Waterworks

BERMAD

BERMAD AIR

BERMAD AIR VALVES SELECTION PROGRAM

Update March 2024

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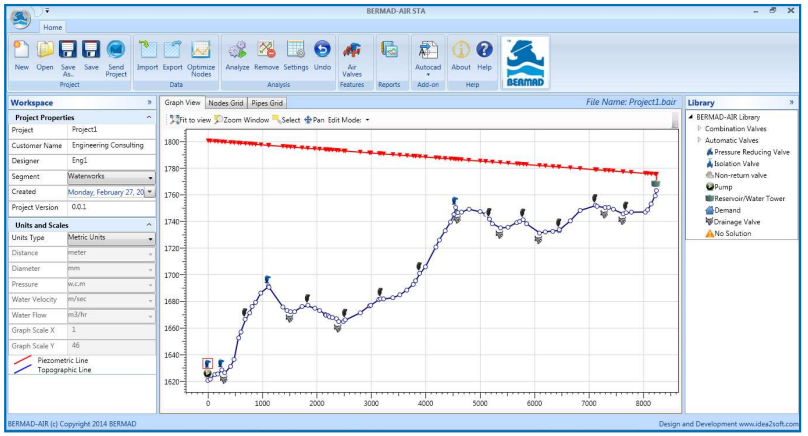
BERMAD AIR – THE PROGRAM

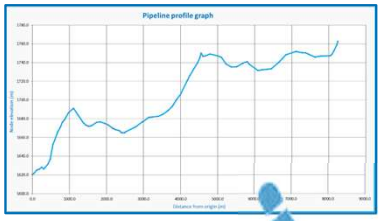
BERMAD AIR software is a state of the art, water system design tool helping the designer in selecting the best valves for optimized air control in water pipelines and irrigation networks while reducing costs.

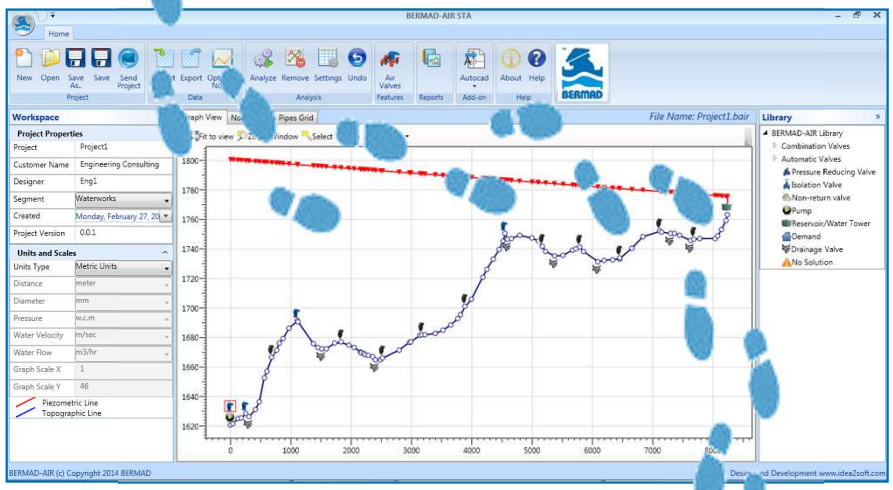


The software is an engineering tool, including algorithms based on common sizing methods such as AWWA-M51. It enables every designer to reach an educated decision regarding the selection of air valves, while examining various “what if” scenarios.

BERMAD AIR - IN 10 STEPS

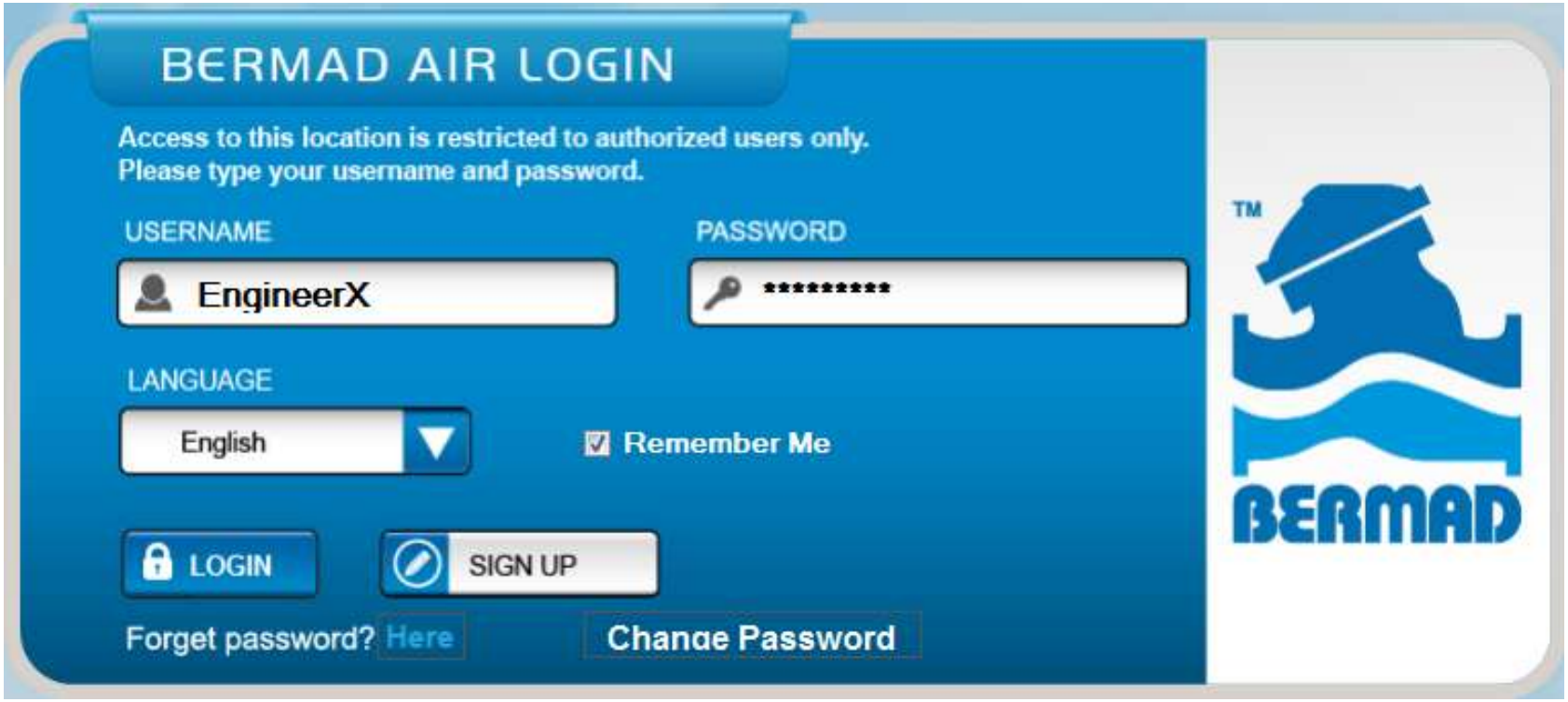
1. Login
2. Workspace details
3. Import Excel File
4. Pump & Reservoir
5. Settings
6. Analysis
7. Special Scenarios
8. Air Valves
9. Reports
10. Support





BERMAD AIR - IN 10 STEPS

1. Login



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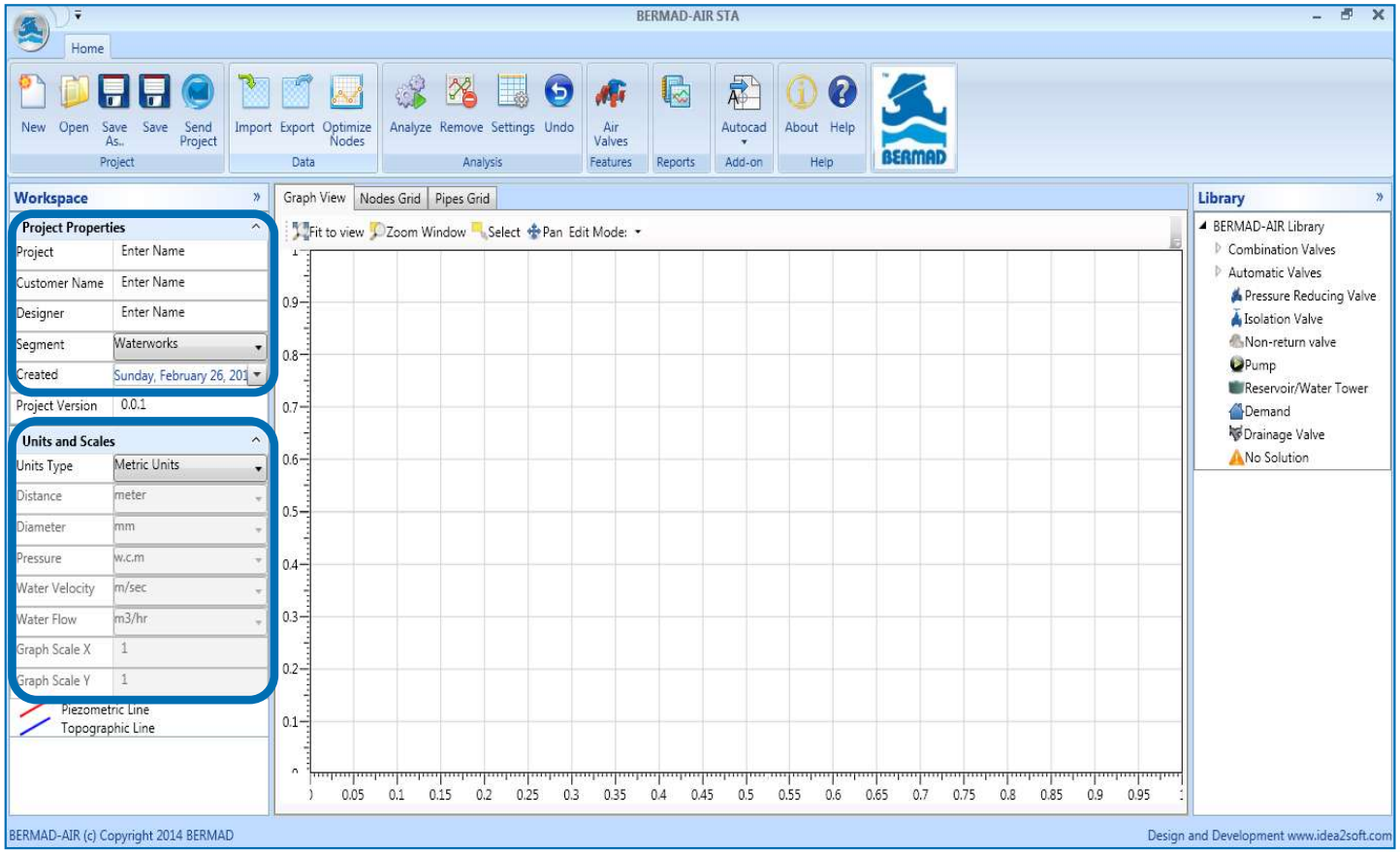
2. Workspace details

Project properties

Units selection



BERMAD AIR - IN 10 STEPS

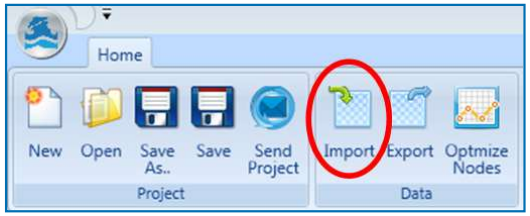
3. Import Excel File

Ensure correct format

Note: Format cell as "Number"

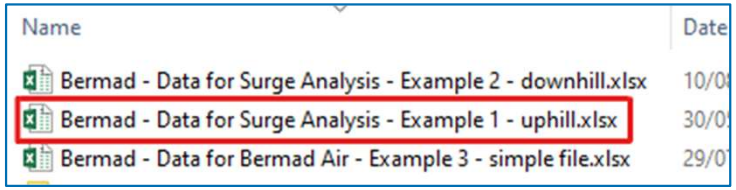
MUST HAVE			Optional					
Node number	Distance from origin	Node elevation	Pipeline internal diameter	Pipeline wall thickness	Pipeline material	Roughness (HW coefficient)	Class / Rating	Any demand?
-	meter	meter	mm	mm	-	-	-	m3/h
1 (first node)	0.0	1620.5						
2	42.9	1621.8						
3	121.9	1625.2						
4	179.1	1625.7						

Click "Import"



Select file to import

(must be closed)



BERMAD AIR - IN 10 STEPS

3. Import Excel File (cont.)

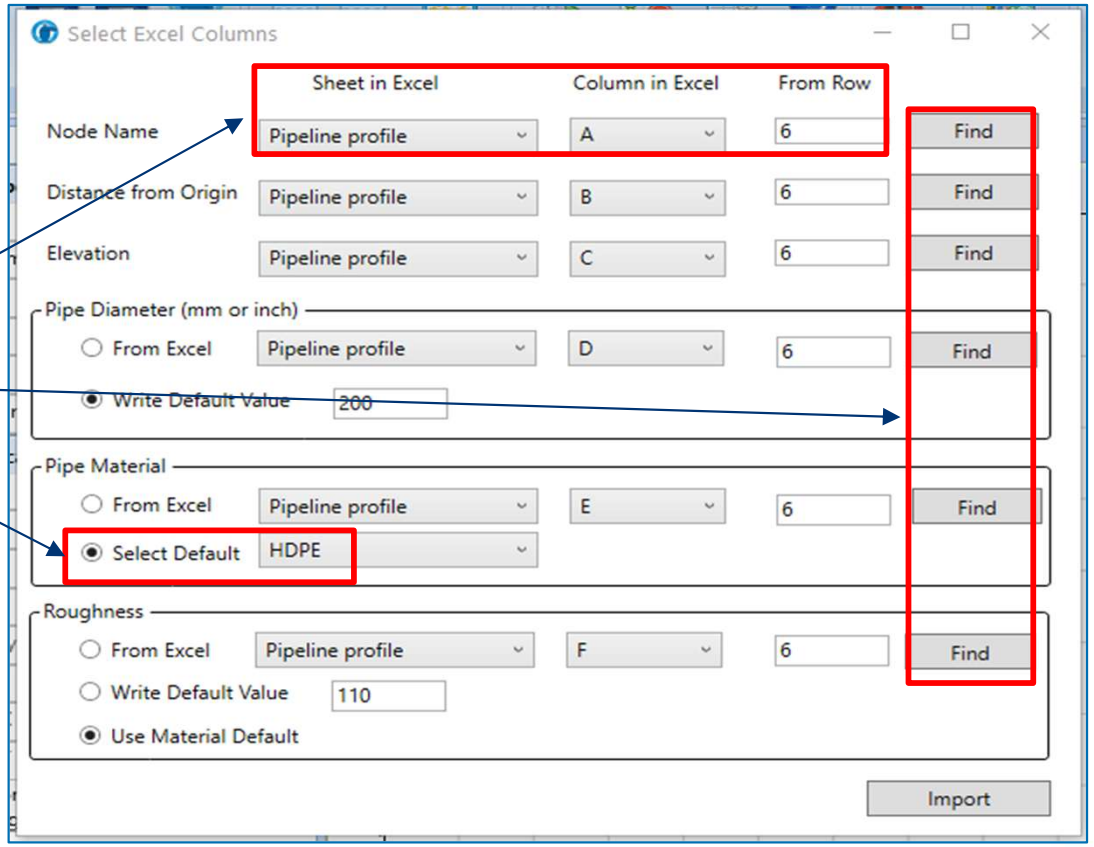
Select data location

Three options:

Drop down lists

In the file

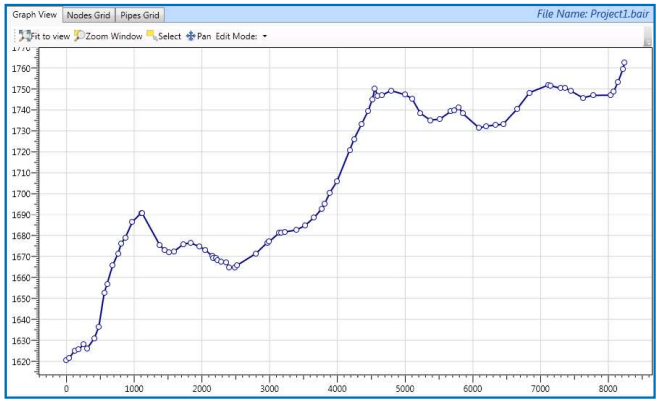
Default



BERMAD AIR - IN 10 STEPS

3. Import Excel File (cont.)

Check data integrity



Graph View | Nodes Grid | Pipes Grid

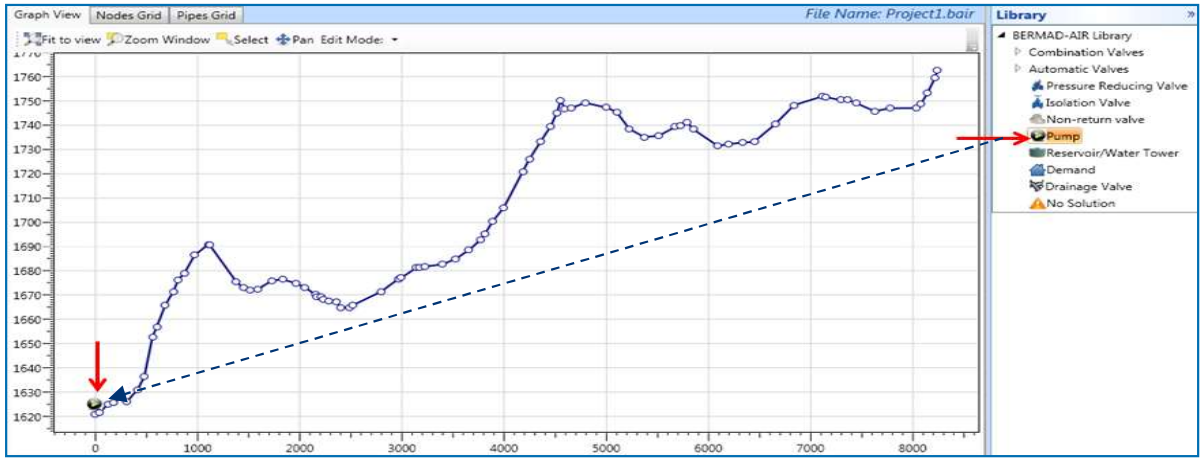
Update all fields below selected items

Section Name	Pipe Material	Length [m]	Pipe Diameter [mm]	Friction Coef	Collapse Pressure [w.c.m]	Flow Rate [m3/hr]
1-2	Iron	42.9	355	140	-4	0
2-3	Iron	79	355	140	-4	0
3-4	Iron	57.2	355	140	-4	0
4-5	Iron	73.1	355	140	-4	0
5-6	Iron	56.4	355	140	-4	0
6-7	Iron	103.5	355	140	-4	0
7-8	Iron	65.9	355	140	-4	0
8-9	Iron	79	355	140	-4	0
9-10	Iron	42.7	355	140	-4	0
10-11	Iron	83.9	355	140	-4	0
11-12	Iron	76.8	355	140	-4	0
12-13	Iron	49.6	355	140	-4	0
13-14	Iron	60.5	355	140	-4	0
14-15	Iron	100.5	355	140	-4	0
15-16	Iron	135.1	355	140	-4	0

BERMAD AIR - IN 10 STEPS

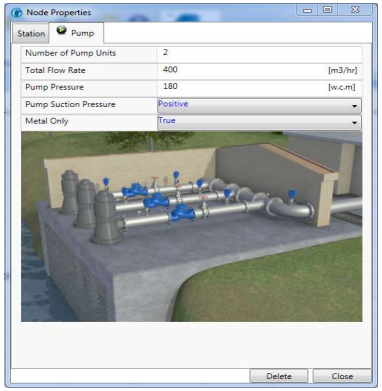
4. Pump & Reservoir

Drag & drop pump icon



Pumping station data

(No. of pumps, flow, pressure, etc.)



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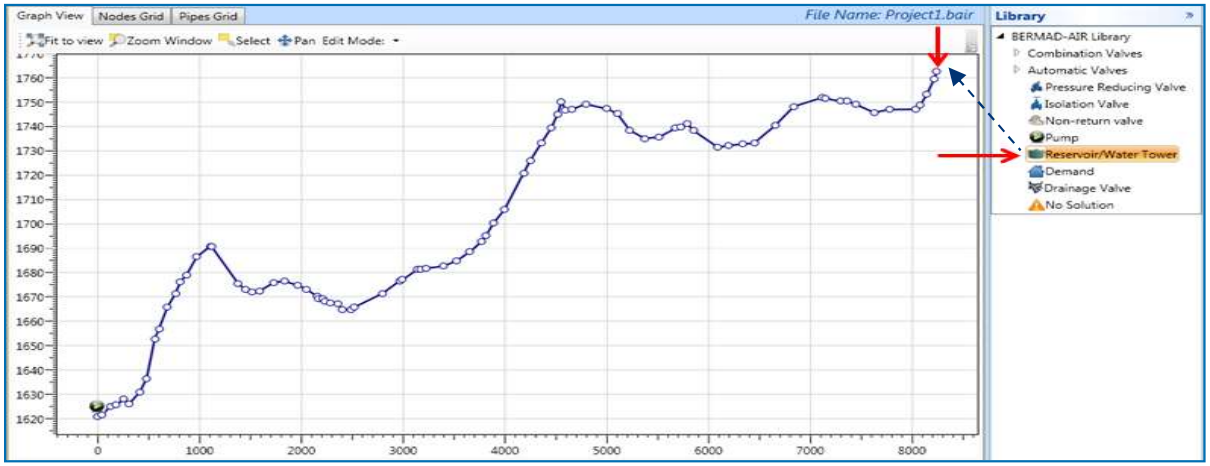
4. Pump & Reservoir (cont.)

Drag & drop reservoir icon



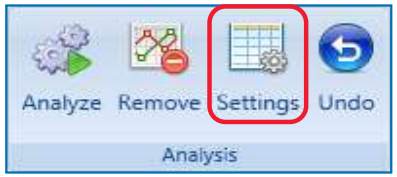
Reservoir data

(water level, connection, etc.)

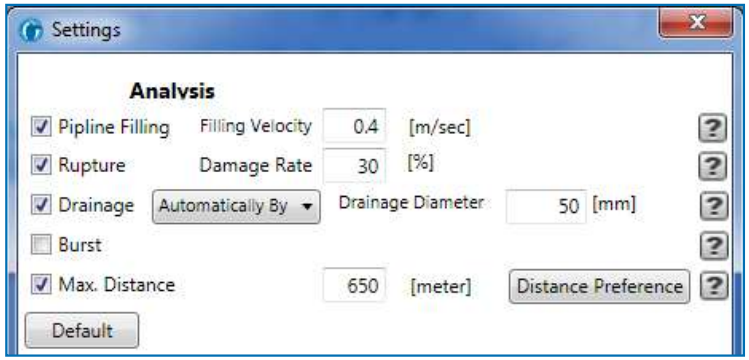
BERMAD AIR - IN 10 STEPS

5. Settings

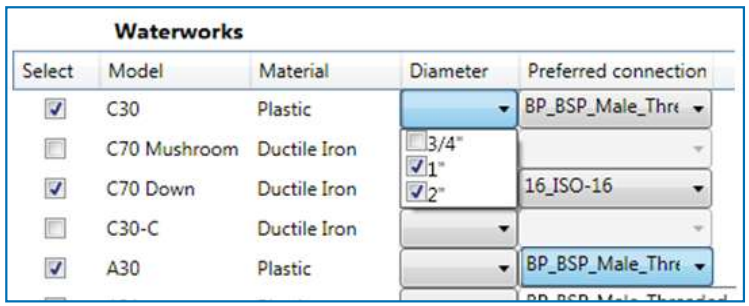
Click "Setting"
(If need to change)



Analysis parameters
(Change, default or ignore)



Select Air Valves options
(Change, default or ignore)



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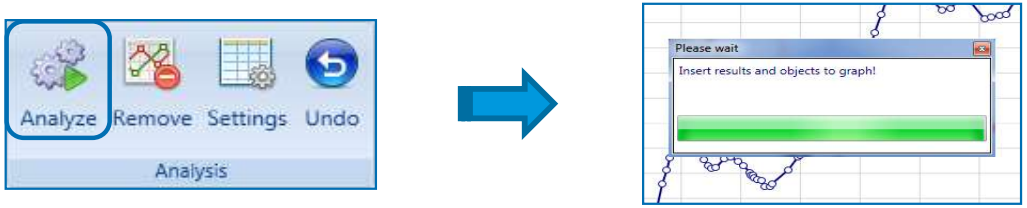
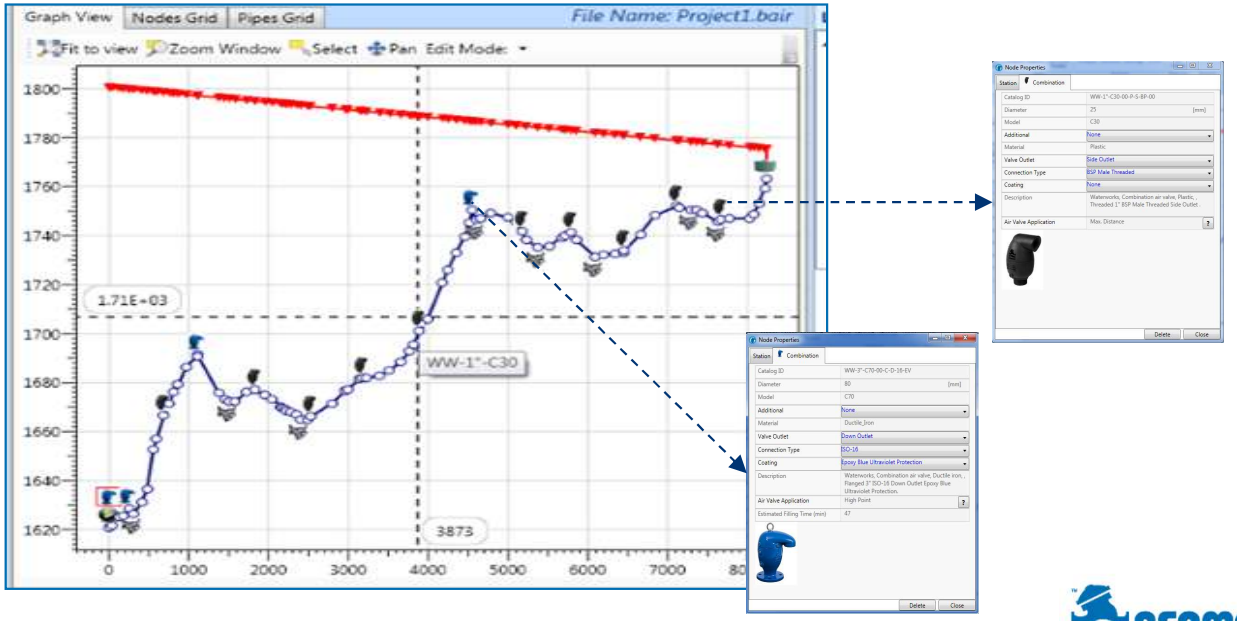
6. Analysis

Click “Analyze”



Check Results

(Locations, selection reason, flow, etc.)



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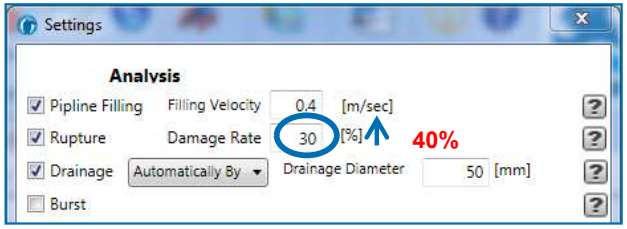
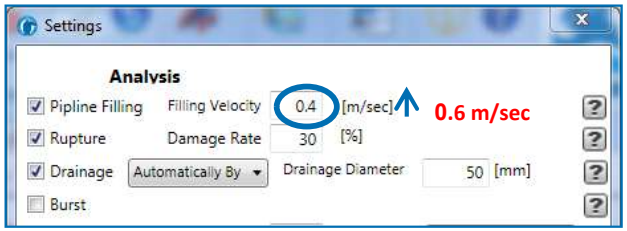
7. Special scenarios

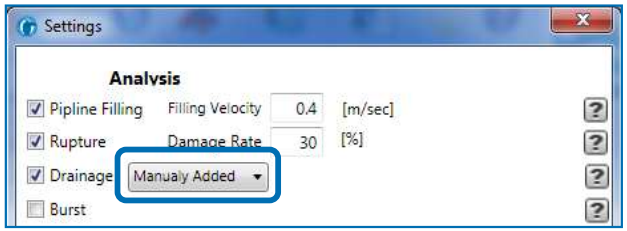
Pipe age affects damage

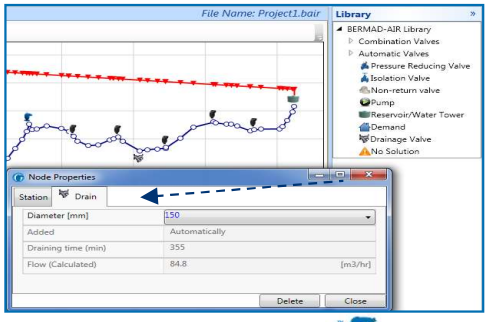


Real filling affects velocity



Manually added drainage

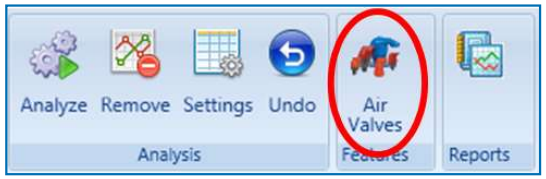




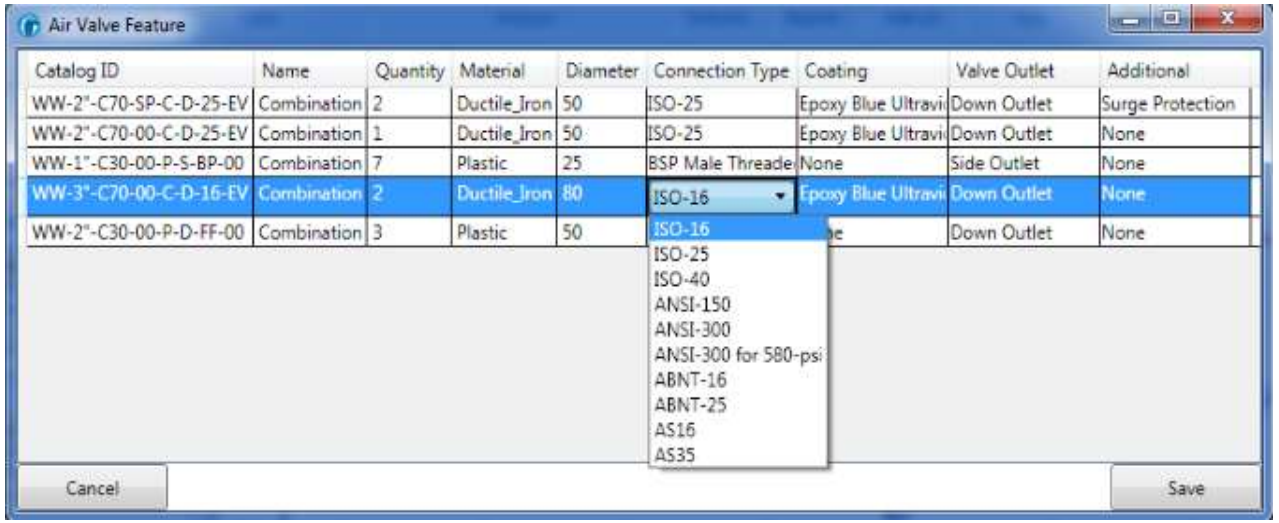
BERMAD AIR - IN 10 STEPS

8. Air Valves

Click “Air Valves”



Adjust AV configuration
(Connection, Coating, Cover, etc.)

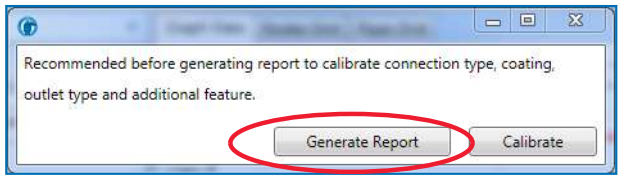


BERMAD AIR - IN 10 STEPS

9. Reports

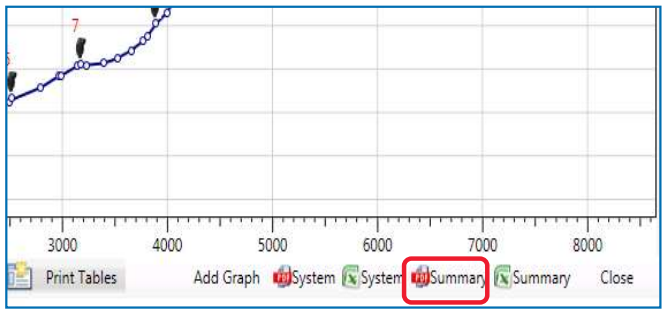
Click “Reports”

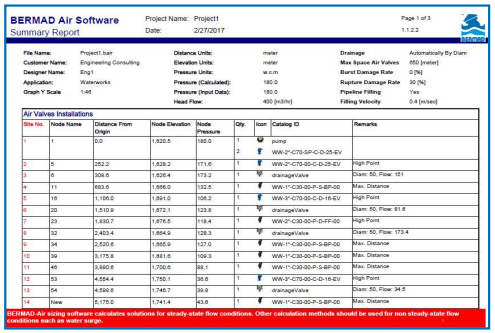
Click “Generate Reports”



Select report type

(PDF or Excel, system or summary)



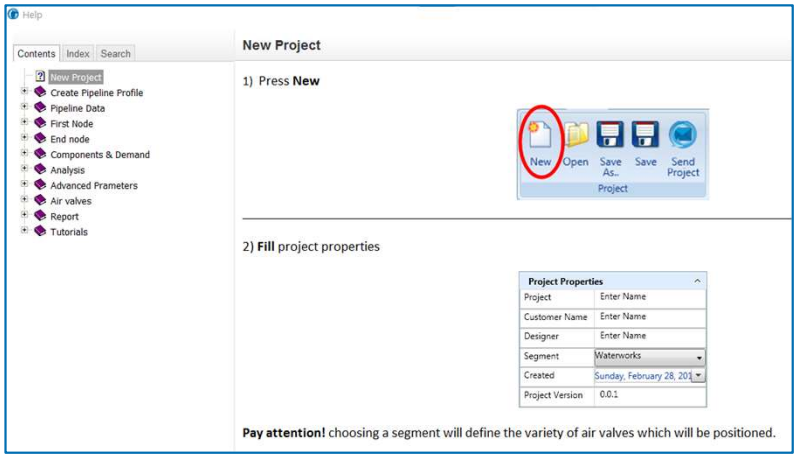


BERMAD AIR - IN 10 STEPS

10. Support

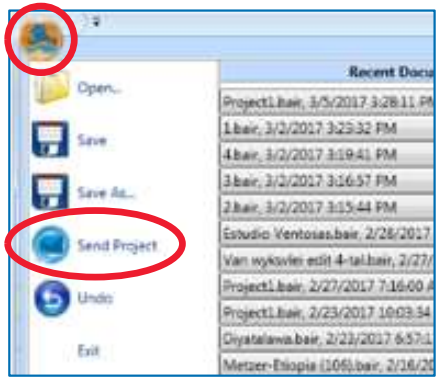
Click “Help”

This will open a help menu



Click “Send Project”

This will send a copy of the project to BERMAD’s Application Engineering department.



BERMAD AIR – THE PROGRAM

Report example

BERMAD Waterworks

Surge Report

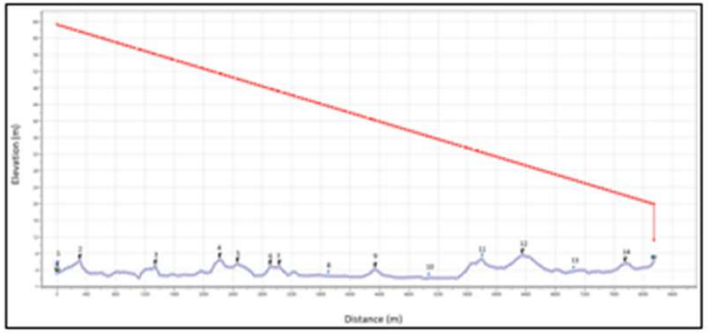
BERMAD AIR - Report

Details:

File Name:	Pathein Town Water Supply Project.bair
Customer Name:	Han Sein Thant
Designer Name:	MB
Created:	10/01/2021
Application:	Waterworks
Pressure (Calculated):	60.0
Pressure (Input Data):	60
Head Flow:	866 [m3/hr]

Distance Units:	meter
Elevation Units:	Yes
Pressure Units:	w.c.m
Max Space Air Valves	1000 [meter]
Burst Damage Rate	0 [%]
Rupture Damage Rate	33 [%]
Pipeline Filling	Yes
Filling Velocity	0.3 [m/sec]

System Layout:



BERMAD Waterworks

Surge Report

Air Valves Positioning:

Position No.	Distance From Origin	Node Elevation	Node Pressure	Qty.	Catalog ID	Remarks
	0	3.2	60	1	Pump Station	
1				3	WW-2"-C30-SP-C-S-16-EV-WD	
2	310	6.3	55.3	1	WW-2"-C30-00-P-S-BP-WD	High Point
3	1340	5	51.1	1	WW-2"-C30-00-P-S-BP-WD	High Point
4	2220	6.6	44.8	1	WW-2"-C30-00-P-S-BP-WD	High Point
5	2460	5.5	44.6	1	WW-2"-C30-00-P-S-BP-WD	High Point
6	2910	4.9	42.8	1	WW-2"-C30-00-P-S-BP-WD	High Point
7	3030	4.9	42.2	1	WW-2"-C30-00-P-S-BP-WD	High Point
8	3700	2.6	40.9	1	WW-3"-C70-00-C-D-16-EV	Max. Distance
9	4340	4.3	35.8	1	WW-2"-C30-00-P-S-BP-WD	High Point
10	5070	2.1	34.2	1	WW-3"-C70-00-C-D-16-EV	Max. Distance
11	5800	6.7	25.7	1	WW-2"-C70-00-C-D-16-EV	High Point
12	6350	7.6	21.8	1	WW-2"-C30-00-P-S-BP-WD	High Point
13	7050	3.7	22	1	WW-3"-C70-00-C-D-16-EV	Max. Distance
14	7750	5.6	16.4	1	WW-2"-C30-00-P-S-BP-WD	High Point
	8145	6.1	13.8	1	Reservoir	

Air Valves - Total:

Catalog ID	Qty.	Description	Remarks
WW-2"-C30-SP-C-S-16-EV-WD	3	Water Works, Combination Valve, Ductile Iron (with 1), Threaded 2" (DN50) (2) Side Outlet Epoxy Blue Ultraviolet Protection.	Pumping Station
WW-2"-C30-00-P-S-BP-WD	9	Water Works, Combination Valve, Nylon (with 1), Threaded 2" (DN50) (2) Side Outlet .	High Point
WW-3"-C70-00-C-D-16-EV	3	Water Works, Combination Valve, Ductile Iron (with 1), Flanged 3" (DN80) (2) Down Outlet Epoxy Blue Ultraviolet Protection.	Max. Distance
WW-2"-C70-00-C-D-16-EV	1	Water Works, Combination Valve, Ductile Iron (with 1), Threaded 2" (DN50) (2) Down Outlet Epoxy Blue Ultraviolet Protection.	High Point

THANK YOU!

BERMAD Water Control Solutions