

# INROADS® STORM AND SANITARY™



## A comprehensive design application for surface and wastewater collection systems

Bentley's InRoads® Storm & Sanitary™ is a comprehensive solution for storm water and sanitary sewer design. It is designed to assist in the design, analysis, management and expansion of storm and sanitary networks. InRoads Storm & Sanitary provides intuitive tools that support the world's most popular CAD formats.

Using industry-standard analytic techniques, InRoads Storm & Sanitary allows you to create a full 3D model of a network. With InRoads Storm & Sanitary, creating and manipulating pipes, manholes or inlets is very intuitive, and the data is fully compatible with the InRoads family of products.

### Interactive 3D Modeling

InRoads Storm & Sanitary allows you to create new networks or expand existing networks in a true 3D environment. As you graphically add sewer features, the project database automatically updates. You can immediately validate the design as the model is regenerated on-screen. You can also easily modify the network to create "what if" design scenarios, helping you provide the best possible solution for the network.

### Storm Water Management

InRoads Storm & Sanitary is perfectly suited for the engineering tasks associated with storm water management. Use a robust set of tools to calculate drainage areas and create network entities, such as pipes, inlets, manholes, culverts, channels and pumps. You can also perform design and analysis with this powerful toolset.

### Sewer Systems

Use InRoads Storm & Sanitary to create and augment sewer systems. You can create sewer systems using industry-standard design principles to ensure the system operates optimally and efficiently. A variety of options for inserting flows makes the data entry process very flexible and intuitive.

### Pipe Profiles

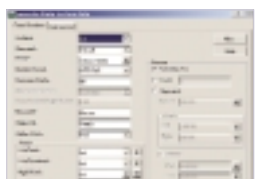
Creating profiles is a vital part of the storm and sanitary system design process. InRoads Storm & Sanitary streamlines this design task and provides for easy interactive manipulation of created data. Profile annotation can also be automated as model data is used to populate labels. In addition, you can place and annotate hydraulic and energy grade lines.



InRoads Storm and Sanitary easily generates intelligent pipe networks.

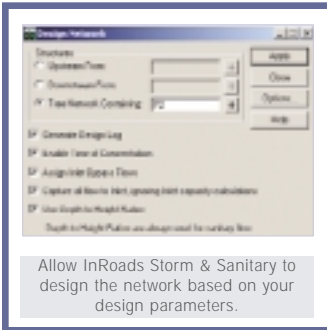


Manipulate the critical design data for drainage inlets.



Generate surface water section details for various methods, including HECRAS.

## INROADS STORM & SANITARY AT-A-GLANCE



### Data Interoperability

- Seamless integration between CAD platforms—in both DGN and DWG environments
- Data can be imported from almost any source

### Centralized Data Model

- Single data source for all modules within the InRoads family of products
- All InRoads modules interoperate directly and seamlessly
- Multi-user access to data facilitates workgroup collaboration

### Network Layout

- Interactive network layout relative to digital terrain models and alignments
- Creation of network entities, such as pipes, inlets, manholes, culverts, pumps and channels

### Multi-inlet Placement

- Automatic placement of inlets at defined intervals and offsets from baseline
- Automatic connection to inlets with proper pipe length
- Easy modification of inverts and depth of cover

### Pipe Profile Projection

- Projection of pipe profiles in previously generated road profile windows or along the network itself
- Accounting for inlets, manholes and crossing pipes or culverts
- Display and annotation of pertinent data in the same profile window

### Sanitary System Operations

- Manipulation of the sanitary system to account for field conditions
- Application of flow rates by point discharge or using demographic data
- Application of design checks to ensure the system meets minimum and maximum design requirements

### Industry-standard Analysis

- Use of the most common hydraulic methods, such as Manning's equation, Darcy-Colebrook methodologies, Bernoulli and the continuity principles
- Derivation of backwater and junction losses from HEC-22 methodologies
- Surface runoff analysis by the Modified Rational method or Soil Conservation Services methodologies
- Interface to popular analysis packages, such as HECRAS, WSPRO and MicroDrainage

### Feature-based DTM

- Flexible, double-precision
- Intelligent features
- Verification of pipe cover, identification of low points, merging of channel surfaces into existing surfaces and more

### Surface Runoff

- Analysis of surface runoff in a number of ways:
  - Calculation of peak runoff of drainage basins
  - Establishment of time of concentration (Tc)
  - Generation of IDF tables from industry-standard formulas or user-specified tables
  - Injection of point flows when necessary

### Production and Drafting Tools

- Use of profile and cross section sheet cutting tools to improve productivity
- Production of "smart" labeling of plan, profile and cross-section elements
- Updating of labels as data model is modified

### Database Management and Reporting

- Maintenance of all related physical model data, computations and network attributes in an ODBC-compliant database for use in reports, queries and annotation

### LandXML Support

- Exporting of alignments, surfaces and other pertinent design information to other systems via XML



The software provides a comprehensive solution for the entire water handling workflow, start to finish.

## SYSTEM REQUIREMENTS

- Prerequisites: MicroStation® v8.1 or AutoCAD® 2000i & 2002
- Processor: Intel® Pentium® II 400Mhz minimum, 500Mhz recommended
- Operating System: Microsoft Windows® XP Professional, Microsoft Windows 2000, Microsoft Windows NT® (SP6), Microsoft Windows Me, Microsoft Windows 98 (2nd edition)
- Memory: 128MB minimum, 256MB recommended
- Disk Space: 75MB minimum, 100MB or more recommended
- Input Device: Mouse

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