Description
Technocad urban design software is a suite of PC based programs for the design and automated draughting of civil engineering urban services. Incorporated in this suite are software packages that cover all aspects of civil engineering services design such as Roads, Sewer reticulation, Stormwater reticulation and Water supply. All the packages have been written with knowledge gained in the civil design office where the need for fully automated draughting, rather than manually manipulated computer aided draughting, was identified as the only way of increasing design and draughting productivity.

PipeMate is the gravity sewer and stormwater software solution of the Technocad urban design software. The purpose of the software is to provide an intuitive graphical approach to sewer and stormwater reticulation design and analysis, whereby basic information pertaining to the reticulation system is gleaned directly from the AutoCAD drawing. In addition, PipeMate gives you final working layout and longitudinal section drawings with the minimum amount of manual input. The designer works from within AutoCAD, the world’s leading CAD software, building the drawings as the design process proceeds.

Work smarter
Pipe networks are co-ordinated and layout and longitudinal section drawings are created automatically from parameters chosen by the designer. All manhole numbering and pipe numbering is done for you. Quantities are also calculated, both for piping and manholes. In addition trench excavation volumes are also available. As you are working in AutoCAD, you can easily add extra notes, background images or attach reference files etc. prior to plotting the final working drawings. Let PipeMate do all the previously boring and mundane work!

Horizontal layout drawings
The designer simply has to draw lines representing the gravity pipe network in plan in AutoCAD, connecting the plots/stands as required, creating a 'dendritic' drainage network in the process. Line endpoints indicate manhole requirements - you do not have to draw any of the manholes; PipeMate does it all for you.

Simply draw a circle to indicate the position of the outfall. Place inflows into your network graphically optionally using “Red book” or Harmon Formula standards for attenuation by population.

When you have created your drainage reticulation layout, simply 'window' the network in AutoCAD and PipeMate calculates the following automatically:

- Manholes are numbered for you and sorted in branch order
- Pipes are numbered and sorted
- Manhole / pipe topology automatically determined
- Earthworks excavation quantities
- Pipe lengths calculated and totalled
- Manholes are co-ordinated to the required co-ordinate system
- Pipe lengths calculated and totalled
- A layout drawing is automatically produced for any desired scale
- From' manhole - 'To' manhole
- Pipe number/diameter text placed midway above each pipe
- Pipe length text placed midway below each pipe
- A co-ordinate list for all manholes
- A pipe data list for all pipes giving: Force soffit, in or invert tie, in at manholes
- Maximum depth of flow in pipe for design purposes
- Depth categories for manhole and pipe earthworks excavation quantities
- Pipe Manning's 'n' value

Network pipe branching
PipeMate will automatically compute a pipe branching configuration for you. This branching configuration can then be viewed graphically. The designer has the option to accept PipeMate’s branching or to change the branching. Once again, this is easily done by simply picking the pipes that make up your required branching arrangement.

Hydraulic design
Hydraulic design of the gravity sewers can be done with determination of drop manholes, pipe diameter choice from schedules of commercially available sizes (user-definable), starting and flattest pipe grades per pipe diameter and minimum cover required.

In addition the user can specify:
- Minimum pipe cover
- Minimum manhole drop
- Maximum depth of flow in pipe for design purposes
- Depth categories for manhole and pipe earthworks excavation quantities
- Pipe Manning's 'n' value
- Force soffit tie-in or invert tie-in at manholes

PipeMate computes the required pipe sizes and soffits / inverts for all branches in the network including calculations to ensure that all interconnecting pipe branches 'tie-up'. This unique feature alone can save you many hours of manual work. Imagine being able to have a whole network designed for you by simply pressing a button!

Pipe network layout and setting out data produced automatically
Hydraulic results include design flow/velocity, maximum flow/velocity, capacity %, grade, length etc. for every pipe in each branch. Low/high velocities are highlighted.

**Extraction of ground level surveys**
Existing ground levels are required at manholes and along all pipe branches. Digital terrain models (DTMs) of existing or proposed earthworks levels can be extracted by PipeMate using in-memory link to SurfMate or AutoCAD Civil3D surfaces with one surface used for design and two more optional surfaces to show existing vs proposed or rock levels as an example. Breaklines in a TIN (triangulated irregular network) surface will be picked up accurately.

**Longitudinal section draughting**
Longitudinal sections can be designed and drawn of the sewer/stormwater branches.
Features of longitudinal sections include:
- Choice of any horizontal or vertical scales
- Longitudinal section ground profiles extracted automatically for every branch of the network.
- Annotation of levels on the longitudinal section at any chosen chainage interval
- Dynamic preview and editing of ground profile files and sewer profile files with ability to force inverts, pipe grades or drops.
- Move pipes in the drawing and the design data updates; revise the design data and the drawing updates
- Ground and invert levels interpolated if required at constant chainage intervals. Ground and invert levels determined at special chainages such as pipe or road crossings.
- Manhole inverts and pipe grades either designed automatically or else entered manually by specifying either:
  - Manhole invert
  - Pipe grade

**Quantities calculations**
Earthworks quantities are calculated in user selectable depth categories for both the "design" mode and "analysis" mode.
Output includes:
- Pipe length and pipe diameter for each pipe in each branch in the network
- Pipe earthworks excavation quantities listed per branch for each diameter and depth category
- Cumulative quantities for all branches in the network
- Number of manholes per depth category and total number in network
- Length of piping material by diameter for the complete network
- Total length of piping for all the network
- A fully priced Schedule of Quantities can be written directly to Microsoft Excel.

**Hydraulic Analysis**
This allows the hydraulic analysis of an existing system (as opposed to the design of a new system) where the pipe sizes and inverts are known and the designer wishes to calculate the hydraulic capacities of the existing network and produce longitudinal sections.
Hydraulic analysis of the gravity sewer/stormwater network can be carried out allowing for drop manholes, varying diameters and pipe grades, varying Manning "n" values and flows.

**Clash Detection**
Automatic determination and visualisation of pipe network clash detection can be done with other networks in 3-D, such as clash detection between a stormwater network and a sewer network.

**House connections**
House connections from each Plot/Stand to the main sewer can be calculated and shown automatically on all longsections.

**Utility crossings**
Utility services such as water lines, cables, telecom lines etc can automatically be shown on long-sections when simply indicated in plan.
AutoCAD Civil3D networks

Should the designer be using AutoCAD Civil3D then the following options are also available:

- Pipes and manholes can be automatically drawn & labeled in AutoCAD Civil 3D as 3D pipe and structure elements. Pipe branches are taken into cognisance automatically creating alignments along each branch of the network.
- Automatic drawing of AutoCAD Civil 3D profiles (longsections) for all branches in the network (or just those selected). All styles required are supplied as per local standards.
- Hydraulic information automatically placed on the AutoCAD Civil 3D Profiles.
- Dynamic updating of hydraulic data if pipe adjusted in profile view.

Automatic Manhole and pipe quantities schedule for whole network

Automatic Quantities per network branch for piping, manholes, bedding and trench backfill

Hardware requirements

As per Autodesk recommendation for AutoCAD, AutoCAD Map or AutoCAD Civil3D

Software requirements

- AutoCAD Release 2017-2020 supported. AutoCAD Civil 3D 2017-2020 supported.
- Operating systems: Windows 7 64-bit, Windows 8/8.1 64-bit and Windows 10 64-bit

Contact Details

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On-line help

PipeMate has a full-featured HTML style on-line help with indexing and search features. Detailed explanations of the workflow and functions with an abundance of graphics.

Technical Support

When a license of PipeMate is purchased, you have a full year of software maintenance and technical support for free! After one year, you can continue to receive the same benefits for a further year for a small fee.

Purchase Options

You can purchase a perpetual license with annual maintenance, or you can subscribe to the software for 1 month, 3 months, 6 months or 12 months. The choice is yours!