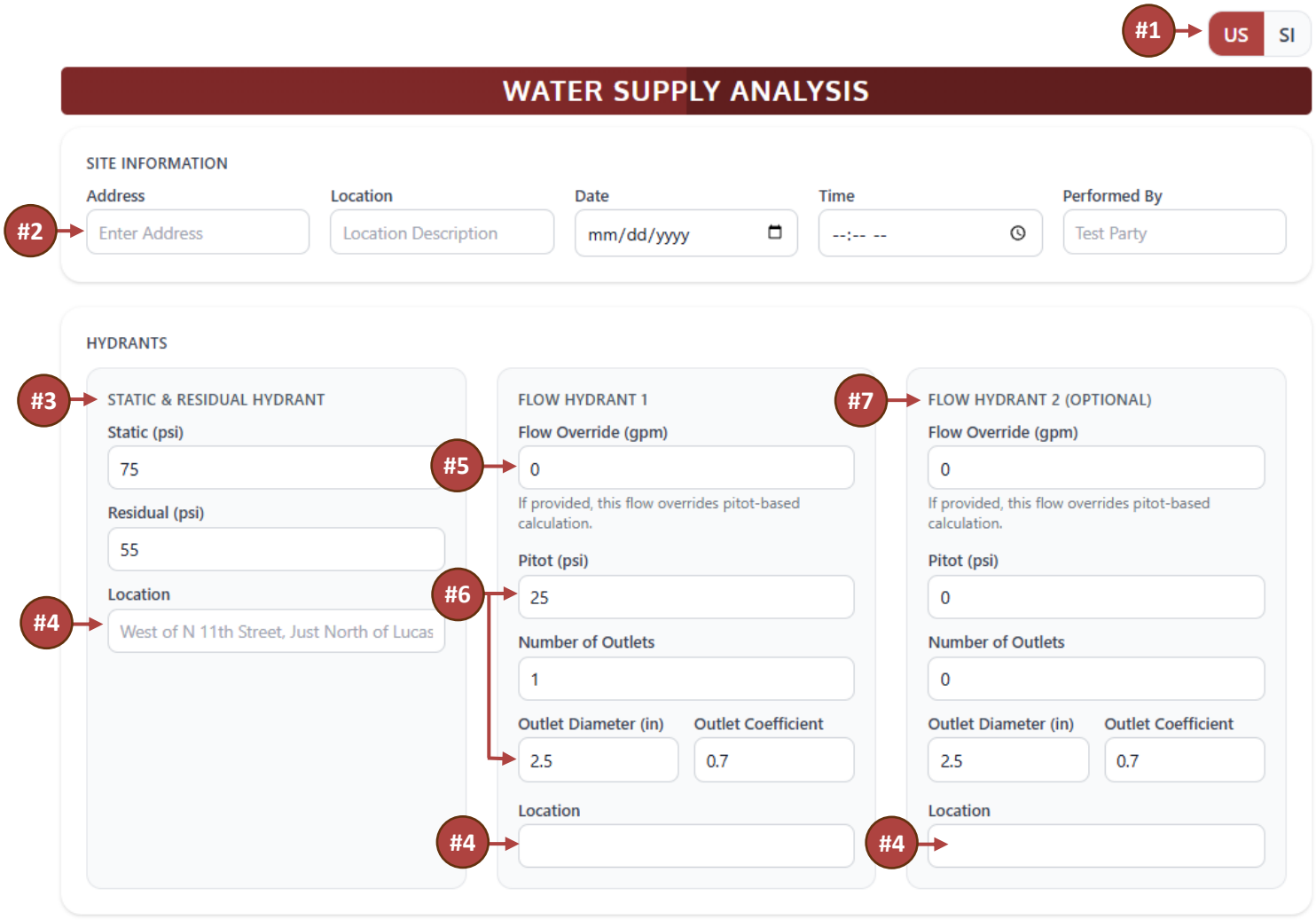
# WATER SUPPLY ANALYSIS

## A USER'S GUIDE




## DESCRIPTION

**PURPOSE:** The Water Supply Analysis tool (1) calculates available fire-flow, (2) summarizes and reports flow test results, and can (3) compare system demands to an available water supply. This tool has printable report capabilities, PNG graph download, and DXF file download for use in CAD.

**#1 UNITS:** Toggle between US customary units (psi, gpm, inches) and SI units (kPa, L/s, millimeters). All inputs, outputs, and the curve convert instantly based on selection.

**#2 SITE INFORMATION:** Enter details that will appear on the printed or exported report. These do not affect the calculations, but will appear on the report summary and on the DXF file download for CAD use.

The *Location* description is used to describe the locations of the hydrants. This can be used as a text description of the location, as sometimes addresses are not yet established, or hydrants don't conform to clear address locations.

**#3 STATIC & RESIDUAL HYDRANT:** This section represents the pressure hydrant—the hydrant where static and residual pressures are measured during the flow test. Both are used as anchor points for the available water supply.

**Static Pressure:** Pressure with no water flowing.

**Residual Pressure:** Pressure while hydrants are flowing.

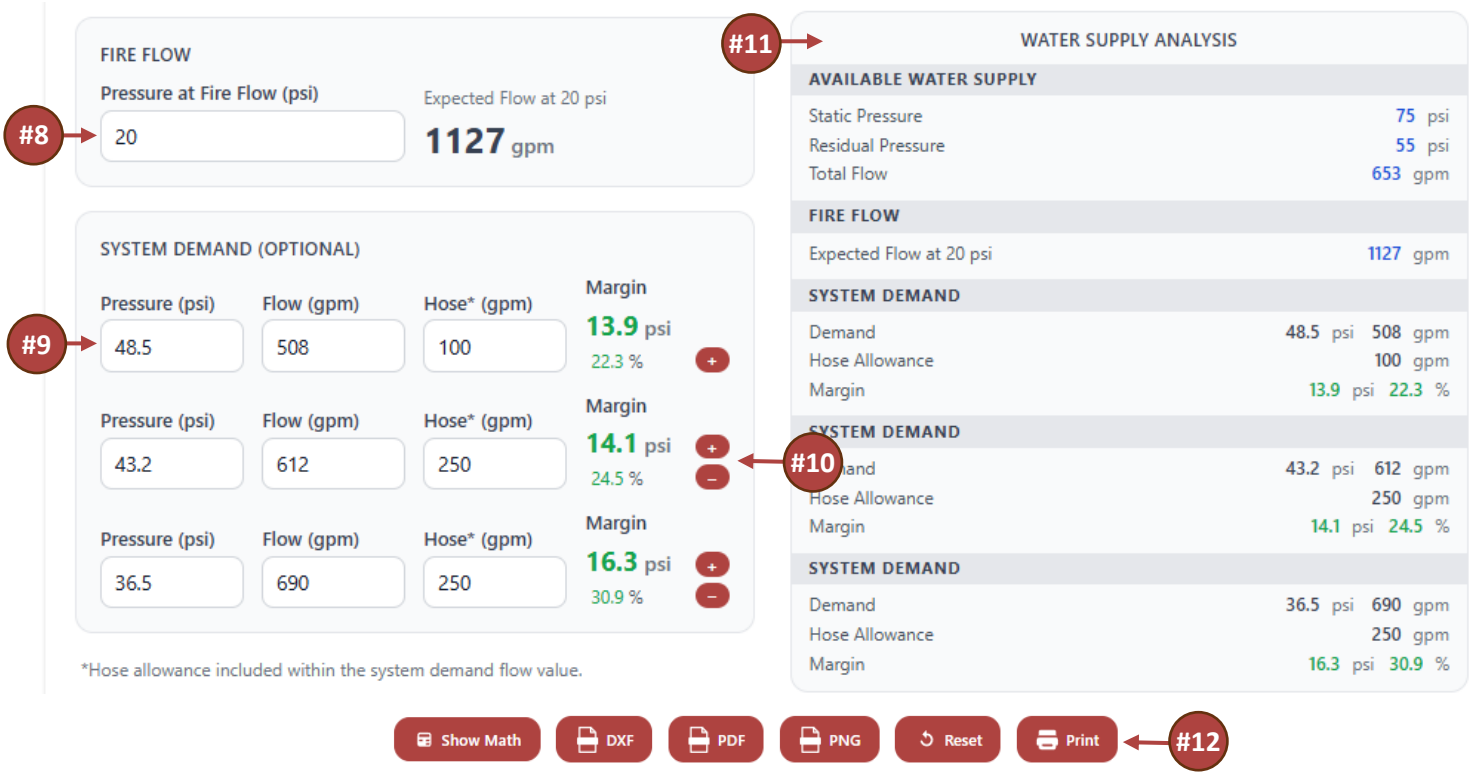
**#4 HYDRANT LOCATION:** This is an optional space to describe the location of this *specific* hydrant.

For ultimate specificity (and what many prefer), use an online map (such as Google Maps), right-click the location, copy the coordinates, and paste them here. Results might look like 38.96373104646364, -95.24399125365619, and give anyone viewing the report an exact idea of where the hydrant is located.

**#5 HYDRANT FLOW OVERRIDE:** If you already know the exact flow from a hydrant using equipment-specific conversion charts, then simply enter the flow here. This override will disable the pitot, diameter, outlet count, and coefficient fields.

**#6 HYDRANT FLOW, CALCULATED:** Alternatively, this tool can convert a pitot pressure to a flow, using the quantity and characteristics of the openings paired with the measured pitot pressure.

**#7 FLOW HYDRANT 2:** A two-hydrant flow test involves one pressure hydrant (measuring static and residual pressure) and one flow hydrant. A three-hydrant flow test is sometimes used to further test the capabilities of a water supply for more demanding systems. When two hydrants are flowing, populate this flow hydrant box using the flow override or calculated values. If this hydrant field is zero or blank, it is not calculated.




**#8 FIRE FLOW:** This field lets you choose the target pressure at which you want to know the available fire flow. Commonly 20 psi is the standard fire flow benchmark used by ISO and AHJs.

Fire Flow is the available amount of water available on this water supply, at 20 psi. Fire Flow is used for water available for firefighting, with minimum values set by fire codes such as the IFC (see Appendix B) and NFPA 1.

**#9 SYSTEM DEMAND:** This section is for a system's required demand for comparison against the available water supply.

Each row includes: *Pressure* is the minimum system pressure required at the water supply. *Flow* is the total system flow demand. *Hose** represents the hose allowance, which is included in the Flow value. *Margin* is the safety factor between available pressure and required pressure at the system demand flow.

Use of the *System Demand* box is optional; this tool can be used just for reporting a hydrant flow test, or it can be used to compare system demand(s) against a water supply.

**#10 ADD / REMOVE BUTTONS:** These buttons allow multiple multiple system demands to be evaluated against the water supply (such as mutiple demand areas, multiple sprinkler systems, or additional systems such as standpipes).

"+" adds a new system demand row.

"–" removes the specific row you're working with.

**#11 WATER SUPPLY REPORT:** This right-hand panel generates a complete water supply report based on all your inputs.

**#12 UTILITIES:** *Show Math* will show how Fire Flow and safety margins are calculated. *DXF* will export the water supply graph to DXF which is ready for use in AutoCAD or Revit. *PDF* will export the water supply graph (only) to PDF. *PNG* will also export the water supply graph (only), but to a PNG image file. *Reset* will reset the values to defaults, and *Print* will print both the input files and the report to PDF or a printer.