

**CAMBRIA**

Constructive Thinking

Company Profile 2015

# CAMBRIA

Constructive Thinking

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## Welcome to the Cambria 2015 Profile

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We are Consulting **Civil** and **Structural** Engineers who provide comprehensive services to the construction industry. We deliver the right civil and structural solution for all our projects, are commercially astute and aim to always exceed our Client expectations.

**Red Hyperlinks** are active within pdf version. If this is a paper copy, please visit [www.cambria.co.uk](http://www.cambria.co.uk) to review with links.

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## Why Constructive Thinking?

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**CAMBRIA** staff take immense pride in being part of design teams that are consistently delivering award winning projects and we believe that we play a pivotal role in helping that happen. Our Directors and Engineers are challenged themselves in all projects to find new innovative ways to improve the design, reduce the risks and find extra value for the client.

To make this happen we need some key ingredients:

- Highest quality MStructE engineers
- Empathetic understanding of Architectural and MEP requirements
- Open minded approach
- Staff training and CPD programme to ensure innovative awareness

**CAMBRIA** are a consultancy that are evolving and redefining the Consulting Engineers role to be more explanatory, proactive and responsive. A service our **existing clients will testify** to.

# CAMBRIA

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## **About Us**

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## 1. Who We Are

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**Gary Mitchell**

**Director**

T: 029 2009 3333

M: 07811 110888

E: [g.mitchell@cambria.co.uk](mailto:g.mitchell@cambria.co.uk)



**Wynn James**

**Director**

T: 029 2009 3333

M: 07854 384977

E: [w.james@cambria.co.uk](mailto:w.james@cambria.co.uk)



**Pierre Grigorian**

**Director**

T: 029 2009 3333

M: 07775 916247

E: [p.grigorian@cambria.co.uk](mailto:p.grigorian@cambria.co.uk)

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## 2. Professional Memberships and Accreditations

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## 3. What we do

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Our services can be broadly divided into three distinct areas, corresponding with the usual UK construction process for most kinds of development.

### (1) Pre-Planning

Cambria actively encourages early consultant involvement and our pre-planning advice can range from an informal view on likely acceptability of a new highway access, a formal due diligence report on engineering viability, or right through to full pre-planning services including the provision of **Phase I Environmental Assessment, Flood Consequence/Risk Assessment, Surface Water Drainage Strategy, Transport Impact Assessment** and **Travel Plan**.

### (2) Pre-Construction

It is often the case that our clients have already progressed to outline planning or independently developed their site location. In our Pre-Construction phase, our services concentrate on the discharging of planning conditions, preparation of **Civil/Structural/Environmental/Highways** tendering information, design development, contractor tender evaluation.

## (3) Construction

It is imperative that our design information is clear and concise and easily translated and delivered by the contractor. The Construction period is the critical time, where our reaction to unforeseen changes or site parameters can be the difference between a successful project and not. Whilst this period typically sees the least amount of information production, it is the time when we provide the highest levels of support.

Our expertise is in a wide range of project sectors including:

- **Education** – Primary and Secondary Schools, Colleges and Universities.
- **Residential** – Single and Multi storey developments involving social housing, student accommodation, Care Homes and private developers.
- **Retail** – food and non food retail stores, shopping centres and retail parks.
- **Offices** – single and multi-storey blocks for single and multiple occupation.
- **Public Buildings** – Libraries, Cattle Markets, Fire Stations, Life Boat Stations, HQ Offices.
- **Healthcare** – Hospital Alterations and Extensions, GP Surgeries, Pharmacies.
- **Defence** – Stores, Training and Recreation Facilities, Medical and Motor Transport Facilities

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## 4. Sectors

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### Commercial

We have a particular expertise in delivering the widest range of developments for private developers where the key issues are to be on time and within budget to help Clients maximise their profit margin. We have successfully delivered the widest range of projects from entire Business Parks to individual developments.

### Residential

Most of our projects involve residential developments for private and public sector clients who are looking to develop their sites as economically as possible either to maximise their gain or to simply be able to deliver new housing stock within their available budget.

### Defence

Our Engineers have worked extensively on Defence related projects on Establishments throughout the UK and also on overseas bases such as Gibraltar and The Falklands. We therefore have a thorough knowledge of the MoD's project execution requirements particularly those relating to their JSP Scales, CTM, DREEM and approach to Risk Management. approach to project delivery which is of particular advantage where there are store opening dates which cannot be missed.

## Education

We have rightly developed a reputation for our breadth and depth of experience within the education sector . We have worked on ALN/SEN, Nursery, Reception, KS1 and KS2, Learning Plazas, Secondary, Further Education, Higher Education, Colleges and Universities. Our teams have worked on the first Primary School to achieve BREEAM Excellent and also the first Secondary School in the UK to achieve BREEAM Outstanding.

## Health

We consider our Healthcare experience to be a particular advantage with our engineers and technicians having successfully completed a wide range of healthcare related projects throughout the UK for both private and public sector clients including NHS Trusts.

## Retail

Our Retail clients benefit from our commercially astute approach to project delivery which is of particular advantage where there are store opening dates which cannot be missed.

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## **Our Services**

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## 5. Preplanning Services

### Site Constraints/Services

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#### 5.1 Phase 1 Environmental Assessments

Many projects involve sites which have been subject to various previous uses that could have contaminated the ground. We aim to keep the costs of testing for contamination to a minimum by providing our clients with a Phase 1 Environmental desk study:

- examining historic and geological mapping records and documentation.
- establishing the previous, potentially contaminative, uses of the site.
- establishing the potentially contaminative uses of surrounding land.
- identify the contaminants (sources) potentially associated with these uses.
- identify the environmental receptors potentially at risk from identified contaminants.
- establish the potential physical pathways linking potential sources and receptors.
- highlight factors influencing source-pathway receptor linkages.
- compare threshold levels for remedial actions.
- provide a specification for the phase 2 intrusive site investigation works.
- provide an appraisal of potential remedial options within a comprehensive report.

## 5.2 Transport

We provide our Clients with the required **Transport Assessment** and **Travel Plan** reports in support of their Planning Applications and then follow through with the design and detailing of the required highway works.

Our Engineers have successfully delivered Transport Assessments and Travel Plans for Clients wishing to secure Planning Approval on projects throughout the country. These projects mean we are expert in:

- Traffic modelling of Local Highway Networks.
- Delivering **Transport Assessment** reports to Local Highway Authority/Highway Agency/TfL Approvals.
- Securing Approvals to cost effective **Travel Plans**.
- Providing **Bus Stop Audits** when requested in support of Planning Applications.
- Attending Public Planning Inquiries and Appeals
- Providing Expert Witness Reports and Advice

## 5.3 Flooding

Our Flood Risk Screening work establishes the extent of the work necessary to satisfy the Environment Agency (EA)/ Natural Resources Wales (NRW) and the Local Planning Authority's (LPA) requirements and involves the following:

- Contacting and liaising with the EA/NRW to obtain any Flood Risk information it has for the site and immediate vicinity and establish its specific Flood Risk Management requirements.
- Establishing (in consultation with the LPA and the EA/NRW) the design lifetime of the proposed development and the proposed standards for flood defence and safety.
- Researching publicly available relevant documents such as Catchment Flood Management Plans, Regional Flood Risk Appraisal, Preliminary Flood Risk Assessments, etc.
- Contact the local Water Authority to obtain information on the capacity of their existing sewer network in the vicinity of the site, as well as identifying any known problems they may have with their network.
- Establish current local planning authority policies in relation to flood protection, surface water drainage, sustainable drainage and protection/recharge of groundwater (including any strategic flood risk assessments [SFRAs] or precursor documentation which may have been prepared).

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- Examine documentary geological and borehole records for groundwater depths and quality data.
- Establish which are the sources as well as the potential sources of flood risk.
- Having undertaken the above work we will have defined the required scope of works to be covered within the FCA/ FRA Report to be submitted in support of the Planning Application.

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## 6. Structural Engineering

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### Why do you need us?

We can deliver a building that you can be proud of – Architecturally and Structurally and easy to construct. We are passionate about minimising construction costs and will exceed whatever is expected of us.

All projects are individual and we will have your best interest as our top priority. In order to achieve this we will:

- Design a range of potential superstructure options to deliver the best solution.
- Design to a Cost Code not just the Structural Engineering Code.
- Ask questions and test decisions to improve on what's being delivered.
- Propose alternatives whenever we can to reduce costs but not compromise on quality.

## When do you need us?

**Developers, Local Authority, House Builders, Estate Managers** - If you wish to build something then you need to contact us as soon as you have decided to go ahead.

**Contractors** - As soon as you have decided to tender for a contract to construct a building of any kind contact us – preferably before the tender comes out to give us as much time as possible to help you win it.

## Our expertise in delivering our structural engineering services:

Our Engineers have extensive experience of delivering Structural Engineering related projects for Clients throughout the country and overseas. These projects mean we are expert in:

- Structural modelling and 3D analysis of common and complex structures. **BIM** modelling and clash detection – Revit, Navisworks.
- Alterations and Extensions to traditional and system build buildings.
- Works to Listed Buildings and Ancient Monuments.
- Securing Environmental Credits for BREEAM, Code for Sustainable Homes, CeCEQUAL, etc
- Delivering Structural solutions to Clients with problem buildings.

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Designing clever surface water drainage solutions (**SUDS**) to help avoid the need for costly attenuation and still secure the Environments Agency's approval.

Creating foul **drainage** capacity in combined sewers to allow new developments to be connected to them at minimum cost.

## When do you need us?

**Developers** - If you have found a site and wish to develop it then you need to involve us straight away.

**Contractors** - As soon as you have decided to tender for a development of any kind contact us – preferably before the tender comes out to give us as much time as possible to help you win it.

In all cases the sooner you speak to us the sooner we can identify the Civil Engineering cost risks to your project and the sooner we can lessen them with sustainable solutions which will reduce construction costs.

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## 7. Infrastructure

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In the last two decades the construction industry has reacted to the Egan and Latham reports and, by consensus, achieved a degree of success in delivering off-site, higher quality and low risk building solutions. However, the processes regarding delivering the site were somewhat neglected. The engineering approach to the site and manner in which we decide to prepare the site for development through the various facets of Civil Engineering will have the greatest influence on risk, cost and the local environment.

### Why do you need us?

One of the greatest risks in delivering a development project to a budget involves the Civil Engineering design of the works. Abnormal groundwork costs frequently arise but they can often be off-set with clever and often innovative design solutions such as:

Avoiding the need to clean up **contaminated ground** beneath brownfield sites.

**Improving the quality of poor ground** to avoid the need for costly piling.

Designing **ground levels** to avoid the need for costly import or export of bulk materials.

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## **Our Experience**

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## **8. 2014/2015 Projects**

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## Ysgol Bae Baglan



Client:	<b>Neath Port Talbot Council</b>
Contractor:	<b>Bouygues Ltd</b>
Architect:	<b>Stride Treglown</b>
Sector:	<b>Education</b>
Value:	<b>£35m Completion date: May 2016</b>
BREEAM:	<b>Excellent</b>

**Cambria Consulting** are the appointed engineers for Ysgol Bae Baglan. The school is a new replacement school for 3 comprehensive and one primary school all on one site.

- The structural design of the steel frame has been designed to suit the striking design, the tight site programme and the challenging ground conditions.
- Rather than simply accept the general view that piling would need to be adopted for the foundations, an innovative form of modified dynamic compaction has been used to improved the ground to a point where continuous spread footings could be used.

## Ysgol Bae Baglan

- The site is drained using a system of SWALES that not only provide storage and a degree of infiltration, but is part of the overall landscaping scheme of the site. Further SUDS storage is provided by means of below ground attenuated storage and permeable paving.



## Llandysul School

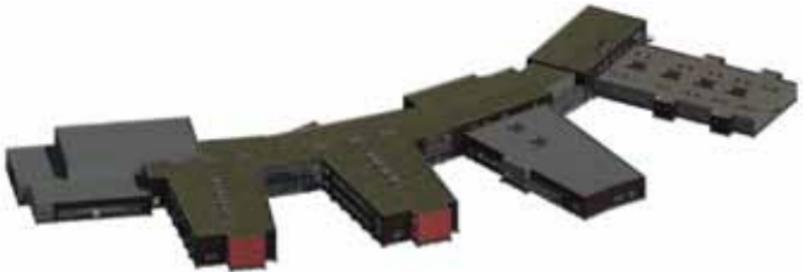
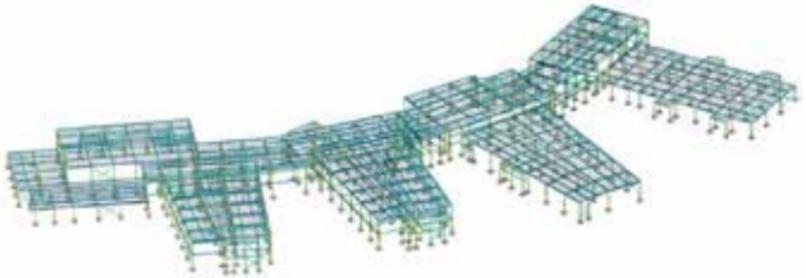


Client:	<b>Ceredigion County Council</b>
Contractor:	<b>Willmott Dixon Ltd</b>
Architect:	<b>Powell Dobson</b>
Sector:	<b>Education</b>
Value:	<b>£28m Completion date: July 2016</b>
BREEAM:	<b>Excellent</b>

**Cambria Consulting** are the appointed engineers responsible for the design and specification for the sub and superstructure for this BIM level 2 project in Ceredigion. The superstructure consists of a braced steel frame incorporating a movement joint. A first floor in two of the wings is constructed from precast concrete hollow-core slabs. The foundations are a combination of reinforced concrete pads and strip footings, while the ground floor slab is generally ground bearing, but changes to a suspended slab in areas of fill.

## Llandysul School

The earthworks design for this steeply sloping site and produced a detailed specification for the works. The site was modelled in Civil 3D in order to balance the cut and fill operation. The drainage strategy included soakaways in fractured mudstone which were arranged and optimised to minimise excavation. No positive off-site surface water drainage was required.



## AME/CAPSE Buildings, University of South Wales



Client:	<b>University of South Wales</b>
Contractor:	<b>Willmott Dixon Ltd</b>
Architect:	<b>Rio</b>
Sector:	<b>Education</b>
Value:	<b>£5m Completion date: July 2015</b>
BREEAM:	<b>Very good</b>

**Cambria Consulting** as part of the ongoing redevelopment of the Treforest Campus site were appointed as Civil and Structural design consultants for the new state of the art Engineering facilities.

## AME/CAPSE Buildings, University of South Wales

The project includes a two-storey extension to the existing Engineering building to home new AME facilities, along with relocation of the existing CAPSE into a new purpose built facility.

A continuous piled wall system has been introduced which along with extensive service diversions has helped to form a 'clean' level working platform for the new steel framed AME building.

The new CAPSE building is of similar construction but has been design to accommodate possible future extension.



Site drainage has involved the use of on-site attenuation in order to meet the stringent requirements set by the Local Authority.

## Parc Eirin, Tonyrefail



Client:	<b>Parc Eirin Development Corporation</b>
Contractor:	<b>n/a</b>
Architect:	<b>Rio Architects</b>
Sector:	<b>Residential</b>
Value:	<b>£40m Completion date: Spring 2017</b>
BREEAM:	<b>n/a</b>

**Cambria Consulting** are appointed as Civil and Structural Engineers for this 250 unit residential development in Tonyrefail.

The development will largely comprise affordable homes and is in a setting with a rural feel and strong landscaping.

The scheme includes highway design that balances a homezone approach with the requirements of the adopting highway authority, Rhondda Cynon Taff.

## Parc Eirin, Tonyrefail

The scheme uses pedestrian friendly design techniques to foster a sense of community. The layout includes provision of a bus route through the development.

Surface water drainage is dealt with in accordance with the SUDs hierarchy. Some limited infiltration capacity is made use of with the majority of the surface water runoff discharging to the adjacent Nant Eirin via tanked adoptable attenuation storage and open water storage features.



## Bryn Gwyn Cattle Market, Raglan



Client:	<b>Monmouth County Council</b>
Contractor:	<b>Morgan Sindall</b>
Architect:	<b>Boyes Rees</b>
Sector:	<b>Commercial/Agricultural</b>
Value:	<b>£3m Completion date: November 2013</b>
BREEAM:	<b>n/a</b>

**Cambria Consulting** were appointed by Morgan Sindall to assist find savings in their contractor bid preparations. Not only did Morgan Sindall win the contract with Monmouthshire County Council, but requested Cambria continue with them on the project to deliver our design and provide support through the construction phase.

The market was built on a 27-acre site, to hold 300 sheep pens and 150 cattle pens. The building comprises a steel frame with timber-cladding and include a lorry and car park, offices and a café.

## Bryn Gwyn Cattle Market, Raglan

The foundations to the buildings are pad foundations onto a vibro ground improved soil. The ground floor to all of the buildings is a ground bearing floor slab cast onto vibro improved ground.

The main structural frame is of steel construction with cold rolled steel purlins spanning between steel rafters. The external walls are of timber or metal cladding supported by cold rolled rails, precast units supported form an edge foundation and masonry walls.

The livestock shed is a 3 span portal frame.



Stability is achieved by portal action in one direction and roof bracing transmitting horizontal forces from the roof level to vertical bracing within the external walls in the other direction.

The support building is a mono pitch portal frame and the storage shed is a duo pitched portal frame.

## Toyota Dealership, Colchester



Client:	<b>Lancaster</b>
Contractor:	<b>MCS Group Ltd</b>
Architect:	<b>Space Projects</b>
Sector:	<b>Commercial/Car Dealership</b>
Value:	<b>£3m Completion date: January 2014</b>
BREEAM:	<b>Very good</b>

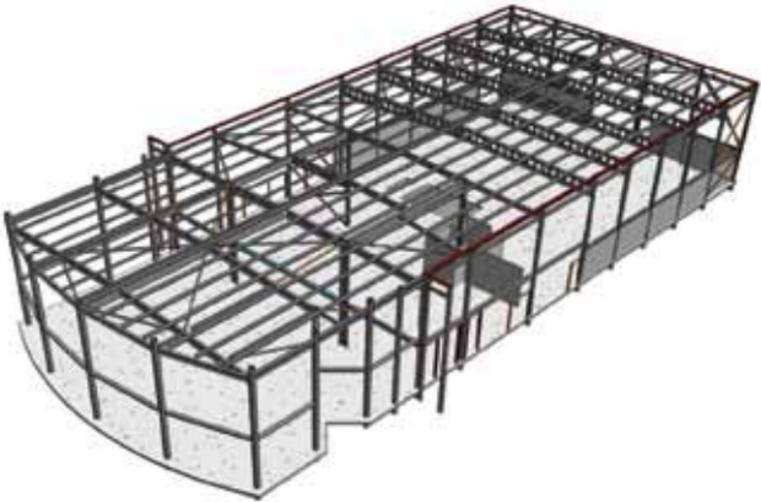
**Cambria Consulting** have designed and help deliver a number of Toyota and Lexus branded car dealerships. We work closely with Space Projects who are Architectural Brand Guardians to help maintain the essential brand consistency.

The most recent development for Lancaster is at an existing Business Park on the outskirts of Colchester.

Works comprised of the construction of a new car showroom, workshops with associated external parking for 140 on the prepared service site.

## Toyota Dealership, Colchester

A braced steel framed structure with feature cellular elements has achieved a large open showroom space.



Surface water drainage was designed in accordance with the SUDS hierarchy with disposal by infiltration via crated soakaways.

The development was in a serviced plot with foul drainage connection provided by Colchester County Borough Council.

## Castle View, Windsor



Client:	<b>Castle Retirement Living Ltd</b>
Contractor:	<b>Castleoak Group Ltd</b>
Architect:	<b>PRC Group</b>
Sector:	<b>Health/Care Homes</b>
Value:	<b>£20m Completion date: September 2016</b>
BREEAM:	<b>Good</b>

**Cambria Consulting** are the appointed Civil, Structural and Environmental Engineers on this 3/4 storey luxury development located in the centre of Windsor with direct views to the Castle. The project will deliver 58 retirement apartments each with their own external dual aspect balconies, undercroft car parking together with a completely self contained Extra Care Facility. With a construction value of £20m the development provides roof top conservatory and gardens and on-site Red Cross and Mencap facilities.

## Castle View, Windsor

The structural solution adopts a concrete frame with flat slabs for ease of services distribution and fin columns so they are hidden within wall thicknesses. The basement car park utilises contiguous concrete piling founded within the lower London Clay strata and deals with the challenging ground conditions which are prevalent in the area with a high water table, permeable strata and risk of running sand. The concrete framed solution is also ideal for delivering the required waterproofing details resulting from the roof top gardens and plant areas.

Generally the site is straight forward to build out but as with most sites it does have its own a particular challenge in the 600mm diameter adopted foul sewer which crosses the site at approximately 3m deep. This Thames Water asset is being diverted off the site via a Section 185 Agreement with the works being complete ahead of the main construction programme.



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## 9. Client Testimonials

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*"We have collaborated with Cambria on several recent new build and extension primary schools for a number of different Local Authorities and found them to be knowledgeable and professional, with a positive 'can do' attitude. They are definitely design team collaborators who through innovative thinking coupled with the ability to propose practical solutions to a range of problems, always deliver a successful project."*

**Managing Director**  
**Willmott Dixon South Wales**



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*"It has always been a pleasure working with Cambria. We have found them knowledgeable and their advice and solutions practical, sensible and always focused on our best interests. They have a refreshing, team spirited non-adversarial approach, which works towards common goals and improved communication. Cambria's staff are very approachable and flexible in their approach to varying client requirements."*

**Area Manager**  
**Kier Construction**

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*"Having worked with Cambria recently for the design of a new £20m residential apartment development we found Gary and the team to be responsive, approachable and to have a can do attitude.*

*The project required an innovative structural solution that would complement the bespoke, high quality designs and finishes of the apartments.*

*Working with 'Revit' Cambria provided design information extremely quickly and to a very high standard."*

**Senior Associate**  
**Rio Architects Limited**



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*"The team at Cambria has consistently provided an efficient and proactive service. They exude a strong can-do attitude and work extremely effectively to provide value engineered solutions, leading to successful tenders and projects delivered."*

**Operations Manager**  
**Morgan Sindall South West**

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*"Cambria have been working closely with North Somerset Council on several high profile and value contracts since 2011.*

*The service from Cambria has been exemplary and in the spirit of collaboration. Cambria have been proactive throughout and there is always a positive and supportive approach from all the staff.*

*Challenges have been dealt with both calmly and professionally, at all times. Cambria are a practice that demonstrate how a consultancy should operate in the current straitened times, providing excellent service with good value."*

**Senior Project Manager  
Corporate Services**

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## Reference

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The following information is provided as a useful 'high-level' aide memoire.

If your reliance is critical please contact this office.

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## 10. Do you know your Due Diligence?

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Starting a project can be a tense affair, but ignoring engineering issues in the early stages, might come back to haunt you! Often the peace of mind, or typical easement information which might affect your masterplan is very easily obtained! See below a list of high level considerations — if you would like more information on how to safeguard your site, contact a Director (see section 1).

### DUE DILIGENCE & TECHNICAL MATTER CHECK LIST

#### Site & Building

- ✓ Site Investigations (geotech & contamination)
- ✓ Surveys (topo, services, drains, highways, trees, adjoining property)
- ✓ Asbestos survey
- ✓ Deleterious materials – existing building & construction
- ✓ Mining and MVR Report
- ✓ Settlement and unusual features – on-site and off-site
- ✓ Boundaries and boundary walls – levels on either side
- ✓ Part walls, adjoining basements
- ✓ Covenants restricting development and/or construction
- ✓ Rights
- ✓ Easements and wayleaves
- ✓ Neighbours

## Planning

- ✓ Planning Application
- ✓ Time limits
- ✓ Planning conditions and S106
- ✓ Appeal
- ✓ Special Topics:
  - Contamination, land quality
  - Traffic
  - Highway Safety
  - Policy
  - Trees
  - Conservation areas
  - Listed Buildings
  - Nuisance
  - Areas of outstanding natural beauty
  - S.S.S.I.
  - Archaeology
  - Scheduled Monuments
  - Air quality management area
  - Congestion charges or similar restrictions on private transport

## Planning Update:

- ✓ Local Plan and Draft Alteration (Area Specific)
- ✓ Structure Plan and Draft Alteration (Area Specific)
- ✓ Local Transport Plan (Area Specific)

## PPS – PLANNING POLICY STATEMENTS

for England & Wales, as directed by Government:

- ✓ PPS 3 : Housing
- ✓ PPS 13 : Transport
- ✓ PPS 25 (Draft) : Flooding - major implications on development on flood plain and flood sensitive areas
- ✓ Others : PPS 15 – Archaeology

## CONSTRUCTION/BUILDING:

- ✓ Building Regulations
- ✓ Dangerous buildings and demolition
- ✓ Site security and safety
- ✓ Liability and insurance
- ✓ CDM

## SERVICES:

- ✓ Water
- ✓ Electricity
- ✓ Gas
- ✓ Telecom
- ✓ Data cabling and others
- ✓ Sewers – public and private
- ✓ Shared services
- ✓ Access required by utility companies

## HIGHWAYS:

- ✓ Public and private – ownership, demarcation
- ✓ Highway drains
- ✓ Footways
- ✓ Cycleways
- ✓ Lighting
- ✓ Public Rights of way
- ✓ Access and future accessibility to existing properties (car, service, pedestrian, existing enjoyment)
- ✓ Existing private and public amenities
- ✓ Impact from increase/change in traffic
- ✓ Noise/Nuisance
- ✓ Public transport, LTP requirement, existing stops
- ✓ Controlled parking area
- ✓ Commuted payments to new construction (commuted payments for adoption, signals, HA formula, legal bond)
- ✓ TROs, existing, proposed, amendment, implications (planning/highway/local authority acts)
- ✓ TAR/TIA
- ✓ Subsoil ownership
- ✓ Highway structure, ownership and liability

## **POLLUTION & CONTAMINATION:**

- ✓ Historic land use
- ✓ Proposed land use
- ✓ Strict Common Law Liability
- ✓ Pollution, life, ecology, land, property and environment, on and off-site
- ✓ Controlled waters
- ✓ Soils, leachability, leachate, hydraulic continuity
- ✓ Contamination : Risk assessment, liability, present/ proposed end use
- ✓ Noise
- ✓ Air Quality
- ✓ Statutory nuisance
- ✓ Radon
- ✓ Waste Management
- ✓ Landfill Tax
- ✓ Disposal

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## 11. Understanding Section Agreements

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Legal acts affect how we operate and conduct the process of construction, and they are split into sections. Certain sections of certain acts are commonly used on most projects, and end up being referred to purely by their section name, and in fact the legal act reference is often dropped completely! This allows for lots of confusion, acronyms and leaves lots of people looking lost in meetings — here's the break down...

### HIGHWAYS

- **Section 38**

Where new highway is to be offered for adoption by the local highway authority, this would be done under a Highways Act 1980 Section 38 agreement.

Any road serving more than 5 residential properties must be designed to adoptable standards. On smaller developments it is then for the local highway authority to decide whether the new road is suitable for adoption. Most local authorities publish their own highway design guide but these are either supplemented or replaced by Manual for Streets 1 and 2.

The process involves technical approval of the proposed highway works, legal agreement and inspection by adopting authority. Most S38 highways will require a S278 junction to connect to the existing highway network.

- **Section 278**

Works in existing highways are generally carried out under a Highways Act 1980 Section 278 agreement between the local highways authority and developer. Its purpose is to facilitate development allowing the developer to either pay for, or make alterations or improvements to, the public highway.

Where the works are carried out by the developer, a cash or bond surety will be required to the value of the works. The process involves technical approval of the proposed highway works, legal agreement, approval of any traffic regulation orders and booking of the road space for construction. The local highway authority would take on a supervisory role during construction and maintenance periods.

- **Section 111**

Under certain circumstances, such as the end client being the same local authority as the approving authority, a S278 agreement is not applicable and a Highways Act 1980 Section 111 agreement is more appropriate. The technical and legal processes are very similar to a S278.

- **Section 184**

Formation of new highway access on industrial developments or to multiple properties or units would be carried out under a Highways Act 1980 Section 184 agreement.

The process involves technical approval of the proposed highway works, legal agreement and booking of the road space for construction. A surety to the value of the works is required and significant professional indemnity insurance (£5m or £10m) required of the contractor.

- **Section 171**

Minor or temporary works in the highway can be carried out under a Highways Act 1980 Section 171 agreement. Typically this applies to a footway crossover giving access to a single property.

Technical approval of the scheme is required before the licence to carry out the work is issued by the local highway authority. A surety is required by some authorities to the value of the work as well as professional indemnity insurance.

## **DRAINAGE**

- **Section 185**

Where any public sewer, lateral drain or disposal main is situated in private land, any person(s) with an interest in that land or in adjoining land can, by giving notice, require the local sewerage company to alter or remove that pipe if reasonable to do so. This would be carried out under Section 185 of the Water Industry Act 1991.

Generally, under a Section 185 agreement, the works are carried out by the sewerage company and reasonable costs recovered from the applicant. Surety is required prior to the agreement being finalise.

- **Section 104/116**

If a pipe to be diverted is not a significant asset the sewerage company may allow a developer to carry out the diversion works himself under a Water Industry Act 1991 Section 116 covering the closure of the existing sewer and a Section 104 for the construction of the replacement pipe route.

- **S104**

New sewers to be offered for adoption would be covered by a Water Industry Act 1991 section 104 agreement. Under Section 42 of the Flood and Water Management Act 2010 all foul sewers are now subject to mandatory adoption and no construction can start on site until the S104 application is submitted and approved.

This process has a target completion time of three months but can take longer. There is therefore potential for sewer adoption delaying a project from starting on site.

- **S106**

Connection to existing sewer requires a Water Industry Act 1991 section 106 agreement. This may be a direct connection or indirect by changing the characteristics of private drainage upstream of an existing connection. A section 106 connection is also required at the point of connection for a newly adopted S104 sewer.

- **Suds Approval Bodies**

Local authorities are preparing for their new role as Suds Approval Bodies, expected to come into force in 2015. The Water Act 1991 is to be amended to make the right to connect surface water runoff into sewers conditional on the drainage system being approved by the SAB. The SAB will be required to approve drainage systems for managing SUDS before construction begins. They will be responsible for producing design guidance documents and approval/adoption procedures and will adopt and maintain approved SUDS that serve more than one property where the SUDS function/structure is built in accordance with the approved detail. The Sewerage Undertakers, Environment Agencies, Internal Drainage Boards, British Waterways and Highway Authorities will all be statutory consultees to the SAB.

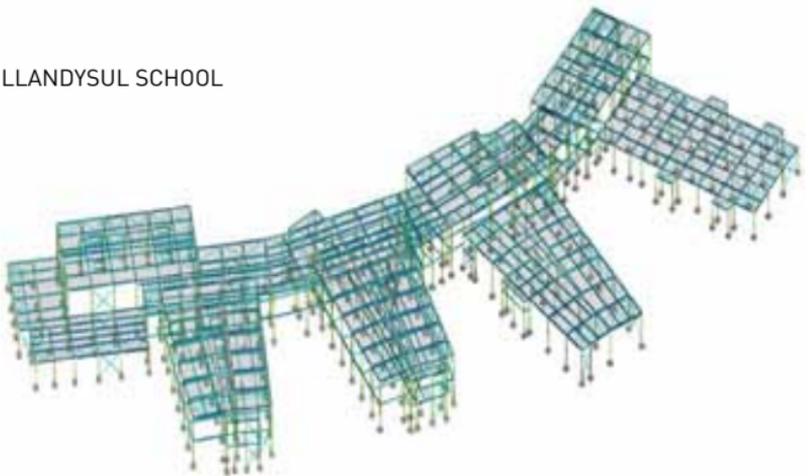
## 12. BIM



AME BUILDING

The world of Building Information Modelling (BIM) is a vast and confusing place, which can be difficult to access without lots of technical knowledge. All government funded projects from 2016 will need to be undertaken utilising BIM Level 2 as a minimum – we’re ahead of the curve and can boast many completed projects already – we want to make sure we can demonstrate a rich and comprehensive experience of delivered projects to help teams.

LLANDYSUL SCHOOL



## What is BIM?

BIM (Building Information Modelling) can be described as the construction industries method to standardise the sharing of all asset (building components) information through the use of three dimensional models that contain individual building elements, rich in data, which can be extracted and delivered electronically during both the construction and lifecycle of the project.



CAPSE BUILDING

Operating at a BIM maturity level 2 our established workflows and processes, developed over a number of successful projects, have sharing of information for both construction and operation at its core. To implement this new way of working we have invested in Autodesk's Building and Infrastructure Design Suites, widely regarded as the industry standard for delivering BIM.

# CAMBRIA

Constructive Thinking

Experience gained through our projects has given us the ability to collaborate, either as part of a project team or as the project lead, we can provide a structured information delivery method along with model interrogation processes such as clash detection, using Autodesk's Navisworks, and construction sequencing (4D) linking to contractors programmes and even health & safety working requirements.

The Government's Construction strategy deadline of 2016 is fast approaching, our response has been swift, as early adopters of this information rich process, we have already demonstrated successful outcomes for our projects using our established BIM strategies.



CELTIC MANOR APARTMENTS

# CAMBRIA

Constructive Thinking

Cambria House, 16 Plas St Pol de Leon,  
Penarth Marina CF64 1TR

**T** 029 2009 3333 **E** admin@cambria.co.uk **W** www.cambria.co.uk



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