

# India Standards Inclusion

## Introduction

Settings specific to India are optionally included during installation of Civil Site Design to make Indian design standards available to users working in the Civil Infrastructure industry for roads and associated designs.

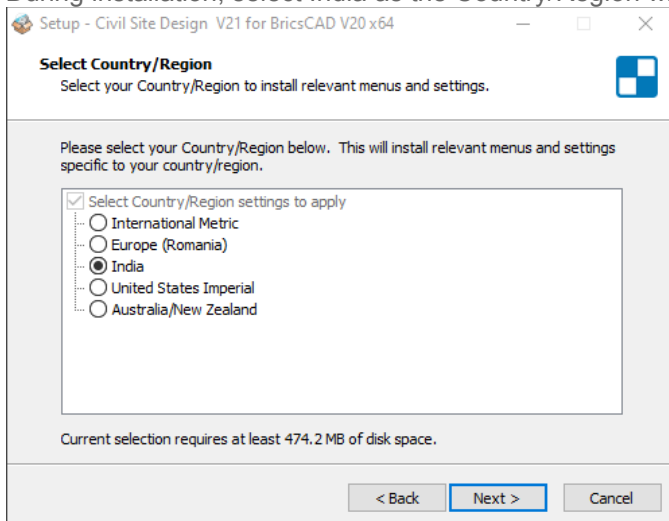
## Standards Referenced

This customisation references the following Standards:

- IRC: SP: 73 -2018
- IRC: SP:73-2015
- IRC: SP:23-1983
- IRC: 67-2012
- IRC: SP:35-1997

## Installation

During installation, select India as the Country/Region when prompted:



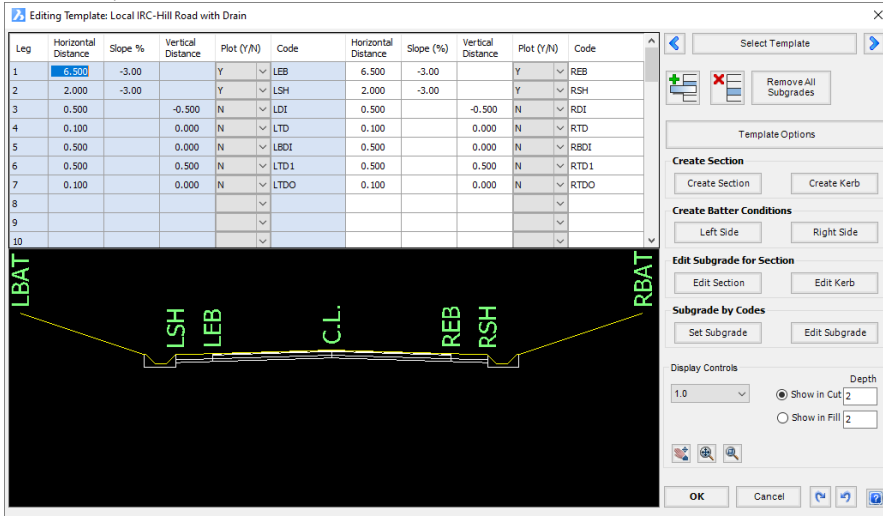
## Settings Content

### Templates

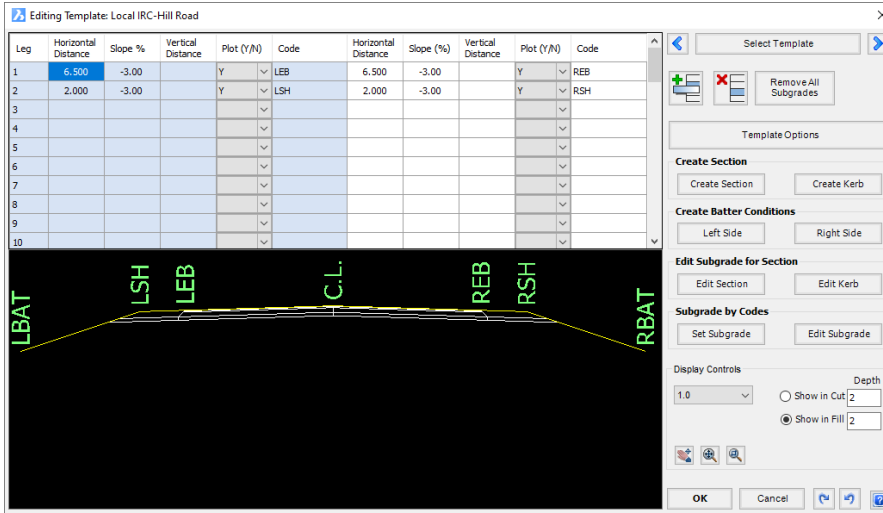
Some Templates have been set up primarily to manage different subgrade behaviours. It is simply to add additional Codes to the template to control more features. Every code can be edited once added to a Road, using Variations and Batter Overrides.

The following specific Templates have been created for Indian standards:

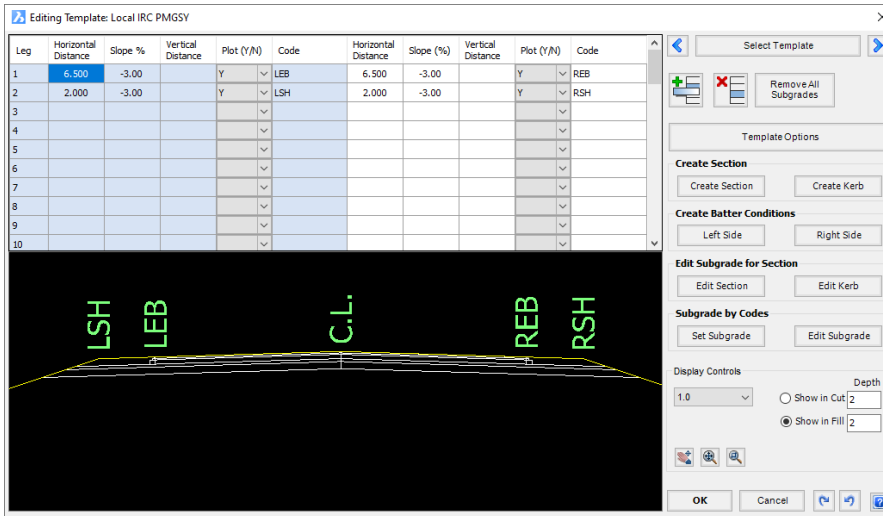
### Hill Road, with Drains



### Hill Road



### PMGSY Road:

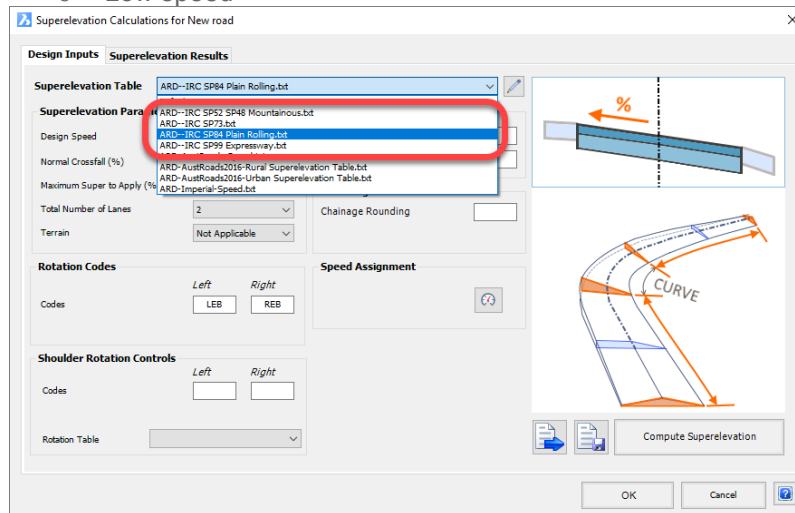


## Horizontal and Vertical Geometry

Horizontal and vertical geometry design controls include the following:

### Superelevation tables

- Plain and Rolling
- Mountainous
- Expressway
- Low speed



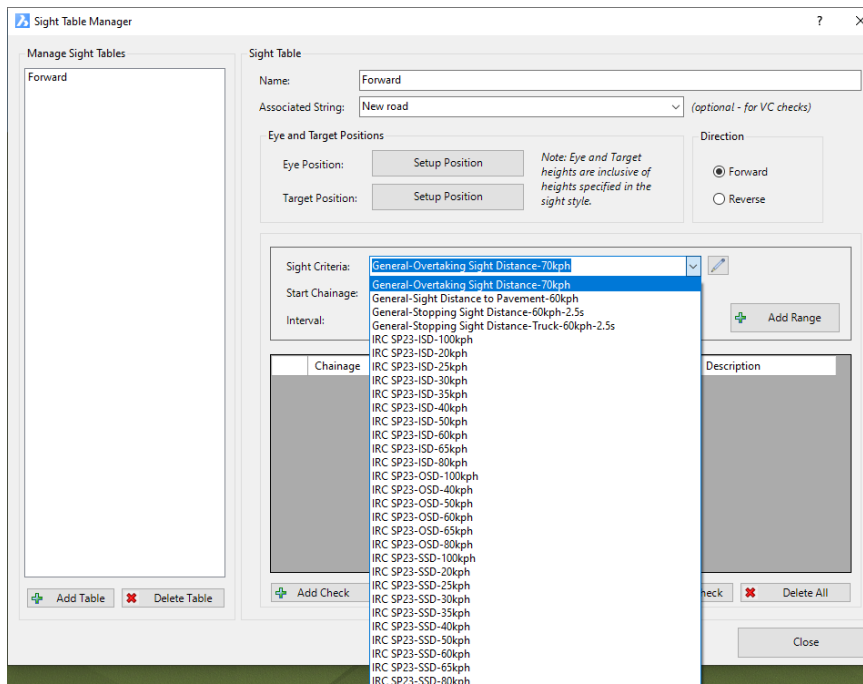
Superelevation is applied automatically on the approach to and departure from each horizontal curve. The user is able to manipulate the results in a number of ways.

### Sight Distance

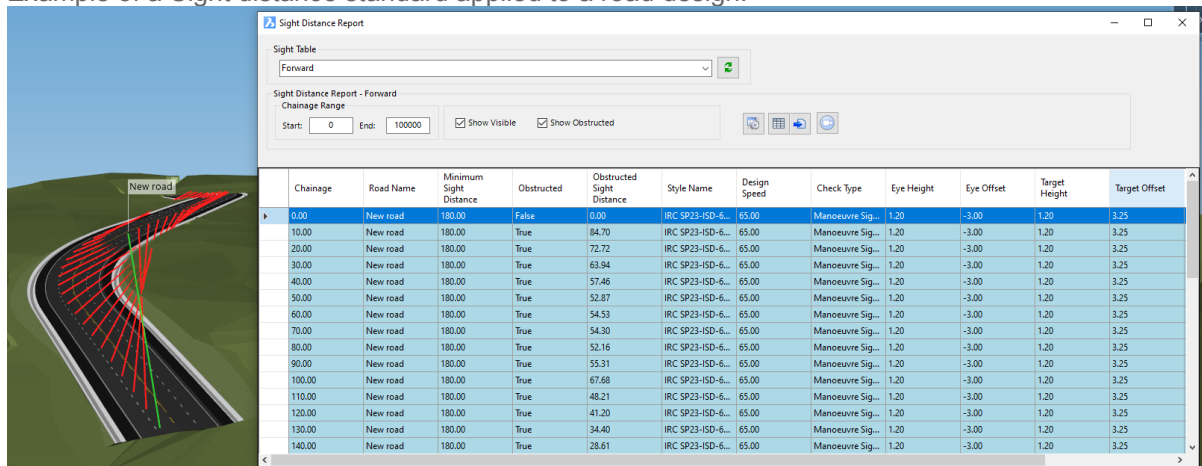
In Civil Site Design, users can apply sight distance checks on the vertical curve string design as well as in the 3D modelled environment (which checks for embankment and other obstructions to visibility). Whilst the k value can be applied, the actual sight distance is resolved on both the CL of the string design and in 3D to ascertain whether vertical curve designs comply for sight distance.

Sight distance checks can be applied for: Stopping Sight Distance (SSD), Intermediate Sight Distance (ISD) and Overtaking Sight Distance (OSD). Headlight sight distance can be applied as Intermediate or Overtaking sight distance, as required.

Below is the setup of a 3D sight distance table, with the sight distance checks listed by IRC standard-sight distance method-speed (eg: SP23-SSD-50kph):



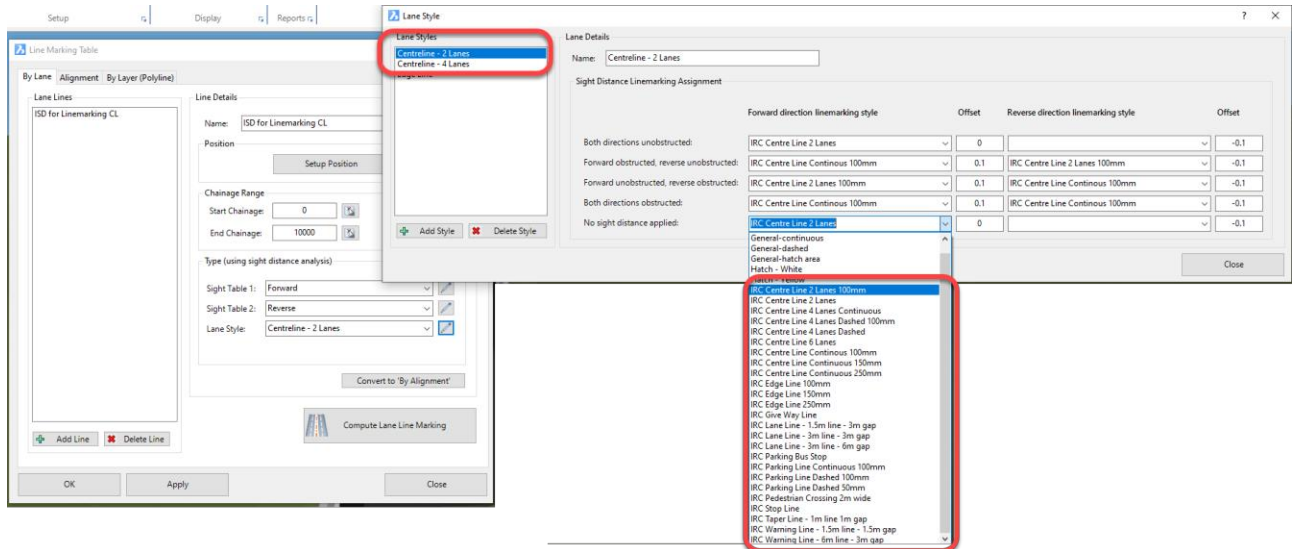
Example of a Sight distance standard applied to a road design:



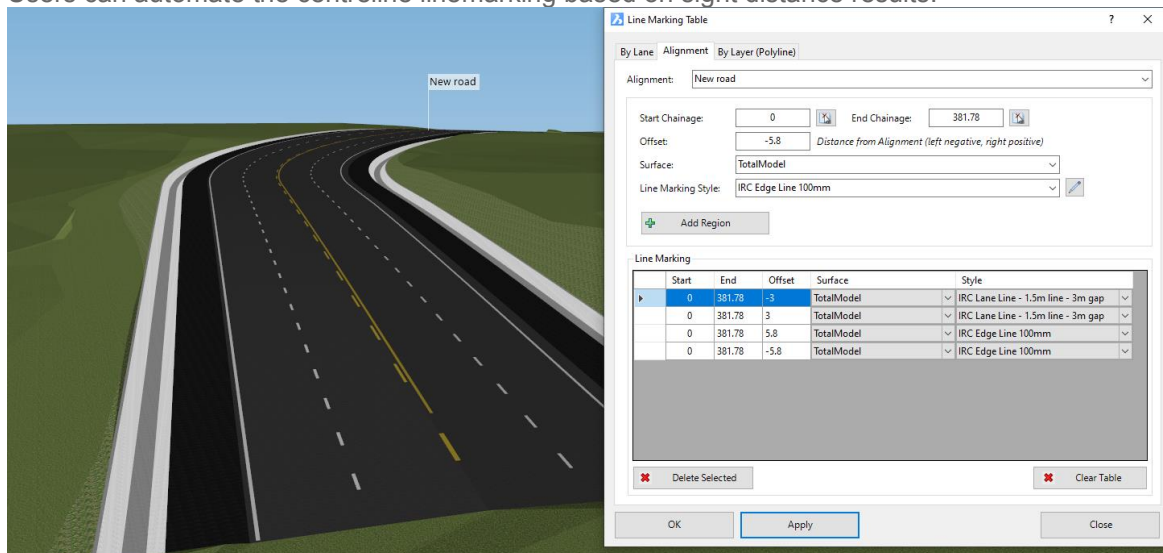
## Road Line Marking

Road line marking has been added based on Indian standards. Below is a screen shot of the automated centreline linemarking controls that are included with these standards (automating the linemarking for obstructed sight lines) and the list of linemarking styles created to manage:

- Road centrelines (2,4,6 lanes)
- Lane lines (normal, warning)
- Edge lines
- Stop and give way lines
- Bus bay lane taper lines
- Parking bay lines
- Bus bay lines
- Pedestrian crossing



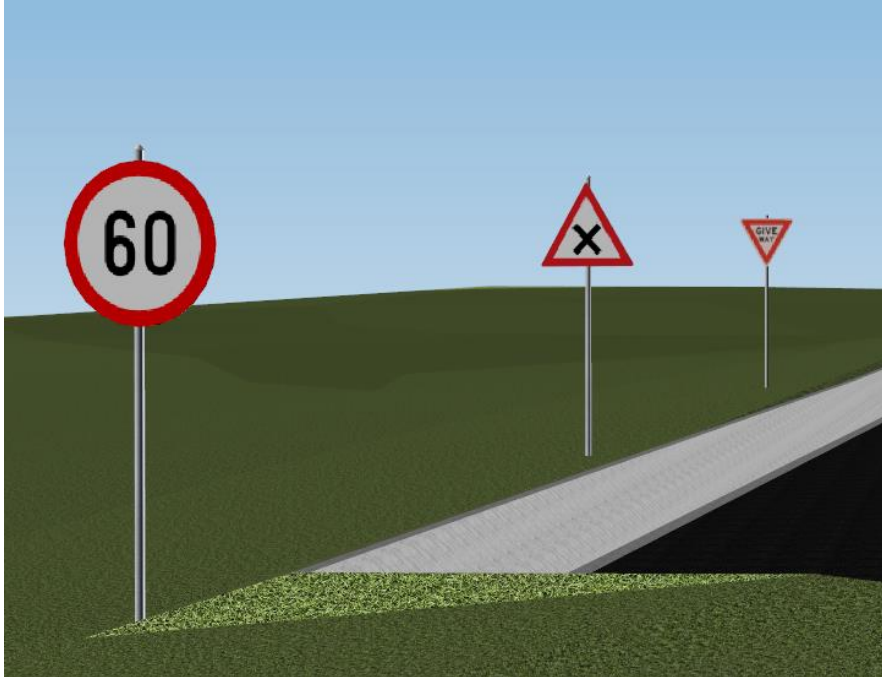
Users can automate the centreline linemarking based on sight distance results:



In the above, the CL changes linemarking based on obstructions to sight lines in forward and reverse directions.

## Road Signs

A selection of Indian road signs are included – these can be added in Model Viewer:



List of 3D signs:

- 📁 30kmh.obj
- 📁 40kmh.obj
- 📁 50kmh.obj
- 📁 60kmh.obj
- 📁 Crossroads.obj
- 📁 Cyclists.obj
- 📁 Falling\_Rocks.obj
- 📁 Give\_Way.obj
- 📁 Left-Curve.obj
- 📁 No\_Left\_Turn.obj
- 📁 No\_Right\_Turn.obj
- 📁 NoStopping.obj
- 📁 Right\_Curve.obj
- 📁 Road\_Hump.obj
- 📁 Stop.obj
- 📁 Traffic\_Signals.obj

## Plan Production Outputs – Long and Cross Sections

Both long and cross section outputs include a default Template for A1 sheet production – it is a simple task for customers to customise these for their organisation and to include different sheet sizes.




During long and cross section production, Civil Site Design automatically creates as many sheets as required to fit in the selected Title block.

## Plan Production Outputs – Long and Cross Sections

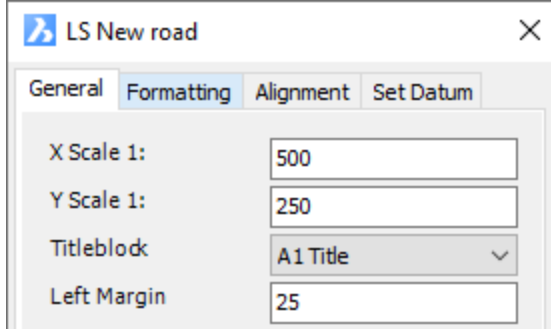
Both long and cross section outputs include a default Template for A1 sheet production – it is a simple task for customers to customise these for their organisation and to include different sheet sizes.

### Long Section Output

Long section output includes the following saved standards:

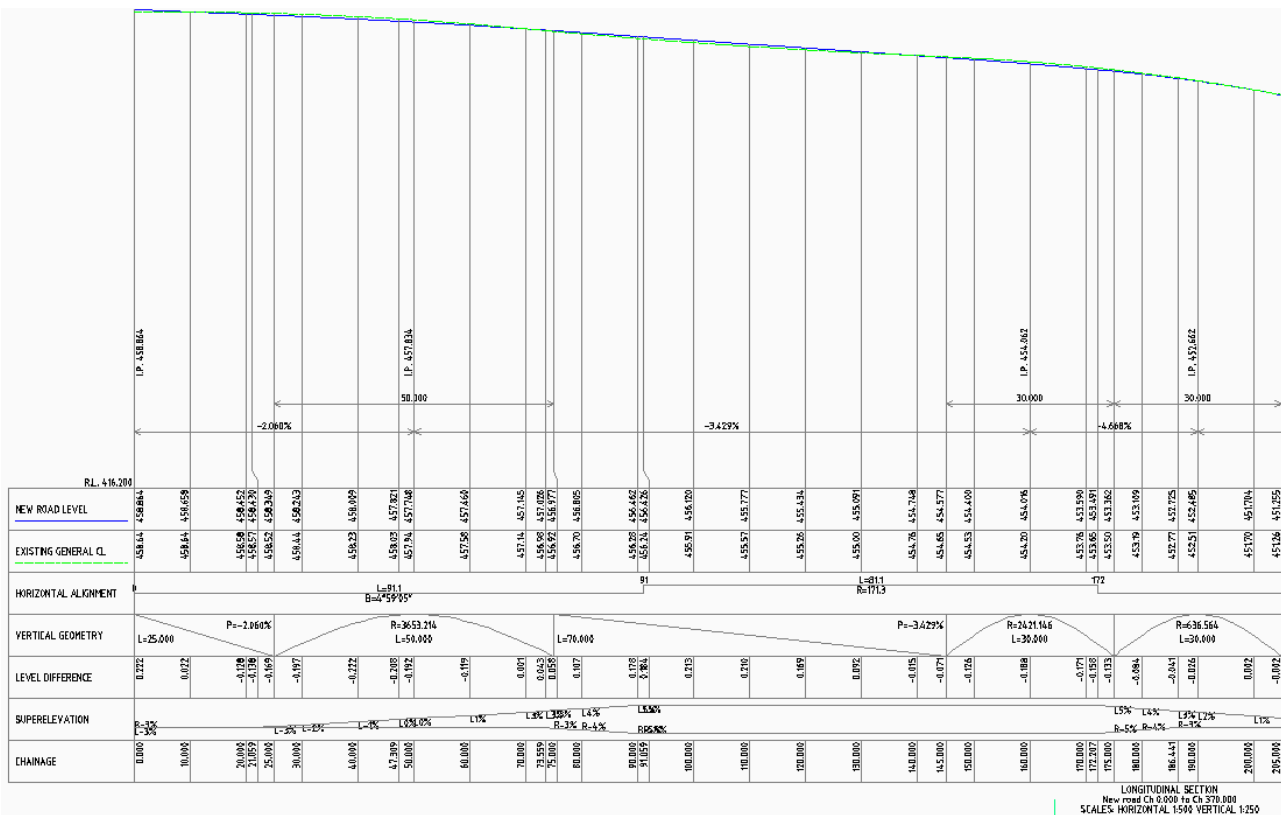
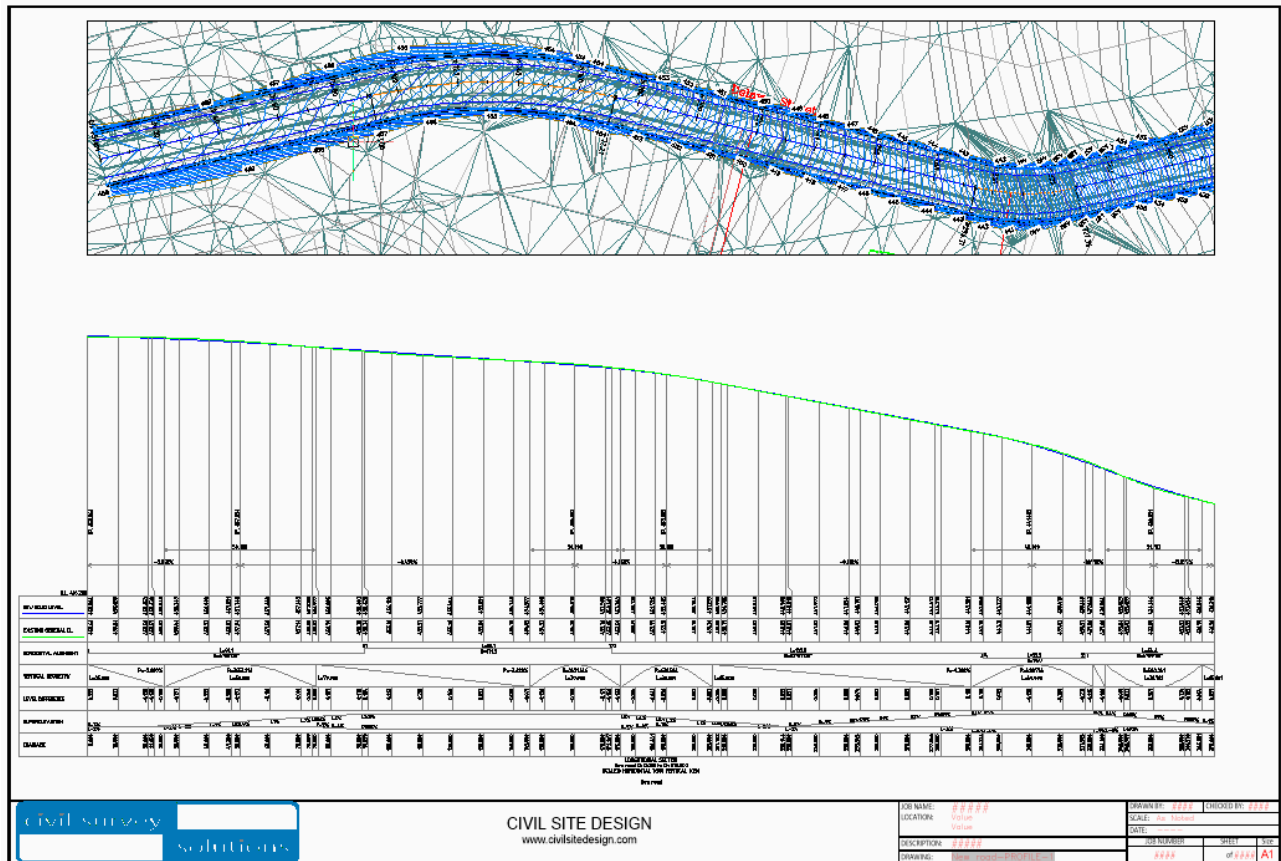
-  \_IRC-Basic.lpl7
-  \_IRC-One Existing Surface.lpl7
-  \_IRC-Two Existing Surfaces.lpl7

Once loaded, it is very simple to change the scales, title block (and each band):



LS New road	
<div> <div>General</div> <div>Formatting</div> <div>Alignment</div> <div>Set Datum</div> </div>	
X Scale 1:	500
Y Scale 1:	250
Titleblock	A1 Title
Left Margin	25

Example of \_IRC-One Existing Surface Style:





## Cross Section Output

Default cross section output is as follows:

