

# MES

## INFRA APPLICATIONS

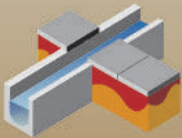
We Offer One-Stop Total Solution

**EW3D**



Earthworks 3D  
Analysis & Design

**DraNet**



Drain Networks Analysis,  
Design & Detailing

**LoopWin Plus**



Water Reticulation  
Analysis & Design

**MITS**



Integration between EW3D,  
PondCAD, DraNet, SewNet,  
Loopwin Plus and MES-Road

**MES-Road**



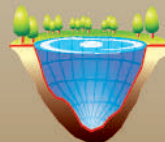
Road & Highway Design  
And Detailing

**SewNet**



Sewer Networks Analysis,  
Design & Detailing

**PondCAD**

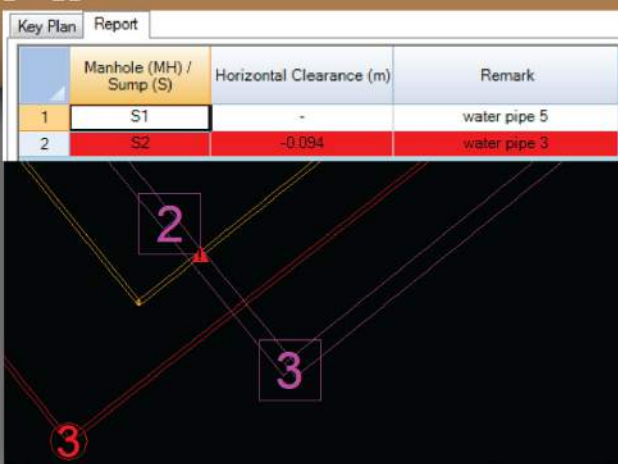


OSD, Det. Pond,  
Rainwater Harvesting &  
Sediment Basin Design

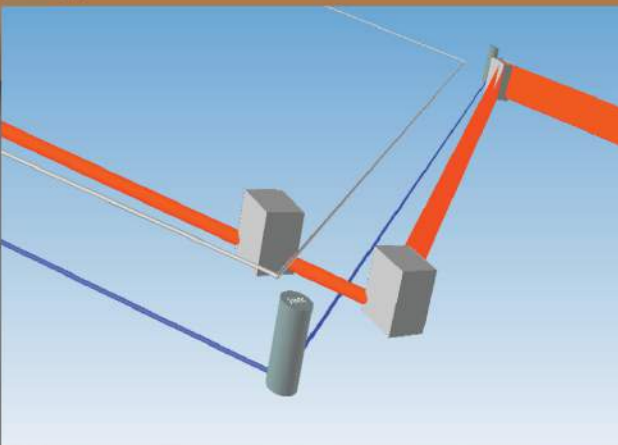


- Synchronizes design changes across a single model and automatically update between Earthworks, Storm Drainage System, Sewerage System, Water Reticulation System & Road Design.
- Pipe Clash Checking between Water, Sewerage & Storm Drainage systems to resolve conflicts.
- Delivers consistent multi-disciplinary design calculation, drawings & construction documentation.
- Better visualization, more accurate design and enjoys better coordination.

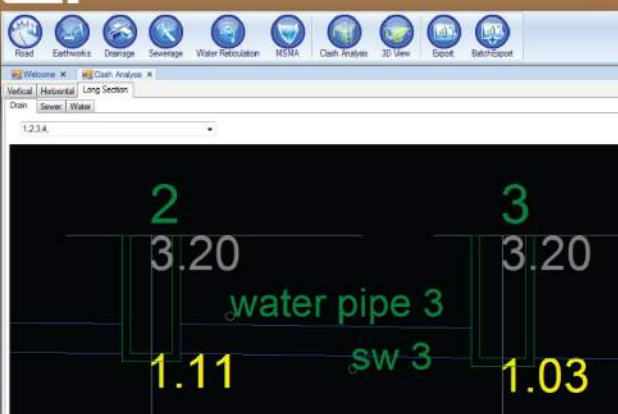
## A. Horizontal Clash Analysis



## B. Vertical Clash Analysis



## C. Long Section of 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. Surveyor points import
  - ii. 3D visualization before and after development
  - iii. Digital Terrain Method & Grid Method
  - iv. Auto sloping & berm generation
  - v. Auto generates cut sections, cut/fill report, volume & quantity take-off
  - vi. 2D slope on surveyor plan
  - vii. Auto balancing between cut and fill volume
- 3. Drainage (MSMA 2)**
  - 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
- 4. Urban Stormwater Management (MSMA 2)**
  - i. Rainfall IDF
  - ii. On-site detention (above & below ground)
  - iii. Detention pond
  - iv. Rainwater harvesting tank
  - v. 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
- 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. Auto iteration for the most economical pipe diameter
  - v. Auto generates long. section
  - vi. Schematic diagram with pump, hydrant, valve, etc.
  - vii. Multiple separated water reticulation networks and tapping points
  - viii. Critical Node Indication



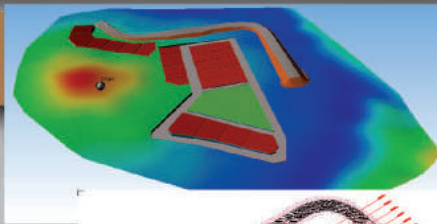


# EW3D

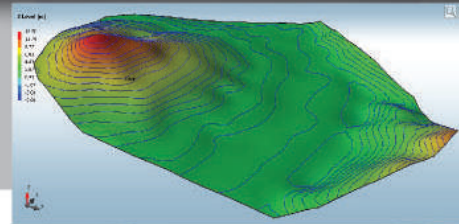


- Earthworks 3D Analysis and Design software.
- Imports the tracing and existing ground levels from surveyor drawing (dxf & dwg) either from spot level points or contour lines or even texts without any z coordinates.
- Auto interpolation between the original ground levels to extra ground levels for 3D terrain generation.
- Supports both Digital Terrain 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.
- 2D slope on surveyor plan.
- Auto balancing between cut and fill volume.

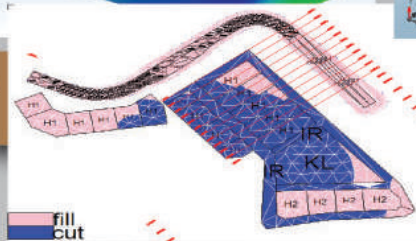
## A. 3D Proposed Level View



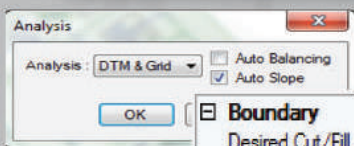
## D. 3D View with Contour Line



## B. Meshing with Cut Lines

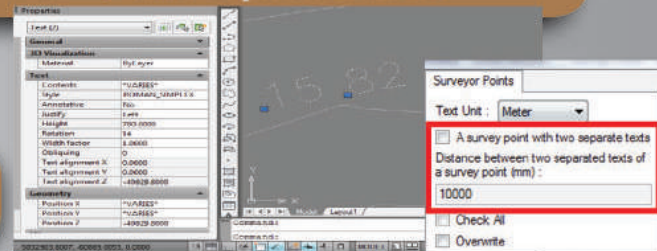


## E. Survey Point made from Two Separated Texts

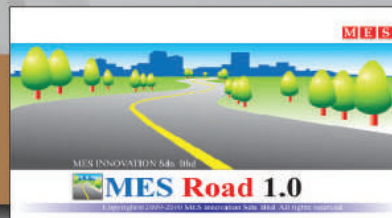


**Boundary**  
Desired Cut/Fill, m<sup>3</sup> 0  
Topsoil Depth, mm 0

## C. Auto Balancing and Topsoil Depth

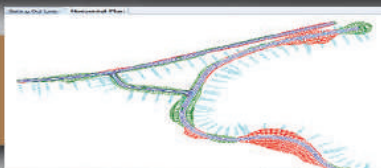


# MES-Road



- Road & highway design software.
- Auto generates cross section output and all information needed for submission.
- Imports the tracing and existing ground levels from surveyor drawing (dxf & dwg) which are spot level points or contour lines or even texts without any z coordinates.
- User-definable horizontal and vertical alignment geometry reports.
- Auto calculates cut & fill areas & volumes.
- Auto generates superelevation transitions.
- Follows Road Engineering Association of Malaysia (REAM) guideline.

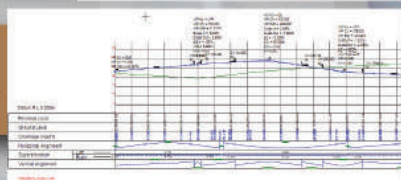
## A. Horizontal Alignment



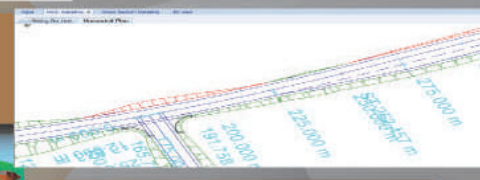
## D. Setting Out Line



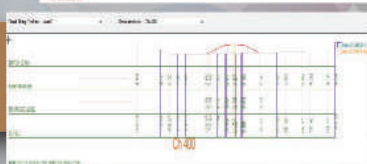
## B. Vertical Detailing



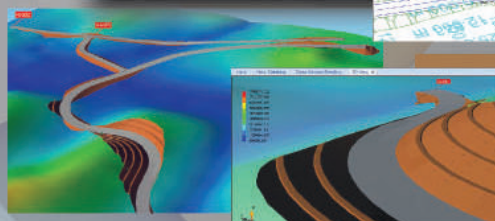
## E. Junction



## C. Cross Section



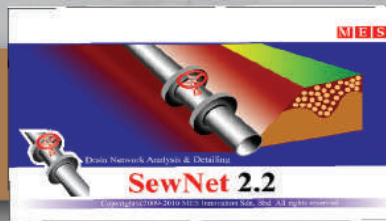
## F. 3D Proposed Level View





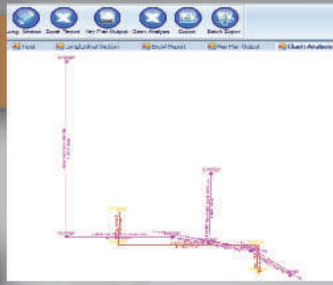


# SewNet

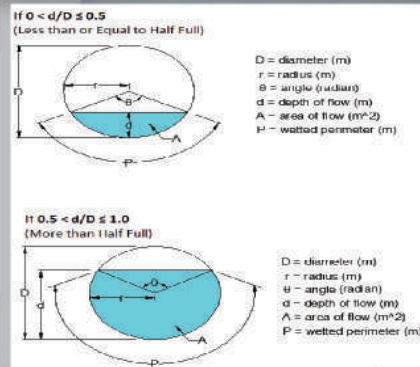


- Sewerage Analysis, Design and Detailing software.
- Graphical manholes and pipes input with the latest GUI technology.
- Auto calculates Population Equivalent (PE).
- Auto proposes pipes diameter, gradient, invert level and drop manhole.
- Auto generates graphical outputs with all information needed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

## A. Clash Analysis



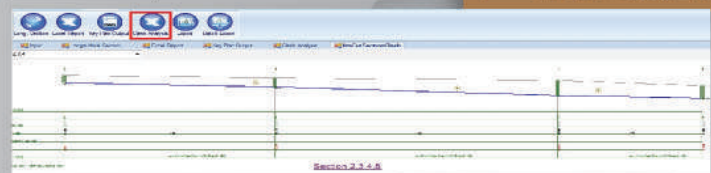
## B. Long Section



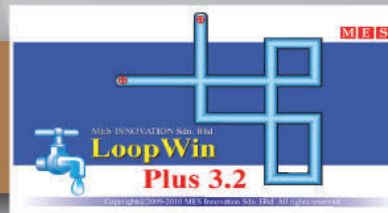
## C. Partial Flow/ Full Flow Design

Part-full Circular Pipe Flow	No
Proportional Depth, $d/D$	0.75

## D. Long Section of Clash Analysis

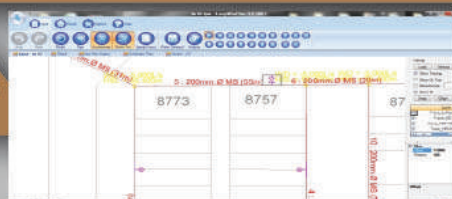


# LoopWin Plus

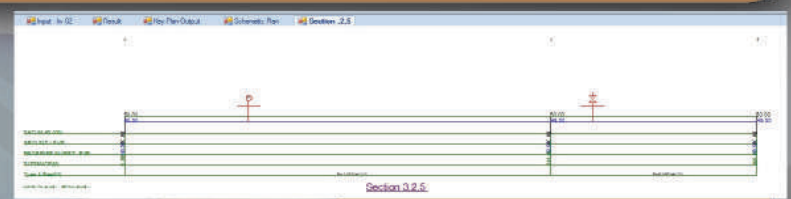


- Water Reticulation software (Hardy-Cross Method and Hazen-Williams Formula).
- Graphical nodes and pipes input with the latest GUI technology.
- Looping and Branching design for peak flow and fire flow.
- Follows Malaysia Local Authorities requirement.
- Auto calculates water demand for each node.
- Auto iteration for the most economical pipes diameter.
- Auto generates graphical outputs with all information needed by local authorities.
- Multiple separated water reticulation networks and tapping points.
- Critical Node Indication.
- Accessories indication.

## A. Accessories



## B. Multiple Separated Networks & Tapping Points

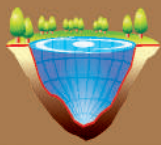


## C. Long Section

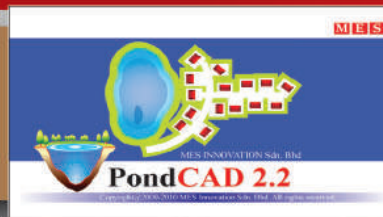


## D. Critical Node Indication



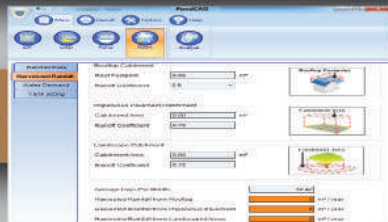


# PondCAD

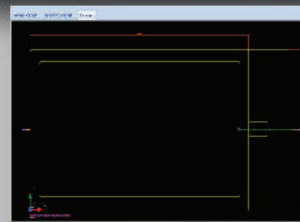


- Contains major designs such as Rainfall IDF, On-Site Detention (above and below ground), Detention Pond, Rainwater Harvesting Tank Design & Sediment Basin (Wet & Dry).
- Interactive input with the latest GUI technology.
- Covers Rainfall IDF, Time Area Method and Rational Method, Level Pool Routing, Pond Sizing with Detailing and Outlets design.
- Complies with Malaysia Urban Stormwater Management Manual (MSMA 2) Guidelines.
- Auto generates report and graphical outputs with all information needed by Authority Malaysia, JPS.
- Auto generates water level profile and quantity take-off.

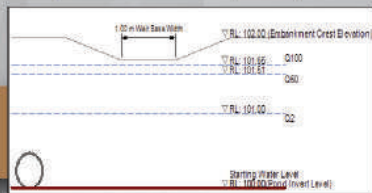
## A. Rainwater Harvesting



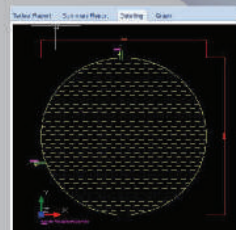
## D. Sediment Basin



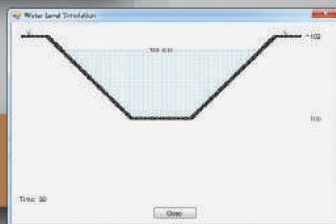
## B. Water Level Profile



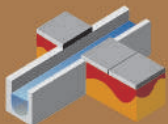
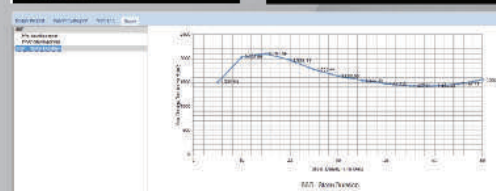
## E. OSD Detailing



## C. Water Level Simulation



## F. SSR Graph

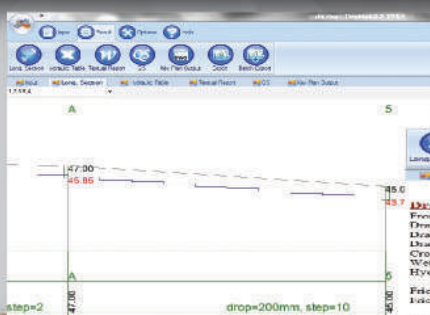


# DraNet



- Drainage Analysis, Design and Detailing software.
- Graphical sumps and pipes input with the latest GUI technology.
- Follows Malaysia Urban Stormwater Management Manual (MSMA 2) guidelines.
- Auto designs drain channels for open drains and culverts.
- Auto proposes drain sizes, catchment areas, IDF intensities, run-off coefficients, gradients and invert levels.
- Auto generates graphical output with all information needed by JPS.
- Auto generates longitudinal section and quantity take off.
- Multiple separated drainage networks and end points design.

## A. Cascade Drain



## B. Calculation Steps

**Drain mark 2**  
From node: 2 to node: 3  
Drain type = B/CNC  
Drain Dimension = 1.18x20, W=1.200, L=300,  
Drain Length=24.36m  
Cross-sectional area of flow=0.30m<sup>2</sup>  
Wetted Perimeter=1.700m  
Hydraulic Radius=0.176m  
Friction Slope of Drainage=1/150  
Functional slope of Drainage is satisfactory  
 $V = 1.48 \sqrt{R^{2/3} S}$   
 $= 1.0 \cdot 0.176^{2/3} \cdot 1/150 \cdot 0.1$   
 $= 1.976 \text{ m/s}$   
The drain velocity is OK  
 $Q_{\text{design}} = V \cdot A$   
 $= 1.976 \cdot 0.30$   
 $= 0.593 \text{ m}^3/\text{s}$   
Time of concentration  
 $t_c = 3.00 \text{ min}$   
(calculated by user)

## C. Multiple Separated Drainage Networks

Drain Mark	Up Sump	Down Sump	Length(m)	Drain Type	Drain Size (mm)	Catchment Flow (L/s)	San. Catchment Flow (L/s)	Intensity (mm/hr)	Peak Flow (m <sup>3</sup> /s)	Gradient	Velocity (m/s)
Drain network 1											
2	25										
3	28	31	24.363	B/CNC 600	PE450x300x1400	0.000	0.000	184.311	0.000	0.005	1.441
4	30	28	6.089	PEPE 225	PE450x225	0.000	0.000	184.311	0.000	0.005	0.920
5	28	2	24.420	B/CNC 600	PE450x300x1400	0.000	0.000	184.311	0.000	0.005	1.441
6	2	8	27.386	PEPE 325	PE450x300x1400	0.000	0.000	184.311	0.000	0.005	0.939
7											
8	27	28	113.838	B/CNC 600	PE450x300x1400	0.000	0.000	184.311	0.000	0.005	1.441
9	29										
10	25	31	113.838	B/CNC 600	PE450x300x1400	0.000	0.000	184.311	0.000	0.005	1.441
Drain network 2											
11											
12											
13											
14	20	23	14.329	B/CNC 600	PE450x300x1400	0.000	0.000	184.311	0.000	0.005	1.441
15	23	24	38.828	B/CNC 600	PE450x300x1400	0.000	0.000	184.311	0.000	0.005	1.441
16	24	23	19.312	PEPE 325	PE450x300x1400	0.000	0.000	184.311	0.000	0.005	0.939
17											
18	28	16	37.480	B/CNC 600	PE450x300x1400	0.000	0.000	184.311	0.000	0.005	1.441
19	16	23	28.261	PEPE 325	PE450x300x1400	0.000	0.000	184.311	0.000	0.005	0.939



Manual calculation too **slow**

Input using spreadsheet too **tedious**

Existing software too **complicated**

**MES** **Infra Applications**  
*is the solution!*

- ✓ *Save up to 80% of computation time*
- ✓ *User friendly & straight forward*

**>> Advanced Technology**

**>>> Innovative**

**>>> Reliable**

**>>> Automation**

**>> Efficient**

**All products come with the following features:**

- ▶ Built-in versatile **CAD** engine with modeling functions such as tracing, snapping and graphical editing projects right in the software.
- ▶ Supporting data import from any **CAD** softwares such as **AutoCAD**.
- ▶ Exporting details to any **CAD** applications. **No CAD applications are needed in modeling projects.**
- ▶ Outputs can be exported to **MS Office** and any **CAD** applications (dxf & dwg).

**Extra Benefits:**

- ▶ Minimum post editing and touch up for submission to **Malaysia Local Authorities.**
- ▶ MES provides **Free** software upgrade, **Free** software maintenance, **Free** technical support, **Free** technical training & **Free** consultation in design.

***We provide training and technical support by professional engineers locally...***

Please visit our website: **www.mes100.com** for more info.