
Engineering Services Report
for
Planning amendment to previously approved planning application TA190892
Residential Development at Longwood, Co. Meath

MEATH COUNTY COUNCIL
Date Recd Ref

27-10-21 212 073

Doc No. WS-01-A

Prepared by:



October 2021

1.0 Contents

| | | |
|------------|---|----------|
| 1.0 | Introduction..... | 2 |
| 1.1 | Background..... | 2 |
| 1.2 | Proposals | 2 |
| 2.0 | Surface water Drainage..... | 3 |
| 2.1 | Existing Surface Water Network..... | 3 |
| 2.2 | Proposed Surface Water Network..... | 3 |
| 3.0 | Foul Drainage Design | 3 |
| 3.1 | Existing Foul Network | 3 |
| 3.2 | Proposed Foul Layout..... | 3 |
| 3.3 | Design Calculations | 3 |
| 3.4 | Irish Water – Confirmation of Feasibility | 4 |
| 4.0 | Water Supply and Distribution | 5 |
| 4.1 | Existing Watermain | 5 |
| 4.2 | Proposed Watermain Layout..... | 5 |
| 4.3 | Irish Water – Confirmation of Feasibility | 5 |
| 5.0 | Appendix A – Irish Water Confirmation of Feasibility | 6 |
| 6.0 | Appendix B – BioCell Wastewater Treatment System..... | 8 |

1.0 Introduction

1.1 Background

JOR Consulting Engineers were appointed by the applicant to provide an engineering services report for an amendment to planning application TA190892.

1.2 Proposals

The development will consist of an amendment to a previously approved planning application under Reg. Ref. No. TA190892. This will include a reduction in house numbers from 36 down to 35 and the development will now contain 6 no. 4-bed semi-detached and 1 no. 4-bed detached unit, 16 no. 3-bed semi-detached units, 8 no. 2-bed mid-terrace and 4 no. 4-bed end-terrace units, revised site boundaries and site layout and any ancillary site works. It is also proposed to install a wastewater treatment system to be located on sites 1-6 as a temporary measure for the primary treatment of waste generated by the development due to no available capacity in the existing Longwood WWTP. After discussions with Irish Water this proposal has been accepted in principle, as a temporary measure due to the fact that an upgrade of the existing Longwood WWTP is scheduled by Irish Water in a few years.

2.0 Surface water Drainage

2.1 Existing Surface Water Network

The existing surface water network (600mm culvert) is to be diverted as per planning application TA190892. The only difference is that the layout of the diversion route has changed slightly to eliminate clashes with proposed site services.

2.2 Proposed Surface Water Network

The proposed surface water system is the same to the previously approved system accepted in planning application TA190892. The only difference is that some manhole & pipeline locations have changed slightly to avoid clashes with other services.

3.0 Foul Drainage Design

3.1 Existing Foul Network

The existing 225mm foul network is to be diverted as per planning application TA190892. The only difference is that the layout of the diversion route has changed slightly to eliminate clashes with proposed site services.

3.2 Proposed Foul Layout

The proposed foul network is the same to the previously approved network accepted in planning application TA190892 apart from the addition of the temporary wastewater treatment system. The only difference is that some manhole & pipeline locations have changed slightly to avoid clashes with other services and to provide connections to the temporary wastewater system. The layout of the foul network has taken into consideration the de-commissioning stage of the temporary wastewater treatment system which can be connected up to the proposed foul network with minimal works required. Refer to Appendix B for details of the Wastewater treatment system.

3.3 Design Calculations

All proposed foul sewers are designed to discharge by gravity. Minimum gradients and pipe diameters for collector and main sewers are designed in accordance with Irish Water Code of Practice for Wastewater, the Building Regulations and in accordance with the principles and methods set out in the DOE "Recommendations for Site Development Works for

Housing Areas”, BS8301: 1985, IS EN752 (2008), IS EN12056: Part 2 (2000) and the recommendations of the ‘Greater Dublin Strategic Drainage Study’.

3.4 Irish Water – Confirmation of Feasibility

A pre-connection application was submitted to Irish Water for the original development as per planning application TA190892. Irish Water issued a confirmation of feasibility which is located in Appendix A. Further discussion have taken place with Irish Water who have accepted the temporary wastewater system in principle.

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4.0 Water Supply and Distribution

4.1 Existing Watermain

There is an existing watermain along the public road called Enfield road.

4.2 Proposed Watermain Layout

It is proposed to connect to the existing watermain located in the Enfield road as per approved planning application TA190892. The layout of the proposed watermain has changed slightly to suit the revised site layout. .

Water works for the proposed development shall be in accordance with Irish water connections and developer service code of practice for water infrastructure (A Design and Construction Guide for Developers).

4.3 Irish Water – Confirmation of Feasibility

A pre-connection application was submitted to Irish Water for the original development as per planning application TA190892. Irish Water issued a confirmation of feasibility which is located in Appendix A

5.0 Appendix A – Irish Water Confirmation of Feasibility

Seamus Palmer
9 Edgeworth Court
Longwood
Meath

30 November 2018

Dear Sir/Madam,



UISCE Éireann
Bosca CP 6000
Baile Atha Cliath 1
Éire

Irish Water
PO Box 6000
Dublin 1
Ireland

T: +353 1 89 25000
F: +353 1 89 25001
www.water.ie

**Re: Customer Reference No 3774308937 pre-connection enquiry - Subject to contract | Contract denied
Connection for 30 no. domestic units at Longwood Village, Enfield Road, Longwood Village, Co Meath**

Irish Water has reviewed your pre-connection enquiry in relation to water and wastewater connections at Longwood Village, Enfield Road, Longwood Village, Co Meath. Based upon the details that you have provided with your pre-connection enquiry and on the capacity currently available in the network(s), as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place, your proposed connection to the Irish Water network(s) can be facilitated.

In the case of wastewater connections this assessment does not confirm that a gravity connection is achievable. Therefore a suitably sized pumping station may be required to be installed on your site. All infrastructure should be designed and installed in accordance with the Irish Water Code of Practice.

In regards to water: This connection is deemed feasible for this development.

In regards to wastewater: The Longwood WWTW is overloaded therefore a connection cannot be accepted without upgrade works. The Application is for 90pe and reviewing the WWTW capacity it is limited by the secondary clarifiers and the RAS system. Therefore this connection can proceed with an upgrade to the RAS system to ensure there is a 1.75*DWF RAS rate.

ARC GIS indicates that a 150mm sewer crosses the subject site, the local area caretaker has indicated that a 225mm sewer also crosses this site and that both sewers combine before heading towards Longwood WWTP. As part of the design process the applicant shall determine the full extent of sewer within the confines of their landholding and ensure that all existing water and wastewater services infrastructure is located within proposed public open space.

All infrastructure should be designed and installed in accordance with the Irish Water Codes of Practice and Standard Details. A design proposal for the water and/or wastewater infrastructure should be submitted to Irish Water for assessment. Prior to submitting your planning application, you are required to submit these detailed design proposals to Irish Water for review.

You are advised that this correspondence does not constitute an offer in whole or in part to provide a connection to any Irish Water infrastructure and is provided subject to a connection agreement being signed at a later date.

A connection agreement can be applied for by completing the connection application form available at www.water.ie/connections. Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities.

If you have any further questions, please contact Allan Hannon from the design team on 01 8925318 or email ahannon@water.ie. For further information, visit www.water.ie/connections

Yours sincerely,

Maria O'Dwyer
Connections and Developer Services

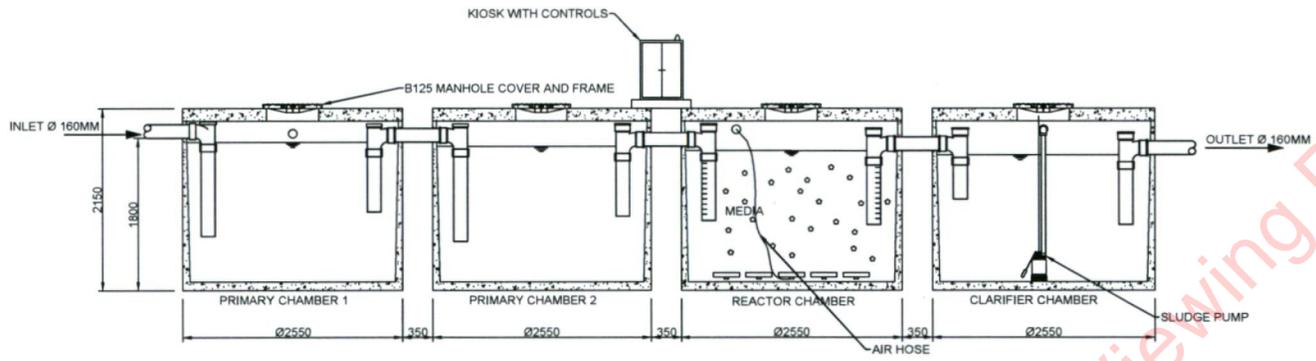
Stiúrthóir / Directors: Mike Quinn (Chairman), Jerry Grant, Cathal Marley, Brendan Murphy, Michael G. O'Sullivan
Ofis Chlanaithe / Registered Office: Toich Colmá, 24-26 Sráid Thialboid, Baile Átha Cliath 1, D01 NP86 / Colmáil-húsa, 24-26 Talbot Street, Dublin 1, D01 NP86
Is outleáid na ghníomhaíochta airmáithe atá faoi theorainn scoiranna é Ulster-Breann / Irish Water is a designated activity company, limited by shares.
Uimhir Chlanaithe in Éirinn / Registered in Ireland No.: 530363

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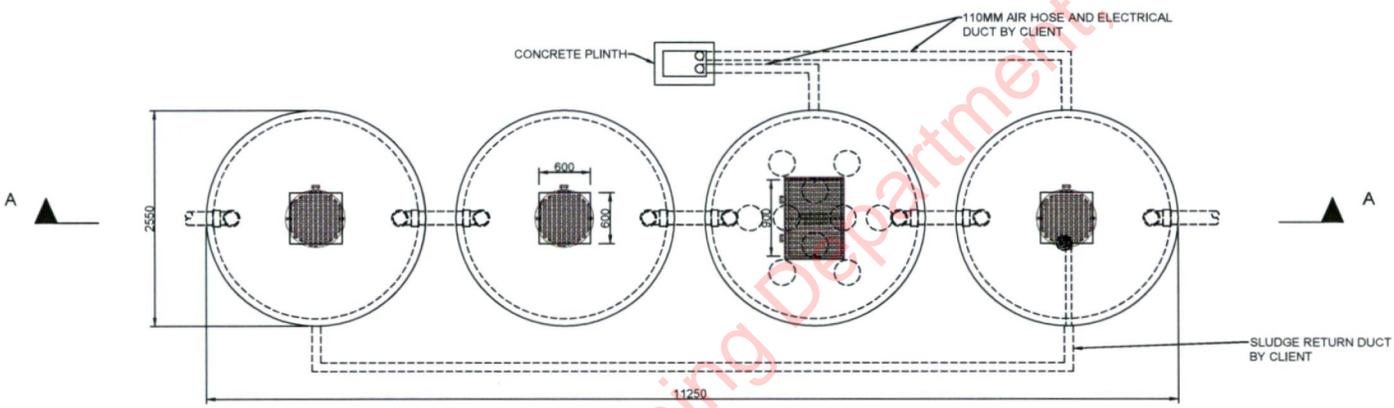
6.0 Appendix B – BioCell Wastewater Treatment System

(Refer to next page)

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SECTION A-A
SCALE 1:60



PLAN
SCALE 1:60

Notes:

- 1 – System designed to meet Environment Agency, EPA CoP and EN12566-3 guidelines.
- 2 – A firm, rock free level base is required. Where ground is unsuitable a C30 concrete base may be necessary.
- 3 – Tank material reinforced precast concrete.
- 4 – Precast tanks structurally tested and water tightness tested to EN12566.
- 5 – B125 ductile covers and frames as standard. Other manhole covers available on request.
- 6 – Electrical supply either 240v or 400v - please confirm prior to order.
- 7 – Gravity discharge or pumped discharge with integrated pumps available.
- 8 – Visual and audible alarms as standard. Optional GSM and BMS link upon request.
- 9 – Standard <20:30:20 effluent quality achieved for standard plants. Any effluent quality available.
- 10 – Chemical dosing, ultra violet disinfection and nutrient removal options available.
- 11 - Observe all safety regulations in regard to excavation and lifting requirements
- 12 - Never leave opening uncovered or unattended at any time.
- 13 - Specify any specific requirements/optional extras prior to ordering.
- 14 - All civil works by customer.
- 15 – All 110mm ductwork and venting by customer.
- 16 - Concrete plinth by customer [must be within 8m of plant location].
- 17 – Risers to extend manholes to ground level by customer where required.
- 18 - All tank connections by customer.
- 19 – Plant must be operated in accordance with operation manual.
- 20 - Do not scale from this drawing. Only for illustration purposes.
- 21 – Drawings and dimensions subject to change without notification. All dimensions +/- 25mm.
- 22 - This drawing is copyright. All rights reserved.

| DATE | COMMENT | REV |
|----------|-----------------------|-----|
| 10/09/21 | ISSUE FOR INFORMATION | 0 |
| 13/09/21 | ISSUE FOR INFORMATION | 1 |
| | | |
| | | |



Ireland Office: Unit 31, Ballybane Industrial Estate, Tuam Road, Galway City, H91 X239.
Email: sales@biocell.ie
Phone: 091 705964

UK Office: Unit 5, Park House, 37 Ings Road, Leeds, West Yorkshire, LS9 9EL.
Email: sales@biocellwater.com
Phone: 020 80128198

Elderwood Civil Engineering,
Longwood,
Co. Meath
13/09/2021

**REF: 120PE BioCell® wastewater treatment plant at Longwood
specification number: Q2099**

To whom it concerns,

Please find attached a proposal and specification for the above project including:

1. Wastewater Treatment Plant Design Details.....2
2. Wastewater Treatment Plant Description.....3
3. Guarantee and Maintenance..... 4
4. Client Responsibilities.....4
5. Tertiary Treatment Plant – General Conditions of Sale.....5

If you require any further information or clarification on the attached information, please do not hesitate to contact me.

Yours Sincerely,

Rory Clarke

Meath CC Planning Department, Viewing Purposes Only!

1 Wastewater Treatment Plant Design Details

Table A – Maximum Daily Design Loadings as per Client or Client’s representative – Please ensure loadings are correct (BioCell® does not accept responsibility or liability for information or parameters relating to influent characteristics not provided by client/client’s representative)

| | |
|-------------------------|----------------------|
| Total Organic Loading | 7200g BOD/day Max |
| Total Hydraulic Loading | 18000 litres/day Max |
| Maximum PE | 120 |

- **Note:** Design based on specifications received

Table B – Treated Effluent Standard*

| | |
|-----|---------|
| BOD | <30mg/l |
| SS | <30mg/l |

Table C – Proposed Wastewater Treatment System Details

| | |
|-------------------------|---|
| Scope of Supply | <p>Wastewater treatment plant including the following components, required for the wastewater treatment process:</p> <ul style="list-style-type: none"> - Precast concrete primary tanks [sized for 120PE] - Pump station with emergency storage - Manhole covers and frames - All tank connections and seals - Reinforced concrete FBR modules for biological treatment - Reinforced concrete high efficiency clarifier - Kiosk to house all controls - Alarm system for all component controls - Side channel air compressor - Control panel - Air distribution manifold - Airlift transfer siphons - Ventilation system |
| Power Required at Plant | 220v/400v |
| Inlet Sewer Pipe Size | 160 |
| Inlet Pipe Invert Level | TBC |
| Outlet Type | Gravity |

2 Wastewater Treatment Plant Description:

2.1 BioCell® Wastewater Treatment Plant:

The BioCell® sewage treatment plant provides efficient wastewater treatment for small communities and larger developments. The treatment plant incorporates primary settlement, biological aeration, final settlement and tertiary treatment (where applicable) in fully underground tanks with low profile access covers. The key features of the BioCell® are low power consumption and reduced maintenance requirements. The fully underground installation and low profile access covers ensure minimal visual impact on completed project and environs.

2.2 Pump Stations:

Where treated or untreated effluent needs to be pumped from or to the treatment plant due to site levels or a highwater table then we can supply integrated pump stations to meet any requirements.

2.3 BioCell® Wastewater Treatment Plant

The BioCell® system is designed to provide effective, cost efficient, low maintenance, secondary and/or tertiary wastewater treatment. The modular nature of the system provides maximum design flexibility for secondary and tertiary treatment, across a range of applications.

The BioCell® sewage treatment system uses an advanced reactor technology to treat wastewater to far higher than the required EPA standards. As it only cycles the wastewater, the aeration does not run 24/7, as with many of the other systems on the Irish Market. The process is highly effective at dealing with variable flows of wastewater (typical of a commercial application) making the system much more robust and versatile than other standard aeration systems that rely on a constant energy use.

2.4 De-nitrification

De-nitrification is the conversion of nitrate to nitrogen gas and water using a suitable heterotrophic bacteria under anoxic conditions. The anoxic conditions are provided in the anoxic zone located downstream of the primary stage. To achieve acceptable total nitrogen discharge, recirculation of the effluent is required. We can design any system with denitrification where required.

2.5 Phosphate Reduction

Reduction of phosphorous content is achieved by means of a flow proportional automatic chemical dosing system. The system incorporates a dosing pump activated during periods of flow in the system ensuring dosing does not occur during periods of no flow, thereby keeping the biomass in prime condition and maximising the effect of the chemical.

2.6 Polishing filter

Polishing filters are designed in accordance with table 10.2 of the EPA manual and are suitable for use with our plant.

3 Guarantee and Maintenance

BioCell® will provide a 12 month parts and labour guarantee from the date of supply of the wastewater treatment plant. The guarantee is dependent on the customer operating and maintaining the plant in accordance with the operation and maintenance manual provided by BioCell®. Any component of the sewage treatment plant deemed to be defective will be replaced by BioCell® within the warranty period. The systems, is covered by our product liability insurance to a value of 6.5 million Euro. The BioCell system operates with a minimal number of replaceable wearing parts. Any wearing parts are available 'off the shelf' for rapid replacement [e.g. submersible effluent discharge pumps]. The precast concrete tanks have a lifetime warranty.

The design of the wastewater treatment plant is to EN12566-3. The design is covered by our product liability insurance which covers plant operation and also covers our process and effluent quality guarantee.

BioCell also offers service inspection contracts designed to suit the client's individual needs.

4 Client Responsibilities

The Client will be responsible for the following:

- The client is responsible for ensuring that they have full planning permission in relation to the treatment system and all ancillary works.
- The location of the wastewater treatment plant on-site

- The client is responsible for ensuring that the maximum design load of the system as specified in this proposal is not exceeded at any time
- Installation of the BioCell secondary system in accordance with the installation manual supplied, power supply and electrician to complete electrical connection, all civil work on site including provision of stone/ 20N semi-dry concrete, hire of a mechanical excavator/CSCS operator, water supply – where necessary.
- The client is responsible for preventing storm/surface water from entering the system at any time.
- Where the BioCell treatment plant is installed, the client is responsible for the supply and installation of an appropriately sized grease trap where necessary, which must be properly sealed to prevent the ingress of surface/storm water.
- Access to treatment plant site for a 40ft articulated lorry, with a level hard standing for placing tanks or other material deliveries. Any “standing” time will be charged by BioCell to the client. Any necessary crane hire is the client’s responsibility.
- All excavations and site re-instatements, including back filling around the treatment plant and pump stations (where applicable)
- Any necessary pumping required during the installation of the treatment plant
- Build up and seal all access manholes to ground level where tanks are below finished ground level and construction of all necessary plinths and flow meter chambers (if required).
- Prevention of storm/surface water from entering the system and any time
- Client is responsible for preventing the following from entering the system at any time: oil, fats or grease, pesticides, water softener regenerate, strong acids or alkalis, photographic chemicals, disinfectants, chlorinated water and non-biodegradable materials and chemicals including sanitary ware, wipes etc.
- Any electrical connections and certificates (eg. RECI) necessary are the responsibility of the client
- Where the treatment plant includes the supply of an inlet or outlet pumping station the client is responsible for the supply and installation of all rising main and provision of electrical power supply where required.
- Where macerator pumps are proposed for pumping raw sewage it is imperative the client satisfies themselves that they are suitable for the application before placing an order.
- All electrical components must be commissioned within 12 weeks of installation to comply with conditions of guarantee. The client must ensure a power supply is available for commissioning within this 12 week period.



All client responsibilities must be met on the date specified by BioCell. Failure to do this will result in any additional cost incurred by BioCell being passed on to the client.

5 BioCell® Tertiary Treatment Plant – General Conditions of Sale

5.1 Scope of Supply

BioCell® will supply, deliver and commission the wastewater treatment system as detailed in Section 1. Customer responsibilities are outlined in Section 4. (Any drawings supplied with this proposal are for illustrative purposes only).

5.2 Operation and Maintenance

The client is responsible for the operation and maintenance of the wastewater treatment system in accordance with the operation and maintenance manual supplied by BioCell. BioCell have a dedicated customer service department that offer varying levels of service inspection agreements to suit the needs of all clients.

5.3 Despatch Period

The despatch period for a wastewater treatment system from the receipt of the signed official order and order deposit is by agreed arrangement. It has a typical lead in time on 4-6 weeks unless specified otherwise or for special orders. Any delays in receiving parts from third parties that result in an extension of the agreed timeframe will be notified to the client – and BioCell will not be responsible for any costs incurred as a result of these delays.

5.4 Carriage

Carriage to site is paid for by BioCell (This condition applies to mainland delivery only, carriage costs for systems requiring offshore delivery to be agreed).

5.5 Prices

All prices are quoted in Euro, unless otherwise stated and will remain fixed for the duration of the quotation period indicated. Beyond the validity period any changes to the final price of the wastewater treatment system will be reflected in the outstanding amount payable to BioCell. No retention.

5.6 Validity

Our offer will remain open for a period of 6 months from the date of the quotation.

5.7 Payment terms

- 60% Deposit to be paid to BioCell on placement of order (deposit is non-refundable)
- Balance to be paid to BioCell on delivery prior to offloading.
- The wastewater treatment system remains the property of BioCell until receipt of full payment.

5.8 Guarantee

BioCell guarantees the wastewater treatment system for a period of one year from the date of delivery, provided the wastewater treatment system has been operated and maintained in accordance with the operation and maintenance instructions outlined in the operation and maintenance manual provided by BioCell. During the guarantee period BioCell will repair and replace any defective part of the wastewater treatment system which manifests under normal operation of the system to the designed working criteria for the system.

| Pos. | Wastewater Treatment Plant | Example picture | Price in EURO |
|------|---|--|--------------------|
| 1 | C9000PIA – Primary Settlement Tanks Reinforced Precast concrete tanks with sealed cover slab All inlet and outlet seals Water tightness and structurally tested Access manhole openings with precast concrete extensions to ground level Designed and certified to BSEN12566-3 TOTAL CAPACITY 18m3 |  | 2 Inclusive |
| 2 | C9000PIA – Biological F-Bed Module Reinforced Precast concrete tank with sealed cover slab All inlet and outlet seals Water tightness and structurally tested Access manhole openings with precast concrete extensions to ground level Aeration system with fine bubble diffusers preinstalled Biological F-BED media preinstalled for attached growth biological process Designed and certified to BSEN12566-3 |  | 1 Inclusive |
| 3 | C9000PIA – Clarifier CL-TS Module Reinforced Precast concrete tank with sealed cover slab All inlet and outlet seals Access manhole openings with precast concrete extensions to ground level Flow calming pipework Integrated sludge return pump to return activated sludge back to primary settlement tanks Designed and certified to BSEN12566-3 |  | 1 Inclusive |

| | | |
|-----------------|--|---|
| <p>5</p> | <p>MECH202 – Mechanical and Electrical</p> <p>IP rated weatherproof, lockable enclosure to house all equipment</p> <p>Side channel air compressor [elektor]</p> <p>Air compressor filter</p> <p>Mechanical control panel for automated system operation</p> <p>Motor switches for all equipment</p> <p>Audible and visual alarm system for power failure / system failure / equipment failure</p> <p>400v power supply required</p> | <p>1</p> <p>Inclusive</p> |
| <p>6</p> | <p>Commissioning, Training and Documents</p> <p>Commissioning and setup of all equipment</p> <p>Site supervision for all works</p> <p>Training of site staff</p> <p>Preparation of site specific drawing package on order</p> | <p>1</p> <p>Inclusive</p> |



EXCLUSIONS:

Civil works [excavation for tanks, concrete plinth for kiosk], Ductwork between tanks/kiosk, Venting Power supply, Crane for tank placement [if truck mounted crane cannot access site], Risers, Manhole covers