ACBA 6005
Advanced Building Services

Advanced Building Services: Case study Lecture 2

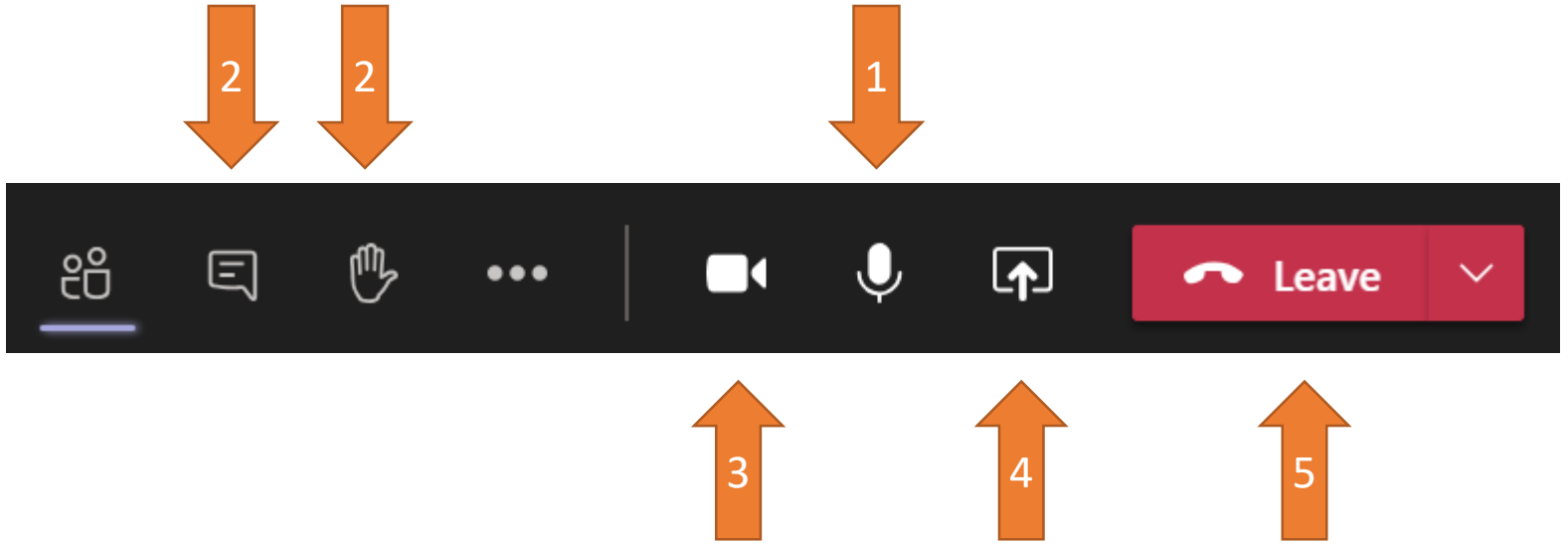
Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

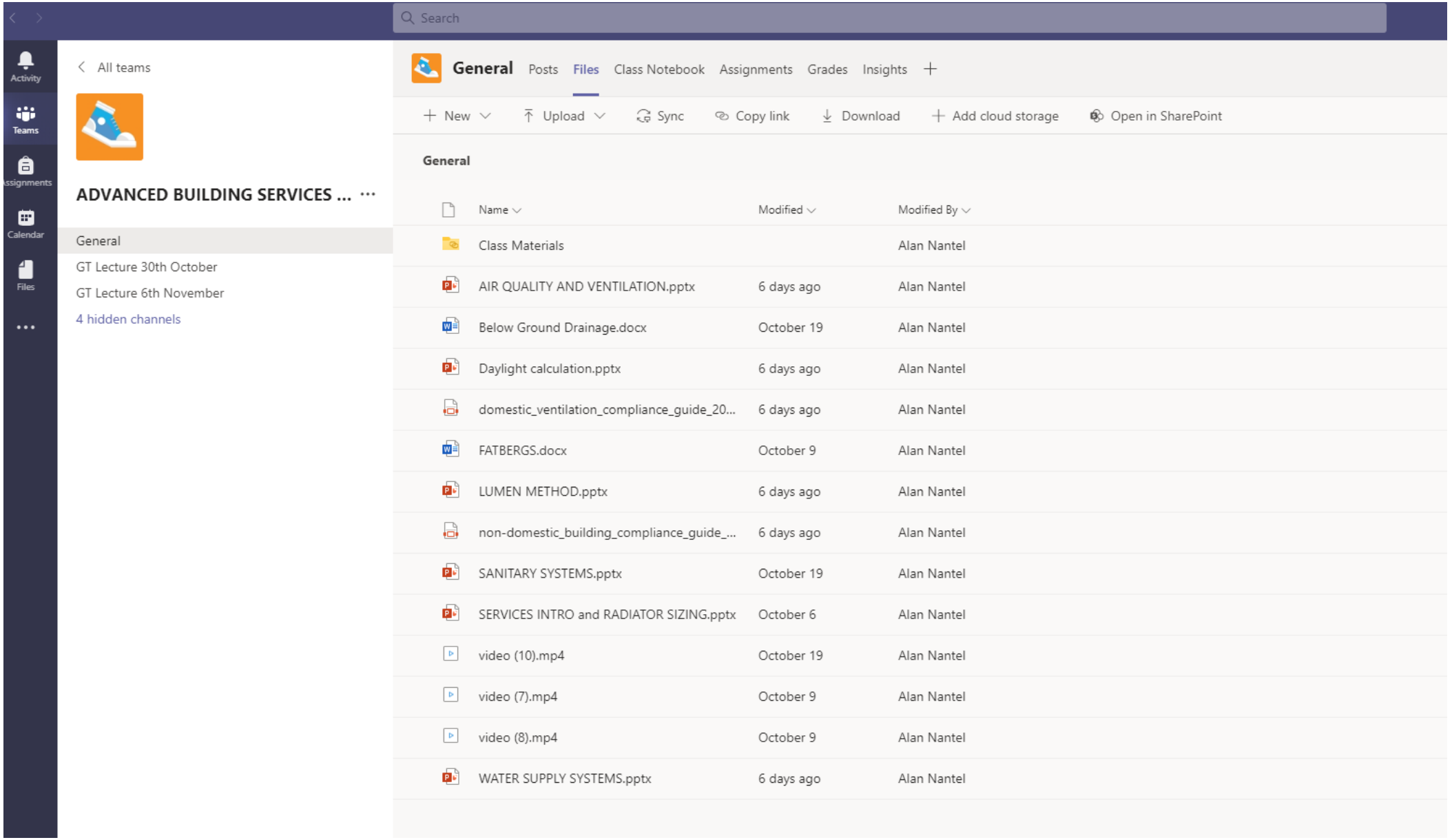


Gavin M Traylor RIBA

MS TEAMS HOUSEKEEPING

1. Mute your Microphone
2. Use Chat to Ask Questions or Put your hand Up
3. If you have a poor connection switch off Camera
4. I may ask you to share your screen.
5. When the lecture ends please hang up




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Module Aims:

To comprehend a broad application of technologies and design techniques used to satisfy the building service requirements within large commercial or complex/multi-zone buildings, and to evaluate the design requirements of these systems with consideration to sustainable design strategies.

Lecture Content:

Review of complex large scale new build project from inception to completion. In the form of a case study the review will aim to highlight key factors and strategies that influenced the client brief, the design, construction and operation of the building.

Part 1: Overview of the design development process up to Tender stage

Break

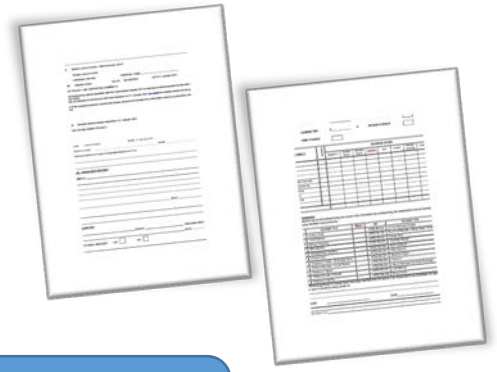
Part 2 Overview of Tender Process, Construction phase and Handover

Case Study 2:

Ysgol Treganna
New 3 Form Entry Primary School

Cardiff Council

In house commission.
Multidiscipline consultancy
Appointment through a
Service Level Agreement.



Projects Design & Development

Architects | Structures | M&E

Construction Mgmt. | Quantity Surveying | CDM

Appointment

Ysgolion yr 21ain Ganrif
21st Century Schools

All Wales Programme

Llywodraeth Cymru
Welsh Government

Match Funded

Education

SOP Mgmt. Team | Planning & Development Officers | Head teacher

Education Catering | School Staff Treganna | School Staff Tan Y Eos

Local Members

Finance

Highways & Parks

Procurement Services

Legal Services

Consultant

Client

Stakeholders

The Client Brief: January 2011



- 21st Century Schools Programme
- WAG Match funded scheme
- BREEAM Excellent
- Secured by Design

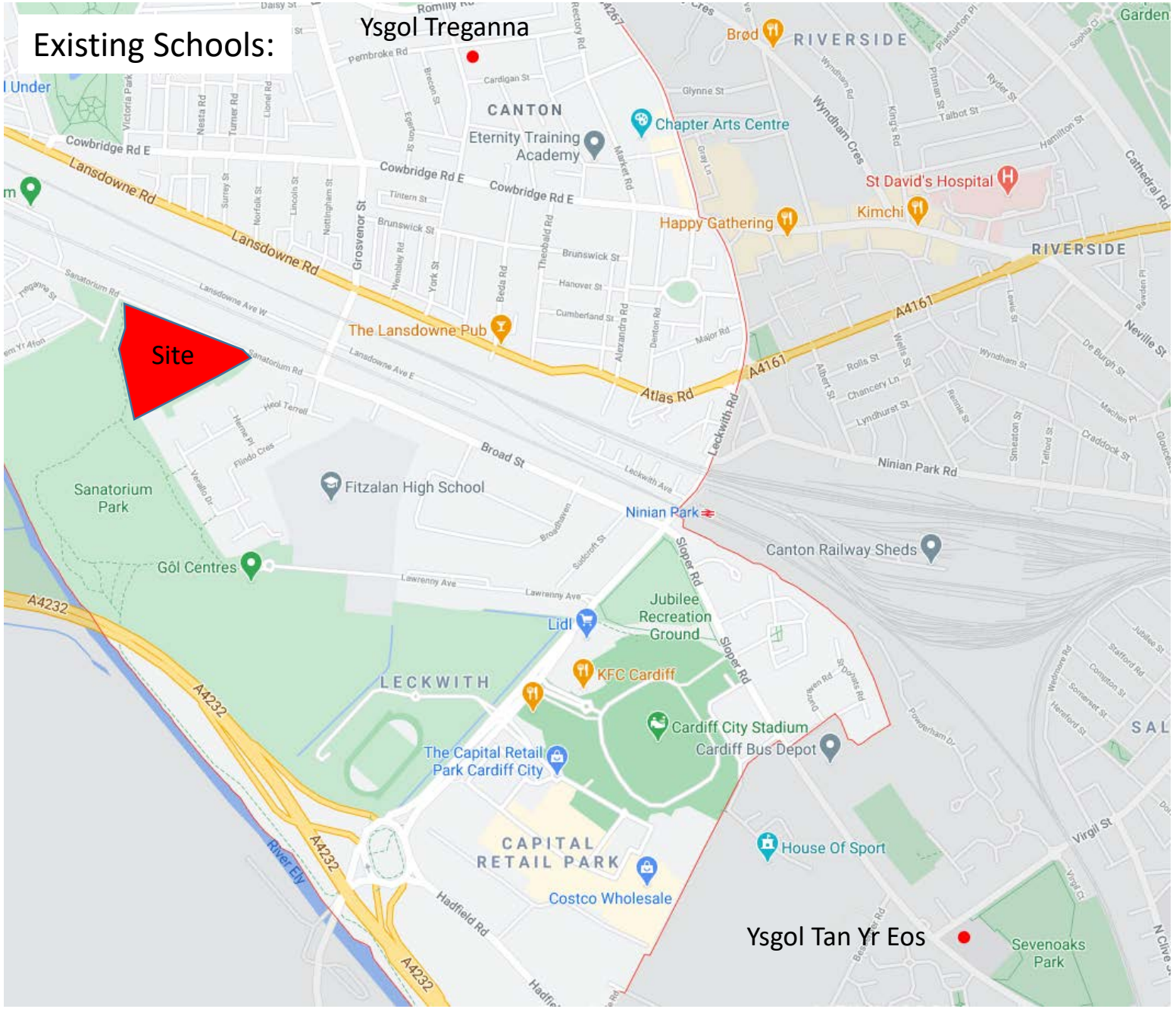
Mandatory funding gateways:

- The Strategic Outline Case (SOC) makes the case for change within the wider strategic context and tests alignment with national, regional and local strategies
- The Outline Business Case (OBC) assesses the best option for delivering the strategic objectives and benefits within the resource envelope available
- The Full Business Case (FBC) outlines how the project and its objectives and benefits will be delivered in terms of quality and value for money.

Education Design Brief:

- New build 3 FE Welsh- medium primary school (630 pupils) plus nursery (48 FTE/ 96 PTE) to accommodate pupils from Ysgol Treganna and Ysgol Tan Yr Eos. Two schools to close and occupy new site from September 2013.
- Land adjacent to site will provide pitches for school, provided by Parks, with potential for new build changing rooms to be shared by both service areas.
- Community use for school- Menter Caerdydd. Adult classes in day/ evening. Need for zoned heating/ security and core areas for community areas.
- Need to consider flexible spaces and partitioning of rooms.
- Flexible design for future expansion.
- BB99 as guidelines.
- School within school ethos- pastoral care is of paramount importance.
- ICT- integral to teaching and learning with provision in all rooms, plus ICT suite for timetabled use. Wireless technology. Laptops on trollies for “invisible” technology, with some fixed PCs in each class.
- Iconic building emphasising nurturing environment.
- Staff areas- ICT area, one staffroom plus facilities in home bases.
- Allowance for pupils to observe other/ older pupils whilst still feeling safe within home bases.
- Passive supervision principles.
- Foundation phase considerations- outdoor areas and access.
- Separate nursery and reception due to immersion issues. Sharing between years 1 and 2 to be considered.
- Parking- need to consider drop off and turning points.
- Relationship between parking, pitch use and changing rooms.
- Consider different access points to site and safe routes to school.
- Need to retain existing trails and paths on site.
- Fit out of building.
- Move of two schools to new site.
- Traffic impacts to consider- cycle paths, transport assessment, road surfacing on Sanatorium Road, crossing facilities and safety zones.
- Japanese Knotweed issue to be resolved.

Existing Schools:



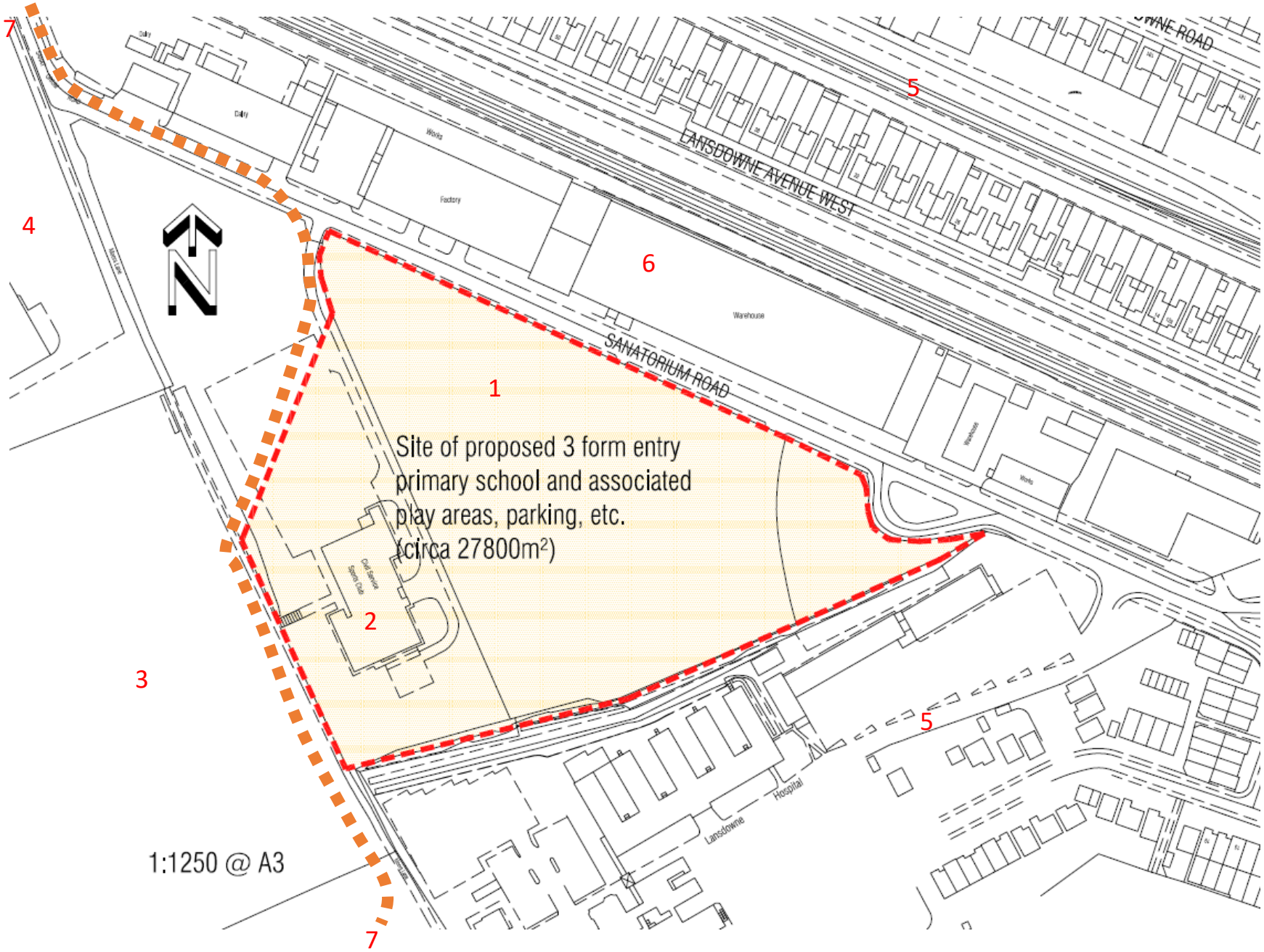


Ysgol Treganna:
Within the Infant building of Radnor Road Primary



Ysgol Tan Yr Eos:
Within the Infant Building of Ninian Park Primary

Site and Context:





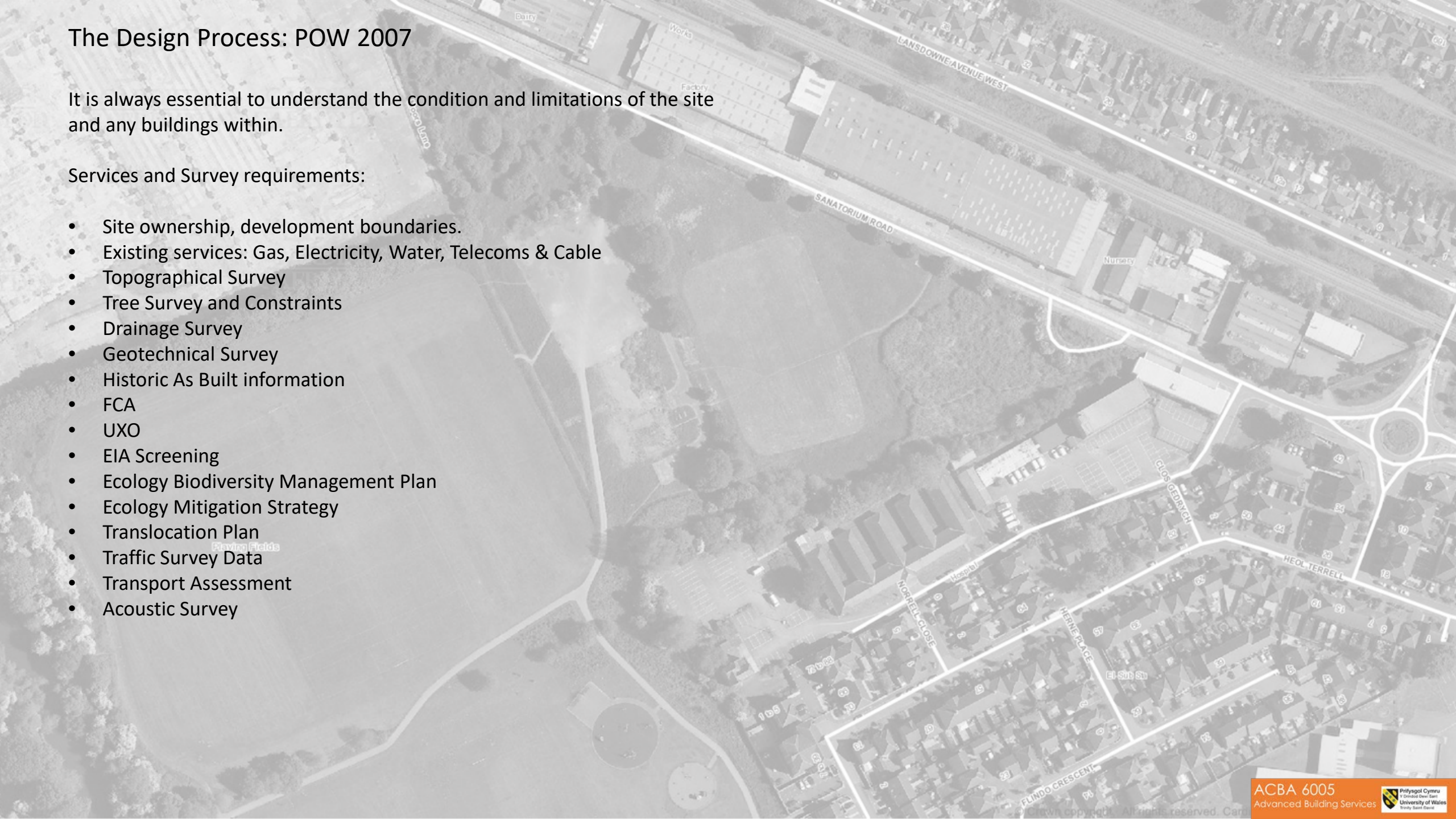
1. Site of former football pitch
2. Location of demolished Sports Club
3. Adjacent Rugby pitches
4. Ely Mill (future residential site)
5. Existing residential development
6. Industrial units
7. Ely trail public right of way.

The Design Process: POW 2007

It is always essential to understand the condition and limitations of the site and any buildings within.

Services and Survey requirements:

- Site ownership, development boundaries.
- Existing services: Gas, Electricity, Water, Telecoms & Cable
- Topographical Survey
- Tree Survey and Constraints
- Drainage Survey
- Geotechnical Survey
- Historic As Built information
- FCA
- UXO
- EIA Screening
- Ecology Biodiversity Management Plan
- Ecology Mitigation Strategy
- Translocation Plan
- Traffic Survey Data
- Transport Assessment
- Acoustic Survey













Surveys and Specialist Reports





Capping layer of 600mm clean soils to any soft landscaping.

Volume of JK mitigation works estimated at 6000m³



Surveys and Specialist Reports





1. Excavate a pit to a depth of 50cm and a minimum of 2m across.

2. Loosely fill pit with piled up rocks, logs, dead wood and other suitable clean fill material. Small amounts of soil can be loosely filled between layers during construction.

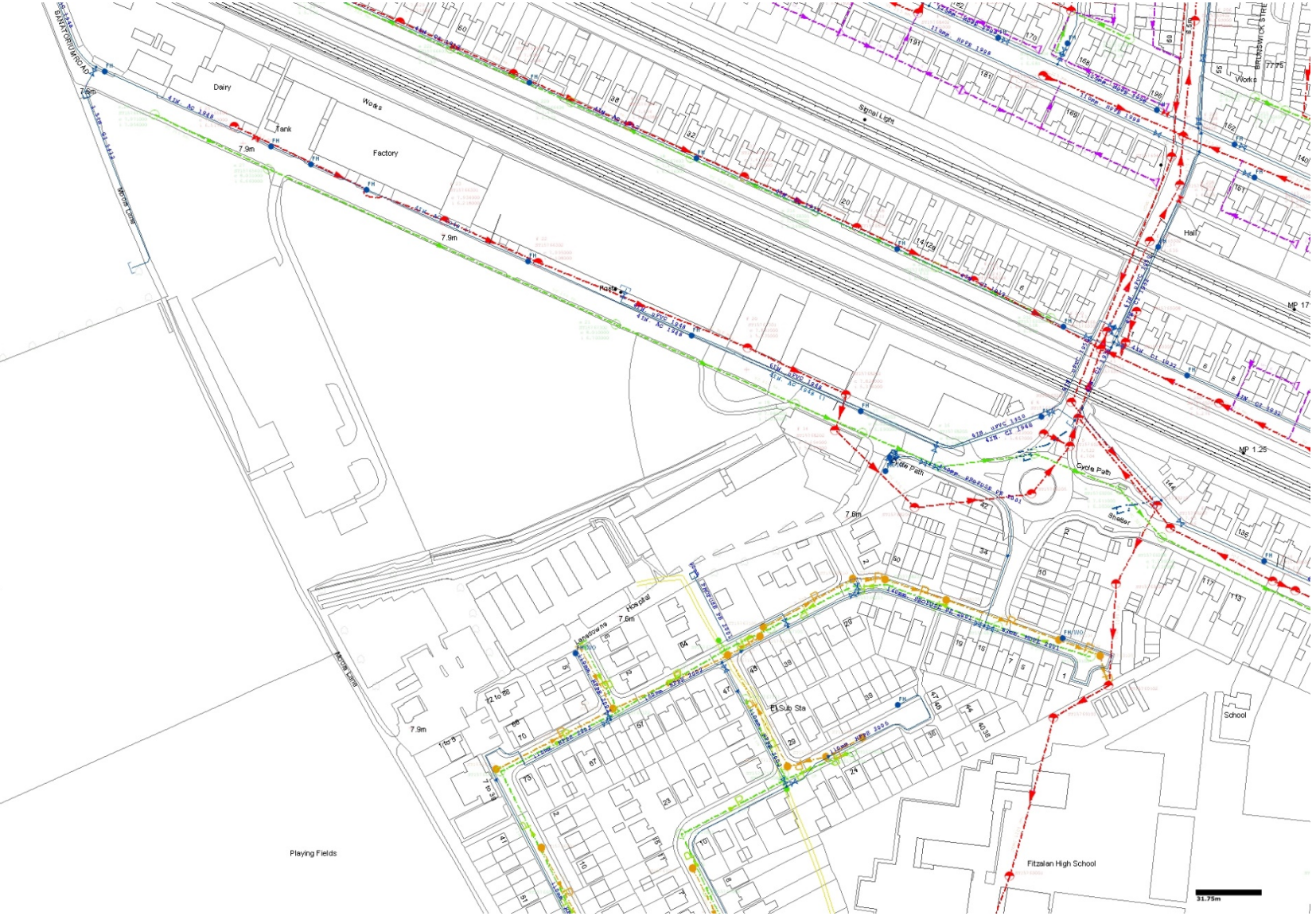
3. The hibernaculum should be filled to just above ground level, then capped with a layer (50-100 mm thick) of turf or moss. If neither is available, topsoil may be used. Leave gaps in the capping material at ground level to allow reptile access.

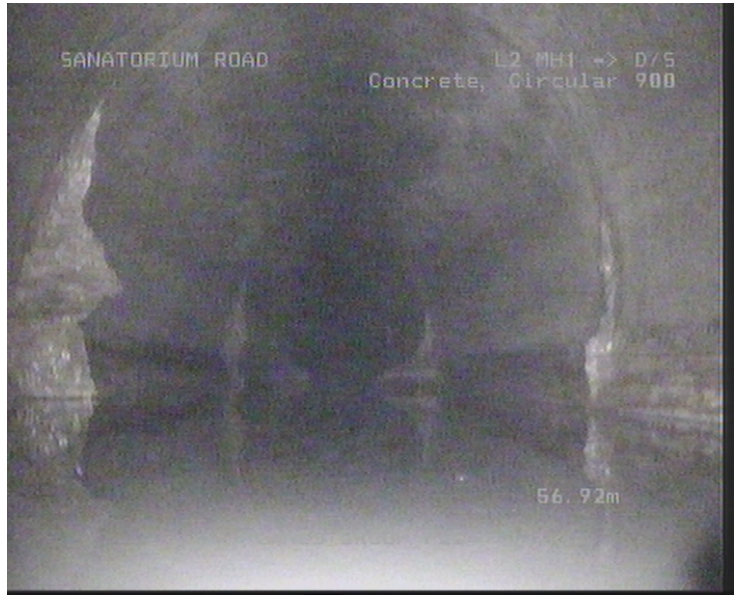
4. The addition of a geotextile membrane may be used to prevent erosion of the capping layer into the cavities beneath. This would be particularly important where the capping layer is composed of topsoil or other loose material.

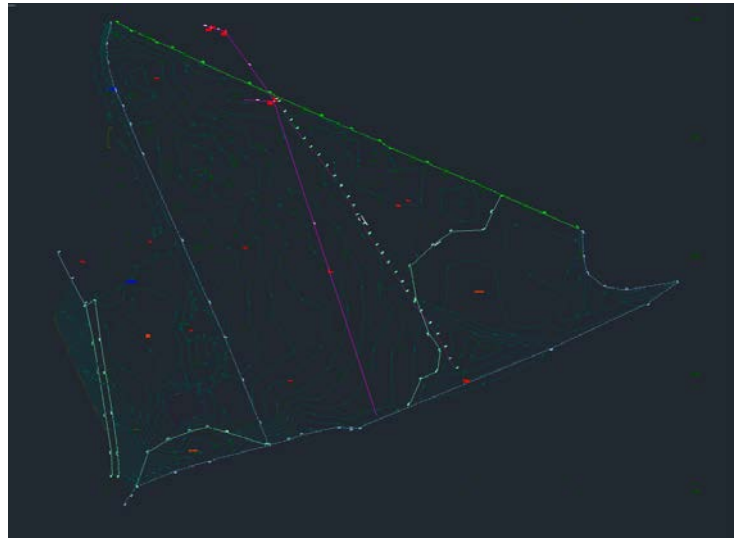




Surveys and Specialist Reports







Design Challenges:

- Limitations to the Site
- Drainage
- Ecology
- Japanese Knotweed

AREA BRIEF



Ysgol Treganna

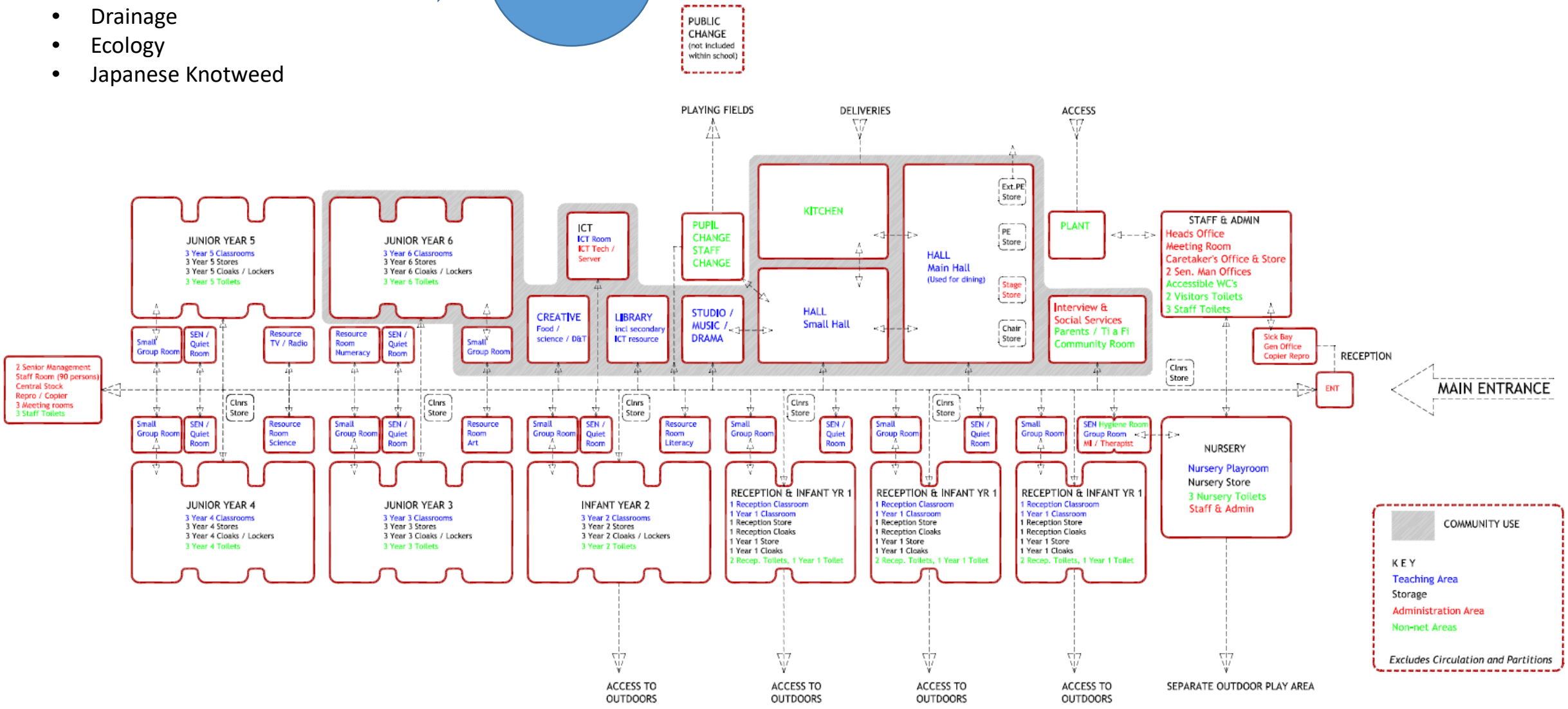
Accommodation - BB99
630 5-11

	max. group size	average area (m^2)	number of rooms	Total area for each type of space: basic teaching halls	learning resources	teaching storage	other storage	staff & admin.	supplementary	non-net area
Reception	30	66	3	198		9		9		21
Reception class		3	3							
Class storage		3	3							
cloakrooms/ lunch box storage		3.5	6							
Reception toilets										
Infant Y1	30	60	3	180		4.5				
Infant classbase		1.5	3							
Class storage	6 to 8	8	1				8	9		12
Small group room		3	3							
cloakrooms		4	3							
Pupil toilets										
Infant Y2	30	60	3	180		4.5				
Infant classbase		1.5	3							
Class storage		8	1				8	9		12
specialist store: literacy		3	3							
cloakrooms		4	3							
Pupil toilets										
Junior Y3										

Design Challenges:

- Limitations to the Site
- Drainage
- Ecology
- Japanese Knotweed

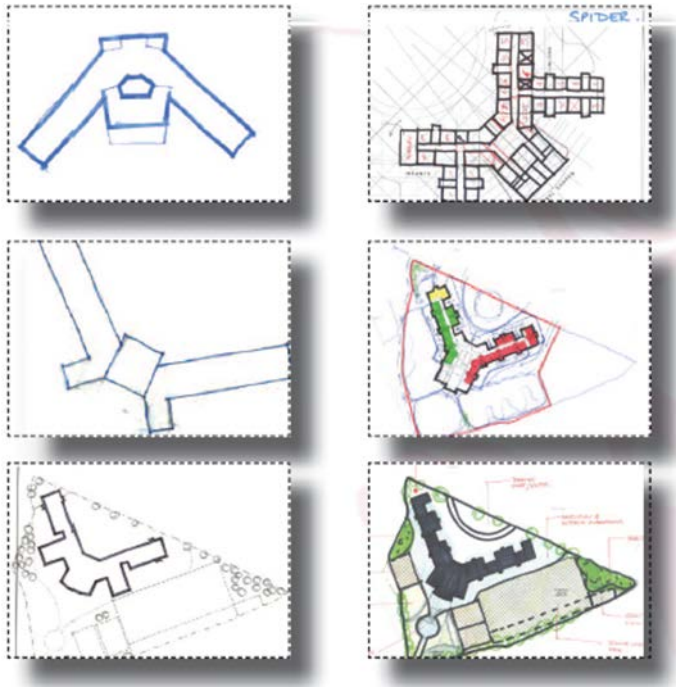
CORE BRIEF



Design Challenges:

- Limitations to the Site
- Drainage
- Ecology
- Japanese Knotweed

BRIEF & CONCEPT



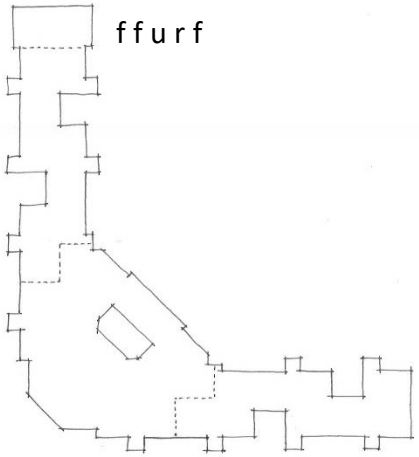


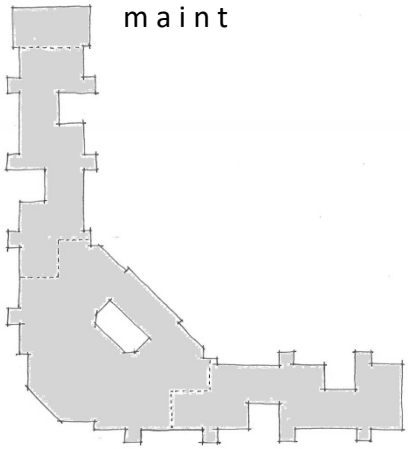


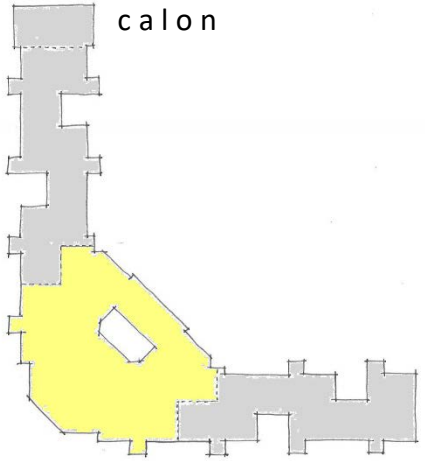


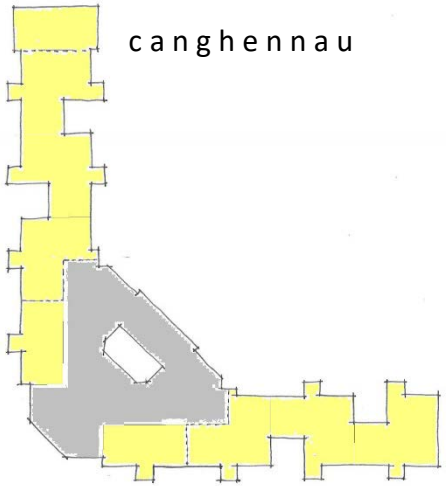
0 - Ground Floor Plan

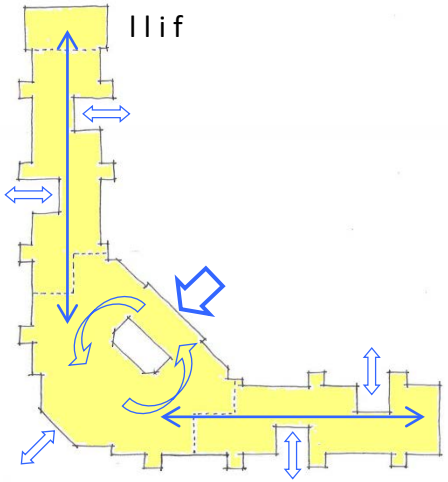
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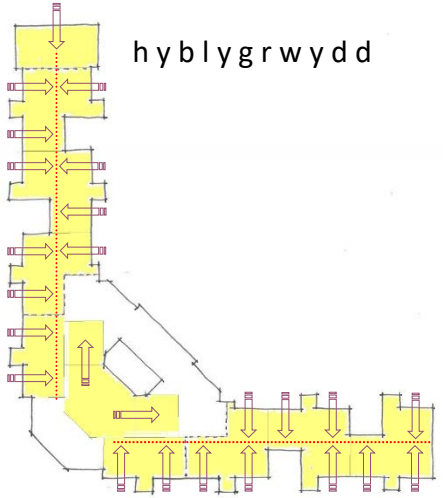




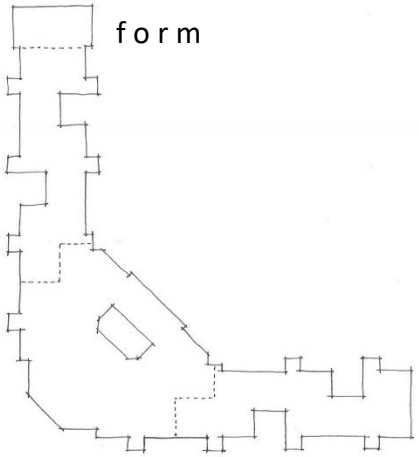


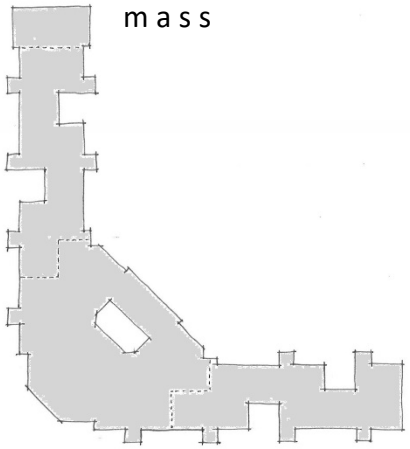


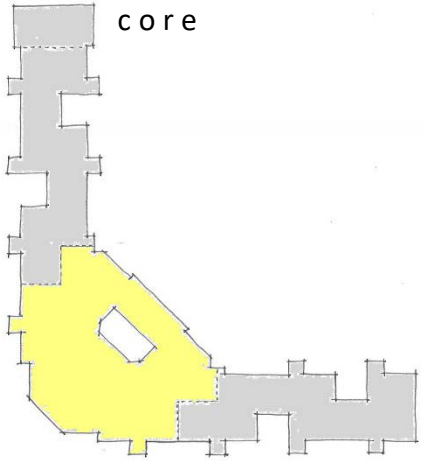


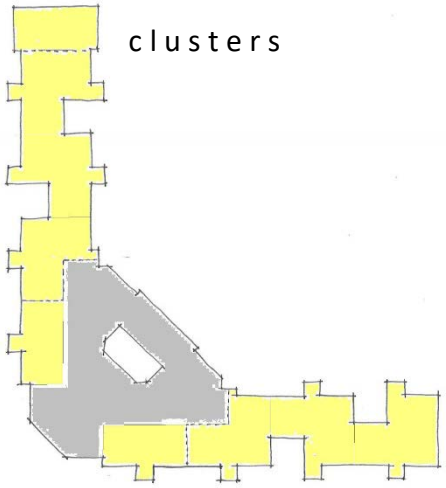


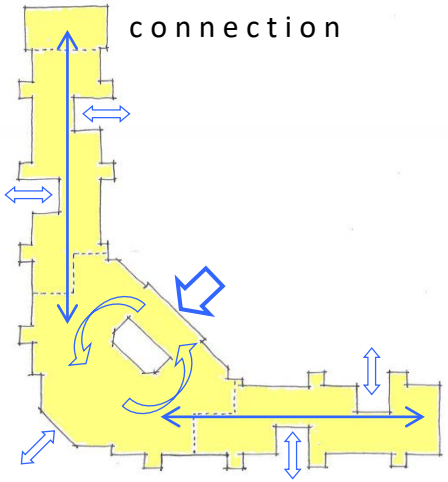
Ysgol Treganna: brasluniau cysyniadol

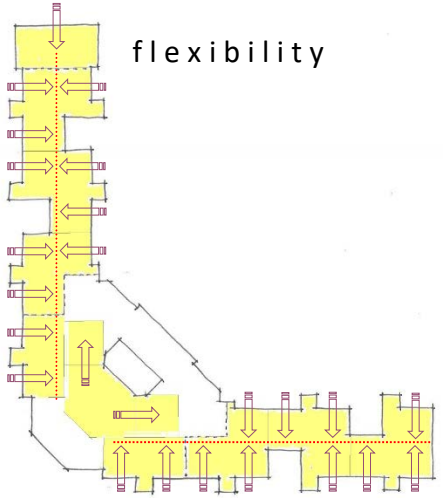




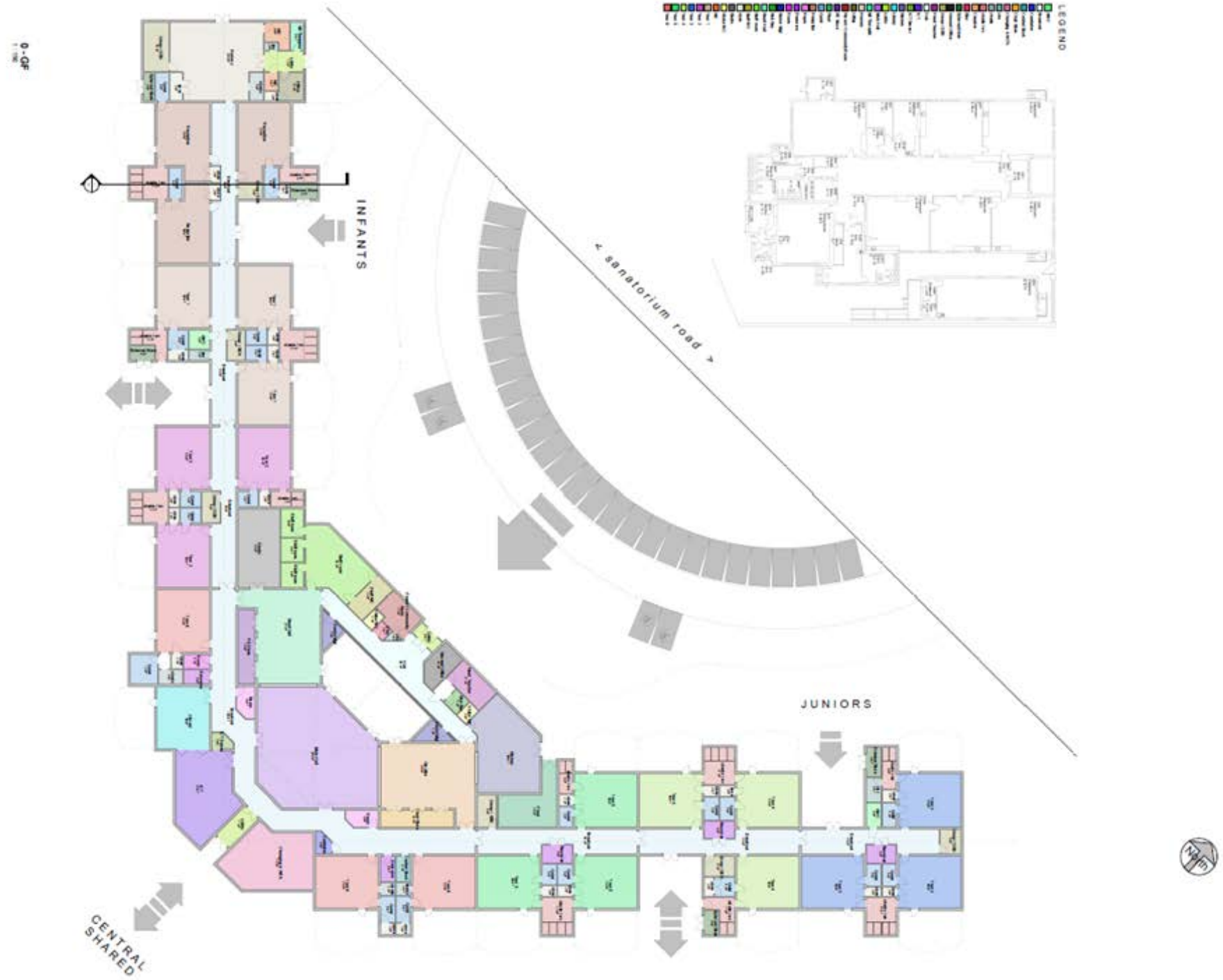


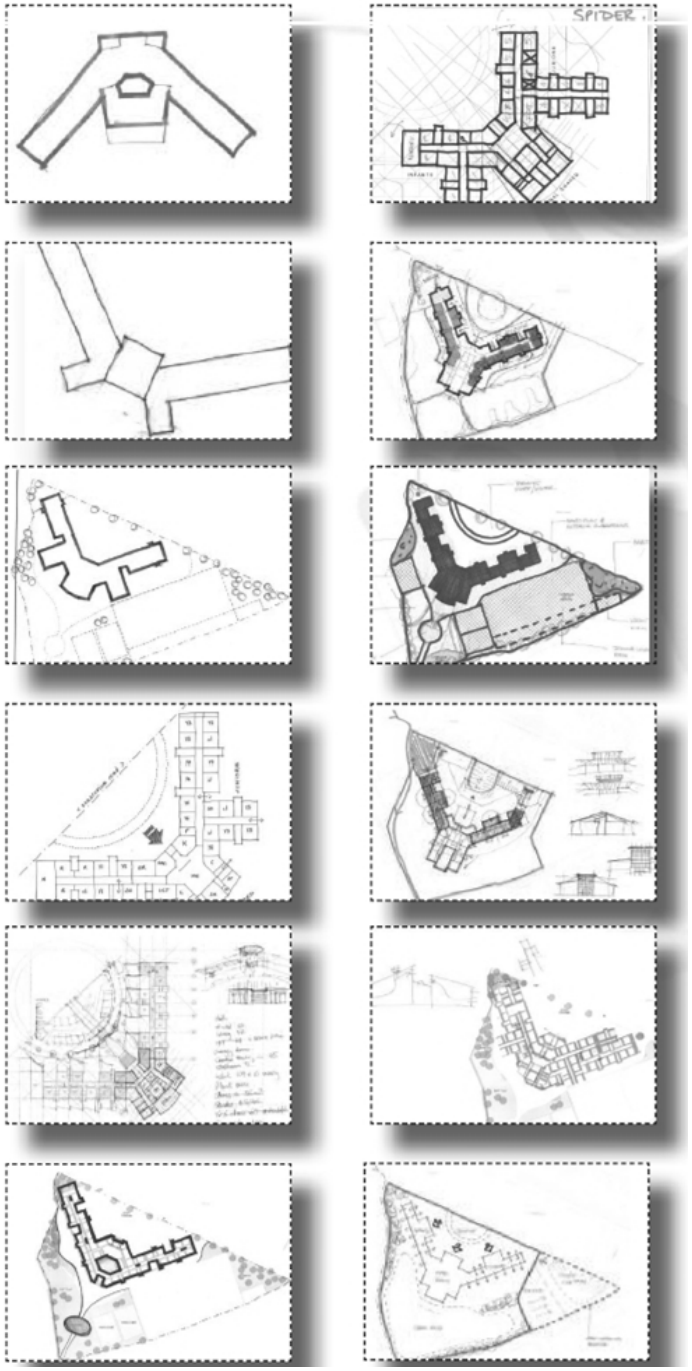


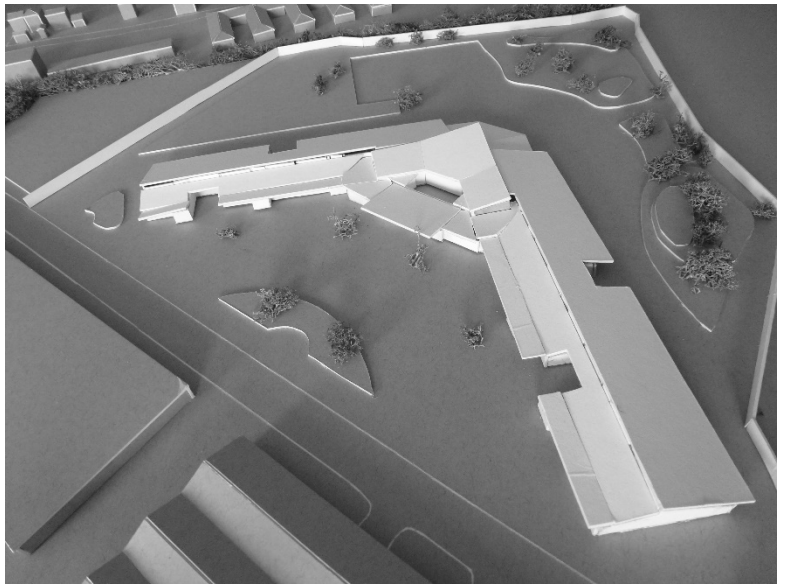




Ysgol Treganna: concept sketches


INFANTS
< sanatorium road >
JUNIORS
CENTRAL SHARED
LEGEND



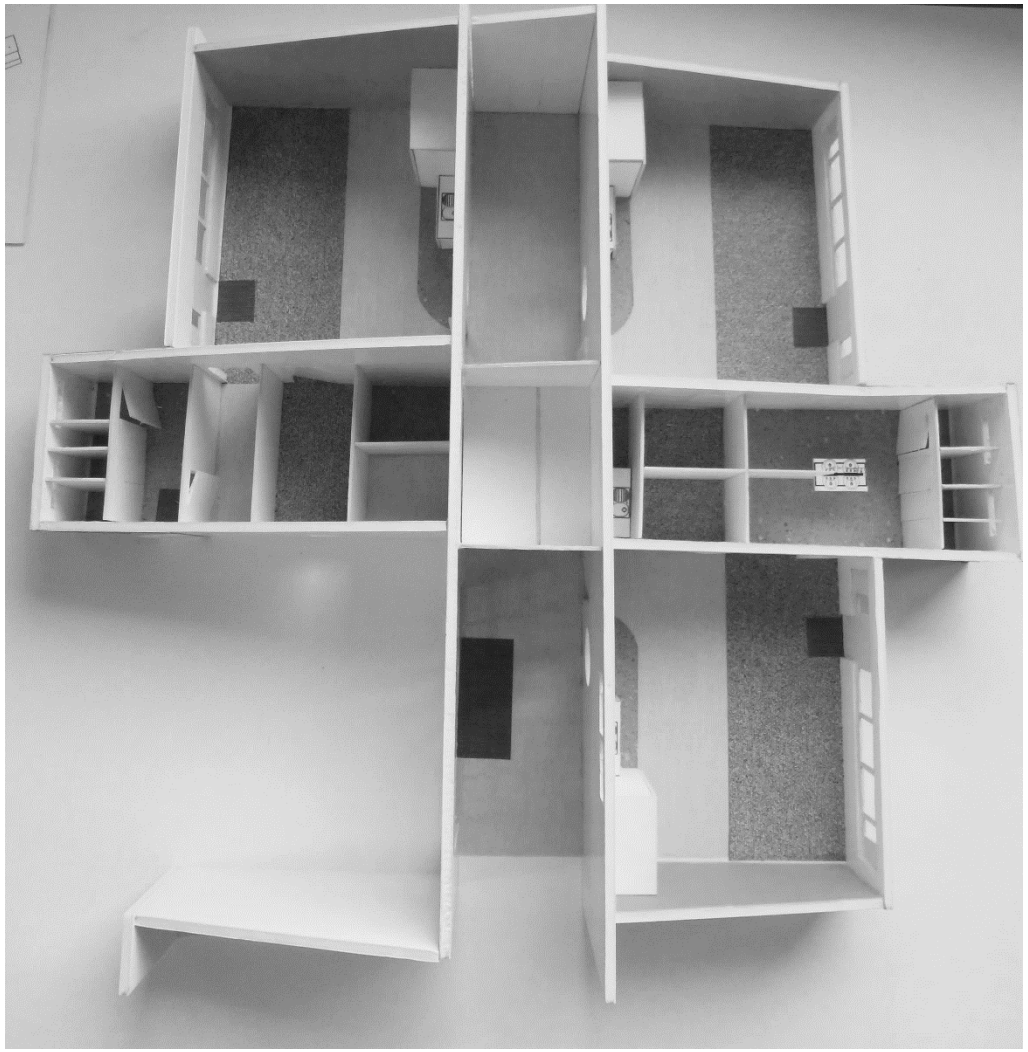




Ysgol Treganna: development sketches & models







The Design Section became critical in realising the strategy for natural lighting, natural ventilation and distribution of services.

BREEAM Process: Tracker

Targeted Credits

Stride Treglown | BREEAM



STML BREEAM 2011 Tracker

Ysgol Treganna Primary School

BREEAM Education 2011

For Cardiff Council - City Development

Stride Treglown Job No.	28221
BRE Reference Number	BREEAM-0044-1642
Assessor	Fleur Baguley
Checked By	Fleur Baguley
Date	11 November 2011
File	BREEAM 2011 Evidence Tracker_1
Revision	-

Energy

Ysgol Treganna Primary School

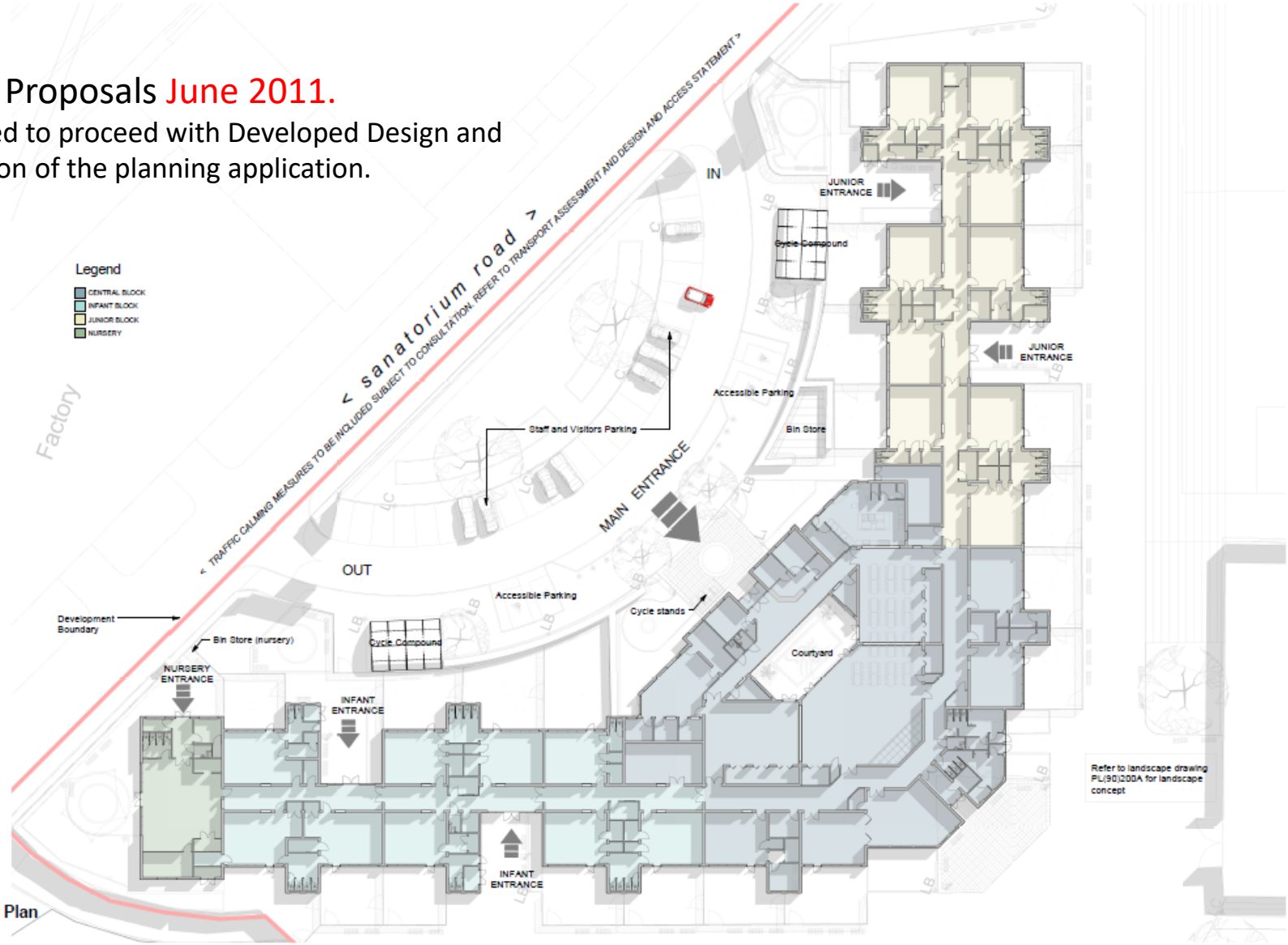
Stride Treglown

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility: Client	Occupier	Architect	M&E	Contractor	Ecologist	Accoustician	Credits / Targets: Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Ene 02 (Credit 1) (Criteria 1-2)	Energy Monitoring	1. The following major energy consuming systems (where present) are monitored using either a Building Energy Management System (BEMS) or separate accessible energy sub-meters with a pulsed output to enable future connection to a BEMS: a. Space Heating b. Domestic Hot Water c. Humidification d. Cooling e. Fans (major) f. Lighting g. Small Power (lighting and small power can be on the same sub-meter where supplies are taken at each floor/department). h. Other major energy-consuming items where appropriate (see Compliance notes). 2. The end energy consuming use is identifiable to the building user through labelling or data outputs.	Relevant section/clauses of the building specification or contract. Design drawings				Y				1	1	1				
Ene 03 (Credit 1) (Criteria 1-4)	External Lighting	1. All external light fittings for the building, access ways and pathways have a luminous efficacy of at least 50 lamp lumens/circuit Watt when the lamp has a colour rendering index (Ra) greater than or equal to 60 OR 60 lamp Lumens / circuit Watt when the lamp has a colour rendering index (Ra) less than 60. 2. All external light fittings to car parking areas, associated roads and floodlighting has a luminous efficacy of at least 70 lamp lumens/circuit Watt when the lamp has a colour rendering index (Ra) greater than or equal to 60 OR 90 lamp Lumens / circuit Watts when the lamp has a colour rendering index (Ra) less than 60. 3. All external light fittings for signs and uplighting have a luminous efficacy of at least 60 lamp lumens/circuit Watt when the lamp wattage is greater than or equal to 25W OR 50 lamp lumens/circuit Watt when the lamp wattage is less than 25W. 4. External light fittings are controlled through a time switch, or daylight sensor, to prevent operation during daylight hours. Daylight sensor override on a manually switched lighting circuit is acceptable.	Relevant section/clauses of the building specification or contract Design drawings Where relevant for multi residential buildings; Evidence in line with the Design Stage evidence requirements of CSH issue Ene 6 OR A copy of the Design Stage CSH certificate and report from the CSH online reporting system confirming the number of credits achieved for CSH issue Ene 6.				Y				1	1	1				
Ene 04 (Credit 1) (Criteria 1-4)	Low and zero carbon technologies - Feasibility study / Renewable supply contract	1. A feasibility study has been carried out by an energy specialist (see Compliance notes) to establish the most appropriate local (on-site or near-site) low or zero carbon (LZC) energy source for the building/development. This study covers as a minimum: a. Energy generated from LZC energy source per year b. Life cycle cost of the potential specification, accounting for payback c. Local planning criteria, including land use and noise d. Feasibility of exporting heat/electricity from the system e. Any available grants f. All technologies appropriate to the site and energy demand of the development. g. Reasons for excluding other technologies. h. Where appropriate to the building type, connecting the proposed building to an existing local community CHP system or source of waste heat or power OR specifying a building/site CHP system or source of waste heat or power with the potential to export excess heat or power via a local community energy scheme. 2. A local LZC energy technology has been specified for the building/development in line with the recommendations of the above feasibility study. 3. The feasibility study has been carried out at RIBA stage C (concept design) or equivalent procurement stage. OR 4. The organisation that occupies the building has in place a contract with an energy supplier to provide electricity for the assessed building/development from a 100% renewable energy source. This supply must be delivered by an accredited external renewable source. The contract must be valid for a minimum of 3 years from the date the assessed building becomes occupied.	1-3. The feasibility study report. Design drawings or relevant section/clauses of the building specification or contract. 4. Name and details of supplier Details of the source of supply. A copy of the contract or other formal documentation confirming the length of contract to supply 100% renewable energy.			Y	Y	Y			1	1	1				

https://uowtsd-my.sharepoint.com/personal/g_traylor_uwtsd_ac_uk/Documents/Desktop/Treganna%201/Detail%20Design/Architects/Drawings/00%20TENDER%20ISSUE/Architectural/Employers%20Requirements/Appendix%20D%20(BREEAM)/BREEAM%20Tracker.PDF

Agreed Proposals June 2011.

Authorised to proceed with Developed Design and preparation of the planning application.



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CYNGOR SIR DINAS A SIR CAERDYDD
THE COUNTY COUNCIL OF THE CITY & COUNTY OF CARDIFF
PROJECTS, DESIGN & DEVELOPMENT
DESIGN AND CONSTRUCTION MANAGEMENT
Neil Hanratty
YSGOL TREGANNA
Proposed GA Floor Plan
MGJ
GMT
1:200
July 2011
3LLC 6988
3CHD(A)04
FS 25745

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The Planning Process

Submission

Drawings & Documentation
Design and Access Statement
July 2011

Conditional Approval



Application No: 11/01324/DCO

PERMISSION FOR DEVELOPMENT

To:
Mr P Dee
Projects, Design & Development
Cardiff County Council
Bessemer Close
Leckwith
Cardiff
CF11 8XA

Town and Country Planning Act 1990
Town and Country Planning (General Development Procedure) Order 1995

WHEREAS you submitted an application for Full Planning Permission received on 29/07/2011 for:PROPOSED NEW BUILD 3 FORM ENTRY PRIMARY SCHOOL AND NURSERY at LAND ADJACENT TO SANATORIUM ROAD (hereinafter called "the development");

CARDIFF COUNTY COUNCIL, as the Local Planning Authority for the County of Cardiff, in pursuance of its powers under the above mentioned Act and Orders, hereby PERMITS the development to be carried out in accordance with the application and plans submitted therewith, subject to compliance with the conditions specified hereunder:

1. The development permitted shall be begun before the expiration of five years from the date of this planning permission.
Reason: In accordance with the provisions of Section 91 of the Town and Country Planning Act 1990.

2. No part of the development hereby permitted shall be commenced until a scheme detailing the measures necessary for the purpose of monitoring gases generated on the site or land adjoining thereto and for any measures necessary to protect the development has been submitted to and approved in writing by the Local Planning Authority. Any such scheme shall provide details of measures that are required to ensure the safe and inoffensive dispersal or management of gases and to prevent lateral migration of gases into or from land surrounding the application site. Gases includes landfill gases, vapours from contaminated land sites, and naturally occurring methane and carbon dioxide, but does not include radon gas.
All measures specified in the above scheme shall (unless otherwise agreed in writing) be undertaken and completed prior to any development commencing or in accordance with a timetable as shall be previously agreed in writing with the Local Planning

Procurement Route





Influencing Factors for Clients



How we apportion Risk can impact on the choice of procurement

Traditional – Fully designed – Reduced Risks

D&B – Partially Designed - Residual Risk Passed to the contractor

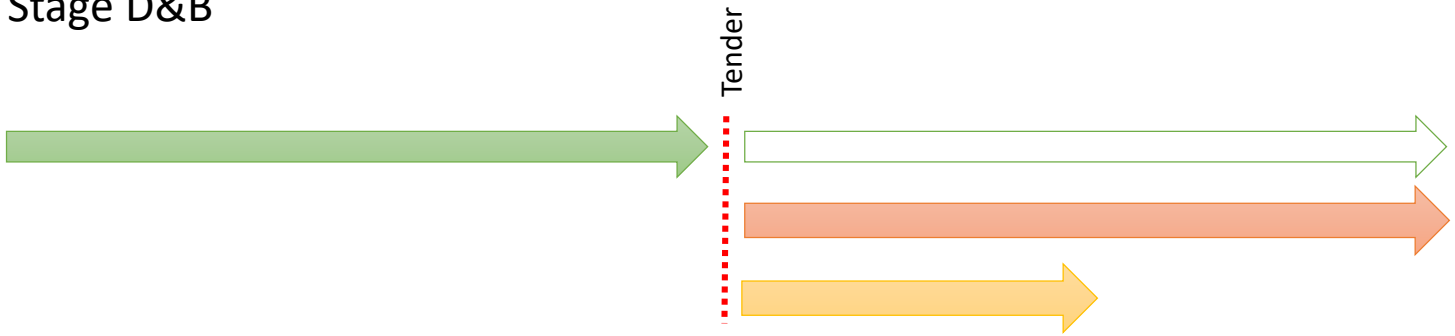
Two Stage D&B – No Design – Contractor's Risk



Types of Risk to consider:

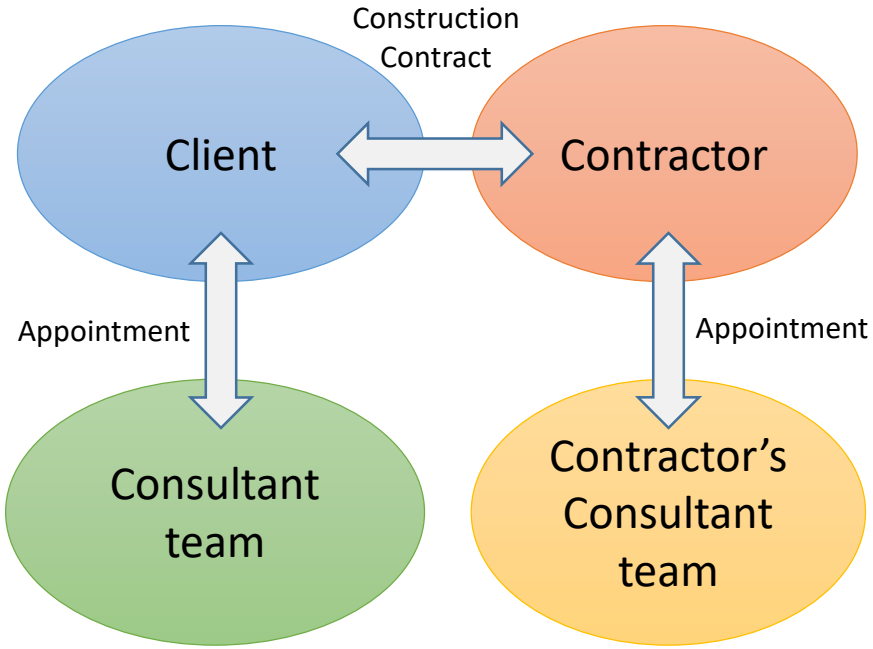
- Technical
- Logistical
- Environmental
- Managerial
- Financial
- Socio- Political

Single Stage D&B



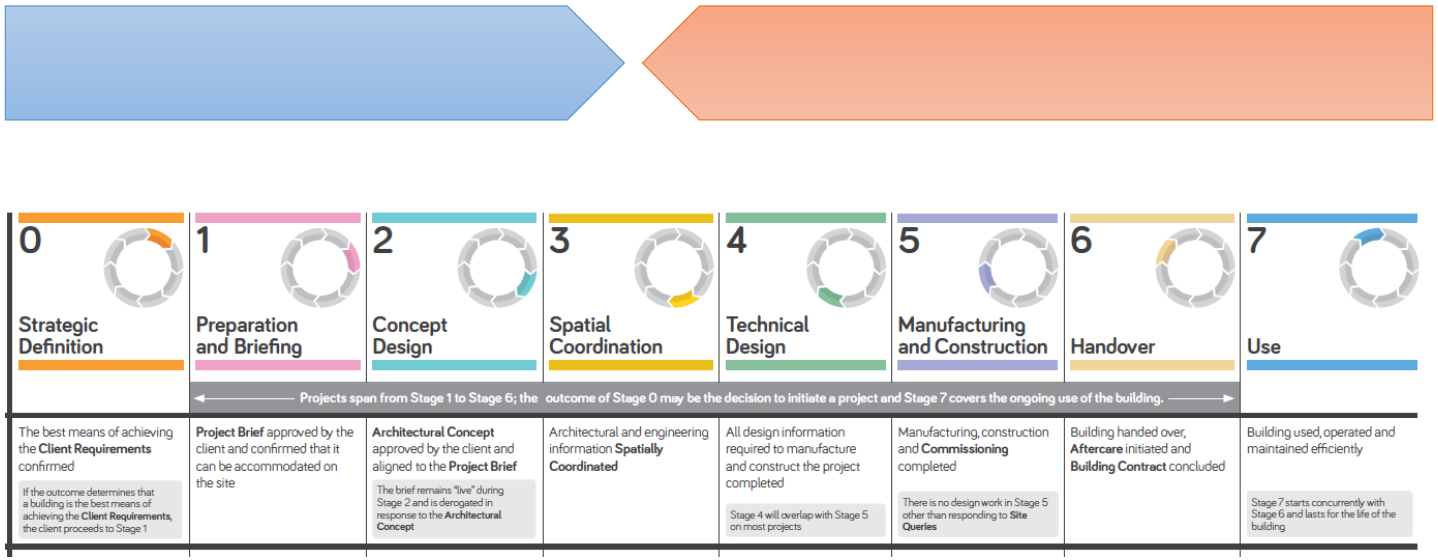
RIBA Plan of Work 2020

0 Strategic Definition	1 Preparation and Briefing	2 Concept Design	3 Spatial Coordination	4 Technical Design	5 Manufacturing and Construction	6 Handover	7 Use
Projects span from Stage 1 to Stage 6; the outcome of Stage 0 may be the decision to initiate a project and Stage 7 covers the ongoing use of the building.							
The best means of achieving the **Client Requirements** confirmed If the outcome determines that a building is the best means of achieving the **Client Requirements**, the client proceeds to Stage 1	**Project Brief** approved by the client and confirmed that it can be accommodated on the site	**Architectural Concept** approved by the client and aligned to the **Project Brief** The brief remains "live" during Stage 2 and is derogated in response to the **Architectural Concept**	Architectural and engineering information **Spatially Coordinated**	All design information required to manufacture and construct the project completed Stage 4 will overlap with Stage 5 on most projects	Manufacturing, construction and **Commissioning** completed There is no design work in Stage 5 other than responding to **Site Queries**	Building handed over, **Aftercare** initiated and **Building Contract** concluded	Building used, operated and maintained efficiently Stage 7 starts concurrently with Stage 6 and lasts for the life of the building
Prepare **Client Requirements** Develop **Business Case** for feasible options including review of **Project Risks** and **Project Budget** Ratify option that best delivers **Client Requirements** Review **Feedback** from previous projects Undertake **Site Appraisals** No design team required for Stages 0 and 1. Client advisers may be appointed to the client team to provide strategic advice and design thinking before Stage 2 commences.	Prepare **Project Brief** including **Project Outcomes** and **Sustainability Outcomes**, **Quality Aspirations** and **Spatial Requirements** Undertake **Feasibility Studies** Agree **Project Budget** Source **Site Information** including **Site Surveys** Prepare **Project Programme** Prepare **Project Execution Plan**	Prepare **Architectural Concept** incorporating **Strategic Engineering** requirements and aligned to **Cost Plan**, **Project Strategies** and **Outline Specification** Agree **Project Brief Derogations** Undertake **Design Reviews** with client and **Project Stakeholders** Prepare stage **Design Programme**	Undertake **Design Studies**, **Engineering Analysis** and **Cost Exercises** to test **Architectural Concept** resulting in **Spatially Coordinated** design aligned to updated **Cost Plan**, **Project Strategies** and **Outline Specification** Initiate **Change Control Procedures** Prepare stage **Design Programme**	Develop architectural and engineering technical design Prepare and coordinate design team **Building Systems** information Prepare and integrate specialist subcontractor **Building Systems** information Prepare stage **Design Programme** Specialist subcontractor designs are prepared and reviewed during Stage 4	Finalise **Site Logistics** Manufacture **Building Systems** and construct building Monitor progress against **Construction Programme** Inspect **Construction Quality** Resolve **Site Queries** as required Undertake **Commissioning** of building Prepare **Building Manual** Building handover tasks bridge Stages 5 and 6 as set out in the **Plan for Use Strategy**	Hand over building in line with **Plan for Use Strategy** Undertake review of **Project Performance** Undertake seasonal **Commissioning** Rectify defects Complete initial **Aftercare** tasks including light touch **Post Occupancy Evaluation**	Implement **Facilities Management** and **Asset Management** Undertake **Post Occupancy Evaluation** of building performance in use Verify **Project Outcomes** including **Sustainability Outcomes** Adaptation of a building (at the end of its useful life) triggers a new Stage 0



Single Stage D&B

Some risks avoided / partially designed out. All Residual Risks are transferred to the contractor with single point responsibility.
The ‘Price’ of the risk will be reflected in the Tender sum





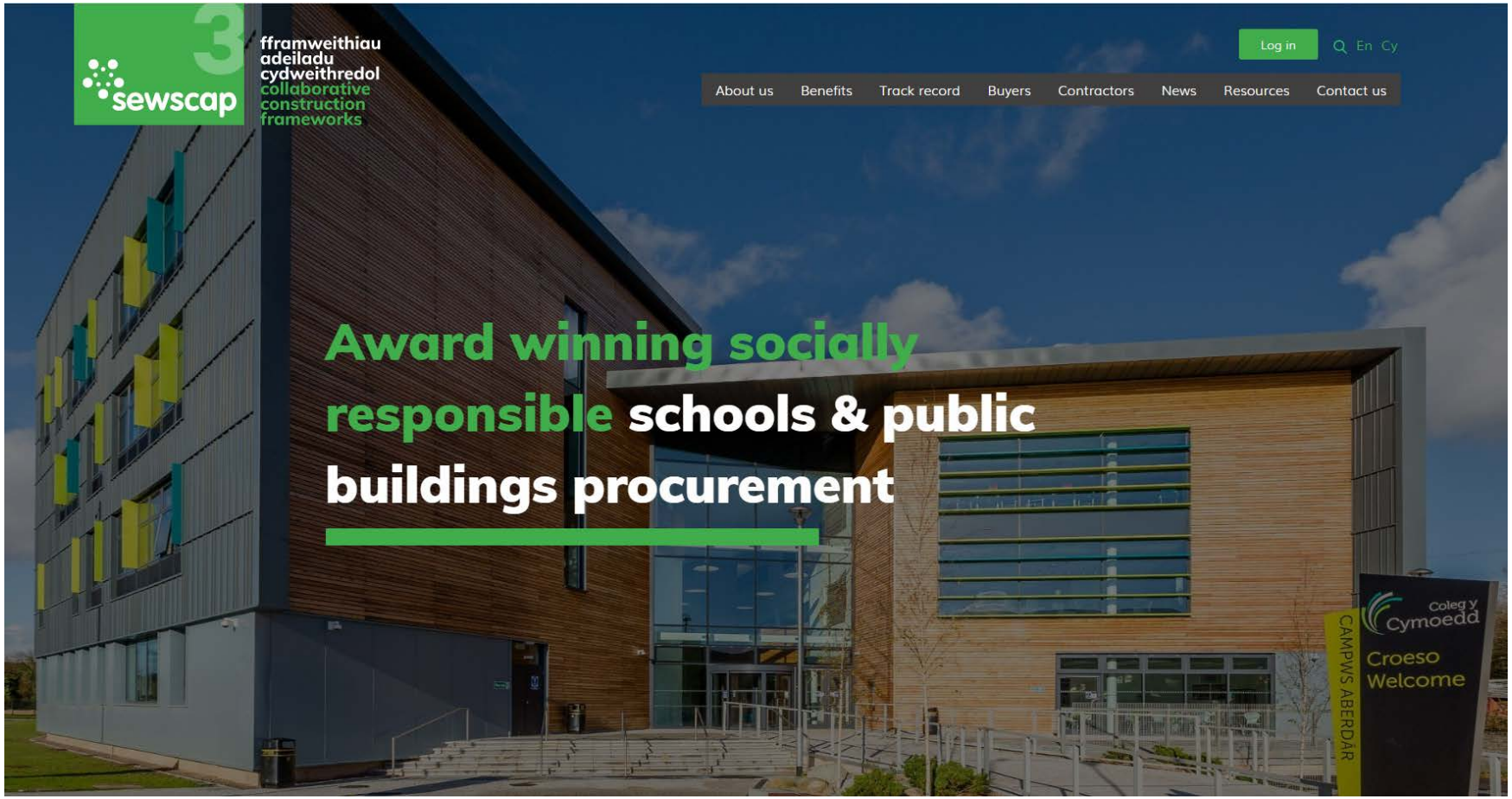
Procurement Route

SEWSCAP Framework

Design and Build

ITT December 2011

Estimate Project Value £8M



https://sewscap.co.uk/

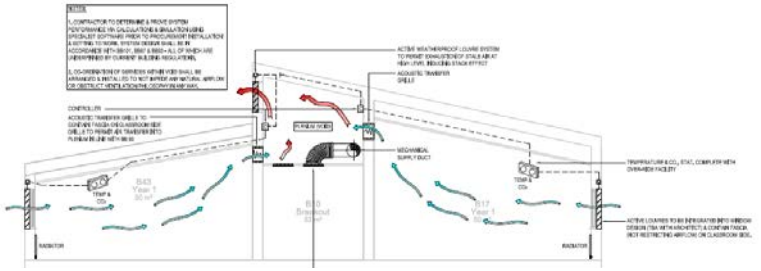


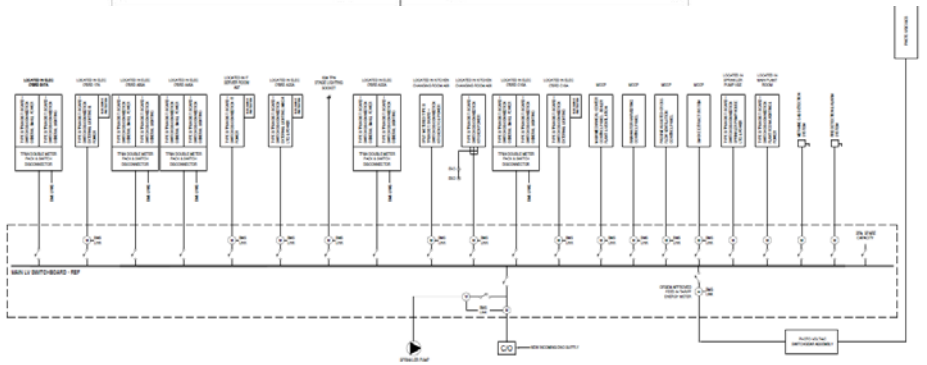
Tender Package

- Architectural
- Electrical
- Highways
- Landscape
- Mechanical
- Supporting Documentation
- TENDER ISSUE (Drainage) 27.01.12
- TENDER ISSUE (Landscape) 23.01.12
- TENDER ISSUE CD (landscaping) 18.01.12

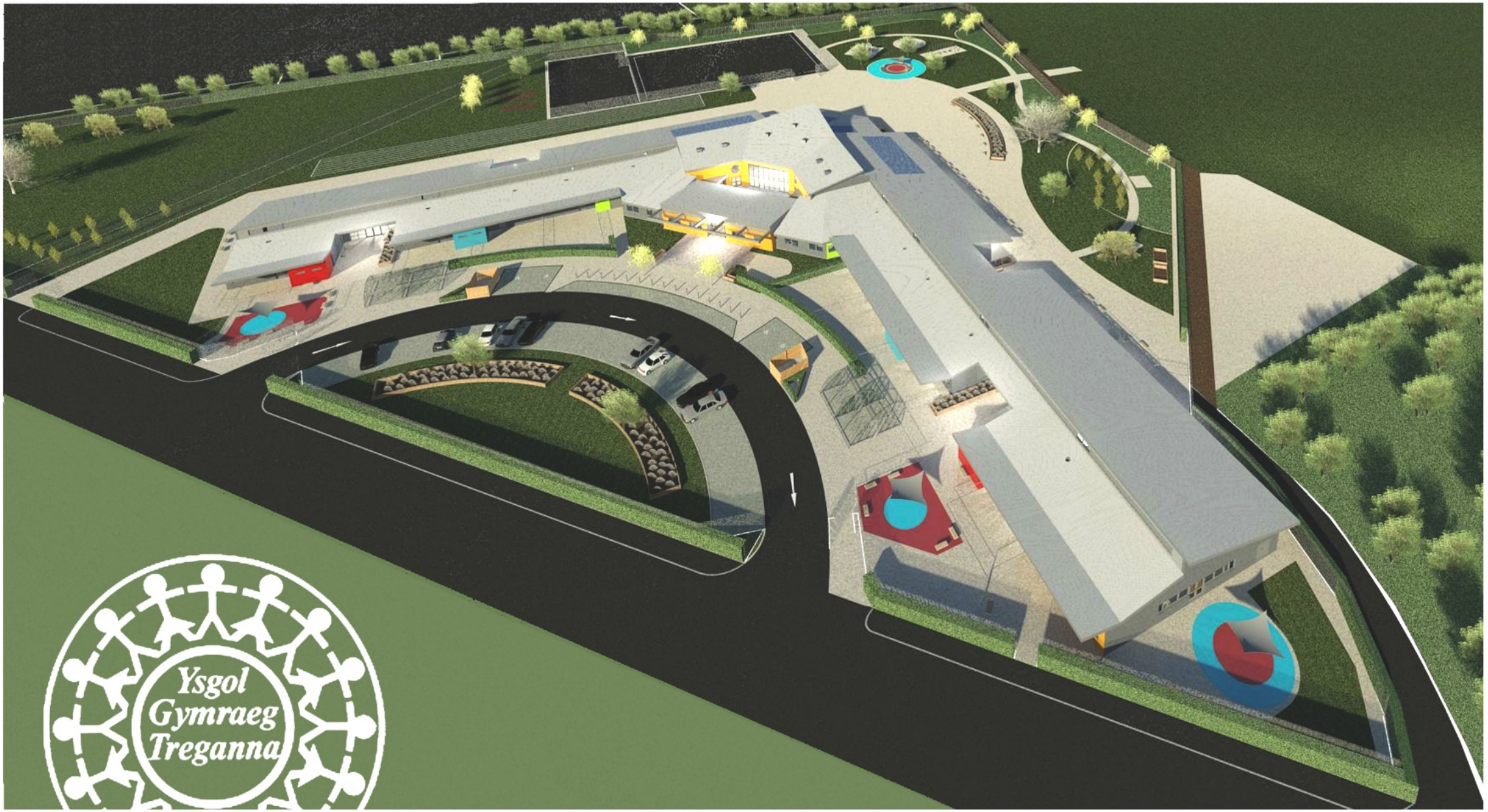








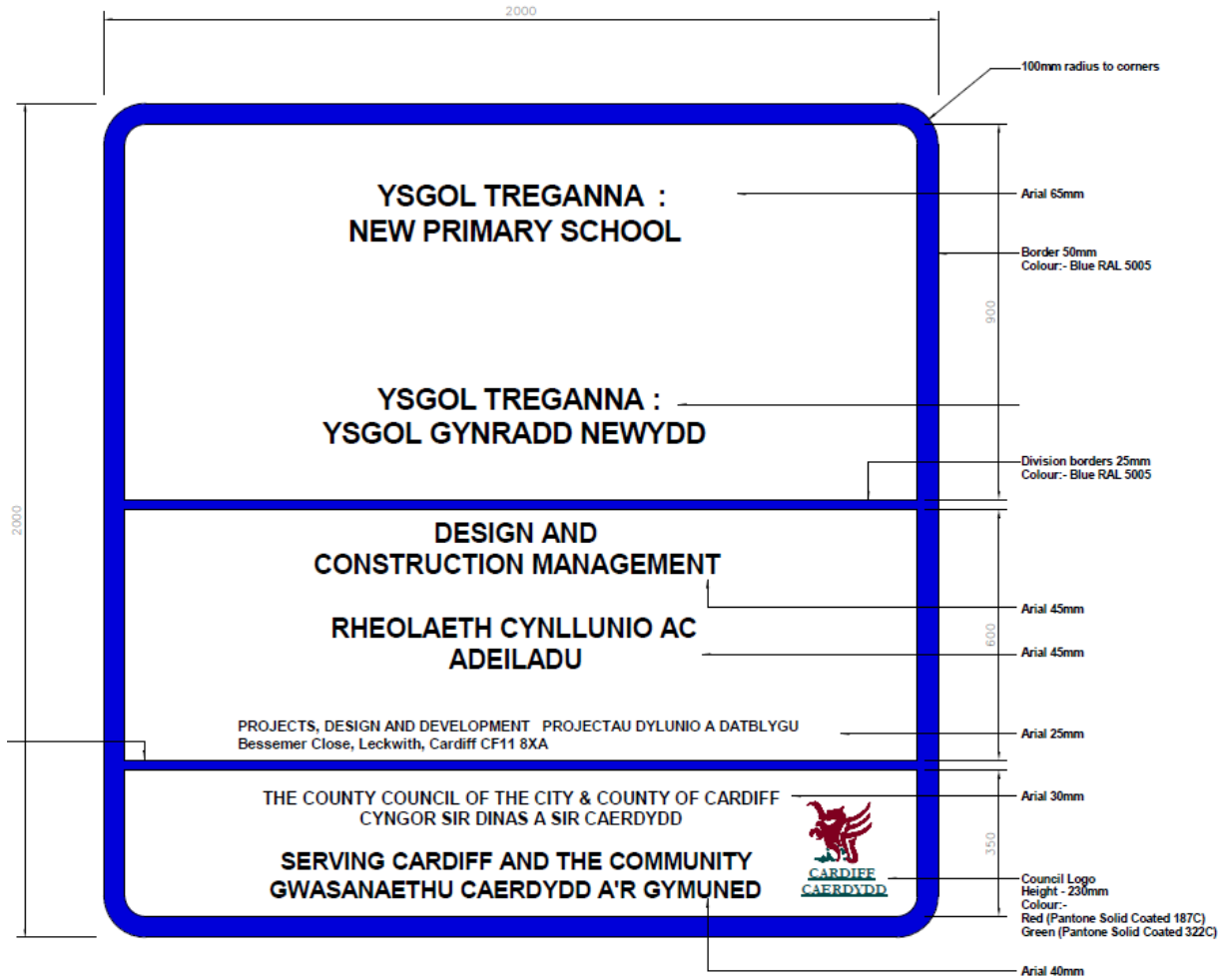
Review Revit Model


Ysgol
Gymraeg
Treganna


Ysgol
Treganna
Reception Classroom


FALLING
BACK
TO
SCHOOL

Contract Award and Commencement
May 2012



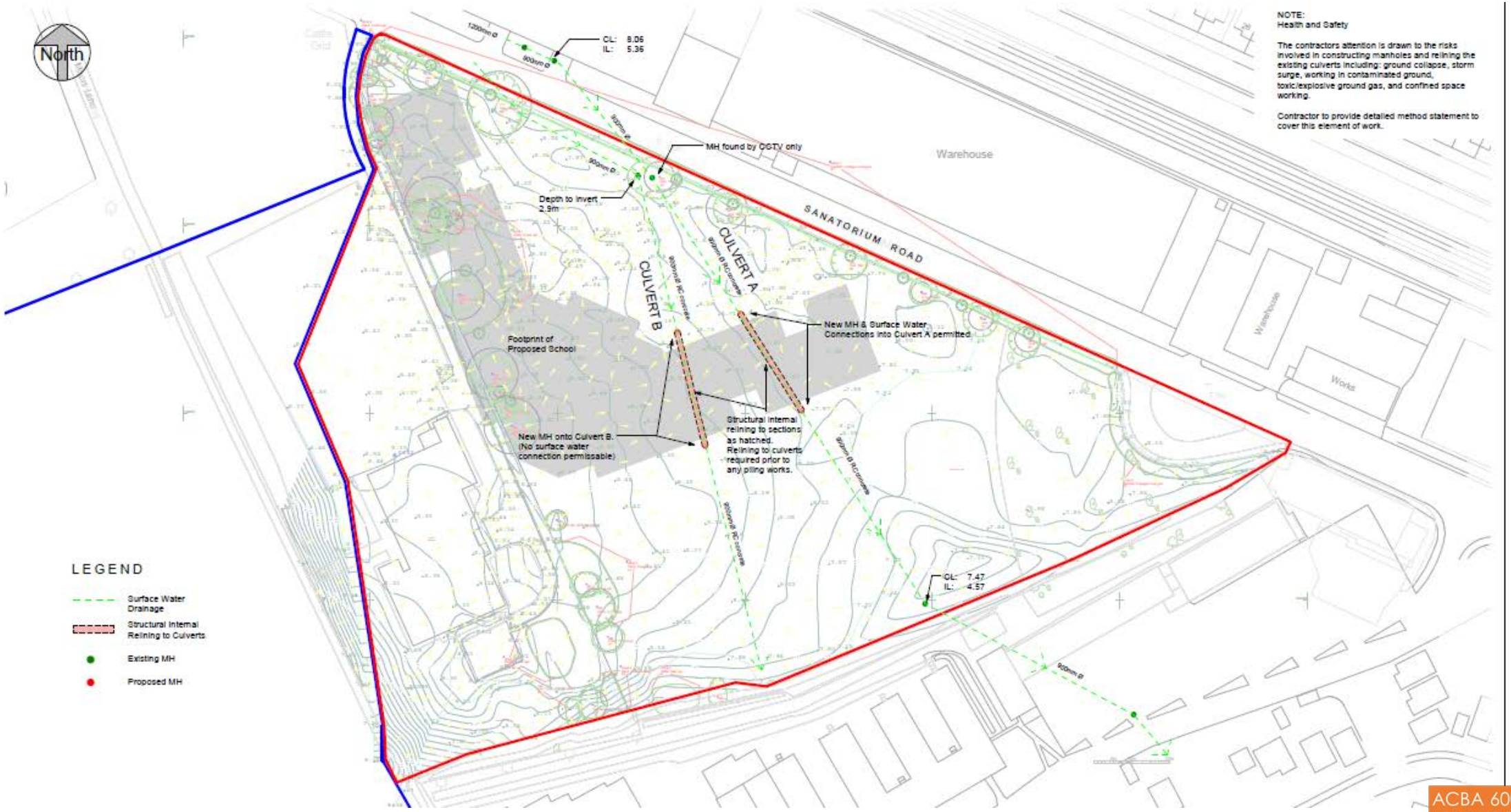
Cowlin

Balfour Beatty


Site Challenges:
Sanatorium Rd
Lansdowne Ave W
Lansdowne Hospital
Heol Terrell
ACBA 6005
Advanced Building Services
Prifysgol Cymru
University of Wales

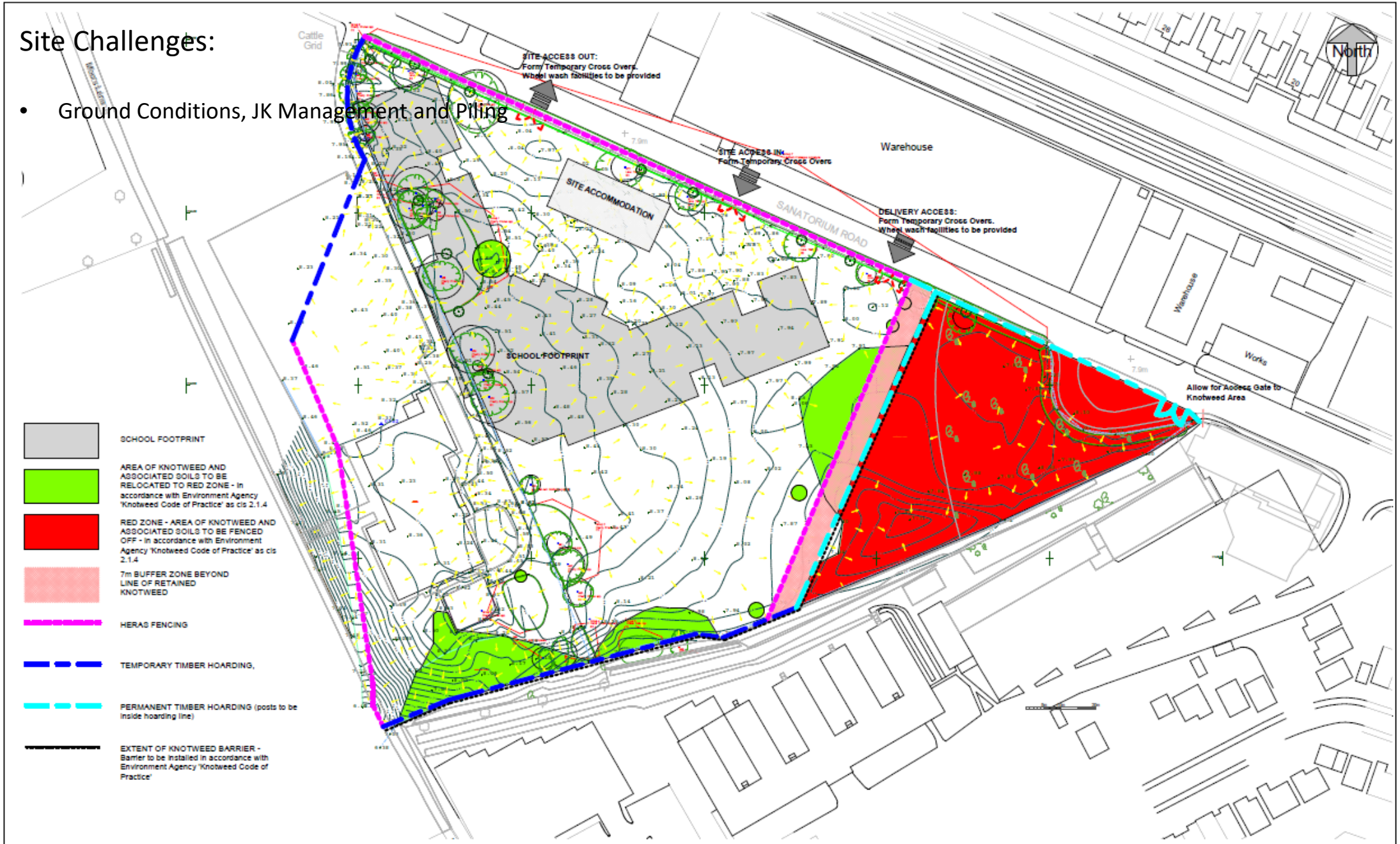
Site Challenges:

- Ground Conditions & Drainage



Site Challenges:

- Ground Conditions, JK Management and Piling



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Site Challenges:

- Ground Conditions, JK Management and Piling













Site Challenges:

- Ground Conditions, JK Management and Piling











Site Challenges:

- Ground Conditions and Attenuation

Site Progress & AV requirements

- AV Schematics 19.02.13
- AV Schematics 21.01.13
- AV Schematics 31.01.13
- AV Schematics and Screens 25.04.13
- AV Screens 25.02.13

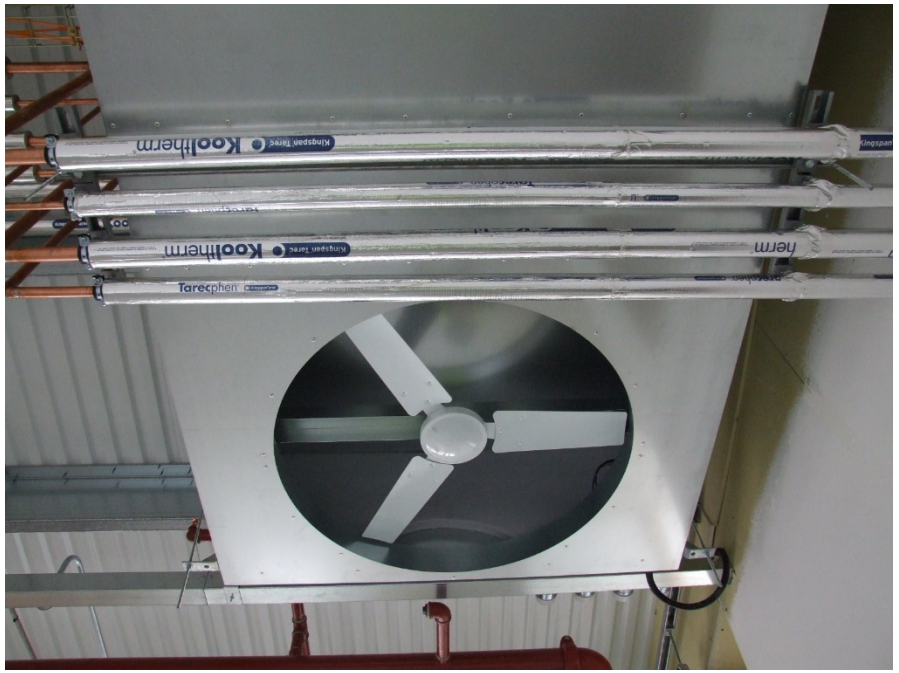






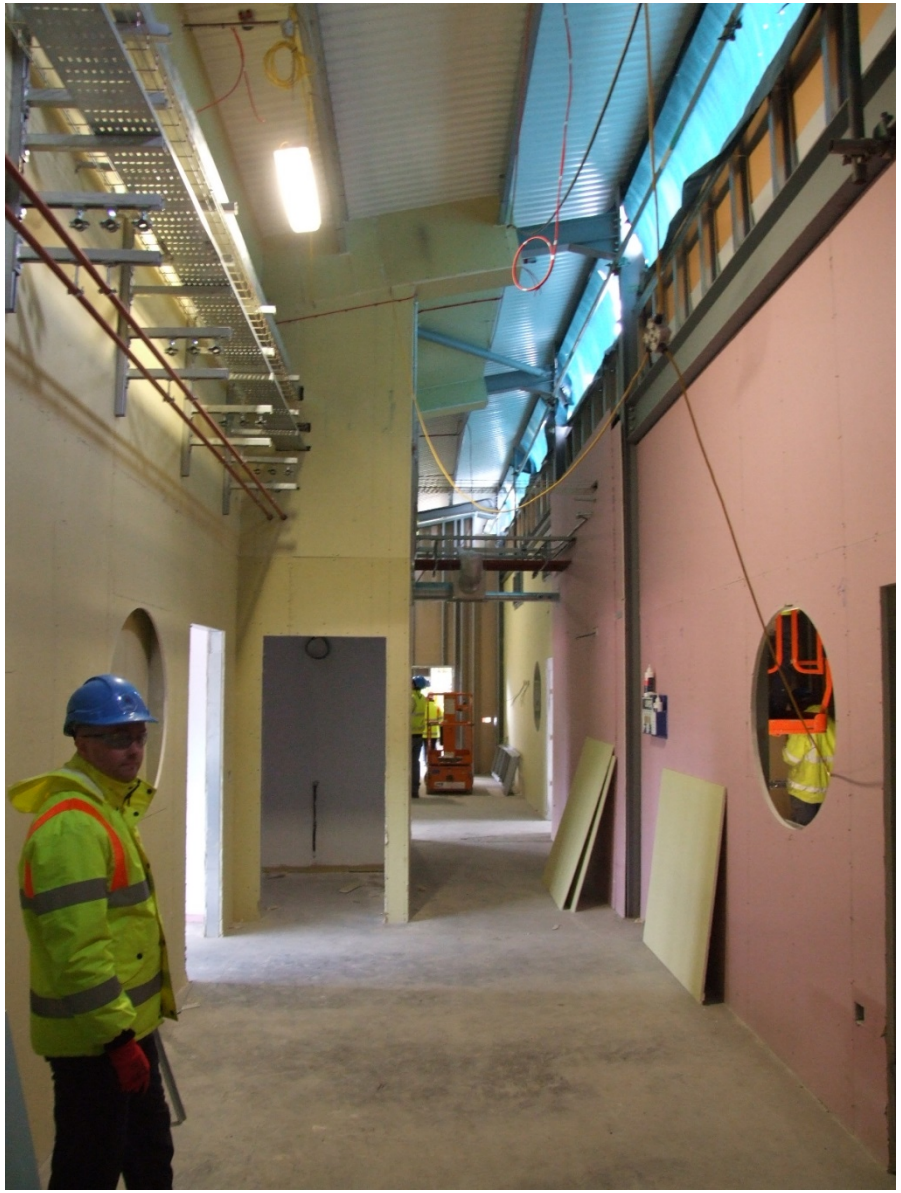
Natural Ventilation system & Acoustics







Distribution of Services



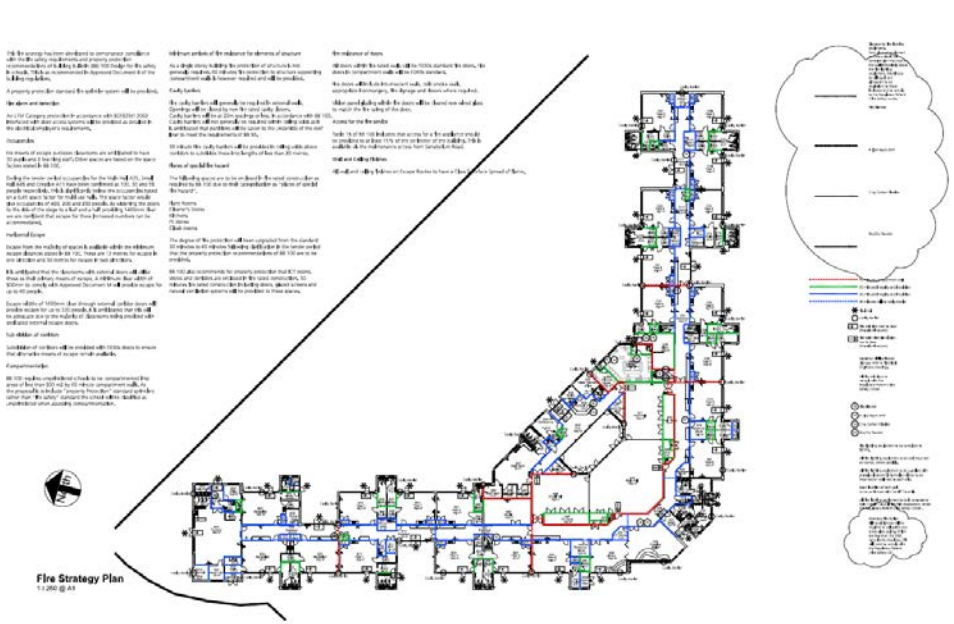


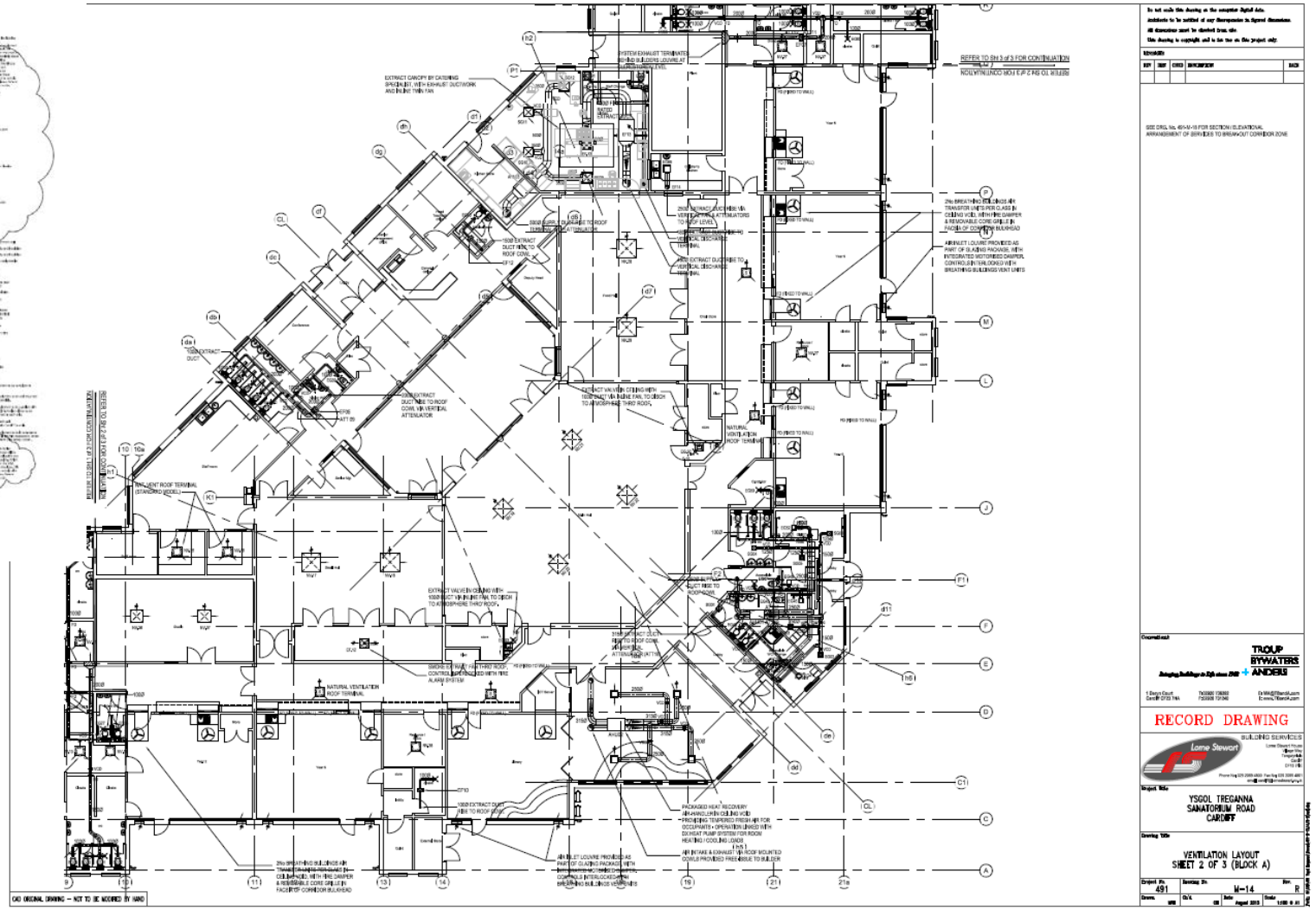
Metsec & Air Test





As Built Services Information

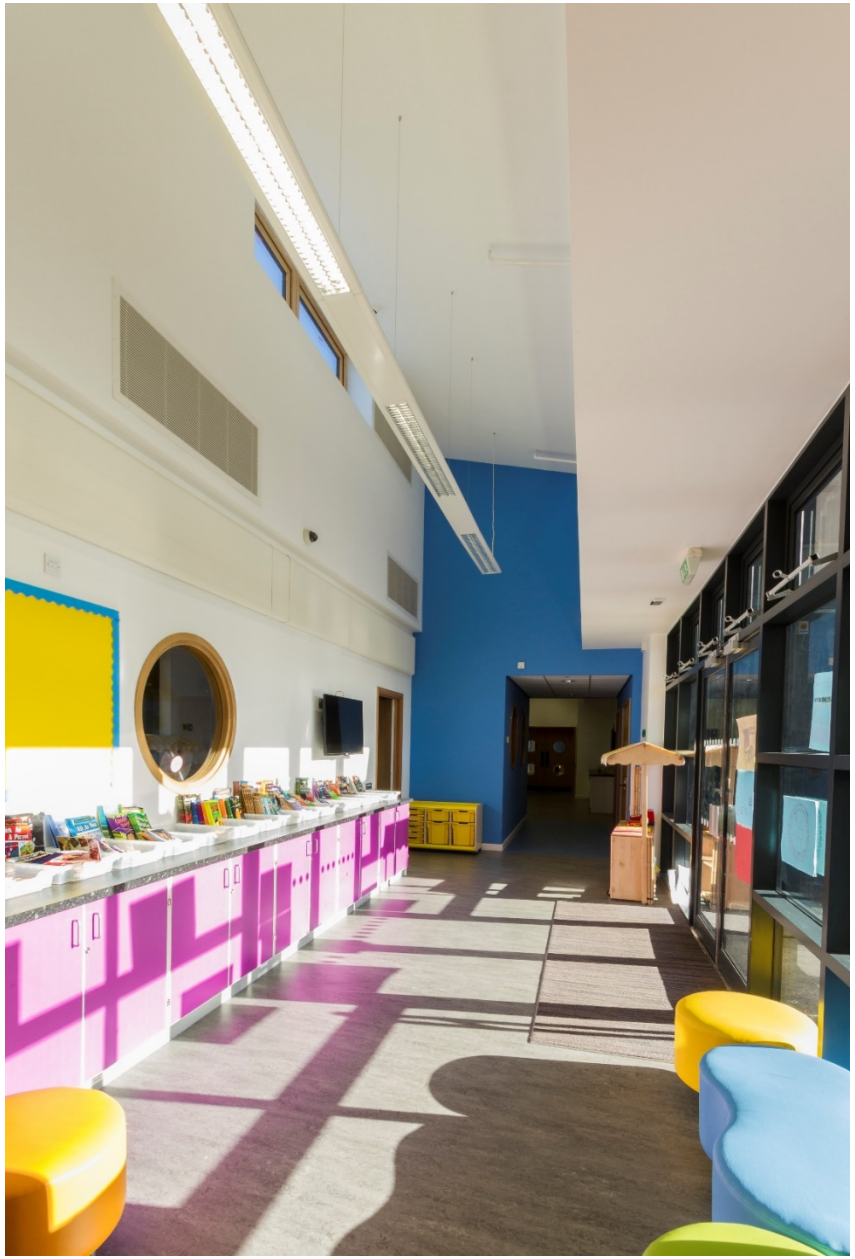




Handover August 2013



Handover August 2013








Ein hysgol ni
Dyma ni
Dyma fi


Allanfa dân
Fire exit


Derbynfa
Reception
Ysgol Treganna



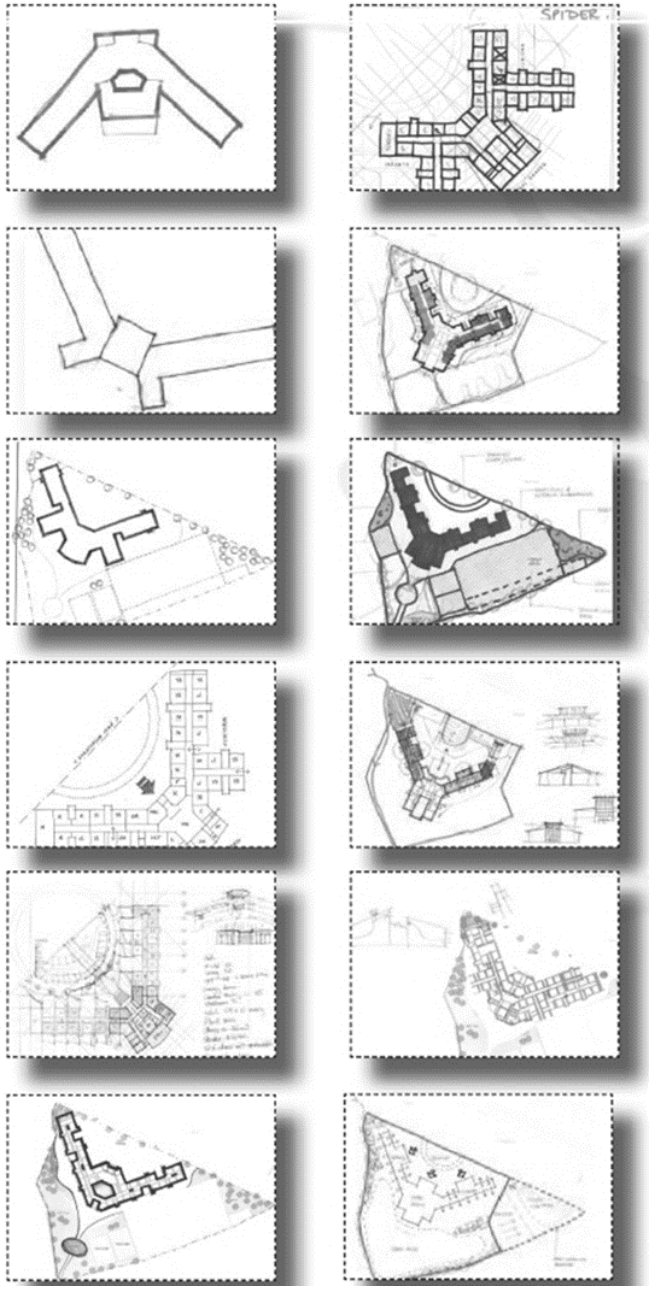

Ysgol
Treganna



https://www.google.co.uk/maps/@51.4818009,-3.2167394,346a,35y,180h,39.42t/data=!3m1!1e3

Summary

To comprehend a broad application of technologies and design techniques used to satisfy the building service requirements within large commercial or complex/multi-zone buildings, and to evaluate the design requirements of these systems with consideration to sustainable design strategies.



Lecture Content:

Reviewed a complex large scale new build project from inception to completion. In the form of a case study we have review highlighted key factors and strategies that influenced the client brief, the design, construction and operation of the building.

Part 1: Overview of the design development process up to Tender stage

Break

Part 2 Overview of Tender Process, Construction phase and Handover



STML BREEAM 2011 Tracker

Ysgol Treganna Primary School

BREEAM Education 2011

For Cardiff Council - City Development

Stride Treglown Job No.	**28221**
BRE Reference Number	**BREEAM-0044-1642**
Assessor	**Fleur Baguley**
Checked By	**Fleur Baguley**
Date	**11 November 2011**
File	**BREEAM 2011 Evidence Tracker_1**
Revision	**-**

1. Executive Summary

1.1.1 Stride Treglown Management have been comissioned to undertake a BREEAM assessment by Cardiff Council - City Development

1.1.2 The assessment relates to Ysgol Treganna Primary School

1.1.3 This document summarises the intentions of the Design Team, as expressed at the following stage:

- Design & Procurement

1.1.4 The potential scores and ratings for the project, generated at the above stage, are:

- Final Scenario: 74.27% Excellent

1.1.5 The potential score gives an indication of what the building can achieve should a full assessment be carried out and all assumptions made substantiated. A full assessment is required to ascertain the actual BREEAM rating.

2. About BREEAM

2.1.1 BREEAM is a assessment scheme that aims to quantify and reduce the environmental burdens of buildings by rewarding those designs that take positive steps to minimise their environmental impacts.

2.1.2 Projects are assessed using a system of credits, which are grouped within the following categories

- Management
- Health and Wellbeing
- Energy
- Transport
- Water
- Materials
- Waste
- Land Use and Site Ecological Value
- Pollution

2.1.3 The assessment process results in a report covering the issues assessed together, with a formal certification giving a rating on a scale of PASS, GOOD, VERY GOOD, EXCELLENT and OUTSTANDING.

Disclaimer: This report is made on behalf of Stride Treglown Management. By receiving the report and acting on it, the client - or any third party relying on it - accepts that no individual is personally liable in contract, tort or breach of statutory duty (including negligence).

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2.2 The BREEAM Assessment Process

2.2.1 The assessment process consists of three key stages; Pre-Assessment, Design & Procurement, and Post Construction Review. At the beginning of each stage, the assessor meets with the design team to test the development against BREEAM criteria in order to achieve the desired BREEAM Rating. Minutes are issued after each meeting detailing the intentions expressed.

Pre-Assessment Stage (PA)

2.2.2 This is not a compulsory stage of the assessment process yet it is a crucial stage to help the design team understand the requirements to be met.

Design & Procurement Stage (D&P)

2.2.3 This is a compulsory stage of the assessment process and leads to Interim BREEAM Certification. At this stage, the design team are encouarged to set a deadline date, by which evidence will be submitted for assessment. Assessment takes place once all of the information required has been submitted, after which a summary is issued to the design team detailing any items of evidence pending.

Post Construction Review Stage (PCR)

2.2.4 This is also a compulsory stage of the assessment process and leads to Final BREEAM Certification. At this stage, the assessor will visit the site with the design team to establish compliance with the intentions expressed at Design & Procurement stage. Assessment takes place once all of the information required has been submitted, after which a summary is issued to the design team detailing any items of evidence pending.

2.3 BREEAM Scoring

2.3.1 Within each of the BREEAM categories outlined above, there are a number of credit requirements that reflect the options available to designers and managers of buildings.

2.3.2 An environmental weighting is applied to the scores achieved under each category, as shown below, in order to calculate the final BREEAM score. The weighting factors have been derived from consensus-based research with various groups such as government, material suppliers and lobbyists. This research was carried out by BRE to establish the relative importance of each environmental issue.

Issue Category	Issue Weighting
Management	0.12
Health and Wellbeing	0.15
Energy	0.19
Transport	0.08
Water	0.06
Materials	0.125
Waste	0.075
Land Use and Ecology	0.1
Pollution	0.1
Innovation (addtional)	0.1

2.3.3 The BREEAM rating bands are as follows

Rating	Score
Unclassified	<30%
Pass	30%
Good	45%
Very Good	55%
Excellent	70%
Outstanding	85%

2.4 BREEAM Manuals Online

2.4.1 BREEAM technical manuals can be viewed or downloaded from www.breeam.org

3. Scores and Ratings

Rating	Pre-Assessment	Design & Procurement	Post Construction
Date of Assessment	5th October 2011	2nd November 2011	tbc
Basic Score	68.90%	-	tbc
Higher Score	-	74.27%	tbc

4. Development Details

General Information	
Building Name	Ysgol Treganna Primary School
Building Address	Sanatorium Road, Leckwith, Cardiff
Licensed Assessor	Fleur Baguley

Location	
Building Location	Vale of Glamorgan, Rural area (<3000 population)
Public Transport Availability	Limited
Car Parking Provision	Not Assessed

Development	
Overall Description	New Primary School
Services Description	BMS, Underfloor heating, Gas fired boilers, Photovoltaics, Rainwater harvesting, Naturally Ventilated
Occupancy	720+50
Area - Gross	3500m2
Area - Net	-
Area - Net Lettable	-

5. Scores and Ratings

5.1.1 The table(s) below illustrates how the current 'basic' (PA) BREEAM score has been calculated.

Issue Category	Credits Available	Credits Achieved	% of Credits Achieved	Issue Weighting	Weighted Score
Management	22	18	81.82%	0.12	9.82%
Health and Wellbeing	15	9	60.00%	0.15	9.00%
Energy	26	15	57.69%	0.19	10.96%
Transport	7	4	57.14%	0.08	4.57%
Water	9	7	77.78%	0.06	4.67%
Materials	13	7	53.85%	0.125	6.73%
Waste	6	4	66.67%	0.075	5.00%
Land Use and Ecology	10	10	100.00%	0.1	10.00%
Pollution	13	8	61.54%	0.1	6.15%
Weighted Score					66.90%
Addition of Exemplary Credits	10%	2%	20.00%	1	**68.90%**

5.1.2 The above score translates in a possible BREEAM rating of Very Good

5.1.3 With the addition of additional credits to achieve a higher score, the table below illustrates how the current 'higher' BREEAM score has been calculated.

Issue Category	Credits Available	Credits Achieved	% of Credits Achieved	Issue Weighting	Weighted Score
Management	22	18	81.82%	0.12	9.82%
Health and Wellbeing	15	13	86.67%	0.15	13.00%
Energy	26	16	61.54%	0.19	11.69%
Transport	7	4	57.14%	0.08	4.57%
Water	9	7	77.78%	0.06	4.67%
Materials	13	10	76.92%	0.125	9.62%
Waste	6	3	50.00%	0.075	3.75%
Land Use and Ecology	10	10	100.00%	0.1	10.00%
Pollution	13	8	61.54%	0.1	6.15%
Weighted Score					73.27%
Addition of Exemplary Credits	10%	1%	10.00%	1	**74.27%**

5.1.3 The above score translates in a possible BREEAM rating of Excellent

6. Meeting Attendance

Name	Organisation	Role
Fleur Baguley	Stride Treglown Management	Assessor
Gavin Traylor	Cardiff Council - City Development	Architect
Adam Asquith	WYG	Buildings and Infrastructure
Chris Leader	Cardiff Council - City Development	Mechanical Engineer
Sam	tbc	Acoustician

Management

Ysgol Treganna Primary School

Credit Sought	Not Sought
Partially Sought	Sought for a Higher Score

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets				% of Bld Score	Evidence Status	Minutes / Notes
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved			
Man 01 (Credit 1) (Criteria 1-3)	Sustainable Procurement - Project Brief & Design	**1.** From RIBA stage B (Design Brief) or equivalent the client, building occupier, design team and contractor are involved in contributing to the decision making process for the project. As a minimum this includes meeting to identify and define their roles, responsibilities and contributions during the following phases: a. Design b. Construction c. Commissioning and handover d. Occupation i.e. up to and including Stage L (Post practical completion) or equivalent. **2.** The roles and responsibilities outlined above include consideration of: a. End user requirements b. Aims of the design and design strategy c. Particular installation and construction requirements d. Occupiers budget and technical expertise in maintaining any proposed systems e. Usability and manageability of any proposals f. Production of documentation g. Commissioning, training and aftercare support **3.** There is a schedule of training identified for relevant building occupiers/premises manager (based appropriately around handover and proposed occupation plans) which includes the following as a minimum: a. Contents of the Building User Guide(s) (BUG) as specified in Man 04 Stakeholder Participation (note it is not necessary to have achieved the BUG credit within Man 04, however the training must cover the BUG issues BREEAM specifies in Man 04 to achieve this requirement) b. Design strategy c. Installed systems and key features (maintenance, operation, replacement, repair) d. Documentation to be provided (e.g. user guide, log book etc.) e. Training responsibilities	Documentation indicating when the collaboration began and the roles and responsibilities of the project team for the required phases. This could be either: 1. Meeting minutes 2. Construction programme 3. Responsibilities schedule 4. Relevant section/clauses of the building specification or contract The training schedule	Y	Y	Y	Y	Y			**1**	**1**	**1**				
Man 01 (Credit 2) (Criteria 4-6)	Sustainable Procurement - Project Brief & Design	**4.** A BREEAM Accredited Professional (AP) is appointed to facilitate the setting of BREEAM related performance targets for the project, i.e. target BREEAM rating and individual assessment issues (credits). The AP is appointed no later than early RIBA Stage C (Concept Design) or equivalent. **5.** The defined BREEAM performance targets have been contractually agreed between the client and design/project team no later than RIBA Stage C (or equivalent). **6.** To achieve this credit at the interim design stage of certification, the defined BREEAM tar-gets (rating and credits) must be demonstrably achieved by the project. This is demonstrated via the BREEAM assessor's design stage certification report.	The AP appointment letter. Relevant section/clauses of the building specification or contract Project programme indicating the dates by which the key work stages (Preparation and Design) are to be completed. Meeting notes/minutes, recorded correspondence or schedules that can demonstrate BREEAM issues are a regular agenda item and AP attendance. The AP progress report (for each work stage). Design stage BREEAM assessment report.	Y							**1**	**1**	**1**				

Management

Ysgol Treganna Primary School

Credit Sought	Not Sought
Partially Sought	Sought for a Higher Score

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility: Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Credits / Targets: Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Man 01 (Credit 3) (Criteria 7-9)	Sustainable Procurement - Project Brief & Design	**7.** The BREEAM AP criteria 4, 5 and 6 have been achieved. **8.** The appointed AP is engaged to monitor and report progress against the BREEAM targets by attending key project/design team meetings during the feasibility and design stages (RIBA Stage B up to and including RIBA Stage E, or equivalent). **9.** The AP prepares regular written reports for the client and project team detailing progress against the defined BREEAM performance targets (as a minimum for each full design team meeting).	The AP appointment letter. Relevant section/clauses of the building specification or contract Project programme indicating the dates by which the key work stages (Preparation and Design) are to be completed. Meeting notes/minutes, recorded correspondence or schedules that can demonstrate BREEAM issues are a regular agenda item and AP attendance. The AP progress report (for each work stage). Design stage BREEAM assessment report.	Y							**1**	**1**	**1**				
Man 01 (Credit 4) (Criteria 10-13)	Sustainable Procurement - Project Brief & Design	10. The appointed AP is engaged to monitor and report progress against the BREEAM targets by attending key project team meetings during the production information, tendering and construction stages (RIBA Stage F up to and including RIBA Stage L Post-Practical Completion or equivalent). 11. The defined BREEAM performance targets, agreed at or before RIBA Stage C (or equivalent) form a requirement of the principal contractors contract. 12. The AP prepares regular written reports for the client and project team detailing progress against the defined BREEAM performance targets (as a minimum for each full project team meeting). 13. To achieve all three credits at the final 'post-construction' stage of assessment, the BREEAM related performance targets for the project (as agreed at RIBA Stage C, or early) must be demonstrably achieved by the project. This is demonstrated via the BREEAM assessor's final post-construction stage certification report.	The AP appointment letter. Relevant section/clauses of the building specification or contract Project programme indicating the dates by which the key work stages (Preparation and Design) are to be completed. Meeting notes/minutes, recorded correspondence or schedules that can demonstrate BREEAM issues are a regular agenda item and AP attendance. The AP progress report (for each work stage). Design stage BREEAM assessment report.	Y							**1**	**1**	**1**				
Man 01 (Credit 5) (Criteria 14-17)	Sustainable Procurement - Construction and Handover	14. The main contractor accounts for a thermographic survey within the project budget and programme of works. 15. Once construction is complete a thermographic survey of the building fabric is undertaken in accordance with the appropriate standard and by a professional holding a valid Level 2 certificate in thermography (as defined by the UKTA website http://www.ukta.org) 16. The survey confirms: a. Continuity of insulation in accordance with the construction drawings b. Avoidance of excessive thermal bridging c. Avoidance of air leakage paths through the fabric (except through intentional openings) 17. Any defects identified via the post construction inspections are rectified	Project budget Programme of works Relevant section/clauses of the building specification or contract and/or letter of appointment					Y			**1**	**1**	**1**				

Management

Ysgol Treganna Primary School

Credit Sought	Not Sought
Partially Sought	Sought for a Higher Score

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets				% of Bld Score	Evidence Status	Minutes / Notes
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved			
Man 01 (Credit 6) (Criteria 18-21)	Sustainable Procurement - Project Brief & Design	18. An appropriate project team member(s) is appointed to monitor and programme pre-commissioning, commissioning and, where necessary, re-commissioning on behalf of the client. 19. All building services are included in the commissioning schedule and commissioning is to be carried out in line with current Building Regulations, BSRIA1 and CIBSE1 guidelines and/or other appropriate standard, where applicable (where a BMS is specified see also relevant Compliance note BMS commissioning procedures). 20. The main contractor accounts for the commissioning programme, responsibilities and criteria within the main programme of works. 21. A specialist commissioning manager is appointed during the design stage (by either client or contractor) for complex systems and the scope of their responsibility includes: a. Design input: commissionability design reviews b. Commissioning management input to construction programming c. Commissioning management input during installation stages d. Management of commissioning, performance testing and handover/post handover stages.	Appointment letter or commissioning responsibilities schedule Relevant section/clauses of the building specification or contract Main Contractors programme Commissioning schedule				Y	Y			**1**	**1**	**1**				
Man 01 (Credit 7) (Criterion 22)	Sustainable Procurement - Aftercare	**22.** The following seasonal commissioning responsibilities will be completed over a minimum 12 month period, once the building becomes occupied: **Complex systems - Specialist commissioning manager** **a.** Testing of all building services under full load conditions, i.e. heating equipment in mid-winter, cooling/ventilation equipment in mid-summer, and under part load conditions (spring/autumn) **b.** Where applicable, testing should also be carried out during periods of extreme (high or low) occupancy **c.** Interviews with building occupants (where they are affected by the complex services) to identify problems or concerns regarding the effectiveness of the systems **d.** Re-commissioning of systems (following any work needed to serve revised loads), and incorporating any revisions in operating procedures into the O&M manuals. Where specialist building services systems such as fume cupboards, microbiological safety cabinets and a cold storage system are present then the assessor must ensure that these systems are included in the specialist commissioning agent's responsibilities. **Simple systems (naturally ventilated) - external consultant/facilities manager** **a.** Review thermal comfort, ventilation, and lighting, at three, six and nine month intervals after initial occupation, either by measurement or occupant feedback. **b.** Take all reasonable steps to re-commission systems following the review to take account of deficiencies identified and incorporate any relevant revisions in operating procedures into the O&M manuals.	Appointment letter(s) and/or commissioning responsibilities schedule.				Y	Y			**1**	**1**	**1**				
Man 01 (Credit 8) (Criteria 23-24)	Sustainable Procurement - Project Brief & Design	**23.** Criterion 22 is achieved and there is a mechanism to: **a.** Collect the energy and water consumption data for at least 12 months after occupation, **b.** Compare this with what was expected and **c.** Analyse any discrepancies with a view of adjusting systems if they are not operating as expected/designed. **24.** There is a contract or commitment to provide aftercare support to all the building occupiers which includes the following as a minimum: **a.** A meeting (programmed to occur as soon as possible after occupation) to introduce the aftercare team (or individual) and Building User Guide (where existing), present key information about how the building operates and answer questions. **b.** Initial aftercare e.g. on site attendance on a weekly basis (this could be more or less frequent depending on the complexity of the building) for at least 4 weeks after handover **c.** On site FM training to include a walkabout of the building **d.** Longer term after care e.g. a helpline, nominated individual or other appropriate system to support building users for at least the first 12 months of occupation	As for criteria 22 above Evidence of either existing procedures or a commitment/ contract to put in place a mechanism to: 1. Collect, compare and analyse relevant data. 2. Undertake suitable adjustments if necessary. Evidence of a commitment/contract to provide compliant aftercare support and training.	Y	Y			Y			**1**	**1**	**1**				

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Man 01 (Exemplary Credit) (Criterion 25)	Sustainable Procurement - Project Brief & Design	**25.** There is commitment or contract for the facilities manager or equivalent to undertake the following at quarterly intervals for the first 3 years after occupation: **a.** Collect the occupant satisfaction, energy consumption and water consumption data **b.** Utilise the data to check the building is performing as expected and make any necessary adjustments **c.** Set targets for reducing water and energy consumption and monitor progress towards these **d.** Feedback any 'lessons learned' to the design team and developer for use in future projects **e.** Provision of the actual annual building energy, water consumption and occupant satisfaction data to BRE Global.	Evidence as above (for data collection and aftercare support credit), but from the end user.		Y						1%	0%	0%				
Man 02 (Credits 1 & 2) (Criteria 1-2)	Responsible Construction Practices	**1.** Where the principal contractor has used a 'compliant' organisational, local or national considerate construction scheme. **2.** Where the principal contractor's performance against the compliant scheme has been confirmed by independent assessment and verification, the BREEAM credits can be awarded as follows: **a.** One credit where the contractor achieves 'compliance' with the criteria of a compliant scheme. **b.** Two credits where the contractor significantly exceeds 'compliance' with the criteria of the scheme.	Relevant section/clauses of the building specification or contract OR A formal letter of commitment from the client/developer Where relevant for multi residential buildings: Evidence in line with the Design Stage evidence requirements of the CSH issue Man 2. Or a copy of the Design Stage CSH certificate and report from the CSH online reporting system.					Y			2	2	2				
Man 02 (Exemplary Credit) (Criterion 3)	Responsible Construction Practices	**3.** Where the principal contractor's performance against the compliant scheme has been confirmed by independent assessment and verification and the contractor achieves compliance with the criteria of the compliant scheme to an exemplary level of practice.	Relevant section/clauses of the building specification or contract OR A formal letter of commitment from the client/developer Where relevant for multi residential buildings: Evidence in line with the Design Stage evidence requirements of the CSH issue Man 2. Or a copy of the Design Stage CSH certificate and report from the CSH online reporting system.					Y			1%	1%	1%				
Man 03 (All Credits) (Criterion 1)	Construction Site Impacts	**1.** Responsibility has been assigned to an individual(s) for monitoring, recording and reporting energy, water and transport consumption data resulting from all construction processes. To ensure the robust collection of information, this individual(s) has the appropriate authority, responsibility and access to the data required.	Relevant section/clauses of the building specification or contract OR A signed and dated letter of commitment to meet the relevant criteria					Y			-	-	-				
Man 03 (Credit 1) (Criteria 2-3)	Construction Site Impacts	**2.** Monitor and record data on energy consumption (kWh) from the use of construction plant, equipment (mobile and fixed) and site accommodation necessary for completion of all construction processes. **3.** Using the collated data report the energy consumption (total kWh and kWh/£100k of project value) and carbon dioxide emissions (total kgCO2eq and kgCO2eq/£100k of project value) from the construction process via the BREEAM scoring and reporting tool.	Relevant section/clauses of the building specification or contract OR A signed and dated letter of commitment to meet the relevant criteria					Y			1	1	1				
Man 03 (Credit 2) (Criteria 4-5)	Construction Site Impacts	**4.** Monitor and record data on water consumption (m3) from the use of construction plant, equipment (mobile and fixed) and site accommodation necessary for completion of all construction processes. **5.** Using the collated data report the total net water consumption (m3), i.e. consumption minus any recycled water use, from the construction process via the BREEAM scoring and reporting tool.	Relevant section/clauses of the building specification or contract OR A signed and dated letter of commitment to meet the relevant criteria					Y			1	1	1				

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Man 03 (Credit 3) (Criteria 6-7)	Construction Site Impacts	**6.** Monitor and record data on transport resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum this must cover: **a.** Transport of materials from the factory gate to the building site, including any transport, intermediate storage and distribution.. Scope of this monitoring must cover the following as a minimum: **i.** Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01), including insulation materials, **ii.** Ground works and landscaping materials **b.** Transport of construction waste from the construction gate to waste disposal processing / recovery centre gate. Scope of this monitoring must cover the construction waste groups outlined in the project's site waste management plan (SWMP) **7.** Using the collated data, report separately for materials and waste, the total fuel consumption (litres) and total carbon dioxide emissions (kgCO2 eq), plus total distance travelled (km) via the BREEAM scoring and reporting tool.	Relevant section/clauses of the building specification or contract OR A signed and dated letter of commitment to meet the relevant criteria					Y			**1**	**1**	**1**				
Man 03 (Credit 4) (Criterion 8)	Construction Site Impacts	**8.** Confirmation that all site timber used on the project is sourced in accordance with the UK Government's Timber Procurement Policy.	Relevant section/clauses of the building specification or contract OR A signed and dated letter of commitment to meet the relevant criteria					Y			**1**	**1**	**1**				
Man 03 (Credit 5) (Criteria 9-10)	Construction Site Impacts	**9.** The principal contractor for the project operates an Environmental Management System covering their main operations. The EMS must be either: **a.** Third party certified, to ISO14001/EMAS or equivalent standard. OR **b.** The structure of the EMS is in compliance with BS8555 200312 and has reached phase four of the implementation stage, 'implementation and operation of the environmental management system', and completed phase audits one to four, as defined in BS8555. **10.** Implement best practice pollution prevention policies and procedures on site, demonstrated through compliance with the items in the Environmental Checklist section 2.2.5 Preventing Pollution in the England and Wales Environment Agency's 'Building a Better Environment13, a guide for developers'	Relevant section/clauses of the building specification or contract OR A signed and dated letter of commitment to meet the relevant criteria					Y			**1**	**1**	**1**				
Man 04 (Credit 1) (Criteria 1-5)	Stakeholder Participation - Consultation	**1.** During the preparation of the brief, all relevant parties and relevant bodies (see Compliance notes) are identified and consulted with by the design team. The findings of the consultation influences the design and therefore must have been held before key and final design decisions were made. **2.** A consultation plan has been prepared and includes a timescale and methods of consultation for all relevant parties/bodies and how the relevant parties will be kept informed about progress on the project. **3.** The minimum consultation content has been covered (see Compliance notes). **4.** During the design stage, consultation feedback (see Compliance notes) has been given to and received by all relevant parties regarding suggestions made, including how the results of the consultation process have influenced, or resulted in modifications to, the proposed design and building operation/use. **5.** The project team ensures that through consultation and the resulting measures taken (as agreed with the relevant bodies) any areas or features of historic/heritage value are protected.	A list of the stakeholders consulted. A consultation plan setting out the process and the scope of the consultation. Agenda/minutes from consultation meetings. Documentation demonstrating consultation feedback and subsequent actions.		Y	Y					**1**	**1**	**1**				

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Man 04 (Credit 1) (Criterion 6)	Stakeholder Participation - Consultation	**Education, Healthcare, Law Courts and Major Transport Nodes only - delete if not appropriate.** **6.** The consultation process employs a method carried out by an independent third party at the preparation of the brief and design stages. This can include the appropriate version of the Design Quality Indicator (DQI or DQI for Schools), AEDET in Healthcare buildings, or another compliant method.	A list of the stakeholders consulted. A consultation plan setting out the process and the scope of the consultation. Agenda/minutes from consultation meetings. Documentation demonstrating consultation feedback and subsequent actions. Healthcare buildings only; Good Corporate Citizen (GCC) documentation and review/reporting commitments		Y	Y					1	0	0				
Man 04 (Credit 2) (Criteria 10-12)	Stakeholder Participation - Inclusive and Accessible Design	**10.** The building is designed to be fit for purpose, appropriate and accessible by all potential users. **11.** An access statement is developed in line with the CABE publication Design & Access Statements, How to write, read and use them18, based on the principles of inclusive design. The access statement results in a strategy that must address, as a minimum, access to and throughout the development for all users, with particular emphasis on the following: **a.** Disabled users; addressing and proposing design solutions that remove obstacles that define disability. **b.** People of different age groups, genders, ethnicity and stamina/fitness levels **c.** Parents with children (where appropriate to building use/type) **12.** Provision of facilities (see Compliance notes) is made for future building occupants and users including, where relevant, facilities that can be shared and are accessible to members of the public/community without gaining uncontrolled access to other parts of the building.	The access statement and/or access strategy. Design drawings AND/OR relevant section/clauses of the building specification or contract			Y					1	1	1				
Man 04 (Credit 3) (Criteria 13-15)	Stakeholder Participation - Building User Information	**13.** Building User Guides are provided and are appropriate to all users of the building (general users including staff and if applicable residents, as well as the non technical facilities management team/building manager). **14.** The Guides cover all functions and uses of the building, ensuring building users are able to use the building effectively. Where relevant, the documents must describe the facilities to be shared and how access to them will be arranged for potential users. **15.** Building and site related information is made readily available to all future building users, enabling them to access and use the building, site and local transport infra-structure/amenities effectively.	Relevant section/clauses of the building specification or contract OR Letter of commitment from the client/developer	Y			Y	Y			1	1	1				
Man 4 (Credit 4) (Criteria 16-17)	Stakeholder Participation - Post Occupancy Evaluation (POE) and information dissemination	**16.** The client makes a commitment to carry out a Post Occupancy Evaluation (POE) one year after building occupation, to gain building performance feedback. The POE should be carried out by an independent third party and should cover: **a.** A review of the design and construction process (review of design, procurement, construction and handover processes) **b.** Feedback from a wide range of building users including Facilities Management on the design and environmental conditions of the building covering: **i.** Internal environmental conditions (light, noise, temperature, air quality) **ii.** Control, operation and maintenance **iii.** Facilities and amenities **iv.** Access and layout **v.** Other relevant issues **c.** Sustainability performance (energy/water consumption, performance of any sustainable features or technologies eg materials, renewable energy, rainwater harvesting etc,) **17.** The client makes a commitment to carry out the appropriate dissemination of information on the building's post occupancy performance in order to share any good practice and lessons learned.	Signed and dated commitment by the client/developer or future building occupier	Y	Y						1	0	0				

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Man 05 (Credit 1) (Criteria 1-3)	Life cycle cost and service life planning	1. A Life Cycle Cost (LCC) analysis has been carried out based on the proposals developed during RIBA Work Stages C/D (concept design/design development) or equivalent. 2. The Life Cycle Cost analysis is: a. Conducted in accordance with the process outlined in PD156865:200819 (a supplement to BS ISO 15686-5:2008) b. Based on the concept design/design development proposals c. Completed for the following stages and uses a study period of 60 years, shown in real and discounted cash flow terms: i. Construction ii. Operation - includes as a minimum, utilities, cleaning, management costs iii. Maintenance - includes as a minimum, planned maintenance, replacements and repairs costs 3. A critical appraisal has been completed at the feasibility stage of building procurement, covering the service life estimations and maintenance implications for different design options. This appraisal must comply with Service life planning in accordance with ISO 15686 Buildings and constructed assets - Service life planning Part 1	Relevant sections of the feasibility stage life cycle cost analysis report / documentation Relevant sections of the feasibility stage appraisal documentation			Y					**1**	**0**	**0**				
Man 5 (Credit 2) (Criteria 4-7)	Life cycle cost and service life planning	4. Criteria 1 to 3 are achieved. 5. The analysis demonstrates that elements in at least two of the following building components have been analysed at a strategic and system level (as per figure 6, Different levels of analysis at different stages of the life cycle, ISO 15686-5), comparing alternative options: a. Envelope: e.g. cladding, windows, and/or roofing b. Services: e.g. heat source cooling source, and/or controls c. Finishes: e.g. walls, floors and/or ceilings d. External spaces 6. The option(s) meet the performance criteria for the building (i.e. realistic options are used for the comparison) and the lowest discounted LCC over the period is preferred, assuming that their selection results in at least one of the following: a. Lower building energy consumption over the operational life span of the building (compared to other options/alternatives analysed) b. A reduction in maintenance requirement/frequency c. Extended service lives of services infrastructure/systems and/or building fabric resulting in fewer replacement intervals d. Dismantling and recycling or reuse of building components. 7. The selected option is of critical value within the project	As for criteria 1-3 above Details of alternative options considered including benefits of selected options (in terms of criteria 6) and evidence that the element is of critical value			Y					**1**	**0**	**0**				
Man 05 (Credit 3) (Criteria 8-11)	Life cycle cost and service life planning	8. Criteria 1 to 7 are achieved. 9. The model outlined in the first LCC credit is updated during RIBA Work Stages D/E (design development/technical design) or equivalent. 10. The results of the study have been implemented in the specification, design and final construction of the assessed building. 11. A maintenance strategy has been developed, informed by the LCC analysis and includes: a. The extent to which maintenance has been designed out and how systems have been included in the specification to facilitate safe, efficient and cost-effective operation and maintenance. b. How the removal and replacement of major plant and equipment, within the design life of the building, has been facilitated by the building design and specification (lay-out/access etc.). c. A management plan for the landscaping (for example, as defined in BREEAM issue LE 05 Long term impact on biodiversity) if appropriate.	As for criteria 1-7 above updated for the detail design Design drawings or relevant section/clauses of the building specification or contract demonstrating implementation of the preferred option(s) from the latest LCC analysis A copy of the maintenance strategy AND/OR a letter of commitment from the client/developer to provide one. Evidence of how the maintenance strategy was/will be informed by the LCC analysis above			Y					**1**	**0**	**0**				

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Hea 01 (Pre-requisite) (Criterion 1)	Visual Comfort Pre-requisite	**1.** All fluorescent and compact fluorescent lamps are fitted with high frequency ballasts.	Documentation indicating when the collaboration began and the roles and responsibilities of the project team for the required phases. This could be either: 1. Meeting minutes 2. Construction programme 3. Responsibilities schedule 4. Relevant section/clauses of the building specification or contract The training schedule			Y	Y	Y			-	-	-				
Hea 01 (Credit(s) 1 / 2) (Criterion 2)	Visual Comfort Daylighting	**2.** Relevant building areas meet good practice daylighting criteria as outlined in the BREEAM 2011 Technical Guide.	Design drawings Daylight calculations Where relevant for multi-residential buildings: Evidence in line with the Design Stage evidence requirements of the CSH issue Hea 1 OR A copy of the Design Stage CSH certificate and report from the CSH online reporting system confirming the number of credits achieved for CSH Issue Hea 1			Y	Y				**1**	**0**	**1**				
Hea 01 (Credit 2 / 3 / 4)	Visual Comfort View Out and Glare Control	Relevant building areas meet glare contol requirements as outlined in the BREEAM 2011 Technical Guide.	Design drawings Relevant section/clauses of the building specification or contract Window schedule			Y	Y				**1**	**1**	**1**				
Hea 01 (Credit(s) 3 / 4 / 5) (Criterion x)	Visual Comfort Internal & External Lighting	Relevant building areas meet glare contol requirements as outlined in the BREEAM 2011 Technical Guide.	Design drawings and/or room data sheets/schedules Relevant section/clauses of the building specification or contract OR a letter of formal confirmation of compliance from the relevant design team member.	Y		Y					**1**	**1**	**1**				
Hea 01 (Exemplary Credit)	Visual Comfort Daylighting	Relevant building areas meet the exemplary level daylighting criteria as outlined in the BREEAM 2011 Technical Guide.	Design drawings Daylight calculations Where relevant for multi-residential buildings: Evidence in line with the Design Stage evidence requirements of the CSH issue Hea 1 OR A copy of the Design Stage CSH certificate and report from the CSH online reporting system confirming the number of credits achieved for CSH Issue Hea 1			Y	Y				**1%**	**0%**	**0%**				

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Hea 02 (Credits 1) (Criteria 1-5)	Indoor Air Quality - Minimising Sources of Air Pollution	1. An indoor air quality plan has been produced which considers; a. Removal of contaminant sources b. Dilution and control of contaminant sources c. Procedures for pre-occupancy flush out d. 3rd party testing and analysis. 2. For air-conditioned and mixed-mode buildings: the building's air intakes and exhausts are over 10m apart to minimise recirculation and intakes are over 20m from sources of external pollution. 3. For naturally-ventilated buildings: openable windows/ventilators are over 10m from sources of external pollution. 4. The building has been designed to provide fresh air and minimise internal pollutants (and ingress of external polluted air into the building) in accordance with the criteria of the rel-evant standard for ventilation. 5. Areas of the building subject to large and unpredictable or variable occupancy patterns have CO2 or air quality sensors specified and: a. In mechanically ventilated spaces, the sensor(s) are linked to the mechanical ven-tilation system and provide demand-controlled ventilation to the space. b. In naturally ventilated spaces, the sensors either have the ability to alert the building owner/manager when CO2 levels exceed the recommended set point, or are linked to controls with the ability to adjust the quantity of fresh air, i.e. automatic opening windows/roof vents.	Copy of the indoor air quality plan Relevant section/clauses of the building specification or contract Design drawings			Y	Y				**1**	**0**	**1**				
Hea 02 (Credits 2) (Criteria 6-8)	Indoor Air Quality - Minimising Sources of Air Pollution	6. Criterion 1 is achieved. 7. All decorative paints and varnishes have met the requirements listed in Table 5-3 in the BREEAM 2011 Technical Guide. 8. At least five of the eight remaining product categories listed in Table 5-3, have met the test-ing requirements and emission levels for Volatile Organic Compound (VOC) emissions against the relevant standards identified within this table. Where five or less products are specified within the building, all must meet the requirements in order to achieve this credit.	Copy of the indoor air quality plan Relevant section/clauses of the building specification or contract			Y		Y			**1**	**0**	**1**				
Hea 02 (Credits 3) (Criteria 9-14)	Indoor Air Quality - Minimising Sources of Air Pollution	9. Criterion 1 is achieved 10. Formaldehyde concentration level is measured post construction (but pre-occupancy) and is found to be less than or equal to 100µg/m3 averaged over 30 minutes (WHO guidelines, source BRE Digest 464 part 232). 11. The total volatile organic compound (TVOC) concentration is measured post construction (but pre-occupancy) and found to be less than 300µg/m3 over 8 hours, in line with the Building Regulation requirements. 12. Where levels are found to exceed these limits, the project team confirms the measures that have, or will be undertaken in accordance with the IAQ plan, to reduce the TVOC and formaldehyde levels to within the above limits. 13. The testing and measurement of the above pollutants are in accordance with the fol-lowing standards where relevant: a. BS EN ISO 16000-4: 2004 Diffusive sampling of formaldehyde in air33 b. EN ISO 16000-6 VOCs in air by active sampling34 c. BS EN 16017-2: 2003 VOCs - Indoor, ambient and workplace air by passive sampling35 d. BS EN ISO 16000-3: 200136 formaldehyde and other carbonyls in air by pumped sam-pling. 14. The measured concentration levels of formaldehyde (µg/m3) and TVOC (µg/m3) are reported, via the BREEAM scoring and reporting tool, for the purpose of confirming crite-ria 11 to 13.	Copy of the indoor air quality plan Commitment to carry out necessary testing post construction	Y							**1**	**0**	**0**				

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Hea 02 (Credit 4) (Criteria 15-16)	Indoor Air Quality - Potential for Natural Ventilation	**Not applicable to Prisons - delete if not appropriate.** 15. Occupied spaces of the building are designed to be capable of providing fresh air entirely via a natural ventilation strategy, demonstrated via either of the following: a. The openable window area in each occupied space is equivalent to 5% of the gross internal floor area of that room/floor plate. For room/floor plates between 7m-15m depth, the openable window area must be on opposite sides and evenly distributed across the area to promote adequate cross-ventilation OR b. The design demonstrates that the natural ventilation strategy provides adequate cross flow of air to maintain required thermal comfort conditions and ventilation rates. This is demonstrated using ventilation design tool types recommended by CIBSE AM1037 (or for education buildings by using the ClassVent tool). For a strategy which does not rely on openable windows, or which has occupied spaces with a plan depth greater than 15m, the design must demonstrate (in accordance with requirement 15b above) that the ventilation strategy can provide adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. 16. The natural ventilation strategy is capable of providing at least two levels of user-control on the supply of fresh air to the occupied space, as follows; a. Higher level: higher rates of ventilation achievable to remove short-term odours and/or prevent summertime overheating. b. Lower level: adequate levels of draught-free fresh air to meet the need for good indoor air quality throughout the year, sufficient for the occupancy load and the internal pollution loads of the space. Any opening mechanisms must be easily accessible and provide adequate user-control over air flow rates to avoid draughts. Relevant industry standards for ventilation can be used to define 'adequate levels of fresh air' sufficient for occupancy and internal air pollution loads relevant to the building type. Multi-residential buildings with self contained flats and individual bedrooms must have a degree of openable window function. This does not need to provide two levels of user-control (as required above), but must be occupant controlled.	Relevant section/clauses of the building specification or contract Formal letter from the design team with details of the ventilation strategy and calculations/results from appropriate software modelling tool(s) Manufacturers'/suppliers' literature			Y					1	0	1				
Hea 03 (Credit 1) (Criteria 1-5)	Thermal Comfort	1. Thermal modelling has been carried out using software in accordance with CIBSE AM11 48Building Energy and Environmental Modelling. 2. The modelling demonstrates that the building design and services strategy can deliver ther-mal comfort levels in occupied spaces in accordance with the criteria set out in CIBSE Guide A Environmental Design49 ; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type). 3. The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis. For smaller and more basic building designs with less complex heating / cooling systems, an alternative less complex means of analysis may be appropriate (such methodologies must still be in accordance with CIBSE AM11). 4. The building complies with any requirement, in terms of "time out of range" (TOR) metric, from the appropriate industry standard (as above) OR where there is no appropriate indus-try standard available or TOR recommendation made, the building services engineer con-firms that the TOR is acceptable for the purpose and function of the building. 5. The TOR metric (%) is reported, via the BREEAM scoring and reporting tool, based on the modelling above (and therefore specified building servicing strategy) and includes max-imum and minimum temperatures for both summer and winter settings.	Relevant section/clauses of the building specification or contract or correspondence (e.g. letter, email or meeting minutes) from the design team Thermal modelling results TOR data from the design team				Y	Y			1	1	1				

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				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved			
Hea 03 (Credit 2) (Criteria 6-8)	Thermal Comfort	6. Criteria 1 to 5 are achieved. 7. The thermal modelling analysis (above) has informed the temperature control strategy for the building and it's users. 8. The strategy for proposed heating / cooling system(s) demonstrates that it has addressed the following: a. Zones within the building and how the building services could efficiently and appro-priately heat or cool these areas e.g. consider the different requirements for the cen-tral core of a building compared with the external perimeter adjacent to the windows. b. The amount of occupant control required for these zones, based on discussions with the end user (or alternatively building type/use specific design guidance, case studies, feedback) and considers: i. User knowledge of building services, ii. Occupancy type, patterns and room functions (and therefore appropriate level of control required), iii. How the user is likely to operate/interact with the system(s) e.g. are they likely to open windows, access TRV's on radiators, change air conditioning settings etc., iv. The user expectations (e.g. this may differ in the summer and winter; users tend to accept warmer internal conditions in the summer) and degree of individual control (i.e. obtaining the balance between occupant preferences, for example, some occupants like fresh air and others dislike drafts). c. How the proposed systems will interact with each other (where there is more than one system) and how this may affect the building occupants thermal comfort. d. The need or otherwise for an accessible building user actuated manual override for any automatic systems.	Thermal comfort strategy highlighting the points that have been considered and decisions taken accordingly Relevant section/clauses of the building specification or contract Design drawings				Y	Y			**1**	**1**	**1**				
Hea 04 (Credit 1) (Criteria 1-3)	Water Quality	**Building services water systems: minimising risk of contamination** 1. All water systems in the building are designed in compliance with the measures outlined in the Health and Safety Executive's "Legionnaires' disease - The control of legionella bacteria in water systems". Approved Code of Practice and Guidance, 200054 and, where relevant, other industry/sector best practice guidance (see Compliance notes). 2. Where humidification is required, a failsafe humidification system is provided. **Building occupants: Provision of fresh drinking water** 3. A wholesome supply of accessible, clean and fresh drinking water is supplied, as follows: a. Educational buildings and community use/centres: i. Chilled, mains-fed point-of-use water coolers accessible to pupils/stu-dents/users/staff (as applicable) throughout the day. ii. Provision in safe and convenient locations e.g. dining/assembly halls, class-rooms/common rooms, wide corridors, indoor social areas, changing rooms/gymnasia, concourse. iii. One compliant point-of-use water cooler is provided for every 200 building users, subject to a minimum of one water cooler being provided for any build-ing with less than 200 building users. iv. All coolers must be attached to both the wall and the floor to prevent van-dalism, and contain security covers to protect all water and electrical con-nections. b. Permanently staffed buildings/office areas: i. Chilled, mains-fed point-of-use water supply or point-of-use water coolers. ii. Provision in each staff kitchenette, or in a suitable location on each floor level, and in a staff canteen (if provided). c. Sports/fitness and recreation areas/buildings: i. Chilled, mains-fed point-of-use water coolers. ii. Provision in each changing area or a public concourse iii. Where point-of-use coolers are provided they must be attached to both the wall and the floor to prevent vandalism, and contain security covers to protect all water and electrical connections.	**Building services water systems: minimising risk of contamination** Relevant section/clauses of the building specification or contract **Building occupants: Provision of fresh drinking water** Design drawings			Y	Y	Y			**1**	**1**	**1**				

Health & Wellbeing

Ysgol Treganna Primary School

Stride Treglown Management

				Responsibility							Credits / Targets						
Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Hea 05 (Pre-requisite) (Criterion 1)	Acoustic Performance - Pre-requisite	1. A suitably qualified acoustician (see Relevant definitions) is appointed by the client at pre-bid/briefing stage of the project to provide early design advice on: a. External sources of noise impacting the chosen site b. Site layout and zoning of the building for good acoustics c. Acoustic requirements for users with special hearing and communication needs, d. Acoustic treatment of different zones and facades.								Y	-	-	-				
Hea 05 (Credits 1-4) (Criterion 2)	Acoustic Performance - Acoustic Performance Standards	2. The building meets the acoustic performance standards and testing requirements for the relevant building type and function areas as detailed in the BREEAM 2011 Technical Manual.	Professional report / study and calculations from the acoustician. Letter of appointment or other confirmation demonstrating when the acoustician was appointed. Relevant section/clauses of the building specification or contract and/or formal letter from the project team regarding commitments. **Multi-Residential Only** Where pre-completion testing will be carried out a letter from the developer confirming the intent to: 1. Meet the relevant sound insulation performance levels. 2. Use a Compliant Test Body to complete testing. Where Robust Details will be used; 1. Confirmation that the Robust Details chosen will achieve the required performance standards for sound insulation (as applicable) 2. Confirmation that the relevant plots are registered with RDL (the Purchase Statement)							Y	**3**	**3**	**3**				

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Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets						
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Hea 06 (Credit 1) (Criteria 1-11)	Safety & Security - Safe Access	Where external site areas form part of the assessed development the following apply: 1. Dedicated cycle lanes are provided and have been designed and constructed in accordance with either: a. Local Transport Note 2/08 Cycle Infrastructure Design, Department of Transport, 2008. b. The National Cycle Network Guidelines and Practical Details – issue 2, Sustrans and the relevant parts of Appendix VI NCN Design and Construction Checklist59 2. The cycle lanes provide direct access from the site entrance(s) to any cycle storage facilities provided, without the need to deviate from the cycle path and, if relevant, connects to off-site cycle paths where these run adjacent to the development's site boundary. 3. Footpaths on site provide direct access from the site entrance(s) to the building entrance(s) and connect to public footpaths off site (where existing), providing access to local transport nodes and other offsite amenities (where existing). 4. Where provided, drop-off areas are designed off/adjoining to the access road and provide direct access to pedestrian footpaths, therefore avoiding the need for the pedestrian to cross vehicle access routes. 5. Where a dedicated pedestrian crossing of a vehicle access route is provided, the road is raised to the pavement level (i.e. the pavement is not lowered to road level), unless pave-ment is at road level (this may be the case in some car parks). 6. For large developments with a high number of public users/visitors, pedestrian pathways must be signposted to other local amenities off site, including public transport nodes (where existing). 7. The lighting for access roads, pedestrian areas, footpaths and cycle lanes is compliant with the external lighting criteria defined in BREEAM issue Hea 01, i.e. in accordance with BS5489-1:2003+A2:2008 Lighting of roads and public amenity areas. Where dedicated delivery access and drop-off areas form part of the assessed development the following apply: 8. Delivery areas are not directly accessed through general parking areas and do not cross or share pedestrian and cyclist routes and other outside amenity areas accessible to building users and general public. 9. There is a separate parking/waiting area for goods vehicles away from / adjacent to the manoeuvring area and staff/visitor car parking. 10. Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting. 11. There is a dedicated space for the storage of refuse skips and pallets away from the deliv-ery vehicle manoeuvring area and staff/visitor car parking (if appropriate given the build-ing type / function).	Design drawings (including a scaled site plan), AND/OR relevant sections of the specification highlighting all necessary compliant features and dimensions.			Y					**1**	**0**	**0**				
Hea 06 (Credit 2) (Criteria 12-14)	Safety & Security - Security of site and building	12. The project team have accounted for security considerations in the new building design and site layout through consultation with a suitably qualified security consultant. 13. Consultation with the suitably qualified security consultant occurred during or prior to the concept design stage (RIBA stage C) or equivalent. 14. The final design embodies the recommendations/solutions of the suitably qualified security consultant and is built to conform to either : a. The principles and guidance of Secured by Design (SbD)60 and/or Safer Parking (SP) Scheme61 Or where SbD/SP is of less relevance to the building type/operation: b. A site specific security risk and threat assessment and subsequent security strategy and recommendations for security measures (as developed/recommended by the suit-ably qualified security consultant).	Correspondence from or a copy of the report/feedback from the ALO/CPDA/Security Consultant confirming: 1. Scope of their advice/involvement 2. The stage of design in which their advice was sought 3. Summary of their recommendations Design drawings AND/OR relevant sections of the specification or contract.	Y		Y					**1**	**1**	**1**				

Energy

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Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets				% of Bld Score	Evidence Status	Minutes / Notes
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved			
Ene 01 (Credits 1-15) (Criteria 1-4)	Reduction of CO2 emissions	The following is required to demonstrate compliance: **1.** Calculate an Energy Performance Ratio for New Constructions (EPRNC) using BREEAM's Ene 01 calculator. **2.** The EPRNC calculation takes account of the following parameters; **a.** the building's operational energy demand, **b.** the energy delivered (consumption) and **c.** the total resulting CO2 emissions. **4.** The calculation is determined using the following performance data from modelling the building's specified/designed regulated fixed building services, as sourced from the approved building energy calculation software: **i.** Building floor area (m2) **ii.** Notional building energy demand (MJ/m2) **iii.** Actual building energy demand (MJ/m2) **iv.** Notional building energy consumption (kWh/m2) **v.** Actual building energy consumption (kWh/m2) **vi.** Target Emission Rate (kgCO2/m2) **vii.** Building Emission Rate (kgCO2/m2) **3.** Compare the EPRNC achieved with Table 6-1 of benchmarks in ther BREEAM 2011 Technical Manual and award the corresponding number of BREEAM credits. **4.** Report the building's total modelled operational carbon dioxide emissions in kgCO2/m2/year via the BREEAM scoring and reporting tool.	A copy of the Building Regulations Output Document from the approved software, as follows: **1.** England Wales (Part L): Approved Documents checks (BRUKL Output Document) **2.** Scotland (Section 6): Specification checks **3.** N. Ireland (Part F): Approved Documents checks (BRUKL Output Document) **4.** Where relevant for multi-residential buildings, a copy of the calculations based on design stage SAP outputs. The output documents must be based on the "As designed" stage of analysis.			Y	Y				**15**	**6**	**6**				
Ene 01 (Exemplary Credits) (Criteria 5-7)	Reduction of CO2 emissions	For five credits: **5.** The building is 'carbon negative' in terms of its total modelled operational energy consumption (see Relevant definitions in the Additional Information section of this issue). Or for up to four credits: **6.** The building achieves an EPRNC ≥0.9 and zero net CO2 emissions (see Relevant definitions) **7.** An equivalent percentage of the buildings modelled 'regulated' operational energy consumption, as stipulated in the table below, is generated by carbon neutral on-site, near-site or 'accredited external' sources and used to meet energy demand from 'unregulated' building systems or processes.	As above, plus: **1.** A copy of a report, calculations/outputs from the manufacturer, supplier, engineer or software modelling confirming: **a.** The total carbon neutral energy generation (kWh/yr) **b.** The source of the carbon neutral energy **c.** Calculated estimate of energy consumption from 'unregulated' systems/process (kWh/yr) (required only if confirming 'carbon negative' status') **d.** Calculated estimate of exported energy surplus (required only if confirming 'carbon negative' status'). **2.** Written confirmation from the developer/client/owner-occupier that any surplus carbon neutral energy generated by the development and exported to the Grid will not be used to claim Renewable Obligation Certificates (ROCS), via an accredited generator.		Y		Y				**5%**	**0%**	**0%**				

Energy

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Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets						
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Ene 02 (Credit 1) (Criteria 1-2)	Energy Monitoring	**1.** The following major energy consuming systems (where present) are monitored using either a Building Energy Management System (BEMS) or separate accessible energy sub-meters with a pulsed output to enable future connection to a BEMS: **a.** Space Heating **b.** Domestic Hot Water **c.** Humidification **d.** Cooling **e.** Fans (major) **f.** Lighting **g.** Small Power (lighting and small power can be on the same sub-meter where supplies are taken at each floor/department). **h.** Other major energy-consuming items where appropriate (see Compliance notes). **2.** The end energy consuming use is identifiable to the building user through labelling or data outputs.	Relevant section/clauses of the building specification or contract. Design drawings				Y				1	1	1				
Ene 03 (Credit 1) (Criteria 1-4)	External Lighting	**1.** All external light fittings for the building, access ways and pathways have a luminous efficacy of at least 50 lamp lumens/circuit Watt when the lamp has a colour rendering index (Ra) greater than or equal to 60 OR 60 lamp Lumens / circuit Watt when the lamp has a colour rendering index (Ra) less than 60. **2.** All external light fittings to car parking areas, associated roads and floodlighting has a luminous efficacy of at least 70 lamp lumens/circuit Watt when the lamp has a colour rendering index (Ra) greater than or equal to 60 OR 80 lamp Lumens / circuit Watts when the lamp has a colour rendering index (Ra) less than 60. **3.** All external light fittings for signs and uplighting have a luminous efficacy of at least 60 lamp lumens/circuit Watt when the lamp wattage is greater than or equal to 25W OR 50 lamp lumens/circuit Watt when the lamp wattage is less than 25W. **4.** External light fittings are controlled through a time switch, or daylight sensor, to prevent operation during daylight hours. Daylight sensor override on a manually switched lighting circuit is acceptable.	Relevant section/clauses of the building specification or contract Design drawings Where relevant for multi residential buildings; Evidence in line with the Design Stage evidence requirements of CSH issue Ene 6 OR A copy of the Design Stage CSH certificate and report from the CSH online reporting system confirming the number of credits achieved for CSH issue Ene 6.				Y				1	1	1				
Ene 04 (Credit 1) (Criteria 1-4)	Low and zero carbon technologies - Feasibility study / Renewable supply contract	**1.** A feasibility study has been carried out by an energy specialist (see Compliance notes) to establish the most appropriate local (on-site or near-site) low or zero carbon (LZC) energy source for the building/development. This study covers as a minimum: **a.** Energy generated from LZC energy source per year **b.** Life cycle cost of the potential specification, accounting for payback **c.** Local planning criteria, including land use and noise **d.** Feasibility of exporting heat/electricity from the system **e.** Any available grants **f.** All technologies appropriate to the site and energy demand of the development. **g.** Reasons for excluding other technologies. **h.** Where appropriate to the building type, connecting the proposed building to an existing local community CHP system or source of waste heat or power OR specifying a building/site CHP system or source of waste heat or power with the potential to export excess heat or power via a local community energy scheme. **2.** A local LZC energy technology has been specified for the building/development in line with the recommendations of the above feasibility study. **3.** The feasibility study has been carried out at RIBA stage C (concept design) or equivalent procurement stage. OR **4.** The organisation that occupies the building has in place a contract with an energy supplier to provide electricity for the assessed building/development from a 100% renewable energy source. This supply must be delivered by an accredited external renewable source. The contract must be valid for a minimum of 3 years from the date the assessed building becomes occupied.	**1-3.** The feasibility study report. Design drawings or relevant section/clauses of the building specification or contract. **4.** Name and details of supplier Details of the source of supply. A copy of the contract or other formal documentation confirming the length of contract to supply 100% renewable energy.			Y	Y	Y			1	1	1				

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Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets				% of Bld Score	Evidence Status	Minutes / Notes
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved			
Ene 04 (Credits 2-3) (Criteria 5-6)	Low and zero carbon technologies - Low or zero carbon technology specification and installation	**5.** Criteria 1 to 3 are achieved . **6.** A local LZC energy technology has been installed in line with the recommendations of the feasibility study and this method of supply results in a reduction in regulated CO2 emissions as follows: - 2 credits - 10% reduction in regulated CO2 emissions - 3 credits - 20% reduction in regulated CO2 emissions	Evidence (as outlined above) confirming compliance with the first credit. Report, calculations/outputs from the manufacturer, supplier, engineer or approved modelling software confirming carbon savings as a result of the installed LZC technology. A copy of the LCA study report/findings (if relevant) demonstrating the percentage carbon saving over the lifetime of the LZC system.			Y	Y	Y			**2**	**1**	**2**				
Ene 04 (Exemplary Credit) (Criteria 5-7)	Low and zero carbon technologies - Low or zero carbon technology specification and installation	As Credits 2-3, but with a reduction of regulated CO2 emissions of 30%.	Evidence (as outlined above) confirming compliance with the first credit. Report, calculations/outputs from the manufacturer, supplier, engineer or approved modelling software confirming carbon savings as a result of the installed LZC technology. A copy of the LCA study report/findings (if relevant) demonstrating the percentage carbon saving over the lifetime of the LZC system.			Y	Y	Y			**1%**	**0%**	**0%**				
Ene 04 (Credit 4) (Criterion 8)	Low and zero carbon technologies - Free cooling	**8.** Where, regardless of the percentage reduction in the building's CO2 emissions from LZC sources and number of BREEAM credits achieved above, the building utilises ANY of the following free cooling strategies and the first credit within the BREEAM issue Hea 03 Thermal comfort has been achieved: **a.** Night-time cooling (requires fabric to have a high thermal mass) **b.** Ground coupled air cooling **c.** Displacement ventilation **d.** Ground water cooling **e.** Surface water cooling **f.** Evaporative cooling, direct or indirect **g.** Desiccant dehumidification and evaporative cooling, using waste heat **h.** Absorption cooling, using waste heat. **i.** The building does not require any form of cooling (i.e. naturally ventilated)	Correspondence from the building services engineer summarising the 'purpose designed' free cooling strategy. The results from a dynamic simulation model demonstrating the feasibility of the free cooling strategy. Evidence as required for the first credit within the BREEAM issue Hea 03 Thermal Comfort			Y	Y				**1**	**1**	**1**				
Ene 05 (Credit 1) (Criteria 1-2)	Energy efficient cold storage	**1.** The refrigeration system, it's controls and components have been designed, installed and commissioned as follows: **a.** In accordance with the Commercial Refrigeration Code of Conduct for Reducing Car-bon Emissions8 (see Compliance note). **b.** Use robust and tested refrigeration systems/components, normally defined as those included on the Enhanced Capital Allowance (ECA) Energy Technology Product List9 or an equivalent list (see Compliance note for list of components). **2.** The refrigeration plant has been commissioned to comply with the criteria for commissioning outlined in BREEAM issue Man 01 Sustainable Procurement.	Relevant section/clauses of the building specification or contract or other documentary evidence, such as a letter from the design team. A letter from the manufacturer/supplier or copies of their technical literature AND/OR a print out of the ETPL listing the specific products. Evidence as outlined under BREEAM issue Man 01 for the relevant criteria.		Y	Y	Y	Y			**1**	**1**	**1**				

Energy

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Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility: Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Credits / Targets: Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Ene 05 (Credit 2) (Criteria 3-4)	Energy efficient cold storage	**3.** Criteria 1 and 2 are achieved. **4.** With reference to The Carbon Trust Refrigeration Road Map10, the installed refrigeration system demonstrates a saving in indirect greenhouse gas emissions (CO2eq.) with respect to the 'baseline' building through specification of technologies described in 'CO2e. saving options available when designing a new store/retail concept'. **Note:** For non-retail building types with cold storage refrigeration systems, refer to the relevant Compliance note.	Relevant section/clauses of the building specification or contract or other documentary evidence, such as a letter from the design team. A letter from the manufacturer/supplier or copies of their technical literature AND/OR a print out of the ETPL listing the specific products. Evidence as outlined under BREEAM issue Man 01 for the relevant criteria. Documentary evidence confirming the type of technology specified and estimated savings in indirect greenhouse emissions, including a description of how this saving is achieved. Calculations should be carried out by an appropriately qualified professional (e.g. a building services engineer) including justifications for assumptions and methodologies for savings in indirect greenhouse emissions.		Y	Y	Y	Y			**1**	**1**	**1**				
Ene 05 (Exemplary Credit) (Criteria 5-6)	Energy efficient cold storage	**5.** Criteria 1 and 2 are achieved. **6.** With reference to The Carbon Trust Refrigeration Road Map, the installed refrigeration system is of a type described in 'Future technologies'. The system must demonstrate a saving in indirect greenhouse gas emissions (CO2eq.) in concept or through previous experience, with respect to currently available technologies listed in Figure 7 of the Road Map. **Note:** For non-retail building types with cold storage refrigeration systems, refer to the relevant Compliance note.	Relevant section/clauses of the building specification or contract or other documentary evidence, such as a letter from the design team. A letter from the manufacturer/supplier or copies of their technical literature AND/OR a print out of the ETPL listing the specific products. Evidence as outlined under BREEAM issue Man 01 for the relevant criteria. Documentary evidence confirming the type of technology specified and estimated savings in indirect greenhouse emissions, including a description of how this saving is achieved. Calculations should be carried out by an appropriately qualified professional (e.g. a building services engineer) including justifications for assumptions and methodologies for savings in indirect greenhouse emissions.		Y	Y	Y	Y			**1%**	**0%**	**0%**				

Energy

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Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility: Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Credits / Targets: Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Ene 08 (Credits 1-2) (Criteria 5-8)	Energy efficient equipment	**1.** Identify from the list in the BREEAM 2011 Technical Guide the functions/equipment that are or will be present within the assessed building. Of those functions identify which will be responsible for the significant majority of unregulated energy consumption in the building. Two credits are then awarded for compliance with the corresponding criteria.	**A-H:** The following where appropriate: Relevant section/clauses of the building specification or contract Manufacturers product details Documentation confirming compliance with the relevant scheme or standard outlined in the criteria e.g. details of compliance with the ECA scheme Design drawings and/or calculations **G Only:** Life cycle analysis report/documentation and details of how this has informed the procurement Documentation detailing the fit for purpose exercise and subsequent option selection.		Y		Y				**2**	**2**	**2**				

Transport

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Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets						
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Tra 01 (Credit 1-5) (Criteria 1-2)	Public Transport Accessibility - Accessibilty Index	**1.** The public transport Accessibility Index (AI) for the assessed building is calculated and BREEAM credits awarded in accordance with the table of building types, AI benchmarks and BREEAM credits in the BREEAM 2011 Technical Guide. **2.** The Accessibility Index is determined by entering the following information in to the BREEAM Tra 01 calculator: **a.** The distance (m) from the main building entrance to each compliant public transport node **b.** The public transport type(s) serving the compliant node e.g. bus or rail **c.** The average number of services stopping per hour at each compliant node during the standard operating hours of the building for a typical day (see Compliance notes and Table 7-1 in the Additional Information section). Please note: The number of credits available depends on the building type being assessed. Please check the BREEAM 2011 Technical Guide for details.	Scale map highlighting the location of the building and all public transport nodes in proximity of the building. Timetables for each service at each public transport node considered. The calculated Accessibility Index for the building.			Y					3	1	1				
Tra 01 (Credit 6) (Criterion 3)	Public Transport Accessibility - Dedicated Bus Service	3. For buildings with a fixed shift pattern i.e. where building users will predominantly arrive/depart at set times, one credit can be awarded where the building occupier will pro-vide a dedicated bus service to and from the building at the beginning and end of each shift/day. The bus must provide transfer to the local population centre, public transport interchange or be a door-to-door service.	A formal letter from the future building occupier confirming provision of and details for the dedicated bus service(s).		Y						1	0	0				
Tra 02 (Credit 1) (Criterion 1)	Proximity to Amenities	1. Where the building is located within close proximity and accessible to the amenities set out in the BREEAM 2011 Technical Guide. Please note: The relevant facilities are dependent on the building type being assessed. Please check the BREEAM 2011 Technical Guide for details.	Marked-up site plan or map highlighting: **1.** Location of assessed building **2.** Location and type of amenities **3.** The route to the amenities **4.** Plan/map scale OR Where the amenities do not currently exist, but are due to be developed, a letter from the client/developer confirming: **1.** The location and type of amenities to be provided **2.** The timescale for development of the amenities.			Y					1	0	0				
Tra 03 (Credit 1) (Criterion 1)	Cyclist Facilities	1. Where cycle facilities are provided in accordance with the table set out in the BREEAM 2011 Technical Guide. Please note: The number of credits available depends on the building type being assessed. Please check the BREEAM 2011 Technical Guide for details.	Design drawings and/or relevant section/clauses of the building specification or contract Plus (if relevant to building type): **1.** The location and size of the wheelchair and buggy storage facilities **2.** Location and no. of charging points **3.** Assumptions and calculations used to determine number of public users.			Y					2	2	2				

Transport

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Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets				% of Bld Score	Evidence Status	Minutes / Notes
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved			
Tra 05 (Credit 1) (Criteria 1-5)	Travel Plan	**1.** A travel plan has been developed as part of the feasibility and design stages which considers all types of travel relevant to the building type and users. **2.** The travel plan is structured to meet the needs of the particular site and takes into consideration the findings of a site-specific transport survey and assessment that covers the fol-lowing (as a minimum): **a.** Where relevant, existing travel patterns and opinions of existing building or site users towards cycling and walking so that constraints and opportunities can be identified **b.** Travel patterns and transport impact of future building users **c.** Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children) **d.** Disabled access (accounting for varying levels of disability and visual impairment) **e.** Public transport links serving the site **f.** Current facilities for cyclists **3.** The travel plan includes a package of measures that have been used to steer the design of the development in order to meet the travel plan objectives and minimise car-based travel patterns. This is demonstrated via specific examples such as: **a.** Providing parking priority spaces for car sharers **b.** Providing dedicated and convenient cycle storage and changing facilities **c.** Lighting, landscaping and shelter to make pedestrian and public transport waiting areas pleasant **d.** Negotiating improved bus services, i.e. altering bus routes or offering discounts **e.** Restricting and/or charging for car parking **f.** Criteria for lobby areas where information about public transport or car sharing can be made available **g.** Pedestrian and cycle friendly (for all types of user regardless of the level of mobility or visual impairment) via the provision of cycle lanes, safe crossing points, direct routes, appropriate tactile surfaces, well lit and signposted to other amenities, public trans-port nodes and adjoining offsite pedestrian and cycle routes. **h.** Providing suitable taxi drop-off/waiting areas. **i.** Ensuring that rural buildings are located with appropriate transport access to ensure that they adequately serve the local community (where procured to do so e.g. community centre). **4.** Where appropriate to the building type, size and intended operation, the travel plan includes measures tailored to minimise the impacts of operational-related transport e.g. deliveries of supplies, equipment and support services to and from the site. **5.** Where the building's final occupier is known, they confirm that the travel plan will be implemented post construction and supported by the building's management during build-ing operation.	A copy of the Travel Plan. A copy of the site-specific transport survey/assessment. Design drawings demonstrating examples of design measures implemented in support the travel plan's findings. OR Where a detailed site plan is not available, a formal letter from the client confirming that measures will be implemented into the final design in support the travel plan's findings. A letter of confirmation from either the building's occupier, or in the case of a speculative development, the developer.	Y	Y	Y					**1**	**1**	**1**				

Water

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Stride Treglown Management

				Responsibility							Credits / Targets						
Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Wat 01 (Credit 1-5) (Criteria 1-7)	Water Consumption	**1.** An assessment of the efficiency of the building's domestic water consuming components is undertaken using the BREEAM Wat 01 calculator. **2.** The water consumption (litres/person/day) for the assessed building is compared against a notional baseline performance and BREEAM credits awarded as follows: - 12.5% improvement = 1 credit - 25% improvement = 1 credit - 40% improvement = 1 credit - 50% improvement = 1 credit - 55% improvement = 1 credit **3.** The efficiency of the following 'domestic scale' water consuming components must be included in the calculation (where specified): **a.** WCs **b.** Urinals **c.** Taps (wash hand basins and where specified kitchen taps and waste disposal unit) **d.** Showers **e.** Baths **f.** Dishwashers (domestic and commercial sized) **g.** Washing machine (domestic and commercial/industrial sized) The BREEAM Wat 01 calculator defines the building types and activity areas for which the above components must be assessed. **4.** Where a greywater and/or rainwater system is specified, its yield (l/person/day) can be used to off-set non potable water demand from components that would otherwise be sup-plied using potable water. **5.** Any greywater systems must be specified and installed in compliance with BS8525-1:2010 Greywater Systems - Part 1 Code of Practice1. Any rainwater systems must be specified and installed in compliance with BS8515:2009 Rainwater Harvesting Systems - Code of practice2. **6.** Report the total net water consumption in m3/person/yr, via the BREEAM scoring and reporting tool (where total net water consumption can be modelled by the BREEAM Wat 01 calculator for the assessed building type). This figure is reported by the assessor via the BREEAM scoring and reporting tool. **7.** Healthcare and prison buildings: refer to the relevant Compliance note for additional crite-ria regarding the specification of particular micro-component controls.	Completed copy of the BREEAM Wat 01 calculator Relevant section/clauses of the building specification/ design drawings confirming technical details of; 1. Sanitary components 2. Rainwater and greywater collection system OR where detailed documentary evidence is not available at this stage; Completed BREEAM Wat 01 calculator A letter of instruction to a contractor/supplier or a formal letter from the developer giving a specific undertaking, providing sufficient information to allow the water calculations to be completed.			Y					**5**	**3**	**3**				
Wat 01 (Exemplary Credit) (Criteria 1-7)	Water Consumption	The criteria is the same as for credits 1-5, but a percentage improvement of at least 65% must be achieved.	As above.			Y					**1%**	**0%**	**0%**				
Wat 02 (Credit 1) (Criteria 1-7)	Water Monitoring	**1.** The specification of a water meter on the mains water supply to each building; this includes instances where water is supplied via a borehole or other private source. **2.** Water-consuming plant or building areas, consuming 10% or more of the building's total water demand, are either fitted with sub meters or have water monitoring equipment integral to the plant or area (see Compliance notes). **3.** Each meter (main and sub) has a pulsed output to enable connection to a Building Management System (BMS) for the monitoring of water consumption. **4.** If the site on which the building is located has an existing BMS, managed by the same occupier/owner (as the new building), the pulsed water meter(s) for the new building must be connected to the existing BMS.	Relevant section/clauses of the building specification or contract Design drawings				Y				**1**	**1**	**1**				

Water

Ysgol Treganna Primary School

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets						
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Wat 03 (Credit 1) (Criteria 1-2)	Water leak detection and prevention	**1.** A leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter. **2.** The leak detection system is: **a.** Audible when activated **b.** Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time **c.** Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods **d.** Programmable to suit the owner/occupiers' water consumption criteria **e.** Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers.	Relevant section/clauses of the building specification or contract Design drawings Manufacturers product details				Y				**1**	**1**	**1**				
Wat 03 (Credit 2) (Criterion 3)	Water leak detection and prevention	**3.** One of the following types of flow control device is fitted to each WC area/facility to ensure water is supplied only when needed (and therefore prevent minor water leaks): **a.** A time controller i.e. an automatic time switch device to switch off the water supply after a predetermined interval **b.** A programmed time controller i.e. an automatic time switch device to switch water on and/or off at predetermined times. **c.** A volume controller i.e. an automatic control device to turn off the water supply once the maximum preset volume is reached. **d.** A presence detector and controller i.e. an automatic device detecting occupancy or movement in an area to switch water on and turn it off when the presence is removed. **e.** A central control unit i.e. a dedicated computer-based control unit for an overall man-aged water control system, utilising some or all of the types of control elements listed above.	Relevant section/clauses of the building specification or contract Design drawings Manufacturers product details				Y				**1**	**1**	**1**				
Wat 04 (Credit 1) (Criteria 1-3)	Water Efficient Equipment	**1.** Where an irrigation method specified for internal or external planting and/or landscaping, it complies with ANY ONE of the following: **a.** Drip feed subsurface irrigation that incorporates soil moisture sensors. The irrigation control should be zoned to permit variable irrigation to different planting assem-blages. **b.** Reclaimed water from a rainwater or greywater system. The storage system must be appropriately sized i.e. storage capacity is relative to the size of the soft landscaped area. **c.** External landscaping and planting that relies solely on precipitation, during all seasons of the year. **d.** All planting specified is restricted to species that thrive in hot and dry conditions. **e.** Where no dedicated, mains-supplied irrigation systems (including pop-up sprinklers and hoses) are specified and planting will rely solely on manual watering by building occupier or landlord. **2.** Where a sub surface drip feed irrigation system is installed for external areas, a rainstat must also be installed to prevent automatic irrigation of the planting and the landscape during periods of rainfall. **3.** Where a vehicle wash system is specified, it uses a full or partial reclaim unit which contains one or more of the following: a hydro-cyclone, a sand or activated carbon filter, a sump tank(s), three chamber interceptors, and a cartridge filter or bag filter. This is in line with the ECA water technology list	Documentation detailing the planting and irrigation strategy Relevant section/clauses of the building specification or contract AND/OR design drawings (where necessary) Manufacturers product details	Y		Y		Y			**1**	**1**	**1**				

Materials

Ysgol Treganna Primary School

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility								Credits / Targets				% of Bld Score	Evidence Status	Minutes / Notes
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Landscape	Available	PA	DS	Achieved			
Mat 01 (Credit 1-6) (Criteria 1-3)	Life Cycle Impacts	1. BREEAM awards credits on the basis of the building's quantified environmental life cycle impact through assessment of the main building elements, as set out in Table 9-1 in the BREEAM 2011 Technical Guide. 2. Credits are awarded on the basis of the total number of points achieved, as set out inTable 9-2 in the BREEAM Technical Guide, and calculated using the BREEAM Mat 01 calculator. This point's score is based on the Green Guide rating(s) achieved for the specifications that make-up the main build-ing elements (as above). Note: Where an independently verified third-party Environmental Product Declaration (EPD), covering part of or the whole life cycle, is available for a material/product that forms part of an assessed building element, this can be used to increase the contribution of that element to the building's Mat 01 performance (refer to Calculation procedures in the Additional Information section for more detail). 3. Life cycle Green House Gas emissions (kgCO2 eq.) for each element are also required to be reported based on a 60-year building life. Where specific data is not available for a product or element, generic data should be used. Generic data can be obtained from the online Green Guide for each element and must be entered in to the BREEAM Mat 01 calculator.	Specification providing a detailed description of each applicable element and its constituent materials specification. Design drawings or specification detailing the location and area (m2) of each applicable element. A copy of the output from the BREEAM Mat 01 calculator, including Green Guide rating and element number1 for each specification assessed. And if relevant: 1. Copies of Environmental Product Declarations 2. A link/reference to the EPD's Product Category Rules 3. Online Green Guide calculator output 4. Environmental Profile certificate(s) (or certificate number) Where relevant for multi-residential buildings: Evidence in line with the Design stage evidence requirements of the CSH Issue Mat 1 OR A copy of the Design Stage CSH certificate and report from the CSH online reporting system confirming the number of credits achieved for CSH Issue Mat 1.			Y		Y				**6**	**3**	**6**				
Mat 01 (Exemplary Credit) (Criteria 4-5)	Life Cycle Impacts	4. Where assessing four or more applicable building elements, the building achieves at least two points additional to the total points required to achieve maximum credits under the standard BREEAM criteria (as outlined in the table above) OR 5. Where assessing fewer than four applicable building elements, the building achieves at least one point additional to the total points required to achieve maximum credits under the standard BREEAM criteria.	As above.			Y		Y				**1%**	**0%**	**0%**				
Mat 02 (Credit 1) (Criterion 1)	Hard landscaping and boundary protection	1. Where at least 80% of all external hard landscaping and boundary protection (by area) achieves an A or A+ rating, as defined in the Green Guide to Specification. Green Guide ratings for the specification(s) of each element can be found at: www.thegreenguide.org.uk	Relevant section/clauses of the building specification or contract and/or design drawings and calculations confirming: 1. A detailed description of each applicable element and its constituent materials. 2. Location and area (m2) of each applicable element. The Green Guide rating and element number for the assessed specifications.			Y					Y	**1**	**1**	**1**				

Materials

Ysgol Treganna Primary School

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility								Credits / Targets				% of Bld Score	Evidence Status	Minutes / Notes
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Landscape	Available	PA	DS	Achieved			
Mat 03 (Credit 1) (Criteria 1-3)	Responsible sourcing of materials	1. Each of the applicable specified materials comprising the main building elements are assigned a responsible sourcing tier level and points awarded as set out in the BREEAM 2011 Technical Guide. Note: a. Refer to Table 11-1 in the Additional Information section for the list of applicable materials and main building elements. b. The tier rank is determined based on the rigour of responsible sourcing demonstrated by the supplier(s)/manufacturer(s) of that material/element (through responsible sourcing certification schemes). c. Refer to Table 11-2 in the Additional Information section for a list of responsible sourcing certification schemes, their scope and corresponding tier level. 2. The number of BREEAM credits achieved is determined as set out in the BREEAM 2011 Technical Guide. a. The BREEAM Mat 03 calculator must be used to determine the points and credits achieved for this issue. b. To achieve points for any given building element, at least 80% of the materials that make-up that element must be responsibly sourced i.e. classified in tier 1-7. c. The number of building elements present and therefore applicable determines the max-imum number of points available e.g. if nine elements are present and assessed the max-imum number of available points will be 36. d. Potential variance in tier levels achieved for materials within any one element will require a pro-rata calculation of the points total for any given element. e. Refer to the Calculation procedures in the Additional Information section for a description of how the number of points and credits are determined. 3. Confirmation that all timber used on the project is sourced in accordance with the UK Government's Timber Procurement Policy. Note; a. It is a minimum requirement of BREEAM certification (for any rating level) that compliance with criterion 3 is confirmed (see Compliance note for further information). b. In meeting this requirement, there is no minimum number of BREEAM credits that need to be achieved for this assessment issue (the BREEAM credit benchmarks for responsible sourc-ing are calibrated on the basis of assessing all major building materials and not for any single material).	There are detailed evidence requirements for this credit. Please refer to the BREEAM 2011 Technical Guide.			Y		Y				**3**	**0**	**0**				
Mat 03 (Exemplary Credit) (Criterion 4)	Responsible sourcing of materials	4. Where 70% of the available responsible sourcing points have been achieved.	There are detailed evidence requirements for this credit. Please refer to the BREEAM 2011 Technical Guide.			Y		Y				**1%**	**0%**	**0%**				
Mat 04 (Pre-requisite) (Criterion 1)	Insulation - Pre-requisite	1. Any new insulation specified for use within the following building elements must be assessed: a. External walls b. Ground floor c. Roof d. Building services	See below.			Y	Y	Y				**-**	**-**	**-**				

Materials

Ysgol Treganna Primary School

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility								Credits / Targets						
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Landscape	Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Mat 04 (Credit 1) (Criteria 2-4)	Insulation - Embodied Impact	2. The Green Guide rating for the thermal insulation materials must be determined. Green Guide ratings for thermal insulation can be found at: www.thegreenguide.org.uk (please refer to the Compliance notes for guidance where specific insulation has been assessed within an element for BREEAM issue Mat 01). 3. The Insulation Index for the building insulation is the same as or greater than 2. 4. The Insulation Index is calculated using the BREEAM Mat 04 calculator which uses the following calculation methodology: For each type of thermal insulation used in the relevant building elements, the volume weighted thermal resistance provided by each type of insulation is calculated as follows: a. (Area of insulation (m2) x thickness(m)) / Thermal Conductivity (W/ m.K) OR b. Total volume of insulation used (m3) / Thermal conductivity (W/m.K) The volume weighted thermal resistance for each insulation material is then multiplied by the relevant Green Guide point(s) from table 12-1 in the BREEAM 2011 Technical Guide to give the Green Guide Rating corrected value.	Design drawings AND/OR relevant section/clauses of the building specification or contract confirming: 1. The location of insulating materials. 2. The area (m2) and thickness (m) or volume (m3) of insulation specified. Manufacturer's technical details confirming the thickness and thermal conductivity of the insulating materials specified. A copy of the output from the BREEAM Mat 04 calculator. The Green Guide rating and element number for the assessed insulation specifications. And if relevant: 1. Copies of Environmental Product Declarations 2. A link/reference to the EPD's Product Category Rules 3. Online Green Guide calculator output 4. Environmental Profile certificate(s) (or certificate number)			Y	Y	Y				**1**	**1**	**1**				
Mat 04 (Credit 2) (Criterion 5)	Insulation - Responsible Sourcing	5. At least 80% by volume of the thermal insulation used in the building elements identified in Item 1 must be responsibly sourced i.e. each insulation product must be certified in accordance with either tier levels 1, 2, 3, 4, 5 or 6 as described in BREEAM issue Mat 03 . The table below shows the key processes and supply chain processes required for common insulation products.	Evidence as outlined in BREEAM issue Mat 03 confirming compliance for the insulating materials.			Y	Y	Y				**1**	**1**	**1**				
Mat 05 (Credit 1) (Criteria 1-2)	Designing for Robustness	1. Areas of the building have been identified (both internal and external) where vehicular, trolley and pedestrian movement occur. 2. The design incorporates suitable durability and protection measures or design features/solutions to prevent damage to the vulnerable parts of the building. This must include, but is not necessarily limited to: a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc). b. Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas. c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and manoeuvring occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas.	Design drawings illustrating vulnerable areas/parts of the building. Design drawings and/or relevant section/clauses of the building specification or contract confirming the durability measures specified.			Y		Y				**1**	**1**	**1**				

Waste

Ysgol Treganna Primary School

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets				% of Bld Score	Evidence Status	Minutes / Notes
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved			
Wst 01 (Credit 1-3) (Criteria 1-3)	Construction waste management - Construction resource efficiency	1. Non-hazardous construction waste (excluding demolition and excavation waste) generated by the building's design and construction meets or exceeds the following resource efficiency benchmarks: **- One Credit:** 13.3m3 or 11.1 tonnes. **- Two Credits:** 7.5m3 or 6.5 tonnes. **- Three Credits:** 3.4m3 or 3.2 tonnes. 2. There is a compliant Site Waste Management Plan (SWMP). 3. Where existing buildings on the site will be demolished a pre-demolition audit of any exist-ing buildings, structures or hard surfaces is completed to determine if, in the case of dem-olition, refurbishment/reuse is feasible and, if not, to maximise the recovery of material from demolition for subsequent high-grade/value applications. The audit must be ref-erenced in the SWMP and cover: a. Identification of the key refurbishment/demolition materials. b. Potential applications and any related issues for the reuse and recycling of the key refurbishment and demolition materials.	A copy of the compliant Site Waste Management Plan and where relevant, a copy of the pre-demolition audit AND/OR Relevant section/clauses of the building specification or contract AND/OR A letter from the client or their representative Where relevant for multi-residential buildings: Evidence in line with the Design Stage evidence requirements of the CSH Issue Was 2 OR A copy of the Design Stage CSH certificate and report from the CSH online reporting system confirming the number of credits achieved for CSH Issue Was 2					Y			**3**	**1**	**1**				
Wst 01 (Credit 4) (Criteria 4-6)	Construction waste management - Diversion of resources from landfill	4. The following percentages of non-hazardous construction and demolition waste (where applicable) generated by the project have been diverted from landfill: - Non-Demolition: 70% by volume or 80% by tonnage. - Demolition: 80% by volume or 90% by tonnage. 5. There is a compliant Site Waste Management Plan (SWMP). 6. Waste materials will be sorted into separate key waste groups see Table 10-1(according to the waste streams generated by the scope of the works) either onsite or offsite through a licensed contractor for recovery.	As above.					Y			**1**	**1**	**1**				
Wst 01 (Exemplary Credit) (Criteria 7-9)	Construction waste management - Construction resource efficiency and Diversion of resources from landfill	7. Non-hazardous construction waste generated by the building's design and construction is no greater than 1.6m3 or 1.9 tonnes. 8. The percentage of non hazardous construction and demolition waste (if relevant) diverted from landfill meets or exceeds the following: - Non-Demolition: 85% by volume or 90% by tonnage. - Demolition: 85% by volume or 95% by tonnage. 9. All key waste groups are identified for diversion from landfill in the pre-construction stage SWMP.	As above.					Y			**1%**	**0%**	**0%**				
Wst 02 (Credit 1) (Criteria 1-3)	Recycled Aggregates	1. The total amount of recycled and/or secondary aggregate specified is greater than 25% (by weight or volume) of the total high-grade aggregate specified for the development. 2. To contribute to the total amount, the percentage of high-grade aggregate specified per application (where present) that is recycled and/or secondary aggregate, must meet the following minimum levels (by weight or volume) as set out in the BREEAM 2011 Technical Manual.	Relevant section/clauses of the building specification or contract Project team calculations Documentation confirming the source of recycled/secondary aggregates and that the required amount can be provided				Y	Y			**1**	**0**	**0**				
Wst 02 (Exemplary Credit) (Criteria 4-5)	Recycled Aggregates	4. Where the total amount of recycled and/or secondary aggregate specified is greater than 35% (by weight or volume) of the total high-grade aggregate specified for the project. 5. To contribute to the total amount, the percentage of high-grade aggregate specified per application (where present) that is recycled and/or secondary aggregate, must meet the exemplary minimum levels (by weight or volume), as defined in the table above.	As above.				Y	Y			**1%**	**0%**	**0%**				

Waste

Ysgol Treganna Primary School

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets				% of Bld Score	Evidence Status	Minutes / Notes
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved			
Wst 03 (Credit 1) (Criteria 1-9)	Operational Waste	1. There is dedicated space(s) to cater for the segregation and storage of operational recy-clable waste volumes generated by the assessed building/unit, its occupant(s) and activ-ities. 2. The dedicated space(s) must be: a. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams b. Accessible to building occupants / facilities operators for the deposit of materials and collections by waste management contractors c. Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily/weekly operational activities and occupancy rates. 3. Where the consistent generation in volume of the appropriate operational waste streams is likely to exist, e.g. large amounts of packaging or compostable waste generated by the building's use and operation, the following facilities are provided as part of its waste man-agement strategy: a. Static waste compactor(s) or baler(s); situated in a service area or dedicated waste management space. b. Vessel(s) for composting suitable organic waste resulting from the building's daily operation and use OR adequate space(s) for storing segregated food waste and com-postable organic material prior to collection and delivery to an alternative com-posting facility. c. Where organic waste is to be stored/composted on site, a water outlet is provided adjacent to or within the facility for cleaning and hygiene purposes.	**1-3:** Design drawings and/or relevant section/clauses of the building specification or contract confirming provision and scope of dedicated facilities. Project team meeting minutes / letter confirming likely building waste streams and indicative volumes. **See also below for additional requirements for some specific building types.**													
Wst 03 (Credit 1) (Criteria 1-9)	Operational Waste	**Healthcare Only:** 4. The specified/installed operational waste facilities are compliant with HTM 07-01: Safe management of healthcare waste2 (England, Wales and Northern Ireland) or SHTM 3 Guidance EWC Coding guide for Healthcare Wastes3, Health Protection Scotland, 2007 (Scotland). **Pre-schools, schools & sixth form colleges only** 5. There is a school recycling policy and an outline of the procedures that are in operation or that will be in place when the building is complete. As a minimum, the policy should cover: a.Paper and magazines, cardboard, plastics, metals, printer & toner cartridges. b.Where composting facilities are provided, the policy must also cover the collection oft he compost unless the compost can be used on site. **Multi-Residential with Self-Contained dwellings/bedsits only:** 6. Each dwelling/bedsit has a provision of three internal storage containers, as follows: a. A minimum total capacity of 30 litres b. No individual container smaller than 7 litres c. All containers in a dedicated non obstructive position d. The storage containers for recycling are provided in addition to non-recyclable waste storage. **Multi-residential buildings with individual bed-rooms and communal facilities only** 7. The above storage requirements (criterion 6.) for self contained dwellings/bedsits are met for every six bedrooms 8. The recyclable storage is located in a dedicated non obstructive position in either: a. Communal kitchens or, b. Where there are no communal kitchens present, in a communal space such as com-munal lounges or utility areas. 9. Home composting facilities and a home composting information leaflet is provided within the kitchen area or communal space for each self contained dwelling, bedsit or communal kitchen.	**4.** Documentary evidence from the design team confirming compliance with the relevant Healthcare Technical Memorandum (e.g letter or relevant signed meeting minutes). **5.** The school's recycling policy and a description of their waste management procedures OR A written commitment from the school, or relevant authorising body, to develop and implement a recycling policy and appropriate operational procedures. **6-9:** As for criteria 1-3 AND where relevant Evidence in line with the Design Stage evidence requirements of the CSH issue Was 1 and Was 3. OR A copy of the Design Stage CSH certificate and report from the CSH online reporting system confirming the number of credits achieved for CSH issue Was 1 and Was 3.	Y	Y	Y		Y			**1**	**1**	**1**				

Land Use & Ecology

Ysgol Treganna Primary School

Stride Treglown Management

				Responsibility								Credits / Targets						
Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Landscape	Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
LE 01 (Credit 1) (Criterion 1)	Site Selection - Previously Developed Land	**1.** At least 75% of the proposed development's footprint is on an area of land which has pre-viously been developed for use by industrial, commercial or domestic purposes in the last 50 years.	**1.** Design drawings (including existing site plan), report or site photographs confirming: 1. Type and duration of previous land use. 2. Area (m2) of previous land use. Proposed site plan showing; 3. Location and footprint (m2) of proposed development and temporary works.						Y			**1**	**1**	**1**				
LE 01 (Credit 2) (Criteria 2-3)	Site Selection - Contaminated Land	**2.** The site is deemed to be significantly contaminated as confirmed by a contaminated land specialist's site investigation, risk assessment and appraisal, which has identified: **a.** The degree of contamination **b.** The contaminant sources/types **c.** The options for remediating sources of pollution which present an unacceptable risk to the site. **3.** The client or principal contractor confirms that remediation of the site will be carried out in accordance with the remediation strategy and its implementation plan.	**2.** A copy of the specialist's land contamination report. Design drawings (including existing site plan) showing contaminated areas and areas to be remediated in relation to any proposed development. **3.** A letter from the principal contractor or remediation contractor confirming: 1. The remediation strategy for the site. 2. Summary details of the implementation plan. If a contractor has not yet been appointed, a letter from the client, or their representative confirming that the appointed contractor will undertake necessary remediation works to mitigate the risks identified in the specialist report.					Y	Y			**1**	**1**	**1**				
LE 02 (Credit 1) (Criteria 1-3)	Ecological value of site and protection of ecological features	**1.** Land within the construction zone is defined as 'land of low ecological value' using either: **a.** The BREEAM checklist for defining land of low ecological value (see Additional Infor-mation section below) OR **b.** A Suitably Qualified Ecologist who has identified the land as being of 'low ecological value' within an ecological assessment report, based on a site survey. **2.** All existing features of ecological value surrounding the construction zone and site bound-ary area are adequately protected from damage during clearance, site preparation and construction activities as listed below: **a.** Trees of over 100 mm trunk diameter, and/or of significant ecological value, are pro-tected by barriers. Barriers must prohibit construction works in the area between itself and the tree trunk. Minimum distance between tree trunk and barriers must be either the distance of branch spread or half tree height, whichever is the greater. **b.** Trees are protected from direct impact and from severance or asphyxiation of the roots. **c.** Hedges and natural areas requiring protection must either have barriers erected and be protected, or, when remote from site works or storage areas, be protected with a prohibition of construction activity in their vicinity. **d.** Watercourses and wetland areas are to be protected by cut-off ditches and site drain-age to prevent run-off to natural watercourses (as this may cause pollution, silting or erosion). **3.** In all cases, the principal contractor is required to construct ecological protection prior to any preliminary site construction or preparation works (e.g. clearing of the site or erection of temporary site facilities).	A completed copy of Table 11-1signed and dated by the client or a design team member AND EITHER Plans, site photographs and specifications confirming presence, or otherwise, of ecological features and the protection measures specified. OR Ecologist's report highlighting information required in accordance with the Appendix F 'Relating Ecology Reports to BREEAM'. Where relevant for multi residential buildings: Evidence in line with the Design stage evidence requirements of the CSH Issues Eco 1 and Eco 3 OR A copy of the Design Stage CSH certificate and report.					Y	Y			**1**	**1**	**1**				

Land Use & Ecology

Ysgol Treganna Primary School

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility								Credits / Targets				% of Bld Score	Evidence Status	Minutes / Notes
				Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Landscape	Available	PA	DS	Achieved			
LE 03 (Credit 1) (Criterion 1)	Mitigating ecological impact	**1.** The change in ecological value of the site is less than zero but equal to or greater than minus nine i.e. a minimal change, using the methods outlined in either (a) or (b) below: **a.** Determine the following information and input this data in to the BREEAM LE 03/LE 04 calculator: **i.** The broad habitat type(s) that define the landscape of the assessed site in its existing pre-developed state and proposed state (see checklists and tables in the Additional Information section). **ii.** Area (m2) of the existing and proposed broad habitat types. OR **b.** Where a suitably qualified ecologist (SQE) has been appointed and, based on their site survey they confirm the following and either the assessor or ecologist inputs this data in to the BREEAM LE 03/LE 04 calculator: **i.** The broad habitat types that define the landscape of the assessed site in its exist-ing pre-developed state and proposed state. **ii.** Area (m2) of the existing and proposed broad habitat plot types. **iii.** Average total taxon (plant species) richness within each habitat type.	**All:** Design drawings including proposed and existing (pre-development) site plan/survey. AND EITHER 1. A completed copy of the BREEAM LE 03/LE 04 calculator OR 2. Ecologist's report highlighting information required in Appendix F OR a copy of Appendix F completed by the ecologist AND written confirmation from the client/design team detailing how the ecologist's recommendations will be implemented. Where relevant for multi-residential buildings; Evidence in line with the Design stage evidence requirements of the CSH Issues Eco 4 OR A copy of the Design Stage CSH certificate and CSH compliance report confirming the change in ecological value for the site.						Y		Y	**1**	**1**	**1**				
LE 03 (Credit 2) (Criterion 2)	Mitigating ecological impact	**2.** Where the change in ecological value of the site is equal to or greater than zero i.e. no neg-ative change, using the methods outlined in either (a) or (b) above.	**All:** As above.						Y		Y	**1**	**1**	**1**				
LE 04 (Credit 1) (Criteria 1-2)	Enhancing site ecology	**All Building Types, except HM Prison sites:** 1. A suitably qualified ecologist (SQE) has been appointed to report on enhancing and pro-tecting the ecology of the site and: a. The SQE provides an Ecology Report with appropriate recommendations for protection and enhancement of the site's ecology. b. The report is based on a site visit/survey by the SQE (see also compliance note 'timing of ecologist's survey and report').. 2. The general recommendations of the Ecology Report for enhancement and protection of site ecology have been, or will be, implemented.							Y			**1**	**1**	**1**				
LE 04 (Credit 2) (Criteria 3-5)	Enhancing site ecology	**All Building Types, except Prisons:** 3. Criteria 1 and 2 are achieved. 4. The recommendations of the Ecology Report for enhancement and protection of site ecol-ogy have been implemented, and the suitably qualified ecologist confirms that this will result in an increase in ecological value of the site up to (but not including) 6 plant species. 5. The increase in plant species has been calculated using the BREEAM LE03/LE04 calculator, using actual plant species numbers.							Y		Y	**1**	**1**	**1**				
LE 04 (Credit 3) (Criteria 6-8)	Enhancing site ecology	**All Building Types, except Prisons:** 6. The requirements of the first credit are achieved. 7. The recommendations of the Ecology Report for enhancement and protection of site ecol-ogy have been implemented, and the suitably qualified ecologist confirms that this will result in an increase in ecological value of the site of 6 plant species or greater. 8. The increase in plant species has been calculated using the BREEAM LE 03/LE 04 calculator, using actual plant species numbers.							Y		Y	**1**	**1**	**1**				

Land Use & Ecology

Ysgol Treganna Primary School

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility: Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Landscape	Credits / Targets: Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
LE 05 (Credit 1-2/3) (Criteria 1-4)	Long term impact on biodiversity	**1.** There is a commitment to achieve the mandatory criteria and appropriate number of additional criteria as follows: **All Building Types, except Prisons:** - 2 criteria = 1 credit - 4 criteria = 2 credits **Prisons Only:** - 2 criteria = 1 credit - 3 criteria = 2 credits - 4 criteria = 3 credits **Mandatory Criteria** **2.** A suitably qualified ecologist (SQE) has been appointed prior to commencement of activ-ities on site. **3.** The suitably qualified ecologist confirms that all relevant UK and EU legislation relating to protection and enhancement of ecology has been complied with during the design and construction process. **4.** A landscape and habitat management plan, appropriate to the site, is produced covering at least the first five years after project completion. This is to be handed over to the build-ing occupants and includes: **a.** Management of any protected features on site **b.** Management of any new, existing or enhanced habitats **c.** A reference to the current or future site level or local Biodiversity Action Plan.	**1.** See below **2-4:** Ecologist's report highlighting information required in Appendix F or a copy of Appendix F completed by the ecologist AND EITHER A copy of the site's landscape and habitat management plan OR Relevant section/clauses of the building specification or contract confirming its development and scope OR A letter from the client confirming a commitment to produce the management plan and its' scope.					Y		Y							
LE 05 (Credit 1-2/3) (Criteria 5-7)	Long term impact on biodiversity	**All Building Types, except Prisons:** **Additional Criteria** **5-7:** Please refer to the BREEAM 2011 Technical Manual for details of additional requirements criteria.	**5.** Relevant section/clauses of building specification/contract or an appointment letter from the Contractor. **6.** Training schedule or letter of confirmation from the principal contractor committing to provide relevant training OR A copy of the specification clause requiring contractor to training site workforce. **7.** A letter from the principal contractor confirming monitoring and reporting criteria for the development OR A copy of the specification clause requiring the contractor to monitor & report.						Y			**2**	**2**	**2**				

Land Use & Ecology

Ysgol Treganna Primary School

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility: Client	Occupier	Architect	M&E	Contractor	Ecologist	Acoustician	Landscape	Credits / Targets: Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
LE 05 (Credit 1-2/3) (Criteria 8-9)		**All Building Types, except Prisons:** **Additional Criteria** **8-9:** Please refer to the BREEAM 2011 Technical Manual for details of additional requirements criteria.	**8.** A copy of the proposed site plan highlighting the new ecologically valuable habitat. A SQE's report or letter confirming that the habitat supports the relevant biodiversity action plan(s) **9.** The SQE's report or letter confirming actions required with respect to programming site works to minimise disturbance. The principal contractor's programme of works. OR Relevant section/clauses of building specification/contract confirming programme of site works will minimise disturbance to wildlife in accordance with the SQE's recommendations.						Y		Y								
LE 05 (Credit 1-2/3) (Criteria 10)	Long term impact on biodiversity	**Additionally for Education Buildings Only:** 10. A partnership has been set up by the design team with a local group that has wildlife expertise (e.g. local wildlife trust or similar local body) and the group has: a. Provided advice early in the design process regarding protecting and/or providing habitat for species of local importance on the site. b. Provided advice to ensure the design is in keeping with the local environment. In par-ticular this should draw on their local knowledge of any features or species of eco-logical interest on or near the site. c. Provided or will continue to provide ongoing support and advice to the educational establishment to help them manage, maintain and develop the outdoor space in the longer term. A suitable starting point for discussion with the local wildlife group would be to ask for advice on how to take account of the Local Biodiversity Action Plan (LBAP) in the school/college landscape design.	Documentary evidence from the design team or wildlife group confirming: **1.** Scope of the partnership. **2.** Details and remit of the wildlife group. **3.** A description of the process for ongoing support that the group commit to give to the partnership. **4.** Details of meetings and actions to date		Y				Y		Y								

Pollution

Ysgol Treganna Primary School

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets						
				Client	Occupier	Architect	Engineer	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Pol 01 (Credit 1-3) (Criterion 1)	Impact of refrigerants	**1.** Where the building does not require the use of refrigerants within its installed plant/systems.	Documentary evidence confirming the absence of refrigerant in the development			Y	Y				**3**	**3**	**3**				
Pol 01 (Credit 1-2) (Criteria 2-4)	Impact of refrigerants	**For two credits:** **2.** Where the systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of ≤100 kgCO2e/kW cooling capacity. To calculate the DELC CO2e the fol-lowing information is sourced from the design team and entered into the BREEAM Pol 01 calculator: **a.** Global Warming Potential (GWP) of the specified system refrigerant(s) **b.** Total refrigerant charge (kg) **c.** Cooling capacity of the system(s) (kW) **d.** Sectoral release factors: **i.** Annual refrigerant leakage rate (% of refrigerant charge): **ii.** Annual purge release factor (% of refrigerant charge): **iii.** Annual service release factor (% of refrigerant charge): **iv.** Probability factor for catastrophic system failure (%) **v.** Recovery efficiency (% of refrigerant charge): For further detail refer to the Relevant definitions and Calculation procedures sections within Additional Information. OR **3.** Where air-conditioning or refrigeration systems are installed the refrigerants used have a Global Warming Potential (GWP) ≤10. For One Credit: **For one credit:** **4.** Where the systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions of (DELC CO2e) of ≤1000 kgCO2e/kW cooling capacity.	A copy of the specification clause or letter from the M&E engineer / system manufacturer confirming relevant refrigeration type and system information. A completed copy of the BREEAM Pol 01 Calculator.			Y	Y				-	-	-				
Pol 01 (Credit 3) (Criteria 5-9)	Impact of refrigerants	**5.** Where systems using refrigerants are contained in a moderately air tight enclosure (or a mechanically ventilated plant room), and an automated permanent refrigerant leak detec-tion system is installed covering high-risk parts of the plant OR where a refrigerant leak-age/charge loss detection system is specified, which is not based on the principle of detecting or measuring the concentration of refrigerant in air. **6.** The automatic shutdown and pump down of refrigerant occurs on the detection of refrig-erant leakage/charge loss. **7.** Automatic pump-down to either a separate storage tank or into the heat exchanger is acceptable, but only where automatic isolation valves are fitted to contain the refrigerant once fully pumped down. **8.** The alarm threshold that triggers automatic pump down upon detection of refrigerant in the plant room/enclosure is set to a maximum of 2000ppm (0.2%), but lower levels can be set. **9.** Use a robust and tested automated permanent refrigerant leak detection system, normally defined as that included on the Enhanced Capital Allowance (ECA) Energy Technology Product List (or an equivalent list).The alarm threshold that triggers automatic pump down upon detection of refrigerant in the plant room/enclosure is set to a maximum of 2000ppm (0.2%), but lower levels can be set.	A copy of the specification clause or letter from the M&E engineer / system manufacturer confirming relevant refrigeration type and system information. A completed copy of the BREEAM Pol 01 Calculator.			Y	Y				-	-	-				

Pollution

Ysgol Treganna Primary School

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets						
				Client	Occupier	Architect	Engineer	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Pol 02 (Credit 1-3) (Criterion 1)	NOx emissions	**Education, Healthcare, Multi-Residential and Prisons only:** **1.** Where the plant installed to meet the building's delivered heating and cooling demand has, under normal operating conditions, a dry NOx emission level (measured at 0% excess O2) as follows: - 100 mg/kWh (space heating & cooling) = 1 credit - 70 mg/kWh (space heating & cooling) = 2 credits - 40 mg/kWh (space heating & cooling) and 100 mg/kWh (water heating) = 3 credits	**All:** Relevant section/clauses of the building specification or contract Manufacturer's product details Calculations from the project team Where relevant for multi residential buildings: Evidence in line with the Design Stage evidence requirements of the CSH Issue Pol 2 OR A copy of the Design Stage CSH certificate and report from the CSH online reporting system confirming the number of credits achieved for CSH Issue Pol 2.				y				**3**	**3**	**3**				
Pol 03 (Credit 1-2) (Criteria 1-5)	Surface water run off - Flood Risk	**Two Credits** **1.** Where the assessed development is situated in a flood zone that is defined by the relevant planning, policy and technical guidance documents, as having a low annual probability of flooding **2.** A site specific Flood Risk Assessment (FRA) confirms that there is a low risk of flooding from all sources. **Or One Credit:** **3.** Where the assessed development is situated in a flood zone that is defined by the relevant planning, policy and technical guidance documents, as having a medium or high annual probability of flooding and is not within the Functional Floodplain AND **4.** A site specific Flood Risk Assessment (FRA) confirms to the satisfaction of the local author-ity and statutory body that the development is appropriately flood resilient and resistant from all sources of flooding AND **5.** The ground level of the building and access to both the building and the site, are designed (or zoned) so they are at least 600mm above the design flood level of the flood zone in which the assessed development is located (see Compliance notes for further guidance).	**1-5:** Flood risk assessment Design drawings Where appropriate, correspondence from the appropriate statutory body confirming reduced annual probability of flooding due to existing flood defences. Where relevant for multi residential buildings: Evidence in line with the Design or Post Construction Stage requirements of the CSH Issue Sur 2 or certificate demonstrating compliance.				Y				**2**	**0**	**0**				
Pol 03 (Credit 3) (Criterion 6)	Surface water run off - Surface water run off - Pre-requisite	**6.** An appropriate consultant is appointed to carry out, demonstrate and/or confirm the following criteria.	**6:** Statement from the appropriate consultant confirming that they are qualified in line with the BREEAM definition.				Y				**0**	**0**	**0**				

Pollution

Ysgol Treganna Primary School

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets						
				Client	Occupier	Architect	Engineer	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Pol 03 (Credit 3) (Criteria 7-8)	Surface water run off - Surface water run off	**7.** Where drainage measures are specified to ensure that the peak rate of run-off from the site to the watercourses (natural or municipal) is no greater for the developed site than it was for the pre-development site. This should comply at the 1 year and 100 year return period events. **8.** Calculations include an allowance for climate change; this should be made in accordance with current best practice planning guidance.	**7-14:** Consultants report containing all information necessary to demonstrate compliance including. 1. Type and storage volume (l) of the drainage measures 2. Total area of hard surfaces (m2) 3. Peak/Volume flow rates (l/s) pre and post development for the return period events 4. Additional allowance for climate change designed in to the system 5. Impact on the building of flooding from local drainage system failure Where relevant for multi residential buildings: Evidence in line with the Design or Post Construction Stage requirements of the CSH Issue Sur 1 or certificate demonstrating compliance.				Y				**1**	**0**	**0**				
Pol 03 (Credit 3) (Criteria 9-14)	Surface water run off - Surface water run off	**9.** Where flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance) AND EITHER **10.** The post development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. **11.** Any additional predicted volume of run-off for the 100 year 6 hour event must be pre-vented from leaving the site by using infiltration or other SuDS techniques OR (only where criterion no. 11 for this credit cannot be achieved) **12.** Justification from the Appropriate Consultant indicating why the above criteria cannot be achieved i.e. where infiltration or other SuDS techniques are not technically viable options. **13.** The post development peak rate of run-off is reduced to a limiting discharge. The limiting discharge is defined as the following and the option with the highest flow rate must be achieved; **a.** The pre development 1-year peak flow rate OR **b.** The mean annual flow rate Qbar OR **c.** 2l/s/ha Note that for the 1-year peak flow rate the 1 year return period event criterion applies (as described in the peak run off criteria above). **14.** For either option above calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance.	See above.				Y				**1**	**0**	**0**				

Pollution

Ysgol Treganna Primary School

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility							Credits / Targets						
				Client	Occupier	Architect	Engineer	Contractor	Ecologist	Acoustician	Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Pol 03 (Credit x) (Criteria x)	Surface water run off - minimising water course pollution	**15.** The Appropriate Consultant confirms that there is no discharge from the developed site for rainfall up to 5mm. **16.** Specification of Sustainable Drainage Systems (SUDs) or source control systems such as per-meable surfaces or infiltration trenches where run-off drains are in areas with a relatively low risk source of watercourse pollution. **17.** Specification of oil/petrol separators (or equivalent system) in surface water drainage sys-tems, where there is a high risk of contamination or spillage of substances such as petrol and oil (see Compliance notes for a list of areas). **18.** All water pollution prevention systems have been designed and detailed in accordance with the recommendations of Pollution Prevention Guideline 3 and where applicable the SUDS manual8. **19.** A comprehensive and up-to-date drainage plan of the site will be made available for the building/site occupiers. **20.** Where the building has chemical/liquid gas storage areas, shut-off valves are fitted to the site drainage system to prevent the escape of chemicals to natural watercourses (in the event of a spillage or bunding failure). **21.** Where present, all external storage and delivery areas designed and detailed in accordance with the recommendations of the Environment Agency's publication Pollution Prevention Pays Guidance and, if relevant to the building type, PPG25 Hospitals and Healthcare estab-lishments.	**15.** The consultants report detailing the design specifications, calculations and drawings to support the 5mm rainfall discharge criteria. **16-17 & 20:** Design drawings and/or relevant section/clauses of the building specification or contract indicating 1. High and low risk areas of the site 2. Specification of SUDS, source control systems, oil/petrol separators and shut-off valves as appropriate. **18-19 & 21:** A letter or other formal correspondence from the project team: 1. Confirming water pollution prevention systems are designed in accordance with PPG3 and the SUDS manual (where appropriate) 2. Outlining indicative examples of compliance with PPG3 and the SUDS manual 3. Confirming a copy of the drainage plan will be produced and handed over to the building occupier. 4. Confirming design of all external storage and delivery areas is in compliance with relevant Pollution Prevention Guidance 5. Outlining indicative examples of compliance with the PPG.				Y				**1**	**0**	**0**				
Pol 04 (Credit 1) (Criteria 1-4)	Reduction of night time light pollution	**1.** The external lighting strategy has been designed in compliance with Table 1 (and its accom-panying notes) of the ILE Guidance notes for the reduction of obtrusive light, 200517 , (see Additional Information below - Buildings located in Scotland must also refer to the Compli-ance notes below for additional criteria). **2.** All external lighting (except for safety and security lighting) can be automatically switched off between 2300hrs and 0700hrs. This can be achieved by providing a timer for all external lighting set to the appropriate hours. **3.** If safety or security lighting is provided and will be used between 2300hrs and 0700hrs, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 1 of the ILE's Guidance notes, for example by using an automatic switch to reduce the lighting levels at 2300 or earlier. **4.** Illuminated advertisements, where specified, must be designed in compliance with ILE Tech-nical Report 5 – The Brightness of Illuminated Advertisements.	**All:** Design drawings Relevant section/clauses of the building specification or contract or external lighting design data/calculations In the case of the external lighting design, the M&E engineer or lighting designer must provide indicative examples of where and how the strategy complies with the assessment criteria.				Y				**1**	**1**	**1**				

Pollution

Ysgol Treganna Primary School

Stride Treglown Management

Credit / Criteria Ref	Credit / Criteria Subject	Criteria	Evidence Requirements (Design Stage)	Responsibility: Client	Occupier	Architect	Engineer	Contractor	Ecologist	Acoustician	Credits / Targets: Available	PA	DS	Achieved	% of Bld Score	Evidence Status	Minutes / Notes
Pol 05 (Credit 1) (Criteria 1-5)	Noise attenuation	**1.** The credit can be awarded by default where there are or will be no noise-sensitive areas or buildings within 800m radius of the assessed development. **2.** Where there are or will be noise-sensitive areas or buildings within 800m radius of the assessed development a noise impact assessment in compliance with BS 7445:199120 has been carried out and the following noise levels measured/determined: **a.** Existing background noise levels at the nearest or most exposed noise-sensitive devel-opment to the proposed development or at a location where background conditions can be argued to be similar. **b.** The rating noise level resulting from the new noise-source (see also Compliance note: Compliance at the design stage). **3.** The noise impact assessment must be carried out by a suitably qualified acoustic consultant holding a recognised acoustic qualification and membership of an appropriate pro-fessional body (see Relevant definitions in the Additional Information section). **4.** The noise level from the proposed site/building, as measured in the locality of the nearest or most exposed noise-sensitive development, is a difference no greater than +5dB during the day (0700hrs to 2300hrs) and +3dB at night (2300hrs to 0700hrs) compared to the back-ground noise level. **5.** Where the noise source(s) from the proposed site/building is greater than the levels described in criterion 4, measures have been installed to attenuate the noise at its source to a level where it will comply with criterion 4	**1.** Design drawings highlighting: 1. All existing and proposed noise-sensitive buildings local to, and within, the site boundary 2. Proposed sources of noise from the new development 3. Distance (m) from these buildings to the assessed development. **2-3:** The acoustician's report, acoustician's qualifications and professional status. OR Relevant section/clauses of the building specification or contract requiring a noise assessment by a suitably qualified acoustician in compliance with BS 4142:1997. OR A letter from the client or design team confirming that they will appoint an acoustician to carry out a noise assessment in compliance with BS 4142:1997. **4.** Acoustician's report with recommendations for noise attenuation measures. AND EITHER A marked-up design plan highlighting the specification of the acoustician's attenuation measures OR A formal letter from the client or design team confirming where relevant, that attenuation measures recommended by an appointed suitably qualified acoustician will be installed.							Y	**1**	**1**	**1**				

Stride Treglown
Management

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stridetreglown.co.uk

Application No: 11/01324/DCO

PERMISSION FOR DEVELOPMENT

To:
Mr P Dee
Projects, Design & Development
Cardiff County Council
Bessemer Close
Leckwith
Cardiff
CF11 8XA

Town and Country Planning Act 1990
Town and Country Planning (General Development Procedure) Order 1995

WHEREAS you submitted an application for Full Planning Permission received on 29/07/2011 for:PROPOSED NEW BUILD 3 FORM ENTRY PRIMARY SCHOOL AND NURSERY at LAND ADJACENT TO SANATORIUM ROAD (hereinafter called "the development");

CARDIFF COUNTY COUNCIL, as the Local Planning Authority for the County of Cardiff, in pursuance of its powers under the above mentioned Act and Orders, hereby PERMITS the development to be carried out in accordance with the application and plans submitted therewith, subject to compliance with the conditions specified hereunder:

1. The development permitted shall be begun before the expiration of five years from the date of this planning permission.
   Reason: In accordance with the provisions of Section 91 of the Town and Country Planning Act 1990.

2. No part of the development hereby permitted shall be commenced until a scheme detailing the measures necessary for the purpose of monitoring gases generated on the site or land adjoining thereto and for any measures necessary to protect the development has been submitted to and approved in writing by the Local Planning Authority. Any such scheme shall provide details of measures that are required to ensure the safe and inoffensive dispersal or management of gases and to prevent lateral migration of gases into or from land surrounding the application site. Gases includes landfill gases, vapours from contaminated land sites, and naturally occurring methane and carbon dioxide, but does not include radon gas.
   All measures specified in the above scheme shall (unless otherwise agreed in writing) be undertaken and completed prior to any development commencing or in accordance with a timetable as shall be previously agreed in writing with the Local Planning

Authority and the measures shall be retained and maintained until such time as the Local Planning Authority agree in writing.
Reason: To ensure that the safety of future occupiers is not prejudiced in accordance with policy 10 of the Cardiff Local Plan and policy 2.63 of the deposit Cardiff Unitary Development Plan.

3. Prior to the commencement of development the following components of a scheme to deal with the risks associated with contamination of the site shall each be submitted to, and approved in writing by, the Local Planning Authority:

(1). A preliminary risk assessment which has identified:
- all previous uses;
- potential contaminants associated with those uses;
- a conceptual model of the site indicating sources, pathways and receptors;
- potentially unacceptable risks arising from contamination at the site.
(2). A site investigation scheme based on (1) to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off site.
(3) The site investigation results and the detailed risk assessment (2) and, based on these, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken.
(4) A verification plan providing details of the data that will be collected in order to demonstrate that the works set out in (3) are complete and identifying any requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action.

Any changes to these components require the express consent of the local planning authority. The scheme shall be implemented as approved.

Reason: To ensure that the safety of future occupiers is not prejudiced, in accordance with policy 10 of the Cardiff Local Plan and policy 2.63 of the deposit Cardiff Unitary Development Plan.

4. Prior to occupation of any part of the development, a verification report demonstrating completion of the works set out in the approved remediation strategy and the effectiveness of the remediation shall be submitted to and approved, in writing, by the local planning authority. The report shall include results of sampling and monitoring carried out in accordance with the approved verification plan to demonstrate that the site remediation criteria have been met. It shall also include any plan (a “long-term monitoring and maintenance plan”) for longer-term monitoring of

pollutant linkages, maintenance and arrangements for contingency action, as identified in the verification plan, and for the reporting of this to the local planning authority. Reports on monitoring, maintenance and any contingency action carried out in accordance with a long-term monitoring and maintenance plan shall be submitted to the local planning authority as set out in that plan. On completion of the monitoring programme a final report demonstrating that all long- term site remediation criteria have been met and documenting the decision to cease monitoring shall be submitted to and approved in writing by the local planning authority.

Reason: To ensure that the safety of future occupiers is not prejudiced, to demonstrate that the remediation criteria relating to controlled waters have been met and (if necessary) to secure longer-term monitoring of groundwater quality, in accordance with policy 10 of the Cardiff Local Plan and policies 2.61 and 2.63 of the deposit Cardiff Unitary Development Plan.

5. If, during development, contamination not previously identified is found to be present at the site then no further development (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until the developer has submitted, and obtained written approval from the Local Planning Authority, for an amendment to the remediation strategy detailing how this unsuspected contamination shall be dealt with.
Reason: To ensure that the quality of controlled waters and the safety of future occupiers are not prejudiced, in accordance with policy 10 of the Cardiff Local Plan and policies 2.61 and 2.63 of the deposit Cardiff UnitaryDevelopment Plan.

6. Any topsoil [natural or manufactured],or subsoil, to be imported shall be assessed for chemical or other potential contaminants in accordance with a scheme of investigation to be submitted to and approved in writing by the Local Planning Authority in advance of its importation. Only material approved by the Local Planning Authority shall be imported. All measures specified in the approved scheme shall be undertaken in accordance with the relevant Code of Practice and Guidance Notes.
Subject to approval of the above, verification sampling of the material received at the development site is required to verify that the imported soil is free from contamination and shall be undertaken in accordance with a scheme agreed with in writing by the LPA.
Reason: To ensure that the safety of future occupiers is not prejudiced, in accordance with policy 10 of the Cardiff Local Plan

and policy 2.63 of the deposit Cardiff Unitary Development Plan.

7. Any aggregate (other than virgin quarry stone) or recycled aggregate material to be imported shall be assessed for chemical or other potential contaminants in accordance with a scheme of investigation to be submitted to and approved in writing by the Local Planning Authority in advance of its importation. Only material approved by the Local Planning Authority shall be imported. All measures specified in the approved scheme shall be undertaken in accordance with the relevant Code of Practice and Guidance Notes.

Subject to approval of the above, verification sampling of the material received at the development site is required to verify that the imported aggregate is free from contamination and shall be undertaken in accordance with a scheme agreed with in writing by the Local Planning Authority.

Reason: To ensure that the safety of future occupiers is not prejudiced , in accordance with policy 10 of the Cardiff Local Plan and policy 2.63 of the deposit Cardiff Unitary Development Plan.

8. No development shall take place until ground permeability tests have been undertaken to ascertain whether sustainable drainage techniques can be utilised and a drainage scheme for the disposal of both surface water and foul sewage has been submitted to and approved in writing by the local planning authority, which shall include sustainable drainage techniques if, as a result of the ground permeability tests, these have been found to be feasible. No part of the development shall be occupied until the drainage scheme is carried out and completed as approved.
Reason: In the interests of the proper drainage of the site, in accordance with policy 2.61 of the deposit Cardiff Unitary Development Plan.

9. Before the development hereby approved is brought into use the developer shall install a grease trap to prevent entry into the public sewerage system of matter likely to interfere with the free flow of the sewer contents, or which would prejudicially affect the treatment and disposal of such contents. Thereafter the trap shall not be removed unless otherwise agreed in writing by the Local Planning Authority.
Reason: To protect the integrity of the public sewer and avoid damage thereto

10. No development shall take place until details of facilities for the storage of refuse containers within the premises have been submitted to and approved in writing by the Local Planning

Authority. Those details shall be implemented prior to beneficial use.
Reason: To secure an orderly form of development and to protect the amenities of the area. in accordance with policy 2.74 of the deposit Cardiff Unitary Development Plan.

11. No development shall take place until details of a car park within the curtilage of the site, including details of the 'one way' system of operation and associated signage and carriageway markings, have been submitted to and approved in writing by the Local Planning Authority. The car park shall be constructed, surfaced and laid out in accordance with the approved details before the development is brought into beneficial use. Thereafter the car park shall be maintained and shall not be used for any purpose other than the parking of vehicles.
Reason: To make provision for the parking of vehicles clear of the roads so as not to prejudice the safety, convenience and free flow of traffic, in accordance with policy 17 of the Cardiff Local Plan and policy 2.57 of the deposit Cardiff Unitary Development Plan.

12. No development shall take place until details showing the provision of a minimum of 24 no. cycle parking spaces have been submitted to and approved in writing by the Local Planning Authority. The approved details shall be implemented prior to the development being put into beneficial use. Thereafter the cycle parking spaces shall be maintained and shall not be used for any other purpose, and the numbers shall be reviewed and increased as appropriate in accordance with the approved Travel Plan for the development
Reason: To ensure that adequate provision is made for the sheltered and secure parking of cycles in accordance with policy 18 of the Cardiff Local Plan and policy 2.57 of the deposit Cardiff Unitary Development Plan.

13. Details of the proposed highway works along Sanatorium Road shall be submitted to and approved in writing by the Local Planning Authority, these details to comprise, but not be limited to, the provision of tabled narrowings, 'gateway features' and the introduction of a 20mph zone including parking restrictions, together with associated beacon poles, ducting / cabling, tactile paving, kerbing, signing, lining and street lighting as agreed in principle on drawing.
no. CTCAFH/004/001. The scheme so approved shall be implemented prior to the beneficial occupation of the development.
Reason: To ensure that a safe zone / crossing facilities are provided to the frontage of the school, in the

interests of pedestrian and highway safety, in accordance with policies 16, 17 and 19 of the Cardiff Local Plan and policy 2.57 of the deposit Cardiff Unitary Development Plan.

14. Details of the proposed highway works at the junction of Sanatorium Road/Lansdowne Road/Grosvenor Street shall be submitted to and approved in writing by the Local Planning Authority, these details to comprise, but not be limited to, improvements to increase the junction capacity, together with improved pedestrian facilities along the eastern side, including tactile paving, kerbing, signing, lining and street lighting as agreed in principle on Figure 5.3 - 'Mitigation Works At Lansdowne Road Signalised Junction' (attached to the submitted Transport Assessment). The scheme so approved shall be implemented prior to the beneficial occupation of the development.
Reason: To ensure the improvement of the junction, to mitigate against the impacts of the school development, in accordance with policies 16 and 19 of the Cardiff Local Plan and policy 2.57 of the deposit Cardiff Unitary Development Plan.

15. Prior to the commencement of development a scheme of construction management shall be submitted to and approved in writing by the Local Planning Authority, to include details of construction traffic routes, site hoardings, site access and wheel washing facilities. The construction shall be managed strictly in accordance with the approved scheme.
Reason: In the interests of highway safety and public amenity, in accordance with policy 2.57 of the deposit Cardiff Unitary Development Plan.

16. No part of the development hereby permitted shall be occupied until the Outline Travel Plan has been progressed and submitted to and approved in writing by the Local Planning Authority. The Travel Plan shall set out proposals and targets, together with a timetable to limit or reduce the number of single occupancy car journeys to the site, and to promote travel by sustainable modes. The approved Travel Plan shall be implemented in accordance with the timetable as set out, unless otherwise agreed in writing with the Local Planning Authority. Reports demonstrating progress in promoting the sustainable transport measures detailed in the Travel Plan shall be submitted annually to the Local Planning Authority, commencing from the first anniversary of beneficial occupation of the development.
Reason: In the interests of sustainability and in accordance with policies 13 and 17 of the Cardiff Local Plan and policies 2.20 and

2.57 of the deposit Cardiff Unitary Development Plan.

17. No development shall take place until details of the means of site enclosure have been submitted to and approved by the Local Planning Authority. The means of site enclosure shall be constructed in accordance with the approved details prior to the development being put into beneficial use.
Reason: To ensure that the amenities of the area are protected and in the interests of site security and the prevention of crime, in accordance with policy 11 of the Cardiff Local Plan and policy 2.20 of the deposit Cardiff Unitary Development Plan.

18. A scheme for the illumination of all internal roads, footpaths and car park
areas shall be submitted to and approved in writing by the Local Planning Authority prior to the commencement of development and the approved scheme shall be implemented before the development is brought into beneficial use and shall be maintained thereafter.
Reason: In the interests of site security and the prevention of crime, in accordance with policy 2.20 of the deposit Cardiff Unitary Development Plan.

19. Prior to beneficial use of the development hereby approved, closed circuit television cameras shall be installed around the building in accordance with details that shall previously have been submitted to and approved in writing by the Local Planning Authority. Thereafter the approved cameras shall be retained.
Reason: In the interests of the prevention of crime, in accordance with policy 2.20 of the deposit Cardiff Unitary Development Plan and paragraph 4.10.12 of Planning Policy Wales (2011).

20. Prior to the commencement of development, a detailed scheme for the treatment and disposal of soils affected by Japanese Knotweed shall be submitted to and approved in writing by the Local Planning Authority. Such a scheme shall accord with the advice in the publication The Eradication of Japanese Knotweed (WDA: Cardiff 1998) and Guidance for the Control of Invasive Plants Near Watercourses (Environment Agency 2001). Thereafter the development shall be carried out in accordance with the approved scheme.
Reason: To ensure the safe destruction and prevention of spread of Japanese Knotweed, in the interests of biodiversity and the control of contamination, in accordance with policy 2.63 of the deposit Cardiff Unitary Development Plan and Cardiff Supplementary

Planning Guidance “Biodiversity” (June 2006).

21. No removal of trees, shrubs, bushes or hedgerows shall take place between 1st February and 15th August without prior written approval from the Local Planning Authority.
Reason: To avoid disturbance to nesting birds, in accordance with paragraph 5.2.8 of Planning Policy Wales (2011).

22. Prior to the commencement of development, a mitigation strategy shall be submitted to and approved in writing by the Local Planning Authority which shall give details of how reptiles are to be translocated from the site to an alternative site before the commencement of development. This should include a survey of the receptor site, timing and methods of searching and translocating, management of the application site to ensure no reptiles return once removed, long term management of the receptor site and future monitoring.
Reason: To avoid harm to protected species, in accordance with Cardiff
Supplementary Planning Guidance “Biodiversity” (June 2006) and paragraph 5.5.11 of Planning Policy Wales (2011).

23. No equipment, plant or materials shall be brought onto the site for the purpose of development until full details of both hard and soft landscape works have been submitted to and approved in writing by the Local Planning Authority. These details shall include proposed finished levels, earthworks, hard surfacing materials, proposed and existing services above and below ground level, planting plans (including schedules of plant species, sizes, numbers or densities, and in the case of trees, planting, staking, mulching, protection, soil protection and after care methods) and an implementation programme. The details shall be consistent with other plans submitted in support of the application and the landscaping shall be carried out in accordance with the approved design and implementation programme.
Reason: To maintain and improve the appearance of the area in the interests of visual amenity, in accordance with policy 11 of the Cardiff Local Plan and policy 2.20 of the deposit Cardiff Unitary Development Plan.

24. Any trees, plants, or hedgerows which within a period of five years from the completion of the development die, are removed, become seriously damaged or diseased, or become (in the opinion of the Local Planning Authority) otherwise defective, shall be replaced in the current planting season or the first two months of the next planting season, whichever is the sooner, unless the Local Planning Authority gives written consent to any variation.
Reason: To maintain and improve the appearance of the area in

the interests of visual amenity, in accordance with policy 11 of the Cardiff Local Plan and policy 2.20 of the deposit Cardiff Unitary Development Plan.

25. Prior to the commencement of development an Arboricultural Implications Assessment, in accordance with the requirements set out in the Cardiff Supplementary Planning Guidance "Trees and Development" (March 2007), shall be submitted to and approved in writing by the Local Planning Authority.
Reason: To ensure the protection of trees that are of value to the local environment and wider landscape, in the interests of visual amenity, in accordance with policy 11 of the Cardiff Local Plan and policy 2.45 of the deposit Cardiff Unitary Development Plan.

26. No equipment, plant or materials shall be brought onto the site for the purpose of development until full details of the following have been submitted to and approved in writing by the Local Planning Authority, in accordance with the current British Standard for trees in relation to construction.

An Arboricultural Method Statement (AMS), setting out the methodology that will be used to prevent loss of or damage to retained trees.

A Tree Protection Plan (TPP) in the form of a scale drawing showing the finalised layout and the tree and landscaping protection methods detailed in the AMS that can be shown graphically.

Unless written consent is obtained from the Local Planning Authority, the development shall be carried out in full conformity with the approved AMS and TPP.

Reason: To ensure the protection of trees that are of value to the local environment and wider landscape, in the interests of visual amenity, in accordance with policy 11 of the Cardiff Local Plan and policy 2.45 of the deposit Cardiff Unitary Development Plan.

27. The building hereby permitted shall be constructed to achieve a minimum 'BREEAM' overall standard of 'very good' and the mandatory credits for 'Excellent' under the energy credits Ene 1 (Reduction of CO_2 Emissions).
Reason: To ensure that the development is constructed in accordance with national planning sustainable building standards, in accordance with policy 12 of the Cardiff Local Plan, policy 2.20 of the deposit Cardiff Unitary Development Plan and paragraph

4.11.4 of Planning Policy Wales (2011).

28. Construction of any building hereby permitted shall not begin until an 'Interim Certificate' has been submitted to the Local Planning Authority, certifying that a minimum 'BREEAM' overall standard of 'Very Good' and the mandatory credits for 'Excellent' under the energy credits Ene 1 (Reduction CO_2 Emissions) has been achieved.
Reason: To ensure that the development is constructed in accordance with national planning sustainable building standards, in accordance with policy 12 of the Cardiff Local Plan, policy 2.20 of the deposit Cardiff Unitary Development Plan and paragraph 4.11.4 of Planning Policy Wales (2011).

29. Prior to the occupation of the individual building(s) hereby permitted, a 'Final Certificate' shall be submitted to the Local Planning Authority, certifying that a minimum 'BREEAM' overall standard of 'Very Good' and the mandatory credits for 'Excellent' under the energy credits Ene 1 (reduction of CO_2 Emissions) has been achieved.
Reason: To ensure that the development is constructed in accordance with national planning sustainable building standards, in accordance with policy 12 of the Cardiff Local Plan, policy 2.20 of the deposit Cardiff Unitary Development Plan and paragraph 4.11.4 of Planning Policy Wales (2011).

All policies and proposals in the Development Plan which are relevant to this decision are listed in the report on the Application.

IT IS IMPORTANT THAT YOU SHOULD READ THOSE NOTES ON THE ATTACHED SHEET WHICH ARE RELEVANT TO THIS TYPE OF APPLICATION.

Dated: 17/11/2011

Phil Williams
STRATEGIC PLANNING & DEVELOPMENT MANAGER, CITY DEVELOPMENT
CITY HALL, CARDIFF CF10 3ND

It should also be noted that:

1. The applicant is advised that a commercial waste contract is required for the collection and disposal of all commercial waste. By law (Section 47 of the Environmental Protection Act 1990) all commercial premises have a duty of care to ensure that their waste is transferred to and disposed of by a registered waste

carrier.

2. It is recommended that an appropriate Waste Strategy is adopted to confirm that the school, once built, is capable of reaching recycling targets of 70% and moving towards zero waste.

3. The developer is advised that foul and surface water discharges must be drained separately from the site. No land drainage run-off shall be permitted to connect (either directly or indirectly) to the public sewerage system and the developer should contact the Local Authority Drainage Services for advice if it is intended to drain surface water to the public sewerage system.

4. The Duty of Care regulations for dealing with waste materials are applicable to any off-site movements of waste. The developer as a waste producer therefore has a duty to ensure that all materials removed go to an appropriate licensed disposal site and all relevant documentation is completed and kept in line with the regulations. If any waste is to be used on site, the developer will be required to obtain the appropriate exemption or authorisation from the Environment Agency. Further guidance is available from the Environment Management team at the Environment Agency Wales (tel: 029 2024 5110) or from the website www.environment-agency.gov.uk/subjects/waste/

5. The contamination assessments and the affects of unstable land are considered on the basis of the best information available to the Planning Authority and are not necessarily exhaustive. The Authority takes due diligence when assessing these impacts, however you are minded that the responsibility for

(i) determining the extent and effects of such constraints and;
(ii) ensuring that any imported materials (including, topsoils, subsoils, aggregates and recycled or manufactured aggregates / soils) are chemically suitable for the proposed end use. Under no circumstances should controlled waste be imported. It is an offence under section 33 of the environmental Protection Act 1990 to deposit controlled waste on a site which does not benefit from an appropriate waste management license. The following must not be imported to a development site:

- Unprocessed / unsorted demolition wastes.
- Any materials originating from a site confirmed as being contaminated or potentially contaminated by chemical or radioactive substances.

Japanese Knotweed stems, leaves and rhizome infested soils. In addition to section 33 above, it is also an offence under the Wildlife and Countryside Act 1981 to spread this invasive weed; and

(iii) the safe development and secure occupancy of the site rests with the developer.

Proposals for areas of possible land instability should take due account of the physical and chemical constraints and may include action on land reclamation or other remedial action to enable beneficial use of unstable land.

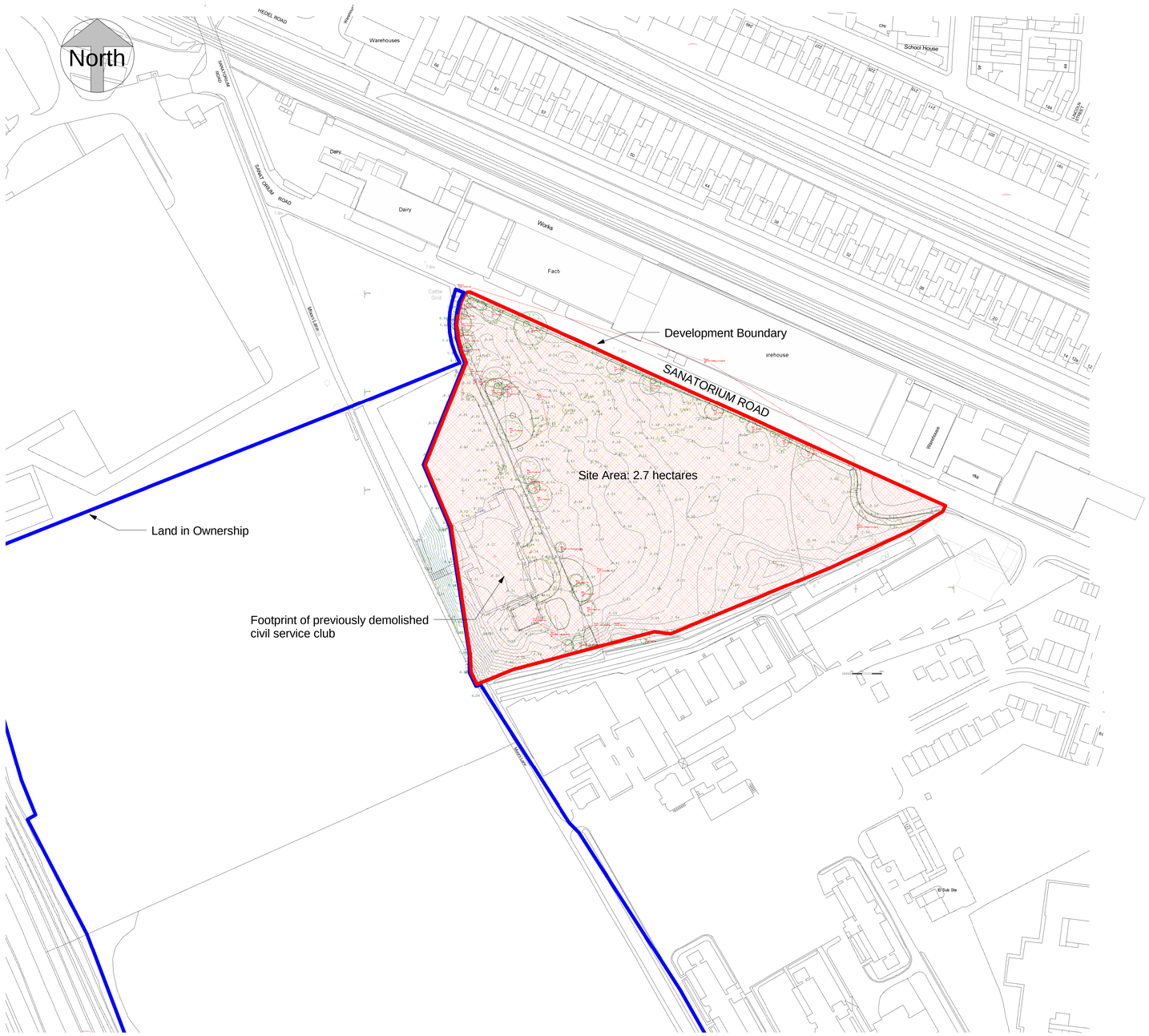
The Local Planning Authority has determined the application on the basis of the information available to it, but this does not mean that the land can be considered free from contamination.

6. The developer is advised to liaise with the Transport Projects Team prior to undertaking the detailed design of the School Safety Zone and Highway Works as conditioned above, that Traffic Regulation Orders will be required to be implemented and that a financial contribution of **£5,200** will be required to enable the Traffic Regulation Orders to be implemented as per the School Safety Zone condition, for the reduction of the speed limit and introduction of parking restrictions along Sanatorium Road, and for the investigation and implementation of parking restrictions deemed necessary in those roads within the vicinity of the site.

7. The applicant is advised to ensure that the diversion of the Ely Trail around the western boundary of the school site does not create a blind corner in the alignment of the trail, which could impact on the safety of pedestrians and cyclists using the route.

8. The developer is advised to ensure that the development is built to Secured By Design standards as promoted by South Wales Police. In particular, lighting should be installed for all internal roads, footpaths and car park areas, which complies with BS 5489-1:2003, CCTV should ensure adequate coverage of reception, main entrance, parking area and rear elevations, the proposed 2.3m fence and gates should meet Secured by Design standards and be installed with anti-tamper bars and solid foundations, perimeter security should be designed so that only the front of the School is accessible from Sanatorium Road and all site users have to access the building via the reception area, fencing should be extended from side elevations to the perimeter to ensure rear facilities are secure, adequate access control facilities should be installed at reception to ensure that persons are unable to access the building without prior approval, all external doors and windows should comply with SBD standards

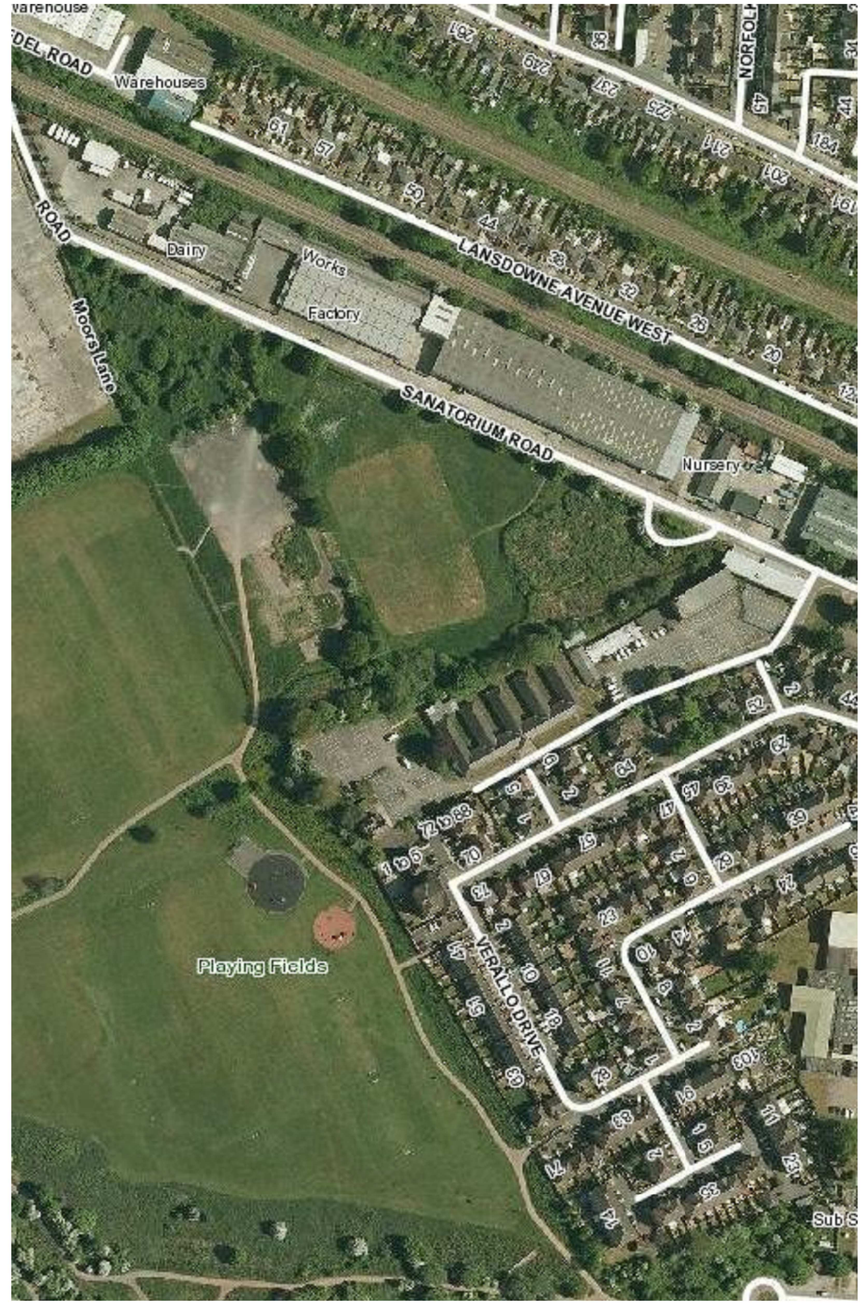
for schools, there should be a monitored alarm system with panic attack facility on the reception desk, waste bins should be secured in designated storage areas and, in order to deter entry via the roof, potential climbing features such as down pipes should be omitted and anti-climb features incorporated in the roof edges.
For a full list of all Schools Secured by Design requirements and application form the applicant is directed to www.securedbydesign.com.



Site Location Plan

1 : 1250

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Aerial View

amendments (note :- all amendments to be signed)

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PROJECTS, DESIGN & DEVELOPMENT
DESIGN AND CONSTRUCTION MANAGEMENT

PROJECTAU, DYLUNIO A DATBLYGU
RHEOLAETH CYNLLUNIO AC ADEILADU

Neil Hanratty
CHIEF OFFICER CITY DEVELOPMENT
PRIF SWYDDOG DATBLYGU'R DDINAS

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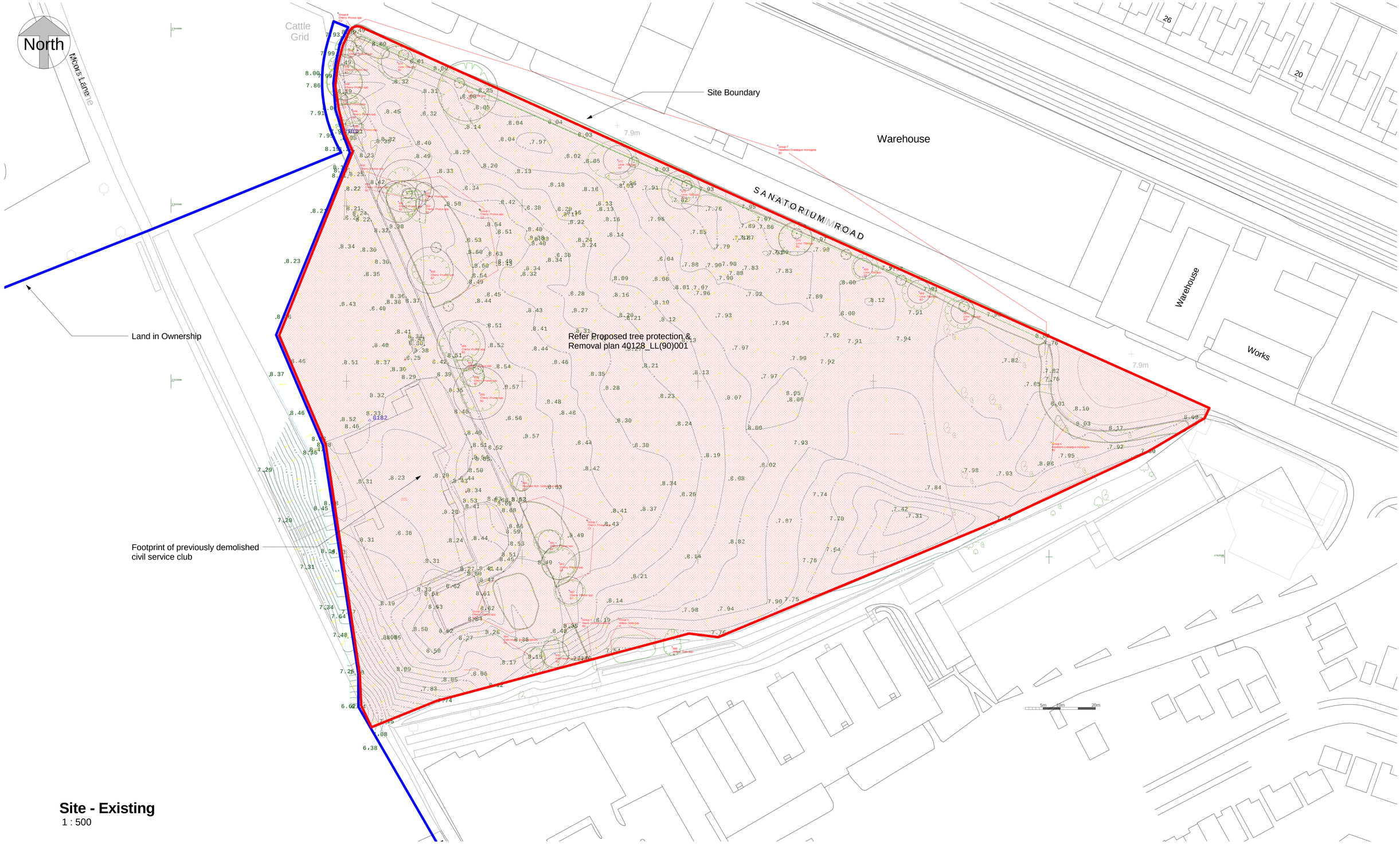
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detail: Site Location Plan

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date: NOV 2011
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project number: SLLC 6988
drawing number: AL(0)01
amd

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Site - Existing

1 : 500

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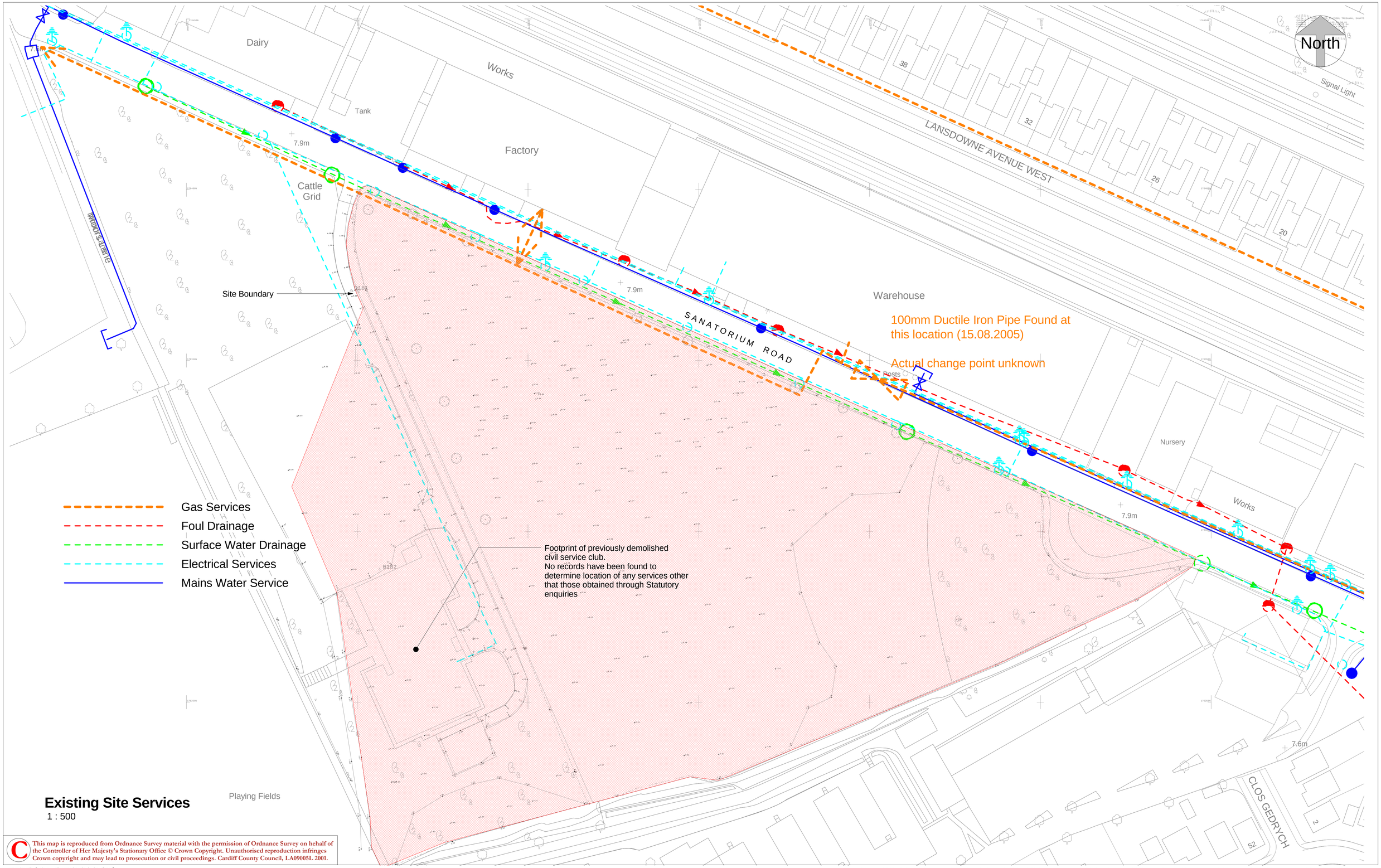
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title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail: Existing Site Plan and Tree Survey

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Existing Site Services

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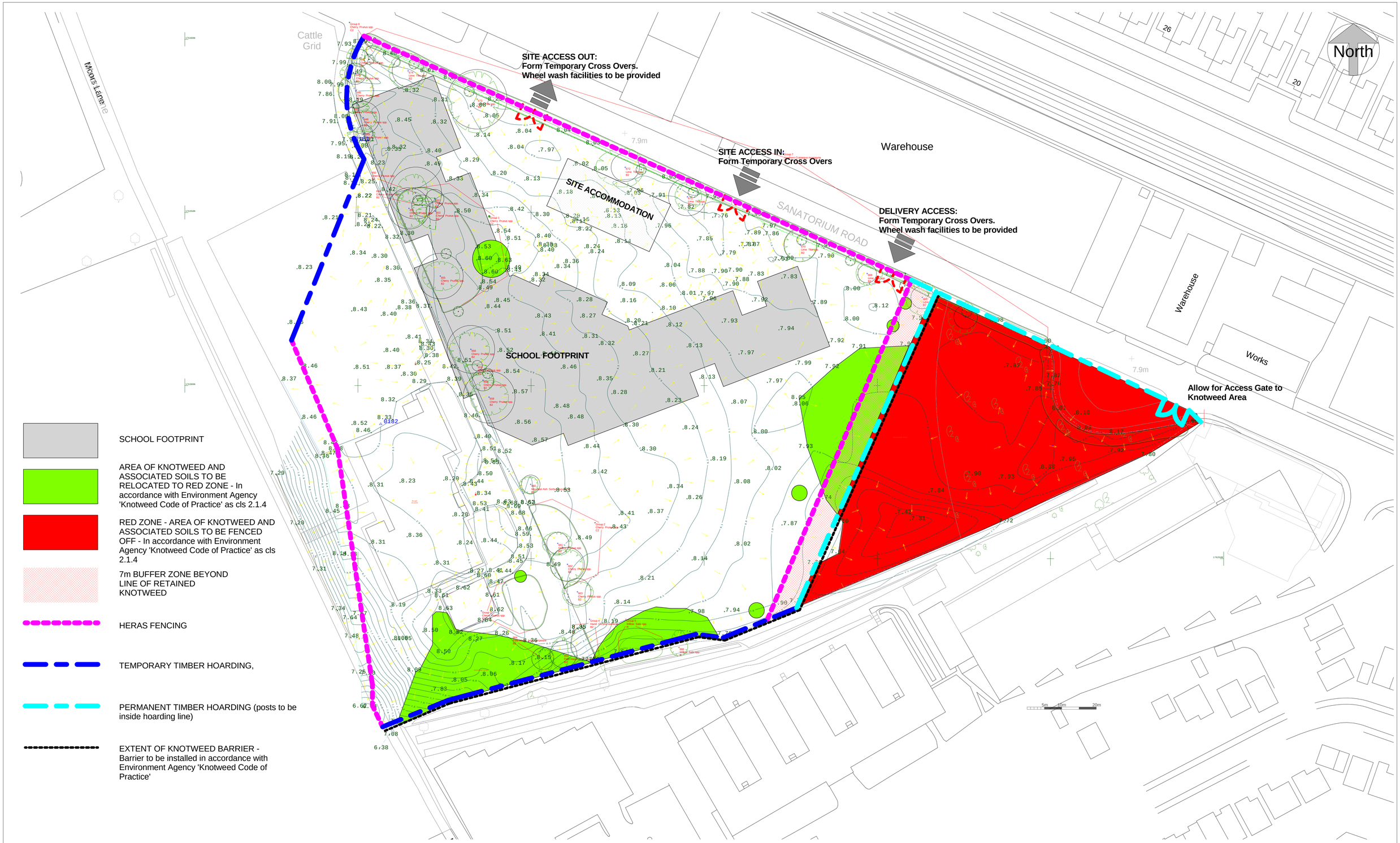
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SCHOOL FOOTPRINT

AREA OF KNOTWEED AND ASSOCIATED SOILS TO BE RELOCATED TO RED ZONE - In accordance with Environment Agency 'Knotweed Code of Practice' as cls 2.1.4

RED ZONE - AREA OF KNOTWEED AND ASSOCIATED SOILS TO BE FENCED OFF - In accordance with Environment Agency 'Knotweed Code of Practice' as cls 2.1.4

7m BUFFER ZONE BEYOND LINE OF RETAINED KNOTWEED

HERAS FENCING

TEMPORARY TIMBER HOARDING,

PERMANENT TIMBER HOARDING (posts to be inside hoarding line)

EXTENT OF KNOTWEED BARRIER - Barrier to be installed in accordance with Environment Agency 'Knotweed Code of Practice'

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title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

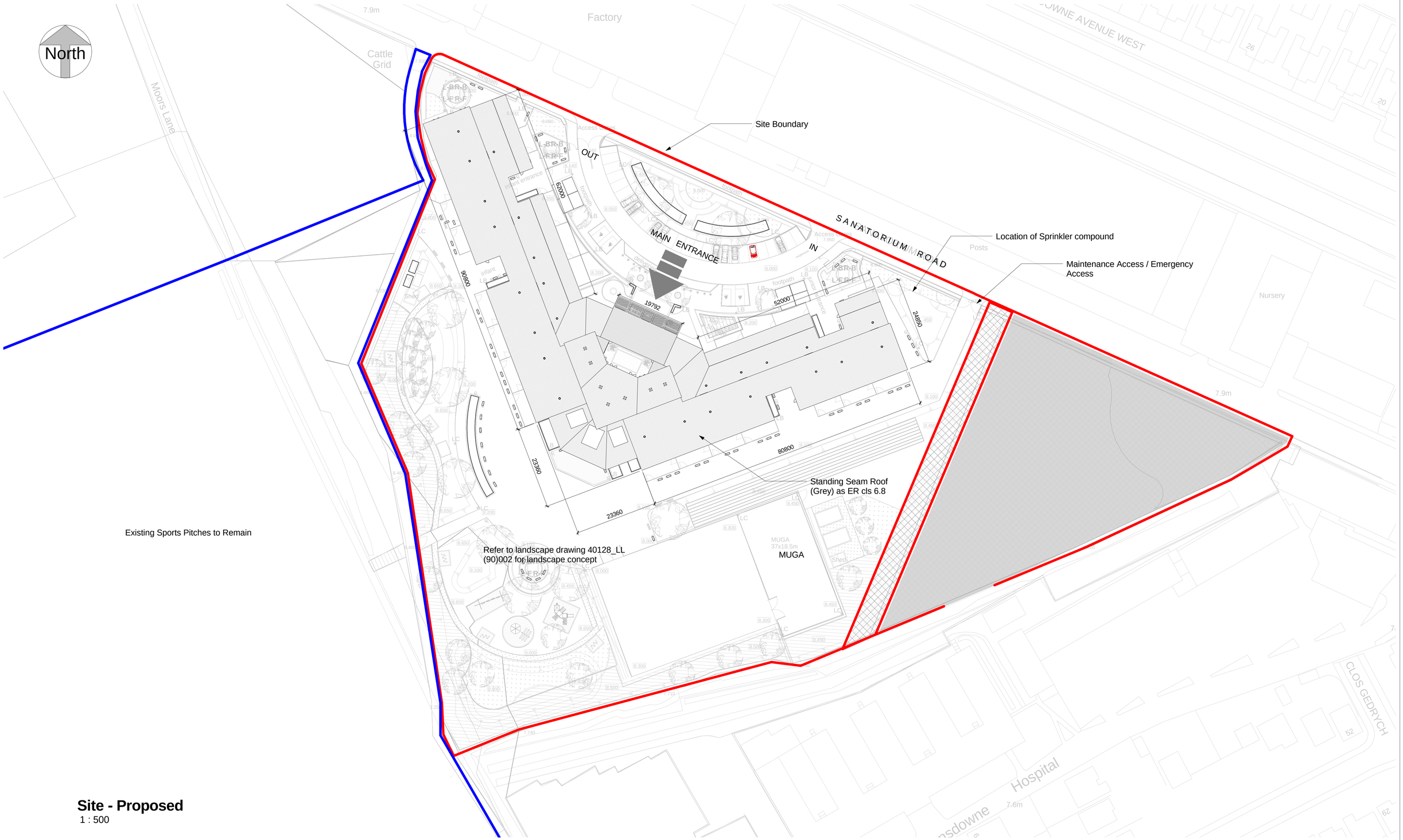
detail: Contractors Site Restrictions and Proposed Japanese Knotweed Strategy

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Site - Proposed

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Neil Hanratty
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title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail: Proposed Site Plan

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date: NOV 2011
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project number: SLLC 6988

drawing number: AL(0)05

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0 - GA Floor Plan

1 : 250

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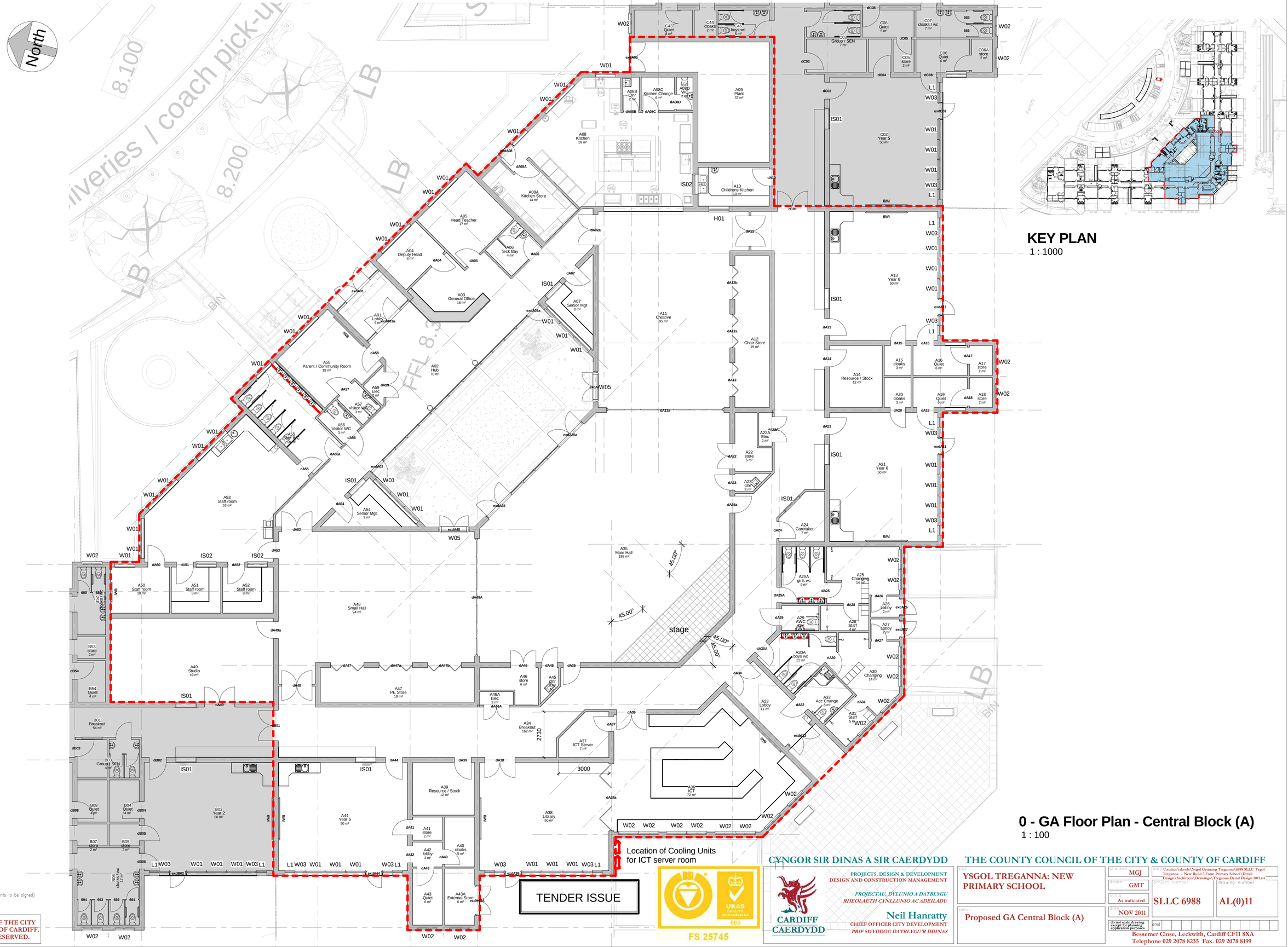
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drawing number: AL(0)10
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KEY PLAN
1 : 1000

0 - GA Floor Plan - Central Block (A)
1 : 100

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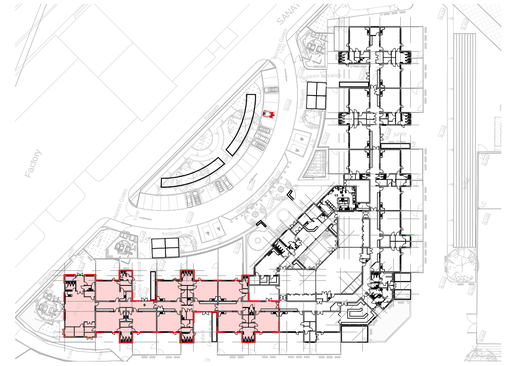
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DESIGN AND CONSTRUCTION MANAGEMENT
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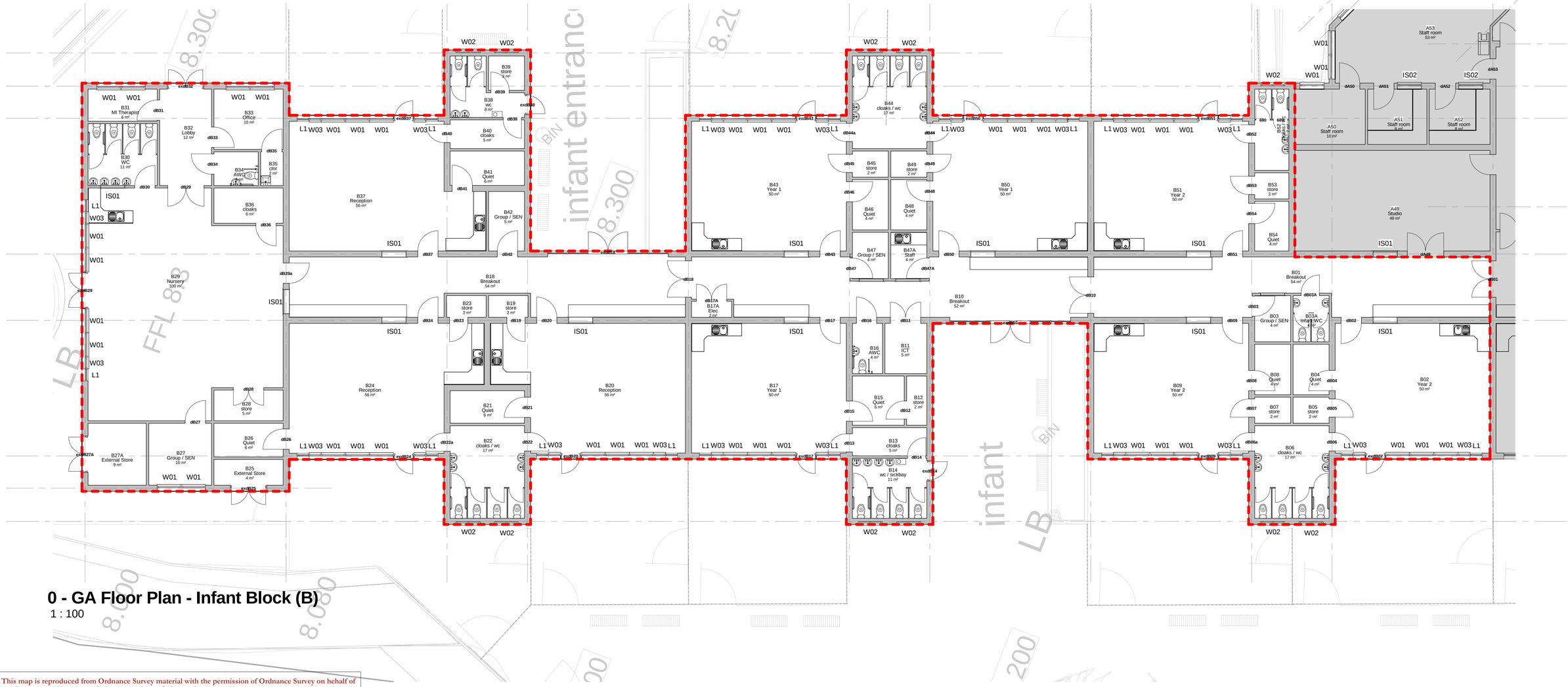
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detail	Proposed GA Central Block (A)
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drawn	GMT
scale	As indicated
date	NOV 2011
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project number	SLLC 6988
drawing number	AL(0)11
do not scale drawing except for planning application purposes	
amd	

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North



KEY PLAN
1 : 1000



0 - GA Floor Plan - Infant Block (B)
1 : 100

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title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

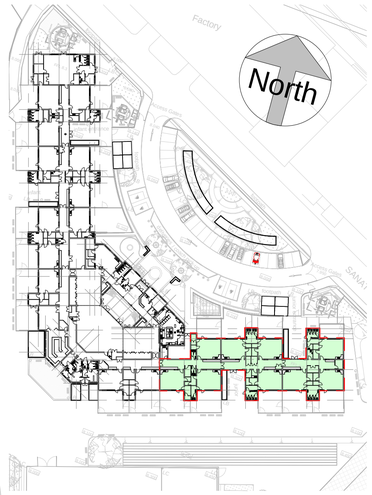
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amd

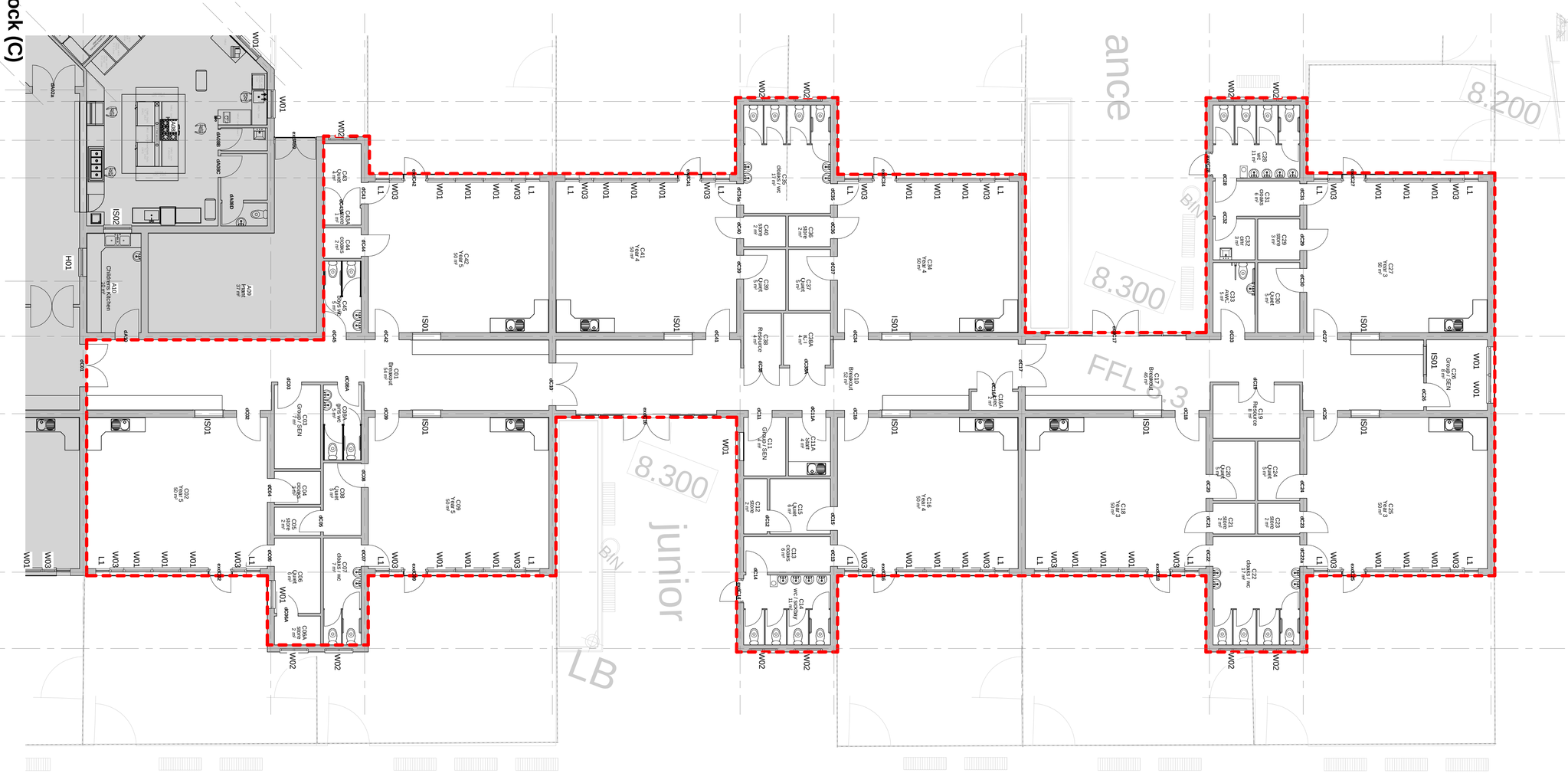
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KEY PLAN
1 : 1000



0 - GA Floor Plan - Junior Block (C)
1 : 100



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title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail: Proposed GA Junior Block (C)

checked: MGJ
drawn: GMT
scale: As indicated
date: NOV 2011

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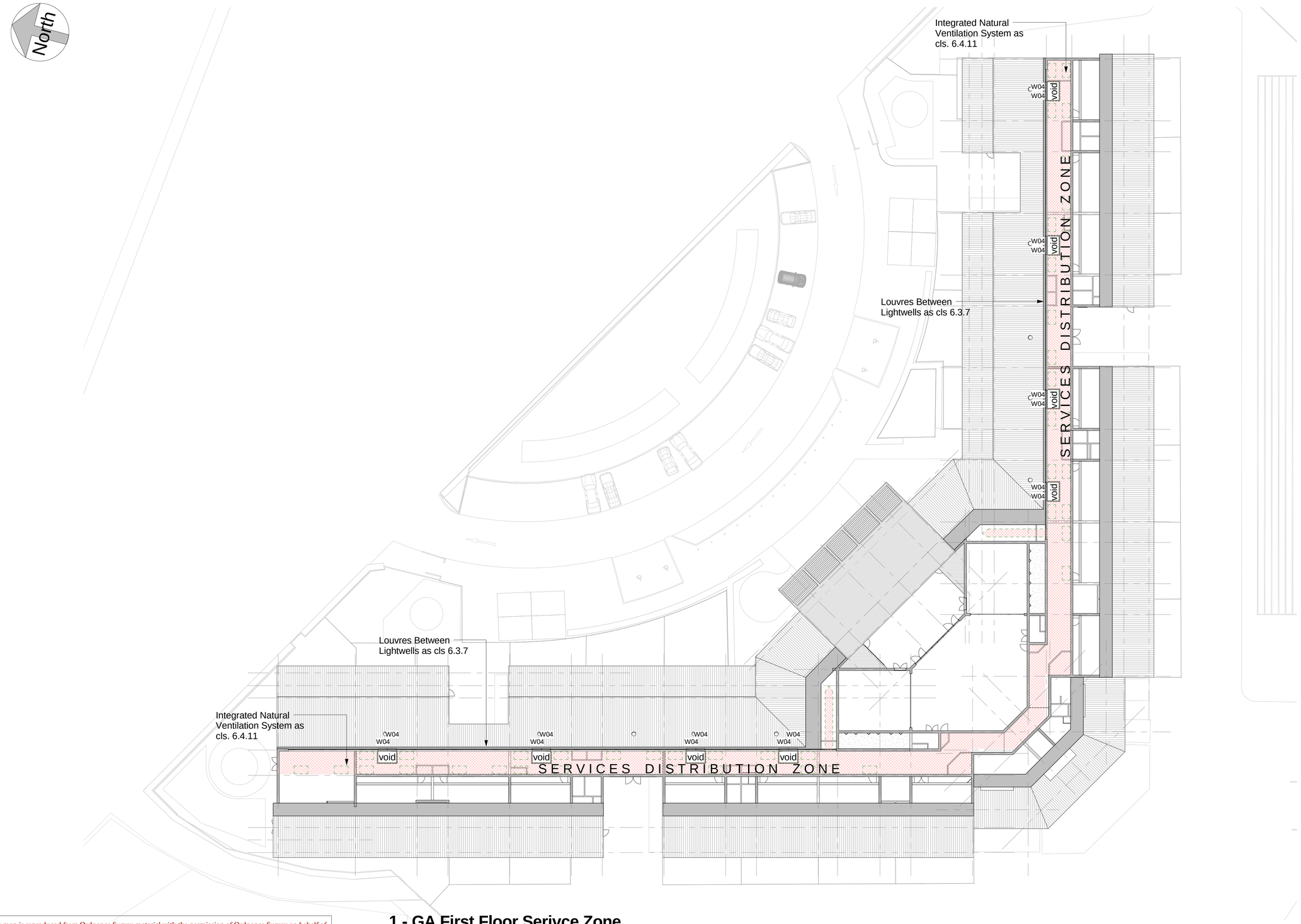
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drawing number: AL(0)13

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1 - GA First Floor Serivce Zone

1 : 250

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title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail: Proposed GA Services Distribution Zone

checked: MGJ
drawn: GMT
scale: 1 : 250
date: NOV 2011
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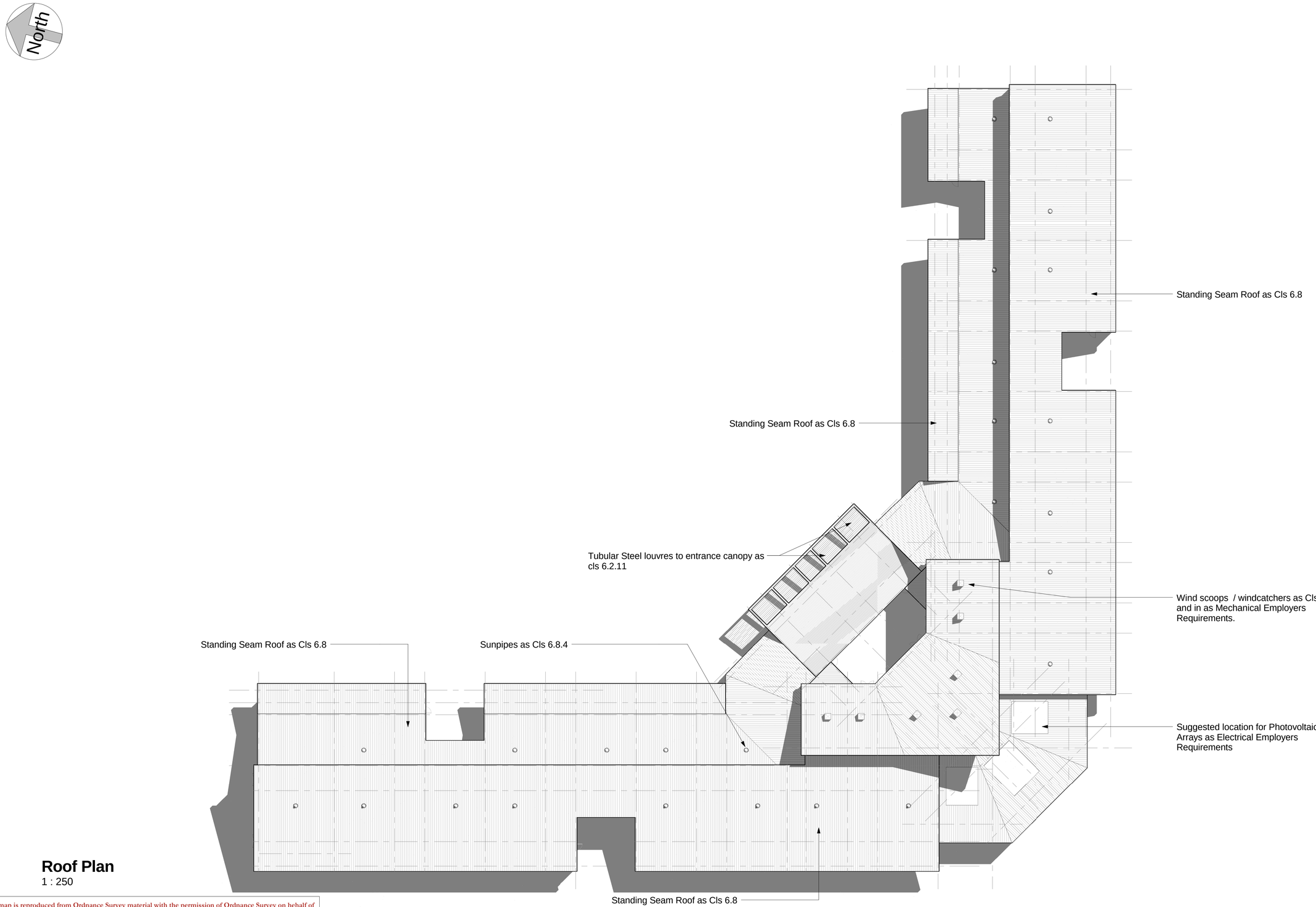
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project number: SLLC 6988

drawing number: AL(0)14

cmd

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Roof Plan

1 : 250

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title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail: Proposed Roof Plan

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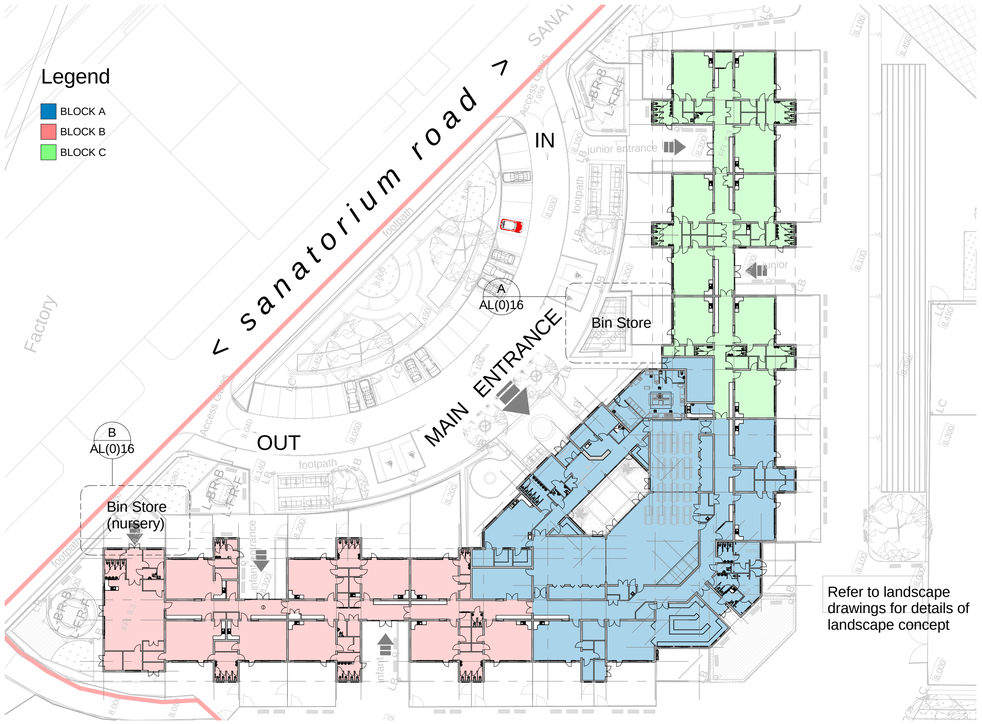
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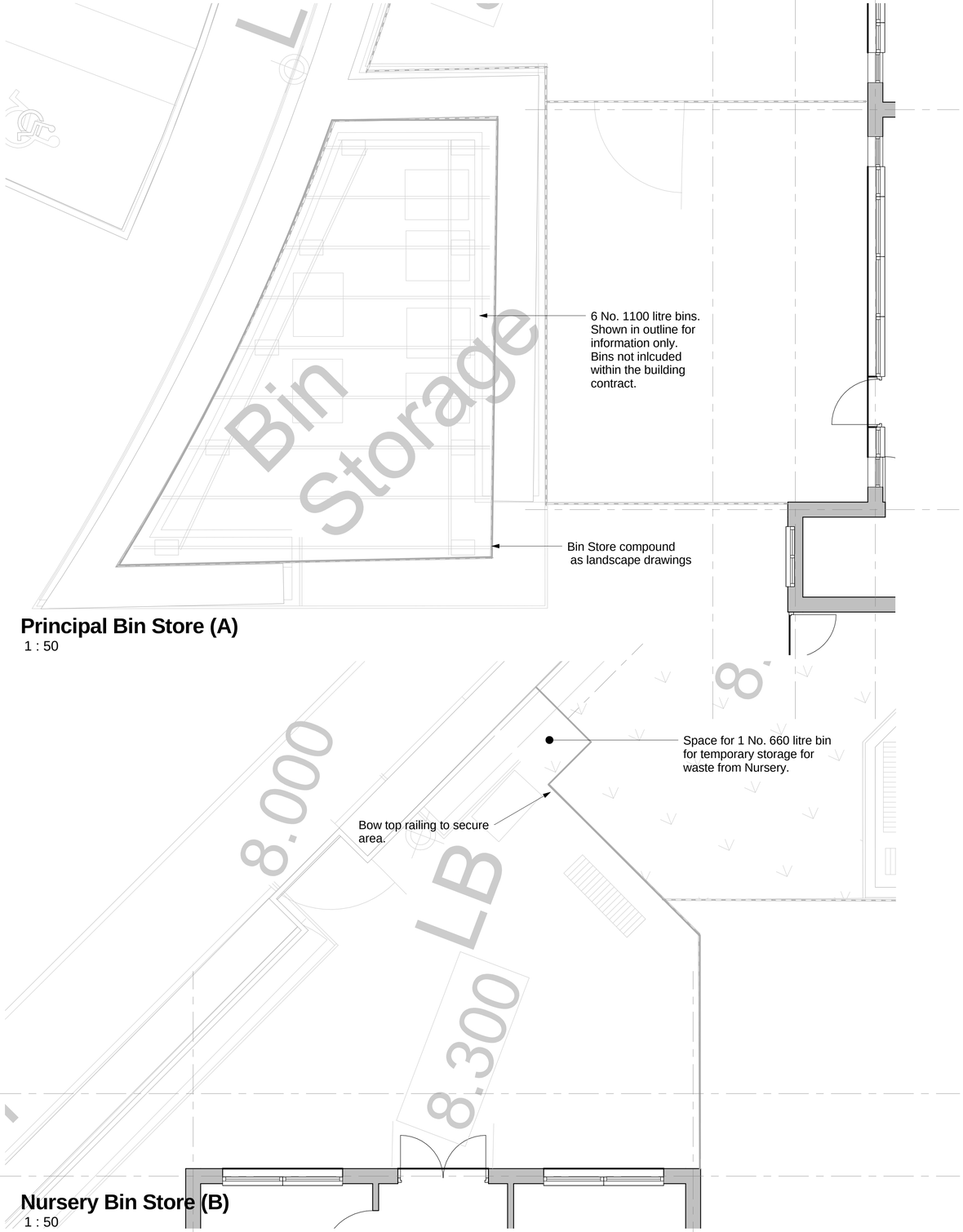
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Bin Store Location Plan
1 : 500



Principal Bin Store (A)
1 : 50

Nursery Bin Store (B)
1 : 50

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title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail: Proposed Bin Store

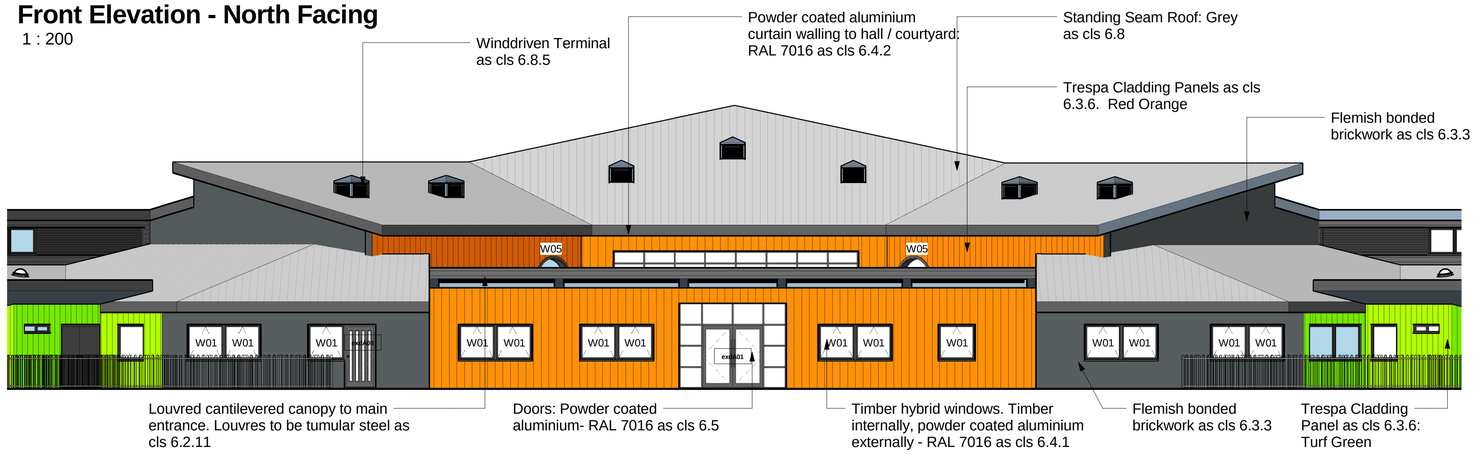
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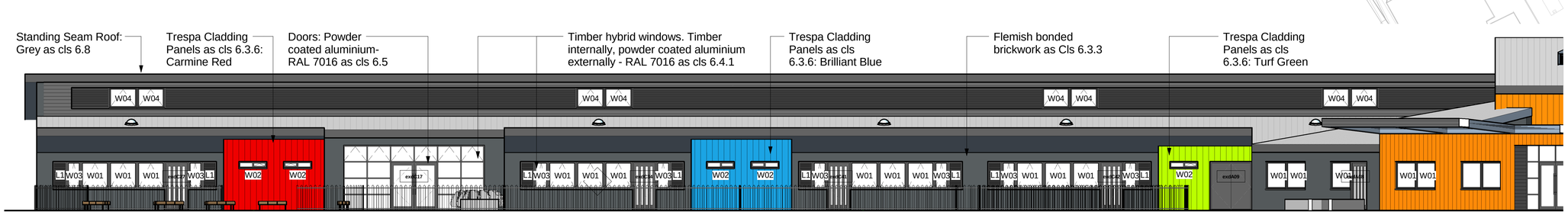
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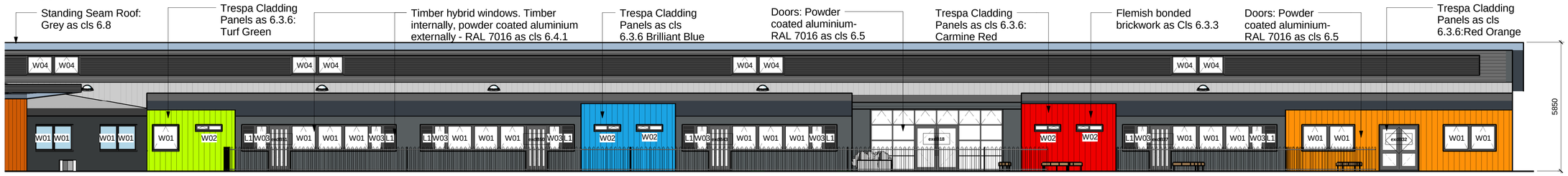
Front Elevation - North Facing
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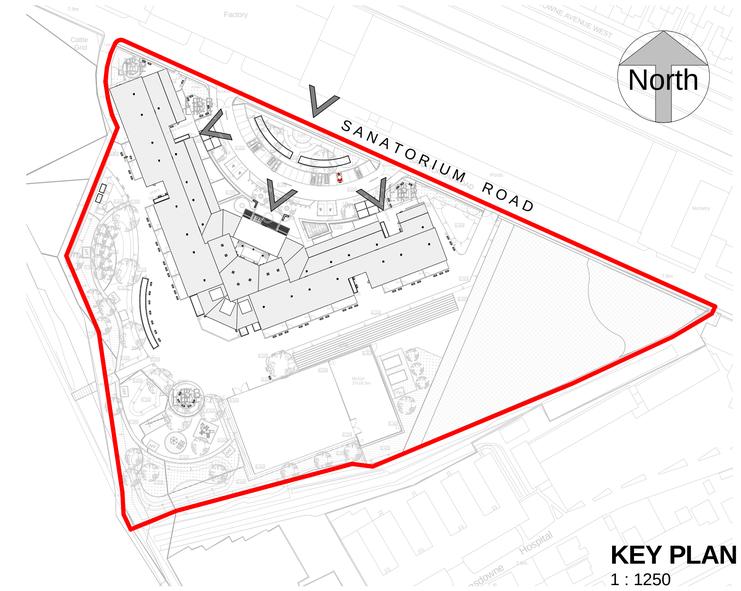
Central Block - North Facing
1 : 100



Junior Block - North West Facing
1 : 100



Infant Block - North East Facing
1 : 100



KEY PLAN
1 : 1250

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THE COUNTY COUNCIL OF THE CITY & COUNTY OF CARDIFF

title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

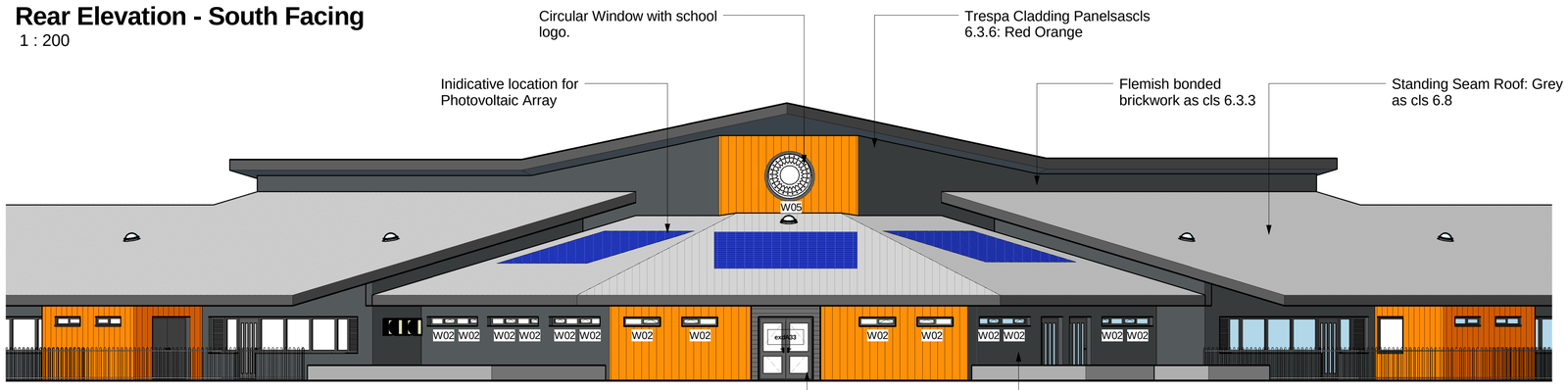
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drawing number: AL(0)20
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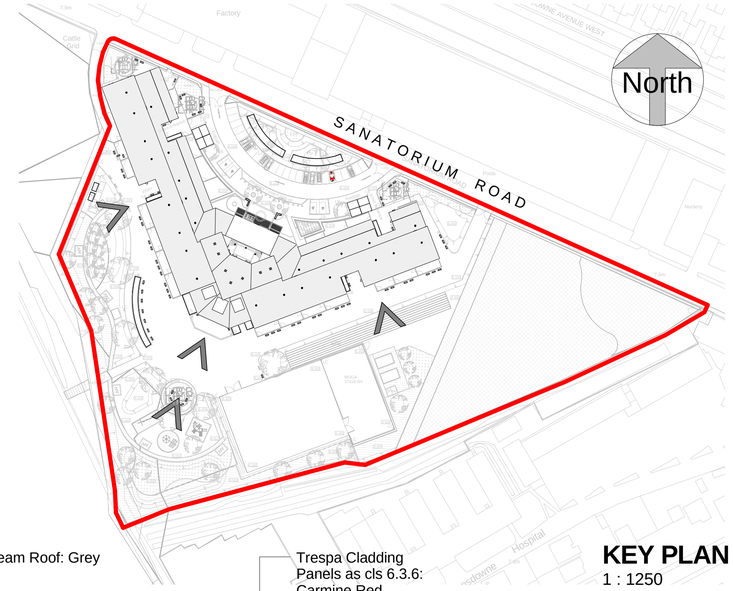
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Rear Elevation - South Facing
1 : 200



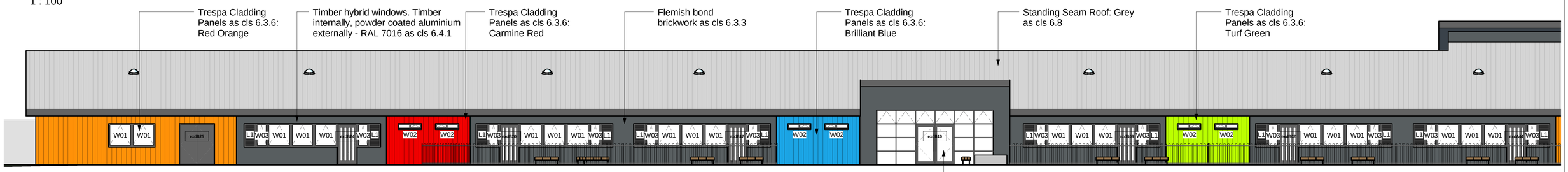
Central Block - South Facing
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KEY PLAN
1 : 1250



Junior Block - South East Facing
1 : 100



Infants Block - South West Facing
1 : 100

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CAERDYDD

title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail: Proposed Elevations Sheet 2 of 3

checked: MGJ
drawn: GMT
scale: As indicated
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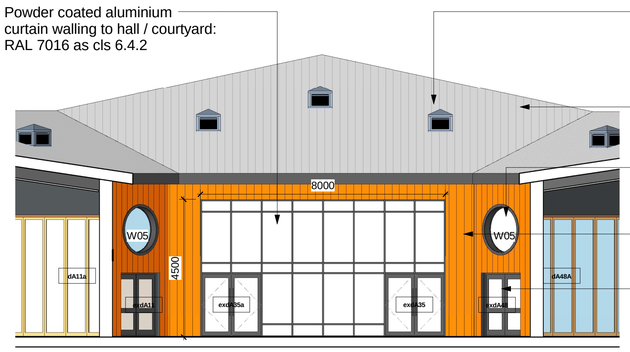
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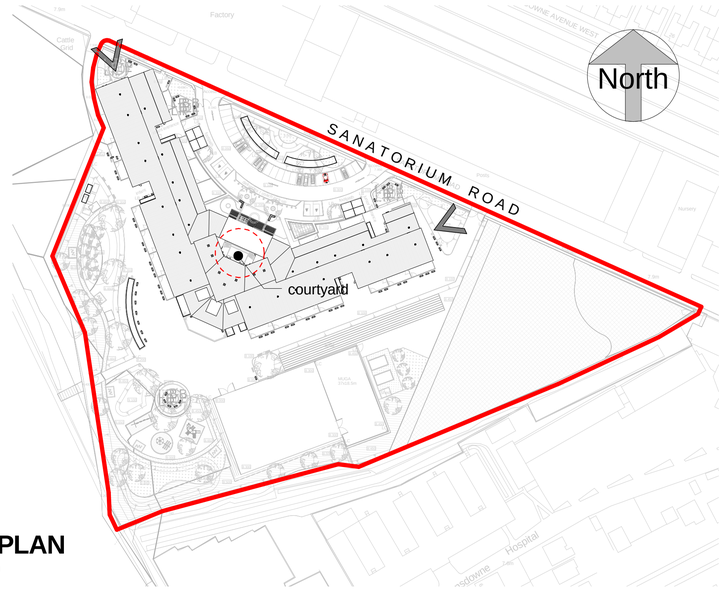
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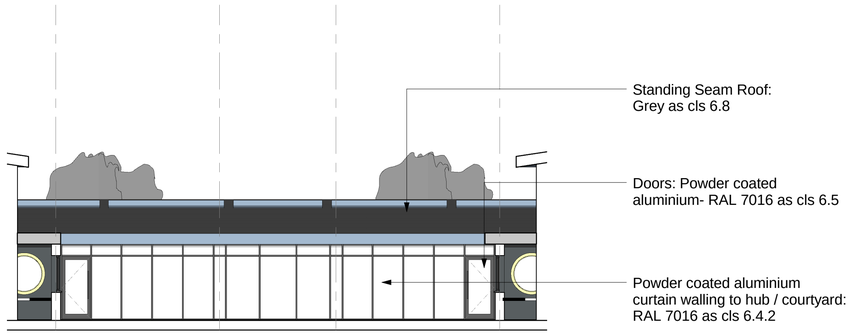
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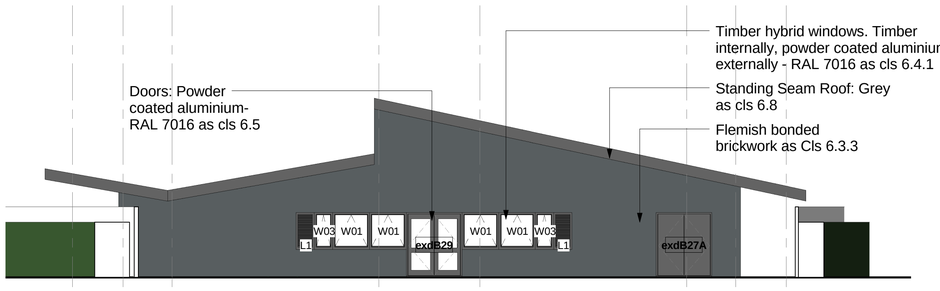
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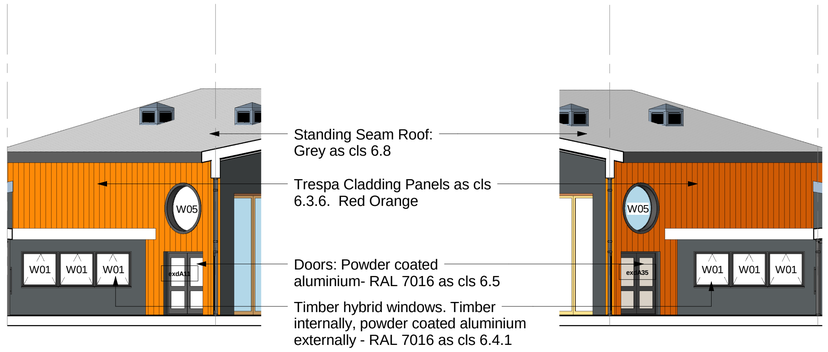
KEY PLAN
1 : 1250



South Facing Elevation Courtyard
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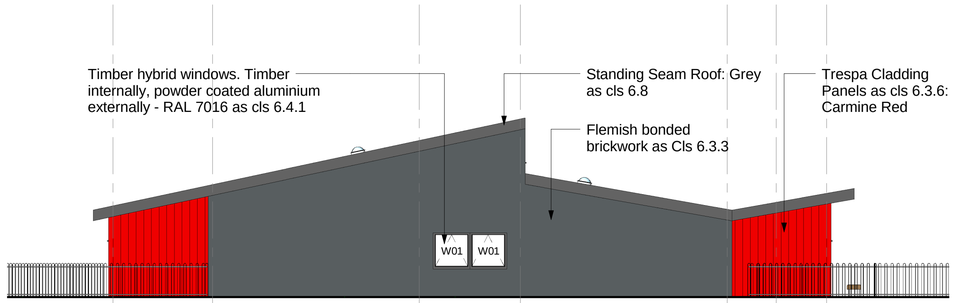


End Elevation BLOCK B
1 : 100



West Facing Elevation Courtyard
1 : 100

East Facing Elevation Courtyard
1 : 100



End Elevation BLOCK C
1 : 100

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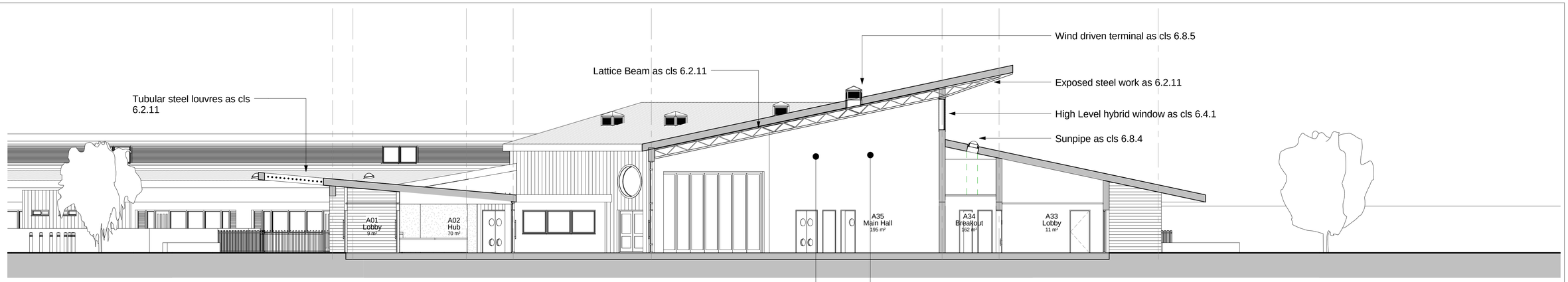
title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail: Proposed Elevations Sheet 3 of 3

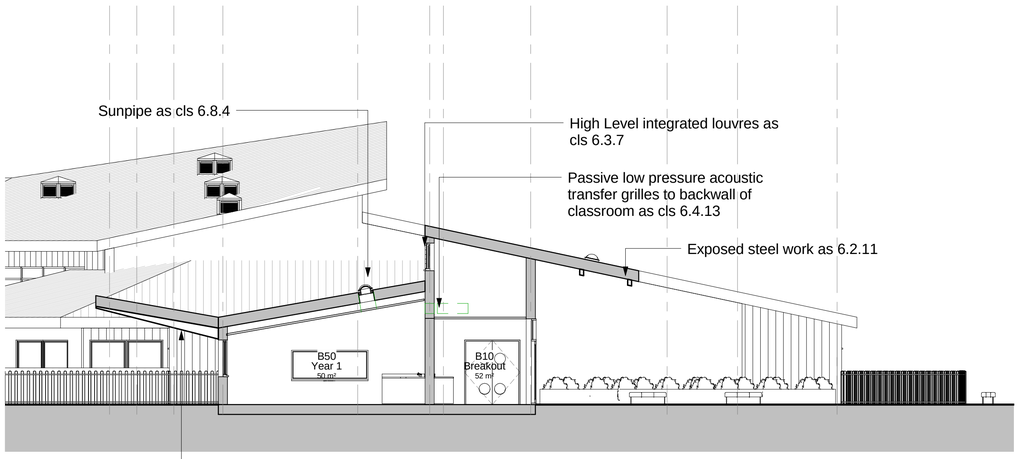
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project number: SLLC 6988
drawing number: AL(0)22
amd

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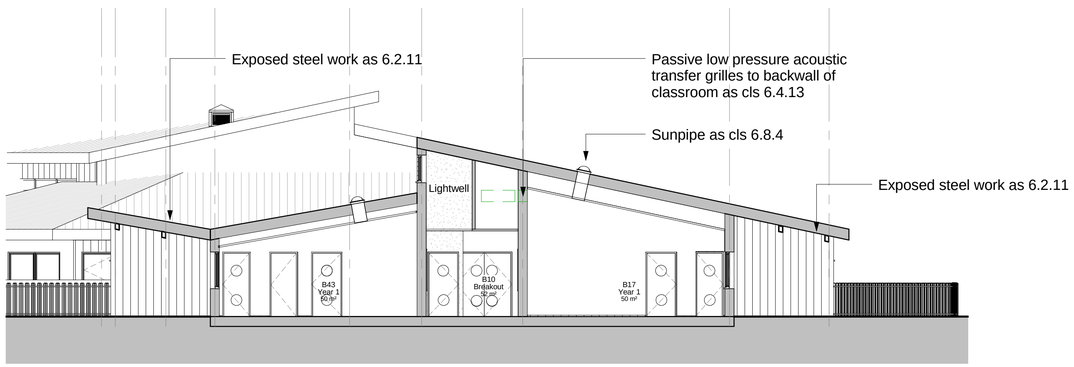
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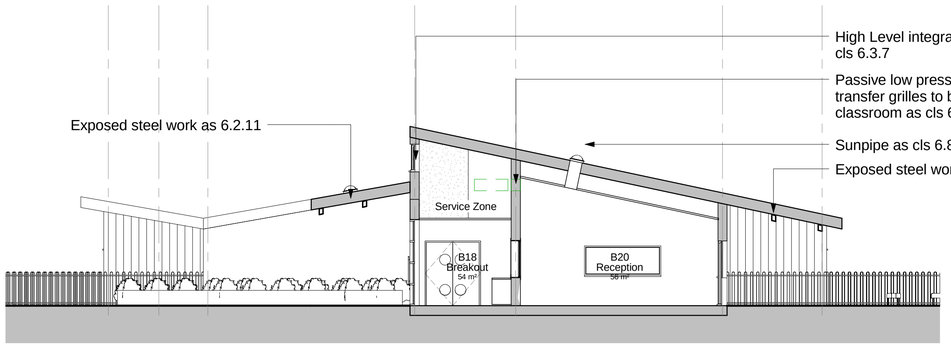
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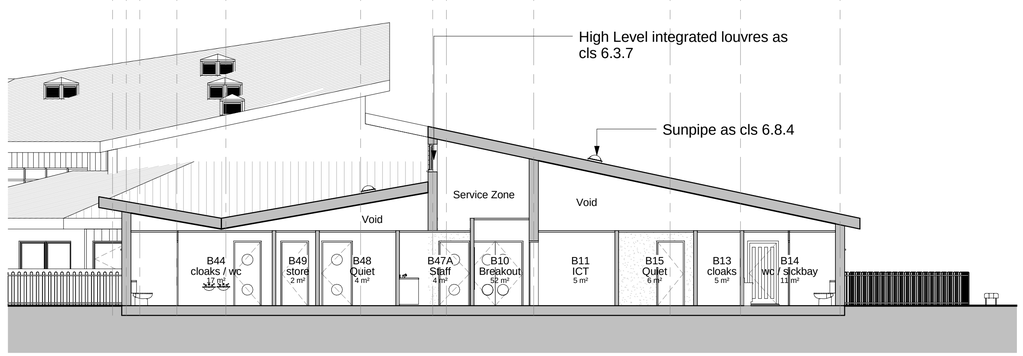
Section 2
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Section 4
1 : 100



Section 3
1 : 100



Section 5
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Neil Hanratty
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PRIF SWYDDOG DATBLYGU'R DDINAS

title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail: Typical Sections

checked: MGJ
drawn: GMT
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project number: SLLC 6988
drawing number: AL(0)23
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CARDIFF CAERDYDD

PROJECTS, DESIGN & DEVELOPMENT
DESIGN AND CONSTRUCTION MANAGEMENT

PROJECTAU, DYLUNIO A DATBLYGU
RHEOLAETH CYNLLUNIO AC ADEILADU

Neil Hanratty
CHIEF OFFICER CITY DEVELOPMENT
PRIF SWYDDOG DATBLYGU'R DDINAS

THE COUNTY COUNCIL OF THE CITY & COUNTY OF CARDIFF

title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail: Proposed Visualisations

checked: MGJ
drawn: GMT
scale: NTS
date: NOV 2011

path: \\salaco\skools\Ysgol Gymraeg Treganna\6988 SLLC Ysgol Treganna - New Build 3 Form Primary School\Detail Design\Architects\Drawings\Treganna Detail Design 201L.rvt

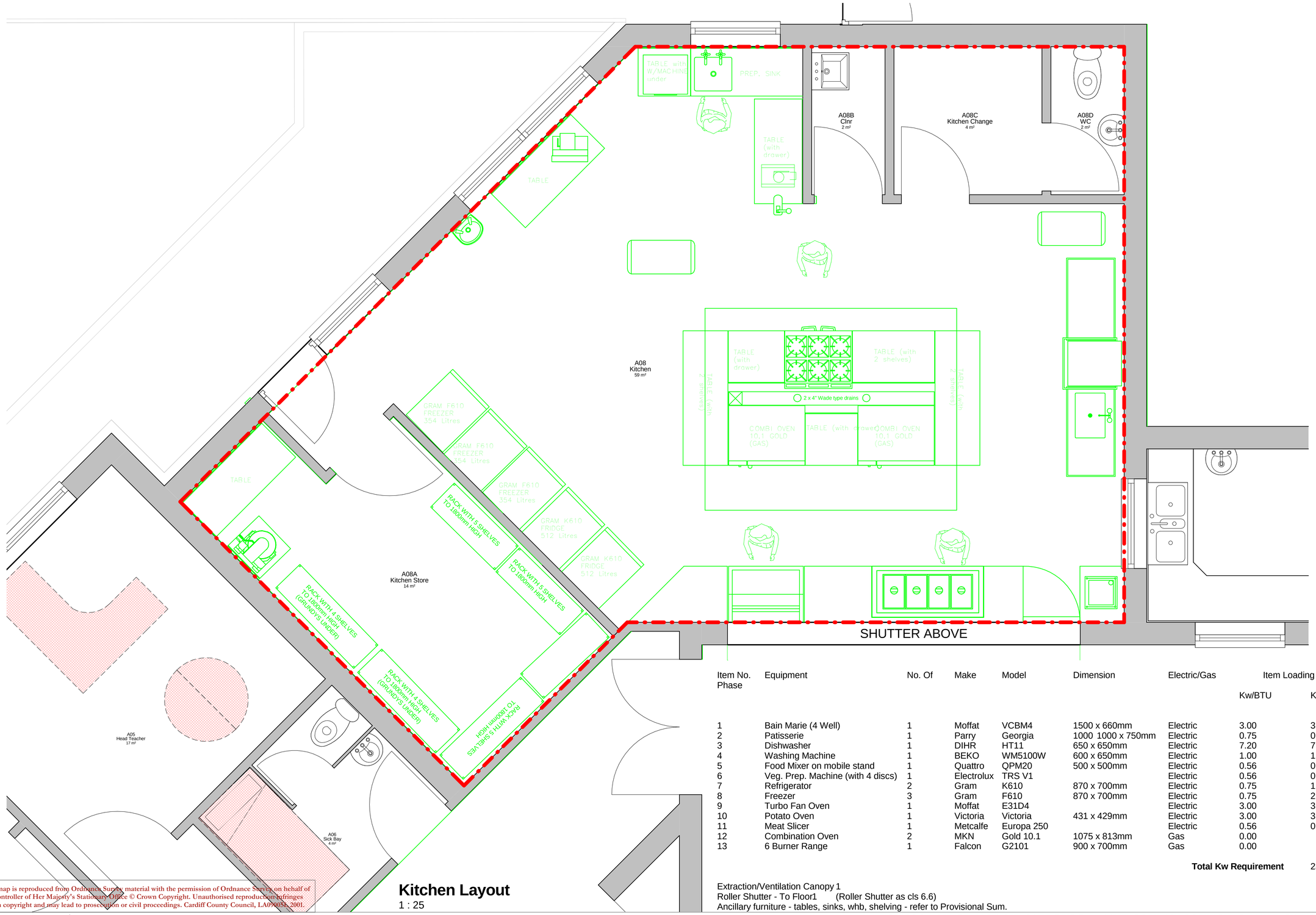
project number: SLLC 6988

drawing number: AL(0)24

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Kitchen Layout

1 : 25

Item No. Phase	Equipment	No. Of	Make	Model	Dimension	Electric/Gas	Item Loading Kw/BTU	Total Loading Kw/BTU	Amps 1 or 3
1	Bain Marie (4 Well)	1	Moffat	VCBM4	1500 x 660mm	Electric	3.00	3.00	1
2	Patisserie	1	Parry	Georgia	1000 1000 x 750mm	Electric	0.75	0.75	1
3	Dishwasher	1	DIHR	HT11	650 x 650mm	Electric	7.20	7.20	1
4	Washing Machine	1	BEKO	WM5100W	600 x 650mm	Electric	1.00	1.00	1
5	Food Mixer on mobile stand	1	Quattro	QPM20	500 x 500mm	Electric	0.56	0.56	1
6	Veg. Prep. Machine (with 4 discs)	1	Electrolux	TRS V1		Electric	0.56	0.56	1
7	Refrigerator	2	Gram	K610	870 x 700mm	Electric	0.75	1.50	1
8	Freezer	3	Gram	F610	870 x 700mm	Electric	0.75	2.25	1
9	Turbo Fan Oven	1	Moffat	E31D4		Electric	3.00	3.00	1
10	Potato Oven	1	Victoria	Victoria	431 x 429mm	Electric	3.00	3.00	1
11	Meat Slicer	1	Metcalfe	Europa 250		Electric	0.56	0.56	1
12	Combination Oven	2	MKN	Gold 10.1	1075 x 813mm	Gas	0.00		
13	6 Burner Range	1	Falcon	G2101	900 x 700mm	Gas	0.00		
						Total Kw Requirement		23.38 Kw	

Extraction/Ventilation Canopy 1
Roller Shutter - To Floor1 (Roller Shutter as cls 6.6)
Ancillary furniture - tables, sinks, whb, shelving - refer to Provisional Sum.

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Neil Hanratty
CHIEF OFFICER CITY DEVELOPMENT
PRIF SWYDDOG DATBLYGU'R DDINAS

THE COUNTY COUNCIL OF THE CITY & COUNTY OF CARDIFF

title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail: Kitchen Layout

checked: MGJ
drawn: GMT
scale: 1 : 25
date: NOV 11
path: \\valaco\skools\Ysgol Gymraeg Tregannna\6988 SLLC Ysgol Tregannna - New Build 3 Form Primary School\Detail Design\Architects\Drawings\Tregannna Detail Design 2011.rvt
project number: SLLC 6988
drawing number: FL(0)04
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NOTE:
Health and Safety

The contractors attention is drawn to the risks involved in constructing manholes and relining the existing culverts including: ground collapse, storm surge, working in contaminated ground, toxic/explosive ground gas, and confined space working.

Contractor to provide detailed method statement to cover this element of work.

North

1200mm Ø

900mm Ø

CL: 8.06
IL: 5.36

900mm Ø

900mm Ø

MH found by CCTV only

Depth to invert
2.9m

SANATORIUM ROAD

CULVERT A

900mm Ø RC concrete

CULVERT B

900mm Ø RC concrete

New MH & Surface Water
Connections into Culvert A permitted.

Footprint of
Proposed School

Structural internal
relining to sections
as hatched.
Relining to culverts
required prior to
any piling works.

New MH onto Culvert B.
(No surface water
connection permissable)

900mm Ø RC concrete

900mm Ø RC concrete

CL: 7.47
IL: 4.57

900mm Ø

Warehouse

Warehouse

Works

Cattle Grid

Mons Terrace

LEGEND

- Surface Water Drainage
- Structural Internal Relining to Culverts
- Existing MH
- Proposed MH

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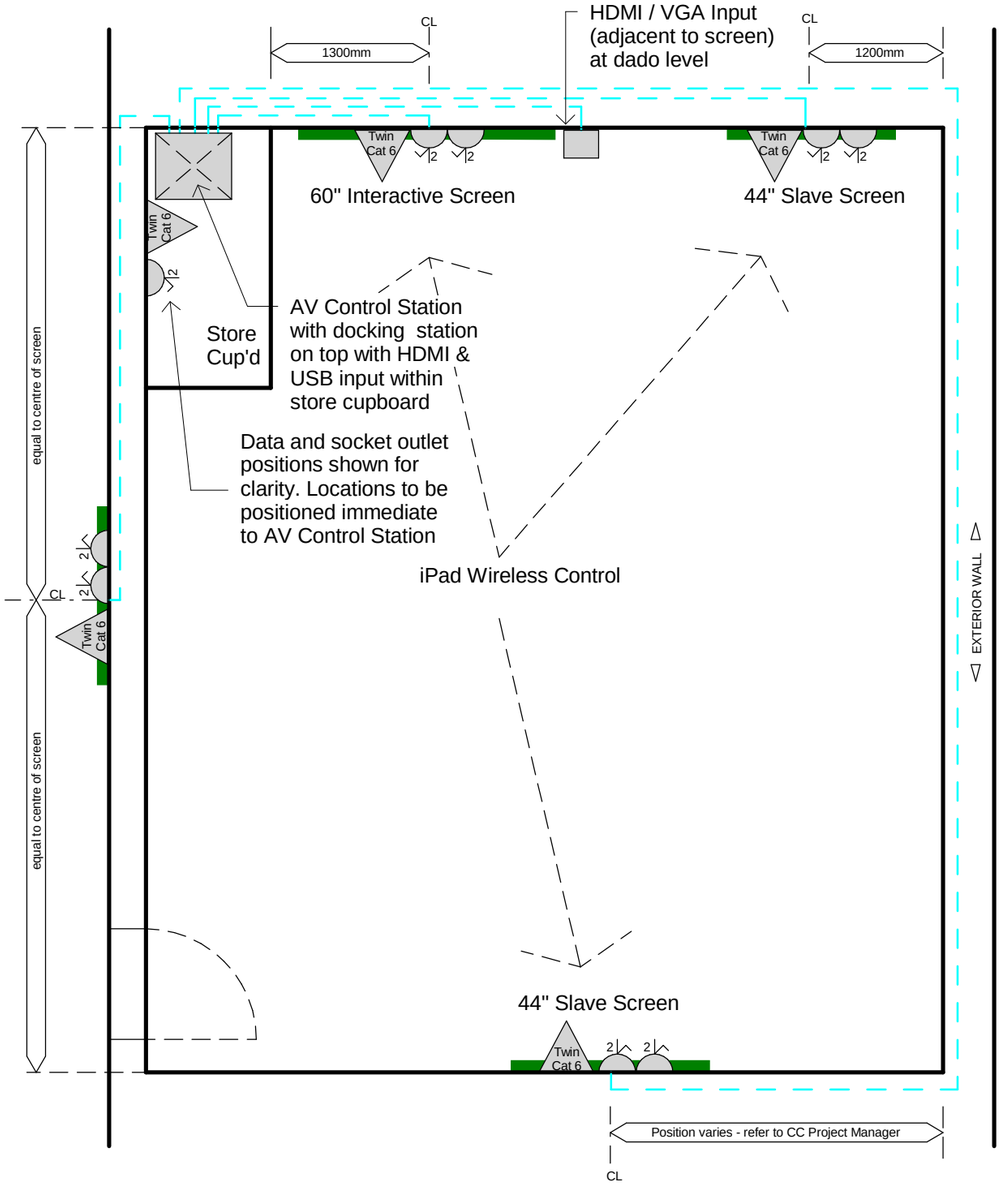
title
YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail
Existing Surface Water Drainage and Proposed Method of Connection

checked	HG
drawn	GMT
scale	1 : 500
date	JAN 2012
project number	SLLC 6988
drawing number	AL(9)02
path	\\salaco\skools\Ysgol Gymraeg Treganna\6988 SLLC Ysgol Treganna – New Build 3 Form Primary School\Detail Design\Architects\Drawings\Treganna Detail Design 2011.rvt
amd	

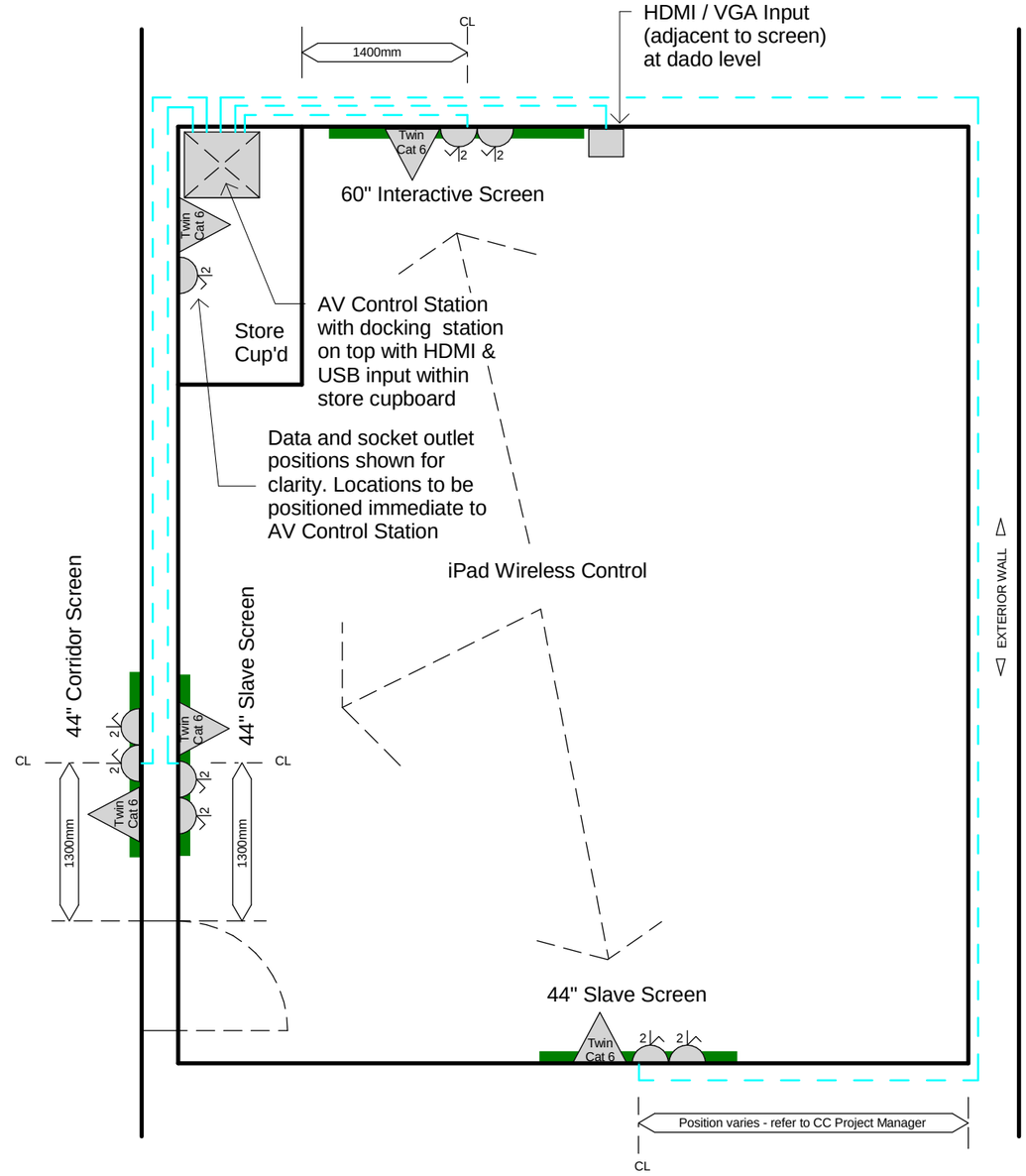
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TYPICAL YEAR 2 CLASSROOM ARRANGEMENT

Rooms B02 B09 B51
Note. Handing of layout will be required to certain classrooms



TYPICAL JUNIOR CLASSROOM ARRANGEMENT

Rooms C02 C09 C16 C18 C25 C27 C34 C41 C42
Note. Handing of layout will be required to certain classrooms

LEGEND

- AV Control Station with docking station on top with HDMI & USB input **(BY OTHERS)**
- Twin Cat 6 Outlet
- Twin Socket Outlet
- Screen **(BY OTHERS)** Heights Vary
- 2 No. 25mm dia conduit with draw cords for HDMI & RS232 Cables to be installed **BY OTHERS** after contract completion. (All conduits to be clearly labled)

amendments (note :- all amendments to be signed)

A - References to Reception and Year 6 Classrooms removed, details are as SK E105 and SK E106 respectively GMT 28.01.13
B - Data and Power added to positions immediate to AV controls. Year 1 References removed GMT 19.02.13

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Neil Hanratty
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PRIF SWYDDOG DATBLYGU'R DDINAS

Title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

Detail: SCHEMATIC - INTERACTIVE SCREEN CONTROLS + ADDITIONAL POWER + DATA

Checked: ARW
Drawn: GMT
Scale: NTS
Date: JAN13
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Path: E:\Ysgol Gymraeg Treganna\6988 SLLC Ysgol Treganna - New Build 3 Form Primary School\Detail Design\Architects\Drawings\Treganna Detail Design_ Post Tender Stage.rvt

SLLC 6988
SK E100B

amd

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LEGEND

AV Control Station with docking station on top with HDMI & USB input **(BY OTHERS)**

Twin Cat 6 Outlet

Twin Socket Outlet

Twin Socket Outlet (above ceiling)

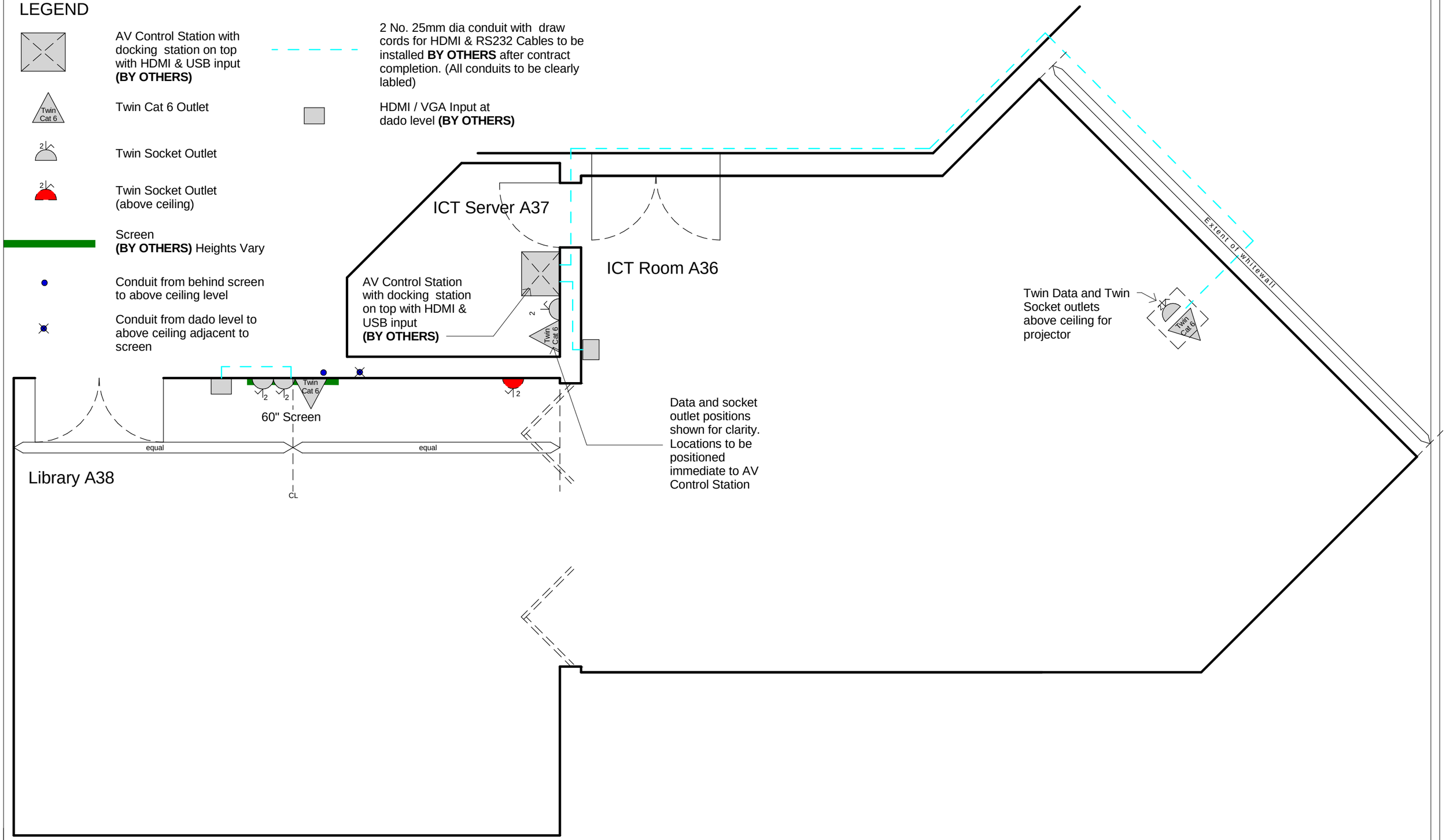
Screen **(BY OTHERS)** Heights Vary

Conduit from behind screen to above ceiling level

Conduit from dado level to above ceiling adjacent to screen

2 No. 25mm dia conduit with draw cords for HDMI & RS232 Cables to be installed **BY OTHERS** after contract completion. (All conduits to be clearly labled)

HDMI / VGA Input at dado level **(BY OTHERS)**



amendments (note :- all amendments to be signed)

A - Power and data added to positions immediate to AV Controls GMT 19.02.13

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title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

title: SCHEMATIC - WHITEWALL TO A36 SCREEN CONTROLS ADD. POWER + DATA TO A38

checked: ARW
drawn: GMT
scale: NTS
date: JAN13
do not scale drawing except for planning application purposes.

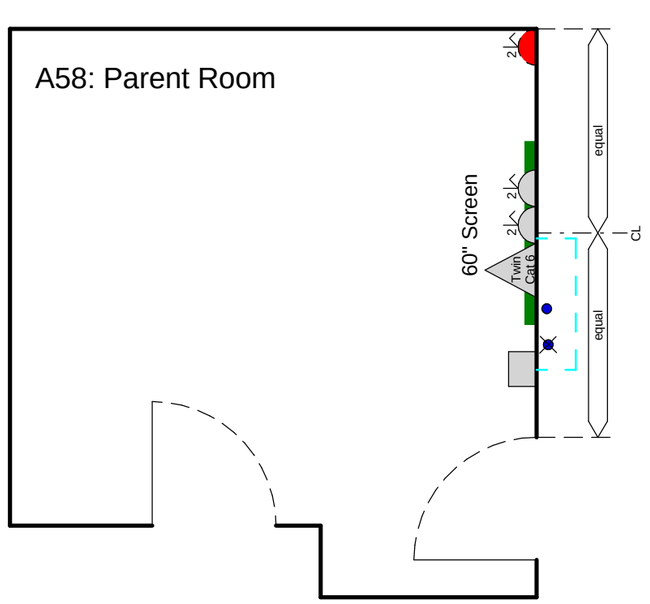
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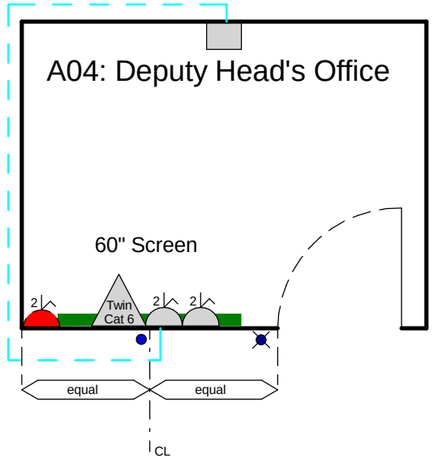
SLLC 6988

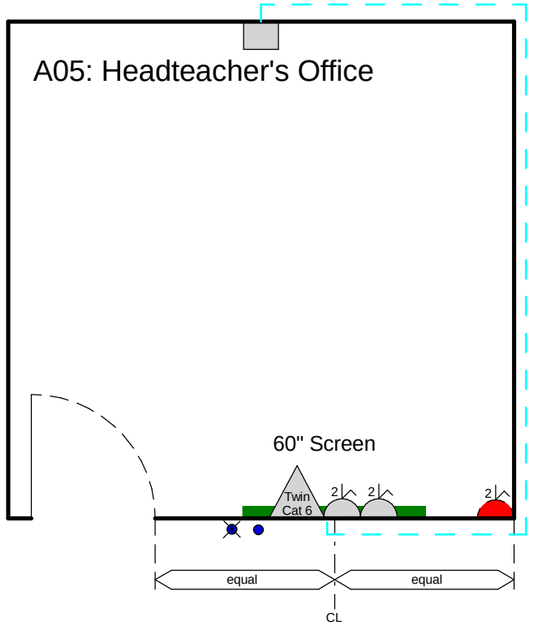
SK E101A

size:

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LEGEND

- Twin Cat 6 Outlet
- Twin Socket Outlet (above ceiling)
- Twin Socket Outlet
- Screen **(BY OTHERS)** Heights Vary
- Conduit from behind screen to above ceiling level
- Conduit from dado level to above ceiling adjacent to screen
- HDMI / VGA Input at dado level **(BY OTHERS)**
- 2 No. 25mm dia conduit with draw cords for HDMI & RS232 Cables to be installed **BY OTHERS** after contract completion. (All conduits to be clearly labled)

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Neil Hanratty
CHIEF OFFICER CITY DEVELOPMENT
PRIF SWYDDOG DATBLYGU'R DDINAS

title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail: SCHEMATIC - SCREEN CONTROLS ADD. POWER + DATA TO ROOMS A04 A05 + A58

checked: ARW
drawn: GMT
scale: NTS
date: JAN13

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E:\Ysgol Gymraeg Treganna\6988 SLLC Ysgol Treganna - New Build 3 Form Primary School\Detail Design\Architects\Drawings\Treganna Detail Design_ Post Tender Stage.rvt

SLLC 6988

SK E102

smd

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title
YSGOL TREGANNA: NEW PRIMARY SCHOOL

drawing
SCHEMATIC - SCREEN CONTROLS, ADD. POWER + DATA TO ROOMS A49 A50 + A54

checked	ARW
drawn	GMT
scale	NTS
date	JAN13
	do not scale drawing except for planning application purposes

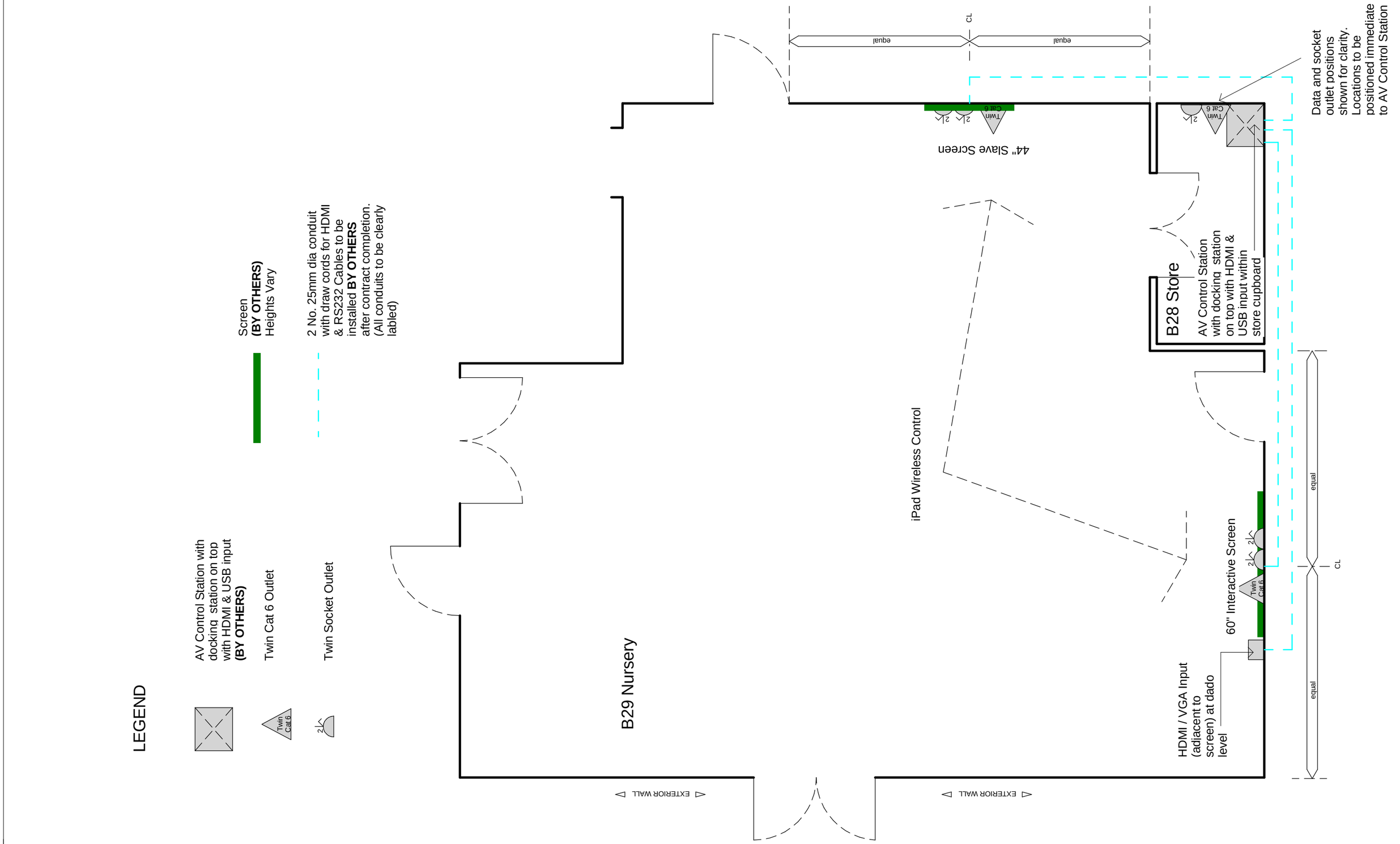
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SLLC 6988

SK E103

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PRIF SWYDDOG DATBLYGU'R DDINAS

title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

title: SCHEMATIC - SCREEN CONTROLS ADDITIONAL POWER + DATA TO NURSERY

checked: ARW
drawn: GMT
scale: NTS
date: JAN13

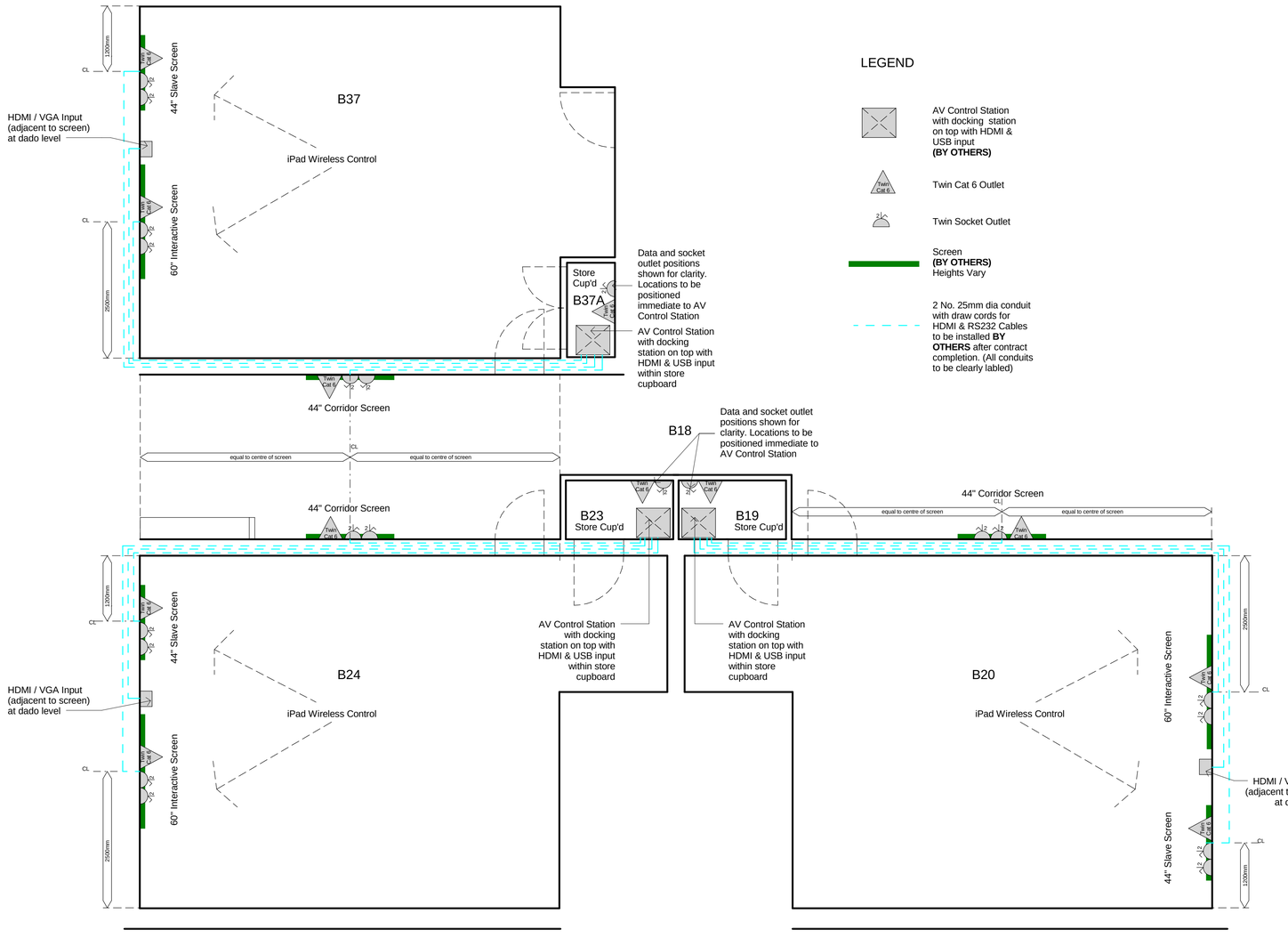
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SLLC 6988

SK E104A

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RECEPTION CLASSROOMS ARRANGEMENT

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RHEOLAETH CYNLLUNIO AC ADEILADU

Neil Hanratty
CHIEF OFFICER CITY DEVELOPMENT
PRIF SWYDDOG DATBLYGU'R DDINAS

site: YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail: SCHEMATIC - SCREEN CONTROLS ADDITIONAL POWER + DATA, RECEPTION

checked: ARW
drawn: GMT
scale: 1 : 50
date: JAN13
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path: E:\Ysgol Gymraeg Treganna\6988 SLLC Ysgol Treganna - New Build 3 Form Primary School\Detail Design\Architects\Drawings\Treganna Detail Design_ Post Tender Stage.rvt
proj: SLLC 6988
drawing number: SK E105A
amd

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YEAR 6 CLASSROOM ARRANGEMENT

LEGEND

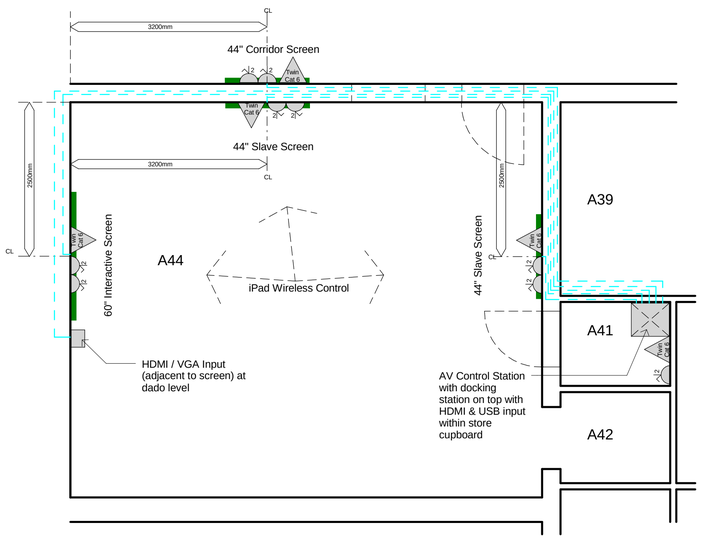
AV Control Station with docking station on top with HDMI & USB input **(BY OTHERS)**

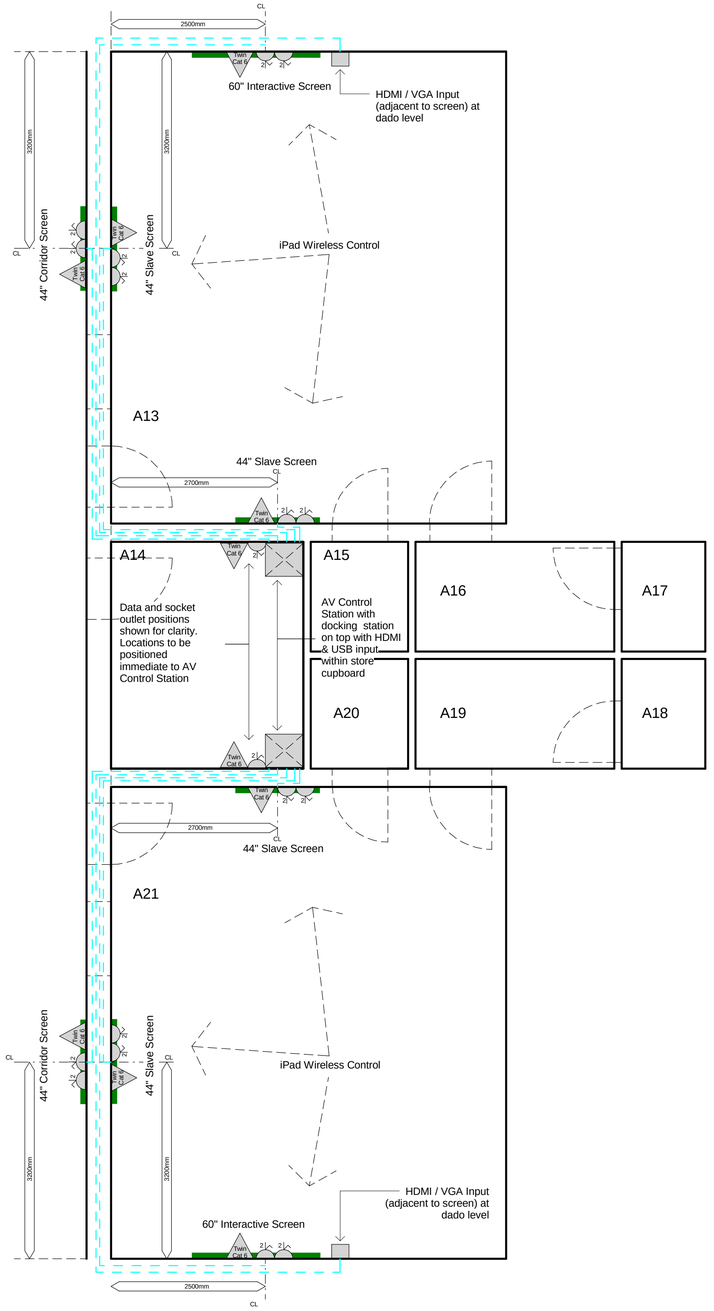
Twin Cat 6 Outlet

Twin Socket Outlet

Screen **(BY OTHERS)** Heights Vary

2 No. 25mm dia conduit with draw cords for HDMI & RS232 Cables to be installed **BY OTHERS** after contract completion. (All conduits to be clearly labled)





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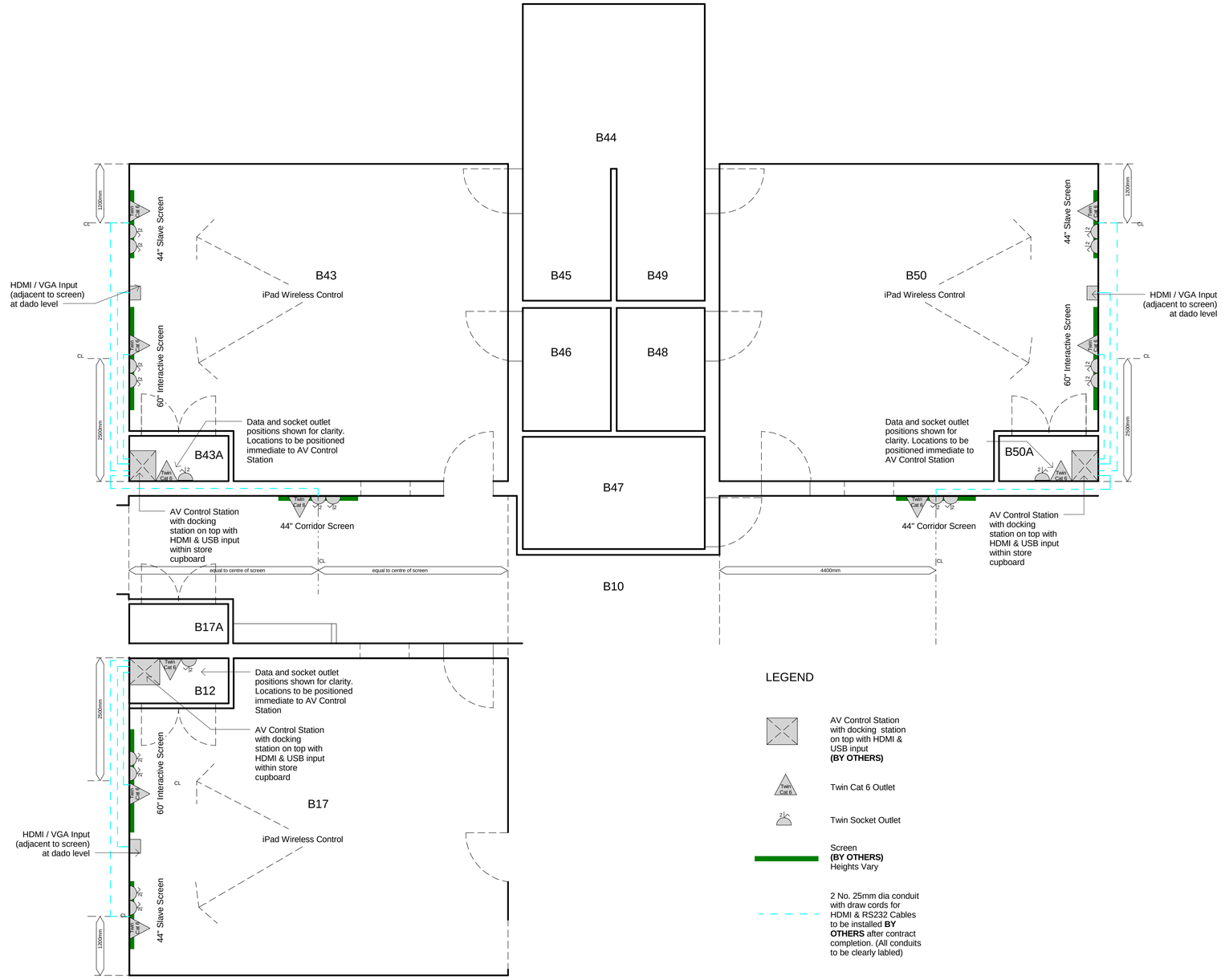
title
YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail
SCHEMATIC - SCREEN CONTROLS ADDITIONAL POWER + DATA YEAR 6

checked ARW
drawn GMT
scale 1 : 50
date JAN13
do not scale drawing except for planning application purposes

path E:\Ysgol Gymraeg Treganna\6988 SLLC Ysgol Treganna - New Build 3 Form Primary School\Detail Design\Architects\Drawings\Treganna Detail Design_ Post Tender Stage.rvt
proj SLLC 6988
drawing number SK E106A
amd

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YEAR 1 CLASSROOM ARRANGEMENT

LEGEND

- AV Control Station with docking station on top with HDMI & USB input **(BY OTHERS)**
- Twin Cat 6 Outlet
- Twin Socket Outlet
- Screen **(BY OTHERS)** Heights Vary
- 2 No. 25mm dia conduit with draw cords for HDMI & RS232 Cables to be installed **BY OTHERS** after contract completion. (All conduits to be clearly labled)

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RHEOLAETH CYNLLUNIO AC ADEILADU

Neil Hanratty
CHIEF OFFICER CITY DEVELOPMENT
PRIF SWYDDOG DATBLYGU'R DDINAS

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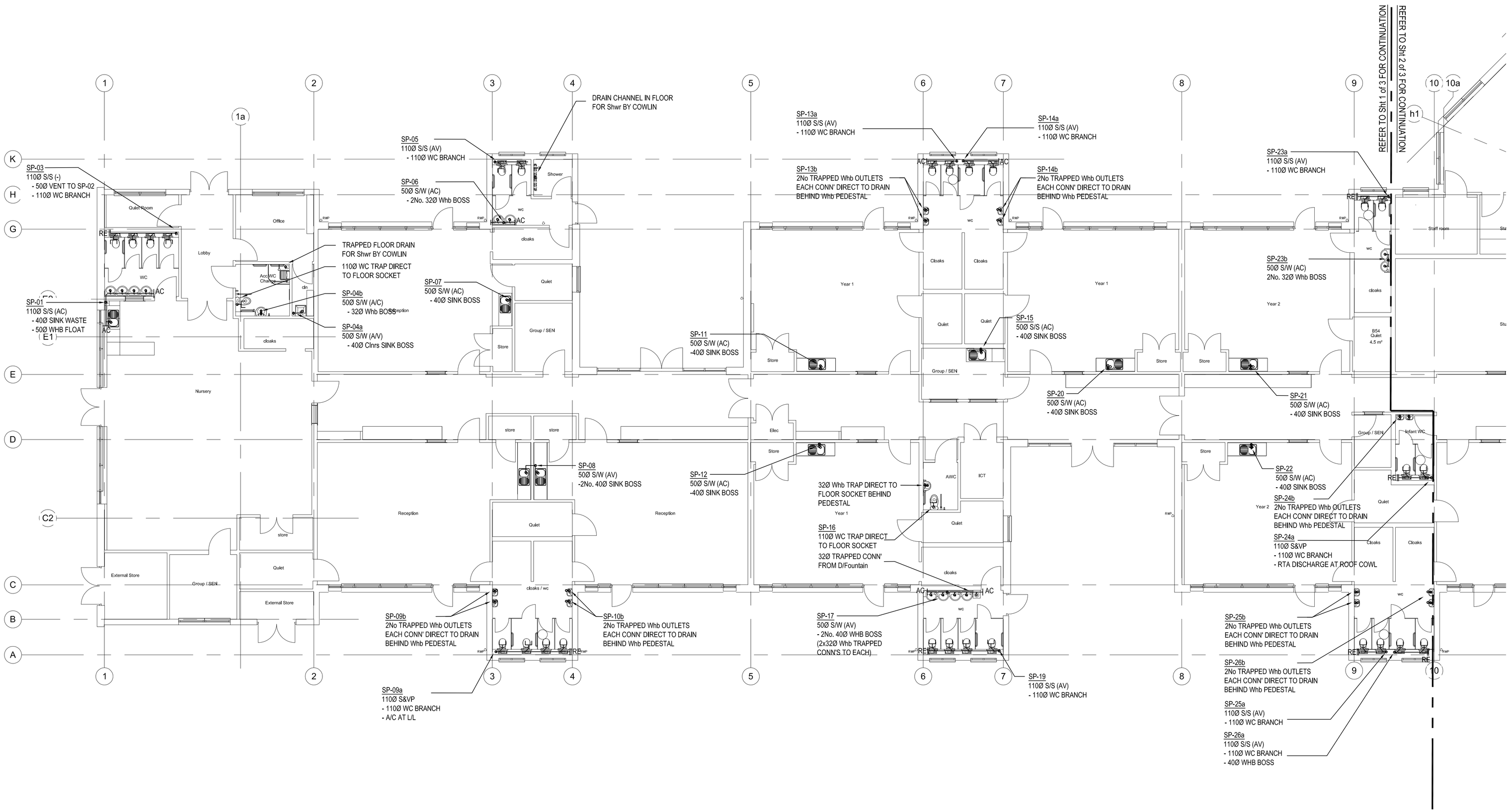
title: YSGOL TREGANNA: NEW PRIMARY SCHOOL

detail: SCHEMATIC - SCREEN CONTROLS ADDITIONAL POWER + DATA YEAR 1

checked: ARW
drawn: GMT
scale: 1 : 50
date: FEB13
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path: E:\Ysgol Gymraeg Treganna\6988 SLLC Ysgol Treganna - New Build 3 Form Primary School\Detail Design\Architects\Drawings\Treganna Detail Design_ Post Tender Stage.rvt
proj: SLLC 6988
drawing number: SK E107
pmd:

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REVISIONS

REV	DRN	CHKD	DESCRIPTION	DATE

LEGEND:

SP-11 — IDENTIFIER REFERENCE
50Ø S/W (AC) — VERTICAL PIPE DETAILS
-40Ø SINK BOSS — S/W - STANDING WASTE
S/S - STUB STACK
(AC) - WITH ACCESS CAP
(AV) - WITH AIR ADMITTANCE VALVE
CONNECTION/FITTINGS

Consultant

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email: cardiff@lornestewart.co.uk

Project Title

YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

Drawing Title

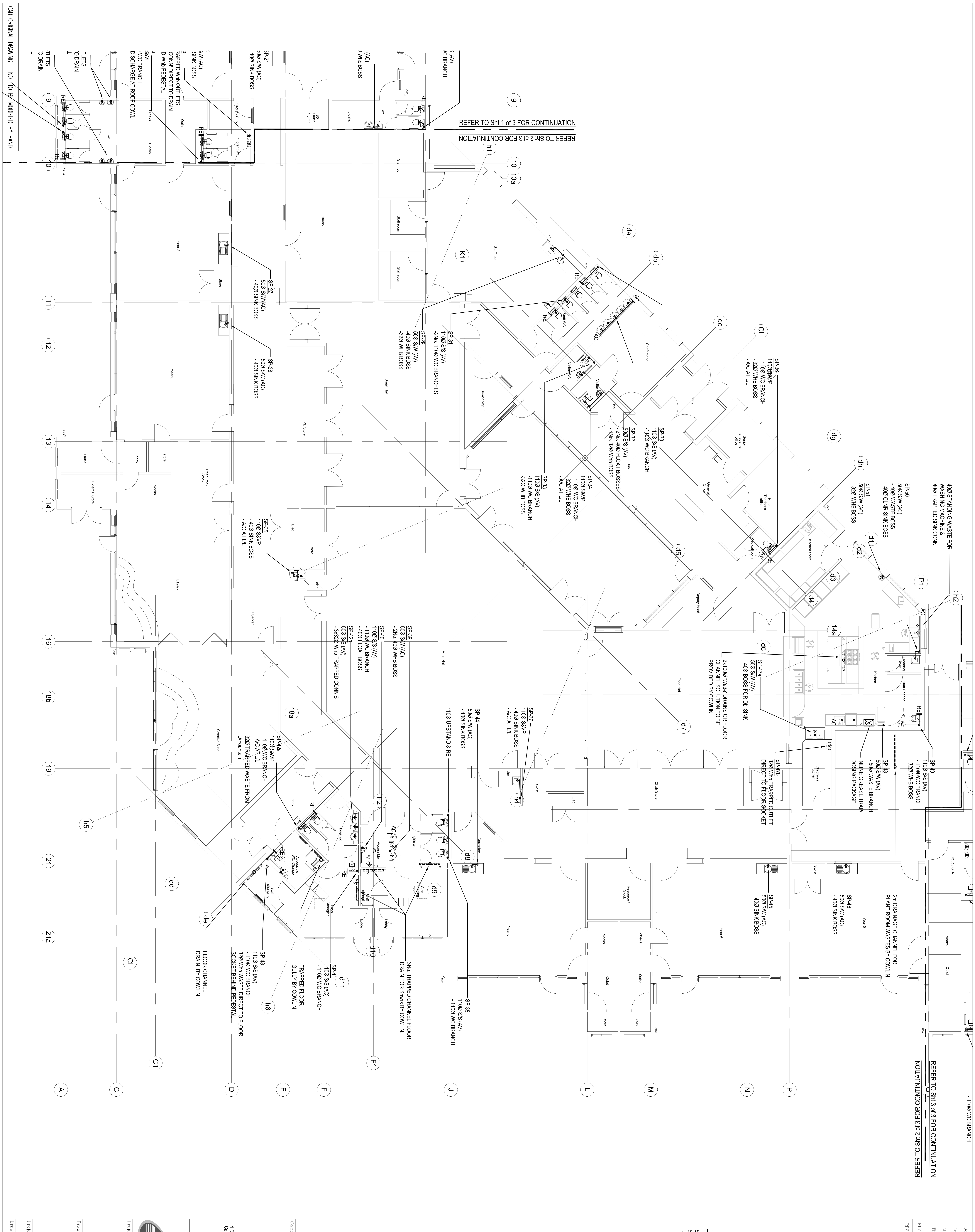
ABOVE GROUND
DRAINAGE LAYOUT
SHEET 1 OF 3 (BLOCK B)

Project No.	Drawing No.	Rev.
491	M-01	R

Drawn	Ch'd	Date	Scale
MRH	CH	August 2013	1:100 @ A1

Path: G:\CAD\491 Ysgol Treganna\Record\491-M-01.02.03-R(opt).dwg

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REV	DRN	CHKD	DESCRIPTION	DATE

LEGEND:

SP-11 ← IDENTIFIER REFERENCE
50Ø S/W (AC) ← VERTICAL PIPE DETAILS
S/W - STANDING WASTE
S/S - STUB STACK
(AC) - WITH ACCESS CAP
(AV) - WITH AIR ADMITTANCE VALVE
-40Ø SINK BOSS ← CONNECTION/FITTINGS

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CF15 7NE
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email: cardiff@lornestewart.co.uk

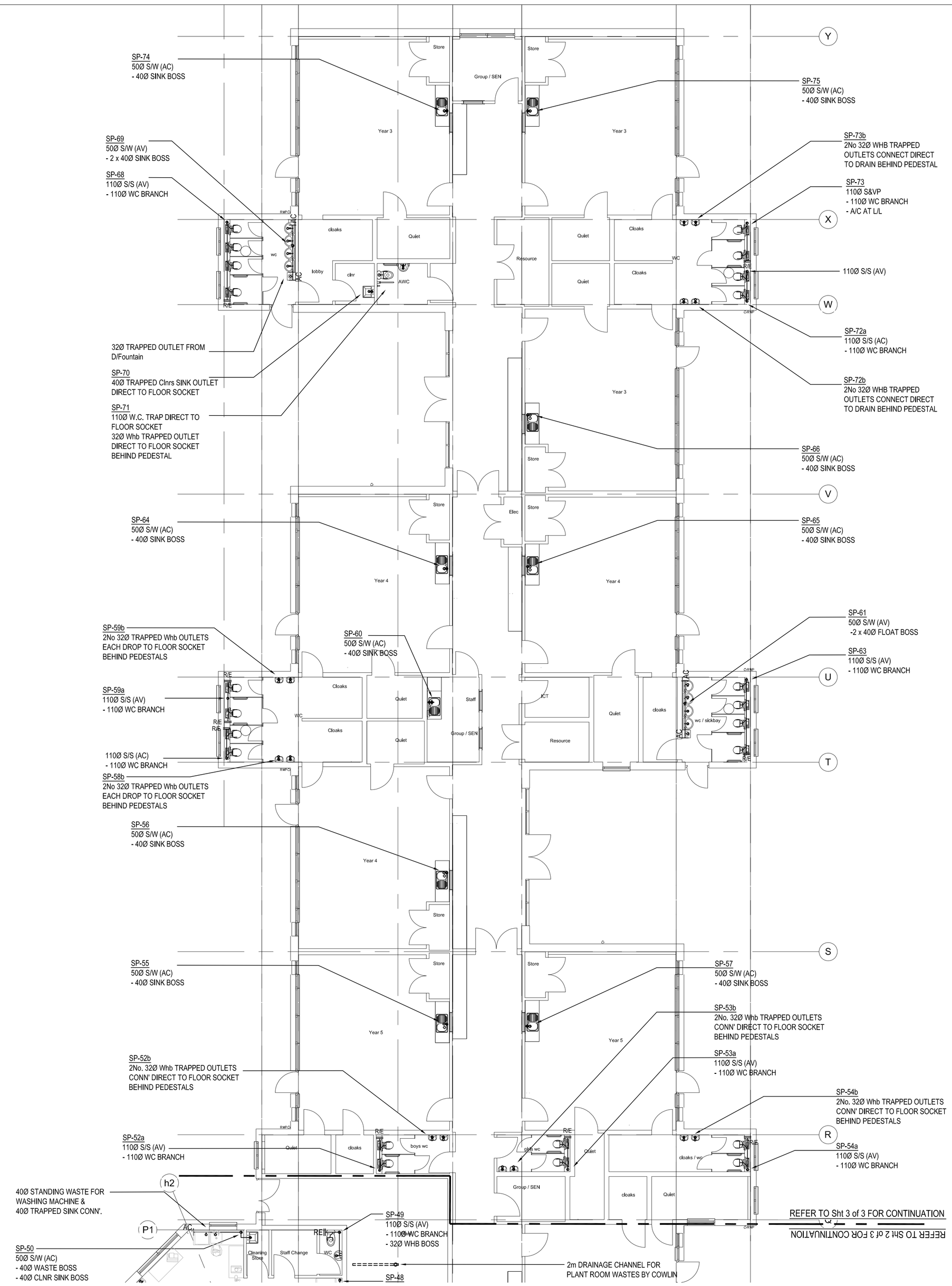
Project Title
YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

Drawing Title
ABOVE GROUND
DRAINAGE LAYOUT
SHEET 2 OF 3 (BLOCK A)

Project No.	Drawing No.	Rev.
491	M-02	R

Drawn	Ch'd	Date	Scale
MRH	CH	August 2013	1:100 @ A1

Path G:\CAD\491 Ysgol Treganna\Record\491-M-01,02,03-R(agd).dwg



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REVISIONS

REV	DRN	CHKD	DESCRIPTION	DATE

LEGEND:

SP-11 — IDENTIFIER REFERENCE
50Ø S/W (AC) — VERTICAL PIPE DETAILS
-40Ø SINK BOSS — S/W - STANDING WASTE
S/S - STUB STACK
(AC) - WITH ACCESS CAP
(AV) - WITH AIR ADMITTANCE VALVE
CONNECTION/FITTINGS

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Project Title

YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

Drawing Title

ABOVE GROUND
DRAINAGE LAYOUT
SHEET 3 OF 3 (BLOCK C)

Project No.	Drawing No.	Rev.
491	M-03	R

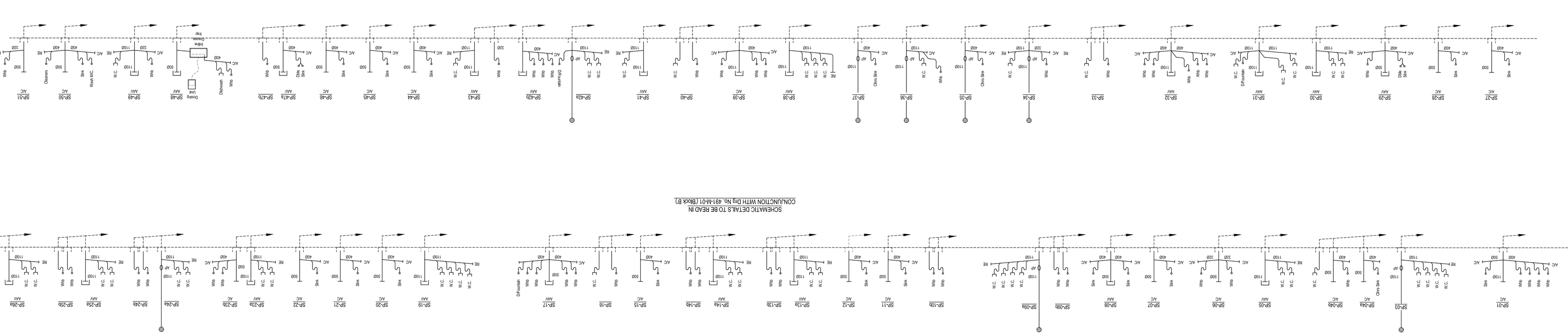
Drawn	Ch'd	Date	Scale
MRH	CH	August 2013	1:100 @ A1

Path: G:\CAD\491 Tregan\Revit\491-M-01.02.02-R.rvt.dwg

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SCHEMATIC DETAILS TO BE READ IN CONJUNCTION WITH Dig No. 491-M-02 (Block A)



SCHEMATIC DETAILS TO BE READ IN CONJUNCTION WITH Dig No. 491-M-03 (Block C)

SCHEMATIC DETAILS TO BE READ IN CONJUNCTION WITH Dig No. 491-M-01 (Block B)

LEGEND

SP-11 IDENTIFIER REFERENCE
50Ø SW (AC) VERTICAL PIPE DETAILS
SW - STANDING WASTE
S/S - STAB STACK
-400 SINK BOSS (AC) - WITH AIR ADMITTANCE VALVE
CONNECTION FITTINGS

REV	DBY	CHKD	DESCRIPTION		DATE

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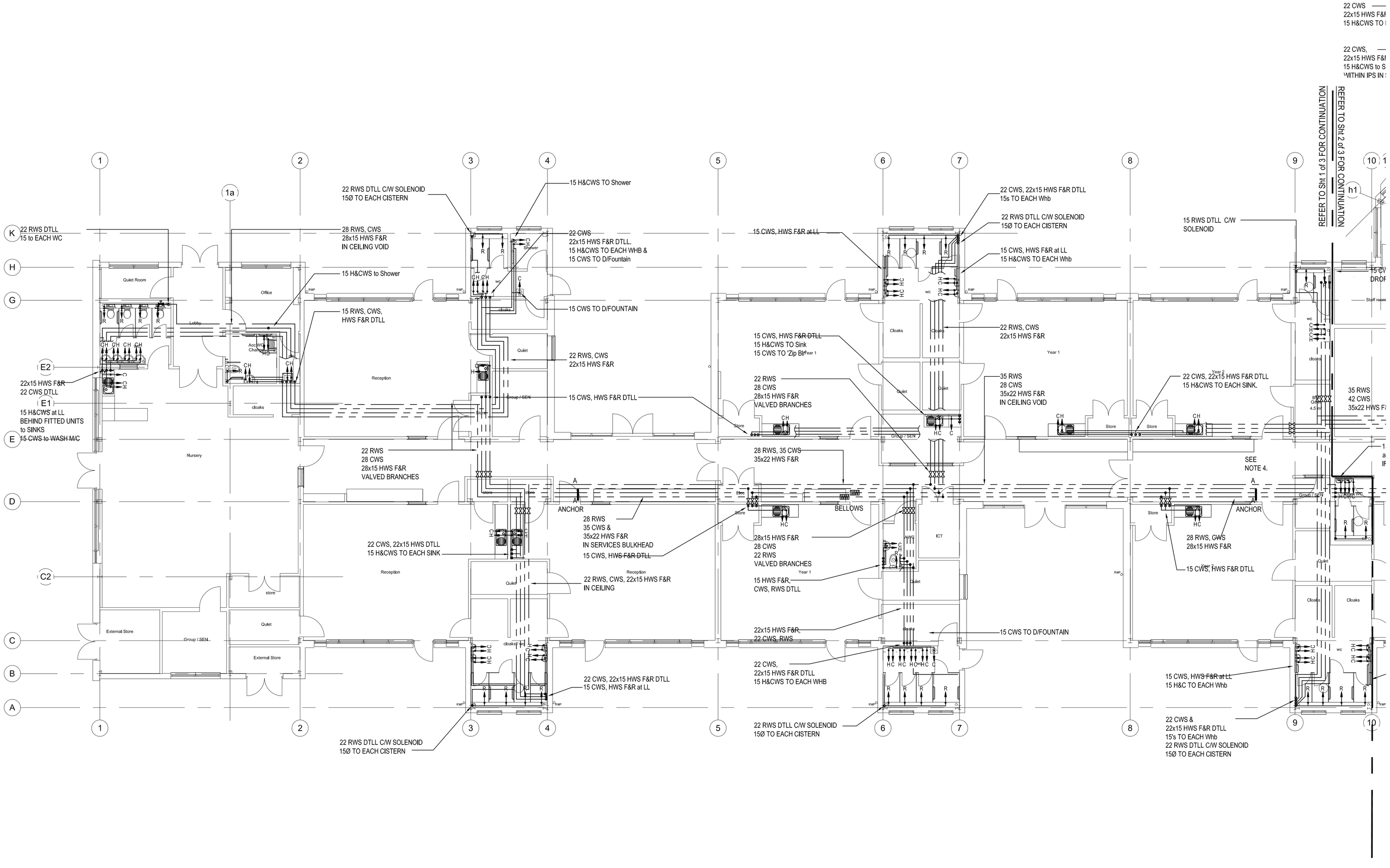
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email: cardiff@lionelstewart.co.uk

Project Title
YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

Drawing Title
ABOVE GROUND
DRAINAGE SCHEMATIC

Project No.	Drawing No.		Rev
491	M-04		R
Drawn	Ch'd	Date	Scale
WH		August 2015	N.T.S. @ A0

Plot Date: 04/09/2015 - 10:07 Plotted by: Hayden Thompson-Hall S:\Projects\491 - Ysgol Treganna Sanatorium Road, Cardiff\Drawings\Working\491-M-04.dwg



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Project Title

YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

Drawing Title

DOMESTIC WATER
SERVICES LAYOUT
SHEET 1 OF 3 (BLOCK B)

Project No.	Drawing No.		Rev.
491	M-05		R
Drawn: MRH	Ch'd: CH	Date: August 2013	Scale: 1:100 @ A1

Path: S:\CAD\491 Ysgol Treganna\Revit\491-M-05(R07-R(Even).dwg

KITCHEN SERVICES BY SPECIALIST FROM LOCAL BRANCHES IN CEILING VOID

42 CWS
42x22 HWS F&R
MAIN BRANCHES FROM PLANT ROOM

15 CWS, HWS F&R
DROP TO Whb

15 CWS
VALVED CONN' ABOVE CEILING FOR EXT'N
TO OVENS BY KITCHEN CONTRACTOR

15 RWS DROP to WC
C/W SOLENOID
15 CWS, HWS F&R DTLL
to WHB

22 CWS
22x15 HWS F&R DTLL
15 H&CWS TO EACH OF 5No Whb's

22 CWS,
22x15 HWS F&R at LL
15 H&CWS to SINK & WHB
[1]WITHIN IPS IN STAFF TOILET

15 HWS F&R, 22 CWS &
15 RWS DROP IN CORNER to LL
C/W SOLENOID
15 H&C at LL to Whb
15 RWS to WC CISTERN

22 CWS,
22x15 HWS F&R DROP
IN IPS DUCT TO L/L

22 RWS DTLL
IN IPS DUCT
15 TO EACH CISTERN

15 CWS TO D/ FOUNTAIN

35 RWS
42 CWS &
35x22 HWS F&R

15 CWS, HWS F&R
DROP TO SERVE WHB's

35 RWS
42 CWS &
35x22 HWS F&R

15 CWS, HWS F&R
at LL FROM DROP IN
IPS DUCT TO WHB's

22 CWS
22x15 HWS F&R DTLL
15 H&CWS TO EACH SINK.

15 CWS, HWS F&R at L/L

35 RWS
42 CWS &
42x22 HWS F&R

BELLOWS

35 RWS
42 CWS &
42x22 HWS F&R

15 RWS, HWS F&R, CWS
DTLL C/W SOLENOID

28 CWS &
22x15 HWS F&R
VALVED BRANCHES to LL
15H&CWS TO Whb
15 H&CWS TO Sink
15 HWS & 22 CWS
TO KITCHEN

15 RWS
28 CWS &
28x15Ø HWS F&R
FOR EXTENSION
INTO KITCHEN

BELLOWS

15 HWS F&R, CWS DTLL

Solar Thermal F&R
28x15 HWS F&R
28 CWS
42 RWS

22x15 HWS F&R
22 CWS BRANCH WITH
15 H&CWS TO 3 No. SHOWERS
15 H&CWS TO 3 No. WHB'S

15 CWS, HWS F&R DROP
TO WHB's WITH TMV's

15 CWS, HWS F&R
DROP FROM MAINS ABOVE
CEILING TO WHB's WITH TMV's
15 RWS DROP TO WC's
c/w SOLENOID SHUT-OFF VALVE

42 RWS
22 CWS
22x15 HWS F&R

15 RWS DTLL TO EACH WC
c/w SOLENOID SHUT-OFF VALVE

15 CWS TO D/Fountain

15 H&CWS TO Shwr MIXER

22 CWS Top up for Rain Water
Harvesting Tank

2 No. INCOMING 32 MDPe RWS
MAIN FROM TANK with MAIN
VALVE & METER IN IPS DUCT

15 RWS TO CISTERN
15 CWS, HWS F&R
DROP IN IPS DUCT TO L/L
15 H&CWS TO WHB

15 HWS F&R, CWS DTLL
TO CLEANERS SINK

22x15 HWS F&R
22 CWS
22 RWS VALVED BRANCHES

42 RWS
35 CWS
35x22 HWS F&R MAIN BRANCHES

35 CWS
35x22 HWS F&R
TO/FROM PLANT Rm

15 CWS, HWS F&R
AT LL TO EACH SINK

22x15 HWS F&R
22 CWS DTLL
15 H&CWS TO EACH SINK

Solar Thermal F&R
42 RWS
28 CWS
28x15 HWS F&R
IN CEILING VOID.

15 CWS, HWS F&R
DTLL TO SINK

22 RWS DROP IN IPS TO SERVE
3 No WC's c/w SOLENOID
SHUT-OFF VALVE

15 CWS, HWS F&R IN CEILING
15 H&CWS TO EACH
SHOWER MIXER

15 CWS, HWS F&R IN CEILING
15 H&CWS TO SHOWER C/W
BLENDING BALVE

REFER TO Sht 3 of 3 FOR CONTINUATION

REFER TO Sht 1 of 3 FOR CONTINUATION

REFER TO Sht 2 of 3 FOR CONTINUATION

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email: cardiff@lornestewart.co.uk

Project Title

YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

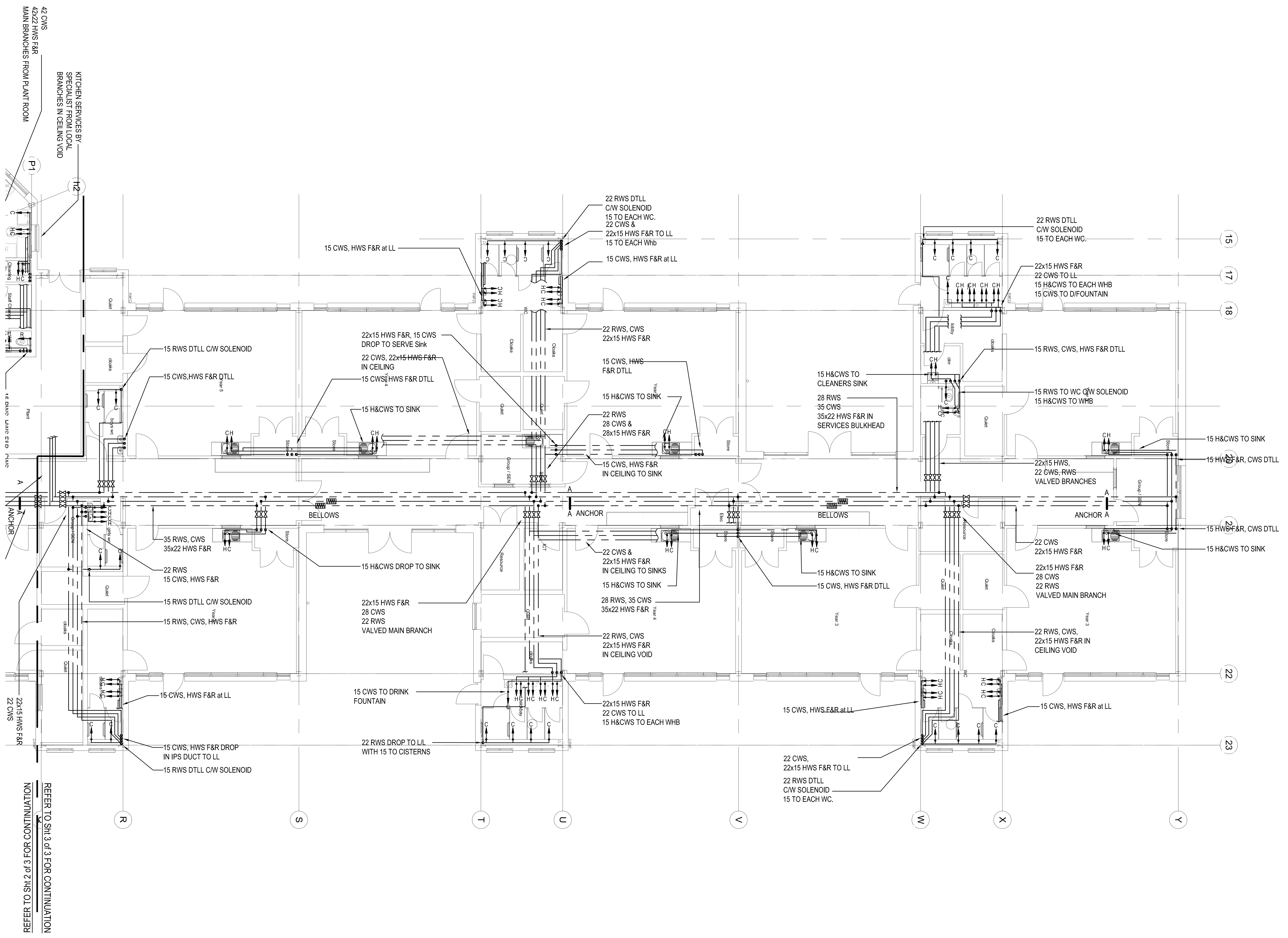
Drawing Title

DOMESTIC WATER
SERVICES LAYOUT
SHEET 2 OF 3 (BLOCK A)

Project No.	Drawing No.		Rev.
491	M-06		R
Drawn: MRH	Ch'd: CH	Date: August 2013	Scale: 1:100 @ A1

Path: G:\CAD\491 Ysgol Treganna\Record\491-M-05,06,07-R(6mm).dwg

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email: cardiff@lornestewart.co.uk

Project Title

YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

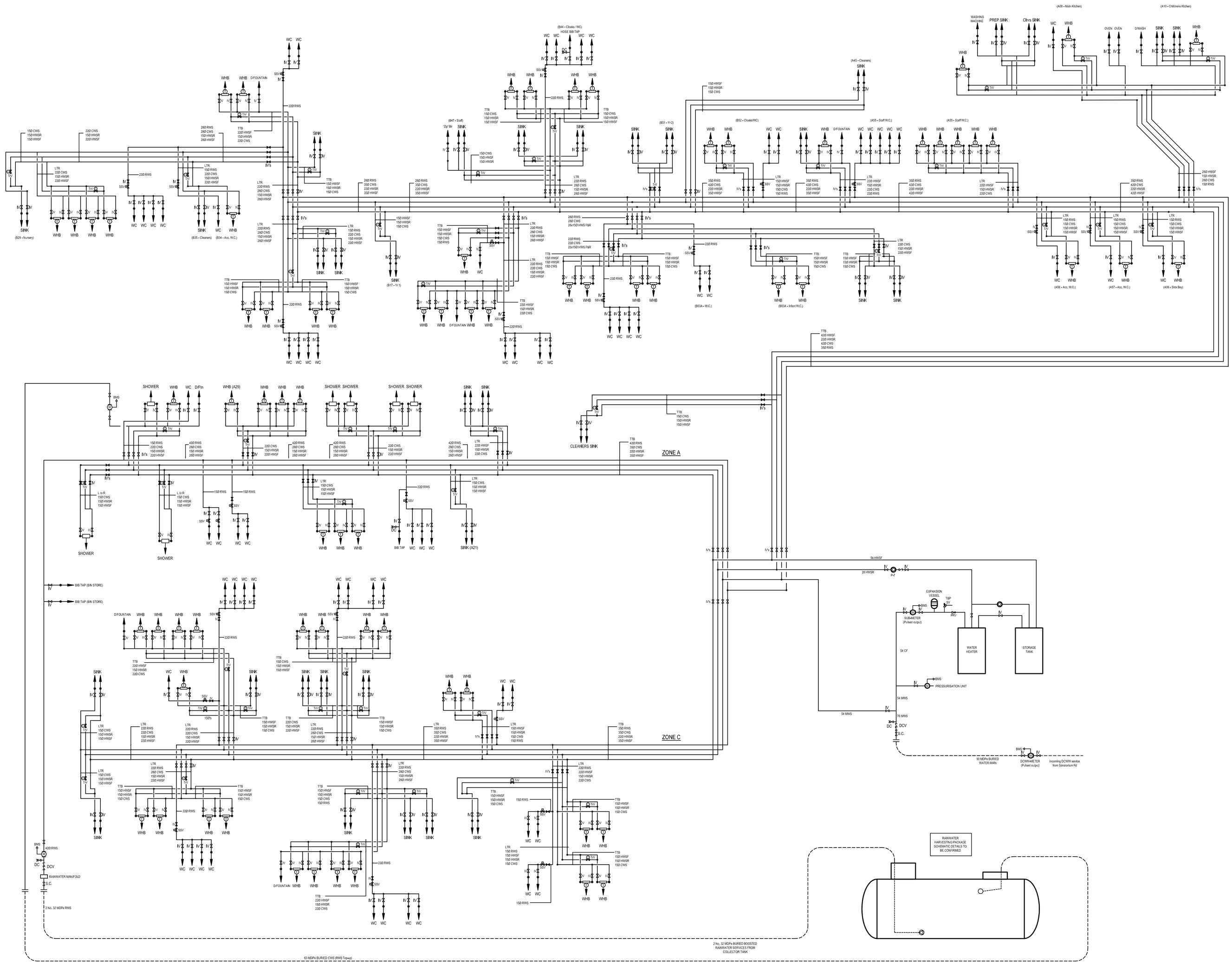
Drawing Title

DOMESTIC WATER
SERVICES LAYOUT
SHEET 3 OF 3 (BLOCK C)

Project No.	Drawing No.	Rev.
491	M-07	R

Drawn	Ch'd	Date	Scale
MRH	CH	August 2013	1:100 @ A1

Path G:\CAD\491 Ysgol Treganna\Record\491-M-05,06,07-R(dom).dwg



LEGEND

IV	ISOLATING VALVE	
DCV	DOUBLE CHECK VALVE	
NRV	NON-RETURN VALVE	
SSV	SOLENOID SHUT OFF VALVE (BREEAM)	
TRV	THERMOSTATIC RETURN VALVE	
T&P	TEMP & PRESS SAFETY VALVE	
M	METER	
SC	STOPCOCK	
DC	DRAINCOCK	
LSV	LOCK SHIELD VALVE	
T	TMV/BLENDED WATER OUTLET	

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email: cardiff@lornestewart.co.uk

Project Title

YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

Drawing Title

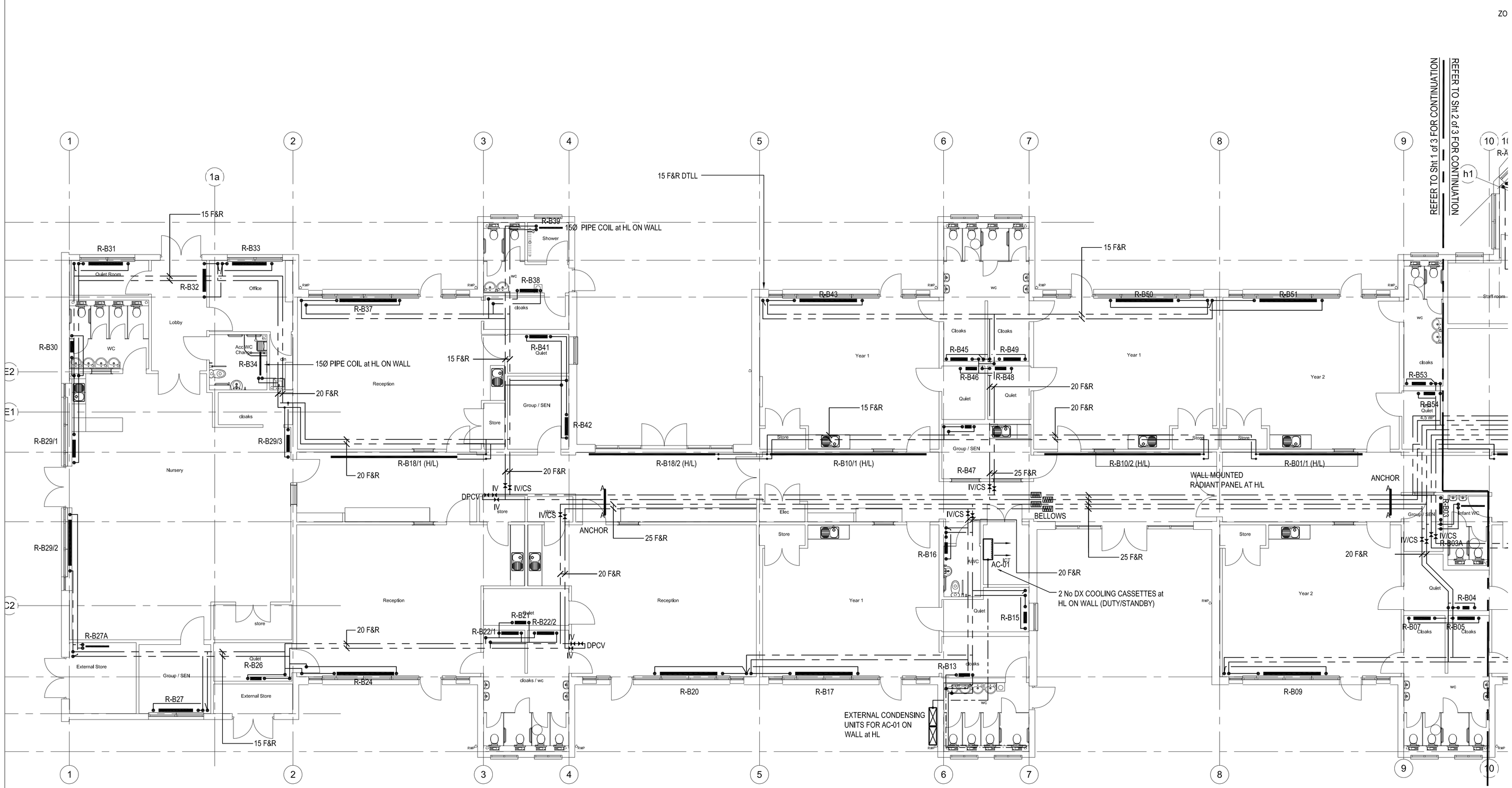
DOMESTIC WATER
SERVICES SCHEMATIC

Project No.	Drawing No.	Rev.
491	M-08	R

Drawn	Ch'd	Date	Scale
MRH	CH	August 2013	N.T.S. @ A1

Path: G:\CAD\491 Ysgol Treganna\Record\491-M-08-R(Geocchan).dwg

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Project Title

YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

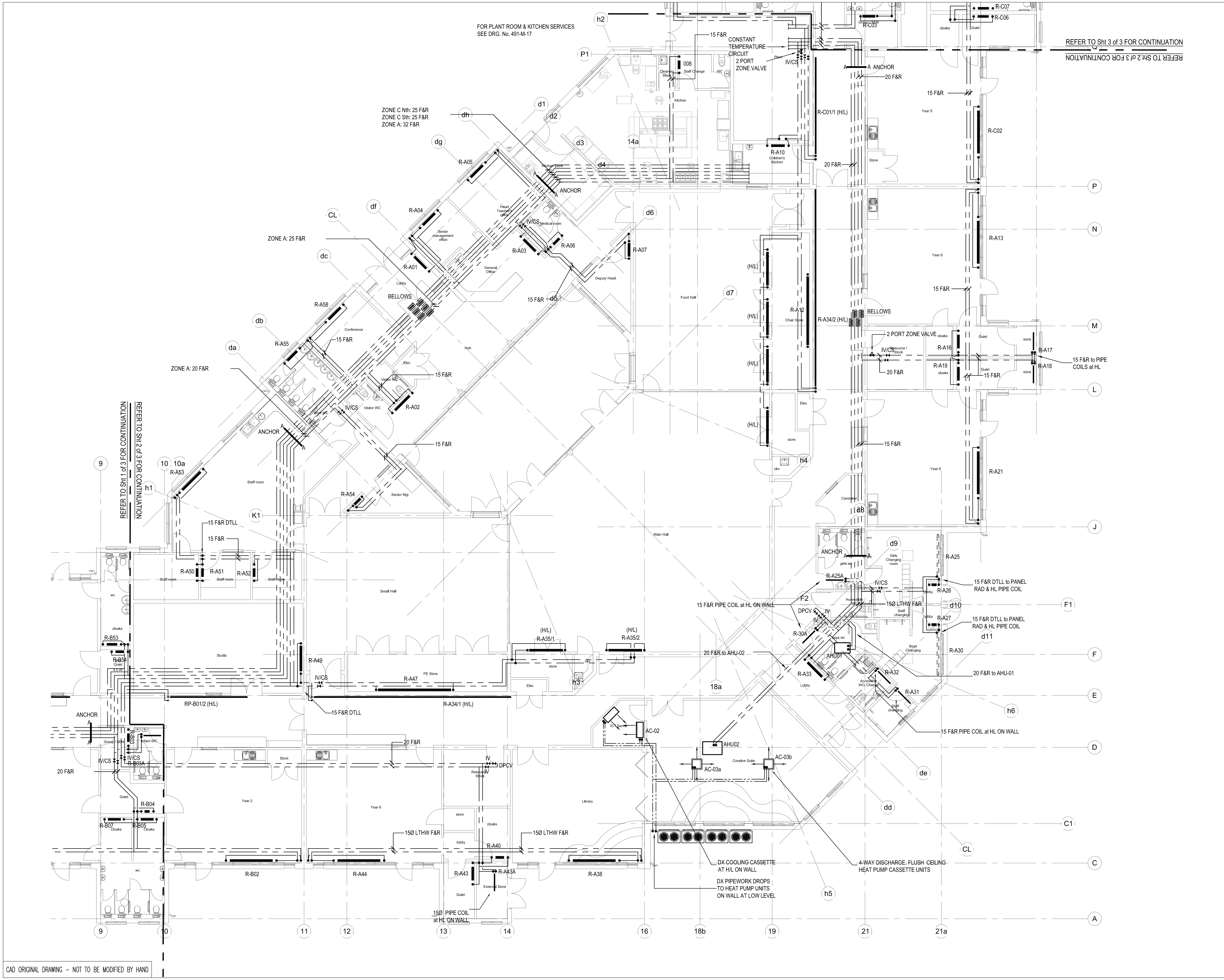
Drawing Title

HEATING & COOLING LAYOUT
SHEET 1 OF 3 (BLOCK B)

Project No.	Drawing No.	Rev.
491	M-09	R

Drawn	Ch'd	Date	Scale
MRH	CH	August 2013	1:100 @ A1

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email: cardiff@lornestewart.co.uk

Project Title

YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

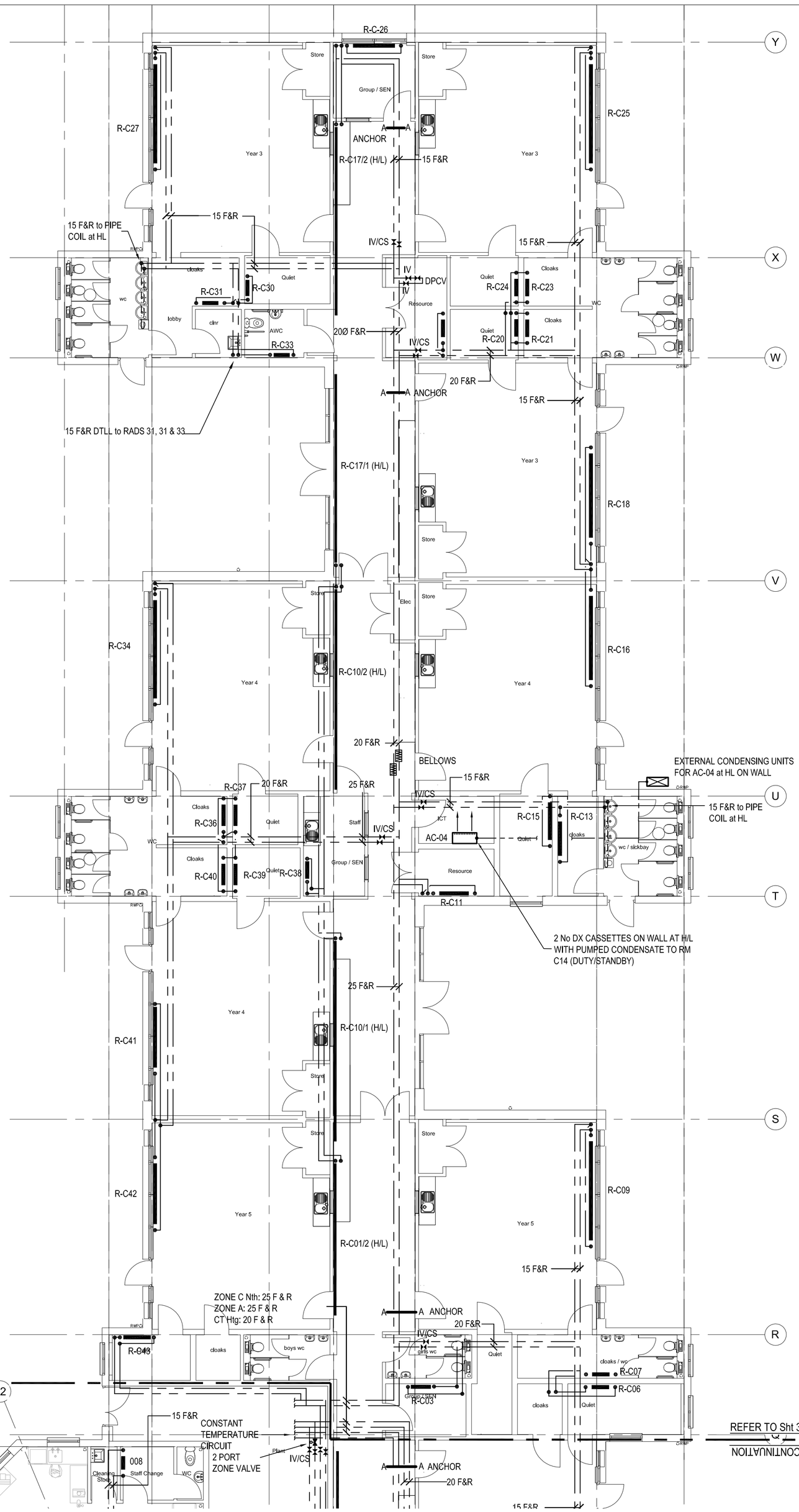
Drawing Title

HEATING & COOLING LAYOUT
SHEET 2 OF 3 (BLOCK A)

Project No.	Drawing No.	Rev.
491	M-10	R

Drawn	Ch'd	Date	Scale
MRH	CH	August 2013	1:100 @ A1

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Project Title

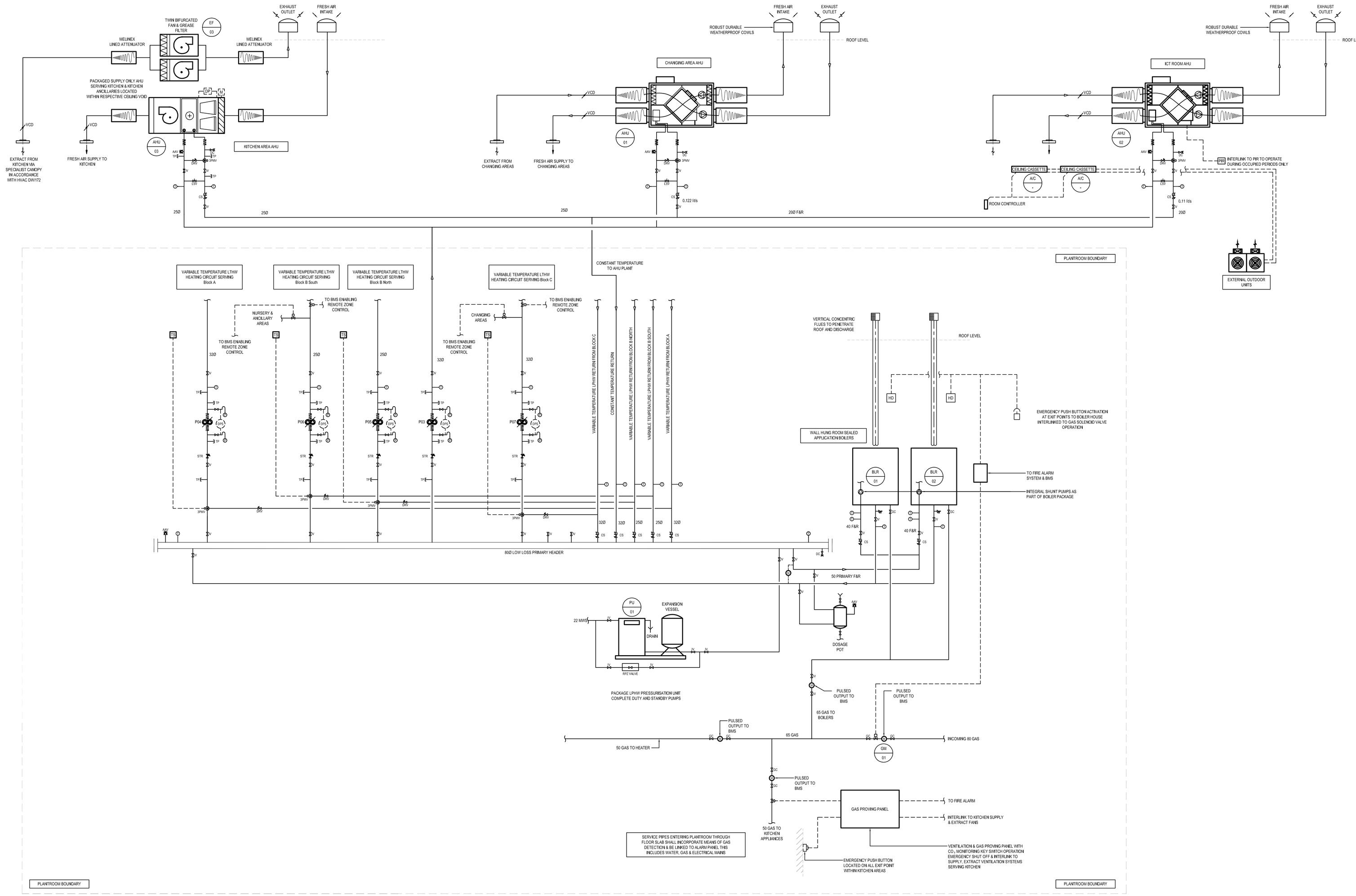
YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

Drawing Title

HEATING & COOLING LAYOUT
SHEET 3 OF 3 (BLOCK C)

Project No.	Drawing No.		Rev.
491	M-11		R
Drawn: MRH	Ch'd: CH	Date: August 2013	Scale: 1:100 @ A1

Path: G:\CAD\491 Ysgol Treganna\Record\491-M-09,10,11-R(Hg).dwg



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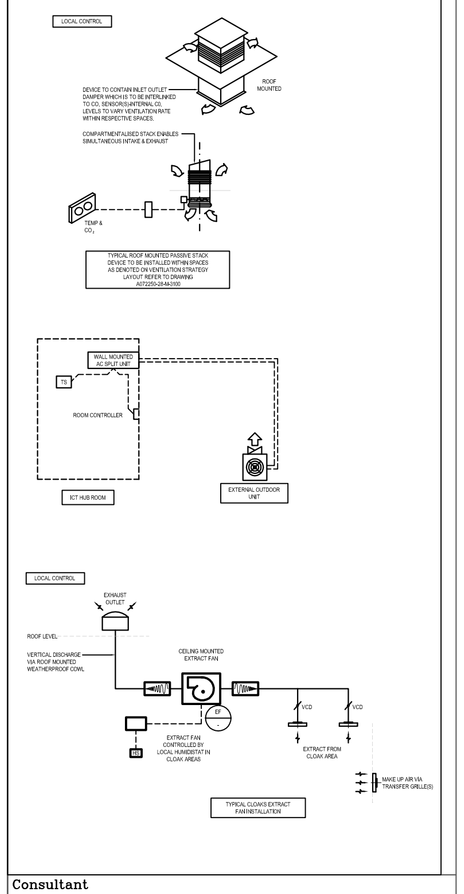
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REV	DRN	CHKD	DESCRIPTION	DATE

HEATING SERVICES	
SYMBOL	DESCRIPTION
	ISOLATING VALVE
	COMMISSIONING VALVE
	DOUBLE REGULATING VALVE
LSV	LOCK SHIELD VALVE
STR	STRAINER
	DRAIN OFF VALVE
	NON-RETURN VALVE
	SAFETY VALVE
	GAS CONTROL VALVE
	MOTORISED VALVE
	MOTORISED VALVE
	3 PORT MOTORISED VALVE
	NON RETURN CHECK VALVE
	FLEX PIPE
	CONNECTION
AAV	AIR VENT
	TEMPERATURE GAUGE
	PRESSURE GAUGE
TP	TEST POINT
	SINGLE PUMP
	DOUBLE PUMP
	DOUBLE PUMP INVERTER CONTROLLED
	METER
	RADIATOR WITH THERMOSTATIC VALVE AND LOCK SHIELD VALVE
PRV	PRESSURE REGULATING VALVE



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email: cardiff@lornestewart.co.uk

Project Title

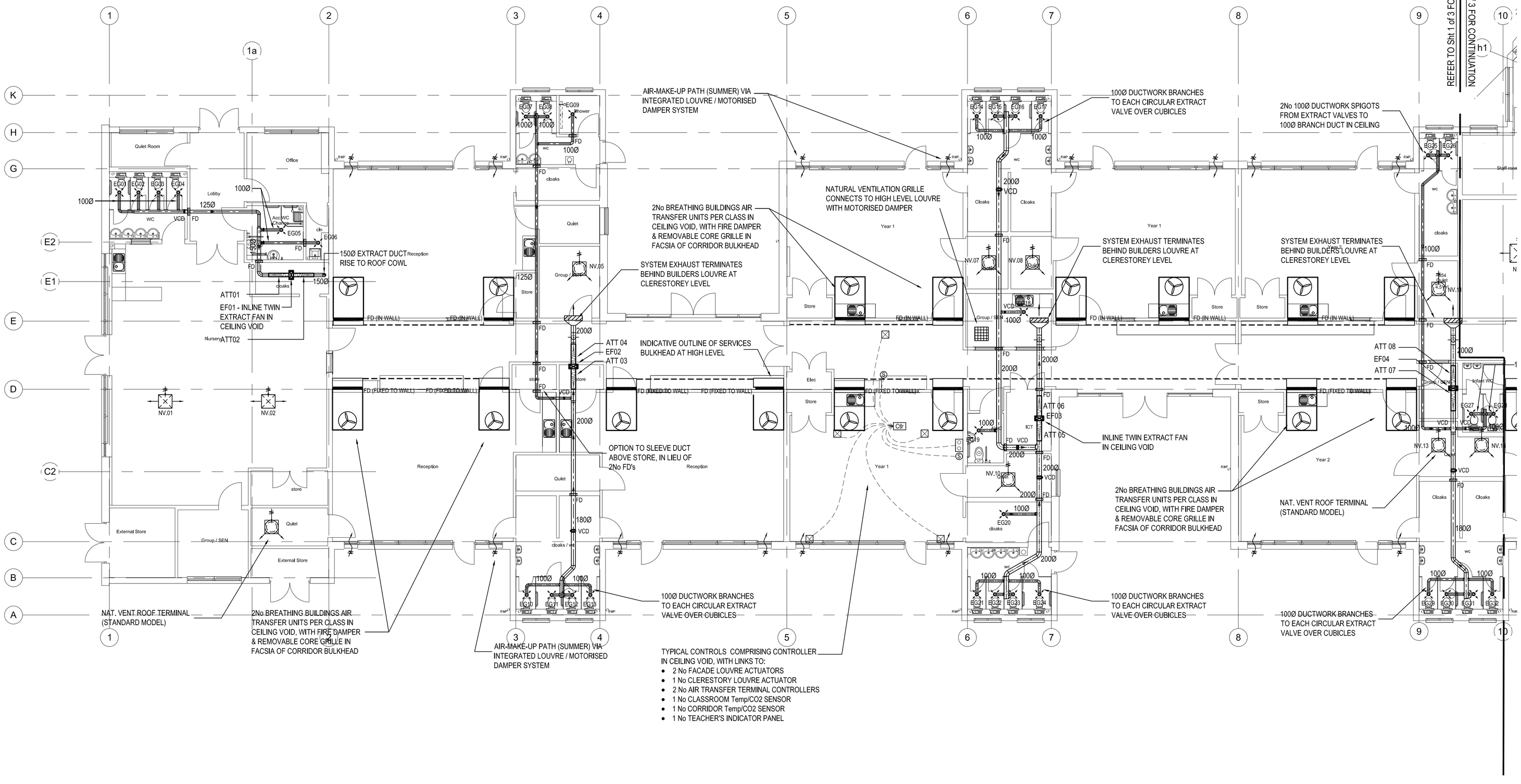
YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

Drawing Title

MECHANICAL SCHEMATIC

Project No.	Drawing No.		Rev.
491	M-12		R
Drawn	Ch'd	Date	Scale
MRH	CH	August 2013	N.T.S. @ A1

Path: G:\CAD\491 Ysgol Treganna\Layout\491-M-12-R(Schem).dwg



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REVISIONS

REV	DRN	CHKD	DESCRIPTION	DATE

SEE DRG. No. 491-M-18 FOR SECTION / ELEVATIONAL ARRANGEMENT OF SERVICES TO BREAK-OUT CORRIDOR ZONE

Consultant

TROUP BYWATERS + ANDERS

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F:02920 731240

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I: www.TBandA.com

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email: cardiff@lornestewart.co.uk

Project Title

YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

Drawing Title

VENTILATION LAYOUT
SHEET 1 OF 3 (BLOCK B)

Project No.	Drawing No.		Rev.
491	M-13		R
Drawn	Ch'd	Date	Scale
MRH	CH	August 2013	1:100 @ A1

Path: G:\CAD\491 Ysgol Treganna\Revit\491-M-13,14,15-R[em].dwg

REFER TO Sht 1 of 3 FOR CONTINUATION

REFER TO Sht 2 of 3 FOR CONTINUATION

REFER TO Sht 3 of 3 FOR CONTINUATION

EXTRACT CANOPY BY CATERING SPECIALIST, WITH EXHAUST DUCTWORK AND INLINE TWIN FAN

SYSTEM EXHAUST TERMINATES BEHIND BUILDERS LOUVRE AT CLERESTOREY LEVEL

450Ø FIRE RATED (KITCHEN) EXTRACT DUCT

2500 EXTRACT DUCT RISE VIA VERTICAL FAN & ATTENUATORS TO ROOF LEVEL

1800 EXTRACT DUCT RISE TO VERTICAL DISCHARGE TERMINAL

450Ø EXTRACT DUCT RISE TO VERTICAL DISCHARGE TERMINAL

500Ø SUPPLY DUCT RISE TO ROOF TERMINAL WITH ATTENUATOR

150Ø EXTRACT DUCT RISE TO ROOF COWL

2No BREATHING BUILDINGS AIR TRANSFER UNITS PER CLASS IN CEILING VOID, WITH FIRE DAMPER & REMOVABLE CORE GRILLE IN FACSIA OF CORRIDOR BULKHEAD

AIR INLET LOUVRE PROVIDED AS PART OF GLAZING PACKAGE, WITH INTEGRATED MOTORISED DAMPER. CONTROLS INTERLOCKED WITH BREATHING BUILDINGS VENT UNITS

100Ø EXTRACT DUCT

200Ø EXTRACT DUCT RISE TO ROOF COWL VIA VERTICAL ATTENUATOR

EXTRACT VALVE IN CEILING WITH 100Ø DUCT VIA INLINE FAN, TO DISCH TO ATMOSPHERE THRO' ROOF.

NATURAL VENTILATION ROOF TERMINAL

NAT. VENT ROOF TERMINAL (STANDARD MODEL)

EXTRACT VALVE IN CEILING WITH 100Ø DUCT VIA INLINE FAN, TO DISCH TO ATMOSPHERE THRO' ROOF.

2500 SUPPLY DUCT RISE TO ROOF COWL

3150 EXTRACT DUCT RISE TO ROOF COWL VIA VERTICAL ATTENUATOR (ATT18)

SMOKE EXTRACT FAN THRO' ROOF, CONTROL INTERLOCKED WITH FIRE ALARM SYSTEM

NATURAL VENTILATION ROOF TERMINAL

EF10

100Ø EXTRACT DUCT RISE TO ROOF COWL

PACKAGED HEAT RECOVERY AIR-HANDLER IN CEILING VOID PROVIDING TEMPERED FRESH AIR FOR OCCUPANTS - OPERATION LINKED WITH DX HEAT PUMP SYSTEM FOR ROOM HEATING / COOLING LOADS

AIR INTAKE & EXHAUST VIA ROOF MOUNTED COWLS PROVIDED FREE-ISSUE TO BUILDER

2No BREATHING BUILDINGS AIR TRANSFER UNITS PER CLASS IN CEILING VOID, WITH FIRE DAMPER & REMOVABLE CORE GRILLE IN FACSIA OF CORRIDOR BULKHEAD

AIR INLET LOUVRE PROVIDED AS PART OF GLAZING PACKAGE, WITH INTEGRATED MOTORISED DAMPER. CONTROLS INTERLOCKED WITH BREATHING BUILDINGS VENT UNITS

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REVISIONS

REV	DRN	CHKD	DESCRIPTION	DATE

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Project Title

YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

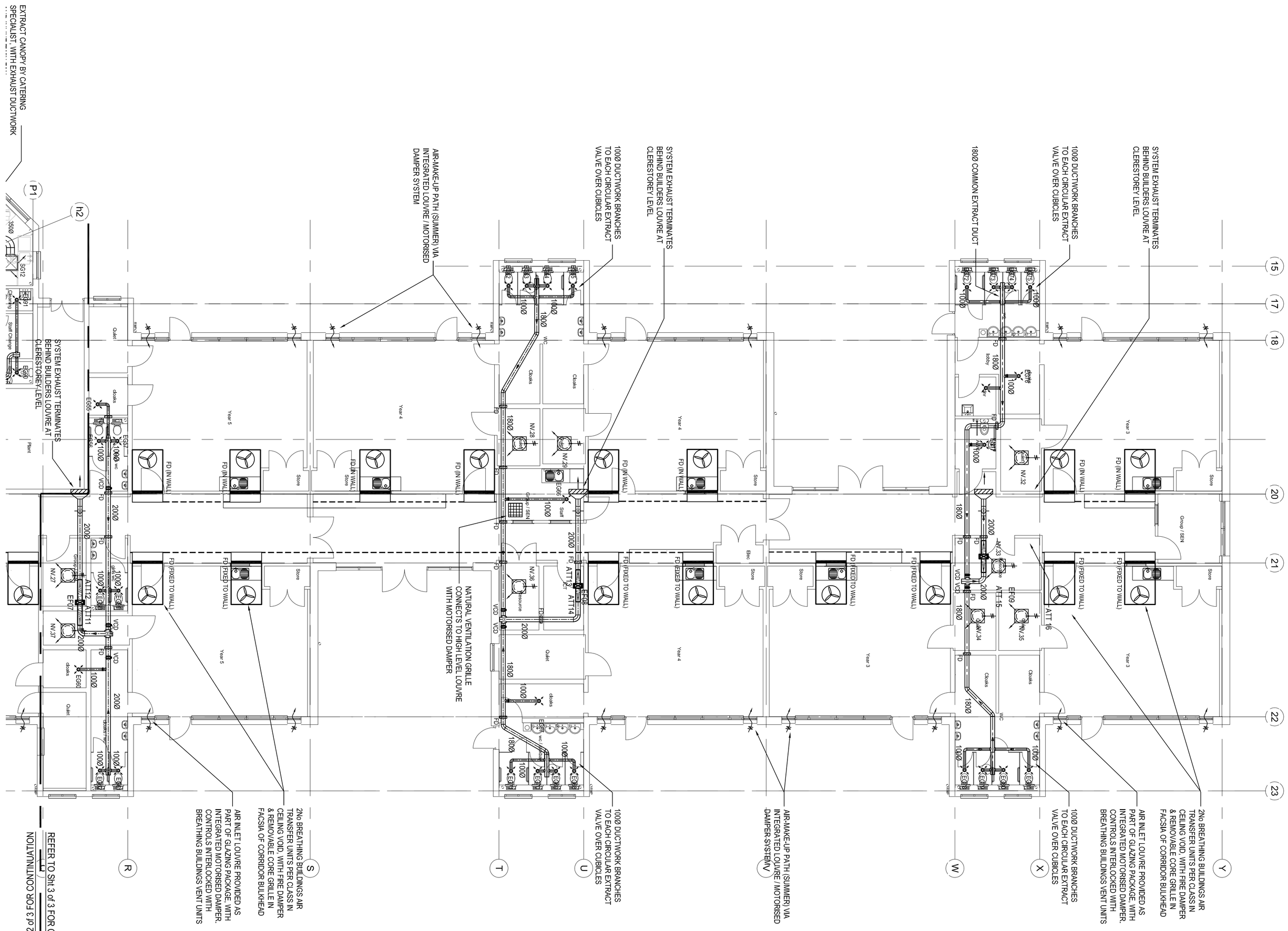
Drawing Title

VENTILATION LAYOUT
SHEET 2 OF 3 (BLOCK A)

Project No.	Drawing No.	Rev.
491	M-14	R

Drawn	Ch'd	Date	Scale
MRH	CH	August 2013	1:100 @ A1

Path: G:\CAD\491 Ysgol Treganna\Revit\491-M-13,14,15-R[em].dwg



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REVISIONS				
REV	DRN	CHKD	DESCRIPTION	DATE

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email: cardiff@lornestewart.co.uk

Project Title

YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

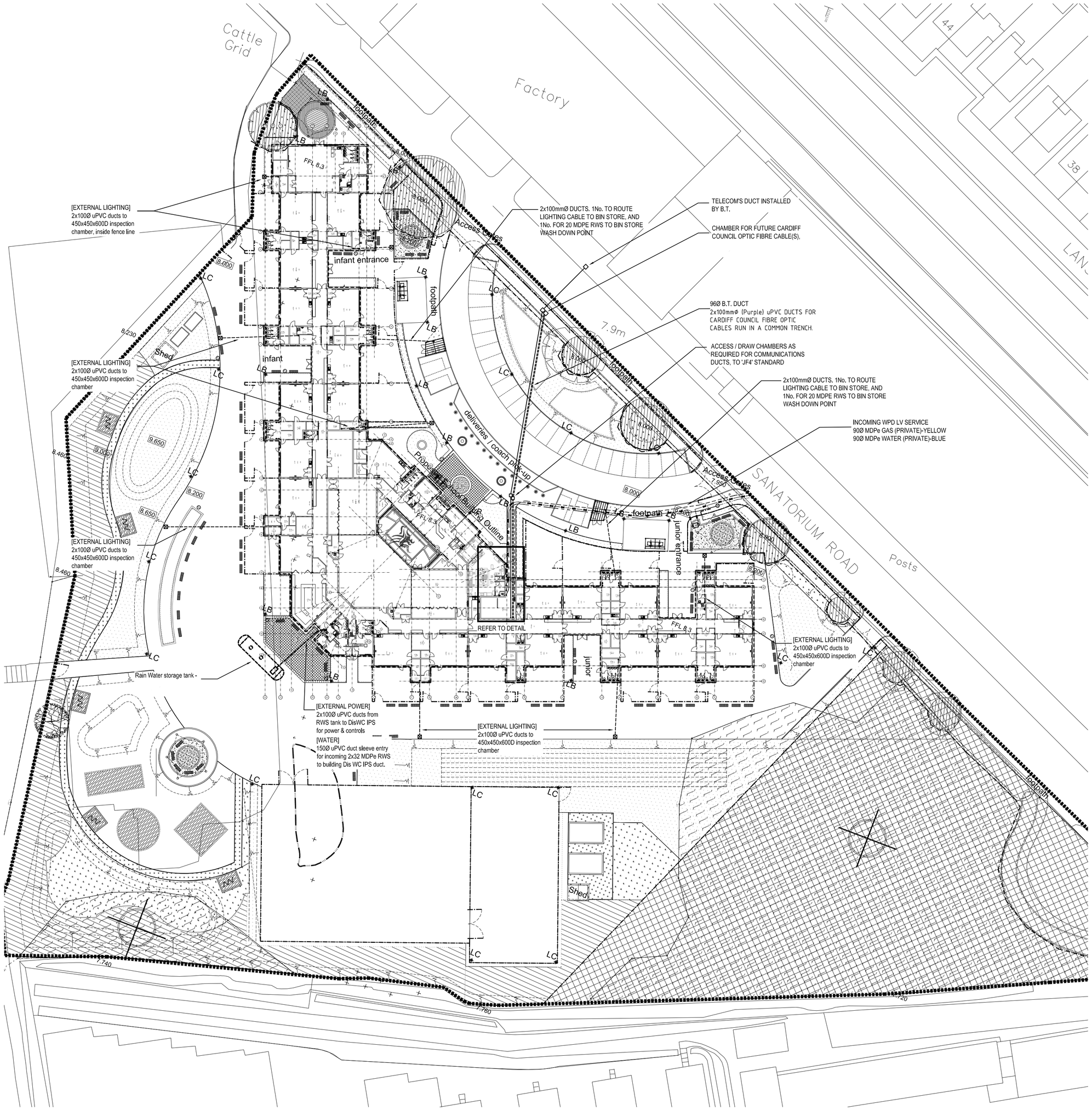
Drawing Title

VENTILATION LAYOUT
SHEET 3 OF 3 (BLOCK C)

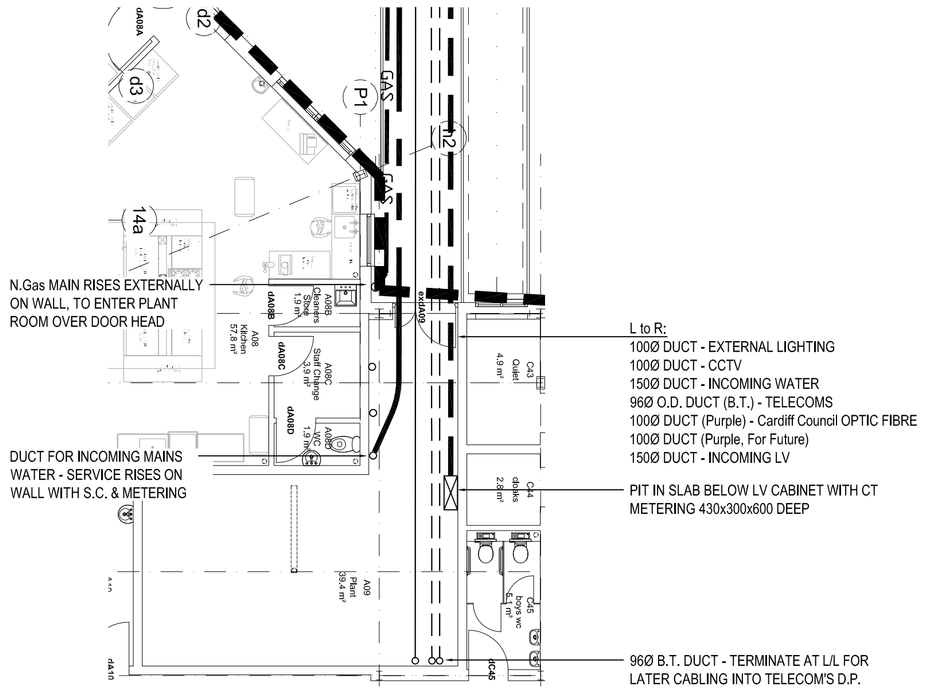
Project No.	Drawing No.		Rev.
491	M-15		R
Drawn: MRH	Ch'd: CH	Date: August 2013	Scale: 1:100 @ A1

Path: G:\CAD\491 Ysgol Treganna\Layout\491-M-15(A1)-R1.mwg

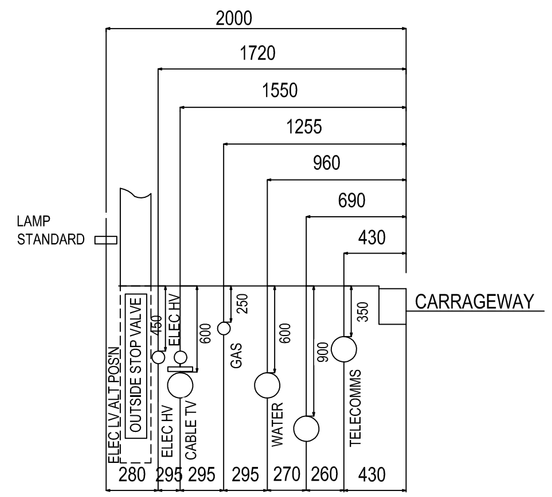
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SITE LAYOUT
(Scale 1:500)



DETAIL A
ENLARGED DETAIL OF PLANT ROOM
(Scale 1:100)



DETAIL B

INDICATIVE ARRANGEMENT OF
BURIED SERVICES (NOT TO SCALE)

1. BIN STORE WATERING POINTS COMPRISE A ¾" LOCKABLE HOSE BIB TAP, WITH DCV ON FENCE POST, TRACE HEATED & INSULATED RISER.

MDPE WATER (PRIVATE)-BLUE
GAS — MDPE GAS (PRIVATE)-YELLOW
INCOMING WPD LV SERVICE
BT DUCT
PURPLE UPVC DUCTS FOR CARDIFF COUNCIL FIBRE OPTIC CABLES

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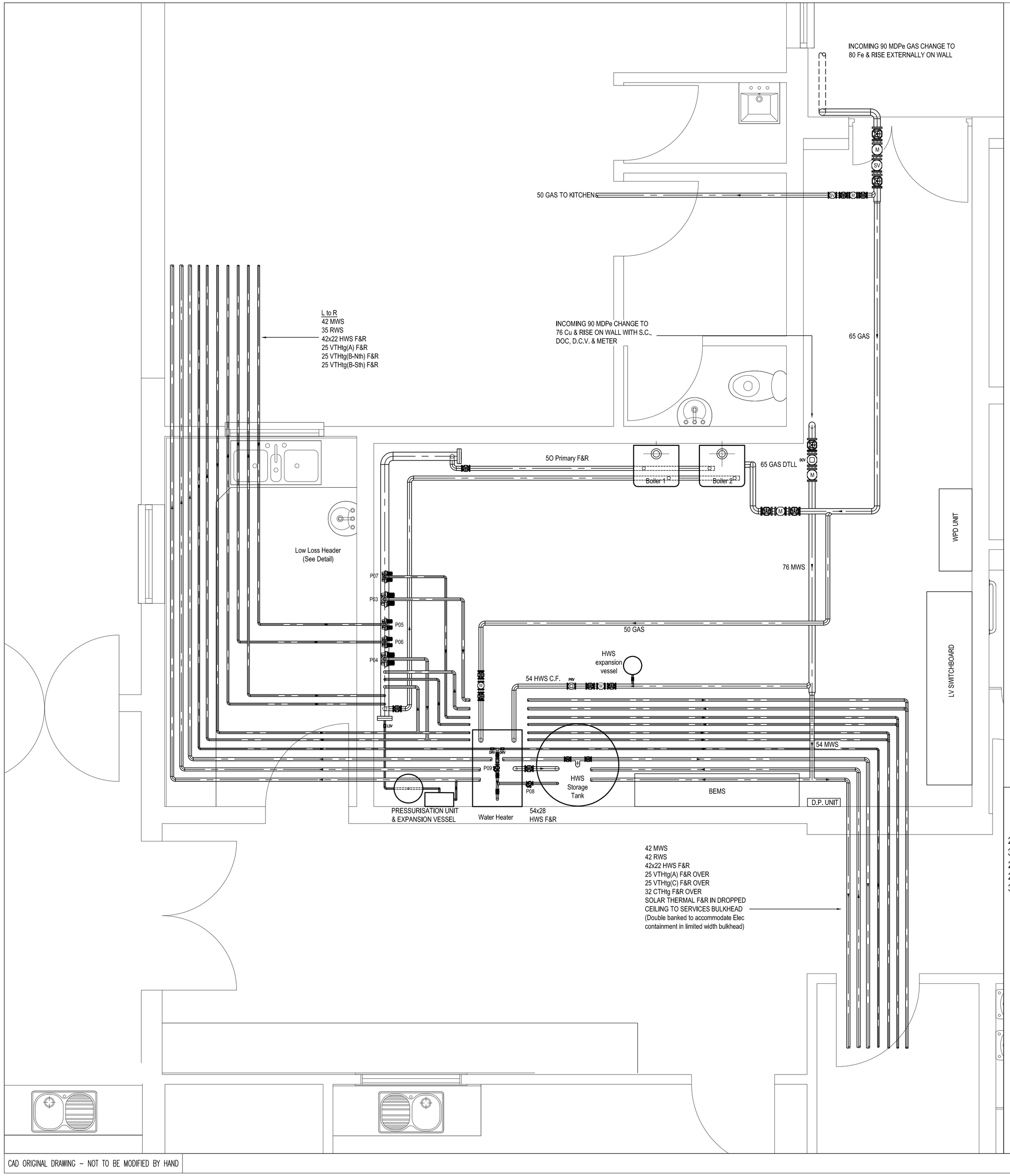
Project Title
YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

Drawing Title
INCOMING MECHANICAL
& ELECTRICAL SERVICES

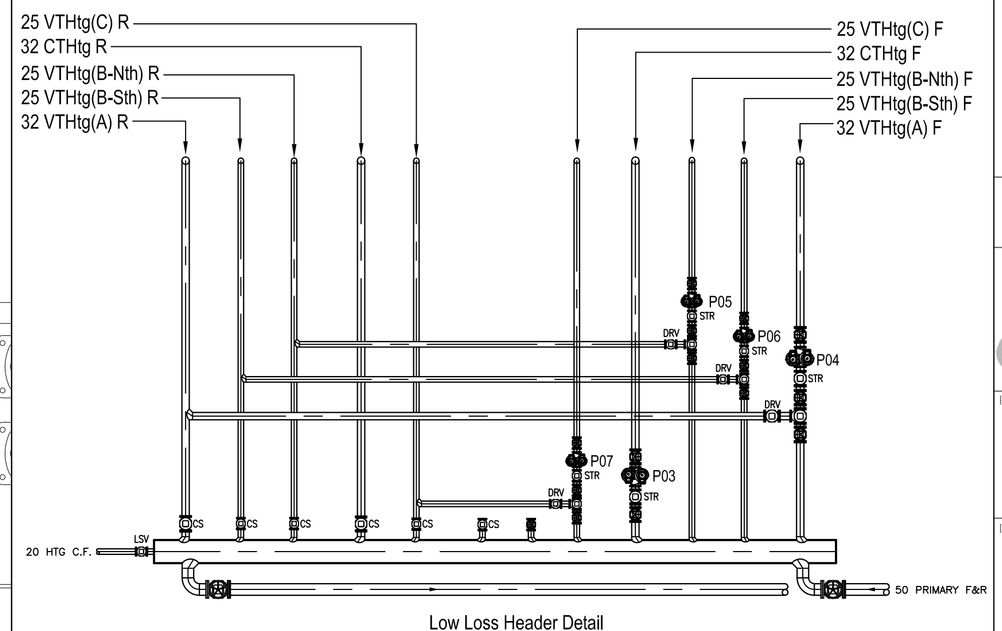
Project No.	Drawing No.	Rev.
491	M-16	R

Drawn	Ch'd	Date	Scale
MRH	CH	July 2013	1:500 @ A1

Path: S:\CAD\491 Ysgol Treganna\Revit\491-M-16-R(ed).dwg



SOME VALVES OMITTED FOR CLARITY,
SEE HEATING SCHEMATIC DRG. No. 491–M–12,
& DOMESTIC SERVICES SCHEMATIC DRG. No. 491–M–08



Low Loss Header Detail

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email: cardiff@lornestewart.co.uk

Project Title

YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

Drawing Title

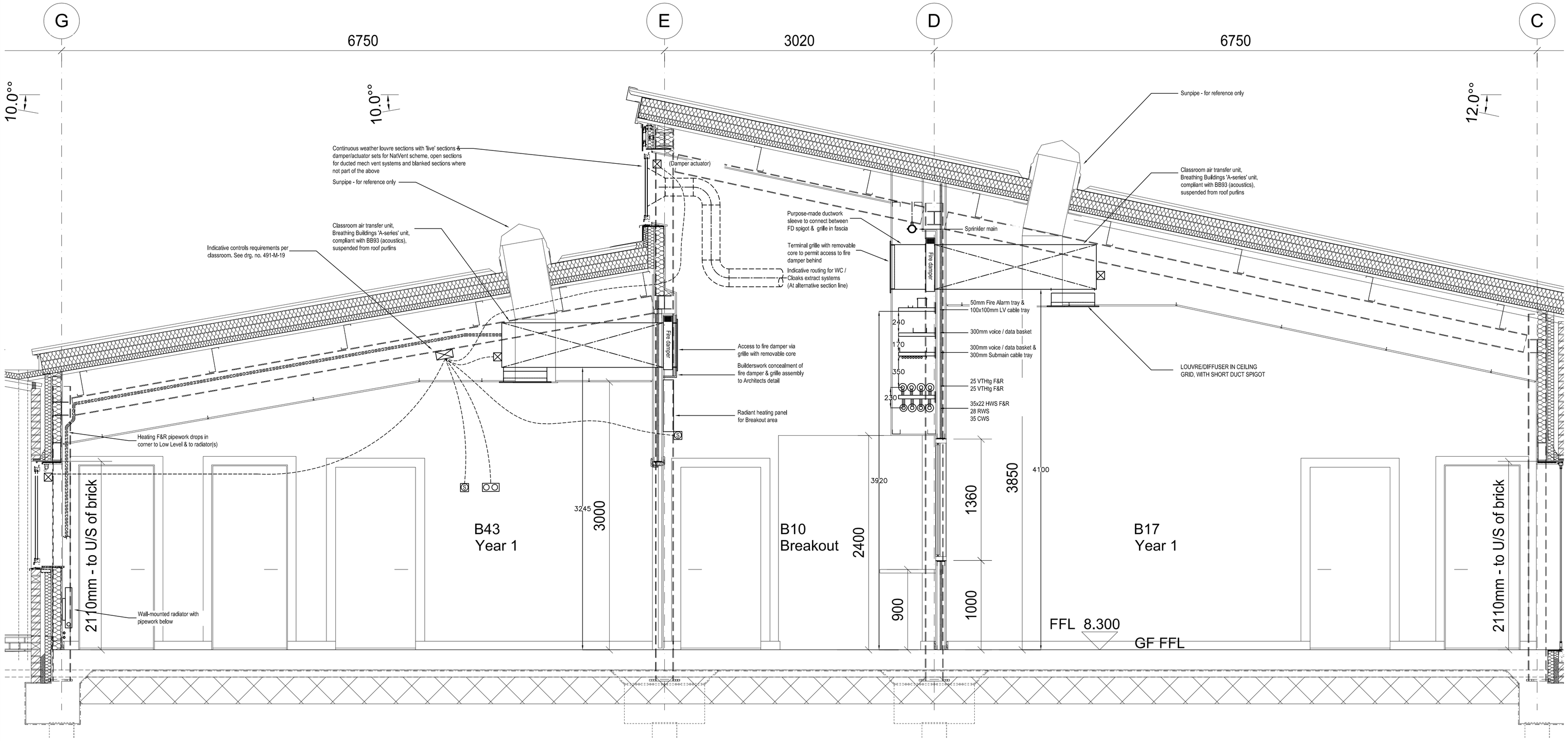
PLANTROOM LAYOUT

Project No.	Drawing No.	Rev.
491	M–17	R

Drawn	Ch'd	Date	Scale
MRH	CH	July 2013	1:25 @ A1

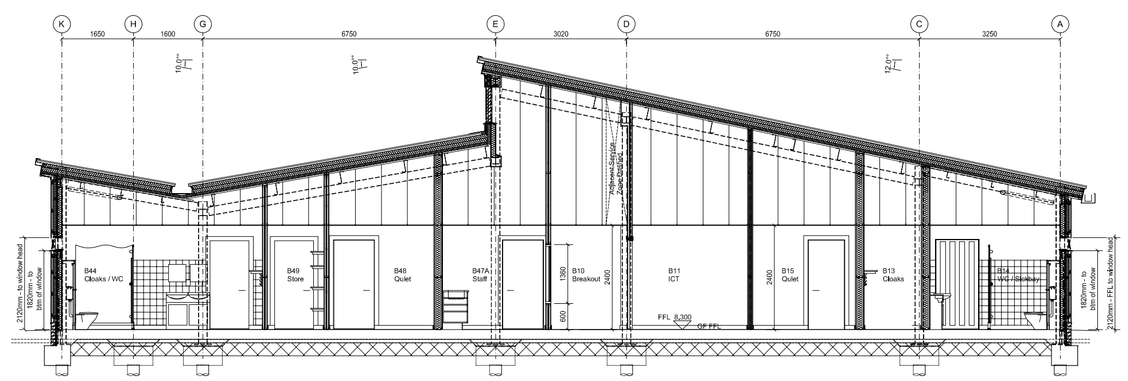
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TYPICAL CLASSROOM SECTION ARRANGEMENT

(Scale 1:25)



SECTION THROUGH W.C. / Cloaks CORE AREA
FOR GENERAL REFERENCE ONLY
(Scale 1:100)

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REVISIONS

REV	DRN	CHKD	DESCRIPTION	DATE

KEY

- TEACHERS INDICATOR PANEL SYSTEM.
- TEMP./CO2 SENSOR.
- UNIT CONTROL OR LOUVRE ACTUATOR CONNECTION.

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email: cardiff@lornestewart.co.uk

Project Title

YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

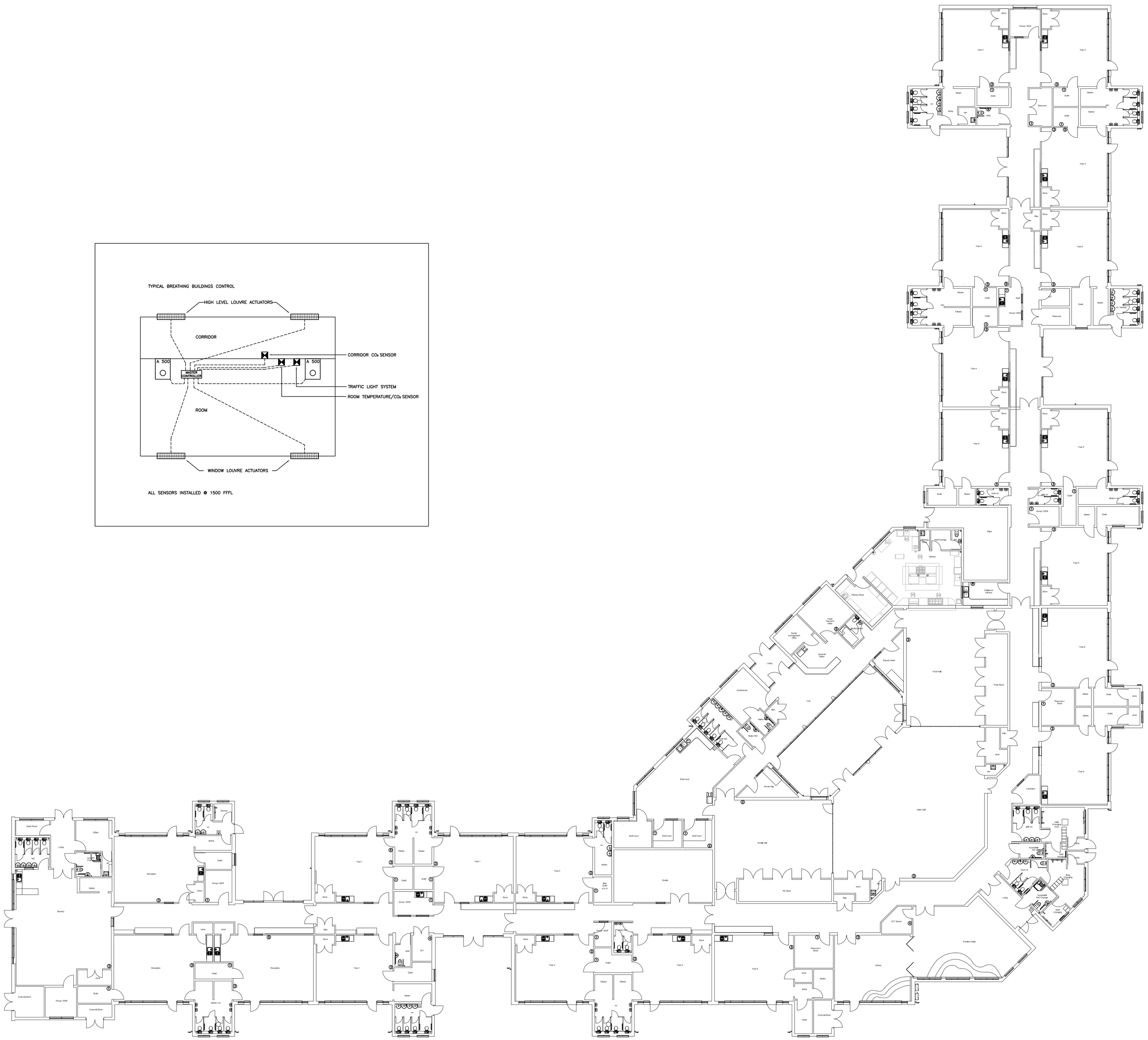
Drawing Title

INDICATIVE SECTION

Project No.	Drawing No.	Rev.
491	M-18	R

Drawn	Ch'd	Date	Scale
MRH	CH	July 2013	1:25 @ A1

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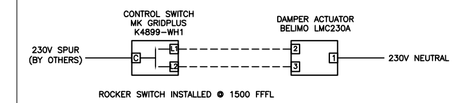
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REV	DRN	CHKD	DESCRIPTION	DATE

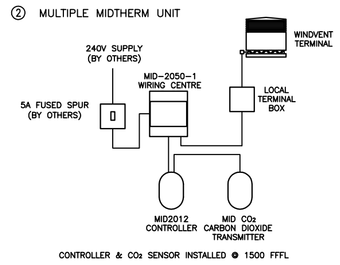
KEY:

① SINGLE MIDTHERM UNIT



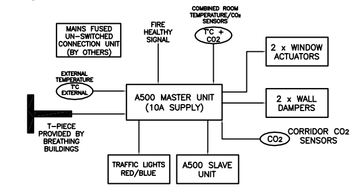
ROCKER SWITCH INSTALLED @ 1500 FFFL

② MULTIPLE MIDTHERM UNIT



CONTROLLER & CO₂ SENSOR INSTALLED @ 1500 FFFL

③ BREATHING BUILDINGS



④ ROOM TEMPERATURE SENSOR (A/C)

⑤ AVERAGING THERMOSTAT (VT CIRCUIT)

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email: cardiff@lornestewart.co.uk

Project Title

YSGOL TREGANNA
SANATORIUM ROAD
CARDIFF

Drawing Title

CONTROLS

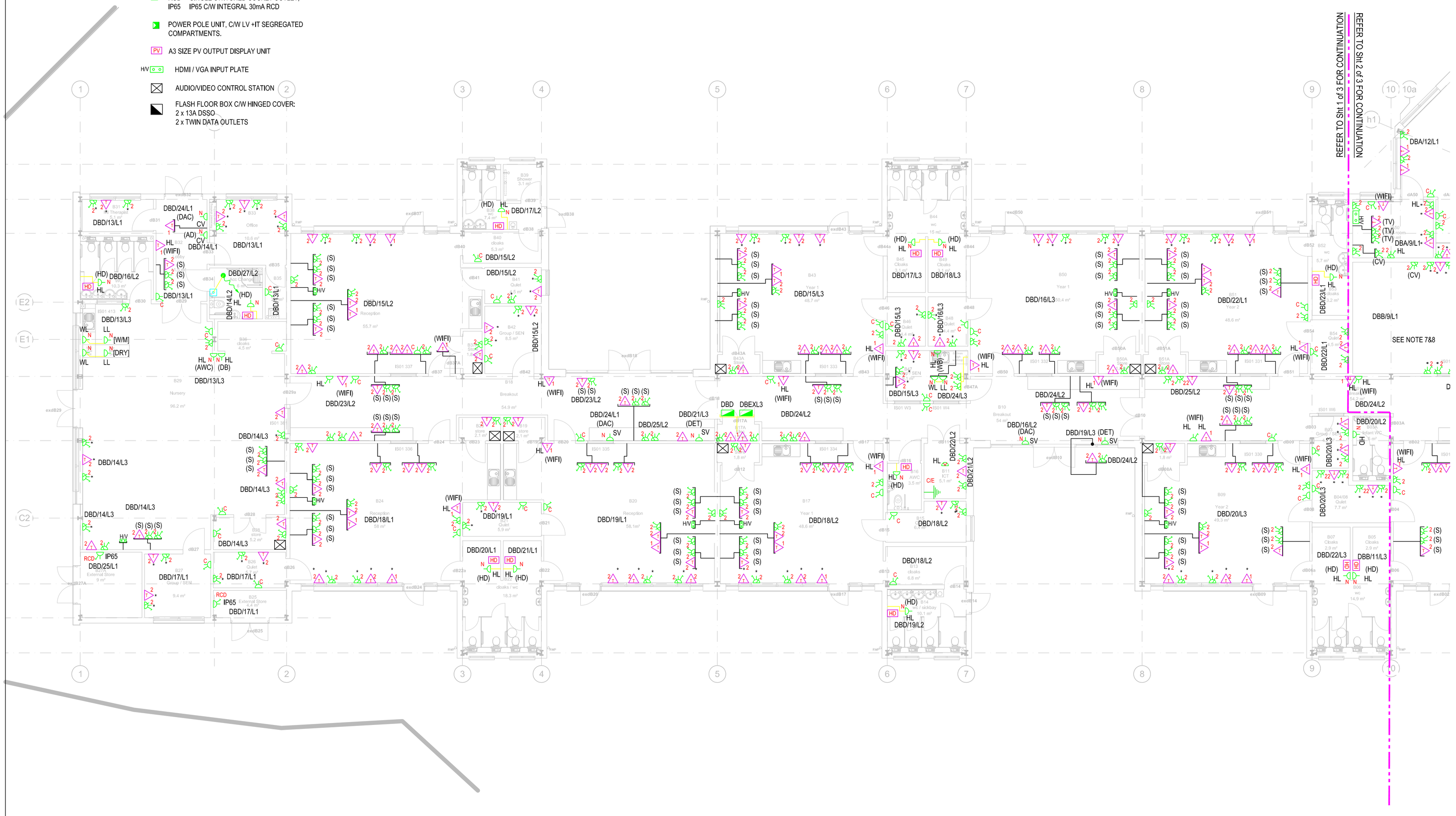
Project No.	Drawing No.		Rev.
491	M-19		R
Drawn: MRH	Ch'd: CH	Date: August 2013	Scale: 1:200 @ A1

Path: G:\CAD\491 Ysgol Treganna\Record\491-M-19-R(controls).dwg

A1

LEGEND

2	DOUBLE SWITCHED SOCKET OUTLET	*
2	DOUBLE UN-SWITCHED SOCKET OUTLET	WL
	SINGLE SWITCHED SOCKET OUTLET	LL
	SINGLE UN-SWITCHED SOCKET OUTLET	HL
C	CLEANERS SOCKET SINGLE SWITCHED	CV
1	SINGLE RJ45 IT OUTLET	SV
2	DOUBLE RJ45 IT OUTLET	DET
N	SWITCHED FUSED CONNECTION UNIT WTH NEON INDICATOR	IP56/IP65
	CABLE OUTLET	
SPN 45A	PULL CORD, RATING AND POLES AS INDICATED	
45A SPN	ISOLATOR, RATING AND POLES AS INDICATED	
HD	HAND DRYER	
C/E	CLEAN EARTH BAR	
	63AMP TPN COMMANDO SOCKET	
HL	COMMANDO SOCKET OUTLET, CEILING MOUNTED - FOR IT EQUIPMENT.	
	RCD SINGLE SWITCHED SOCKET OUTLET, IP65 IP65 C/W INTEGRAL 30mA RCD	
	POWER POLE UNIT, C/W LV +IT SEGREGATED COMPARTMENTS.	
PV	A3 SIZE PV OUTPUT DISPLAY UNIT	
HV	HDMI / VGA INPUT PLATE	
	AUDIO/VIDEO CONTROL STATION	
	FLASH FLOOR BOX C/W HINGED COVER: 2 x 13A DSSO 2 x TWIN DATA OUTLETS	



NOTES

AS BUILT

blues electrical
Unit Q4
Capital Business Park
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CF3 2PU
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project
YSGOL TREGANNA

title
SMALL POWER AND VOICE/DATA
SHEET 1 OF 3

client
COWLIN

architect
AUSTIN-SMITH: LORD

project no	drawn by	date	checked	scale
WA0037	GOC	October 2012	CL	1:100@A1

drawing no.
WA0037-E-62-00-001

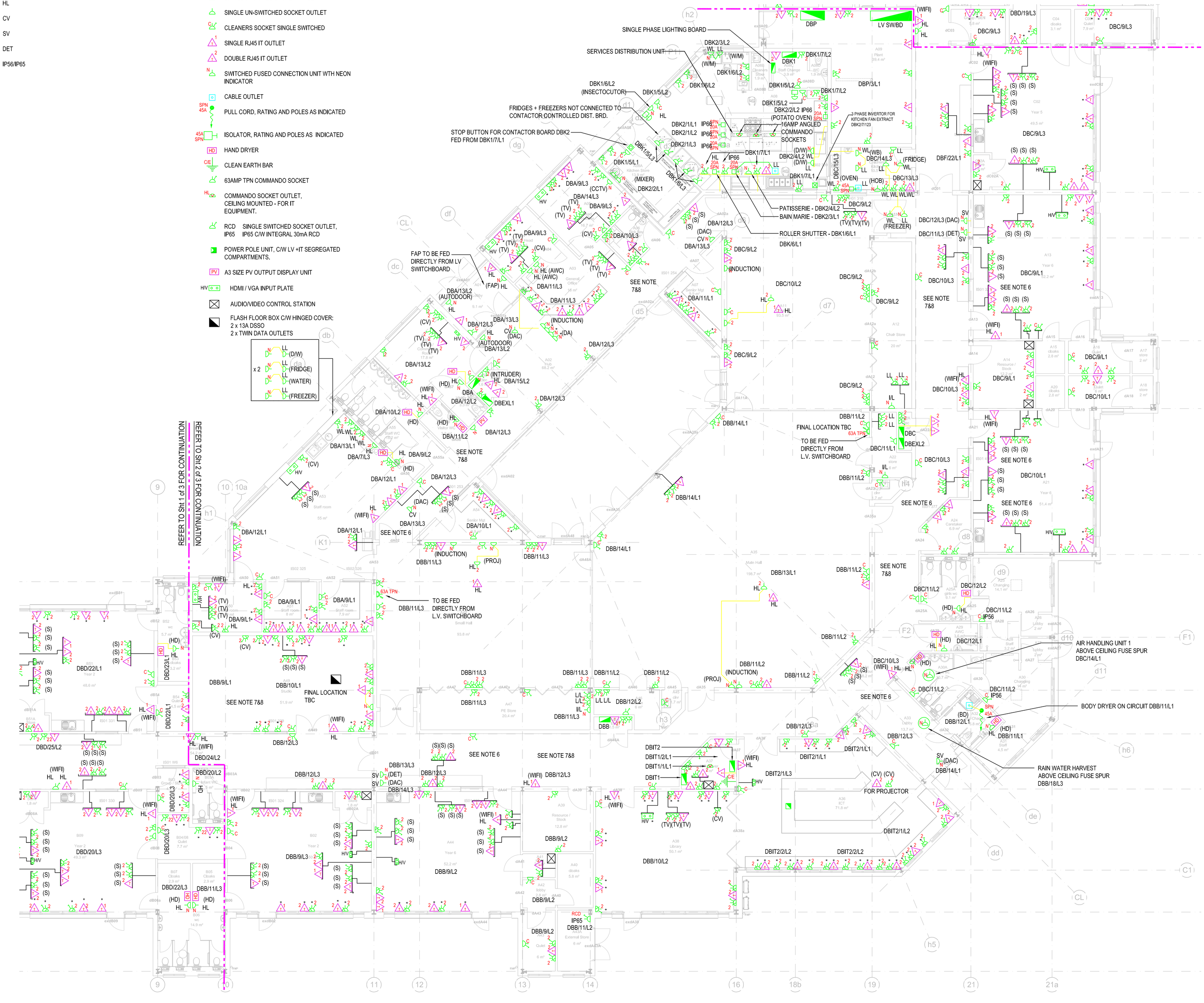
revision

A1

LEGEND

- WL
- LL
- HL
- CV
- SV
- DET
- IP56/IP65

- DOUBLE SWITCHED SOCKET OUTLET
- DOUBLE UN-SWITCHED SOCKET OUTLET
- SINGLE SWITCHED SOCKET OUTLET
- SINGLE UN-SWITCHED SOCKET OUTLET
- CLEANERS SOCKET SINGLE SWITCHED
- SINGLE RJ45 IT OUTLET
- DOUBLE RJ45 IT OUTLET
- SWITCHED FUSED CONNECTION UNIT WTH NEON INDICATOR
- CABLE OUTLET
- PULL CORD, RATING AND POLES AS INDICATED
- ISOLATOR, RATING AND POLES AS INDICATED
- HAND DRYER
- CLEAN EARTH BAR
- 63AMP TPN COMMANDO SOCKET
- COMMANDO SOCKET OUTLET, CEILING MOUNTED - FOR IT EQUIPMENT.
- RCD SINGLE SWITCHED SOCKET OUTLET, IP65 IP65 C/W INTEGRAL 30mA RCD
- POWER POLE UNIT, C/W LV +IT SEGREGATED COMPARTMENTS.
- A3 SIZE PV OUTPUT DISPLAY UNIT
- HDMI / VGA INPUT PLATE
- AUDIO/VIDEO CONTROL STATION
- FLASH FLOOR BOX C/W HINGED COVER: 2 x 13A DSSO 2 x TWIN DATA OUTLETS



NOTES

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blues electrical

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project
YSGOL TREGANNA

title
SMALL POWER AND VOICE/DATA
SHEET 2 OF 3

client
COWLIN

architect
AUSTIN-SMITH: LORD

project no	drawn by	date	checked	scale
WA0037	GOC	October 2012	CL	1:100@A1

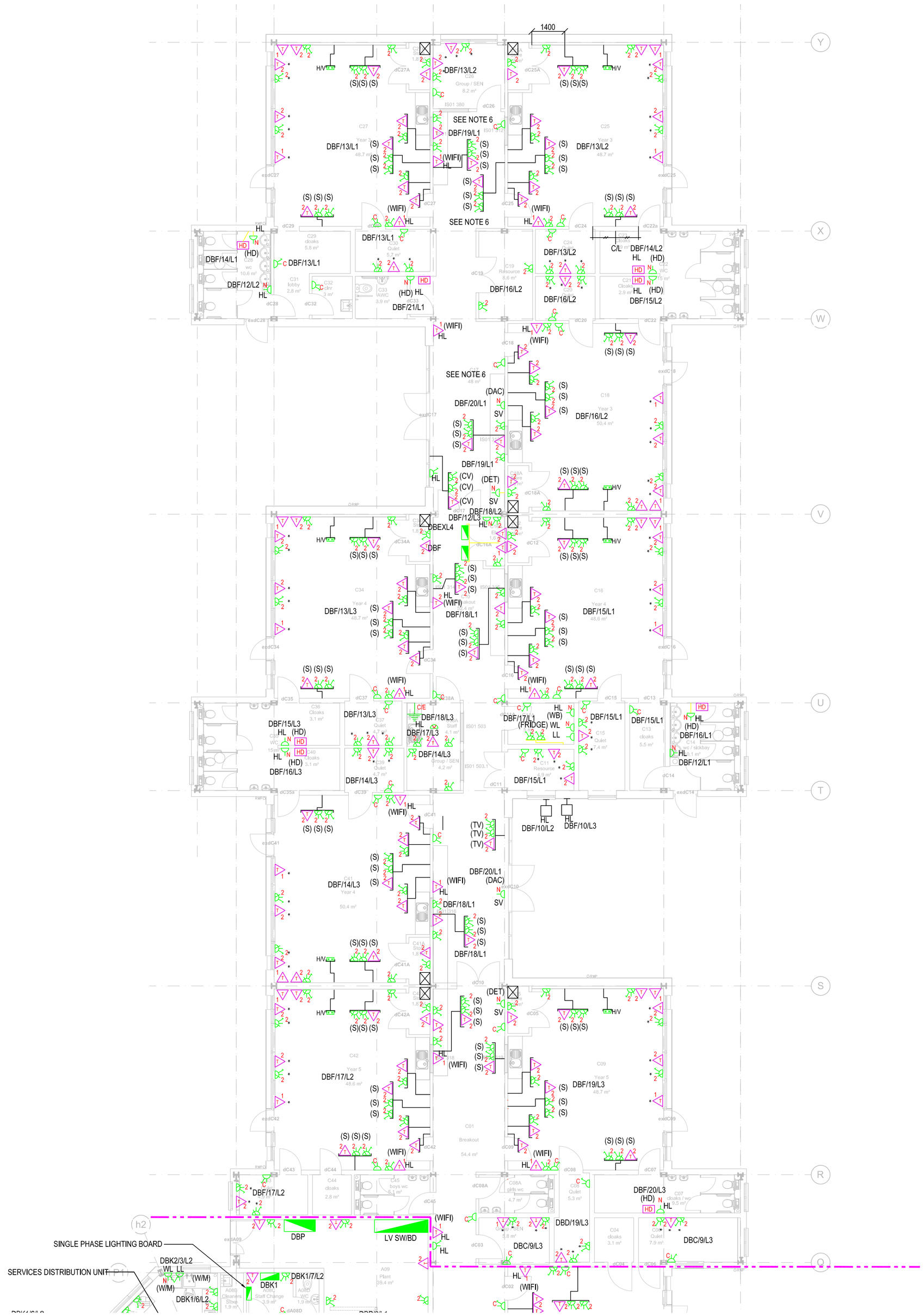
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revision

A1

LEGEND

2	DOUBLE SWITCHED SOCKET OUTLET	•
2	DOUBLE UN-SWITCHED SOCKET OUTLET	WL
	SINGLE SWITCHED SOCKET OUTLET	LL
	SINGLE UN-SWITCHED SOCKET OUTLET	HL
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2	DOUBLE RJ45 IT OUTLET	DET
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	CABLE OUTLET	
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H/V	HDMI / VGA INPUT PLATE	



NOTES

AS BUILT

blues electrical

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project
YSGOL TREGANNA

title
SMALL POWER AND VOICE/DATA
SHEET 3 OF 3

client
COWLIN

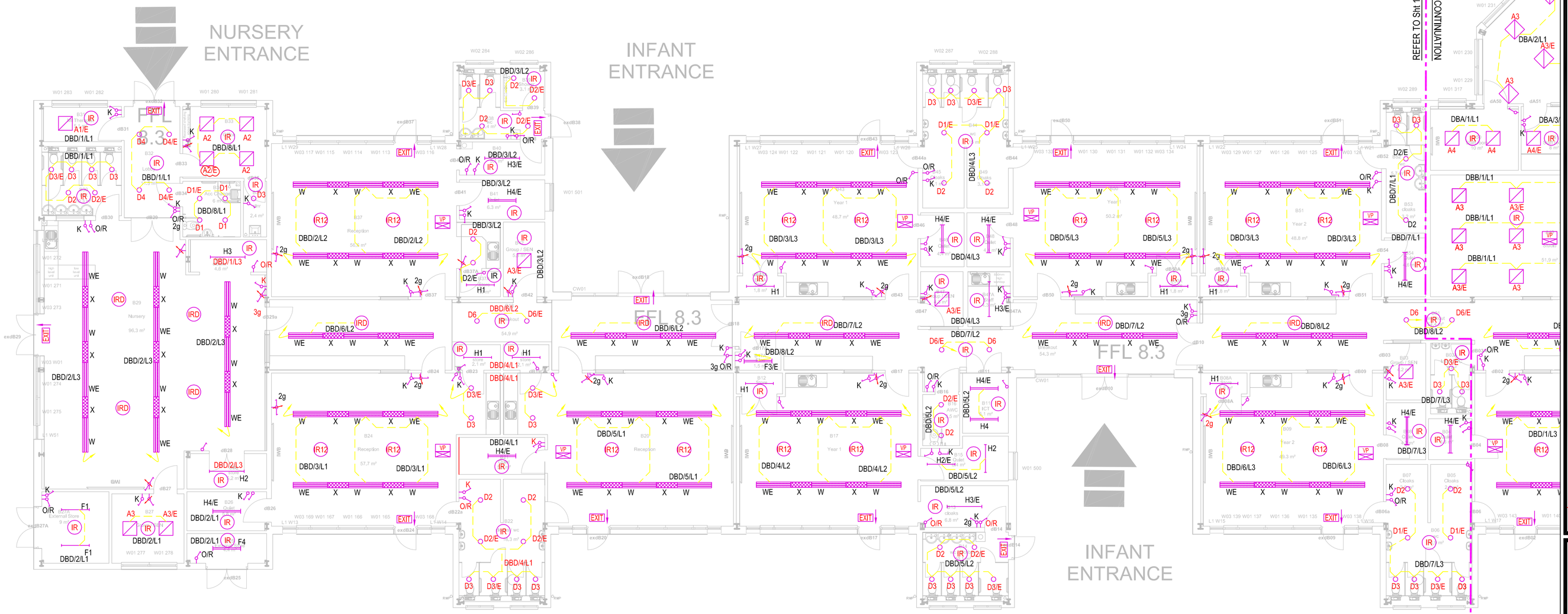
architect
AUSTIN-SMITH: LORD

project no	drawn by	date	checked	scale
WA0037	GOC	October 2012	CL	1:100@A1

drawing no.
WA0037-E-62-00-003

revision

A1



LEGEND:

- ONE WAY LIGHT SWITCH, g DENOTES NUMBER OF GANGS.
- TWO WAY LIGHT SWITCH, g DENOTES NUMBER OF GANGS.
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- VP — 6 POLE 4 CHANNEL DSI COMPATIABLE MARSHALLING BOX MOUNTED ABOVE CEILING - CP ELECTRONICS VITP-MBSDI
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- SS — SCENE SETTING, MULTIPLE PROGRAMMES
- K — EMERGENCY LIGHTING KEY TEST SWITCH. g DENOTES NUMBER OF GANGS.

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REFER TO O&M MANUAL VOLUME 3 SECTION 3 FOR INDIVIDUAL LUMINAIRE DATA SHEETS.

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project
YSGOL TREGANNA

title
LIGHTING LAYOUT
SHEET 1 OF 3

client
CARDIFF COUNCIL

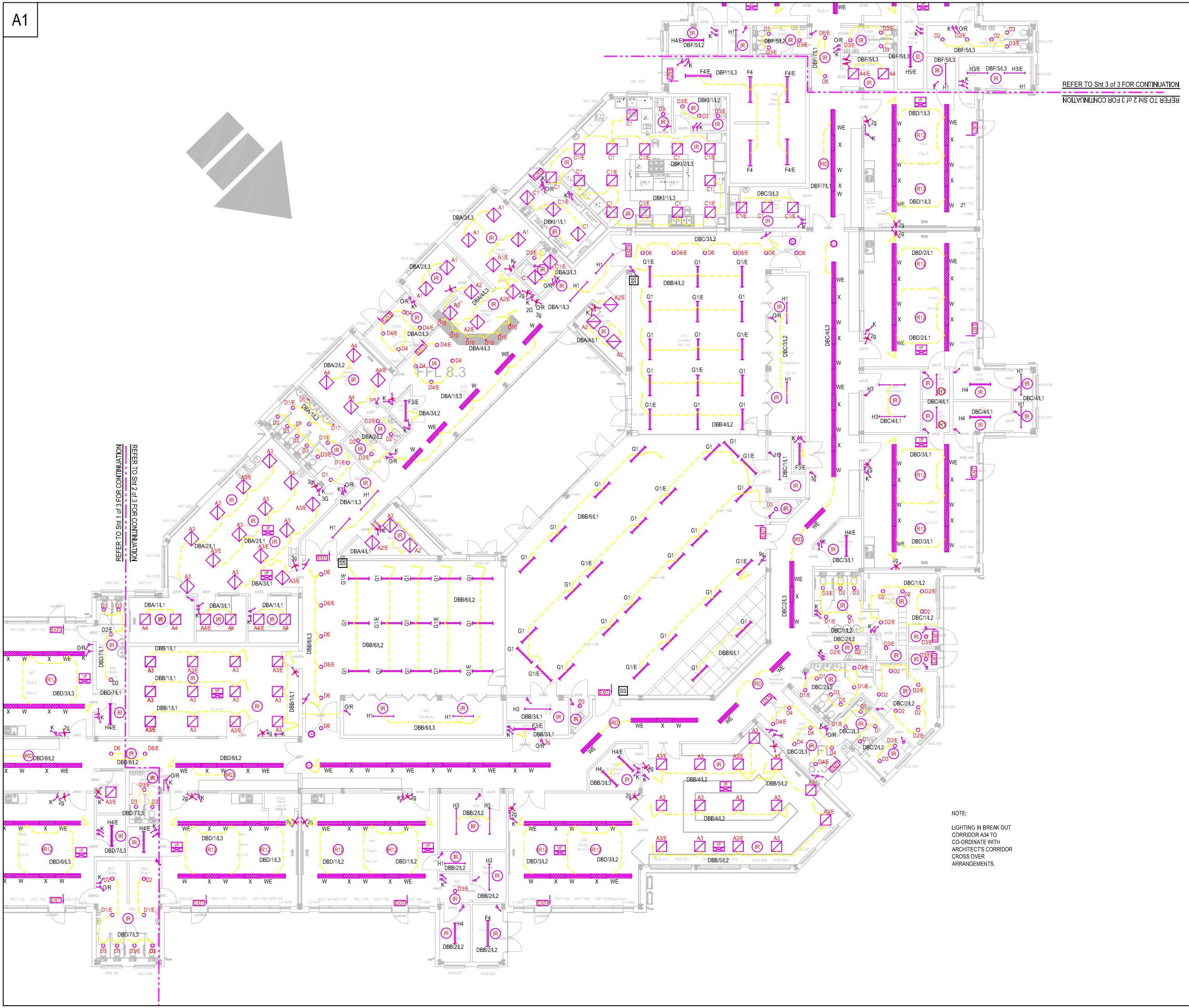
architect
AUSTIN-SMITH: LORD

project no	drawn by	date	checked	scale
WA0037	GO	August 13	DH	1:100@A1

drawing no.
WA0037-E-63-00-001

revision

A1



NOTES

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project
YSGOL TREGANNA

title
LIGHTING LAYOUT
SHEET 2 OF 3

client
CARDIFF COUNCIL

architect
AUSTIN-SMITH: LORD

project no	drawn by	date	checked	scale
WA0037	GO	August 13	DH	1:100@A1

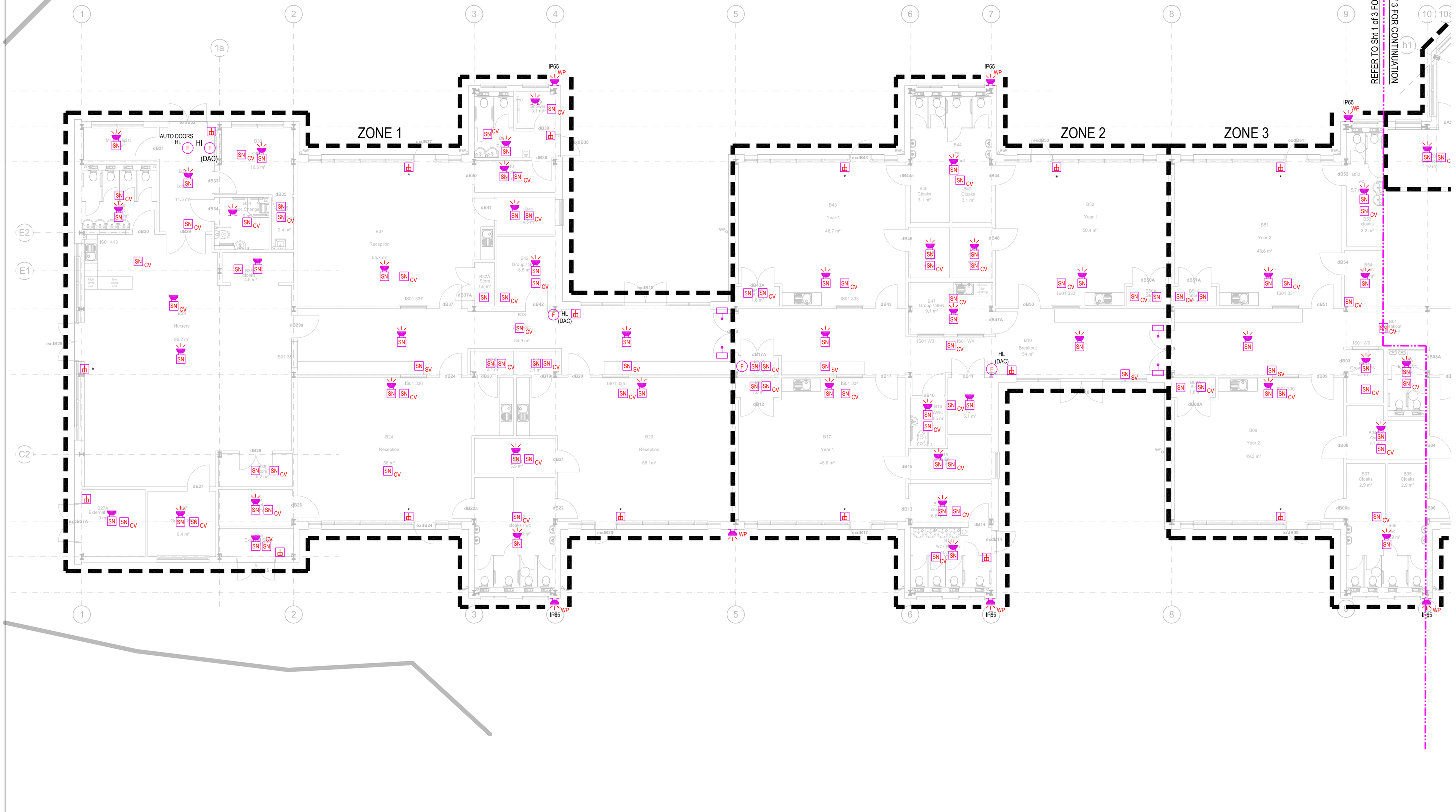
drawing no.
WA0037-E-63-00-002

revision

A1

SYMBOLS:

- DOOR DETENTE
- SV SERVICE VOID DETECTOR AND BASE
- SMOKE DETECTOR AND BASE
- CV CEILING VOID DETECTOR AND BASE
- F HEAT DETECTOR AND BASE
- SMOKE DETECTOR C/W SOUNDER BASE
- SMOKE DETECTOR C/W SOUNDER BEACON BASE
- F HEAT DETECTOR C/W SOUNDER BASE
- F HEAT DETECTOR C/W SOUNDER BEACON BASE
- MANUAL CALL POINT
- CEILING MONTED SOUNDER BEACON
- WALL MOUNTED SOUNDER BEACON
- F FIRE INTERFACE UNITS
- FAP FIRE PANEL
- IP66 EXTERNAL WALL MOUNTED SOUNDER BEACON
- FAR FIRE ALARM REPEAT PANEL
- C/C CLASS CHANGE FACILITY OVER-RIDE SWITCH
- MANUAL CALL POINT, FLUSH INSTALLED IN DADO TRUNKING



NOTES

SUFFIX KEY

CV	=	CEILING VOID
SV	=	SERVICE VOID
DET	=	DOOR DETENTE
DAC	=	DOOR ACCESS CONTROL
BEMS	=	BUILDING ENERGY MANAGEMENT SYSTEM
MCCP	=	MECHANICAL CONTROL PANEL

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YSGOL TREGANNA

title
FIRE ALARM LAYOUT
SHEET 1 OF 3

client
CARDIFF COUNCIL

architect
AUSTINE-SMITH: LORD

project no	drawn by	date	checked	scale
WA0037	GOC	October 2012	CL	1:100@A1

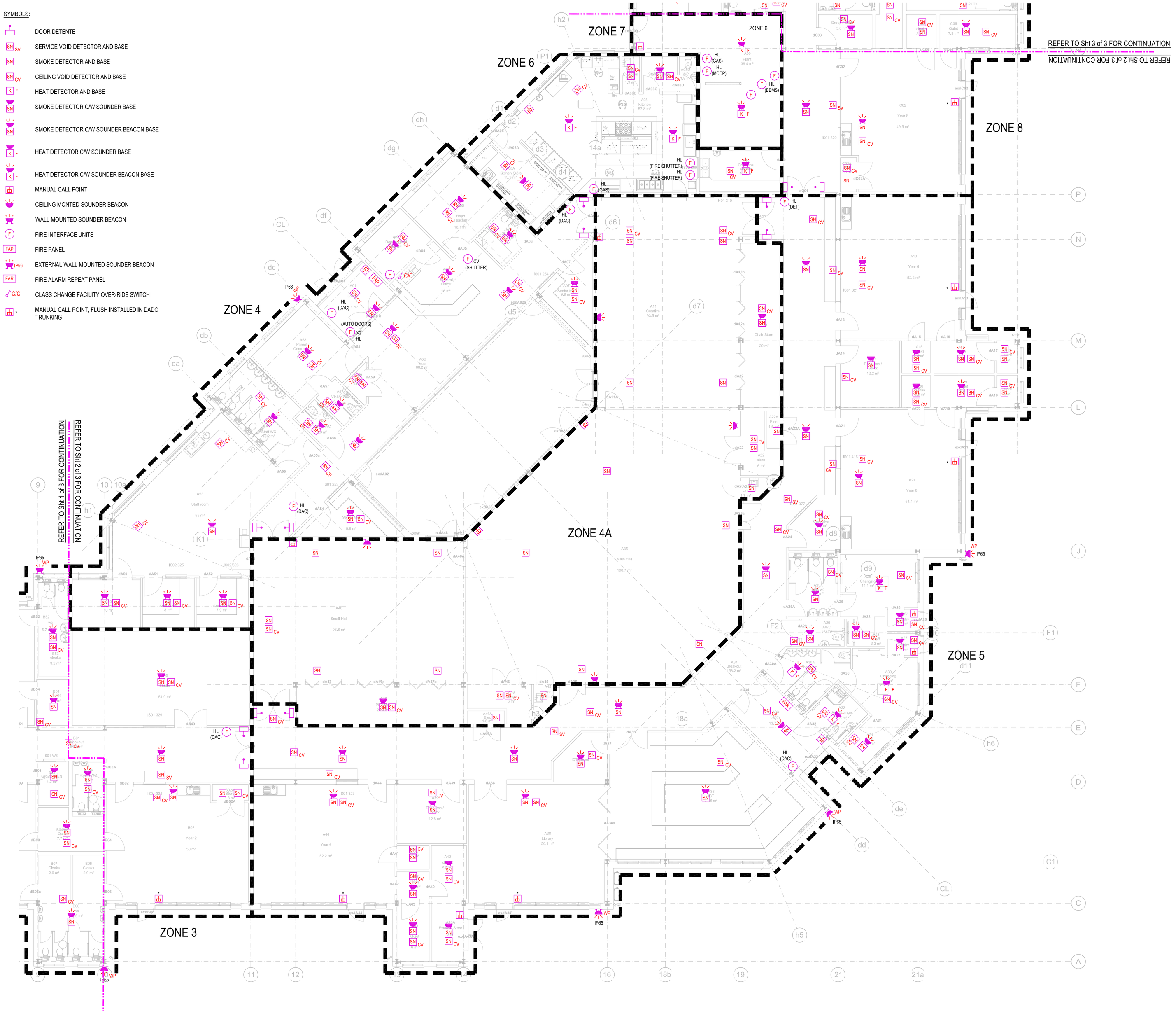
drawing no.
WA0037-E-67-00-001

revision

A1

SYMBOLS:

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project
YSGOL TREGANNA

title
FIRE ALARM LAYOUT
SHEET 2 OF 3

client
CARDIFF COUNCIL

architect
AUSTINE-SMITH: LORD

project no	drawn by	date	checked	scale
WA0037	GOC	October 2012	CL	1:100@A1

drawing no.
WA0037-E-67-00-002

revision

A1

SYMBOLS:

- DOOR DETENTE
- SERVICE VOID DETECTOR AND BASE
- SMOKE DETECTOR AND BASE
- CEILING VOID DETECTOR AND BASE
- HEAT DETECTOR AND BASE
- SMOKE DETECTOR C/W SOUNDER BASE
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project
YSGOL TREGANNA

title
FIRE ALARM LAYOUT
SHEET 3 OF 3

client
CARDIFF COUNCIL

architect
AUSTINE-SMITH: LORD

project no	drawn by	date	checked	scale
WA0037	GOC	October 2012	CL	1:100@A1

drawing no.
WA0037-E-67-00-003

revision

A1



PC		PHOTOCELL UNIT
AA	THORN	CIVIC 1x100W HIT, MOUNTED ON 6M COLUMN
BB	THORN	BASALT BOLLARD 1x42W TC-T
CC	THORN	PIAZZA II, 1x42W TC-T C/W PRISMATIC DIFFUSER & HF CONTROL GEAR
CCE	THORN	PIAZZA II, 1x42W TC-T C/W PRISMATIC DIFFUSER HF CONTROL GEAR &INTEGRAL 3HR EMERGENCY BATTERY
DD	COOPER	LFL3-3LR1Z LED FIOOD3 LED 700mA 5000K
F2	THORN	1x35W THORN AQUAFORCE C/W HF CONTROL GEAR
F4	THORN	2x35W THORN AQUAFORCE C/W HF CONTROL GEAR
CCE		LUMINAIRE SWITCHING UNLIMITED, DUSK - DAWN
CCE		LUMINAIRE SWITCHING LIMITED, DUSK - 23:00 HOURS

Notes

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blues® electrical

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YSGOL TREGANNA

title
EXTERNAL LIGHTING

client
COWLIN

architect
AUSTIN-SMITH: LORD

project no	drawn by	date	checked	scale
WA0037	GOC	September 2013	CL	1:500 @ A1

drawing no.
WA0037-E-96-00-001

revision

A1



Notes

LEGEND:

- FIXED DAY/NIGHT CCTV CAMERA
- DAY/NIGHT PTZ DOME CAMERA, COMPLETE WITH 4 No. COLUMN MOUNTED IP65 RATED PIR CURTAIN DETECTORS.
- COLUMN RAISE / LOWER TYPE (4M UNLESS OTHERWISE STATED)

SUFFIX KEY

VP	VANDAL PROOF
CM	COLUMN MOUNTED
BM	BUILDING MOUNTED

AS BUILT

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project
YSGOL TREGANNA

title
EXTERNAL CCTV SCHEME

client
COWLIN

architect
AUSTIN-SMITH: LORD

project no	drawn by	date	checked	scale
WA0037	GOC	October 2012	CL	1:500 @ A1

drawing no.
WA0037-E-96-LM-001

revision
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A1



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AS BUILT

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project
YSGOL TREGANNA

title
LIGHTING LAYOUT
SHEET 3 OF 3

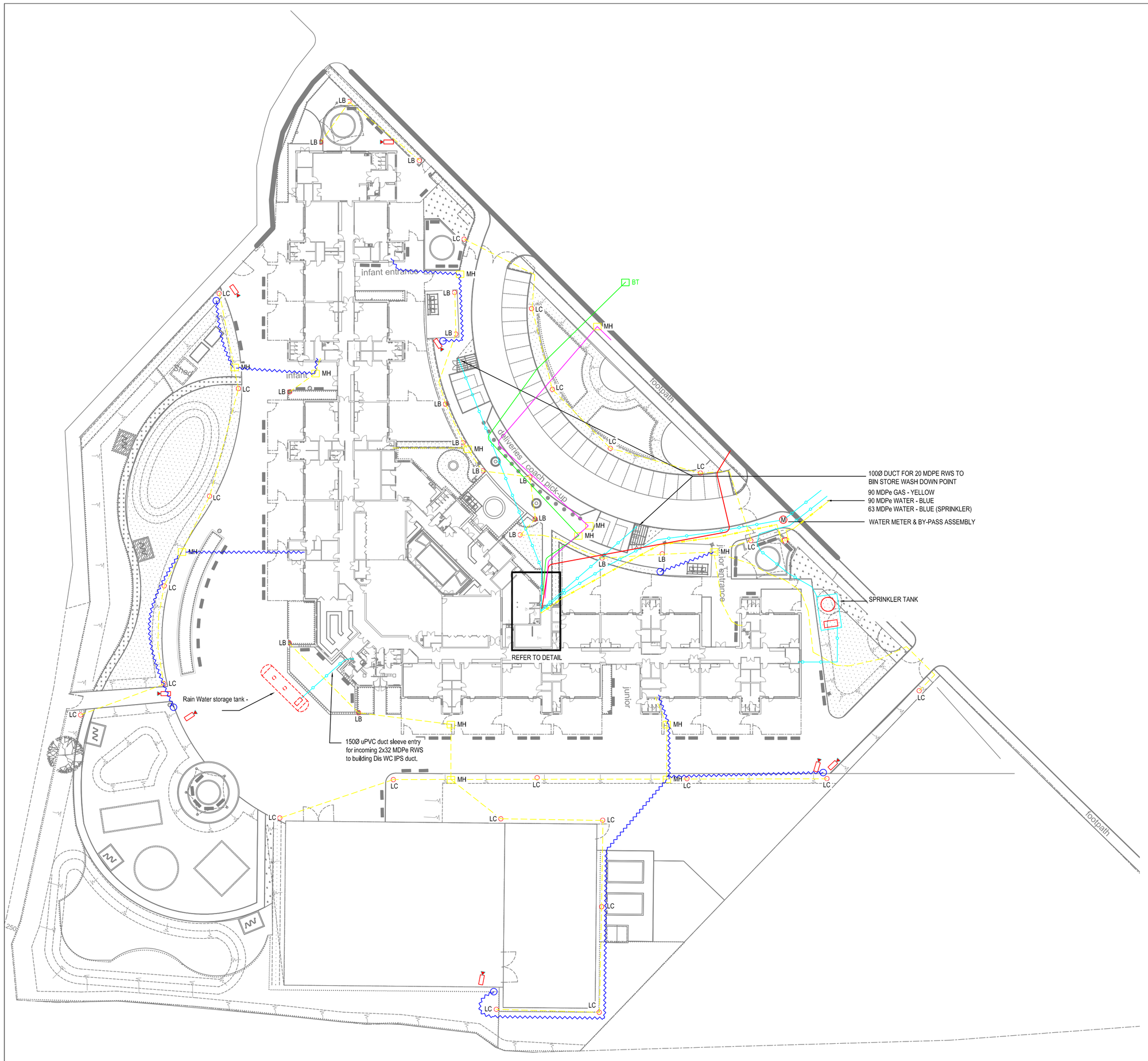
client
CARDIFF CITY COUNCIL

architect
AUSTIN-SMITH: LORD

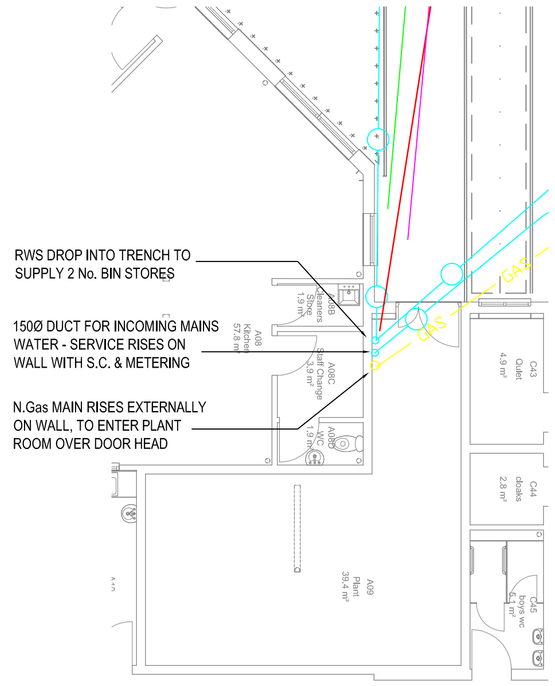
project no	drawn by	date	checked	scale
WA0037	G0	August 13	DH	1:100@A1

drawing no.
WA0037-E-63-00-003

revision

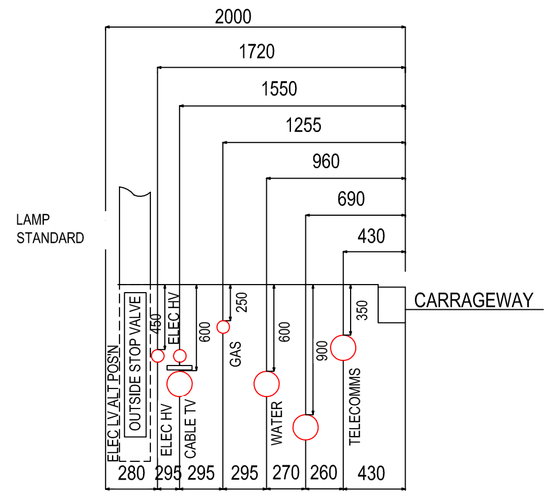


SITE LAYOUT
(Scale 1:500)



DETAIL A
ENLARGED DETAIL OF PLANT ROOM
(Scale 1:100)

MDPE WATER - BLUE
GAS — MDPE GAS - YELLOW
MAINS ELECTRIC
VIRGIN MEDIA / NTL
BT
CCTV
CCTV COLUMN
STREET LIGHT/BOLLARD
LIGHTING CABLE
CCTV



DETAIL B

INDICATIVE ARRANGEMENT OF BURIED SERVICES (NOT TO SCALE)

blues electrical
Unit Q4
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Cardiff
CF3 2PU
TEL: 029 20839990
FAX: 029 20799436

	DRAWING STATUS	SCALE	DATE	DRAWN BY	JOB TITLE	DRAWING TITLE	DRAWING REF.
	AS BUILT	1:500 @ A1	10/10/13	CC	YSGOL TREGANNA, CARDIFF	EXTERNAL SERVICES LAYOUT	1058/E50

This fire strategy has been developed to demonstrate compliance with the life safety requirements and property protection recommendations of Building Bulletin (BB) 100 Design for fire safety in schools. This is as recommended in Approved Document B of the building regulations.

A property protection standard fire sprinkler system will be provided.

Fire alarm and detection

An L1M Category protection in accordance with BS5839:1 2002 interfaced with door access systems will be provided as detailed in the electrical employer's requirements.

Occupancies

For means of escape purposes classrooms are anticipated to have 30 pupils and 2 teaching staff. Other spaces are based on the space factors stated in BB 100.

During the tender period occupancies for the Main Hall A35, Small Hall A48 and Creative A11 have been confirmed as 100, 30 and 58 people respectively. This is significantly below the occupancies based on a 0.45 space factor for multi use halls. The space factor would give occupancies of 400, 200 and 200 people. By widening the doors to the side of the stage to a leaf and a half providing 1400mm clear we are confident that escape for these increased numbers can be accommodated.

Horizontal Escape

Escape from the majority of spaces is available within the minimum escape distances stated in BB 100. These are 12 metres for escape in one direction and 30 metres for escape in two directions.

It is anticipated that the classrooms with external doors will utilise these as their primary means of escape. A minimum clear width of 800mm to comply with Approved Document M will provide escape for up to 60 people.

Escape widths of 1600mm clear through external corridor doors will provide escape for up to 330 people. It is anticipated that this will be adequate due to the majority of classrooms being provided with dedicated external escape doors.

Sub division of corridors

Subdivision of corridors will be provided with FD30s doors to ensure that alternative means of escape remain available.

Compartmentation

BB 100 requires unsprinklered schools to be compartmented into areas of less than 800 m2 by 60 minute compartment walls. As the proposal is to include "property Protection" standard sprinklers rather than "life safety" standard the school will be classified as unsprinklered when assessing compartmentation.

Minimum periods of fire resistance for elements of structure

As a single storey building fire protection of structure is not generally required. 60 minutes fire protection to structure supporting compartment walls is however required and will be provided.

Cavity barriers

Fire cavity barriers will generally be required in external walls. Openings will be closed by non fire rated cavity closers. Cavity barriers will be at 20m spacings or less, in accordance with BB 100. Cavity barriers will not generally be required within ceiling voids as it is anticipated that partitions will be taken to the underside of the roof liner to meet the requirements of BB 93.

30 minute Fire cavity barriers will be provided in ceiling voids above corridors to subdivide these into lengths of less than 20 metres.

Places of special fire hazard

The following spaces are to be enclosed in fire rated construction as required by BB 100 due to their categorisation as "places of special fire hazard".

Plant Rooms
Cleaner's Stores
Kitchens
PE stores
Cloak rooms

The degree of fire protection will been upgraded from the standard 30 minutes to 60 minutes following clarification in the tender period that the property protection recommendations of BB 100 are to be provided.

BB 100 also recommends for property protection that ICT rooms, stores and corridors are enclosed in fire rated construction. 30 minutes fire rated construction including doors, glazed screens and natural ventilation systems will be provided to these spaces.

Fire resistance of doors

All doors within fire rated walls will be FD30s standard fire doors. Fire doors in compartment walls will be FD60s standard.

Fire doors will include intumescent seals, cold smoke seals, appropriate ironmongery, fire signage and closers where required.

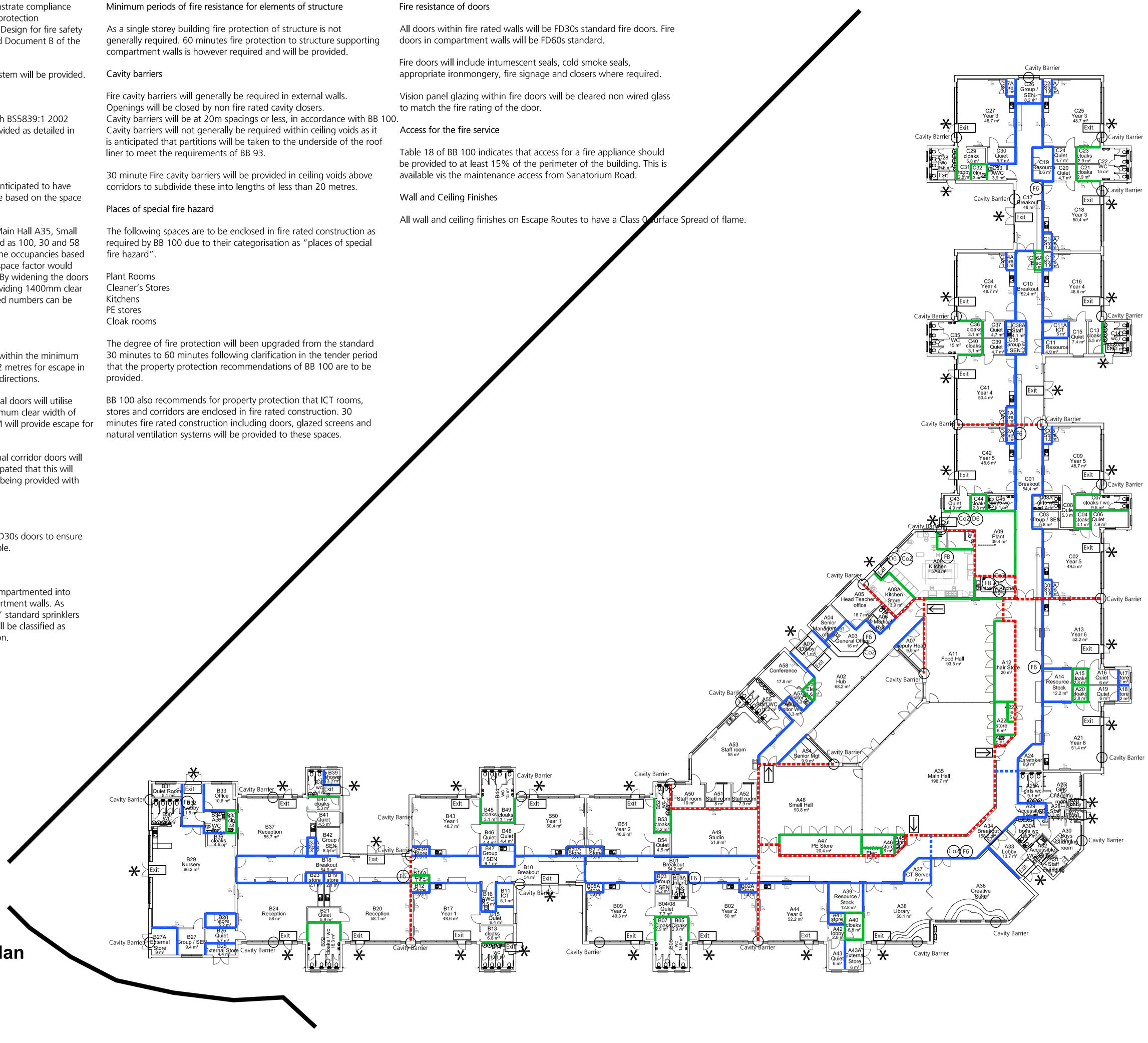
Vision panel glazing within fire doors will be cleared non wired glass to match the fire rating of the door.

Access for the fire service

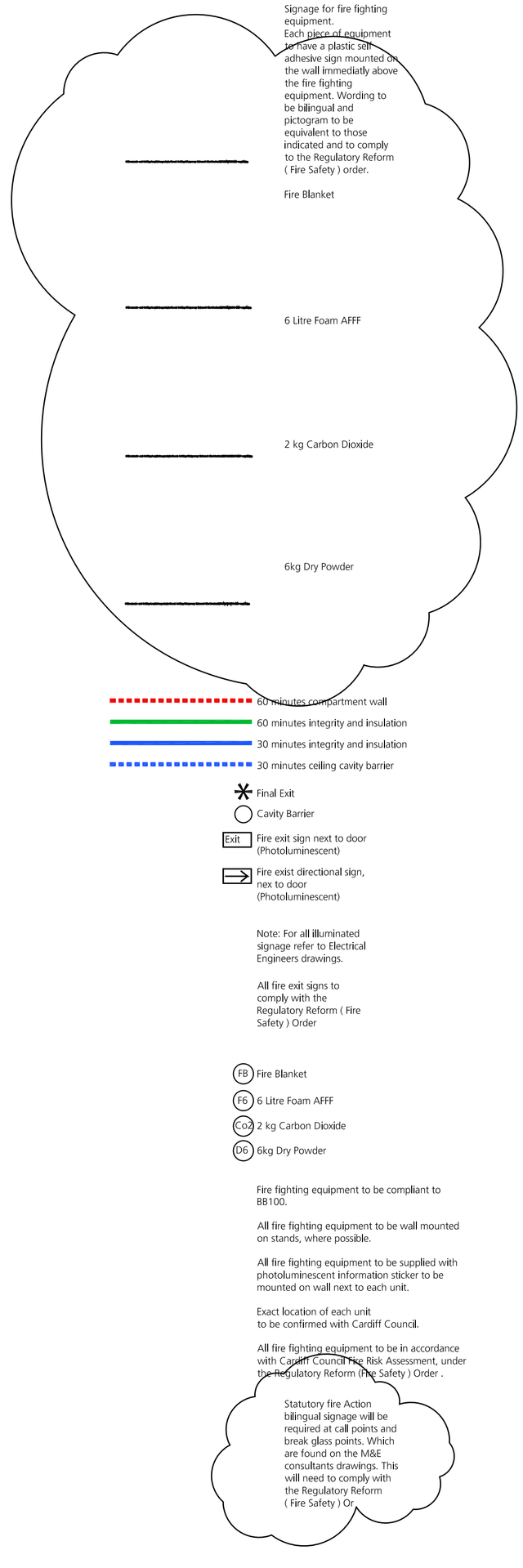
Table 18 of BB 100 indicates that access for a fire appliance should be provided to at least 15% of the perimeter of the building. This is available vis the maintenance access from Sanatorium Road.

Wall and Ceiling Finishes

All wall and ceiling finishes on Escape Routes to have a Class 0 surface Spread of flame.



Fire Strategy Plan
1 : 250 @ A1



Revision	Description	By	Chkd By	Date
A	Note Revision	nda	GR	July '12
B	Note regarding Class 0 surface spread of flame to wall and ceiling finishes	nda	GR	27/08/12
C	Additional Walls Fire Ratings Highlighted	nda	GR	12-09/12
D	Employer lead design changes, layout amended accordingly	nda	GR	09-10-26
E	B37A store fire rated as other stores	nda	GR	15-10-26
F	C18A store fire rated as other stores	nda	GR	06-12-12
G	Cavity Barrier Positions Indicated	ST	AL	30.01.13
H	Cavity Barrier annotation altered	ST	AL	26.03.13
I	Wall positions amended	ST	AL	16.04.13
J	Fire exit signage	ST	AL	07.05.13
K	Fire fighting equipment	ST	AL	19.06.13
L	Fire fighting equipment confirmation	ST	AL	01.07.13
M	Fire fighting signage	ST	AL	10.07.13
N	Final drawing issue	ST	AL	14.08.13

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Drawn nda
Date July 2012
Scale 1:250 @ A1
Status Construction

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Architects Designers Planners
Landscape Architects

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CARDIFF CAERDYDD

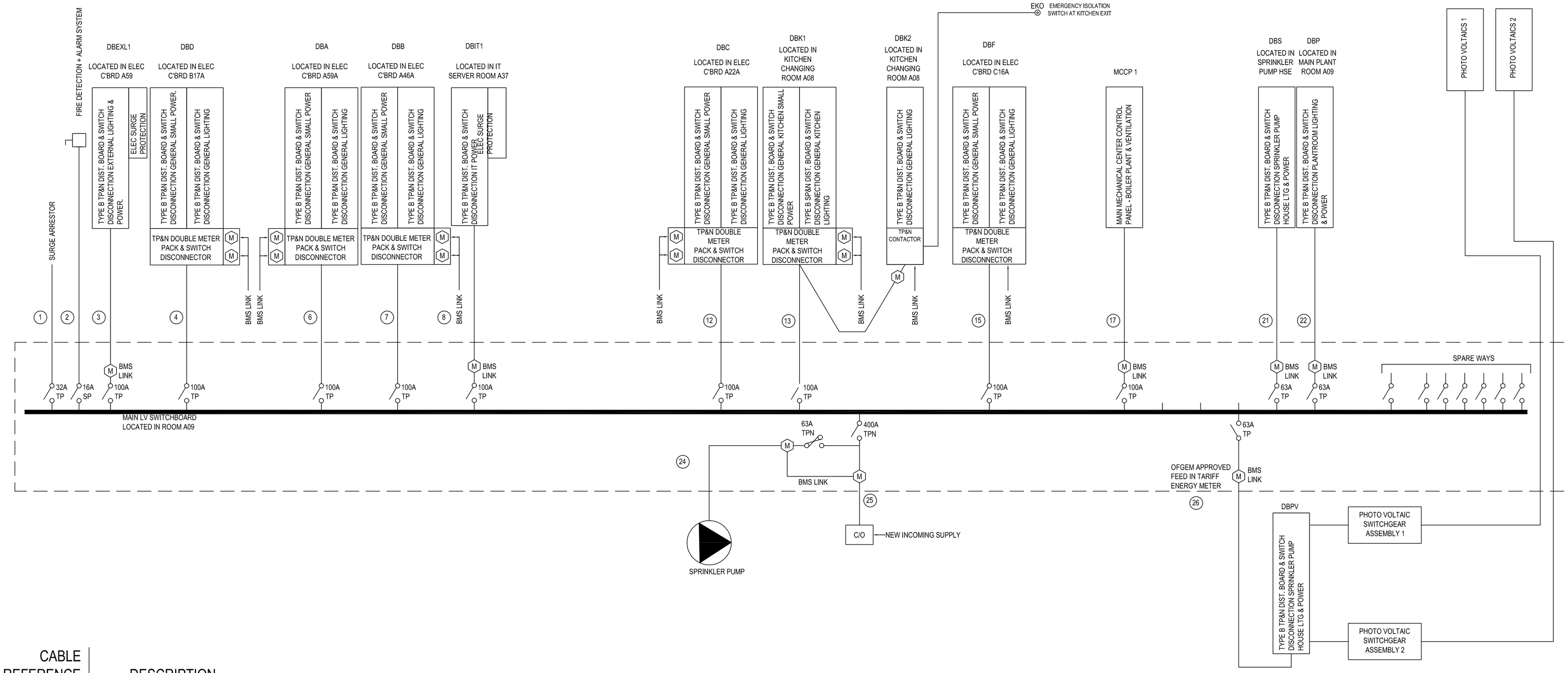
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Austin·Smith:Lord

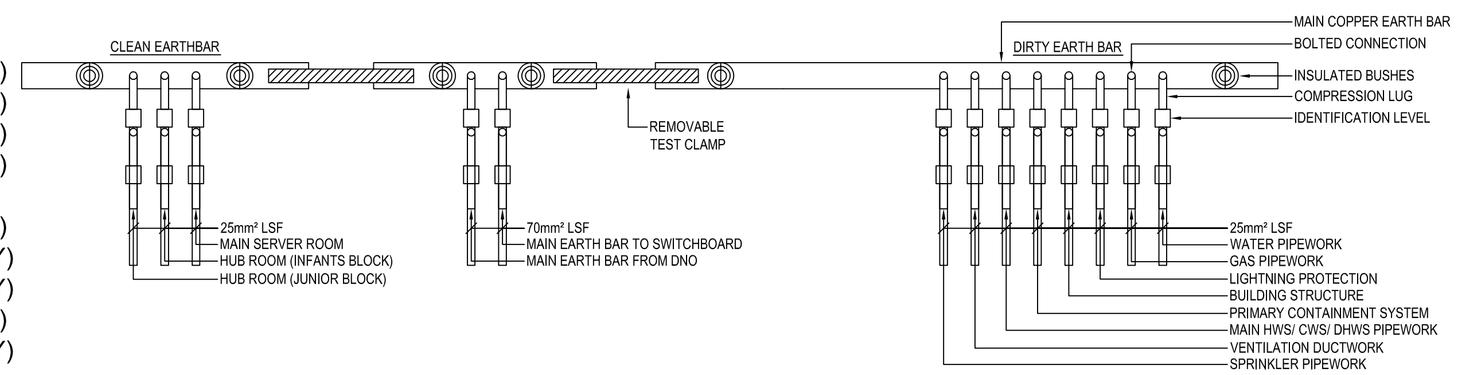
Project Ysgol Treganna
New Primary School
Description GA Floor Plan
Fire Strategy Layout

Job No. 212140
Drawing No. L(Fire)110
Revision A B C D E F G H I J K L M N

A1



CABLE REFERENCE NUMBER	DESCRIPTION
1	4 - C X 4.0mm² XLPE/SWA/LSF + 1 - C X 4.0MM² LSF CPC (ON GALVANISED STEEL CABLE TRAY)
2	3 - C X 6.0mm² FP400 (ON GALVANISED STEEL CABLE TRAY)
3	4 - C X 35.0mm² XLPE/SWA/LSF + 1 - C X 16.0MM² LSF CPC (ON GALVANISED STEEL CABLE TRAY)
4	4 - C X 70.0mm² XLPE/SWA/LSF + 1 - C X 35.0MM² LSF CPC (ON GALVANISED STEEL CABLE TRAY)
6	4 - C X 35.0mm² XLPE/SWA/LSF + 1 - C X 16.0MM² LSF CPC (ON GALVANISED STEEL CABLE TRAY)
7	4 - C X 50.0mm² XLPE/SWA/LSF + 1 - C X 25.0MM² LSF CPC (ON GALVANISED STEEL CABLE TRAY)
8	4 - C X 35.0mm² XLPE/SWA/LSF + 1- C X 16.0MM² LSF CPC (ON GALVANISED STEEL CABLE TRAY)
12	4 - C X 35.0mm² XLPE/SWA/LSF + 1 - C X16.0MM² LSF CPC (ON GALVANISED STEEL CABLE TRAY)
13	4 - C X 35.0mm² XLPE/SWA/LSF + 1 - C X 16.0MM² LSF CPC (ON GALVANISED STEEL CABLE TRAY)
15	4 - C X 35.0mm² XLPE/SWA/LSF + 1 - C X 16.0MM² LSF CPC (ON GALVANISED STEEL CABLE TRAY)
17	4 - C X 35.0mm² XLPE/SWA/LSF + 1 - C X 16.0MM² LSF CPC (ON GALVANISED STEEL CABLE TRAY)
21	4 - C X 35.0mm² XLPE/SWA/LSF + 1 - C X 16.0MM² LSF CPC (ON GALVANISED STEEL CABLE TRAY)
22	4 - C X 35.0mm² XLPE/SWA/LSF + 1 - C 16.0MM² LSF CPC (ON GALVANISED STEEL CABLE TRAY)
24	4 -C X 25.0mm² FP400 + 1- C X 16.0MM² LSF CPC (ON GALVANISED STEEL CABLE TRAY)
25	4 - C X 120.0mm² FP400 1 - C X 70.0MM² LSF CPC (ON GALVANISED STEEL CABLE TRAY)
26	4 - C X 35.0mm² XLPE/SWA/LSF + 1 - C X 16.0mm² LSF CPC (ON GALVANISED STEEL CABLE TRAY)



INDICATIVE
EARTHING SCHEMATIC

NOTES

LEGEND:

- C/O — C/O CUT OUT
- MCCB
- FUSED SWITCH
- M — MODBUS ENERGY METER
- CONTACTOR
- EKO — EMERGENCY KNOCK OFF BUTTON
- BS4343 INTERLOCKED SWITCH SOCKET OUTLET
- ISOLATOR

AS BUILT

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I: www.TBandA.com

project
YSGOL TREGANNA

title
LV DISTRIBUTION SCHEMATIC

client
COWLIN

architect
AUSTIN-SMITH: LORD

project no	drawn by	date	checked	scale
WA0037	GOC	October 2013	CL	NTS

drawing no.
WA0037-E-60-LM-001

revision

A1



NOTES

AS BUILT

blues electrical

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project
YSGOL TREGANNA

title
PHOTOVOLTAICS SYSTEM

client
COWLIN

architect
AUSTIN-SMITH: LORD

project no	drawn by	date	checked	scale
WA0037	GOC	October 2013	CL	1:250@A1

drawing no.
WA0037-E-69-RR-001

revision

Luminaire Schedule

REF	DESCRIPTION	IMAGE
TYPE A1	There Flexotrex Recessed modular luminaire for 1x55W TC-Ll lamps with digital dimming circuit. Low gloss white painted steel body.	
TYPE A1E	There Flexotrex As above, and 3 hour manual test LED emergency module.	
TYPE A2	There Flexotrex Recessed modular luminaire for 2x24W T16 lamps with digital dimming circuit. Low gloss white painted steel body.	
TYPE A2E	There Flexotrex As above, and 3 hour manual test LED emergency module.	
TYPE A3	There Indiquattro Recessed modular luminaire for 1x55W TC-L lamps with digital dimming circuit. Body & coffer in white painted steel.	
TYPE A3E	There Indiquattro As above, and 3 hour manual test LED emergency module.	
TYPE A4	There Indiquattro Recessed modular luminaire for 2x24W T16 lamps with digital dimming circuit. Body & coffer in white painted steel.	
TYPE A4E	There Indiquattro As above, and 3 hour manual test LED emergency module.	
TYPE C1	There Invincible II Recessed sealed luminaire to IP65 (IP54 from above) for 4x14W T16 lamps. Housing is welded sheet steel with a white coating.	
TYPE D1	There Cruz A stylish, recessed downlight for 1x18W TC-DEL lamps. IP20. Body in sand blasted, die-cast aluminium with black PVC gear cover	
TYPE D1E	There Cruz As above, and 3 hour manual test emergency lighting function.	
TYPE D2	There Cruz A stylish, recessed downlight for 1x26W TC-DEL lamps. IP20. Body in sand blasted, die-cast aluminium with black PVC gear cover.	
TYPE D2E	There Cruz As above, and 3 hour manual test emergency lighting function.	
TYPE D3	There Cruz A stylish, recessed downlight for 1x32W TC-TEL1 lamps. IP20. Body in sand blasted, die-cast aluminium with black PVC gear cover.	
TYPE D3E	There Cruz As above, and 3 hour manual test emergency lighting function.	
TYPE D4	There Cruz A stylish, recessed downlight for 1x18W TC-DEL lamps with electronic digital dimmable. IP20.	
TYPE D4E	There Cruz As above, and 3 hour manual test emergency lighting function.	
TYPE D6	There Cruz A stylish, recessed downlight for 1x32W TC-TEL lamps with electronic digital dimmable. IP20.	
TYPE D6E	There Cruz As above, and 3 hour manual test emergency lighting function.	
TYPE D10	There Lightstream 2 A multi purpose ceiling recessed downlight for 1x9W LED/GU10/840 dimmable lamp. IP20 with firehood. White body in rolled steel sheet.	
TYPE D11	There Lightstream 2 A multi purpose ceiling recessed downlight for 1x9W LED/GU10/840 dimmable lamp. IP65 with firehood. White body in rolled steel sheet.	
TYPE EXIT	There Voyager Exit An economical and high performance 8W IP65 bulkhead with 3 hour manual test emergency lighting function.	
TYPE F1	There Aquaforce II IP65 dust and moisture resistant luminaire for 1x28W T16 lamps. Canopy: light grey polycarbonate, diffuser: clear polycarbonate.	
TYPE F1E	There Aquaforce II As above, and 3 hour manual test emergency lighting function.	
TYPE F1E	There Aquaforce II IP65 dust and moisture resistant luminaire for 2x28W T16 lamps. 3 hour manual test emergency lighting function.	
TYPE F4	There Aquaforce II IP65 dust and moisture resistant luminaire for 2x35W T16 lamps. Canopy: light grey polycarbonate, diffuser: clear polycarbonate.	
TYPE F4E	There Aquaforce II As above, and 3 hour manual test emergency lighting function.	
TYPE G1	There College High performance IP44 surface mounted fluorescent luminaire for 2x49W T16 lamps with electronic - digital dimmable circuit.	
TYPE G1E	There College As above, and 3 hour manual test emergency lighting function.	
TYPE H1	There College High performance IP44 surface mounted fluorescent luminaire for 1x28W T16 lamps with electronic - fixed output circuit.	
TYPE H1E	There College As above, and 3 hour manual test emergency lighting function.	
TYPE H2	There College High performance IP44 surface mounted fluorescent luminaire for 1x35W T16 lamps with electronic - fixed output circuit.	
TYPE H2E	There College As above, and 3 hour manual test emergency lighting function.	
TYPE H3	There College High performance IP44 surface mounted fluorescent luminaire for 1x49W T16 lamps with electronic - fixed output circuit.	
TYPE H3E	There College As above, and 3 hour manual test emergency lighting function.	
TYPE H4	There College High performance IP44 surface mounted fluorescent luminaire for 2x28W T16 lamps with electronic - fixed output circuit.	
TYPE H4E	There College As above, and 3 hour manual test emergency lighting function.	
TYPE H5E	There College High performance IP44 surface mounted fluorescent luminaire for 2x35W T16 lamps. 3 hour manual testing emergency lighting function.	
TYPE W	There Jupiter 2 Ultra slim minimalist suspended continuous line luminaire. 2x49W T16 lamps.	
TYPE WE	There Jupiter 2 As above, and 3 hour manual test emergency lighting function.	

Please note - for further luminaire information, please refer to individual data sheets, which are located in Electrical O&M Volume 3 Section 3.

AS BUILT

rev	dcc	description	dwn	chkd	date

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project
YSGOL TREGANNA

title
LIGHTING LAYOUT
SCHEDULE OF SYMBOLS

client
CARDIFF COUNCIL

architect
AUSTIN-SMITH: LORD

project no	drawn by	date	checked	scale
WA0037	GO	August 13	DH	NTS

drawing no.
WA0037-E-63-00-004

revision