

# MES

MES Infra Integrated Total Solution

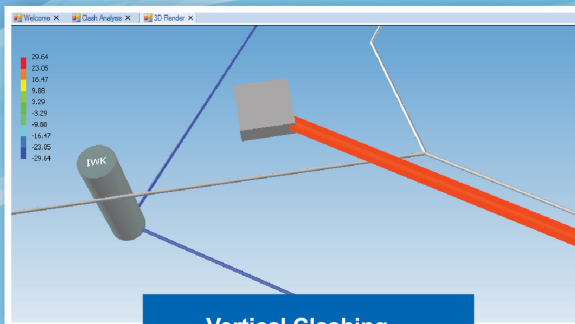


INNOVATION SDN BHD

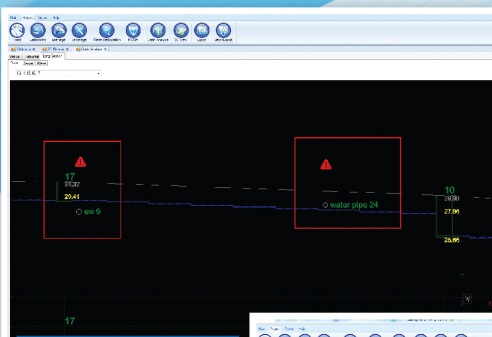
**Everyone can design better**



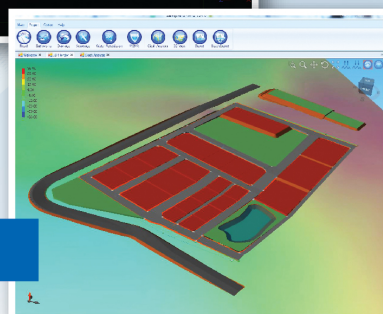
- ➔ Synchronizes design changes across a single model and automatically update between Road, Earthworks, Storm Drainage System, Sewerage System, Water Reticulation System and Pond Design.
- ➔ Pipe Clash Checking between Water, Sewerage & Storm Drainage systems to resolve conflicts.
- ➔ Delivers consistent multi-disciplinary design calculation, drawings & construction documentation.
- ➔ Better visualization, more accurate design and enjoys better coordination.
- ➔ Import Survey Data (contour, spot level & text), Platform with Propose Levels, and Pond Volume.
- ➔ Tracing for architecture drawing.



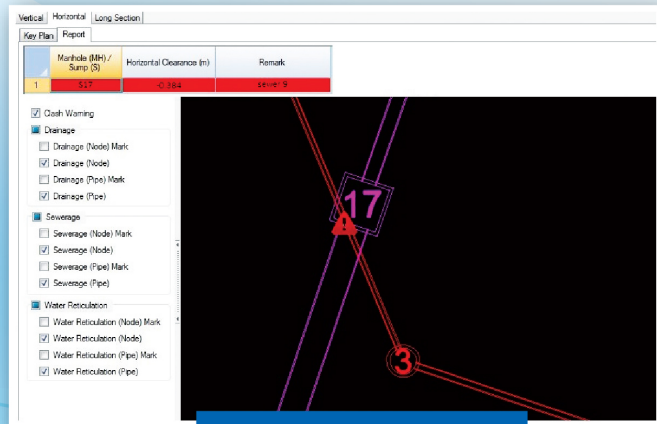
Vertical Clashing



Long Section of Clash Analysis



3D View



Horizontal Clash Analysis

## MiTS has integrated the modules below:

### 1. Road & Highway

- i. Horizontal alignment design
- ii. Vertical alignment design
- iii. Superelevation transitions
- iv. Junctions design

### 2. Earthworks

- i. 3D visualization before and after development
- ii. Digital Terrain Method & Grid Method
- iii. Auto sloping & berm generation
- iv. Auto generates cut sections, cut/fill report, volume & quantity take-off
- v. 2D slope on surveyor plan
- vi. Auto balancing between cut and fill volume
- vii. Able to add platform in EW3D for pond description

### 3. Drainage

- i. Auto captures catchment area, IDF intensity & runoff coefficient
- ii. Auto generates long section & quantity take off
- iii. Auto proposes sump invert level, cascading drain, dimension & gradient
- iv. Data synchronization with PondCAD

### 4. Urban Stormwater Management (PondCAD)

- i. Rainfall IDF
- ii. On-site detention (above & below ground)
- iii. Detention pond
- iv. Detention drain
- v. Rainwater harvesting tank
- vi. Sediment basin (wet & dry)

### 5. Sewerage

- i. Auto calculates Population Equivalent (PE)
- ii. Auto proposes pipe diameter, gradient, invert level & drop manhole
- iii. Auto generates long section
- iv. Partial flow/full flow design
- v. Pump & Valve Design

### 6. Water Reticulation

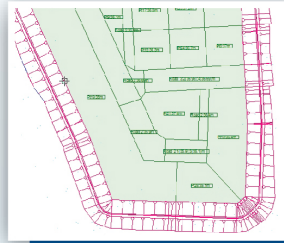
- i. Hardy-Cross method & Hazen Williams formula
- ii. Looping & branching design for peak flow & fire flow
- iii. Auto calculates water demand
- iv. Schematic diagram with pump, hydrant, valve, etc.
- v. Multiple separated water reticulation networks and tapping points
- vi. Pump & Valve Design



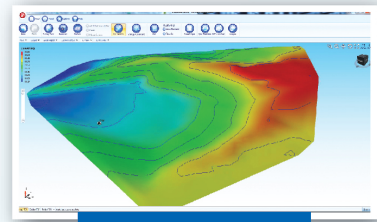


## EW3D

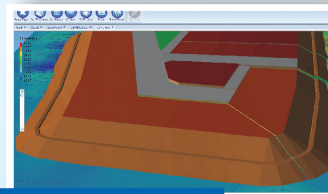
- ➔ Earthworks Cut/Fill 3D Analysis and Design software.
- ➔ Survey drawing (.DXF or .DWG) and platform level import.
- ➔ Auto interpolation between the original ground levels to extra ground levels for 3D terrain generation.
- ➔ Supports Digital Terrain Method, TIN Method, End Area Method and Grid Method.
- ➔ Proposes platform levels with slopes or retaining walls.
- ➔ Auto sloping and berm generation with different cut/fill ratio for each platform.
- ➔ 2D cut/fill area view, 3D contour view and 3D platform level view.
- ➔ Auto generates longitudinal sections, cut/fill reports, volume and quantity take off.
- ➔ Auto balancing between cut and fill volume.



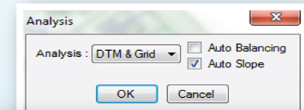
Plane View with Slope



3D OGL View

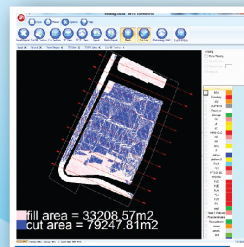


3D PL View with Slope

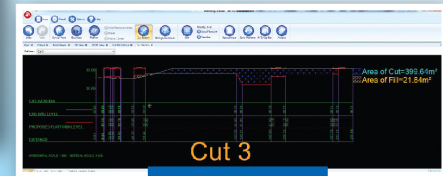


Boundary Properties			
Mark	Desired Cut/Fill, m <sup>2</sup>	Topsoil Depth, mm	
1 Zone 1	0.000	0.0	
2 Zone 2	0.000	0.0	

Auto Cut/Fill Balancing



Cut/Fill Area & DTM Meshing



Cut Section

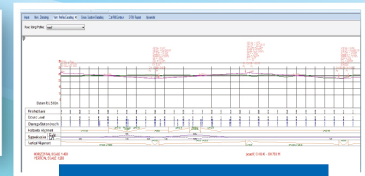


## MES-Road

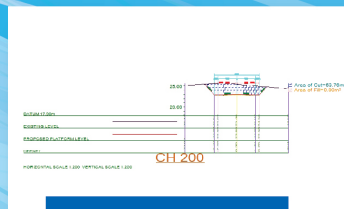
- ➔ Road & highway design software.
- ➔ Auto generates cross section output and all information needed for submission.
- ➔ Survey drawing (.DXF or .DWG) import.
- ➔ User-definable horizontal and vertical alignment geometry reports.
- ➔ Auto calculates cut & fill areas & volumes.
- ➔ Auto generates superelevation transitions.
- ➔ Complies with AASHTO & REAM Guideline.



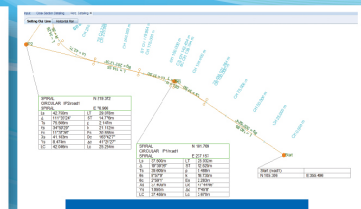
Horizontal Alignment



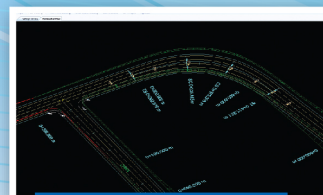
Vertical Detailing



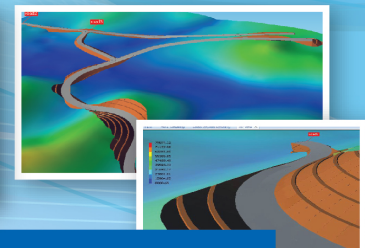
Cross Section



Setting Outline



Junction & Curve Widening

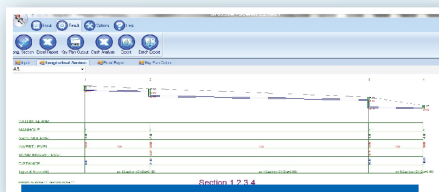


3D Proposed Level View

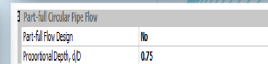
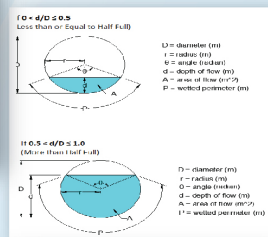


# SewNet

- ➔ Sewerage Analysis, Design and Detailing software.
- ➔ Graphical manholes and pipes input with the latest GUI technology.
- ➔ Auto calculates Population Equivalent (PE).
- ➔ Auto proposes pipes diameter, gradient, invert level and drop manhole.
- ➔ Auto generates graphical outputs with all information needed by Authority.
- ➔ Auto generates longitudinal section and quantity take off.
- ➔ Clash analysis is provided.
- ➔ Partial Flow/Full Flow Design.
- ➔ Pump & Valve design.



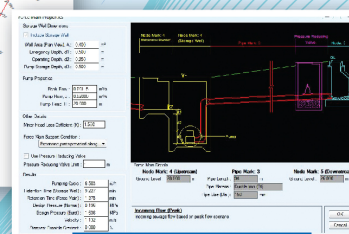
Long Section with Drop Manhole



Partial Flow/  
Full Flow Design



Key Plan Output  
with adjustable table

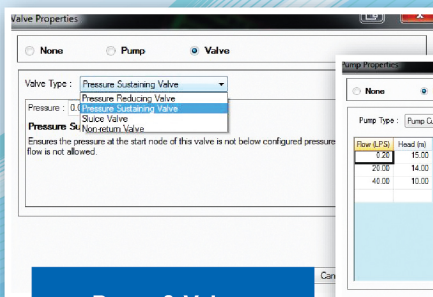


Pump and Valve

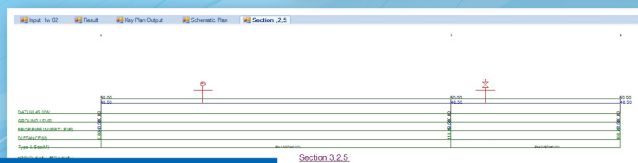
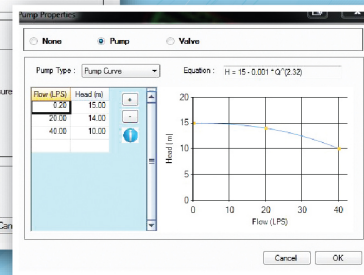


# LoopWin Plus

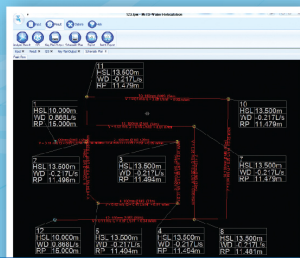
- ➔ Water Reticulation software (Hardy-Cross Method and Hazen-Williams Formula).
- ➔ Graphical nodes and pipes input with the latest GUI technology.
- ➔ Looping and Branching design for peak flow and fire flow.
- ➔ Auto calculates water demand for each node.
- ➔ Auto iteration for the most economical pipes diameter.
- ➔ Auto generates graphical outputs with all information needed by authorities.
- ➔ Multiple separated water reticulation networks and tapping points.
- ➔ Identify the most Critical Node in the water reticulation network.
- ➔ Pump & Valve design.



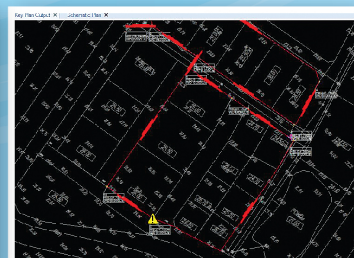
Pump & Valve



Long Section

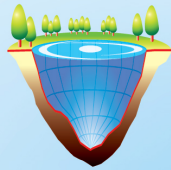


Multiple Separated Networks  
& Tapping Points



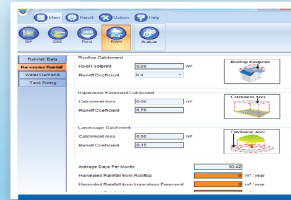
Critical Node Identification



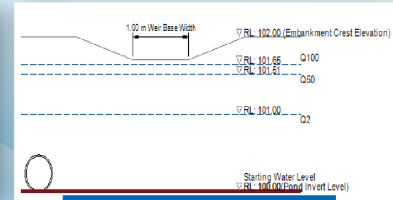


# PondCAD

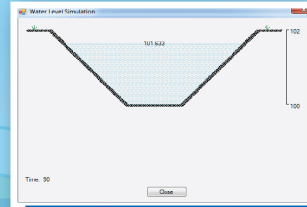
- ➔ Contains major designs such as Rainfall IDF, On-Site Detention (above and below ground), Detention Pond, Detention Drain, Rainwater Harvesting Tank Design & Sediment Basin (Wet & Dry)
- ➔ Fully complied with MSMA 1 & MSMA 2.
- ➔ Interactive input with the latest GUI technology.
- ➔ Covers Rainfall IDF, MSMA2 Simplified Method, Time-Area Method & Rational Method, Water Balance Method, Level Pool Routing and Pond Sizing with Detailing.
- ➔ Auto generates report and graphical outputs with all information needed by Authority.
- ➔ Auto generates water level profile.



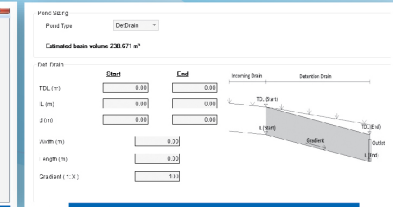
Rainwater Harvesting



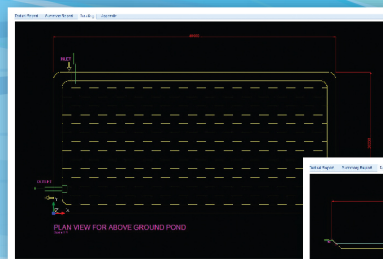
Water Level Profile



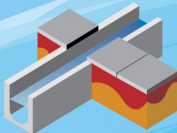
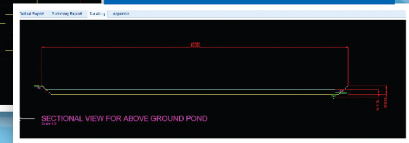
Water Level Simulation



Detention Drain

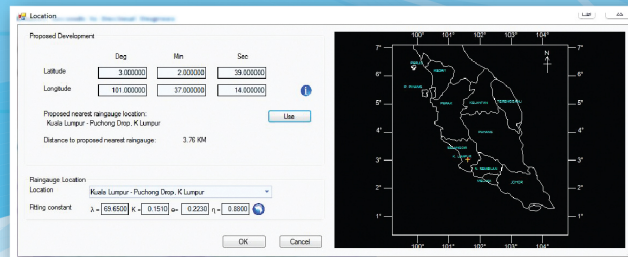


Pond Detailing



# DraNet

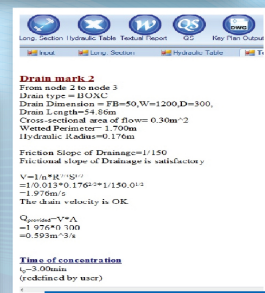
- ➔ Drainage Analysis, Design and Detailing software.
- ➔ Graphical sumps and pipes input with the latest GUI technology.
- ➔ Auto optimize drain design for open drains and culverts.
- ➔ Auto proposes IDF, rainfall intensities, runoff coefficients, gradients and invert levels.
- ➔ Auto generates graphical output with all information needed by Authority.
- ➔ Auto generates longitudinal section and quantity take off.
- ➔ Multiple separated drain networks and drainage outlet.



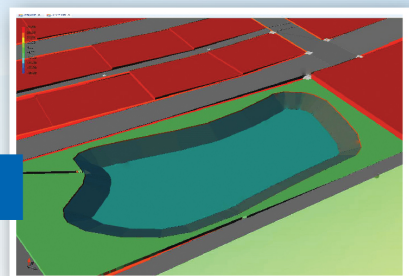
Locate Rainfall Station by Coordinate

Drain Mark	Up Sump	Down Sump	Length (m)	Drain Type	Drain Size (mm)	Collection Point (m)	Sum Collection Point (m)	Velocity (m/s)	Peak Flow (m³/s)	Gradient	Velocity (m/s)
1	10	10	10	10	10	10	10	10	10	10	10
2	10	10	10	10	10	10	10	10	10	10	10
3	10	10	10	10	10	10	10	10	10	10	10
4	10	10	10	10	10	10	10	10	10	10	10
5	10	10	10	10	10	10	10	10	10	10	10
6	10	10	10	10	10	10	10	10	10	10	10
7	10	10	10	10	10	10	10	10	10	10	10
8	10	10	10	10	10	10	10	10	10	10	10
9	10	10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10	10	10	10
11	10	10	10	10	10	10	10	10	10	10	10
12	10	10	10	10	10	10	10	10	10	10	10
13	10	10	10	10	10	10	10	10	10	10	10
14	10	10	10	10	10	10	10	10	10	10	10
15	10	10	10	10	10	10	10	10	10	10	10
16	10	10	10	10	10	10	10	10	10	10	10
17	10	10	10	10	10	10	10	10	10	10	10
18	10	10	10	10	10	10	10	10	10	10	10
19	10	10	10	10	10	10	10	10	10	10	10
20	10	10	10	10	10	10	10	10	10	10	10

Multiple Separated Drainage Networks



Calculation Steps



Drainage Link to Pond

# MES SUITE

Create powerful infrastructure design with advanced technology.

A powerful integrated solution suite for infrastructure boasting a user-friendly UI with advanced features and functionalities including 3D analysis and advanced digital terrain modelling.

Advanced Technology



Innovative



Reliable



Automation



Efficient

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