

Title: Project Sakura - Drainage Strategy P03

Date: 27/03/2024

## **I. Introduction**

Jubb have been instructed by Smartparc Limited to provide engineering input relating to drainage for the proposed extension of Norish Wrexham, Coldstore.

The proposed coldstore extension connects onto the western boundary of the existing development and is located between the building and the nearby watercourse. The proposed development will provide a total additional floor space of 7,253 sq.m (main coldstore extension being approximately 6,160 sq.m), with additional associated parking and landscaping arrangement.

As part of the advancement in Sustainable Drainage Systems (SuDS), legislature was implemented on 7th January 2019 in Wales to enforce Schedule 3 of the flood and Water management Act 2020. Wrexham County Council would look to review and approve any surface water drainage design proposed for the development, in line with the CIRIA C753 'The SuDS Manual' and any additional information provided by the approving body.

A separate SAB pre-application has been submitted and feedback received, and a SAB full application will be submitted for approval of the proposed surface water drainage strategy outlined below prior to the start of construction.

The proposed development is approximately 3.26ha in size and located on National Grid Reference centered on National Grid Reference 338005 E; 350379 N. The site currently consists of Norish Coldstore, hardstanding, office and parking.

## **II. Drainage Strategy**

### **a. Proposed Surface Water Drainage**

Subject to SAB approval and agreement with LLFA and NRW the surface water runoff is proposed to connect to the on-site surface water systems on the northwest and south west side of the site and utilise the existing discharge into the nearby tertiary watercourse.

Infiltration testing was undertaken in accordance with BRE365 to determine if the use of soakaways would be viable, but the test appeared to show unsuccessful drain down as no water movement was recorded. This was confirmed as the borehole struck groundwater and when monitored the ground water in the wells was close to ground level indicating artesian ground water conditions.

The discharge rate for the site will be agreed with the SAB body but set to greenfield run off rates for the main extension.

Proposed attenuation storage will be in the form of below ground cellular storage and multiple swales. Due to the site layout and the existing site levels, above ground attenuation is not feasible for the proposed plant building number 2.

SuDS features in the form of raingarden planters will be proposed locally instead. Attenuation has been sized to attenuate all storm events up to and including 100 year + 40% climate change through the use of two flow controls/ orifice plates.

#### **b. Proposed Foul Water Drainage**

The proposed foul network will utilise a gravity system and connect to an on-site DCWW foul sewer. It should be noted that a section of existing adopted DCWW sewer is likely to require a S185 diversion due to the position of the extension and the existing sewer easement. Further investigations on the exact location of the sewer are being carried out to confirm the requirement for a diversion.

The proposed foul strategy is shown in Appendix A while an historic note on foul discharge is contained within Appendix B.

### **III. SuDS Strategy**

The SuDS features proposed have been selected based on the mitigation index values given within Table 26.2 & 26.3 of CIRIA SuDS Manual. The polluting features on the site are the building roof, considered to be a low hazard for pollution, and a non-residential carpark, also considered to be a low hazard for pollution and a commercial yard and delivery area considered to be a medium hazard for pollution.

A Rainwater Harvesting system will be employed within the site, shown indicatively on the current drainage proposed layout within Appendix A.

#### **a. Building Roof**

The building roofs will drain via rainwater pipes which are predominantly designed to drop via surface level linear channels which discharge into swales, rain gardens or filter drains to provide treatment and interception for the first 5mm of the surface water.

#### **b. Car Parking Area**

The trafficked areas are proposed to drain to permeable paving within the car park. The permeable paving provides interception for the first 5mm of surface water runoff and treatment.

#### **c. Road**

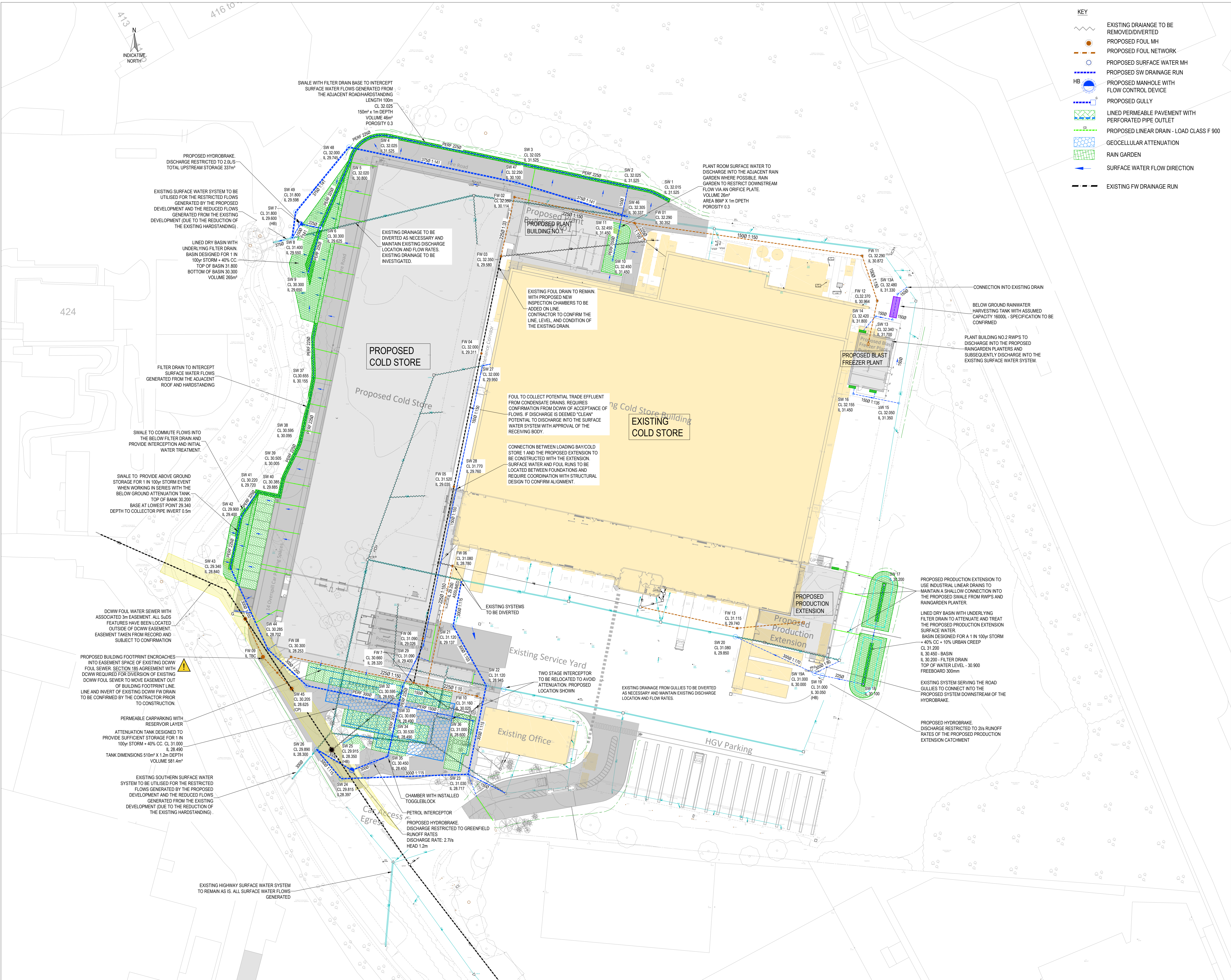
The proposed service roads for the site will fall towards the adjacent swales or filter drains which will provide interception for the first 5mm of surface water runoff and treatment. Due to the nature of the site, there will be high risk of oil spillages so the provision of Petrol Interceptor has been included with the addition of an automated water pollution containment device (Toggleblok).

#### **d. Hardstanding/Footpath**

The levels of the hardstanding and footpath areas are designed so that they fall towards rain gardens, filter drains or swales to provide treatment and interception.

The proposed SuDS features will be used in series where possible therefore a weighted mitigation index for treatment will be used. The proposed SuDS features will be managed in line with the Operation & Maintenance Strategy which will form part of the full SAB submission.

**Appendix A – 23284 -JUB-ZZ-XX-DR-C-0501 (P5)**



- NOTES:
1. THIS DRAWING IS FOR SAB SUBMISSION ONLY.
  2. PROPOSED FOUL AND SURFACE WATER NETWORK SHOWN INDICATIVELY, DETAILS TO BE CONFIRMED AT DETAILED DESIGN.
  3. THE SPECIFICATION IN ALL RESPECTS SHALL BE IN ACCORDANCE WITH THE CURRENT WREXHAM COUNTY COUNCIL (WCC) SPECIFICATION AND CONSTRUCTION PUBLICATIONS IN FORCE IN THE COUNTY AT THE TIME OF CONSTRUCTION.
  4. DRAINAGE STRATEGY IS SUBJECT TO APPROVAL FROM THE LLFA, WCC, DWR CYMRU WELSH WATER (DCWW) AND NATURAL RESOURCES WALES (NRW).
  5. ALL PRIVATE DRAINAGE WILL BE CONSTRUCTED IN LINE WITH BUILDING REGULATIONS PART H.
  6. ALL ADOPTED DRAINAGE WILL BE CONSTRUCTED IN LINE WITH LLFA REQUIREMENTS.
  7. KERBING SURROUNDING SuDS FEATURES IS TO BE INSTALLED TO ENSURE ADEQUATE DRAINAGE OF THE SURROUNDING IMPERMEABLE AREAS. KERBS ARE TO BE FLUSH, OR WHERE UPSTANDS ARE REQUIRED, THE KERBS ARE TO BE SPACED TO FACILITATE DRAINAGE.
  8. ROOT BARRIERS ARE TO BE INSTALLED WHERE SEWERS ARE WITHIN 1.5m OF PROPOSED/ EXISTING TREES.
  9. PIPE MATERIAL AND SPECIFICATION TO BE AGREED BETWEEN THE CONTRACTOR AND LLFA PRIOR TO COMMENCING WORK.
  10. ALL TRAFFICKED COVERS AND GRATINGS TO BE TO D400 LOAD CLASSIFICATION AND B125 FOR NON-TRAFFICKED.
  11. PROPOSED CONNECTION TO FOUL SEWER SUBJECT TO DCWW APPROVAL.
  12. OTHER DCWW SEWER DIVERSIONS/ DIVESTMENTS ARE NOT ILLUSTRATED ON THIS DRAWING.
  13. EXISTING DRAINAGE TO BE REMOVED AND DIVERTED WITHIN THE PROPOSED BUILDING FOOTPRINT.
  14. SURFACE WATER DISCHARGE REQUIRES LLFA, SAB AND NATURAL RESOURCES WALES APPROVAL.
  15. FOUL DESIGN CONNECTS ONTO THE EXISTING SEWER WITHIN THE SITE AND WILL FORM THE POINT OF CONNECTION FOR THE PROPOSED BUILDINGS. CONNECTION REQUIRES A S106 AGREEMENT WITH DCWW.
  16. CONDENSATE DRAINS DISCHARGE ARE ASSUMED TO BE TRADE EFFLUENT AND REQUIRE A TRADE EFFLUENT AGREEMENT WITH DCWW.
  17. TOGGLEBLOCK INCLUDED AS EMERGENCY SHUT OFF ON CHAMBER SW35. ADDITIONAL TOGGLEBLOCK MAY BE REQUIRED.

|    |          |                        |    |    |
|----|----------|------------------------|----|----|
| P5 | 25.03.24 | ISSUE FOR PLANNING     | WS | GS |
| P4 | 06.03.23 | ISSUE FOR REVIEW       | JH | GS |
| P3 | 19.02.23 | ISSUE FOR REVIEW       | JA | GS |
| P2 | 12.10.23 | PRE-APP SAB SUBMISSION | JA | GS |
| P1 | 28.08.23 | PRELIMINARY ISSUE      | JA | GS |

Rev Date Description By Apvd

PROJECT:  
Project Sakura

TITLE:  
PROPOSED DRAINAGE STRATEGY

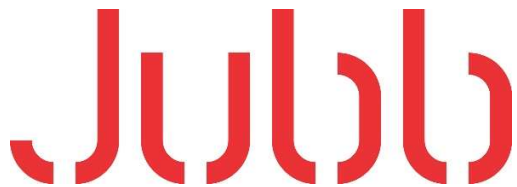
CLIENT:  
TSL Limited

SCALE@A1:  
1:500

PROJECT REF:  
23284  
DRAWING No: 23284-JUB-ZZ-XX-DR-C-0501 REV: P5

Revision Referencing  
P = Preliminary A = Approval T = Tender C = Construction

## **Appendix B – 23284 RP02 – Foul Strategy**



## I. Introduction

Jubb have been instructed by Smartparc Limited to provide engineering input relating to drainage for the proposed extension of Norish Wrexham, Coldstore.

The proposed extension connects onto the western boundary of the existing development and is located between the building and the nearby watercourse. The proposed coldstore extension is approximately 4600sq.m with associated parking and landscaping arrangement.

As part of the advancement in Sustainable Drainage Systems (SuDS), legislature was implemented on 7<sup>th</sup> January 2019 in Wales to enforce Schedule 3 of the flood and Water management Act 2020. Wrexham County Council would look to review and approve any surface water drainage design proposed for the development, in line with the CIRIA C753 'The SuDS Manual' and any additional information provided by the approving body.

A separate SAB pre-application has been submitted, and a SAB full application will be submitted for approval of the proposed surface water drainage strategy prior to the start of construction. Refer to SAB pre-application for the surface water strategy.

The proposed development is approximately 1.36ha in size and located on National Grid Reference centered on National Grid Reference 338005 E; 350379 N. The site currently consists of Norish Coldstore, hardstanding, office and parking.

## II. Drainage Strategy – Foul Water

### a. Proposed Foul Water Drainage

The extension is part of an existing development of Norish Coldstore. The proposed extension is subject to planning and is anticipated to be submitted in parallel to the full SAB application. The existing development is served by a Dŵr Cymru Welsh Water (DCWW) 225mm combined sewer which is located within and runs parallel to the south west boundary. Refer to Appendix B for DCWW GisMaps.

As identified by Welsh Government Circular 008/2018 paragraph 2.3, when drawing up sewerage proposals for any development, the first presumption must always be to provide a system of foul drainage discharging into a public sewer.

Therefore, the associated foul discharge generated by the extensions coldstore is proposed to discharge into the onsite foul sewer via a new chamber. The Connection will require a S106 agreement for the flows.

Initial discussions with DCWW have confirmed that the treatment plant has capacity, however the local capacity would require a pre-enquiry to be submitted to be confirmed. DCWW has requested that further information is provided on the discharge from the site to ascertain if a trade effluent agreement would be required for existing and proposed development. Refer to Appendix C for DCWW correspondence.

A pre-planning enquiry will be submitted to Dŵr Cymru Welsh Water.

## b. Phosphate Review

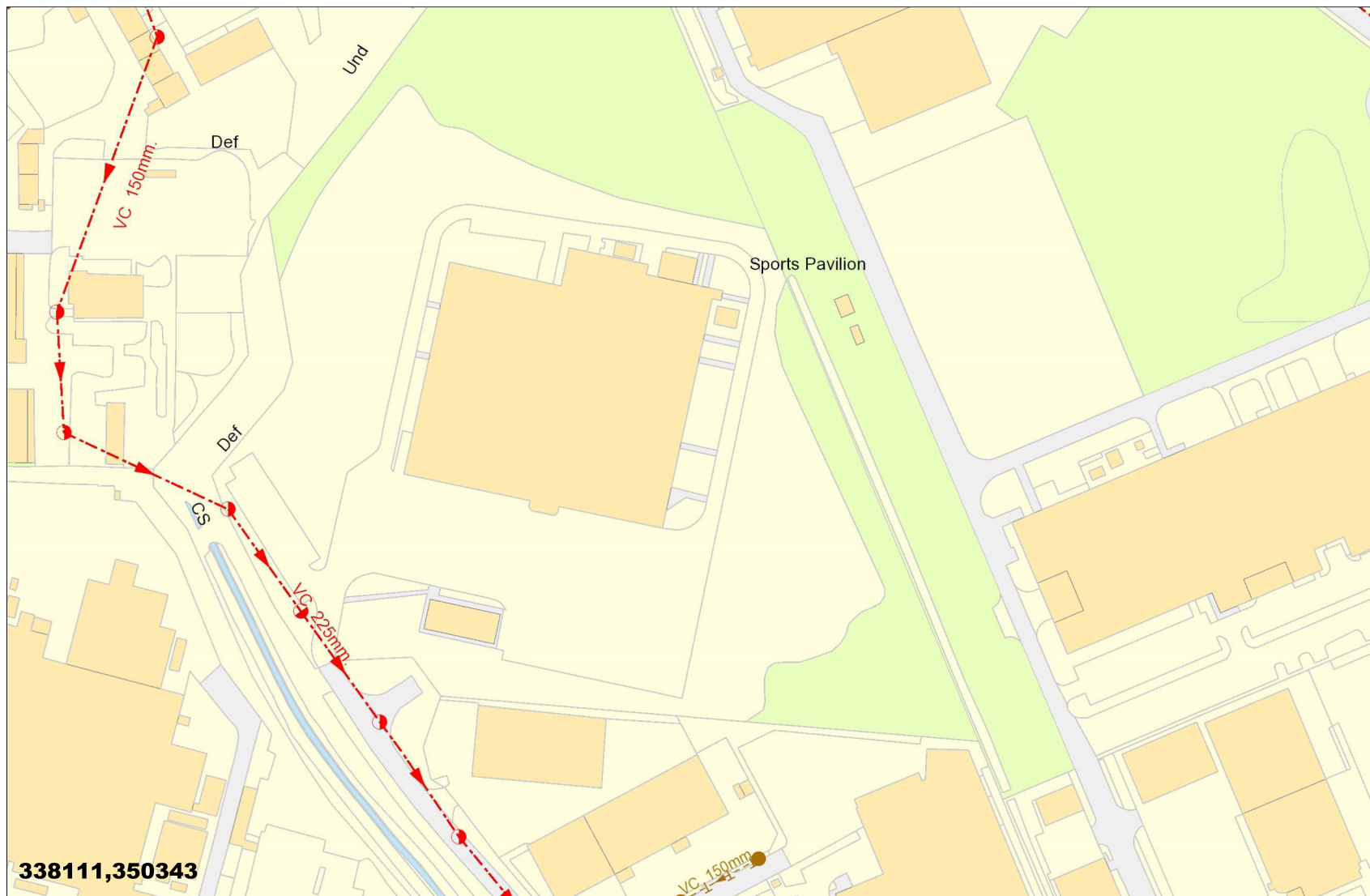
In January 2021 Natural Resources Wales (NRW) published the results of its Compliance Assessment of Welsh River Special Areas of Conservation (SAC) against Phosphorus Targets. The site lies within the catchment of the River Dee SAC which is currently failing to meet the phosphates targets. Since the site is located within a catchment of the River Dee SAC and the sites foul drainage would discharge to the Five Fords WwTW managed by Dŵr Cymru Welsh Water then further consideration regarding the potential impact of Phosphates need to be considered.

Dŵr Cymru Welsh Water have confirmed that Five Fords WwTW does have a phosphate permit which satisfies Natural Resources Wales recent regulations regarding phosphate discharge into their watercourses and that there is sufficient capacity within the permit for the proposed extensions minimal discharge.

## Appendix A – 23284\_501\_Proposed Drainage Strategy

Out-dated Drainage Strategy removed - refer to Appendix A of RP03 for current arrangement

## Appendix B – Dŵr Cymru Welsh Water GisMaps



**338111,350343**

Dwr Cymru Cyfyngedig ('the Company') gives this information as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon. In the event of excavations or other works made in the vicinity of the company's apparatus and any onus of locating the apparatus before carrying out any excavations rests entirely on you. The information which is supplied hereby the company, is done so in accordance with statutory requirements of sections 198 and 199 of the water industry Act 1991 based upon the best information available and in particular, but without prejudice to the generality of the foregoing, it should be noted that the records that are available to the Company may not disclose the existence of a drain sewer or disposal main laid before 1 September 1989, or if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the company's right to be compensated for any damage to its apparatus.

**EXACT LOCATION OF  
ALL APPARATUS TO  
BE DETERMINED ON  
SITE**

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Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be Asbestos Cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation.

**LEGEND**

**Clean Water**

-  Sluice Val
-  Air Val, SINGLE
-  Tap
-  Pressure Reducing Valve
-  Meter
-  BULK Meter
-  FH
-  Cap
-  Existing Main
-  NON COMPANY

**Sewerage External**

-  Foul
-  Surface Water
-  Combined
-  Rising Main
-  Private
-  Treatment Works
-  Pumping Station
-  Special Purpose
-  Unknown End
-  Change, Combined Overflow
-  Outfall, FOUL
-  Lamp Hole, Foul
-  Private Sewer Transfer
-  Lateral Drain
-  Inspection Chamber

## Appendix C – Dŵr Cymru Welsh Water Correspondence

## Jonathan Allen

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**From:** Raymond Jones <Raymond.Jones@dwrcymru.com>  
**Sent:** 12 October 2023 11:41  
**To:** Jonathan Allen  
**Subject:** Phosphates  
**Attachments:** TE 001 - Trade Effluent Preliminary Information Form.docx

Good morning Mr Allen,

Your request needs to be addressed two fold.

Firstly

Yes, Five Fords already has a P consent which we operate to, this minimal discharge will not impact the ability to treat and there is capacity in P removal system at Five Fords to allow some additional loading and for us to continue to meet our operating permit.

This request will be dealt with through the standard developer services process.

Secondly we will need to review the current process that is used by Norish.

To progress this enquiry could i please ask you to complete the attached TE-001 preliminary information form with as much information as possible, can you please complete and return to me with supporting information on the nature of the discharge including a site drainage plan, pre-treatment and MSDS of chemicals held within the discharge effluent.

The application fee is currently £405.60 (no VAT) per application, payable by invoice once it is confirmed that we can grant the authorisation.

If you have any queries please don't hesitate to contact me.

Yours sincerely

Ray

**Raymond Jones**

**Trade Effluent Officer North Wales.**

**| Science & Business Improvement | Trade Effluent | Dwr Cymru Welsh Water**

**Dinas,**

**Llanwnda,**

**Caernarfon,**

**LL54 5UD**

**☎: 07824845827**

**✉ [raymond.jones@dwrcymru.com](mailto:raymond.jones@dwrcymru.com)**



**If we've gone the extra mile to provide you with excellent service, let us know. You can nominate an individual or team for a [Diolch](#) award through our [website](#)**

\_\_\_\_\_ Dwr Cymru Welsh Water is firmly committed to water conservation and promoting water efficiency. Please log on to our website

[www.dwrcymru.com/waterefficiency](http://www.dwrcymru.com/waterefficiency) to find out how you can become water wise. Mae Dwr Cymru Welsh Water wedi ymrwngyn i warchod adnoddau dwr a hyrwyddo defnydd dwr effeithiol. Mae cyngor i' ch helpu i ddefnyddio dwr yn ddoeth yn [www.dwrcymru.com/waterefficiency](http://www.dwrcymru.com/waterefficiency)

\*\*\*\*\* This email and any file