



Remediation Strategy Report

Site: The Red Dragon, Port Talbot

Prepared For: Castell Construction Limited
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SECTION 1 Introduction and Proposed Development

1.1 Introduction

Castell Construction Ltd (the Client) is proposing the construction of a new residential development at the Red Dragon, Port Talbot. The proposed development will consist of a block of flats with 22 residential dwellings and associated infrastructure including access road, car parking, soft landscaping and gardens. The proposed development layout can be seen in **Figure 1.1**.



Figure 1.1 Proposed Development Layout

TFW Group Ltd (Terra Firma) have been commissioned by the Client to prepare a Remediation Strategy report for the site.

Previous investigations and assessments have identified that remediation of contamination is required for the development. This report presents a Remediation Strategy for the site based on these previous investigations and assessments.

1.2 Objectives

The objective of the Remediation Strategy is to detail the remedial steps that are required to render the site fit for its intended use.

In summary, the following remediation requirements have been identified and are covered in detail in this report.

- Installation of capping system
- Installation of suitable potable water supply pipes

1.3 Previous Investigations and Assessments

The Remediation Strategy is based on the findings of previous investigations and assessments. This report shall be read in conjunction with the following documents.

- Terra Firma Group Ltd. *Geotechnical and Geoenvironmental Site Investigation Report: Proposed Residential Development, The Red Dragon, Port Talbot.* (Report Ref: GGR-241125-TF-24-275-CA-02). Dated: November 2025

1.4 Roles and Responsibilities

Table 1.1 Roles and Responsibilities

Role	Organisation
Client	Castell Construction Limited
Structural and Civil Engineer	Vale Consultancy
Local Authority	Neath Port Talbot Council.
Geotechnical & Geoenvironmental Consultant	TFW Group Ltd

1.5 Limitations and Exceptions of Investigation

This report has been prepared for the sole internal reliance of the Client and their design and construction team. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Terra Firma. If an unauthorised third party comes into possession of this report they rely on it at their peril and the authors owe them no duty of care and skill. The report represents the findings and opinions of experienced geo-environmental and geotechnical consultants. Terra Firma does not provide legal advice and the advice of lawyers may be required.

It is not within the scope of Terra Firma to:

- Provide Method Statements and Risk Assessments for the site remediation, preparation and development.
- Design, assess or install utility service trench fill and pipes for potable water supply beneath the site.

1.6 Quality Assurance

The quality and environmental aspects of the assessment and investigation comply with UKAS Accredited ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 standards.

SECTION 2 Site Characteristics

The following subsection information has been summarised from previous investigation and assessments listed in **Section 1.3**.

2.1 Site Location and Description

The development site is square in shape and locates at the location of the Red Dragon, Port Talbot. The site centres on an approximate National Grid Reference of 274670, 189870, occupying a plan area of approximately 0.21 Hectares.

The site is the location of the Red Dragon pub, the pub occupies the north of the site with the car park occupying the rest of the site.

Site boundaries are defined by Moorland Road to the south, Abbeyville Road to the east and residential housing to the north and west

The site elevation is approximately 9m AOD and is level.

The site location can be seen on **Figure 2.1**.

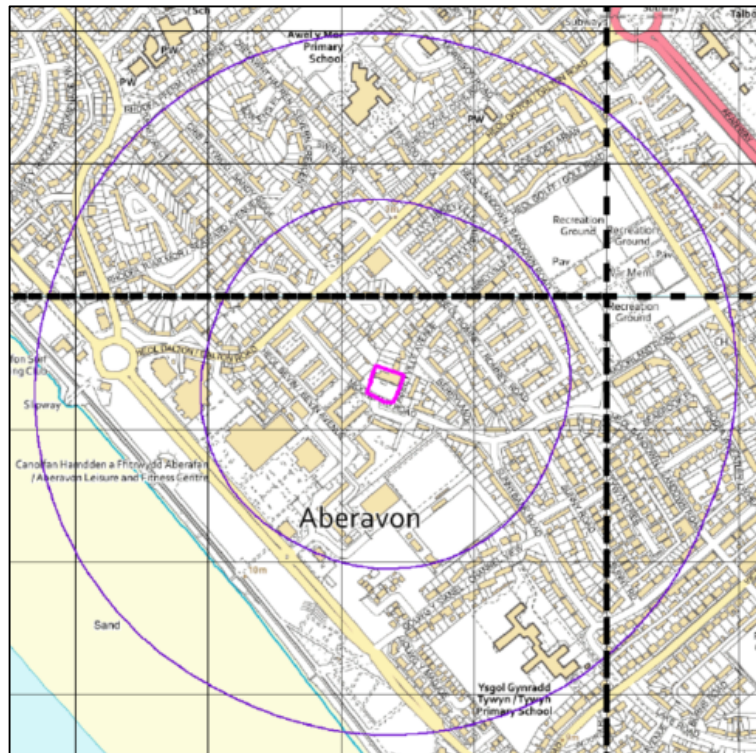


Figure 2.1 Site Location

2.2 Site History Summary

The earliest historic map, circa 1876, shows the site forms part of a sand dune and is covered in reeds. The historic map of 1952-1957 shows the Red Dragon pub has been built in the north of the site. By 2024 the pub has been extended and there have been no other significant changes.

2.3 Geology and Ground Conditions

The 1:50,000 and 1:10,560 scale British Geological Survey maps of the area, Sheet 247 and Sheet SS78NE respectively, and the online BGS GeoIndex map viewer were consulted for geology underlying the site.

The Envirocheck report shows the site to in an area of landscaped ground.

Detailed stratigraphical information is provided in **Table 2.1**.

Table 2.1 Detailed Stratigraphical Information

Age	Formation	Description
Recent	-	Made Ground - Clay, silt, sand gravel with anthropological material.
Quaternary	-	Blown sand - sand that has been transported by wind, or sand consisting predominantly of wind-borne particles.
Carboniferous	South Wales Middle Coal Measures	Grey, (productive) coal-bearing mudstones/siltstones, with seatearths and minor sandstones.

The ground conditions encountered by the exploratory holes in the grassy areas to the south of the site can in general be summarised as shown in **Table 2.2**.

Table 2.2. Summary of Typical Ground Conditions

Depth (m)			Thickness (m)	Stratum
0.00	-	0.25	0.25	MADE GROUND: Grass over slightly sandy gravelly CLAY .
0.00	-	0.05 - 0.10	0.05 - 0.10	MADE GROUND: Black TARMAC .
0.00	-	0.04	0.04	MADE GROUND: Grey PAVING SLAB .
0.04	-	0.14	0.10	MADE GROUND: Grey CONCRETE .
0.05 - 0.14	-	0.25 - 0.80	0.20 - 0.74	MADE GROUND: Medium dense black sandy GRAVEL with low cobble content.
0.25 - 0.80	-	8.20 - 9.10	7.40 - 8.60	Loose becoming medium dense yellow SAND .
9.10	-	10.00	0.90	Firm grey silty sandy CLAY .
10.00	-	12.50	2.50	Medium dense grey silty SAND .
12.50	-	14.20	1.70	Medium dense brown SAND with occasional shells.
8.20 - 14.20	-	16.10 - 22.20	1.90 - 14.00	Very loose to loose grey clayey silty SAND .
16.10	-	23.10	7.00	Very soft grey silty CLAY .
22.20 - 23.10	-	22.60 - 23.50	0.40	Soft dark grey CLAY with decomposing organic matter.
22.60 - 23.50	-	23.60 - >24.00	>0.50 - 1.00	Very dense grey slightly sandy GRAVEL with low cobble content.
23.60	-	24.10	>0.50	Possible SANDSTONE bedrock.

2.4 Radon

The Envirocheck Report details that no radon protective measures are required for new developments on the investigation site.

2.5 Hydrogeology and Hydrology

Superficial deposits beneath the site have an aquifer designation of secondary aquifer – A. The Aquifer is a High Vulnerability secondary aquifer.

The bedrock deposits beneath the site have an aquifer designation of secondary aquifer – A.

Deeper groundwater flow within the underlying bedrock will be controlled by the strata dip and any fractures or bedding planes within the rock units. Given the mining setting of the area underground workings are also likely to be acting as conduits for groundwater flow.

The hydraulic gradient will be at its steepest during periods of heavy rainfall and aquifer recharge.

It is anticipated that the groundwater is in hydrological continuity with Swansea Bay and may be tidal in nature.

The site does not locate within a groundwater source protection zone.

There is no groundwater abstraction points within 1000m of the site.

The nearest surface water feature locates off site 342m to the southwest and comprises Swansea Bay.

The topography of the local area slopes down towards to the southeast. Surface water is likely to drain in this direction.

Groundwater information recorded during the site investigation period is summarised in **Table 2.3**.

Table 2.3 Groundwater Summary

Location	Depth (m)	Details
BH01	23.00	Fast inflow rising to 1.40m after 20 minutes
BH02	22.10	Fast inflow rising to 9.10m after 20 minutes
WS01	4.40	Slow inflow
WS02	4.36	Slow inflow
WS03	4.40	Slow inflow
WS04	4.44	Slow inflow

2.6 Identified Contamination

2.6.1 Soils

During the site investigation works six soil samples were taken and despatched to the accredited laboratories of Chemtest for laboratory chemical testing.

Contaminants of concern in soils are those that were found to exceed their residential threshold level and have been listed below in **Table 2.4**.

Table 2.4. Contaminants of Concern in Soils

Location	Depth	Contaminant	Source
WS02	0.30	Arsenic	S1 – Made ground
BH01	0.30	Arsenic	S1 – Made ground

2.6.2 Ground Gasses

During the site investigation gas monitoring points were installed in WS01, WS02, and WS03 with six rounds of gas monitoring undertaken.

Recorded gas concentrations are summarised in **Table 2.5**.

Table 2.5. Measured Gas Concentration Summary

Gas	Minimum (% V/V)	Maximum (% V/V)
Methane	0.0	0.0
Carbon Dioxide	0.1	0.8
Oxygen	19.5	20.8

Based on a flow rate of 0.4l/hr and the highest recorded carbon dioxide concentration of 0.8%, a gas screening value of 0.0032 l/hr is calculated

When the calculated Gas Screening Value (GSV) is compared with Table 2 of BS8485:2015, the site is classified as 'Gas Characteristic Situation 1' (GCS1).

Sites classified as CS1 require no special ground gas protection measures to be incorporated within the construction.

SECTION 3 Sources of Contamination Requiring Remediation

The summary of the refined conceptual site model is presented in **Table 3.1** and based on findings of previous investigations and assessments, detailing significant pollutant linkages requiring remediation or mitigation.

Table 3.1 Summary of Significant Pollutant Linkages

Source	Pathway	Receptor
Made ground	Direct soil and dust ingestion P1 Plant uptake & consumption of home grown produce P2 Dermal contact P3 Inhalation of dust and vapours P4	Construction and maintenance workers R1 Passers-by or neighbouring site users R3 Future site users (Residents) R2

SECTION 4 Proposed Remedial and Mitigating Measures

4.1 General

Based on the finding of previous investigations and assessments, and the identified pollutant linkages, the following remedial measures have been devised for the site.

Specific validation requirements for the proposed remedial measures are discussed in the following section.

4.2 Protection of Construction & Maintenance Workers and Passers-by or Neighbouring Site Users

The potential production of soil dust containing contaminants during construction works presents a risk to construction and maintenance workers as well as passers-by or adjacent site users through inhalation pathways.

As good practice, construction workers should adhere to good site management, COSHH, good standards of hygiene and appropriate health & safety on site, with personal protection equipment (PPE) and dust suppression where appropriate.

It is therefore essential that the contractor puts in place adequate measures to ensure the safety of all workers.

If during the development works any other unexpected ground conditions or evidence of contamination is found, inspection by a geoenvironmental engineer should be made, and any required testing or investigation carried out prior to continuation of works.

Prior to disposal off-site of excavated materials, soils should be carefully handled to prevent transfer of contamination to clean materials.

These measures should be detailed in the contractor's Risk Assessment and Method Statements as well as the contractor's Construction Management Plan.

If during the development works any other unexpected ground conditions or evidence of contamination is found, inspection by a geo-environmental engineer should be made, and any required testing or investigation carried out prior to continuation of works.

4.3 Protection of Future Site Users (Residents and Visitors)

Future site users will potentially be at risk from direct soil and dust ingestion, dermal contact and inhalation of dust and vapours from soils containing contaminants, during excavation of made ground soils while undertaking gardening activities. Future site users are also at risk from the consumption of home grown produce grown within contaminated made ground soils.

To avoid disposal of made ground at landfill, the client proposes to install a capping system to interrupt the link between the source and receptor rather than remove of the contaminant source.

To protect future site users from the identified contamination the whole site will need to be capped. The capping design can be found in the following subsections.

The capping soils should also be physically suitable and contain no 'sharps' as defined in BS8332:2015 Specification for Topsoil and BS8601:2013 Specification for Subsoil and Requirements for Use.

The possibility of a site end user coming into contact with contaminated soils buried at a depth greater than 600mm is negligible. However, the potential of deep excavations for tree planting, ponds, foundations and fences posts cannot be completely ruled out but is considered in the BRE Cover Systems for Land Regeneration, Thickness of Cover Systems for Contaminated land. It advises that;

'Property owners should be adequately informed i.e. if these materials are excavated that the normal good practice should be applied such as handwashing etc., that appropriate disposal off site may be required and that arisings should not be dispersed at the surface.'

Validation of the various components, geogrid, capping system and imported materials, will be required.

Clean material should also be placed along service runs where they do not fall in the capping systems.

4.3.1 Buildings and Hard Standing

The capping should consist of the proposed buildings and hard standings (access roads, driveways and parking areas). These are considered as permanent structures and are sufficiently robust as to break the source, pathway, receptor linkage.

4.3.2 Gardens and General Soft Landscaping

In garden and soft landscaped areas, the capping should consist of 600mm of suitable inert topsoil, and subsoil. The topsoil should be between 150mm and 300mm thick with the remainder comprising subsoil for a total thickness of 600mm. The design of the capping layer is shown in **Table 4.1**.

Table 4.1 Cover System Design (Garden and General Soft Landscaping)

	Component	Thickness (mm)
	Topsoil	150-300
	Subsoil	300-450 Combined thickness with topsoil to achieve a minimum 600mm thickness.

4.3.3 Rain Gardens

The typical rain garden construction is summarised in **Table 4.2**. The total thickness of 480-530mm with two layers of membrane and a layer of crushed aggregate, is considered sufficient to break the source, pathway, receptor linkage. The construction details can be seen in **Annex A**.

Table 4.2 Cover System Design (Typical Rain Gardens)

	Component	Thickness (mm)
	Mulch Layer	30
	Bourne Amenity Bioretention Soil	400
	Terram T700 Geotextile	-
	4-20mm crushed aggregate	50-100

	Impermeable Membrane	-
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4.3.4 Trees

The typical tree planter construction is summarised in **Table 4.3**. Where trees are to be planted at depths greater than 600mm the thickness of the capping soils should be extended so that the entire root ball is encapsulated within the capping layer. Construction details presented in **Annex A** show trees will be planted in a 1m x 1m x 1m pit.

Table 4.3 Cover System Design (Typical Rain Gardens)

	Component	Thickness (mm)
	Topsoil	300
	Subsoil	700.

4.4 Protection of Construction Materials (Potable Water Supply Pipes)

Potable water supply pipes are at risk of degradation when in contact with made ground soils containing PAH contaminants.

It is recommended that a Potable Water Supplier should complete an assessment in accordance with UK Water Industry Research guidance; Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites, UKWIR Report Ref: 10/WM/03/21. The assessment should determine the selection of Water Supply Pipe material.

SECTION 5 Validation of Remedial and Mitigating Measures

The following remedial measure will require verification and inclusion within a Validation Report:

- Capping system (importation of soils and installation)
- Potable water supply pipe (assessment and installation)

5.1 Imported Soil Validation

Importation of soils will be required to provide a capping layer of clean material in soft landscaped and garden areas. Where possible site won soils should be used provided they are chemically and physically suitable.

All imported soils, aggregate or stone that are not virgin quarry stone should be validated as suitable for use. Imported materials exempt from validation testing should be accompanied by a transfer note. Transfer notes should be retained and submitted for inclusion within the Validation Report upon completion of the works.

The provider should supply a laboratory analysis report to confirm that the soil/aggregate/stone is suitable for use. Depending on the source and available test data, it may be prudent to independently sample and analyse the materials (if practical) prior to being brought to site.

Sampling and analysis of the soil/aggregate/stone once imported will be required in addition to any taken at source.

In accordance with publication 'Requirements for the Chemical testing of Imported Materials for Various End Uses and Validation of Cover Systems' the number of representative samples required for analysis is dependent on the volume of each source soil. For a volume between 20m³ and 250m³ four samples should be taken. For a volume greater than 250m³, 4 samples per 250m³ should be taken. Where quantities exceed 1000m³ appropriate sampling scheme should be agreed with the CLO/EHO.

As per the aforementioned document "It is strongly recommended that, before importing any material to site, the intended sampling regime for that material is discussed and agreed in advance with the Local Authority LPA/CLO/EHO"

For the importation of soils to site the Imported Materials Declaration Form should be completed. A copy of the form can be found in **Annex B**.

All samples should be analysed for the determinants listed in **Table 5.1**.

The soils should also be physically suitable and contain no 'sharps' as defined in BS8332:2015 Specification for Topsoil and BS8601:2013 Specification for Subsoil and Requirements for Use.

Table 5.1. Validation Criteria

Determinand	Units	Guideline Value (Residential without plant uptake)	Source
Inorganic			
Arsenic	mg/kg	40	1
Boron	mg/kg	11000	1
Cadmium	mg/kg	85	1
Chromium III	mg/kg	910	1
Chromium VI	mg/kg	6	1
Copper	mg/kg	7100	1

Lead	mg/kg	310	2
Mercury	mg/kg	56	1
Nickel	mg/kg	180	1
Selenium	mg/kg	430	1
Zinc	mg/kg	40000	1
Cyanide	mg/kg	8*	3
Asbestos	%	Non Detected	-
Organics – Phenol & PAH			
Phenol	mg/kg	120	1
Naphthalene	mg/kg	2900	4
Acenaphthylene	mg/kg	3000	4
Acenaphthene	mg/kg	2800	4
Flourene	mg/kg	1300	4
Phenanthrene	mg/kg	31000	4
Anthracene	mg/kg	1500	4
Fluoranthene	mg/kg	3700	4
Pyrene	mg/kg	11	4
Benzo(a)anthracene	mg/kg	30	4
Chrysene	mg/kg	3.9	4
Benzo(b)fluoranthene	mg/kg	110	4
Benzo(k)fluoranthene	mg/kg	3.2	4
Benzo(a)pyrene	mg/kg	45	4
Indeno(123cd)pyrene	mg/kg	0.31	4
Dibenzo(ah)anthracene	mg/kg	360	4
Benzo(ghi)perylene	mg/kg	2900	4
Organics – TPH			
PH C5 – C6 Aliphatic	mg/kg	42	4
PH C6 – C8 Aliphatic	mg/kg	100	4
PH C8 – C10 Aliphatic	mg/kg	27	4
PH C10 – C12 Aliphatic	mg/kg	130	4
PH C12 – C16 Aliphatic	mg/kg	1100	4
PH C16 – C21 Aliphatic	mg/kg	65000	4
PH C21 – C35 Aliphatic	mg/kg	65000	4
PH C5 – C7 Aromatic	mg/kg	370	4
PH C7 – C8 Aromatic	mg/kg	860	4
PH C8 – C10 Aromatic	mg/kg	47	4
PH C10 – C12 Aromatic	mg/kg	250	4
PH C12 – C16 Aromatic	mg/kg	1800	4
PH C16 – C21 Aromatic	mg/kg	1900	4
PH C21 – C35 Aromatic	mg/kg	1900	4
1 - LQM/CIEH Suitable For Use Level (S4UL) 2015			
2 - Defra Category 4 Screening Level (Provisional value)			
3 - Environment Agency CLEA v1.06 Derived Value (Now withdrawn)			
4 - S4UL threshold based on 1% soil organic matter			

5.2 Capping System

Once the imported soils have been tested and laboratory analysis has confirmed they are suitable they can be placed in soft landscaped and garden areas. Once placement of the 600mm of clean material in the soft landscaped and garden areas has been completed verification of the capping thickness should be undertaken. A total of five verification pits are proposed, the locations of which are shown in **Figure 5.1**.

Validation of the capping system will comprise photographic evidence clearly showing the thickness and depth of individual strata.

In validation pits for rain gardens, it will only be possible to confirm the thickness of soils placed as further excavation would damage the placed membranes. Photographic evidence of their construction should be recorded by the **groundworker**.

Chemical test certificates will also be included.



Figure 5.1 Proposed Capping Verification Locations

5.3 Potable Water Supply Pipes

A copy of the potable water supply pipe assessment, along with evidence of the water supply pipe installation, should be retained for inclusion in the Validation Report.

Photographic evidence of the installation shall be provided by the **groundworker** for inclusion in the Validation Report.

The potable water supplier responsible for signing off the installation of the potable water pipework should provide a report of their visit for inclusion in the validation report.

5.4 Validation Report

Following completion of the works a verification report should be compiled demonstrating the completion and effectiveness of the works set out in the Remediation Strategy.

The Verification Report should include, but not limited to, the following:

1. A record of any areas where made ground is removed (service runs, under roads etc).
2. If made ground is disposed of off-site, a record of the volume removed, from which areas and details of the receiving landfill. Transfer tickets should be retained.
3. If excavated made ground is to be retained on site the CL:AIRE materials management plan should be provided.
4. A record of the number of imported soil sources and their respective volumes
5. Details of the source and supplier of all imported soils
6. Chemical test certificates for imported soils where available from the provider
7. Chemical test data for all imported soils as sampled at source (if possible) and on site
8. Details of the source and volume of any imported stone/aggregate

SECTION 6 Working Practices

6.1 Protection of Construction Workers

In order that construction workers are protected during site works across the site the following should be adhered to:

1. Compliance with health and safety regulations
2. Provision of Method Statements and Risk Assessments
3. Compliance with Control of Substances Hazardous to Health (COSHH) Assessment
4. Good level of Personal Protection Equipment (PPE)
5. Good level of hygiene by site workers
6. Dust suppression measures
7. Emergency contingencies should be defined prior to commencement of site works

Further guidance for the safe working on contaminated site is presented in CIRIA Report 132:1996.

6.2 Protection of the Environment

During the remediation and construction periods, there is a risk to the environment and adjacent sites from de-watering, excavations, moving contaminated soil, drainage misconnections, discharges of perched groundwater to local surface waters or the ground, runoff from construction materials and/or exposed ground, wheel washing and oil or chemical spills.

A drainage plan should be devised, identifying manholes to prevent pollutants accidentally reaching surface water sewers. Temporary drainage measures may need to be put in place.

The contractor(s) must also strictly adhere to the Pollution Prevention Guidelines for Working at Construction and Demolition Sites (PPG6). This publication gives both advice and guidelines which should be followed with regards to the planning and preparation of site works, site drainage, delivery and storage of construction materials, the management of waste, good housekeeping in particular to prevent runoff of silt and other fines into nearby water courses, refuelling, concrete and what to do in the event of an emergency.

Within the documentation prepared by the contractor(s), the following information should be provided, but not limited to:

- Project Description
- Key participants/contractor(s)
- Technical procedures
- Phasing of works and approximate timescales
- Site plans to scale
- Details of consents or license needed
- Health and Safety, COSHH Assessment, Method Statements and Risk Assessments
- Emergency contingencies

In addition, the following precautions should also be taken.

- All potential chemicals and associated risks and emergency procedures for spills/leaks should be considered in the site risk assessment and the details provided to all site employees.
- Any potential pollutant materials or chemicals/detergents used on site should be adequately stored in suitable containers, with clear labelling.

- Any oil or hazardous substance containers and associated pipe works should be enclosed within a bund.
- Care taken during delivery of materials, with correct supervision and labelling detailing the substance and its quantities.
- All delivery drivers should be informed of procedures and restrictions.
- Any materials on delivery should be covered to ensure there is no spillage.
- Any detergents, paints, chemicals etc should not be allowed to be discharged into surface drains or water courses.
- Washing out and cleaning of concrete/cement plant should be carried out in a contained area with adequate measures to collect all run-off water.
- Security and prevention of vandalism, especially of oil drums/containers.

6.3 Management & Disposal of Soils

During site works excavations of the made ground are anticipated.

All materials excavated should be managed and stored appropriately in a controlled manner to ensure protection of site construction workers and neighbouring site users, and to prevent the transfer of contamination to other areas of the site.

If possible, and if levels allow, and excavated made ground should be retained on site and relocated beneath areas of hardstanding. This would provide the most sustainable approach and avoid landfill and haulage fees, disruption and aggravation of local residents caused by haulage lorries, and would avoid unnecessary CO₂ emissions.

Any movement and transfer of materials on site should be documented in materials management plan, in accordance with 'CL:AIRE Definition of Waste: Development Industry Code of Practice (DoW CoP)'.

Alternatively, excavated made ground may be disposed of at landfill. Prior to disposal classification of the material will need to be completed in accordance with Environment Agency protocol detailed in 'Technical Guidance WM3 – Waste Classification - Guidance on the Classification and Assessment of Waste'.

A contaminated land specialist should supervise and document any earthworks on site.

Waste transfer and disposal must be undertaken by an authorised person. A waste transfer note must accompany each load and records should be maintained for inspection if required

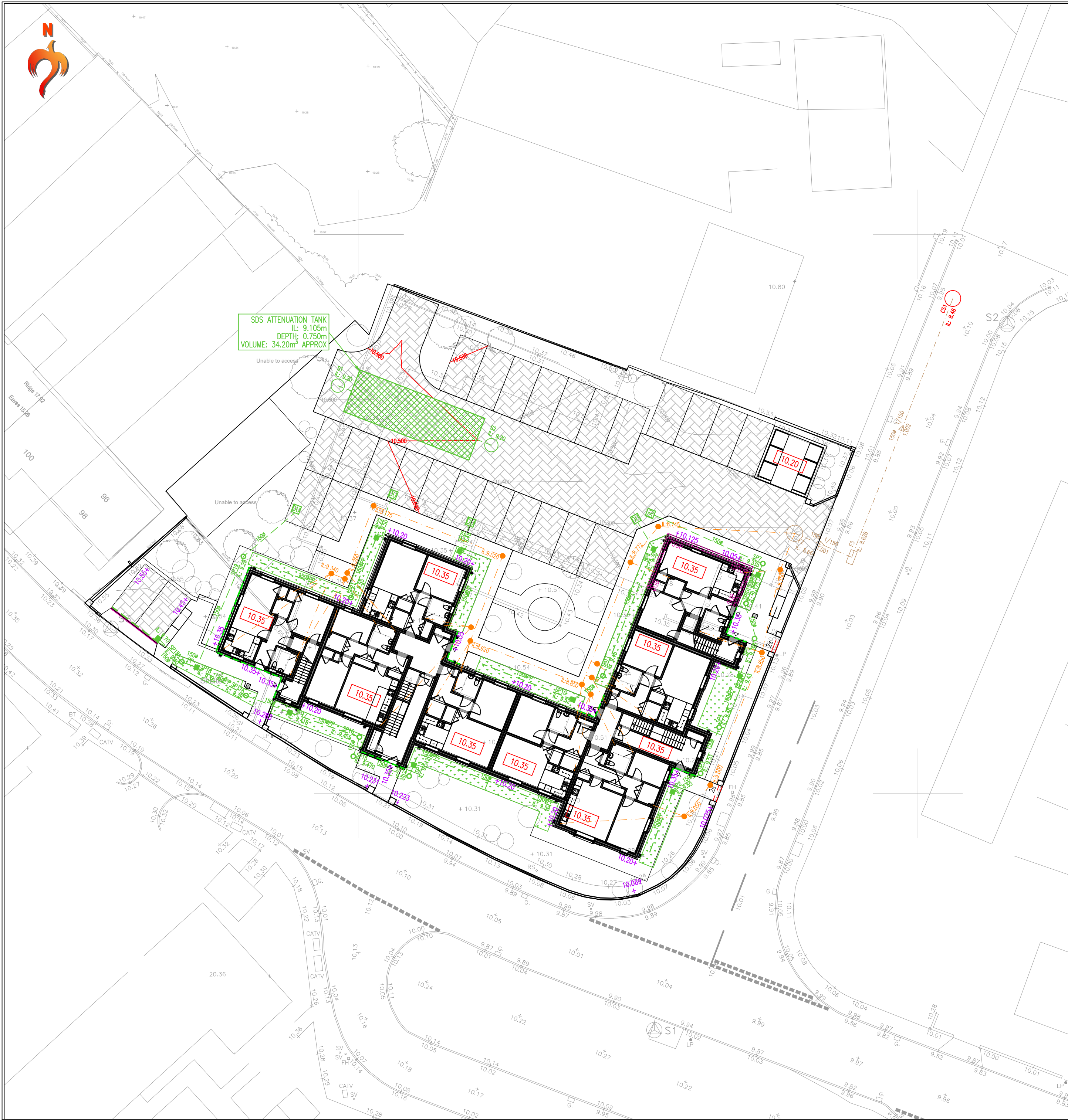
ANNEX A
SuDS Feature Construction Details

IMPORTED MATERIALS DECLARATION FORM

1.	Planning Permission Number	2.	Development Address		
3.	Proposed use(s) of ALL imported material(s)	4.	Description of material imported	British Standard Certification supplied	
				Yes	No
☐	Engineering use/works (e.g. backfill, sub formation, foundation)	☐	Topsoil	☐	☐
☐	Domestic Garden use (inc. crop growing)	☐	Subsoil	☐	☐
☐	Landscaping (play areas, communal areas, roadside)	☐	Aggregate	☐	☐
☐	Other <i>Please specify</i>	☐	Quarry stone	☐	☐
			Other (<i>Please specify</i>) _____	☐	☐
5.	Origin of Imported Material(s) ☐				
☐	Greenfield Site (<i>Please specify</i>) _____				
☐	Brownfield Site (<i>Please specify</i>) _____				
☐	Recycling / Process supplier (<i>Please specify</i>) _____				
	Other (<i>Please specify</i>) _____				
6.	Volume(s) of Material to be Imported	7.	No of samples taken (per source)		
☐	Less than 20m ³	☐	2-3		
☐	Between 20m ³ - 100m ³	☐	4-6		
☐	More than 100m ³	☐	More than 6 (<i>please specify</i>) (NB: All analyses (where applicable) must be subject to MCERTS accreditation ⁽¹⁾ at a certified laboratory)		
8.	Suitability of Use				
Confirmation that soil imported does not contain any evidence of Japanese Knotweed stems, leaves and rhizomes. YES ☐ NO ☐					
Confirmation the imported soil does not contain any unprocessed / unsorted demolition waste YES ☐ NO ☐					
Confirmation that the soil imported does not contain contaminated or potentially contaminated by chemical or radioactive substances YES ☐ NO ☐					
Confirmation that the soils imported is suitable for use for the intended purpose on site YES ☐ NO ☐					
Signed:.....Date:.....					
Name:.....Position:.....					
Company Name and Address					

ANNEX B
Imported Material Declaration Form





DRAINAGE NOTES

- ALL PRIVATE DRAINAGE SHALL BE IN ACCORDANCE WITH BS8301 AND RELEVANT SECTIONS OF APPROVED DOCUMENT H OF THE BUILDING REGULATIONS.
- ALL SURFACE WATER CONNECTIONS FOR PRIVATE DRAINAGE SHALL BE 150mm UNLESS NOTED OTHERWISE AND MUST EXTEND 500mm BEHIND THE BACK OF FOOTWAY/HOMEZONE ROAD. ALL CONNECTIONS WHEN LAID SHALL BE PLUGGED, PROTECTED AS NECESSARY AND MARKED WITH A STAKE FOR FUTURE USE. ALL FW DRAINAGE LATERALS FROM THE ADOPTABLE DRAINAGE SYSTEM TO BE 100mm.
- FOR PRIVATE DRAINS WHERE COVER TO PIPES IS LESS THAN 900mm IN VEHICULAR AREAS OR 600mm IN OTHER AREAS PROTECTION IN THE FORM OF A 100mm THICK CONCRETE SURROUND.
- WHERE PIPES PASS THROUGH SCREEN WALLS, FOOTINGS OR RETAINING WALLS LINTELS ARE TO BE PROVIDED OVER. UNDER BUILDINGS PIPES SHALL BE SURROUNDED WITH 150mm THICKNESS OF GRANULAR MATERIAL. WHERE DRAINS PASS WITHIN 1m OF BUILDINGS THE WALL FOUNDATION SHALL BE TAKEN DOWN BELOW THE INVERT OF THE PIPE.
- WHERE DRAINS DO NOT EXCEED 600mm DEEP, PLASTIC OR CLAY ACCESS FITTINGS MINIMUM DIAMETER 225mm SHALL BE USED. ELSEWHERE PROPRIETARY PLASTIC OR PRECAST CONCRETE INSPECTION CHAMBERS SHALL BE USED.
- ALL GULLIES AND RAINWATER DOWNPIPES CONNECTED DIRECTLY TO DRAINS ARE TO BE RODDABLE.
- LEVELS AT DRAINAGE ACCESS POINTS ARE INVERTS.
- ALL BRANCH DRAINS, OR CONNECTIONS, ARE TO DISCHARGE TO THE COLLECTORS OBLIQUELY, AND IN THE DIRECTION OF THE MAIN FLOW.
- ALL ADOPTABLE SURFACE WATER LATERALS ARE TO BE 150mm UNLESS NOTED OTHERWISE.
- ALL ADOPTABLE FOUL LATERALS ARE TO BE 100mm UNLESS NOTED OTHERWISE.
- ALL PRIVATE FOUL CHAMBERS IMMEDIATELY OUTSIDE THE PROPERTY ARE TO BE A MINIMUM OF 750mm FROM THE FFL OR 600mm FROM THE EXTERNAL LEVEL.
- ALL DRAINAGE TO BE ADOPTED UNDER A SECTION 104 AGREEMENT SHALL BE CARRIED OUT IN ACCORDANCE WITH 'SEWERS FOR ADOPTION 7TH EDITION' INCLUDING THE DCWW ADDENDUMS.
- REFER TO MANHOLE SCHEDULES FOR FURTHER INFORMATION.
- ALL MANHOLES USED FOR LATERAL DRAINS ARE TO BE EITHER TYPE 3 OR 4.
- ALL FOUL LATERALS OF 100mm DIAMETER ARE TO HAVE A MINIMUM GRADIENT OF 1 IN 80 AND A MAXIMUM GRADIENT OF 1 IN 5.
- ALL PIPE CONNECTIONS ARE TO BE SOFFIT TO SOFFIT CONNECTIONS UNLESS OTHERWISE SPECIFIED.
- MADE GROUND BENEATH RAIN GARDENS TO BE EXCAVATED AND REMOVED.

GENERAL NOTES

- DO NOT SCALE FROM THIS DRAWING.
- THE CONTRACTOR IS TO CHECK AND VERIFY ALL BUILDINGS AND SITE DIMENSIONS AND LEVELS, INCLUDING SEWER INVERT LEVELS, BEFORE WORKS START ON SITE. THE CONTRACTOR IS TO COMPLY IN ALL ASPECTS WITH THE CURRENT BUILDING LEGISLATION, BRITISH STANDARDS ETC.
- POSITIONS OF EXISTING SERVICES/STATUTORY UNDERTAKERS APPARATUS ADJACENT TO OR CROSSING PROPOSED EXCAVATIONS ARE TO BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING WORK.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH AND CHECKED AGAINST ALL OTHER DRAWINGS ENGINEERING DETAILS, SPECIFICATIONS AND ANY STRUCTURAL, GEOTECHNICAL OR OTHER SPECIALIST DOCUMENT PROVIDED. ANY ANOMALY OR CONTRADICTION BETWEEN ANY OF THE ABOVE IS TO BE REPORTED TO THE DEVELOPERS ENGINEER.
- ALL LEVELS ARE IN TERMS OF THE OS DATUM.

KEY

- 00.00 PROPOSED FINISHED FLOOR LEVEL
- +00.00 PROPOSED SPOT LEVEL
- UNDERBUILD
- DOUBLE DPC
- PROPOSED CONTOURS
- ATTENUATION TANK (PRIVATE)
- PERMEABLE PAVING (PRIVATE)
- RAIN GARDEN (PRIVATE)
- SURFACE WATER SEWER (PRIVATE)
- FOUL SEWER & MANHOLE
- COMBINED SEWER & MANHOLE
- SURFACE WATER SEWER (PRIVATE)
- OVERFLOW CHAMBER (PRIVATE)
- 2s STEPS
- FIN DRAIN (PRIVATE)
- DELINEATION KERB

Revision:

- L: 2026.04.16 F1 manhole removed - extended private network.
- K: 2026.04.08 Attenuation tank note updated.
- J: 2026.03.17 Private foul drainage added to the design.
- G: 2026.02.11 Attenuation tank upsized
- F: 2025.11.19 Engineering updated to suit new layout + surface water is now infiltrating
- E: 2025.08.12 Drainage updated per SFA 6/7
- D: 2025.08.07 Engineering updated to suit new layout
- C: 2025.06.19 Engineering updated
- B: 2025.05.15 Engineering updated per layout change
- A: 2025.04.29 Attenuation Tank updated - drainage updated - Hydrobrake updated

Project:

Red Dragon
Port Talbot

Client:



CASTELL GROUP
Property Development Specialists

Drawing:

Engineering Layout

Scale: 1:250 @ A2

Date: Oct 2024

Drawn by: EP

Drawing No:

10420 - 100 - 01

Rev: L

PHOENIX DESIGN
Partnership Ltd.

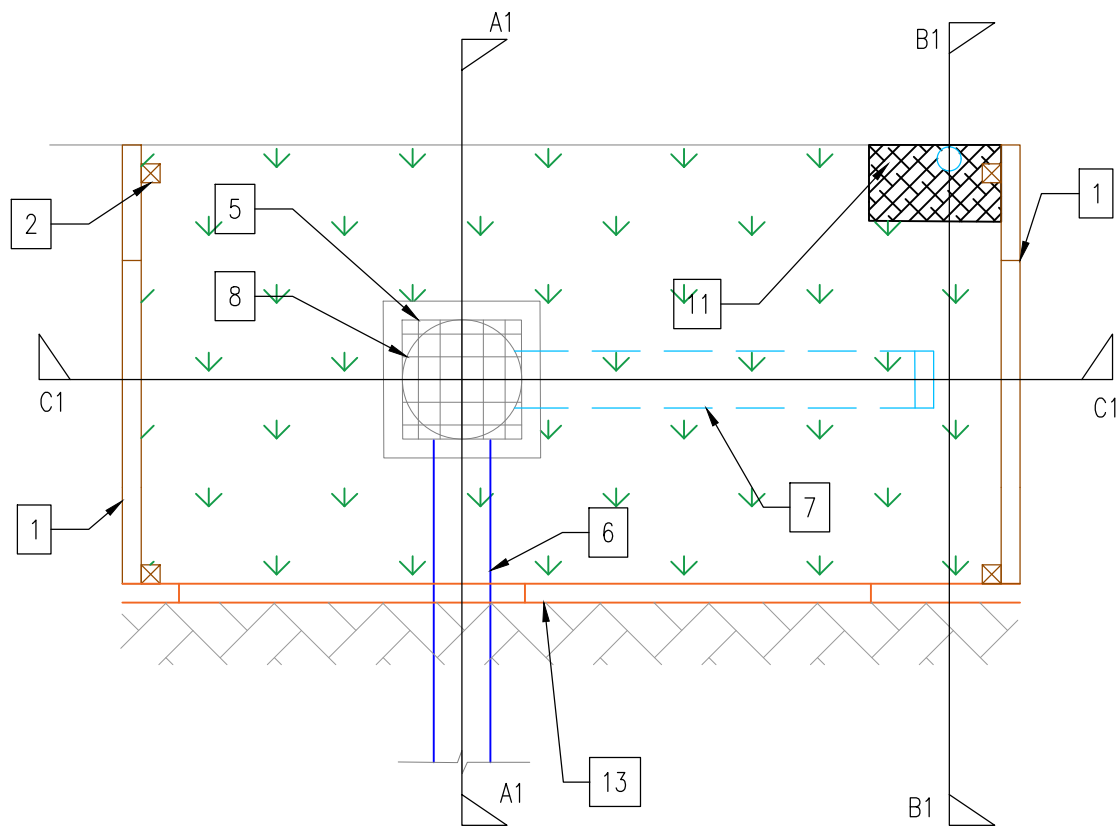
Unit 9, Westway Garage, Marksbury, Bath, BA2 9HN
tel. 01761 479950
email. enquiries@phoenixdp.co.uk

Suite 7, Unit Three, Melin Cornwg Business Parc, Upper Boat, Pontypridd, CF37 5BE. tel. 029 2049 0771
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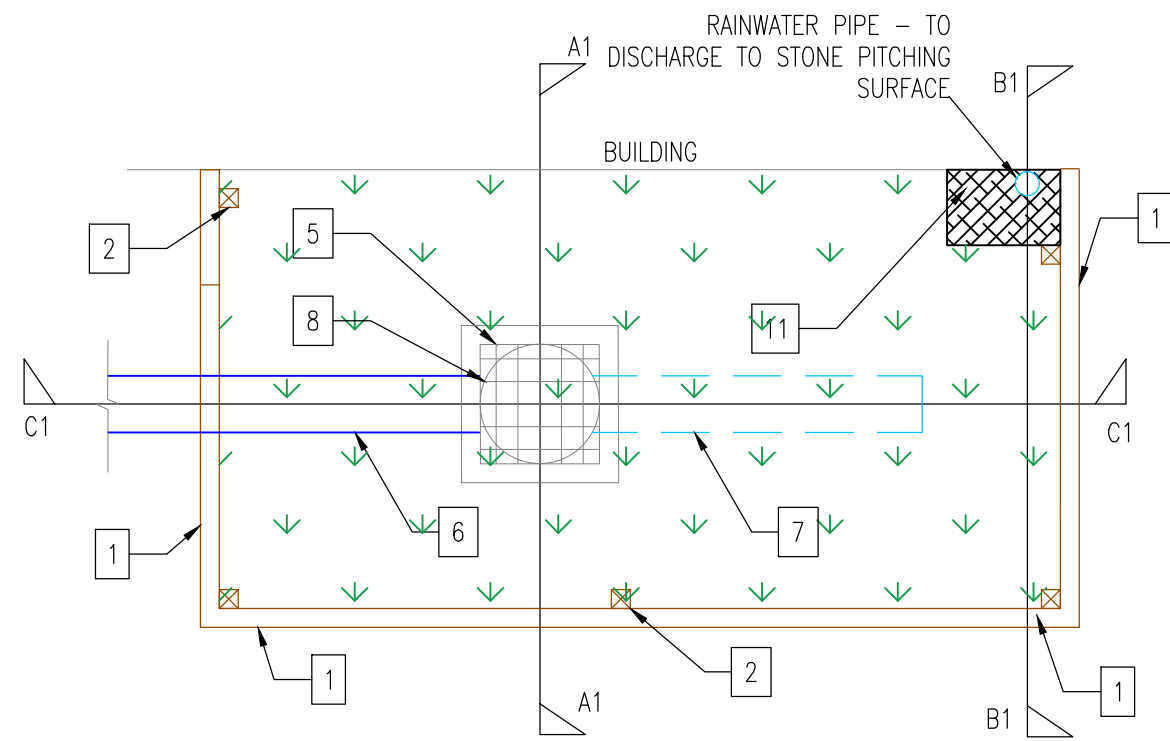
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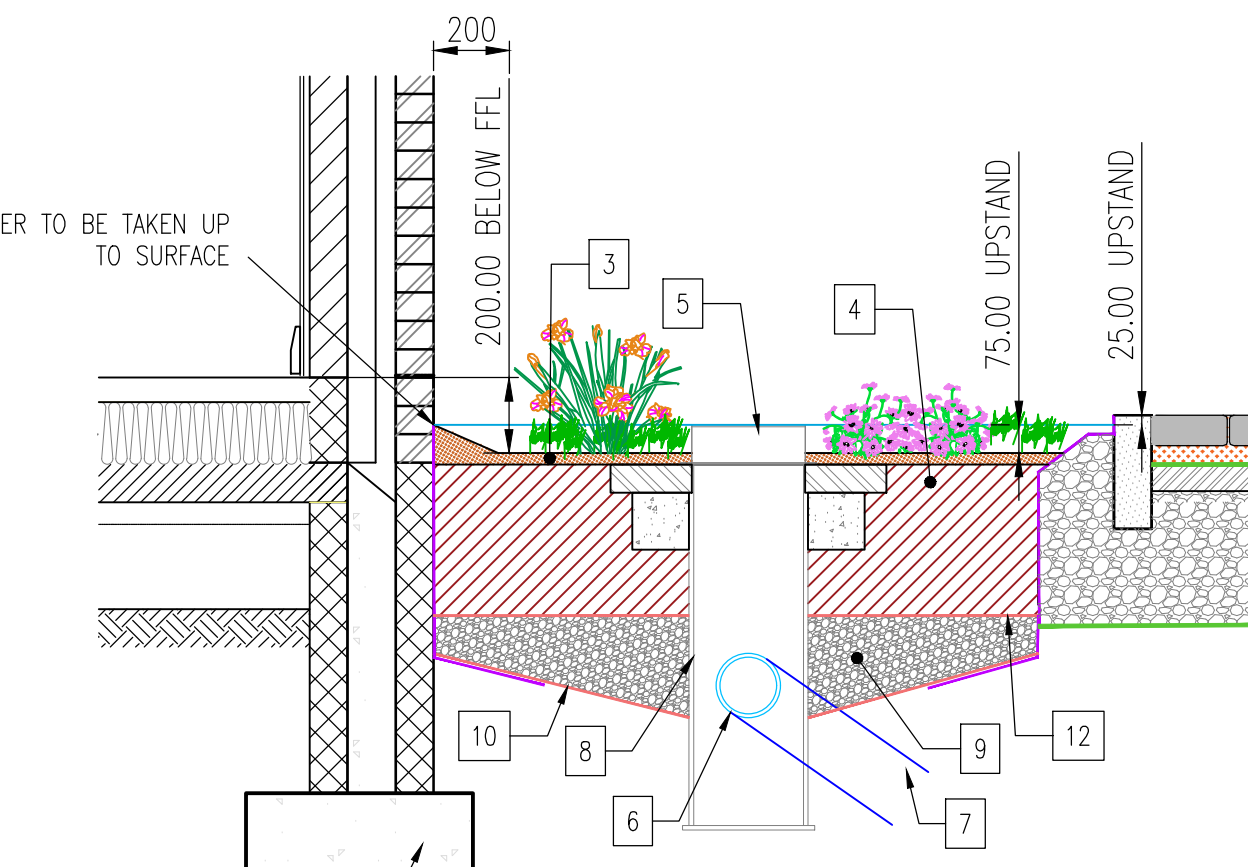
FOR APPROVAL



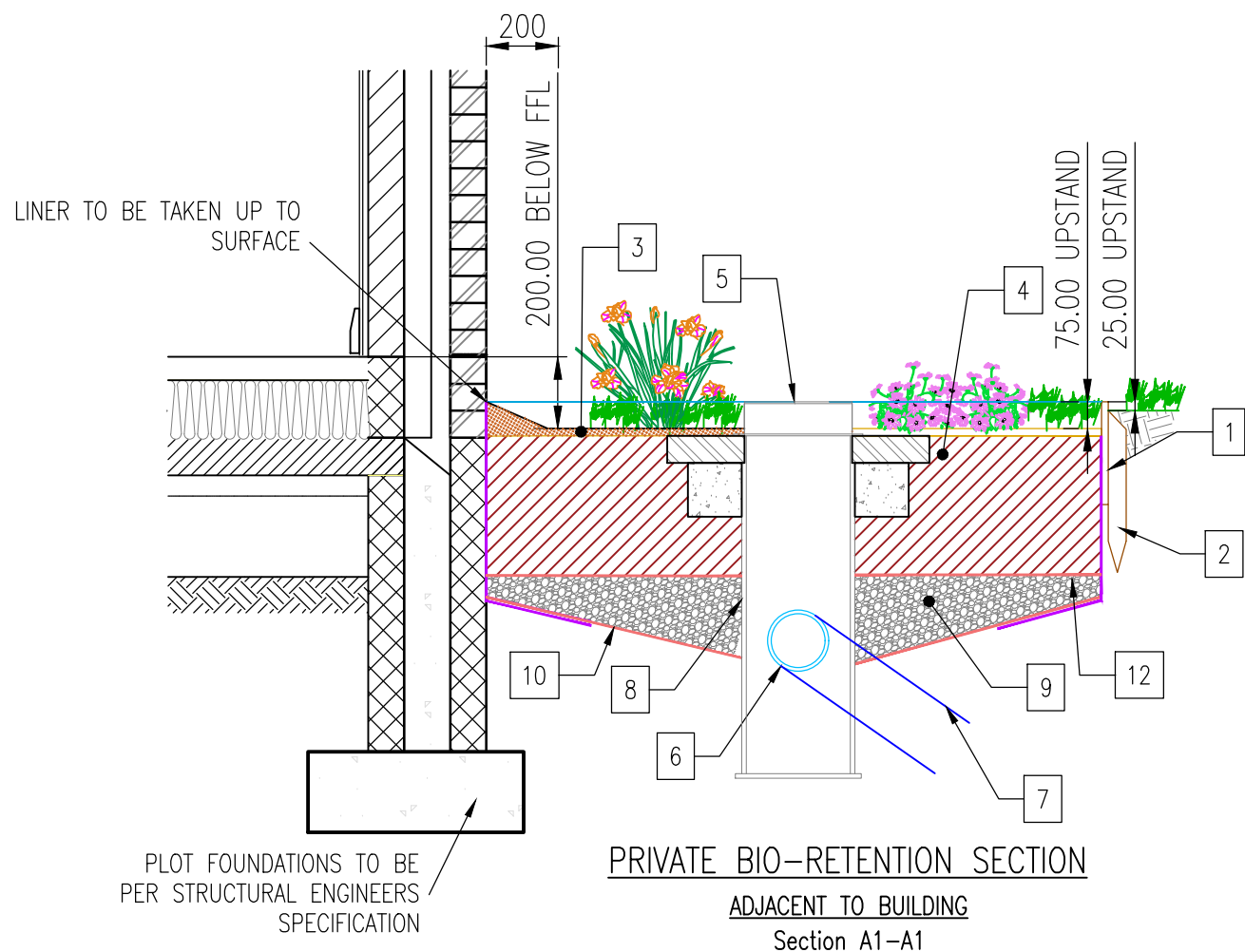
PRIVATE BIO-RETENTION PLAN
RAIN GARDEN ADJACENT TO BUILDING AND
NEXT TO CAR PARK



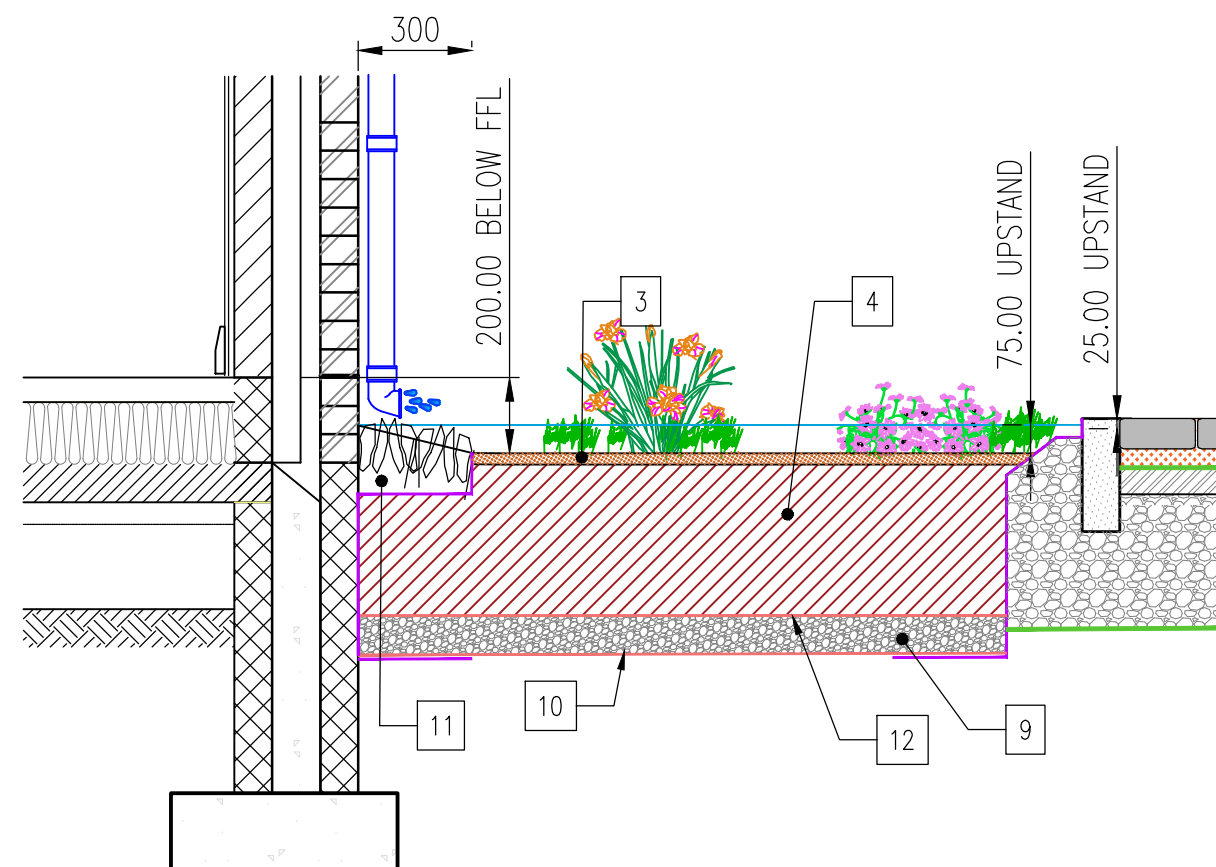
PRIVATE BIO-RETENTION PLAN
RAIN GARDEN ADJACENT TO BUILDING



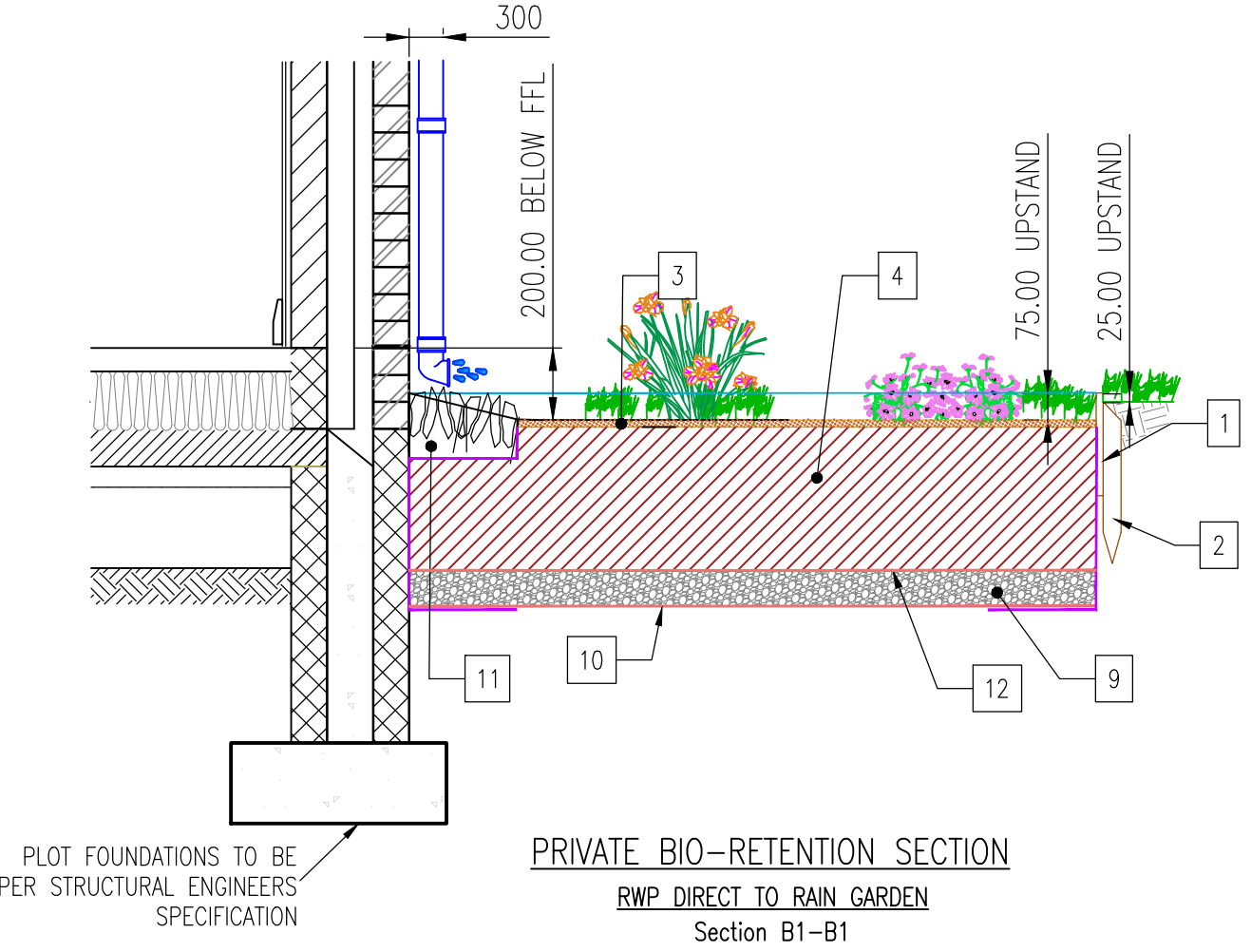
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ADJACENT TO BUILDING
Section A1-A1



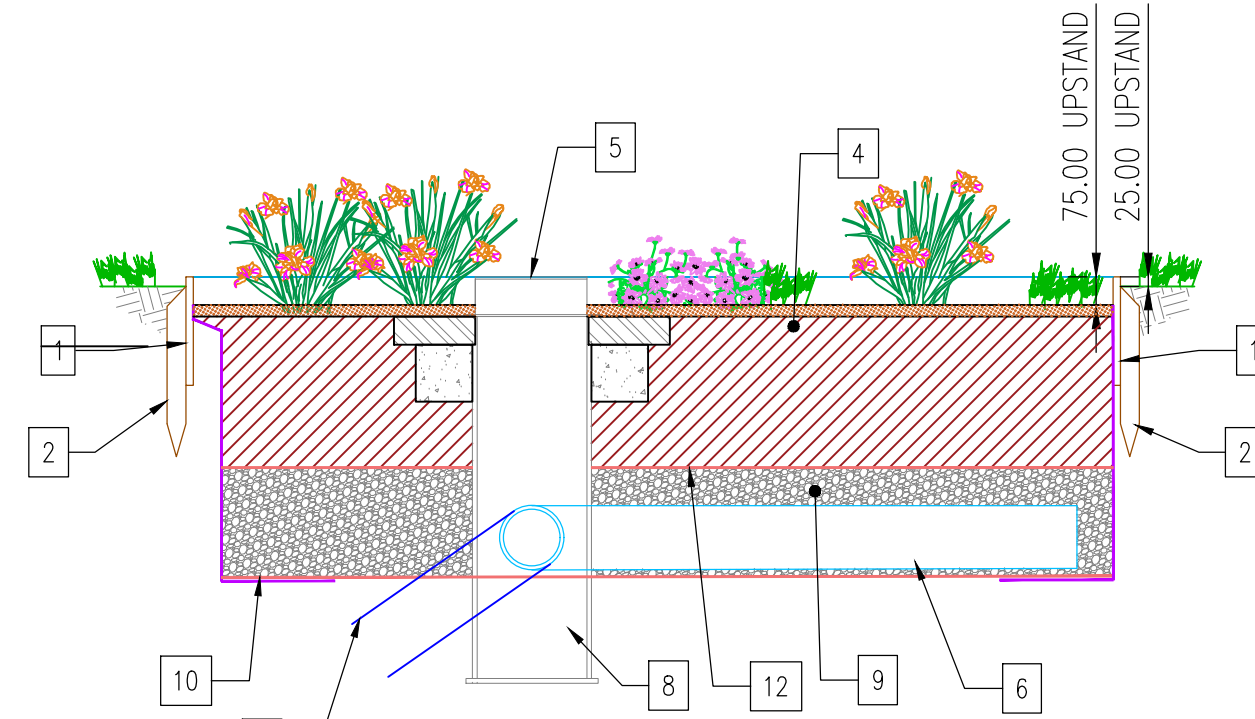
PRIVATE BIO-RETENTION SECTION
ADJACENT TO BUILDING
Section A1-A1



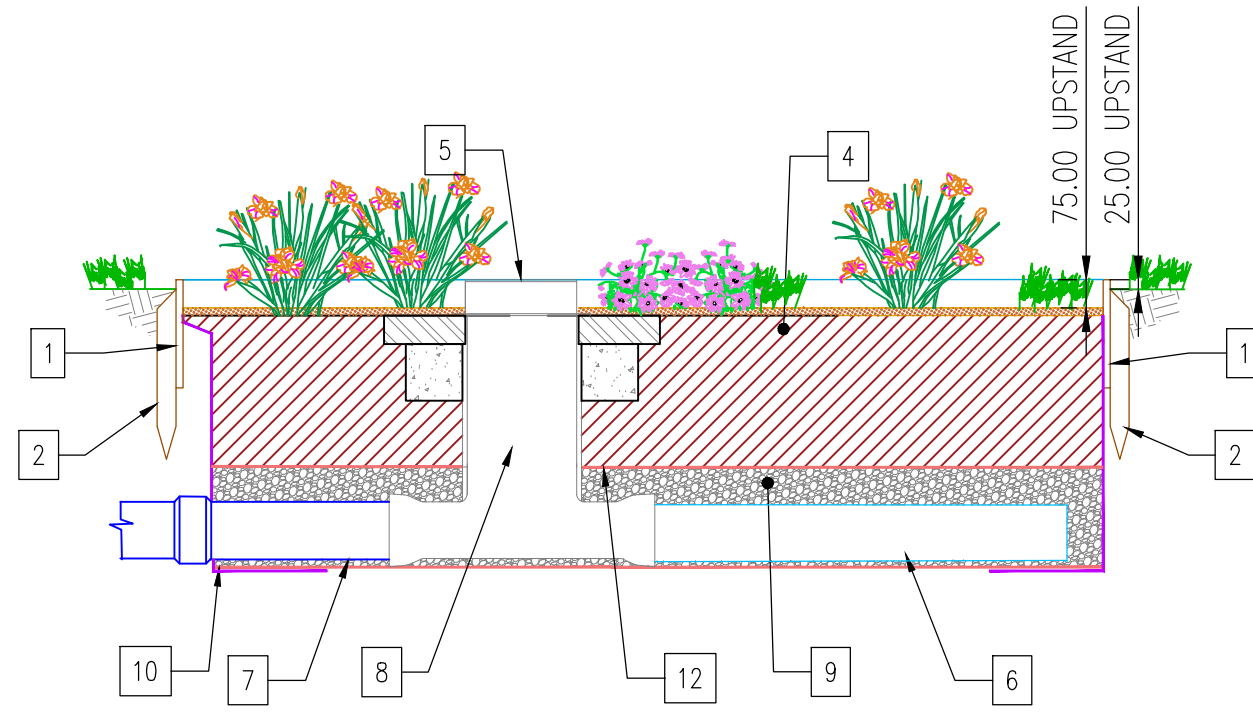
PRIVATE BIO-RETENTION SECTION
RWP DIRECT TO RAIN GARDEN
Section B1-B1



PRIVATE BIO-RETENTION SECTION
RWP DIRECT TO RAIN GARDEN
Section B1-B1



PRIVATE BIO-RETENTION SECTION
Section C1-C1

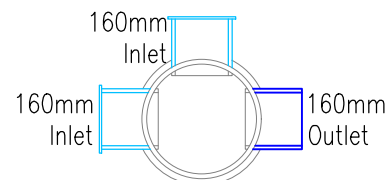
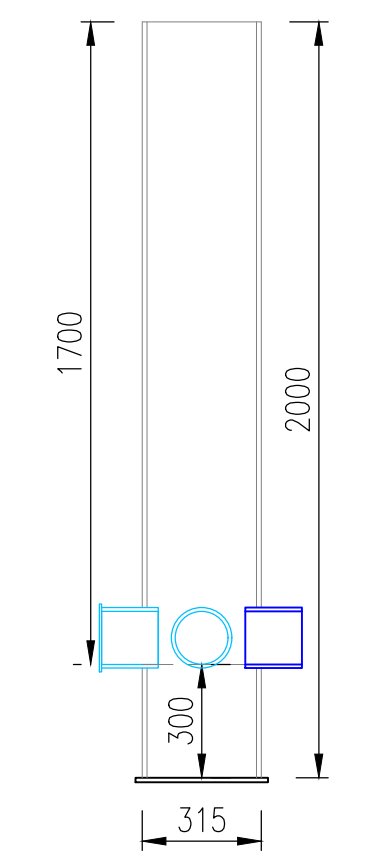


PRIVATE BIO-RETENTION SECTION
Section C1-C1

- GENERAL NOTES
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 - ANY ANOMALY OR CONTRADICTION BETWEEN ANY OF THE ABOVE IS TO BE REPORTED TO TAYLOR WIMPEY
- RAIN GARDEN NOTES
- 150x19mm TREATED BOARD FIXED TO STAKE WITH MIN 2N0. 50mm NAILS. TO BE SET WITH 25mm UPSTAND
 - 50x50x450mm TREATED AND POINTED STAKE AT 500mm CENTERS MIN. 250mm INTO GROUND
 - 30mm DEEP MULCH LAYER
 - 400mm BOURNE AMENITY BIORETENTION SOIL OSA. PLANTING TO LANDSCAPE ARCHITECTS DETAILS. SATURATED HYDRAULIC CONDUCTIVITY TO BE BETWEEN 200-300mm/hr.
 - GULLY GRATE TO BE CAST IRON B125 360x345x75mm,
 - 150mm Ø FULLY PERFORATED PIPE.
 - 150mm Ø uPVC PIPE.
 - SEL ENVIRONMENTAL BIORETENTION VERGE CHAMBER (OSA) (SEE DETAIL BELOW FOR SIZING AND MODEL REFERENCE).
 - 4-20mm CRUSHED AGGREGATE TO BS EN 13242 MIN 50mm DEPTH ON EDGES INCREASING IN DEPTH TO PIPE LOCATION. MIN 100mm COVER TO PIPE .
 - IMPERMEABLE MEMBRANE (WELDABLE)
 - WATER BREAK INLET - 100mm STONE COBBLES EMBEDDED 50mm INTO 150mm THICK CONCRETE (1:3 CEMENT SAND MORTAR BED).
 - TERRAM 1700 GEOTEXTILE
 - BN KERB 125 X 255

RAIN GARDEN BASE TO HAVE SLIGHT FALL TOWARD OVERFLOW UNIT

NOTE - RAIN GARDEN PLAN AREA TO VARY BASED UPON ENGINEERING PLAN LANDSCAPE ARCHITECT TO SPECIFY SUITABLE PLANTING



TO CATER 150mm PIPE
MODEL REF 'SP119'

SEL ENVIRONMENTAL SERVICES (OSA)
BIORETENTION VERGE CHAMBERS

CHAMBER TO BE CUT TO SIZE TO SUIT DEPTH. WHERE
DEEPER CHAMBERS CONTACT SEL ENVIRONMENTAL.

Revision:

Project: **Red Dragon Port Talbot**

Client:

CASTELL GROUP
Property Development Specialists

Drawing: **Rain Garden Details**

Scale: NTS @ A1 Date: Oct 2024 Drawn by: EG

Drawing No: **10420 - SAB - 105** Rev: -

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Org Status: **FOR APPROVAL**



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