The PGSuper Professional Complement to BrDR

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BridgeSight Software[™]



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PGSuper Professional[™] Export To BrDR

- Process Begins with BrDR
 - Create Template Bridge in Database
 - Add Prestress Sections to Beam Shapes
 - Add Railing to Appurtenances
 - Add LFRD Factors

E. File	Edit View	Bridge To	ools Win	dow Help							
C	New			New Folder							
	Open		Ctrl+O	New Bridge	New Bridge						
1	Close										
-	Save		Ctrl+S	Bridge ID	Bridge Name	District	County	1			
	Save As			idge1	Training Bridge 1(LRFD)		01 Allen	SR			
1				idge2	Training Bridge 2(LRFD)	-1 Unknown	-1 Unknown	N/A			
	Open Route			idge3	Training Bridge 3(LRFD)		01 Allen	1-79			
				gBridge1	PCI TrainingBridge1(LFD)						
	Database Infor	mation		gBridge2	PCITrainingBridge2(LRFD)						
				gBridge3	PCI TrainingBridge3(LFD)						
	Import			gBridge4	PCITrainingBridge4(LRFD)						
	Export System	Data		Bridge5	PCI TrainingBridge5(LFD)						
	Import Surtem	Data		gBridge6	PCITrainingBridge6(LRFD)						
	import system	Data			Example 7 PS (LFD)						
	Batch Export			Bridge1	RC Training Bridge1(LFD)						
				ningBridge1	Timber Tr. Bridge1 (ASD)						
	Batch Import	•		TrainingBridge1	FloorSystem GFS Training Bridge 1		15 Cloud	NJ			
	During		Chill, D	rainingBridge2	FloorSystem FS Training Bridge 2			I-9			
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	Print Preview			TrainingBridge1	FloorLine GFS Training Bridge 1		01 Allen	I-7			
	Print Setup			rainingBridge2	FloorLine FS Training Bridge 2		02 Anderson	I-7			
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				structure Example 1	LRFD Substructure Example 1						
		21	LRFD S	Substructure Example 2	LRFD Substructure Example 2			SR			
		22	LRFD S	Substructure Example 3	LRFD Substructure Example 3						
		23	LRFD S	Substructure Example 4	LRFD Substructure Example 4 (NHI Hammer Head)						
		24	Visual	Reference 1	Visual Reference 1		12 Cheyenne	⊦7			
		25	Culver	Example 1	Culvert Example 1						
		26	LFD Cu	rved Guide Spec	LFD Curved Guide Spec Example						

First Create a template bridge for The Translator to use.

Bridge Design/Rating	
🗛 File Edit View Bridge Substructure Tools Window Help	
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Bridge ID: PGSuperTemplate NBI Structure ID (8): TEMPLATE01 I Template Bridge Complex	
Description Description (cont'd) Alternatives Global Reference Point Traffic Custom Agency Fields	
New Birdne	
Name: Northingto Year Built:	
Description:	
• • • • • • • • • • • • • • • • • • •	
Location: Length: ft	
Facility Carried (7): Route Number:	
Feat. Intersected (6): Mi. Post:	
Default Units: US Customary	
AASHTUWare Association V Bith V Bith Bith OK Apply Cancel	
For Help, press F1	

Enter the Unique Bridge ID/ NBI ID combination. Select "Template" checkbox



Add the beam shapes you plan on using in your PGSuper model.



You have to make sure that the shapes you add have the same name as the ones in the PGSuper Library.

You also need to make sure the strand pattern matches as well.



Now add typical railings you will use.



It is always nice to use what you already have define in the Library.

Once you create your standard Beam shapes and Railings in the PGSuper Library that match what you have in the AASHTOWare BrDR Library, creating templates are easy.



Now that we have the Beam shapes and Railings we are going to use, save this bridge template to the database.

This is all the setup we need to do in BrDR before we export from PGSuper.

And, once you set up this template bridge, you will not need to modify it unless you add new rails or sections in the future.

It is your choice to have one template that includes everything, or have a template for each family of girders you use.

PGSuper Professional[™] Export To BrDR

- Steps in PGSuper
 - Create Bridge and Design Girders
 - Connect to AASHTOWare BrDR Database
 - Give you new bridge a name
 - Export



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Step 2 - Select Bridge in Database to be Used as a Template Bridge ID of Template Bridge No Template Selected Step 3 - Enter BID, Name, and Select Span(s) to be Exported for New AASHTOWare Bridge to be Created Bridge ID NBI Structure ID Bridge ID Bridge Name Span(s) to be exported Span 1	User Name Password	bridge	Data Source Name AASHTOWareBr68 Connect to Database
bindge ID Bidge Name Span(s) to be exported Span 1	Step 2 - Select Brid Bridge ID of Te Step 3 - Enter BID	dge in Database to be Used as emplate Bridge No Template ! , Name, and Select Span(s) to	s a Template Selected Select Template Bridge be Exported for New AASHTOWare Bridge to be Created Structure
	Bridge ID Span(s) to b	e exported Span 1	Bridge Name ID Export to AASHTOWare Bridge

Ste	p 1 - Connect to AASHTOWare Bridge Databas User Name bridge Password ••••••	Data Source Name	AASHTOWareBr68
Ste	p 2 - Select Bridge in Database to be Used as Bridge ID of Template Bridge No Template S	a Tamplata	Select Template Bridge
Br	p 3 - Enter BID, Name, and Select Span(s) to I dge ID NBI S Span(s) to be exported Span 1	be Exported for New AASHTOV tructure Br	Vare Bridge to be Created
Exp	iort Log	- AD- 6 9	
s	elect a Template Bridge from the Database wi	th matching library entries to th	nis PGSuper project.

29 Splice Example Splice Example Splice Example 30 Simple DL-Cont LL-Splice SimpleForDLSpli Simple DL Splice 31 092-053 999900900920531 WBMC Sk00 Cu00 K-9 over Cedar Creek 32 Culvert RFB Template Culvert RFB 33 096-573 Culvert 096-573 20x16 RFB US81 Sumner Co 34 Copy of 078-080 9999050 SWGC Sk 46.32 US-50 HWY over ATSF Rail Ro 35 069-088 999900900690881 PBMC K 9 over Big Timber Creek 36 KDOT_K3_TEMPLATE KDOT_K3_T KDOT K3 Template Example 37 KDOT_K4_TEMPLATE KDOT_K4 KDOT K4 Template Example 38 PGSuper Try01 PGSuper01 First Export Try With New Translator 39 SubstructureExample01 JSR_SUB_001 Drilled Shaft, Spread Fire, Ind Pile Firg 40 14-78-33.82 (4001) 0000000 Quadrupte 8 ft x 5 ft/ 000000 41 PGSuperTemplate TEMPLATE01 New Bridge 000000	ple plice) Cu00 K-9 over Cedar Creek US81 Sumner Co 5.32 US-50 HWY over ATSF Rail Ro ver Big Timber Creek mplate Example mplate Example Try With New Translator ;, Spread Ftg Ind Pile Ftg 1 K x 5 fty De sen	ver Cedar Creek r Co HWY over ATSF Rail Ro er Creek nple nple w Translator nadrd Dile Fto
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41 PGSuperTemplate TEMPLATE01 New Bridge		
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	Additional Data	à						
Ste	p 1 - Connect to	AASHTOWare Bridge	Database					
	User Name	bridge		Data Source Nam	e AASHTO	WareBr68		
	Password	•••••				Disconnect from Databas	e	
Ste	p 2 - Select Bridg	je in Database to be l	Used as a Templa'	te				
	Bridge ID of Tem	plate Bridge PGSup	erTemplate			Select Template Bridge		
Br	Span(s) to be	R_01 exported Span 1	ID	PGSUPER_01	Bridge Name	Translated Bridge	dge	
Exp	port Log							
	rying to Connect Connection to dat	to Data Source: AAS abase successful.	HTOWareBr68				^	
	elect a Template emplate Bridge w	Bridge from the Data ith BID='PGSuperTen	base with matchin nplate' Selected. F	ng library entries Ready to Export B	o this PGSuper ridge Data.	project.		

PGSuper Professional to AASHTOWare Bridge Translator	
Main Additional Data	
Step 1 - Connect to AASHTOWare Bridge Database	
User Name bridge Data Source Name AASHTOWareBr68	
Password Disconnect from Database	
Step 2 - Select Bridge in Database to be Used as a Template	
Bridge ID of Template Bridge PGSuperTemplate Select Template Bridge	
Step 3 - Enter BID, Name, and Select Span(s) to be Exported for New AASHTOWare Bridge to be Created Bridge ID PGSUPER_01 NBI Structure PGSUPER_01 Bridge Name Translated Bridge ERROR - Template bridges Expor must contain at least one list of TV LRFD load factors. Template bridge Data.	
Ketieving template bridge from database Using the Bridge Manager to create a new bridge Copying template bridge data to new bridge Translated Bridge Found matching PC I Beam Wide Flange shape: MTS-63' in template bridge Found matching concrete generic barrier: W330 Bridge Rail' in template bridge ERROR - Template bridges must contain at least one list of LRFD load factors.	
ERROR Creating Bridge. Did not finish export. Please select a different template. Previous Template Bridge with BID=PGSuperTemplate' Selected. Ready to Export Bridge Data, or Select a Different	
	La State

Ooops. I was in a little bit of a hurry. I forgot something when creating my template. Thankfully the ERROR message



Chan 1 Can	al Data	na Bridan Databasa				
User I	lame bridge	ire bridge Database	Data Source Nam	e AASHTO	OWareBr68	
Pass	word				Disconnect from Da	itabase
Step 2 - Sele	ct Bridge in Databa	se to be Used as a Ter	nplate			
Bridge ID	of Template Bridge	PGSuperTemplate			Select Template B	Iridge
Step 3 - Ente	r BID, Name, and S PGSUPER_01	Select Span(s) to be Ex	ported for New AASH ure PGSUPER_01 ID	TOWare Bridg	e Translated Bridge	
Span(s) to be exported	Span 1			Export to AASHTOWa	are Bridge
-Export Log						
Retrieving Using the B	template bridge fro Iridge Manager to o mplate bridge data	m database reate a new bridge to new bridge				^

After we save the changes in BrDR, return to PGSuper and select "Disconnect from Database".

Then select the same button when it changes to "Connect to Database" Now hopefully we are ready to Export again.

Bridge ID PGSUPER_01 NBI Structure PGSUPER_01 Bridge Name Translated Bridge
Span(s) to be exported Span 1 Export to AASHTOWare Bridge
ExportLog
Create concrete materials Added concrete for slab using name: Deck_4.00 Added concrete for slab using name: Ceck_4.00
Added concrete for girder using name: Gdr_7.00_6.30 Added concrete for girder using name: Gdr_7.70_6.30
Create stirrup rebar materials Added reinforcement material using name: AASHTO M31 (A615) - Grade 60
Create deck rebar materials
Create prestressing strand materials Creating Superstructure Definition Saving bridge to database
Bridge saved successfully to database.
Session ended successfully. Database is disconnected.

Success! Now let us see what happened in BrDR

PGSuper Professional[™] Export To BrDR

- Back in BrDR
 - Open New Bridge from Database
 - Select Analysis Settings
 - Run
 - Review the Differences

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S. File Edit View B	Bridge Tool	ls Window Help	1		- 5)
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All Bridges	BID	Bridge ID	Bridge Name	District	County *
Deleted Pri		LRFD Substructure Example 1	LRFD Substructure Example 1		
	21	LRFD Substructure Example 2	LRFD Substructure Example 2		
	22	LRFD Substructure Example 3	LRFD Substructure Example 3		
	23	LRFD Substructure Example 4	LRFD Substructure Example 4 (NHI Hammer Head)		
	24	Visual Reference 1	Visual Reference 1		12 Cheyer
	25	Culvert Example 1	Culvert Example 1		
	26	LFD Curved Guide Spec	LFD Curved Guide Spec Example		
	27	MultiCell Box Examples	Multi Cell Box Examples		
	28	Gusset Plate Example	Gusset Plate Example		
	29	Splice Example	Splice Example		
	30	Simple DL-Cont LL-Splice	Simple DL Splice	-1 Unknown	-1 Unknov
	31	092-053	WBMC Sk00 Cu00 K-9 over Cedar Creek		
	32	Culvert RFB Template			
	33	096-573	20x16 RFB US81 Sumner Co		
	34	Copy of 078-080	SWGC Sk 46.32 US-50 HWY over ATSF Rail Ro	District 5	78 Reno
	35	069-088	PBMC K 9 over Big Timber Creek	District 3	69 Norton
	36	KDOT_K3_TEMPLATE	KDOT K3 Template Example		
	37	KDOT_K4_TEMPLATE	KDOT K4 Template Example		
	38	PGSuper Try01	First Export Try With New Translator		
	39	SubstructureExample01	Drilled Shaft, Spread Ftg and Pile Ftg		
	40	14-78-33.82 (4001)	Quadruple 8 ft x 5 ft x 46 ft RFB	District 5	78 Reno
	41	PGSuperTemplate	New Bridge		
	42	PGSUPER_01	Translated Bridge		
					•
For Help, press F1					

If we have BrDR Open, we will have to hit the "Refresh" button so that we can load the database changes.



Here is the new Superstructure Definition



Typical Section Looks about right.

🔐 Bridge Design/Rating - (Schematics: Profile View)
🗛 File Edit View Bridge Substructure Tools Window Help
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Beam Lengths ^
Horz. Shear Reinf. Spacing
Vert. Shear Reinf. Spaci4 SPA15 SPA.@ 6 SPA.@ 9"=4'-612 SPA.@ 1'-0"=12-0"
Debonded Strands
Beam Projections
Bearing Offsets
Span Lengths
For Help, press F1

We have some stirrups. Good.



Beam and Strands look OK.

Analysis Progress			
⊖-Æ Analysis Event -Æ Gl	- STAGE 2 - Support Location - 0.0000 (ft) - Support Location - 126.0000 (ft) - Location - 2.5000 (ft) - Location - 47.2500 (ft) - Location - 63.0000 (ft) - Location - 78.7500 (ft) - Location - 123.5000 (ft) - Location - 123.5000 (ft) - Location - 123.6000 (ft) - Location - 47.2500 (ft) - Location - 47.2500 (ft) - Location - 123.5000 (ft) - Location - 123.5000 (ft) - Location - 123.5000 (ft) - STAGE 1 - Final Round - STAGE 3 - Final Round - STAGE 3 - Final Round Completed Specification checking Info - Populating specification checking results Info - Analysis completed!		
View Rating Log		Print OK	
	ssele -		

Hit the analysis button and shortly you will hopefully see Analysis complete.



We did pretty good. As Richard pointed out, some of the assumptions made between PGSuper and AASHTOWare BrDR are different. But nothing major you can't tweak



Here is an instance of the benefit of using different design software.

In PGSuper these is a place to include additional reinforcing for the Splitting Resistance Check.

And, when you take a look at the details you see that this splitting Resistance is Calculated differently. PGSuper subtracts the Elastic Shortening from PS force.

