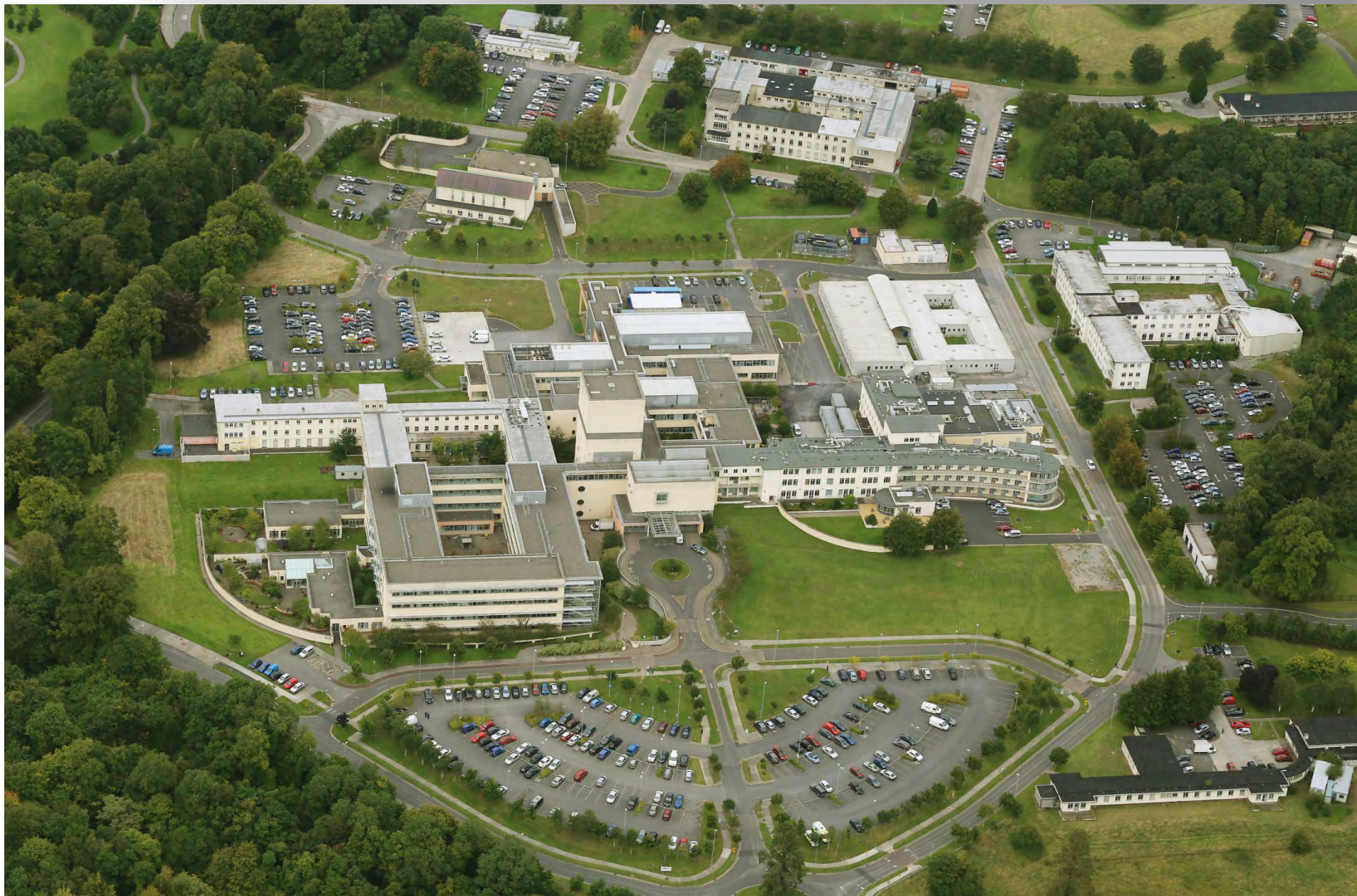


CASE STUDY WATER MANAGEMENT CONNOLLY HOSPITAL

**Bill O'Reilly
Estates Manager
Connolly Hospital**



IMG_5083 Photo: Peter Barrow Photography Tel: 0872559638, Date: 4th September 2015



IMG_5087 Photo: Peter Barrow Photography Tel: 0872559638, Date: 4th September 2015



IMG_5110 Photo: Peter Barrow Photography Tel: 0872559638, Date: 4th September 2015

CONNOLLY HOSPITAL

- ▣ 23 Hectares in size
- ▣ More than 20 Separate Buildings
- ▣ Original Construction 1950's
- ▣ Underground Tunnels System
- ▣ Major Redevelopment in 2000
- ▣ Large Amount Underground Pipe Work
- ▣ Pipe Work age ranges from 55 years to New

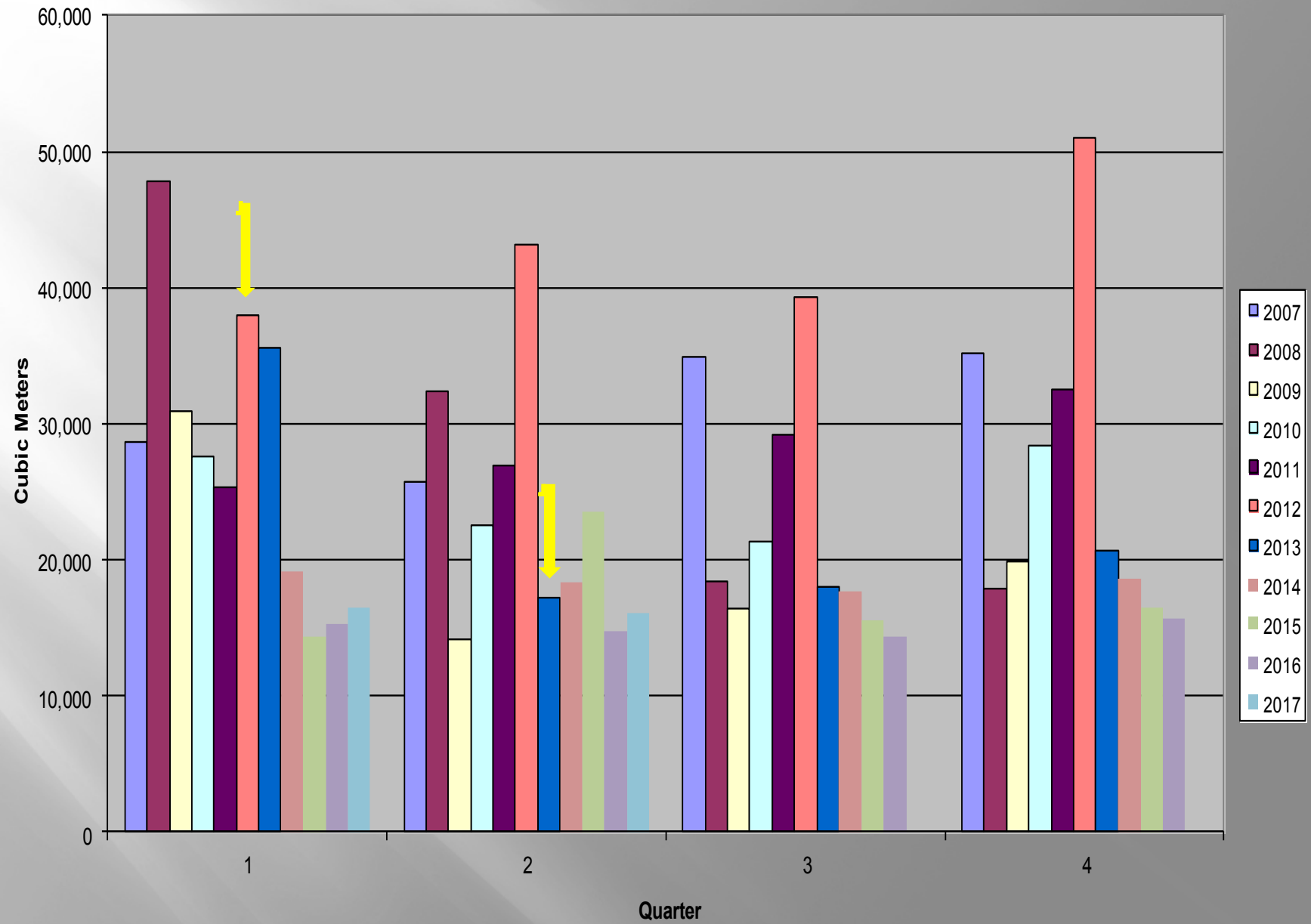
HISTORY of WATER MANAGEMENT Up To 2010

- ▣ No Designated Responsible Person for Cost
- ▣ Water Invoices sent to Finance Department
- ▣ Invoices paid automatically
- ▣ No Visibility on Water Consumption or Costs
- ▣ No Records kept
- ▣ No Data Available within Hospital

ESTATES MANAGEMENT

- ▣ 2010 Estates Department given Responsibility
- ▣ Historical Data base Compiled
- ▣ 2012 Significant Increase Observed
- ▣ 2012 Fingal County Council provide IT Client Connection to Incoming Meter Output
- ▣ 2012 / 2013 Leak Detection Program in place
- ▣ 2013 / 2014 Significant Savings Achieved
- ▣ Total Savings €183,000 for 2014

Water Consumption Analysis



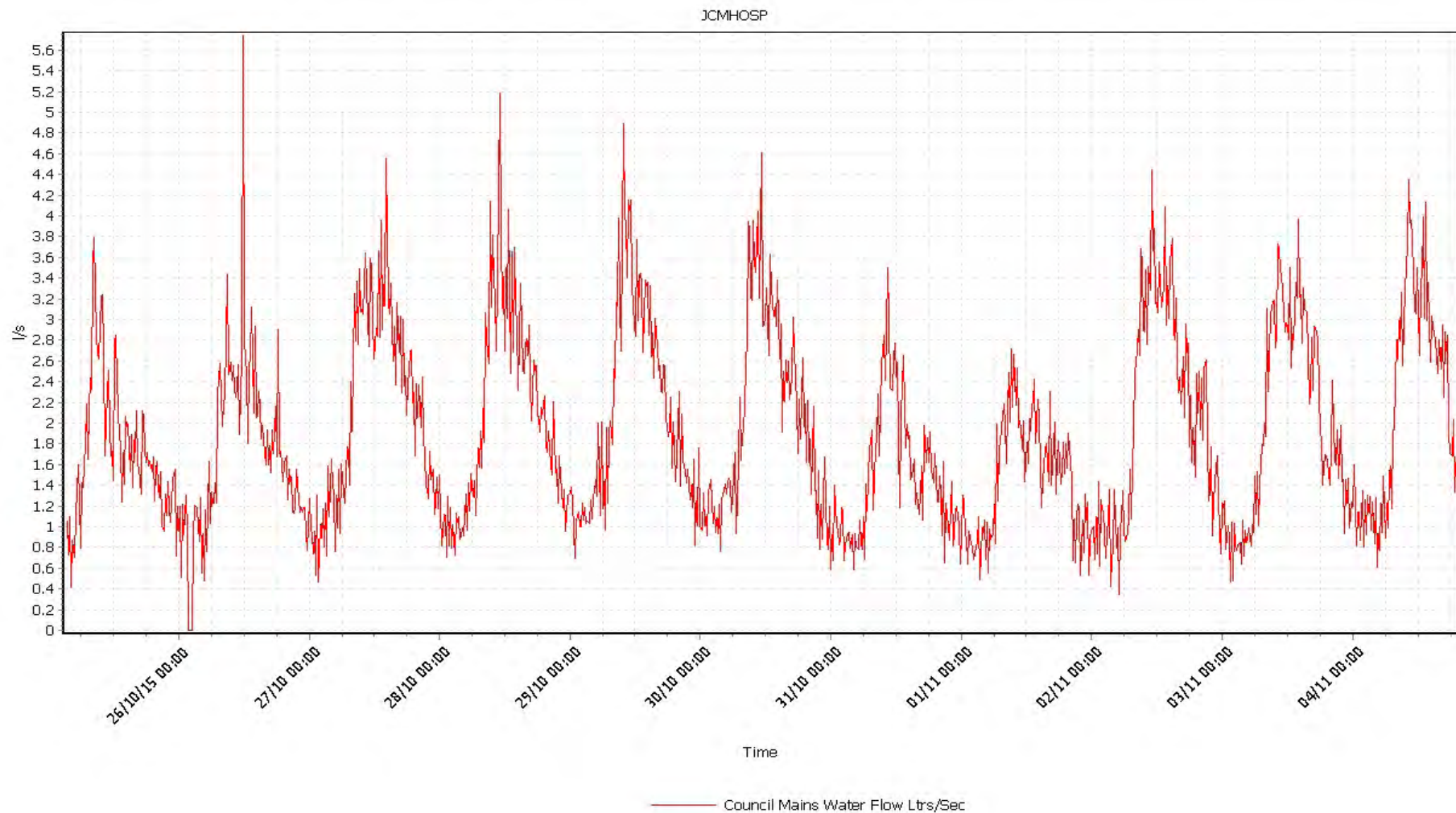
2012 WATER DATA

MONTHS	COST	CONSUMPTION (Cubic Meters)
JANUARY - MARCH	€77,382.33	38,011
APRIL - JUNE	€87,818.56	43,152
JULY - SEPTEMBER	€78,229.08	39,375
OCTOBER - DECEMBER	€103,676.92	50,964
TOTAL	€347,106.89	171,502

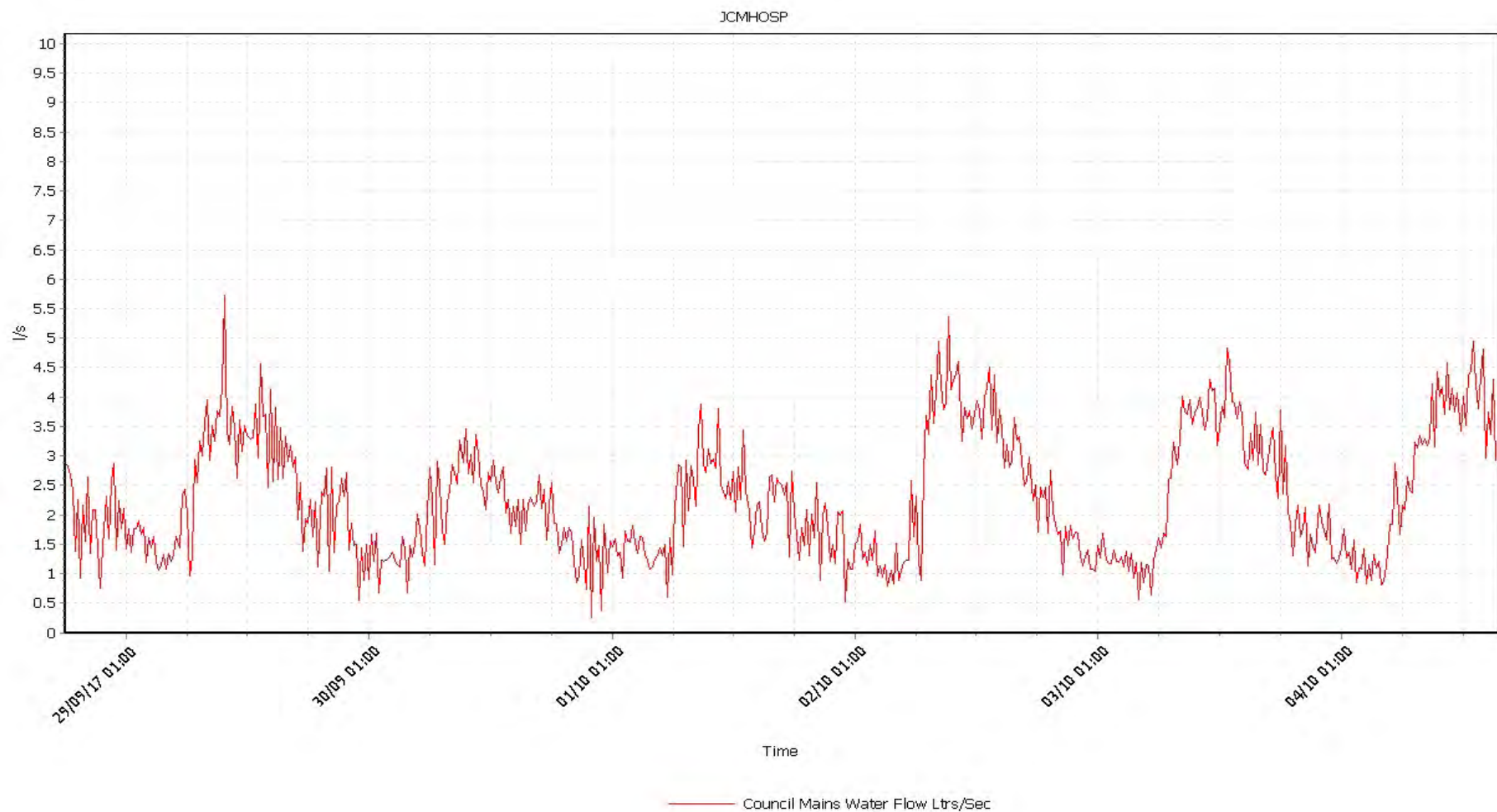
2016 WATER DATA

MONTHS	COST (€)	CONSUMPTION (Cubic Meters)
JANUARY - MARCH	33,988.80	15,280
APRIL - JUNE	32,779.93	14,733
JULY - SEPTEMBER	31,879.73	14,409.552
OCTOBER - DECEMBER	34,342.23	15,676.49
TOTALS	€132,990.69	60,099.042

INCOMING WATER METER 2015



INCOMING WATER METER 2017



LESSONS LEARNED

- ▣ Savings in Connolly Hospital from 2012 to 2016 are now €214,000 Per Annum
Despite Expansion of Hospital Size by 15%
- ▣ Engineering Manager must have control of Water Management with Billed Cost Data
- ▣ Record and Plot Data from Invoices onto simple Spreadsheet
- ▣ Negotiate with Irish Water for an IT Connection onto Incoming Water Meter
- ▣ Scrutinise Night Time Consumption Data
- ▣ Implement Leak Detection Program

SIMPLE LEAK DETECTION

- ▣ IT Connection to Incoming Meter or Temporary Flow Rate Data Logger required
- ▣ Set of Accurate Record Drawings required
- ▣ Take Note of Night-time Flow Rates for Seven Day Period
- ▣ Shut off parts of System Overnight
- ▣ Note Effects on the Night-time Flow Rates
- ▣ If the Rate Reduces this section of the system most likely has a leak
- ▣ Record Savings to Support Reinvestment

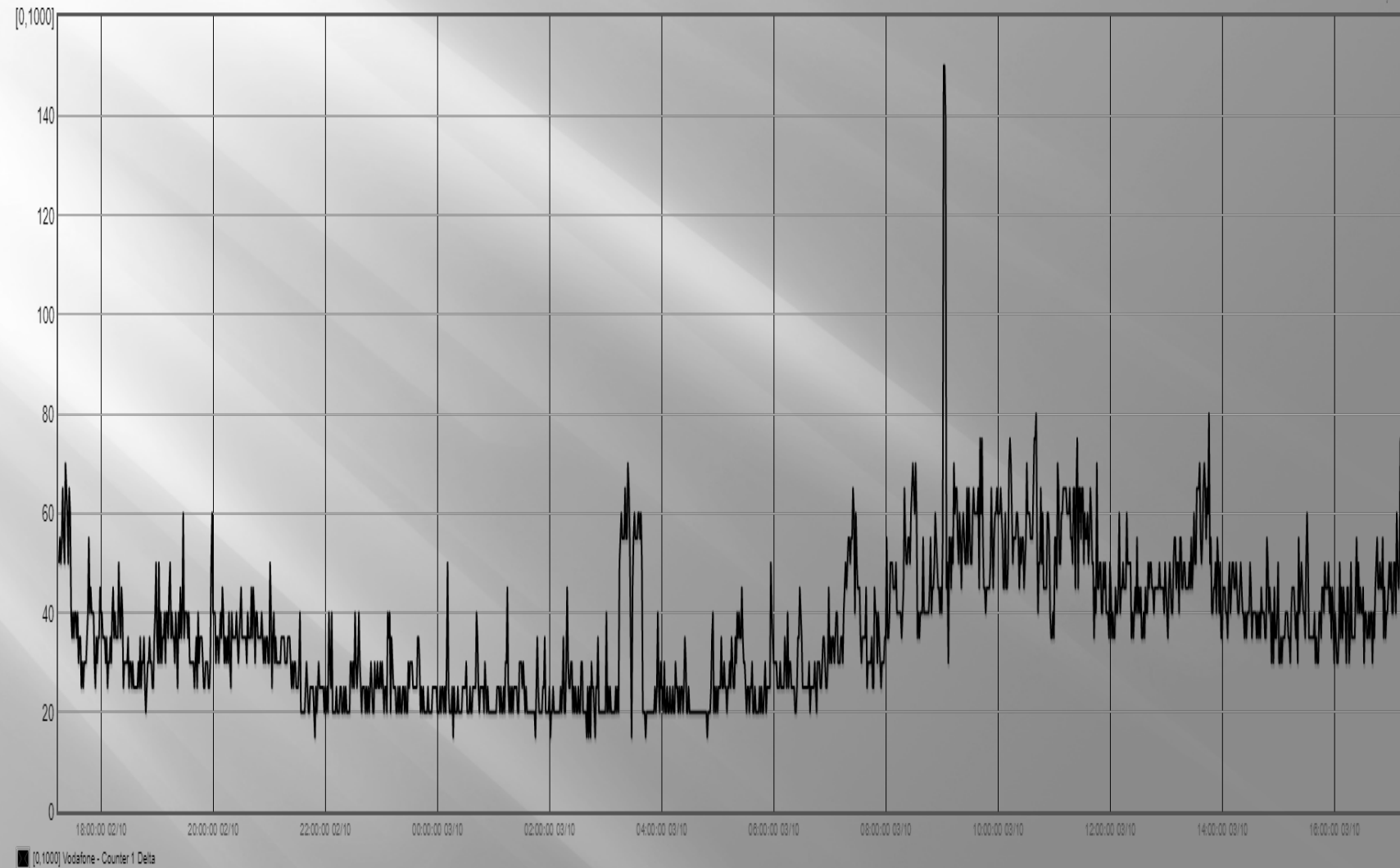
SUB-METERS

- ▣ August 2017; 4 No Sub-Meters Installed
- ▣ Potable Water Tank
 - Cold Water Tank Serving Hot Water System
 - Flushing Water Tank
 - Administration Meter
- ▣ Data to be Fully Analysed

Potable Water Tank

Main Fresh Water Tank

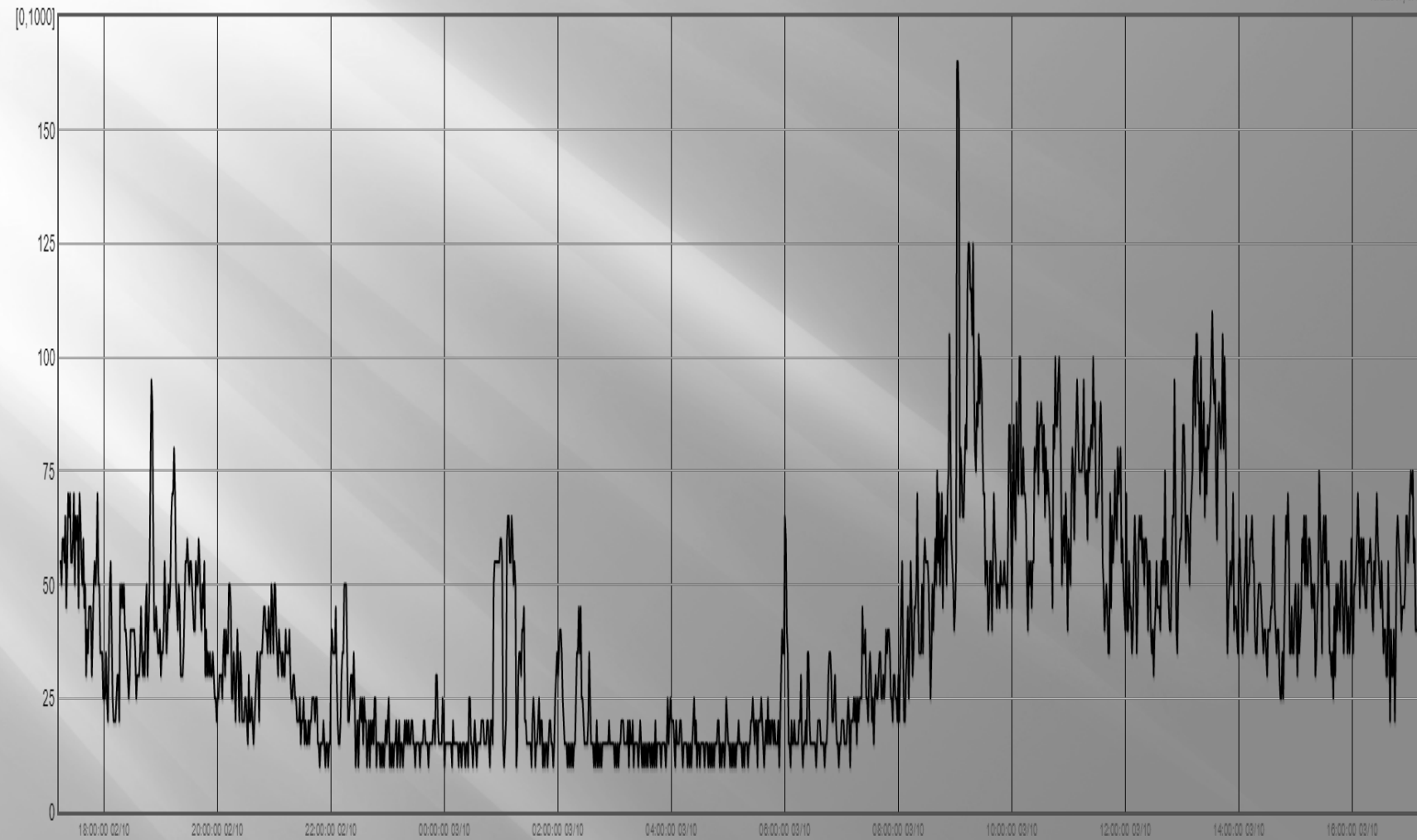
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Cold Water Tank to Hot Water

Main Hot Water Tank

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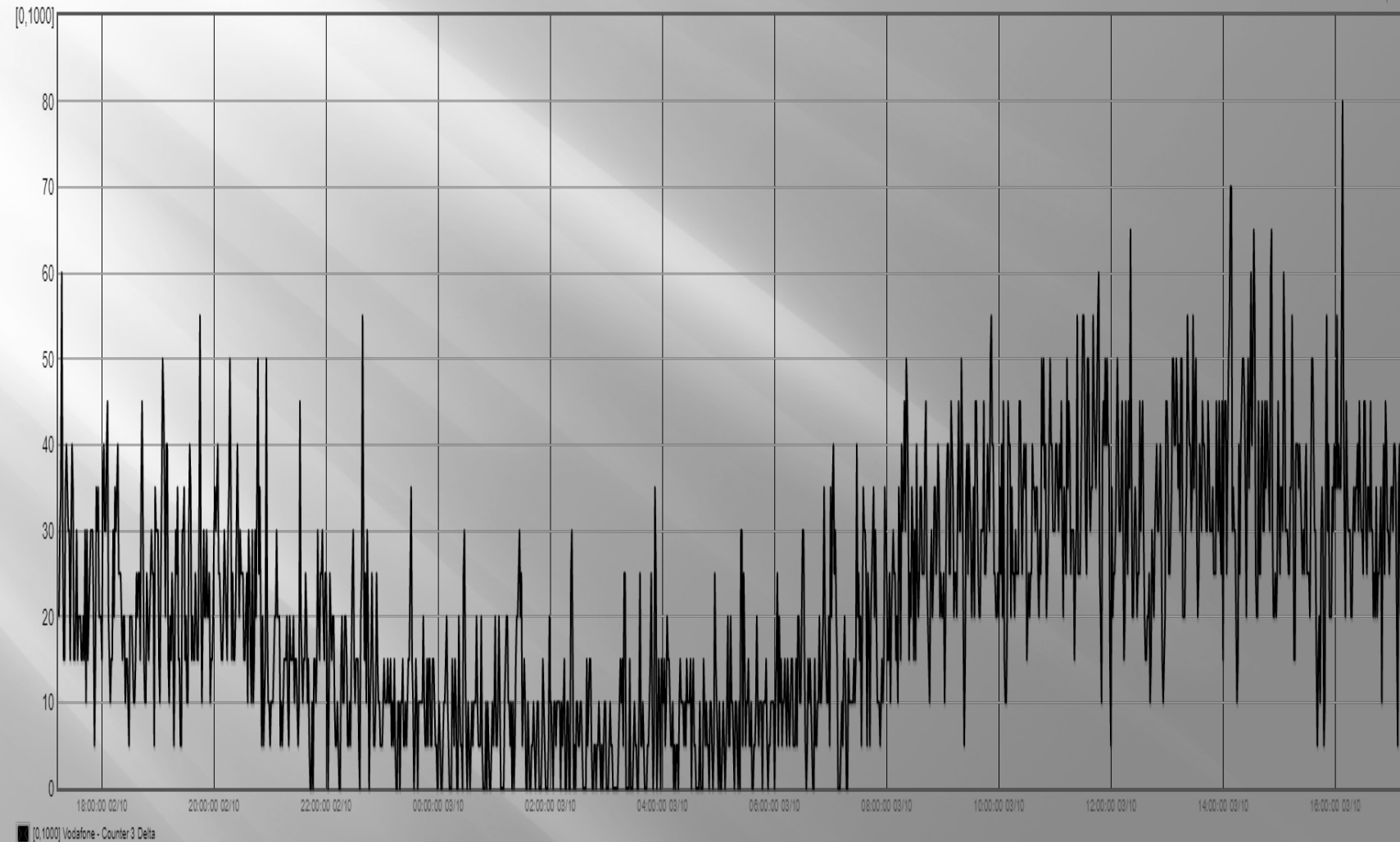


■ [0,1000] Vodafone - Counter 2 Delta

Flushing Water Tank

Main Flushing Water Tank

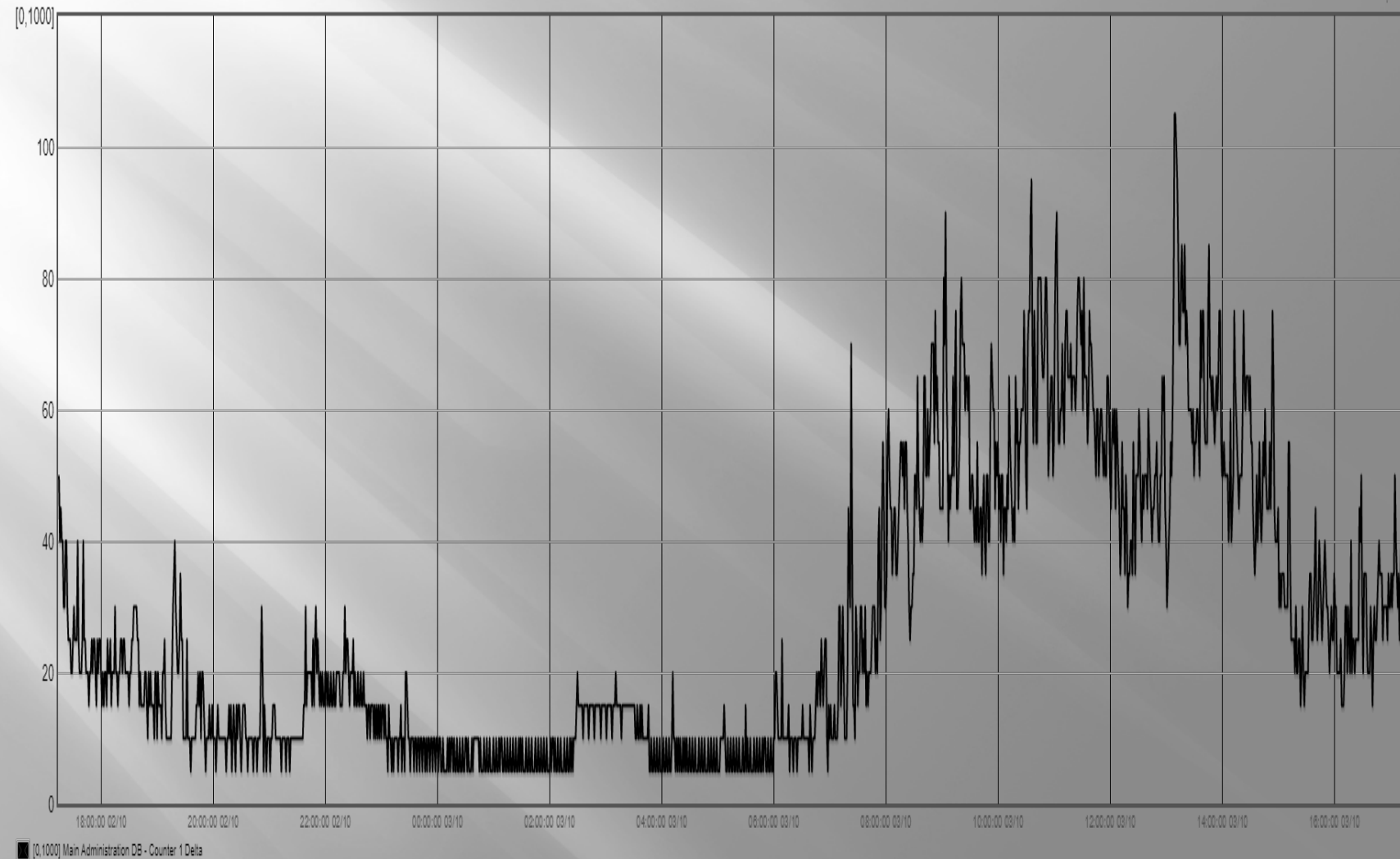
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Administration Meter

Administration water Meter

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EXPERIENCE ON SUB-METERS

- ▣ Team Approach Beneficial
- ▣ Skills and Knowledge required include;
 - Meter Selection
 - Electrical / IT Network
 - BMS / Software
 - Mechanical
 - Procurement
- ▣ Use Portable Flow Meter to Help Size Meters
- ▣ Plan Big but Start Small
- ▣ It Takes Time But Its Worth It

CONNOLLY HOSPITAL

THANK YOU