview file may include the following:

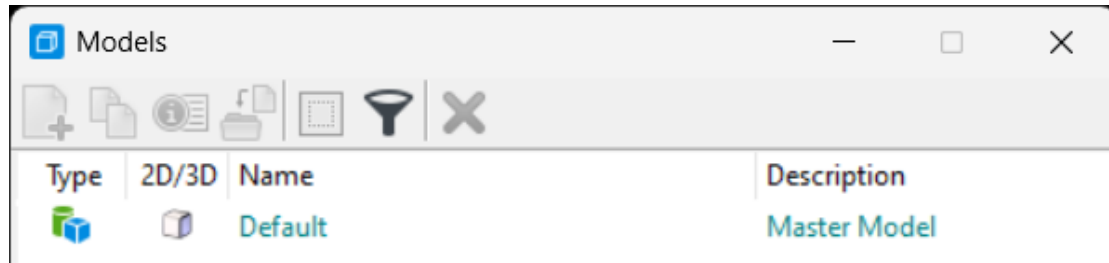
- OpenBridge Model
- Pipe & Reinforced Concrete Box (RCB) culverts, flumes & basins
- Berm/grading (revetment when applicable)
- Drainage/flowage easement preliminary boundary

If applicable, other 3D models not listed may also be referenced.

OBM 3D Seed

The **OBM 3D Seed** file is used for the modeling of the bridge.

One model is provided.



Default

- 3D design model

Rename this model with the FHWA number and Structure Design Number and provide a logical description.

Design Model Name

FHWA 700630 Polk Design 425

Description

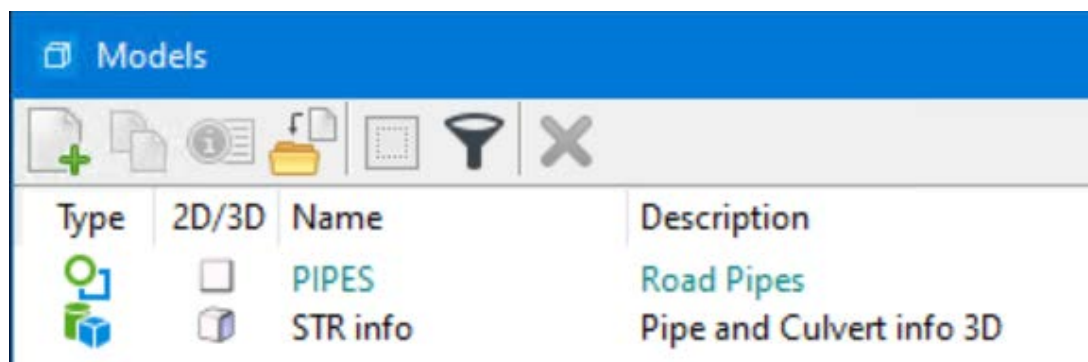
134' x 40' PPCB 2 Span Bridge

An OBM file should be created for each new bridge or bridge replacement in a project.

ORD PIPE CULVERTS Seed

The **ORD PIPE CULVERTS Seed** file is used for pipe culvert layout and modeling. This seed file will be used in two different ways and will be worked on and stored in two different locations. One file to model the pipes 2D/3D and a separate file for plan sheet development.

Two models are provided.



Pipe Model Development 2D/3D Workflow

PIPES

- 2D design model.

Use for the layout of the road pipe locations. A **PIPES-3D** model will be created when the STR info model is referenced into the 2D model. OpenRoads Designer will automatically create a managed 3D model. ***This model should not be deleted.***

STR info

- 3D design model

Use for the creation of the 3D graphics of each pipe culvert. This model is typically used to import the ASCII graphics input file used to map the invert coordinates (points and lines) of the pipes. Refer to the Culvert Workflow section of the [CONNECT Applications webpage](#) for documentation of the complete process.

Pipe Plan Sheet Development

For pipe longitudinal cross section sheet development, create a separate file in the **(Paren)_Work Descriptions** folder using the **ORD PIPE CULVERTS Seed** file.

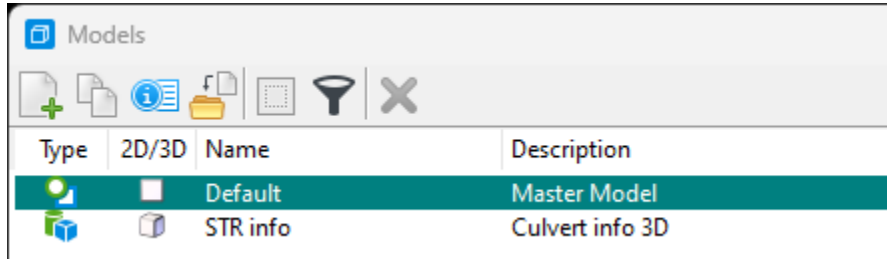
Cross section drawing models (longitudinal) will be added for each road pipe location using ORD **Place Named Boundary Civil Cross Section** tools, typically using the **Civil Cross Section 2 Point** boundary tool. Each longitudinal model will be named with STA prefix to designate location, the specific station and longitudinal section.





<u>Model Name</u>	<u>Description</u>
STA 1317+50.00 Longitudinal Section	72" RCP

ORD STRUCTURES Seed

The **ORD STRUCTURES Seed** file is used for RCB culvert and other related structure designs. **For RCB modeling, there will need to be separate files. One file for the Cast In Place (CIP) RCB models and a separate file for the Precast (PC) RCB models.**

Two models are provided.



Type	2D/3D	Name	Description
		Default	Master Model
		STR info	Culvert info 3D

Default

- 2D design model

Rename this model following the guidelines below.

STR info

- 3D design model

Use for entry of the 3D graphics of each box culvert. This model is typically used to import the ASCII graphics input file used to map the invert coordinates (points and lines) of the box culvert. Refer to the Culvert Workflow section of the [CONNECT Applications webpage](#) for documentation of the complete process.

CIP RCB –The Default model is to be renamed and used for layout of the box culvert.

Use for layout of the Cast In Place Reinforced Concrete Box culvert.

A **CIP RCB-3D** model will be created when the STR info 3D model is referenced into the 2D model. OpenRoads Designer will automatically create a managed 3D model. ***This model should not be deleted.***

PC RCB –The Default model is to be renamed and used for layout of the box culvert.

Use for layout of the Precast Reinforced Concrete Box culvert.

A **PC RCB-3D** model will be created when the STR info 3D model is referenced into the 2D model. OpenRoads Designer will automatically create a managed 3D model. ***This model should not be deleted.***

Other Structures – Create this model as needed.

Use for layout of flumes and splash basin type of structures related to the box culverts.

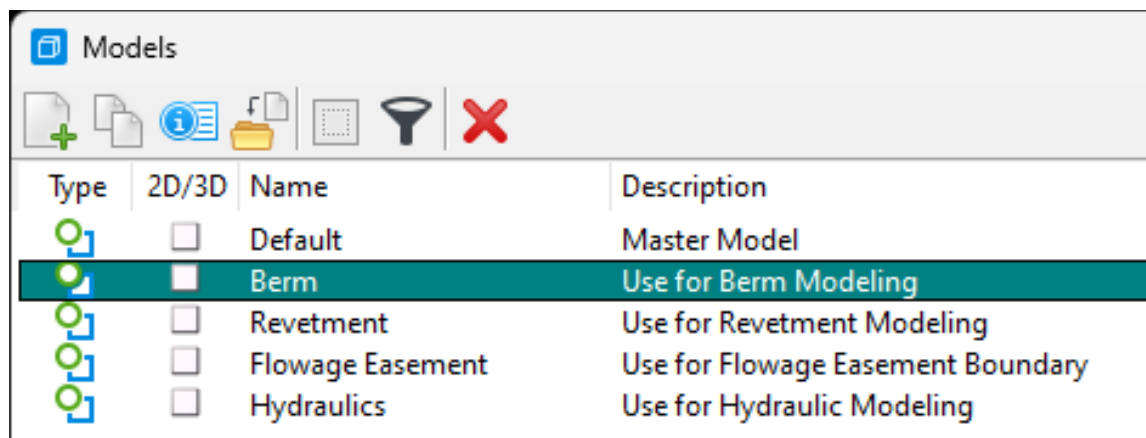
ORD Prelim Bridge Design Seed

The **ORD Prelim Bridge Design Seed** file is used for layout and modeling of various project components.

This file may be considered as a multipurpose seed file and will be worked on and stored in two different locations.

- **Location 1; Bridge** folder, when this seed file is to be used for berm, revetment, drainage or flowage easement modeling. Rename accordingly.
- **Location 2; BRPrelim** folder (**DOT** or **XYZ-CORP** subfolders), when this seed file is to be used for general preliminary design (not a deliverable) then this file may be kept as a separate file and renamed accordingly.

Five models are provided. If preferred, delete unused models as necessary to maintain clarity in the file.



Type	2D/3D	Name	Description
	<input type="checkbox"/>	Default	Master Model
	<input type="checkbox"/>	Berm	Use for Berm Modeling
	<input type="checkbox"/>	Revetment	Use for Revetment Modeling
	<input type="checkbox"/>	Flowage Easement	Use for Flowage Easement Boundary
	<input type="checkbox"/>	Hydraulics	Use for Hydraulic Modeling

Default

- 2D design model

Use this model as needed.

Berm

- 2D design model

Use for the layout of the berm for the project site. A **Berm-3D**, renamed managed 3D model, is created when the ORD template tools are used to generate the berm or revetment. ***This model should not be deleted.***

The 2D design model can be copied and renamed as needed to indicate which berm is being designed. A model for each end, or quadrant of the bridge, is recommended with the direction indicated in the model name.

Design Model Name

East Berm Design 425

East Berm Design 425-3D

Description

East Berm 134' x 40' PPCB 2 Span Bridge

East Berm 134' x 40' PPCB 2 Span Bridge

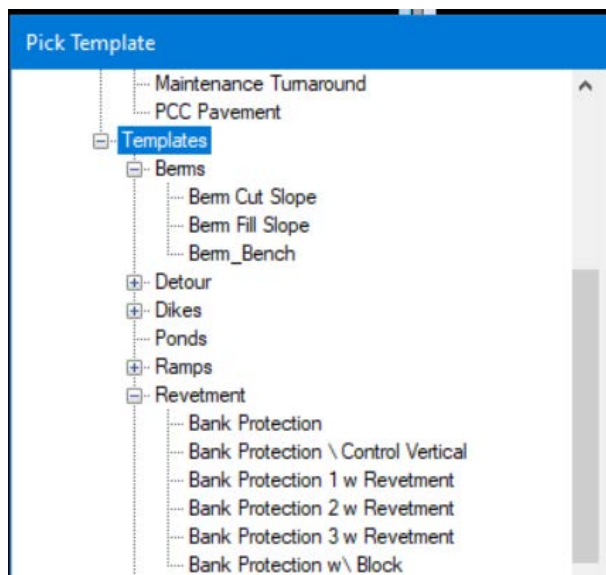
Revetment

- 2D design model

Use for layout of the revetment for the project site. A **Revetment-3D**, renamed managed 3D model, is created when the ORD template tools are used to generate the berm or revetment. ***This model should not be deleted.***

The 2D design model can be copied and renamed as needed to indicate locations revetment is being designed.

The list of available linear templates for Berm and Revetment modeling is shown below.



Flowage Easement

- 2D design model

Use for layout of the flowage easement. Right of Way (ROW) or Location and Environment Bureau (LEB) will use this information.

Hydraulics

- 2D design model

Use for layout of the hydraulics. This could be used to import shape files from hydraulic modeling software.

Depending on how this model is used, this may be used to create a model that could be used as a deliverable. This may also be used as a design file (not a deliverable) and kept as a separate file in the **BRPrelim** folder (**DOT** or **XYZ-CORP** subfolders) and renamed accordingly.

PLAN SHEET PRODUCTION

The following seed files may be used for plan sheet production.

The preferred seed file used in the Prelim Design process for TSL Situation Plan sheet development is the **ORD 2D Seed** file. This file does not contain the Drawing and Sheet Models used for Final plan sheet development that are in the **Bridge Plan Production Seed (BPPS)** file. Since the Prelim Design TSL may exist for some time before Final plan sheet development, the current BPPS Drawing and Sheet Models will be added by the Final Designer to update the existing file. It is beneficial to have the Final Designer import the up-to-date versions once the file is taken over for Final plan sheet production.

Once the Final Designer takes ownership of this file for plan development, they will need to import the necessary Sheet and Drawing Models from the BPPS file. Please refer to the **Bridge Plan Production Seed** section for more information.

ORD 2D Seed

The **ORD 2D Seed** file is used for -Prelim Type, Size, Location (TSL)/Situation Plan sheet development.

One model is provided.

Default

- 2D design model

Rename this model following the guidelines below.

Rename the model for 2D detailing and views of the 3D model. This model will reference the Structure model (bridge, culvert, flume, etc.) from the Bridge root folder. This referenced 2D model will be used to create the plan view of the structure model using the **Named Boundary** tool for plan production. See the [Culvert Workflow document](#) showing the use of the Named Boundary for TSL Sheets. This workflow can be used for all structures TSL/Situation Plan sheet creation, not just culverts. The working units in this model are set to US Survey Feet and US Survey Inches for appropriate use with ORD civil based tools. This seed file does not have a Geographic Coordinate System applied. If necessary, apply the appropriate Iowa Regional Coordinate System, see **Coordinate System** section below.

Rename the ORD Design model to the Structure Design Number and provide a logical description. **Add CIP or PC to the name of the model to signify a cast in place RCB or Precast RCB culvert.**

Design Model Name

Plan Design 125 CIP

Plan Design 125 PC

Plan Design 425

Description

CIP Triple 12'x 8' RCB

Precast Triple 12'x 8' RCB

134' x 40' PPCB 2 Span Bridge

Drawing and sheet models for plan sheet development are contained in this file for preliminary and final design.

Each saved view for the drawing model will be named to designate the view or bridge section created.

Sheet models for the Type, Size and Location (TSL)/Situation Plan of the structure will be created using the **Place Named Boundary** tool following the process shown in the [Culvert Workflow document](#). When the sheet model is created in the Prelim Design workflow, name it using the format shown above. When the file is used in the Final Design workflow then the sheet model will be renamed accordingly as shown in the following section.

Bridge Plan Production Seed

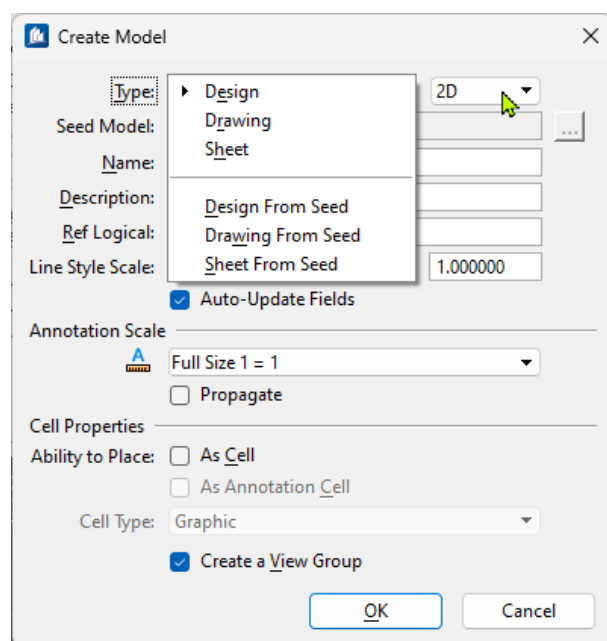
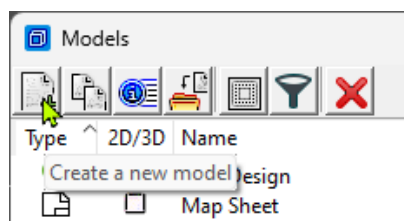
The **Bridge Plan Production Seed** file is used to develop rebar/steel modeling and complete structural details. This file is also used for both 2D & 3D plan development and Sheeting.

The file is named differently depending on its use.

- **Workflow 1**, modeling structural concrete, rebar, and steel shapes
- **Workflow 2**, Prelim/Final Design plan sheet development

There may be a scenario that will require the Final Designer to create a TSL/Situation Plan. This can be done in the BPPS file, and ORD may be the preferred application.

The models in the seed file are provided based on anticipated work needs. If needed, additional models of any type may be added using the **Create a new model** tool and select the types as necessary.



All models in this seed file except ORD Design are set to Imperial units of Feet/Inches since most are used for general detailing.

Eleven models are provided.

Type	2D/3D	Name	Description	Sheet Number	Cell Type
	<input type="checkbox"/>	ORD Design	ORD 2D Design Model		
	<input type="checkbox"/>	New Sheet Bridge	Bridge Plan Sheet Description/Title	000	
	<input type="checkbox"/>	New Sheet Culvert	Culvert Plan Sheet Description/Title	000	
	<input type="checkbox"/>	Map Sheet	Title Sheet Map	000	
	<input type="checkbox"/>	Title Sheet	Title Sheet	000	
	<input type="checkbox"/>	New Sheet Revision RA	Revision Sheet Design No. ????	000	
	<input type="checkbox"/>	Summary Sheet	Summary Quantities Sheet	000	
	<input type="checkbox"/>	Drawing	2D Drawing Model		✓ Graphic
	<input type="checkbox"/>	Map Sheet Text	Edit This for Map Sheet Data		✓ Graphic
	<input type="checkbox"/>	Title Sheet Text	Edit This for Title Sheet Data		✓ Graphic
	<input type="checkbox"/>	Summary Sheet Text	Edit This for Summary Sheet Data		✓ Graphic

ORD Design

- 2D design model

Use for 2D detailing and views of the 3D model. If used, this model will reference the Structure model (bridge, culvert, flume, etc.) from the Bridge root folder. This referenced 2D model will be used to create the plan view of the structure model using the **Named Boundary** tool for plan production. See the [Culvert Workflow document](#) showing the use of the Named Boundary for TSL Sheets. This workflow can be used for all structures TSL sheet creation, not just culverts. The working units in this model are set to US Survey Feet and US Survey Inches for appropriate use with ORD civil based tools. If necessary, the appropriate Coordinate System will need to be applied, see **Coordinate System** section below.

Rename the ORD Design model to the Structure Design Number and provide a logical description. **Add CIP or PC to the name of the model to signify a cast in place RCB or Precast RCB culvert**

Design Model Name

Plan Design 125 CIP

Plan Design 125 PC

Plan Design 425

Description

CIP Triple 12'x 8' RCB

Precast Triple 12'x 8' RCB

134' x 40' PPCB 2 Span Bridge

Drawing and sheet models for plan sheet development are contained in this file for preliminary and final design.

Each saved view for the drawing model will be named to designate the view or bridge section created.

Sheet models for the Type, Size and Location (TSL)/Situation Plan of the structure will be created using the **Place Named Boundary** tool following the process shown in the [Culvert Workflow document](#). When the sheet model is created in the Prelim Design workflow, name it using the format shown below. When the file is used in the Final Design workflow then the sheet model will be renamed accordingly as shown below.

The description is used in a field and will display in plan sheet Title Block. For long bridges that may require multiple plan sheets append the name with a sequence number as shown below. Sheet Model names for each plan sheet are named CountyDesignNumberSheetDesignation Types of sheet designations and examples are as follows using the naming convention of County(CC) and Design(DDDD) Number (CCDDDDs000):—e.g. 440110s000). Always use four digits for the design number using a preceding zero when necessary.

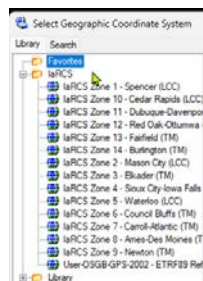
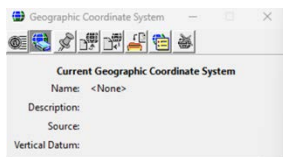
<u>Prelim Sheet Model Name</u>	<u>Description</u>
440110 Situation CIP	Situation Plan - CIP
440110 Situation PC	Situation Plan – Precast
440110 Situation Plan 1	Situation Plan
440110 Situation Plan 2	Situation Plan
440110 Site Plan	Situation Plan - Site
440110 SituationPlanMisc	Situation Plan – Misc.

The Final Designer renames the Prelim Sheet Model Name when completing the plan set.

<u>Final Sheet Model Name</u>	<u>Description</u>
4420110sc004 Situation CIP	Situation Plan - CIP
4420110sp004 Situation Precast	Situation Plan - Precast
4420110s004 Situation	Situation Plan
4420110s005 Situation	Situation Plan
4420110s006 Site	Situation Plan - Site
440110s007 SitPlanMisc	Situation Plan – Misc.

Coordinate System

If using the ORD Design model for specific coordinate related modeling, then the appropriate Iowa Regional Coordinate System will need applied. When working on Iowa DOT ProjectWise, the workspace will have the IaRCS library to select the proper zone from.



Name the Sheet Models the proper naming convention of County(CC) and Design(DDDD) Number. The Description column of the models is used to populate the sheet description text field of the Title Block on the plan sheet. Therefore, name the description accordingly. For multiple county projects, use the county the structure is located in for the sheet model naming convention.

<u>Sheet Model Name</u>	<u>Description</u>
420425s004 Notes	General Notes & Quantities
420425s008 Pier 1	Pier 1 Footing Details

Name the Drawing Models logical to what the drawing detail is. The intended workflow is to create and annotate plan details in the drawing models and reference the drawing models to the sheet models. There may be a considerable number of models developed. The importance of using a logical name for these drawing models is key to keeping the file contents and use of these drawing models clear.

<u>Drawing Model Name</u>	<u>Description</u>
Barrier Rail End Sect Dtls	Barrier Rail End Section Details
Plan View West Abut Dtls	West Abutment Details

Drawing

- 2D drawing model

Use for potential 2D views of section cuts of the 3D model. Working units set to feet and inches for appropriate use with ProStructures.

Map Sheet

- 2D sheet model

Use for the sheeting of the Map in a plan set.

Map Sheet Text

- 2D drawing model

Contains details referenced to the Map Sheet model in a plan set.

New Sheet Bridge

- 2D sheet model

Use for the sheeting of a bridge plan set. It may be ideal to keep this as a “sheet model template” and copy this for subsequent plan sheets, as needed.

New Sheet Culvert

- 2D sheet model

Use for the sheeting of a culvert plan set. It may be ideal to keep this as a “sheet model template” and copy this for subsequent plan sheets as needed.

New Sheet Revision RA

- 2D sheet model

Use for the sheeting of a plan revision.

Summary Sheet

- 2D sheet model

Use for the sheeting of the Summary Quantities Sheet in a plan set.

Summary Sheet Text

- 2D drawing model

Contains details referenced to the Summary Quantities Sheet model in a plan set.

Title Sheet

- 2D sheet model

Use for the sheeting of the Bridge Bureau Title Sheet in a plan set.

Title Sheet Text

- 2D drawing model

Contains details referenced to the Title Sheet model in a plan set.

~~Types of sheet designations and examples are as follows using the naming convention of County(CC) and Design(DDDD) Number (CCDDDDs000):=~~

The description is used in the sheet description text field and will display in plan sheet Title Block.

Sheet Model Name

420110s000 Title
 420110s000 Title Map
 420110s000 RA
 420110s001 EstQty
 420110s002 Notes
 420110s003 SumQty
 420110s004 Situation
 (or 420110s004 TSL)
 420110s005 Site
 420110s006 Staking
 420110s007 Pier 1
 420110s008 Pier 1Reinf
 420110s009 Pier 1Ftg&Qty
 420110s010 AbutFtg
 420110s011 Abut

Description

Title Sheet
 Map Sheet
 Revision Sheet
 Estimate Quantities
 General Notes
 Summary Quantities
 Situation Plan
 Situation Plan
 Site Plan
 Staking Diagram
 Pier 1 Details
 Pier 1 Reinforcing
 Pier 1 Footing & Quantities
 Abutment Footing Details
 Abutment Details

The naming convention for alternate culvert plan sets is shown below.

For RCB Culvert - Cast-in-Place Alternate

420210sc001 EstQty CIP	Estimate Quantities - Cast in Place
420210sc002 Notes CIP	General Notes - Cast in Place
420210sc003 Situation CIP	Situation Plan - Cast in Place

For RCB Culvert - Precast Alternate

420210sp001 EstQty PC	Estimate Quantities - Precast
420210sp002 Notes PC	General Notes - Precast
420210sp003 Situation PC	Situation Plan - Precast

Typically, the Estimate sheet and General Notes are on separate sheets. Occasionally more than one of these sheets is needed. Numbering in the model name would just increase by one.

The Summary Sheet is included for new structures and would have the next sequential number in the model name.

The file will contain the models necessary to provide the complete details of the structure as well as the drawing and sheet models for the project. The need for separate files for the drawing and sheet models is being considered.

CONNECT Project Font

The TrueType Font EngineeringVert is intended to be used for CONNECT projects.

The Engineering Vert font files are located in the managed workspace at:
pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\lowaDOTStandardsConnect\Configuration\Organization-Civil\lowaDOT_Standards\Fonts\



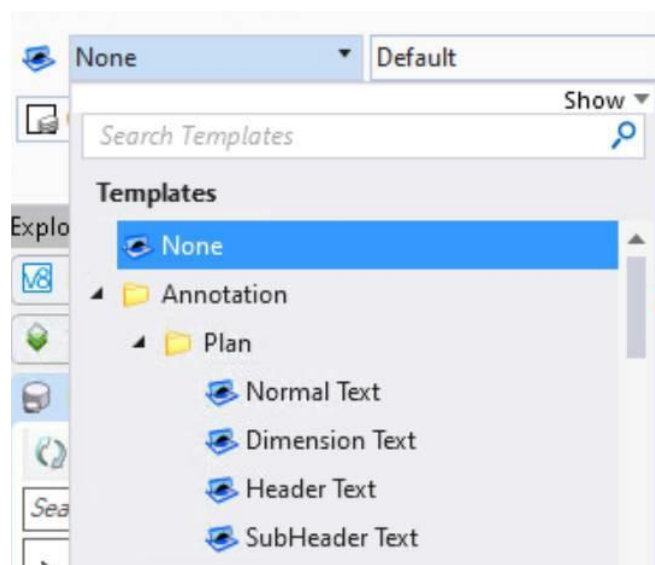
The text and dimension style library lowaDOT_Text Favorites_Text Styles_Dimension Styles.dgnlib in the managed workspace uses the EngineeringVert and EngineeringVertBold font.

The dgnlib is located in the managed workspace at:
pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\lowaDOTStandardsConnect\Configuration\Organization-Civil\lowaDOT_Standards\Dgnlib\Feature Definitions\

True type fonts are unable to apply a weight. If a bolder text is desired use the EngineeringVertBold or EngineeringVertHeavy fonts.

The managed workspace provides access to these fonts in the Bentley applications. The user would need to export the font files from the workspace and copy to C:\Windows\Fonts to use these fonts in Microsoft applications.

Four Annotation Plan element templates are included in the workspace to easily provide the EngineeringVert text outside of the use of dimensions. These have been configured in lowaDOT_Bridge_Features_Levels_Elem Temp Imperial.dgnlib



The use of the Dimension Text element template is intended for text elements in tables so that the text fits appropriately. All dimensions and table text elements should use the Dimension Text element template resulting in the same text style and level being used.

The other templates are for use as the name of the element template suggests, placement of normal text, subheader text and header text. All text in notes should use the Normal Text element template with sentence case style.

Notes:

- The use of the new TrueType Font EngineeringVert is applied to new releases of design standards. Additional standards series will be updated as other modifications are required for those standards. A mix of fonts on the plan sheets with the standards having the MicroStation font is acceptable.




CONNECT Levels

The levels used for CONNECT workspace projects are provided in various level libraries. The main library for Bridge projects is lowaDOT_Bridge_Features_Levels_Elem Temp Imperial.dgnlib.




Placement of elements on levels is controlled by selection of features in several instances. For additional information refer to [CONNECT Feature Definitions](#).

The levels are shown below through views of Level Manager organized by application and use. The name, color, style, and weight of the levels are provided.




OpenBridge Modeler levels for decorations for placement or information for the bridge model features. The text levels have the plot attribute turned off.


















































Name ^			
OBD_D_ApproachRefLine_text	0	0	0
OBD_D_ApproachSlab_Outline	51	0	6
OBD_D_Barrier_Outline	131	0	6
OBD_D_Beam_End	233	0	2
OBD_D_Beam_Layout	233	7	1
OBD_D_Beam_Layout_Text	233	0	0
OBD_D_Beam_PL_Offset	64	2	0
OBD_D_Bearing_Group	89	7	4
OBD_D_Bridge_Decorations	0	0	0
OBD_D_Cap	13	0	8
OBD_D_Column	13	0	8
OBD_D_CrossFrames	57	0	4
OBD_D_Deck_Outline	3	0	8
OBD_D_Diaphragm_Concrete	51	0	8
OBD_D_Field_splice	60	0	0
OBD_D_Footing	13	0	8
OBD_D_Piles	57	0	4
OBD_D_Piles_Arrow_Markers	21	0	0
OBD_D_Reports_Lines	36	0	0
OBD_D_Segmental_Deck_Outline	51	0	8
OBD_D_Segmental_Lines_Text	0	0	0
OBD_D_Shear_studs	20	0	4
OBD_D_SleeperSlab	59	0	6
OBD_D_Stiffeners	57	0	2
OBD_D_Sub	99	0	8
OBD_D_Sub_Text	146	0	0
OBD_D_Super	83	0	8
OBD_D_Super_Text	135	0	0
OBD_D_SupportLines_Text	182	0	0
OBD_D_Unit_Label	224	0	0
OBD_D_WingWall	13	2	0
OBD_D_WingWall_Footing	13	0	8
OBD_D_WingWall_Piles	57	0	8





















































OpenBridge Modeler levels for modeling bridge features. These levels have the plot attribute turned on except level OBD_Construction_Line.

Name			
Auxiliary	2	0	2
BridgeExistingStructure	233	0	1
BridgeSubstructure	1	0	8
BridgeSuperStructure	3	0	8
ConcreteRustication	3	0	1
Dirt	4	0	4
FlowableMortar	217	0	4
FlowageEasement	5	0	1
Neoprene	7	0	3
OBD_Abutment	15	0	8
OBD_Approach_Ref_Line	0	0	0
OBD_Approach_Slab	174	0	0
OBD_Barrier	206	0	6
OBD_Beam	3	0	8
OBD_Bearing_Seats	64	0	6
OBD_Bearings	1	0	4
OBD_Bridge_Piling	1	0	4
OBD_CheekWall	15	0	6
OBD_Construction_Line	0	0	1
OBD_CrossFrames	1	0	4
OBD_Deck	3	0	8
OBD_Diaphragm_Concrete	174	0	8
OBD_Excavation	231	3	4
OBD_FC_ConstructionLines	1	0	0
OBD_Field_Splice	7	0	4
OBD_Filler_Plate	1	0	4
OBD_Footings	15	0	8
OBD_Girder	1	0	4
OBD_GroutPad	206	0	6
OBD_Haunch	206	0	8
OBD_Pier_Cap	15	0	8
OBD_Pier_Column	15	0	8
OBD_Point	4	0	0
OBD_Shear_Stud	1	0	4
OBD_Sleeper_Slab	174	0	6
OBD_Stiffeners	1	0	4
OBD_Struts	1	0	4
OBD_Support_Line	5	4	0
OBD_Tendon	209	0	3
OBD_Tendon_Centerline	0	3	1
OBD_Tub girder	3	0	0
OBD_Tubs	3	0	0
OBD_Wet Joint	48	0	0
OBD_Wingwalls	15	0	8
PVC	1	0	3

ProStructures levels for elements modeled in ProStructures and rebar placement.
 Multiple rebar placement guideline levels are provided for each type of component rebar.

Name ^			
PC_ABUT	13	0	8
PC_APPROACH	35	0	8
PC_BARRIER	131	0	6
PC_BEAM	19	0	8
PC_BEARING	89	0	2
PC_COLUMN	13	0	8
PC_CONCRETE	3	0	8
PC_CONCRETE_MISC	3	0	8
PC_COVER	32	0	0
PC_CULVERT_CIP	35	0	8
PC_CULVERT_PC	46	0	8
PC_DECK	3	0	8
PC_DIAPHRAGM_CONC	51	0	8
PC_FTG	13	0	8
PC_MARKER	6	0	0
PC_OBJECT	2	0	0
PC_PADFOOTING	13	0	8
PC_PIER_CAP	13	0	8
PC_PIER_COLUMN	13	0	8
PC_REBAR	12	0	3
PC_REBAR GL	16	4	0
PC_REBAR GL 1	16	4	0
PC_REBAR GL 2	16	4	0
PC_REBAR GL 3	16	4	0
PC_REBAR GL 4	16	4	0
PC_REBAR GL 5	16	4	0
PC_REBAR_ABUT	28	0	3
PC_REBAR_ABUT GL	16	4	0
PC_REBAR_ABUT GL 1	16	4	0
PC_REBAR_ABUT GL 2	16	4	0
PC_REBAR_ABUT GL 3	16	4	0
PC_REBAR_ABUT GL 4	16	4	0
PC_REBAR_ABUT GL 5	16	4	0
PC_REBAR_APPROACH	82	0	3
PC_REBAR_APPROACH GL	16	4	0
PC_REBAR_APPROACH GL 1	16	4	0
PC_REBAR_APPROACH GL 2	16	4	0
PC_REBAR_APPROACH GL 3	16	4	0
PC_REBAR_APPROACH GL 4	16	4	0
PC_REBAR_APPROACH GL 5	16	4	0




















Name ^				
PC_REBAR_BARRIER		34	————— 0	————— 3
PC_REBAR_BARRIER GL		16	----- 4	————— 0
PC_REBAR_BARRIER GL 1		16	----- 4	————— 0
PC_REBAR_BARRIER GL 2		16	----- 4	————— 0
PC_REBAR_BARRIER GL 3		16	----- 4	————— 0
PC_REBAR_BARRIER GL 4		16	----- 4	————— 0
PC_REBAR_BARRIER GL 5		16	----- 4	————— 0
PC_REBAR_BEAM		60	————— 0	————— 3
PC_REBAR_BEAM GL		16	----- 4	————— 0
PC_REBAR_BEAM GL 1		16	----- 4	————— 0
PC_REBAR_BEAM GL 2		16	----- 4	————— 0
PC_REBAR_BEAM GL 3		16	----- 4	————— 0
PC_REBAR_BEAM GL 4		16	----- 4	————— 0
PC_REBAR_BEAM GL 5		16	----- 4	————— 0
PC_REBAR_CULVERT_CIP		12	————— 0	————— 3
PC_REBAR_CULVERT_CIP GL		16	----- 4	————— 0
PC_REBAR_CULVERT_CIP GL 1		16	----- 4	————— 0
PC_REBAR_CULVERT_CIP GL 2		16	----- 4	————— 0
PC_REBAR_CULVERT_CIP GL 3		16	----- 4	————— 0
PC_REBAR_CULVERT_CIP GL 4		16	----- 4	————— 0
PC_REBAR_CULVERT_CIP GL 5		16	----- 4	————— 0
PC_REBAR_CULVERT_PC		12	————— 0	————— 3
PC_REBAR_CULVERT_PC GL		16	----- 4	————— 0
PC_REBAR_CULVERT_PC GL 1		16	----- 4	————— 0
PC_REBAR_CULVERT_PC GL 2		16	----- 4	————— 0
PC_REBAR_CULVERT_PC GL 3		16	----- 4	————— 0
PC_REBAR_CULVERT_PC GL 4		16	----- 4	————— 0
PC_REBAR_CULVERT_PC GL 5		16	----- 4	————— 0
PC_REBAR_DECK		18	————— 0	————— 3
PC_REBAR_DECK GL		16	----- 4	————— 0
PC_REBAR_DECK GL 1		16	----- 4	————— 0
PC_REBAR_DECK GL 2		16	----- 4	————— 0
PC_REBAR_DECK GL 3		16	----- 4	————— 0
PC_REBAR_DECK GL 4		16	----- 4	————— 0
PC_REBAR_DECK GL 5		16	----- 4	————— 0
PC_REBAR_DIAPHRAGM		12	————— 0	————— 3
PC_REBAR_DIAPHRAGM GL		16	----- 4	————— 0
PC_REBAR_DIAPHRAGM GL 1		16	----- 4	————— 0
PC_REBAR_DIAPHRAGM GL 2		16	----- 4	————— 0
PC_REBAR_DIAPHRAGM GL 3		16	----- 4	————— 0
PC_REBAR_DIAPHRAGM GL 4		16	----- 4	————— 0
PC_REBAR_DIAPHRAGM GL 5		16	----- 4	————— 0
PC_REBAR_DOWELS		10	————— 0	————— 3
PC_REBAR_DOWELS GL		16	----- 4	————— 0
PC_REBAR_EPOXY		18	————— 0	————— 3
PC_REBAR_EPOXY GL		16	----- 4	————— 0

Name ^			
PC_REBAR_FOOTING	 42	———— 0	———— 3
PC_REBAR_FOOTING GL	 16	----- 4	———— 0
PC_REBAR_FOOTING GL 1	 16	----- 4	———— 0
PC_REBAR_FOOTING GL 2	 16	----- 4	———— 0
PC_REBAR_FOOTING GL 3	 16	----- 4	———— 0
PC_REBAR_FOOTING GL 4	 16	----- 4	———— 0
PC_REBAR_FOOTING GL 5	 16	----- 4	———— 0
PC_REBAR_MISC	 12	———— 0	———— 3
PC_REBAR_MISC GL	 16	----- 4	———— 0
PC_REBAR_MISC GL 1	 16	----- 4	———— 0
PC_REBAR_MISC GL 2	 16	----- 4	———— 0
PC_REBAR_MISC GL 3	 16	----- 4	———— 0
PC_REBAR_MISC GL 4	 16	----- 4	———— 0
PC_REBAR_MISC GL 5	 16	----- 4	———— 0
PC_REBAR_PIER_CAP	 10	———— 0	———— 3
PC_REBAR_PIER_CAP GL	 16	----- 4	———— 0
PC_REBAR_PIER_CAP GL 1	 16	----- 4	———— 0
PC_REBAR_PIER_CAP GL 2	 16	----- 4	———— 0
PC_REBAR_PIER_CAP GL 3	 16	----- 4	———— 0
PC_REBAR_PIER_CAP GL 4	 16	----- 4	———— 0
PC_REBAR_PIER_CAP GL 5	 16	----- 4	———— 0
PC_REBAR_PIER_COL	 26	———— 0	———— 3
PC_REBAR_PIER_COL GL	 16	----- 4	———— 0
PC_REBAR_PIER_COL GL 1	 16	----- 4	———— 0
PC_REBAR_PIER_COL GL 2	 16	----- 4	———— 0
PC_REBAR_PIER_COL GL 3	 16	----- 4	———— 0
PC_REBAR_PIER_COL GL 4	 16	----- 4	———— 0
PC_REBAR_PIER_COL GL 5	 16	----- 4	———— 0
PC_REBAR_PILE	 12	———— 0	———— 3
PC_REBAR_PILE GL	 16	----- 4	———— 0
PC_REBAR_PILE GL 1	 16	----- 4	———— 0
PC_REBAR_PILE GL 2	 16	----- 4	———— 0
PC_REBAR_PILE GL 3	 16	----- 4	———— 0
PC_REBAR_PILE GL 4	 16	----- 4	———— 0
PC_REBAR_PILE GL 5	 16	----- 4	———— 0
PC_REBAR_STAINLESS	 41	———— 0	———— 3
PC_REBAR_STAINLESS GL	 16	----- 4	———— 0
PC_REBAR_STAINLESS GL 1	 16	----- 4	———— 0
PC_REBAR_STAINLESS GL 2	 16	----- 4	———— 0
PC_REBAR_STAINLESS GL 3	 16	----- 4	———— 0
PC_REBAR_STAINLESS GL 4	 16	----- 4	———— 0
PC_REBAR_STAINLESS GL 5	 16	----- 4	———— 0
PC_REBAR_WALL	 10	———— 0	———— 3
PC_REBAR_WALL GL	 16	----- 4	———— 0
PC_REBAR_WALL GL 1	 16	----- 4	———— 0
PC_REBAR_WALL GL 2	 16	----- 4	———— 0
PC_REBAR_WALL GL 3	 16	----- 4	———— 0
PC_REBAR_WALL GL 4	 16	----- 4	———— 0
PC_REBAR_WALL GL 5	 16	----- 4	———— 0

PC_REBAR_WINGWAL GL	16	----- 4	_____ 0
PC_REBAR_WINGWAL GL 1	16	----- 4	_____ 0
PC_REBAR_WINGWAL GL 2	16	----- 4	_____ 0
PC_REBAR_WINGWAL GL 3	16	----- 4	_____ 0
PC_REBAR_WINGWAL GL 4	16	----- 4	_____ 0
PC_REBAR_WINGWAL GL 5	16	----- 4	_____ 0
PC_REBAR_WINGWALL	28	_____ 0	_____ 3
PC_REPAIR_EXISTING	230	_____ 0	_____ 1
PC_REPAIR_REMOVAL	228	_____ 0	_____ 2
PC_REVISION_ANNOTATION	5	_____ 0	_____ 5
PC_SHADING	233	_____ 0	_____ 0
PC_SLAB	99	_____ 0	_____ 8
PC_STRIPFOOTING	115	_____ 0	_____ 8
PC_STRUCT_WALL	19	_____ 0	_____ 8
PC_WALL	13	_____ 0	_____ 8
PS_BOLT	57	_____ 0	_____ 2
PS_CONST	0	_____ 0	_____ 0
PS_DAWA	5	_____ 0	_____ 0
PS_DIM	0	_____ 0	_____ 0
PS_Elev_flag	0	_____ 0	_____ 0
PS_GIRDER	57	_____ 0	_____ 4
PS_HANDRAIL	62	_____ 0	_____ 4
PS_HATCH	3	_____ 0	_____ 0
PS_HIDDEN	2	--- 3	_____ 0
PS_KOTE	4	_____ 0	_____ 0
PS_MID	5	----- 7	_____ 0
PS_OBJECT	2	_____ 0	_____ 0
PS_PLATE	1	_____ 0	_____ 4
PS_POS	1	_____ 0	_____ 0
PS_RoofWall	5	_____ 0	_____ 0
PS_SHAPE	7	_____ 0	_____ 4
PS_SOLID	7	_____ 0	_____ 0
PS_TEXT	0	_____ 0	_____ 0
PS_WELD	1	_____ 0	_____ 4
PS_WORKFRAME	6	_____ 0	_____ 0

Additional levels used for CONNECT workspace projects are provided in lowaDOT_FeatureDefinitions_ElementTemplates_Annotation_Levels.dgnlib. These are primarily for use with OpenRoad Designer processes.

These levels may be used for modeling or detailing structures also. Those listed below are levels more typically used for structure projects. This is not intended to be an all-inclusive list. Levels available that are logical for placement of various elements can be used. These levels have the plot attribute turned on.

Name			
Aluminum	 194	———— 0	———— 4
BentoniteSlurry	 197	———— 0	———— 4
BridgeSubstructureExisting	 234	———— 0	———— 0
BridgeSubstructureProposed	 3	———— 0	———— 0
BridgeSuperStructureExisting	 234	———— 0	———— 0
BridgeSuperStructureProposed	 3	———— 0	———— 0
BridgeTemporaryStructure	 15	———— 0	———— 3
CulvertExisting	 234	———— 0	———— 0
CulvertProposed	 3	———— 0	———— 0
Joints	 31	———— 0	———— 3
Removals	 228	----- 2	———— 3
Revetment	 206	———— 0	———— 1
Revisions	 0	———— 0	———— 0
Steel	 57	———— 0	———— 4
Timbers	 6	———— 0	———— 4
WireMesh	 71	———— 0	———— 3

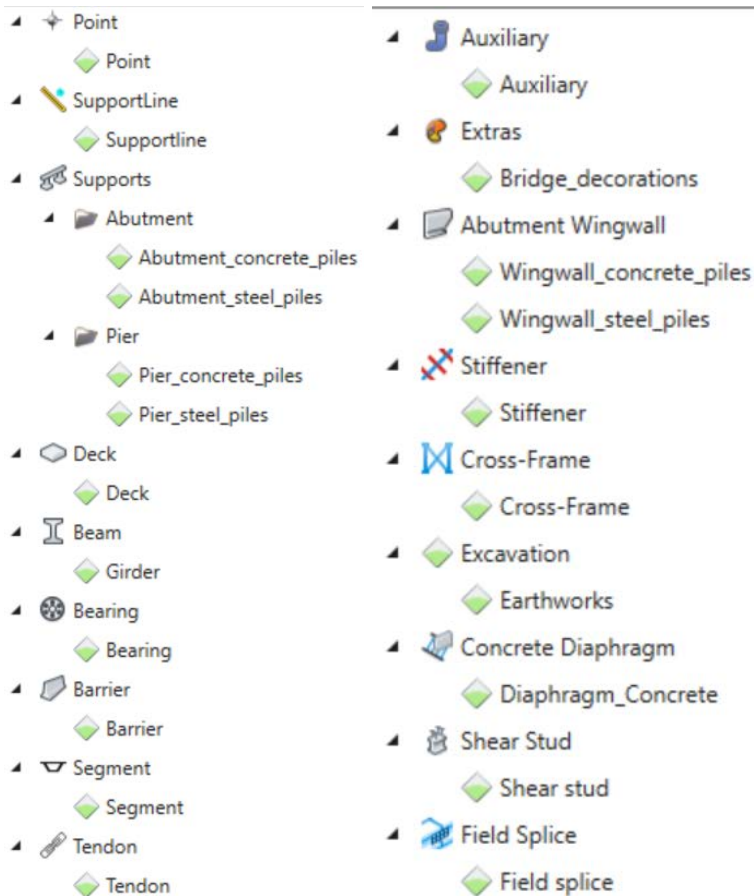
CONNECT Feature Definitions

The feature definitions used for CONNECT workspace projects are provided in various features and element templates libraries. The main library used for Bridge projects is lowaDOT_Bridge_Features_Levels_Elem Temp Imperial.dgnlib.

The main library used for pipe and culvert projects is lowaDOT_SU_Utility_FeatureDefinitions_ElementTemplates.dgnlib

The feature definitions are shown below through expanded views of the Feature Definitions in Explorer organized by library.

OpenBridge Modeler features for placement of the bridge components are listed below.



The feature symbology provided through the element templates and levels used are provided in the same dgnlib file.

Feature Symbology Default Element Template, Plan Element Template, and 3D Element Template are currently all the same element template for each feature.

Refer to [CONNECT Levels](#) for additional information on the levels used for the features in OpenBridge Modeler.

The feature symbology name, default element template, and associated level are provided in the tables below.










Solid		
Feature Symbology Name	Feature Symbology Default Element Template	Base Element Symbology - Level
Abutments	Abutments\Abutments	BridgeSubstructure
Caps	Abutments\Caps	BridgeSubstructure
Columns	Abutments\Columns	BridgeSubstructure
Footings	Abutments\Footings	BridgeSubstructure
Piles_concrete	Abutments\Piles_concrete	OBD_Bridge_Piling
Piles_steel	Abutments\Piles_steel	OBD_Bridge_Piling
Barrier	Auxiliary\Barriers\Barrier	OBD_Barrier
Bearings	Bearings\Bearings	BridgeSubstructure
GroutPad	Bearings\GroutPad	BridgeSubstructure
Seat	Bearings\Seat	BridgeSubstructure
CrossFrames	CrossFrames\CrossFrames	BridgeSuperStructure
Deck	Deck\Deck	BridgeSuperStructure
Diaphragm_Concrete	Diaphragms\Diaphragm_Concrete	BridgeSuperStructure
Bolt	Field splice\Bolt	OBD_Field_Splice
Field splice	Field splice\Field splice	OBD_Field_Splice
Filler plate	Field splice\Filler plate	OBD_Field_Splice
Plate	Field splice\Plate	OBD_Field_Splice
Concrete	Girder\Concrete	BridgeSuperStructure
Girder	Girder\Girder	BridgeSuperStructure
Haunch	Girder\Haunch	BridgeSuperStructure
Steel	Girder\Steel	BridgeSuperStructure
Wet Joint	Girder\Wet Joint	BridgeSuperStructure
Caps	Piers\Caps	BridgeSubstructure
Columns	Piers\Columns	BridgeSubstructure
Footings	Piers\Footings	BridgeSubstructure
Piers	Piers\Piers	BridgeSubstructure
Piles_concrete	Piers\Piles_concrete	OBD_Bridge_Piling
Piles_steel	Piers\Piles_steel	OBD_Bridge_Piling
Closure	Segments\Closure	BridgeSuperStructure
Expansion	Segments\Expansion	BridgeSuperStructure
PierSegment	Segments\PierSegment	BridgeSuperStructure
Segment	Segments\Segment	BridgeSuperStructure
Typical	Segments\Typical	BridgeSuperStructure
Shear stud	Shear stud\Shear stud	BridgeSuperStructure
Stiffeners	Stiffeners\Stiffeners	BridgeSuperStructure
Tendon	Tendons\Tendon	OBD_Tendon
Tendon_centerline	Tendons\Tendon_centerline	OBD_Tendon_Centerline
AbutmentWingwall	Wingwalls\AbutmentWingwall	BridgeSubstructure

Footing	Wingwalls\Footing	BridgeSubstructure
Piles_concrete	Wingwalls\Piles_concrete	OBD_Bridge_Piling
Piles_steel	Wingwalls\Piles_steel	OBD_Bridge_Piling
Wingwall	Wingwalls\Wingwall	BridgeSubstructure

Linear		
Feature Symbology Name	Feature Symbology Default Element Template	Base Element Symbology - Level
Barrier_outline	Decorations\Barrier_outline	OBD_D_Barrier_Outline
Beam_end	Decorations\Beam_end	OBD_D_Beam_End
Beam_layout	Decorations\Beam_layout	OBD_D_Beam_Layout
Beam_layout_text	Decorations\Beam_layout_text	OBD_D_Beam_Layout_Text
Beam_PL_offset	Decorations\Beam_PL_offset	OBD_D_Beam_PL_Offset
Bearing_Group	Decorations\Bearing_group	OBD_D_Sub
Bridge_decorations	Decorations\Bridge_decorations	OBD_D_Bridge_Decorations
CrossFrames	Decorations\CrossFrames	OBD_D_CrossFrames
Deck_outline	Decorations\Deck_outline	OBD_D_Super
Diaphragm_Concrete	Decorations\Diaphragm_Concrete	OBD_D_Super
Field splice	Decorations\Field splice	OBD_D_Field_splice
Reports_lines	Decorations\Reports_lines	OBD_D_Reports_Lines
Segmental_deck_outline	Decorations\Segmental_deck_outline	OBD_D_Segmental_Deck_Outline
Segmental_lines_text	Decorations\Segmental_lines_text	OBD_D_Segmental_Lines_Text
Shear studs	Decorations\Shear studs	OBD_D_Shear_studs
Stiffeners	Decorations\Stiffeners	OBD_D_Stiffeners
SupportLine_text	Decorations\SupportLine_text	OBD_D_Sub_Text
Unit_label	Decorations\Unit_label	OBD_D_Unit_Label
SupportLine	SupportLines\SupportLines	OBD_Support_Line
Surface		
Feature Symbology Name	Feature Symbology Default Element Template	Base Element Symbology - Level
Earthworks_Cut	Earthworks \Excavation	OBD_Excavation
Point		
Feature Symbology Name	Feature Symbology Default Element Template	Base Element Symbology - Level
Auxiliary	Auxiliary	Auxiliary
Point	Point	OBD_Point

OpenRoad Designer features used for pipe and culvert placement are provided under Conduit, StormWater feature definitions in lowaDOT_SU_Utility_FeatureDefinitions_ElementTemplates.dgnlib. Various types of culverts are provided as existing and proposed structures features.

Refer to the [Culvert Workflow documentation](#) or additional information on the use of the features in OpenRoad Designer.

- ▲  Culverts
 - ▲  Existing Structures
 - ◆ Existing Arch CMP
 - ◆ Existing Arch RCP
 - ◆ Existing CIP Box Culverts Single
 - ◆ Existing CIP Box Culverts Triple
 - ◆ Existing CIP Box Culverts Twin
 - ◆ Existing Circular CMP
 - ◆ Existing Circular RCP
 - ◆ Existing HorzElliptical RCP
 - ◆ Existing Precast Box Culverts Single
 - ◆ Existing VertElliptical RCP
 - ▲  Proposed Structures
 - ◆ Proposed Arch CMP
 - ◆ Proposed Arch RCP
 - ◆ Proposed CIP Box Culverts Single
 - ◆ Proposed CIP Box Culverts Triple
 - ◆ Proposed CIP Box Culverts Twin
 - ◆ Proposed Circular CMP
 - ◆ Proposed Circular RCP
 - ◆ Proposed HorzElliptical RCP
 - ◆ Proposed Precast Box Culverts Single
 - ◆ Proposed VertElliptical RCP
- ▲  Pedestrian Tunnel
 - ▲  Existing Structures
 - ◆ Existing CIP Tunnel
 - ◆ Existing Precast Tunnel
 - ▲  Proposed Structures
 - ◆ Proposed CIP Tunnel
 - ◆ Proposed Precast Tunnel
- ▲  Stock Pass
 - ▲  Existing Structures
 - ◆ Existing 06x07 PRCB Stock Pass
 - ◆ Existing 510-4 Arch Stock Pass
 - ▲  Proposed Structures
 - ◆ Proposed 06x07 PRCB Stock Pass
 - ◆ Proposed 510-4 Arch Stock Pass

Additional OpenRoad Designer features used for pipe and culvert placement are provided under Node, StormWater Node feature definitions. Various types of pipe aprons and culvert headwalls are provided as existing and proposed features.

Apron options include no apron. The pipe aprons are organized and named by type, shape, size, and standard.

- ▲ Pipe Aprons
 - ▲ Aprons None
 - ▲ Existing Aprons None
 - ◆ E-Aprons None
 - ◆ E-Aprons None 30A
 - ◆ E-Aprons None 30B
 - ◆ E-Aprons None 45A
 - ◆ E-Aprons None 45B
 - ▲ Proposed Aprons None
 - ◆ P-Aprons None
 - ◆ P-Aprons None 30A
 - ◆ P-Aprons None 30B
 - ◆ P-Aprons None 45A
 - ◆ P-Aprons None 45B
-
- ▲ CMP Aprons
 - ▲ Arched Steel

<ul style="list-style-type: none"> ▲ Existing Steel Arched <ul style="list-style-type: none"> ◆ E-(15")17x13Steel Arch ◆ E-(18")21x15Steel Arch ◆ E-(21")24x18Steel Arch ◆ E-(24")28x20Steel Arch ◆ E-(30")35x24Steel Arch ◆ E-(36")42x29Steel Arch ◆ E-(42")49x33Steel Arch ◆ E-(48")57x38Steel Arch ◆ E-(54")64x43Steel Arch ◆ E-(60")71x47Steel Arch ◆ E-(66")77x52Steel Arch ◆ E-(72")83x57Steel Arch 	<ul style="list-style-type: none"> ▲ Proposed DR-204 Steel Arched <ul style="list-style-type: none"> ◆ P-(15")DR-204(17"x13")Steel Arch ◆ P-(18")DR-204(21"x15")Steel Arch ◆ P-(21")DR-204(24"x18")Steel Arch ◆ P-(24")DR-204(28"x20")Steel Arch ◆ P-(30")DR-204(35"x24")Steel Arch ◆ P-(36")DR-204(42"x29")Steel Arch ◆ P-(42")DR-204(49"x33")Steel Arch ◆ P-(48")DR-204(57"x38")Steel Arch ◆ P-(54")DR-204(64"x43")Steel Arch ◆ P-(60")DR-204(71"x47")Steel Arch ◆ P-(66")DR-204(77"x52")Steel Arch ◆ P-(72")DR-204(83"x57")Steel Arch
---	--

- └─ Beveled Pipe Guard
 - └─ Existing Pipe Guard
 - ◆ E-(12")DR-212 Pipe Guard
 - ◆ E-(15")DR-212 Pipe Guard
 - ◆ E-(18")DR-212 Pipe Guard
 - ◆ E-(21")DR-212 Pipe Guard
 - ◆ E-(24")DR-212 Pipe Guard
 - └─ Proposed DR-212 Pipe Guard
 - ◆ P-(12")DR-212 Pipe Guard
 - ◆ P-(15")DR-212 Pipe Guard
 - ◆ P-(18")DR-212 Pipe Guard
 - ◆ P-(21")DR-212 Pipe Guard
 - ◆ P-(24")DR-212 Pipe Guard

- └─ Circular Steel

- └─ Existing Steel Circular
 - ◆ E-(06")Steel Circular
 - ◆ E-(08")Steel Circular
 - ◆ E-(10")Steel Circular
 - ◆ E-(12")Steel Circular
 - ◆ E-(15")Steel Circular
 - ◆ E-(18")Steel Circular
 - ◆ E-(21")Steel Circular
 - ◆ E-(24")Steel Circular
 - ◆ E-(30")Steel Circular
 - ◆ E-(36")Steel Circular
 - ◆ E-(42")Steel Circular
 - ◆ E-(48")Steel Circular
 - ◆ E-(54")Steel Circular
 - ◆ E-(60")Steel Circular
 - ◆ E-(66")Steel Circular
 - ◆ E-(72")Steel Circular
 - ◆ E-(78")Steel Circular
 - ◆ E-(84")Steel Circular
 - ◆ E-(90")Steel Circular
 - ◆ E-(96")Steel Circular

- └─ Proposed DR-203 Steel Circular

- ◆ P-(06")DR-203 Steel Circular
- ◆ P-(08")DR-203 Steel Circular
- ◆ P-(10")DR-203 Steel Circular
- ◆ P-(12")DR-203 Steel Circular
- ◆ P-(15")DR-203 Steel Circular
- ◆ P-(18")DR-203 Steel Circular
- ◆ P-(21")DR-203 Steel Circular
- ◆ P-(24")DR-203 Steel Circular
- ◆ P-(30")DR-203 Steel Circular
- ◆ P-(36")DR-203 Steel Circular
- ◆ P-(42")DR-203 Steel Circular
- ◆ P-(48")DR-203 Steel Circular
- ◆ P-(54")DR-203 Steel Circular
- ◆ P-(60")DR-203 Steel Circular
- ◆ P-(66")DR-203 Steel Circular
- ◆ P-(72")DR-203 Steel Circular
- ◆ P-(78")DR-203 Steel Circular
- ◆ P-(84")DR-203 Steel Circular
- ◆ P-(90")DR-203 Steel Circular
- ◆ P-(96")DR-203 Steel Circular

The additional apron node features listed are not expanded for specific named features.

- ▲ RCP Aprons
 - ▲ Arched
 - ▲ Existing
 - ▷ Arched
 - ▷ Arched with end wall
 - ▷ Arched with guard
 - ▲ Proposed
 - ▷ Arched DR-202
 - ▷ Arched DR-202 with DR-213 guard
 - ▷ Arched DR-206 with end wall
- ▲ Circular
 - ▲ Existing
 - ▷ Circular Type1
 - ▷ Circular Type1 with end wall
 - ▷ Circular Type1 with guard
 - ▷ Circular Type2
 - ▷ Circular Type2 with end wall
 - ▷ Circular Type2 with guard
 - ▲ Proposed
 - ▷ Circular DR-201 Type1
 - ▷ Circular DR-201 Type1 with DR-213 guard
 - ▷ Circular DR-201 Type2
 - ▷ Circular DR-201 Type2 with DR-213 guard
 - ▷ Circular DR-205 Type1 with end wall
 - ▷ Circular DR-205 Type2 with end wall
- ▲ Ellipse
 - ▲ Existing
 - ▷ Ellipse
 - ▷ Ellipse with end wall
 - ▷ Ellipse with guard
 - ▲ Proposed
 - ▷ Ellipse DR-202
 - ▷ Ellipse DR-202 with DR-213 guard
 - ▷ Ellipse DR-206 with end wall

The reinforced concrete box headwalls are organized and named by number of barrels, type of wings, skew, and size. These features are not expanded for specific named features.

- ▲ RCB head walls
 - ▲ CIP
 - ▲ Single
 - ▲ Parallel Wing
 - ▲ 0 Skew
 - ▷ Existing
 - ▷ Proposed PWH 0
 - ▷ 15 Skew
 - ▷ 30 Skew
 - ▷ 45 Skew
 - ▲ Triple
 - ▲ Flared Wing
 - ▲ 0 Skew
 - ▷ Existing
 - ▷ Proposed
 - ▷ 15 Skew
 - ▷ 30 Skew
 - ▲ Twin
 - ▲ Flared Wing
 - ▲ 0 Skew
 - ▷ Existing
 - ▷ Proposed TWH 0
 - ▷ 15 Skew
 - ▷ 30 Skew

These features are expanded for specific named features.

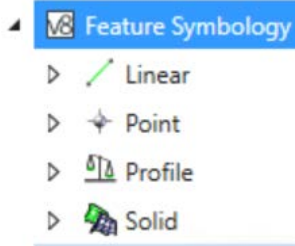
- ▲ Pedestrian Tunnel head walls
 - ▲ CIP
 - ▲ Flared Wing
 - ▲ 0 Skew
 - ▲ Existing
 - ◆ E_CIP12x 10-4 Pedestrian Tunnel
 - ▲ Proposed
 - ◆ P_CIP12 x 10-4 Pedestrian Tunnel
- ▲ Stock Pass head walls
 - ▲ Precast
 - ▲ Parallel Wing
 - ▲ Existing
 - ◆ E-(4'x6')510-4 48"x72"Conc Arch Stock Pass
 - ◆ E-(5'x7')510-4 60"x84"Conc Arch Stock Pass
 - ◆ E_06x07_PRCB_SGL_PW_0_Stock Pass
 - ▲ Proposed 510-4
 - ◆ P-(4'x6')510-4 48"x72"Conc Arch Stock Pass
 - ◆ P-(5'x7')510-4 60"x84"Conc Arch Stock Pass
 - ◆ P_06x07_PRCB_SGL_PW_0_Stock Pass

These are not intended to be an all-inclusive lists of possible existing or proposed nodes. Several categories have been populated only as needed for active projects. Work continues to create features for what exists in our structure inventory and what we have for culvert standards.

The feature symbology provided through the element templates and levels used are provided in the same dgnlib file.

Refer to [CONNECT Levels](#) for additional information on the levels used for the features in OpenRoad Designer.

The feature symbology is organized by four main categories.



The pipe and culvert feature symbology for the main structure are provided under Linear, Conduit, StormWater and are named the same as the features. Each symbology specifies an element template for the Plan and the 3D model.

An example of properties settings is shown below.



The pipe and culvert feature symbology for types of pipe aprons and culvert headwalls are provided under Point, Node, StormWaterNode and are named the same as the features.

These are organized by existing and proposed and then categorized by type of node.

-
- ▲ StormWaterNode
 - ▲ Existing
 - ▷ Aprons
 - ▷ CIP
 - ▷ Conc Arch
 - ▷ Conc Ellipse
 - ▷ Pipe Guard
 - ▷ Steel Arch
 - ▷ Steel Circular
 - ▷ Type1
 - ▷ Type2
 - ▲ Proposed
 - ▷ 201
 - ▷ 202
 - ▷ 203
 - ▷ 204
 - ▷ 205
 - ▷ 206
 - ▷ 212
 - ▷ Aprons
 - ▷ CIP
 - ▷ Conc Arch

Each symbology specifies an element template for the Plan and Profile.

An example of properties settings is shown below.

P_10x04_CIP_TRH_FW_15_LA

Defaults	
Default Element Template	None
Plan	
Annotation Group	None
Element Template	Headwalls RCB\CIP\Triple\Flared Wing\15 Skew\Proposed\10X04\P_10x04_CIP_TRH_FW_LA_15 Plan
Profile	
Annotation Group	None
Element Template	Storm Sewer Nodes\Drainage Node Profile
3D	
Element Template	None

The pipe and culvert feature symbology for the structure profiles are provided under Profile, Conduit, StormWater and Profile, Node, StormWaterNode. These are named the same as the features. Each symbology specifies an element template for the Profile.

Examples of properties settings are shown below.

Existing CIP Box Culverts Single

Annotation Group	
Annotation Group	None
Defaults	
Default Element Template	None
Profile Intersection	
Element Template	None
Profile Projection	
Element Template	None
Profile	
Element Template	Culverts Conduits\CIP Box Culverts RCB\Existing\E_CIP_RCB_Profile
Curve Element Template	None

E_10x04_CIP_TRH_FW_15_LA

Annotation Group	
Annotation Group	None
Defaults	
Default Element Template	None
Profile Intersection	
Element Template	None
Profile Projection	
Element Template	None
Profile	
Element Template	Storm Sewer Nodes\Drainage Node Profile
Curve Element Template	None

The pipe and culvert feature symbology for the solid category are provided under Solid, Conduit, StormWater and Solid, Node, StormWaterNode. These are named similar to the features. Each symbology specifies an element template for 3D modeling.

Proposed CIP Box Culverts Triple

Defaults	
Default Element Template	None
3D	
Top Template	Culverts Conduits\CIP Box Culverts RCB\Proposed\P_CIP_RCB_3D Concrete
Bottom Template	None

P_10x04_CIP_TRH_FW_15_LA

Defaults	
Default Element Template	None
3D	
Top Template	None
Bottom Template	Headwalls RCB\CIP\Triple\Flared Wing\15 Skew\Proposed\10X04\P_10x04_CIP_TRH_FW_LA_15_3D

The existing and proposed culvert features use the CulvertExisting and CulvertProposed levels for all features.

ProStructures is not a feature-based application.

CONNECT Standard Libraries

For CONNECT projects OpenBridge Modeler contains standard libraries for decks, barriers, beams, columns, piers, abutments, wingwall, material, stiffeners, cross frames, connection, shear studs, and splices.



For information on the libraries for decks, barriers, beams, and piers refer to Iowa DOT CONNECT Edition Standard Templates. These libraries contain Iowa specific options stored as templates.

There are no Iowa specific customizations for the columns, abutments, wingwall, stiffeners, cross frames, connection, shear studs, and splices libraries at this time.

For the materials library Iowa specific options are provided. The items are shown below organized by category tab.

Concrete

Name	Description	Unit Wt (PCF)	Unit Price	Poisson	f'c (ksi)	f'ci (ksi)	MR (ksi)	E (ksi)	CTE (1/F)
Click here to add new item									
T4 IN. P10L Prestressed Concrete Piles	Piles – Concrete (P10L TYPE 2)	150	1	0.2	5	5	0.59	4592.232476	6E-06
16 IN. P10A Prestressed Concrete Piles	Piles – Concrete (P10A TYPE 2)	150	1	0.2	5	5	0.59	4592.232476	6E-06
16 IN. P10L Prestressed Concrete Piles	Piles – Concrete (P10L TYPE 2)	150	1	0.2	5	5	0.59	4592.232476	6E-06
A30-A42, B34-B50, C30-C67 BEAMS	PPCB	150	1	0.2	5	5	0.54	4592	6E-06
A46-A55, B55-B67, BTC80-BTC90, BTD100-BTD105, BTB80 Beams	PPCB	150	1	0.2	7	6	0.63	5131.521081	6E-06
BTB70 Beams	PPCB	150	1	0.2	5.5	5	0.56	4738.96446	6E-06
BTC100, BTD115-BTD120, BTE135 Beams	PPCB	150	1	0.2	8	7	0.68	5362.699475	6E-06
BTC105, BTD125, BTB90, BTE140-BTE145 Beams	PPCB	150	1	0.2	8.5	7.5	0.7	5471.066702	6E-06
BTC110-BTC115, BTC120, BTD130-BTD135, BTB95-BTB105, BTE150-BTE155 Beams	PPCB	150	1	0.2	9	8	0.72	5575.242887	6E-06
BTC30-BTC60, BTD50-BTD70, BTB30-BTB65, BTE60-BTE75 Beams	PPCB	150	1	0.2	5	4.5	0.54	4592	6E-06
BTD90-BTD95, BTB75 Beams	PPCB	150	1	0.2	6.5	5.5	0.61	5007.548587	6E-06
BTE115-BTE120 Beams	PPCB	150	1	0.2	6	5.5	0.59	4877.010345	6E-06
C71-C80, BTC65-BTC75, BTD75-BTD85, BTE80-BTE110 Beams	PPCB	150	1	0.2	6	5	0.59	4877.010345	6E-06
D100-D105 Beams	PPCB	150	1	0.2	7.5	6	0.66	5249.693898	6E-06
D110, BTC95, BTD110, BTB85, BTE125-BTE130 Beams	PPCB	150	1	0.2	7.5	6.5	0.66	5249.693898	6E-06
D35-D95 Beams	PPCB	150	1	0.2	5	5	0.54	4592	6E-06
Deck Concrete - CCS & PPCB Bridges	CIP Superstructure	150	1	0.2	3.5	3.5	0.45	4082.312237	6E-06
Deck Concrete - RS Bridges	CIP Superstructure	150	1	0.2	4	4	0.48	4266	6E-06

High Performance Structural Concrete	High Performance	150	1	0.2	5	0	0.54	4592	6E-06
Precast Abutment Backwall	Precast Backwall	150	1	0.2	5	0	0.54	4592	6E-06
Precast Footing Abutment	Precast Footing	150	1	0.2	5	0	0.54	4592	6E-06
Prestressed Concrete Deck Units	Precast Decks	150	1	0.2	6	0	0.59	4877	6E-06
Pretensioned Prestressed Concrete, Box Beams	BOX BEAMS	150	1	0.2	5	4.5	0.54	4592.232476	6E-06
Reinforced Concrete, Box Beams	CIP BOX BEAMS	150	1	0.2	4	4	0.48	4266.223084	6E-06
Self-consolidating concrete	Self-consolidating	150	1	0.2	5	0	0.54	4592	6E-06
Structural Concrete	Structural Concrete	150	1	0.2	4	0	0.48	4266	6E-06
Structural Concrete (Bridge) - CCS & PPCB Bridges	Typical Bridge Concrete	150	1	0.2	3.5	0	0.45	4082.312237	6E-06
Structural Concrete (Bridge) - RS Bridges	Typical Bridge Concrete	150	1	0.2	4	0	0.48	4266	6E-06
Structural Concrete (Miscellaneous) - CCS & PPCB Bridges	Repairs	150	1	0.2	3.5	0	0.45	4082.312237	6E-06
Structural Concrete (Miscellaneous) - RS Bridges	Repairs	150	1	0.2	4	0	0.48	4266	6E-06
Structural Concrete, Class X	Seal Courses	150	1	0.2	3.5	0	0.45	4082.312237	6E-06
Substructure Concrete - Drilled shafts	Generic Substructure	150	1	0.2	4	0	0	0	0
Substructure Concrete - PPCB Bridges	Generic Substructure	150	1	0.2	3.5	3.5	0.45	4082.312237	6E-06
Substructure concrete (other)	Substructure concrete	150	1	0.2	4	0	0.48	4266	6E-06
UHPC - Heat Treated	UHPC Joint for County Box Be	150	1	0.2	25	0	0	0	0
UHPC - Not Heat Treated at 28 days	UHPC Joint for County Box Be	150	1	0.2	21	0	0	0	0
UHPC - Not Heat Treated at 4 Days	UHPC Joint for County Box Be	150	1	0.2	12	0	0	0	0
Ultra High Performance Concrete Joint	UHPC Joint	150	1	0.2	10	0	0.76	5772	6E-06

Steel

Name	Description	Unit Wt (PCF)	Unit Price	Poisson	Fy (ksi)	Fu (ksi)	G (ksi)	E (ksi)	CTE (1/F)
Click here to add new item									
CrossFrames Gr. 36	Grade 36	490	1	0.295	36	58	11500	29000	6.5E-06
Curved box girders	Grade 50W	490	1	0.295	50	65	11500	29000	6.5E-06
Curved plate girders	Grade 50W	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel Pipe, 14 IN. (P10A TYPE 1)	Steel Piles	490	1	0.295	42	58	11500	29000	6.5E-06
Piles, Steel Pipe, 14 IN. (P10L TYPE 1)	Steel Piles	490	1	0.295	42	58	11500	29000	6.5E-06
Piles, Steel Pipe, 16 IN. (P10A TYPE 1)	Steel Piles	490	1	0.295	42	58	11500	29000	6.5E-06
Piles, Steel Pipe, 16 IN. (P10L TYPE 1)	Steel Piles	490	1	0.295	42	58	11500	29000	6.5E-06
Piles, Steel, HP 10 X 42	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 10 X 42 (CONCRETE ENCASEMENT P10A TYPE 3)	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 10 X 42 (CONCRETE ENCASEMENT P10L TYPE 3)	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 10 X 57	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 10 X 57 (CONCRETE ENCASEMENT P10A TYPE 3)	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 10 X 57 (CONCRETE ENCASEMENT P10L TYPE 3)	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 12 X 53	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 12 X 53 (CONCRETE ENCASEMENT P10A TYPE 3)	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 12 X 53 (CONCRETE ENCASEMENT P10L TYPE 3)	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 12 X 63	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 12 X 74	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 12 X 84	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 14 X 102	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 14 X 117	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 14 X 73	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 14 X 73 (CONCRETE ENCASEMENT P10L TYPE 3)	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 14 X 89	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 14 X 89 (CONCRETE ENCASEMENT P10L TYPE 3)	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Piles, Steel, HP 8 X 36	Steel Piles	490	1	0.295	50	65	11500	29000	6.5E-06
Rolled wide flange sections	Grade 50W	490	1	0.295	50	65	11500	29000	6.5E-06
Straight box girders	Grade 50W	490	1	0.295	50	65	11500	29000	6.5E-06
Straight plate girders	Grade 50W	490	1	0.295	50	65	11500	29000	6.5E-06
Structural Steel Gr. 36	Grade 36	490	1	0.295	36	65	11500	29000	6.5E-06
Structural Steel Gr. 50	Grade 50	490	1	0.295	50	65	11500	29000	6.5E-06
Structural Steel Gr. 50W	Grade 50W	490	1	0.295	50	65	11500	29000	6.5E-06

Miscellaneous

Name	Description	Unit Price
Click here to add new item		
Concrete Barrier Railing	Traffic Barrier	1
Concrete Barrier Railing, Aesthetic	Traffic Barrier	1
Concrete Barrier, Reinforced, Separation	Traffic Barrier	1
Concrete Open Railing	Traffic Barrier	1
Concrete Open Railing, TL-4	Traffic Barrier	1
Disc Bearing	Disc Bearing	1
Excavation	Earthwork	1
Neoprene Bearing Pads	Neoprene Pad	1
Rocker bearing	Rocker Bearing	1

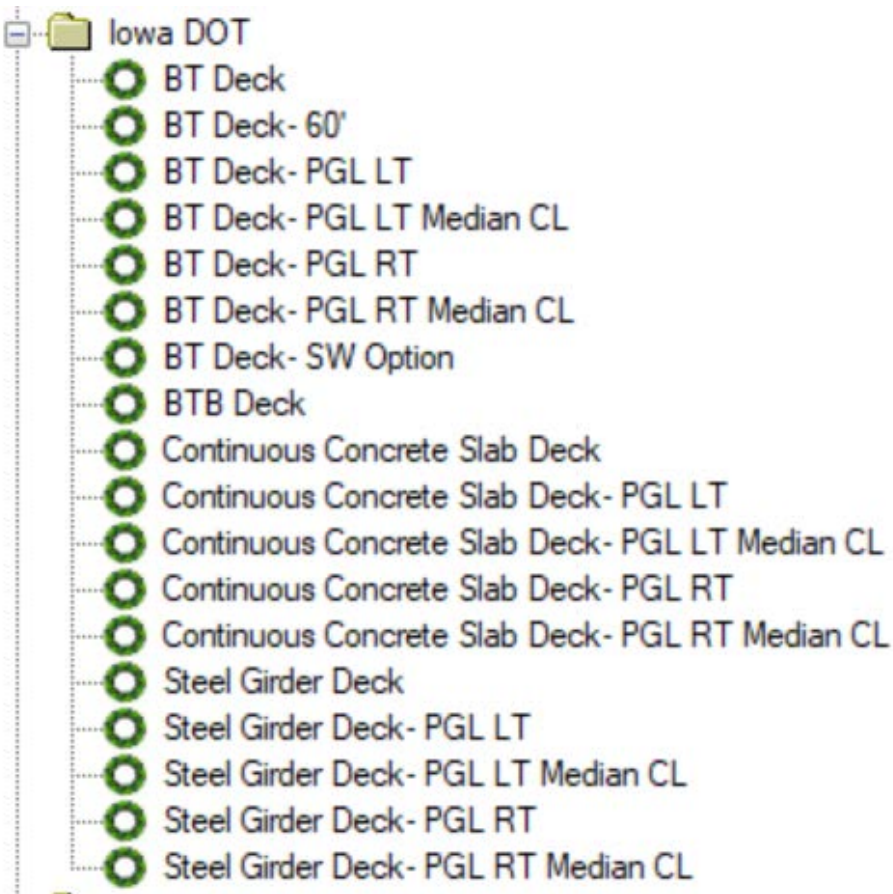
Iowa chose not to include unit price values for materials.

CONNECT Standard Templates

For CONNECT projects OpenBridge Modeler Iowa specific templates are available for the placement and modification of decks, barriers, beams, and pier components of a bridge.

The templates are shown below organized by component.

Deck templates are available for various types of superstructure and configurations of the deck and is indicated in the name.

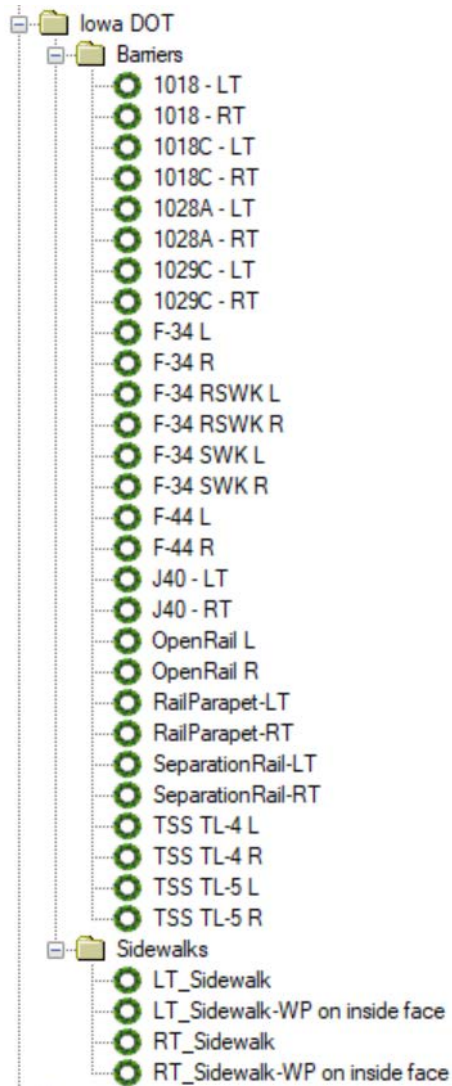


Abbreviations included in names are:

BT - bulb tee
PGL – profile grade line
LT – left
RT – right
SW – sidewalk
CL – centerline

Barrier templates are available for each type of barrier Iowa DOT allows with left and right variations and is indicated in the name. The directional options allow for correct orientation of the placed barrier.

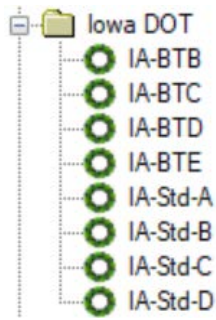
Sidewalk options are provided to be placed separately and are included with the F-34 barrier rails.



Additional abbreviations included in names are:

- L – left
- R – right
- RSWK – raised sidewalk
- SWK – sidewalk
- TSS – Texas single slope
- WP – working point

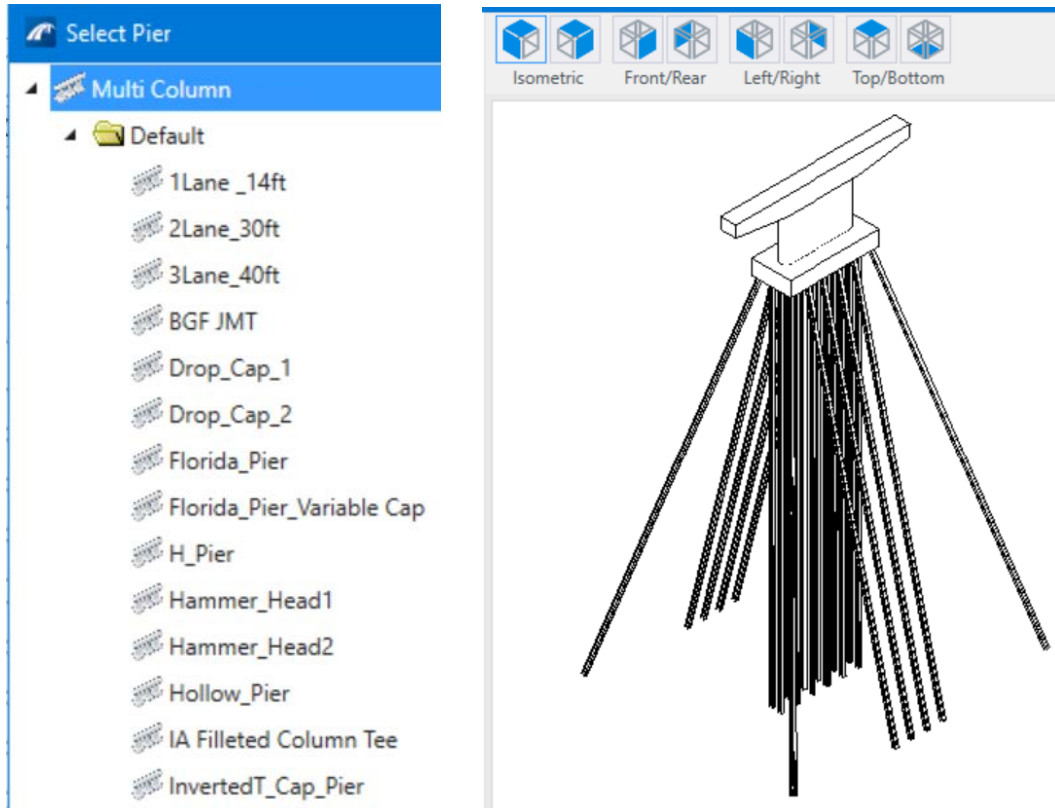
Beam templates available for each type of prestressed precast beam Iowa DOT allows.



Additional abbreviations included in names are:

Std – Standard

Pier templates include one custom Multi Column Iowa DOT option, IA Filleted Column Tee.



Templates may be modified or new ones added as additional bridge projects are completed in OpenBridge Modeler or new standards are issued. The documentation will be updated as needed.