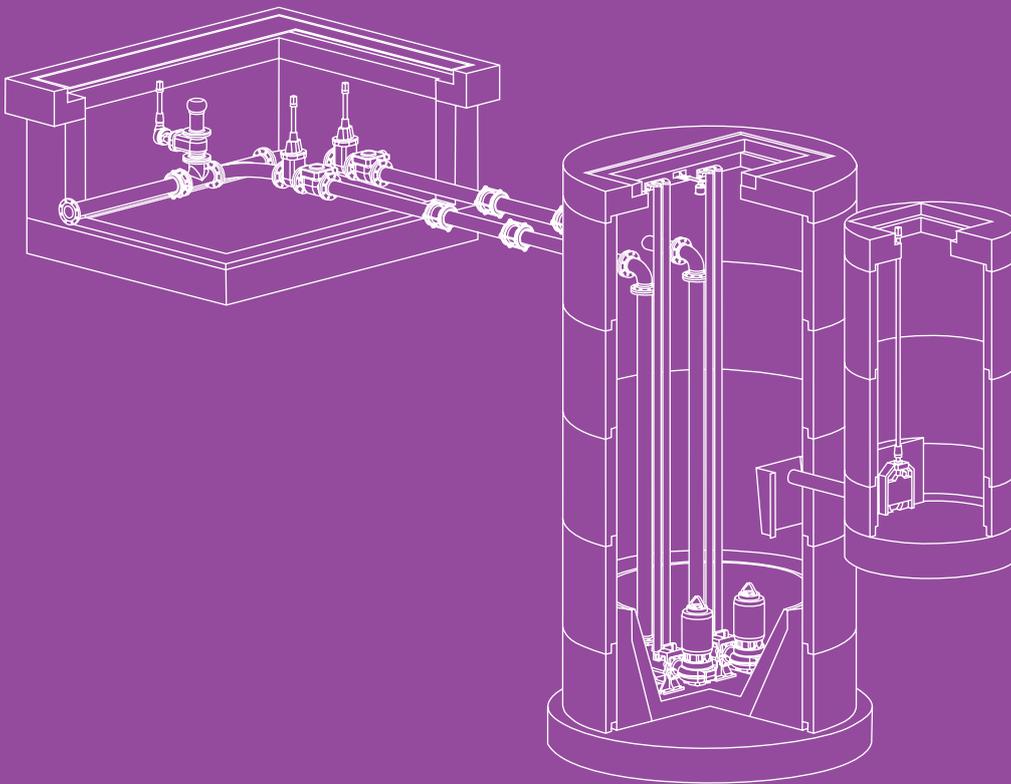


[www.ttpumps.com](http://www.ttpumps.com) / T: +44 (0) 1630 647200

**T-T Pumping  
Stations®**



# PUMPING STATIONS

From Private  
Package Pumping  
Stations to Adoptable  
Pumping Stations

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This item is manufactured to order requirements, please contact our sales team for lead times.

## INTRODUCTION

T-T Pumping Stations have dedicated technicians who focus on pumping systems from the smallest to largest schemes, whether this be a simple system or a highly complex scheme requiring many disciplines, our experienced engineers have the skills and knowledge to provide you with a complete solution from initial concept to final handover.

We understand the environmental sensitivity of effluent and drainage, therefore we know that a pumping station's reliability is crucial. That is why we only use reliable, efficient and high quality products and why our engineers are trained to the highest standard.

The T-T Planet Package Pumping Station range are BBA accredited and provide an efficient and economical way of installing a sewage or drainage pumping station. We pride ourselves on using economical and efficient pumps in all our pumping stations, including our Uniqua range of submersible pumps which have ATEX approval and attain the IE3 rating for efficiency.

Since the privatisation of the Water Companies of England and Wales, adoptable pumping stations have been a main focus for T-T, therefore we work closely with all the water authorities to ensure all our pumping stations obtain adoption at the earliest possible date.

The information provided in this handbook answers any questions you may have relating to pumping station design, selection and installation. Furthermore it discusses the process of commissioning and adoption to show the process from concept to final completion and adoption.

By effectively planning the complete pumping station system, structure and all elements operating costs can be reduced. This is what T-T pride themselves in providing their clients. This handbook discusses the different elements of the pumping station for your guidance, however we want to assure you that T-T handle the complete process.

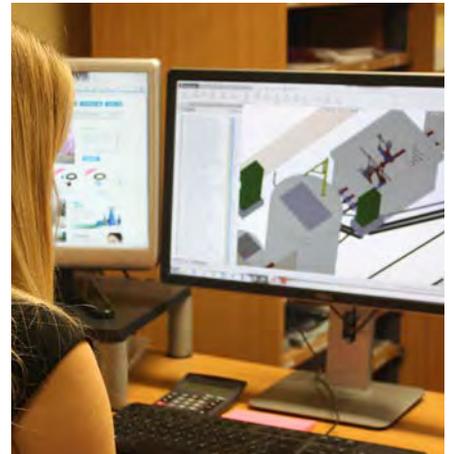
By selecting a T-T pumping station you can be assured that you will get a complete package, supplied with the latest pump technology.

T-T ensure that their pumping stations are designed with installation in mind, keeping the concepts simple and in line with site requirements.

The concrete sumps are either supplied in several modular pieces or a number of concrete rings designed specifically with your site and application in mind. Our vast range of pumps and in-house designed and manufactured control panels mean that are pumping stations can be adapted to suit all applications.

The correct design of a pumping station is crucial in order to achieve an optimal and trouble-free operation.

If you can't find what you need in this handbook, please pick up the phone and we will be happy to assist.



### IMPORTANT

The information given is for your initial guidance. For each scheme, general arrangement drawings are issued on receipt of order for standard products. For your further assistance, more comprehensive details are available and we will be pleased to provide additional information and advice. Our aim is to provide you with a completely satisfactory solution for your pumping needs.



## APPLICATIONS

### Applications for Adoptable Pumping Stations

Adoptable pumping stations are designed to SFA and the water authorities addendum to ensure they are suitable for adoption and are maintained by the water authority post adoption.



### Applications for Private Pumping Stations

If your residence isn't connected to a main sewer you'll need a pumping station to take care of your waste water removal. Domestic pumping stations are commonly found servicing domestic properties, remote buildings, surface water and small office blocks.





## CASE STUDY – DONCASTER INLAND PORT

The IPort, located in Doncaster, is a 337 acre greenfield development site. The site features up to 6 million sq ft of warehouse space and 3 million sq ft of detailed planning consent. The site also includes a 35 acre dedicated strategic rail freight terminal. Once the permission for development had been granted, T-T received a call from a Senior Engineer at BWB with an urgent enquiry for an adoptable foul pumping station. Following this T-T's area manager followed up the call to clarify requirements; BWB needed an adoptable pumping station to service Doncaster Inland Port, a commercial site. The pumping station also needed to be compliant to Severn Trent sewers for adoption 7th Edition.

Various design changes and developments followed over the next few months, T-T kept up to date and informed in regards to the design of the site in order to update the pump specification and quotation. Once the main contractor had been chosen by the developer, T-T were confirmed as the pump supplier. T-T then provided detailed pump design and surge analysis, ordered by BWB. Following confirmation of this mechanical and electrical installation and commissioning was ordered by the main contractor. Additionally to this, another pumping station was ordered to pump to the original pumping system to ensure correct drainage is taking place on the site.

T-T supplied pumps complete with 22kW motors with a pump duty of 44.8l/sec at 25m total head, control panel housed in a GRP kiosk, valves and all necessary pipework.

Additionally to this, T-T fitted their Text-Tel Junior telemetry system, the telemetry system allows IPort to receive a report of any failures or condition changes to the equipment remotely, with the ability to reset via SMS text message.

**T-T handled the design, supply, install and commissioning of this project from start to finish. If you have a bespoke pumping requirement contact T-T on 01630647200.**

**“As part of our drainage design we required a S104 FW pumping station. We contacted T-T Pumps who were more than helpful from the start. The sales team particularly was a great asset to the whole process and their skills and advice were extremely valued. I would highly recommend T-T Pumps for future projects given the level of service received during our time working together.”**

Senior Design Engineer  
BWB Consulting Ltd



## SUPPORTING ACCREDITATIONS



## T-T DRAWING REGISTER

**1** You can register for access to the T-T drawing register at [www.ttpumps.com](http://www.ttpumps.com). This includes standard technical drawings for the Jupiter, Mercury, Venus, Pluto, Saturn, XL, XXL and Adoptable Pumping Stations.

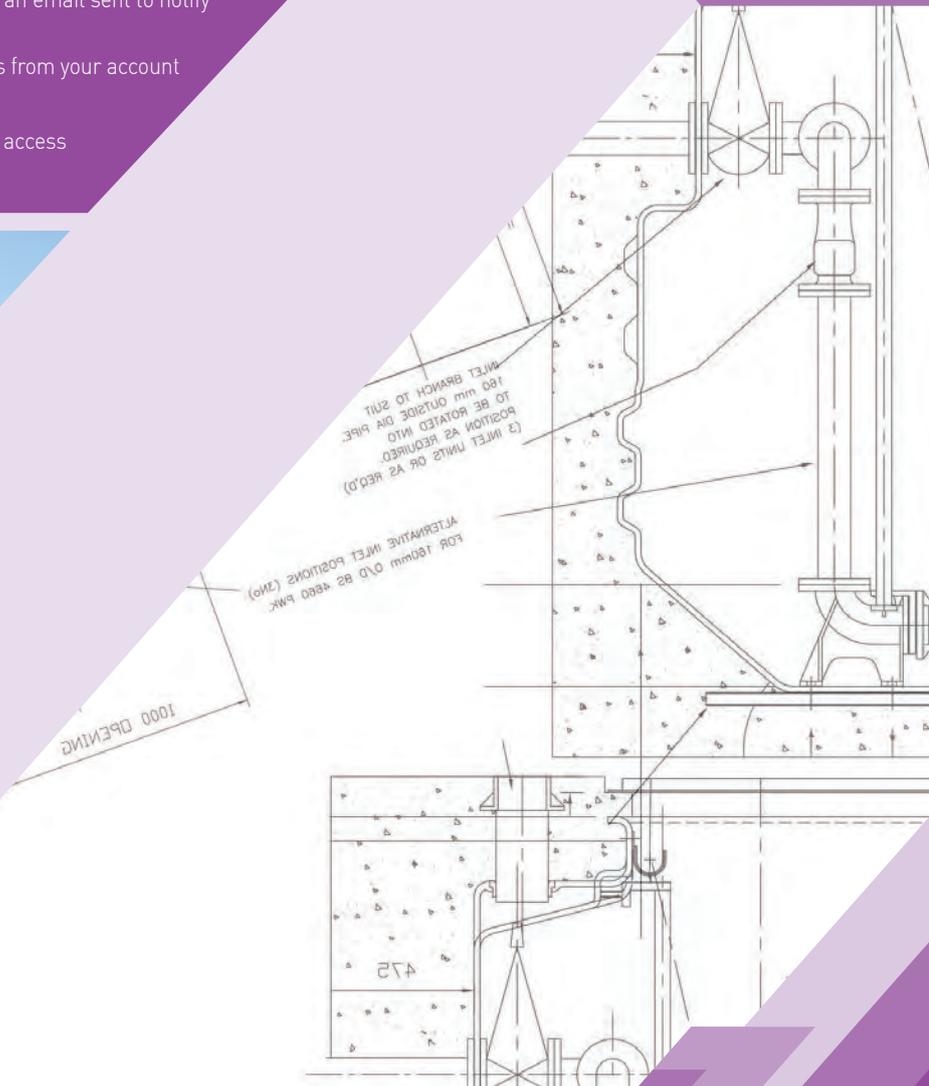
Firstly you need to set up an online account with T-T:

1. Visit <https://www.ttpumps.com/customer/account/create/>
2. Complete the short form and click submit

**2** Secondly, you need to apply for technical drawing access:

1. Log in to your account dashboard
2. Select the technical drawings tab
3. Select the 'Request access to technical drawings' button
4. Your request will be reviewed within 24 hours and an email sent to notify you once this has been accepted.
5. You can then view our range of technical drawings from your account or on the relevant product pages.

The drawing register will now be available for you to access at your convenience.



## DEVELOPERS CHOICE

The choice of utilising Adoptable or Non Adoptable Pumping Stations is very often a case of economies and whether the necessary space is available for an Adoptable Pumping Station. Guidance may also be provided by your local water authority as to which option is required, when seeking permission to discharge to sewer.

### NON ADOPTABLE PUMPING STATION



The non-adoptable pumping station can be utilised in:

- SINGLE DWELLINGS
- BUSINESS PREMISES / OFFICES
- COMMERCIAL PROPERTY
- INDUSTRIAL
- HOTELS
- NURSING HOMES
- CARAVAN PARKS

#### Pros and Cons

- A non-adoptable pumping station is far more economical to install as it does not require the need to meet the demands of the Water Companies' specifications
- The pumping station will be equally as reliable and efficient as the equivalent adoptable pumping station
- Quick and easy to install
- Less space required
- Overall costs less
- Property owners will be responsible for running and maintenance costs

### ADOPTABLE PUMPING STATION



The adoptable pumping station can be utilised in:

- MULTIPLE HOUSING DEVELOPMENTS
- COMMERCIAL

### Sewers for Adoption

#### Pros and Cons

- Adoptable stations will have to comply with the current requirements of Sewers for Adoption and addendum from the local Water Company
- Lead time and adoption is longer
- Running and operating costs are the responsibility of Water Companies after adoption

JUST SOME OF THE COMPANIES WE  
HAVE WORKED WITH...

**Taylor  
Wimpey**



**DAVID WILSON HOMES**  
WHERE QUALITY LIVES

  
**BARRATT**  
HOMES

*homes by*  
**gleeson**  
builders for generations

  
**WAINHOMES**  
BUILDING BRITAIN'S HERITAGE

  
**PERSIMMON**

  
**KIER**

**Seddon**

**BLOOR HOMES**<sup>®</sup>

**Bellway**

  
**REDROW**

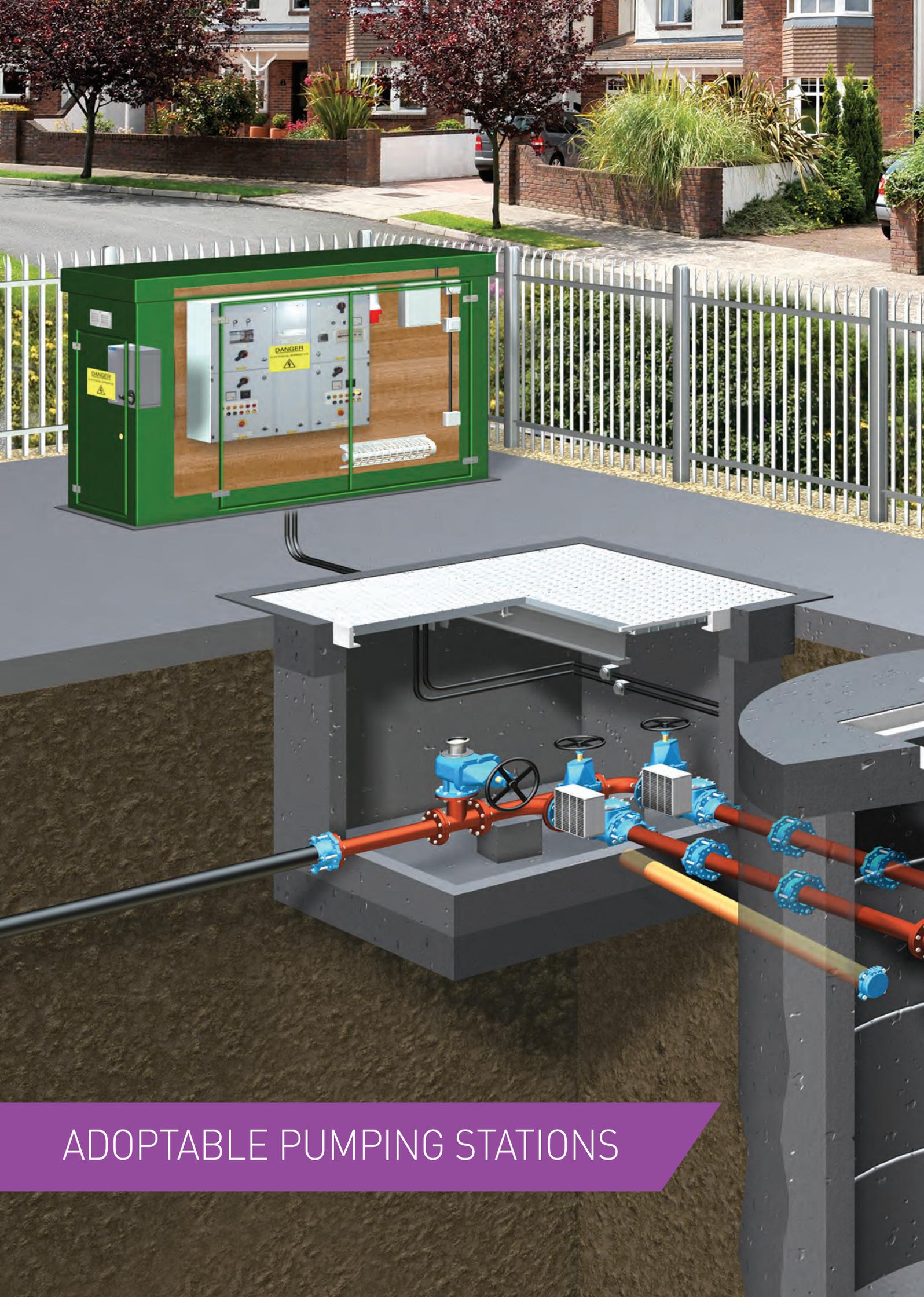
**CAVANNA**  
BUILDING BRILLIANCE   
HOMES

  
**BOVIS**  
HOMES

  
**Linden**  
HOMES

  
**WILLMOTT DIXON**  
SINCE 1852

...AND MANY MORE!



## ADOPTABLE PUMPING STATIONS



## ADOPTABLE PUMPING STATIONS

### STAGES FROM CONCEPT TO ADOPTION



#### DESIGN

Post receipt of order, a full set of mechanical and engineering drawings will be prepared for submission to the appropriate water authority.

#### EQUIPMENT MANUFACTURE

Once design approval has been obtained, the final manufacturing stage will commence for the pumps, control system, pipework, valves and ancillary equipment – a bespoke arrangement to your site's specific requirements.

Lead times are kept to a minimum and due to the in-house manufacture of most equipment and our large stock-holding there is no need for external resources.

#### INSTALLATION

All installation work is carried out by our own highly trained and skilled installation teams who have the necessary combined electrical/mechanical skills to install pumping stations. A full installation report is left with the developers' site representative detailing any items which need attention related to the civil work or the M&E installation prior to commissioning.

#### COMMISSIONING

Our commissioning engineers will undertake a full check of the installation, ensuring that the installation is safe and meets all of the required standards. A full installation report will be given and a certificate of electrical completion is also issued once all equipment has been commissioned.



#### MAINTENANCE PERIOD

The mechanical and electrical equipment provided in our pumping systems are offered with a 12 month warranty as standard against any defective parts/faults, unfortunately this does not include for blockages, misuse or vandalism. Extended warranties can be offered on request.

In addition our Service Department will follow up our commissioning visit with an offer of a maintenance contract whereby you will be able to have peace of mind that your installation will be regularly inspected and maintained thus reducing the risk of unnecessary expensive breakdowns. Service visits can be tailored to meet your needs and can be adjusted as necessary.

#### T-T Service®

#### ADOPTION

We are familiar with the requirements of all Utility Companies which enables us to provide the correct equipment to meet the needs of your particular scheme.

T-T will control the Adoption process from concept through to Adoption on your behalf to ensure a smooth handover to the Utility Company incorporating all documentation from a design package to operating and maintenance manuals. Pre-handover inspections are a standard feature of our service liaising with the Adoptions Engineers to ensure a smooth, uninterrupted handover.



# ADOPTABLE PUMPING STATIONS

## STAGES FROM CONCEPT TO ADOPTION



### WHAT IS SEWERS FOR ADOPTION?

The basis of Sewers for Adoption is to ensure that the developer builds to a required standard and quality. To achieve 'Adoption' of a pumping station the specification, build and installation of the system would have to be compliant with Local Water Company specifications. Details of these specifications are found in the 'Sewers for Adoption' guidelines, published by WRc Plc, which is the standard set for the design and construction of sewers within the UK.



- United Utilities Water
- Northumbrian Water
- United Utilities Water
- Yorkshire Water
- Anglian Water
- Severn Trent Water
- Welsh Dwr Cymru Water
- Thames Water
- Southern Water
- Wessex Water
- South West Water

### CONCEPT TO PROJECT

We like to be involved at the early stage to advise on the most effective way to position and construct the pumping station and what is the most economical solution. Each client will receive a single specialist to liaise with on a day-to-day basis and who will manage your project.

### TENDER / QUOTATION / ORDER

A competitively priced service is offered that will meet with your criteria, with no additional hidden costs and on receipt of official instruction to proceed you will receive an agreed programme of works.

### DESIGN

In-house design facilities are used, incorporating the latest technology, to create full design and manufacturing drawings, these will be specific to your project. Having this feature in-house allows us greater flexibility to respond to design up-dates and amendments. During the design process, we will if required, communicate with the Water Company and the developers' design team to ensure that all aspects of the pumping station are comprehensively covered.

## Sewers for Adoption

### SEWERS FOR ADOPTION

For housing developments, it's both practical and cost-effective to construct a wastewater and sewage pumping station that can be 'adopted' by the local water company – eliminating the developers' responsibility for future maintenance and running costs.

Having worked with all Water Companies over the years T-T are fully aware of their requirements, expectations and current legislation. This enables us to ensure that your project runs smoothly and that the station is Adopted within the fastest most cost-effective time frame.



## STAGES FROM DESIGN TO INSTALLATION





Although adoptable pumping stations are designed to a standard as set out in Sewers for Adoption, all sites are unique.

T-T supply a full drawing package, which will detail chamber sizes, construction, compound layout etc. for civil engineers to follow. Once the civil engineers' element is complete, T-T will attend for approximately one week spread over two visits, commonly known as 'first fix' and 'second fix'.

#### **FIRST FIX**

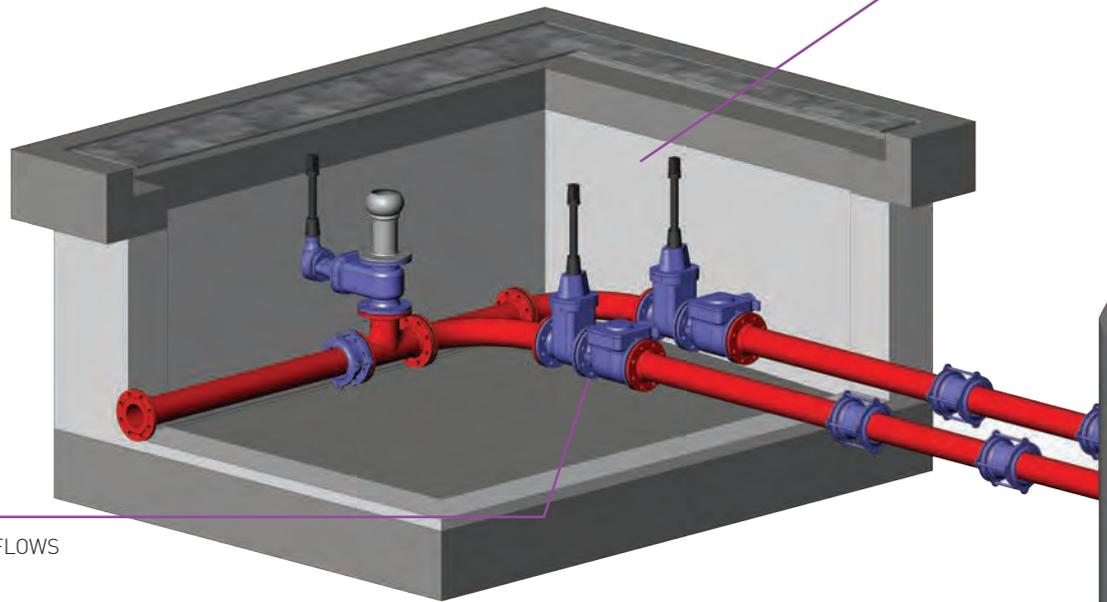
What is the 'first fix'? Firstly all the underground steelwork and valve assembly are installed and the control kiosk is positioned in place.

#### **SECOND FIX**

The 'second fix' happens after the civil engineers have completed their necessary tasks on site (i.e. box out filled, benching completed, site back filled) and once an electrical supply is installed the system can be commissioned. T-T's Specialist commissioning engineers will undertake a full check of the installation ensuring that the installation is safe and meets all of the required standards. A full installation report will be given and a certificate of electrical completion is also issued once all equipment has been commissioned.



## TYPICAL ADOPTABLE PUMPING STATION



### GATE VALVE AND SWING CHECK VALVE

TO CONTROL OUT GOING FLOWS

### LEVEL CONTROL

### PIPEWORK

GENERALLY IN DUCTILE IRON AND SIZED SPECIFICALLY FOR EACH SITE

### WET WELL CHAMBER

TO HOUSE PUMPS AND PIPEWORK

### GUIDERAIL

FOR SAFE REMOVAL OF PUMPS FROM THE WET WELL

### AUTO-COUPLING

FOR EASY INSTALLATION OF PUMPS

### PUMPS

IN ACCORDANCE WITH SEWERS FOR ADOPTION REQUIREMENTS AND TO ACHIEVE THE REQUIRED FLOW RATE

## VALVE CHAMBER

TO HOUSE VALVES AND ENABLE SAFE MAINTENANCE

## ACCESS COVER

ALLOWS ACCESS FOR REMOVAL OF PUMPS  
WHILST KEEPING WET WELL SECURE

## INLET CHAMBER AND PENSTOCK VALVE

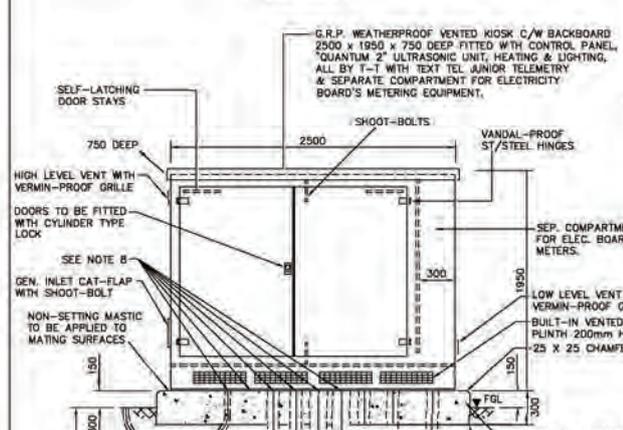
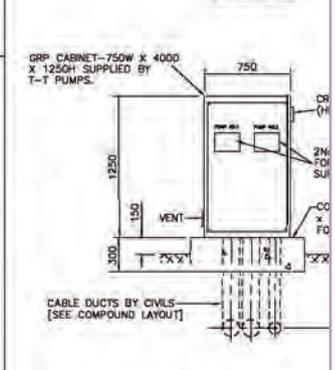
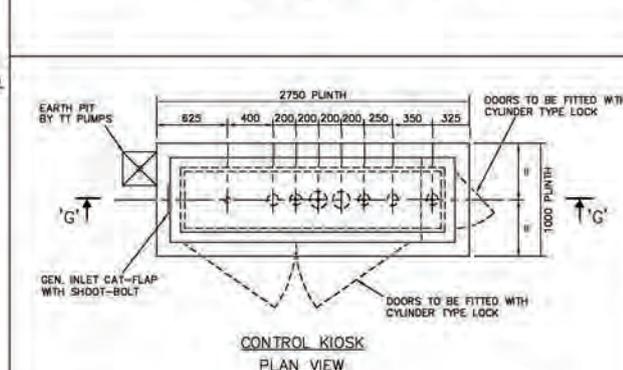
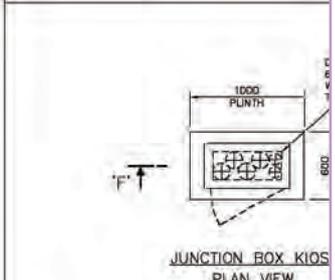
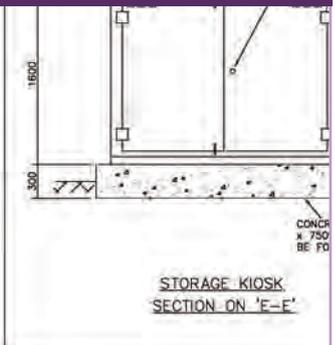
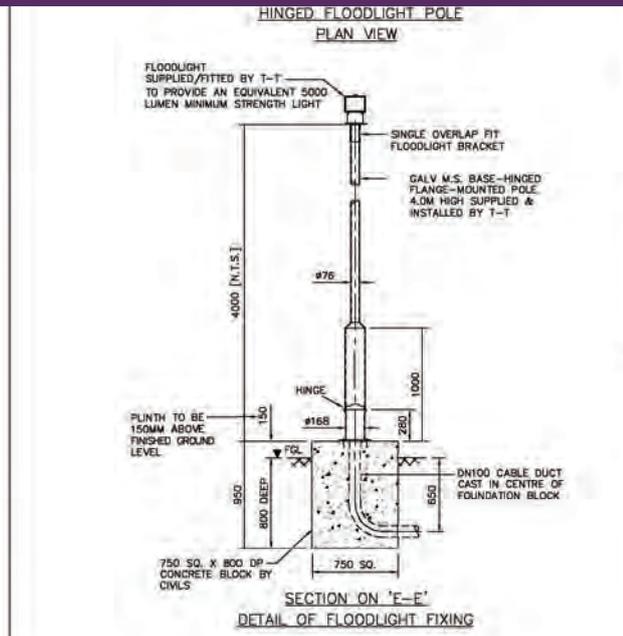
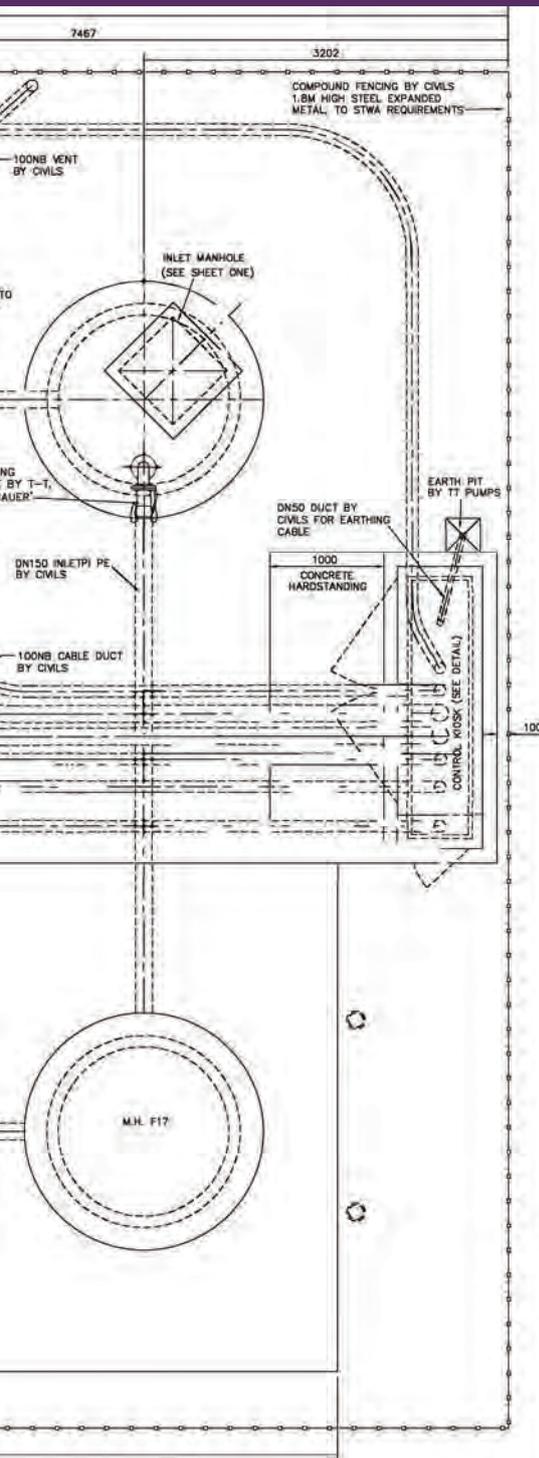
TO ENABLE CONTROL OF  
INCOMING FLOWS FROM SITE

## READY SUMP

PREFORMED BENCHING UNIT REDUCING  
LABOUR INTENSIVE PROCESS OF  
MANUALLY BENCHING WET WELL AND  
GUARANTEEING CONCRETE FINISH







- ### NOTES
- 1 ALL CIVILS WORKS BY CIVIL CONTRACTOR.
  - 2 1/2" BSP PRESSURE GAUGE TAPPINGS PROVIDED
  - 3 PUMP & PIPEWORK DUCKFOOT BENDS TO BE BOLT WITH THROBOLTS SUPPLIED & FITTED BY T-T PUMPS
  - 4 BOX-OUTS TO BE MADE GOOD BY CIVIL CONTRACTOR UPON INSTALLATION OF PIPEWORK.
  - 5 ALL FIXING THROBOLTS INTO CONCRETE TO BE STA 200mm TO SU
  - 6 MASTIC SEALANT TO BE APPLIED TO UNDERSIDE OF DOORS & BOLTING DOWN BY TT PUMPS LTD.
  - 7 CABLE DUCTS BETWEEN WETWELL & CONTROL KIOSK COMPLETE WITH DRAW-COROS.
  - 8 CABLE DUCTS BETWEEN WETWELL & CONTROL KIOSK SEALED AT KIOSK END WITH 'RISE' SEALANT
  - 9 ALL EQUIPMENT WITHIN WETWELL & VALVE CHAMBER TO BE BONDING BY T-T PUMPS LTD. IN ACCORDANCE WITH ADOPTION 7TH EDITION.
  - 10 STRUCTURAL CALCULATIONS & DRAWINGS TO BE PROVIDED BY T-T PUMPS LTD. & BASE-SLAB TO BE SUPPLIED BY CIVIL CONTRACTOR
  - 11 FOR DETAILS OF FLOW METER CHAMBER SEE SHEET ONE
  - 12 THE PUMPING STATION IS TO BE DESIGNED FOR A 15-30 YEAR LIFE

## READY SUMP® in association with

### SEWAGE, DRAINAGE AND EFFLUENT PUMPING STATION PRECAST SUMP

A unique design that incorporates the key features required for sewage, drainage and effluent stations and that meets adoptable standards demanded by the water companies. These engineered sumps are produced to high standards with a quality controlled process using precision tools. They have been specifically designed and built with efficiency and cost saving in mind.

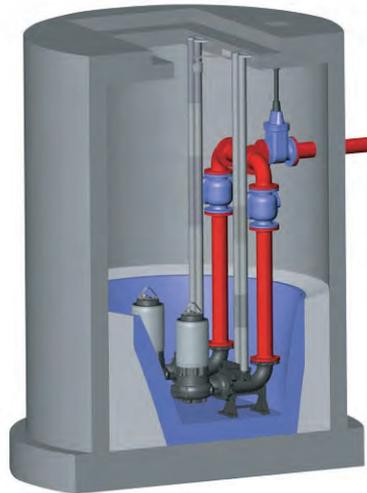
As a standard product the Ready Sump® is a stock item and available for delivery to your site on short lead times to suit your requirements. Sealed concrete rings, traditional non sealed concrete rings, access covers and inlet chambers are available options.

#### FEATURES

- SMOOTH AND CLEAN DESIGN
- RAPID, ECONOMIC AND SAFE INSTALLATION
- REDUCES HEALTH AND SAFETY RISKS ON SITE
- SUITABLE FOR ADOPTABLE AND PRIVATE PUMPING STATION
- SUPERIOR HYDRAULIC PERFORMANCE
- REDUCES CONSTRUCTION TIME AND COSTS
- READILY AVAILABLE

"In terms of the 'Ready Sump' we found it very easy to install and when used in conjunction with pre-cast chambers this provides all the benefits you would expect from off-site fabrication, e.g. better quality, quicker installation and safer installation practices due to less trades being involved. In summary, we will consider using this system on our next development."

**Beech Developments Ltd.**

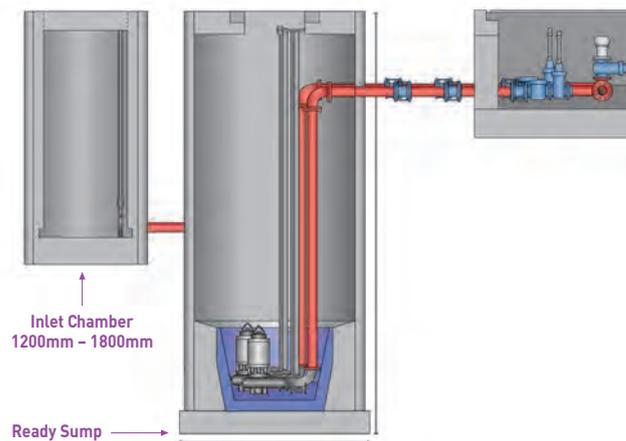


#### PRIVATE PUMPING STATION

When there is no requirement for the pumping station to be adopted by the local water company the Ready Sump® still provides an economic basis for your pumping station. The pumping station has the virtues of good hydraulic design and associated performances.

## THE CENTRE OF PUMPING STATION CONSTRUCTION

THE FULL PACKAGE INCLUDING THE READY SUMP



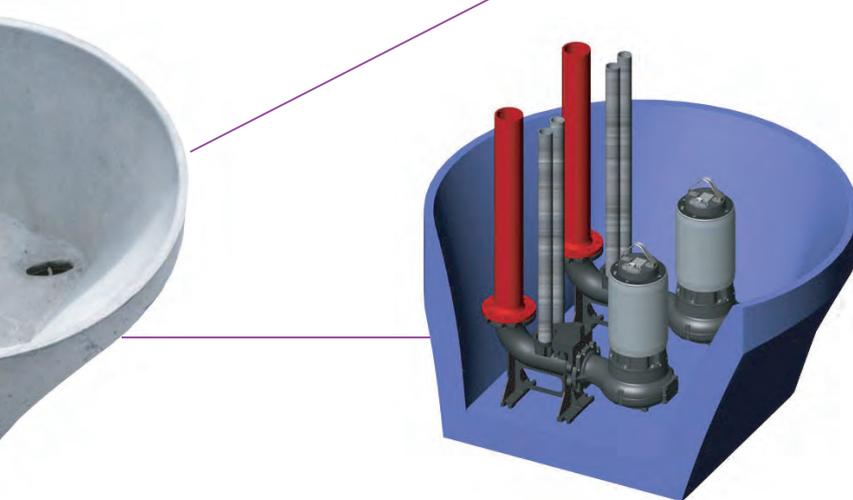
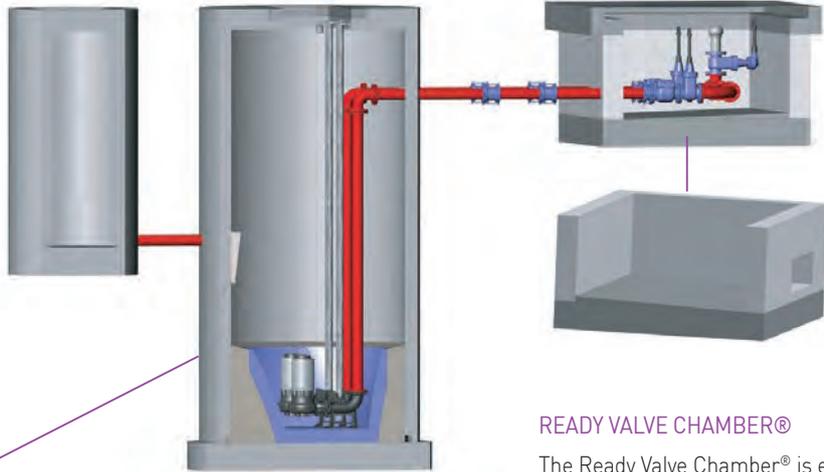
T-T can work with CPM Marshalls to provide the full pumping station package. T-T can provide complete designs and drawings for the pumping station construction which can be supplied to CPM Marshalls to manufacture the concrete rings to suit. Once the concrete rings are installed, T-T can install the mechanical and electrical equipment to complete your pumping station.



## ADOPTABLE PUMPING STATION

The demands of the latest Sewers For Adoption Guide (SFA) requires sump chambers to incorporate a number of key features including benching inclines and positioning of the submersible pumps, all this of which the Ready Sump® accommodates. With the engineered design and smooth finish the Ready Sump® provides the efficient and clean centre of the pumping station.

## Sewers for Adoption



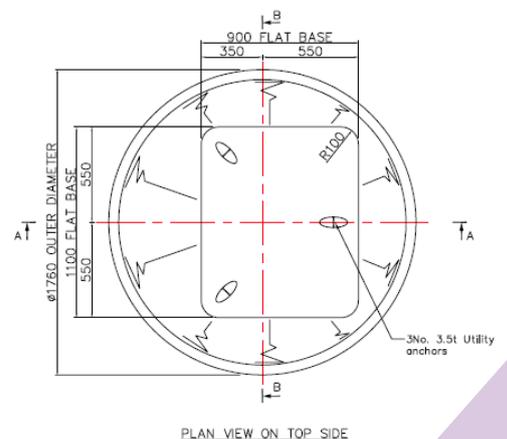
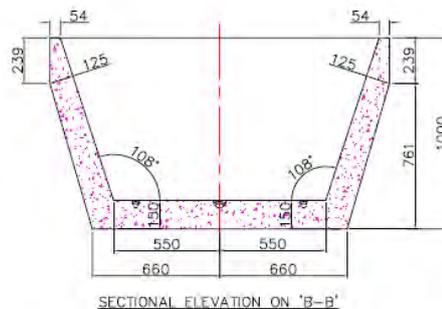
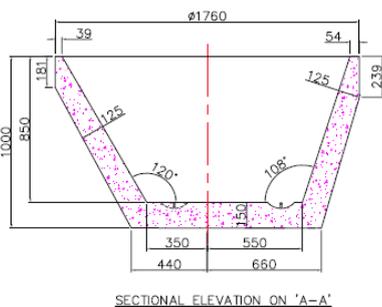
## READY VALVE CHAMBER®

The Ready Valve Chamber® is essential when constructing a pumping station to the requirement of the SFA guide. Incorporating all the features of a valve chamber and has the flexibility to accommodate various rising main outlets to meet site specifics for right or left hand and straight on connection.

A logical choice, the Ready Valve Chamber® with its factory produced accuracy, clean lines and compliance is an economical solution that is readily available.

It is provided as a flat pack for easy assembly within an hour, with no special tooling required.

## 1800 dimensions:



## Models available:

1500, 1800, 1800+

Sizes are available on request, and are selected to suit application.

series  
**Grey**

**SUBMERSIBLE ELECTRIC PUMPS FOR DRAINAGE CIVIL AND INDUSTRIAL LIFTING SYSTEMS**

A new solution for pumping clear wastewaters and black waters in civil, residential and industrial applications. This new range has redesigned hydraulics, new motors, high performance, low consumption, outstanding versatility.

- Three phase motors from 0.37–18.5 kW
- Available with vortex, channel, grinder and high head hydraulics



Now available with ATEX approval!

**HANDLE**  
Rugged stainless steel lifting and carrying handle.

**CABLE GLAND**  
The universal GAS thread of the cable gland is able to take a sheathing pipe to protect the power cable from mechanical or chemical damage due to turbulence or the aggressive nature of the liquid.

**PRESSURISED TESTING**  
Every model undergoes pressurised testing to guarantee perfect assembly and operation of the gaskets, cable gland and mechanical seals.

**DRIVE SHAFT**  
Drive shaft in AISI 431 stainless steel. Connection to impeller via tapered coupling.

**MECHANICAL SEALS + V-RING**  
Two mechanical seals in silicon carbide (SiC-SiC) enclosed in an inspectable oil chamber. This prevents all contact between the mechanical seals and any solids or filaments in the wastewater.

**OIL CHAMBER**  
Large, inspectable oil chamber to guarantee longer mechanical seal lifetime. Leakage detection sensor.

**ANTI-CLOGGING SYSTEM [DR] [GR]**  
The special conformation of the hydraulic part ensures the expulsion of solids and prevents fouling of the impeller.



**DGG**  
Vortex impeller



**DRG**  
Channel impeller



**GRG**  
Grinding impeller



**APG**  
High head impeller



## HIGH EFFICIENCY SUBMERSIBLE ELECTRIC PUMPS



**EX**

Range with certification.

ATEX II 2G Ex db k IIB T4 / II 2D Ex tb IIIC T135°C.

- 3 to 355kW motors, designed to reach the Premium Efficiency Class IE3 according to the CEI EN 60034/30 regulations

- 2, 4, 6, 8, 10 and 12 pole motors

- DN50 to DN500 discharge ports

- Vortex impellers with full free passage and channels with anti-blockage systems



**CABLE GLAND**  
Cable gland system with cable holder. The universal thread ring-nut can be removed to fix a rigid or flexible duct to the cable gland to protect the cable from physical and mechanical stresses. On request a special resin seal is applied to prevent all possibility of water leaking into the motor even if the outer sheath is torn.

**ELECTRICAL CONNECTIONS**  
The terminal board, which simplifies electrical wiring procedures, is in an airtight compartment which can be fitted with a leakage detection sensor.

**PAINTING**  
Bicomponent epoxy paint, standard thickness 200 µm (max 400 µm on request).

**BEARINGS**  
Ball bearings with lifetime lubrication designed to guarantee 100,000 working hours. Optional sensors can monitor temperature and vibration to guarantee optimal performance.

**WATER SENSOR**  
Sensor fitted as standard to detect water or moisture in the mechanical seal oil chamber. Also standard on ATEX version models.

**MECHANICAL SEALS**  
Two silicon carbide mechanical seals in oil sump and V-rings to ensure excellent reliability even in heavy-duty conditions.

**SUCTION and DISCHARGE**  
The suction and discharge flanges can be ordered with holes of any standard type (UNI, ANSI, BS, etc.) to ensure perfect compatibility with the system and the accessories installed.



**ZUG V**  
Vortex hydraulics



**ZUG OC**  
Channel hydraulics



**ZUG CP**  
Chopper hydraulics



**ZUG V**  
Grinder system hydraulics



**ZUG HP**  
High head hydraulics

## THE INDUSTRY EPIDEMIC PROBLEM SOLVING PUMPING SOLUTION

RAGS, WIPES, FAT, OILS and GREASE plague the UK sewer system, and are a daily frustration for clients and residents served by a pumping station. Most pumps are not designed to handle the non-biodegradable waste that is put into our drains and sewer systems.

### THE PROBLEM...



### THE SOLUTION...

The T-T PTS (non-ATEX) and PTS-EX (ATEX) range of heavy duty chopper pumps are designed for the most arduous of pumping applications.

#### A Chopper Pump not a "Macerator"

The chopping action breaks down particle size via an extremely heavy duty cutting action leaving a pump-able, yet a manageable particle size.

A macerator shreds liquid/solids into fine particles via 10's of 1000's of cuts per minute, which are volatile to fibrous materials potentially causing environmental issues should your system breakdown.

#### DOUBLE CHOPPING SYSTEM

The first cutting is done with a conveyor and twin cutting blocks and blades in the inlet of the pump. The second cutting system consists of a shear cutting plate that acts in contrast to the sharp profile impeller blades (all made in high grade special cast iron). With a speed of 1750rpm, this is the first and only chopping system that operates at over 170 cuts per second enabling the pumping of liquids containing 10 - 12% maximum solids.

#### HIGH EFFICIENCY HYDRAULICS

Hydraulics designed to correlate high efficiency (up to 77%) with high chopping and anti-clogging performance. Data according to UNI EN ISO 9906 Standard.



#### DOUBLE MECHANICAL SEAL

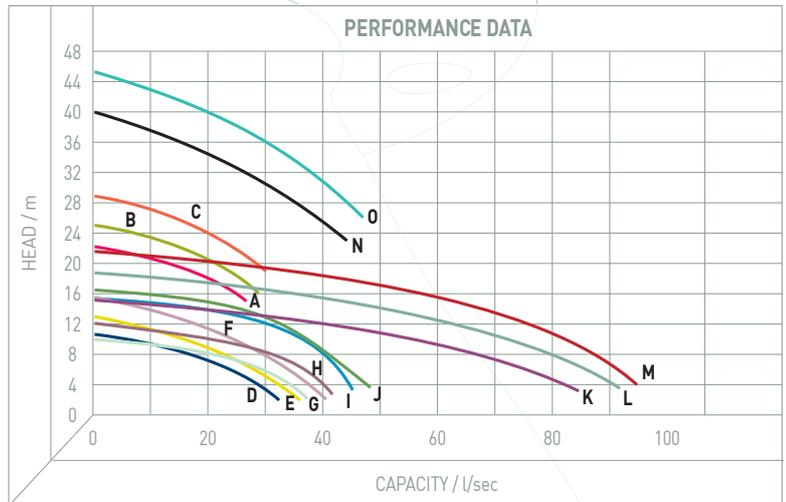
Mechanical seals in silicon carbide and graphite-ceramic.

#### THERMAL PROBE SENSORS

Double thermal probes, immersed in the stator, preventing the overheating of the electric motor and preserving its operating life.

#### SEAL LEAK DETECTION (ON REQUEST)

Humidity probe installed in the oil chamber to prevent damage in the case of leakage.



You can view the chopper pump in action:  
<https://youtu.be/nK381iuPd4M>



### TECHNICAL INFORMATION

- Heads: up to 46.4m
- Flows: up to 94l/sec
- Range from DN65 to DN150
- ATEX certification compliant with 2014/34/UE Directive
- Suitable to be installed in pumping stations with the presence of potentially explosive atmospheres
- Electrical Motor: II 2G db IIB T5 Gb
- Mechanical Parts: Ex h IIB T5 Gb

### BENEFITS

- Dual mechanical seal for extra protection
- Suitable for explosive zones
- Reduces wet wipes/solids size to enable trouble free pumping
- Works tirelessly in arduous conditions
- Fully serviceable
- Offers peace of mind pumping
- Does not require complicated control system enhancements as standard.

PUMP TYPE		CURVE	OUTPUT		DISCHARGE		MAXIMUM		CABLE m	WEIGHT kg
			amp	kW	mm	inch	HEAD m	CAPACITY l/sec		
Standard Version	ATEX Version									
PTS 7.5-65 400V/3Ph	PTSEX 7.5-65 400V/3Ph	A \	15.8	7.5	65	2.5	22.2	33	10	125
PTS 9-65 400V/3Ph	PTSEX 9-65 400V/3Ph	B \	19	9	65	2.5	24.9	35	10	130
PTS 11-65 400V/3Ph	PTSEX 11-65 400V/3Ph	C \	23.5	11	65	2.5	28.8	36	10	191
PTS 2.2-80N 400V/3Ph*	PTSEX 2.2-80N 400V/3Ph*	D \	5.3	2.2	80	3	11.6	32	10	74
PTS 3-80N 400V/3Ph*	PTSEX 3-80N 400V/3Ph*	E \	6.4	3.0	80	3	13.4	37.5	10	77
PTS 4-80N 400V/3Ph*	PTSEX 4-80N 400V/3Ph*	F \	9.1	4.0	80	3	14.7	40	10	78
PTS 4-100 400V/3Ph	PTSEX 4-100 400V/3Ph	G \	9.1	4.0	100	4	9.8	38	10	88
PTS 5.5-100 400V/3Ph	PTSEX 5.5-100 400V/3Ph	H \	12.5	5.5	100	4	12	42	10	122
PTS 7.5-100 400V/3Ph	PTSEX 7.5-100 400V/3Ph	I \	15.8	7.5	100	4	14.7	45	10	128
PTS 9-100 400V/3Ph	PTSEX 9-100 400V/3Ph	J \	19	9.0	100	4	16.1	48	10	133
PTS 11-150 400V/3Ph	PTSEX 11-150 400V/3Ph	K \	23.5	11.0	150	6	15.2	85	10	213
PTS 15-150 400V/3Ph	PTSEX 15-150 400V/3Ph	L \	30	15.0	150	6	18.6	92	10	226
PTS 18.5-150 400V/3Ph	PTSEX 18.5-150 400V/3Ph	M \	36	18.5	150	6	21.5	94	10	229
PTS 15-80 400V/3Ph*	PTSEX 15-80 400V/3Ph*	N \	31.2	15.0	80	3	41.5	44	10	168.5
PTS 18.5-80 400V/3Ph*	PTSEX 18.5-80 400V/3Ph*	O \	36.5	18.5	80	3	46.4	48	10	183

\*100mm heavy duty cutting system available at an additional cost.

Example of chopper pump installation



## CASE STUDY – SEGRO LOGISTICS PARK

SEGRO Logistics Park East Midlands Gateway, located next to East Midlands Airport is a 700-acre development with planning consent for up to 6,000,000sq ft of logistics space. The development incorporates a rail freight terminal, capable of handling up to sixteen 775m freight trains per day, container storage and HGV parking.

As part of the development, a comprehensive drainage system was required, for which T-T manufactured and supplied two concrete sump pumping stations and refurbished an existing pumping station which T-T installed somewhat 20 years ago.

The principle pumping station consists of a 2.4m internal diameter by 7.5m deep concrete sump, installed in the sump is two PTS heavy duty chopper pumps with a duty of 50.5 l/sec. The PTS chopper pumps were selected due to their robust double chopping system, which is capable of chopping and pumping rags, wipes and debris to ensure the pumping station doesn't block. The PTS pumps were ideal for this industrial application where waste may include material which are potentially harmful to traditional sewage pumps.

The 15kW motor pumps are controlled via T-T control gear, the level control (via ultrasonic) communicate to a T-T

manufactured control panel to operate the pumps on a duty/standby basis.

Due to the length of the rising main, T-T recommended having a surge analysis report completed. The study identifies the worst-case pressure surge scenarios, so the essential provisions can be included in the pumping station design to prevent any damages from a surge.

The completed report identified three recommendations to alleviate any risk of vapour pressure, these included, adding an automatic air release valve, include pumps with a soft stop over 30 seconds and alter the sump levels.

The rail terminal pumping station installed has a 2.1m internal diameter and is 5m deep, the discharge rate of the system needed to be 5.0 l/sec. The appropriate pumps for this application were selected and installed on a guide rail system. The appropriate ancillaries were supplied to complete the project.

Finally, T-T refurbished a pumping station that they installed previously on the site in 1999. The original pumping station was installed to take surface water off, at the time, the newly remodelled A50. Now that is has been remodelled again, Leicestershire City Council asked their contractor to refurbish the pumping station based on

T-T's recommendations. Firstly, the T-T team completed a site visit to assess the nature of the refurbishment. From the site visit it was apparent that the following equipment was required:

- Control panel and kiosk
- 2 x downlegs with pedestals and 90° bends
- 2 x Non-return valves
- 2 x flange adaptors
- Level control float switches & ultrasonics
- Pumps
- Lifting chain

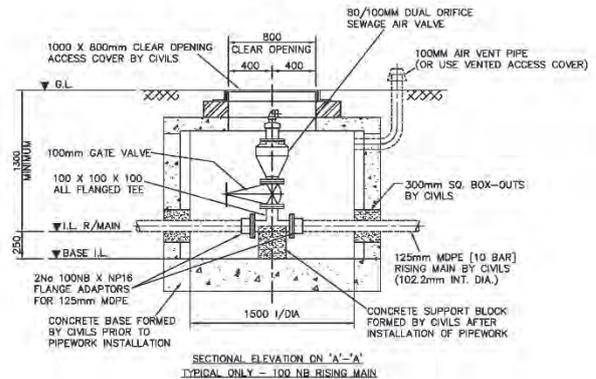
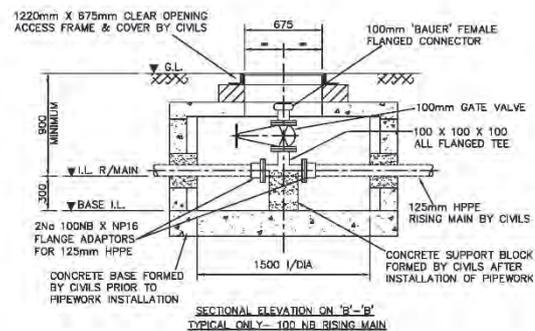
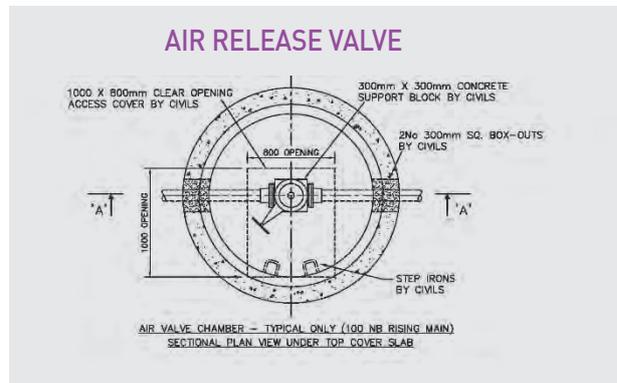
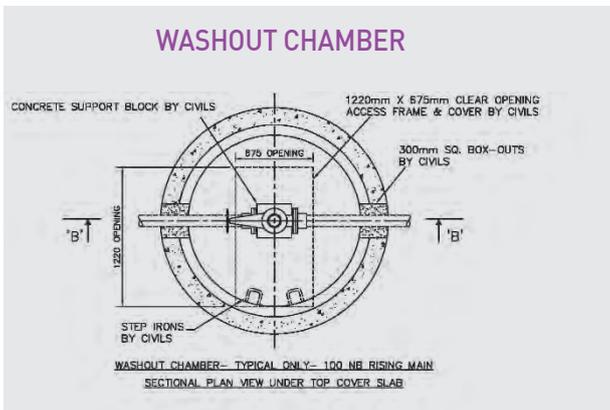
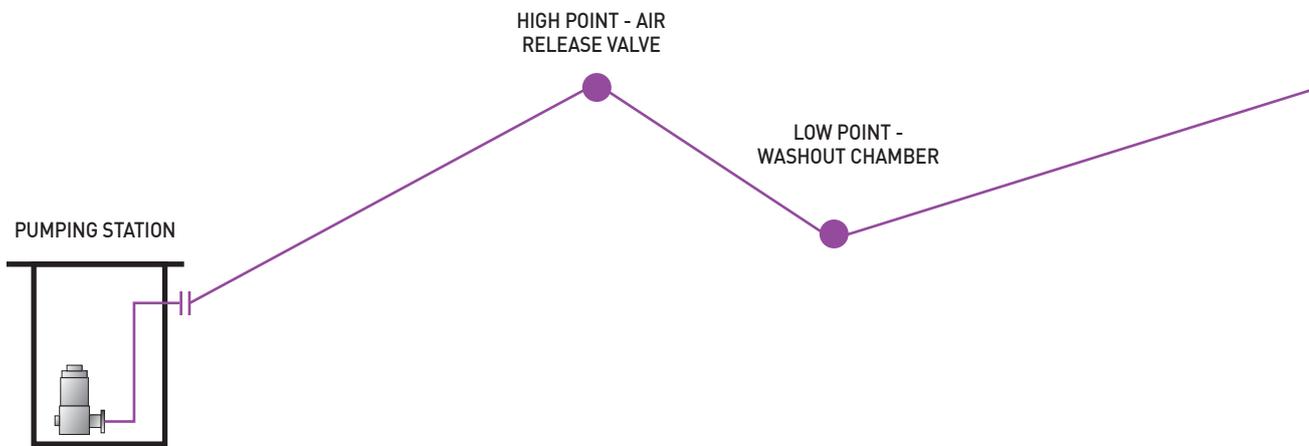
T-T sourced and supplied the equipment and returned to fit the pumps from our Uniqa range over the three day period, which involved closure of the A50 whilst the works and overpumping took place. Finally T-T commissioned the three pumping stations.

T-T are pleased to be selected for another major project in the UK. For more information on our pumping stations, visit: [ttpumps.com/pumping-stations](http://ttpumps.com/pumping-stations)

# SURGE ANALYSIS

The behaviour of pumped liquid and associated surge impact can have a significant effect upon how a pumping station operates, and without suitable protection measures in place, can lead to system damage. T-T include surge analysis as part of any adoptable pumping station quotation, for rising mains with a length exceeding 500m. Equally, the inclusion of air valves and washout points along the topography of a rising main is vital for system operation and health.

## Example layout to prevent a potential surge



# LEVEL CONTROL

Level control is dependant on what type of pumping station is being installed. Private pumping stations operate via float switches and Adoptable pumping stations operate via ultrasonics with float switch back up.

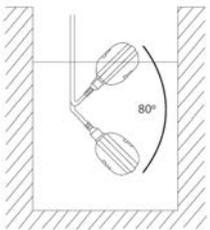
## FLOAT SWITCHES

T-T have made a substantial investment to produce a high quality range of level control float switches which have been designed to meet the demands and requirements of reliable level control.

The designs are based on our own experiences for reliability and confidence that is required when controlling sensitive liquids. This latest series has taken some time to develop having been rigorously tested in our works at the development stage and thoroughly tested for a number of years on selected sites.

Float switches are economic and efficient liquid level sensors, simple to install and designed for trouble free operation over a long life.

- The ATEX FLO101 Float Switch is ATEX approved for use in zone related areas.
- The GENERAL FLO102 and ECONOMY FLO103 are for general purpose use.
- The FUEL FLO106 is for use in diesel oil.
- The POTABLE FLO107 consists of WRAS approved materials for clean/potable water applications.



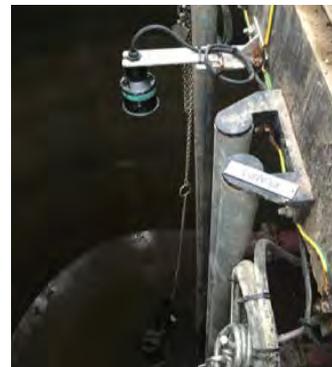
### How do Float Switches work?

1. As the liquid level rises to float switch will move in conjunction
2. As the Float Switch reaches the 'ON' position the pump will start to run
3. As the pump starts to empty the well, the Float Switch will return to the 'OFF' position
4. The pump will then stop.

## ULTRASONICS

Ultrasonic level control is entirely different to how a traditional float switch operates. Ultrasonic units are similar to Radar yet they emit and receive a sound wave to determine the liquid depth within the pumping station. Positioned at the opening of the wet well, the ultrasonic transducer emits a pulse of sound and measures the time that is taken for the sound to bounce back to the transducer head from the surface of the water level within the sump, calling the pumps / system alarms to activate accordingly.

As this method is contactless with the pumped media, the degree of control accuracy is increased. Suspended float switches if poorly maintained can collect grease and fat over time, restricting operation. With an ultrasonic system, such risks are removed.





## CASE STUDY – UNITED UTILITIES ADOPTABLE PUMPING STATION INSTALLED FOR BOVIS HOMES

T-T Pumping Stations have supplied an Adoptable Pumping Station to a Bovis Homes Development in Crewe.

T-T Pumping Stations are experts in providing pumping stations to all Water Authority requirements and to Sewers for Adoption standards. We have recently supplied a Bovis Homes development with a United Utilities, 7th Edition Sewers for Adoption Type 3 Pumping Station. The pumping station was installed to service the 245 house Bovis Homes development, located in Haslington, Cheshire.

The adoptable station was a 3m internal diameter by 6.35m deep concrete chamber with a separate, adjacent valve chamber. The pumping station requires an emergency storage of 39.2m<sup>3</sup> to cater for the occupancy of the 245 dwellings. The pumping station had all the requirements demanded by United Utilities including control equipment housed in a road side weatherproof kiosk. The station was supplied with two pumps, twin form and style control panel, valves and a level control, all of which are fully compliant with the requirement of SFA 7th Edition and United Utilities addendum, and from our own range of products.

Due to a low point along the rising main a washout chamber and air release valve was required. The washout chamber is designed

to ensure any sediment that may settle in the lowest point of the raising main can be washed out via a manhole access. The air release valve ensures that there is no air entrapment in the pipelines, thus avoiding water hammer and syphoning.

The delivery and installation schedule of the pumping station was arranged to suit the requirements of the overall site program and the pumping station was commissioned to ensure full working order. T-T will continue to lead the adoption process and ensured a smooth handover to United Utilities.

Since 1959, T-T has stood out as one of the UK's most reliable manufacturers and suppliers of pumps, pumping stations, valves, controls, and other specialist equipment.

**“I have used T-T Pumps for over 25 years and I have always received good, professional advice. In one instance a S104 station which was particularly difficult to achieve technical approval with United Utilities, T-T’s Technical Manager attended a meeting with me and his knowledge proved invaluable in finally securing approval. T-T provide a prompt detailed design to enable submission for approval [to the water authorities]. During installation the T-T team attended pre-start meeting and were always willing to help and assist in the civils and mechanical and electrical installation. They are very accommodating in adjusting dates to meet our site deadlines. T-T give good knowledgeable advice from sales through to delivery and are always willing to help.”**

Estimating Manager, Bovis Homes

## WHY CHOOSE SEER?

The Seer monitoring range is an advanced data logger that uses cloud based technology to continually communicate pump status to an internet based portal that has multiple notification setting functionalities.

- Real-time reporting, offering ability to remotely diagnose faults
- Visually represented data and alarm screens
- Historical data held for plant comparison and analysis
- Fully configurable alerts via SMS and email
- Download data scheduling options
- Reduced service & maintenance costs
- Improved plant reliability
- Reduce environmental risk

You can select recipients to be instantaneously informed of any faults, errors, changes or plant status. Not only does the monitoring system report live status and alarm activation but most importantly, observation of the whole system with historical data collection that allows potential issues to be identified early.

Seer has the capability to interrogate and reset remotely. The system uses the ARGOS cloud network via machine to machine data collection offering superior connectivity and ensuring security. Information is received from plant and systems on a real-time basis with data refresh up to every 10 seconds. Variables are then stored and visually represented, for example, pump running currents, incoming voltages, and wet well levels, giving a 'snap shot' of the whole system remotely.



### BENEFITS

#### REDUCED COSTS

Reduced maintenance costs due to less unnecessary site visits

#### MAINTENANCE

Pro-active maintenance

#### MONITORING

Real-time monitoring by a skilled pump engineer

#### SECURE HOSTING

Secure hosting of cloud based technology

#### DATA ANALYSIS

Historical data analysis and performance trending

#### EARLY INTERVENTION

Early intervention to prevent detrimental failures with remote reset and continual monitoring

#### REMOTE RESET

Remote reset functionality with on-site engineer safety feature





## CASE STUDY – A PROBLEMATIC PUMPING STATION RESOLVED BY SEER MONITORING

**Jane Delicata our Controls Manager comments, “The development of this product has allowed us to assist not only major house builders in providing evidence of efficient working of the pumping station to aid adoption but has also diagnosed many issues within hours of being installed on sites.”**

As part of the trailing and testing of the new Seer monitoring range we installed a Seer Advanced unit at a David Wilson Homes site based in Crewe, Cheshire. The 72 property development required an Adoptable Pumping Station due to no gravity sewer network being available. The Adoptable Sewage Pumping Station provided was compliant with Sewers for Adoption 6th Edition (the applicable specification at the time of construction) to United Utilities addendum. The Seer unit provided managed to alert and diagnose an issue on site within 48 hours of installation.

The Adoptable Pumping Station consisted of a 3.0m diameter by 5.3m deep concrete wet well, separate concrete constructed valve chamber, ductile iron pipe work, valves and fittings to full specification compliance along with a T-T Controls manufactured main control panel plus two 4kW vortex impeller ATEX approved sewage pumps. Installed into the control panel was a Text-Tel Junior SMS text message only monitoring unit, we added the Seer Advanced cloud based unit to enable us to cross correlate any alarms being received.

Within 48 hours of the Seer unit being installed the monitoring system detected a stuck non-return valve on one of the pump discharge legs, which ordinarily could have continued to be undetected for considerable time, causing unnecessary wear on the continually running pump and an imbalance in the hours run on the station. This issue was unknown to both the T-T monitoring department and the site operatives due to the SMS technology being limited to the amount of variables it can monitor. Without the Seer, it would have taken chance to diagnose with an engineer observing on site at the exact time the non-return valve was getting stuck. In addition we have been able to ‘see’ for the first time a typical day in the life of each pumping station in regards to the empty cycles and peak demands to both inflows and operating cycles. This has enabled us to optimise the performance of each pumping station and when combined with our service and monitoring agreement, we have been able to tailor our service and reaction times to suit.

Further to identifying issues specific to the pumping station, the installation of the Seer has allowed us to identify issues not relating to the equipment provided by

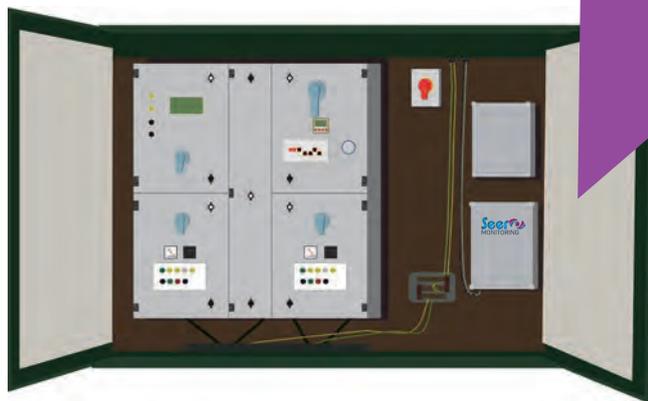
T-T, but problems with ancillary services such as issues on the incoming voltage to the pumping station provided by the power supply network and the impact of such issues. Finally, as well as being a 24/7 real time monitoring and analysis portal, the Seer acts as a data logger, providing downloadable reports of all data, parameters and alarms. This document pack can then be supplied to the water authority as evidence of optimal working conditions to aid with the adoption process.

As this development combined the monitoring equipment with a T-T service and monitoring agreement we had 24/7 visible data of the pumping station in real time. The categorisation of alarm severity (minor, major and critical) and the ability to visualise the wet well level continually allowed us to provide a tailored reactive and preventative maintenance package to keep the pumping station in continuous working condition. The Seer has reduced and will continue to reduce the need for breakdown calls due to us having the ability to remotely diagnose and reset any issues on site.

## HOW DOES SEER WORK?

### EXAMPLE VARIABLES MONITORED

Power Supply  
 High level  
 Pump failure: Pump No.1  
                   Pump No.2  
 Voltage monitoring  
 Pump current  
 Pump operating  
 Pump under-load  
 Pump seal leak  
 Wet well Level  
 Remote control  
 Trip reset  
 Pump start  
 Remote control active

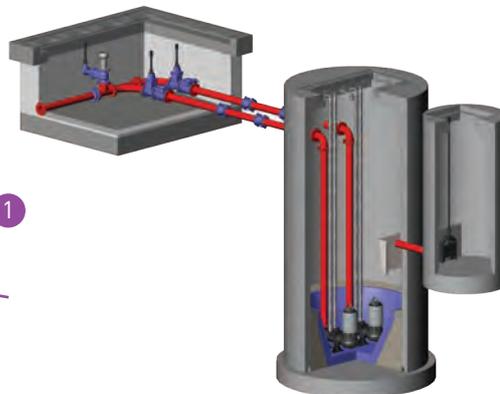
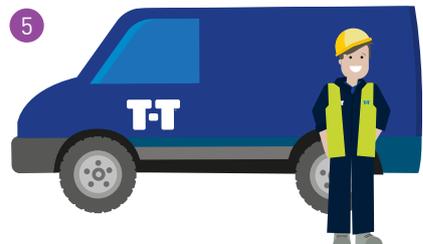


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### SERVICE ENGINEER

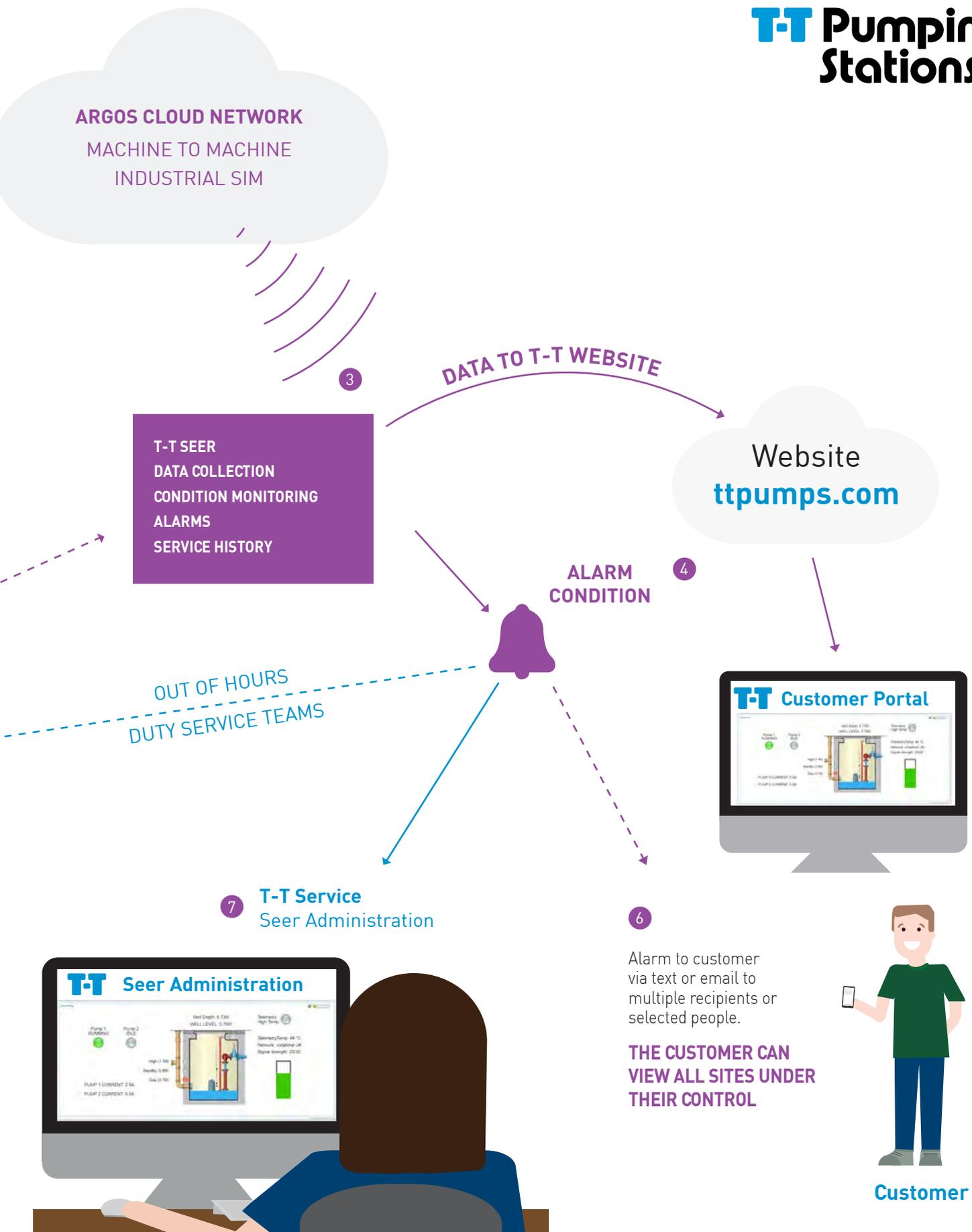
The Service Engineer can get the full history integrated with the Pumping Station history.  
 They can also reset remotely.

5



1

1. The Seer unit is installed in the pumping station control kiosk.
2. The Seer unit sends information to the cloud.
3. The data is collected and distributed as necessary.
4. Any alarms are highlighted to the T-T Service team.
5. If necessary the T-T Service engineers are deployed to site.
6. The customer can view the pumping station status and activity on the T-T Pumps website and Seer portal.



- The Seer administration team can assess the historical reports to ensure the pumping station is working as intended. They can decipher if there are any external factors for example voltage drop affecting the pumping station and suggest changes to keep the pumping station in a healthy working order.

## SEWERS FOR ADOPTION CONTROL PANEL

### DESIGN

- In-house design capabilities using the latest in 2D and 3D software
- Full design and manufacturing drawings for all specific requirements (Type, 1, 2 & 3)
- Flexibility and fast response
- Communication throughout with Water Companies and developers



### WHY T-T CONTROLS?

- Over 30 years of industry experience
- Extensive knowledge of Sewers for Adoption
- Worked with all Water Companies over this period
- Developed clear awareness of requirements and expectations
- Expert knowledge and assistance throughout the adoption process to ensure within Water Company requirements



## REDUCED COSTS

- Most cost-effective solutions used to meet the Water Companies stringent design requirements
- Design, manufacture, build, installation and commissioning of your control panel in-house
- Flexible, timely service, with superior quality products

## EQUIPMENT MANUFACTURE

- Bespoke arrangement to your site's specific requirements
- Majority of equipment manufactured on-site
- Large on-site stock holding to ensure no need for external resources

## QUALITY

- Quality procedures vital to every project
- ISO9001:2015 Quality Management System approval

## STANDARDS

- Conformity with all relevant regulatory standards
- T-T provide full certifications for all electrical works on site to BS7671
- As a NICEIC Approved Contractor we offer periodic inspection service

## KIOSK

Accommodation for your control panel can be provided from our extensive range of kiosks and other enclosures, in a variety of materials including steel with protective coatings, stainless steel, polycarbonate and GRP for outdoor and indoor applications and harsh environments. They can provide space as required for electricity meters and special items such as telemetry units, generator connections, and distribution equipment.



## Adoptable control panels

## WHAT IS THE ADOPTABLE PUMPING STATION PROCESS?

### I HAVE PLACED AN ORDER, WHAT HAPPENS NEXT?

We request all orders for pumping stations in writing, via email or via post to suit, in this instruction we require you to identify the T-T quotation number and highlight what options from the quotation you require. If you are unsure, the team at T-T are hand to assist and direct you.

Once the order is received, and payment terms / credit agreed, the order is formally accepted, and a written confirmation of order receipt will follow for your record purposes.

### TECHNICAL DRAWING PREPARATION

For all adoptable pumping station orders and for site specific projects, T-T include for the provision of a set of both mechanical and electrical drawings. We aim to submit the drawings package to you within 2 weeks from order receipt. It is then your responsibility or that of your appointed consultant to liaise with the appropriate authority to seek approval of the designs. Water authorities may request alterations or provide comments against the submitted drawings. Do send any feedback to T-T directly so that we may assist or revise drawings to accommodate the alterations in a timely manner, therefore minimising delays.



### APPROVAL OR RISK? WHAT ARE YOUR RESPONSIBILITIES

Here at T-T, risk management is key for both us and our clients. Prior to any materials being procured, or agreement to site programme requests, T-T will require confirmation that technical approval has been granted by the authorities, against the drawings package submitted. This confirmation is to be obtained and fielded back to T-T via either the client or their appointed consultant (e.g. S104 confirmation).

T-T will confirm lead times and discuss/ confirm a site programme in line with the clients needs, yet should the client wish T-T to proceed with the installation or procurement of materials prior to technical approval being granted, T-T will require an instruction to do so from the client, with the risk of doing so being acknowledged and accepted by the client.

### SITE PROGRAMME

Our knowledge of your site programme is key to allowing T-T to meet with your requirements. Where available, we wish to know:

- First fix dates
- Second fix commissioning dates
- Dates that your power supply and electrical meters are to be installed
- Dates of your first occupancy/client hand over.

We aim to be as proactive as we can in scheduling dates to avoid any unnecessary delays. If this information is not available at order stage, please forward this information to us at your earliest opportunity.

### INDUCTIONS

At T-T, we shall always endeavour to meet our clients needs. Site inductions are usually mandatory on any construction site so please confirm prior to attendance, at what time T-T engineers are required to attend the induction.

We frequently travel to and from sites from our main offices in Cheshire, so it may not always be possible to attend an induction at the required time, however we will endeavour to meet your requirements, please advise of these as soon as possible.

### MECHANICAL FIRST FIX

The mechanical elements of the pumping system will be pre-assembled at our works for delivery and installation on site. Offloading on site is via hi-ab as included (unless the project deems other methods necessary) and the delivery vehicle requires a 9m wide hard standing for out-rig purposes.



Goods are offloaded directly into position; our engineers are all confined space trained and aim to gain immediate access to the station following induction. We allow one hour for induction maximum; please confirm ahead of attendance should this need to be extended, plus an agenda for us to follow.

All items ready at T-T will be delivered at the point of first fix.

### SITE PREPARATION AHEAD OF FIRST FIX

- T-T's latest design drawings must be used.
- Concrete chamber construction must be complete, inclusive of wet well, valve chamber plus inlet chamber and flow meter chamber, where applicable. All inflows must be isolated, controlled and any water integral removed ahead of our visit.



- Cover slabs must be in place and kiosk(s), floodlight and aerial mast plinths complete where applicable (not all sites will call for a flood light or aerial mast plinth, please consult your drawing).

- An excavation needs to be created between wet well and valve chamber to allow for pipe connection, plus hard access provided too and around the site.
- All other civils/ground worker tasks clearly detailed within our drawings package for pre-installation purposes to be completed (i.e. plinths, flat pads for valve positioning where applicable etc.).
- Please do not fit access covers and frames ahead of first fix as this will hinder/restrict access.
- Delivered items that cannot be fixed during this visit will be left on site for safe storage by the client.
- The delivery vehicle requires hard standing (approximately 9m wide) for outrig set up, this need to be as close to the pumping station as possible, to offload materials directly into position. If this is not possible, site plant assistance and labour to assist will be required (at no cost to T-T).

## ELECTRICAL SECOND FIX

Once the first mechanical fix has been completed, the next step is to commission the pumping station.

## SITE PREPARATION AHEAD OF SECOND FIX/ COMMISSIONING

- The rising main is laid, connected to both the pumping station termination point and outfall discharge point, and the main is pressure tested.



- All other civils/ ground worker tasks clearly detailed within our drawings package for post-installation purposes to be completed (i.e. wet well and valve chamber benching, box out in-fill, back fill etc).
- Both the electrical supply and electrical meters are installed.
- Water is available for pump testing purposes

- \*Access covers must be fixed and grouted, to allow for earth bonding to take place. (\*Note that T-T telemetry systems may contain a limit switch for H&S reason to allow for remote monitoring and pump reset, hence the covers must be in place and fixed. Consult your planned service agreement for confirmation)
- Once the system is commissioned, T-T aim to leave you with a fully operational pumping station, the warranty period for the system will become valid from that date.
- T-T will provide you with a comprehensive report post each fix visit to confirm completion/progress. Details of the report will be discussed with your site representative and a signature will be required prior to our departure.
- Any delays on site as a consequence of others may result in additional charges, for which an instruction will be required from the client to cover before we proceed.

## TEMPORARY COMMISSIONING

The pumping station can be commissioned using a temporary supply/generator should there be any delays in obtaining the permanent power supply, delaying occupancy or completion.

A further chargeable visit would be required in this instance as we must re-test and commission the pumping station when the final mains electrical connection is in place. Part of your order may include for the provision of an NICEIC electrical certification for the pumping station, the regulations for which we must comply with.



## YOUR RIGHT TO CANCEL WORKS

Nobody understands the unpredictable nature of construction/project works other than T-T, with site programme and demand changes changing frequently.

Should a planned visit need to be rescheduled, please confirm so at the earliest opportunity. Whilst we always endeavour to accommodate changes at reasonable short notice, should you choose to cancel works scheduled within less than 48 hours/two working days clear notice, any costs associated with planned works that cannot be cancelled (accommodation /

transport etc.) will be submitted to the client for reimbursement.

## ADDITIONAL CHARGES

Via guidance such as this information document, and via the service that T-T provide, our aim is to ensure that the process of pumping station installation runs as smoothly as possible.

All efforts will be made to progress effectively yet note that abortive works or standing time as a result of others will incur further charges. Any quotation for additional works will be detailed and illustrated clearly with the need for further works, the charges that apply and the reasons for additional charges.

Aborted planned works due to delays by others or adverse conditions/ weather etc may result in chargeable re-visit and the charges equate to the duration of the original planned works.

## T-T IS HERE TO HELP YOU

With this guide sheet and the comprehensive and extensively detailed drawings package provided, we hope that you can address any issues or concerns in advance of works taking place.

Your order will be allocated to one of our Technical Project Engineers whom will oversee the design and technical aspect of your pumping station order and there is a wealth of support available, both mechanically and electrically at T-T to answer any queries that you may have.

Should you require the station to be inspected prior to the installation works taking place, we can offer to provide a team of installation engineers to attend site for this purpose, this would be a chargeable service.

Should future re-visits be required as a result of delays, our earliest availability will be provided.

**For any further queries, do not hesitate to contact our Pumping Station division on 01630 647200 or [response@ttpumps.com](mailto:response@ttpumps.com).**



## CASE STUDY – THREE SNOWHILL, BIRMINGHAM

Three Snowhill has been described as the gateway to Birmingham's business district and has been compared to London's Canary Wharf. This regeneration project was originally set out to attract new enterprise and support the growth of existing small businesses. As the second largest city in the United Kingdom, Birmingham needs to ensure it is accommodating advancements in business and new ways of working.

The 17 story glass-clad structure has full height windows and will be a spectacular addition to the skyline as well as providing spectacular views across the city. The development is well underway and T-T have been selected to provide a range of drainage systems to allow this building to operate effectively. A specific requirement of the project is to provide 32,000 square meters

for high-quality office space which is energy efficient and sustainable. Therefore T-T has selected equipment that follows this ethos.

Providing a complete package, T-T has selected, installed and commissioned pumping equipment for foul pumping stations, provided rainwater pumps and firefighting sump pumps. Within this, the equipment included a range of energy efficient submersible pumps from our Uniqa range. These pumps were selected due to their IE3 energy efficient rating and outstanding reliability. Other pumps selected included heavy duty submersible pumps from our contractors range, these pumps are ideal for use in areas that are prone to flooding where quick, reliable removal of nuisance water is needed.

All pumping equipment was supplied with pipework, valves, and controls. The control equipment was selected from our standard range of control equipment, the panels are designed to control 1ph 230V and 3ph 400V motors via level control and were provided with a suitable enclosure for indoor use, complete with high-level alarm and buzzer.

**The equipment was delivered to site in line with the construction schedule and each unit was installed and commissioned within three days.**

# LARGER AND BESPOKE SCHEMES

The diversity of our product range coupled with our knowledge and experience allows us to supply larger and bespoke pumping stations designed and engineered to your exact specifications. Whatever your requirement T-T have the knowledge and experience to support you.

## CASE STUDIES

### VICTORIA STATION UPGRADE

A number of pumping stations have been supplied and installed for enabling works at Victoria Underground Station. The sewage scheme consisted of 2 stations both with DGN pumps, controlled by bespoke control panels specifically designed for non-critical sites.

### M1 MOTORWAY SCHEME

As part of the M1 motorway widening scheme, T-T were selected to supply, install and commission two drainage pumping stations. The first of the two stations was fitted with 4 x 18.5kW pumps and the second fitted with 4 x 11kW pumps, each station is controlled with a multi-sectional floor standing motor control centre.

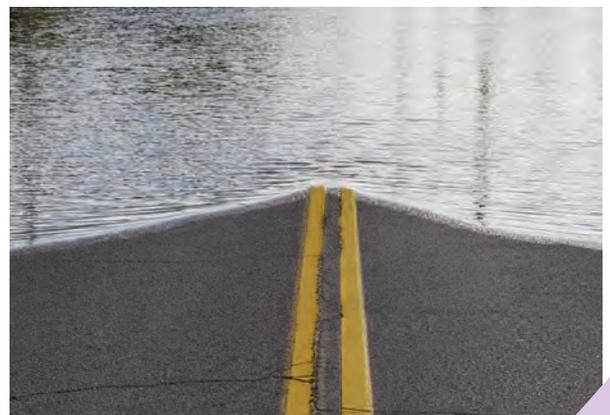
### TENBY LIFEBOAT STATION

T-T was selected to supply the pumping system for a Grand Designs project at an old lifeboat station in Tenby. However, this project was no normal feat, as careful consideration had to be given towards the location of the system, extreme weather conditions and access for maintenance. Suspended under the property, T-T supplied two submersible sewage pumps within a stainless steel tank, a bespoke control panel and a small chemical dosing unit – to inject chemicals into the tank to prevent odours, septicity and to break up congealed fat build up. Please see page 276 for selection questionnaire, which allows us to make the best selection for you.

### A34 PUMPING STATION UPGRADE

Commuters using a major road into Birmingham City Centre can take comfort that the route, previously prone to flooding, will be less likely to be affected in periods of heavy rain, thanks to new technology installed by T-T. The Birchfield underpass, which carries the A34 under Perry Barr, was the site of a major flooding incident in 2014 that saw motorists stuck in rush hour traffic jams following a pump power failure. Birmingham City Council's Highways partner, Amey, commissioned T-T to carry out full site survey. Following inspection of the existing pumps and panel, T-T offered Amey the solution of replacing the existing surface mounted pumps with submersible contractor's pumps, a new control panel and associated equipment to enable remote monitoring of the problematic site. Amey proceeded with installation of the new, more efficient and robust system, and a selection of Amey engineers completed training with T-T, to familiarise themselves with the pumps and monitoring equipment they now have on the underpass. In May 2018, the new system was put to the test as the city once again bore the brunt of torrential downpours. Despite the high volume of rainfall in a short period of time, no problems were experienced at the Birchfield Underpass. T-T continue to work closely with Amey on maintenance of this and other pumping stations around the city's highways network.

For more information or advice about pumping systems please speak to our experienced team on **01630 647200**.





# PACKAGE PUMPING STATIONS



The **Planet® Range of Package Pumping Stations**, designed and manufactured by T-T and approved by the BBA, provide an efficient and economical way of installing a sewage / drainage pumping station.

### FEATURES

- PUMP CHAMBERS ARE WELL ENGINEERED AND MANUFACTURED, AND HAVE PASSED RIGOROUS AND DETAILED TESTING, SITE INSPECTIONS AND FACTORY PRODUCTION CONTROL ASSESSMENT BY THE BRITISH BOARD OF AGRÉMENT TO ACHIEVE CERTIFICATION APPROVAL
- EACH PUMP CHAMBER IS MADE OF STRONG, MEDIUM-DENSITY POLYETHYLENE
- SMOOTH INTERNAL WALLS AID THE HYGIENIC DISPOSAL OF EFFLUENTS, TO AVOID SMELLS AND SEPTICITY
- PACKAGES COME COMPLETE WITH PIPEWORK PRE-ASSEMBLED IN THE CHAMBER, READY FOR INSTALLATION INTO THE GROUND, AFTER WHICH THE PUMPS AND CONTROL EQUIPMENT ARE ADDED
- ALL PACKAGE PUMPING STATIONS ARE SUPPLIED WITH CONTROLS FOR FULLY AUTOMATIC OPERATION, AND A HIGH-LEVEL ALARM INDICATOR
- UNITS CAN BE ADAPTED TO SUIT INDIVIDUAL REQUIREMENTS AT MANUFACTURING STAGE
- PACKAGES ARE AVAILABLE ON SHORT LEAD-TIMES TO FIT IN WITH TIGHT CONSTRUCTION SCHEDULES
- A COMPREHENSIVE INSTRUCTION MANUAL IS PROVIDED

A wide range of submersible pumps can be used for the Package Pumping Stations; we are able to select these from T-T's complete range, in order to match your requirements.

Please see page 62 for selection questionnaire, which allows us to make the best selection for you.

### IMPORTANT

The information given in this publication is for your initial guidance. For each scheme, general arrangement drawings are issued on receipt of order. For your further assistance, more comprehensive details are available, and we will be pleased to provide additional information and advice. Our aim is to provide you with a completely satisfactory solution for your pumping needs.

 **See video on YouTube**



## MERCURY® SINGLE / DUAL\* PUMP

The Mercury® is ideal for small flows from a single dwelling and where excavation depth is limited.

### COMPATIBLE PUMPS

- CUTTER 80mm
- GRINDER 50mm
- VORTEX 50mm / 80mm

\*Dual pumps only available with 50mm Vortex / Grinder.

\* Extension turret available on this model



## VENUS® SINGLE / DUAL\* PUMP

The Venus® chamber is the most popular size for use in a single dwelling, toilet block, or small office.

### COMPATIBLE PUMPS

- CUTTER 80mm
- GRINDER 50mm
- VORTEX 50mm / 80mm

\*Dual pumps only available with 50mm Vortex / Grinder.

\* Extension turret available on this model



## SATURN® DUAL PUMP

The Saturn® chamber is suitable for small housing and industrial / commercial developments, restaurants, small hotels / nursing homes, caravan sites.

### COMPATIBLE PUMPS

- CUTTER 80mm / 100mm
- GRINDER 50mm
- VORTEX 50mm / 80mm / 100mm
- CHANNEL 80mm / 100mm

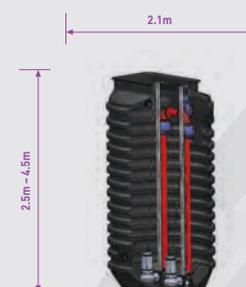


## JUPITER® DUAL PUMP

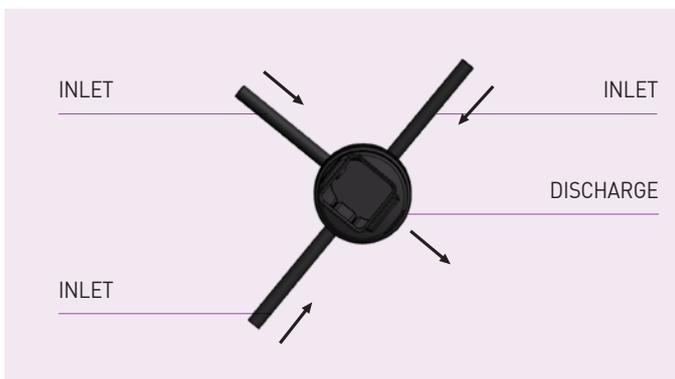
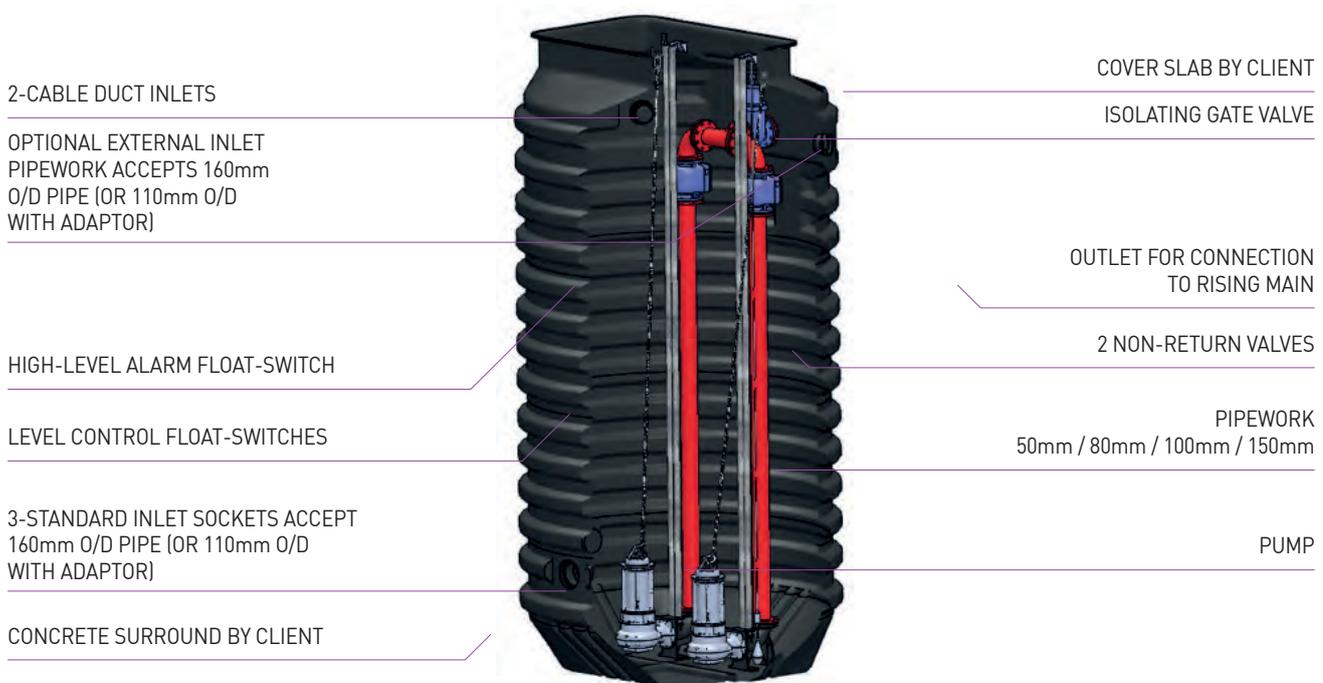
The Jupiter® chamber is suitable for larger developments, hotels, hospitals, sewage works. The basic unit is capable of special build modification to provide capacities up to 15,500 litres, and can be incorporated into schemes where, for example Sewers for Adoption specification is required.

### COMPATIBLE PUMPS

- CUTTER 80mm / 100mm
- GRINDER 50mm
- VORTEX 50mm / 80mm / 100mm
- CHANNEL 80mm / 100mm / 150mm



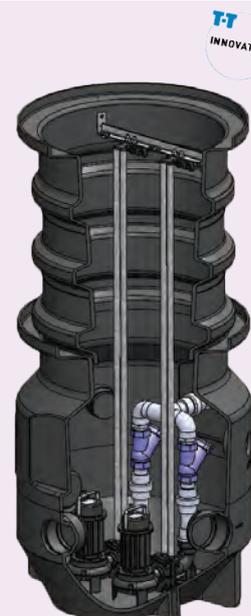
## TYPICAL DUAL PUMP PACKAGE PUMPING STATION



### EXTENSION TURRET

The extension turret is an innovative design that allows the installer to change the depth of chamber installation to suit site specific levels. The previous range was restricted to the station design depth only, however T-T have witnessed that due to site complications and requirements it would be useful to be able to extend the depth of the tank. The extension turret is placed on top of the tank and clamped and sealed in place and can be cut at set increments to adjust the height of the pumping station chamber to suit requirements.

The extension turret is available on the Mercury and Venus models.



### FEATURES

- DESIGNED AND MANUFACTURED IN THE UK
- PUMP STATIONS ARE WELL ENGINEERED AND MANUFACTURED, AND HAVE PASSED RIGOROUS AND DETAILED TESTING, SITE INSPECTIONS AND FACTORY PRODUCTION CONTROL ASSESSMENT
- EACH PUMP CHAMBER IS MADE OF STRONG GRP
- SMOOTH INTERNAL WALLS AID THE HYGIENIC DISPOSAL OF EFFLUENTS, TO AVOID SMELLS AND SEPTICITY
- PACKAGES COME COMPLETE WITH PIPEWORK PRE-ASSEMBLED IN THE CHAMBER, READY FOR INSTALLATION INTO THE GROUND, AFTER WHICH THE PUMPS AND CONTROL EQUIPMENT ARE ADDED
- ALL PACKAGE PUMPING STATIONS ARE SUPPLIED WITH CONTROLS FOR FULLY AUTOMATIC OPERATION, AND A HIGH-LEVEL ALARM INDICATOR AS STANDARD
- UNITS CAN BE ADAPTED TO SUIT INDIVIDUAL REQUIREMENTS AT MANUFACTURING STAGE
- PACKAGES ARE AVAILABLE ON SHORT LEAD-TIMES TO FIT IN WITH TIGHT CONSTRUCTION SCHEDULES
- A COMPREHENSIVE INSTRUCTION MANUAL IS PROVIDED

The **XL & XXL Planet® Range of Package Pumping Stations**, designed and manufactured by T-T, provide an efficient and economical way of installing a sewage / drainage pumping station.

To avoid the requirement for expensive additional storage solutions, T-T offers a range of extra large (**XL**) and extra, extra large (**XXL**) preformed pumping stations, catering for your emergency storage requirements within a single preformed unit.

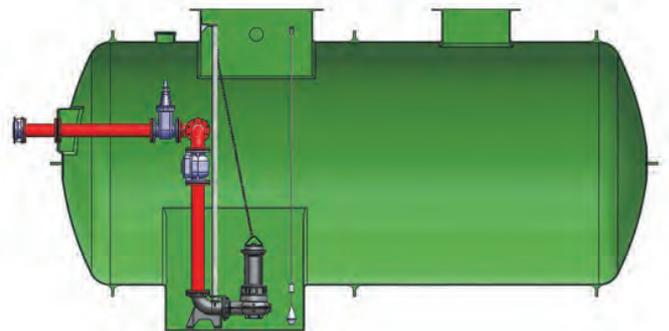
Where the need to discharge effluent to the local sewer network at a reduced rate is required (due to capacity/saturation), the XL and XXL range of package pumping stations can provide a single solution to hold/store flows and discharge at the permitted rate.

### APPLICATIONS

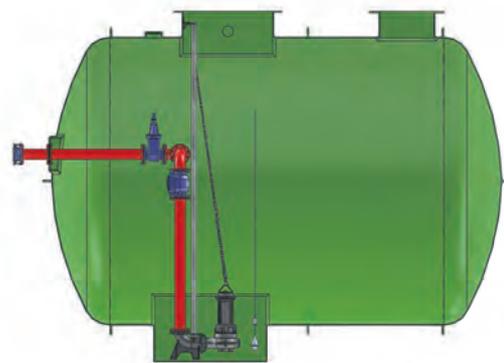
- DOMESTIC
- COMMERCIAL
- INDUSTRIAL

A wide range of submersible pumps can be used for the Package Pumping Stations; we are able to select these from T-T's complete range, in order to match your requirements.

The XL and XXL range are also available without sump.



**XL WITH PUMP SUMP**



**XXL WITH PUMP SUMP**

### IMPORTANT

The information given in this section is for your initial guidance. For each scheme, general arrangement drawings are issued on receipt of order.

For your further assistance, more comprehensive details are available, and we will be pleased to provide additional information and advice. Our aim is to provide you with a completely satisfactory solution for your pumping needs.

MODEL REF	CHAMBER SIZE LITRES	INTERNAL DIAMETER mm	INTERNAL LENGTH mm	EXTERNAL DIAMETER mm	EXTERNAL LENGTH mm	WITH PUMP SUMP HEIGHT mm
XL	10000	2200	3100	2400	3300	2900
XL	12500	2200	3750	2400	3950	2900
XL	15000	2200	4420	2400	4620	2900
XL	17500	2200	5070	2400	5270	2900
XL	20000	2200	5730	2400	5930	2900
XL	22500	2200	6390	2400	6590	2900
XL	25000	2200	7050	2400	7250	2900
XL	27500	2200	7710	2400	7910	2900
XL	30000	2200	8370	2400	8570	2900
XL	35000	2200	9680	2400	9880	2900
XL	40000	2200	1100	2400	11200	2900
XXL	25000	3200	3760	3450	4010	3900
XXL	30000	3200	4390	3450	4640	3900
XXL	32500	3200	4700	3450	4950	3900
XXL	35000	3200	5010	3450	5280	3900
XXL	37500	3200	5320	3450	5570	3900
XXL	40000	3200	5830	3450	5880	3900
XXL	42500	3200	5940	3450	6190	3900
XXL	45000	3200	6250	3450	6500	3900
XXL	47500	3200	6560	3450	6810	3900
XXL	50000	3200	6870	3450	7120	3900
XXL	55000	3200	7500	3450	7750	3900
XXL	60000	3200	8120	3450	8370	3900
XXL	65000	3200	8740	3450	8990	3900
XXL	70000	3200	9370	3450	9620	3900
XXL	75000	3200	9990	3450	10240	3900
XXL	80000	3200	10610	3450	10880	3900
XXL	85000	3200	11230	3450	11480	3900
XXL	90000	3200	11650	3450	12100	3900



## TYPICAL DUAL PUMP PACKAGE PUMPING STATION

COVER SLAB BY CLIENT

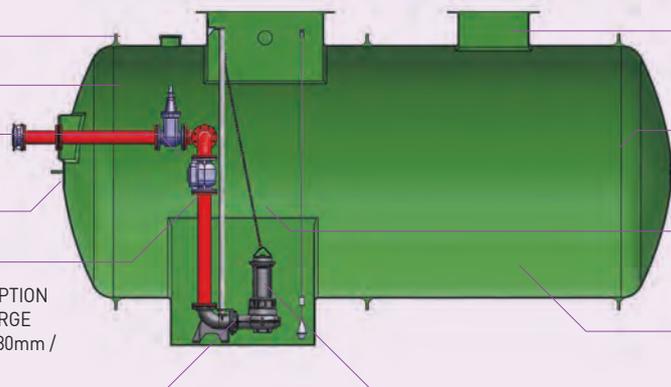
CONCRETE SURROUND BY CLIENT

ISOLATION GATE VALVE

OUTLET FOR CONNECTION TO RISING MAIN

2 NON-RETURN VALVES

DUAL OR TRIPLE PUMPS WITH THE OPTION OF SEPARATE OR COMBINED DISCHARGE PIPES. PIPEWORK OPTIONS: 50mm / 80mm / 100mm / 150mm / 200mm



GALVANISED ACCESS COVER

OPTIONAL EXTERNAL INLET PIPEWORK ACCEPTS 160mm O/D PIPE (OR 110mm O/D WITH ADAPTOR)

HIGH-LEVEL ALARM FLOAT-SWITCH. POSITION TO BE CONFIRMED BY CLIENT AT ORDER STAGE

INLET SOCKETS AVAILABLE POSITIONS TO BE DETERMINED

LEVEL CONTROL FLOAT-SWITCHES

The **Pluto Pumping Station** is the most effective means for collecting and removing excess water collected from cavity drainage systems.

The fully automatic unit is designed and built for reliability and long life and employs a high performance pump range that can be selected to meet your specific application. This range can also be used for small, domestic foul waste removal in an annexe or extension.

### OPTIONS

- SINGLE MAINS POWERED PUMP FOR AUTOMATIC OPERATION AND CHARGING SYSTEM
- DUAL MAINS POWERED PUMPS FOR DUTY STANDBY ARRANGEMENT, WITH DUAL PUMP CONTROL PANEL (230V)

### STANDARD FEATURES

- SINGLE AUTOMATIC SUBMERSIBLE PUMP (230V) WITH INTERNAL PIPEWORK, NON-RETURN VALVE, HIGH LEVEL FLOAT SWITCH
- HIGH LEVEL ALARM UNIT FEATURING LIGHT AND AUDIBLE ALARM WITH MUTE BUTTON
- STRONG POLYETHYLENE CHAMBER WITH 156 LITRE OPERATING STORAGE
- 40 / 63mm MDPE DISCHARGE CONNECTION
- STRONG ACCESS COVER INCLUDED
- 110mm INLETS TO ACCOMMODATE STANDARD DRAINAGE PROVIDED

### AFTER SALES SUPPORT

- FULL AFTER SALES SUPPORT AVAILABLE FOR REGULAR MAINTENANCE AND EMERGENCIES

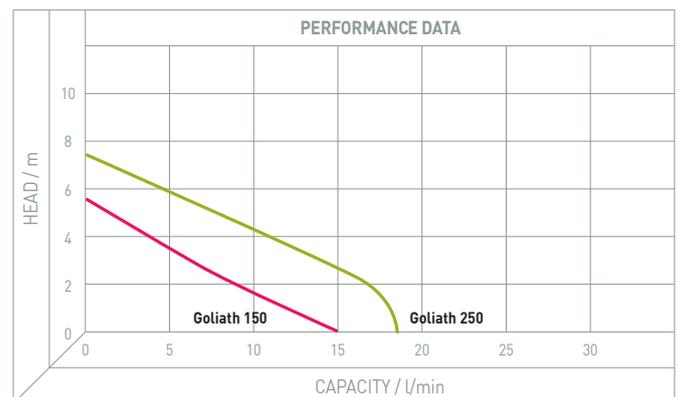
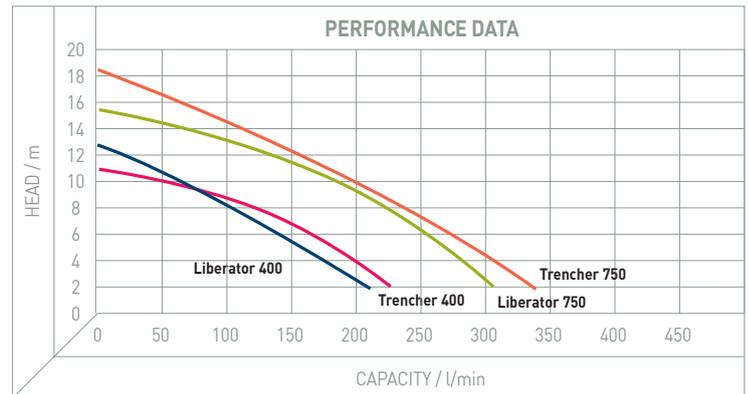
### TECHNICAL DETAILS

LIQUID CAPACITY:  
156 LITRES

CHAMBER MATERIAL:  
MDPE

INLETS:  
1 NO 110mm, PLUS 1 NO 50mm SOCKET FOR CABLE DUCTING PURPOSES

DISCHARGE:  
40mm OR 63mm HDPE DEPENDING ON PUMP SELECTION



Other pumps available to suit your specific requirements



## TROJAN PUMPING STATIONS

The Trojan range of pumping stations are a compact overground package pumping station suitable for surface water, sewage and drainage applications where a conventional below ground pumping station is not a viable option. These fully assembled lifting stations are manufactured in single or dual pump options, and come with vortex, single, channel, or grinder pumps and control equipment fitted as standard.

### FEATURES

- Polyethylene chamber
- 55L to 1000L capacity
- Complete unit fitted with high efficiency single or dual, vortex, channel or grinder pumps
- 1.5kW – 7.5kW options
- Mechanical seal within oil bath
- 50mm, 80m or 100mm solids handling
- Pneumatic level control with LCD display, fault and alarm options available.

### APPLICATIONS

- FOR USE IN WASTE WATER OR SEWAGE APPLICATIONS WHERE EXTRACTION IS NOT POSSIBLE, SUCH AS SINGLE DWELLINGS OR HOUSING DEVELOPMENTS.

### TROJAN VORTEX

The Trojan Vortex is suitable for single dwellings where a capacity of up to 150L is needed.



### TROJAN VORTEX LARGE

The Trojan Vortex Large is suitable for applications where a capacity of up to 480L is needed.



### TROJAN GRINDER

The Trojan Grinder is suitable for domestic applications where a capacity of 150L is needed and there is a higher percentage of solids present in the liquid being pumped.



### TROJAN CHANNEL

The Trojan Channel is suitable for larger commercial applications where a capacity of up to 1000L is needed.



## CASE STUDY – BESPOKE TROJAN UNIT INSTALLED IN CENTRAL LONDON APARTMENTS

We provided a bespoke Trojan Lifting Station to a client working on an office conversion project. We were approached by the owners of a Central London office block who wanted to convert their property into a block of luxury apartments. With limited space available and no option for a traditional underground wastewater removal pumping station, they required a sewage lifting unit with a capacity of 12150 litres, providing enough space to secure smooth operation and thereby unrestricted usability of the sanitary facilities.

We proposed and later supplied a Trojan above ground compact lifting station. The Trojan was customised to suit the client's exact requirements and provided adequate pumping and waste water removal for the new apartments.



## PACKAGE PUMPING STATION CONTROL PANEL

See video on YouTube



Our most popular and versatile range of **Standard DOL / ASD** control panels. The Libra range offers extensive choice of single and dual motor control options suitable for 1Ph 230V and 3Ph 400V power supplies.

Available in direct on line (DOL), or star-delta (ASD) starting for larger motors, with various optional extras enabling customisation to suit your requirements, including telemetry monitoring. All control panels are manufactured at T-T's premises by a team of skilled wire-personnel, with each panel passing rigorous inspection and testing prior to despatch.

This information is supplied for your information only, this product is available as a stand alone item, however for package pumping stations this is used integral to the Planet Range.



**SEER JUNIOR**

Available pre-installed in kiosk alongside panel.



**STANDARD DOL / ASD PANEL**

### ADDITIONAL OPTIONS

- WARNING BEACON FOR PUMP TRIP OR HIGH LEVEL (SUPPLIED LOOSE OR FITTED)
- AUDIBLE WARNING ALARM, MUTE PUSH BUTTON AND TERMINALS FOR REMOTE ALARM
- DOOR MOUNTED OVERLOAD RESET (PER PUMP)
- AMMETER AND HOURS RUN METER (PER PUMP)
- FUSED TELEMETRY SUPPLY (1PH OR 3PH)

VOLTAGE	SINGLE / DUAL	DOL / ASD	DIMENSIONS H x W x D mm	MAX FLC (A)	WEIGHT kg	CODE
230V/1Ph	SINGLE	DOL	400 x 400 x 250 O/A	12	11.4	A4/ES/1918
400V/3Ph	SINGLE	DOL	400 x 400 x 250 O/A	12	11.2	A4/ES/1901
400V/3Ph	SINGLE	DOL	500 x 400 x 250 O/A	32	12	A4/ES/1902
400V/3Ph	SINGLE	ASD	500 x 400 x 250 O/A	18	13	A4/ES/1906
400V/3Ph	SINGLE	ASD	500 x 400 x 250 O/A	32	13	A4/ES/1907
230V/1Ph	DUAL	DOL	500 x 400 x 250 O/A	12	19	A4/ES/1919
400V/3Ph	DUAL	DOL	500 x 400 x 250 O/A	12	18.5	A4/ES/1903
400V/3Ph	DUAL	DOL	500 x 400 x 250 O/A	18	18.5	A4/ES/1904
400V/3Ph	DUAL	DOL	700 x 500 x 300 O/A	32	19	A4/ES/1905
400V/3Ph	DUAL	ASD	700 x 500 x 300 O/A	18	21	A4/ES/1908
400V/3Ph	DUAL	ASD	700 x 500 x 300 O/A	32	21	A4/ES/1909
400V/3Ph	DUAL	DOL	600 x 400 x 250 O/A	22	23	A4/ES/1910
230V/1Ph	DUAL	DOL	600 x 400 x 250 O/A	18	22	A4/ES/1911

**KIOSKS** Suitable accommodation for your kiosk can be provided by our extensive range of kiosks and enclosures.

## CASE STUDY – Beaumanor Hall

### When a low quality pumping station collapsed during install, T-T were called to the rescue.

When Leicestershire City Council noticed the walls of their newly installed underground pumping station were distorting and losing its shape, you can appreciate their concern. Leicestershire City Council were determined to find a supplier who manufactured, supplied and ensure high-quality products.

The new station was being installed at Beaumanor Hall, a facility owned and maintained by Leicestershire County Council. Beaumanor Hall is a Victorian country manor located in Woodhouse; the hall is used for weddings and events and needed an appropriate Pumping Station to facilitate these needs. The initial pumping station had recently been installed into the ground, the pumps had not yet been installed before Leicestershire County Council had noticed the station has started to lose its shape, which raised strong concerns over the suitability of the existing product for below ground installation. Not only had this caused a serious health and safety risk for the council it also added financial implications. Leicestershire County Council had to take the decision to rip this station out and start again.

T-T provided a 4.5m deep Jupiter® Pumping Station from their BBA approved Planet Range. T-T were awarded this order due to the quality of the chamber; T-T's range of package pumping stations are manufactured from strong, medium-density polyethylene, are all BBA accredited and hydrostatically pressure tested.

The twin pump Jupiter® station is designed for larger developments, hotels, hospitals and sewage works and was therefore chosen as an appropriate station for this application. The basic unit is capable of special modification to provide capabilities up to 15,000 litres and can be incorporated into schemes where, for example, Sewers for Adoption specification is required.

T-T delivered the complete package to site and Tanwood Construction, a contractor based in Leicestershire, and Newline Civils installed the new chamber. T-T returned to the site to commission the Pumping Station, the commissioning work was completed in a single day and now the Pumping Station is in full running order to the client's satisfaction.

**T-T pride themselves on their comprehensive and professional service. For more information on the range, visit our Planet Range page or call the T-T team on +44(0)1630 647200.**



ADDITIONAL INFORMATION



TT Service

01630 647200

www.ttpumps.com

response@ttpumps.com

PUMP SERVICE MAINTENANCE AND REPAIRS

TT PUMPS  
TT COMMOU

**DANGER**  
ELECTRICAL APPARATUS

TT PUMPS

CE

SWL

500KG

CE

HASSINGTON



## SERVICE

### Service Agreements

As an owner or operator of a sewage or drainage pumping station, you will want peace of mind that your pumping station operates efficiently, whilst also being environmentally friendly. Our service agreements help to meet these aims and avoid unexpected and costly breakdowns. With our skilled in-house group of experts and on-site engineers, we are able to offer a comprehensive after sales service to a large number of customers. Provided by the experienced maintenance team at T-T.

### Duty of Care

Avoid detrimental flooding by ensuring your pumping station is regularly serviced. The owners and operators of pumping stations have a duty of care to ensure minimal environmental damage.

### SERVICE BENEFITS

- REDUCED RUNNING COSTS INCLUDING ENERGY AND MAINTENANCE
- GREATER LIFE EXPECTANCY FOR PUMPING EQUIPMENT
- REDUCED RISK OF BREAKDOWN WITH ITS RESULTANT
- BETTER PLANT UTILISATION AND RETURN ON CAPITAL
- IMPROVED ENVIRONMENTAL CONDITIONS
- IF YOU HAVE A SERVICE AGREEMENT YOU WILL RECEIVE PREFERENTIAL TERMS FOR PARTS AND LABOUR, AND PRIORITY RESPONSE FOR SERVICE ATTENDANCE ON-SITE

## ADDITIONAL SERVICES

### Tankering

**We can assist in getting your pumping station tankered and jetted with our tankering partners.**

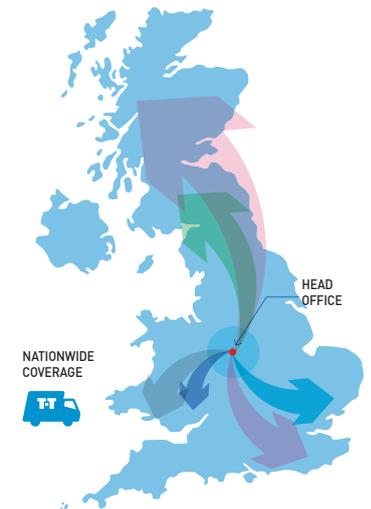
Let us take the stress away by of arranging and co-ordinating this for you, T-T only work with professional companies who we have built up good working relationships with and who we trust. We liaise with the company, book visit, raise purchase orders and pay invoices. We charge a 15% admin fee on top of the tankering company invoice. Please note: we are unable to give accurate quotes for this service, as it depends on the time on site and disposal amounts.

### Water Testing

We carry out full water testing backed by full certification for TVC22C, TVC37C, E.coli, Conliforms, Pseudomonas and Legionella.

### Complete Packages

1. Purchase your pumping stations from us.
2. Have it installed by our fully trained mechanical and electrical engineers.
3. Take the worry out of maintaining a pumping station by taking out a T-T Service Agreement.



	T-T Level One	T-T Level Two	T-T Level Three
	The standard package includes two services per year for dual stations and one service per year for a single station.	The package includes all the standard package benefits plus our Seer monitoring services. Our monitoring service ensures your station is monitored by T-T 24/7.	Our premier agreement includes two services per year, all parts plus one pump per year if required plus two breakdown call outs included.
Service	T-T Level One Standard	T-T Level Two Advanced	T-T Level Three Premier
Comprehensive service of pumping equipment as per our example service schedule	●	●	●
Return of any failed pumps to our workshop for quotation of repair or replacement.	●	●	●
Full comprehensive service reports	●	●	●
Priority breakdown charged at our standard hourly rate	●	●	●
15% discount on all T-T products for the site registered on the Service Agreement	●	●	●
Arrangement of tankering with our partner. 15% administrator fee	●	●	●
Monitoring of pumping station, including weekly status reports and advice of failures (subject to conditions of our out of hours contract)		●	
One pump replacement if required			●
Two breakdowns, one T-T pump and all T-T parts (only available on T-T installed stations)			●



What not to flush leaflet available for download or hard copy on request to aid client with handover packs.

## WHAT NOT TO FLUSH

### To flush or not to flush?

Pumping stations are designed to act as a collection point for waste, which is stored in a large chamber before pumping this material to the main sewer. They are designed to pump the 3 P's - Pee, Poo and (toilet) Paper! Unfortunately, various inappropriate materials are disposed of down toilets and sinks causing unnecessary blockages within the drainage system. This leads to pumping station breakdowns and premature pump failures, which can also result in more serious problems including the flooding of your home. Domestic waste pipes are typically only 100mm (4 inches) in diameter so it therefore is not surprising that blockages occur if inappropriate material is flushed down the toilet.



Bandages

Kitchen roll



Razors

Tights

Incontinence bags



Dental floss



Contraception

Cotton wool

Cigarette Butts



Colostomy bags

Dish cloths

Baby/house wipes

Jay cloths

Sanitary items

Food

Liners

Contact lenses

## DON'T POUR

Many liquids should not be put into the drainage system. These include:

**GREASE**

**ENGINE OIL**

**KITCHEN FAT**

**HOUSEHOLD CHEMICALS**

**PAINT**

**GARDEN CHEMICALS**



## TOILET TIPS

1. Have a bin in your bathroom, so nobody's tempted to flush.
2. Never put food scrapes, fat or oil down the loo.
3. Wipes, cotton wool, buds, sanitary products and nappies belong in the bin

## WHY CHOOSE T-T PUMPING STATIONS?



## T-T are a one-stop shop

We handle the whole process from initial enquiry to final installation, commissioning and handover. We have six divisions, T-T Pumps, T-T Controls, T-T Flow, T-T Environmental and Agricultural, T-T Pumping Stations and T-T Service, this means that we can utilise each division's expertise to supply the best possible products supported by each individual division's expertise and knowledge.

## No sub-contracting

T-T handle the whole process themselves, this means we do not need to rely on sub-contractors to complete any stage of the work. Therefore we can guarantee lead times to project completions.

## In-house drawing and manufacture

T-T have a dedicated design team who have the capabilities to complete drawings on 2D CAD and 3D solid works. This means we have full control over the design of the pumping station and can ensure this suits the site design.

## Complete process guidance

T-T ensure they guide their clients through the complete process, we ensure we give our clients the support they need to complete projects, while handling all the elements we need to ourselves.

## Pre-Installation Inspections

We will visit your site for a pre-installation check. We do this to make sure the site is ready for our installation team and avoids any delays on complications during the installation process.

## Detailed drawings and reports

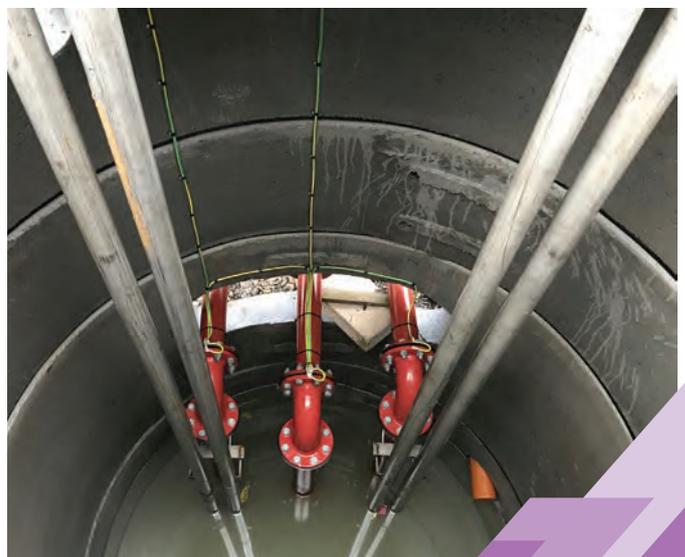
You will receive detailed drawings and reports to allow you to effectively plan and incorporate your pumping station into the project management process.

## Large stock holding

T-T have a large stock holding of chambers, pumps, valves and ancillary equipment meaning we can supply equipment to tight deadlines and schedules.

## Established in 1959

We have many years of experience, and are professionals in providing the highest quality equipment which is installed to an extremely high standard.



## CONTINUED PROFESSIONAL DEVELOPMENT

Always have access to our **RIBA accredited CPD's** for information on the go or request for one of our **experienced sales engineers** to come to your office for a **'Lunch and Learn'** CPD seminar.

Find out more about our CPD's on our website:

[ttpumps.com/specialists-bespoke-solutions/cpd/](http://ttpumps.com/specialists-bespoke-solutions/cpd/)



[ttpumps.com](http://ttpumps.com)



01630 647200

## HOW TO BOOK A RIBA APPROVED CPD WITH T-T?

We can present a RIBA CPD at a time and location to suit you. Why not take advantage of our Lunch and Learn package where we provide a CPD over lunch!

You can book a CPD with us in a number of ways

1. Visiting: <https://www.ttpumps.com/request-cpd-seminar/>
2. Calling 01630647200
3. Completing the form overleaf and sending to T-T Pumps Ltd, Onneley Works, Newcastle Road, Woore, Cheshire, CW39RU

Our RIBA approved CPD gives you the knowledge you need for pumping station selection. The CPD looks at the difference between private and adoptable pumping stations. It details the issues that need to be considered when specifying a pumping station in a range of different developments.

The CPD covers the following topics:

- Functionality of a pumping station
- Design considerations
- Installation process
- Operation
- Maintenance and after-care
- Relevant statutory issues

### BOOKING FORM: RIBA CPD

FIRST NAME:

LAST NAME:

EMAIL:

TELEPHONE:

PREFERRED DATE AND TIME:

APPROXIMATE NUMBER OF ATTENDEES:

COMPANY NAME:

POST CODE:

DO YOU HAVE ANY PRESENTATION FACILITIES (PROJECTOR AND SCREEN):

ADDITIONAL INFORMATION:

## FAQ's

### 1. What is a package pumping station?

A package pumping station is a complete unit comprising of a chamber, pumps, pipe work, valves, control panel and level control pre-assembled as a complete unit. A package pumping station is primarily used in the private sector and commonly aren't adopted by the water authority. Package pumping stations come in varying sizes to suit the requirements of the flow and application.

### 2. What is a pumping station?

Pumping stations are used when there is no natural / gravitational means of transferring waste or nuisance water away from a development or application. A pumping station incorporates a collection chamber to hold liquid, and via integral pumps, the liquid is lifted under pressure to a separate receiving location (sewer network / treatment system) after which gravity flows take over.

### 3. What is an adoptable pumping station?

Adoptable pumping stations, once installed and commissioned, become the property of the local Water Authority. They are typically much larger in construction to a package pumping station, and serve a much larger development hence they become parts of the sewerage network which is adopted by the authority for the entire site. Adoptable pumping stations have to comply with the sewers for adoption 7th edition regulations.

### 4. What is the difference between a package pumping station and an adoptable pumping station?

A package pumping station is used for smaller, privately run developments where the client requires a quick, economic pumping solution available on a short lead time. An adoptable pumping station operates in a very similar way to a package pumping station, yet contains far more features in line with the requirements of Sewers for Adoption 7th Edition specification and the water authority (advanced telemetry etc), for ultimate adoption via the water authority.

### 5. What is pumping station adoption?

Adoption of a water pumping station is a legal transfer of a pumping station from the owner or developer to the local water authority. The water authority is then responsible for the maintenance and upkeep of the pumping station.

The basis of Sewers for adoption is to ensure that the developer builds to a required standard and quality. To achieve 'adoption' of a pumping station the specification, build and installation of the system would have to be compliant with local water company specifications. Details of these specifications are found in the sewers for adoption guidelines, published by WRc Plc, which is the standard set for the design and construction of sewers within the UK.

T-T are familiar with the requirements of all utility companies which enables us to provide the correct equipment to meet the needs of a particular scheme as we are pump station manufacturers. T-T control the adoption process from concept through to adoption on the client's behalf to ensure a smooth handover to the utility company incorporating all documentation from a design package to operating and maintenance manuals. Pre-handover inspections are a standard feature of our service liaising with the adoptions engineers to ensure a smooth, uninterrupted handover.

### 6. Why should I consider pumping station adoption?

For housing developments, it's both practical and cost-effective to construct a wastewater and sewage pumping station that can be adopted by the local water company – eliminating the developer's responsibility for future maintenance and running costs. Subject to the size of the development and the requirement to obtain permission to discharge into a local water authorities sewage network, as part of the consultancy process with the water authority, adoption maybe a mandatory requirement.



# FAQ's

## 7. What water authority covers my location?

The Water Authority that covers your location is the supplier that provides your water, this depends on your postcode. You can find out what water authority covers your location on the following website: <https://www.water.org.uk/consumers/find-your-supplier>. The water authorities are:

Anglian water	South West Water
Welsh Water	Southern Water
Northern Ireland Water	Thames Water
Northumbrian Water	United Utilities
Scottish Water	Wessex Water
Severn Trent Water	Yorkshire Water

## 8. How does station adoption work?

Pumping station adoption is an application process to the appropriate water authority. This is something that T-T can handle from start to finish. Once the approval has taken place, the legal documents are issued and the water authority will then be responsible for all issues relating to the pumping station.

## 9. Do I need a pumping station?

There are a number of reasons why you might need a pumping station:

- A pumping station is needed when gravity cannot transport sewerage to the nearest sewer system.
- When the cost of installing a gravity sewage systems outweighs that of a pumping station
- When the sewer system passes over a ridge

## 10. How much space will a pumping station take?

Our package pumping stations have the following dimensions:

Mercury – 1.2m deep x 1m diameter

Venus – 2.3m deep x 1m diameter

Saturn – 2m – 4.5m deep x 1.5m diameter

Jupiter – 2.5m – 4.5m deep x 2.1m diameter

An adoptable pumping station requires a complete segregated compound area, with access for future maintenance vehicles and larger plant lifting equipment. The size of the compound can vary depending upon the size of the application and which authority the development falls under.

## 11. How much does a pumping station cost?

Typically, small pumping stations start at circa £500.00 ranging to tens of thousands depending up the size and requirements.

## 12. What type of pumping station do I need?

The type of pumping station required is determined by the location of the pump station and the inflow required, plus the results of the application and subsequent requirements via the water authority when obtaining permission to discharge into the sewage network.

If a pumping station is located on your land, then it would fall under your ownership. This would be a private pumping station.

If the pumping station is on public land then this would suggest an adoptable pumping station is required.

See question 4 for more information on the differences between private and adoptable pumping stations.

## 13. Are pumping stations noisy?

No. The mechanical pumps are submerged below the liquid level and are practically silent during operation.

## 14. Do pumping stations smell?

When a pumping station is sized and selected correctly, consideration should be taken to ensure that foul waters are pumped within good time before the liquid becomes stagnant and septic. Stagnation and septicity are the main causes of significant odours, yet as a pumping station typically transfer raw sewage waste, odours are apparent in very close proximity.

Measures can be taken to tackle such issues, air tight access covers and separate ventilation to high level being the most popular.

## FAQ's

### 15. Are pumping stations safe?

Yes, pumping stations come with a locked access cover, meaning only trained operatives can access the well. Pumping stations remove sewage safely and ensuring correct size, selection, operation and regular maintenance there shouldn't be any issues. There is a risk of environmental damage if the pumping station stops working, if the pumps stop removing the sewage there is risk of overflow. This can result in environmental pollution and fines issued to the owner of the pumping stations. This can be prohibited with preventative maintenance ensuring correct operation of the pumping station with regular checks of the equipment to avoid breakdowns.

### 16. Where can I purchase a pumping station?

T-T! We manufacture, supply and install both package pumping stations and adoptable pumping stations.

Information on our planet range of package pumping stations can be found here: <https://www.ttpumps.com/products/pumping-stations/domestic-and-commercial-pumping-station.html>

Information on our adoptable schemes can be found here: <https://www.ttpumps.com/products/pumping-stations/adoptable-pumping-stations/adoptable-pumping-stations.html>

### 17. How long does it take to install a pumping station?

Private package pumping stations can be provided within 24 hours and the installation process and concrete backfill cure time on site can take between 7-10 days. Once installed, the system will require commissioning via trained engineers so collectively a 2-3 week process. For adoptable stations, the station structures have to be constructed on site in line with site specific drawings. This process can take time, as permission and approval of designs must be obtained via the water authority prior to commencement. Typically an adoptable station can take 10-12 weeks to complete, yet the requirements are driven by the developer and their onsite programme for completion.

### 18. What are the risks with pumping stations?

A pumping station in essence contains mechanical, rotational parts and electronic control systems. They require routine maintenance to ensure that they are performing and are in optimum condition. Without such maintenance, wear and tear over time can result in a system failure. As part of T-T's service we also offer a comprehensive sewage pumping station maintenance packages customised to suit your requirements. More information can be found here: <https://www.ttpumps.com/maintenance-and-repair/>

### 19. How does a pumping station work?

Typically, sewage is fed into and stored in a wet well. When the level of the sewage rises to a predetermined point, a pump will be activated via integral level control, to lift the sewage under pressure through a discharge pipe system from where it is received into a gravity sewer manhole.

The level is monitored by level control equipment, this could be via a float switch or liquid level sensor. A float switch monitors the liquid level by floating on the top of liquid present, an internal micro switch will turn the effluent pump station on and off when it has been moved by the liquid to the on/off switching point.

Once the pumps are switched on, they will pump the liquid through the pipework to a gravity sewer.



## FAQ's

### 20. Why do I need a pumping station?

You will need a pumping station when gravity will not get the sewage and drainage water to a gravity or mains sewer.

### 21. Will my pumping station be expensive to buy?

Depending upon the requirements of the application, a pumping station can prove expensive yet a requirement never the less. At T-T, we design, manufacture, install, commission and service pumping stations, so you have the benefit of the manufacturers price without additional, sub-contractors overheads.

### 22. Will my pumping station be expensive to run?

A well selected, professionally installed and commissioned system is economic to run. A pumping station when in operation between fill cycles, runs for a matter of seconds / minutes so subject to the size of the pump motors, the electricity costs can vary.

### 23. Why choose T-T to supply your pumping station?

Since 1959, T-T has stood out as one of the UK's most reliable pump station manufacturers, suppliers and installers of pumps, pumping stations, valves, controls and other specialist equipment. We operate as a one-stop-shop for everything needed to master water management challenges. We specialise in not only off the shelf products but also customised pumping solutions, with specialist pump designs that are tailored to meet the exact requirements of many applications. We can provide surface water pumping stations and domestic sewage pumping stations.

T-T have a dedicated technical team, who are on hand to help you through the process of selecting, designing, installing and commissioning a pumping station. We have vast experience in both small dwelling pumping stations and large development schemes.

### 24. What is BBA approval?

The British Board of Agreement test and certify manufactured products relating to the construction industry. This is to ensure they demonstrate competence for the job they are designed for.

T-T's package pumping station range has had BBA approval since 2006 and has never failed a test. The range is tested on four variables; strength, resistance to chemicals, water tightness and durability.

These key factors ensure that the water pumping stations are fit for purpose. The chambers have adequate strength to resist damage from minor impacts during handling and hydrostatic power from wet concrete during installation. The chambers and components will be unaffected by chemicals likely to be found in the specified effluent. The chambers, when correctly installed will not allow seepage either into or from the surrounding soil. The chambers are made from durable materials and with adequate pump maintenance will continue to be serviceable for the design life of the drainage system.

### 25. What warranty does a pumping station come with?

T-T Package pumping stations come complete with a manufacturers comprehensive 12 month warranty which will run from the date that the system is delivered to site, or from the date of commissioning, should T-T complete this element of the installation.

If you choose for T-T to commission your pumping station and you take out a service agreement with T-T the warranty will be extended to three years from the date the pumping station was commissioned\*.

\*Please note to validate the warranty extension, both the commissioning and the service agreement package must be ordered together with the pumping station at initial order stage.



# PUMPING STATION SELECTION QUESTIONNAIRE

## TYPICAL DUAL PUMP PACKAGE PUMPING STATION

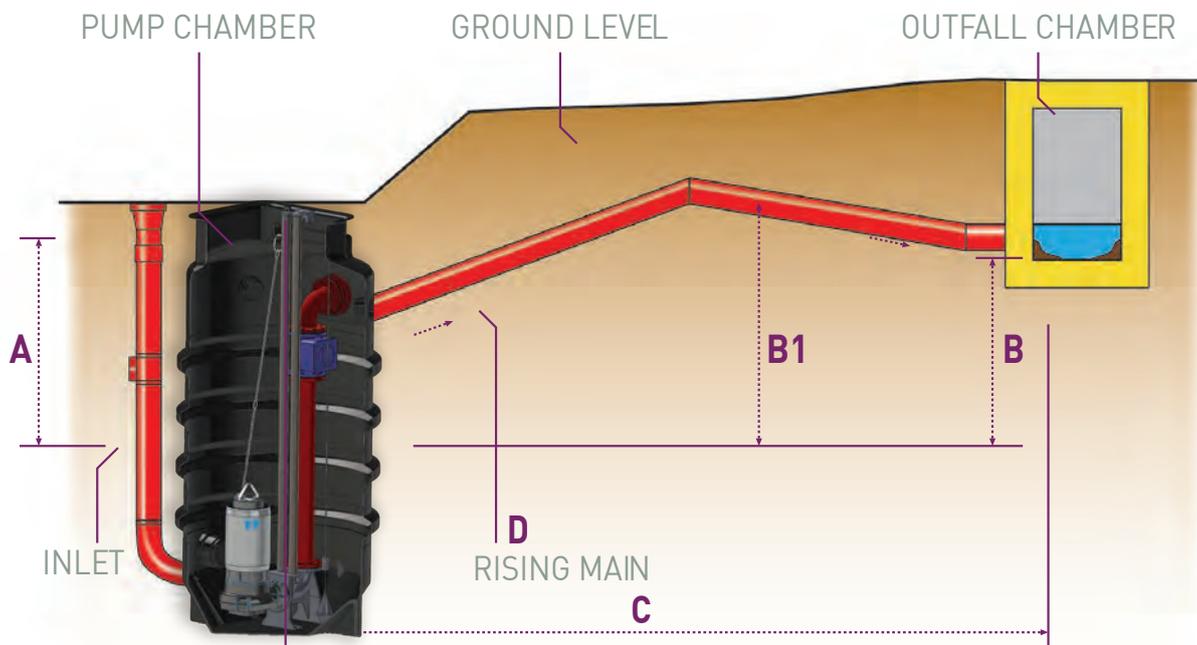
### PUMPING STATIONS

Good pumping system selection is critical to ensure that our customers enjoy optimum life and performance from their pumping station.

The selection process for a pumping system is complex and our trained engineers, with the aid of the latest computer systems are able to look at the best options for your specific application.

Some several hundred calculations are made for each selection to ensure that the pumping system selected has the optimum efficiency, reliability and compliances.

The following questionnaire will help us make the best selection.



Site data questionnaire (for use with adoptable and non-adoptable systems). To enable us to select the correct equipment for your scheme, please complete this short questionnaire, and send it to us. We will send our quotation by return.

SCHEME NAME	
SCHEME ADDRESS	
A*	Depth from ground level to inlet invert <span style="float:right">mm</span>
B*	Difference in level between inlet level and discharge into outfall chamber <span style="float:right">mm</span>
B1*	Highest point of rising main (if higher than discharge of rising main) <span style="float:right">mm</span>
C*	Total pipework run from pump chamber to outfall chamber <span style="float:right">m</span>
D	Rising main internal diameter (we can advise if required) <span style="float:right">mm</span>
D1	Rising main material
E*	Fluid to be pumped
SEWAGE <input type="checkbox"/> / DRAINAGE <input type="checkbox"/> / STORM WATER <input type="checkbox"/>	
OTHER <input type="checkbox"/> (PLEASE SPECIFY):	
INFLOW VOLUME <span style="float:right">l/s</span>	SURFACE AREA TO BE COLLECTED <span style="float:right">m<sup>2</sup></span>
F	Pumping capacity required <span style="float:right">l/s</span>
or; Max number of occupants	
or; Number / type of property	
G*	Electrical power supply available (400V 3Ph required if adoptable station)
230V <input type="checkbox"/> / 400V 3Ph <input type="checkbox"/>	
H	Kiosk for control panel required ('yes' if adoptable station)
YES <input type="checkbox"/> / NO <input type="checkbox"/>	
If 'yes', will the electricity meters be housed in kiosk? ('Yes' if adoptable station)	
YES <input type="checkbox"/> / NO <input type="checkbox"/>	
I	Fluid storage period required <span style="float:right">hrs</span>
REQUIRED CHAMBER VOLUME (IF KNOWN) <span style="float:right">ltrs</span>	

### YOUR SITE DATA

J	Access covers loading ('vehicle not highway' if adoptable station)
PEDESTRIAN <input type="checkbox"/> / VEHICLE NOT HIGHWAY <input type="checkbox"/> / ROAD GOING HIGHWAY RATED <input type="checkbox"/>	
K	Telemetry monitoring ('yes' if adoptable station)
YES <input type="checkbox"/> / NO <input type="checkbox"/> / IF 'YES', LANDLINE <input type="checkbox"/> / MOBILE PHONE TECHNOLOGY <input type="checkbox"/>	
L*	Will the pumping station be adopted?
YES <input type="checkbox"/> / NO <input type="checkbox"/>	
M	If 'yes', who is the adopting authority?
N	Service contract required?
YES <input type="checkbox"/> / NO <input type="checkbox"/>	
Other information	

### YOUR CONTACT DETAILS

COMPANY NAME	
NAME	
JOB TITLE	
ADDRESS	
	POSTCODE
TELEPHONE	
FAX	
E-MAIL	

EMAIL TO: [RESPONSE@TTPUMPS.COM](mailto:RESPONSE@TTPUMPS.COM) OR COMPLETE ONLINE AT [TTPUMPS.COM](http://TTPUMPS.COM)

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