CSiBridge® 2017 (Version 19.1.0)
Release Notes

Notice Date: 2017-03-09

This file lists all changes made to CSiBridge since the previous version. **Most changes do not affect most users.** Incidents marked with an asterisk (*****) in the first column of the tables below are more significant.

Changes from v19.0.0 (Released 2016-11-18)

User Interface

Enhancements Implemented

*	Incident	Description
	95702 98222	An enhancement has been implemented to reduce the height of the Display Solid Stresses form to ensure it fits on lower resolution monitors.

Graphics

Enhancements Implemented

*	Incident	Description
	100668	Enhancements have been made to DirectX graphics to improve quality and speed. More options to improve quality are now under users control.

Bridge Modeler

Enhancements Implemented

*	Incident	Description
	98330	The Bridge Modeler has been enhanced so that the "General" type of bearing assignment can now be used for abutments and bents of bridge objects with flat-slab bridge sections. In addition, bents without cap beams can now be assigned to the bridge supports. Previously these two features were limited to bridge objects with concrete box-girder bridge sections.

Modeling

Enhancements Implemented

*	Incident	Description
*	35781 70182 71577 81957 82686	An enhancement has been made to allow assignment of moment and shear releases to the edges of shell-type area objects.
*	38252	An enhancement has been implemented to expand the time-dependent material behavior to include the Eurocode 2-2004, AS 3600-2009, NZS 3101-2006, JTG D62-2004 codes and the GL2000 model. Time-dependent behavior includes creep and shrinkage strains, as well as age-dependent stiffness where appropriate, for concrete materials.
	100287	An enhancement has been implemented to incorporate a library of concrete and rebar material properties for Vietnam.

Loading
Enhancements Implemented

*	Incident	Description
*	21850 68733 80268 100491	The generation of lane loading points has been enhanced for the following cases where a lane loads a bridge object: (1) For a bridge object that (a) has a composite bridge section (steel or precast-concrete, I- or U-girder), and (b) is modeled as area objects with the girders modeled as frames or mixed, and (c) is loaded by a lane that is specified to load "Program Determined" objects and extends beyond the end of skewed abutments, then the lane loading points outside the bridge object in the region of the end skew are now removed. These redundant lane loading points did not affect other types of bridge objects with skewed abutments. (2) For a lane that is specified to load "Program Determined" objects and whose length includes two bridge objects that are partially overlapping, the connections between the load points and the overlapping structures have been improved. Previously the connections could have been incorrect depending on the order of bridge object updating. (3) For lanes defined by layout line and that load a user-specified group (rather than "Program Determined"), only the following lane loading points will be considered: (a) those that fall on a shell or solid object in the group, or (b) those that are within a lane station range defined as follows for loading frames: For each frame in the lane group, frame joints I and J are projected perpendicularly onto the lane centerline, and max and min stations thus intersected define the range. Previously points outside this station range would also be connected to the nearest frame, no matter how far away it was.
	98524	An enhancement has been implemented to provide more control of the longitudinal positioning of bridge loading, including point, line, and area loads. The longitudinal load location is specified using stations along the layout line, translated to the left and right edges of the bridge section. Two options are now available in the "Bridge Layout Preferences" form to translate the station at the layout line to the edge of the deck: (1) "Perpendicular to Layout Line" at the specified station, or (2) "Aligned with Section Cuts" at that station, where for stations between sections cuts, the alignment is interpolated between the two nearest section cuts. Previously, only the second option was available. Now the user can choose either option, which will apply to all bridge loads for all bridge objects in the model. The default for new models is option "Perpendicular to Layout Line". Models created in previous versions will continue to use the option "Aligned with Section Cuts" unless this is explicitly changed by the user. Note that when using "Perpendicular to Layout Line, the layout line may need to extend beyond the ends of the bridge object in order to apply loads at skew abutments.

Analysis

Enhancements Implemented

*	Incident	Description
*	73043	Convergence behavior of the friction-pendulum isolator link element has been improved, particularly to deal with large variations in the axial force, which can cause alternating slip-stick behavior during lateral loading. Models that exhibited slow convergence behavior in previous versions should be re-run in the new version to verify the results. The new results will be more accurate in cases where a significant difference is observed between the old and new results. Furthermore, the friction model has been changed from the previous Wen formulation that exhibited a gradual transition between stick and slip to a bilinear model that exhibits a sudden transition. Some difference in results can be expected due to the new formulation, particularly for models where the initial stiffness specified for the isolator was small. In addition, for linear load cases that use the stiffness from the end of a nonlinear load case, the transverse stiffness of the isolator will be taken as the specified initial stiffness regardless of whether or not the isolator was sliding at the end of the nonlinear load case, provided that the isolator was in compression. Previously the sliding stiffness was used in such cases. For isolators in tension at the end of a nonlinear load case, zero stiffness is used, same as before. Linear load cases starting from zero initial conditions will use the specified linear effective stiffness, unchanged from previous versions. Results for included Verification Example 6-011 have been updated for the new formulation. This example now exhibits much less numerical sensitivity than for previous versions, and results are now largely machine independent, which was not the case before.
*	75068 89099 97667	Convergence behavior of the triple-pendulum isolator link element has been improved, particularly to deal with large variations in the axial force, which can cause alternating slip-stick behavior during lateral loading. Models that exhibited slow convergence behavior in previous versions should be re-run in the new version to verify the results. The new results will be more accurate in cases where a significant difference is observed between the old and new results. In addition, for linear load cases that use the stiffness from the end of a nonlinear load case, the transverse stiffness of the isolator will be taken as the specified initial stiffness regardless of whether or not the isolator was sliding at the end of the nonlinear load case, provided that the isolator was in compression. Previously the sliding stiffness was used in such cases. For isolators in tension at the end of a nonlinear load case, zero stiffness is used, same as before. Linear load cases starting from zero initial conditions will use the specified linear effective stiffness, unchanged from previous versions.
	84577 97876	Staged-construction load cases now support change operations when using the "Plus" and "Plus w/ Rating" license levels, where previously they did not. These operations include "Change Section", "Change Modifiers" and "Change Releases". The "Plus" and "Plus w/ Rating" license levels support staged-construction load cases consisting of a single stage, starting from zero initial conditions, without time-dependent behavior. This has not changed from before, and permits modeling of different structural configurations. Full multiple-stage analysis, including time-dependent behavior, requires the "Advanced" or "Advanced w/ Rating" license levels.
	94704	The speed of analysis has been increased for the handling of a very large number of load patterns applied to shell objects, whether these load patterns are created manually by the user or created automatically for certain types of loading, such as multi-stepped vehicle live-load analysis.
	95475	An enhancement has been made to speed up the process of creating the analysis model and starting the analysis itself for models running multi-stepped vehicle live-load cases. This will affect analyses when there are a large number of internal load patterns created to represent movement of vehicles along the lanes, which is typical for highly discretized lanes, vehicles with many axles, and/or many load steps to move the vehicles. Influence-based moving load analysis is not affected by this enhancement.

*	Incident	Description
*	96716	The size of the saved analysis results files has been reduced for multi-step nonlinear static, nonlinear direct-integration time-history, and nonlinear modal (FNA) time-history load cases. This will reduce the amount of disk space required for these types of load cases in models containing frames objects, isotropic frame hinges, parametric P-M-M frame hinges, and layered shell elements using Darwin-Pecknold (coupled) concrete materials. This may also result in some speed increase when running the analysis and displaying results, particularly for load cases with many steps.

Bridge Design

Enhancements Implemented

*	Incident	Description
*	99341	Bridge design checking has been implemented for concrete slab superstructure sections according to the "EUROCODE" code. Separate design checks are provided for stress, flexural strength, shear strength and crack check. The effect of mild reinforcing is included as well as the prestress tendons. Live-load distribution factors can be specified by the user, or determined from detailed 3-D live-load analysis. Design results are displayed graphically for the entire concrete slab bridge section. Detailed tables showing all results and intermediate values are available for display, printing, and export to Excel or Access.
	99400	A minor enhancement has been made for bridge design and rating requests of steel I-girder bridges using the AASHTO LRFD code with PennDOT amendments to clarify the results at locations where the demand-capacity ratio DoverC is controlled by PennDOT section 6.10.1.9.3P-1 "Compressive bending stress in webs". Where this occurs, the moment Mu is reported as zero, and a note has been added to the Controlling Equation message to indicate that the moment is set to zero. The PennDOT section 6.10.1.9.3P-1 compressive bending stress in webs is calculated under dead load only, and hence is independent of the total moment Mu, which includes live load. For this reason, it is plotted as zero.

Results Display & Output

Enhancements Implemented

*	Incident	Description
*	95444	An enhancement was implemented to provide a detailed superstructure design output report for AASHTO steel I-girder strength design.
*	99300	An enhancement has been implemented to store results plotted on the Bridge Response Display form. This allows quick re-plotting of results after they have been viewed once. For certain cases, such as moving load cases or load combinations, results are calculated the first time they are plotted, which may take time. Now, these results will not be recalculated provided that no changes have been made that would invalidate them.

Database Tables

Enhancements Implemented

*	Incident	Description
	97453	Three new database tables have been added for the import, export, and display of the local girder section cuts created by the Bridge Modeler for steel I-girder bridge sections when the option "Mesh Slab at Critical Steel I-girder Locations" is checked on the form Update Bridge Structural Model (command Bridge > Update > Update). These new tables are called "Bridge Girder Section Cuts 01 - General", "Bridge Girder Section Cuts 02 - Slab Data - Groups" and "Bridge Girder Section Cuts 03 - Beam Data - Groups". Important: Note that the girder section-cut information will not be recovered when models are imported from a v19.0.0 database-table file (.B2K, .$BR, .XLS, .MDB). It will be necessary to clear and create, or update, the linked bridge model to recalculate this data which is not present in the v19.0.0 database files.

Application Programming Interface

Enhancements Implemented

*	Incident	Description
	99681	An enhancement has been implemented in the API cHelper class to automatically detect the installation path of the program executable based on entries in the registry. By default this will result in the last registered version being used. As an alternative, an environment variable can be set to specify the full path to the program executable.

Miscellaneous

Enhancements Implemented

*	Incident	Description
	97945	The version number has been changed to v19.1.0 for a new intermediate update.

User Interface and Display
Incidents Resolved

*	Incident	Description
	97032	An incident was resolved on the Bridge Object Span Assignments form in which the selected cell in the section column would jump to a different row when there were enough rows on the form to require the scrollbars. This was a user interface issue only.
	99003	An incident was resolved in which an abnormal termination could occur on the Bridge Object Abutment Assignments form when trying to modify the girder-by-girder overwrites. This primarily affected models with no bent properties defined.
	99667	An incident was resolved for the menu interface in which the commands Frame Design Lateral Bracing and Overwrite Frame Design Procedure on the design menu were interchanged.

Graphics
Incidents Resolved

*	Incident	Description
	69922	An incident was resolved where bridge point, line, and area loads were not being displayed in DirectX graphics mode. The error was inadvertently introduced in v17.
	81434	An incident was resolved in the DirectX graphics mode in which the model could be displayed in the incorrect location when a coordinate system other than Global was selected. This was a graphical issue only and did not affect results.
	86517 92956	An incident was resolved in which several minor DirectX graphics display issues were corrected. These were display issues only and did not affect results.
	86821	An incident was resolved in which an error could be generated on machines using regional settings with a comma as the decimal separator when trying to switch to DirectX graphics mode.
	94001	An incident was resolved in which extraneous gray lines were sometimes visible when displaying and/or animating the deformed shape of certain models using DirectX graphics. This was a display issue only and did not affect results.

Bridge Modeler
Incidents Resolved

*	Incident	Description
	92301	An incident was resolved for the Bridge Modeler where a bridge object with concrete box section updated as an area object model would have gaps between the bounding boxes of area objects representing the kinks in the exterior web and between the bounding boxes of area objects modeling the junction of the exterior web and the bottom slab. When this occurred, tendon objects outside the mid-surface of the web could fall in the gap between the bounding boxes and be treated as outside the web. When this occurred, the tendon length that was outside the bounding box would not be connected to the bridge object and the analysis results might be affected. Now the bounding boxes between two adjacent area objects in the cross section that meet at an angle are skewed to reduce or eliminate such gaps and improve the connectivity of the tendon with the concrete section. This problem was not common.
	97148	An incident was resolved error for the Bridge Modeler when using the command Bridge > Bridge Objects > Prestress Tendons > Copy to All Girders where tendons copied to exterior girders might have unexpected kinks in tendon profile if the bridge section was a concrete box girder with sloped exterior girders and the bridge section width was not constant due to specified parametric variation. When this occurred, the kinked tendon profile was obvious and results agreed with the model as generated.
*	97544 98992	An incident was resolved for the Bridge Modeler where many of the body constraints that should have been generated in a steel U-girder bridge section to connect the slab to the U-girder flange were omitted when the bridge was curved and the bridge section contained only a single steel U-girder. This could make the section more flexible and thus affect the computed forces, moments, stresses, and design results. Proper connection between the slab and the steel U-

*	Incident	Description
		girder flanges was made at locations with internal diaphragms (cross frames), but not between the diaphragms.
	97622	An incident was resolved for the Bridge Modeler where the mass of diaphragms (cross-frames, closures) specified at abutments was doubled when the bridge object was modeled as a spine model. This occurred for all bridge types, and whether the bridge start or end abutment was supported by an abutment property or a bent property. Two one-joint link objects were being created at the end diaphragms instead of a single link object. Deleting the duplicate objects would resolve the problem. Results agreed with the model as generated. The effect on results was generally small. Bridge objects updated as area- or solid-object models were not affected.
	97867	An incident was resolved for the Bridge Modeler that corrects and changes the modeling of straight precast concrete girders near the edge of sharply curved bridges. An unexpected warning message was previously displayed while updating/creating the linked bridge model for a bridge object that contained a composite bridge section when the overhang length and the overhang distance to fillet were equal and girder was modeled as straight. This unexpected error message did not affect the model geometry and has been removed. In addition, a warning message would also be displayed if the edge of the exterior girder flange intersected the edge of the bridge deck, and the girder was moved inward to address this issue. Now instead the warning message only will be displayed only if the girder web-flange junction intersects the deck edge, and the girder will not be moved. The deck will be extended and doubled where the web-flange junction extends beyond the deck edge, and the user should correct the model as indicated by the warning message.
	97892	An incident was resolved for the Bridge Modeler where bridge girder forces, moments, stresses, and design results could be incorrect in the following limited case when: (1) The span used a steel I-girder bridge section, (2) The bridge object was updated as an area-object model and the bridge -section option "Girder Modeling in Area Object Models" was set to "Shell", (3) The analysis or design result was calculated at a skewed section cut across the full width of the bridge section, and (4) The option “Mesh Slab at Critical Steel I-Girder Locations” was checked in the Update Bridge Structural Model form. When all these conditions were true, the point objects at the free edges of the steel I-girder flanges were not being included the girder section-cut group that was used for calculating girder response. The error was limited to the proportion of the load that was carried by the free edges of the steel flanges. Only skewed section cuts were affected. When the error occurred it was usually obvious by unexpected jumps in the plotted response in the Bridge Object Response Display form. Models were not affected when the option "Girder Modeling in Area Object Models" was set to "Mixed" or "Frame". The option “Mesh Slab at Critical Steel I-Girder Locations” was new in version 19.0.0, and only that version was affected. Bridge objects not using that option were not affected.
	98037	An incident was resolved for the Bridge Modeler when using the Bridge Girders Reinforcement Layout form (command Bridge > Bridge Objects > Girder Rebar) where using the Add button to add a new line of data to the Longitudinal Rebar or Transverse Rebar tables would sometimes produce a blank or incomplete line if it was the first line of the table, and that line of data would not be saved in the model. This did not occur for the first girder that was edited, but would for subsequent girders. Adding a second line of data and then deleting the first blank line, or copying data from another girder, would provide the correct data. Results agreed with the model as actually created.
	98644	An incident was resolved for the Bridge Modeler where the bent bearing supports would be generated incorrectly if a bent property with no cap beam was assigned to a bridge abutment (end support) location. When this occurred, the generated link objects were obviously in the incorrect locations and the results agreed with the model as generated.
	99132	An incident was resolved for the Bridge Modeler where link objects representing support bearings were not being generated for a double bearing bent that was used at either bridge abutment (start or end) if a diaphragm was assigned at that same location using the "Bridge Object In-Span Cross-Diaphragm Assignments" form instead of the "Bridge Object Abutment Assignments" form. This error affected bridge objects using all types of the bridge sections.

*	Incident	Description
		Now either type of diaphragm assignment can be used. If a diaphragm is assigned by both methods, the diaphragm assigned using the "Bridge Object In-Span Cross-Diaphragm Assignments" form will govern.
	99390	An incident was resolved for the Bridge Modeler where the connection between the superstructure and the abutment bearings at the end of a bridge object could be missing in the case where a spine model was used and the bridge sloped upward away from the abutment toward the center of the bridge. This was more likely to occur in the presence of superelevation. When this occurred, the body constraint created to connect the support bearings and the superstructure was connected to a joint beyond the end the superstructure spine. Results agreed with the model as generated, and the effect of this error was obvious from the deflections, forces, and moments in the superstructure at the abutment. Versions 15.0.0 to 19.0.0 were affected.
	99614	An incident was resolved for the bridge modeler that addressed two issues affecting segmental bridges: (1) In some cases it was not possible to add multiple bottom slab tendons, and (2) when opening an older version file in v19.0.0 only, the parametric-variation assignments for bridge sections were being deleted, and the support-bearing types were being reset to default values.
	99694	An incident was resolved for the Bridge Modeler where the steel I-girder flange dimensions could be modeled incorrectly in certain very rare cases when the steel I-girders are modeled as "mixed" in an area model. When this occurred, the dimensions of one frame object created to represent the non-prismatic flange of a girder between section cuts would actually use the dimensions of another such frame object representing a girder flange elsewhere in the model. At least one of the nonprismatic segments would be identical between the two frame objects. The occurrence of this was extremely rare; when it did occur it was most likely for a simple, straight, and symmetrical multi-span bridge where the effect was obvious. Analysis and design results agreed with the model as generated.
	99696	An incident was resolved for the Bridge Modeler where a bridge tendon object was not always generated exactly according to the specified tendon horizontal layout if parametric variations were assigned to (1) the girder/web thicknesses, or (2) to the bridge section insertion point as well as to the bridge width and/or girder spacings of the bridge section. All types of bridge sections were affected. When this occurred, the effect was generally small but obvious from the generated tendon objects, and results agreed with the model as generated.
	99973 100292	An incident was resolved for the Bridge Modeler where updating a bridge object for certain models would omit the substructure, and possibly result in an abnormal termination. This was very rare.
	100070	An incident was resolved for the Bridge Modeler where bridge objects could not be deleted from the model when using the Define Bridge Objects form (command Bridge > Bridge Objects > Bridge Objects > Delete), even though they could be deleted when directly using the delete button in the ribbon (command Bridge > Bridge Objects > Delete). No results were affected, since bridge objects can only be deleted when they are unlinked from the model.
	100828	An incident was resolved for the Bridge Modeler affecting steel U-girder bridge sections where, for a steel U-girder modeled as mixed type (line objects for top flanges and area objects for the rest), the line objects representing the top flanges were meshed incorrectly between two global section cuts if any internal diaphragm, staggered diaphragm or nonprismatic girder section transition was present between the two global section cuts. The web and bottom flange area objects were meshed correctly. The overall analysis results were not affected because the flanges were properly connected to the webs through the use of edge constraints. However, section-cut results shown in the Bridge Object Superstructure Display form and associated tables could be affected such that they were not able to be displayed, and superstructure design and rating requests could fail to run. When these results were available, they were correct and not affected. Models where the steel U-girders were modeled fully as area objects were not affected.

Section Designer
Incidents Resolved

*	Incident	Description
*	99414	An incident was resolved for Section Designer when defining a Caltrans section property that has interlock regions (where concrete cores overlap) where the size of the rebar used in the interlock region might not have been the same as what was assigned. It would depend on the order of input and could be overwritten by the rebar size of the associated core region. Additionally, two enhancements were made: (1) When the number of bundles in the interlock region is more than one, the size of the common rebars (where the two cores intersect) remains the same as assigned, but the size of the remaining rebar will be the same as the associated concrete core region. In other words, the interlock region could have up to three different rebar sizes. (2) For calculating the Mander-confined model of the cores, the number of longitudinal bars was previously set to be the same as the number of bundles of the associated core, but excluded any interlock regions. Now, the number of longitudinal rebars includes all bars in the outer ring plus those in the interlock region(s) that contact the given core's confinement ring.

Loading
Incidents Resolved

*	Incident	Description
*	98392	An incident was resolved where a lane loading point created for moving-load analysis could have been connected to structural objects that were far from the loading point in the case when the lane was defined using the option "Objects Loaded by Lane" set to be a Group that contained only area and/or solid objects and the loading point did not lie vertically above or below one of the objects in the group. Now such loading points are excluded from the lane since they fall outside the horizontal projection of the objects in the group. See also Enhancement Incident 21850 for how such loading points are handled if the Group loaded by the lane contains frame elements.
*	98556	An incident was resolved for the Bridge Modeler in which bridge lane loading points were not being generated for certain bridge models with flat slab bridge sections. When this occurred influence-based moving load analysis and multi-step vehicle live-load analysis results were affected. Results were consistent with the lane loading points displayed using the command Home > View > Show Lanes. Only v19.0.0 was affected.
	100043	An incident was resolved for the Bridge Modeler where a bridge tendon object was not always generated exactly according to the specified tendon horizontal layout if parametric variations were assigned to (1) the girder/web thicknesses, or (2) to the bridge section insertion point as well as to the bridge width and/or girder spacings of the bridge section. All types of bridge sections were affected. When this occurred, the effect was generally small but obvious from the generated tendon objects, and results agreed with the model as generated.

Analysis
Incidents Resolved

*	Incident	Description
*	43870	An incident has been resolved where element load applied to a frame element in the global direction may rotate with the element after being applied during analysis with large displacements geometry. This issue only affects Nonlinear Static or Nonlinear Direct-Integration Time history analysis with the Geometric Nonlinear Parameter option "P-Delta plus Large Displacements" selected. When this issue occurred, the computed response was in equilibrium with the rotated load and the issue was reflected in the reported forces and base reactions.
	88340 91024	An incident was resolved where the joint reactions reported for single-joint (grounded) links was too large for nonlinear modal time-history (FNA) load cases. The value reported was incorrectly adding the response based on the linear effective stiffness to the actual nonlinear

*	Incident	Description
		response of the link. Only joint reactions were affected. The overall base reactions were correct, and the link forces reported for these supports were correct. No other response was affected. No other type of load case was affected.
*	98787	An incident was resolved where the force response for the non-hinge degrees of freedom in frame hinges could be incorrect when there was an internal event for the hinge and the analysis model for nonlinear hinges was set to "Model Hinges as Separate Link Elements". This issue affected nonlinear static and nonlinear direct-integration time-history load cases using events with iteration. Affected models could experience poor convergence, reduction of global step size, and/or convergence error. When convergence was achieved, the effect on force response was small, with an error usually significantly less than one percent. This issue affected CSiBridge 2017 v19.0.0 only.
*	98957	An incident was resolved where element loading assigned to Solid, Plane, or Asolid elements may not be correctly applied for nonlinear static or direct-integration time history analyses that use event-to-event stepping. This issue does not affect load cases where event-to-event stepping is not enabled or time steps where event-to-event stepping, when enabled, is not actually used. When this issue occurs, the results are consistent and in equilibrium with the incorrect loading. This issue effects CSiBridge 2017 v19.0.0 only.
	99785	An incident was resolved where the vehicle name could have been incorrectly reported in the Moving Load Vehicle Location Data form table when one or more of the vehicles in the model was defined with horizontal braking/acceleration loads using both factor sets. Only the vehicle name was incorrectly reported. The vehicle location and the response were correct. No other results were affected. This form is accessed using the command Home > Display > Show Bridge Superstructure Forces/Stresses > Show Vehicle Location > Display Table.
	100456	An incident was resolved where a moving load case could fail to run during analysis due to an internal memory error. This would typically occur when calculating joint reactions. The same error could also occur when plotting bridge superstructure response for a load case. This error could be triggered for models with a large number of load patterns or influence loads. When this error occurred, results were not available.

Bridge Design

Incidents Resolved

*	Incident	Description
	97951	An incident was resolved for bridge design and rating of steel I-girder bridges according to the AASHTO code where an incorrect value of the "UsedAppA" flag was being reported in the corresponding design/rating request properties tables that are produced after running a strength type Steel-I design/rating check. The value was always being reported as "No" even in cases where Appendix A had been used in the calculation of the resistance. Appendix A is used to calculate the resistance when all of the following 3 conditions are satisfied: 1) The "Use Appendix A?" option was set to "Yes" in the definition of the design/rating request, 2) "Is bridge curved?" is reported as "No" in the same design/rating request properties table, 3) The value "GrdrCmpctNeg" value is reported as "Yes" in the same design/rating request properties table, meaning that the section satisfies the conditions in AASHTO A6.1. All design/rating results were correct according to whether or not Appendix A was used based on the conditions listed above, regardless of the value of "UsedAppA" reported in the properties table. This error affected the design request of type "Steel-I Comp Strength" and rating requests of types "Steel-I Comp Strength" and "Steel-I NonComp Strength" for all versions of the AASHTO LRFD code.
	98294	An incident was resolved where bridge superstructure design requests and rating requests for steel I-girder bridge sections could fail to run (generating an error message) in Version 19.0.0 for models created in Versions 18.2.0 or older and opened in version 19.0.0 without updating the linked bridge model. The design/rating requests would run correctly in v19.0.0 after updating the linked bridge model. Now updating the linked bridge model is not usually required

*	Incident	Description
		when opening models from older versions in order for the design/rating request to run, although it is generally recommended whenever possible when going to a newer version. Only steel I-girder bridge objects were affected, and this was due to the introduction of localized bridge section cuts for such bridge types which needed to be regenerated; this is now done automatically.
	100129	An incident was resolved where a steel I-girder bridge design or rating request could fail to run if (1) the bridge had two or more spans, and (2) for any girder, there were more girder section cuts in one span than in the subsequent span, and both spans had diaphragm assignments. This error was not common and only affected version 19.0.0.
	100232	An incident was resolved for bridge superstructure design of steel I-girder bridges in which design requests would fail to run and would instead display an error message for bridge objects having (1) an internal continuous span with only a single longitudinal mesh segment, and (2) a diaphragm (cross-frame) or support was assigned at the end of this span but not at the beginning of this span. This is a rare case. When this occurred, design results were not available. No other results were affected. Adding a user discretization point within such a span would avoid this error by creating two segments.

Results Display and Output

Incidents Resolved

*	Incident	Description
	95234	An incident was resolved where in some cases the StepNum column was not included in output tables contained within a report.
	99605	An incident was resolved where the tension stress limit shown in the bridge response display form when displaying bridge design results for a Chinese JTG D62 Concrete Box Crack design request was not being converted for units. The plotted value was correct in the database units (those units used when the model was first created), but was not converted if the results were displayed in different units. This was a display issue only and did not affect any other design results or the values presented in the tables.
	100801	An incident was resolved where a moving load case could fail to run during analysis due to an internal memory error. This would typically occur when calculating joint reactions. The same error could also occur when plotting bridge superstructure response for a load case. This error could be triggered for models with a large number of load patterns or influence loads. When this error occurred, results were not available.

External Import/Export

Incidents Resolved

*	Incident	Description
	82275	An incident was resolved where the export to DXF could be incorrect when the regional settings were not using the period as the decimal separator. Now all external files are exported using the period as the decimal setting regardless of the regional settings.

Data Files

Incidents Resolved

*	Incident	Description
	98278	An incident was resolved where an abnormal termination could occur after importing a previously exported CSiBridge model file (.$BR, .B2K, .XLS, .XLSX, .MDB) that contained a steel U-girder bridge object for which parametric variations were assigned to the bridge span sections. This occurred because the assignment data was not being exported to the database table "Bridge Object Definitions 04 - Spans 2 - Parametric Variations", causing data inconsistency when the model was imported. Results were not affected because the model could not be imported to be run.