

**Cove Sailing Club Marina Development,
Whitepoint, Cobh, Co. Cork**

**Marina Development
Foreshore & Design Report**

Date: *05 January 2011*

Job No: *C/293*

Client: *Cove Sailing Club*

Cronin Millar
Consulting Engineers

Civil • Marine • Structural • Environmental

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Revision Control Table & Document History Record

Rev.	Date	Description & Reason for Issue	Orig.	Chkd.	App.
1	05/01/2011	Issued for Foreshore	SMC	AC	AC

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1.0 Introduction

The proposed marina development at Whitepoint, Cobh, Co. Cork is an all tide access marina suitable for the full range of power and sail craft in Ireland today. The marina incorporates the full range of facilities and services required for a modern marina. The marina has been designed and will be operated in accordance with the requirements of the Blue Flag for Marinas criteria. Details of these criteria are contained in the appendix. The marina design and specifications have been prepared in accordance with BS 6349 "British Standard Code of Practice for Maritime Structures", as well as Irish, UK, European & US marine leisure facility guidelines.

The location of this proposed marina in Cobh is very suitable for the development of a coastal marina. The Cobh Urban Design Feasibility Study identified the Whitepoint area as a potential site for a marina development, with particular reference to expansion and development of the Sailing Club.

The development of a marina in this location will also have a positive impact on tourism in the area. The Cork Area Strategic Plan (CASP) 2001 to 2020 considers Cobh to have significant potential for tourism. The Cork County Development Plan 2009 also recognises the potential for Cobh as a tourist destination.

Preliminary discussions in relation to this marina with Cobh Town Council Planning Officers, Department of the Environment, Heritage and Local Government (formerly Department of Agriculture Fisheries and Food) technical officers and the Port Of Cork have taken place. A planning application for the proposed marina was granted on 24 January 2011 (Planning Reg. No: 10/52015).

2.0 Berth Type/Size Demand Analysis

While the development will concentrate on providing facilities for Cove Sailing Club, a detailed analysis of the type and size of boats using and visiting Cork Harbour and the South West coast generally was carried out. The results of this analysis were used to determine the range of berths sizes required for a marina of this type in Cork Harbour.

2.1 Existing Marinas & Moorings

There are four existing marinas in Cork Harbour, with a total of 450 no. berths approximately. The Royal Cork yacht club marina has 220 no. berths and is currently full. Salve marina in Crosshaven has 50 no. berths and is currently full. The Crosshaven boatyard marina has 100 no. berths and is currently full. The marina at East Ferry (Great Island) has 80 no. berths and is currently full. All of the above marinas report strong demand for additional berths. Planning permission has recently been granted for a 285 berth marina in Monkstown and the Port of Cork has recently installed berths at South Custom House Quay.

There are more than 1,050 no. swing moorings in Cork Harbour. These moorings are located throughout Cork Harbour with a number of moorings located in the site of the proposed marina. It is accepted that swing moorings are a poor alternative to berthing in a marina and they have very high health and safety risks associated with them. Swing moorings must be vacated during the winter/spring months due to weather conditions and they occupy a disproportionate area of foreshore compared to marina berths.

2.2 Berth Demand

Ireland currently has one of the lowest boat ownership rates in the EU, with per capita boat ownership of 1:171. By comparison Sweden has 1:7, Netherlands 1:30, France 1:66 and the UK 1:100. (World Marine Markets 2005)

Ireland also has one of the lowest berth rates, with 24 coastal marinas nationwide providing approximately 2,000 berths. (Marine Institute 2005)

There is strong demand for berths in Ireland, especially in the South and South West regions. Consultations with boat sales agents shows steady demand for the full range of power and sail boats in Ireland. Many agents reported that the lack of marina berths is a major disincentive for potential buyers when considering purchasing a boat.

The current density of boats in Cork Harbour is significantly lowering than other harbours in the UK, Europe and the USA. There is huge potential for the sustainable exploitation of the marine leisure resource in Cork Harbour, subject to proper planning, implementation and management.

2.3 Berth Size/Type

The general trend is for boat sizes to increase over time. The average boat length in Cork harbour is 10m (approx). Approximately 67% of boats in Ireland are greater than 6m in length. (Irish Sea Marine – The potential for marine leisure 2007)

The ratio of sail boats to power boats in Ireland is currently 60:40, although there is a gradual increase in the percentage of power boats to sail boats nationally. This has an impact on the design of marinas.

3.0 Marina Berth Design Information

3.1 Number of Berths

The results of the analysis in section 2.0 above were used to determine the range of boat types/sizes that would be attracted to the proposed marina in Cobh. A breakdown of the proposed berths is detailed in table 1 below.

Number of Berths:	74 no.
<u>Berth Sizes:</u>	
Class III (10m to 12m)	32 no.
Class II (8m to 10m)	22 no.
Class I (up to 8m)	20 no.
Total Berthage Length	764m
Pump Out Berth (all vessels)	1 no.

Table 1 – Proposed Berths

3.2 Marina Staff

The number of staff proposed to manage the marina and its facilities is as follows:

Marina Manager/Administrator	1 no.
Dockmaster/Operative	1 no. (Peak periods)

4.0 Marina Layout & Protection

The marina will be protected by an outer array of proprietary floating concrete breakwater units. These breakwater units will be 4m wide with 1.0m draft. The breakwater will form part of the berthing infrastructure.

The marina berths have been oriented in a north east – south west alignment to match the predominant wind and tidal flow direction and to maximise the use of foreshore. This alignment will aid vessel manoeuvring and minimise tidal drag on the berthed vessels and marina structures. The internal marina layout has been designed to facilitate easy and safe manoeuvring within the marina and allow for safe access to and from the berths.

The entrance channel to the marina is 20m wide. The inner navigation channel and the fairways vary in width to suit the expected design vessels.

The primary walkway, which will connect with the secondary walkways, will be 2.5m wide. The primary walkway will be comprised of proprietary floating pontoon units. There will be 5 no. secondary walkways. These walkways will be 2.5m wide proprietary floating pontoon units.

Floating finger pontoons are positioned perpendicular to the secondary walkways (on either side) to accommodate the double berthage of vessels. The widths of the double berths vary according to the class of vessel and allow for the safe manoeuvring of vessels into and out of berths. The length of the finger pontoons are 100% accommodated overall vessel length (LOA). The finger pontoons are between 0.65m to 1.0m wide, depending on the berth length.

The marina is located adjacent to the Port of Cork cruise liner turning basin. Following extensive consultations with the Port of Cork, it was established that a distance of 65m minimum should be kept between the turning basin and the nearest point of the marina. This is to allow for a factor of safety in the unlikely event of combined extreme weather event and failure of the liner bow thrusters (which aid in turning of the liners). This distance also allows for the marina to remain in view of the liner pilot at all times during the berthing procedure.

5.0 Marina Access

Access to the marina from the sea will be via the marina entrance channel to the west of the site.

Access to the marina from the landside will be controlled via a high quality aluminium security gate which will be located at the access platform, which will be connected directly to the existing quay wall ("Five foot way"). A security access gate will be located half way out along the access platform. The gate is located here in order to prevent obstruction to people walking along the Five Foot Way. A card type security access system will be installed to control access to the marina. Pedestrian movement around the marina will be via the primary and secondary walkways.

The gangway, which will be constructed from high quality aluminium, will be hinged at the landside connection and have a roller system at its base. The pin/roller system will allow the gangway to move freely in the vertical axis, thus accommodating the rise and fall of the tidal cycle. The maximum slope of the gangway will be 1:4, which will occur at Mean Low Water Springs (MLWS). The gangway will be 20m long and have a clear width of 1.5m.

6.0 Pontoon & Anchorage System

6.1 Pontoon System

The proposed pontoon system will be a high quality proprietary system. The pontoons will be comprised of aluminium or steel frames, supported on concrete floats. The proposed decking material is a timber composite plank, which will have the visual appearance of hardwood and the stability and durability of plastic.

The outer breakwater will be of high strength reinforced concrete construction.

6.2 Anchoring System

The marina will be anchored using a chain and anchor system. 5 and 10 tonne anchor blocks will be placed on the sea bed and connected to the pontoons/breakwaters via 60mm chains.

The system has no visual impact to the marina as it is all underwater.

The final anchoring system specified will be governed by the results of site investigations and detailed design.

7.0 Marina Water Depths

The tidal range in Cork Harbour is 3.7m (MHWS to MLWS).

Dredging will not be required at the site due to the natural deep water bathymetry and the layout of the marina.

Depths in the marina will vary from 3m to 11m approx.

8.0 Marina Facilities & Services

8.1 Service Bollards

High quality service bollards will be located throughout the marina. There will be a minimum of one bollard per four berths, with the larger berths having one bollard per two berths. The service pedestals will provide 240v electricity and lighting for the marina. Additional lighting will be provided along the primary walkway and the gangway.

8.2 Foul Water Pump Out System

Foul water will be generated from two sources at the proposed development: shower and toilet facilities at the dinghy park; and the pump out unit at the marina. It is proposed to treat these effluents with an on site package treatment plant before discharging to the existing public foul water drainage system at Whitepoint Moorings.

8.2.1 Effluent from Dinghy Park

The effluent at the dinghy park will be generated from the use of toilets and showers. Cobh Town Council has requested that the effluent from the dinghy park is treated on site prior to conveyance to this existing public system.

8.2.2 Effluent from Proposed Marina

Most modern sail boats and motor boats are constructed with onboard foul water storage tanks. The purpose of these tanks is to store any foul water generated while at sea before discharging. In the past, the majority of this waste would be discharged at sea. Recently, boat owners/users have become more environmentally conscious and choose to discharge effluent at dedicated 'pump out berths' located in harbours and marinas.

The proposed pump out unit at Cove Sailing Club Marina is a Rolec CCD pump (see Appendix 2). This pump is capable of pumping a horizontal distance of 400m and a discharge height of 22m. The unit will pump the effluent to the proposed MH 1. From MH 1, the effluent will fall via gravity to MH 2, where the effluent from the dinghy park will be gathered. The effluent will be conveyed from MH 2 to the proposed underground package treatment plant.

8.2.3 Estimation of Foul Water Generated

EFFLUENT FROM DINGHY PARK			
Toilets	50 uses/day (max)	15l/use ⁽¹⁾	750 l/d
Showering	20 uses/day (max)	100l/use ⁽¹⁾	2000 l/d
Sub Total			2,750 l/d
EFFLUENT FROM MARINA			
No. of Berths			74
Assumed percentage of berths discharging on any given day ⁽²⁾			5%
∴ no. of berths discharging/day			4
Maximum size of berth pump out holding tank			235 l
Total discharge/day from marina			940 l
Sub Total			940 l/d
Total			3,690 l/d

⁽¹⁾ Kiely, 1996

⁽²⁾ Based on consultations with existing marina operators in Ireland

Table 1 Estimation of Foul Water Generated by Development

The discharge from the development is estimated at 3,690 litres/day peak discharge. It is proposed to install a Conder Environmental Clereflo ASP20 (See Appendix 3) to treat the effluent from the marina and dinghy park. This unit can accommodate 4,000 litres/day, giving a 310 litres/day contingency.

8.2.4 Discharge to Existing System

From the underground package treatment plant, the effluent will flow via gravity to MH3 and onto the existing foul water manhole at Whitepoint Moorings. All pipes will be laid in accordance with IS 424. The pipe laying and associated construction works will be carried out in accordance with the specification requested by the Area Engineer.

8.3 Fuel

It is not intended to supply fuel at the marina. Diesel is available from other sources in the harbour.

8.4 Water Supply

Potable water will be available from the taps on the service bollards which will be strategically positioned on the secondary walkways. The water system will be connected to the public water supply system located on the public road.

8.5 Waste Reception Facilities

Waste reception banks will be located at the Cove Sailing Club Dinghy Park. The reception banks will be comprised of 3 no. separate bins for the following waste streams: Recyclables refuse & hazardous.

8.6 Dock Carts

Dock carts will be located on the floating access platform at the bottom of the gangway. The proposed carts will measure 1400mm long x 850mm wide x 650mm high.

8.7 Safety Equipment

Fire extinguishers (6kg dry powder units) will be provided at a minimum ratio of one unit per fifteen berths.

Lifebuoys will be provided at a minimum ratio of one per 30 berths.

Escape ladders will be provided at a minimum ratio of one per 30 berths.

A first aid kit will be provided at the services berth and in the marina office.

A fuel spill emergency/clean up kit will be provided adjacent to the services berth.

8.8 Lighting

Pontoon lighting will be provided integrally in the service bollards. Additional footlighting will be provided along the access gangway and primary walkways.

8.9 Security Systems

Access to the marina will be controlled via a card type security system. The card will control access to the marina and allow use of electricity from the service bollards. 2 CCTV cameras will be located at the security gate – one facing the marina and one facing the carpark. The system will be relayed to a monitor at the dinghy park.

8.10 Navigation Lighting

Navigation lighting will be provided along the outer breakwater in accordance with the requirements of the Marine Survey Office (MSO) and the Port of Cork.

The proposed locations for all of the above equipment and systems are detailed on the Marina Services Layout drawing (C293/F/4/A).

9.0 Landside Facilities

9.1 Marina Office

The marina office will be located at the existing adjacent Cove Sailing Club facility.

9.2 Car Parking

The existing carpark adjacent to the 'Five Foot Way' will be used. The carpark is currently used by the general public and members of Cove Sailing Club. Boat owners at the swing mooring field also use the carpark. It is not envisaged that the marina development will increase parking requirements significantly as there will be no net increase in boat users at the site.

9.3 Welfare & Amenity Facilities

The welfare and amenity facilities will be located within the existing Cove Sailing Club facility.

10.0 Navigation & Existing Moorings

10.1 Navigation

The marina has been designed to comply with recognised standards and guidelines, and in consultation with the Harbour Master.

The proposed marina will be located away from the main navigation channel which lies to the south of the proposed marina and the Port of Corks cruise liner turning area. The marina location and layout has been refined, in consultation with the Port of Cork, to ensure that the marina does not impede or have any negative impact on the navigation of commercial vessels and operations.

Navigation access to the existing slipway at Whitepoint will not be impacted upon by the proposed marina. The marina will actually provide shelter to users of the slipway, which will be beneficial during times of poor weather.

10.2 Existing Moorings

The site for the proposed marina is partly within the existing swing mooring field at Whitepoint, which is used by a number of private pleasure craft owners for the mooring of their boats.

Swing moorings are extremely inefficient in terms of the area of foreshore occupied per boat. The technical staff from DoEHLG Foreshore Section have indicated that their preferred mooring option is marinas rather than swing moorings, wherever possible.

The users of these moorings will be encouraged to relocate to the new marina, which will provide safer sheltered year round berthing. Users who do not wish to berth in the marina will be offered an alternative location for their mooring.

Appendix 1

Blue Flag Programme Criteria

Blue Flag Programme Criteria

It is proposed to implement the necessary systems and provide the required facilities to ensure that the marina is developed and managed in accordance with the Blue Flag Programme. This would be a major attraction for many users and visitors to the marina. It would also enhance the credentials of the marina and the surrounding area.

The Blue Flag Programme is concerned with the following four primary areas:

- (1) Environmental Education & Information
- (2) Environmental Management
- (3) Safety & Service Facilities
- (4) Water Quality

The criteria for each of these primary areas are detailed below:

Environmental Education & Information

- i. Information relating to the coastal zone eco system and nearby natural sensitive land and marine areas must be available to marina users.
- ii. Code of environmental conduct is displayed in the marina.
- iii. Information about the Blue Flag Marina Programme and the Blue Flag marina criteria is displayed in the marina
- iv. The marina is responsible for at least three environmental education activities on offer to the users and staff of the marina.
- v. The individual Blue Flag for boat owners is offered through the marina.

Environmental Management

- i. Production of an environmental policy and plan at the marina. The plan should include references to water, waste and energy consumption, health & safety issues and the use of environmentally sound products when available
- ii. Adequate and properly identified and segregated containers for the storage of hazardous wastes. The wastes should be handled by a licensed contractor and disposed of at a licensed facility.
- iii. Adequate and well managed litter bins and/or garbage containers. The wastes should be handled by a licensed contractor and disposed of at a licensed facility.
- iv. The marina has facilities for receiving recyclable waste materials, such as bottles, cans, paper, plastic, organic material etc.
- v. Bilge water pumping facilities are present in the marina.
- vi. Toilet pumping facilities are present in the marina.
- vii. All buildings and equipment must be properly maintained and in compliance with national legislation. The marina must be well integrated into the surrounding natural and built environment.
- viii. Adequate, clean and well sign-posted sanitary facilities, including washing facilities and drinking water. Controlled sewage disposal to a licensed sewage treatment.
- ix. If the marina has boat repairing and washing areas, no pollution must enter the sewage system, marina land and water or the natural surroundings.
- x. Promotion of sustainable transportation.
- xi. No parking/driving in the marina, unless in specific designated areas.

Safety & Service Facilities

- i. Adequate, clean and well sign-posted lifesaving, first-aid equipment and fire-fighting equipment. Equipment must be approved by national authorities.
- ii. Emergency plan in case of pollution, fire or other accidents must be produced.
- iii. Safety precautions and information must be posted at the marina.
- iv. Electricity and water is available at the berths, installations must be approved according to national legislation.
- v. Facilities for disabled people.
- vi. Map indicating the location of the different facilities is posted at the marina.

Water Quality

Visually clean water (no oil, litter, sewage or other evidence of pollution).

Appendix 2

Rolec Pumpout Unit Manual

PUMP-OUT SOLUTIONS by



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(2006)

PUMP-OUT SYSTEMS



Low cost sanitation pump-out

- ✓ Sanitation and bilge pump-out system
- ✓ One pump-out bollard for all to use or individual pump-out at each berth
- ✓ Easy to install and maintain
- ✓ Reliable diaphragm pumps virtually maintenance free due to the use of high quality materials such as bronze and stainless steel
- ✓ Pumping distances from 120mtr to 470mtr
- ✓ Various pay to use options including card, token or coin
- ✓ Pump-out bollards in aluminium or stainless steel
- ✓ Euro specification suction probe complete with manual valve
- ✓ Supply only or full design and installation
- ✓ Optional illumination, rinse taps, etc

FOR MORE DETAILS PLEASE CONTACT ROLEC AT

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TEL: + + 44 (0)1945 475 165 FAX: + + 44 (0)1945 588 045 EMAIL: rolec@rolecserv.co.uk
Webpage: www.rolecserv.com

ROLEC PUMP-OUT SOLUTIONS

Over the past 7 years Rolec has been manufacturing sanitation pump-out equipment for sanitation pump-out specialists who then sell this equipment on with increased sales margins.

In 2003 we made a decision to produce our own range of competitively priced pump-out equipment and sell directly to the marina industry.

Page 26 of our current 2006 brochure and this pump-out solutions information pack are a result of that decision.

We have now designed and installed many pump-out systems with our range of reliable diaphragm pumps and pump-out control bollards, many to the customer's individual specifications.

From a single pump-out bollard available to everyone to a multi-point pump-out system offering pump-out facilities at each berth, Rolec has the solution.

Having had experience with both vacuum and diaphragm pumps we have made a judgement that all Rolec's pump-out systems will exclusively use the diaphragm pump options.

All our diaphragm pumps are chosen for their reliability and use of high quality materials including bronze and stainless steel where ever practical.

All our pumps are both sewage and seawater resistant and virtually maintenance free.

Each pump-out system is available with a range of "free to use" or "pay to use" control systems including keyswitch, token or card options.

Self-contained pump-out bollards

The most cost effective sanitation pump-out system in our range is the M60K self-contained sanitation pump-out bollard.

This option is a 1000mm MAXI plus powder coated aluminium bollard containing its own built-in M60K pump, able to pump approximately 120metres to discharge.

The bollard will have all the "free to use" and "pay to use" options available to it as a standard pump-out system, as well as a range of accessories including illumination, water, etc (see specifications included).

This self-contained option only requires fixing down, an electrical supply and a 2inch sanitation pipe connected and it's ready to go.

Single bollard with remote pump

This option allows you to install the pump-out bollard anywhere on the marina, with the pump itself being installed remotely from the bollard.

For example, the pump-out bollard could be located on a floating service pontoon with the pump being located on land at a convenient out of sight location or simply next to the bollard itself.

This type of bollard and remote pump system is usually provided when the distance to be pumped is greater than the 120metre capacity of the self-contained M60K pump-out bollard.

For example

- a) For distances above 120metres and below 150metres we would recommend the MDV pump with its 150metre pumping capacity.
- b) For distances above 150metres and below 400metres we would recommend the CCD pump with its 400metre pumping capacity.
- c) For distances above 400metre and below 470metres we would recommend the CD pump with its 470metre pumping capacity.

Note: The pumping distance can be greatly affected by any vertical height in the pipework, basically if the pump-out bollard is 5metres below ground level at low tide and the discharge pipework has to run up the quay wall or access bridge, the overall discharge distance will be reduced.

When calculating a pump size we would need to know:

- a) Distance from pump-out point to discharge point
- b) Any vertical height in the discharge pipe system
- c) Size of boats to be pumped
- d) Estimated frequency and concentration of use.

Item d is important to assist in the gauging of the discharge rate.

For example, on a standard marina with relatively low boat movement (high long term berth occupancy and low visitor numbers) the required discharge rate may not be too important, as discharge time is not a critical factor.

However, if the marina is host to fleet hire, holiday hire or charter boats the discharge rate and time could become an important issue.

In many circumstances you could be in a position where 20x boats return together from a sailing holiday and all require sanitation pump-out at the same time.

A small pump could potentially struggle to cope with such a concentrated demand and potentially create a long waiting time due to slow discharge rates.

This remote pump system can also be designed to provide multi pump-out bollard locations around the marina.

Anything with multiple pump-out bollards will require specifically designing, these designs will take into consideration whether the marina wishes to use multiple pump-out bollards at the same time or one bollard at a time, locking out the remaining bollards until discharge is complete.

Pump-out at each berth

Many marinas catering for MEGA YACHT sized boats are now beginning to offer sanitation pump-out facilities at the berth itself.

This is usually provided by a dedicated 500mm pump-out bollard containing an internal 2inch sani-coupler and manual valve.

On a recent installation we completed, 25x MEGYACHT berths had their own dedicated 500mm pump-out bollard with the remaining small berths sharing the use of a 1000mm MAXI communal pump-out bollard.

A CD pump and housing was installed on land with a control panel located adjacent to the pump.

The 25x 500mm dedicated pump-out bollards were “free to use” keyswitch operated with the communal 1000mm pump-out bollard being a “pay to use” version.

Each of the 26 bollards were equipped with an LED which illuminated when one of the pump-out bollards was in use.

As soon as the first persons discharge time period was complete, the pump stops and the light goes out allowing the second user to initiate their pump-out cycle.

Unique pump-out systems

Rolec have the ability and equipment to design any size and style of pump-out system once provided with a full customer requirement and scale drawing.

Please use the attached pump-out specifications and price structure to create the pump-out system you require.

If you have any difficulties or require any technical advice, please contact Rolec sales in Wisbech UK.

Kindest regards,

Kieron



CCD pump-out system complete with:

- 1000mm pump-out bollard
- remotely sited CCD pump
- Powder coated aluminium pump housing

The CCD pump is prime assisted centrifugal pump.

This pump is virtually maintenance free due to the use of high quality materials such as stainless steel and bronze.

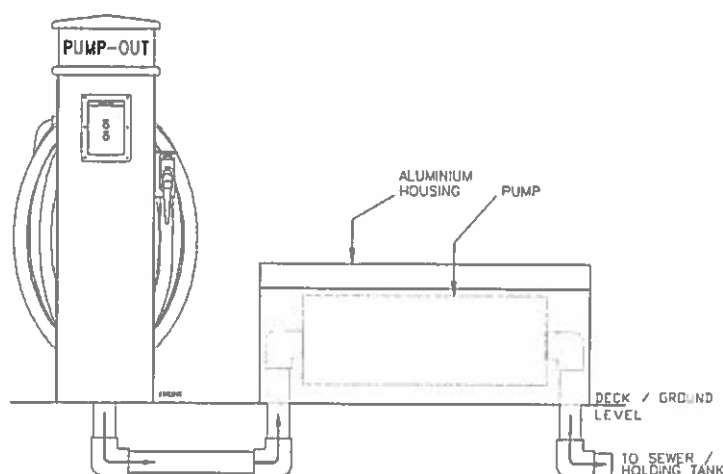
The pump is sewage and seawater resistant.

CCD Pump Specifications

Pumping distance (horizontal)	400 metres
Discharge height (vertical)	22 metres
Discharge rate	380 litres/minute
Motor rating	3 KW
Voltage	415 volts
Amps	7.5 Amps
Weight	275Kg
Dimensions	1250mm x 750mm x 550mm
Mounting position	Horizontal
Connection	3"
Conforms to	ISO 8099

The pump system consists of

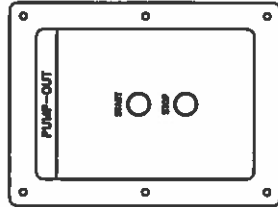
- 1x CCD pump
- 1x 1000mm powder coated aluminium maxi remote pump-out bollard
- 1x start / stop control
- 1x variable time system
- 1x electrical contactor
- 1x motor overload protection
- 10mtr of flexi-suction hose (38mm)
- 1x valve operated euro suction probe
- 4x pump-out labels
- 1x instruction label
- 1x set of incoming cable terminals
- 1x incoming 50mm pipe coupler
- 1x aluminium powder coated housing



SINGLE PUMP-OUT BOLLARD CONTROL PANEL OPTIONS

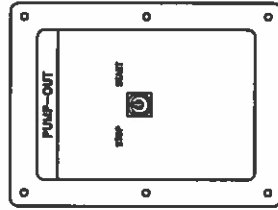
NO PAYMENT

STOP / START



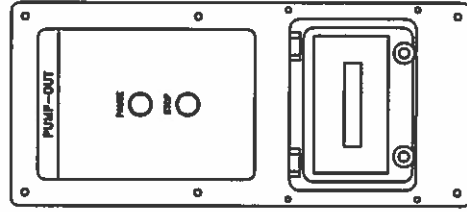
NO PAYMENT

KEYSWITCH



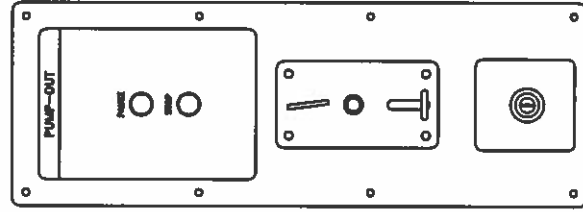
MAGNETIC CARD
PAYMENT

PAUSE / STOP



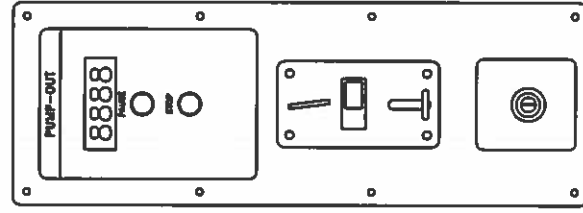
SINGLE COIN / TOKEN
PAYMENT

PAUSE / STOP



MULTI-COIN
PAYMENT

PAUSE / STOP



NOTES:

ALL CONTROL PANELS COME COMPLETE WITH

- A) TIMER CONTROL
- B) SWITCHING CONTACTOR
- C) MCB PROTECTION
- D) PLASTIC WEATHERPROOF ENCLOSURE (LOCATED INSIDE THE PUMP-OUT BOLLARD)
- E) ASSOCIATED WIRING BETWEEN CONTROL PANEL AND ENCLOSURE

DETAILS

PROJECT

CLIENT

REV

DATE

TITLE

CONTROL PANEL OPTIONS

SCALE

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Appendix 3

Conder Environmental Package Treatment Plant Manual

ASP range



the conder **ASP range** of package sewage treatment plants

clereflo™ ASP 6-20



demand special treatment

Designed and tested in accordance with BSEN12566-3:2005 and with the British Water Code of Practice for Flows and Loads, the Clereflo ASP will serve a population range from 6-20 persons and is suitable for residential and commercial projects where mains drainage is not available. Typical applications include single dwellings, small communities or developments, refurbishments and rural barn conversions.

For homeowners and self-builders the key features of the new Clereflo ASP are its discreet below ground installation, its quiet odourless operation and the low ongoing maintenance and running costs. For builders and developers, as well as being price competitive, the Clereflo ASP's compact design offers a low-cost, easy installation process.

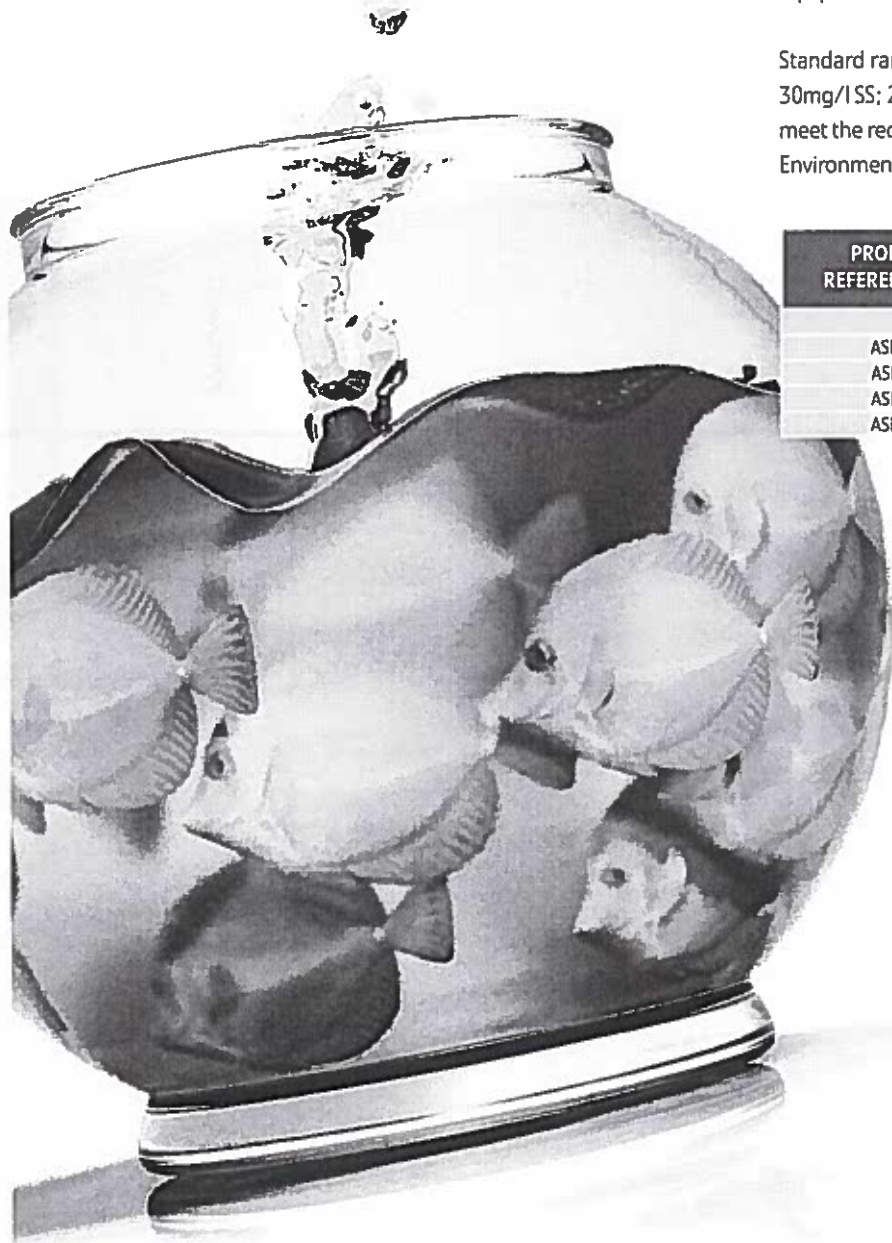
FEATURES AND BENEFITS

- Independently Tested to BSEN12566-3:2005
- Value for money
- Completely below-ground installation
- Easy to install – reduced costs
- Proven technology with reliable performance
- Quiet, odourless operation
- Compact design with no moving parts
- Typically 1 to 3-year desludging period
- Deeper inverts available with a standard extension kit
- Option for pumped influent or effluent
- Effluent Standard: 20mg/l BOD; 30mg/l SS; 20mg/l NH₃
- Suitable for discharge to ground or watercourse (subject to Environment Agency consent)

All applications should be specified to comply with the British Water Code of Practice for Flows and Loads. Further advice and assistance is available from our experienced internal and external sales teams. Site visits and assessments are recommended to ensure the correct equipment is proposed for each application.

Standard range plants produce an effluent quality of 20mg/l BOD; 30mg/l SS; 20mg/l NH₃. The correct plant should be selected to meet the requirements of the discharge consent granted by the Environment Agency, SEPA or EHS.

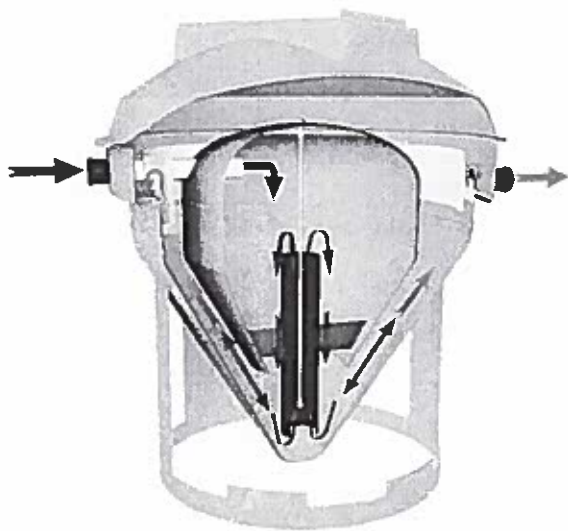
PRODUCT REFERENCE (pe)	MAX FLOW PER DAY (M ³)	MAX LOAD PER DAY	
		BOD g	NH ₃ g
ASP06	1.2	360	48
ASP12	2.4	720	96
ASP16	3.2	960	128
ASP20	4	1200	160



process and plant description

The Clereflo ASP treatment plant comprises a single tank. Within the tank there is an inner central bio-zone chamber and an outer settlement zone. The plant accepts and treats the incoming sewage, using the extended aeration principle, in the central bio-zone chamber. A simple coarse bubble diffuser, housed in a draft tube, introduces the air that provides the oxygen to the bacteria, which then treats the sewage. The bio-zone retains the mixture of sewage and bacteria until the level of treatment has been achieved.

The treated effluent then enters the settlement zone where settlement takes place. The settled solids are drawn back towards the draft tube, with the diffuser in it, and are returned via the airlift principle to the bio-zone for further treatment. The treated (final) effluent subsequently leaves the plant over a weir, at the outlet level, that extends around the circumference of the tank. The movement of fluid through the whole system is by gravity displacement. There are no moving parts in the treatment plant.



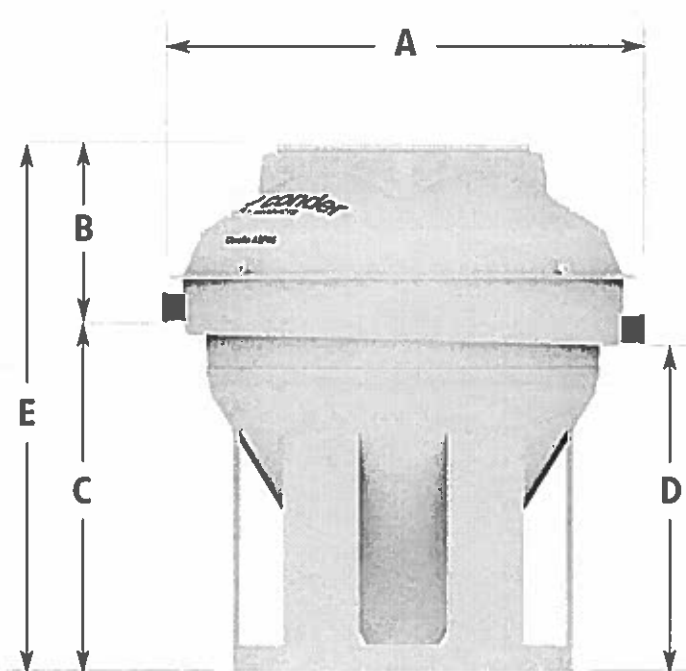
installation

Conder Products advises the use of a suitably experienced and qualified installation company to install any of its products. For suggested installers in your area, please contact our sales team on: 08702 640004. Care should be taken to fully assess the site ground conditions prior to commencement of installation. The ASP range requires a relatively low cost installation, typically using only a 200mm deep concrete base followed by pea shingle or self compacting backfill.

Detailed installation guidelines are provided for each product. All electrical work should be carried out in accordance with current regulations (for example NIC EIC/Building Regulations).



specification



CLEREFLO UNIT	ASP06	ASP12	ASP16	ASP20
Population Equivalent	6	12	16	20
Hydraulic Load (l/day)	1200	2400	3200	4000
Organic Load (g BOD5/per day)	360	720	960	1200
NH3 (g per day)	48	96	128	160
O/A Diameter (mm)	A 2080	2080	2080	2080
Stanadard Inlet Invert (mm)	B* 780	780	780	780
Inlet Invert to Base (mm)	C 1500	1800	1900	2000
Outlet Invert to Base (mm)	D 1400	1700	1800	1900
O/A Depth (mm)	E* 2280	2580	2680	2780
Pipework Fitting (mm)	110	110	110	110
Max Rated Power (Watts)	135	225	225	300
Estimated Power Consumption at working pressure (Watts)	100	170	165	220
Cover Size	750 SQ	750 SQ	750 SQ	750 SQ
Plant Weight	230kg	260kg	300kg	360kg

* Deeper inverts can be accommodated with extension shafts

OPTIONAL EXTRAS

Extension kit

Deeper inverts can be accommodated by means of an access extension kit which is available in 1.0m and 2.0m lengths. These are designed to be cut to suit on site and can also be retrofitted, again on site, taking away the worries of installing at incorrect levels.

Package Pump Stations

Inlet sewage and final effluent pump chambers are available in single or dual units, at varying inverts designed to suit the customer's on site requirements. Again these can be retrofitted if problems occur during installation.

Sample Chamber

A Sample Chamber is required in order for the regulatory authority to take representative samples of the final effluent for testing.

SERVICE

Package sewage treatment plants are installed to treat wastewater and to protect the environment. They must be cared for and maintained so that they can continue to operate effectively. Failure to do this will undoubtedly lead to pollution of the water environment, which is an offence and may result in prosecution.

For the Clereflo ASP, Conder Products recommends that a maintenance agreement is taken out to service the plant as indicated in the Environment Agency Guideline PPG4. A plant de-sludge should be carried out between 1 and 3 years (depending on the plant loading).

Through a nationwide network of British Water accredited service engineers, Conder's partner Pims Service, offers a comprehensive range of services including commissioning and ongoing service contracts.



about conder environmental solutions

Protecting the water environment has been the mission of Conder Environmental Solutions, since it was established in the early 1970s. The business is organised into specialist divisions: Conder Products, Conder Technical Solutions, Conder Pumping Solutions. Our full capability extends beyond our successful range of 'sealed-design' commodity products, to providing expert consultancy and design for hi-specification bespoke solutions across all areas of wastewater pollution control. Conder works closely with engineers, architects, specifiers, developers and self-builders. Providing support from detailed site surveys, plant selection, full technical proposals and liaison with regulatory bodies where necessary, we will ensure that our client achieves the most environmentally sound and cost-effective solution.



CONDER PRODUCTS

Our specialist commodity division offers a portfolio of products ranging from oil separators and small sewage treatment plant, to pumping stations and attenuation or storm water balancing tanks. Our Clereflo range of small-scale domestic sewage treatment plants serve 6-50 population equivalents, utilising either Activated Sludge Plant (ASP) or Submerged Aerated Filter (SAF) technology. Highly price-competitive, with minimal running costs, the Clereflo range is the low energy solution for applications where access to mains drainage is not available.

CONDER TECHNICAL SOLUTIONS

The capability of Conder's Technical Solutions division illustrates the breadth of the company's expertise and has established Conder as the authority in hi-specification projects. As a solutions provider our expertise extends across a product range that includes SAF technology unitank and modular sewage treatment systems up to 1800pe, Membrane BioReactor sewage treatment systems up to 5000pe, attenuation, engineered vessels and other specialist tanks.



CONDER PUMPING SOLUTIONS

We offer a range of water and wastewater pumping solutions for domestic, commercial and industrial applications from off the shelf packages, through to custom-built pumping solutions.

SERVICE

Products installed to protect the environment must be maintained and serviced regularly to ensure that they continue to operate efficiently and effectively. Failure to do this will undoubtedly lead to pollution of the water environment, which is an offence and may result in prosecution. Through a nationwide network of British Water accredited engineers, Pims Service, Conder's service partner, offers a full service and technical package which can include product support, commissioning, waste management and ongoing service and maintenance programmes.

let us make your environment
a better place to be...
demand special treatment



ASP 6-20pe Package Sewage
Treatment Plant



NSAF 25-50pe



Techflo SAF 60-600pe
single-stream and
multi-stream up to 1800pe



MBR Membrane Technology
Package Sewage Treatment
Systems (up to 5000pe)



General Underground
Storage Tanks



For product enquiries, specification advice, project assessments
or further information, please contact the Conder team on:



t: 08702 640004 f: 08702 640005 e: sales@conderproducts.com

www.conderproducts.com

Conder Solutions Ltd, 2 Whitehouse Way,
South West Industrial Estate, Peterlee, Co Durham SR8 2RA

For nationwide service enquiries please contact:



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t: 0870 405 0902 f: 01252 516404 e: sales@pimsgroup.co.uk

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We reserve the right to alter specification without prior notice.

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