

List of Key Updates included in UBM 3.3 (13/09/2021)

- 1) Updated Tool to undertake optional quantitative assessment of bearing and intermediate stiffeners according to BS5400 and NR/GN/CIV/025, including calculations for:
 - Stiffener section properties
 - Load effects, including those arising from compression flange restraint where appropriate
 - Stiffener strength
- 2) Optional calculation of effective length for main girders in half-through bridges with u-frame restraints.
- 3) Capability to overwrite/refine certain values from the assessment code and/or Tool calculations using site data, hand calculations and grillage analysis outputs added
- 4) A further loading scenario "Real Trains" has been added, which allows the user to select from a pre-defined library of live load models representing real trains

List of Key Updates included in UBM 3.2 (25/06/2021)


- 1) Fixed bug affecting calculation of effective tension flange area in plate I-girders where the following conditions are met:
 - Web-flange angle is present and flange outstand angle is smaller in area or not present, **and**
 - A_e of tension flange as calculated in BS 5400-3 cl. 11.3.2 is slightly less than A
 - OR --**
 - Flange outstand angle is present and web-flange angle is smaller in area or not present, **and**
 - A_e of tension flange as calculated in cl. 11.3.2 is slightly greater than (and therefore limited by) A

List of Key Updates included in UBM 3.1 (19/07/2019)

- 1) Fixed bug in Z-girder yield strength resulting in #N/A section property errors.
- 2) Removed "Rivets" from the list of possible fastener materials (Rivets can still be selected as a "Fastener Type").
- 3) Fixed bug resulting in occasional difficulties signing Form BA0(1) and BA0(2).

List of Key Updates included in UBM 3.0 (12/04/2019)

- 1) Updated Tool to run in Microsoft Excel 2016.
- 2) Updated Tool to run in Windows 10 while also remaining compatible with Windows 7.
- 3) Assessed Category of section calculated in accordance with NR/L2/CIV/035 and reported in results tables.
- 4) Comments may now be included on the results sheets. Comments are compiled onto a new results comments sheet.
- 5) Comment, warning and error registers no longer limit entries to 5 lines of text.
- 6) The CRE must now select whether the Tracking Tables have been populated and checked, before Form BA0(1) can be signed.
- 7) 'Indeterminate' is now an option when selecting qualitative assessment result.

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8)	Amendments to Guidance Notes and Justification Reports to capture updates.	
9)	Combined bending and shear calculations have now been included in accordance with Section 9.9.3, BS 5400: Part 3.	
10)	Shear capacity of welded end connections may now be calculated, in accordance with NR/GN/CIV/025.	
11)	Pressed trough section input sheet has been amended to allow web inclines other than 2:1, further sophistication in geometry, non-standard dimensions and doubler plates.	
12)	Steel strengths post 1906 are now included in accordance with NR/GN/CIV/025.	
13)	New formcode, DG-T*, incorporated into Tool to allow assessment of deck type structures with transverse troughing.	
14)	Additional angles and plates can now be inputted for fabricated trough sections.	
15)	Numerous bugs amended in Tool including: <ul style="list-style-type: none"> • User defined loading to cross girders • Problem opening the Tool due to 'enables Add-in' • Nosing on longitudinal girders • Compact/non compact section selected for web splice bending capacity calculation • Skew factor for live loads 	

List of Key Updates included in UBM 2.3 (22/09/2017)

- 1) Added inputs in the 'Scenarios' sheet to specify the 'Assessment Scenario' corresponding to each optional user-defined Loading Scenario (nos. 2-5).
- 2) Assessment Scenario and Track Twist information are now exported to CSAMS XML file for populating the CSAMS database.
- 3) Added error checking to the CSAMS XML exporting procedure, to ensure all required fields have been correctly populated by the user.

List of Key Updates included in UBM 2.2 (23/05/2017)

- 1) Input added to qualitative assessment pages to allow the identification of the leading minor element with the most significant defects causing the qualitative assessment result. These entries are required for populating the CSAMS database.

List of Key Updates included in UBM 2.1 (30/03/2016)

- 1) Added feature to allow assessment with multiple loading scenarios within the same file. The feature allows up to five scenarios to be assessed, one predefined scenario and four user defined scenarios. The user defined scenarios can use RA1 type loading or alternatively use a user defined axle arrangement.
- 2) Alterations have been made to the Assessment tab on the ribbon to allow calculation and navigation of scenarios.
- 3) Details for up to four tracks can now be recorded and the track for which the assessment should be based upon selected.
- 4) "Number of Tracks" and "Source" have been moved from the 'Track' sheet to the 'General' sheet.
- 5) Recording of track IDs is now possible through new input fields, up to four tracks can be entered.
- 6) If the form code on the FormAA does not fully describe the deck, it is mandatory to provide the correct form code for the deck and the facility to do this has been added.
- 7) Additional fields provided to allow for correct BCMI references to be entered if an element is not correctly defined in sheets "Deck" and "Subdeck".
- 8) The terms used to describe the condition of a section have been changed, choices include "As-built Condition", "Current Condition" and "Section with Defect". If "Section with Defect" is selected a Defect ID should be provided. Imports will handle the condition of section change as shown below.

<u>Old Input</u>	<u>New input (when imported)</u>
Full section	As-built Condition
Corroded section	Section with Defect

- 9) Information sources have been split into a "Date" and "By" field. On import the information from older assessments will be placed in the "By" field, the assessor should manual split the information into the newly created "Date" and "By" fields.
- 10) Added pop-up window to display import/calculation progress.
- 11) New functionality has been added to produce an XML which can be uploaded to the CSAMS database.

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List of Key Updates included in UBM 2.0 (14/08/15)

- 1) Transfer from Excel 2003 to Excel 2010.
- 2) A new Assessment Menu has been added to fit with Excel 2010.
- 3) Guidance Notes have been removed from the Tool and are now provided as a stand alone PDF file.
- 4) Advanced features such as User Defined Loading are now available using the "Enable NR Version" button from the Assessment Menu. These features should only be used with advanced agreement from the relevant Network Rail Structures Manager.
- 5) The Form AA0 and Form BA0 no longer contain an approved list of CREs. It is the responsibility of the Assessor to ensure each form is signed by a competent and approved person taking note that once signed the Form AA0 cannot be amended. Forms are signed using "Sign Forms" from the assessment menu. The signatures will now be checked and approved by Network Rail Structures Managers.
- 6) Name and Title are now mandatory inputs on the Form AA0 and Form BA0 to facilitate approval by Network Rail Structure Managers.
- 7) During Data Transfer results from the original file are compared to the updated file with any changes being flagged within the Tool on an additional tab which will become visible if changes have occurred. If no changes occur the Form BA0 signatures will be carried forward.
- 8) A log file will be produced during Bulk Data Transfer which will show for each file if they contained Errors, Changes to the Results or Transferred without Change. This file will be saved in the output folder.
- 9) During signing of the Form BA0 forms the inputs will be automatically checked to ensure no changes have been made since the calculation was run. If changes have been made, the calculation must be re-run before signing the forms.
- 10) Improvements to the efficiency of the Tool have been made throughout.

List of Key Updates included in UBM 1.6 (08/05/15)

- 1) Issue with inputting Structure Name which some users experienced has been resolved.
- 2) Clarification of Guidance Note "L0_Process"

List of Key Updates included in UBM 1.5 (02/08/13)

- 1) Minor corrections to the XML file.

List of Key Updates included in UBM 1.4 (16/07/13)

- 1) Provision of XML database file is included. The XML file will be created automatically when the Form BA0(2) is signed. This feature is for Network Rail Structure Managers only.
- 2) Refinements have been made to the Guidance Notes for greater clarity.
- 3) The Network Rail version of the Tool has been developed and now includes User Defined loading, Strengthened Sections and Bridge Strike. This is available only for Network Rail users.
- 4) Centrifugal and Nosing effects now calculated at each point along the element if applicable. Form codes starting DA and DG now allow for centrifugal and nosing forces.
- 5) Corrections made for assessment of transverse elements in Subdeck 3.
- 6) Some restrictions have been removed for Form code starting DD to allow additional structures to be assessed.
- 7) Amendments to the shear capacity calculations to account for the actual thickness of the web (t_w) rather than the effective thickness of the web (t_{we}).

List of Key Updates included in UBM 1.3

- 1) Live load effect calculations refined.
- 2) Vertical effects from centrifugal and nosing forces included for main girders under the track.
- 3) Amendment to live load applied to outer main girders in skew bridges.
- 4) Amendment to longitudinal and transverse dispersal of rail traffic live load for fabricated troughing.
- 5) Effective web calculations amended.
- 6) Amendment to include increased shear capacity for fabricated girders when the web-flange connection is equal to or greater than the shear capacity of the web.

List of Key Updates included in UBM 1.2

- 1) Live load shear effects calculations refined.
- 2) Live load effects calculations for cross girders refined.
- 3) Amendment to live load applied to outer main girders in skew bridges.
- 4) Amendments made to section properties calculations for welded sections.
- 5) Nominal yield strength and ultimate yield strength for "End Connection - Fasteners in Shear Only" amended to be linked to material type.
- 6) Amendment to data transfer procedure for "Plate I-girders" and "Two webs plate girder" sections.
- 7) Functionality update to results' summary reporting.

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List of Key Updates included in UBM 1.1

- 1) Live load effects calculations refined.
- 2) Amendments to dispersal of rail traffic live load for transverse troughing.
- 3) Longitudinal dispersal of rail traffic live load for wheel timbers not over cross girders changed to 1.0.
- 4) Track twist calculations refined.
- 5) Amendment to bending resistance of compression flange of main girders with intermediate U-frame restraints to allow for lateral flexure due to load on the transfer members. (5% reduction to M_r for all main girders with intermediate U-frame restraints and 10% reduction to M_r for Z-type main girders with intermediate U-frame restraints.)
- 6) Check for compact section for "Two webs plate girder" and "Trough (Fabricated)" sections amended.
- 7) Section properties calculations for "Trough (Fabricated)" sections amended to allow Z_{pe} value to be calculated for non-compact sections. (Z_{pe} value is required for calculation of M_r / Mult ratio.)
- 8) Amendments to web to flange connection calculations.
- 9) Corrections made to the calculation of A_{eq} .
- 10) Functionality update to results' summary reporting.

List of Abbreviations used

CRE	Contractor's Responsible Engineer
Assmt	Assessment
Calcs	Calculations
RA	Route availability
AC	Assessed Category
U	Utilization factor
BSU	British Standard Unit
DL	Dead load
LL	Live load
SDL	Superimposed Dead Load
TF	Track factor (as defined in NR/GN/CIV/025, cl. 4.3.8 for elements supporting more than one track)
TLF	Track loading factor - Percentage of track loading carried by an element
HAWP	Heavy Axle Weight Permission
HGV	Heavy Goods Vehicle
BM	Bending moment
SF	Shear force
SecProp	Section Properties
BCMI	Bridge Condition Marking Index
DK	Deck
SD	Subdeck
DCK	Decking/plate/slab/jack arches incl. transverse troughing
LSE	Secondary longitudinal beam/girder (exposed) e.g. parapet girders
LSI	Secondary longitudinal beam/girder (inner) e.g. railbearers or wheel timbers
MGE	Main longitudinal beam/girder (exposed)
MGI	Main longitudinal beam/girder (inner) incl. longitudinal troughing and filler beams
XGE	Transverse beam/girder (end)
XGI	Transverse beam/girder (inner)
RB	Railbearer
WT	Wheel timber
TD	Timber decking
LT	Longitudinal troughing
FB	Filler beam
TG	Trough girder
MG	Main girder
XG	Cross girder
TT	Transverse troughing

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		Level 0 Assessment Tool
Ed	End	
Md	Midspan	
CF	Curtailment to Flange	
CW	Curtailment to Web	
DF	Damaged Flange	
DW	Damaged Web	
WS	Web Splice	
SF	Strengthened Flange	
Bs	Bearing Stiffener	
Is	Intermediate Stiffener	
c/c	Centre to centre	
b/w	between	
CSAMS	Civils Strategic Asset Management Solution	

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**Level 0 Assessment Tool
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No.	Topic	General note
1	Level 0 process	The Level 0 assessment process has been developed in order to give Network Rail more contemporary bridge strength information which can be readily updated as new information becomes available or if changes are proposed. The Level 0 assessment Tool has been developed to deliver these assessment calculations and a brief report; this will provide assessments in a common and familiar format which will greatly improve Network Rail's ability to manage their bridge stock.
2	Level 0 process	The Level 0 Assessment Tool has been developed on the basis of NR/GN/CIV/025 Issue 3, BS 5400: Part 3 and NR/GN/CIV/015 (formerly RT/CE/C/015).
3	Level 0 process	The Level 0 assessments are prepared using an Assessment Tool that introduces various agreed simplifications to the assessment method in order to reduce the time required to collect and process assessment data into calculations which determine an assessed capacity based upon principal checks on key load carrying elements. Only vertical loads are considered.
4	Level 0 process	The assessor must determine the most reliable source of information. Generally the hierarchy of reliability for dimensional information will be: 1) Data confirmed on site 2) Data from record drawings 3) Data from drawings provided in assessment report 4) Data from assessment calculations. The hierarchy of reliability for conditional information will be: 1) Data confirmed on site, 2) Data from Detailed examination.
5	Use of the Tool	The Level 0 assessment process and this Assessment Tool are designed for use by experienced railway assessment engineers and must be only undertaken by persons with suitable competency. Each assessing organisation must have at least one person of suitable experience to be the CRE to oversee the delivery of Level 0 Assessments.
6	Use of the Tool	The assessment Tool is created for Level 0 assessment of half-through and deck type metallic underbridges, using Excel 2016.
7	Use of the Tool	The Level 0 Tool should always be saved to and run from the C: drive of the user's PC. Running the Tool from a network location may impair functionality of Excel and the Level 0 Tool.
8	Use of the Tool	The Tool will attempt to identify whether Excel 2016's Autosave function is active, and if so, disable it to avoid any interference with its operation. Autosave will automatically be disabled if the Tool is saved locally to the user's C: drive, as per above.
9	Scope of the Tool - General	Level 0 Assessment Tool is designed to assess one bridge deck at a time. Structures with more than one deck will require multiple files - one for each deck. Files' names are standardized in the following format: UBM2_0_ELR-No-DKNo.xlsm
10	Scope of the Tool - Elements articulation	Only simply supported elements may be assessed using the Tool.
11	Scope of the Tool - Geometrical limitations	Only bridge spans from 2m to 30m and skews up to 50 degrees can be assessed using the Level 0 Assessment Tool.
12	Scope of the Tool - General arrangement limitations	The Level 0 Assessment Tool will consider decks comprising up to five main girders and supporting up to four tracks with line speeds not exceeding 125 mph and cant not exceeding 150mm. Assessment of Deck type bridges with more than 5 longitudinal girders may be undertaken considering part of the deck carrying one track only and corresponding number of girders under that one track.

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No.	Topic	General note
13	Scope of the Tool - Elements	The scope of assessment is limited to the following types of elements: Railbearers, wheel timbers, longitudinal ballasted timber decking, cross girders, transverse troughing, longitudinal troughing, filler beam decks, trough girder and main girder. The Tool may be used to assess girders with tension and compression flanges curved in elevation by inputting different sections. However, the Tool takes no account of the enhanced shear resistance beams with flanges curved in elevation may exhibit as described in Section 9.3.5A and 1.2E in accordance with NR/GN/CIV/025.
14	Scope of the Tool - Sections	The Level 0 Assessment Tool may be used to assess plate I-girders and plate girders with two webs, joists, Z-type girders, troughs (pressed), troughs (fabricated) and wheel timbers/decking with rectangular section. Girders with flanges curved or sloped in elevation are assessed without allowance for flange contribution to shear capacity. Girders with varying web depth can be assessed by adding additional sections at any locations within the length deemed potentially critical by the assessor (for example, at a change in flange gradient). It should be noted that the self-weight of an element is calculated from its mid-span section properties - this should be considered when reviewing results for sections in which dead load effects may be correspondingly under- or over-estimated.
15	Scope of the Tool - Capacity checks	Assessed elements are checked for: Bending - at midspan, at flange curtailments, at locations with damaged flange and at web splice locations. A portion of the web is included in calculating bending capacity except for web splice where the web is ignored; Shear - at the end, at web curtailments and at locations with damaged web; Web to flange connection check - at the end; Combined bending and shear check - all sections at locations other than midspan and end. The Level 0 assessment calculations also include end connections check for fasteners and welds in shear only, and track twist. An additional shear check can be carried out at the end of notched wheel timbers by manually adding a new section at the notch location. 'Reduced' end cross-section dimensions should be entered accordingly.
16	Scope of the Tool - Qualitative assessment	Elements in deck supports and deck elements, which are not covered in the assessment calculations, are assessed qualitatively. Level 0 Assessment Tool also includes a procedure for enhanced qualitative assessment of bearing stiffeners.
17	Scope of the Tool - Stiffener assessment	Where the qualitative bearing stiffener assessment returns a "Further investigation required" result, a quantitative assessment may instead be carried out. Both bearing and intermediate stiffeners may be assessed in main girders for all form codes, provided that main girder section types are either "Plate I-girder" or "Z-girder". For half-through form codes only, stiffeners may be considered as components within u-frames where applicable. Furthermore, an optional calculation of effective length for main girders restrained by u-frames may be undertaken, but the option for manual input of effective length remains available as per previous versions of the Tool.
18	Scope of the Tool - Loading Scenarios	The Level 0 Assessment Tool has the capability to assess the structure under five different live loading scenarios. Scenario 1 is a predefined scenario using RA1 type loading, the published RA and the local permissible speed of the track selected on the General tab as the 'Track used for Scenario 1'. Scenario 2 to Scenario 5 are user-defined loading scenarios. These scenarios can either use RA1 type loading, "Real Train" loading from a pre-defined library representing real trains on the rail network, or a custom axle arrangement specified by the user, depending on the Live Load Type selected. These four scenarios are not mandatory for the calculation. The calculation of these scenarios is independent of the Scenario 1 calculation and requires the user to input the Assessment RA (if applicable), Assessment Speed, whether the Track Factor is to be applied and Assessment Scenario. The Tool can calculate up to 5 scenarios simultaneously.


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No.	Topic	General note
19	Scope of the Tool - CSAMS Assessment Scenarios	<p>The CSAMS database uses a pre-defined list of 'Assessment Scenarios' to classify each loading scenario assessed in the Level 0 Assessment Tool.</p> <p>For pre-defined loading Scenario 1, the corresponding 'Assessment Scenario' is pre-set to "Published RA @ Permissible Line Speed" and cannot be changed.</p> <p>For user-defined loading Scenario 2 to Scenario 5, the user can either select "Heavy Axle Weight Permission (HAWP)" or "Other" as the 'Assessment Scenario'.</p> <p>For all qualitative assessment, the corresponding 'Assessment Scenario' is pre-set to "Qualitative" and cannot be changed.</p>
20	Scope of the Tool - Disused tracks	<p>The [UBM/UBC] Level 0 Assessment Tool is not capable of assessing elements that support only disused tracks. Elements that support a combination of active and disused tracks can be assessed by including the disused track(s) as a superimposed dead load within the relevant EI_Loads sheet. Foot or vehicle live loading on disused tracks would not be included within the calculations in such cases.</p>
21	Scope of Tool - Site Data	<p>The assessor has the ability to utilise site data through the use of the Site Data module within the UBM Level 0 Assessment Tool. The module allows for the use of two distinct monitoring methods to supplement the automated assessment undertaken by the UBM Tool. These methods are:</p> <ol style="list-style-type: none"> 1) Direct Input of parameters - using data which requires limited post-processing (e.g. natural frequency) 2) Indirect Input of parameters - using data which has been post-processed in proprietary software packages (e.g. local shell models, grillage models etc) <p>When using the Site Data module, a number of tabs will have additional inputs which can be used to by the assessor to provide the above two parameter types. These are clearly denoted in this Guidance Note under the red text stating "Applicable only when Site Data is activated".</p> <p>Refer to <i>GN_Using_tool Note 14</i> for details on how to use the module.</p>

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No.	Topic	General note
1	Run macros	To use the Assessment Tool it is necessary for macros to be enabled. Go to "File/Options/Trust Centre/TrustCentre Settings/Macro Settings" and set "Disable all macros with notification". Re-open the Tool and choose "Enable Macros" from the "Security Warning" message box, which appears when you open file with macros.
2	"Assessment" menu	Once macros are enabled and the Tool re-opened an additional "Assessment" menu is automatically added to your Excel ribbon. Use the "Assessment" menu to progress with assessment (following the assessment steps as described in the next item) and to navigate in the Tool.
3	Assessment steps	<p><u>Assessor:</u></p> <p>Step 1 - Review structure and fill all relevant information in sheets "General" and "FormAA0".</p> <p><u>Contractor's Responsible Engineer (CRE):</u></p> <p>Step 2 - Contractor's Responsible Engineer (CRE) to review and sign "FormAA0". <i>Note that no changes to Form AA0 will be allowed after the form is signed.</i></p> <p><u>Assessor:</u></p> <p>Step 3 - Fill all relevant information on general input sheets "Deck", "Subdeck", "Track", "End_Connections", "Bridge_Strike", "SSI", "DK_Qual", "ES_IS_Qual" and "AssmtStatus".</p> <p>Step 4 - Fill all relevant information on applicable scenario sheets "Scenarios", "LL-Scenario 2", "LL-Scenario 3", "LL- Scenario 4", "LL-Scenario 5".</p> <p>Step 5 - Add elements (Assessment menu -> Add Elements) and fill all relevant information.</p> <p>Step 6 - Add sections (Assessment menu -> Add Sections) and fill all relevant information.</p> <p>Step 6a [OPTIONAL] - Add stiffeners (Assessment menu -> Add Stiffeners) and fill all relevant information.</p> <p>Step 7 - Run calculations (Assessment menu -> Calculate Scenarios -> Calculate All).</p> <p>Step 8 - Correct all errors in the input data (if any).</p> <p>Step 9 - Review and correct warning messages (if any).</p> <p>Step 10 - Review results.</p> <p><u>Checker:</u></p> <p>Step 11 - Steps 1 to 10 to be checked and signed by checker.</p> <p><u>Contractor's Responsible Engineer (CRE):</u></p> <p>Step 12 - Contractor's Responsible Engineer (CRE) to review assessment, write recommendations (sheet "CRE") and sign Form BA0 (sheet "Form BA0(1)"). Note the Form BA0 cannot be signed until:</p> <ul style="list-style-type: none"> - All scenarios are calculated using the 'Calculate All' button in the ribbon (Calculate Scenarios -> Calculate All) - The CRE either selects "Yes" in the dropdown box (cell G44) to certify that the Tracking Tables have been populated and checked, or selects "No" and provides justification in the text box as to why this is not the case.
4	Input cells	There are two types of input cells in the Tool - "yellow" and "tan" coloured. "Yellow" coloured cells are data value input cells and "tan" coloured cells are either data units or data source input cells.
5	Units	"Units" must be assigned to each data input (if applicable). Select units from drop down menu: 4 options (in, ft, m, mm) for all except for "One track weight (if different type)" where the options are "kg/m", "kN/m", "lb/ft". When "units" are assigned to a table of values, all the input data in the table must be in the selected units.
6	Source	"Source" must be assigned to each data input. Select information source from drop down menu - 13 options (refer to tab "General" for information sources). When "source" is assigned to a table of values and different sources are used for the input data in this table - specify the principal information source and use the comments facilities to record if any data in the table is taken from a different source. Offline supporting sources may be included in the Tool.

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No.	Topic	General note
7	Comments	<p>Add comments only to the data value input cells i.e. “yellow” coloured cells. These comments will be listed together with the data description in a separate sheet “Comments”. All comments have to be entered using the standard Excel commenting facility.</p> <p><u>How to add “Comment” in Excel?</u></p> <ol style="list-style-type: none"> 1. Go to “File/Options/General” and change “User name:” to your initials. 2. Select the “yellow” cell to which you want to add a comment. 3. Right click and choose “Insert Comment”. <p><u>How to change or delete “Comment” in Excel?</u></p> <ol style="list-style-type: none"> 1. Select the “yellow” cell with the comment. 2. Right click and choose “Edit Comment” or “Delete Comment”. <p>Users are encouraged to make regular use of this facility explaining their decisions. Comments should be short, brief, clear and meaningful.</p>
8	Yes / No option	If cells with this option are left blank, this will be considered as "No", however all mandatory cells must be filled in.
9	Intermediate Results	Intermediate results are presented for one scenario at a time. If an individual scenario is calculated the intermediate results relate to the calculated scenario. If all scenarios are calculated (using Calculate Scenarios -> Calculate All) the intermediate results relate to Scenario 1 (predefined).
10	Results	<p>Results are presented for all scenarios calculated. Each result sheet is appended with "_S#", where # is the scenario number the result relates to.</p> <p>Comments may be added on individual element results sheets by right-clicking in the blue cells adjacent to the 'Detailed Results' table and using the Excel commenting facility (see also Item No. 7 above). These comments can then be compiled into a formatted table (as per general input comments) by selecting the "Results_Comments" sheet and selecting "Yes" when prompted by the Tool to populate the table. The user will also be prompted to update this table during printing.</p>
11	Printing	Note that the format of page numbering when printed is “Page 1 of N”, where N is number of pages printed. Therefore one and the same page can have different page number when different printing options are used.
12	NR Version	When NR version is enabled the Tool will consider bridge strike during the calculation and also allow the user to specify strengthened sections. Once NR version is enabled it cannot be reversed.
13	Change of Input	The Tool will require re-calculation when there is any change of input. Changes to any CRE input will also result in a requirement for re-calculation, and re-signing of the forms BA0(1) and BA0(2).

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No.	Topic	General note
14	Enable Site Data	<p>Where approved by Network Rail, "Site Data" mode may be enabled to allow input of values from site data, hand calculations or grillage analysis outputs to refine and overwrite default Level 0 / codified values within existing (completed) assessments.</p> <p>Step 1. Press "Enable Site Data" button (Assessment menu -> Site Data -> Enable Site Data)</p> <p>Step 2. Read instructions and press "Yes" to continue. Note that once Site Data mode is enabled for a file, it cannot be disabled again.</p> <p>Step 3. Select a folder to save a copy of the existing tool. A new file will be created with Site Data Mode enabled, and suffix "SD" added to the end of the new filename to differentiate from the original file.</p> <p>Step 4. Additional optional inputs for site data will be displayed at the bottom of existing General, U-frame, Element and Section sheets. Inputs that are populated will overwrite default/previous values used by the Tool; where inputs are omitted, the default value will be used.</p> <p>Step 5. Source files should be attached to the Level 0 file that provide justification where non-default values are to be used in the Assessment. Press Source Information Files button to attach source files. (Assessment menu -> Site Data -> Source Information Files)</p> <p>Step 6. Read the warning and press OK.</p> <p>Step 7. Press Open.</p> <p>Step 8. A zip folder will open within a temporary directory on the assessor's PC. Drag and drop Source Information Files into the zip folder. These files (documents, excel spreadsheets etc.) remain embedded within the Assessment file and can be viewed after the assessment has been signed off.</p> <p>Step 9. Sign off the Assessment using Form BA0 sheets.</p> <p>Note 1: After the Form BA0 is signed off the file can no longer be changed. The embedded source information is now Read-Only and may only be copied/viewed but not edited.</p> <p>Note 2: When using the Level 0 Tool's import function on a file with Site Data mode enabled, embedded Source Information Files will be lost. Therefore, the user should ensure local copies of the Source Information Files are made before importing; these can then be re-</p>

Frequently Asked Questions**1. How to start?**

Start by reading the Assessment Guidance Notes in particular the sheet "Using_Tool"

2. How to add elements and sections?

Using_tool' Item 3' explains this.

3. How to sign the Form AA0 and Form BA0?

'FormAA0', 'Form BA0(1)' & 'Form BA0(2)'. Item 'Key/Signing' explains this.

4. How to use the Tool to assess a bridge with more than one deck?

A separate assessment has to be undertaken for each deck of the bridge.

5. How to check that the Form code and the BCMI element reference are correct?

The values under 'Element Type' in column I of sheets 'Deck' and 'Subdeck' indicate what the element is, e.g. MG - main girder, RB - railbearer or XG - cross girder etc. This should be compared with Form code selected to ensure the intended elements are correct.

6. Why in the sheet 'Track' the total in deck/subdecks distances and track offsets distances don't match up?

Refer to the sketch in sheet 'Track'. The Total of deck/subdeck is the total width of the deck. Whereas the total of track offsets is the total distance from the same datum up to last rail.

7. What is the input for the 'Loading width for ballast' for each type of element?

Elements' > 'EI_Loads'. Item 'Loading width (for ballast loading)' in this sheet explains the loading width for each type of element.

8. In Element Loads sheet what does 'Typical LSI/XGI element' mean?

This input is required to confirm the correct dead load on each element.

9. In End_Connections sheet what does 'Typical LSI/XGI element' mean?

This input is required for the assessment of correct element connections.

10. How to assess structures where rails are NOT over the railbearers?

Where it is identified that a railbearer is not directly beneath a rail, the assessor shall identify whether there is a load path to transfer the rail loading onto the railbearer, for example through lateral load distribution via a sleeper or via a structurally spanning longitudinal timber (if present) between cross girders. When rails are not over railbearers and non-structural floor/decking is loaded with live load, the assessment of the floor shall be reported as a qualitative failure.

11. How to complete the qualitative assessment of bearing stiffener, when there is NO bearing stiffener?

The assessor should answer "No" to the question: "Is there a full width or min. 8" wide stiffener each side of the web?".

12. What input is required for track twist check?

For track twist check the minimum input required is: For two girders' bridge - one MGE girder, for three or more girders' bridge - one MGE girder and one MGI girder.

13. Is the self weight of the elements automatically calculated?


Yes, self weight of assessed elements is automatically calculated based on midspan section properties.


14. Is the superimposed dead load replicated causing over conservatism in the dead load effects?


No, there is NO automatic load transfer between elements and "Loading must be specified per element." When "Typical LSI element:" and/or "Typical XG/DCK element:" options in Dead Load (DL) section are used, this will add the self weight of the specified element to the element's loading e.g. RBs and/or XGs self weights to the MG loading.


15. An error occurs when text is added to the text box on CRE Recommendations and other sheets with text boxes.


The problem may appear because the text starts with "-". Signs like "-", "+", "=" will cause this problem if they are at the beginning of the text. Please avoid this. If you add a space in front of these signs it should work without error.

GUIDANCE NOTES			
			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
General	Route	e.g. Midland, Southern...	TS - Level Zero Task List
General	ELR	Engineer's Line Reference	TS - Level Zero Task List
General	Number	Bridge number. Use "_" symbol instead of "/" symbol for structures with more than one identification number (e.g. use 46_47 instead of 46/47) as bridge number is used as part of the file name and therefore some symbols are not permitted. Leading zeros may now be included as necessary within the bridge number (e.g. 00127).	TS - Level Zero Task List
General	Mileage	Format is "82.0022" which is 82m and 22yards.	TS - Level Zero Task List
General	OS Map Reference	Format is AA #####, e.g. TQ 1234 5678.	TS - Level Zero Task List
General	Bridge name	Local name.	TS - Level Zero Task List
General	Number of spans	Number input. Refer to BCMI code NR/L3/CIV/006/2C and sketch	RD - Record Drawings
General	Total number of decks	Number input. Deck is marked as DK in BCMI code. Refer to BCMI code NR/L3/CIV/006/2C and sketch	RD - Record Drawings
General	Construction date	Date of construction. If unknown, estimate date and add comment.	RD - Record Drawings
General	Superstructure date	Date of superstructure construction. If unknown, estimate date and add comment.	RD - Record Drawings
General	CARRS Parent GUID	Number input required	TS - Level Zero Task List
General	CARRS Child GUID	Number input required	TS - Level Zero Task List
General	BCMI deck reference	Select option from drop down menu - options from "DK1" to "DK99"	
General	Obstacle crossed: Type, Name	Select from drop down menu for type - describe the name of the obstacle, e.g. A321 public road.	RD - Record Drawing, AR - Last Assessment Report
General	Tracks carried	Name of the lines as described in SA. e.g. Up fast.	SA - Sectional Appendices
General	Track ID	The ID of the track, choose from dropdown list.	DE - Last Detailed Examination Report
General	Published RA	Current RA of the line.	SA - Sectional Appendices
General	Local permissible speed	Max 125mph	SA - Sectional Appendices
General	Differential speed	Select response from drop down menu - options "Yes" or "No" A loco speed restriction published in Table D may be considered as a differential speed.	SA - Sectional Appendices
General	Type	Drop down menu - 9 options	SA - Sectional Appendices
General	Speed	Max 125mph	SA - Sectional Appendices
General	Heavy Axle Weight Permission	Select response from drop down menu - options "Yes" or "No"	SA - Sectional Appendices

GUIDANCE NOTES			
			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
General	RA value	Input appropriate RA number if selected "Yes" for HAWP.	SA - Sectional Appendices
General	Speed	Input appropriate speed if selected "Yes" for HAWP.	SA - Sectional Appendices
General	Track used for Scenario 1: (For Published RA & Speed)	The track from which the assessment values (published RA, Local permissible speed) will be taken from for Scenario 1 calculations. Choose from dropdown 'Track 1' to 'Track 4'.	
General	Number of tracks	Number of tracks per deck. Drop down menu - options from "1" to "4" (max 4 tracks). Only include operational tracks - ignore disused and removed tracks. Disused tracks should be considered as superimposed dead loads and included within "Other SDLs" in EL_Loads sheets for any relevant supporting elements.	SA - Sectional Appendices
General	Source: Number of tracks	Select information source from drop down menu - 13 options.	
General	Source type - Last Detailed Examination report (Date)	Use the format "dd/mm/yyyy"	
General	Source type - Last Detailed Examination report (By)	Name of organisation that wrote the Last Detailed Examination Report	
General	Source type - Last Assessment Report (Date)	Use the format "dd/mm/yyyy"	
General	Source type - Last Assessment Report (By)	Name of organisation that wrote the Last Assessment Report.	
General	Source type - Last Inspection for Assessment report (Date)	Use the format "dd/mm/yyyy"	
General	Source type - Last Inspection for Assessment report (By)	Name of organisation that wrote the Last Inspection for Assessment Report	
General	Source type -Last Visual Examination report -1 (Date)	Use the format "dd/mm/yyyy"	
General	Source type -Last Visual Examination report -1 (By)	Name of organisation that wrote the Last Visual Examination Report 1.	
General	Source type -Last Visual Examination report -2 (Date)	Use the format "dd/mm/yyyy"	
General	Source type -Last Visual Examination report -2 (By)	Name of organisation that wrote the Last Visual Examination Report 2.	

GUIDANCE NOTES			
			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
General	Source type - Additional Examination reports (Date)	Use the format “dd/mm/yyyy”	
General	Source type - Additional Examination reports (By)	Name of organisation that wrote the Additional Examination Reports.	
General	Source type - SCMI report (Date)	Use the format “dd/mm/yyyy”	
General	Source type - SCMI report (By)	Name of organisation that wrote the SCMI Report.	
General	Source type - Supplementary Site Inspection (Date)	Use the format “dd/mm/yyyy”	
General	Source type - Supplementary Site Inspection (By)	Name of organisation that undertook the Supplementary Site Inspection.	
General	Date of last inspection for assessment (Date)	Use the format “dd/mm/yyyy”	
General	Date of last inspection for assessment (By)	Name of organisation that undertook the inspection for assessment	
General	Source type - Record Drawings	Use the format “5E/1720/1, 3, 5-7 & 21”	
General	Source type -Five Mile Plans	Use the format “Dated ...”	
General	Source type - Sectional Appendices	Use the format “Dated ...”	
General	Source type - Level 0 Task List	Use the format “Dated ...”	
General	Source type - Internet	Use the format “Dated ..., web address ...”	
General	Source type - Hidden Critical Element Examination Report	Use the format “Dated ..., by ...”	
General	Offline supporting calculations & sketches (OL1-OL10) (Source Type)	Title and/or brief description of the offline supporting document to be appended to the Level 0 Assessment.	
General	Offline supporting calculations & sketches (OL1-OL10) (Date)	Use the format “dd/mm/yyyy”	
General	Offline supporting calculations & sketches (OL1-OL10) (By)	Name of organisation that created the document.	
General	Site Monitoring Information Sources (SM1-SM10) (Source Type)	Title and/or brief description of the site monitoring information files to be appended to the Level 0 Assessment.	

GUIDANCE NOTES			
			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
General	Site Monitoring Information Sources (SM1-SM10) (Date)	Use the format “dd/mm/yyyy”	
General	Site Monitoring Information Sources (SM1-SM10) (By)	Name of organisation that created the document.	


GUIDANCE NOTES		 Level 0 Assessment Tool Version UBM 3.3	
Sheet name	Input data	Description	
FormAA0	Assessment checklist	Drop down menu - options "Yes" or "No" to all the 11 questions.	
FormAA0	Assessment checklist	Question 6: In the calculation of track twist, the Tool limits the maximum number of tracks between adjacent main girders to two.	
FormAA0	Assessment checklist	Question 7: The Tool calculates the cross girder dynamic factor assuming the angle between the floor members and the direction normal to the track is not greater than 25 degrees.	
FormAA0	Assessment checklist	Question 8: The Tool considers cross girders to be equally spaced.	
FormAA0	Structural form code	Form code consists of 5 letters/numbers (Ref1-Ref5) representing: Bridge Type (Ref1), Primary Longitudinal Elements (Ref2), No. of Primary Elements (Ref3), Floor Types (Ref4) and Track/Road Form (Ref5). Drop down menus with valid combinations for the form codes included in the Tool are provided. The assessor must choose the form code combination that defines the bridge deck correctly and completely. Note: Level 0 Assessment Tool does not consider load share between railbearer and wheel timber. When wheel timbers and railbearers are both present, only the railbearer will be assessed and the wheel timber has to be included by the assessor as loading to the railbearer.	
FormAA0	Assessment checklist	Question 11: This Level 0 assessment Tool considers only those structures that can be defined from the form code options given.	
FormAA0	Enter correct form code	This field will become available if the answer to Question 11 is "No". Provide the correct form code for the structure if the bridge deck is not correctly and completely defined using the available form code options. The correct form code is selected using the form code builder which allows access to all available form codes.	
FormAA0	Justification for adopting Level 0 assessment (if required)	If the answer to any of the questions in the Assessment Checklist is "No" the following statement will appear: "Bridge deck is NOT suitable for Level 0 assessment.". However, a bridge should not be excluded from level 0 assessment based on this. The Assessing organisation should use their experience and engineering judgement to populate as many primary elements as possible in the Assessment Tool and record the justification in this box.	
FormAA0	Name/Signing Form AA0	Name of the CRE from the Assessing organisation.	
FormAA0	Title/Signing Form AA0	Title of the CRE from the Assessing organisation. To be filled by the CRE.	
FormAA0	Signing Form AA0	The Form AA0 should only signed by the CRE. After filling in the Name and Title, go to Assessment menu and select "Sign Forms". It is the responsibility of the Assessor to ensure each form is signed by a competent and approved person. The signatures will be checked and approved by Network Rail Structures Managers. Completing the signing procedure will lock all the information in Form AA0 sheet.	
Applicable only when Site Data is activated			
FormAA0	Assessment checklist	Question 12: "Has the use of Site Monitoring Data to update assessment parameters been approved?" Select from drop down menu - "Yes" / "No".	
FormAA0	Update type	Select from drop down menu - "Site data with direct inputs" / "Site data with Grillage Model Inputs".	

GUIDANCE NOTES



Level 0 Assessment Tool
Version UBM 3.3

Sheet name	Input data	Description	
		The form code in the Tool is to be populated using the drop down list. This may be different than what is in the spreadsheet provided by Network Rail separately. Network Rail will capture the form code from the Tool which will form the definitive list.	
FormAA0	Structural form code - Ref1	<u>Bridge Type (Ref1)</u> H - Half-through bridges D - Decks	
FormAA0	Structural form code - Ref2	<u>Primary Longitudinal Elements (Ref2)</u> E - Plate girders Z - Z type girders A - Metal girder and timber/stone deck D - Trough girders F - Filler/cased beam G - Metal girder and metal deck J - Metal girder with jack arches T - Longitudinal troughing	
FormAA0	Structural form code - Ref3	<u>No. of Primary Elements (Ref3)</u> 2 - Two girders/trusses 3 - Three girders/trusses M - More than 3 girders -	
FormAA0	Structural form code - Ref4	<u>Floor Types (Ref4)</u> Y - Cross girder with railbearers and floor plates X - Cross girders without railbearers and floor plates K - Cross girders with railbearers, without floor plates F - Cross girders with floor plates, without railbearers A - Cross girder and timber deck C - Cross girders encased in concrete J - Cross girders with jack arches T - Transverse troughing U - Transverse timber and timber deck -	
FormAA0	Structural form code - Ref5	<u>Track/Road Form (Ref5)</u> A - Railbearers and ballast R - Railbearers and NO ballast T - Wheel timber and railbearers B - Ballasted W - Wheel timbers	
FormAA0	Structural form code	The allowable combinations of the above five codes can be found in a separate document.	

GUIDANCE NOTES			
			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
Deck	Span number	Number is required.	
Deck	Supports 1st	Label it as per BCMI code NR/L3/CIV/006/2C, i.e. ES1, IS1, etc. Refer to the sketch provided in the tab.	
Deck	Supports 2nd	Label it as per BCMI code NR/L3/CIV/006/2C, i.e. IS1, IS2, ES2 etc. Refer to the sketch provided in the tab.	
Deck	Min vertical clearance to soffit:	Number is required.	DE - Last Detailed Examination report; Internet
Deck	Skew:	Skew angle to be max +/-50 deg. For the purposes of applying skew factors and calculating track twist a sign system is introduced to the skew angle. This is to identify which end of the main girders is at acute/obtuse corner. Skew angle is measured at the start point of MGE1 (low mileage end). Positive (+) skew angle means that MGE1 start point is at the acute end. Negative (-) skew angle means that MGE1 start point is at the obtuse end. Refer to the sketch in input sheet	RD - Record Drawings; AR - Last Assessment Report
Deck	Undertake quantitative stiffener assessment?	Select from drop down menu - "Yes" / "No". If "Yes" is chosen, a ribbon button "Add stiffeners" is enabled and stiffener calculations will be carried out. If the file includes a quantitative stiffener assessment already and "No" is selected, stiffener data will be erased. If "No" is chosen, ribbon button "Add stiffeners" is disabled and stiffener calculations will not be carried out.	
Deck	Consider u-frames in the assessment?	Select from drop down menu - "Yes" / "No". If "Yes" is selected, U-frame calculations are enabled and an additional U-frame input sheet will be available after the stiffeners are added.	
Deck	Minor elements (individually marked)	Refer to BCMI code NR/L3/CIV/006/2C and Abbreviation list part of this Guidance Note.	

GUIDANCE NOTES



**Level 0 Assessment Tool
Version UBM 3.3**


Sheet name	Input data	Description	Suggested Sources
Deck	Applicable	<p>Select "Yes" from the drop down list if the minor elements exist. Otherwise select "No". The assessor must fill this column in full as this will define the deck and subdecks. In case of Longitudinal troughing or Filler beam deck you have to choose "Yes" for MG1 only. In case of Trough girder (girder directly under the rail) you have to choose "Yes" for MG1 only if all the girders are identical. When you have different Trough girders you can assess max 5 MGs (2 MGEs and 3 MGIs) respectively choosing "Yes" in columns Applicable and Assmt Calcs.</p> <p>Applicable only when NR Version Activated: For bridge strike calculations in case of TG (Trough girder) it is necessary to indicate how many girders you have. Hence even if they are identical it is required to enter "yes" for all of them as applicable.</p>	


GUIDANCE NOTES




**Level 0 Assessment Tool
Version UBM 3.3**

Sheet name	Input data	Description	Suggested Sources
Deck	Name in RD (AR)	Label/name of the element used in VERA/RD/AR for reference code.	RD - Record Drawings; AR - Last Assessment Report
Deck	Correct BCMI Code	If the element is not correctly defined using the code field, enter the correct reference.	
Deck	Correct BCMI No	If the element is not correctly defined using the code field, enter the correct reference.	
Deck	Assmt Calcs	<p>Select whether assessment calculations are required for the elements listed using the drop down menu - options "Yes" or "No". Note that only elements that have been identified as applicable for the structure can be selected.</p> <p>Only elements with different cross section, condition, loading or length should be chosen for "Assmt Calcs". When two (or more) elements are the same only one can be chosen for calculations and commenting facilities used to record why other elements have not been calculated. (e.g. Element same as ...)</p> <p>When select a "Yes" the column "Element type" will be automatically filled. The relevant element type should appear if correct form code is chosen. Please refer to the GN_Abbreviations for the meaning of the element types.</p>	

GUIDANCE NOTES			
			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
Subdeck		LSI, XGE, XGI and DCK are collectively marked within a sub-deck (e.g. LSI1, XGE1, XGI1 and DCK1 refer to all LSIs, XGs and DCKs in sub-deck number 1). Refer to BCMI code NR/L3/CIV/006/2C. Level 0 assessment only allows for quantitative assessment of two DCK types - transverse troughing and longitudinal timber decking.	
Subdeck	No	Select from drop down menu - 5 options (1 to 5)	
Subdeck	(Index)	<p>Select reference (index) number from drop down menu - options from "(0)" to "(9)". To allow for the elements to be individually marked it is suggested an extra index (i) to be added i.e. LSI1(1), LSI1(2),..., XGE1(1), XGE1(2),...</p> <p>An index (0) can be used to mark these elements as a group e.g. LSI1(0), XGE1(0), and will have the same meaning as in the current BCMI code.</p> <p>If the assessed element can represent all inner cross girders in sub-deck number 1, the assessment results will be presented for XGI1(0).</p> <p>If there is damage/corrosion issue with inner cross girder number 2 in sub-deck number 1, then results will be presented for XGI1(2).</p> <p>The additional index (i) numbering will follow the same convention as for all minor elements in a deck i.e. low to high mileage and left to right when facing high mileage. Refer to sketch.</p>	
Subdeck	Name in RD (AR)	Label/name of the element used in VERA/RD/AR for reference.	RD - Record Drawings; AR - Last Assessment Report
Subdeck	Correct BCMI Code	If the element is not correctly defined using the code field, enter the correct reference.	
Subdeck	Correct BCMI No	If the element is not correctly defined using the code field, enter the correct reference.	
Subdeck	Assmt Calcs	<p>Specify which minor elements will be assessed by selecting "Yes" or "No" from the drop down menu. Note that only elements that have been identified by filling the subdeck and index references can be selected.</p> <p>Only elements with different cross section, condition, loading or length should be chosen for "Assmt Calcs". When two (or more) elements are the same only one can be chosen for calculations and commenting facilities used to record why other elements have not been calculated. (e.g. Element same as ...)</p>	

GUIDANCE NOTES			
			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
Subdeck	XGs' spacing	XG spacing is the distance between the cross girders (c/c). XG Spacing should not exceed 7.5m (i.e. 1/4 span of 30m bridge with RA1 Loading).	
Subdeck	Units	Select units from drop down menu - 4 options (in, ft, m, mm)	
Subdeck	Source	Select information source from drop down menu - 13 options (refer to tab "General" for information sources)	

GUIDANCE NOTES			
			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
Track	Track radius	If the track is straight and there is NO track cant - enter zero for track radius i.e. radius is infinity. If the track is straight but there is track cant - input track radius as 10km to allow for correct nosing effect on railbearers to be calculated.	5M - Five Mile Plans
Track	Track cant	Max 150mm. If there is no cant enter 0 (zero).	5M - Five Mile Plans
Track	Units	Select units from drop down menu - 4 options (in, ft, m, mm)	
Track	Source	Select information source from drop down menu - 13 options (refer to tab "General" for information sources)	
Track	Deck and sub-decks width, Distances	<p>These are the distances between the main longitudinal elements starting from the set datum. Datum is at the centre line of the left most longitudinal deck element when facing high mileage i.e. MGE1 or LSE1 (if present). The datum used for deck and subdeck width and for track offsets must be the same. Enter distances as shown on the sketch i.e. distances between adjacent elements. In case of longitudinal troughing or filler beams deck the whole deck width must be entered as value for MG11. In case of Trough girder TG (girder directly under the rail) no input is needed, i.e. leave the cells blank.</p> <p>Applicable only when NR Version Activated: For bridge strike calculations in case of Trough girder TG (girder directly under the rail) the whole deck width must be entered as value for MG11.</p>	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report

GUIDANCE NOTES



**Level 0 Assessment Tool
Version UBM 3.3**

Sheet name	Input data	Description	Suggested Sources
Track	Track offsets, Distances, x1-x8	<p>These are the distances between the rails starting from the set datum. Datum is at the centre line of the left most longitudinal deck element when facing high mileage i.e. MGE1 or LSE1 (if present). The datum used for deck and subdeck width and for track offsets must be the same. The distance between rails of the same track is set to 5 ft.</p> <p>The user can input track offsets at low mileage, midspan and high mileage if the distance varies.</p> <p>The Tool calculates and uses the average values and therefore a minimum of one set of track offsets is required.</p> <p>Enter distances as shown on the sketch i.e. distances between adjacent rails, x1 to x8.</p> <p>In the case of longitudinal troughing LT or filler beams deck FB or Trough girder TG (girder directly under the rail) no input is needed, i.e. leave the cells blank.</p> <p>Applicable only when NR Version Activated:</p> <p>In the case of longitudinal troughing LT an input for 'x1' is mandatory. This is needed for bridge strike calculations. For 'x1' please enter the <u>minimum</u> end offset among both ends of the deck. Only 'x1' input is needed, other offsets can be left blank.</p>	<p>RD - Record Drawings; AR - Last Assessment Report; Note:</p> <p>Track offsets are used to calculate load effects from live load on cross girders. At least one set of track offsets has to be filled in order live load effects to cross girders to be calculated.</p>

GUIDANCE NOTES



Level 0 Assessment Tool
Version UBM 3.3


Sheet name	Input data	Description	Suggested Sources
End_connections	Typical LSI element	A drop down list will be available if LSI are present.	
End_connections	Typical XG element	A drop down list will be available if XG are present. In case of half-through bridge with transverse troughing you have to skip the input pages for end connections. The web to flange connection rivets have been loaded additionally from the transverse troughing.	
End_connections	Typical MG element	A drop down list will be available if MG are present.	
End_connections	Type of fasteners	Select detail from drop down menu - "rivets" / "bolts"	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
End_connections	Bolted/riveted connection?	Yes/no input. If a bolted or riveted end connection is present, select 'Yes' from the drop-down menu.	
End_connections	Welded connection?	Yes/no input. If a welded end connection is present, select 'Yes' from the drop-down menu. Note that 'Yes' may be input for both bolted/riveted and welded connections (i.e. cases where the minor element is welded to an end plate, which is in turn fastened to the major element with bolts/rivets).	
End_connections	Fasteners' Material	Select fastener material from drop down list - 6 options (Wrought iron, Steel - Pre 1906, Steel - After 1906, Gr 4.6 Bolts, Gr 8.8 Bolts, Gr 10.9 Bolts). If not applicable you must leave blank.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
End_connections	Number	Input the number of fasteners which are in single shear, i.e. count the number of rivets/bolts to the web of the element to which the relevant element is connected as shown on the sketch	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
End_connections	Size	Input the diameter of rivets or input diameter of the shank of bolts.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
End_connections	Units	Select units from drop down menu - 4 options (in, ft, m, mm)	
End_connections	Source	Select information source from drop down menu - 13 options (refer to tab "General" for information sources)	
End_connections	Weld length (per web face)	Input the length of weld along one face of the web only. For example, for a 400mm deep web welded to an end plate along its full depth, weld length should be entered as 400mm.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
End_connections	Throat thickness	Input the throat thickness of the weld (note - not leg length)	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report

GUIDANCE NOTES



Level 0 Assessment Tool
Version UBM 3.3

Sheet name	Input data	Description	Suggested Sources
End_connections	End plate material	Select end plate material from drop down menu - 11 options (Wrought iron, Steel - Pre 1906, Steel - After 1906, Steel BS 15: 1906, Steel BS 15: 1948, Steel BS 15: 1961, Steel BS 548: 1934, Steel BS 968: 1941, Steel BS 968: 1962, Steel BS 2762:1956 NDIA, IIA, IIIA, IVA, VA, Steel BS 2762:1956 NDIB, IIB, IIIB, IVB, VB). If welded directly to the web of the major element, select major element web material instead.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
End_connections	End plate thickness	Input the thickness of the end plate that the minor element is welded to. If welded directly to the web of the major element, input web thickness of major element.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report

GUIDANCE NOTES			
			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
Bridge_Strike	Maximum permitted highway speed	Permitted maximum speed of vehicles using the highway beneath the bridge. Needs to be less than 70mph.	Internet
Bridge_Strike	Do conditions prevent HGVs from exceeding max permissible road speed?	Select from drop down menu - "Yes" / "No". Details or justification to be included in the notes if "Yes" selected.	
Bridge_Strike	Is there bracing between main girders/Infill between troughs?	Select from drop down menu - "Yes", "No", "N/A". This is required only for deck type bridges. For half-through bridges choose "N/A".	
Bridge_Strike	Width of narrowest footpath or verge	Input the minimum width of any footpath beneath the bridge. Use a value of zero if there is no footway/verge available on the road beneath the bridge.	Internet


GUIDANCE NOTES



**Level 0 Assessment Tool
Version UBM 3.3**

Applicable only when NR Version is Activated

Sheet name	Input data	Description	Suggested Sources
Bridge_Strike	BrgStk_hlp1	This sheet calculates the Global Bridge Strike for the bridge and is calculated using existing information within the Tool and the information from the Bridge_Strike input.	
Bridge_Strike	BrgStk_hlp2 to BrgStk_hlp5	<p>These sheets show the Bridge Strike section property calculations.</p> <p>There is one cell for user input, highlighted in yellow, which should be used to alternate between 4 options (25% Flange Loss, 50% Flange Loss, Loss back to angle and Loss of one plate) if necessary. The drop down list shows only the relevant options. This can be used if the user needs to view bending capacity (BrgStk_hlp6) for different options and is for information only.</p> <p>The results from all the applicable options are shown on the result page (Results_P2).</p>	
Bridge_Strike	BrgStk_hlp6	This sheet shows Bending capacity for the Bridge Strike sections.	
Bridge_Strike	Fabricated Troughs	For Fabricated Troughs "25% Flange Loss" means that half the distance from the edge of the flange to the centre line of the web has been lost. When calculating "50% Flange Loss" it means that the flange plate from the edge to the centre line of the web has been lost.	

GUIDANCE NOTES			
			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
SSI		Free text space provided for recording the findings of supplementary site inspection (SSI).	

GUIDANCE NOTES



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Sheet name	Input data	Description	Suggested Sources
DK_Qual		For elements where a qualitative check is appropriate, the Tool has been designed so that the assessing engineer can record the judgement on whether the structure is adequate or not (as opposed to automating it based on the defect details input). Defects are noted using a drop down list to show the basis of the judgement.	
DK_Qual		Elements are grouped together by similar type. For example all bearings are included in one table with one list of standard defects. So a noted crack could apply to any bearing. Greater details can be included, where necessary, by using the commenting facility.	
DK_Qual	Material	Select element material from drop down menu - 8 options (Masonry, Concrete, Steel, Wrought Iron, Cast Iron, Timber, N/A, Unknown).	DE - Last Detailed Examination report; IR - Last Inspection for Assessment report
DK_Qual	Defects	Record whether any defects have been identified. Select from drop down menu - 4 options (Yes, No, Unknown, N/A). These affect the recommendation for further action.	DE - Last Detailed Examination report; IR - Last Inspection for Assessment report
DK_Qual	Source	Select information source from drop down menu - 13 options (refer to tab "General" for information sources)	
DK_Qual	Qualitative assessment result	Record the qualitative assessment result from drop down menu - 3 options (Adequate, Inadequate, Indeterminate). Indeterminate should be selected when it has not been possible to determine the adequacy from the information available.	
DK_Qual	Question: Are there tie bars attached, at or near the bottom flange level, between the edge girders of the jack arch deck?	Drop down menu - 3 options (Yes, No, N/A). This is needed to determine if further investigation of edge girder stability is required. It is only visible and required for jack arch decks.	
DK_Qual	Qualitative Result based on Minor Element	Choose the leading minor element (with the most significant defect) that the qualitative result is based on. If no defects, select the first relevant element code listed above this entry and choose an element number of 1 (e.g. DCK1).	

GUIDANCE NOTES



**Level 0 Assessment Tool
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Sheet name	Input data	Description	Suggested Sources
ES_IS_Qual		For elements where a qualitative check is appropriate, the Tool has been designed so that the assessing engineer can record the judgement on whether the structure is adequate or not (as opposed to automating it based on the defect details input). Defects are noted using a drop down list to show the basis of the judgement.	
ES_IS_Qual		Elements are grouped together by similar type. For example all abutments and wing walls are included on one table with one list of standard defects. So a noted crack could apply to either abutment or any wing walls. Further details can be included, where necessary, by using the commenting facility.	
ES_IS_Qual	Material	Select element material from drop down menu - 8 options (Masonry, Concrete, Steel, Wrought Iron, Cast Iron, Timber, N/A, Unknown).	IR - Last Inspection for Assessment report; DE - Last Detailed Examination report
ES_IS_Qual	Defects	Record whether any defects have been identified. Select from drop down menu - 4 options (Yes, No, Unknown, N/A). These affect the recommendation for further action.	IR - Last Inspection for Assessment report; DE - Last Detailed Examination report
ES_IS_Qual	Source	Select information source from drop down menu - 13 options (refer to tab "General" for information sources)	
ES_IS_Qual	Qualitative assessment result	Record the qualitative assessment result from drop down menu - 3 options (Adequate, Inadequate, Indeterminate). Indeterminate should be selected when it has not been possible to determine the adequacy from the information available.	
ES_IS_Qual	Qualitative Result based on Minor Element	Choose the leading minor element (with the most significant defect) that the qualitative result is based on. If no defects, select the first relevant element code listed on the tab above this entry and add an element number of 1 (e.g. ABT1).	

GUIDANCE NOTES



**Level 0 Assessment Tool
Version UBM 3.3**

Sheet name	Input data	Description	Suggested Sources
AssmtStatus	Assessment status	Select status of this assessment from the drop down menu - 3 options (Provisional, Updated, Revalidated). The assessment status will automatically be changed to Final once the Form BA0(1) is signed by the CRE.	
AssmtStatus	Outstanding actions -Review of record drawings	Select from drop down menu - options "yes", "no" or "N/A".	
AssmtStatus	Outstanding actions -Site measurement of key/missing dimensions	Select from drop down menu - options "yes", "no" or "N/A". CRE is responsible for the review of the comments inserted for outstanding actions and making recommendations regarding site attendance to confirm/collect data.	
AssmtStatus	Outstanding actions - Confirmation of ballast depth	Select from drop down menu - options "yes", "no" or "N/A".	
AssmtStatus	Outstanding actions - Confirmation of current condition	Select from drop down menu - options "yes", "no" or "N/A".	
AssmtStatus	Outstanding actions - Other	Select from drop down menu - options "yes", "no" or "N/A". If "yes" insert a comment.	
AssmtStatus	Reason/basis for update	Select from drop down menu - options "bridge bash damage" or "other".	
AssmtStatus	Reason/basis for revalidation	Select from drop down menu - 4 options (Reconfirmed at next DE, Review of current condition, Review of current use, Other)	


GUIDANCE NOTES



**Level 0 Assessment Tool
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Sheet name	Input data	Description	Suggested Sources
Scenarios		There are five calculation scenarios included in the Tool - one predefined scenario (RA1) and four user-defined or predefined Real Train scenarios. It is possible to input additional assessment options for Scenarios 2 to 5, including alternative RA values, alternative line speeds, user defined axle arrangements, use of track factor and Assessment Scenario description. Scenario 2 to Scenario 5 are not mandatory. "Real Train" scenarios have predefined axle arrangements based on the type of train selected.	
Scenarios	Structure Condition	For User Defined Scenarios (Scenario 2 - 5) it is possible to choose the structure condition from the drop down list. Two options are available; Current and Proposed Change	
Scenarios	Live Load Type	Select from RA1 loading, Real Train Loading and User Defined Loading. If RA1 loading is chosen the axle arrangement is RA1 type loading to NR/GN/CIV/025 as per Scenario 1 (predefined). If User Defined is chosen a new sheet will be created (LL_Scenario #, where # is the corresponding scenario number) in which the user may input a custom axle arrangement (up to a maximum of 32 axles) If Real Train is chosen a new sheet will be created (LL_Scenario #, where # is the corresponding scenario number) which will display the axle arrangement of the selected real train.	
Scenarios	Real Train Type	Select train type from drop down menu. The resulting axle arrangement will be displayed on the corresponding LL-Scenario sheet.	
Scenarios	Assessment RA for Assessed Category	Alternative RA rating can be added. Applicable only when RA1 type loading is chosen for Live Load Type.	
Scenarios	Assessment Speed	Alternative assessment speed less than 125 mph can be added.	
Scenarios	Track Factor (TF) Applied	The track factor reduces the load from the 2nd and subsequent tracks on the bridge deck. Two options in a drop down list are provided; "Yes", "No"	

Scenarios	Assessment Scenario	<p>For Loading Scenarios 2-5, Assessment Scenario can be one of either "Heavy Axle Weight Permission (HAWP)" or "Other". If "Other" is selected, a form appears allowing the user to specify their own Assessment Scenario name.</p> <p>There is no option to add/change the Assessment Scenario for Loading Scenario 1, as this is predefined as "Published RA @ Permissible Line Speed".</p>	
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GUIDANCE NOTES			
			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
LL-Scenario 1		Predefined live loads are RA1 loading - long and short trains. There are no cells for input.	

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Sheet name	Input data	Description	Suggested Sources
LL-Scenario #		User defined live loads can consist of a maximum of 32 axles. This is for use with the scenario choices made in the Scenarios sheet. The content of this sheet will change depending on the option selected for 'Live Load Type' on the Scenarios sheet.	
LL-Scenario #	Name	This is only unlocked when live load type is "User Defined". This is free text to allow identification of the load applied. If live load type is "Real Trains" then this field will display the name of the selected train.	
LL-Scenario #	Axle Weight	This is only unlocked when live load type is "User Defined". Up to 32 axles are permitted for the User Defined Live Load. Input the weight per axle (kN) including any dynamic, impact and overload factors where applicable. If live load type is "Real Trains" then this column will display the axle weights of the selected train.	
LL-Scenario #	Distance between axles	This is only unlocked when live load type is "User Defined". Input a distance in metres for all axles that are applicable. If live load type is "Real Trains" then this column will display the distances between axles of the selected train.	


GUIDANCE NOTES



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Applicable only when both quantitative stiffener assessment and u-frame assessment are specified

Sheet name	Input data	Description	Suggested Sources
U-frames	U-frame spacing	Value input required. Since the Level 0 Tool may only be used to assess structures with evenly spaced cross-girders, it is assumed that u-frames are also evenly spaced. Note that offset u-frames, in which stiffeners and cross-girders are not in alignment, should not be assessed.	
U-frames	Units	Select units from drop down menu - 4 options (in, ft, m, mm).	
U-frames	Source	Select information source from drop down menu - 13 options (refer to tab "General" for information sources).	
U-frames	No. of u-frames present	Input number of intermediate u-frames within the length of the span (i.e. not including end u-frames connected to bearing stiffeners)	
U-frames	Effective plan bracing	Select from drop down menu - "Yes" / "No". If no effective plan bracing is present, effective length may still be calculated automatically by the Tool using NR/GN/CIV/025 cl. 9.6.4.1.4A; alternatively the user may input effective length manually on the relevant EI_Sections sheet for the element.	
U-frames	MGs connected to U-frame	Only u-frames with either 2 or 3 main girders may be assessed.	
U-frames	Vertical # MG Element	Select Element from drop down menu (where # is MG order number).	
U-frames	Vertical # MG Section	Select Section from drop down menu which represents the most typical main girder section geometry for the u-frame(s) to be assessed (where # is MG order number).	
U-frames	Vertical # MG Stiffener	Select Stiffener from drop down menu which represents the most typical stiffener section geometry for the u-frame(s) to be assessed (where # is MG order number).	
U-frames	$d_{2,\#}$	Distance from the centroid of the compression flange to the centroidal axis of the cross member (where # is MG order number). Refer to BS4300-3:2000 Figure 9a). Value input required.	
U-frames	Joint flexibility, f	Value input required. Refer to NR/GN/CIV/02 9.6.4.1.3A	
U-frames	Joint flexibility, f_i	Value input required. Refer to NR/GN/CIV/02 9.6.4.1.4A	
Applicable only when Site Data is activated			
U-frames	δ_r	Site data - measured u-frame lateral deflection. Value input required.	
U-frames	δ_e	Site data - measured lateral deflection at supports. Value input required.	

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			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
CRE		Contractor's responsible Engineer's (CRE) recommendations to be written here.	

GUIDANCE NOTES



**Level 0 Assessment Tool
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Sheet name	Input data	Description	Suggested Sources
Form BA0(1)		First part of the Certificate	
Form BA0(1)	Address	Input the address of the Company responsible for the assessment in Royal Mail standard format.	
Form BA0(1)	Name/Signing Form BA0	Name of the CRE from the Assessing organisation.	
Form BA0(1)	Title/Signing Form BA0	Title of the CRE from the Assessing organisation. To be filled by the CRE.	
Form BA0(1)	Signing Form BA0	<p>The Form BA0(1) should only be signed by the CRE. After filling in the Name and Title, the CRE must either verify that the Tracking Tables have been populated and checked by selecting "Yes" from the provided dropdown box, or otherwise select "No" but provide justification as to why this has not been carried out. The CRE may then go to the Assessment tab and select "Sign Forms" to complete Form BA0 sign-off. It is the responsibility of the Assessor to ensure each form is signed by a competent and approved person. The signatures will be checked and approved by Network Rail Structures Managers. Completing the signing procedure will lock all the information in Form BA0(1) sheet.</p> <p>Before signing the Form BA0(1) form the inputs will be checked to ensure no changes have been made since the calculation was run. If changes have been made, the calculation must be re-run before signing the forms. The Form BA0(1) cannot be signed unless Tracking Table status has been verified (with either a 'Yes' response, or a 'No' response with accompanying justification) and all scenarios have been calculated using the 'Calculate Scenarios' > 'Calculate All' button. This is even the case if only Scenario 1 (predefined) is being used.</p>	

GUIDANCE NOTES



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Sheet name	Input data	Description	Suggested Sources
Form BA0(2)		Second part of the Certificate	
Form BA0(2)	Name/Signing Form BA0	Name of the Structure Manager, Network Rail.	
Form BA0(2)	Title/Signing Form BA0	Title of the Structure Manager, Network Rail. To be filled by the Structure Manager.	
Form BA0(2)	Signing Form BA0	<p>The Form BA0(2) should only be signed by the Structure Manager. After filling in the Name and Title, go to Assessment menu and select "Sign Forms". Completing the signing procedure will lock the relevant information in Form BA0(2) sheet (i.e. "Structures Manager's comments on assessment") and change the Assessment Status to "Final".</p> <p>Before signing the Form BA0(2) form the inputs will be checked to ensure no changes have been made since the calculation was run. If changes have been made, the calculation must be re-run before signing the forms.</p> <p>On signing, two XML files will be created which are used for adding assessment information to the Level 0 database and CSAMS database respectively.</p>	

GUIDANCE NOTES



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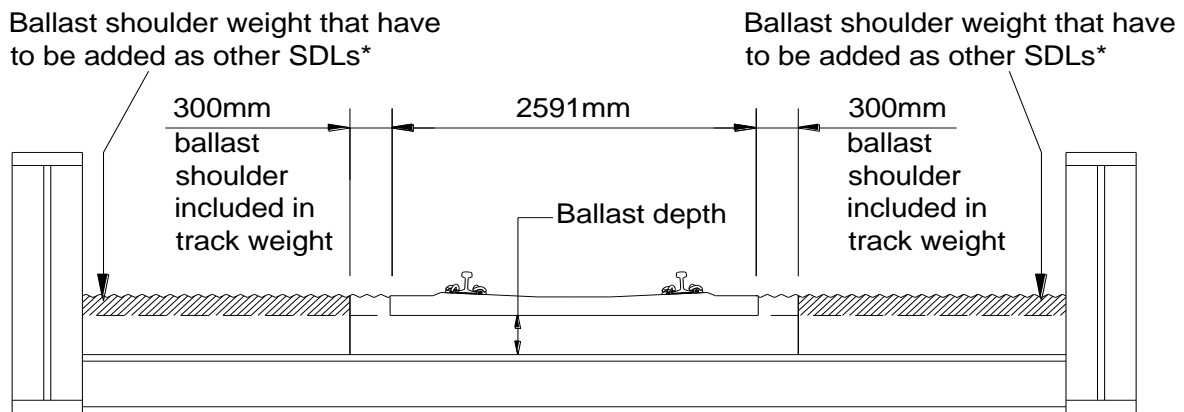
Sheet name	Input data	Description	Suggested Sources
EI_Loads		<p>Loading must be specified per element. Dead loads are calculated based on midspan section properties for each element.</p> <p>Track load: Superimposed Dead Load (SDL) from track can be calculated based on track type and sleeper type. This will give conservative results when the track is non-ballasted, as the track loads include ballast at the level of the sleepers both sides of the sleeper. Alternatively, track type and sleeper type can be left blank and the user can input the value for track SDL as "One track weight (if different type)".</p> <p>There are 3 options to specify SDLs: The user may input depth and material; or depth and unit weight; or calculated loading.</p> <p>If other than $gfL=1.2$ factor is appropriate for the loading added as "Other SDLs", the input value has to be corrected with the ratio $gfL/1.2$. If a disused track is present, its weight (Track, Sleeper, Ballast) should be included by entering relevant values into "Other SDLs" section, with name 'Disused track'.</p>	
EI_Loads	Typical LSI element	It is applicable only for XGs and MGs and only when LSI are present. A drop down list will be available if LSI are present. The self weight of the chosen LSI will be considered.	
EI_Loads	Typical XG/DCK element	It is applicable only for MGs and only when XG/DCK are present. A drop down list will be available if XG/DCK are present. The self weight of the chosen XG/DCK will be considered.	
EI_Loads	Track type	Select track type from drop down menu - 6 options for ballasted track as per table 4.1 from NR/GN/CIV/025)	AR - Last Assessment Report; IR - Last Inspection for Assessment report; DE - Last Detailed Examination report
EI_Loads	Sleeper type	Select sleeper material type from drop down menu - 2 options ("concrete", "timber"). The Tool returns the weights given in NR/GN/CIV/025-3, table 4.1.	AR - Last Assessment Report; IR - Last Inspection for Assessment report; DE - Last Detailed Examination report
EI_Loads	or One track weight (if different weight)	Alternatively, the user may input the weight of track if track and sleeper options are not included in NR/GN/CIV/025-3, table 4.1. This option must be used to specify track load on a wheel timber.	

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Sheet name	Input data	Description	Suggested Sources
EI_Loads	Ballast depth	Ballast depth to be applied per element. This is the average depth of ballast under the sleeper to the top of the element. If a significant difference in depth occurs along the element, input the maximum ballast depth and insert a comment. If the width of the ballast shoulders (ballast above the underside of the sleepers) exceeds the standard 300 mm allowance, then this additional ballast loading has to be added as "Other SDLs" to all loaded elements. (See sketch below.)	IR - Last Inspection for Assessment report



* The input value has to be corrected with the ratio $gfl/1.2$

EI_Loads	Loading width (for ballast loading)	This is the loading width for ballast loading per element. It is usually equal to the elements' spacing (e.g. spacing between cross girders, filler beam deck joists, etc). Loading width for troughing must be entered equal to the width of the trough (B).	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Loads	Controlled ballast	Select from drop down menu - options "Yes"/"No"	IR - Last Inspection for Assessment report; DE - Last Detailed Examination report; AR - Last Assessment Report
EI_Loads	Units	Select units from drop down menu - 4 options (in, ft, m, mm)	
EI_Loads	Source	Select information source from drop down menu - 13 options (refer to tab "General" for information sources)	
EI_Loads	SDLs: Name	Add name of another SDL if different than the SDLs pre-defined. All input units to be kN and m.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report

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Sheet name	Input data	Description	Suggested Sources
EI_Loads	General comment	Additional SDLs may be input or calculated in the Tool. They are classified as either "Area loads" (e.g. waterproofing) or "Line loads" (e.g. parapets) when the deck plan is considered.	
EI_Loads	SDLs: Area loads: Depth	The user may input the depth (or thickness) of the element and the Tool will use this to calculate the Area load to apply. Input must be in metres. (Refer to general comment for this Tab).	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Loads	SDLs: Area loads: Width	This is the loading width per element for the specified area loading. It is usually equal to the elements' spacing. Loading width for decking must be entered as 1m. Loading width for troughing must be entered equal to the width of the trough (B).	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Loads	SDLs: Area loads: Loading	An Area load (always in kN/m ²) may be input by the user if required. For all the SDLs set by default a factor g _{fL} is considered according to NR/GN/CIV/025-3 table 2.2. For the additionally entered SDLs a factor g _{fL} = 1.2 is applied to these loadings in the calculation.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Loads	SDLs: Line loads: Area	The user may input the area of the element and the Tool will calculate the line load to apply. Input must be in square metres. (Refer to general comment for this Tab). For all the SDLs set by default a factor g _{fL} is considered according to NR/GN/CIV/025-3 table 2.2. For the additionally entered SDLs a factor g _{fL} = 1.2 is applied to these loadings in the calculation.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report

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Sheet name	Input data	Description	Suggested Sources
EI_Loads	SDLs: Material	Select the element material from the drop down menu. The menu includes all the options for materials in NR/GN/CIV/025-3, table 4.2 and will use the unit weight therein in calculating the SDL to apply.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Loads	SDLs: Unit Weight	Where the user selects the Material from the Material drop down menu, the Unit Weight (always in kg/m ³) in NR/GN/CIV/025-3 table 4.2 is considered. If no material has been selected from the Material drop down menu, input value.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Loads	SDLs: Line loads: Loading	A Line load (always in kN/m) may be input by the user if required.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Loads	Live Load: XG: Distance, Start	This is the distance to the start of the XG considered from the set datum. The datum is at the centre line of the left most deck element when facing high mileage i.e. MGE1 (or LSE1 if present). (Refer to sketches.)	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Loads	Live Load (Track Offsets): Distances at XG location, x1 -x8	These are the distances between the rails above the XG starting from the set datum. The datum is at the centre line of the left most deck element when facing high mileage i.e. MGE1 (or LSE1 if present). Refer to sketch. The distances to be input are as shown on the sketch, i.e. the distance between adjacent rails, x1 to x8.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Loads	Longitudinal Elements: Correct?	The user must select "Yes" or "No" to confirm which tracks are affecting the element from the proposed list provided by the Tool. Input does not affect the calculations, it is required for Network Rail's asset database only.	
EI_Loads	Transverse Elements: Does track affect element?	The user must select "Yes" or "No" to indicate which tracks are affecting the transverse element. Input does not affect the calculations, it is required for Network Rail's asset database only.	

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			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
EI_Sections	Units	Select units from drop down menu - 4 options (in, ft, m, mm)	
EI_Sections	Source	Select information source from drop down menu - 13 options (refer to tab "General" for information sources)	
EI_Sections	Effective span	Refer to NR/GN/CIV/025 and sketch in the tab. Generally this is the distance between supports of the girder although a number of support arrangements are possible (including bearing plates, rocker bearings, whether there are bearing stiffeners). Insert a comment on how the effective span is calculated.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Sections	Overall length	Overall length of the girder	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Sections	Length of the web panel for end shear "a"	This is the distance between bearing stiffener and 1st transverse stiffener. If there is no bearing stiffener fill the distance from end of girder to first transverse stiffener. If plate girder without any transverse stiffeners or rolled section fill the effective span.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Sections	l_e / L	Ratio effective length for lateral torsional buckling (l_e) to effective span (L) of the element. Commenting facilities must be used to justify the input.	
EI_Sections	Automatic or Manual Input?	<p>This input will only become available if the following criteria are satisfied:</p> <ul style="list-style-type: none"> - Quantitative stiffener assessment is selected (on Deck sheet) - U-frame assessment is selected (on Deck sheet) - Structural form is half-through - The element is a Main Girder - Cross section type (see below) is set to either "Plate I-girder" or "Z-girder". <p>Once this input becomes available, the Assessor may select "Automatic" to allow the Level 0 Tool to calculate effective length, or "Manual" to allow manual input of l_e / L as per usual Level 0 methodology.</p>	
EI_Sections	Loaded Length	The length over which the live load is applied.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report

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Sheet name	Input data	Description	Suggested Sources
El_Sections	Material	Select material from the drop down menu - 12 options (Steel - Pre 1906, Steel - After 1906, Steel BS 15: 1906, Steel BS 15: 1948, Steel BS 15: 1961, Steel BS 548: 1934, Steel BS 968: 1941, Steel BS 968: 1962, Steel BS 2762:1956 NDIA, IIA, IIIA, IVA, VA, Steel BS 2762:1956 NDIB, IIB, IIIB, IVB, VB, Timber). <u>Note:</u> Timber material used in the Tool is Douglas fir.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
El_Sections	Strengthening material (if strengthened)	Applicable only when NR Version Activated: Select material from the drop down menu - 3 options (Wrought iron, steel-pre 1906, steel-after 1906). The strengthening material options are restricted to Steel post 1906 i.e. yield strength 230 N/mm ² as there are no benefits to include higher grade steels as the strengthened section capacity is limited by the lowest failure stress of the section which in most cases will be the extreme fibre of the existing section.	IR - Last Inspection for Assessment report; RD - Record Drawings

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Sheet name	Input data	Description	Suggested Sources
EI_Sections	Cross section type	Select cross section type from drop down menu - 7 options (Plate I-girder, Two webs plate girder, Joist, Z-girder, Trough (pressed), Trough (fabricated), Rectangular)	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Sections	Riveted/Welded	Select connection detail from drop down menu - "riveted" / "welded" girder.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Sections	Effective weld throat (g) (if applicable)	Input effective weld throat thickness.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Sections	Type of fasteners	Select fastener detail from drop down menu - "rivets" / "bolts"	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Sections	Fasteners' material	Select fastener material from drop down menu - 4 options (Steel - Pre 1906, Steel - After 1906, Gr 4.6 Bolts, Gr 8.8 Bolts, Gr 10.9 Bolts). If not applicable you must leave it blank.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Sections	Fasteners' size	Input diameter of rivets/bolts. Input the minimum rivet/bolt diameter if section is fabricated with different sizes.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Sections	Fasteners' pitch	Input distance between the fasteners c/c. Input the maximum rivet/bolt pitch if it is different along the length of the element.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Sections	Code	<p>Select the relevant position along the element from the drop down menu - 7 options (Ed, Md, CF, DF, CW, DW, WS). Used for "section reference". Refer to abbreviation list in this document. In addition to the distance from the start point each section is assigned a code/type -Ed, Md, CF, DF, CW, DW, WS. The type is used to identify capacity checks for each section: Ed-Shear, Web/Flange connection; Md-Bending; CF-Bending; DF-Bending; CW-Shear; DW-Shear; WS - Bending. Refer to the sketch in this sheet. Additional section SF is possible for Plate I-Girders only.</p> <p>All sections should be entered with no empty rows between sections.</p>	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
EI_Sections	No.	Select a reference number from the drop down menu - options from "1" to "9". Used for "section reference".	

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Sheet name	Input data	Description	Suggested Sources
El_Sections	Section Reference	No manual input required: It has been received from the adjacent input. For clarification see the example: For inner cross girder number 2 in sub-deck number 1 the full reference will be: XGI1(2)-Ed1 at 0 m; XGI1(2)-CF1 at x m. Refer to sketch	
El_Sections	Distance	Input the distance from the start point of the girder. Sections along the girder are identified according to this distance. Note that start point of the girder is defined as the beginning of the effective span. (Refer to the sketch). For all longitudinal elements the start point is at the low mileage end and for all transverse members at the left end when facing high mileage. Distance to curtailment locations along the girder must be entered as the effective curtailment length measured from the beginning of effective span.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
El_Sections	Condition	<p>Select appropriate condition description from the dropdown, choose from "As-built Condition", "Current Condition" and "Section with Defect".</p> <p>As-built Condition: The section has been taken as-built taking no account of deterioration.</p> <p>Current Condition: The section has been taken at a location of general deterioration.</p> <p>Section with Defect: The section has been taken at the location of a specific defect.</p>	DE - Last Detailed Examination report; IR - Last Inspection for Assessment report; BCMI - BCMI report
El_Sections	Defect ID	If the condition of a section is chosen to be "Section with Defect", a Defect ID should be provided.	Detailed examination report
Applicable only when Site Data is activated			
El_Sections	Nominal yield strength	Site data - input value in kN/m ²	
El_Sections	Dynamic increment	Representing inertial response of the structure. Refer to NR/GN/CIV/025 4.3.2.2	
El_Sections	Natural frequency	Input value in Hz. As per NR/GN/CIV/025 4.3.2.2	
El_Sections	Max offset from straightness of flanges	Site data - input measurement in mm. As per NR/GN/CIV/025 9.8.1A	
El_Sections	Gauge length	Site data - input gauge length over which imperfection measurement was taken, in mm. As per NR/GN/CIV/025 9.8.1A	


GUIDANCE NOTES



**Level 0 Assessment Tool
Version UBM 3.3**

Applicable only when quantitative stiffener assessment is specified

Sheet name	Input data	Description	Suggested Sources
El_Stiffeners	Units	Select units from drop down menu - 4 options (in, ft, m, mm).	
El_Stiffeners	Source	Select information source from drop down menu - 13 options (refer to tab "General" for information sources).	
El_Stiffeners	No	Select a reference number from the drop down menu – options from “2-8”. Used for “Stiffener Reference”.	
El_Stiffeners	Stiffener Reference	No manual input required - this will be determined automatically.	
El_Stiffeners	Matching section	Select corresponding Main Girder Section from drop down menu, whose properties will be used for assessment calculations. This will determine aspects of the stiffener assessment such as web thickness, stiffener length and load effects.	
El_Stiffeners	Distance	Input distance of stiffener c/l from datum (c/l of low mileage bearing)	
El_Stiffeners	Condition	<p>Select appropriate condition description from the drop-down menu, choose from “As-built Condition”, “Current Condition” and “Section with defect”.</p> <p>As-built condition: Stiffener has been taken as built taking no account of deterioration.</p> <p>Current Condition: Stiffener has been considered taking into account general deterioration.</p> <p>Stiffener with defect: Stiffener contains specific defect.</p>	
El_Stiffeners	Assessment Calculations	<p>Select from drop down menu - "Yes" / "No". Selecting "Yes" will enable Assessment Calculations for the given stiffener.</p> <p>Note that all stiffeners along the element should be recorded within this table, in order to determine panel lengths between adjacent stiffeners. However, assessment calculations may be omitted for similar / non-critical stiffeners by selecting "No" for this input.</p>	

GUIDANCE NOTES			
			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
EI-BS_Qual	General	The sheet is applicable for MGs only. The sheet is not applicable and does not appear when MGs are TG (Trough girders) or FB (Filler beams).	
EI-BS_Qual	Enhanced qualitative bearing stiffener assessment questions	Drop down menu - 3 options (Yes, No, N/A). Answer the questions starting with the top one. Subsequent questions depend on the response to the previous question. The assessor must provide justification for the answers including any corrosion using the commenting facility.	RD - Record Drawings IR - Last Inspection for Assessment report

GUIDANCE NOTES

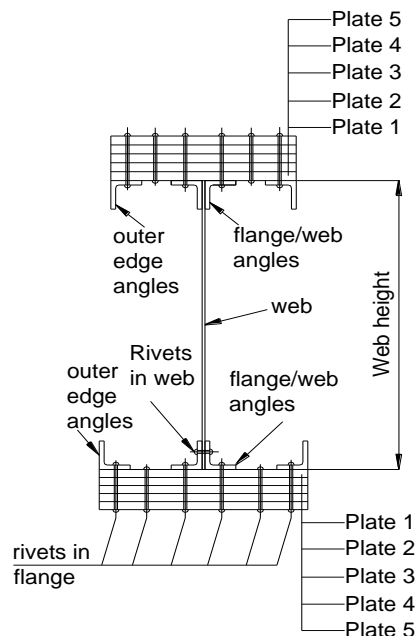


Level 0 Assessment Tool
Version UBM 3.3

Sheet name	Input data	Description	Suggested Sources
Sec_Plate I-girder	Units	Select units from drop down menu - 4 options (in, ft, m, mm)	
Sec_Plate I-girder	Breadth	Horizontal dimension.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Plate I-girder	Depth	Vertical dimension.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Plate I-girder	No. rivets in web (Tension flange)	Input the number of rivets in web. (See the sketch below.)	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Plate I-girder	No. rivets in flange (Tension flange)	Input the number of rivets in bottom flange. (See the sketch below.)	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Plate I-girder	bfo	As per NR/GN/CIV/025, Figure A1.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Plate I-girder	tfo	As per NR/GN/CIV/025, Figure A1.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Plate I-girder	Angle dimensions	Please only specify dimensions for one angle within a pair. For example, one of the compression flange inner angles.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report

Applicable only when Site Data is activated

Sec_Plate I-girder	Dead Load – Bending Moment	Bending moment at section considered due to dead load. The values used must be factored.	
Sec_Plate I-girder	Dead Load – Shear Force	Shear force at section considered due to dead load. The values used must be factored.	
Sec_Plate I-girder	Live load – Bending Moment	Bending moment at section considered due to live load. The values used must be factored.	
Sec_Plate I-girder	Live load – Shear Force	Shear force at section considered due to live load. The values used must be factored.	



GUIDANCE NOTES



**Level 0 Assessment Tool
Version UBM 3.3**

Applicable only when NR Version is activated

Sheet name	Input data	Description	Suggested Sources
Sec_Plate I-girder_SF	Units	Select units from drop down menu - 4 options (in, ft, m, mm)	
Sec_Plate I-girder_SF	Breadth	Horizontal dimension.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Plate I-girder_SF	Depth	Vertical dimension.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Plate I-girder_SF	No. rivets in web (Tension flange)	Input the number of rivets in web. (See the sketch below.)	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Plate I-girder_SF	No. rivets in flange (Tension flange)	Input the number of rivets in bottom flange. (See the sketch below.)	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Plate I-girder_SF	bfo	As per NR/GN/CIV/025, Figure A1.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Plate I-girder_SF	tfo	As per NR/GN/CIV/025, Figure A1.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Plate I-girder_SF	Strengthening Plate	Input the dimensions of the strengthening plate. Only one plate can be added per section. Multiple strengthening plates may be added as an equivalent single plate.	
Sec_Plate I-girder_SF	Strengthened Section	Only Plate I-girders can be strengthened within the level 0 Assessment Tool.	
Sec_Plate I-girder_SF	Original Section	It is assumed that the original section is Wrought Iron and that it carries all dead load.	
Sec_Plate I-girder_SF	Strengthening Material	The strengthening material options are restricted to Steel post 1906 i.e. yield strength 230 N/mm ² as there are no benefits to include higher grade steels as the strengthened section capacity is limited by the lowest failure stress of the section which in most cases will be the extreme fibre of the existing section.	

Applicable only when Site Data is activated

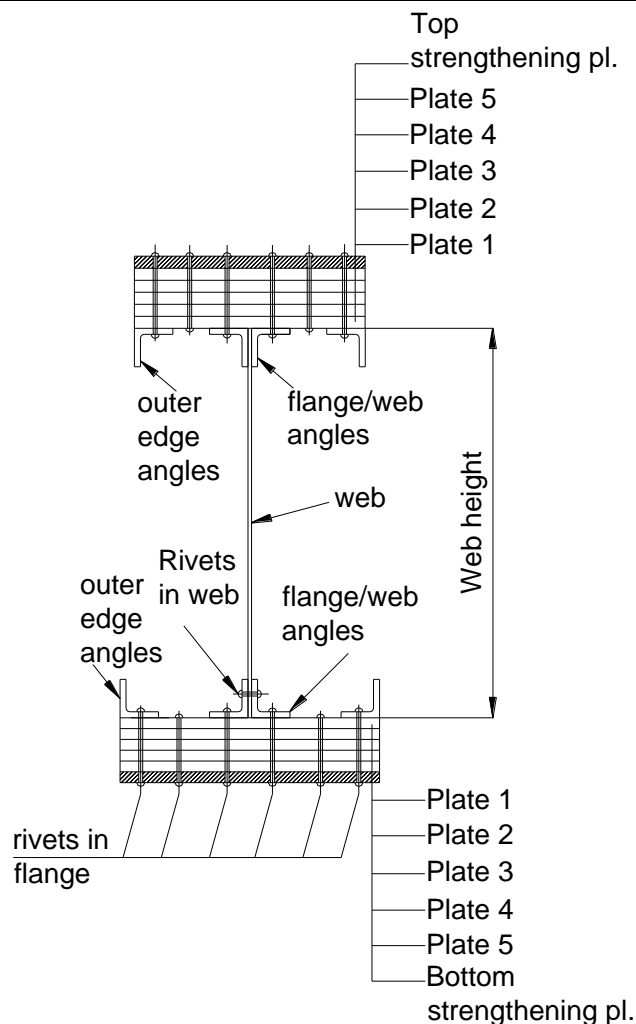
Sec_Plate I-girder_SF	Dead Load – Bending Moment	Bending moment at section considered due to dead load. The values used must be factored.	
Sec_Plate I-girder_SF	Dead Load – Shear Force	Shear force at section considered due to dead load. The values used must be factored.	
Sec_Plate I-girder_SF	Live load – Bending Moment	Bending moment at section considered due to live load. The values used must be factored.	

GUIDANCE NOTES

Level 0 Assessment Tool
Version UBM 3.3

Applicable only when NR Version is activated

Sheet name	Input data	Description	Suggested Sources
Sec_Plate I-girder_SF	Live load – Shear Force	Shear force at section considered due to live load. The values used must be factored.	



GUIDANCE NOTES



Level 0 Assessment Tool
Version UBM 3.3

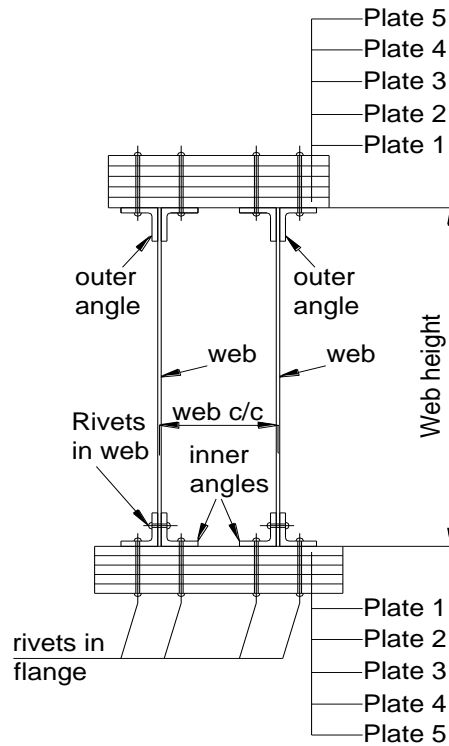
Sheet name	Input data	Description	Suggested Sources
Sec_Two webs plate girder	Units	Select units from drop down menu - 4 options (in, ft, m, mm)	
Sec_Two webs plate girder	Breadth	Horizontal dimension.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Two webs plate girder	Depth	Vertical dimension.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Two webs plate girder	No. rivets in web (Tension flange)	Input the number of rivets in ONE web. (See the sketch below.)	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Two webs plate girder	No. rivets in flange (Tension flange)	Input the number of rivets in bottom flange. (See the sketch below.)	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Two webs plate girder	bfo	As per NR/GN/CIV/025, Figure A1.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Two webs plate girder	tfo	As per NR/GN/CIV/025, Figure A1.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Applicable only when Site Data is activated			
Sec_Two webs plate girder	Dead Load – Bending Moment	Bending moment at section considered due to dead load. The values used must be factored.	
Sec_Two webs plate girder	Dead Load – Shear Force	Shear force at section considered due to dead load. The values used must be factored.	
Sec_Two webs plate girder	Live load – Bending Moment	Bending moment at section considered due to live load. The values used must be factored.	


GUIDANCE NOTES



Level 0 Assessment Tool
Version UBM 3.3

Sheet name	Input data	Description	Suggested Sources
Sec_Two webs plate girder	Live load – Shear Force	Shear force at section considered due to live load. The values used must be factored.	



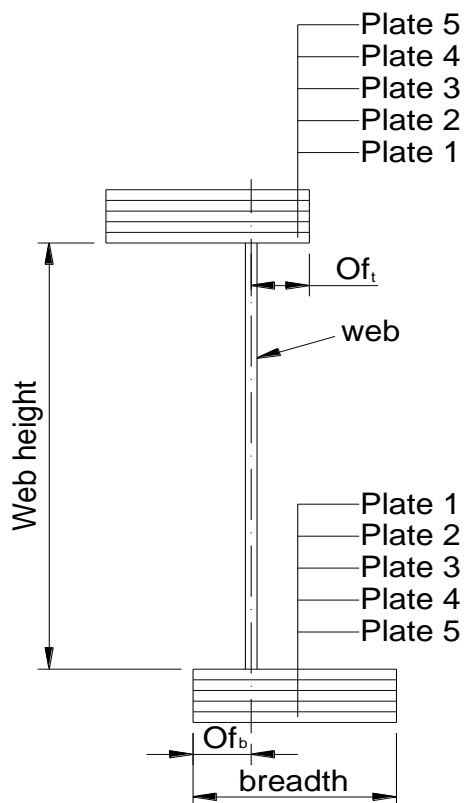
GUIDANCE NOTES			
			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
Sec_Z-girder	Units	Select units from drop down menu - 4 options (in, ft, m, mm)	
Sec_Z-girder	Breadth	Horizontal dimension.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Z-girder	Depth	Vertical dimension.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Z-girder	Of _t	Offset of the top flange. (See the sketch below.)	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Z-girder	Of _b	Offset of the bottom flange. (See the sketch below.)	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Applicable only when Site Data is activated			
Sec_Z-girder	Dead Load – Bending Moment	Bending moment at section considered due to dead load. The values used must be factored.	
Sec_Z-girder	Dead Load – Shear Force	Shear force at section considered due to dead load. The values used must be factored.	
Sec_Z-girder	Live load – Bending Moment	Bending moment at section considered due to live load. The values used must be factored.	

GUIDANCE NOTES



Level 0 Assessment Tool
Version UBM 3.3

Sheet name	Input data	Description	Suggested Sources
Sec_Z-girder	Live load – Shear Force	Shear force at section considered due to live load. The values used must be factored.	



GUIDANCE NOTES

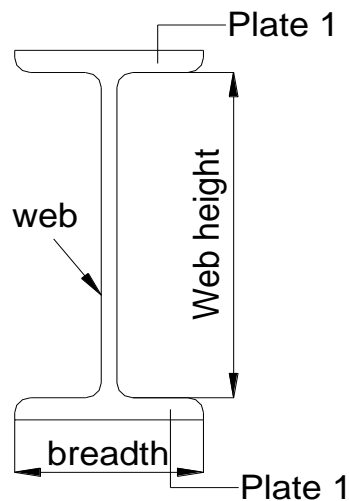


Level 0 Assessment Tool
Version UBM 3.3

Sheet name	Input data	Description	Suggested Sources
Sec_Joist	Units	Select units from drop down menu - 4 options (in, ft, m, mm)	
Sec_Joist	Breadth	Horizontal dimension.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Joist	Depth	Vertical dimension.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report

Applicable only when Site Data is activated

Sec_Joist	Dead Load – Bending Moment	Bending moment at section considered due to dead load. The values used must be factored.	
Sec_Joist	Dead Load – Shear Force	Shear force at section considered due to dead load. The values used must be factored.	
Sec_Joist	Live load – Bending Moment	Bending moment at section considered due to live load. The values used must be factored.	
Sec_Joist	Live load – Shear Force	Shear force at section considered due to live load. The values used must be factored.	



GUIDANCE NOTES



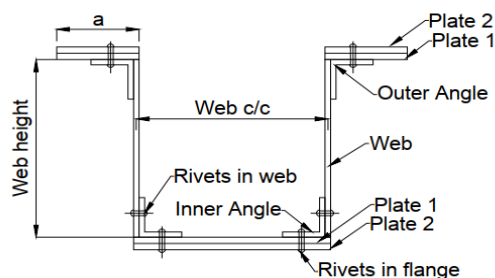
Level 0 Assessment Tool
Version UBM 3.3

Sheet name	Input data	Description	Suggested Sources
Sec_Trough (fabricated)	Units	Select units from drop down menu - 4 options (in, ft, m, mm)	
Sec_Trough (fabricated)	Breadth	Horizontal dimension.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Trough (fabricated)	Depth	Vertical dimension.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Trough (fabricated)	No. rivets in web (Tension flange)	Input the number of rivets in ONE web. (See the sketch below.)	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Trough (fabricated)	No. rivets in flange (Tension flange)	Input the number of rivets in bottom flange. (See the sketch below.)	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Trough (fabricated)	bfo	As per NR/GN/CIV/025, Figure A1.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Trough (fabricated)	tfo	As per NR/GN/CIV/025, Figure A1.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Applicable only when Site Data is activated			
Sec_Trough (fabricated)	Dead Load – Bending Moment	Bending moment at section considered due to dead load. The values used must be factored.	
Sec_Trough (fabricated)	Dead Load – Shear Force	Shear force at section considered due to dead load. The values used must be factored.	
Sec_Trough (fabricated)	Live load – Bending Moment	Bending moment at section considered due to live load. The values used must be factored.	

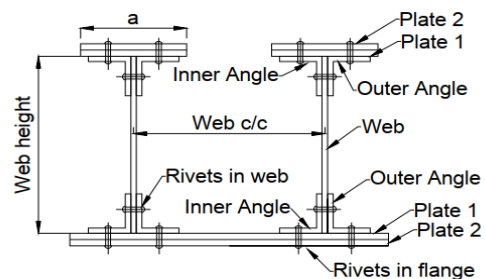
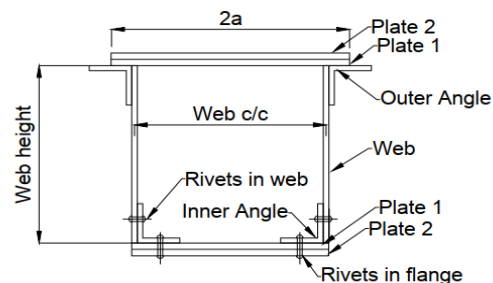
GUIDANCE NOTES

Level 0 Assessment Tool
Version UBM 3.3

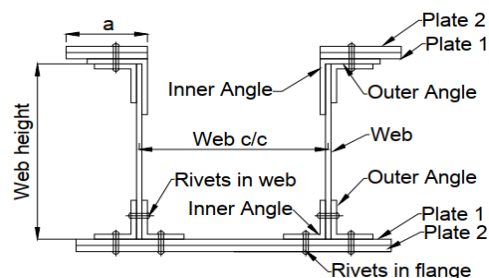
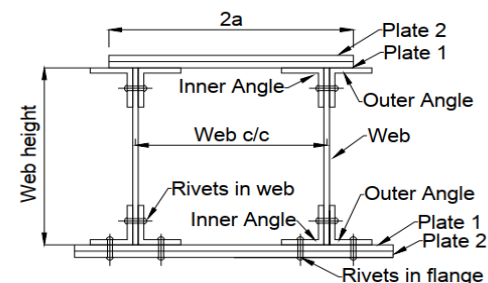
Sheet name	Input data	Description	Suggested Sources
Sec_Trough (fabricated)	Live load – Shear Force	Shear force at section considered due to live load. The values used must be factored.	



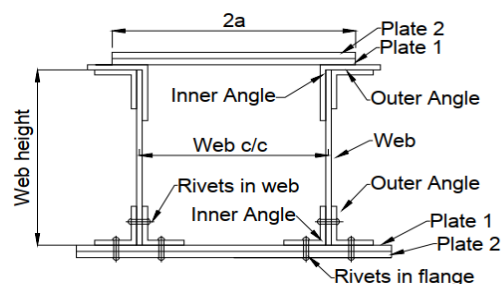
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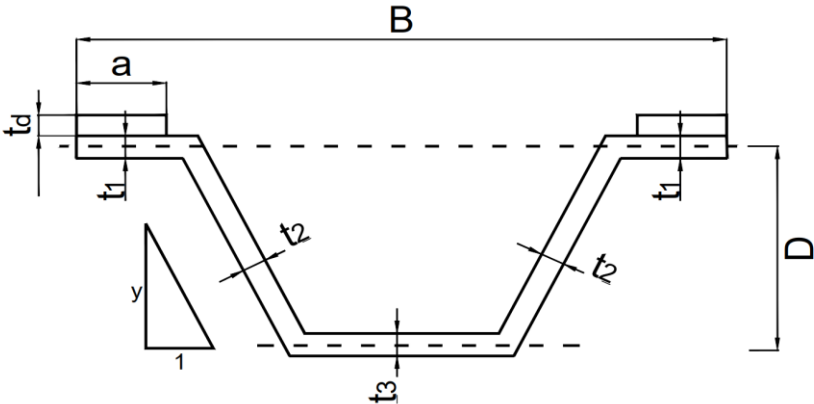
Equivalent to



Equivalent to



GUIDANCE NOTES			
			Level 0 Assessment Tool Version UBM 3.3
Sheet name	Input data	Description	Suggested Sources
Sec_Trough (pressed)	Units	Select units from drop down menu - 4 options (in, ft, m, mm)	
Sec_Trough (pressed)	Width (B)	See the sketch below.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Trough (pressed)	Depth (D)	See the sketch below.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Trough (pressed)	Thickness (t_1)	See the sketch below.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Trough (pressed)	Thickness (t_2)	See the sketch below.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Trough (pressed)	Thickness (t_3)	See the sketch below.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Trough (pressed)	Slope (y)	Slope can take values between 0.5 and 6. See sketch below.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Trough (pressed)	Width of doubler plate (2a)	See the sketch below.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Trough (pressed)	Thickness of doubler plate (t_d)	See the sketch below.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Applicable only when Site Data is activated			
Sec_Trough (pressed)	Dead Load – Bending Moment	Bending moment at section considered due to dead load. The values used must be factored.	
Sec_Trough (pressed)	Dead Load – Shear Force	Shear force at section considered due to dead load. The values used must be factored.	
Sec_Trough (pressed)	Live load – Bending Moment	Bending moment at section considered due to live load. The values used must be factored.	

Sec_Trough (pressed)	Live load – Shear Force	Shear force at section considered due to live load. The values used must be factored.	
			

GUIDANCE NOTES

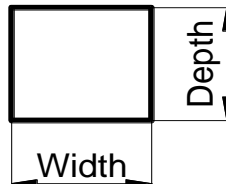


**Level 0 Assessment Tool
Version UBM 3.3**

Sheet name	Input data	Description	Suggested Sources
Sec_Rectangular	Units	Select units from drop down menu - 4 options (in, ft, m, mm)	
Sec_Rectangular	Width	See the sketch below.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report
Sec_Rectangular	Depth	See the sketch below.	RD - Record Drawings; AR - Last Assessment Report; IR - Last Inspection for Assessment report

Applicable only when Site Data is activated

Sec_Rectangular	Dead Load – Bending Moment	Bending moment at section considered due to dead load. The values used must be factored.	
Sec_Rectangular	Dead Load – Shear Force	Shear force at section considered due to dead load. The values used must be factored.	
Sec_Rectangular	Live load – Bending Moment	Bending moment at section considered due to live load. The values used must be factored.	
Sec_Rectangular	Live load – Shear Force	Shear force at section considered due to live load. The values used must be factored.	



GUIDANCE NOTES



Level 0 Assessment Tool
Version UBM 3.3

Applicable only when quantitative stiffener assessment is specified

Sheet name	Input data	Description	Suggested Sources
Sec_Stiffener	Stiffener Type	Drop down menu - for bearing stiffeners, select from "Single leg stiffener" / "Single leg Stiffener with rigid end post" / "Multi-leg Stiffener without rigid end post". For intermediate stiffeners, only "Single leg stiffener" may be selected.	
Sec_Stiffener	Symmetric	Select from drop down menu - "Yes" / "No". If "Yes" is selected, the Tool will automatically copy geometry input by the user to the opposite side of the web.	
Sec_Stiffener	Units	Select units from drop down menu - 4 options (in, ft, m mm)	
Sec_Stiffener	X dim	Dimension in x-axis direction (plan view) (See sketches)	
Sec_Stiffener	Y dim	Dimension in y-axis direction (plan view) (See sketches)	
Sec_Stiffener	Flat stiffeners t_s	Refer to BS 5400-3 cl. 9.3.4.1.2 for definition.	
Sec_Stiffener	Flat stiffeners h_s	Refer to BS 5400-3 cl. 9.3.4.1.2 for definition.	
Sec_Stiffener	Angle stiffeners t_s	Refer to NR/GN/CIV/025 cl. 9.3.4.1.4A for definition.	
Sec_Stiffener	Angle stiffeners h_s	Refer to NR/GN/CIV/025 cl. 9.3.4.1.4A for definition.	
Sec_Stiffener	Angle stiffeners b_s	Refer to NR/GN/CIV/025 cl. 9.3.4.1.4A for definition.	
Sec_Stiffener	Attached as per cl. 9.3.4.1.4A/ Figure A1?	Select from drop down menu - "Yes" / "No". NR/GN/CIV/025 cl. 9.3.4.1.4A has particular rules for angles used to attach stiffener plates as per Figure A1.	
Sec_Stiffener	Tee stiffeners t_s	Refer to NR/GN/CIV/025 cl. 9.3.4.1.5A for definition.	
Sec_Stiffener	Tee stiffeners h_s	Refer to NR/GN/CIV/025 cl. 9.3.4.1.5A for definition.	
Sec_Stiffener	Tee stiffeners b_{so}	Refer to NR/GN/CIV/025 cl. 9.3.4.1.5A for definition.	
Sec_Stiffener	Tee stiffeners t_{so}	Refer to NR/GN/CIV/025 cl. 9.3.4.1.5A for definition.	
Sec_Stiffener	Tee stiffeners d_s	Refer to NR/GN/CIV/025 cl. 9.3.4.1.5A for definition.	
Sec_Stiffener	Attached as per cl. 9.3.4.1.5A/ Figure A1?	Select from drop down menu - "Yes" / "No". NR/GN/CIV/025 cl. 9.3.4.1.5A has particular rules for tee stiffeners attached as per Figure A1.	
Sec_Stiffener	s	Distance between outer line of bolts, rivets or welds. Refer to BS5400-3:2000 9.14.2.1	
Sec_Stiffener	x_1	Distance between bearing c/l and girder end (See sketches)	
Sec_Stiffener	x_2	Distance between stiffener leg centrelines (multi-leg stiffener only) (See sketches)	
Sec_Stiffener	x_3	Eccentricity from bearing c/l to Plate 1/2 stiffener leg c/l. x_3 should be a positive value if the bearing is located towards midspan from Plate 1/2, and negative if located towards end from Plate 1/2 (See sketches)	

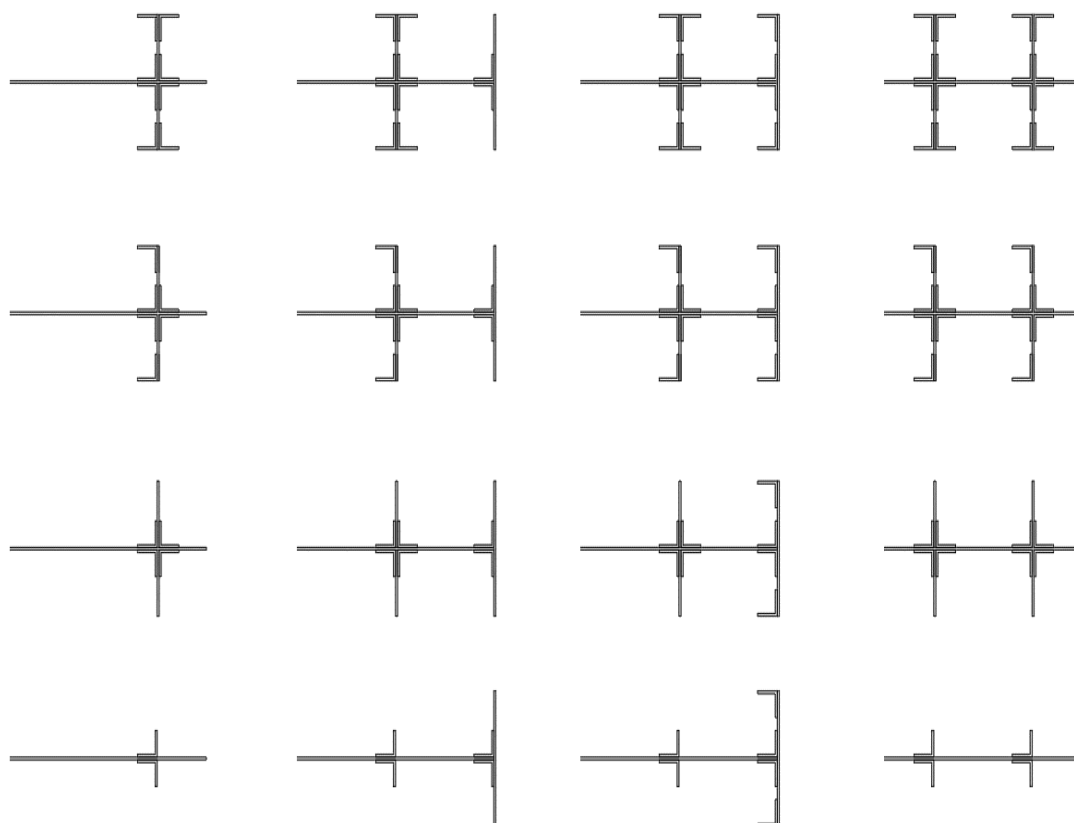
GUIDANCE NOTES



Level 0 Assessment Tool
Version UBM 3.3

Applicable only when quantitative stiffener assessment is specified

Sheet name	Input data	Description	Suggested Sources
Sec_Stiffener	e_x	Eccentricity from bearing centreline to reaction force as per cl. 9.14.3.3 in x direction	
Sec_Stiffener	e_y	Eccentricity from bearing centreline to reaction force as per cl. 9.14.3.3 in y direction	
Sec_Stiffener	Part of a u-frame?	Select Yes from drop-down list if the stiffener is a part of a U-frame. This is for recording purpose only.	
Sec_Stiffener	Coincident cross girder end section	Select relevant Element and Section from the drop down lists. The end shear calculated at the selected cross-girder end(s) is used to determine load effects on the stiffener. The user may specify a cross girder on the left and/or right of the stiffener as viewed when facing towards high mileage. Where a cross girder is not present, the user should select "N/A" in the relevant drop down lists.	
Sec_Stiffener	Stiffener layouts	Available stiffener layouts are presented below	



Applicable only when quantitative stiffener assessment is specified

Sheet name	Input data	Description	Suggested Sources
Bearing Stiffener Annotation			
Single Leg Bearing Stiffener		Single Leg Bearing Stiffener with rigid end post	Multi-Leg Bearing Stiffener without rigid end post