Drafting Design and Presentation Standards Manual
Volume 1: Chapter 2 – General Standards
Appendix 2C TMR 12D Model Customisation

October 2016

Amendment Register

Issue / Rev no.	Reference section	Description of revision	Authorised by	Date
1	-	Update to Corporate Template	Owen Arndt	February 2014
2	Appendix 2C Section 1	Update to introduction	Director (Road Design) Geospatial, Design and Capability (E&T)	October 2016
	Appendix 2C Section 3	Update to survey strings		
	Appendix 2C Section 7	Update to cross reference to TMR 12D Model Customisation Help file		
	Appendix 2C Section 8	Section on Snippets added		
	Appendix 2C Section 9	Update to model naming convention tables and added cross reference to new "TMR Surveying Standards - Schedule 1"		

Contents

1   Introduction

To maintain uniformity throughout the department, customised features have been developed and added to 12D Model to simplify the planning and design process. These customised features are designed to maintain departmental standards and include standard drawing sheets, line styles, mapping files, title files, plot parameter files, definition files, fonts and various macros.

The TMR customisation for 12D Model can be downloaded from the department's website www.tmr.qld.gov.au. Once the customisation is installed, a detailed TMR 12D Customisation Help file can be accessed either through the TMR Programs Menu toolbar located within 12D, or alternatively through TMR Design under the User Menu.

2   Model and string naming convention

A model and string naming convention has now been adopted throughout the department for all modelling software packages used in the road planning and design process.

To take full advantage of current and proposed automated procedures within our design packages, a standard model naming convention is required. This will give designers immediate recognition of model contents no matter from which Region or District the project originated.

This naming convention follows closely the names associated with the types of models and the surfaces they contain. Model names are chosen in order to reflect the actual contents of the model.

The use of a string labelling convention, during design, will also allow for more efficient use of current and future automated features. This is utilised within existing design software - such as the transfer of data.

A further benefit of a standard String Naming Convention (SNC) is that a string label signifies the same feature throughout all design offices. This results in easier understanding of any design project regardless of where it originated.

The model and string naming convention is discussed in Volume 1 *Chapter 2* General Standards of the Drafting and Design Presentation Standards Manual.

3   Survey strings

Survey data is input into 12D Model using various mapping files. These files transfer data into the correct TMR models with appropriate TMR string naming convention, line styles and colours (refer to the current TMR Surveying Standards). For more detail on mapping survey data refer to the TMR 12D Customisation Help file which can be found within the TMR Programs Menu toolbar once TMR 12D Customisation is installed - refer to Section 1 above.

4   Design strings

When creating new design strings in 12D, the name of the string should start with the label as the first two characters as shown in the string naming convention (refer to *Appendix 2A*), for example:

CE for an Edge of Carriageway string.

Only the first two characters of the string name are required for all mapping files used in the customisation data transfer facilities.

Where a string depicts a symbol type to be displayed in cross sections, then extra characters are added to the string name. This naming convention is used for placing plot symbols on cross section plots.

For guard rail symbols to be displayed in a cross section, an extra character L or R needs to be added to the string name to determine if it is drawn as a Left or Right hand rail e.g.

FBL for a W-Beam Guard Rail on the Left.

FHR for a Thrie Beam Guard Rail on the Right.

For concrete barriers there are two types – Type F and Single slope. Their widths vary depending on whether lighting is present or not. To cater for the variations the following string naming conventions apply:

CBFXL	Concrete Barrier, Type F, Without light, string on Left of symbol
CBFWL	Concrete Barrier, Type F, With light, string on Left of symbol
CBFXR	Concrete Barrier, Type F, Without light, string on Right of symbol
CBFWR	Concrete Barrier, Type F, With light, string on Right of symbol
CBSXL	Concrete Barrier, Single slope, Without light, string on Left of symbol
CBSWL	Concrete Barrier, Single slope, With light, string on Left of symbol
CBSXR	Concrete Barrier, Single slope, Without light, string on Right of symbol
CBSWR	Concrete Barrier, Single slope, With light, string on Right of symbol

For kerb symbols, extra characters are added to depict the Kerb Types 1 to 27 as shown in Standard Drawing 1033. The Kerb should be designed into the template profile using the Kerb Lip, Invert, Top and Back points with corresponding string names. The Top of Kerb (KT) is used as the key point for determining if a kerb symbol is to be drawn on the cross sections for example:

KT06L

The first two characters - **KT** - determine it is a Top of Kerb string so a symbol will be drawn.

The third and fourth characters - **06** - determine it is a Kerb Type 6.

The fifth character - **L** - determines it is on the Left of the carriageway in the direction of alignment chainage.

Any number of characters can then follow these string names to further define the string.

Symbols are only placed on cross sections if the relevant strings are given the correct names. Where the cross section cuts through these strings, it checks for the appropriate upper case or lower case string name to apply the symbol. It follows therefore that a string name with a combination of upper and lower case characters will not apply the symbol.

New Design line styles have been developed for final plan presentation of all new design strings. The line styles have been grouped together under relevant group names for ease of operation when selecting a line style in 12D.

Because line styles generated from template are defaulted to style 1, a mapping file called for example:

TMR_Design_Vis.mapfile

has been developed to convert all template generated string lines to their respective line styles as per the string naming convention. This is achieved by selecting the Map option within 12D. Select the mapping file and apply it to all Design strings.

When design detail is output into AutoCAD, a new mapping file called for example:

des_out.acadmf

has been developed.

Note that survey and design data is mapped separately, using their respective mapping files, when being output into AutoCAD or other modelling packages. Data is mapped as two-dimensional files (2D) when being output to AutoCAD.

5   Output sections

If cross sections or long sections are to be output into AutoCAD, AutoCAD drawing format specific plotters should be used. The name for these plotters will have the following format:

TMR - DWG <AutoCAD Version number> (acadplot_sections.amf)

for example:

TMR – DWG 2010 (acadplot_sections.amf).

Support for each format will be provided in the customisation release that follows the12D version providing support for that format. When plotting sections directly from 12D to a printer, the following printers have been configured to provide the correct plotter pen mapping:

- Windows with TMR Colours (A1), and

- Windows with TMR Colours (A3).

The A3 printer applies half the pen weights of the A1 printer.

When plotting the sections in 12D, select the pen mapping file e.g.:

> **Windows – (TMR_plot_map_FULL.pmf) for A1**

> **Windows – (TMR_plot_map_HALF.pmf) for A3**

to plot the sections with the correct pen thicknesses, then select the plotter type

> **Windows**

and send directly to the relevant plotter.

6   Templates

A series of templates have been developed that conform to the string naming convention and comply with the standard cross sections as shown in the Road Planning and Design Manual (RPDM). These templates can be modified to suit specific applications. Some templates contain decision tables for defining more complex side slopes. These are added as examples of the type of complexity of side

slopes that can be achieved. Decision tables can be copied from one template to another by outputting the templates as ASCII files.

To input the templates into 12D select:

File I/O>Templates>Templates input>User Lib and select one of the below template files

Template **A** – **Two Lane Two Way** Rural is based on Figure 7.27 of the RPDM. The control line (MC10) runs down the centre of the carriageway.

Template **B** – **Divided Multilane Rural** is based on Figure 7.28 of the RPDM. The carriageways consist of two directions North and South. The control lines (MC10 and MC20) run down the centre of the North and South carriageways respectively. Each carriageway has a verge and median template.

Template **C** – **Two Lane Two Way Urban** is based on Figure 7.29 of the RPDM. The control line (MC10) runs down the centre of the carriageway. Kerb type 15 is coded into the templates.

Template **D** – **Median Barrier Multilane Urban** is based on Figure 7.30 of the RPDM. The control line (MC10) runs down the centre of the median barrier. Kerb type 15 is coded into both templates at the verge. Median barrier BCSWL is coded into the left template.

Template **E** – **Multilane Urban Arterial** is based on Figure 7.31(a) of the RPDM. The carriageways consist of two directions North and South. The control lines (MC10 and MC20) run down the crown of the North and South carriageways respectively. Each carriageway has a verge and median template. Kerb type 15 is coded into the templates at the verge and kerb type 5 at the median in both directions.

Template **F** – **Multilane Motorway** is based on Figure 7.32(a) of the RPDM. The carriageways consist of two directions North and South. The control lines (MC10 and MC20) run down the crown of the North and South carriageways respectively. Each carriageway has verge and median templates. The median templates - in both directions - contain a template with Kerb type 22 encoded for a 6.7 m median and a template without kerbs for a 12 m median. Median barrier BCSWL is encoded into the North median template with kerbs (6.7 m). The verge templates - in both directions - contain Kerb type 22 encoded for cut conditions and templates without kerbs for fill conditions. These templates can be alternated between cut and fill situations in the MTF file.

The boxing file – **PvtBoxingExamples.bf** – contains coding to generate boxing that corresponds to the previously defined templates and is input via the MTF file.

7   Standard drawing sheets

A description of how drawings are produced using standard departmental sheets and customised features is explained in the TMR 12D Model Customisation Help file which can be accessed either through the TMR Programs Menu toolbar located within 12D, or alternatively through TMR Design under the User Menu.

The TMR 12D Model Customisation Help file describes a procedure for producing working plans, using long section plot parameter files (lplotppf), as well as producing cross section plans, using cross section plot parameter files (xplotppf).

8   Snippets

A snippet is a collection of MTF commands in a separate file that can be applied through a single MTF command to perform a repetitive task. Snippets are a new feature added to 12D Model V11.

Examples include:

- Generating the strings and shapes for standard kerb profiles

- Modifying kerb strings to create driveway crossings to standard dimensions, and

- Generate strings and shapes for pavements.

These and more have been provided in the customisation by TMR Engineering and Technology CADD Systems and are detailed in the TMR 12D Customisation Help file, which can be accessed through the TMR Programs Menu toolbar located within 12D.

9   Model naming conventions

Refer Note 1 under the table below for general comment on 12D Customisation implementation. In addition, also refer to the current '*TMR Surveying Standards – Schedule 1*' for model and string naming conventions for all survey data used for projects undertaken for the Department of Transport and Main Roads.

Discipline	Model Content	Acceptable Conventions	Example Model Names
Survey and Design	Strings defining the extent of data or a processing restriction.	- **** BOUNDARY - **** BOUNDARY **** - BOUNDARY ****	- SURVEY BOUNDARY - SURVEY BOUNDARY LIDAR - SURVEY BOUNDARY 23-01-2011 - DESIGN BOUNDARY - BOUNDARY DESIGN - MC00 DESIGN BOUNDARY - MC00 BOUNDARY DESIGN - BOUNDARY MC00 DESIGN - BOUNDARY DESIGN MC00 - BOUNDARY SUBGRADE LAYER 2 - SUBGRADE LAYER 2 BOUNDARY
Design	Alignment / Design Control strings.	- ALIGNMENT **** - **** ALIGNMENT **** - **** ALIGNMENT	- ALIGNMENTS - ALIGNMENT MC00 - ALIGNMENT VPATH - MC00 ALIGNMENT 23-01-2011 - MC00 ALIGNMENT - VPATH ALIGNMENT
Survey and Design	Land Survey, mapping and property boundaries.	- **** CADASTRAL - **** CADASTRAL **** - CADASTRAL ****	- SURVEY CADASTRAL - DESIGN CADASTRAL - SURVEY CADASTRAL 23-01-2011 - DESIGN CADASTRAL 23-01-2011
Survey and Design	Strings containing text information.	- **** COMMENTS - COMMENTS ****	- SURVEY COMMENTS - DESIGN COMMENTS - COMMENTS DESIGN
Survey and Design	Contour strings input directly from a data source, or derived from a triangulation.	- **** CONTOUR - **** COUNTOUR **** - CONTOUR ****	- SURVEY CONTOURS - DESIGN CONTOURS - MC00 DESIGN CONTOURS - DESIGN CONTOURS MC00 - SURVEY CONTOURS MAJOR - DEISGN CONTOURS MAJOR - CONTOURS SURVEY - CONTOURS DESIGN - CONTOURS MC00 DESIGN - CONTOURS DESIGN MC00 - CONTOURS SURVEY MAJOR - CONTOURS DESIGN MAJOR

Discipline	Model Content	Acceptable Conventions	Example Model Names
Survey	Survey Datum Information	- SURVEY DATUM **** - **** SURVEY DATUM	- SURVEY DATUM - SURVEY DATUM 23-01-2011 - SURVEY DATUM STAGE 1 - 23-01-2011 SURVEY DATUM - STAGE 1 SURVEY DATUM
Survey	Property boundaries from DERM DCDB.	- SURVEY DCDB ****	- SURVEY DCDB - SURVEY DCDB 23-01-2011 - SURVEY DCDB STAGE 1 - 23-01-2011 SURVEY DCDB - STAGE 1 SURVEY DCDB
Survey and Design	Drainage networks	- **** DRAINAGE - **** DRAINAGE **** - DRAINAGE ****	- DBYD DRAINAGE - SURVEY DRAINAGE - DESIGN DRAINAGE - SURVEY DRAINAGE 23-01-2011 - DESIGN DRAINAGE MC00 - DESIGN DRAINAGE 23-01-2011 - DRAINAGE DBYD - DRAINAGE MC00 - DRAINAGE DESIGN MC00
Survey	All Original survey data used to generate a triangulation. (Refer Note 2)	- SURVEY DTM ****	- SURVEY DTM - SURVEY DTM 23-01-2011 - SURVEY DTM STAGE 1 - 23-01-2011 SURVEY DTM - STAGE 1 SURVEY DTM
Survey	Instrument stations	- SURVEY TRAVERSE ****	- SURVEY TRAVERSE - SURVEY TRAVERSE 23-01-2011 - SURVEY TRAVERSE STAGE 1 - 23-01-2011 SURVEY TRAVERSE - STAGE 1 SURVEY TRAVERSE
Survey and Design	Electricity services	- **** ELECTRICITY - **** ELECTRICITY **** - ELECTRICITY ****	- DBYD ELECTRICITY - SURVEY ELECTRICITY - DESIGN ELECTRICITY - MC00 DESIGN ELECTRICITY - SURVEY ELECTRICITY 23-01-2011 - DESIGN ELECTRICITY MC00 - ELECTRICITY DBYD - ELECTRICITY SURVEY - ELECTRICITY SURVEY 23-01-2011 - ELECTRICITY DESIGN - ELECTRICITY DESIGN MC00
Survey and Design	Fence Structures	- **** FENCES - **** FENCES **** - FENCES ****	- SURVEY FENCES - DESIGN FENCES - SURVEY FENCES 23-01-2011 - DESIGN FENCES 23-01-2011 - FENCES SURVEY - FENCES DESIGN

Discipline	Model Content	Acceptable Conventions	Example Model Names
Survey and Design	Miscellaneous features not contained in other models. (Refer Note 3)	- **** GENERAL - **** GENERAL **** - GENERAL ****	- SURVEY GENERAL - DESIGN GENERAL - SURVEY GENERAL 23-01-2011 - DESIGN GENERAL 23-01-2011 - GENERAL SURVEY - GENERAL DESIGN
Survey and Design	Photos attached as an attribute to a point or string. (for example, a photo of a sign face)	- **** IMAGES - **** IMAGES **** - IMAGES ****	- SURVEY IMAGES - DESIGN IMAGES - SURVEY IMAGES 23-01-2011 - DESIGN IMAGES 23-01-2011 - IMAGES SURVEY - IMAGES DESIGN
Survey and Design	Road Line Marking	- **** LINEMARKING - **** LINEMARKING **** - LINEMARKING ****	- SURVEY LINEMARKING - DESIGN LINEMARKING - MC00 LINEMARKING - SURVEY LINEMARKING 23-01-2011 - DESIGN LINEMARKING MC00 - LINEMARKING SURVEY - LINEMARKING DESIGN - LINEMARKING MC00 - LINEMARKING DESIGN MC00
Survey and Design	Project wide metadata. (Refer Note 4)	- **** METADATA - **** METADATA **** - METADATA ****	- SURVEY METADATA - DESIGN METADATA - SURVEY METADATA 23-01-2011 - DESIGN METADATA 23-01-2011 - METADATA SURVEY - METADATA DESIGN
Survey	Text strings containing survey point numbers.	- SURVEY NUMBERS ****	- SURVEY NUMBERS - SURVEY NUMBERS 23-01-2011 - SURVEY NUMBERS STAGE 1 - 23-01-2011 SURVEY NUMBERS - STAGE 1 SURVEY NUMBERS
Survey	Survey strings and points for quality assurance.	- SURVEY QUALITY ****	- SURVEY QUALITY - SURVEY QUALITY 23-01-2011 - SURVEY QUALITY STAGE 1 - 23-01-2011 SURVEY QUALITY - STAGE 1 SURVEY QUALITY
Survey and Design	Existing road furnishings e.g. signs, signals. (Refer Note 5)	- **** FURNITURE - **** FURNITURE **** - FURNITURE ****	- SURVEY FURNITURE - DESIGN FURNITURE - SURVEY FURNITURE 23-01-2011 - DESIGN FURNITURE MC00 - DESIGN FURNITURE 23-01-2011 - DESIGN FURNITURE MC00 23-01-2011 - FURNITURE SURVEY - FURNITURE DESIGN - FURNITURE SURVEY 23-01-2011

Discipline	Model Content	Acceptable Conventions	Example Model Names
Survey and Design	Strings and points relating to railways.	- **** RAIL - **** RAIL **** - RAIL ****	- SURVEY RAIL - DESIGN RAIL - SURVEY RAIL 23-01-2011 - DESIGN RAIL MC00 - DESIGN RAIL 23-01-2011 - DESIGN RAIL MC00 23-01-2011 - RAIL SURVEY - RAIL DESIGN - RAIL SURVEY 23-01-2011
Survey	Strings and points relating to existing streams and water ways.	- SURVEY STREAMS ****	- SURVEY STREAMS - SURVEY STREAMS 23-01-2011 - SURVEY STREAMS STAGE 1 - 23-01-2011 SURVEY STREAMS - STAGE 1 SURVEY STREAMS
Survey	Strings and point relating to vegetation such as trees, shrubs, ground cover etc.	- SURVEY VEGETATION ****	- SURVEY VEGETATION - SURVEY VEGETATION 23-01-2011 - SURVEY VEGETATION STAGE 1 - 23-01-2011 SURVEY VEGETATION - STAGE 1 SURVEY VEGETATION
Survey	Strings representing existing buildings, bridges etc.	- SURVEY STRUCTURES ****	- SURVEY STRUCTURES - SURVEY STRUCTURES 23-01-2011 - SURVEY STRUCTURES STAGE 1 - 23-01-2011 STRUCTURES DATUM - STAGE 1 STRUCTURES DATUM
Survey and Design	Communication services	- **** COMMS - **** COMMS **** - COMMS ****	- DBYD COMMS - SURVEY COMMS - DESIGN COMMS - MC00 COMMS - SURVEY COMMS 23-01-2011 - DESIGN COMMS MC00 - DESIGN COMMS 23-01-2011 - COMMS DBYD - COMMS SURVEY - COMMS DESIGN MC00 - COMMS DESIGN
Survey and Design	FUEL services	- **** FUEL - **** FUEL **** - FUEL ****	- DBYD FUEL - SURVEY FUEL - DESIGN FUEL - MC00 FUEL - SURVEY FUEL 23-01-2011 - DESIGN FUEL MC00 - DESIGN FUEL 23-01-2011 - FUEL DBYD - FUEL SURVEY - FUEL DESIGN MC00 - FUEL DESIGN

Discipline	Model Content	Acceptable Conventions	Example Model Names
Survey and Design	Gas services	- **** GAS - **** GAS **** - GAS ****	- DBYD GAS - SURVEY GAS - DESIGN GAS - MC00 GAS - SURVEY GAS 23-01-2011 - DESIGN GAS MC00 - DESIGN GAS 23-01-2011 - GAS DBYD - GAS SURVEY - GAS DESIGN MC00 - GAS DESIGN
Survey and Design	Oil services	- **** OIL - **** OIL **** - OIL ****	- DBYD OIL - SURVEY OIL - DESIGN OIL - MC00 OIL - SURVEY OIL 23-01-2011 - DESIGN OIL MC00 - DESIGN OIL 23-01-2011 - OIL DBYD - OIL SURVEY - OIL DESIGN MC00 - OIL DESIGN
Survey and Design	Sewer services	- **** SEWER - **** SEWER **** - SEWER ****	- DBYD SEWER - SURVEY SEWER - DESIGN SEWER - MC00 SEWER - SURVEY SEWER 23-01-2011 - DESIGN SEWER MC00 - DESIGN SEWER 23-01-2011 - SEWER DBYD - SEWER SURVEY - SEWER DESIGN MC00 - SEWER DESIGN
Survey and Design	Services not in other models	- **** UTILITIES - **** UTILITIES **** - UTILITIES ****	- DBYD UTILITIES - SURVEY UTILITIES - DESIGN UTILITIES - MC00 UTILITIES - SURVEY UTILITIES 23-01-2011 - DESIGN UTILITIES MC00 - DESIGN UTILITIES 23-01-2011 - UTILITIES DBYD - UTILITIES SURVEY - UTILITIES DESIGN MC00 - UTILITIES DESIGN
Survey and Design	Water services	- **** WATER - **** WATER **** - WATER ****	- SURVEY WATER - DESIGN WATER - MC00 WATER - SURVEY WATER 23-01-2011 - DESIGN WATER MC00 - DESIGN WATER 23-01-2011 - WATER DBYD - WATER SURVEY - WATER DESIGN MC00 - WATER DESIGN

Discipline	Model Content	Acceptable Conventions	Example Model Names
Survey and Design	Triangulation models (Refer Note 6)	- **** TRIANGLES - **** TRIANGLES **** - TRIANGLES ****	- SURVEY TRIANGLES - TERRAIN TRIANGLES - DESIGN TRIANGLES - SUBGRADE TRIANGLES - COMPOSITE TRIANGLES - MC00 TRIANGLES - SURVEY TRIANGLES 23-01-2011 - DESIGN TRIANGLES MC00 - TRIANGLES SURVEY - DESIGN TRIANGLES 23-01-2011 - TRIANGLES DESIGN MC00 - TRIANGLES DESIGN - TRIANGLES COMPOSITE
Design	Strings defining a bridge	- **** DESIGN BRIDGE - **** BRIDGE DESIGN - **** DESIGN BRIDGE **** - **** BRIDGE DESIGN **** - DESIGN BRIDGE **** - BRIDGE DESIGN ****	- MC00 CH300 DESIGN BRIDGE - COOPER CK DESIGN BRIDGE - COPPER CK BRIDGE DESIGN - MC00 DESIGN BRIDGE COOPER CK - DESIGN BRIDGE MC00 COPPER CK - BRIDGE DESIGN COOPER CK MC00
Design	Strings defining a culvert (Refer Note 7)	- **** CULVERT - **** CULVERT **** - CULVERT ****	- MC00 CH3834 CULVERT - MC00 CULVERT CH 3834 - CULVERT MC00 CH 3834
Design	Proposed landscaping and erosion and sediment conditions treatments	- **** DESIGN ENVIRONMENT - **** DESIGN ENVIRONMENT **** - DESIGN ENVIRONMENT ****	- DESIGN ENVIRONMENT - MC00 DESIGN ENVIRONMENT - DESIGN ENVIRONMENT MC00 - MC00 DESIGN ENVIRONMENT TREES - MC00 DESIGN ENVIRONMENT SHRUBS
Design	Strings defining a tunnel	- **** DESIGN TUNNEL - **** DESIGN TUNNEL **** - DESIGN TUNNEL ****	- MOORE ST TOP DESIGN TUNNEL - MOORE ST BOT DESIGN TUNNEL - MOORE ST DESIGN TUNNEL TOP - MOORE ST DESIGN TUNNEL BOT - DESIGN TUNNEL MOORE ST TOP - DESIGN TUNNEL MOORE ST BOT
Design	Strings representing the integration of the final design with the existing terrain	- **** COMPOSITE - **** COMPOSITE **** - COMPOSITE ****	- STAGE 1 COMPOSITE - STAGE 1 COMPOSITE OPTION 1 - COMPOSITE STAGE 1
Design	Strings for defining the stepping under embankments	- **** STEPPING - **** STEPPING **** - STEPPING ****	- STAGE 1 STEPPING - MC00 STEPPING - STAGE 1 STEPPING MC00 - STEPPING STAGE 1 - STAGE 1 STEPPING OPTION 1 - STEPPING STAGE 1 MC00
Design	Strings for defining stripping	- **** STRIPPING - **** STRIPPING **** - STRIPPING ****	- STAGE 1 STRIPPING - MC00 STRIPPING - STAGE 1 STRIPPING OPTION 1 - STAGE 1 STRIPPING MC00 - STRIPPING STAGE 1 - STRIPPING STAGE 1 MC00
Design	Strings associated with a setting out task (Refer Note 8)	- **** SETTING OUT - **** SETTING OUT **** - SETTING OUT ****	- STAGE 1 SETTING OUT - MC00 SETTING OUT - STAGE 1 SETTING OUT OPTION 1 - STAGE 1 SETTING OUT MC00 - SETTING OUT STAGE 1 - SETTING OUT STAGE 1 MC00

Discipline	Model Content	Acceptable Conventions	Example Model Names
Design	Longitudinal strings, along control line XXXX, defining a pavement surface. (Refer Note 9)	- **** XXXX BOX STRS [N] - **** XXXX BOX STRS [N] **** - **** BOX STRS [N] XXXX **** - BOX STRS [N] XXXX ****	- MC00 BOX STRS 1 - STAGE 1 MC00 BOX STRS 1 - BOX STRS 1 MC00 - BOX STRS 1 MC00 OPTION 1
Design	Transverse strings, perpendicular to control line XXXX, defining a pavement surface (Refer Note 9)	- **** XXXX BOX SECTS [N] - **** XXXX BOX SECTS [N] **** - **** BOX SECTS [N] XXXX **** - BOX SECTS [N] XXXX ****	- MC00 BOX SECTS 1 - STAGE 1 MC00 BOX SECTS 1 - BOX SECTS 1 MC00 - BOX SECTS 1 MC00 OPTION 1
Design	Cross Section strings generated along a control line	- **** SECTIONS - **** SECTIONS **** - SECTIONS ****	- MC00 TERRAIN SECTIONS - MC00 DESIGN SECTIONS - TERRAIN SECTIONS MC00 - DESIGN SECTION MC00 - DESIGN SECTION MC00 OPTION 1 - SECTIONS TERRAIN - SECTIONS DESIGN MC00 - SECTIONS DESIGN MC00 OPT 1
Design	Strings used to generate non control line long sections (e.g. Long sections through geotechnical data, Drainage channel section)	- **** LONG SECTIONS - **** LONG SECTIONS **** - LONG SECTIONS ****	- GEOTECH LONG SECTIONS - CHANNEL 1 LONG SECTIONS - OPTION 1 LONG SECTIONS CHANNEL 1 - LONG SECTIONS OPTION 1 - LONG SECTIONS CHANNEL 1
Design	Strings defining a barrier such as Noise barriers, median barriers etc. (Refer Note 10)	- **** DESIGN BARRIER - **** DESIGN BARRIER **** - DESIGN BARRIER ****	- MC00 DESIGN BARRIER - OPT 1 MC00 DESIGN BARRIER - MC00 DESIGN BARRIER OPT 1 - OPT 1 DESIGN BARRIER MC00 - DESIGN BARRIER MC00
Design	Strings that do not define a specific feature, but are used to modify the shape of a surface for drainage purposes. (Refer Note 10)	- **** DESIGN BREAKLINES - **** DESIGN BREAKLINES **** - DESIGN BREAKLINES ****	- MC00 DESIGN BREAKLINES - OPT 1 MC00 DESIGN BREAKLINES - MC00 DESIGN BREAKLINES OPT 1 - OPT 1 DESIGN BREAKLINES MC00 - DESIGN BREAKLINES MC00
Design	Strings defining the carriageway, such as Carriageway Edge, Carriageway Median, etc. (Refer Note 10)	- **** DESIGN CARRIAGEWAY - **** DESIGN CARRIAGEWAY **** - DESIGN CARRIAGEWAY ****	- MC00 DESIGN CARRIAGEWAY - OPT 1 MC00 DESIGN CARRIAGEWAY - MC00 DESIGN CARRIAGEWAY OPT 1 - OPT 1 DESIGN CARRIAGEWAY MC00 - DESIGN CARRIAGEWAY MC00
Design	Strings defining embankment and excavation profiles. (Refer Note 10)	- **** DESIGN INTERFACE - **** DESIGN INTERFACE **** - DESIGN INTERFACE ****	- MC00 DESIGN INTERFACE - OPT 1 MC00 DESIGN INTERFACE - MC00 DESIGN INTERFACE OPT 1 - OPT 1 DESIGN INTERFACE MC00 - DESIGN INTERFACE MC00
Design	Strings defining kerb features. (Refer Note 10)	- **** DESIGN KERB - **** DESIGN KERB **** - DESIGN KERB ****	- MC00 DESIGN KERB - OPT 1 MC00 DESIGN KERB - MC00 DESIGN KERB OPT 1 - OPT 1 DESIGN KERB MC00 - DESIGN KERB MC00
Design	Strings defining retaining structures (Refer Note 10)	- **** DESIGN RETAINING WALLS - **** DESIGN RETAINING WALLS **** - DESIGN RETAINING WALLS ****	- MC00 DESIGN RETAINING WALLS - OPT 1 MC00 DESIGN RETAINING WALLS - MC00 DESIGN RETAINING WALLS OPT 1 - OPT 1 DESIGN RETAINING WALLS MC00 - DESIGN RETAINING WALLS MC00

Discipline	Model Content	Acceptable Conventions	Example Model Names
Design	Strings defining safety fences such as W-Beam/Thrie Beam guardrail or Wire Rope (Refer Note 10)	- **** DESIGN SAFETY FENCE - **** DESIGN SAFETY FENCE **** - DESIGN SAFETY FENCE ****	- MC00 DESIGN SAFETY FENCE - OPT 1 MC00 DESIGN SAFETY FENCE - MC00 DESIGN SAFETY FENCE OPT 1 - OPT 1 DESIGN SAFETY FENCE MC00 - DESIGN SAFETY FENCE MC00
Design	Strings defining shoulder features (Refer Note 10)	- **** DESIGN SHOULDERS - **** DESIGN SHOULDERS **** - DESIGN SHOULDERS ****	- MC00 DESIGN SHOULDERS - OPT 1 MC00 DESIGN SHOULDERS - MC00 DESIGN SHOULDERS OPT 1 - OPT 1 DESIGN SHOULDERS MC00 - DESIGN SHOULDERS MC00
Design	Strings defining a traffic island (Refer Note 10)	- **** DESIGN TRAFFIC ISLAND - **** DESIGN TRAFFIC ISLAND **** - DESIGN TRAFFIC ISLAND ****	- MC00 DESIGN TRAFFIC ISLAND - OPT 1 MC00 DESIGN TRAFFIC ISLAND - MC00 DESIGN TRAFFIC ISLAND OPT 1 - OPT 1 DESIGN TRAFFIC ISLAND MC00 - DESIGN TRAFFIC ISLAND MC00
Design	Strings representing features not defined in the current string naming convention. (Refer Note 11)	- **** DESIGN NON STANDARD - **** DESIGN NON STANDARD **** - DESIGN NON STANDARD ****	- MC00 DESIGN NON STANDARD - OPT 1 MC00 DESIGN NON STANDARD - MC00 DESIGN NON STANDARD OPT 1 - OPT 1 DESIGN NON STANDARD MC00 - DESIGN NON STANDARD MC00
Design	Strings for temporary use (Refer Note 11)	- **** DESIGN TEMP STRINGS - **** DESIGN TEMP STRINGS **** - DESIGN TEMP STRINGS ****	- MC00 DESIGN TEMP STRINGS - OPT 1 MC00 DESIGN TEMP STRINGS - MC00 DESIGN TEMP STRINGS OPT 1 - OPT 1 DESIGN TEMP STRINGS MC00 - DESIGN TEMP STRINGS MC00

General Notes

1	12D Customisation	Not withstanding the conventions defined here, the 12D Customisation has been configured to adopt a single instance of each model naming convention. This is because the customisation files will only permit a single definition per feature within a given "environment". Examples are the names.4d files for survey and design, the Apply Many Defaults and a number of defaults applied through macro functions. These default configurations are workable, but should not be interpreted as precluding the use of variations within the acceptable conventions in order to ease project data management.
2	SURVEY DTM	It is recognised that there are other ways of managing this content, such as toggling "tinable" for strings in 12D. There are numerous justifications for each method. Using the SURVEY DTM model is still currently seen as the easiest mechanism for managing this. The surveyor does not need to set the tinable toggle, and the designer does not need to select multiple models.
3	GENERAL Models	Although a GENERAL model has been provided for design purposes, the content of this model should not form part of the design data to be constructed. Valid uses for this model would be for storing "construction" strings used as references by 12D modifiers, or used in some other way to arrive at the final design.
4	METADATA Models	12D provides project attributes that can store project information for future use and extraction. Until the department is satisfied with the stability, export and import features of this functionality, the METADATA models will be used to store information such as that generated through the department's customisation Metadata generation macros: - User -> TMR Survey -> Create Text -> Create MetaData Information- User -> TMR Design -> Create Design Meta Data Information
5	FURNITURE	The existing survey model for road furniture is SURVEY ROAD, while the existing model for design is DESIGN FURNITURE. It would be more consistent to change the survey model to reflect its contents (i.e. SURVEY FURNITURE)

6	TRIANGLES	Although the name of the survey/existing triangulation can be anything that conforms to the provided convention, TERRAIN TRIANGLES is deeply embedded in many components of the department's 12D customisation. Therefore it is recommended that this model name be adopted for the foreseeable future. This situation may change. Most likely when 12D allows the triangulation name to be passed to components such as Templates.
7	CULVERT	Notwithstanding the conventions provided, the Culvert program currently creates the following models dependent on the design options chosen: - \<Alignment model\> MR Culvert (e.g. ALIGNMENT MC00 MR Culvert) - Culvert \<Alignment Name\> \< Chainage\> (e.g. Culvert ALIGNMENT MC00 10157 332) - Culvert \<Alignment Name\> \< Chainage\> Construct - Culvert \<Alignment Name\> \< Chainage\> IO - tin Culvert \<Alignment Name\> \< Chainage\> Embankment - tin Culvert \<Alignment Name\> \< Chainage\> Embankment Left - tin Culvert \<Alignment Name\> \< Chainage\> Embankment Right - tin Culvert \<Alignment Name\> \< Chainage\> Excavation Left end - tin Culvert \<Alignment Name\> \< Chainage\> Excavation Right end - tin Culvert \<Alignment Name\> \< Chainage\> Excavation Base - tin Culvert \<Alignment Name\> \< Chainage\> Excavation Left Base - tin Culvert \<Alignment Name\> \< Chainage\> Excavation Right Base
8	SETTING OUT	This model convention is provided as a place holder for setting out data if required. The model requirements for setting out will be dependent on the technology available to the surveyor carry out the activity. Some may be able to interrogate the 12D model and upload details directly to their instruments. Others may require all strings to be set out to be collected together in a single model.
9	BOXING	Layer numbers are from the top, increasing downwards. This correlates to the boxing layer numbering applied in 12D. Although this is not how pavement layers are constructed (i.e. bottom up), it should make it easier to keep 12D Apply Many outputs aligned with 12D MTF inputs. Although it is possible to name models to reflect the pavement type (e.g. MC00 200MM PAVT STRS), a more generic naming convention has been adopted because "pavement type" model naming only works where pavement layers are consistent over the entire length of a control line. This is rarely the case, tie-ins being an example. Model names containing a consistent text string (i.e. BOX STRS and BOX SECTS) will enable more concise filtering to be applied in any future 12D functionality.
10	Additional Models	During the design process, many different features can be stored in a single model. For example, Carriageway Edges, Shoulders, Interfaces and Kerbs can all be contained within the MC00 DESIGN model. A number of the department's customisation options make use of individual models for specific features. The Guardrail Flare macro creates a *** SAFETY FENCE, *** SHOULDERS and *** GUARDRAIL LONGSECT CUTS model for all flares belonging to an alignment. The Design names.4D files has models applied to each string label to cater for situations where strings are created in isolation from an Apply Many such as when CAD functions are used. These models may never get used, but are provided for in this convention.
11	Non Standard and Temporary models	Non-standard and temporary models should be avoided where possible. As an absolute minimum, the purpose and content of the model should be described through model attributes or other documentation system. This documentation must be provided upon data hand-over.