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MULTIDISCIPLINARY CONSULTING ENGINEERS

D823: REGIONAL SPORTS CAMPUS AT ST THOMAS

ENGINEERING SERVICES REPORT

**For
Dun Laoghaire Rathdown County Council**

4 March 2024

NOTICE

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DOCUMENT CONTROL & HISTORY

OCSC Job No: D823	Project Code	Originator	Zone Volume	Level	File Type	Role Type	Number	Status / Suitability Code	Revision
	D823	OCSC	XX	XX	RP	C	0001	S4	P02

Rev.	Status	Authors	Checked	Authorised	Issue Date
P01	S4	SD	EK	MOR	14/02/2024
P02	S4	SD	EK	MOR	4/03/2024

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1 INTRODUCTION

O'Connor Sutton Cronin & Associates (OCSC) have been appointed by Dun Laoghaire Rathdown County Council to carry out the design of the Civil Engineering services (surface water and wastewater drainage, and watermain infrastructure) associated with the proposed development located on Tibbradden Road.

1.1 ADMINISTRATIVE JURISDICTION

The proposed development is located in the jurisdiction of Dun Laoghaire Rathdown County Council (DLRDCC) and therefore the engineering services design was carried out with reference to the following:

- Dun Laoghaire Rathdown County Development Plan (2022 – 2028)
- GSDSDS - Greater Dublin Strategic Drainage Study (2005).
- The Planning System and Flood Risk Management Guidelines for Planning Authorities (Department of Environment, Heritage and Local Government and the Office of Public Works, 2009).

1.2 SITE LOCATION

The proposed site is accessed directly from local Tibbradden Road R113 which provides a link from Tibbradden Woods to Marley Park via White Church Road as outlined in Figure 1 below. The site is approximately 200m south of the M50. The site is situated between St Thomas House located to the northeast and Stillorgan Rugby Club. The Boundary to the northwest is defined by Tibbradden Road with agricultural farmland across the road and to the southeast by the Ballinascorney Golf Club. The site is just under 21 acres and is within the ownership of DSD Athletics Club.



Figure 1 Site Location

The project has been split into two phases. Phase 1 is complete consisting at a high-level pedestrian/shared entrance, a vehicular entrance, car parking, 8 lane synthetic running track including field events with floodlights, running, and walking routes, natural mounding, along with all associated services. Phase 2 is the development of a “multi-sport building”. **The Multi-Sport building along with its relevant required servicing is the focus of this Engineering Services Report.**

1.3 EXISTING SITE TOPOGRAPHICAL

The site falls gradually from north to south with a further steep decline to a heavily wooded river valley within the site boundary as can be seen with the approx. contour outline below. A more refined site topographical survey has been undertaken by the design team and is available should it be required.



Figure 2 Site Overview

1.4 PROPOSED MULTI SPORTS FACILITY

The proposed design for the Multi Sports Facility is being developed by DMOD Architecture in association with LA Architects. The below is an outline of the current proposal for the site. Please refer to separate cover for finer details on these elements.

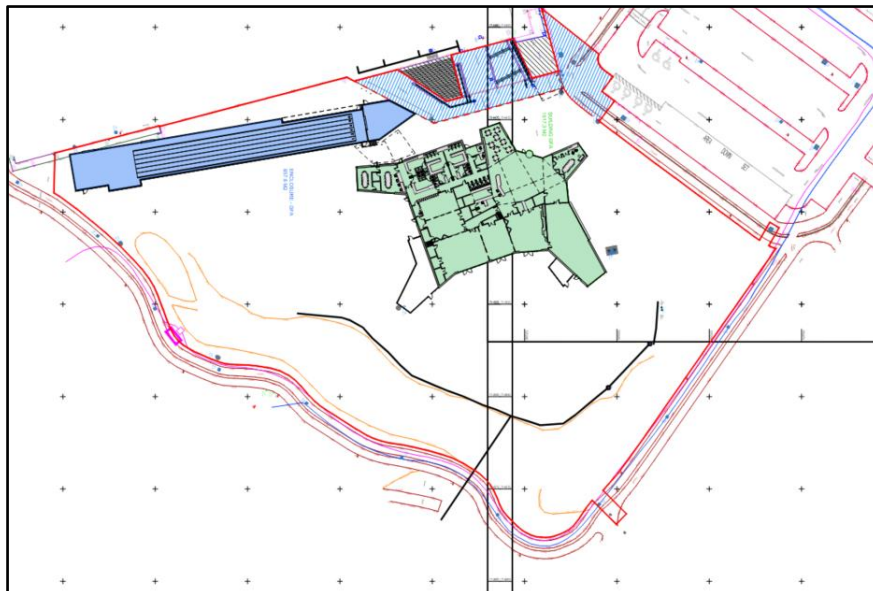


Figure 3 Architectural Site Layout

2 SCOPE OF REPORT

The scope of this report covers the proposed Multi-use Sports Facility currently being designed as part of the two phase works on site at the DSD Athletics Track on Tibbradden Road. This Drainage and Water Infrastructure Services Report was prepared by reviewing the documentation provided by the client as part of the brief for this Phase 2 project, along with a series of site inspections and available data from the Local Authority sources and national bodies i.e., DLRDCC, Irish Water, and the wider Design Team. The following services are addressed within this report, with respect to the proposed development:

- Surface Water Drainage.
- Wastewater Drainage.
- Potable Water Supply.

This report should be read in conjunction with the set of OCSC Civil Engineering design drawings that accompany this submission and are attached to the rear of this document.

The design of the aforementioned services, for the proposed development, has been carried out in accordance with the following technical guidelines and information:

- Dun Laoghaire Rathdown County Development Plan (2022 – 2028)
- GDSDS - Greater Dublin Strategic Drainage Study (2005).
- Greater Dublin Regional Code of Practice for Drainage Works (2006).
- Irish Water Code of Practice for Wastewater, IW-CDS-5030-03 (2020).
- Irish Water Code of Practice for Water Supply, IW-CDS-5020-03 (2020).
- The Building Regulations – Technical Guidance Document Part H (2010).
- BE EN 752 – Drainage Outside Buildings (2017).
- The Office of Public Works, the Planning System and Flood Risk Management (2009).

3 SURFACE WATER DRAINAGE INFRASTRUCTURE

3.1 DESIGN GUIDELINES

With respect to the design of surface and storm water systems, the Planning Authority will have regard to the standards set out in the Greater Dublin Strategic Drainage Study (GDSDS). In particular, all new developments shall be designed to:

- Ensure the separation of foul and surface water discharges through the provision of separate networks.
- Ensure the implementation of Sustainable Urban Drainage Systems (SuDS) in accordance with the County Council SuDS Policy to ensure surface water runoff is managed for maximum benefit. In particular to require proposed developments to meet the design criteria of each of the four pillars of SuDS design: Water Quality, Water Quantity, Amenity and Biodiversity.
- Promote the use of green infrastructure, such as swales and wetlands, where feasible as landscape features in new development to provide storm / surface runoff storage and reduce pollutants, as well as habitat, recreation, and aesthetic functions.

3.2 EXISTING SURFACE WATER DRAINAGE

3.2.1 EXISTING SURFACE WATER INFRASTRUCTURE

We are aware that there is existing surface water infrastructure on the site which was intended to be designed to cover the site master plan however, from our discussions with our colleagues in DLRDCC we understand that the volume of attenuation provided as part of the Phase 1 works is not sufficient to deal with the volume of surface water expected nor does it satisfy their requirements. We also understand that in line with this there are compliance issues to be closed out as part of the Phase 1 works. These will need to be closed out by the Phase 1 team which OCSC nor the current Phase 2 Design team were party to.

3.3 PROPOSED SURFACE WATER DESIGN STRATEGY

3.3.1 OVERVIEW

In light of the above issue that there is not sufficient attenuation provided in Phase 1 for the Phase 1 site excluding the Phase 2 proposals we are proposing to DLRDCC that we, as part of the Phase 2 works, cater for all our own surface water within Phase 2 alone. Thereby taking no benefit from the works already built on the site and treating our Phase 2 site as completely separate. This means that we are proposing to cater for the surface water attenuation in two distinct ways as part of the Phase 2 works. It is our proposal to cater for the surface water attenuation on the Phase 2 site via utilising a blue roof system under our extensive green roof system on the roof of the Facility Building and also to cater for surface water at ground level create an additional detention pond within the Phase 2 site for attenuation at ground level. By utilising both of these systems we can cater for all surface water generated within Phase 2 in Phase 2 alone and neglect any benefit from the Phase 1 constructed works.

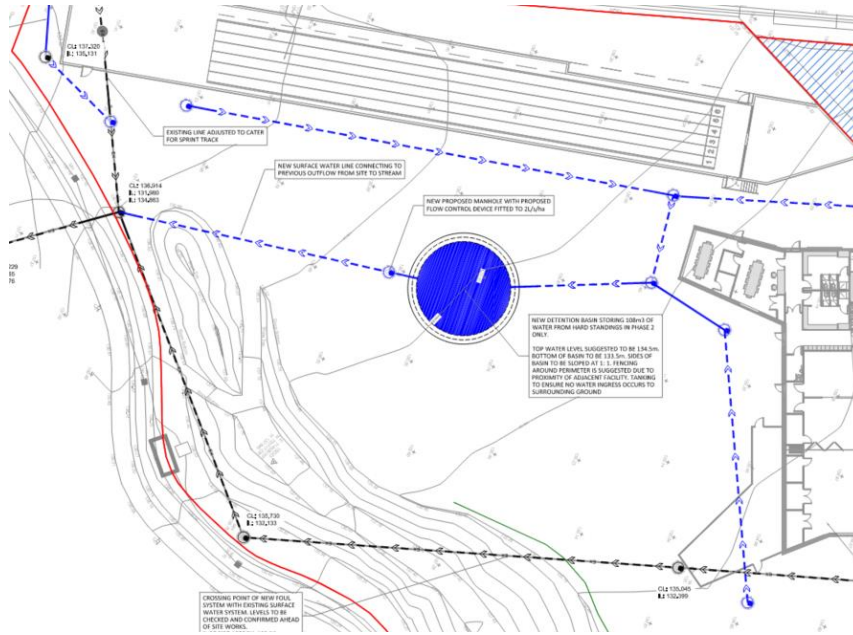


Figure 4 Outline of proposed Phase 2 detention basin

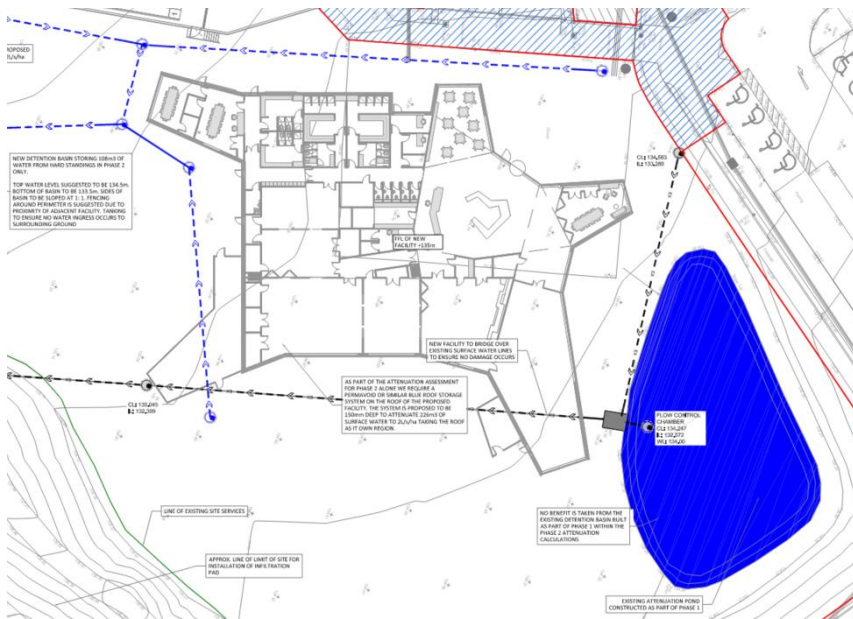


Figure 5 Outline of proposed building and Phase 1 detention system ignored as part of Phase 2

3.3.2 CLIMATE CHANGE ALLOWANCE

The proposed surface water network according to the current DLRDCC Development plan requires all surface water design to cater for a 20% increase in intensity. We can confirm that we have catered for this allowance within the Phase 2 attenuation calculation. A copy of the results of the calculations are included in the Appendices.

3.4 SURFACE WATER MANAGEMENT PLAN

The proposed surface water management plan has been delivered for this site as part of the phase one works. However as noted previously we are now proposing an entirely new surface water system to cater for the Phase 2 works alone.

3.4.1 PROPOSED PIPE NETWORK DESIGN

All external, in-ground pipe infrastructure has been designed in accordance with BS EN 752 and all new infrastructure is to be compliant with the requirements of the GSDS and the GDR COP for Drainage Works, with minimum full-bore velocities of 1.0 m/s achieved throughout.

All external main surface water carrier pipes have been sized to ensure no surcharging of the proposed drainage network for rainfall events up to, and including, the 1 in 5-year ARI event.

3.4.2 SURFACE WATER OUTFALL LOCATION

The surface water outfall location for this development has been constructed as part of the Phase 1 works and discharges to the local stream. We are planning to reuse this connection as part of the Phase 2 works.

3.4.3 ATTENUATION STORAGE

A total volume of (256 +106m³) = 362m³ of attenuation of attenuation has been provided as part of the Phase 2 works to cater for the sports facility and associated hard standings constructed as part of Phase 2. We have designed the blue roof attenuation system on the proposed facility building as its own region with site area taken as roof area and attenuation volume calculated on that basis alone which is the worst case for the blue roof system. We have shown this connecting into the main surface line on the site which is then further attenuated, we have two options here either we adjust the outflow from this hydrobreak or we connect the roof storage to the final surface water line after the flow control device manhole. We can discuss this in more detail should there be an issue with either of these approaches.

3.4.4 MAINTENANCE

The SuDS across the site are to be regularly inspected and maintained by the to-be-appointed development maintenance contractor, with appropriate management plan in place. We do recommend that the new proposed detention basin is fenced off due to the depth of proposed water.

4 WASTEWATER DRAINAGE INFRASTRUCTURE

4.1 CONSULTATION

A Pre-Connection Enquiry form has been submitted to Irish Water for the proposed development by the team undertaking the design for Phase 1. The response to this connection offer consisted only of watermains connection which will be discussed later in this document as there is no public wastewater infrastructure in the vicinity.

4.2 DESIGN GUIDELINES

The wastewater network that is to serve the proposed development has been designed in accordance with Irish Water's Code of Practice for Wastewater Infrastructure and the Building Regulations, Part H.

4.3 SITE CHARACTERISTIC REPORT – WASTEWATER DRAINAGE

As part of the phase 1 works Specialist Consultants licensed by the EPA, Trinity Green, specifically Dr Eugene Bolton undertook a design and assessment of the site at Tibbradden Road. The testing and assessment of the site undertaken by Trinity Green for foul drainage was based on a development for a recreation facility that will accommodate up to **200 participants**. Trinity Green advised that based on EPA guidelines outlined in the EPA wastewater Manual for Small Systems Communities, Business, Leisure Centres and Hotels treating the development as a football club. The Hydraulic Loading equates to a hydraulic population equivalent of 40 and the organic loading equates to an organic population equivalent of 67. Thus, the treatment system needs to be sized for a population equivalent of 67.

Based on the calculations within the Trinity Green report from the site testing the soakage on the site was deemed to be acceptable. Based on the results from the Trinity Greens calculations it was recommended to install a package Aeration system and to polish the effluent through a sand filter and a discharge to ground. The area of the sand filter was advised to be 175m². We understand from liaising with specialists in this field that EPA Compliant Coco filters may also be a viable solution here and more economical. We have noted this option on our drawings. The proposed area of the infiltration pad was advised to be 600m².

Finally it was noted to construct the infiltration pad and sand filter the area is stripped of vegetation removing not more than 200mm of topsoil and the gravel based in put in place to a depth of 300mm. The 175m² sand filter is then constructed directly on top of the gravel base. The polished effluent percolates by gravity from the sand filter into the gravel.

5.0 RECOMMENDATION

Propose to install: Packaged wastewater treatment system and polishing filter

and discharge to: Ground Water

Trench Invert level (m):

Site Specific Conditions (e.g. special works, site improvement works testing etc.)

Because of the high watertable the site is not suitable for a standard septic tank and percolation area. It is recommended to install a Package aeration system and to polish the effluent through a Sand filter and discharge to ground. The Sand filter can be loaded at 60 litres/m² and allowing for 67 PE (Conservative as the hydraulic load is 40PE) the area of the sand filter is 170m²

For final disposal it is recommended to design on the basis of the hydraulic load as the effluent is now fully treated. The EPA have indicated a methodology for design of a gravel infiltration pad which is installed after a polishing filter (Clarification on the Disposal of Effluent from Polishing Filters - Tertiary Treatment Systems) This gives the area of the filter as 0.125 x T x PE. On this site the T value is 27 and the PE is 40 so the area required is 135m².

However given the scale off his development it is recommended to load the infiltration pad at the same rate as a soil polishing filter and as the t-value is between 20 and 40 the appropriate rate is 10 litres/m². With the hydraulic load at a 40 PE the volume is 6000litres and the area of the infiltration pad is 600m².

To construct the infiltration pad and sand filter the area is striped of vegetation removing not more than 200mm of topsoil. The gravel base is put in place to a depth of 300m. The Sand filter (175m²) is then constructed directly on top of the gravel base. The polished effluent percolates by travity from the sand filter into the gravel.

Figure 6 Results from the Trinity Green Report on Site Characteristic

Following our discussions with Dr Eugene Bolton we believe the proposed design undertaken in 2019 is compliant with the revised EPA requirements for Design of systems such as this. We have also followed his advice as illustrated on our packages in relation to required offsets from Dwellings and Streams for placing the proposed Wastewater treatment system. A copy of the site characteristic assessment undertaken by Trinity Green is available in the attached Appendices.

The proposed OCSC design can be seen attached in the Appendices- this design incorporates the proposed wastewater treatment system advised by the client and Phase 1 team and undertaken by Dr Eugene Bolton of Trinity Green who are licensed by the EPA and whose design package was issued to the Phase 2 Team as part of the Phase 2 briefing. .

5 POTABLE WATER INFRASTRUCTURE

5.1 CONSULTATION

A Pre-Connection Enquiry form has been submitted to Irish Water as part of the Phase 1 works. A Confirmation of Feasibility Letter was received and followed up with a connection offer from Irish water. We believe the connection offer was not completed nor paid for. This will need to be reapplied for with the Phase 2 works.

5.2 DESIGN GUIDELINES

The watermain network that is to serve the proposed development has been designed in accordance with Irish Water's Code of Practice for Water Infrastructure.

5.3 EXISTING WATERMAIN INFRASTRUCTURE

As part of the Phase 1 works a 100mm watermain was brought into the site to facilitate the Phase 2 works. Our intention is to connect to this existing element to service the Phase 2 project. We have outlined these elements in our proposed drawings attached in the Appendices.

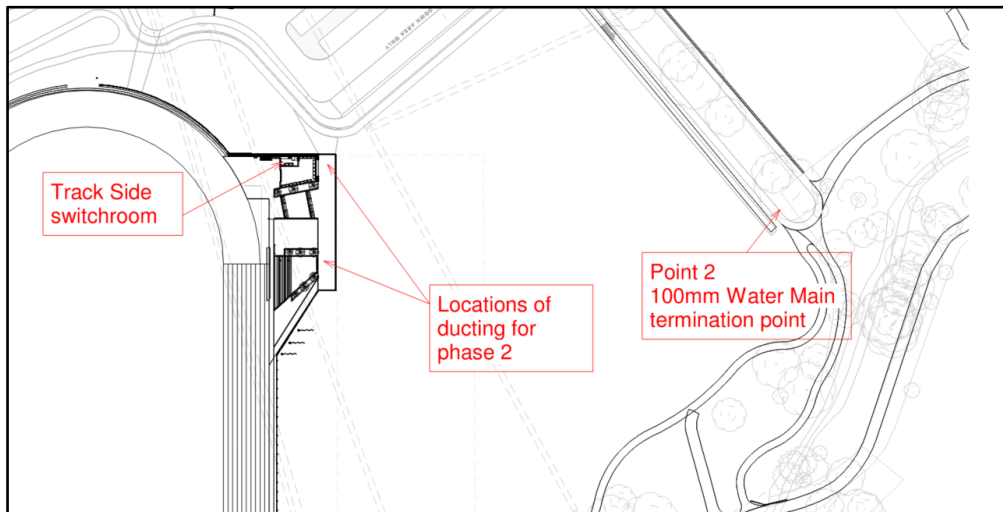


Figure 7 Location of watermain left for Phase 2 by Phase 1 team.

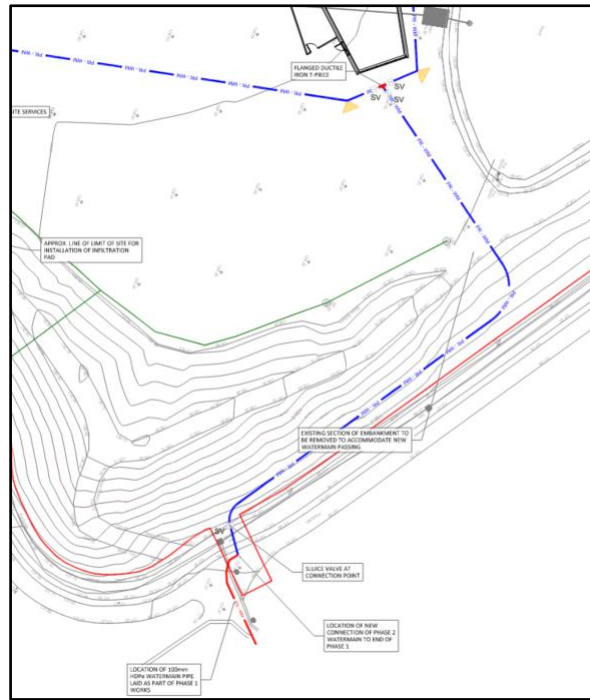


Figure 8 Connection of Phase 2 watermain to Phase 1 works

5.4 PROPOSED WATER SUPPLY STRATEGY

5.4.1 DESIGN CRITERIA

The subject development is to comprise a multi-purpose sports facility to service generally up to 200 persons.

5.4.2 DEVELOPMENT CONNECTION LOCATION

As part of the Phase 1 works a 100mm watermain was brought into the site to facilitate the Phase 2 works. Our intention is to connect to this existing element to service the Phase 2 project. We have outlined these elements in our proposed drawings attached in the Appendices.

The locations of the fire hydrants are shown on our drawings as coordinated with MJP.

5.4.3 WATER METERS

As part of the Phase 1 works where the watermain was installed we do not believe that a Water meter was installed. As part of these Phase 2 works we will install a standard Irish Water meter where the services enter the facility at the entrance to the overall site.



Figure 9 Location of proposed water meter installed as part of Phase 2

5.5 TAKING IN CHARGE

The infrastructure that is to be installed in order to serve the subject development is to remain privately managed.

6 TRAFFIC AND TRANSPORTATION ASSESSMENT

6.1 REFLECTION OF THE PHASE 1 ALLOWANCE

As part of the Phase 1 works a new 6m wide access on Tibbradden Road which has been set back to allow for adequate sightlines. This access will be used to access the development. The access has been designed to accommodate 15m coaches, which are able to utilise the newly constructed car park as a drop-off area. Drop-offs will also be accommodated adjacent to the main Sports Facility Building.

A new 143 no. spaces car park has been constructed on the site to accommodate any generated vehicular trips. This car park will also accommodate vehicles visiting the development. In addition to this, sheltered bicycle parking is available adjacent to the main Sports Facility Building in order to promote more sustainable transport modes.

Enhanced active travel facilities along Tibbradden Road, along with pedestrian access and links will encourage the use of more sustainable travel such as walking/running or cycling. Due to the nature of the facility, it is expected that these modes will be more prevalent amongst visitors. In addition to this, the overall site will also provide the following services to encourage sustainable travel:

- Promotion of car sharing.
- Sheltered bicycle parking.
- Showers within the main sports building.
- Changing rooms within the main sports building; and
- Tool kit and spare parts for cyclist to use at reception and at bike storage areas.

In conclusion, since this development is part of the wider masterplan, its main transportation impacts have already been considered and accounted for in the designs. In isolation, through the promotion of sustainable travel, combined with the nature and location of the development, it is expected that the development will have a negligible impact on the local road network.

7 VERIFICATION

This report was compiled and verified by:



Shaun Doody BE MSc CEng MIEI MStructE RConsEI

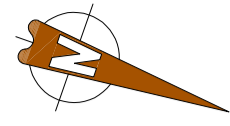
Director

O'Connor Sutton Cronin & Associates



APPENDIX A

OCSC PROPOSED PHASE 2 WASTEWATER, SURFACE WATER AND WATERMAIN DRAWINGS



REFER TO DWG 0501

REFER TO DWG 0502

REFER TO DWG 0503

- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DESIGN TEAM DRAWINGS AND SPECIFICATIONS.
- FOR SETTING OUT REFER TO ARCHITECT'S DRAWINGS. DO NOT SCALE THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
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P01	26/02/24	SUITABLE FOR INFORMATION	MC	SD

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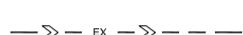


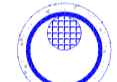

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 MULTIDISCIPLINARY CONSULTING ENGINEERS
 Civil / Structural / Environmental / Mechanical / Electrical / Sustainability
 Dublin Office: 9 Prussia Street, Dublin 7, D07 KT57.
 Tel: +353 (0)1 8682000 Web: www.ocsc.ie
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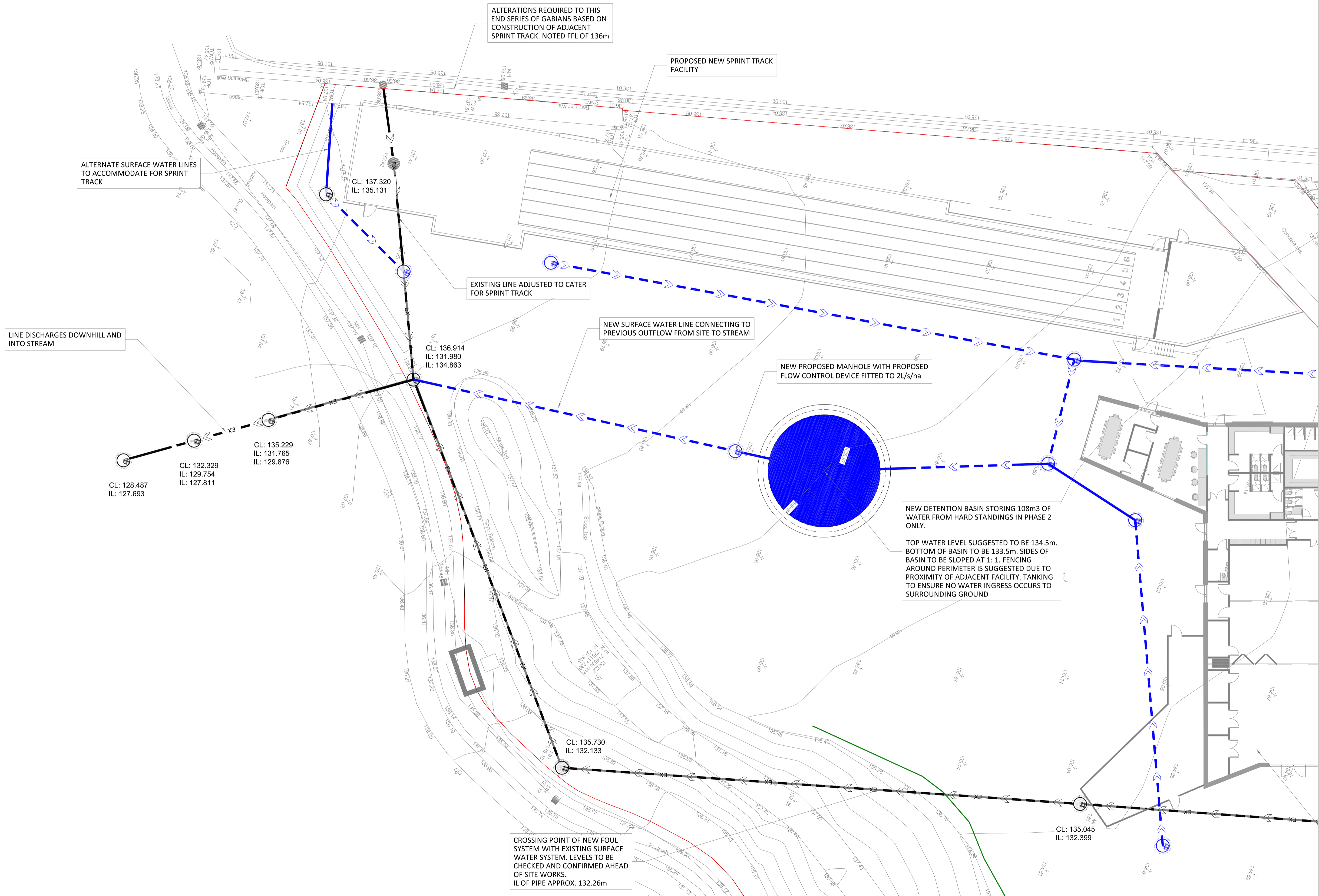
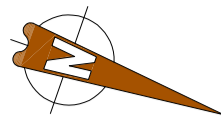
Client: DSD ATHLETICS AND DLRDCC								
Project: MULTI PURPOSE LEISURE FACILITY AT ST THOMAS FIELDS								
Title: PROPOSED SURFACE WATER LAYOUT SHET 1 OF 4								
Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
D823	OCSC	XX	XX	DR	C	0500	S2	P01
Date: FEB '24		Scale @ A1: 1:500		Drn by: MC		Chkd by: SD		Aprvd by: SD

GENERAL NOTES:

1. ALL NOTED LEVELS ARE TO ORDNANCE DATUM, MALIN HEAD.
2. REFER TO ARCHITECT'S LAYOUT FOR ALL SET-OUT INFORMATION.
3. REFER TO ARCHITECT / LANDSCAPE ARCHITECT'S DESIGN DRAWINGS FOR DETAILS OF PROPOSED SURFACE FINISHES AND LANDSCAPING.
4. REFER TO ARCHITECT DRAWINGS FOR DETAILS OF PRIVATE DRAINAGE.
5. ALL SURFACE WATER DRAINAGE IS TO BE INSTALLED IN ACCORDANCE WITH THE GREATER DUBLIN REGION CODE OF PRACTICE FOR DRAINAGE WORKS, THE BUILDING REGULATIONS PART H AND THE SITE DEVELOPMENT SPECIFICATION.
6. ALL CAR PARK DRAINAGE IS TO BE INSTALLED IN ACCORDANCE WITH THE GREATER DUBLIN REGION CODE OF PRACTICE FOR DRAINAGE WORKS, THE BUILDING REGULATIONS PART H AND THE SITE DEVELOPMENT SPECIFICATION.
7. ALL WASTEWATER DRAINAGE IS TO BE INSTALLED IN ACCORDANCE WITH THE IRISH WATER CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE (REVISION 2 - JULY 2020), THE BUILDING REGULATIONS PART H AND THE SITE DEVELOPMENT SPECIFICATION.
8. ALL DRAINAGE COVER LEVELS ARE TO BE COORDINATED WITH PROPOSED ROAD DESIGN LEVELS AND ARCHITECT/LANDSCAPE ARCHITECT'S PROPOSED FINISH LEVELS.
9. ALL BASEMENT CHAMBER COVERS TO BE DOUBLE SEALED, AND CLASSIFICATION D400 LOADING WHERE LOCATED IN VEHICULAR AREAS.
10. ALL CONNECTIONS TO NEW DRAINAGE NETWORKS ARE TO BE MADE AT AN ANGLE OF 90° OR IN THE DIRECTION OF FLOW.
11. REFER TO ARCHITECT AND M&E ENGINEERING DESIGN DRAWINGS FOR CONFIRMATION OF LOCATION AND SPECIFICATION OF FLOOR GULLIES.
12. REFER TO M&E ENGINEERING DESIGN FOR CONFIRMATION OF WASTE AND SANITARY POP-UP/OUTLET LOCATIONS.
13. THE CONTRACTOR IS TO VERIFY INVERT LEVEL AT PROPOSED CONNECTION TO EXISTING SEWERS, PRIOR TO ANY OTHER WORKS BEING CARRIED OUT, AND MAKE ANY DISCREPANCIES KNOWN TO THE ENGINEER.
14. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMATION OF PRESENCE ALL EXISTING UTILITIES, IF ANY, ALONG ROUTE OF PROPOSED DRAINAGE NETWORKS - BY INTRUSIVE INVESTIGATION OR EQUAL.
15. EXISTING PUBLIC SEWER TO BE JET CLEANED AND CCTV SURVEYED PRIOR TO, AND AFTER PROPOSED CONNECTIONS FROM NEW NETWORK.
16. ALL NEW DRAINAGE INFRASTRUCTURE TO BE JET CLEANED AND CCTV SURVEYED, WITH ANY NOTED DEFECTS REMEDIATED, ON COMPLETION OF WORKS, TO THE SATISFACTION OF THE LOCAL AUTHORITY.

LEGEND:

- EXTENT OF WORKS BOUNDARY 
- EXISTING DRAINAGE AS-PER CLIENT RECORDS 
- PROPOSED SURFACE WATER DRAINAGE 
- LINE OF EXISTING SITE SERVICES 
- PROPOSED SURFACE WATER DRAINAGE PRECAST CONCRETE MANHOLE 
- EXISTING SURFACE WATER DRAINAGE MANHOLE AS PER CLIENT RECORDS 



- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DESIGN TEAM DRAWINGS AND SPECIFICATIONS.
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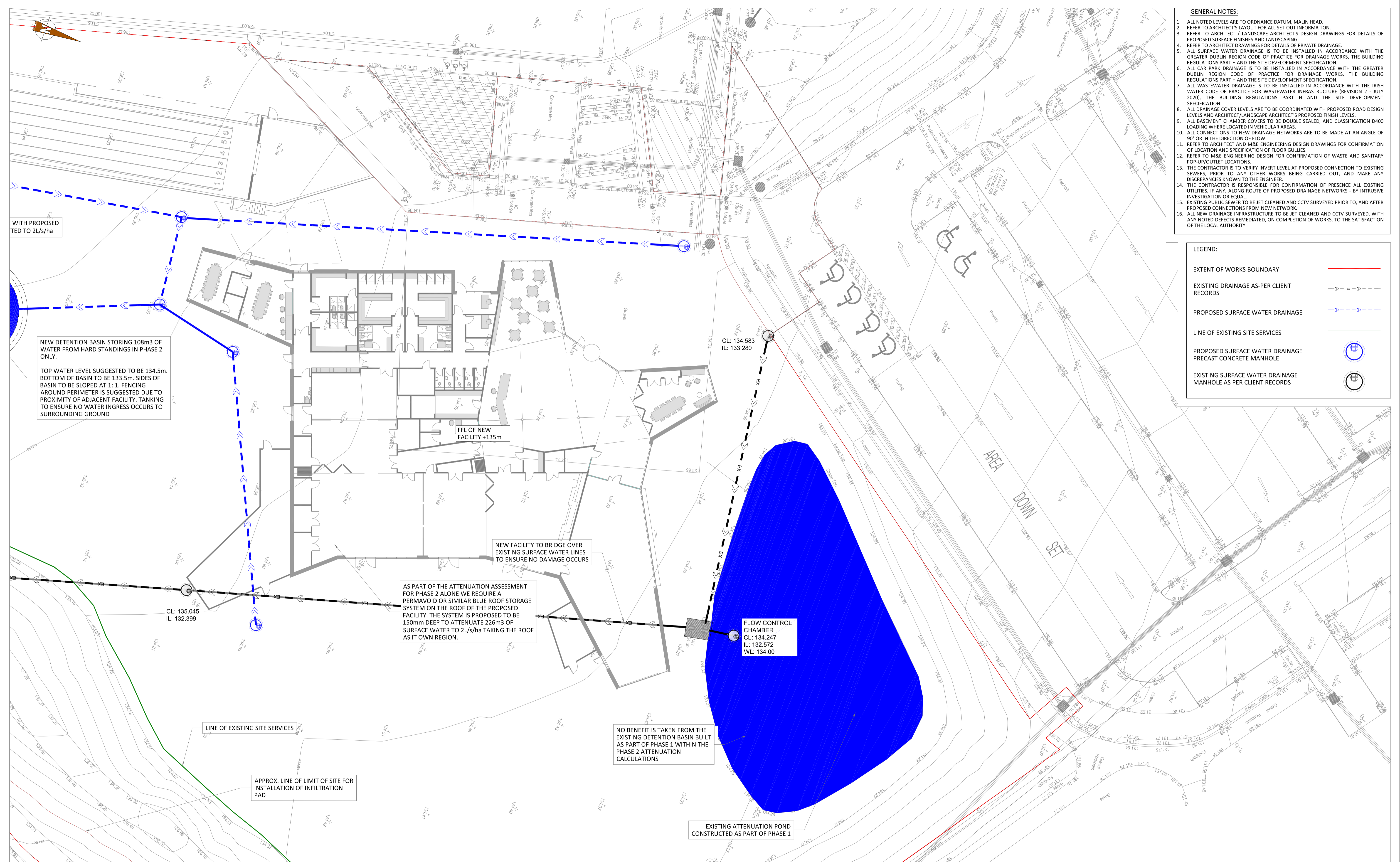
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Dublin Office: 9 Prussia Street, Dublin 7, D07 KT57.

Tel: +353 (0)1 8682000 Web: www.ocsc.ie
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Client:	DSD ATHLETICS AND DLRDCC								
Project:	MULTI PURPOSE LEISURE FACILITY AT ST THOMAS FIELDS								
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 3. REFER TO ARCHITECT / LANDSCAPE ARCHITECT'S DESIGN DRAWINGS FOR DETAILS OF PROPOSED SURFACE FINISHES AND LANDSCAPING.
 4. REFER TO ARCHITECT DRAWINGS FOR DETAILS OF PRIVATE DRAINAGE.
 5. ALL SURFACE WATER DRAINAGE IS TO BE INSTALLED IN ACCORDANCE WITH THE GREATER DUBLIN REGION CODE OF PRACTICE FOR DRAINAGE WORKS, THE BUILDING REGULATIONS PART H AND THE SITE DEVELOPMENT SPECIFICATION.
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 8. ALL DRAINAGE COVER LEVELS ARE TO BE COORDINATED WITH PROPOSED ROAD DESIGN LEVELS AND ARCHITECT/LANDSCAPE ARCHITECT'S PROPOSED FINISH LEVELS.
 9. ALL BASEMENT CHAMBER COVERS TO BE DOUBLE SEALED, AND CLASSIFICATION D400 LOADING WHERE LOCATED IN VEHICULAR AREAS.
 10. ALL CONNECTIONS TO NEW DRAINAGE NETWORKS ARE TO BE MADE AT AN ANGLE OF 90° OR IN THE DIRECTION OF FLOW.
 11. REFER TO ARCHITECT AND M&E ENGINEERING DESIGN DRAWINGS FOR CONFIRMATION OF LOCATION AND SPECIFICATION OF FLOOR GULLIES.
 12. REFER TO M&E ENGINEERING DESIGN FOR CONFIRMATION OF WASTE AND SANITARY POP-UP/OUTLET LOCATIONS.
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 15. EXISTING PUBLIC SEWER TO BE JET CLEANED AND CCTV SURVEYED PRIOR TO, AND AFTER PROPOSED CONNECTIONS FROM NEW NETWORK.
 16. ALL NEW DRAINAGE INFRASTRUCTURE TO BE JET CLEANED AND CCTV SURVEYED, WITH ANY NOTED DEFECTS REMEDIATED, ON COMPLETION OF WORKS, TO THE SATISFACTION OF THE LOCAL AUTHORITY.

LEGEND:

- EXTENT OF WORKS BOUNDARY ———
- EXISTING DRAINAGE AS-PER CLIENT RECORDS - - - - -
- PROPOSED SURFACE WATER DRAINAGE - - - - -
- LINE OF EXISTING SITE SERVICES ———
- PROPOSED SURFACE WATER DRAINAGE PRECAST CONCRETE MANHOLE
- EXISTING SURFACE WATER DRAINAGE MANHOLE AS PER CLIENT RECORDS

WITH PROPOSED TED TO 2L/s/ha

NEW DETENTION BASIN STORING 108m³ OF WATER FROM HARD STANDINGS IN PHASE 2 ONLY.
TOP WATER LEVEL SUGGESTED TO BE 134.5m. BOTTOM OF BASIN TO BE 133.5m. SIDES OF BASIN TO BE SLOPED AT 1:1. FENCING AROUND PERIMETER IS SUGGESTED DUE TO PROXIMITY OF ADJACENT FACILITY. TANKING TO ENSURE NO WATER INGRESS OCCURS TO SURROUNDING GROUND

FFL OF NEW FACILITY +135m

NEW FACILITY TO BRIDGE OVER EXISTING SURFACE WATER LINES TO ENSURE NO DAMAGE OCCURS

AS PART OF THE ATTENUATION ASSESSMENT FOR PHASE 2 ALONE WE REQUIRE A PERMAVOID OR SIMILAR BLUE ROOF STORAGE SYSTEM ON THE ROOF OF THE PROPOSED FACILITY. THE SYSTEM IS PROPOSED TO BE 150mm DEEP TO ATTENUATE 226m³ OF SURFACE WATER TO 2L/s/ha TAKING THE ROOF AS IT OWN REGION.

FLOW CONTROL CHAMBER
CL: 134.247
IL: 132.572
WL: 134.00

NO BENEFIT IS TAKEN FROM THE EXISTING DETENTION BASIN BUILT AS PART OF PHASE 1 WITHIN THE PHASE 2 ATTENUATION CALCULATIONS

EXISTING ATTENUATION POND CONSTRUCTED AS PART OF PHASE 1

LINE OF EXISTING SITE SERVICES

APPROX. LINE OF LIMIT OF SITE FOR INSTALLATION OF INFILTRATION PAD

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Rev No.	Date	Revision Note	Dwn by	Chkd by
P01	26/02/24	SUITABLE FOR INFORMATION	MC	SD

Rev No.	Date	Revision Note	Dwn by	Chkd by

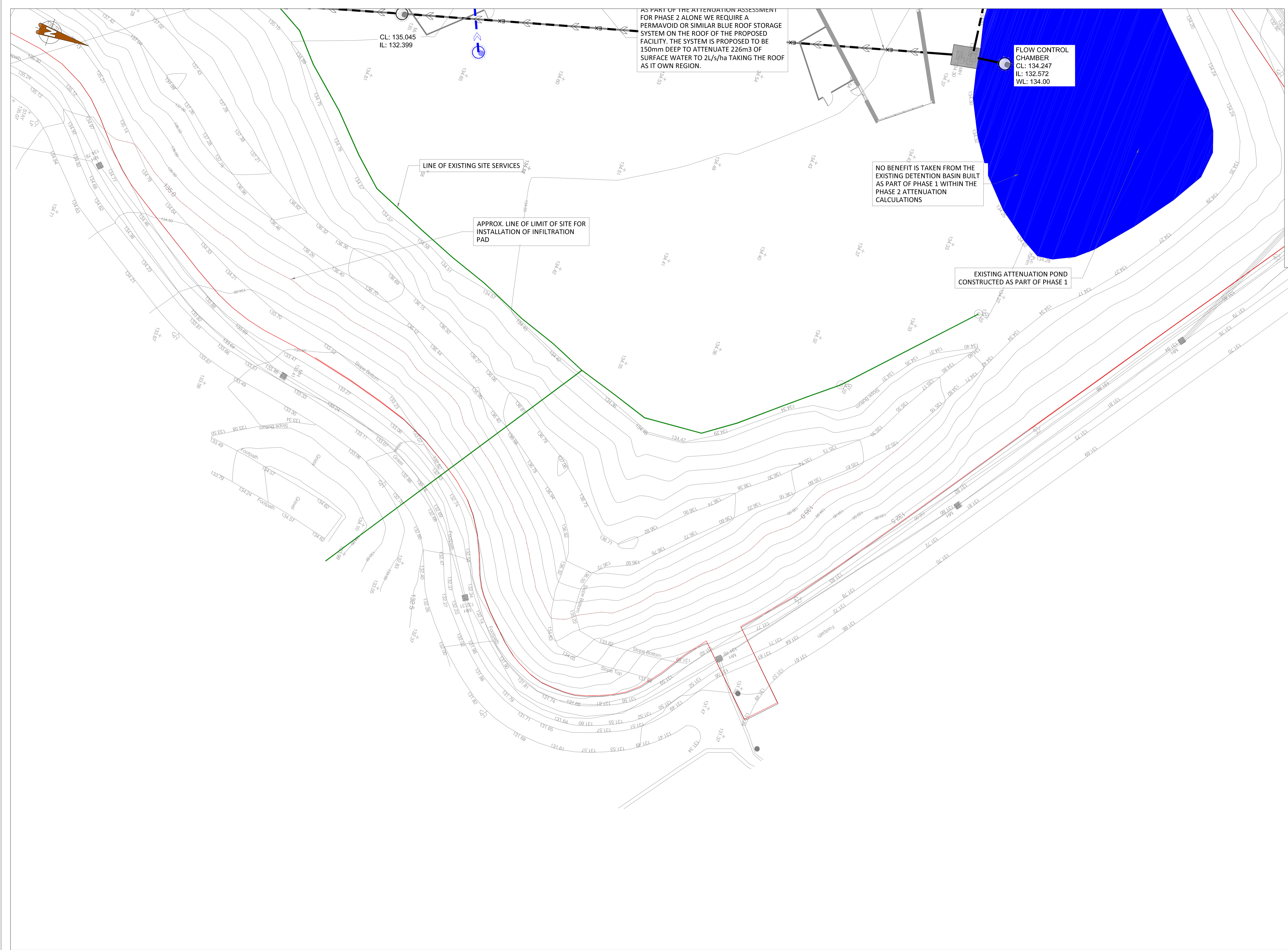


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Client: DSD ATHLETICS AND DLRDCC
Project: MULTI PURPOSE LEISURE FACILITY AT ST THOMAS FIELDS
Title: PROPOSED SURFACE WATER LAYOUT SHEET 3 OF 4

Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
D823	OCSC	XX	XX	DR	C	0502	S2	P01

Date: FEB '24 Scale @ A1:1:200 Dwn by MC Chkd by SD Aprvd by SD



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LEGEND:

EXTENT OF WORKS BOUNDARY	
EXISTING DRAINAGE AS-PER CLIENT RECORDS	
PROPOSED SURFACE WATER DRAINAGE	
LINE OF EXISTING SITE SERVICES	
PROPOSED SURFACE WATER DRAINAGE PRECAST CONCRETE MANHOLE	
EXISTING SURFACE WATER DRAINAGE MANHOLE AS PER CLIENT RECORDS	

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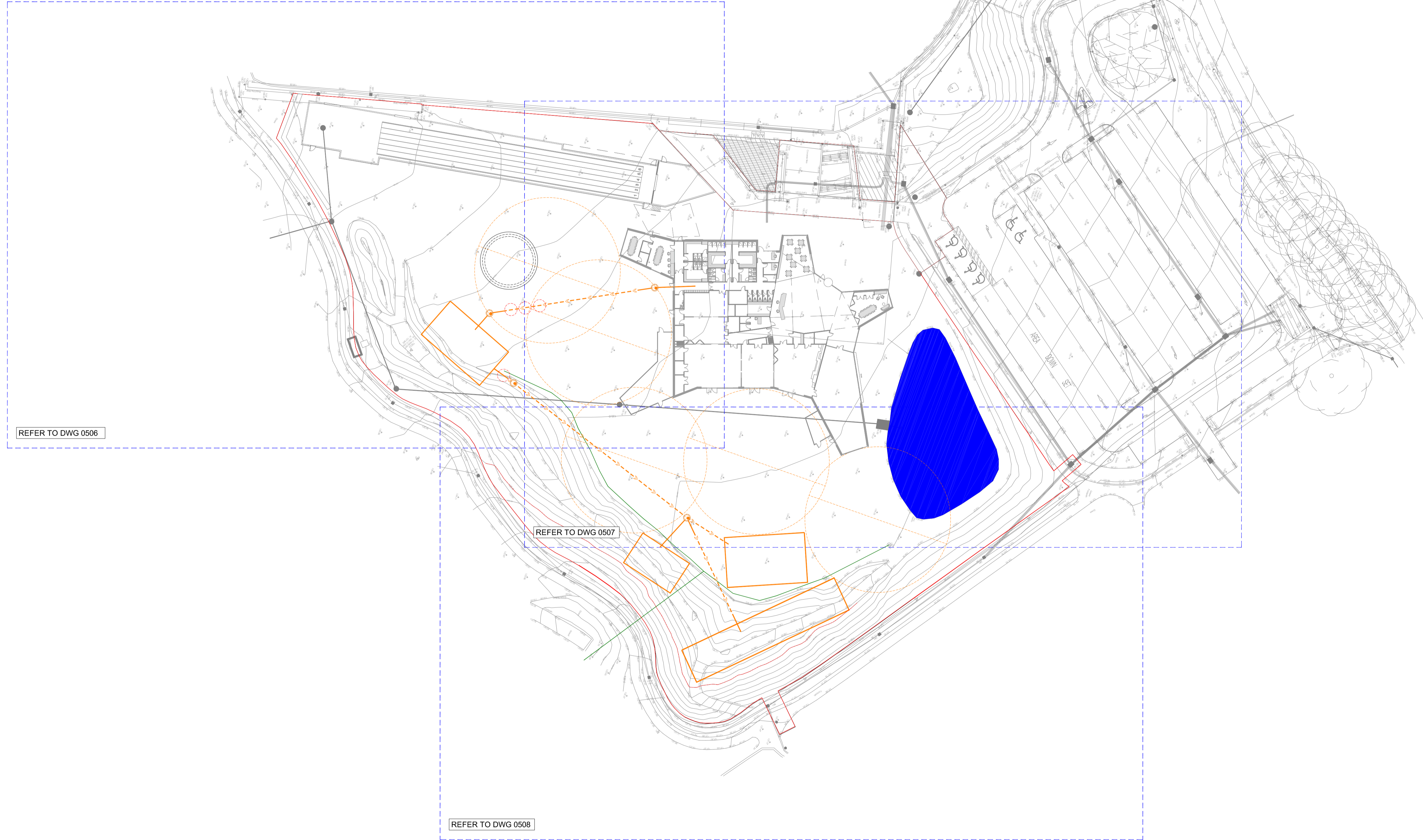
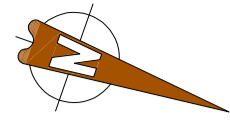


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Client: **DSD ATHLETICS AND DLRDCC**
 Project: **MULTI PURPOSE LEISURE FACILITY AT ST THOMAS FIELDS**
 Title: **PROPOSED SURFACE WATER LAYOUT SHEET 4 OF 4**

Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
D823	OCSC	XX	XX	DR	C	0503	S2	P01

Date: FEB '24 Scale @ A1: 1:200 Drn by: MC Chkd by: SD Aprvd by: SD



REFER TO DWG 0506

REFER TO DWG 0507

REFER TO DWG 0508

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P01	26/02/24	SUITABLE FOR INFORMATION	MC	SD
P02	28/02/24	SUITABLE FOR INFORMATION	MC	SD

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Client: DSD ATHLETICS AND DLRDCC
 Project: MULTI PURPOSE LEISURE FACILITY
 AT ST THOMAS FIELDS
 Title: PROPOSED FOUL WATER LAYOUT
 SHEET 1 OF 4

Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
D823	OCSC	XX	XX	DR	C	0505	S2	P02

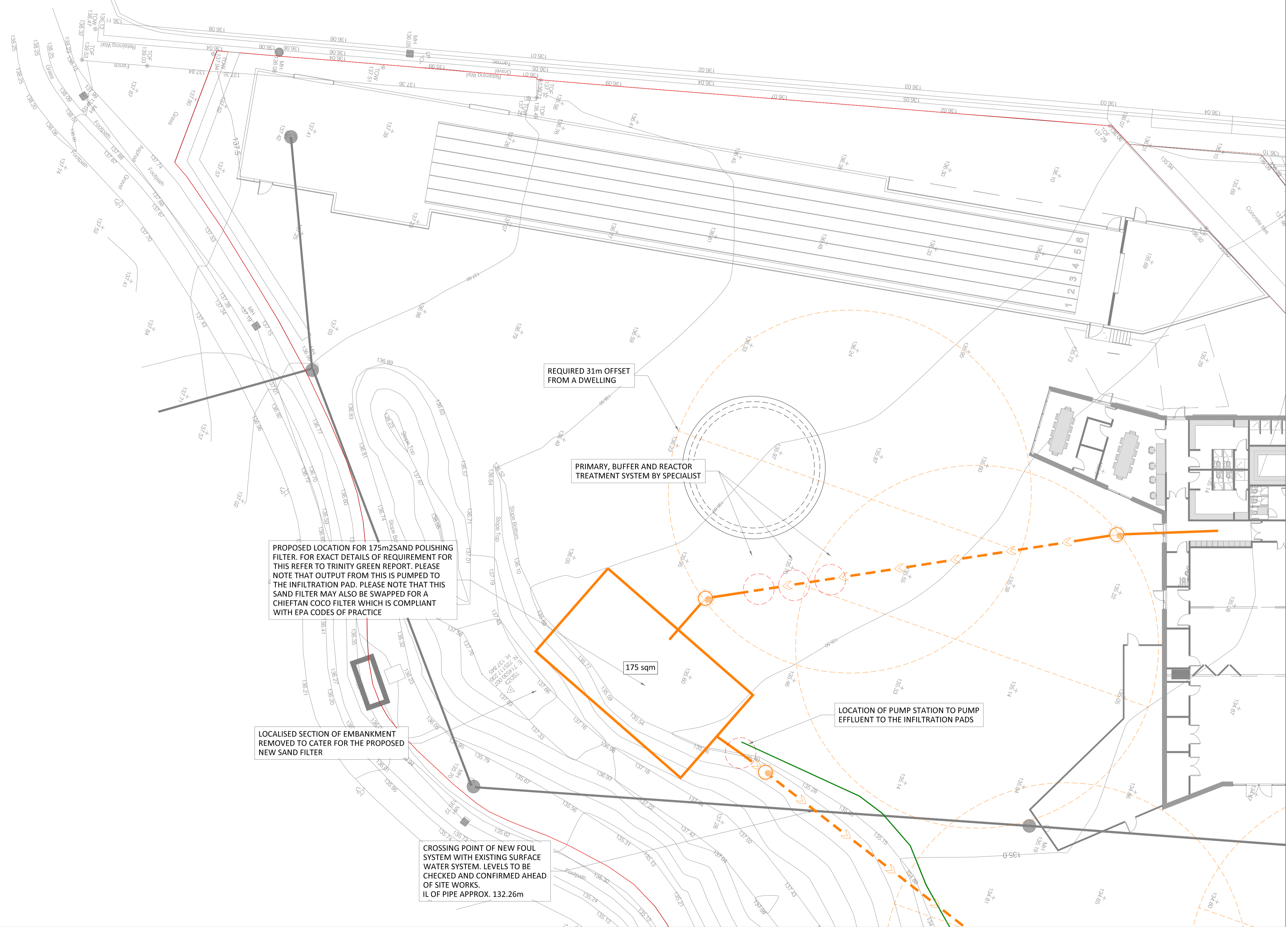
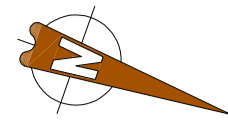
Date: FEB '24 Scale @ A1: 1:500 Drn by: MC Chkd by: SD Aprvd by: SD

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LEGEND:

- EXTENT OF WORKS BOUNDARY
- PROPOSED WASTEWATER RISING MAIN
- PROPOSED FOUL DRAINAGE
- PROPOSED FOUL MANHOLE
- LINE OF EXISTING SITE SERVICES



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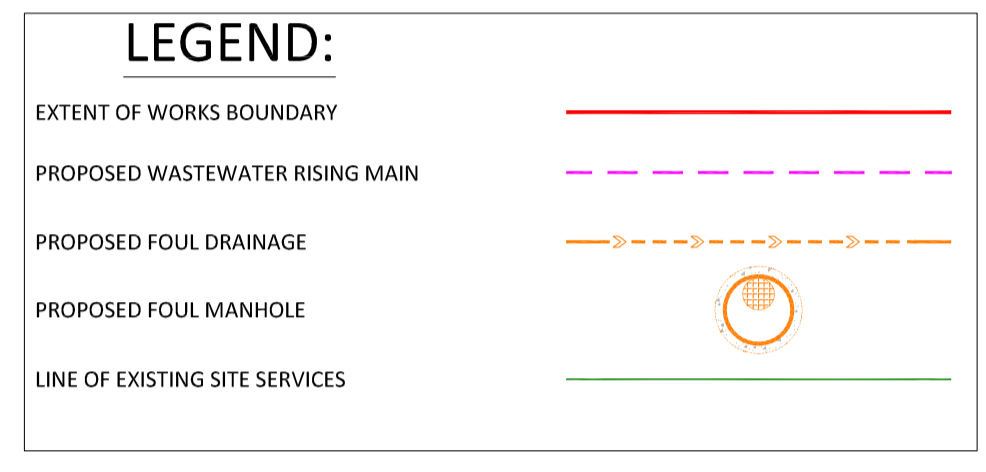
Client: DSD ATHLETICS AND DLRDCC
 Project: MULTI PURPOSE LEISURE FACILITY AT ST THOMAS FIELDS
 Title: PROPOSED FOUL WATER LAYOUT SHEET 2 OF 4

Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
D823	OCSC	XX	DR	C		0506	S2	P02

Date: FEB '24 Scale @ A1: 1:200 Drn by MC Chkd by SD Aprvd by SD



- GENERAL NOTES:**
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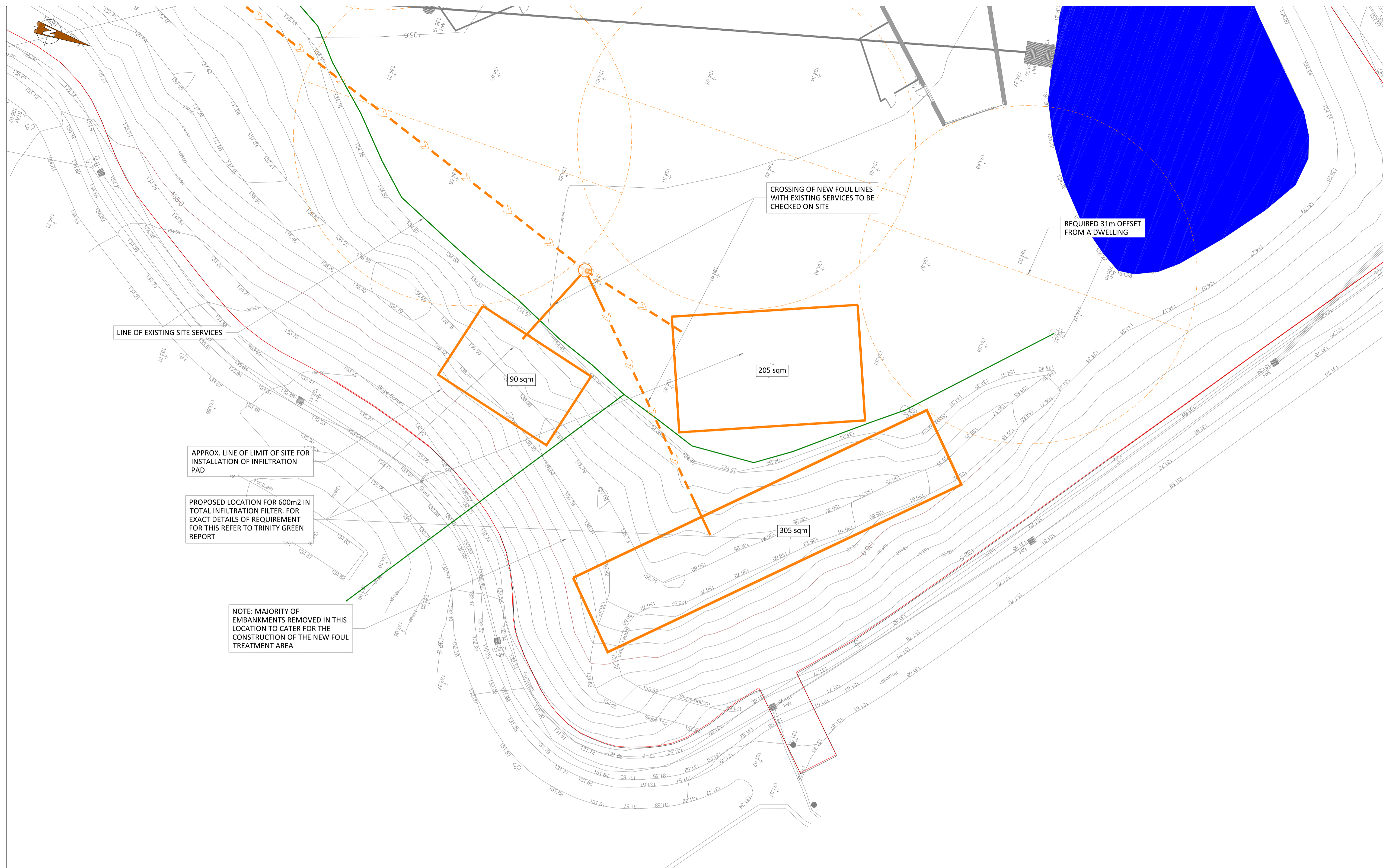
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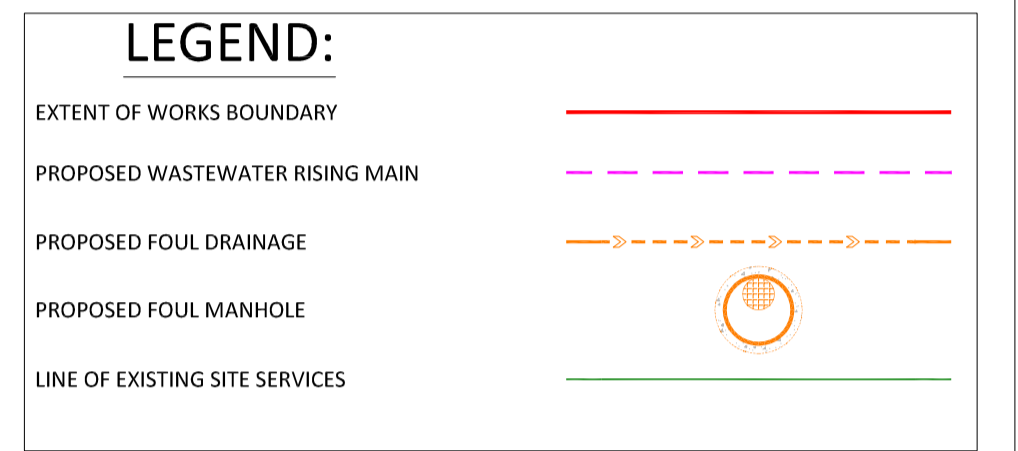
Client: **DSD ATHLETICS AND DLRDCC**
 Project: **MULTI PURPOSE LEISURE FACILITY AT ST THOMAS FIELDS**
 Title: **PROPOSED FOUL WATER LAYOUT SHEET 3 OF 4**

Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
D823	OCSC	XX	XX	DR	C	0507	S2	P02

Date: FEB '24 Scale @ A1:1:200 Drn by: MC Chkd by: SD Aprvd by: SD



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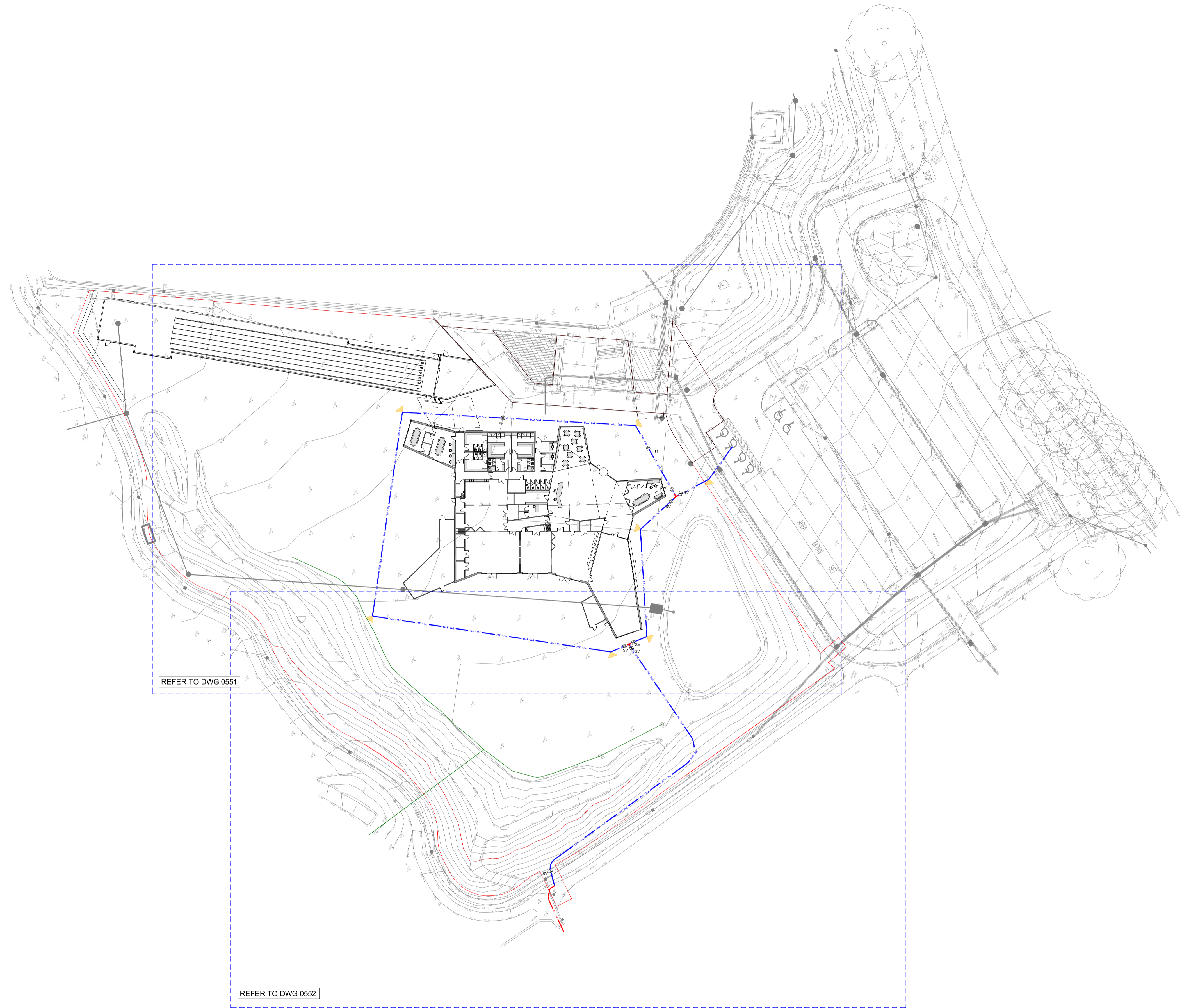
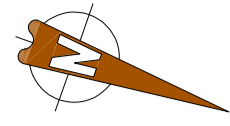


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Client: **DSD ATHLETICS AND DLRDCC**
 Project: **MULTI PURPOSE LEISURE FACILITY AT ST THOMAS FIELDS**
 Title: **PROPOSED FOUL WATER LAYOUT SHEET 4 OF 4**

Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
D823	OCSC	XX	XX	DR	C	0508	S2	P02

Date: FEB '24 Scale @ A1: 1:200 Drn by: MC Chkd by: SD Aprvd by: SD



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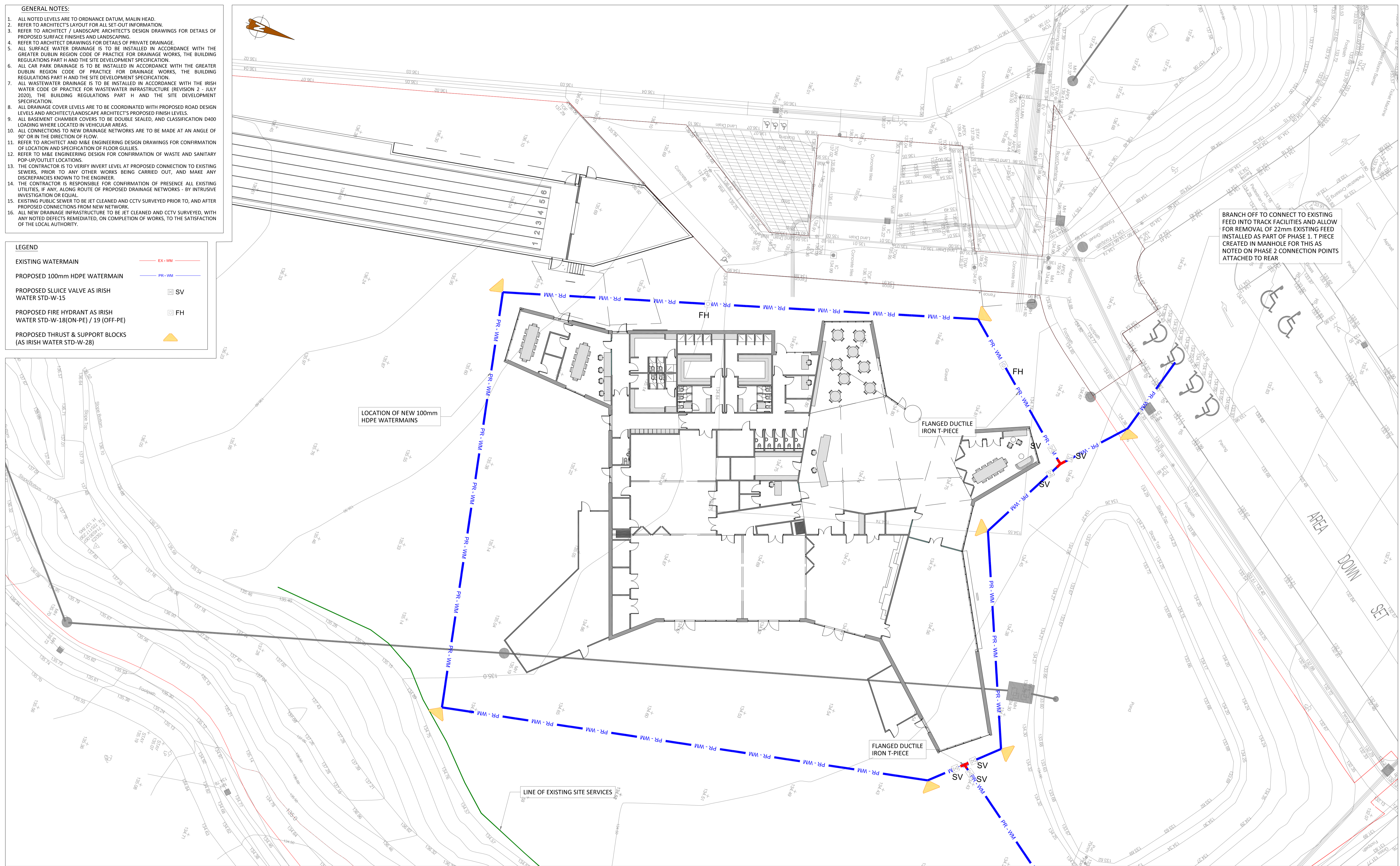
Client: DSD ATHLETICS AND DLRDCC								
Project: MULTI PURPOSE LEISURE FACILITY AT ST THOMAS FIELDS								
Title: PROPOSED WATERMAIN LAYOUT SHEET 1 OF 3								
Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
D823	OCSC	XX	XX	DR	C	0550	S2	P02
Date: FEB '24		Scale @ A1: 1:500		Drn by: MC		Chkd by: SD		Aprvd by: SD

GENERAL NOTES:

1. ALL NOTED LEVELS ARE TO ORDNANCE DATUM, MALIN HEAD.
2. REFER TO ARCHITECT'S LAYOUT FOR ALL SET-OUT INFORMATION.
3. REFER TO ARCHITECT / LANDSCAPE ARCHITECT'S DESIGN DRAWINGS FOR DETAILS OF PROPOSED SURFACE FINISHES AND LANDSCAPING.
4. REFER TO ARCHITECT DRAWINGS FOR DETAILS OF PRIVATE DRAINAGE.
5. ALL SURFACE WATER DRAINAGE IS TO BE INSTALLED IN ACCORDANCE WITH THE GREATER DUBLIN REGION CODE OF PRACTICE FOR DRAINAGE WORKS, THE BUILDING REGULATIONS PART H AND THE SITE DEVELOPMENT SPECIFICATION.
6. ALL CAR PARK DRAINAGE IS TO BE INSTALLED IN ACCORDANCE WITH THE GREATER DUBLIN REGION CODE OF PRACTICE FOR DRAINAGE WORKS, THE BUILDING REGULATIONS PART H AND THE SITE DEVELOPMENT SPECIFICATION.
7. ALL WASTEWATER DRAINAGE IS TO BE INSTALLED IN ACCORDANCE WITH THE IRISH WATER CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE (REVISION 2 - JULY 2020), THE BUILDING REGULATIONS PART H AND THE SITE DEVELOPMENT SPECIFICATION.
8. ALL DRAINAGE COVER LEVELS ARE TO BE COORDINATED WITH PROPOSED ROAD DESIGN LEVELS AND ARCHITECT/LANDSCAPE ARCHITECT'S PROPOSED FINISH LEVELS.
9. ALL BASEMENT CHAMBER COVERS TO BE DOUBLE SEALED, AND CLASSIFICATION D400 LOADING WHERE LOCATED IN VEHICULAR AREAS.
10. ALL CONNECTIONS TO NEW DRAINAGE NETWORKS ARE TO BE MADE AT AN ANGLE OF 90° OR IN THE DIRECTION OF FLOW.
11. REFER TO ARCHITECT AND M&E ENGINEERING DESIGN DRAWINGS FOR CONFIRMATION OF LOCATION AND SPECIFICATION OF FLOOR GULLIES.
12. REFER TO M&E ENGINEERING DESIGN FOR CONFIRMATION OF WASTE AND SANITARY POP-UP/OUTLET LOCATIONS.
13. THE CONTRACTOR IS TO VERIFY INVERT LEVEL AT PROPOSED CONNECTION TO EXISTING SEWERS, PRIOR TO ANY OTHER WORKS BEING CARRIED OUT, AND MAKE ANY DISCREPANCIES KNOWN TO THE ENGINEER.
14. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMATION OF PRESENCE ALL EXISTING UTILITIES, IF ANY, ALONG ROUTE OF PROPOSED DRAINAGE NETWORKS - BY INTRUSIVE INVESTIGATION OR EQUAL.
15. EXISTING PUBLIC SEWER TO BE JET CLEANED AND CCTV SURVEYED PRIOR TO, AND AFTER PROPOSED CONNECTIONS FROM NEW NETWORK.
16. ALL NEW DRAINAGE INFRASTRUCTURE TO BE JET CLEANED AND CCTV SURVEYED, WITH ANY NOTED DEFECTS REMEDIATED, ON COMPLETION OF WORKS, TO THE SATISFACTION OF THE LOCAL AUTHORITY.

LEGEND

- EXISTING WATERMAIN — EX-WM
- PROPOSED 100mm HDPE WATERMAIN — PR-WM
- PROPOSED SLUICE VALVE AS IRISH WATER STD-W-15 SV
- PROPOSED FIRE HYDRANT AS IRISH WATER STD-W-18(ON-PE) / 19 (OFF-PE) FH
- PROPOSED THRUST & SUPPORT BLOCKS (AS IRISH WATER STD-W-28) ▲



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P02	28/02/24	SUITABLE FOR INFORMATION	MC	SD

Rev No.	Date	Revision Note	Drn by	Chkd by

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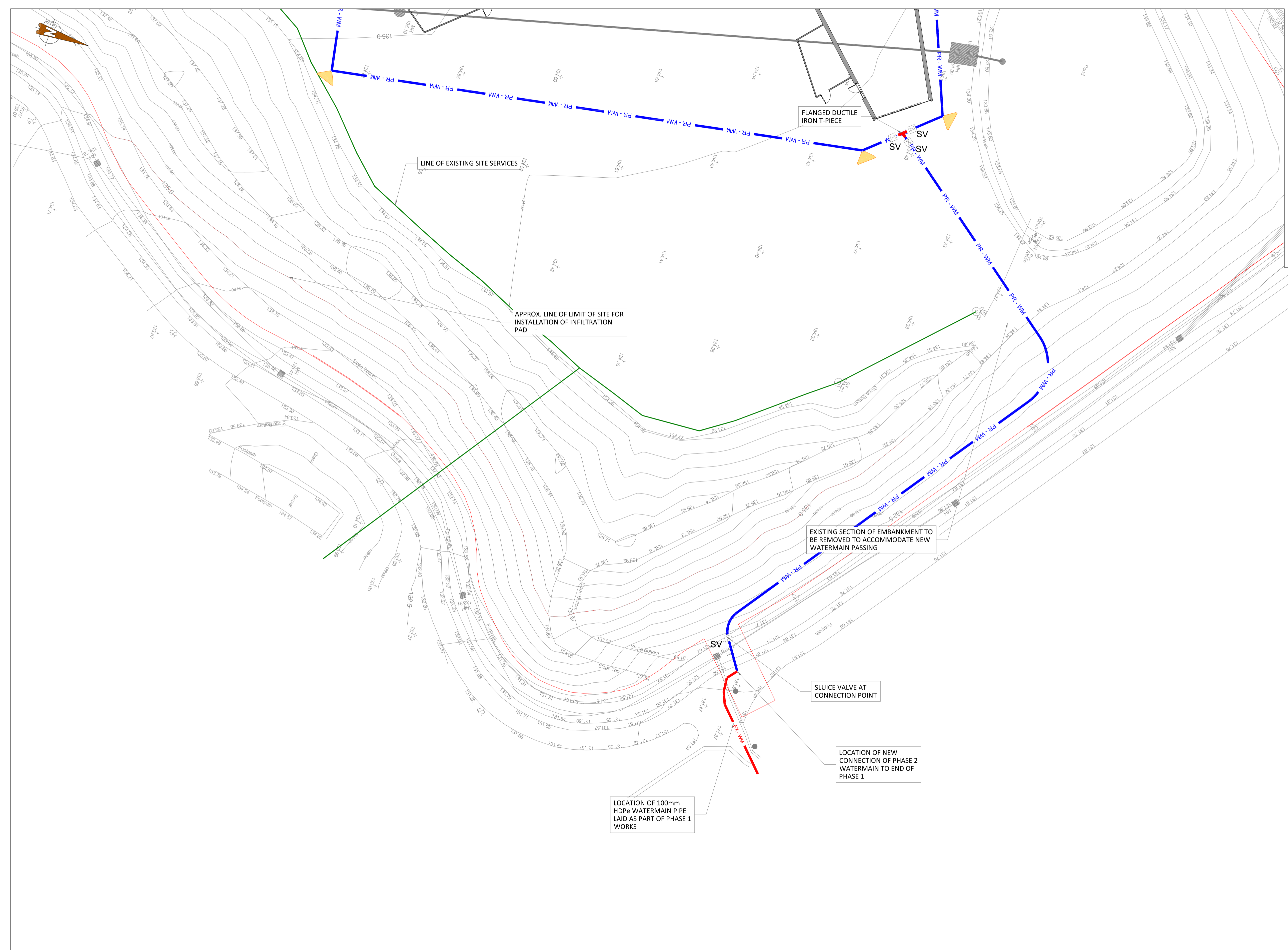
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Client: **DSD ATHLETICS AND DLRDCC**
Project: **MULTI PURPOSE LEISURE FACILITY AT ST THOMAS FIELDS**
Title: **PROPOSED WATERMAIN LAYOUT SHEET 2 OF 3**

Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
D823	OCSC	XX	XX	DR	C	0551	S2	P02

Date: FEB '24 Scale @ A1:1:200 Drn by: MC Chkd by: SD Aprvd by: SD



- GENERAL NOTES:**
1. ALL NOTED LEVELS ARE TO ORDNANCE DATUM, MALIN HEAD.
 2. REFER TO ARCHITECT'S LAYOUT FOR ALL SET-OUT INFORMATION.
 3. REFER TO ARCHITECT / LANDSCAPE ARCHITECT'S DESIGN DRAWINGS FOR DETAILS OF PROPOSED SURFACE FINISHES AND LANDSCAPING.
 4. REFER TO ARCHITECT DRAWINGS FOR DETAILS OF PRIVATE DRAINAGE.
 5. ALL SURFACE WATER DRAINAGE IS TO BE INSTALLED IN ACCORDANCE WITH THE GREATER DUBLIN REGION CODE OF PRACTICE FOR DRAINAGE WORKS, THE BUILDING REGULATIONS PART H AND THE SITE DEVELOPMENT SPECIFICATION.
 6. ALL CAR PARK DRAINAGE IS TO BE INSTALLED IN ACCORDANCE WITH THE GREATER DUBLIN REGION CODE OF PRACTICE FOR DRAINAGE WORKS, THE BUILDING REGULATIONS PART H AND THE SITE DEVELOPMENT SPECIFICATION.
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 8. ALL DRAINAGE COVER LEVELS ARE TO BE COORDINATED WITH PROPOSED ROAD DESIGN LEVELS AND ARCHITECT/LANDSCAPE ARCHITECT'S PROPOSED FINISH LEVELS.
 9. ALL BASEMENT CHAMBER COVERS TO BE DOUBLE SEALED, AND CLASSIFICATION D400 LOADING WHERE LOCATED IN VEHICULAR AREAS.
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 15. EXISTING PUBLIC SEWER TO BE JET CLEANED AND CCTV SURVEYED PRIOR TO, AND AFTER PROPOSED CONNECTIONS FROM NEW NETWORK.
 16. ALL NEW DRAINAGE INFRASTRUCTURE TO BE JET CLEANED AND CCTV SURVEYED, WITH ANY NOTED DEFECTS REMEDIATED, ON COMPLETION OF WORKS, TO THE SATISFACTION OF THE LOCAL AUTHORITY.

LEGEND

EXISTING WATERMAIN	EX-WM
PROPOSED 100mm HDPE WATERMAIN	PR-WM
PROPOSED SLUICE VALVE AS IRISH WATER STD-W-15	SV
PROPOSED FIRE HYDRANT AS IRISH WATER STD-W-18(ON-PE) / 19 (OFF-PE)	FH
PROPOSED THRUST & SUPPORT BLOCKS (AS IRISH WATER STD-W-28)	FB

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Client: **DSD ATHLETICS AND DLRDCC**
 Project: **MULTI PURPOSE LEISURE FACILITY AT ST THOMAS FIELDS**
 Title: **PROPOSED WATERMAIN LAYOUT SHEET 3 OF 3**

Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
D823	OCSC	XX	XX	DR	C	0552	S2	P02

Date: FEB '24 Scale @ A1: 1:200 Drn by: MC Chkd by: SD Aprvd by: SD

APPENDIX B

SURFACE WATER ATTENUATION CALCULATIONS FOR THE PHASE 2 SITE ALONE

APPENDIX C **TRINITY GREEN SITE CHARACTERISTIC AND PROPOSED WASTEWATER TREATMENT SYSTEM**

Soil Infiltration Test for Design of Soakaway

At

At Thomas Estate Tibbradden Road Rathfarnham

Prepared by

Dr. Eugene Bolton
Senior Consultant
Trinity Green

Report on Soil Infiltration Test

Introduction

To manage the surface water from the development it is proposed to construct Soakaways in accordance with BRE Digest365 As part of this, the infiltration capacity of the soil was assessed. Dr. Eugene Bolton of Trinity Green Environmental Consultants was commissioned to carry out soil Infiltration Tests in accordance with BRE Digest365 to establish the suitability of the site for disposal of water.

1.0 Visual assessment of Site

The site is located in a Rural setting in south Co. Dublin where the landscape is relatively flat and on the day of the tests there was no surface water present. There is no vegetation on the site or in adjoining fields that would indicate poor soakage

2.0 Sub-soil profile

A test pit was excavated to 2.0mbgl. There is a layer of clayey topsoil to 300mm bgl. The subsoil is a Gravely CLAY that is soft and is brown in colour and has a Blocky structure. Water was present at 1.5m bgl.but there was mottling present at 1.2m bgl showing watertable in winter raises to this level.

4.0 Infiltration Tests

The Infiltration rate, generally expressed as metres per second, is the volume of water that enters the soil over a unit area and unit time. In order to obtain this measurement a pit is excavated and filled with water. The fall in the level of the water is recorded over time. A separate pit was excavated to a depth of 0.8m and the infiltration test was completed in this pit

The test pit had dimensions

Length 1.5m

Width 0.3m

Depth 0.8m

Allowing for an invert of the inlet to be at 050mm bgl and the base at about 1m bgl the test was completed approximately between these levels.

The base of the pit was filled with water to a depth of 500mm and the drop in the water level was followed over time

4.1 Results

The time required for the level to fall from 75% full to 25% full (ie 50% drop) – from a water depth of 0.3750m to a water depth of 0.125m is estimated to be 1170min.

Table 1 – Time taken for water level to fall

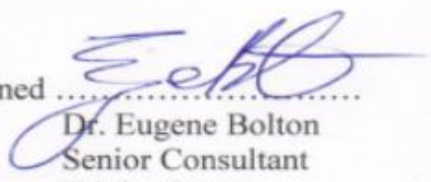
Elapsed Time (Mins)	Depth of Water (mm)
0	500
19	490
34	480
57	460
92	450
132	440
209	420
288	400
414	370
499	350
587	330
1272	200
1565	150

As can be seen from the above the rate of fall is very slow with over 200mm of water in the base of the test pit the following day – after 1272 hours.

Due to this slow infiltration it was concluded that this location was unsuitable for a soakaway and the test was abandoned after one fill

5.0 Conclusions

From the above observation it is concluded that the soakage is very slow and that this location is unsuitable for a soakaway

Signed 
Dr. Eugene Bolton
Senior Consultant
Trinity Green

24/06/2019

Photo

Trial Pit – Depth 2.0m– water settled at 1.5 bgl



Test Pit before water added – Depth 0.8m



Pit during test



Site Characterisation Report

By

Dr. Eugene Bolton

Applicant: Thomas Estate

SITE CHARACTERISATION FORM

File Reference:

1.0 GENERAL DETAILS (From planning application)

Prefix: First Name: Surname:

Address: Site Location and Townland:

Telephone No: Fax No:

E-Mail:

Maximum no. of Residents: No. of Double Bedrooms: No. of Single Bedrooms:

Proposed Water Supply: Mains Private Well/Borehole Group Well/Borehole

2.0 GENERAL DETAILS (From planning application)

Soil Type, (Specify Type):

Aquifer Category: Regionally Important Locally Important Poor

Vulnerability: Extreme High Moderate Low High to Low Unknown

Bedrock Type:

Name of Public/Group Scheme Water Supply within 1 km:

Groundwater Protection Scheme (Y/N): Source Protection Area: SI SO

Groundwater Protection Response:

Presence of Significant Sites
(Archaeological, Natural & Historical):

Past experience in the area:

Comments:

(Integrate the information above in order to comment on: the potential suitability of the site, potential targets at risk, and/or any potential site restrictions).

Note: Only information available at the desk study stage should be used in this section.

3.0 ON-SITE ASSESSMENT

3.1 Visual Assessment

Landscape Position:

Slope: Steep (>1:5) Shallow (1:5-1:20) Relatively Flat (<1:20)

Surface Features within a minimum of 250m (Distance To Features Should Be Noted In Metres)

Houses:

Existing Land Use:

Vegetation Indicators:

Groundwater Flow Direction:

Ground Condition:

Site Boundaries: Roads:

Outcrops (Bedrock And/Or Subsoil):

Surface Water Ponding: Lakes:

Beaches/Shellfish: Areas/Wetlands:

Karst Features: Watercourse/Stream*:

Drainage Ditches*: Springs / Wells*:

Comments:

(Integrate the information above in order to comment on: the potential suitability of the site, potential targets at risk, the suitability of the site to treat the wastewater and the location of the proposed system within the site).

*Note and record water level

3.2 Trial Hole (should be a minimum of 2.1m deep (3m for regionally important aquifers))

To avoid any accidental damage, a trial hole assessment or percolation tests should not be undertaken in areas, which are at or adjacent to significant sites (e.g. NHAs, SACs, SPAs, and/or Archaeological etc.), without prior advice from National Parks and Wildlife Service or the Heritage Service.

Depth of trial hole (m):

Depth from ground surface to bedrock (m) (if present):

Depth from ground surface to water table (m) (if present):

Depth of water ingress: Rock type (if present):

Date and time of excavation: Date and time of examination:

Depth of P/T Test*	Soil/Subsoil Texture & Classification**	Plasticity and dilatancy***	Soil Structure	Density/ Compactness	Colour****	Preferential flowpaths
0.1 m	<input type="text"/>					
0.2 m	<input type="text"/>					
0.3 m	<input type="text"/>					
0.4 m	<input type="text"/>					
0.5 m	<input type="text"/>					
0.6 m	<input type="text"/>					
0.7 m	<input type="text"/>					
0.8 m	<input type="text"/>					
0.9 m	<input type="text"/>					
1.0 m	<input type="text"/>					
1.1 m	<input type="text"/>					
1.2 m	<input type="text"/>					
1.3 m	<input type="text"/>					
1.4 m	<input type="text"/>					
1.5 m	<input type="text"/>					
1.6 m	<input type="text"/>					
1.7 m	<input type="text"/>					
1.8 m	<input type="text"/>					
1.9 m	<input type="text"/>					
2.0 m	<input type="text"/>					
2.1 m	<input type="text"/>					
2.2 m	<input type="text"/>					
2.3 m	<input type="text"/>					
2.4 m	<input type="text"/>					
2.5 m	<input type="text"/>					
2.6 m	<input type="text"/>					
2.7 m	<input type="text"/>					
2.8 m	<input type="text"/>					
2.9 m	<input type="text"/>					
3.0 m	<input type="text"/>					

Evaluation:

Likely T value:

Note: *Depth of percolation test holes should be indicated on log above. (Enter P or T at depths as appropriate).
 ** See Appendix E for BS 5930 classification.
 *** 3 samples to be tested for each horizon and results should be entered above for each horizon.
 **** All signs of mottling should be recorded.

3.3(a) Percolation (“T”) Test for Deep Subsoils and/or Water Table

Step 1: Test Hole Preparation

Percolation Test Hole

	1	2	3
Depth from ground surface to top of hole (mm) (A)			
Depth from ground surface to base of hole (mm) (B)			
Depth of hole (mm) [B - A]			
Dimensions of hole [length x breadth (mm)]	x	x	x

Step 2: Pre-Soaking Test Holes

Date and Time pre-soaking started

--	--	--	--	--	--

Each hole should be pre-soaked twice before the test is carried out. Each hole should be empty before refilling.

Step 3: Measuring T₁₀₀

Percolation Test Hole No.

	1	2	3
Date of test			
Time filled to 400 mm			
Time water level at 300 mm			
Time to drop 100 mm (T ₁₀₀)			
Average T ₁₀₀			

If T₁₀₀ > 300 minutes then T-value >90 – site unsuitable for discharge to ground

If T₁₀₀ ≤ 210 minutes then go to Step 4;

If T₁₀₀ > 210 minutes then go to Step 5;

Step 4: Standard Method (where $T_{100} \leq 210$ minutes)

Percolation Test Hole	1			2			3		
Fill no.	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)
1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Δt Value	<input type="text"/>			<input type="text"/>			<input type="text"/>		
	Average $\Delta t/4 =$ [Hole No.1] <input type="text"/> (t_1)			Average $\Delta t/4 =$ [Hole No.2] <input type="text"/> (t_2)			Average $\Delta t/4 =$ [Hole No.3] <input type="text"/> (t_3)		

Result of Test: $T =$ (min/25 mm)

Comments:

Step 5: Modified Method (where $T_{100} > 210$ minutes)

Percolation Test Hole No.	1				2				3			
Fall of water in hole (mm)	Time Factor = T_f	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	T - Value = 4.45 / K_{fs}	Time Factor = T_f	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	T - Value = 4.45 / K_{fs}	Time Factor = T_f	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	T - Value = 4.45 / K_{fs}
300 - 250	8.1	<input type="text"/>	<input type="text"/>	<input type="text"/>	8.1	<input type="text"/>	<input type="text"/>	<input type="text"/>	8.1	<input type="text"/>	<input type="text"/>	<input type="text"/>
250 - 200	9.7	<input type="text"/>	<input type="text"/>	<input type="text"/>	9.7	<input type="text"/>	<input type="text"/>	<input type="text"/>	9.7	<input type="text"/>	<input type="text"/>	<input type="text"/>
200 - 150	11.9	<input type="text"/>	<input type="text"/>	<input type="text"/>	11.9	<input type="text"/>	<input type="text"/>	<input type="text"/>	11.9	<input type="text"/>	<input type="text"/>	<input type="text"/>
150 - 100	14.1	<input type="text"/>	<input type="text"/>	<input type="text"/>	14.1	<input type="text"/>	<input type="text"/>	<input type="text"/>	14.1	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average T- Value	T- Value Hole 1= (t_1) <input type="text"/>				T- Value Hole 1= (t_2) <input type="text"/>				T- Value Hole 1= (t_3) <input type="text"/>			

Result of Test: $T =$ (min/25 mm)

Comments:

3.3(b) Percolation (“P”) Test for Shallow Soil / Subsoils and/or Water Table

Step 1: Test Hole Preparation

Percolation Test Hole	1	2	3
Depth from ground surface to top of hole (mm)			
Depth from ground surface to base of hole (mm)			
Depth of hole (mm)			
Dimensions of hole [length x breadth (mm)]	x	x	x

Step 2: Pre-Soaking Test Holes

Date and Time pre-soaking started						
-----------------------------------	--	--	--	--	--	--

Each hole should be pre-soaked twice before the test is carried out. Each hole should be empty before refilling.

Step 3: Measuring P₁₀₀

Percolation Test Hole No.	1	2	3
Date of test			
Time filled to 400 mm			
Time water level at 300 mm			
Time to drop 100 mm (P ₁₀₀)			
Average P ₁₀₀			

If P₁₀₀ > 300 minutes then T-value >90 – site unsuitable for discharge to ground

If P₁₀₀ ≤ 210 minutes then go to Step 4;

If P₁₀₀ > 210 minutes then go to Step 5;

Step 4: Standard Method (where $P_{100} \leq 210$ minutes)

Percolation Test Hole	1			2			3		
Fill no.	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δp (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δp (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δp (min)
1									
2									
3									
Average Δp Value									
	Average $\Delta p/4 =$ [Hole No.1] <input type="text"/> (p_1)			Average $\Delta p/4 =$ [Hole No.2] <input type="text"/> (p_2)			Average $\Delta p/4 =$ [Hole No.3] <input type="text"/> (p_3)		

Result of Test: $P =$ (min/25 mm)

Comments:

Step 5: Modified Method (where $P_{100} > 210$ minutes)

Percolation Test Hole No.	1				2				3			
Fall of water in hole (mm)	Time Factor = T_f	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	P - Value = $4.45 / K_{fs}$	Time Factor = T_f	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	P - Value = $4.45 / K_{fs}$	Time Factor = T_f	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	P - Value = $4.45 / K_{fs}$
300 - 250	8.1				8.1				8.1			
250 - 200	9.7				9.7				9.7			
200 - 150	11.9				11.9				11.9			
150 - 100	14.1				14.1				14.1			
Average P- Value	P- Value Hole 1= (p_1) <input type="text"/>				P- Value Hole 2= (p_2) <input type="text"/>				P- Value Hole 3= (p_3) <input type="text"/>			

Result of Test: $P =$ (min/25 mm)

Comments:

4.0 CONCLUSION of SITE CHARACTERISATION

Integrate the information from the desk study and on-site assessment (i.e. visual assessment, trial hole and percolation tests) above and conclude the type of system(s) that is (are) appropriate. This information is also used to choose the optimum final disposal route of the treated wastewater.

Not Suitable for Development

Suitable for ¹	Discharge Route
1. Septic tank system (septic tank and percolation area) <input type="checkbox"/>	<input type="text"/>
2. Secondary Treatment System	
a. septic tank and filter system constructed on-site and polishing filter; or <input type="checkbox"/>	
b. packaged wastewater treatment system and polishing filter <input type="checkbox"/>	

5.0 RECOMMENDATION

Propose to install:

and discharge to:

Trench Invert level (m):

Site Specific Conditions (e.g. special works, site improvement works testing etc.)

¹ note: more than one option may be suitable for a site and this should be recorded

² A discharge of sewage effluent to "waters" (definition includes any or any part of any river, stream, lake, canal, reservoir, aquifer, pond, watercourse or other inland waters, whether natural or artificial) will require a licence under the Water Pollution Acts 1977-90. Refer to Section 2.6.2.

6.0 TREATMENT SYSTEM DETAILS

SYSTEM TYPE: Septic Tank System

Tank Capacity (m ³)	<input type="text"/>	Percolation Area		Mounded Percolation Area	
		No. of Trenches	<input type="text"/>	No. of Trenches	<input type="text"/>
		Length of Trenches (m)	<input type="text"/>	Length of Trenches (m)	<input type="text"/>
		Invert Level (m)	<input type="text"/>	Invert Level (m)	<input type="text"/>

SYSTEM TYPE: Secondary Treatment System

Filter Systems

Media Type	Area (m ²)*	Depth of Filter	Invert Level
Sand/Soil	<input type="text"/>	<input type="text"/>	<input type="text"/>
Soil	<input type="text"/>	<input type="text"/>	<input type="text"/>
Constructed Wetland	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other	<input type="text"/>	<input type="text"/>	<input type="text"/>

Package Treatment Systems

Type	<input type="text"/>
Capacity PE	<input type="text"/>
Sizing of Primary Compartment	<input type="text"/> m ³

SYSTEM TYPE: Tertiary Treatment System

Polishing Filter: Surface Area (m ²)*	<input type="text"/>	Package Treatment System: Capacity (pe)	<input type="text"/>
or Gravity Fed:		Constructed Wetland: Surface Area (m ²)*	<input type="text"/>
No. of Trenches	<input type="text"/>		
Length of Trenches (m)	<input type="text"/>		
Invert Level (m)	<input type="text"/>		

DISCHARGE ROUTE:

Groundwater <input type="checkbox"/>	Hydraulic Loading Rate * (l/m ² .d)	<input type="text"/>
Surface Water ** <input type="checkbox"/>	Discharge Rate (m ³ /hr)	<input type="text"/>

TREATMENT STANDARDS:

Treatment System Performance Standard (mg/l)	BOD	SS	NH ₃	Total N	Total P
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

QUALITY ASSURANCE:

Installation & Commissioning

On-going Maintenance

* Hydraulic loading rate is determined by the percolation rate of subsoil

** Water Pollution Act discharge licence required

7.0 SITE ASSESSOR DETAILS

Company:

Prefix: First Name: Surname:

Address:

Qualifications/Experience:

Date of Report:

Phone: Fax: e-mail

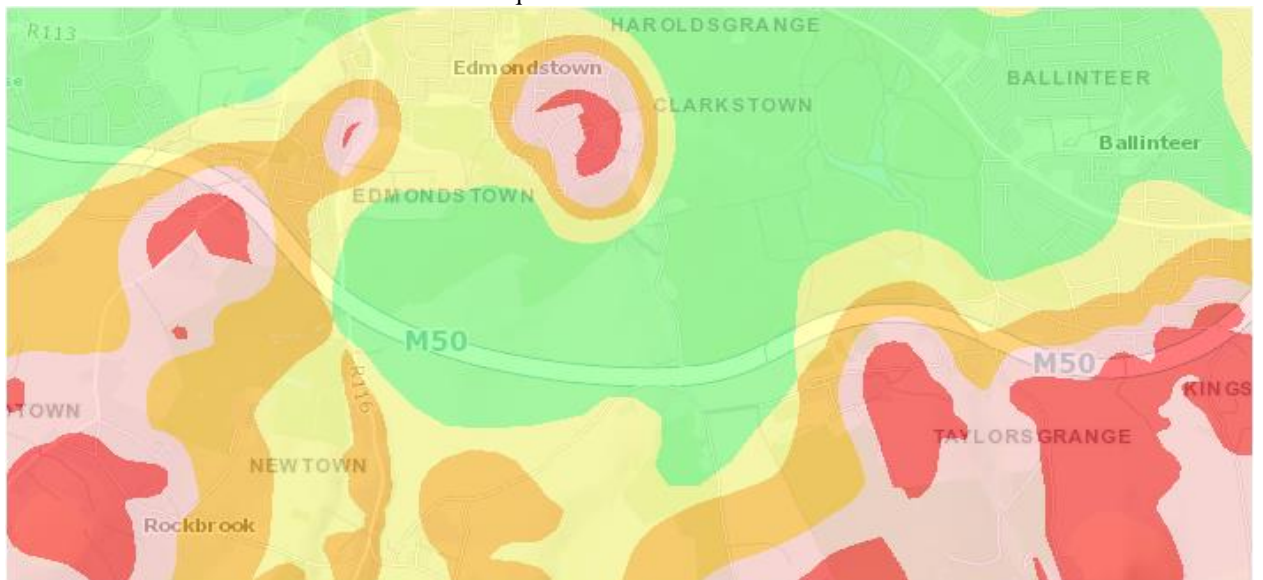
Indemnity Insurance Number:

Signature: 

Maps – Aquifer, Vulnerability, Berdock



Aquifer is PI



Vulnerability is Moderate



Bedrock is Granites & other Igneous Intrusive rocks

Photos

Row 1 - P1, P2



Row 2 - P3, T1



Row 3 - T2, T3



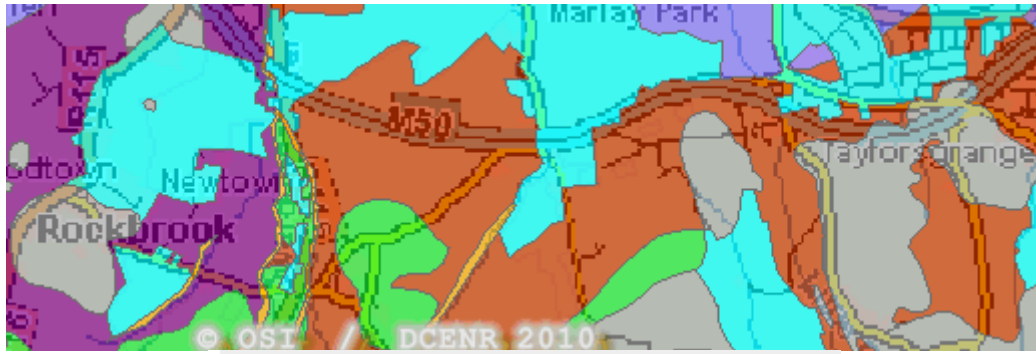
Trial Pit



Site overview



Soil



Teagasc Subsoils

Parent Material Code: TGr

Subsoil Name: Till derived chiefly from granite

Description: Granite till

County: DUBLIN

Site Location



APPENDIX D **PHASE 1 SERVICES CONNECTION DRAWING FOR PHASE 2**

Services Connections:

1. **Power**

Main switch room shown as point 1 on this layout. This room holds the main metering and power distribution for the site. The main panel in this location is fitted with 600-430 amp 3 phase breaker to service the phase 2 building. Layout A107 is the main power schematic and provides the full details of this service. Schneider metering points have been provided for the current services and connected to an energy meter. New services should follow this arrangement and need to be connected to energy meter via mod bus connections will be required.

A trench provided below panel and ducting route across the car park and onto the grass section has been provided. This ducting is run in straight length so new cable can be fed with large chamber and the connection point with new building ducting. (Loading the as built cad with co ordinates to a total station will provide exact location of duct termination)

***Max import capacity is currently contracted for phase one at 120 kVA and will need to be increased once phase 2 is complete.

2. **Water**

New 100mm water main to cater for the hydrant and water services for phase 2 has been installed from bottom gate to upper trails as shown at point 2 on this layout. The service has been tested and loading the as built cad with co ordinates to a total station will provide exact location of pipework termination.

The current services feeding the water to the temporary toilet block and track water points are supplied off the St Thomas house supply and can be seen in the schematic on layout A136. A valveing arrangement has been provided to allow disconnection from this service and connection to any new service if required.

3. **Data**

The 1Gigabit Fibre broadband connection is provided in the main switchroom listed as Point 3 on the layout. This connection is shown on layout A139. The IT network is shown on layout A146.

The DSD main IT Security gateway located in this location and switches provided in this main switch room and on the track side cabinet. (linked via a cat 6 cable and providing 500meg speed between these points. The Eir modem has been removed with the security gateway acting as the main controller.

A fibre connection point from the secure gateway for the phase 2 building has been provided. A single mode or multi mode fibre connection needs to be provided to the new building and services off this connection. Suggest maintaining the use of Ubiquity switches on phase 2 for continuity and ease of maintenance

4. **CCTV**

17no IP cameras are provided in phase one with CCTV switches located in both track side and main switchrooms. The NVR with 18TB storage is located in the track side switchroom.

A cat 6 link to a new CCTV switch needs to be provided to extend this service to the new building in phase 2. Decision and location of additional cameras within the building to be considered. The keypad and monitor for the cctv can/ will need a cat 6 cable connection so they can be relocated to reception of managers office.

5. **Video Intercom**

Intercom units have been fitted to both the main and pedestrian gates and are operational. These units open the gates on request from the internal monitor. The monitor is currently located in the track side switch room above the switches and this needs to be relocated to the new building via a cat 6 cable connection retaining the patched point on the CCTV switch.

6. **Barrier control**

Only operated via the palgate app. no cabling required

7. **Gate Control**

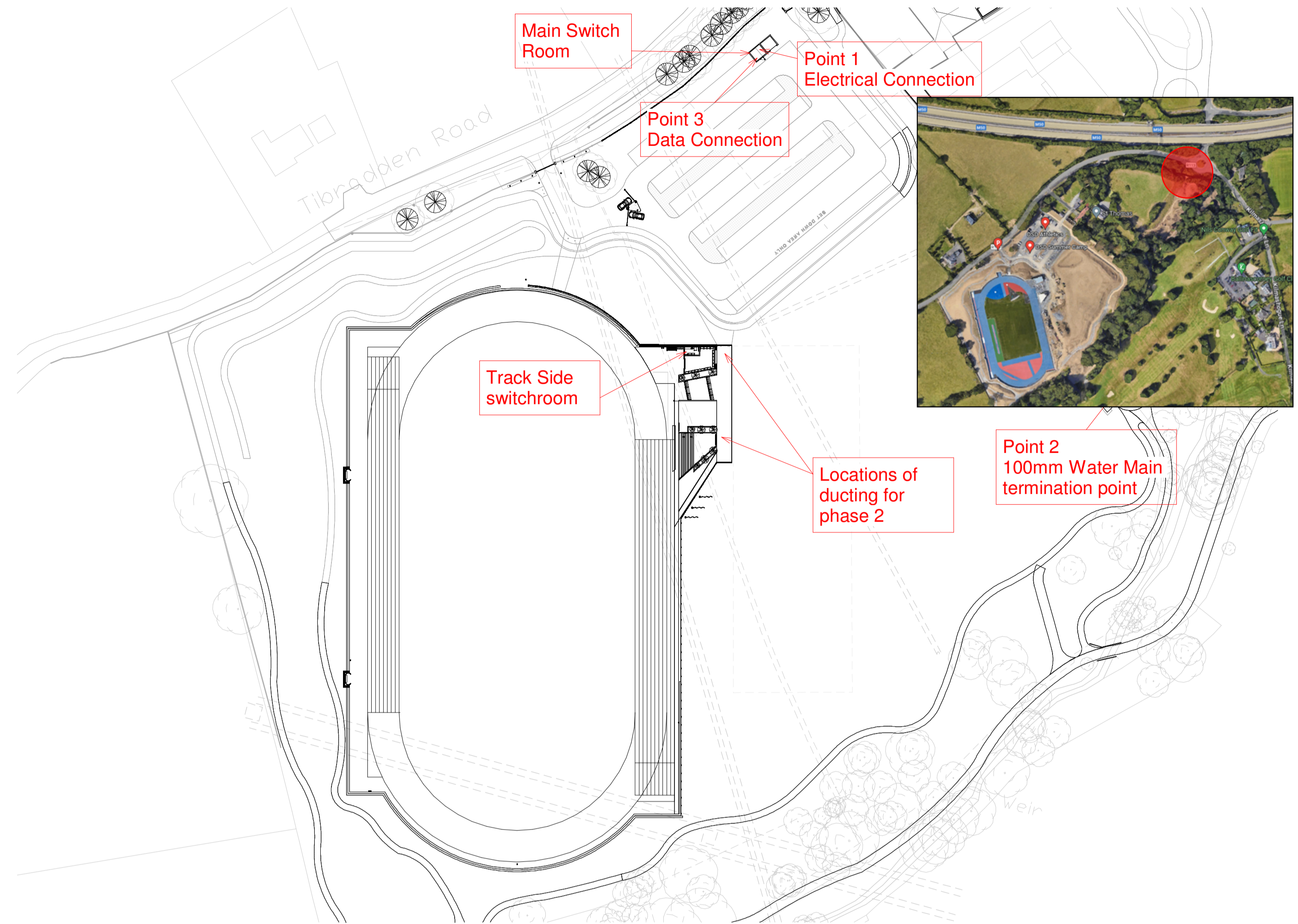
Operated via the intercom or via PaL gate app.

8. **Ducting connections**

Ducting connections to the site as shown on the CAD as built and also on layout A104 and A105. Four number duct connections have been provided from the two store rooms on the track as shown for both power and data connections. (Loading the as built cad with co ordinates to a total station will provide exact location of duct termination)

9. **Fire Alarm**

The current Store Rooms and Track store rooms are not protected with a fire alarm service. Consideration to be given to adding these locations to the Fire alarm system for the phase two building. Ducting connections have been provided to these locations.



1 Phase 2 Services Connections
1 : 1000

No.	Revision	Date

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DRAWINGS ARE NOT TO BE REPRODUCED OR COPIED WITHOUT WRITTEN APPROVAL
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e: mail@spaceservices.ie
w: www.spaceservices.ie

Project name: DSD Athletics Tibradden Road Rathfarnham, D16	Scale: 1 : 1000 Date: 29/09/23 Drawn: CE Approved: TS
Drawing title: Details of Phase 2 Services Connections	Project No: PM2121 Drg No: A099

APPENDIX E IRISH WATER CONNECTION OFFER LETTER



Gordon White
1st Floor
8 Riverwalk Lake Drive
Citywest Campus
Co. Dublin
D24V50F
Ireland

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrúch Theas
Cathair Chorcaí

Irish Water
PO Box 448,
South City
Delivery Office,
Cork City.

www.water.ie

CONNECTION OFFER

To: Tadhg Sullivan
Dundrum South Dublin Athletics Club
27 Sandyford Office Park
Dublin 18
Dublin

(the "Customer")

Connection Reference: CDS2100182701

Date: 29 September 2021

SUBJECT TO CONTRACT

Re: Providing a Water Service Connection between

the "Network(s)"

AND

St Thomas Estate
Whitechurch
Dublin

(the "Customer's Premises")

Dear Sir/Madam,

Following receipt of your application for a connection to the Network(s) (the "**Customer Application**"), Irish Water is pleased to offer you ("**You**" or the "**Customer**"), a connection between the Network(s) and the Customer's Premises, subject to and in accordance with the conditions set out in this Connection Offer (the "**Connection Offer**"), the General Conditions for a Water and/or Wastewater Connection (the "**General Conditions**", copy attached in Appendix 2) and any Special Conditions pertaining to this connection (the "**Special Conditions**", as may be attached in Appendix 3).

This Connection Offer is conditional upon payment of the Connection Charge and the return of the signed Letter of Acceptance (the form of which is included at Appendix 1 to this Connection Offer).

(Please note that capitalised terms not otherwise defined within this Connection Offer shall have the meaning given to them in the General Conditions)

1. Connection Agreement

We enclose a Letter of Acceptance for your consideration.

We would encourage You to read the entirety of this Connection Offer and the Connection Agreement. If You are satisfied with these and wish to proceed, please:

- sign the Letter of Acceptance and return it to **Irish Water, PO Box 860, South City Delivery Office, Cork City**. Alternatively, You can send back a scanned version of the signed Letter of Acceptance to newconnections@water.ie; and
- pay the Connection Charge in accordance with section 3 below.

You and Irish Water acknowledge that there shall be no intention to create any legally binding contract between You and Irish Water unless and until You have completed the above steps.

If, in the opinion of Irish Water, You have not returned the Letter of Acceptance or paid the Connection Charge, no contract shall come into force.

Once the signed Letter of Acceptance has been returned **and** the Connection Charge has been paid, the Connection Agreement shall become legally binding on You and Irish Water and the Connection Works can be carried out. The Connection Agreement is comprised of this Connection Offer, the General Conditions and any Special Conditions. In the event of any conflict or inconsistency between these documents, they shall apply in the following order:

- i. Special Conditions
- ii. General Conditions
- iii. Connection Offer.

Any decision by Irish Water to enter into a Connection Agreement with You is made in reliance on the information in and with Your Customer Application. If the information supplied is incorrect or incomplete, Irish Water reserves the right to apply additional Connection Charges and contract terms.

Irish Water's decision to make a Connection Offer to You is made in reliance on the information contained in and submitted with the Connection Application. If the information supplied is incorrect or found to be materially inaccurate in any way, Irish Water reserves the right to apply additional Connection Charges, to impose additional contract terms and/or take any steps in accordance with the General Conditions.

This Connection Offer is based on a high-level desk top analysis carried out by Irish Water on the feasibility of a connection for your Development. Once the Connection Offer has been accepted by You, Irish Water will begin a detailed design of the connection. If during the process of detailed design Irish Water, at its discretion, forms the opinion (acting reasonably) that either:

- A. a connection to your Development is not feasible or practicable or safe to complete; or
- B. a connection to your Development would involve the expenditure by Irish Water of monies in excess of that provided for by way of the Connection Charge,

then the Connection Agreement may be terminated by Irish Water in accordance with General Condition 18.

The Connection Agreement shall constitute the entire agreement between You and Irish Water.

Any reference in this Connection Offer to an Appendix is to an appendix to this Connection Offer.

2. Validity of Connection Offer

You have 90 days from the date of this Connection Offer to accept the Connection Offer by returning the Letter of Acceptance **and** paying the Connection Charge. Thereafter, the Connection Offer shall lapse unless otherwise agreed in writing by Irish Water.

3. Connection Charge

The Connection Charge(s) shall be determined in accordance with Irish Water's Connection Charging Policy as set out in the Water Charges Plan (which can be found at www.water.ie/connections)

The Water Connection charge is €56,750.00

The Total Connection Charge is €56,750.00 ("**Connection Charge**"). A breakdown of the Connection Charge is set out in Appendix 4.

Payment of the Connection Charge can be made by:

- A. Cheque, made payable to "Irish Water" or
- B. Money Transfer, by EFT to the following bank account:

Allied Irish Bank, 40/41 Westmoreland Street, Dublin 2, Ireland.

Account Name	BIC	IBAN
IW AR-EFT	AIBKIE2D	IE29 AIBK 9333 8464 3085 94

Please note that You must quote the Irish Water reference number specified above in any communications and when making payment (see 'Our Reference' on the first page of this letter). The Connection Charge will only be deemed paid when funds have cleared in Irish Water's bank account.

4. Connection Works

Once the Connection Offer has been validly accepted, Irish Water or its agent shall make contact with You to schedule the Connection.

5. Distribution System, Drains and Service Connection

You are responsible for providing, maintaining and renewing the Distribution System and/or Drains and Service Connection required for the provision of Water Services (see General Condition 10).

6. Cancellation by the Customer

You may cancel the proposed Connection by writing to Irish Water at the contact address set out below within fourteen (14) Business Days of returning the Letter of Acceptance:

- noting that you wish to cancel the Connection; and
- quoting the reference number set out above (see 'Our Reference' on the first page of this letter);

No charges will be incurred by You unless the Connection or part thereof has already been carried out with your agreement. If You cancel the Connection in accordance with this paragraph, Irish Water will refund any payment which You have already made for the proposed Connection, subject to any costs that may have already been incurred by Irish water in the provision of the Connection.

7. Queries

If You have any queries in relation to the payment of the Connection Charge or otherwise, please contact Irish Water's Customer Service Department at:

Telephone: 1800 278 278 or +353 1 707 2828

Email: newconnections@water.ie

Web: www.water.ie/contact-us

8. Disputes

Any dispute in respect of the terms of this Connection Offer (including in relation to the Estimate of Connection Costs) may, upon your application, be referred to the Irish Water complaints process. Details of the Irish Water Complaints Process are available on the Irish Water website.


Once a legally binding Connection Agreement is entered into, all disputes in relation to your agreement with Irish Water shall be resolved pursuant to General Condition 30.

9. Next Steps

- **Accepting the Offer:** sign and return the Letter of Acceptance and pay the Connection Charge.
- **Customer Construction Phase:** If required, Irish Water or its agent will contact You in relation to the connection assets required to facilitate your connection to the Network(s).
- **Connection to Network(s):** Irish Water or its agent will contact You to arrange a suitable time to complete the Connection Works.

We look forward to hearing from You.

Yours sincerely,



Yvonne Harris
Head of Customer Operations

For and on behalf of Irish Water

Appendix 1

Letter of Acceptance

Letter of Acceptance

[to be returned to Irish Water]

Irish Water
PO Box 860
South City Delivery Office
Cork City

I/we have read, understood, accept and agree to comply in full with the terms of the Connection Offer dated 29 September 2021, the General Conditions and any Special Conditions (which together constitute the Connection Agreement).

I/we further understand and acknowledge that there shall be no intention to create any legally binding contract between me/us and Irish Water unless and until I/we have completed, signed and returned this Letter of Acceptance and paid the Connection Charge.

I/we have made payment for Connection Reference CDS2100182701 via

Electronic Funds Transfer EFT
Cheque

Customer address: _____

Customer's signature: _____

For and on behalf of: _____

Print full name of Customer in BLOCK letters: _____

Date: _____

Connection Reference: CDS2100182701

Letter of Acceptance

[Customer Copy]

[to be retained by Customer]

I/we have read, understood, accept and agree to comply in full with the terms of the Connection Offer dated 29 September 2021, the General Conditions and any Special Conditions (which together constitute the Connection Agreement).

I/we further understand and acknowledge that there shall be no intention to create any legally binding contract between me/us and Irish Water unless and until I/we have completed, signed and returned this Letter of Acceptance and paid the Connection Charge.

I/we have made payment for Connection Reference CDS2100182701 via

Electronic Funds Transfer EFT
Cheque

Customer address: _____

Customer's signature: _____

For and on behalf of: _____

Print full name of Customer in BLOCK letters: _____

Date: _____

Connection Reference: CDS2100182701

APPENDIX 2

General Conditions



IRISH WATER

General Conditions for a Water and/or Wastewater Connection

(Version 0.2)

February 2019

**General Conditions for a Water and/or Wastewater Connection
(the “General Conditions”)**

1. Definitions: In these General Conditions the following definitions apply:

“Affiliate” of a Person means any subsidiary or holding company (within the meaning given to such expressions by the Companies Act 2014) of such Person or any subsidiary of any such holding company;

“Applicable Law” means all Acts of the Oireachtas, statutory instruments, regulations, orders and other legislative provisions which in any way relate to the Connection Agreement, including the Water Services Acts, the Building Regulations, the Construction Regulations and any code or guidance as may be issued from time to time by any Regulator or relevant industry authority. Any reference to “Applicable Law” or any enactment or statutory provision is a reference to it as it may have been, or may from time to time be amended, modified, consolidated or re- enacted;

“Building Regulations” mean the Building Control Acts 1990 to 2014 and all subordinate legislation and regulations made pursuant to the said Acts including, without limitation the Building Control Regulations 1997 to 2017 and relevant codes of practice, and any amendment, update or replacement or repeal thereof;

“Business Day” means every day other than a Saturday or Sunday or bank or public holiday in Ireland;

“Competent Authority” means any local or national or supra-national agency, authority, department, inspectorate, ministry, official or public or statutory Person (whether autonomous or not) or regulatory authority of Ireland or of the European Union which has jurisdiction over any of the Parties to the Connection Agreement and the subject matter of the Connection Agreement, including the Commission for Regulation of Utilities but excluding a court or tribunal of competent jurisdiction;

“Connection Charging Policy” means the Irish Water Connection Charging Policy which may be found at www.water.ie/connections;

“Connection Offer” means the conditional offer letter issued by Irish Water to the Customer relating to the connection of the Customer’s Premises to the Network(s) and which forms part of the Connection Agreement;

“Connection Agreement” means the agreement between the Customer and Irish Water to facilitate the connection of the Customer’s Premises to the Network(s), which shall be comprised of the Connection Offer (including the appendices thereto), the General Conditions and the Special Conditions (if any);

“Connection Charge” means the charge for connecting to the Irish Water Waterworks and/or Wastewater Works (as the case may be), as specified in the Connection Offer. The Connection Charge shall only be deemed paid when funds have cleared in Irish Water’s bank account;

“Connection Facilities” means the facilities (including the Service Connection(s)) required to be constructed and/or upgraded and installed by Irish Water in order to connect the Customer’s Pipe Work to the Network(s);

“Connection Point(s)” means a location or locations to be determined by Irish Water (which may be outside the boundary to the curtilage of the Customer’s Premises) at which the Customer’s Pipe Work is to be connected to the Waterworks (where, as specified in the Connection Offer, the Customer requires connection to the Waterworks) or the Wastewater Works (where, as specified in the Connection Offer, the Customer requires connection to the Wastewater Works) (via the Service Connection(s)). Connection Points may differ for both the Waterworks and Wastewater Works;

“Connection Works” means the permanent and temporary works and services to be performed by or on behalf of Irish Water in the acquisition, design, procurement, construction and installation of the Connection Facilities and the obtaining of permits and the tie-in and commissioning of a Connection Point(s) in accordance with the requirements of this Connection Agreement;

“Construction Regulations” means the Safety Health and Welfare at Work Act 2005, the Safety Health and Welfare at Work (General Application) Regulations 2007 to 2016 as amended, the Safety Health and Welfare at Work (Construction) Regulations 2013 as amended and any guidance requirements issued from time to time from the Health and Safety Authority;

“Customer” means the person or entity to whom the Connection Offer is addressed and who has entered into the Connection Agreement with Irish Water;

“Customer’s Pipe Work” means the pipe, relating fittings and associated accessories to be laid by the Customer within the boundary of the Customer’s Premises in accordance with Relevant Standards and Applicable Laws, , and the Distribution System (if connecting to the Waterworks) and the Drain (if connecting to the Wastewater Works), to be used to connect the Customer’s Premises at a Connection Point;

“Customer’s Premises” means the premises identified as such in the Connection Offer, including any part of any public or private building, vessel, vehicle, structure or land (whether or not there are structures on the land and whether or not the land is covered with water), and any plant or related accessories on or under such land, or any hereditament of tenure, together with any out-buildings and curtilage and which is:

- receiving Water Services; or
- specified in an application for Water Services completed by the Customer; or
- a premises deemed to be a premises by Irish Water; or
- such other premises as may be notified by the Customer to Irish Water and

accepted in writing by Irish Water from time to time, but does not include land which is a Public Road, a road which is the subject of an order under Section 11 of the Roads Act 1993 or a road which has been taken in charge by a local authority pursuant to a non-statutory local authority taking in charge scheme;

“Deed(s) of Grant of Wayleaves and Easements” means the Deed(s) of Grant of Wayleaves and Easements referred to in Clause 10 hereof;

“Dispute” means a difference or dispute between the Parties arising out of or in connection with this Connection Agreement;

“Distribution System” means a pipe and its related fittings, that is used or to be used as the case may be to convey water into or through one or more Customer’s Premises (including any related internal or external taps) excluding a Service Connection;

“Drain” means a drainage pipe, or system of such pipes and related fittings for collection of Wastewater, that is not owned by, vested in or controlled by Irish Water, and that is not a Service Connection, which is used or to be used as the case may be, to convey Wastewater from one or more Customer’s Premises or to any wastewater treatment system on a Customer’s Premises where the Wastewater is generated;

“Environment” means the environment generally, including all physical, biological and ecological aspects of the environment and:

- (a) air, including that within buildings or natural or man-made structures above or below ground;
- (b) water, including the open sea, coastal or inland waters, ground waters, aquifers, drains and sewers;
- (c) land, including the seabed or riverbed under any water as described above, and any surface land and sub-surface land; and
- (d) human and animal health, and plant life;

“Environmental Law” means any statute or common law, or other requirement having the effect of law, in Ireland relating to the Environment, including without limitation the provisions of the Water Services Acts and Local Government (Water Pollution) Acts 1977 to 2007;

“Environmental Protection Agency” means the Environmental Protection Agency established pursuant to the Environmental Protection Agency Act, 1992;

“Force Majeure” means any event not within the reasonable control of a Party and which could not have been prevented or the consequences of which could not have been prevented by a Party acting and having acted as a Reasonable and Prudent Operator and which has the effect of preventing a Party from complying with its obligations under this Connection Agreement, including:

- acts of terrorists;

- war declared or undeclared, blockade, protest, revolution, riot, insurrection, civil commotion, invasion or armed conflict;
- sabotage or acts of vandalism, criminal damage or the threat of such acts;
- extreme weather or environmental conditions including drought, extreme storms, lightning, fire, landslip, accumulation of snow or ice, natural disasters and phenomena including meteorites, the occurrence of pressure waves caused by aircraft or other aerial devices travelling at supersonic speeds, impact by aircraft, volcanic eruption, explosion including nuclear explosion, radioactive or chemical contamination or ionising radiation;
- any change of legislation, governmental order, restraint or directive having the effect of preventing or delaying the performance of any obligation hereunder;
- a strike or any other form of industrial actions by persons employed by the affected Party or by any local authority or by any contractor, subcontractor or agent of the affected Party;
- any strike which is part of a labour dispute of a national character occurring in Ireland or elsewhere;
- the act or omission of any contractor, subcontractor or supplier of either Party but only if due to an event which, but for the contractor, subcontractor or supplier not being a Party to the Connection Agreement, would have been Force Majeure;
- an outbreak of foot and mouth or any other restrictions put in place as part of a strategy to contain a communicable disease in Ireland; and
- the collapse of the euro currency;

provided that the following shall not constitute Force Majeure:

- lack of funds and/or the inability of a Party to pay; and
- mechanical or electrical breakdown or failure of machinery or plant owned or operated by either Party other than as a result of the circumstances identified above;

“Irish Water” means Irish Water (Uisce Éireann) a designated activity company incorporated in Ireland (company registration number 530363) and having its registered office at 24-26 Talbot Street, Dublin 1;

“Legal Requirement” means any Applicable Law, legislation or directive, regulation,

requirement, instruction, direction or rule of any Competent Authority binding on either or all of the Parties to this Connection Agreement and includes any modification, extension or replacement thereof then in force;

“Network(s)” means the Waterworks and/or the Wastewater Works, as applicable and specified on the face of the Connection Offer, and any related lands, which are owned by, vested in, controlled or used by Irish Water;

“PRA Compliant Map” means ordinance survey plans, suitable for registration of any Deed of Grant of Wayleaves and Easements relating to property intended to be taken in charge by the local authority and the Connection Facilities to be vested in Irish Water together with all easements relating thereto suitably identified by the relevant symbols and/or colours designated by the Property Registration Authority.

“Public Road” means a road over which a public right of way exists and the responsibility for the maintenance of which lies on a road authority;

“Reasonable and Prudent Operator” means a person acting in good faith with the intention of performing its contractual obligations hereunder and in so doing and who in the general conduct of its undertaking exercises that degree of skill and diligence which would reasonably and ordinarily be exercised by a skilled and experienced operator complying with Applicable Law engaged in the same type of undertaking under the same or similar circumstances and conditions and the expression **“Standard of a Reasonable and Prudent Operator”** shall be construed accordingly;

“Regulator” means, where applicable, all present and future regulatory bodies having jurisdiction over Irish Water including, but not limited to, the Commission for Regulation of Utilities, the Environmental Protection Agency, the Minister of Housing, Planning and Local Government, the Office of the Data Protection Commissioner, the Competition and Consumer Protection Commission and/or any other statutory body or regulatory authority which regulates on an on-going basis or from time to time the business or operations of Irish Water;

“Relevant Standards” means the Connections and Developer Services Standard Details and Codes of Practice published and amended from time to time by Irish Water which are applicable to the Customer’s Pipe Work and which are available on the Irish Water website (www.water.ie/Connections);

“Service Connection” means a water supply pipe or drainage pipe, together with any accessories and related fittings, extending from a Waterworks (where, as specified in the Connection Offer, the Customer requires connection to the Waterworks) or Wastewater Works (where, as specified in the Connection Offer, the Customer requires connection to the Wastewater Works) to the outer edge of the boundary to the curtilage of the Customer’s Premises and used, or to be used as the case may be, for the purpose of connecting the Customer Premises with a Waterworks and/or Wastewater Works (as the case may be), and, if used or to be used for connecting more than one such premises it shall extend to the outer edge of the boundary to the curtilage of the premises which is furthest from the said Waterworks and/or Wastewater Works (as the case may be);

“Sewage” and **“Sewage Effluent”** have the meanings assigned to them by the Local Government (Water Pollution) Acts 1977 to 2007;

“Sewers” means sewers of every description, excluding Storm Water Sewers, owned by, vested in or controlled by Irish Water, but does not include a Drain or Service Connection;

“Special Conditions” means any special conditions attached to the Connection Offer or as may be agreed from time to time;

“Storm Water” means run-off rainwater that enters any pipe;

“Storm Water Sewer” means any pipe or other conduit (a) used solely for the conveyance of Storm Water; or (b) designed or intended to be used for the conveyance of Storm Water (whether or not it is connected to a sewer by a ‘storm water overflow’ within the meaning of the Waste Water Discharge (Authorisation) Regulations 2007;

“Wastewater” means Sewage or other Sewage Effluent discharged, or to be discharged, to a Drain, Service Connection or Sewer but does not include Storm Water;

“Wastewater Works” means Sewers and their accessories, and all other associated physical elements used for collection, storage, measurement or treatment of Wastewater, and any related lands, which are owned by, vested in, controlled or used by Irish Water;

“Water Main” means water supply pipes owned by, vested in or controlled by Irish Water but does not include pipes, fittings and appliances to which the terms “Service Connection” or “Distribution System” apply;

“Water Services” means all services, including the provision of water intended for human consumption, which provide storage, measurement, treatment or distribution of surface water, ground water, and/or Wastewater collection, storage, measurement, treatment or disposal;

“Water Services Acts” means the Water Services Acts 2007 to 2017;

“Waterworks” means water sources, Water Mains and their accessories, and all other associated physical elements used for the abstraction, treatment, storage, measurement or distribution of water, and any related land, which are owned by, vested in, controlled or used by Irish Water;

“Water Supply Maintenance Point” means the point at which a Service Connection for water supply enters the boundary to the curtilage of the Customer’s Premises.

- 2. Interpretation:** Unless the context otherwise requires, any reference in this Connection Agreement to:

- 2.1 any gender includes the other;
- 2.2 a statute, bye laws, regulation, delegated legislation or order is to the same as amended, modified or replaced from time to time and to any bye law, regulation, delegated legislation or order made thereunder;
- 2.3 any agreement, instrument or code is to the same as amended, novated, modified, supplemented or replaced from time to time;
- 2.4 unless otherwise specified any reference in this Connection Agreement to a "Clause" or "Appendix" is a reference to a Clause or Appendix in this Connection Agreement;
- 2.5 "**including**" means comprising but not by way of limitation to any event, class, list or category;
- 2.6 a "**Person**" shall be construed as a reference to any natural or legal person, firm, company, corporation, Government or Agency of a State or any association or partnership (whether or not having separate legal personality). A Person includes that person's legal or personal representative, permitted assigns and successors;
- 2.7 "**Party**" means a party to this Connection Agreement and "**Parties**" shall be construed accordingly;
- 2.8 the singular shall include the plural and vice versa;
- 2.9 words not otherwise defined that have well-known and generally acceptable technical or trade meanings in the water industry are used in this Connection Agreement in accordance with such recognised meanings;
- 2.10 where a word or expression is defined in this Connection Agreement, related words and expressions shall be construed accordingly;
- 2.11 headings are for ease of reference only and shall not affect its construction;
- 2.12 time shall be construed by reference to whatever time is applicable in Ireland; and
- 2.13 where a Party is required to use "**all reasonable endeavours**" that Party should explore all avenues reasonably open to it, and explore them all to the extent reasonable, but the Party is neither obliged to disregard its own commercial interests, nor required to continue trying to comply if it is clear that all further efforts would be futile; and
- 2.14 references to the "Commission for Regulation of Utilities" shall include any Competent Authority which may replace or succeed the Commission and assume its functions in relation to the regulation of the water industry in Ireland.

3. **Defined Terms in Connection Offer:** Terms which appear in uppercase in these General Conditions which are not otherwise defined shall have the meaning given to them in the Connection Offer.

4. **Order of Precedence:** In the event of inconsistency or conflict between the Connection Offer, the General Conditions and the Special Conditions, the following order of precedence will apply: (1) Special Conditions (2) General Conditions (3) Connection Offer.

5. **Regulated Entity:** Irish Water operates within a regulatory framework governed by the Regulators.
6. **New Connection:** Irish Water shall charge and the Customer has agreed to pay in full the Connection Charge notified to the Customer in the Connection Offer. Following payment by the Customer, Irish Water shall perform or procure a third party to perform its obligations under the Connection Agreement and the Customer shall perform its obligations under the Connection Agreement.
7. **Sub-contractors/Agents:** The Customer acknowledges that Irish Water may sub-contract or engage an agent to perform certain of the obligations of Irish Water pursuant to the Connection Agreement, in which case, Irish Water shall not be relieved of any obligation or liability with respect to its rights or obligations under the Connection Agreement. The Customer shall have no recourse to any such third party; the Customer's sole recourse shall be to Irish Water in accordance with the Connection Agreement.
8. **Rights and obligations under law.** Nothing in this Connection Agreement shall affect or prejudice any rights, duties or obligations of the Parties under Applicable Laws.
9. **Principal Obligations:**
 - 9.1 Subject to the terms of this Connection Agreement, Irish Water will carry out (or procure the carrying out) of Connection Works to facilitate the connection of the Customer's Premises to the Waterworks and/or Wastewater Works as specified in the Connection Offer).
 - 9.2 The Customer will:
 - 9.2.1 carry out its obligations pursuant to Clause 10 to facilitate the connection of the Customer's Premises to the Waterworks and/or Wastewater Works (as the case may be and as specified in the Connection Offer);
 - 9.2.2 comply with all Relevant Standards and Applicable Laws and obtain all necessary easements, licences, permits or authorisations that may be required in connection with the performance of its obligations and its receipt of the Water Services pursuant to this Connection Agreement.
10. **Customer's Connection Obligations:**
 - 10.1 The Customer shall:
 - 10.1.1 make payment to Irish Water of the Connection Charge set out in the Connection Offer;
 - 10.1.2 in a timely manner, provide, install, test and commission within the boundary to the curtilage of the Customer's Premises all Customer Pipework necessary to connect the Customer's Premises, Distribution System (if connection is to Waterworks) and Drain(s) (if connection is to Wastewater

Works) to the Network(s) at the Connection Point(s) in accordance with Relevant Standards and Applicable Law;

10.1.3 provide safe, free and unrestricted access (which access may not be exclusive) for Irish Water and, and all parties acting on its behalf, to any land or premises of the Customer when reasonably required for the purposes of Irish Water's functions or in relation to this Connection Agreement;

10.1.4 if required by Irish Water in the Connection Offer and at the Customer's own cost, procure adequate way-leaves and easements from third party landowners for the Customer Pipe Work and the Connection Facilities (so that Irish Water and all parties acting on its behalf can establish and carry out the Connection Works) and if required by Irish Water:

10.1.4.1 deliver for approval by Irish Water the PRA Compliant Map;

10.1.4.2 where the Connection Facilities are not entirely comprised within the boundaries of the lands owned by the Customer, the Customer shall deliver to Irish Water a Deed of Grant of Wayleaves and Easements (in duplicate) for the benefit of Irish Water and the Connection Facilities, duly executed by the applicable landowner (to include without limitation a protected strip of ten metres, five metres on either side of the Connection Facilities, in respect of the full length of the Connection Facilities, unless an alternative strip width has been agreed in writing with Irish Water) TOGETHER WITH the PRA Compliant Map. The required form of Deed of Grant of Wayleaves and Easements will be provided by Irish Water on request;

10.1.4.3 irrevocably instruct its appointed solicitor to use best endeavours to stamp and register the Deed(s) of Wayleaves and Easements in the Property Registration Authority as soon as practicable at the Customer's expense and to provide notice of the relevant dealing number and evidence of such registration to Irish Water immediately following completion of registration **PROVIDED THAT** if requested by Irish Water the Customer shall consent to Irish Water taking over the registration process, and the Customer undertakes and agrees to assist Irish Water with this registration process following written request to do so;

10.1.4.4 specifically include reference and notice of the Deed(s) of Wayleaves and Easements in favour of Irish Water in any transfers, conveyances, assignment, lease and/or licence which it may have with any third party.

10.1.5 inform Irish Water, and all parties acting on its behalf, of any relevant safety precautions before entry to the Customer's Premises. Since Irish Water will not be aware of the specific hazards present on the Customer's Premises, the Customer is obliged to inform Irish Water of such hazards. The Customer must ensure that Irish Water, and all parties acting on its behalf, are either accompanied at all times by the Customer, or has been

adequately briefed as to the presence of any specific hazards, the precautions that must be taken and what to do in the event of an accident or emergency;

- 10.1.6 co-operate with and assist Irish Water, and all parties acting on its behalf;
- 10.1.7 not unreasonably interfere with or restrict the carrying out of Irish Water's obligations in accordance with this Connection Agreement;
- 10.1.8 not do or cause or permit to be done anything which causes, or could reasonably be expected to cause, damage or destruction to any part of the Connection Works or in any way interferes with its operation or materially interferes with Irish Water's (and all parties' acting on its behalf) access to same;
- 10.1.9 be solely responsible at all times for maintaining and keeping excavations and reinstatements on its property in a safe and secure condition and will indemnify and keep indemnified Irish Water, its servants, agents and contractors against all claims, demands, proceedings, damages and expenses whatsoever in respect thereof;
- 10.1.10 where there is to be a connection to the Waterworks, accept liability for the care, maintenance, renewal and repair of the Customer Pipework and the plumbing fixtures and fittings and associated pipework of the Distribution System up to the Connection Point where the Service Connection connects with the Distribution System, to ensure that such infrastructure complies at all times with Applicable Law including but not limited to European Union (Drinking Water) Regulations 2014 and any regulations that may be made under Section 54 of the Water Services Act 2007 or any bye-laws made by Irish Water. Irish Water shall accept no responsibility for the maintenance, renewal, adequacy, safety or other characteristics of such infrastructure, save that, in terms of water supply, Irish Water shall maintain and repair that part of the Service Connection extending from the Waterworks up to the Water Supply Maintenance Point;
- 10.1.11 where there is to be a connection to the Wastewater Works, accept liability for the care, maintenance, renewal and repair of the Customer Pipe Work and the plumbing fixtures and fittings and associated pipework of any Drains up to the Connection Point with the Service Connection to which those Drains are connected. Irish Water shall accept no responsibility for the maintenance, renewal, adequacy, safety or other characteristics of such infrastructure. Any Drain or Drains located within the boundary to the curtilage of the Customer's Premises and/or any system of Drains that drains more than one premises within the boundary to the curtilage of those Customer's Premises shall be the sole responsibility of the Customer; and
- 10.1.12 agree the timing of any works to be carried out by the Customer with Irish Water.

- 10.2 The Customer shall take such steps as Irish Water may notify from time to time to prevent a risk to human health or the environment, to facilitate the reasonable conservation of water, to ensure the proper and effective management of Water Services, to prevent contamination of any Waterworks (where there is to be a connection to the Waterworks), and to protect the Wastewater Works (where there is to be a connection to the Wastewater Works).
- 10.3 The Customer shall not allow discharge of rainwater runoff from roofs, paved areas or other surfaces into any Drain or Sewer, except as may be agreed in advance in writing with Irish Water.
- 10.4 During the duration of this Connection Agreement, Irish Water may specify any technical requirements or standards necessary to minimise the risk of leakage or to protect the integrity of any Waterworks or Wastewater Works.
- 10.5 For the avoidance of doubt, the Customer is prohibited from using the Service Connection and/or using any other mechanism to supply Water Services onwards to another location or premises other than the Customer's Premises notified to Irish Water by the Customer to which the Service Connection applies. Irish Water shall in no way be liable for a breach of this provision by the Customer or by any other third party, including any adverse consequences arising directly or indirectly as a result of such a breach and all costs, damages or claims arising therefrom.
- 10.6 The Customer hereby indemnifies Irish Water and its servants, agents and contractors in respect of any loss, damage or injury that may result from the laying or use of pipes within the boundary to the curtilage of the Customer's Premises. The Customer indemnifies Irish Water and its servants, agents and contractors in respect of any loss, damage or injury caused as a result of any leakage of Wastewater from Drains or Service Connections or water from the Distribution System up to the Connection Point where Service Connection connects with the Distribution System.
- 10.7 The Customer shall be solely responsible for preventing any backflow, back syphonage or blowback from the Distribution System of the Customer's Premises into the Water Main or Waterworks.
- 10.8 Where a connection is made to the Wastewater Works, Irish Water shall be entitled to take spot samples of the Wastewater discharged by the Customer for the purposes of testing compliance with the terms of this Connection Agreement and/or for general research or compliance purposes. If, in the opinion of Irish Water, the characteristics of the Customer's Wastewater are such that it is likely to produce what Irish Water determines to be a significant impact upon the Wastewater Works, then Irish Water may require the Customer to enter into a separate end-user agreement containing additional conditions in connection with the treatment of the Customer's Wastewater. The Customer acknowledges and agrees that it will, if requested to do so by Irish Water, cease discharging its Wastewater to the Network pending entry into the end-user agreement

11. Use of Water:

- 11.1 Where in the opinion of Irish Water, waste or deliberate misuse of water occurs on the Customer's Premises, Irish Water may restrict or reduce the pressure of the Water Services temporarily until satisfied that the waste or misuse has been rectified.
- 11.2 The Customer may in times of water scarcity be required to limit the use of Water for essential purposes only as prescribed by Irish Water.
- 11.3 With the exception of customers covered under the Irish Water Domestic Customer Vulnerable Code of Practice, the Customer shall be responsible for installing and maintaining sufficient storage to provide a reserve water supply if that is necessary for any special needs which the Customer has for a specific rate of flow or pressure or if, taking account of any interruption to the Water Services which might occur due to works, a burst or any other reason, a prudent customer acting reasonably in order to protect its business needs would provide such storage.
- 11.4 The Customer shall ensure so far as practicable that all water is drawn at a reasonably regular rate of flow and pressure and shall use its storage facility to reduce peak demands being made upon the Waterworks by the Customer.
- 11.5 The provisions of this Clause 11 shall survive the termination or expiry of this Connection Agreement.

12. Time for Completion/Delays: Irish Water shall use commercially reasonable endeavours to ensure that the Connection Works are completed in a timely manner but Irish Water shall not be liable for any loss or damage suffered by the Customer in respect of delays resulting from any cause whatsoever.

13. Third Party Losses: The Customer shall indemnify Irish Water and its servants, agents and contractors, and hold Irish Water and its servants, agents and contractors harmless at all times from any and all losses of any third party incurred, suffered or sustained pursuant to this Connection Agreement, but only to the extent any such loss was not caused by Irish Water's breach of this Connection Agreement or the negligence of Irish Water in undertaking its obligations under this Connection Agreement.

14. Liability:

14.1 **Immunity:** Nothing in this Connection Agreement shall affect any immunity that Irish Water benefits from Applicable Law.

14.2 **Death or Personal Injury:** Subject to Clause 14.1 above, nothing in this Connection Agreement will exclude or limit the liability of either Party for death or personal injury resulting from the negligence of that Party or any other loss that cannot be excluded or limited under Applicable Law.

14.3 **Reasonable and Prudent Operator:** Subject to Clause 14.2, where the obligations of

Irish Water are performed in accordance with the Standard of a Reasonable and Prudent Operator, Irish Water shall have no liability whatsoever to the Customer in respect of this Connection Agreement.

14.4 No liability for Force Majeure: Neither Party shall be liable for any breach of this Connection Agreement directly or indirectly caused by Force Majeure.

14.5 No Liability: Neither Party shall be liable to the other Party in contract, tort, warranty, strict liability or any other legal theory for: (a) any loss of profit, revenue, use, contract (other than this Connection Agreement), opportunity, or goodwill; or (b) punitive or exemplary damages; or (c) any indirect, consequential, incidental or special damages (including punitive damages).

14.6 No implied warranties: All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from this Connection Agreement.

15. Assignment: The Customer shall not be entitled to assign the benefit or transfer the burden of this Connection Agreement without the prior written consent of Irish Water. Nothing shall prevent Irish Water from assigning the benefit or transferring the burden of this Connection Agreement to an Affiliate.

16. Sub-contractors: Either Party shall have the right to sub-contract or delegate the performance of any of its obligations or duties arising under this Connection Agreement without the prior consent of the other Party. Such subcontracting by Irish Water or the Customer of the performance of any obligations or duties under this Connection Agreement shall not relieve Irish Water or the Customer (as the case may be) from liability for performance of such obligation or duty.

17. Customer's Authority: The Customer represents and warrants to Irish Water that it has full power and authority to enter into and to exercise its rights and perform its obligations under this Connection Agreement and has obtained all authorisations and consents necessary for it to so enter, exercise rights and perform obligations and such authorisations and consents are in full force and effect.

18. Term & Termination:

18.1 This Connection Agreement shall commence upon the date that the Customer returns the Customer Acceptance Form and pays the Connection Charge (and if these occur on different days, the Connection Agreement shall commence on the later date) and shall continue in full force and effect until the Parties' respective obligations under Clause 9 have been performed in full unless it is earlier terminated in accordance with the provisions of this Connection Agreement.

18.2 The Connection Offer and this Connection Agreement is based on a high-level desk top analysis carried out by Irish Water on the feasibility of a carrying out the Connection Works for the Customer Premises. Once the Connection Offer has been accepted by You, Irish Water will begin a detailed design of the Connection Works. If during the process of detailed design Irish Water, at its discretion, forms the opinion (acting

reasonably) that either:

- A. the Connection Works are not feasible or practicable or safe to complete; or
- B. the acquisition of all rights for the laying of the Customer Pipe Work and/or the Connection Works are not possible or commercially practicable; or
- C. the Connection Works would involve the expenditure by Irish Water of monies in excess of that provided for by way of the Connection Charge,

then the Connection Agreement may be terminated by Irish Water by way of written notice to the Customer. In the event that Irish Water exercises its right to terminate the Connection Agreement on the basis of the foregoing then Irish Water shall return any Connection Charge paid by the Customer, less (if deemed appropriate by Irish Water) any outstanding costs and expenses incurred by Irish Water as at the date of termination. This provision is additional to and does not replace any other provisions relating to termination.

18.3 Irish Water shall be entitled to terminate this Connection Agreement by written notice to the Customer if the Customer sells the Customer Premises to a third party.

18.4 The Customer shall be entitled to terminate this Connection Agreement upon written notice to Irish Water within 14 days of the date of this Connection Agreement.

18.5 Either Party shall be entitled to terminate this Connection Agreement upon written notice to the other Party where:

18.5.1 there is in any material breach by the other Party of its obligations under this Connection Agreement and the breach cannot be remedied or if it is capable of being remedied, it has not been remedied by such Party within 28 days of the issue of a notice to it by the other Party identifying the breach and requiring it to be remedied; and

18.5.2 an event of Force Majeure persists for a period of 180 days or more, provided at least 14 days' notice of termination has been given in writing.

18.6 In the event that either Party exercises its right to terminate under this Clause before the Connection Works commence, Irish Water shall return any Connection Charge paid by the Customer, less any outstanding costs and expenses incurred by Irish Water as at the date of termination, including, but not limited to, costs of construction, and any legal or financing costs.

18.7 Termination of this Connection Agreement shall not prejudice or affect any right of action or remedy which shall have accrued or shall thereafter accrue to either Party under this Connection Agreement.

18.8 Without prejudice to Clause 18.7, in particular, the following clauses:

- Clause 4 (Order of Precedence);
- Clauses 10.1.1, 10.1.9, 10.1.10, 10.1.11, 10.2, 10.3, 10.5, 10.6, 10.7 and 10.8;
- Clause 11 (Use of Water);
- Clause 13 (Third Party Losses);
- Clause 14 (Liability);

Clause 18 (Term and Termination);
 Clause 20 (Insurance);
 Clause 26 (Entire Agreement);
 Clause 21 (Data Protection);
 Clause 29 (Governing Law); and
 Clause 30 (Disputes),

of this Connection Agreement shall continue in full force and effect and be fully binding on the Parties notwithstanding termination or expiry.

19. Notices:

19.1 Notices or other communications given pursuant to this Connection Agreement shall be in writing and shall be sufficiently given if delivered by hand or sent by e-mail or pre-paid registered post to the e-mail or postal address referred to below of the Party to which the notice or communication is being given or to such other address and as such Party shall communicate from time to time to the Party giving the notice or communication.

19.2 The Customer's address for service is as set out in the Connection Offer.

19.3 Any notice required or permitted to be given by the Customer shall be in writing addressed to Irish Water at Irish Water, PO Box 860, South City Delivery Office, Cork City or by email to newconnections@water.ie or such other address or electronic mail address as may be notified by the Customer to Irish Water from time to time.

19.4 Every notice given in accordance shall be deemed to have been received as follows:

Means of Dispatch	Deemed Received
Hand Delivery	The time of delivery.
Post	48 hours after posting (and proof that the envelope containing the notice or communication was properly addressed and sent by pre-paid registered post will be sufficient evidence that the notice or other communication has been duly served or given).
Email	Upon receipt by the addressee of the complete text in legible form.

provided that if, in accordance with the above provisions, any such notice or other communication would otherwise be deemed to be given or made outside working hours (being 9am to 5.30pm on a Business Day) such notice or other communication shall be deemed to be given or made at the start of working hours on the next Business Day.

20. Insurance:

20.1 The following insurance obligations will apply in the alternative depending on whether the Customer's Premises is a:

20.1.1 single domestic unit (see Clause 20.2 below); or

20.1.2 a small non-domestic development (where the connection to the Customer's Premises is proposed to be a 25mm water supply Service Connection and/or a 100mm Wastewater Service Connection)(see Clause 20.2 below); or

20.1.3 a development other than a single domestic unit or a small non-domestic unit (see Clause 20.3 below).

20.2 Where this Connection Agreement relates to a single domestic unit or a small non-domestic development, the Customer shall ensure that any Contractor engaged by them in relation to the Customer's Pipe Work has appropriate and adequate insurance cover in place throughout the duration of the works in relation to the matters referred to in Clause 10.

20.3 Where this Connection Agreement relates to developments other than a single domestic unit or a small non-domestic development, the Customer shall ensure that any Contractor engaged by them in relation to the Customer's Pipe Work has appropriate and adequate insurance cover in place throughout the duration of the works in relation to the matters referred to in Clauses 10. In particular, the Customer shall, within five days following a written request from Irish Water, furnish Irish Water with evidence that the insurances referred to below are being maintained by the Contractor:

20.3.1 **Employers Liability** insurance cover with a minimum indemnity limit of €13 million any one accident/occurrence unlimited in the period of insurance;

20.3.2 **Public/Products/Pollution Liability** insurance cover with a minimum indemnity limit of €6.5 million any one accident/occurrence unlimited in the period of insurance under the Public Liability and in the aggregate in respect of Products & Pollution Liability;

20.3.3 **Contractors "All Risks"** insurance for the full reinstatement value of the proposed works in respect of any one claim; and

20.3.4 **Motor** insurance cover with a minimum third party property damage limit of €6.5m for all vehicles owned, leased, rented or run (to include tool of trade use) by the Contractor in connection with the services to be provided by it.

The Insurance policies detailed in this Clause 20.3 with the exception of Motor must include a specific indemnity to Irish Water.

21. Data Protection:

21.1 It is necessary for Irish Water to collect and use personal data relating to the Customer in respect of this Connection Agreement, such as your name, address, contact details and financial information (depending on payment method). This data will be used to enable Irish Water to carry out its obligations under this Connection Agreement and manage its relationship with the Customer, such as arranging payments, visits to the Customer's Premises and scheduling construction activities. Irish Water may keep the Customer's data for a reasonable period after the Customer ceases to be supplied with

Water Services but will not keep it for any longer than is necessary and/or as required by law.

- 21.2 Irish Water may share the Customer's data with other members of the Ervia group and agents who act on behalf of Irish Water in connection with the activities referred to above. Such agents are only permitted to use the Customer's data as instructed by Irish Water. They are also required to keep the Customer's data safe and secure.
- 21.3 From time to time the Customer may speak to employees of Irish Water (or agents acting on its behalf) by telephone. To ensure that Irish Water can provide a quality service, telephone conversations with the Customer may be recorded. Irish Water will treat the recorded information as confidential and will only use it for staff training/quality control purposes, confirming details of the Customer's conversations with Irish Water or any other purposes mentioned in this notice.
- 21.4 The Customer has various rights under data privacy laws, which include the right to request a copy of his/her personal data. If the Customer wishes to avail of this right or for further information please contact Irish Water in writing at FREEPOST, Irish Water, Data Protection Officer, PO Box 6000, Talbot Street, Dublin 1 or via email to dataprotection@ervia.ie.
- 21.5 Irish Water endeavours to use appropriate technical and physical security measures to protect your personal data which is transmitted, stored or otherwise processed by Irish Water, from accidental or unlawful destruction, loss, alteration, unauthorised disclosure of, or access. Irish Water's service providers are also selected carefully and required to use appropriate protective measures.
- 21.6 As effective as modern security practices are, no physical or electronic security system is entirely secure. The transmission of information via the internet is not completely secure. Although Irish Water will do its best to protect your data, Irish Water cannot guarantee the security of your data transmitted to Irish Water's Site. Any transmission of data is at your own risk. Once Irish Water receives your data, Irish Water will use appropriate security measures to seek to prevent unauthorised access. Irish Water will continue to revise policies and implement additional security features as new technologies become available.
- 21.7 In the event that there is an interception or unauthorised access to your personal data, Irish Water will not be liable or responsible for any resulting misuse of your personal information.
- 21.8 For further information on how Irish Water treats the Personal Data of Customers when providing Water Services, please see our Privacy Notice on www.water.ie. Alternatively, please contact us at the details above for Irish Water's Privacy Notice.
- 21.9 In order to evaluate and improve our Customer's experience, we or agents on our behalf, may from time to time issue surveys to the Customer in relation to the services provided. If you do not wish to receive a survey, please let us know.

21.10 Irish Water reserves the right to change and/or update its Privacy Notice at any time in Irish Water's sole discretion. If Irish Water makes changes, Irish Water will publish same on www.water.ie.

- 22. Safety, Health and Welfare at Work (Construction) Regulations 2013:** It is acknowledged and agreed that the works carried out for, or on behalf of, the Customer in relation to the Customer's Pipe Work are entirely separate and distinct to the Connection Works carried out for and on behalf of Irish Water. The Customer shall ensure full compliance with all applicable health and safety legislation including, if necessary and applicable, the Safety, Health and Welfare at Work (Construction) Regulations 2013 in respect of the works to the Customer's Pipe Work. The Customer acknowledges that, as client, it may have certain obligations under the Safety, Health and Welfare at Work (Construction) Regulations 2013 in relation to the works to the Customer's Pipe Work and, as such, will ensure full compliance with those obligations. Irish Water shall ensure full compliance with all applicable health and safety legislation including, if necessary and applicable, the Safety, Health and Welfare at Work (Construction) Regulations 2013 in respect of the Connection Works. Irish Water acknowledges that, as client, it may have certain obligations under the Safety, Health and Welfare at Work (Construction) Regulations 2013 in relation to the Connection Work and, as such, will ensure full compliance with those obligations.
- 23. No Waiver:** No forbearance, indulgence or relaxation on the part of a Party shown or granted to the other Party shall in any way affect, diminish, restrict or prejudice the rights or powers of Irish Water or operate as or be deemed to be a waiver of any breach of conditions. None of the provisions of this Connection Agreement shall be considered waived by a Party unless such waiver is given in writing and signed by a duly authorised representative of the Party making the waiver. No such waiver shall be a waiver of any past or future default or breach nor shall such waiver constitute a modification of any term provision condition or covenant of the contract unless expressly so provided in such waiver.
- 24. Severability:** All of the provisions contained in this Connection Agreement are distinct and severable, and if any provision is held or declared to be unenforceable, illegal or void in the whole or in part by any court, regulatory authority or other Competent Authority it will, to that extent only, be deemed not to form part of this Connection Agreement and the enforceability, legality and validity of the remainder of these terms and conditions will not in any event be affected.
- 25. Force Majeure:** If either Party is by reason of Force Majeure rendered unable wholly or in part to carry out its obligations under this Connection Agreement, then upon notice in writing of such Force Majeure from the Party affected to the other Party, as soon as possible after the occurrence of the cause relied on, the Party affected shall be released from its obligations (other than the obligations to pay money) and suspended from the exercise of its rights under the Connection Agreement to the extent to which they are affected by the circumstances of Force Majeure and for the period during which those circumstances exist PROVIDED THAT the Party affected shall use all reasonable endeavours to prevent, avoid, overcome or mitigate the effects of such occurrence.
- 26. Entire Agreement:**
- 26.1 This Connection Agreement shall be the entire agreement between the Parties with respect to the subject matter and expressly excludes any warranty, condition or other undertaking implied at law or by custom and supersedes all previous agreements and

understandings between the Parties (other than as provided for in this Connection Agreement) with respect to its subject matter.

26.2 The Customer acknowledges and confirms that it does not enter into this Connection Agreement in reliance on any representation, any misrepresentation, warranty or other undertaking by Irish Water not fully reflected in this Connection Agreement.

26.3 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from this Connection Agreement.

27. Amendments: This Connection Agreement may be updated at any time by Irish Water with replacement terms and conditions published on www.water.ie.

28. No Derogation from Statutory Responsibilities:

The Customer acknowledges and accepts:

28.1 their obligations and duties under the Water Services Acts in relation to the protection of human health, repair of leaks and the reasonable conservation of water and the management, consumption and use of water on or at the Customer's Premises to ensure that water is not wasted or consumed in excessive amounts;

28.2 that notwithstanding this Connection Agreement, Irish Water is not limited from exercising its powers under the Water Services Acts in relation to the Customer;

28.3 without prejudice to Clauses 10.1.10 and 10.1.11 of these General Conditions and notwithstanding the carrying out of Connection Works, the Customer Pipe Work (in terms of ownership, maintenance, repair, renewal or otherwise) will remain the sole responsibility of the Customer unless ownership is transferred to Irish Water.

29. Governing Law: The Connection Agreement shall be governed and construed in accordance with the laws of Ireland and, subject to Clause 30, the courts of Ireland shall have exclusive jurisdiction to decide disputes arising between the Customer and Irish Water.

30. Dispute Resolution:

30.1 **Notification of a Dispute:** Any Dispute between the Parties shall be resolved, if possible, by negotiation. In the event that no agreement is reached within fifteen (15) days of the date on which either Party first notified the other Party that a Dispute exists, either Party shall have the right to have the Dispute determined in accordance with Clause 30.2.

30.2 **Mediation:** The mediator is to be appointed by agreement between the Parties and, in the absence of agreement within five (5) working days of the receipt by one Party of a written notice to concur in the appointment of a mediator, by the Centre for Effective Dispute Resolution ("CEDR"). The mediation will be in Dublin and the costs of the mediation shall be shared equally between the Parties. In the event that the matter is not resolved within three (3) months of being referred to the mediator under

this Clause 30.2, then either Party may (but for the avoidance of doubt not be obliged to do so) commence court proceedings for the determination of the Dispute in question.

30.3 Performance to Continue During Dispute: Insofar as practicable, the Parties shall continue to implement the terms of this Connection Agreement notwithstanding the initiation of mediation or Court proceedings and any pending Dispute. No payment due to or payable by Irish Water or the Customer shall be withheld on account of a pending reference to the dispute resolution mechanism except to the extent that such payment is the subject of such dispute. However, Irish Water shall not be obliged to carry out the Connection Works unless it is in receipt of the Connection Costs.

30.4 Survival: The provisions of Clause 30.2 and 30.3 shall continue after the termination of this Connection Agreement where notice of the existence of the Dispute was given under Clause 30.1 prior to termination. Nothing in this Connection Agreement is intended to prejudice the referral of a dispute to the Commission for Regulation of Utilities for determination in accordance with Irish Water's Customer Handbook.

31. New Industry Structure

31.1 If, after execution of this Connection Agreement, there shall be enacted and brought into force any Legal Requirement for:

31.1.1 the further reorganisation of the water industry in Ireland or any material part of it;

31.1.2 the further facilitation of the introduction of third party interests into the affairs of the water industry in Ireland or any part of it; or

31.1.3 the amendment or variation of any policy of Irish Water or the manner in which the Network(s) and any agreements or protocols related thereto are organised;

which necessitates a variation to this Connection Agreement, the Parties shall effect such changes as are reasonably necessary so as to ensure that the operations contemplated by this Connection Agreement shall be conducted in a manner which is consistent with the effect of the new Legal Requirement and most closely reflects the intentions of the same with effect from the date thereof provided that any such amendment will be of no greater extent than is required by reason of the same.

31.2 If any variation proposed under Clause 31.1 has not been agreed by the Parties within three (3) months of it being proposed (the Parties acting as soon as reasonably practicable), either Party may refer to the Commission for Regulation of Utilities for determination and the Parties agree to abide by and to give effect to the Commission's determination, if necessary by entering into an agreement supplemental to this Connection Agreement.

APPENDIX 3

Special Conditions

<u>Notes</u>		
SECTION 3.0 – Special Conditions pertaining to the Water/Wastewater Service Connection(s)		
SECTION 3.1 - Water Service Connection(s)		
1	Distance from Customer's Premises to Connection Point in metres (Service Connection).	15.00 m
2	Diameter of Service Connection required (external diameter in mm).	100.00 mm
3	Diameter of meter required (external diameter in mm).	100.00 mm
4	Distance from Service Connection Point to the existing mains in metres (Mains Extension).	m
5	Irish Water will deliver the full physical connection works on the public side from its Network(s) to your property boundary	
6	The design & construction of the new proposed water connection to be in accordance with the IW Codes of Practice and Standard Details. These are available from the IW website	
7	Once the offer has been accepted with payment and signed counterpart returned, Irish Water will commence the design of the Connection Works and obtain all relevant statutory approvals including obtaining a Road Opening Licence (ROL) to allow the Works commence. It may take some time to obtain the ROL. Once these approvals are in place and design stage is complete we will contact you 14 days in advance of the proposed connection works taking place.	
SECTION 3.2 - Wastewater Service Connection(s)		
1	Distance from Customer's Premises to Connection Point in metres (Service Connection).	m
2	Diameter of Service Connection required (internal diameter in mm).	mm
3	Distance from Service Connection Point to the existing mains in metres (Mains Extension).	m

APPENDIX 4

Connection Charge

Connection Charge	
Water Connection Charge	
Standard Charge	€54,960.00
Standard Charge – Additional Service Length	€1,790.00
Quotable Charge	€0.00
Sub total	€56,750.00
Wastewater Connection Charge	
Standard Charge	€0.00
Standard Charge – Additional Service Length	€0.00
Quotable Charge	€0.00
Sub total	
Total Connection Charge	€56,750.00

OCSC

O'CONNOR · SUTTON · CRONIN
MULTIDISCIPLINARY CONSULTING ENGINEERS

Head Office

9 Prussia Street
Dublin 7
Ireland
D07KT57

T: +353 (0)1 8682000

E: ocsc@ocsc.ie | W: www.ocsc.ie

Civil | Structural | Mechanical | Electrical | Sustainability | Environmental