



Llywodraeth Cymru
Welsh Government



A487 Caernarfon & Bontnewydd bypass official opening

February 2022



Foreword by Vaughan Gething MS Minister for Economy and Lesley Griffiths MS Minster for Rural Affairs and North Wales, and Trefnydd

The completion of the A487 Caernarfon and Bontnewydd bypass is very good news for the local communities in the area and for North Wales.

The bypass has been completed ahead of time, with work continuing safely with safeguards in place throughout the Covid-19 pandemic

It has provided a boost for the local economy during construction, and the improved connectivity it provides for businesses in the Cibyn Estate, and further afield will further benefit the North West Wales economy.

Close to £70m has been spent with Welsh businesses of which £12m was spent on small to medium enterprises. £2m was also spent by the construction workforce on local shops, businesses and services during the construction period.

During the construction stage 93% of the workforce came from the North Wales area, with 31% living within a 10-mile radius. 36 graduates and apprentices were employed and trained while 15 people received work experience. An average of 160 people worked on the scheme at any one time during construction.

A great deal of effort has been made to minimise the environmental impact of the scheme, and measures have been put in place to improve and enhance biodiversity in the area, including safe passages for wildlife which we know are being used.

Excellent relationships have also been built and maintained with the local community, council and stakeholders during construction. The positive impact of the scheme has included support of local businesses and local employment together with community engagement and support offered to local charities.

Congratulations to everyone involved in the delivery of this scheme.

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Background to the scheme

The A487 Trunk Road forms part of the strategic road network in North Wales that links with the A55 corridor further along the coast. As such, the A487 in the Caernarfon area formed a pinch point on the network, with improved sections of road on either side. The lack of consistent quality road infrastructure also hindered further economic development in the wider region. The existing A487 regularly suffers from traffic congestion and serves a number of communities, affecting the overall quality of life of local residents causing difficulties in access to schools and other community facilities. There is also a history of road traffic incidents and the use of local country roads to avoid the A487. Maintenance of the existing A487 is difficult due to the narrow width and urban nature.

The Caernarfon and Bontnewydd bypass has been developed, designed and constructed for the Welsh Government by a multi-disciplined project team consisting of Balfour Beatty Jones Bros Civil Engineering UK (construction), WSP TACP Brython (design), Arcadis (commercial advisor) and Ramboll (technical advisor)

The scheme was developed to meet 5 objectives:

- reduce the number of vehicles passing through residential communities including Llanwnda, Dinas, Bontnewydd and Caernarfon
- reduce accidents on the A487
- increase capacity of alternative routes to improve the resilience of the network
- reduce journey times between Llanwnda and Plas Menai
- reduce journey times between Llanwnda and Caernarfon.



TIMELINE

| | |
|--------------|--------------------------------|
| 2010 to 2011 | Public consultation exercise |
| Spring 2013 | Preferred route announced |
| End 2014 | Appointment of contractor |
| Summer 2015 | Site investigation and surveys |
| End 2015 | Preliminary design |
| Autumn 2016 | Orders exhibition |
| Summer 2017 | Public local inquiry |
| Early 2019 | Start of bypass construction |
| Early 2022 | Bypass opening |



Description of the scheme

The £139m highways project consists of a new 9.8km highway commencing at the Goat roundabout (A499/A487 junction) and terminating at the Plas Menai Roundabout.

It forms a western bypass to Llanwnda Dinas and Bontnewydd before crossing the existing A487 to pass south of Caernarfon Quarry. It then crosses the River Seiont and passes south of the Cibyn Industrial Estate to a junction with the A4086. After crossing the B4366 the route drops steeply to the Plas Menai Roundabout.

A 2+1 carriageway standard has been adopted, consisting of two lanes of travel in one direction and a single lane in the opposite direction, providing overtaking opportunities in the two lane direction while overtaking in the single lane direction is prohibited. Two laybys have been provided, one in each direction.

There are 17 major structures comprising three overbridge structures carrying local side roads over the new bypass, 12 underbridge structures (including a crossing over the Welsh Highland Railway), a 260m viaduct over the River Gwyrfaï and a 148m viaduct over the River Seiont. In addition to the major structures, there are an additional 25 culverts in total that take existing watercourses and ditches across the bypass, with a number of the culverts specifically designed and constructed to ensure mammals will be able to cross the bypass safely.

Work also includes the construction of three new roundabouts at Meifod, Cibyn and Bethel, significant reconfiguring of both the Plas Menai and Goat roundabouts as well as 14 existing local side roads. It's the largest highway scheme in North Wales.



The viaduct crossing the River Seiont during construction, a 2m deep beam being lifted into position using a 750t mobile crane.

Active Travel

In line with the Welsh Government's policy on Active Travel the scheme's design has incorporated significant Active Travel Provisions. This will promote walking and cycling use, which provides health and environmental benefits and contributes to the Welsh Government's aspirations on the Well-being Goals. During the construction phase the project team worked closely with Sustrans and other Non-Motorised User (NMU) Interest Groups to deliver a variety of enhancements to the local network. This engagement was done in a quarterly forum with those representatives invited to the site offices or from March 2020 in the form of Teams/Zoom meetings.

Those provisions and subsequent enhancements include the following:

- Provided a new active travel route within the scheme on the B4366 between Bethel and Caernarfon to tie in with Gwynedd Council improvements to Bethel. This will encourage the use cycling/walking as an alternative mode between the communities (*see below*).



- Provided improvements to Lon Las Menai in the vicinity of Plas Menai Roundabout by moving existing pinch points/narrowing and provide an improved and safer crossing for all users across the access to Plas Llanfair (*see below*).



- New Toucan Crossing for Lon Eifion on the A487 to Porthmadog – This now provides a safe crossing for all users who wish to travel to the south and west.
- New Raised Crossing for Lon Eifion on the de-trunked A487 to Bontnewydd – This provides a new safe priority crossing for all users of Lon Eifion.
- Enhanced Signing Strategy for Lon Eifion and other Routes for NMU's between Bontnewydd and Caernarfon. Again, this will encourage local communities to use cycling/walking as a means of travel.
- New footway along the de-trunked A487 at Meifod Roundabout as well as use of the redundant road for an alternative route to the Roundabout from Bontnewydd.
- The design of the infrastructure provides Gwynedd Council with opportunities to introduce active travel within Bontnewydd and Caernarfon. This includes ensuring there is sufficient space for future active travel routes and that there is minimal rework required to the infrastructure constructed as part of the bypass.

Environmental

The scheme passes through a complex and attractive landscape with a varied topography and a diverse land cover, rich in ecological habitats and archaeology. The scheme design and construction methods were carefully developed in response to this particular and sensitive setting. This included the protection and enhancement of biodiversity, in accordance with the Environment (Wales) Act, with measures such as existing tree and habitat protection; woodland, hedgerow and wildflower grassland creation; provision of bat and bird boxes; wildlife passages and guidance fencing; and ecologically sensitive lighting.

There are 22 culverts that take existing watercourses and ditches across the bypass. These have been designed and constructed to ensure mammals will be able to cross the bypass safely. Along with this there are nine box underbridge structures, three overbridge structures, two cattle creeps and two viaducts, all of which contribute to the passage of the route through this sensitive environment, home to a number of protected wildlife species.

To ensure that the receiving watercourses are not overwhelmed in storm conditions, the extensive network of the new bypass drainage will feed into 14 new attenuation ponds, which will also provide pollution control in the event of an environmental incident on the bypass, as well as creating a valuable new habitat for wildlife.

Significant fencing works have been carried out on the scheme, including stock-proofing, otter-proofing and safety barriers. Extensive environmental landscaping and planting works have also been undertaken, which will minimise the visual impact of the bypass on its rural surroundings.

The Caernarfon and Bontnewydd bypass is a significant development in North West Wales and delivers long term benefits through extensive mitigation planting and environmental enhancements.



Otter



Common Pipistrelle Bat



Water Vole

Landscape and visual impacts

The effects of the scheme on both landscape setting and adjacent residents were key factors in the environmental assessment and design. Mitigation measures to reduce adverse impacts include planting for screening and integration. Landscape and visual considerations influenced the design of structures and treatment of embankment slopes, rock cuttings, watercourses and ponds.

The scheme planting consists of approximately 170,000 plants, providing around 14 hectares of new native species, woodlands and scrub, as well as over 20 kilometres of new hedgerows. Mature trees within the scheme were protected during construction for retention, and adjacent areas of existing trees, woodlands and hedgerows were also acquired for long-term benefit.

The planting design was also developed for ecological mitigation.



Extensive woodland planting providing visual screening and habitat creation.

Air quality

The bypass scheme is predicted to have beneficial effects on air quality with respect to human health. This is due to the redistribution of traffic from the A487 through Caernarfon, Bontnewydd and Dinas, a relatively densely populated area, onto the bypass, which runs primarily through rural, sparsely populated areas.

Without the scheme, the predicted concentrations of annual mean nitrogen dioxide in the area would vary from very low in the rural areas, distant from main roads, to close to or just above the air quality objective along the A487 through Caernarfon.

With the scheme in operation, predicted concentrations are well below the annual mean objective at all receptors. All risk of exceedances of air quality objectives for the protection of human health is removed with the operation of the scheme.

Public rights of way

Many public rights of way were diverted during construction. Where appropriate, these have been re-opened, and many now link into new sections of multipurpose routes which cross the scheme via bridges or underpasses.

Nature Conservation and biodiversity

The scheme passes through habitats which are known to support a variety of protected species including reptiles, birds, bats, water voles, otters and fish. To ensure their protection during construction, protected species licences and method statements were prepared and overseen by a team of specialists, including an on-site Environmental Clerk of Works. This was accompanied by an extensive programme of monitoring surveys.

Ecological mitigation includes: 27 safe passages for wildlife, including four provided specifically for bats; otter-resistant fencing and otter dry-pipes and ledges; fish baffles and elver ledges; 49 bat boxes, bat guidance fencing and bat-friendly lighting; amphibian-friendly drainage; and 32 hectares of wildflower-rich grassland, including six hectares created from locally collected green hay.

Further ecological enhancements include wildlife ponds, bird boxes, water vole habitat creation, and reptile hibernacula. Through the scheme a new otter-resistant fence detail was developed, and research was undertaken into amphibians in highway drainage and bat survey methods.

The performance of ecological and landscape mitigation will be monitored for five years following construction to ensure that the mitigation is effective. We have already recorded wildlife passages being used, by otters and Lesser Horseshoe bats:

[A487 Caernarfon and Bontnewydd bypass wildlife culverts](#)



Two of the 49 bat boxes erected as part of the scheme.



Afon Rhyd culvert includes fish baffles and elver matting to allow upstream passage of migrating fish and eels.

Noise and vibration

Extensive noise and vibration monitoring was conducted throughout the scheme by our Environmental Team to help monitor and mitigate effects on nearby residential properties. In locations where either variable had the potential to exceed the legal parameters, mitigation strategies were deployed beforehand to decrease negative impacts to the neighbouring biodiversity and local residences – this included decreased time using equipment. As a project, we also used low noise equipment and strategically planted trees to decrease noise impacts on residents. Noise and vibration monitoring data showed that at no time did operations exceed the construction codes of practice.

Water environment

The scheme is located in an area that includes surface watercourses and protected sites of high importance, groundwater bodies and areas of identified flood risk. Six main rivers are crossed by the scheme (Afon Rhyd, Afon Plas, Afon Gwyrfai, Afon Rhosdican, Afon Seiont and Afon Cadnant) as well as a number of ordinary watercourses.

A drainage strategy has been implemented to manage the quantity and quality of water through the introduction of mitigation measures such as swales, drainage pipe networks, drainage ditches, culverts and attenuation/treatment ponds along the length of the scheme. During construction, mitigation measures were implemented to minimise the impact of sediment release on water quality, which included the use of geotextile silt fencing, cut-off ditches and check dams, settlement tanks, and straw bales. Regular water quality monitoring was undertaken throughout construction to identify any problem areas.

Close liaison was maintained with Natural Resources Wales during scheme design and through construction, to ensure that the environmental mitigation was suitable and adequate for protecting the water environment.

Scheme design has taken into account flood modelling and potential increases in flood risk. An example includes the construction of the viaduct spanning over the Afon Gwyrfai floodplain, 6m above the adjacent landscape, to allow the floodplain to continue to function during high flows and minimising flood risk elsewhere.



Attenuation pond near Meifod Roundabout.



Afon Rhyd diversion channel.

Cultural Heritage

Cultural heritage has been carefully considered since the early design phase of the scheme and work will continue even after the road is open.

Some of the archaeology excavated during the initial clearance of the route was expected but a few surprise discoveries were also made.

The archaeology discovered provides a journey through the history of Gwynedd from the Mesolithic Period, some 10,000 years ago, to recent times with evidence of every major period discovered along the route.



Roman Road discovered between the Cibyn and Bethel Roundabouts.

Finds made include a Neolithic polished stone axe, which would have been used by early farmers to clear woodland, a section of the Roman road from Segontium to the Conwy Valley, and an early medieval settlement near Dinas.

The hollowed out tree trunk, which may have been a re-used canoe, was found under a Bronze Age burnt mound near the Bethel Roundabout. Burnt mounds were places where water would have been heated by dropping hot stones into troughs of water. A small cremation cemetery, also dating from the Bronze Age, was found nearby.

Gwynedd has a rich history, but archaeological artefacts are comparatively rare, as so much of what we learn from archaeological excavation comes from scientific analysis.

The scientific assessment and analysis of the material recovered during the archaeological works is ongoing and will take a number of years to complete. The work will contribute to better understanding of the history of the communities along the route over the last 10,000 years.

Once all the analysis is completed the artefacts will be deposited in Storiel, Bangor – the local museum for Gwynedd.



Cleaned Bronze Age timber from a burnt mound trough near Bethel Roundabout.



Bronze bracelet with high lead content found near Meifod Roundabout.



Neolithic flint transverse arrowhead.

Sustainability

Balfour Beatty Jones Bros invest in people and technology to improve their operations and the sustainability of site operations to avoid waste, minimising resources and energy.

An opportunity was identified to adjust land take and designs to improve logistics and reduce the carbon footprint. Commitments were made by all project partners at early contract involvement stage to ensure environmental benefits were realised. The purchase of former clay quarry and brickworks adjacent to the project provided fill materials and disposal facility of inert soils.

This in turn significantly reduced the usage of CO₂ for site works, reducing impact on local traffic which resulted in further decreased carbon emissions.

The project involved significant earthworks to create a route through some challenging topography and ground conditions. In total, some 4 million tonnes of earth and rock were moved to create the bypass, and this was made possible by the use of the 10km long site haul road that was constructed at the start of the project. This site haul road ensured that all the materials were hauled using site dump trucks working within the site boundary, thereby avoiding use of the local public highway.

From the rock that was blasted and excavated, 700,000 tonnes of construction aggregates were produced for use in the pavement layers and structures backfill, thereby reducing the need to import aggregates and contributing to a saving of almost 200,000 public highway movements.

Surplus material generated from the project was disposed of in the Seiont Quarry located adjacent to the route thereby saving 600,000 tonnes of disposal in external landfills

A total of 4,100 tonnes of CO₂ was saved by using on site routes and a further 1,730,000 miles were prevented using Public Highways.



SAFETY

Safety on Site

The Balfour Beatty Jones Bros Joint Venture on Caernarfon and Bontnewydd bypass mobilised on site in Feb 2019. The operational delivery team was made up of 60 staff from both JV partners, this was bolstered by members of our key supply chain partners. Some of our key hazards and risks associated with the works were:

- Deliver 17 large structures and major earthworks
- Lifting operations
- Excavations
- Deep drainage
- Interface with existing public routes
- Works in and around watercourses
- Heavy plant including large excavators and a fleet of around 35 dumper trucks
- Blasting

The HSE Team included representatives from both Balfour Beatty and Jones Bros, providing advice and robust HSE solutions for the operational team, this included:

- Documentation review
- Daily site tours and inspections
- HSE Meetings
- Training
- Workforce consultation meetings
- Duty holder roles including first aid, fire marshal, mental health, behavioural safety training and COVID-19 compliance



Keaton Philips (left) receiving a £25 gift voucher for the best observation card submission in October 2021.



Boots on the Ground Health & Safety Event

Sparks fly during a live demonstration of powerline safety. SP Energy provide live demonstration on powerline safety, showing correct procedures to follow in a variety of scenarios should an item of plant meet a live powerline. The event was successful with excellent turnaround of more than 200 people on site. The team were pleased that the event had valuable impact on raising awareness on Health & Safety best practices.



I Can Mental Health First Training session carried out to the scheme's workforce.



Milestone of 500 days & 500,000 working hours without a Lost Time Incident.

With a very proactive and hands on approach to H&S the team made good in-roads to developing a positive and open H&S culture.

The HSE performance has remained high throughout the life cycle of the project. We celebrated many key milestones, with over 1.3 million hours worked, or 1,100 days worked on site. This is a fantastic achievement on such a complex and challenging project.

Additionally, the project team adapted to and managed the unforeseen challenges created by the COVID-19 pandemic.

Throughout the project the team have engaged with the workforce and promoted a transparent, no blame culture, with any incidents that have occurred reviewed and investigated robustly, and any learning shared across the project and the wider businesses.

The whole project team and workforce celebrated the H&S achievements together and the project delivery phase has been successful and exciting, with challenges to ensure all our people go home safe and well every day to their families and loved ones.

Safety off site

Conveying the important message of Health & Safety did not stop there.

The Joint Venture welcomed partner organisations and local farmers to the Boots on the Ground event held at the Caernarfon & Bontnewydd bypass site to help improve health and safety in construction and agricultural industries.

The scheme had a dedicated Public Liaison officer on site, engaging with the wider community and local groups to continue driving the message of danger around construction sites. Signage and barriers were placed to keep the public safe.



Boots on the Ground Event with plant equipment demonstrated to local farmers.

SUPPORTING OBJECTIVES OF THE WELL-BEING OF FUTURE GENERATIONS

The scheme took pride in investing locally, supporting businesses and delivering opportunities for small to medium companies and social enterprises, providing additional benefits to the communities we work in. Close to £70m has been spent with Welsh businesses of which circa £12m has been spent with Welsh SME (Small to Medium Enterprises). Local business spend (non construction related) by our workforce on local services over the duration of the project has amounted to circa £2m.

The scheme has presented significant opportunities within North Wales to boost the local economy and support local people. Opportunities existed to support local businesses, local suppliers and provide employment for the local population.

This opportunity was identified early in the ECI stage and embedded in the project team's recruitment and procurement processes, allowing time to recruit and train new apprentices in advance of the project start

During the construction stage we maintained 93% of the workforce from the North Wales area, with 31% living within a 10-mile radius. We also employed and trained 36 graduates and apprentices and provided work experience for 15 people as well as providing over 234 days of formal training schemes.

The bypass development has provided a welcome boost for the region's economy and provided significant opportunities for local people and businesses which will leave a lasting legacy for the area.



Will Jones & Sion Owen(above) both live close to where the bypass is being built, so understand first-hand the benefits of the scheme.

Getting a taste of life on a major civil engineering project are students Will Jones and Elis Roberts (below). Will Jones, from Ruthin, said: "The staff were really helpful and had the time to bring me up to speed and treated me as a professional, making me feel like I was part of the team." Elis Roberts, of Melin y Wig, Denbighshire, added: "It's a really good team to work with and it gave me a great opportunity to see how they work. It was really welcoming."



Hugh Jones & Rhys Jones (left) - Hugh Jones said:- "I was really pleased when I was assigned to the bypass project because my partner had a baby and this allowed me to work closer to home". Rhys Jones from Nefyn joined his uncle Gwyn Morris at the company and said the chance to work on such a significant local scheme was an exciting opportunity.



COMMUNITY ENGAGEMENT

Keeping everyone updated

The scheme released informative bilingual newsletters which were distributed to the local community, highlighting milestones and achievements with key information about the scheme, focusing on items that are in the public domain. The site team worked closely with community groups and the community councils to keep them updated on the project's progress. Copies of the newsletter were circulated to homes near the construction site and made available to pick up for free at the local post office, community councils offices and on-site visitors centre. A public liaison officer was appointed to liaise with local landowners, residents, businesses, and road users.



Above, the scheme stepped in to loan a generator so that the ice rink on the Maes in Caernarfon could go ahead after there were issues with sourcing a power supply.



Above, Caernarfon veterans came together to clean up Llanbeblig cemetery to help find the graves of 47 WW1 Soldiers. The JV helped the team of ex-service volunteers to move 20T of slate waste (donated by Penrhyn Quarry) into the cemetery to help maintain and tidy up the paths.

Supporting local community groups

The scheme is a keen supporter of Local Community Groups and has been involved in various activities aimed at providing improved experiences for the local areas. Examples of this includes providing soil for a local village to create flowerbeds for flower planting project, donating children's clothes and toys to O Law I Law local community enterprise, providing new gates for Felinwnda Primary School, loaning solar lights to Caernarfon Football Club and donating 12 tonnes of topsoil and reclaimed timber to allow primary schools to construct eco-greenhouses.

The scheme sourced local paper recycling facilities, run by Antur Waunfawr- a local leading social enterprise providing employment and training opportunities for people with learning disabilities in their own community.



The JV provided fencing and support for Caernarfon Football Club during a North Wales Junior Football Tournament

Fundraising for charity

The Balfour Beatty Jones Bros joint venture team has raised vital funds for charity and offered support for local good causes. Over the duration of the project, the site team held 15 individual fundraising events. A fantastic £19,373 has been raised. Some events include raising £925 for the local Eryri community hospital, 270kg of clothes donated to Warws Werdd local clothes bank, £747 spent on food for the Arfon Foodbank, £890 worth of toys donated to Gwynedd Hospital Christmas Toy Appeal 2020, £1,100 donated to Alder Hey Children's Hospital and £1,052 raised for British Heart Foundation.

Big thank you to all the bypass team for reaching into their pockets for their generous donations!



£1,052 raised in aid of British Heart Foundation following Helen Bonney (scheme's engineer) swimming the length of the English Channel.



270.5kg of clothes donated to Warws Werdd Charity in partnership with Maesincla Primary School who profited £54.10 from the good cause.



£925 raised in aid of Eryri Hospital League of Friends Charity following an on-site lunch fundraising event.



£288.58 raised in aid of Gafael Llaw Charity after the site team served up some home cooked meals amongst each other.



One of three of the site teams drop offs of food and toiletries to Arfon Foodbank.



£890 worth of toys donated to Gwynedd Hospital in aid of their 2020 Christmas Toy Appeal.

5k charity walk

On Sunday 5th December a section of the completed bypass was temporarily opened to the public for a day to give them a chance to have a sneak peek ahead of the official opening, for which the scheme hosted two 5km charity walks. This was the perfect opportunity for the scheme's team to thank the community for their support whilst constructing the bypass and a fantastic chance to raise some money for local good causes. The charities involved were Gafael Llaw, Eryri Hospital League of Friends and I'Can Mental Health as part of Blue Sky Charity for the NHS. There were also eight local primary schools within the catchment area who also took part to raise money for their school PTA (parent teacher association) funds.



More than 1,100 people took part in the day and over £4,800 was raised and shared between the three charities and primary school PTAs that got involved.



A further £8,300 was donated to the three local charities from the scheme's suppliers and sub-contractors. A special thank you goes to the following companies for their generous donations towards Gafal Llaw, Eryri Hospital League of Friend and I'Can Mental Health:

Oil 4 Wales Ltd, R Betts Construction Ltd, Lowther Forestry, GEWS Ltd, Celtest Company Ltd, L & R Roadlines Ltd, Hitex International Ltd, Rees Plant Hire, Brookes & Sons Tarpaulins Ltd.

Primary school engagement

The scheme has interacted with 341 local primary school pupils from 10 different schools. Early in the project, the scheme engaged with local pupils to produce artwork to be erected adjacent to the temporary plant bridge installed over the A487. When put together the artwork created the names of 'Caernarfon & Bontnewydd' and was erected on the fencing on the approach to the bridge.

One of the highlights of 2021 was the opening of overbridge S103 and side road 2. Felinwnda Primary School pupils had the honour of opening Ty'n Llan Road and were the first people to walk across the bridge – a moment they will always remember.



Artwork produced by local pupils placed on a temporary bridge above the A487 trunk road.



Porth y Felin Primary School during STEM education week learning about the bypass.



Felinwnda Primary School pupils became the first to cross Ty'n Llan Road.



Gelli Primary School – Year 2 learning through playing.

The scheme has also helped several local primary schools make improvements to their grounds. It provided new gates for Feliwnda primary school as well as clearing an old playhouse area.

Ysgol Syr Hugh requested some help with clearing up their garden area which the Joint Venture teams took a hands-on approach in doing so. They also received 12 tonnes of topsoil and timber to help the pupils construct their own Eco-Greenhouses.

In addition, Felinheli primary school were provided with soil to help the pupils with their gardening.

Always a warm welcome

The scheme has welcomed a number of visitors including Engineering students, Councillors and Assembly members, as well as members of the public.



Above, a North Wales geology society visited the Caernarfon & Bontnewydd bypass site to embark on a “unique” study opportunity. The scheme invited a delegation from the North Wales Geology Society to carry out assessments of the land. Samples of Pre-Cambrian granite from the Plas Menai cutting (top right), known widely as the Twt Hill Granitic pluton was one of many discoveries from the visit. Chairman Jonathan Wilkins said: *“We usually visit famous locations in North Wales but jobs like the Caernarfon and Bontnewydd bypass provide an absolute unique opportunity to see things that have never been looked at before.”*

Opposite, a visit to the main site offices in February 2020 was attended by Ken Skates MS, the then Minister of North Wales, where he spent time with the current apprentices learning their skills on the project as well as chatting with the graduate engineers. He also received first-hand look at a section of the bypass under construction. He said: *“Projects like this are a boost for the area during construction too, by providing opportunities for apprentices and local suppliers.”*



To the left, the scheme’s Environmental Liaison Group (ELG).

The scheme's ELG comprises of various environmental bodies and stakeholders who have been involved with the bypass development and the environmental commitments associated with it.

The visitors have enjoyed tours of the bypass and learnt what it takes to design, manage and construct a major Civil Engineering Project

PARTNERS FOR THE SCHEME

Balfour Beatty Jones Bros Joint Venture have worked together on four previous schemes. The relationship started on the Porthmadog bypass and has continued with windfarm schemes at Pen y Cymoedd and Clyde, as well as the Wylfa Newydd power station. We are confident that the Caernarfon and Bontnewydd bypass will prove to be as successful as the Porthmadog bypass in delivering a positive improvement to the town.

Balfour Beatty Ltd is a leading international infrastructure group with 26,000 employees. We finance, develop, build, maintain and operate the infrastructure that supports national economies and deliver projects at the heart of local communities. They have created iconic buildings and infrastructure including: the £1.5 billion A14 improvement scheme - Britain's biggest road project; Hong Kong's HK\$5.5 billion world-class harbour theatre project; and the 12.5 mile \$429 million North Metro Commuter Rail line in Colorado, US.

Jones Bros Civil Engineering UK is a leading contractor employing approximately 500 people. It runs its own apprenticeship scheme from a purpose-built facility in Denbigh, with almost half of current site operatives having entered their employment this way. They also run a civil engineering higher apprenticeship with Coleg Cambria, which leads on to degree-level qualifications. The firm which has one of the largest heavy plant fleets in the UK, prides itself on using local supply chain partners and sub-contractors where possible to maximise local employment and economic impact.

WSP - Contractors Designer have over 250 staff based in offices / homes in Wales and have been developing the project from its concept with Welsh Government in 2008. They undertook the detailed design, and provided 3D modelling and visualisation for the Public Exhibitions and Inquiry, assisting stakeholders to understand various aspects of the scheme. The design model was used by the JV to assess the buildability issues and identify areas for processing materials to minimise impact on the public highway. This enabled the team to develop an efficient and cost effective design.

TACP (UK) Ltd. - Environmental Consultants provide landscape design, ecology, natural resource management, environmental assessment, planning & co-ordination, environmental and landscape management, landscape heritage and data analysis. TACP have been on the project since the early route selection stage in 2008, and brought experience gained in working as part of both the Employer's Agent and the Contractor's team on several schemes where they have delivered high quality solutions.

Arcadis - Lead Employers Agents have had a presence in Wales for over 70 years and has over 100 personnel who work on transportation schemes across strategic and local networks. Arcadis were appointed in 2014 to support Welsh Government from appointment of the ECI Contactor to project completion. Arcadis have worked with the JV in the development of the scheme through the Statutory process. In construction Arcadis have administered the contract between the Welsh Government and the JV.

Ramboll - Employers Agent Technical Advisors has over 16,000 Experts globally and has a history of delivering for the Welsh Government. They have provided local expertise in all technical aspects associated with the A487 CABB scheme from development through to construction, including engagement around the statutory process, managing the technical review process and site assurance as well as stakeholder liaison roles, dealing with affected parties to ensure that they are suitably accommodated.

Thank You

A special thank you goes to Gwynedd Council, staff and councillors and to local community councils for their guidance and assistance during the construction works. Their local knowledge and input was invaluable and greatly appreciated. The biggest and most warm felt of thanks goes to the residents and the wider community of Caernarfon for their patience, their understanding, and their cooperation.

COVID-19 and Brexit provided a more challenging environment for all the workforce, suppliers and sub-contractors on the project. However, with social distancing, revised working practices and new control measures in place, their commitment, resilience, and determination to keep everyone safe whilst overcoming these obstacles has meant that the construction of the A487 Caernarfon & Bontnewydd bypass has been an outstanding team effort culminating in completion ahead of programme. Thanks go to numerous local businesses and building suppliers including those named below.

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| Anglesey Scaffolding Company Ltd | J McCann & Co Ltd |
| Baldwins Crane Hire Ltd | Janson Bridging (UK) Ltd |
| Balfour Beatty Ground Engineering Ltd | John A Hughes Ltd |
| Balvac Ltd | Jones & Jones Contractors |
| Barrier Services Ltd | L&R Roadlines Ltd |
| Brownlee Dean | Linear Recruitment |
| C&A Asbestos Removal | Lowther Forestry Group Ltd |
| C&N Electrical | NRG Engineering Services Ltd |
| Cambrian Services Ltd | Oxford Archaeology Ltd |
| CC Geotechnical Ltd | Pabo Tree Services Ltd |
| Celtest Co. Ltd | Panorama Cymru |
| Celtic Cleaning Services Ltd | Quantum Traffic Management Ltd |
| Centara Ltd | R Betts Construction Ltd |
| Cleveland Bridge UK | Saferoad VRS Ltd |
| Corvus Security Ltd | Shay Murtagh (Precast) Ltd |
| Coffey Geotechnics Ltd | Sheet Piling UK Ltd |
| Derek Pritchard Engineering Services Ltd | Siemens Mobility Ltd |
| Dylan Roberts Cyf | Socotec UK Ltd |
| E.Flood Construction Ltd | Stephenson Safety Consultant Ltd |
| ENZO Corrosion Services Ltd | Sumo Services Ltd |
| EPC (UK) PLC | Tilhill Forestry Ltd |
| Evans Wolfenden Partnership Ltd | UK Lining Ltd |
| Fastglobe Mastics Ltd | Universal Sealants Ltd |
| Gwynedd County Council | Woodmen UK Ltd |
| Gwynedd Environmental Waste Services Ltd | Ffestiniog & Welsh Highland Railways |
| GRE Millington Contractors Ltd | WJ Structures Ltd |
| Hays Recruitment Ltd | |

Pont yn Lôn Ty'n Llan



Bridge at Ty'n Llan Road

Pont Cerddwr/Beicio Ceriw



Ceriw Pedestrian/Cycle Bridge

Traphont dros Afon Seiont

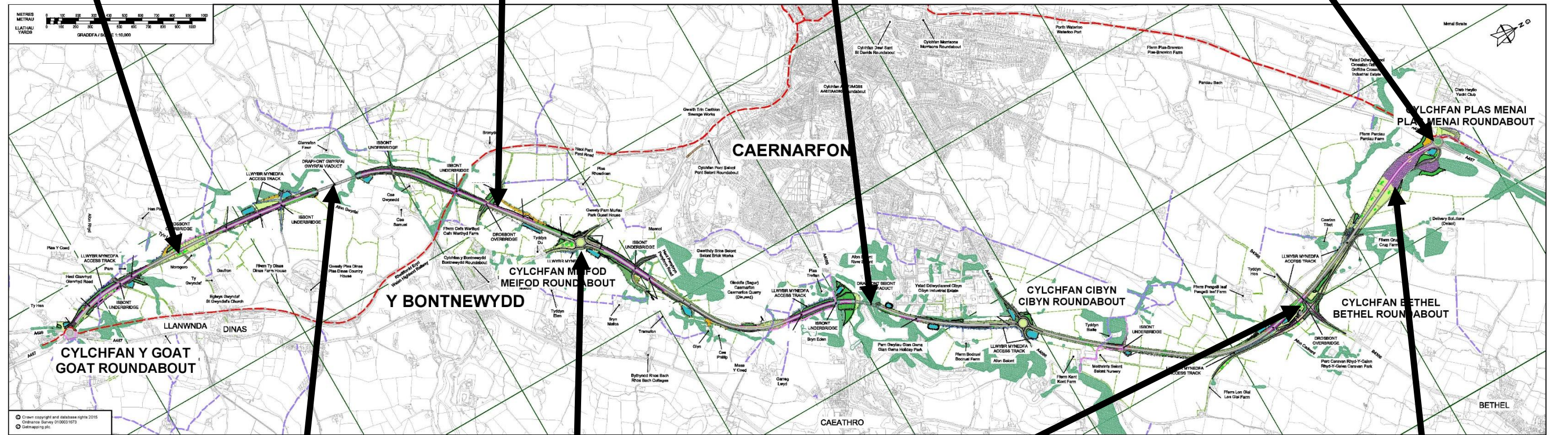


Viaduct over River Seiont

Cylchfan Plas Menai



Plas Menai Roundabout



Traphont dros Afon Gwyrfa



Viaduct over River Gwyrfa

Cylchfan Meifod



Meifod Roundabout

Cylchfan Bethel



Bethel Roundabout

Torriad Plas Menai



Plas Menai Cutting