ST ATHAN RAILWAY STATION

Preliminary Feasibility Study

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St Athan Railway Station

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1 Introduction

1.1 Background

1.1.1 Arcadis Consulting (UK) Limited (Arcadis) was commissioned by the Vale of Glamorgan Council to complete a feasibility study to understand the potential for a new railway station located on the Vale of Glamorgan Line at St Athan.

1.1.2 The railway line is situated to the south of St Athan and was closed to passengers in 1964. The line reopened to services in 2005 with new stations established at Llantwit Major circa 4.5km to the west and Rhoose Cardiff International Airport circa 4.2km to the east of village.

1.1.3 A railway station was previously situated at Gileston Road, although the station closed when passenger services on the line ceased. St Athan Road railway station was situated to the east of the village on the Llantrisant to Aberthaw line and closed to passengers in 1930 and whilst named St Athan, this station in the vicinity of the village was located some 3km to the west near Boverton and also closed to passengers in 1964.

1.1.4 The community of St Athan has a population of circa 5,000 people, although proposals are retained within the existing Local Development Plan (LDP) for development of 250 dwellings to the south east of the village (land at Church Farm) and a further 220 dwellings to the north west (land at Higher End). The proposed LDP map can be seen in Appendix A. The village is also strategically positioned close to the St Athan and Cardiff Airport Enterprise Zones catering for the aerospace, defence, automotive, manufacturing and engineering sectors.

1.1.5 The purpose of this feasibility study is to consider the opportunities for development of a new St Athan railway station and the Legislation that supports it. The appraisal team have assessed a range of site locations and considered the opportunities and challenges associated with the identified sites.

1.2 Study Area

1.2.1 The study area is outlined in Figure 1 with the site location plan included as Appendix B.

Figure 1 Study Area | Vale of Glamorgan Line 7m 1429yds to 5m 618yds

2 Policy Review

2.1 Introduction

2.1.1 This chapter summarises relevant legislation, policy, strategies, guidance and background documents to provide further context for this study.

2.2 National Legislation

Well-being of Future Generations (Wales) Act

2.2.1 The Well-being of Future Generations Act places a duty on public bodies to ensure that all development is sustainable. Whilst sustainable development has been a principle of the planning system since Planning Policy Wales was first published in 2002, the concept has been expanded under the Well-being Act and it requires an improvement of all four aspects of well-being: social, economic, environmental and cultural.

2.2.2 The Well-being Act has established seven well-being goals which are intended to shape the work of all public bodies in Wales:

- A globally responsible Wales
- A prosperous Wales
- A resilient Wales
- A healthier Wales
- A more equal Wales
- A Wales of cohesive communities

2.2.3 A Wales of vibrant culture and thriving Welsh Language to clearly demonstrate that appropriate consideration has been given to these goals and sustainable development principles in the decision-making process, public bodies are required to have regard to the 'five ways of working' contained in the Well-being Act. These require consideration of involvement, collaboration, integration, prevention and long-term factors.

2.2.4 The planning system is central to achieving sustainable development in Wales. It provides the legislative and policy framework to manage the use and development of land in the public interest so that it contributes positively to the achievement of the well-being goals.

Planning Wales Act (2015)

2.2.5 The Planning (Wales) Act became law in July 2015 and is a set of provisions that provide a modern legislative framework for the operation of the planning system. The key purposes of the Act are to:

- Strengthen the plan-led approach to planning, by the introduction of the National Development Framework and Strategic Development Plans.

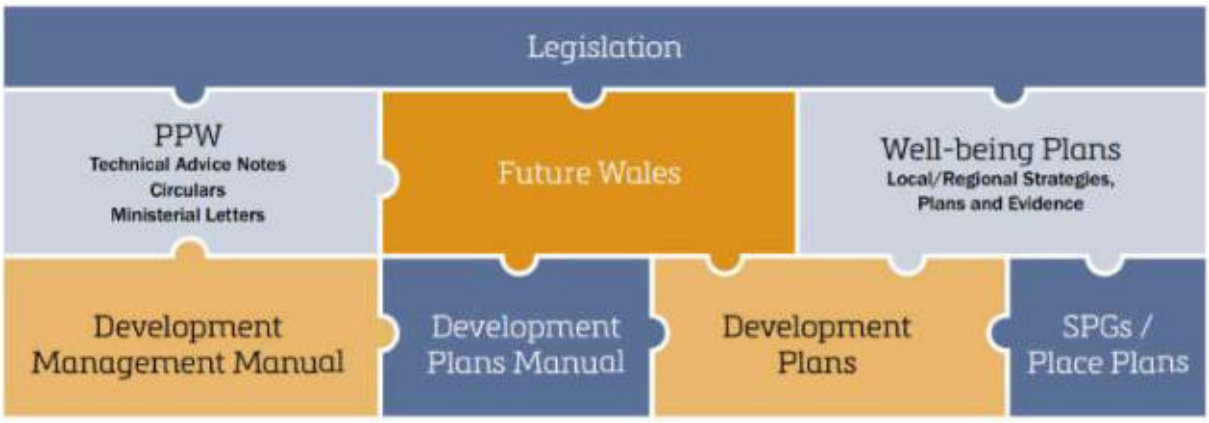
- Providing a modernised framework for the delivery of planning services, by enabling some planning applications to be made directly to Welsh Ministers.
- Make provision for pre-application consultation, and to require local planning authorities to provide pre-application services.
- Reform the development management system to streamline procedures, to ensure that applications are dealt with promptly.
- Improve enforcement and appeal procedures.

Planning Policy Wales | Edition 11 (2021)

2.2.6 Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales. PPW, the TANs, MTANs and policy clarifications letters comprise national planning policy.

2.2.7 PPW additionally, sets out Welsh Government objectives, strategies and policies related to land use. PPW Edition 11 has been shaped around the policy themes of the well-being goals and updated to reflect the most recent Welsh Government strategies and priorities. PPW Edition 11 includes four key themes that collectively contribute to placemaking: Active and Social Places, Productive and Enterprising Places, Distinctive and Natural Places, and Strategic and Spatial Choices. The Planning Framework for Wales, within which PPW Edition 11 sits is set out within Figure 2.

Figure 2 Planning Framework for Wales[1]



Moving within and Between Places

2.2.8 The planning system should enable people to access jobs and services through shorter, more efficient and sustainable journeys, by walking, cycling and public transport. By influencing the location, scale, density, mix of uses and design of new development, the planning system can improve choice in transport and secure accessibility in a way which supports sustainable development, increases

[1] Welsh Government (2021), Planning Policy Wales Edition 11

physical activity, improves health and helps to tackle the causes of climate change and airborne pollution by:

- Enabling More Sustainable Travel Choices – measures to increase walking, cycling and public transport, reduce dependency on the car for daily travel.
- Network Management – measures to make best use of the available capacity, supported by targeted new infrastructure.
- Demand Management – the application of strategies and policies to reduce travel demand, specifically that of single-occupancy private vehicles.

Active Travel

2.2.9 PPW finds that walking and cycling support valuable social and recreational opportunities and are integral to placemaking, creating life and activity in public places and providing the opportunity to meet people. Sustainable places invite people to walk and cycle as part of their everyday routine.

Public Transport

2.2.10 PPW states that the availability of public transport is an important part of ensuring a place is sustainable. It enables people to undertake medium and long journeys without being dependent on having access to a car. The planning system should facilitate this by locating development where there is, or can be, good access by public transport.

Traffic Management

2.2.11 PPW considers the Manual for Streets and the Active Travel Design Guidance to provide advice on reducing the speed and volume of motor vehicles. This includes creating connected and permeable road networks, with filtered permeability to prioritise walking and cycling, and careful consideration of issues such as street layout and dimensions, and the design and location of footways (including use of continuous footways at side streets), crossings, parking, trees, planters and surface materials.

Active Travel (Wales) Act

2.2.12 The Active Travel (Wales) Act 2013 provides the primary legal foundation on which active travel in Wales will be supported and places a legal duty on local councils in Wales to map, plan for and promote increased walking and cycling for day-to-day purposeful journeys. The Act symbolises a landmark shift in policy direction to encourage and prioritise walking and cycling and requires all local authorities to prepare maps of current access and identify potential future routes for active travel use. There is also a requirement upon all new road and improvement schemes to consider the needs of pedestrians and cyclists at every stage, with a particular emphasis during the design stage.

2.2.13 The Act aims to promote active travel by securing new and improved active travel routes and related facilities to enable people to partake in sustainable travel and is aimed at promoting and enabling utility journeys, in particular to help reduce the number of short car journeys to access work, education, healthcare, retail, leisure or other services and destinations. **Routes intended solely for recreation and tourism purposes are not considered part of the Active Travel Network.**

2.3 National, Regional and Local Policy

Llwybr Newydd: A New Wales Transport Strategy (2021)

2.3.1 The strategy published March 2021, sets out the ambitions for the next 20 years and priorities for the next five years. The vision of the WTS is for an accessible, sustainable transport system. The 20-year ambitions are:

- Good for people and communities: By delivering services people can use, and want to use, which contribute to wider equality, health goals including addressing the barriers that stop people accessing transport.
- Good for the environment: By significantly reducing greenhouse gas emissions, improving air quality, creating resilient ecosystems.
- Good for places and the economy: Supports key sectors and the Welsh supply chain and innovates so people and businesses can make sustainable transport choices.
- Good for culture and language in Wales: By creating more opportunities for people to engage with language and culture, and through protecting and promoting the distinct culture and language of Wales.

2.3.2 The five-year priorities in order to deliver the ambitions are:

- Significantly reduce greenhouse gas emissions by planning for physical and digital connectivity, more local services, more home and remote working and more active travel, so that fewer people need to use their cars on a daily basis.
- Public transport services that everyone can use, wants to use, and does use.
- Safe, accessible and well-maintained transport infrastructure that supports sustainable transport choices.
- Making sustainable transport options more attractive to people and businesses.
- Supporting innovations that help people and businesses adopt more sustainable transport choices.

Future Wales: The National Plan 2040

2.3.3 Future Wales – The National Plan 2040 is the national development framework which sets the direction for development in Wales to 2040. It is a development plan with a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of communities.

2.3.4 The plan outlines 11 outcomes which are overarching ambitions based on the national planning principles and national sustainable placemaking outcomes set out in Planning Policy Wales. The Future Wales Outcomes are outlined as *'**A Wales where people live…***

- ***… and work in connected, inclusive and healthy places** – Our cities, towns and villages will be physically and digitally well-connected places, offering good quality of life to their residents.*

- ***… in vibrant rural places with access to homes, jobs and services*** *– In rural areas, job opportunities and community services will be supported to help attract and retain people.*
- ***… in distinctive regions that tackle health and socio-economic inequality through sustainable growth*** *– The regional approach will recognise that different parts of Wales work differently to each other, with distinct underlying characteristics and challenges.*
- ***… in places with a thriving Welsh Language*** *– We aim to have a million speakers in Wales by 2050 – an increase of almost 80% on current levels.*
- ***… and work in towns and cities which are a focus and springboard for sustainable growth*** *– Cities and large towns will be magnets for jobs and investment, while people are drawn to live and work there for the economic and social opportunities they provide.*
- ***… in places where prosperity, innovation and culture are promoted*** *– Development plans will have a forward thinking, positive attitude towards enabling economic development, investment and innovation.*
- ***... in places where travel is sustainable*** *– All methods of travel will have low environmental impact and low emissions, with increased use of public transport and ultra-low emission vehicles replacing today's petrol and diesel vehicles.*
- ***... in places with world-class digital infrastructure*** *– Broadband provision will develop and evolve, beginning with comprehensive coverage of superfast and progressing to ultra-fast fibre, which will help businesses to be more productive, resilient and innovative and improve the way of life for communities and individuals.*
- ***... in places that sustainably manage their natural resources and reduce pollution*** *– Wales' natural resources, including its minerals, soils and geodiversity, coast, water, forests and landscape support a range of activities and sectors and are assets of great value in their own right.*
- ***... in places with biodiverse, resilient and connected ecosystems*** *– The variety of flora and fauna found across Wales make Wales a special place.*
- ***... in places which are decarbonised and climate-resilient*** *– The challenges of the climate emergency demand urgent action on carbon emissions and the planning system must help Wales lead the way in promoting and delivering a competitive, sustainable decarbonised society.'*

2.3.5 Every five years the Welsh Government will prepare and publish a review of Future Wales. The review will set out progress in delivering the Future Wales Outcomes and shaping the Wales we wish to see by 2040. The review will be based on four key sources:

- ***'The National Indicators |*** *There are 46No. National Indicators and they help to tell a story of progress against the well-being goals established in the Well-being of Future Generations (Wales) Act 2015.*
- ***Future Wales policy related indicators |*** *Future Wales policy related indicators cover the range of topics addressed by Future Wales policies. These indicators will help us understand in more detail the key trends and patterns Future Wales seeks to influence.*
- ***The Integrated Sustainability Appraisal |*** *The Integrated Sustainability Appraisal is a process that has supported the development of Future Wales from the outset. It has its own set of objectives, indicators and baseline data. Analysing these will help us think about the Future Wales Outcomes and Future Wales' effect on the Integrated Sustainability Appraisal baseline data.*

- ***Contextual evidence and influencing factors*** **|** *Contextual evidence and influencing factors will include a broad range of economic, cultural, environmental and social data. We will assess national and regional statistics on issues such as the economy and employment, population and the environment. Over the first five years of Future Wales, changes such as new Welsh Government policies, new research and publications will all provide an important context to the National Indicators and Future Wales policy related indicators. As we approach the review stage, we will also invite people to submit evidence they think should be considered.'*

Net Zero Wales Carbon Budget 2 (2021 to 2025)

2.3.6 The Net Zero Wales Carbon Budget 2 (2021 to 2025) published in October 2021 follows on from Welsh Government's last Plan, *Prosperity for all: a low carbon Wales*. It focuses on Welsh Government's second carbon budget but looks beyond to start building the foundations for Carbon Budget 3, as well as achieving net zero by 2050.

2.3.7 This Net Zero Wales Plan represents a new phase in Welsh Government's decarbonisation journey with a new net zero target. The Plan sets out 123 policies and proposals, alongside commitments and action across Wales.

2.3.8 The Net Zero Wales Plan outlines its ambitions for emission reductions across different sectors. Key ambitions for the transport sector include:

- Reducing emissions from passenger transport by 22% in 2025 (from 2019) and 98% in 2050.
- Reduce the number of car miles travelled per person by 10% by 2030.
- Increase the proportion of trips by sustainable travel mode (public transport and active travel) to 35% by 2025 and 39% by 2030.
- By 2025, 10% of passenger travel will be by zero emission car and 48% of new car sales will be zero emission.
- Have a comprehensive network of electric vehicle charging points and will also have transitioned a large proportion of buses, taxis and private hire vehicles to zero emission vehicles.

2.3.9 The overarching policies for transport intended to help achieve these ambitions include:

- Demand reduction and modal shift – how behavioural and societal shifts could reduce or change demand for travel.
- The technological options available and the uptake of transport with low or zero emissions.
- Improvements to fuel efficiency in conventional vehicles.

Programme for Government 2021 to 2026 (2021)

2.3.10 The Programme for Government published in 2021, sets out how the Welsh Government will deliver within the Assembly term. The programme outlines 10 well-being objectives as:

- *'Provide effective, high quality and sustainable healthcare.*
- *Protect, re-build and develop our services for vulnerable people.*

- *Build an economy based on the principles of fair work, sustainability and the industries and services of the future.*
- *Build a stronger, greener economy as we make maximum progress towards decarbonisation.*
- *Embed our response to the climate and nature emergency in everything we do.*
- *Continue our long-term programme of educational reform, and ensure educational inequalities narrow and standards rise.*
- *Celebrate diversity and move to eliminate inequality in all of its forms.*
- *Push towards a million Welsh speakers, and enable our tourism, sports and arts industries to thrive.*
- *Make our cities, towns and villages even better places in which to live and work.*
- *Lead Wales in a national civic conversation about our constitutional future and give our country the strongest possible presence on the world stage.'*

2.3.11 The relevant climate change actions to this study outlined in the programme are:

- *'Give Transport for Wales new powers to better integrate rail, bus and active travel and regulate them to meet Welsh Language standards.*
- *Develop new Regional Transport Plans.*
- *Deliver £800m of new rolling stock for our railways and ensure that 95% of train journeys are on new trains by 2024.*
- *Progress plans for a metro in North Wales and Swansea Bay.*
- *Explore opportunities for multi-modal extensions to our Metro networks, such as the Northwest Corridor and across the South Wales valleys.*
- *Invest in bus services and complete major new bus infrastructure projects.*
- *Expand flexible demand-responsive travel across Wales.*
- *Work with Transport for Wales and local authorities to strengthen the promotion of walking and cycling.*
- *Develop new Active Travel Integrated Network Maps.*
- *Invest in travel options that encourage public transport and support walking and cycling.*
- *Support innovation in new renewable energy technology.'*

Cardiff Capital Region | State of the Region Reports

2.3.12 **Part 1: Connected |** This report brings together data on the Cardiff Capital Region's connectivity, notably highlighting key features of the region's transport and housing infrastructure. Travel to work patterns highlight the strong interdependencies that exist between the region's communities which reinforces the importance of the South Wales Metro, as does the continued evidence of the region's emphasis upon the car for commuting. The report also highlights how the region's housing infrastructure is critically linked to commuting patterns across the region.

2.3.13 **Part 2: Competitive |** The report brings together different indicators to highlight current economic performance and key trends across the Cardiff Capital Region. It is intended to present some of the key data that now exists for the city region, and which can help benchmark the region's performance as the City Deal investment progresses over time. The report focuses on labour productivity utilising Gross Value Added (GVA) as a key measure of economic performance. This reports that economic performance is a key theme that emerges from the data. *'Whether it is the highly variable rates of unemployment, the number of jobs and skill levels, there is clear evidence that the Cardiff Capital Region's goal of tackling inequalities is imperative.'*

2.3.14 **Part 3: Resilient |** The State of the Region report Part 3 notes Cardiff Capital Region's strategic goal of building a resilient regional economy. The report subsequently provides a selection of socio-economic, cultural and environmental indicators to support the region's drive towards resilience, including for example population dynamics, wealth and deprivation, health and well-being and environment, culture and heritage.

Cardiff Capital Region | Industrial and Economic Plan

2.3.15 The Regional Economic Growth Partnership was established to advise on the implementation of the Cardiff Capital Region City Deal's Wider Investment funds. The Industrial and Economic Plan is a 20-year plan setting out an ambitious and long-term vision to boost productivity and accelerate economic and inclusive growth in the region. The approach will be based on five key factors including cohesion, scale, leverage, return on investment and ecosystem development.

2.3.16 A key part of the plan is establishing infrastructure that is fit for the future, both digital and physical. The region seeks to implement infrastructure that connects the region effectively by road, rail and air and notes the following key initiatives to achieve this goal:

- *'Continue to work closely with the UK and Welsh Governments to further develop, enhance and implement the transport network to improve links within the region, reduce congestion and connect people.*
- *Embrace the Metro as a backbone to connecting CCR and shaping places on its networks.*
- *Develop a series of strategic employment spaces across the region to meet the needs of businesses.*
- *Utilities networks to ensure the region is ready for the future of electric and/ or hydrogen vehicles.'*

Cardiff Capital Region | City Deal Business Plan 2020/21

2.3.17 The City Deal Business Plan outlines the activities Cardiff Capital Region will progress through the Wider Investment Fund (WIF). The Annual Business Plan is prepared in the context of the overarching five-year Joint Working Agreement Business Plan, which was approved by Regional Cabinet in February 2018 and all ten Councils in and around March 2018. The report highlights the key challenges the region faces including:

- *'Low levels of competitiveness and productivity.*
- *Low levels of R&D investment and intensity.*
- *High growth and competitiveness areas cheek by jowl with some of the most deprived and impoverished places in the UK.*

- *Dependency mind-set has limited choices and eroded self-esteem.'*

2.3.18 Transport engineering forms one of ten priority sectors recognised with investment priorities focussed on innovation, infrastructure and challenge. The report highlights several delivery programmes including the following transport-based initiatives:

- ***'Metro Plus** | Schemes are now moving towards final stages of WelTAG with delegations for funding approvals to the Regional Transport Authority.*
- ***LEV Strategy, Taxi Strategy and Infrastructure Charging Models** | The Taxi Strategy was approved in 2019 and discussions are taking place with Transport for Wales and the UK Government's Electric Vehicle Infrastructure Investment Fund (managed by Zouk Capital) regarding development of a regional gain-share model.*
- ***Cardiff Metro Central Interchange** | The circa £200m Cardiff Metro Central Interchange project is underway linked to the comprehensive redevelopment of Central Square and the Southside Quay area of the City.'*

2.3.19 A range of priorities are presented for the years ahead including a comprehensive climate crisis response encompassing a comprehensive plan, vision and mission for energy and clean growth, and 'planning ahead' – taking longer-term view and beginning to establish plans and infrastructure proposals for the future, especially important for sustainable transport.

Cardiff Airport 2040 Masterplan | Setting Intentions for Wales' Largest Airport

2.3.20 To support Cardiff airport's vision to be a pioneering airport business, a Masterplan has been completed in accordance with UK Government Aviation Policy Framework 2013 to outline growth plans for the next 20-year period towards becoming a key gateway to the United Kingdom. The economic significant of Cardiff Airport is highlighted, '*...both as an international gateway and as a major driver within the Welsh Economy, supporting 1,800 aviation-related jobs at the Airport as well as directly and indirectly supporting a further 2,675 jobs across the wider area*.'

2.3.21 The Masterplan recognises a number of drivers and opportunities for change including connectivity and accessibility, customer experience, technology, culture and identity, environment and sustainability, and business and economy. In addition to recognising Cardiff airport and its associated Enterprise Zones as a strategic opportunity area, it also describes the importance of the airport towards supporting Cardiff Capital Region achieving its priorities to achieve regionally and nationally significant economic growth and to attract employment opportunities and skills to the region. A number of expansion and improvement plans are subsequently outlined to help facilitate its wider vision including:

- A new passenger and cargo terminal with replacement aircraft parking stands.
- New dedicated road access to be provide for the terminal from the A4226, separating airport traffic from other users, including surface connectivity to the Enterprise Zone.
- Improvements to pedestrian and cycle access to and through the airport site, including links to Rhoose and Barry.
- Future integration with the Metro with a safeguarding bus link as well as an improved, dedicated connection between the terminal and Rhoose Cardiff International Airport railway station to improve the transfer experience.

- Open space, public realm and landscaping improvements, safeguarded land for expansion and improved rail links.

2.3.22 The Masterplan's commentary on surface access includes existing and opportunities for future transport links including Five Mile Lane improvements (since completed), Great Western mainline improvements, South Wales Main Line improvements, South Wales Metro development, rail frequency enhancements and express bus connectivity.

Vale of Glamorgan Local Development Plan | 2011 – 2026 (2017)

2.3.23 The Vale of Glamorgan Local Development Plan (LDP) 2011 – 2026 was adopted on 28th June 2017, superseding the previous adopted Unitary Development Plan (UDP). The LDP is the basis for decisions on land use planning in the Vale of Glamorgan and will be used by the Council to guide and manage new development proposals. The plan has been written mindful of the need to regenerate and support communities and in doing so seeks to achieve a balance between economic growth, social cohesion and environmental impact.

2.3.24 The LDP refers to the minor rural settlements as functionally linked, emphasising the importance of safeguarding facilities as well as facilitating new development opportunities. The LDP Strategy comprises four key elements *'to promote development opportunities in Barry and the South East Zone. The LDP identifies the St Athan area to be a key development opportunity and Cardiff Airport a focus for transport and employment investment. Other sustainable settlements to accommodate further housing and associated development.'*

2.3.25 A summary of the key strategic policies relevant to the study have been included within Table 1 , with an applicable section of the Vale of Glamorgan LDP proposals map (2017) relevant to the study area shown in Appendix A.

Table 1 Key Strategic Policies Relevant to the Study Area

Policy	Description
Policy SP1	Delivering the Strategy (including 4. Promoting Sustainable Transport).
Policy SP2	Strategic Sites – Land is allocated for development at strategic sites including mixed use at St Athan and employment uses at land adjacent to the airport and Port Road, Rhoose, as part of the St Athan – Cardiff Airport Enterprise Zone.
Policy SP5	Employment Requirements – To ensure the continued prosperity of the Vale of Glamorgan and promote growth in the capital region.
Policy SP7	Transportation – Sustainable transport improvements that serve the economic, social and environmental needs of the Vale of Glamorgan and promote the objectives of the South East Wales Regional Transport Plan (RTP) and the Local Transport Plan (LTP) will be favoured. Priority will be given to schemes that improve highway safety and accessibility, public transport, walking and cycling. Surface and public transport access to Cardiff Airport is highlighted as in need of significant improvements if the potential of the airport is to be realised.

Policy	Description
Policy MD7	Environmental Protection – Development proposals will be required to demonstrate they will not result in an unacceptable impact on people, residential amenity, property and/ or the natural environment.
Policy MD9	Promoting Biodiversity – New development proposals will be required to conserve and where appropriate enhance biodiversity interests unless certain conditions can be demonstrated.
Policy MG2	Housing Allocations – New housing allocations on land to east of Eglwys Brewis, St Athan and Church Farm, St Athan
Policy MG9	Employment Allocations – including at Land to the South of Junction 34 M4 Hensol; Land adjacent to Cardiff Airport and Port Road, Rhoose; and Aerospace Business Park, St Athan Rhoose.
Policy MG10	St Athan – Cardiff Airport Enterprise Zone – including provision of sustainable transport infrastructure.
Policy MG16	Transport Proposals – Land for the following transportation schemes (relevant to the study) is allocated: Walking and cycling: A4050 Port Road to Cardiff Airport. Rail: Modernisation of the Valley Lines. Highways: Northern Access Road (St Athan Enterprise Zone); Improvements to the A4226 between Waycock Cross, Barry and Sycamore Cross, A48 (Five Mile Lane); Bonvilston Road Improvements.

Vale of Glamorgan Local Transport Plan (2015 – 2030)

2.3.26 The Vale of Glamorgan Local Transport Plan (LTP) has been established to recognise the diverse economic and social geography and overlapping labour and housing markets that exist throughout the Capital Region (encompassing Cardiff, Blaenau Gwent, Bridgend, Caerphilly, Merthyr Tydfil, Monmouthshire, Newport, Rhondda Cynon Taf, Torfaen and the Vale of Glamorgan).

2.3.27 Whilst acknowledging the requirement for a collaborative approach for the future development of the Capital Region, the LTP seeks to identify the sustainable transport measures required to ensure the Vale of Glamorgan Council adheres to current requirements and good practice, to allow for a sustainable transport environment for the period 2015 to 2020, as well as looking forward to 2030. The plan therefore seeks to secure better conditions for pedestrians, cyclists and public transport users and to encourage a modal shift away from the single occupancy car. The LTP also *'seeks to tackle traffic congestion by securing improvements to the strategic highway corridors for commuters who may need to travel by car.'* The plan highlights actions required including:

- In partnership with bus operators, negotiate expansion of current bus services, linking to key settlements and interchanges.
- Encourage use of community transport provision to sustain and entice bus operators/ community transport providers to take over once grown to acceptable sustainable level of patronage.

- To deliver existing safe routes in communities' schemes identified by schools and the public and encourage more schemes to come forward for consideration and implementation.
- In partnership with bus operators, negotiate expansion of current services, linking routes where there needs to be interchange and ensuring timings of connections are acceptable. Encourage use of integrated ticketing for services. Increase Community Transport to cater for demand.
- Deliver highway/ junction improvement schemes at key locations.
- Deliver bus infrastructure improvement schemes/ corridors.
- Provide Park & Ride/ Park & Share.

2.4 Other Documents

Network Rail Welsh Route Study (2016)

2.4.1 Network Rail published the Welsh Route Study in March 2016, which sets out the plans for railway in Wales that is fit for the future. The study is a key part of the rail industry's strategic planning process for the future, assessing how demand for rail will grow in response to the economy. The strategic priorities that underpin this Route Study are:

- Safety – to ensure all our customers, staff and suppliers get home safe every day.
- Economic growth – the railway is integral to the economy and thus a better railway is pivotal in delivering a better Great Britain.
- Social value – the railway is crucial in supporting local economies by providing access to employment, education and other social infrastructure as well as the retail and tourism sectors.
- Digital Railway – the rail industry's Digital Railway blueprint will revolutionise train control, ticketing, tariffs and information.
- Capacity – longer trains and increased frequency of train services to accommodate growth in passenger numbers will require the capability of the railway to be enhanced.
- Connectivity – the role rail can play in connecting communities and making interchanges easier and more reliable, both between trains and between trains and other modes.
- Punctuality – more needs to be done to get customers to their connections or destinations on time.
- Weather Resilience – future proofing the railway system from the worst effects of climate change is crucial to future plans.

2.4.2 The Route Study estimated growth in passenger peak demand for commuting to Cardiff from 2013 to 2023 and 2043. For the Vale of Glamorgan Line, it is estimated that passenger demand will grow by 80% by 2023 and 159% by 2043, based on the Prospering in Global Stability scenario (PGS).

Network Rail Wales Route Strategic Plan (2019)

2.4.3 In March 2019, Network Rail presented their Control Period 6 Strategic Business Plan. The report states that the plan focusses on four key areas encompassing safety, reliability, affordability and sustainability to support the continued forecast growth in passenger numbers during Control Period 6. In addition, the plan also considers changes in asset policy, deferrals from Control Period 5,

electrification, and safety, health and environment strategies. Route enhancements that form the strategic approach to Control Period 6 encompass a range of on and off-track strategies including digital railway, telecoms and property strategies, together with enhancements to track, signalling, E&P, structures and buildings. The plan also outlines maintenance and operational strategies.

Network Rail Wales & Western Delivery Plan for 2019 – 2024 | Control Period 6

2.4.4 Network Rail has outlined its specific route enhancement work planned for Control Period 6, detailing a range of work to enhance rail travel across its Wales and Borders route. A selection of key work is outlined as follows:

- Network Rail is supporting Transport for Wales' £5bn plan to transform rail services, with increased capacity, new rolling stock and improvements to stations across the network. This will include the transfer of the Core Valley Lines infrastructure to Transport for Wales.
- Working with Network Rail's partners at Transport for Wales, they've developed joint performance measures focussed on delivering to the minute punctuality and a right time railway.
- Network Rail are investing £176M in refurbishing and replacing track across the network and £27m to meet the challenge of climate change and extreme weather in Wales.
- They'll be delivering phase two of the Port Talbot West resignalling project; improving resilience, reliability and reducing delays in South West Wales.
- In partnership with the British Transport Police, they're focussed on reducing route crime and its impact on passengers. Priorities include reducing the number of bridge strikes and tackling cable theft and trespass.

The Rail Network in Wales | The Case for Investment (2018)

2.4.5 Welsh Government commissioned Professor Mark Barry to consider the strategic and economic case for investment in Wales' rail infrastructure. The output of the study suggests that there is a '*positive and compelling case for major rail investment that addresses both the Welsh Government's economic ambitions and [Wales'] broader environmental and well-being objectives.' The report further states 'that a programme of investment in rail infrastructure in Wales is required to support a stronger, inclusive and more equitable economy, delivering prosperity for all by connecting people, communities and businesses to jobs, services and markets*.'

2.4.6 The report also provides an economic and transport context for South Wales, noting an overarching challenger to increase Wales' Gross Value Add (GVA) per capita, as well as deliver its obligations on sustainability and well-being. The report notes that *'transport can only be part of a solution that requires complementary measures focussed on communities and bespoke regeneration and economic development interventions.'* Key items including highways and congestion, bus integration, active travel, rail freight and emerging technologies are also considered.

Transport for Wales Rail Services | Wales & Borders Franchise Planned Future Work – South East Wales

2.4.7 Transport for Wales Rail Services is the delivery body for transport services on behalf of Welsh Government and are responsible for the Wales and Borders Franchise (run by KeolisAmey). The following outlines planned future works for south east Wales:

- Remove Pacer trains with passenger feedback highlighting the need to improve capacity and resilience in the fleet as a key priority.
- Introduce a Central Metro that improves journey times and increases frequency to at least four trains per hour from the head of each valley using new trains.
- Introduce new Metro Vehicles with level boarding by December 2022, which will provide a modern metro-style service to the Treherbert, Aberdare and Merthyr valleys.
- Retain the link from Penarth, Barry and Bridgend to destinations north of Cardiff Central using new tri-mode trains (overhead electric, battery and diesel) from December 2023.
- Invest in Cardiff Central station from April 2025, Abergavenny station from April 2023, Chepstow from April 2025 and Merthyr Tydfil from April 2020.
- Build new stations at Crwys Road, Loudoun Square and Cardiff Bay by December 2023, and Gabalfa by 2028. We will relocate Treforest Estate station by December 2025 to improve safety and convenience.

3 Baseline Highway Conditions

3.1 Introduction

3.1.1 This chapter sets out the existing highway conditions in the vicinity of the proposed development, including an overview of the local highway network and wider strategic network, analysis of traffic collision data and traffic flows.

3.1.2 For the purposes of traffic flows, existing conditions will be taken as prior to March 2020, i.e., prior to the COVID-19 pandemic. This is due to the impacts of the pandemic on the volume, composition, and distribution of traffic.

3.2 Highway Network

B4265

3.2.1 The B4265 bounds the south of St Athan, linking to the village of Llantwit Major to the west and Rhoose to the east. The B4265 has a carriageway width of approximately 5.5 metres and is subject to variable speed limits throughout its length. To access St Athan, the B4265 meets at a junction with Gileston Road.

Gileston Road

3.2.2 Gileston Road represents the main access road to St Athan from the south. It heads northbound from the village of Gileston and has an initial carriageway width of circa 2.5 metres through a rural section and therefore is not a sufficient width for oncoming vehicles to pass. Continuing northbound, it meets at a junction with the B4265, before heading northbound towards St Athan. The carriageway extends to approximately 5.6 metres with a 30mph speed limit imposed along this section of the carriageway.

Cowbridge Road/ Rectory Road

3.2.3 Cowbridge Road/ Rectory Road follows a north-south route through the centre of St Athan, beginning just outside the settlement on Cowbridge Road, adjacent to MoD St Athan. Cowbridge Road has an approximate carriageway width of 5 metres and is subject to a 30mph speed limit. Continuing southbound, Cowbridge Road meets and briefly becomes known as Rectory Road, before merging with Gileston Road north of the junction with Rock Road.

3.3 Collision Data

3.3.1 Personal Injury Collision (PIC) data was acquired from the Vale of Glamorgan Council for the most recent five-year period encompassing 2016 to 2021. The data gives a record of collisions resulting in personal injury that were recorded on the local highway network. The PICs are mapped below in Figure 3.

3.3.2 Within the study area, 19 PICs were recorded, of which 16 resulted in slight injury and three resulted in serious injury.

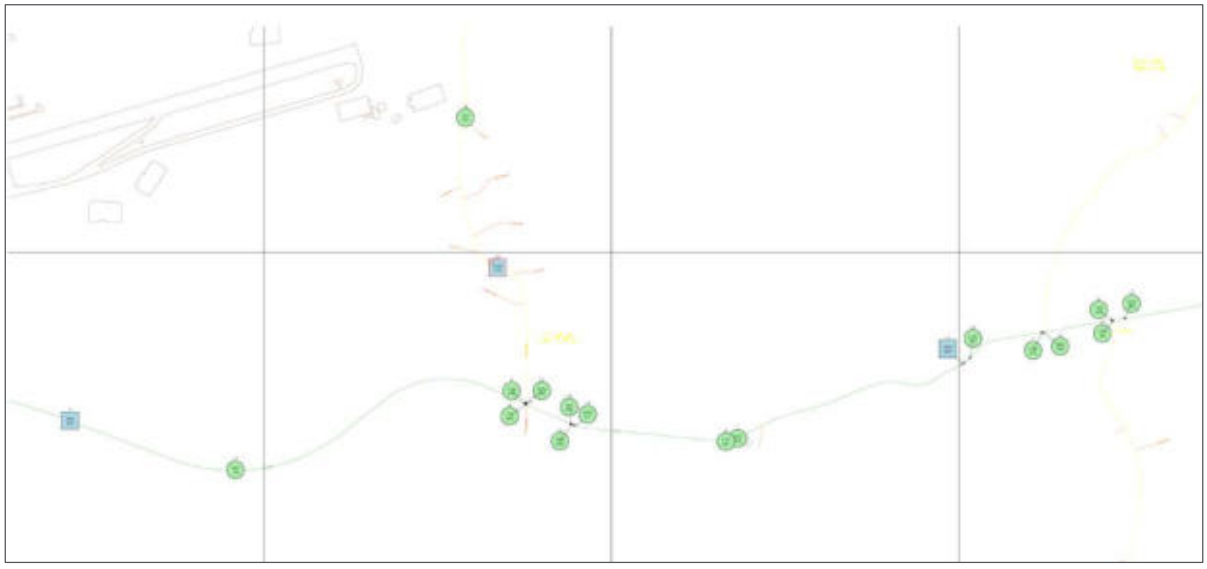
3.3.3 The groups are taken from the Road Safety Framework for Wales 2013.

- High Risk Groups:
  - Young passenger, slight injury – ref 1601376
  - Motorcyclist, serious injury – ref 1601452
  - Young passenger slight injury – ref 1700419
  - Young driver, slight injury – ref 1701067
  - Young motorcyclist, serious injury – ref 1800669
  - Young driver, slight injury – ref 1900998
  - Young motorcyclist, slight injury – ref 1901104
  - Young driver and a young passenger, both slight injuries – ref 2100258
- Vulnerable Groups:
  - Cyclist, slight injury – ref 1701483
  - Pedestrian, serious injury – ref 2100170

3.3.4 The analysis of PICs has not highlighted clusters of collisions (deemed to be greater than one collision per year in a single place). However, a few patterns of collisions were noted including:

- Gileston Fuel Station (one in 2018, 2019 and 2020)
- Gileston Cross (two in 2017 and one in 2021)
- B4265/ East Aberthaw (two in 2017 and one in 2019)

Figure 3 Personal Injury Collisions[2]



[2] https://www.crashmap.co.uk/

3.4 Baseline Traffic Flows

3.4.1 Traffic flows are available for a selection of roads from the Department for Transport (DfT) Count Point Data database. The available estimated Annual Average Daily Flow (AADF) for various road links in St Athan is summarised in Table 2 for both total traffic and Heavy Goods Vehicle (HGV) flows. The locations of the AADF count Points are presented in Figure 4. The data shows that the B4265 is a highly trafficked road with a moderate proportion of HGVs, likely owing to the count site's proximity to MOD St Athan, various industrial units and Cardiff Airport further east.

Table 2 AADF Estimated Count Data[3]

Road link	Location	Count Point ID	Year	AADF	HGVs	% HGVs
B4265	1	812011	2019	11,830	402	3.4%

Figure 4 Location of Count Point 812011

[3] Department for Transport (2020) Road Traffic Statistics

4 Baseline Sustainable Transport

4.1 Introduction

4.1.1 This chapter sets out the existing sustainable transport conditions in the vicinity of the proposed development, including an appraisal of walking and cycling and a review of public transport services.

4.2 Walking Accessibility

4.2.1 There is a footway circa 1.2 metres in width that runs along the northern side of the B4265 between the junction with Gileston Road to the west and Four Cross Service Station to the east. In some places, the footway appears to narrow to ≤1 metre. No footways are provided further east of the service station. To the west of the B4265/ Gileston Road junction, no footways are provided apart from a spur connecting to a pedestrian refuge between the B4265 and Gileston Road, as well as a brief footpath away from the road connecting to residential properties north of the carriageway.

4.2.2 Except for one side road entry, there are no footways provided on either side of Gileston Road south of the junction with the B4265. North of the junction, a continuous footway circa 1.6 metres in width is initially provided on the western side of Gileston Road, before changing to both sides on the approach to the junction with Rock Road. Continuing northbound towards the centre of St Athan, a zebra crossing with dropped kerbs and tactile paving is provided on Rectory Road. Footways are generally provided along both sides. However, they are discontinuous in places along Rectory Road due to frequent side road entries, shop frontages and associated car parking provision.

4.2.3 The B4265 road throughout the study area has extensively limited provision for segregated walking and cycling accessibility. To the east of the B4265/ Gileston Road junction, a narrow footway bounds the carriageway to the north. The west of the junction, a narrow segregated footway extends for circa 125 metres and connects to Loughor Place – from this point westwards the road retains no dedicated pedestrian footway with the carriageway predominantly bounded by grass verges, hedgerow and field gate access points. Aside from the vicinity of the B4265/ Gileston Road junction, no street lighting is provided along the B4265.

4.3 Cycling Accessibility

4.3.1 Whilst there is limited cycle infrastructure in close proximity to the study area, there are a number of quiet, low-trafficked routes such as via Gileston Road, Glyndwr Avenue and Rectory Road. There are no routes within St Athan that connect directly with the Sustrans National Cycle Network (NCN). The closest NCN route is Route 88, which passes through the village of Boverton circa 3km west of St Athan, before heading east towards the rural village of Penmark and onwards towards Rhoose.

4.4 Active Travel Network

4.4.1 The Vale of Glamorgan Council has a statutory obligation to prepare an Active Travel Network Map (ATNM) which presents both existing approved and future routes for walking and cycling which achieves Welsh Government standards. Initial Integrated Network Maps (INM) for the Vale of

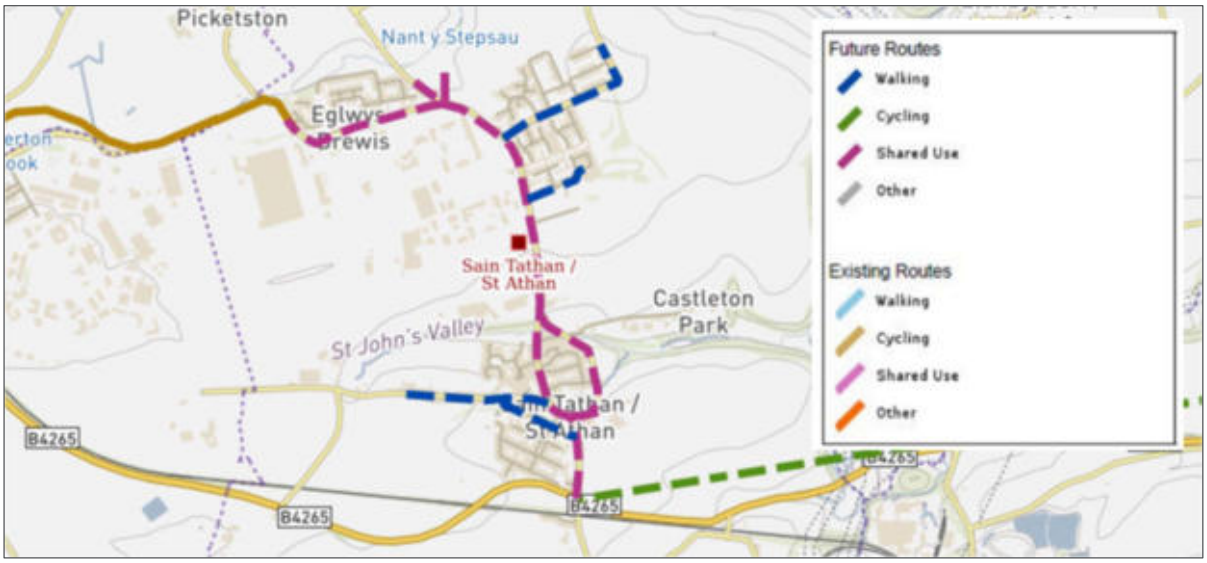
Glamorgan area were approved by Welsh Government in November 2017 and updated ATNMs must be submitted to Welsh Government every three years. It should be noted that the deadline for submission of the updated ATNMs was originally 27th February 2021 but due to Covid-19 this was extended by Welsh Government to December 2021.

4.4.2 Consultation on the ATNM is split into three steps:

- ***Consultation 1*** | *Feedback on barriers to walking and cycling: What are your views on the existing infrastructure? Where do you experience difficulties when walking or cycling? And what would you like to see in the future?*
- ***Consultation 2*** | *Validation of the draft network: Based on your feedback from the first consultation we will come up with a draft network map and want to hear your thoughts on the proposed plans.*
- ***Consultation 3*** | *Final statutory consultation on the proposed Active Travel Network Map, which will have considered the feedback of the first two rounds of consultation. After this, the final network map is submitted to Welsh Government for approval.*

4.4.3 Figure 5 presents the final ATNM following the Vale of Glamorgan's Active Travel Statutory Consultation, which includes existing and future active travel routes within St Athan.

Figure 5 Draft Active Travel Network Map for St Athan[4]



Public Rights of Way

4.4.4 There are a number of Public Rights of Way (PRoW) within the vicinity of the study area. They are shown in Figure 6. Key PRoW include:

- **PRoW Footpath S2 2/1** is accessed to the north of St Athan, providing links to various industrial units and MOD St Athan. It links with PRoW Footpaths S2 3a/2 and S2 3b/1.

[4] Commonplace (2021) St Athan Current Active Travel Network Map

- **PRoW Footpath S2 3b/1** heads south of St Athan, crossing the B4265 before meeting with Gileston Road.
- **PRoW Footpath S2 11/1** provides wider links on the periphery of St Athan towards the village of Gileston, and Aberthaw, with the latter containing the villages of East Aberthaw and West Aberthaw.

Figure 6 Public Rights of Way[5]

4.5 Public Transport

Bus

4.5.1 Current local bus service provision serving the St Athan area includes Service 304 (Llantwit Major – Cardiff via Barry) and Service 905 (Cardiff Airport – Rhoose Station). Both these services are currently operated by Adventure Travel and both serve all recognised bus stops on route throughout St Athan and Eglwys Brewis, via Gileston Road, The Square, Rectory Road, Cowbridge Road and Eglwys Brewis Road. Service 304 operates in both directions, whilst Service 905 operates in the westbound direction only on the above roads and returns via the B4265.

4.5.2 The closest bus stops within the study area are located by (a) the War Memorial, B4265 (eastbound) near its junction with Gileston Road; and (b) the Coop Store, Gileston Road (northbound) near its junction with the B4265. A summary of the local bus services serving St Athan is provided in Table 3.

[5] Vale of Glamorgan (2022), Public Rights of Way – Web Mapping Feature

Table 3 Summary of Local Bus Services

Route	Towards	Stop	First Service	Last Service	Weekday Frequency	Saturday Frequency	Sunday Frequency
304	Cardiff Bay and City Centre	War Memorial (B4265/ Gileston Rd)	0702	2322	Hourly	Hourly	2-Hourly
	Llantwit Major	War Memorial (B4265/ Gileston Rd)	0614	2221	Hourly	Hourly	2-Hourly
905	Cardiff Airport	War Memorial (B4265/ Gileston Rd)	0730 1530	0930 1730	Hourly AM Peak PM Peak	No service	No service
	Rhoose Rail Station	War Memorial (B4265/ Gileston Rd)	0730 1530	0930 1730	Hourly AM Peak PM Peak	No service	No service

Rail

4.5.3 There are two railway stations in reasonable proximity to the study area, namely Llantwit Major (circa 4.5km west) and Rhoose Cardiff International Airport (circa 4.2km southeast). Both stations are operated by Transport for Wales Rail Services. A summary of the rail services frequencies and key destinations is presented in Table 4.

Table 4 Summary of Rail Services Frequencies[6]

Station	Destination	Journey Time	Monday Saturday Frequency	Sunday Frequency
Llantwit Major	Aberdare	1hr 50 Minutes	Hourly	-
	Bridgend	17 Minutes	Hourly	Every Two Hours
	Cardiff Central	44 Minutes	Hourly	-
Rhoose Cardiff International Airport	Aberdare	1hr 40 Minutes	Hourly	-
	Bridgend	27 Minutes	Hourly	Every Two Hours
	Cardiff Central	34 Minutes	Hourly	-

4.5.4 Llantwit Major railway station is located on the Vale of Glamorgan Line. It is a two-platform category F2 station, meaning it is a small, unstaffed station and has fewer than 0.25 million trips per annum.

[6] Transport for Wales (2022) Ticket Search

There is free car parking with 40 spaces available as well as ten cycle wheel racks. The station is also directly served by local bus services 303 (Llantwit Major – Bridgend), 304 (Llantwit Major – Cardiff) and 321 (Llantwit Major – Talbot Green). From Monday to Saturday there is an hourly rail service westbound to Bridgend and an hourly rail service eastbound to Cardiff Central and Aberdare. Sundays there is a two-hourly rail service in each direction between Bridgend and Cardiff Central.

4.5.5 Rhoose Cardiff International Airport is a railway station that serves Cardiff Airport and the village of Rhoose in southeast Wales. There is free car parking with 66 spaces available. No cycle parking is provided. The station is also directly served by the Cardiff Airport Rail Link bus service 905 that also serves the St Athan area during AM and PM peak periods, Mondays to Fridays. From Monday to Saturday, there is an hourly rail service westbound to Bridgend and an hourly rail service eastbound to Cardiff Central and onwards to Cardiff Queen Street, Pontypridd and Aberdare. On Sundays there is a two-hourly rail service in each direction, with eastbound trains terminating at Cardiff Central.

5 Environmental Baseline

5.1 Introduction

5.1.1 The environmental appraisal presents the findings of the environmental desk-based study. A review has been undertaken of all relevant environmental data to identify which existing statutory and non-statutory constraints are currently present within the site boundary (referred to in this report as the 'study area'). This section details the baseline environment only.

5.2 Cultural Heritage

5.2.1 This desk study has included a search for known heritage assets within the study area. The known heritage assets listed have been identified using Lle Geo-Portal, Historic Wales and MAGIC.

Scheduled Monuments

5.2.2 There is one Scheduled Monument located within the study area. East Orchard Wood Pillbox Scheduled Monument is located within the East Orchard Wood Ancient Woodland site, which is located to the east of the study area, circa 40m north of the B4265 and west of the River Thaw.

Listed Buildings

5.2.3 Buildings and structures of national importance are given legal protection by being placed on a 'List' of Buildings of Special Architectural or Historic Interest. Under Section 1 of the Planning (Listed Buildings and Conservation Areas) Act 1990, the Welsh Ministers are required to compile and maintain this list. Buildings on the List are given one of three grades which denote their level of importance, these grades are listed below.

- Grade I are of exceptional interest
- Grade II* are particularly important
- Grade II are of special interest

5.2.4 There are 14 Listed Buildings located within the study area. There are two Grade II* Listed Buildings located to the south of the study area, Gileston Manor and Church of St Giles are both located within Gileston, to the west of Gileston Road. There are 12 Grade II Listed Buildings in the study area, which are located predominantly within Gileston and St Athan. There are no Grade I Listed Building located within the study area.

5.2.5 The locations of the Listed Buildings are illustrated in Appendix D – Environmental Constraints Plan. The majority of the Listed Buildings are primarily concentrated within the Gileston Conservation Areas, located to the south of the study area.

Conservation Area

5.2.6 There is one Conservation Area located within the study area. Gileston Conservation Area is located approximately 280m south of the railway line to the south of the study area. The Gileston

Conservation Area was designated in 1970 by the former Glamorgan County Council (now Vale of Glamorgan Council), in recognition of the special architectural and historic interest of the hamlet. Having designated the Conservation Area, the local authority has a statutory duty to ensure that the character of the area is preserved or enhanced.

Registered Parks and Gardens

5.2.7 There are no Registered Parks and Gardens located within the study area. The closest Registered Park and Garden to the study area is the Fonmon Castle (Grade II) Registered Park and Garden which is located approximately 850m north-east of the study area.

World Heritage Sites

5.2.8 There are no World Heritage Sites within the study area.

Registered Historic Landscapes

5.2.9 There are no Registered Historic Landscapes within the study area. The closest Registered Historic Landscape is the Lancarfan, Vale of Glamorgan Registered Historic Landscape, which is located approximately 450m north-east of the study area.

5.3 Ecology

Statutory Designated Sites

5.3.1 MAGIC has been used to identify all statutory designated sites of importance for nature conservation within the study area. The search for European Designated Sites was extended to 10km from the study area boundary for identification of statutory sites designated for their bat interest.

5.3.2 There are no Special Area of Conservation (SAC), Special Protection Areas (SPA) or Ramsar sites located within the study area or within 10km of the study area.

5.3.3 There are no Site of Special Scientific Interest (SSSI) located within the study area. The closest SSSI to the study area is the East Aberthaw Coast SSSI, which is located 670m south-east of the study area.

5.3.4 There are no National Nature Reserves (NNR) within the study area.

Non-Statutory Designated Sites

5.3.5 There are approximately 120 Tree Preservation Orders (TPO) located within the study area, these are predominantly located within and surrounding Gileston. Throughout the remainder of the study area there are individual and groups of TPOs located between Gileston and the B4265, and in areas to the west and east of the study area. Non-Statutory Designated Sites

5.3.6 MAGIC and Lle Gov Wales Geo-portal interactive map have been used to identify the location of Ancient Woodland and Local Nature Reserves (LNR) sites within the study area. Sites of Importance for Nature Conservation (SINC) datasets were provided to Arcadis by the Vale of Glamorgan Council.

5.3.7 Each Ancient Woodland site is categorised as either Ancient Semi Natural Woodland (ASNW), Restored Ancient Woodland Site (RAWS), Plantation on Ancient Woodland Site (PAWS) or Ancient Woodland Site of Unknown Category (AWSU).

5.3.8 There are three Ancient Semi Natural Woodland sites located within the study area. These are located to the east of the study area, one ASNW site is located to the west of the River Thaw, which forms part of East Orchard SINC, and the remaining two are ASNW sites that are located to the east of the River Thaw.

5.3.9 There are seven SINCs located within the study area. The SINCs are detailed in Table 5.

Table 5 Sites of Importance for Nature Conservation (SINC)

SINC	Location
East Orchard Wood	East Orchard Wood SINC is composed of four individual sites with three of the sites being located to the east of St Athan, approximately 220m north of the study area. The remaining site is located within the study area to the north-east (south of East Orchard Manor House Scheduled Monument) which is also a ASNW site.
Lower Thaw Valley	Lower Thaw Valley SINC is located to the east of the study area and extends along the profile and areas of land either side of the River Thaw in a north-south orientation. The SINC is composed of four individual varied sized sites which are divided between the B4265, the railway line and the North of Aberthaw Cement Works SINC.
North of Aberthaw Cement Works	North of Aberthaw Cement Works SINC is a small linear site located between two sections of the Lower Thaw Valley SINC to the east and west and the B4265 to the north and Tarmac Cement & Lime to the south of the SINC.
Land at East Aberthaw	Land at East Aberthaw SINC is located adjacent to the railway line, south of Tarmac Cement & Lime and west of Aberthaw Quarry. The Land at East Aberthaw SINC encircles East Aberthaw Former Quarry SINC at its northern most point. The site extends in a south-easterly direction and extends beyond the study area.
East Aberthaw Former Quarry	East Aberthaw Former Quarry SINC is located adjacent to the railway line, south of Tarmac Cement & Lime and west of Aberthaw Quarry to the south-east of the study area. The SINC is encircled by the Land at East Aberthaw SINC.
Land adjacent to Burton Plantation	Land adjacent to Burton Plantation SINC is located to the north-east of the study area and is a roughly L shaped site which lies adjacent to the B4265.
Land South of Llancadle	Land South of Llancadle SINC is composed of two sites located either side of the B4265, the SINC extends beyond east, north-east beyond the study area boundary.

5.3.10 There are no LNR located within the study area.

5.4 Air Quality

Legislation

5.4.1 In accordance with the Environment Act 2021[7] and Part IV of the Environment Act (1995), the UK Government is required to produce a national Air Quality Strategy (AQS) which contains standards, objectives and measures for improving ambient air quality. The AQS sets out objectives that are maximum ambient concentrations that are not to be exceeded either without exception or with a permitted number of exceedances over a specified timescale.

5.4.2 The ambient air quality standards and objectives are given statutory backing in Wales through the Air Quality Regulations 2000, and the Air Quality (Amendment) (Wales) Regulations 2002. The Air Quality Standards Regulations (2010) sets out the ambient air quality legislation as set out within the EU Directive 2008/50/EC on ambient air quality.

5.4.3 The pollutants of most concern are nitrogen dioxide (NO_2) and particulate matter less than 10 microns in diameter (PM_{10}) in relation to human health and oxides of nitrogen (NOx) in relation to vegetation and ecosystems. The AQS objectives and EU Limit for the protection of human health applicable to this assessment are presented in Table 6.

Table 6 Air Quality Objectives and EU Limit Values for NO2 and PM10

Air Quality Objectives				EU Limit Values	
Pollutant	*Concentration*	Averaging Period	Compliance Date	Concentration	Compliance Date
NO_2	200µg/m³	1-hour mean (not to be exceeded more than 18 times per year)	31 December 2005	200µg/m³ (1-hour mean, not to be exceeded more than 18 times per year)	1 January 2010
	40µg/m³	Annual mean	31 December 2005	40µg/m³	1 January 2010
PM_{10}	50µg/m³	24-hour mean (not to be exceeded more than 35 times per year)	31 December 2010	50µg/m³ (24-hour mean, not to be exceeded more than 35 times per year)	1 January 2005
	40µg/m³	Annual mean	31 December 2004	40µg/m³	1 January 2005
$PM_{2.5}$	-	Annual mean	-	25µg/m³	1 January 2015

[7] UK Government (2021). Environment Act 2021. https://bills.parliament.uk/bills/2593/publications + https://publications.parliament.uk/pa/bills/cbill/58-01/0009/Environment%20Bill%20Impact%20Assessment.pdf

5.4.4 The AQS objectives only apply where members of the public are likely to be regularly present for the averaging time of the objective (i.e., where people will be exposed to pollutants). The annual mean AQS objective applies to all locations where members of the public might be regularly exposed; these include building façades of residential properties, schools, hospitals and care homes. The 24-hour mean AQS objective applies to all locations where the annual mean objective would apply, together with hotels and gardens of residential properties. The 1-hour mean AQS objective also applies at these locations as well as any outdoor location where a member of the public might reasonably be expected to stay for 1 hour or more, such as shopping streets, parks and sports grounds, as well as bus stations and railway stations that are not fully enclosed.

5.4.5 The AQS objectives and EU Limit Values for the protection of vegetation and ecosystems applicable to this assessment are presented in Table 7.

Table 7 Air Quality Objectives and EU Limit Value for the Protection of Vegetation

Air Quality Objectives				EU Limit Values	
Pollutant	Concentration	Averaging Period	Compliance Date	Concentration	Compliance Date
NOx	30µg/m³	Annual mean	31 December 2000	30µg/m³	19 July 2001

5.4.6 Local authorities have no legal requirement to comply with AQS objectives; they are however required to demonstrate best efforts to work towards achieving them.

5.4.7 Under the Local Air Quality Management (LAQM) regime local authorities have a duty to make periodic reviews of local air quality against the AQS objectives. Where a local authority's review and assessment of local air quality indicates that AQS objectives are not expected to be achieved, local authorities are required to designate an Air Quality Management Areas (AQMA). An Air Quality Action Plan (AQAP) must then be formulated, outlining a plan of action to meet AQS objectives in the AQMA. Across the UK, the annual mean data trend between 2007 to 2019 demonstrates that the NO_2 concentration both in urban and rural monitoring sites has improved.

Air Quality | Vale of Glamorgan Council

5.4.8 There are no AQMAs located within the study area. The study area is predominantly rural with residential and commercial properties primarily located within St Athan to the north and centre of the study area and within Gileston to the south of the study area. Throughout the remainder of the study area, there are isolated residential properties located along the B4265.

5.4.9 As detailed by the Vale of Glamorgan Council 2019 Air Quality Annual Progress Report[8], in 2018 there were 50 specifically allocated non automatic monitoring sites across the Vale District which monitored levels of NO_2. These sites are supported and maintained by Shared Regulatory Services

[8] Vale of Glamorgan (2019). Vale of Glamorgan Council 2019 Air Quality Annual Progress Report. (https://www.valeofglamorgan.gov.uk/Documents/_Committee%20Reports/Cabinet/2019/19-09-23/Local-Air-Quality-Management.pdf)

(SRS) on behalf of the Vale of Glamorgan Council. The non-automatic sites do not provide live data; instead, they consist of diffusion tubes which are placed at each of the sites, collected and replaced on a rolling monthly basis. The results derived from the tube sampling are then averaged over the year to enable a comparison of the results against the annual average (40µg/m^3) and 1-hour (200µg/m^3 not to be exceeded > 18 times per year) air quality objectives for NO_2. From the 50 locations monitored throughout the Vale, no sites breach the national NO_2 annual objective of 40µg/m^3 or the NO_2 1-hour objective (200µg/m^3, not to be exceeded more than 18 times per year).

5.4.10 Continuous monitoring of PM_{10} is undertaken at one automatic monitoring site in The Vale District. The Penarth, Windsor Road site is located within the declared Air Quality Management Area (AQMA) and calculates particulate matter using a gravimetric Beta Attenuation Monitor (BAM). The results of the monitoring indicate that recorded PM_{10} concentrations at the Windsor Road monitoring station are compliant with both the annual mean (40µg/m^3) and 24-hour mean (>50µg/m^3 not to be exceeded more than 18 times per year) AQS objectives set for PM_{10}. The Vale of Glamorgan Council monitors Ozone due to its potential correlations with other pollutants. In 2018, ozone was measured at the Windsor Road, Penarth monitoring site with no exceedances of the ozone objective in the Vale in 2018.

5.5 Greenhouse Gases

Wales

5.5.1 The Environmental (Wales) Act 2016 sets out the approach to reduce greenhouse gas emissions in Wales. The Act aims to ensure that in 2050 net emissions are at least 80% lower than baseline figures. The Act places interim targets for 2020 (27% reduction against the baseline), 2030 (45% reduction), 2040 (67% reduction), and 5-yearly carbon budgets towards the 2050 trajectory target[9] . In April 2019, following the publication of Prosperity for All: A Low Carbon Wales, the Minister for Environment, Energy and Rural Affairs, on behalf of the Welsh Government, declared a climate emergency in Wales[10]. The announcement drew attention to the significance of evidence from the Intergovernmental Panel on Climate Change. The announcement stated: '…*that Wales has the determination and ingenuity in Wales to deliver a low carbon economy at the same time as making our society fairer and healthier*.'

5.5.2 The Welsh Government's vision of 'A Railway for Wales' demonstrates the expansion of rail services can help us to address some of the underlying causes of the climate emergency by making it possible for far more of us to access affordable, efficient, and attractive public transport services and so reduce road congestion, carbon emissions and air quality impacts. The total greenhouse gases emitted in Wales by year and the proportion of these emissions from transport are presented in Table 8. Total emissions have reduced by 31% between 1990 and 2018, whilst transport emissions have reduced by only 3.7%. In 2018 transport emissions accounted for approximately 15% of total greenhouse gas emissions in Wales.

[9] Decarbonisation Programme Welsh Government (2018)

[10] Welsh Government (2019). Welsh Government makes climate emergency declaration

Table 8 Emissions of Greenhouse Gases by Year

Total (Kilotonnes)	Baseline (1990)	2018	% Change from Baseline
Total	56,427	38,892	31%
Transport	6,411	6,171	3.7%

5.6 Hydrology and Flood Risk

Flood Risk Zones

5.6.1 A review of the Natural Resources Wales (NRW) Development Advice Map (DAM) for Planning details that the majority of the study area falls within Flood Zone A (e.g., areas considered to be at little or no risk of fluvial or coastal/tidal flooding). Flood Zone C2 (e.g., areas without significant flood defence infrastructure) is located to the east and north-east of the study area along the River Thaw, River Kenson, Aberthaw Aqueduct and Llancadle Ditch. Areas of Flood Zone B (e.g., areas known to have flooded in the past) are located adjacent to the sections of Flood Zone C2 to the east and north-east of the study area.

5.6.2 The NRW Flood Zones Map shows that the majority of the study area site is located within Flood Zone 1 (e.g., low flood risk with an annual probability of flooding less than 1 in 1000 (0.1%)). Flood Zone 3 (e.g., annual probability of flooding greater than 1 in 100 (1%)) is located to the east and north-east of the study area along the River Thaw, River Kenson, Aberthaw Aqueduct and Llancadle Ditch. There are various small varied sized pockets of Flood Zone 2 located throughout the study area, these are primarily located to the west of the study area along in close proximity of the railway line and B4265 and within St Athan.

5.6.3 Flood risk from local sources (e.g., surface water runoff and small watercourses) is considered to be low risk across the entire study area, with only isolated small spots located along the B4265 and within St Athan[11].

Watercourses

5.6.4 The River Thaw is an NRW designated 'main river'[12] which is located to the east of the study area. The River Thaw flows from the north, in a southerly direction, the river is crossed by the B4265, where it continues its path and flows west of the Tarmac Cement & Lime company and continues south, where it is crossed by the railway line before it extends south beyond the study area. The River Kenson is an NRW designated 'main river', located to the north-east of the study area. It flows westwards in a north-east to south-west orientation between the B4265 and the Tarmac Cement & Lime company. The River Kenson joins the River Thaw to the north-west of the Tarmac Cement & Lime company.

[11] Natural Resources Wales (2021). Flood Map for Planning (https://flood-map-for-planning.naturalresources.wales/)

[12] Natural Resources Wales (2021). Flood Risk Map Viewer – Long term flood risk – (https://naturalresources.wales/evidence-and-data/maps/long-term-flood-risk/?lang=en)

5.6.5 The Aberthaw Aqueduct is an NRW designated 'main river', located to the north-east of the study area, The Aberthaw Aqueduct flows in an east-west orientation along the northern boundary of Tarmac Cement & Lime where it adjoins the River Kenson. Llancadle Ditch is an NRW designated main river, located to the north-east of the study area. Llancadle Ditch flows in a north-west to south orientation. Llancadle Ditch is crossed by the B4265, where it continues south and joins the River Kenson.

5.6.6 A review of Ordnance Survey (OS) mapping identified no ordinary watercourses within the study area. The OS mapping identified a pond located to the west of the study area, approximately 250m west of Seaview, 80m south of the B4265 and 100m south of the railway line respectively. However, aerial imagery shows this pond to be dry.

5.7 Landscape and Visual

Landscape Designations

5.7.1 The Glamorgan Heritage Coast extends across the centre and west of the study area and is bound between the B4265 to the north and Gileston Road to the east. The Glamorgan Heritage Coast is a 23km stretch of coastline in the Vale of Glamorgan. As detailed by the National Landscape Character Assessment for the Vale of Glamorgan, the Glamorgan Heritage Coast is located where the gentle surrounding landscape comes to a very abrupt and dramatic edge, with near vertical cliffs in places, shingle or rock pavement beaches, and the occasional sandy bay to the west. From here there are long views across the Bristol Channel to Somerset and Exmoor[13]. The coastal hinterland is typified by windblown vegetation that has resulted from the prevailing south-westerly wind exposure.

5.7.2 The Upper & Lower Thaw Valley Special Landscape Area (SLA) falls within the north-eastern section of the study area. Special Landscape Areas (SLA) have been designated to protect areas of the Vale of Glamorgan that are considered to be important for their geological, natural, visual, historic or cultural significance. The Upper & Lower Thaw Valley SLA is a confined, sinuous lowland valley with steep wooded sides with hedgerow fields along the valley floor with streams and wet ditches contributing to biodiversity.

5.7.3 The SLA is dissected by the Thaw River valley. The strong valley, semi-natural and planted broadleaf woodland, and juxtaposition with valley settlements is very attractive and one of the best examples of this landscape in the Vale. Elsewhere the landscape is rolling lowland with some views out to the coast[14].

5.7.4 The study area does not fall within a National Park or Area of Outstanding Natural Beauty.

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[13] Natural Resources Wales (2014). National Landscape Character – Vale of Glamorgan (https://cdn.cyfoethnaturiol.cymru/media/682623/nlca36-vale-of-glamorgan-description.pdf?mode=pad&rnd=131550626020000000)

[14] Vale of Glamorgan (2013). Background Paper Update 2013 – Designation of Special Landscape Areas. (https://gov.wales/sites/default/files/publications/2021-11/brynwell-farm-vogdesignantion-of-sla-background-papers-docredacted.pdf)

5.8 Landscape Character

5.8.1 The study area is located within the Vale of Glamorgan National Landscape Character Area (NLCA: Profile 36)[13]. The NCLA describes the area as a distinctive plateau landscape, dissected by a number of rivers including the River Thaw. The most iconic image in the NLCA is that of the Glamorgan Heritage Coast, where the otherwise gentle landscape comes to a very abrupt and dramatic edge, with near vertical cliffs in places, shingle or rock pavement beaches. Whilst the character is predominantly rural, there are a number of visually prominent built features that contrast this.

5.8.2 To the south of the NCLA, there are a number of large-scale contemporary features including Cardiff International Airport (located approximately 2km east of the study area), the Royal Air Force (RAF) St Athan base (located approximately 150m north of the study area) and the proposed new railway station to be located within the study area. These contemporary features contrast with the prevailing cultural character of the NLCA. The developments and their associated roads and traffic act to erode the rural landscape.

5.8.3 The key characteristics of the NLCA consist of a distinctive, gentle lowland landscape, largely comprising a rolling limestone plateau. Glacial till contributes to its undulating topography. A variety of rural land uses characterise the area, reinforced by thick hedgerows, frequent small woodlands and trees, which create a sense of enclosure and intimacy. The landscape terminates abruptly at the heritage coast.

LANDMAP

5.8.4 The study area is a rolling coastal lowland plateau sloping towards the coast with a sense of openness[15]. The area has long views out to sea, and occasionally to Somerset. The maximum height is approximately 98 metres Above Ordnance Datum (AOD) and the lowest approximately 5 metres AOD. The landcover is composed of medium sized rectilinear pastoral and arable fields set within managed hedgerows and stone walls. Trees display coastal windblown characteristics. There are several small woodlands.

5.8.5 Deciduous woodlands tend to be concentrated within small steep sided coastal valleys which are a distinctive feature of the landscape. Isolated coniferous woodlands/shelterbelts occur. There are several nucleated settlements scattered throughout the area and some isolated farms with distinctive grey limestone or whitewash.

5.8.6 Many settlements have historical cores, but have recently developed additions to the edges, sometimes using inappropriate materials. Several minor roads and the B4265 cross the area, however, tranquillity is not affected as these roads carry only local traffic.

Common Land

5.8.7 There are no areas of Common Land within the study area.

[15] Natural Resources Wales (2021). Environmental Viewer (https://naturalresources.wales/evidence-and-data/accessing-our-data/beta-environmental-data/?lang=en)

Agriculture Land Classification

5.8.8 The Agricultural Land Classification (ALC) system provides a method for assessing the quality of farmland in England and Wales. The ALC system classifies land into five grades, with 1 being the best and 5 being the worst and Grade 3 subdivided into Subgrades 3a and 3b. An analysis of the ALC of England and Wales 1985 (ALC009) details that the majority of the study area is classified as 'Grade 3b', with small linear sections of 'Grade 3a' and 'Grade 2' located to the east and south of the study area. Areas categorised as 'Urban' cover the areas of St Athan and Gileston. The definitions of the ALC Grades are detailed below:

- **Grade 2 | very good quality agricultural land:** (Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1).
- **Grade 3 | good to moderate quality agricultural land:** (Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2).
    - **Subgrade 3a | good quality agricultural land**: Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.
    - **Subgrade 3b | moderate quality agricultural land:** Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.
- **Urban |** Built-up or 'hard' uses with relatively little potential for a return to agriculture including housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

5.8.9 The best and most versatile (BVM) land is defined as Grades 1, 2 and 3a by policy guidance. This is the land that is most flexible, productive and efficient in response to inputs, and which can best deliver future crops for food and non-food uses such as biomass, fibres and pharmaceuticals. It should be noted that the maps referred to above do not distinguish between Grade 3a and 3b land.

5.9 Noise and Vibration

5.9.1 *'Noise annoyance is defined by the World Health Organisation as 'a feeling of displeasure evoked by noise'. Noise nuisance from transport sources can adversely affect the quality of living of local communities. Vibration is a similar effect, but instead of being transmitted by air, it is transmitted by*

the earth. Noise is normally considered as an approximate indicator for both noise and vibration since its effects are normally felt more strongly.' [16]

Noise Priority Areas

5.9.2 Noise Priority Areas (NPA) are clusters of residential properties experiencing high levels of environmental noise and are areas that have been identified by the Welsh Government as priority areas in which actions to reduce noise levels are required[17] . Full details about these areas are given in the publication 'Noise and soundscape action plan – A noise action plan for Wales 2018-2023', dated December 2018.

5.9.3 The study area contains no NPA (Road) or NPA (Rail).

5.9.4 A review of aerial mapping has been undertaken to identify potential noise sensitive receptors within the study area. The study area is predominantly rural, with a mix of residential and commercial, these properties are primarily located in St Athan to the centre of the study area and isolated properties located along the B4265. The desktop study review of aerial mapping indicated that the main existing noise sources within the study area are likely to be associated with:

- Noise from road traffic using B4265.
- Aircraft using the Royal Air Force (RAF) St Athan base (approximately 150m north of the study area).
- Trains using the railway line which roughly crosses the study area in an approximate north-west to south-east orientation.

[16] World Health Organisation 2021. Noise. https://www.euro.who.int/en/health-topics/environment-and-health/noise

[17] Extrium (2021). Noise Priority Areas (Wales). http://extrium.co.uk/walesnoiseviewer.html#

6 Feasibility Appraisal

6.1 Rail Interface

6.1.1 For the purposes of this report, the study area has been divided into five sub-sections, labelled A to E in Figure 7 and defined by their mileage and yardage in Table 9. Each section has been analysed from an engineering perspective as to its feasibility and includes a SWOT (Strengths, Weaknesses, Opportunities and Threats) exercise to assess existing viability.

Figure 7 Study Area Sub-sections[18]

Table 9 Study Area Sub-Section Mileage

Section	Location (Track Chainage)
A	VOG 7m 1429yds to 7m 500yds
B	VOG 7m 500yds to 6m 1375yds
C	VOG 6m 1375yds to 6m 609yds
D	VOG 6m 609yds to 5m 1496yds
E	VOG 5m 1496yds to 5m 618yds

6.2 Requirements and Assumptions

6.2.1 The requirements and any assumptions that have been considered for this feasibility report are stated below:

- Platform length has been assumed to match the adjacent station Llantwit Major (approximately 95 metre length).

[18] © Google 2022

- It is assumed that the station will require access for persons of reduced mobility (PRM).
- It is assumed that the station requires a car park and drop-off points, including bus stop. For the purposes of this exercise and based on provision at Llantwit Major railway station (40 spaces) and Rhoose Cardiff International Airport railway station (77 spaces), at least 75 spaces have been assumed for a St Athan railway station. Actual number of car parking spaces required is subject to consultation with key stakeholders, including Transport for Wales Rail Services and Network Rail.
- For the purposes of this exercise, a footbridge with ramps is assumed for each of the station options, although lift shafts could be placed on each platform as an alternative (requiring ongoing maintenance and emergency call out procedures) subject to agreement with key stakeholders including Transport for Wales Rail Services and Network Rail.
- The assessment of the track geometry has been made based on the 5-Mile Diagram (see Appendix C). This diagram is from Network Rail, and gives information on track assets, gradients etc. Assets may have been altered since its release, so it should be used as a guide only.
- In terms of vertically alignment, it is considered good practice to place platforms on gradients equal to or less than 1:400, although it should be noted that there is no absolute maximum track gradient for placement of the platform defined by Network Rail. No location within the study area is subsequently flatter than 1:400 and therefore, if pursued, the interventions will require either levelling of the track where feasible to do so or a supporting derogation.
- The feasibility appraisal assumes power can be provided to any of the sections.
- Highway access has been based on a desktop exercise only. Detailed site visits and supporting risk assessments to inform stopping sight distances will be required at the next stage of appraisal.

6.3 Section A (VOG 7m 500yds to 7m 1429yds)

6.3.1 Section A ranges from 7m 500yds to 7m 1429yds.

6.3.2 The accompanying Section A feasibility drawing is included in Appendix B.

Permanent Way

6.3.3 Within Section A, the track gradient ranges from 1:324 to 1:214, which are steeper than the advised minimum gradient (1:400). The western end of Section A has the shallowest gradient of the study area, however due to lack of space (as well as being adjacent to MOD St Athan) it is unlikely a station could be reasonably positioned at this location. Both lines run at 50mph through this area.

6.3.4 Between 7m 500yds to 7m 990yds there may be scope to create the required 1:400 gradient. However, this will require track lift and realignment extending through and beyond the existing Seaview overbridge, requiring significant length of track renewal. Additionally, the feasibility of this will need to be confirmed at the next design stage with interrogation of the gauge clearance through the existing structure.

6.3.5 A derogation to keep the existing gradient could be sought but would require further study and risk assessments to establish safety justification from signalling, rolling stock and civil engineers. Horizontally the track is sufficient for a station at this location.

Signalling

6.3.6 A private footpath (Batslay's) is located at 7m 814yds. This has an All Level Crossing Risk Management (ALCRM) score of C10[19] which is a medium classification and is stated to have infrequent pedestrian use. The current protection is signage on the gates or styles with whistle boards provided on the rail approaches for train warning between 06:00 and 23:59 hrs.

6.3.7 If a station were to be constructed in Section A, there is not any anticipated signalling infrastructure affected, however a new risk assessment will have to be undertaken for the crossing if there is any change of visibility or change to train running patterns. It is possible that trains leaving a station positioned between 7m 1155yds and 7m 1429yds in the eastern direction may need a change to whistle board or other signage to remind the driver of the crossing ahead.

6.3.8 However, a station positioned in the Civils preferred position (approximately 7m 500yds to 7m 700yds) would still give approximately 114yds to Batslay's crossing. A train leaving this station in the western direction (subject to track gradient and curvature) should be able to see the crossing, however the risk assessment may recommend additional measures such as re-positioning of whistle boards or escalating to fitment of Miniature Stop Lights (MSL) at the crossing. There may be the opportunity to close this crossing if a footbridge is put in place at the new station, although this would need to follow Network Rail's 3 stage process[20] and owing to statutory consultation would import a programme risk.

Civils

6.3.9 Due to the availability of space, the most suitable location within Section A from a civils perspective is the low mileage end, west of Seaview overbridge and adjacent to the B4265 circa 5km from the centre of St Athan. The civils analysis has been undertaken based on this location.

6.3.10 Assuming the car park will run the length of the 100 metre platform and with the 60 metre field width, there is circa 5,000m^2 area available for car parking and associated facilities allowing for 75+ car parking spaces. A footbridge is required for northern platform access. Due to the level ground in this area, the footbridge will be visible due to its approximate 7 metres height above the surrounding ground level. The ramps will need to be approximately 100m in length.

6.3.11 Other locations along this section are less preferable for reasons such as bordering the St Athan MOD base (which has not been considered due to security reasons and railway operations) or a narrow corridor between the rail and highway, which would establish a constrained parking and drop off area.

Highway Access

6.3.12 The proposed station site for Section A is situated adjacent to the B4265, which retains a speed limit of 50mph. Access directly from the B4265 would afford reasonable visibility in both directions and

[19] RSSB ALCRM Note and Level crossing safety - Network Rail

[20] Level crossing closures | Network Rail

(subject to a formal site visit and risk appraisal) be within the recommended DMRB stopping sight distances for an 85kph road design speed (160 metre forward visibility).

6.3.13 The proximity of a nearby unclassified road junction (connecting between the B4265 and Seaview overbridge) to the south east of the site will require consideration at the next stage of appraisal (reference Figure 8), whilst the existing gradient and forward visibility achieved from the unclassified road would not itself achieve a viable access point at this location.

6.3.14 It should be noted that, at 1.5km from the B4265/ Gileston Road junction, the proposed site is relatively remote from St Athan village affording no existing segregated walking/ cycling connectivity. To facilitate sustainable trips to/ from the proposed site, consideration of active travel links would be recommended, whilst noting that there are no existing proposals to enhance walking and cycling routes in the immediate area. However, on the assumption such connections could be established in the medium to longer term, the site's location within the St Athan Aerospace Business Park could afford wider accessibility benefits for existing and future residential and commercial development.

Figure 8 View from B4265 westbound towards Section A (junction with unclassified highway)[21]

Section A SWOT Analysis

6.3.15 Table 10 summarises the SWOT analysis completed for Section A.

Table 10 Summary SWOT Analysis Section A

Category	Description
Strengths	• Good highway access and forward visibility off the B4265. • Sufficient space to the low mileage (eastern) end of the section. • Most level gradient out of the five sections. • Situated within the St Athan Aerospace Business Park (enterprise zone). • Suitable space for 75+ car parking spaces.

[21] © Google 2022

Category	Description
Weaknesses	• No designated footway or cycleway for users to arrive by foot or bicycle. • No direct bus access. • Furthest located station site from St Athan village at circa 1.5km. • The site is situated on level ground in a rural setting and therefore the footbridge is likely to be highly visible from the surrounding landscape.
Opportunities	• Bus route could be altered to pass by the station to provide an effective bus/ rail interchange opportunity. • Potential opportunity for active travel links (segregated cycleway/ footway).
Threats	• **Gradient steeper in some areas than the recommended guidance threshold at less than or equal to 1:400. This could have implications for the rolling stock and whether it can stop/ start on such a gradient. Risk assessment required to confirm viability.** • Proximity to overbridge may create limitations to level the track. • Proximity to MOD St Athan may not permit station location. • Private crossing located at 7m 814yds. • Level Crossing (user worked) at 7m 198y (in Section B). • Close proximity to Flood Zone 2 areas.

6.4 Section B (VOG 6m 1375yds to 7m 500yds)

6.4.1 Section B ranges from 6m 1375yds to 7m 500yds.

6.4.2 The accompanying Section B feasibility drawing is included in Appendix B.

Permanent Way

6.4.3 The horizontal track alignment is relatively consistent with a 2.9km straight running line throughout this section. Both lines run at 50mph and the horizontal track geometry does not restrict the placement of a new platform, although the restricting factor is the position of various overbridges and foot crossings. Vertically the track is relatively steep, with gradients up to 1:81. The most level section is 1:255 for approximately 200 metres after Seaview overbridge. This is steeper than the recommended maximum of 1:400. There may be scope to reduce the gradient, although this would require track lift and realignment, requiring significant length of track renewal. The track alignment design will likely be constrained by gauging and realignments through the existing overbridge. Positioning the platform here is reliant on safety justification from signalling, rolling stock and civil engineers at the next stage of assessment.

Signalling

6.4.4 The only signalling infrastructure elements in place are two level crossings. There is the private Church Farm user worked crossing equipped with a telephone for vehicle users, gates or barriers and signage for users. The risk is in the medium range and is noted as having infrequent vehicular and pedestrian usage with the current risk for this crossing being C9 (medium).

6.4.5 There is also a Cot Level crossing at 6m 1689yds (note that the mileage is different on Network Rail database to that on the five mile diagram, so will need clarification at the next stage of appraisal). This is a public footpath crossing with whistle boards and has a risk of D11 (medium) and has infrequent pedestrian use. The current protection is signage on the gates or styles with whistle boards provided on the rail approaches for train warning between 06:00 and 23:59 hrs.

6.4.6 These two crossings are 264yds apart. If a new station is built anywhere on the route which affects the train running frequency it will be necessary to re-validate the risk assessment for these crossings.

Civils

6.4.7 The most suitable location from a civils perspective is the high mileage (western) end of the section, adjacent to the Seaview highway overbridge. This is due to the proximity to the highway and the shallower track gradient at 1:255. The civils analysis has been undertaken based on this location (a second option may be considered in the centre of the section, although this will require a longer access to the station requiring more land take and positioned on a steeper track gradient at 1:163).

6.4.8 A footbridge is required for northern platform access. Due to the rail sitting in a cutting, the footbridge will be less visible from its surroundings. The ramps will need to be circa 100 metres in length but there is potential to utilise the existing slope to create a ramp within the existing ground.

Highway Access

6.4.9 Initial desktop analysis would suggest forward visibility splays of 160m for a 50mph road would achieve reasonable highway access off the B4265 for the station location outlined in Appendix B (assumes highway access is positioned within a 400 metre road section east of the B4265/ unclassified road (Seaview overbridge) junction.

6.4.10 Highway visibility would be increasingly compromised as the road continues eastwards towards St Athan given the curvature of the road and relative positioning on the inside of the highway radii. More survey data is required to determine the safety implications and solutions. Junction works such as vegetation removal or introduction of traffic lights/ roundabout junction may support enhanced visibility, although this would require a separate study and require consultation with key stakeholders including the local highway authority.

6.4.11 As for Section A, there is no existing active travel link connecting to St Athan at this location. The site is circa 1.3km west of the B4265/ Gileston Road junction and remains partially located within the St Athan Aerospace Business Park.

Figure 9 View from B4265 westbound towards Section B[22]

Section B SWOT Analysis

6.4.12 Table 11 summarises the SWOT analysis completed for Section B.

Table 11 Summary SWOT Analysis Section B

Category	Description
Strengths	• Good highway access and forward visibility. • Sufficient space to facilitate a proposed station. • Partially situated within the St Athan Aerospace Business Park (enterprise zone). • Suitable space for 75+ car parking spaces.
Weaknesses	• No designated footway or cycleway for users to arrive by foot or bicycle. • No direct bus access. • Second furthest site from St Athan village located circa 1.3km from the B4265/ Gileston Road junction. • The site is situated on level ground in a rural setting and therefore the footbridge is likely to be visible from adjacent areas.
Opportunities	• Potential for bus route to be altered to pass by the station to provide an effective bus/ rail interchange opportunity. • Potential opportunity for active travel links (segregated cycleway/ footway).

[22] © Google 2022

Category	Description
Threats	• **Gradient steeper at 1:255 to 1:81 than the recommended guidance threshold at less than or equal to 1:400. This could have implications for the rolling stock and whether it can stop/ start on such a gradient. Risk assessment required to confirm viability.** • Proximity to overbridge may create limitations to level the track. • GSMR mast within site. • Footpath level crossing located at 6m 1689yds (in section A) and Level Crossing (user worked) at 7m 198yds. • Close proximity to Flood Zone 2 areas (minor).

6.5 Section C (VOG 6m 609yds to 6m 1375yds)

6.5.1 Section C ranges from 6m 609yds to 6m 1375yds.

6.5.2 The accompanying Section C feasibility drawing is included in Appendix B.

Permanent Way

6.5.3 The horizontal track alignment is relatively consistent with a 2.9km straight running throughout this section. Both lines run at 50mph. The horizontal track geometry does not restrict the placement of a new platform on any of the above elements.

6.5.4 Vertically the track is relatively steep, with gradients up to 1:78, somewhat steeper than the recommended 1:400 gradient. The most level section is 1:135 for circa 100 metres just prior to the Gileston Road overbridge at circa 6m 800yds (most likely due to the historic station, although this location is now occupied by houses so does not have spatial provision for a new station.

6.5.5 There may be scope to reduce the gradient. This would require track lift and realignment requiring a significant length of track renewal. The track alignment design will likely be constrained by gauging and realignments through the existing B4265 overbridge. Positioning the platform here is reliant on safety justification from signalling, rolling stock and civil engineers at the next stage of assessment.

Signalling

6.5.6 There is a signal (reference CF3424) on the eastern line at approximately 6m 946yds and an associated track replacement axle counter. These would require avoiding the area 50m in front of the signal and 20m beyond the signal on the eastern line. Alternatively, the signal would need to be relocated.

Civils

6.5.7 The most suitable location within Section C from a civils perspective is the high mileage end, adjacent to the B4265 highway overbridge. The civils analysis has been undertaken based on this location.

Other locations have not been pursued due to the increased distance from the highway to the railway and houses located at the old Gileston Road station site. To the low mileage end there is also insufficient space for a station with car park.

6.5.8 A footbridge is required for southern platform access. There is an historic overbridge 104 metres east of the B4265 overbridge, which is an existing Public Right of Way. The bridge would have the potential to limit the platform length unless the structure is removed.

6.5.9 Due to the railway sitting in a cutting, the footbridge is likely to be less visible from its surroundings. The ramps will need to be approximately 100 metres in length but there is potential to utilise the existing slope to create a ramp within the ground.

6.5.10 This section of track has a gradient of up to 1:78, which is unlikely to be accepted unless mitigation or derogation is undertaken. A steep longitudinal gradient also presents safety issues for platform users and should undergo a safety review and risk assessment if it is to be considered.

Highway Access

6.5.11 There is potential for reasonable highway access from the B4265 when accessing the proposed site from south of the railway line, although the access junction would likely be positioned a minimum of 160m south of the B4265 overbridge to achieve the desirable stopping sight distance. More survey data is required to determine a viable solution. Access from the B4265 north of the railway line is deemed unlikely due to the curvature of the road and would be subject to detailed site visits to confirm suitability and/ or consideration of an alternate junction arrangement.

6.5.12 Whilst there is no existing segregated walking and cycling route interconnecting with the proposed site, its proximity to St Athan affords good opportunity to establish robust links to and from existing and future proposed residential development.

Figure 10 View from B4265 eastbound towards Section C[23]

[23] © Google 2022

Section C SWOT Analysis

6.5.13 Table 12 summarises the SWOT analysis completed for Section C.

Table 12 Summary SWOT Analysis Section C

Category	Description
Strengths	• Proximity to St Athan village (including future LDP development) with the potential to establish robust walking and cycling connectivity. • Site is located in cutting with potential for less impact on surrounding areas. • Suitable space for 50+ car parking spaces.
Weaknesses	• No existing designated footway or cycleway for users to arrive by foot or bicycle. • No direct bus access, although close proximity to existing bus routes at eastern end of the route. • Site constrained by infrastructure and houses.
Opportunities	• Potential for bus route to be altered to pass by the station to provide an effective bus/ rail interchange. • Potential opportunity for active travel links (segregated cycleway/ footway). • Potential to use the historic PRoW bridge as pedestrian footbridge.
Threats	• **Gradient steeper at 1:78 than the recommended guidance threshold at less than or equal to 1:400. This could have implications for the rolling stock and whether it can stop/ start on such a gradient. Risk assessment with mitigation required to confirm viability.** • Overbridge creates limitations with flattening the track to reduce gradient impact. • Potential for historic PRoW bridge to obstruct platform length. • Highway access from the B4265 is potentially constrained (subject to detailed site visit and risk appraisal). • Proximity to existing residential properties. • Section C is located within the Glamorgan Heritage Coast designation. • Tree Preservation Orders.

6.6 Section D (VOG 5m 1496yds to 6m 609yds)

6.6.1 Section D ranges from 5m 1496yds to 6m 606yds.

6.6.2 The accompanying Section D feasibility drawing is included in Appendix B.

Permanent Way

6.6.3 The horizontal track alignment is relatively consistent throughout this section with a 2.9km straight running throughout. Both lines run at 50mph through this area. The horizontal track geometry does not restrict the placement of a new platform on any of the above elements. Horizontally, the restricting factor is the position of the Four Cross underbridge.

6.6.4 Vertically the track is consistently steep with gradients up to 1:78. The most level section is 1:85. There may be scope to reduce the gradient, although this would require track lift/ reduction and realignment requiring a significant length of track renewal. The track alignment design may also be constrained by gauging and realignments through the existing underbridge. Positioning the platform here is reliant on safety justification from signalling, rolling stock and civil engineers at the next stage of assessment.

Signalling

6.6.5 In Area D there is existing signalling infrastructure (signal CF3423) and its replacement axle counter is at circa 5m 1540yds, plus there is a further overlap axle counter at approximately 6m 5yds (225yds from signal CF3423), both on the western line. Any station development would be best to avoid the area of a minimum of 25 metres before the signal and 20 metres beyond it, and also the area 20 metres before and after the overlap axle counter. There are no signalling assets on the eastern line that would be affected by a new station build.

Civils

6.6.6 The most suitable location within Section D is located to the eastern end of the section, given the potential for accessibility off the B4265 and available space for a dedicated car parking area. The civils analysis has therefore been undertaken based on this location (a second option could be explored further to the west, although this work requires significant realignment of the existing B4265 and has not therefore been explored further at this stage). A footbridge would be required for southern platform access. Due to the railway being situated on an embankment, the footbridge and car park will be highly visible from surrounding landscape, especially with the ramp structures likely to be >100m in length. The implementation of lift shafts could mitigate this visual impact.

6.6.7 This section of track has a gradient of up to 1:85. A steep longitudinal gradient therefore presents safety issues for platform users and should undergo a safety review and risk assessment if it is to be considered viable.

Highway Access

6.6.8 Access to the station will be from the B4265. There is a footway on the north side of the highway, linking St Athan village to this site. This section of the B4265 is served by buses, with a bus stop at

Four Cross Service Station. Cycling on this section of highway is not suggested for less than confident cyclists or children, however there is an opportunity to create sustainable links, and a cycleway to the north of the site is proposed.

6.6.9 The site is on a slope, with the railway being at the top of the embankment, it is likely that some site levelling will be required. The car park would be adjacent to the residential property. It is anticipated that the highway visibility is sufficient when entering and exiting the station, however several collisions have been recorded near to this location (see transport baseline conditions). Traffic flow and junction analysis, alongside consultation with the local highway authority would be required.

Figure 11 View from B4265 westbound towards Section D[24]

Section D SWOT Analysis

6.6.10 Table 13 summarises the SWOT analysis completed for Section D.

Table 13 Summary SWOT Analysis Section D

Category	Description
Strengths	• Good highway access with sufficient visibility. • Sufficient space for car park. • Low mileage (eastern) end on existing bus route but stop by Four Cross Service Station. • Narrow footway from St Athan to low mileage (eastern end) on the opposite side of the highway.
Weaknesses	• Very steep track gradients in this section. • No cycleway for users to arrive by foot or bicycle safely. • No footway to high mileage (western) end of site.

[24] © Google 2022

Category	Description
	• Site restrained by infrastructure, houses and narrow sections between highway and railway. • Station will sit on embankment so footbridge & station will be imposing on surrounding areas.
Opportunities	• Potential to regrade the track to create a flatter section for a safer platform. This will require earthworks to create higher embankments and track reconstruction. Causing short-term disruption to the rail. • Potential opportunity for active travel links (segregated cycleway/ footway).
Threats	• **Gradient steeper at 1:85 to 1:78 than the recommended guidance threshold at less than or equal to 1:400. This could have implications for the rolling stock and whether it can stop/ start on such a gradient. Risk assessment required to confirm viability.** • Underbridge creates limitations with flattening the track to reduce gradient. • Proximity to existing residential properties. • Historic traffic collisions near to the adjacent highway junction.

6.7 Section E (VOG 5m 618yds to 5m 1496yds)

6.7.1 Section E ranges from 5m 618yds to 5m 1496yds.

6.7.2 The accompanying Section E feasibility drawing is included in Appendix B.

Permanent Way

6.7.3 Horizontal track alignment is on a series of short curves with cant (super-elevation). It is not feasible to position a platform within this section, with the existing radii significantly tighter than required and multiple curves making maintenance of the platform edge stepping distances significantly challenging. Vertically the track has a fall of 1:194 through the curves, briefly levelling off to 1:326. Section E is deemed infeasible by current standards for permanent way due to the tight curvature of the railway.

Signalling

6.7.4 In Area E, there is a considerable amount of signalling infrastructure at the low mileage end due to the Aberthaw Power Station turn out, the crossover between the eastern and western lines and the Aberthaw Cement works turnout.

6.7.5 This brings with it signals and an overlap Axle Counter on the western line at circa 5m 660yds and a further signal on the western line with a replacement axle counter at circa 5m 1540yds which is mentioned in Section D but needs to be considered should a station be built, that may obstruct its

visibility. On the eastern line between the shunt signal and its replacement axle counter at circa 5m 990yds, and the lower mileage of this section, there will be no scope for building due to Aberthaw Cement Ground Frame and other associated signalling infrastructure.

6.7.6 The only area that is relatively free of signalling and available for use would be the track clear of the axle counter, which would be circa 5m 1015yds up to a position circa 50m from signal CF3423 at 5m 1490yds a total distance of 475yds providing sighting of running signals can be achieved.

Civils

6.7.7 It has been assessed that there is no suitable location for a train station in this section. This is partly due to the lack of adjacent highways. The highway to the west is a private access to Aberthaw Power Station, the highway to the north is 250m distance, and the highway to the east is separated from the rail by Aberthaw Cement Works industrial estate.

6.7.8 Four pylons sit at the higher mileage end, both north and south of the line. The River Thaw cuts through the area, with the majority of this site sitting in both river and sea flood zones. Any car park or access from the north would likely encounter waterlogged ground and periodic flooding. The rail line is on an embankment so itself is not in the flood zone. The APS rail line sits parallel to the south of the Vale of Glamorgan line, which means there is limited space (circa 10m) to place a platform and access between the two. Aberthaw Cement Works (Tarmac) takes up a large portion of Option E to the north east and has not been considered for a station location.

Highway Access

6.7.9 Not applicable.

Section E SWOT Analysis

6.7.10 As noted, and with regard to the horizontal alignment of the railway at this location, it is not feasible to position a platform within this section with the existing radii significantly tighter than required and multiple curves making maintenance of the platform edge stepping distances significantly challenging. In light of this, no additional SWOT analysis has been completed.

7 Conclusion & Next Steps

7.1 Conclusion

7.1.1 Arcadis was commissioned by the Vale of Glamorgan Council to complete a feasibility study to understand the potential for a new railway station located on the Vale of Glamorgan Line at St Athan. All options are situated along the two track VOG line between 7m 1429yds and VOG 5m 618yds. The appraisal team have assessed a range of site locations and considered the opportunities and challenges associated with the identified sites.

7.1.2 A comprehensive review of national, regional and local policy and legislation has been undertaken to assert an initial case for change and establish a broad context for delivery of a new station at St Athan. The review has demonstrated that existing policy supports consideration of interventions that enhance transport conditions for pedestrians, cyclists and public transport users with an overarching objective towards encouraging sustainable travel choices and modal shift away from use of the car. The influence of Llwybr Newydd: A New Wales Transport Strategy continues to gather momentum since its release in 2021 and alongside other key policy and legislation, this provides an outline framework from which new railway stations can be considered in support of achieving a Welsh transport agenda focussed on achieving net zero carbon emissions by 2050.

7.1.3 Baseline transport and environmental chapters provide additional context, the output of which has informed the preliminary engineering feasibility study which demonstrates that a proposed new railway station at St Athan can in principle be achieved, although several risk factors are retained at this early stage of appraisal.

7.1.4 The preferred location from a Track and Civils perspective is positioned within Section A immediately west of the Seaview overbridge. Whilst the track gradients (between 1:255 and 1:214) are less than the recommended 1:400, they are shallower than elsewhere in the study area. However, further work would be required at the next stage of appraisal to determine if this gradient is suitable and if it is acceptable to Network Rail considering the increase in risks. From a civils perspective, there is sufficient space for a station throughout Sections A – D (subject to land ownership constraints – see Appendix E for plan showing outline polygon land ownership data), including car parking areas for 75+ spaces.

7.1.5 In terms of horizontal alignment, it is feasible to position a station in most locations within Sections A to D, making the vertical geometry the defining factor in these areas. However, it is not feasible to position a platform within Section E due to the horizontal radii and insufficient access opportunities and spatial constraints. Section E is further complicated given the presence of a Site of Importance for Nature Conservation and its proximity to an extant quarry site.

7.1.6 At this stage of the analysis, it is considered that highway access can be reasonably achieved for Sections A – D, subject to the final positioning of access points, the completion of detailed site appraisals and consideration of road traffic speed data. Sections C and D present the greatest opportunities for sustainable integration with St Athan given their proximity to the village (both in relation to existing and future proposed residential development), although all sections would require further consideration of public transport and sustainable travel connectivity.

7.1.7 Sections A to D therefore represent opportunities for a new station, with final station positions subject to confirmation at the next stages of assessment. However, as noted, the track gradients are currently steeper than 1:400 throughout all of the sections assessed with gradients ranging from 1:78 to 1:324 **and whilst there is no absolute maximum track gradient for placement of the platform defined by Network Rail**, it is considered good practice to position stations on gradients equal to or less than the advised 1:400 gradient (to remove the risk of runaway trains, allow trains to safely pull away on an incline and mitigate imported risks for pedestrians on the platform, i.e., for wheelchair and pushchair users). Positioning of a platform on steeper gradients than 1:400 will require safety justification by signalling, track, rolling stock and civil engineers and will require mitigation (levelling of the track) or derogation from Network Rail. Whilst Section E is not deemed feasible due to the curvature of the track, further appraisal is required to determine the suitability of Sections A – D.

7.2 Recommended Next Steps

- Initial consultation completed with Transport for Wales as part of this commission confirmed general support for the feasibility study at St Athan, although recommended that wider strategic appraisal should be completed in the first instance to understand the most viable location/s for a new station on the Vale of Glamorgan line. Such an appraisal would be subject to a separate study and be required to demonstrate a suitable case for change for enhanced rail provision throughout this transport corridor.
- Should proposals for a new railway station at St Athan be agreed for next stage assessment, it would be recommended that the appraisal is completed in line with WelTAG (2017) guidance to establish a corresponding business case and supported by a Transport for Wales Stage A/ GRIP 2 study to fully explore associated opportunities and constraints, encompassing (but not necessarily limited to) the following key activities:
  - Further investigation into the feasibility of the track gradients should be sought as a priority. An assessment involving signalling, track, rolling stock and civil engineers should be undertaken, with the purpose of mitigating associated risks, and/ or establishing the merit of seeking a derogation from Network Rail.
  - Network Rail should be consulted regarding the details on any proposal. Consultation (such as a BAPA agreement) should be sought directly with Network Rail to ascertain the impact on the existing rail network. Consultation with Transport for Wales Rail Services, Vale of Glamorgan Council and other key stakeholders should also be taken forward as part of a dedicated communications plan, including clarification on station requirements.
  - If it is deemed that any level crossings will be affected, the risk of keeping the crossings open with adjacent proposed works will need to be initially captured as part of the Stage A/ GRIP 2 study.[25]
  - Complete passenger demand forecasting using the Transport for Wales managed South East Wales Transport Model (SEWTM) to understand the potential for new rail trips, as well as the reassignment of existing trips throughout the network.
  - An initial timetable study would be recommended to understand the operational impacts and amendments required to facilitate station calls at the new station and whether this would achieve the aims set out by the Vale of Glamorgan Council.

[25] Level crossing closures - Network Rail

- Ownership of the new railway station and its facilities will need to be decided, determining whether Transport for Wales will own and operate the station or by default Network Rail will own the station and infrastructure, with the Vale of Glamorgan Council owning and operating the car park. The management case will need to be developed through close consultation with key stakeholders.

APPENDIX A

Local Development Plan Map

Vale of Glamorgan
Adopted Local Development Plan
2011 - 2026

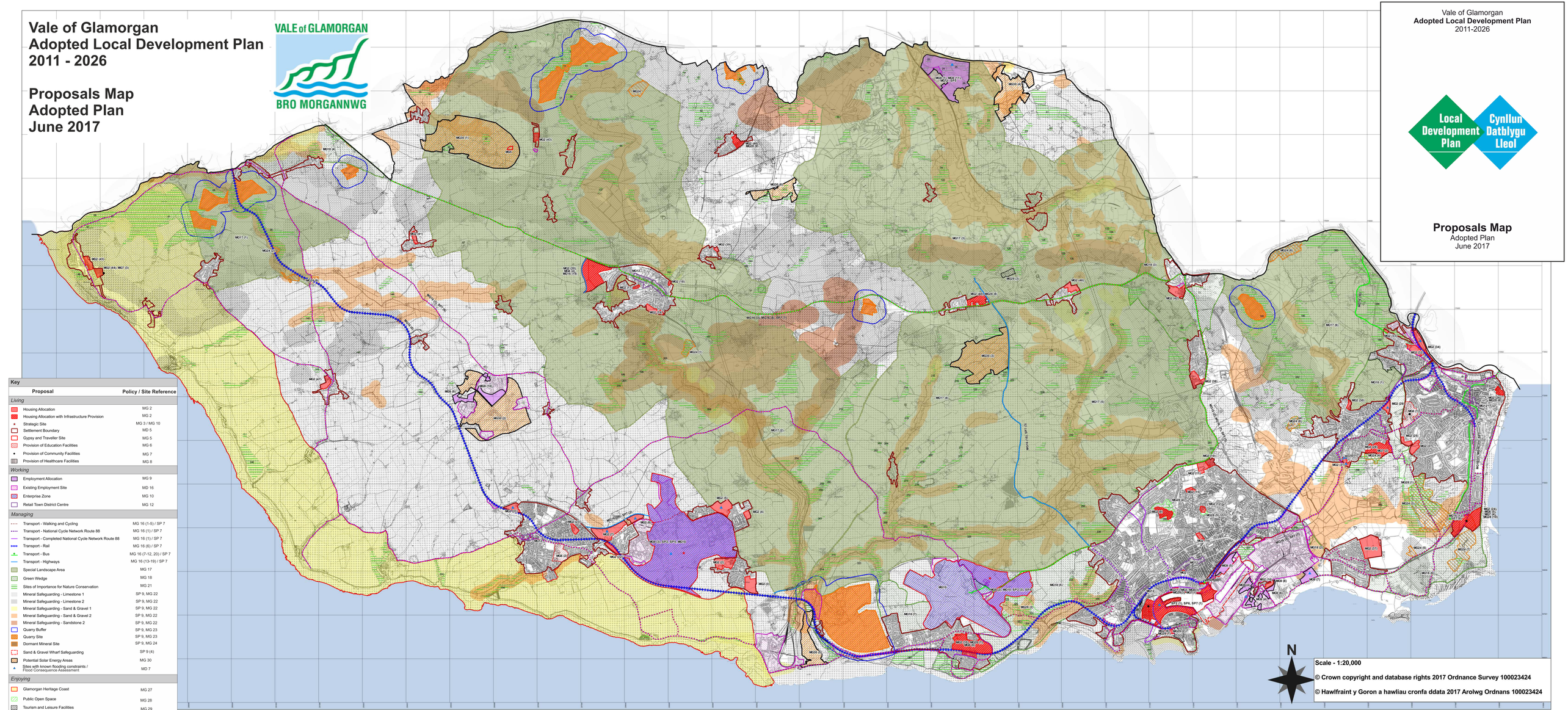
Proposals Map
Adopted Plan
June 2017

VALE of GLAMORGAN
BRO MORGANNWG

Vale of Glamorgan
Adopted Local Development Plan
2011-2026

Local Development Plan
Cynllun Datblygu Lleol

Proposals Map
Adopted Plan
June 2017



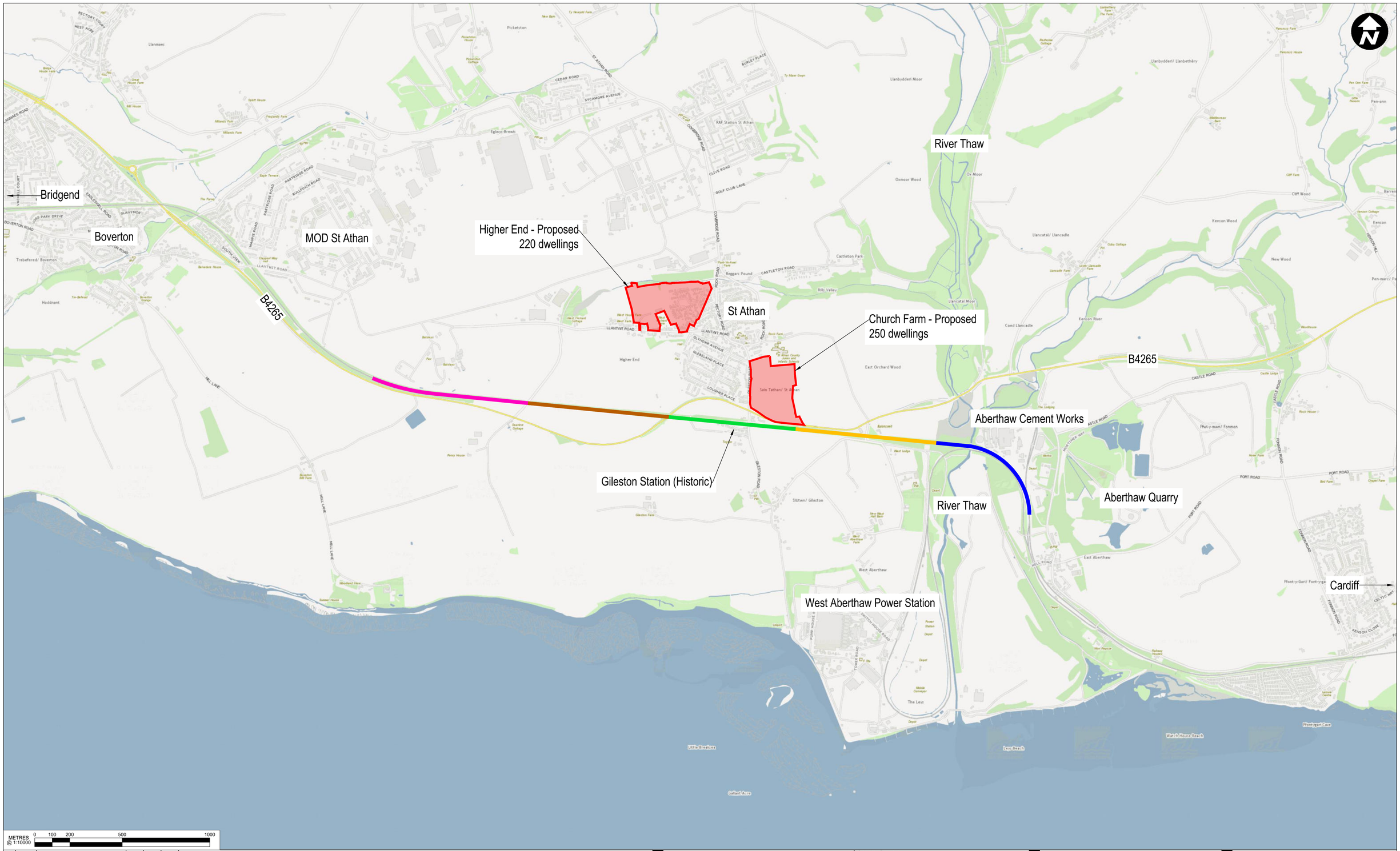
Key	
Proposal	**Policy / Site Reference**
Living	
Housing Allocation	MG 2
Housing Allocation with Infrastructure Provision	MG 2
Strategic Site	MG 3 / MG 10
Settlement Boundary	MD 5
Gypsy and Traveller Site	MG 5
Provision of Education Facilities	MG 6
Provision of Community Facilities	MG 7
Provision of Healthcare Facilities	MG 8
Working	
Employment Allocation	MG 9
Existing Employment Site	MD 16
Enterprise Zone	MG 10
Retail Town District Centre	MG 12
Managing	
Transport - Walking and Cycling	MG 16 (1-5) / SP 7
Transport - National Cycle Network Route 88	MG 16 (1) / SP 7
Transport - Completed National Cycle Network Route 88	MG 16 (1) / SP 7
Transport - Rail	MG 16 (6) / SP 7
Transport - Bus	MG 16 (7-12, 20) / SP 7
Transport - Highways	MG 16 (13-19) / SP 7
Special Landscape Area	MG 17
Green Wedge	MG 18
Sites of Importance for Nature Conservation	MG 21
Mineral Safeguarding - Limestone 1	SP 9, MG 22
Mineral Safeguarding - Limestone 2	SP 9, MG 22
Mineral Safeguarding - Sand & Gravel 1	SP 9, MG 22
Mineral Safeguarding - Sand & Gravel 2	SP 9, MG 22
Mineral Safeguarding - Sandstone 2	SP 9, MG 22
Quarry Buffer	SP 9, MG 23
Quarry Site	SP 9, MG 23
Dormant Mineral Site	SP 9, MG 24
Sand & Gravel Wharf Safeguarding	SP 9 (4)
Potential Solar Energy Areas	MG 30
Sites with known flooding constraints / Flood Consequence Assessment	MD 7
Enjoying	
Glamorgan Heritage Coast	MG 27
Public Open Space	MG 28
Tourism and Leisure Facilities	MG 29

N

Scale - 1:20,000

APPENDIX B

Drawings



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NOTES:

1. Mapping data obtained from WMS through Vale of Glamorgan (13/01/2022)
2. Do not scale from this drawing

- Section A
- Section B
- Section C
- Section D
- Section E

Rev	Date	Description	Drawn	Check	Approv
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Vale of Glamorgan Council

VALE of GLAMORGAN BRO MORGANNWG

Site

Saint Athan
Wales

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Suitability Description: Feasibility Study
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Designed	S. HOWELLS	Date 31JAN22	Signed S.H
Drawn	M. SMITH	Date 31JAN22	Signed M.S
Checked	M. FRY	Date 31JAN22	Signed M.F
Approved	B. NAYLOR	Date 31JAN22	Signed B.N
Scale:	1 : 10000	Datum:	AOD
Original Size:	A1	Grid:	OS
Suitability Code:	S0	Project Number:	10051893
ELR:	VOG	Mileage:	6m 1000yds

PROJECT:

St Athan Railway Station
Feasibility Study

TITLE:

Site Location Plan

ARCADIS Design & Consultancy for natural and built assets

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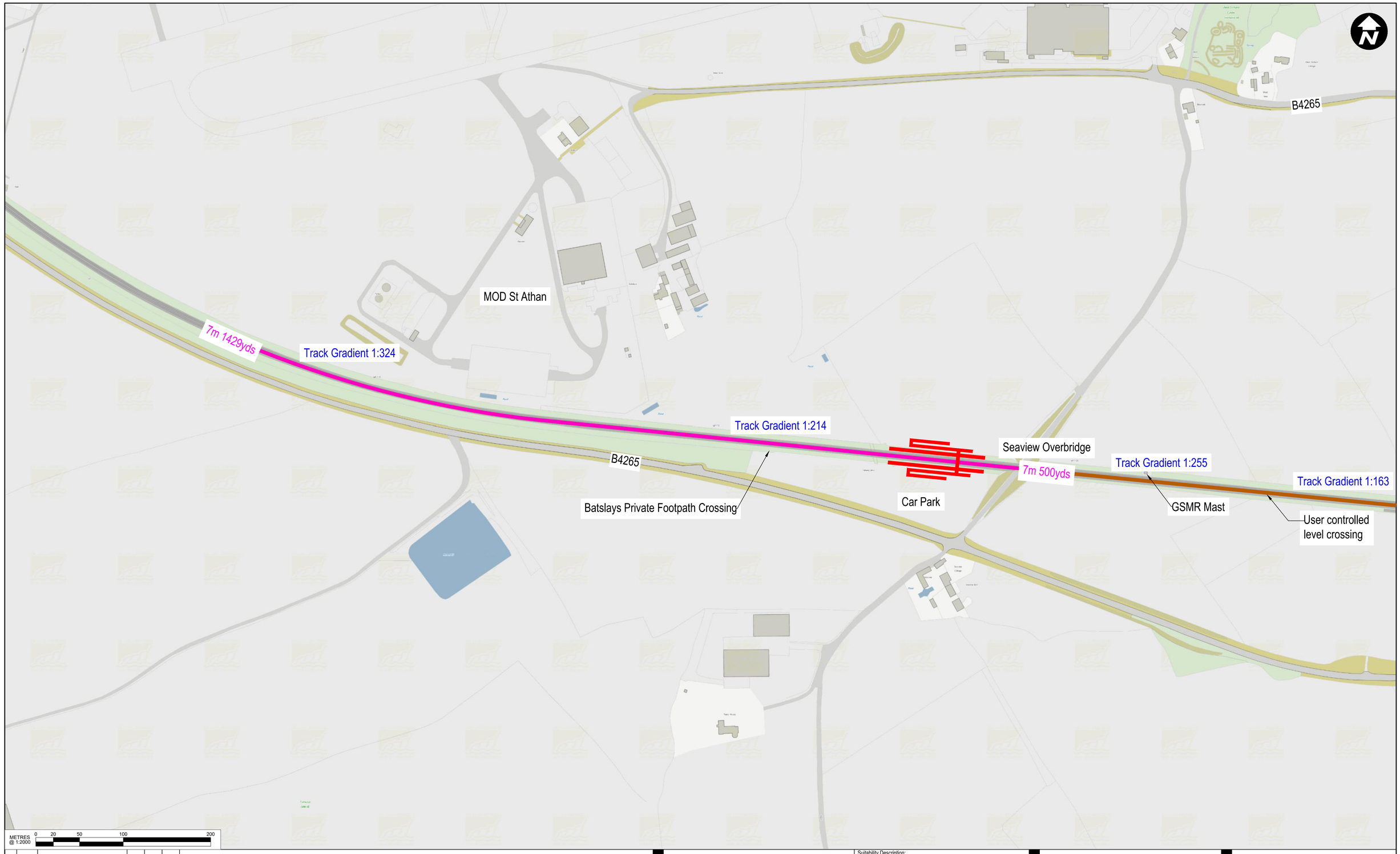
Revision: P01



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4. Option proposed is most suitable from feasibility study, however other options within this section should not be discounted at this stage
5. Track gradient steeper than 1 in 400 is not recommended for a platform as per rail guidance, and would require leveling or a derogation

Section A
Section B
Indicative Platform and Footbridge (with ramps) Location

Vale of Glamorgan Council

VALE of GLAMORGAN
BRO MORGANNWG

Site
Saint Athan
Wales

Client
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ELR:	VOG	Mileage:	___

PROJECT:
St Athan Railway Station
Feasibility Study

TITLE:
Section A

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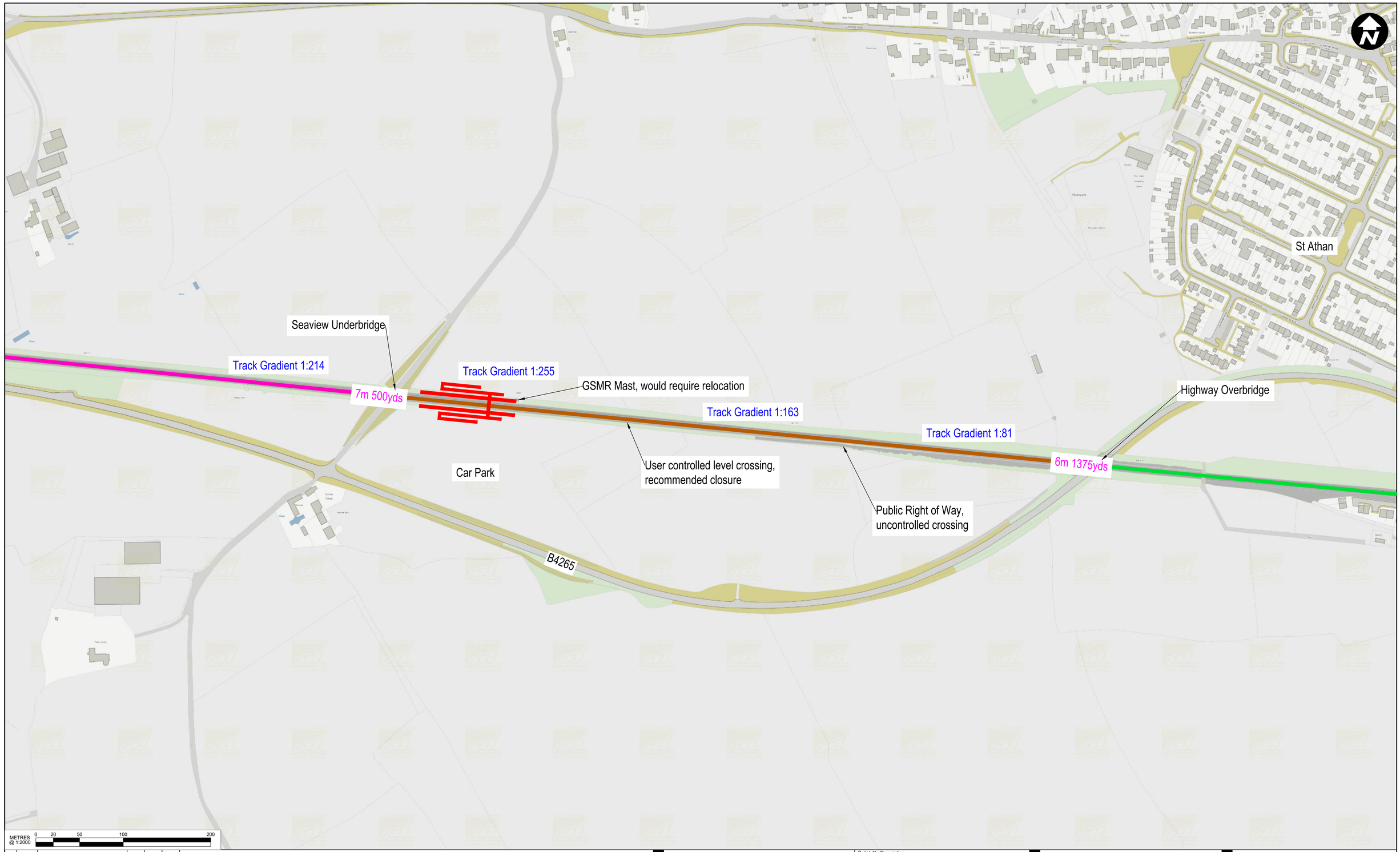

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Section A
Section B
Section C
Indicative Platform and Footbridge (with ramps) Location

Vale of Glamorgan Council

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BRO MORGANNWG

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Wales

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St Athan Railway Station
Feasibility Study

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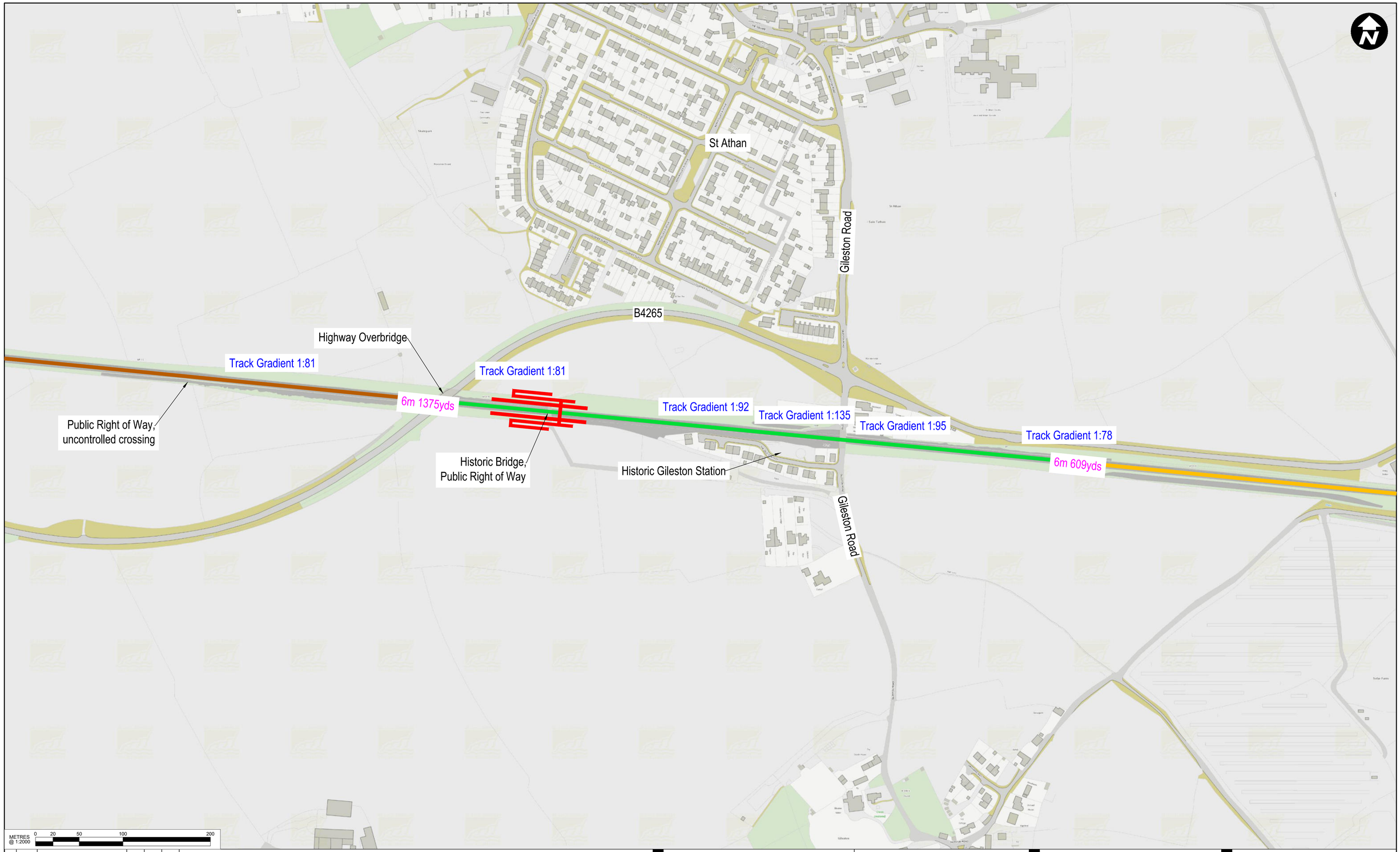

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Section B
Section C
Section D
Indicative Platform and Footbridge (with ramps) Location

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Original Size:	A1	Grid:	OS
Suitability Code:	S0	Project Number:	10051893
ELR:	VOG	Mileage:	___

PROJECT:

St Athan Railway Station
Feasibility Study

TITLE:

Section C

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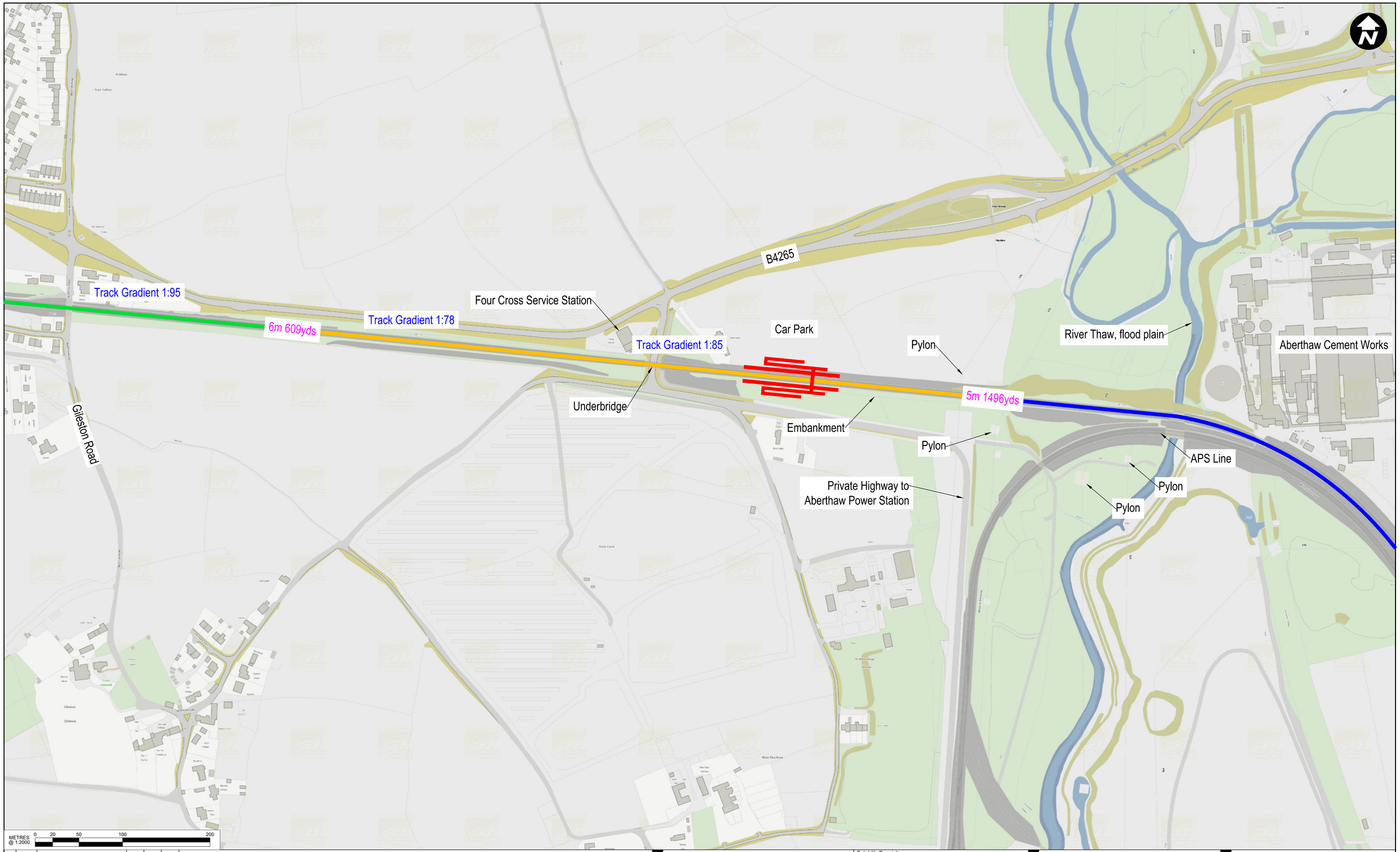


Rev	Date	Description	Drawn	Check	Approv
P01	04/02/22	DESCRIPTION	MS	SH	BN

NOTES:

1. Mapping data obtained from WMS through Vale of Glamorgan (13/01/2022)
2. Do not scale from this drawing
3. Refer to report 10051893-ARC-XX-XX-RP-TP-0001
4. Option proposed is most suitable from feasibility study, however other options within this section should not be discounted at this stage
5. Track gradient steeper than 1 in 400 is not recommended for a platform as per rail guidance, and would require leveling or a derogation

Section C
Section D
Section E
Indicative Platform and Footbridge (with ramps) Location

100mm on Original

Print Date: 2022-02-04 09:21:15

C:\Users\msa77862\OneDrive - ARCADIS\Desktop\NWML (Rail)\Saint Athan Railway Station.dwg

Vale of Glamorgan Council

Site
Saint Athan
Wales

Client
Vale of Glamorgan Council
Civic Offices,
Holton Road,
Barry, CF63 4RU
Phone +44 1446 70011
Fax
contactonevale@valeofglamorgan.gov.uk
www.valeofglamorgan.gov.uk

Suitability Description:
Feasibility Study
NOT FOR CONSTRUCTION

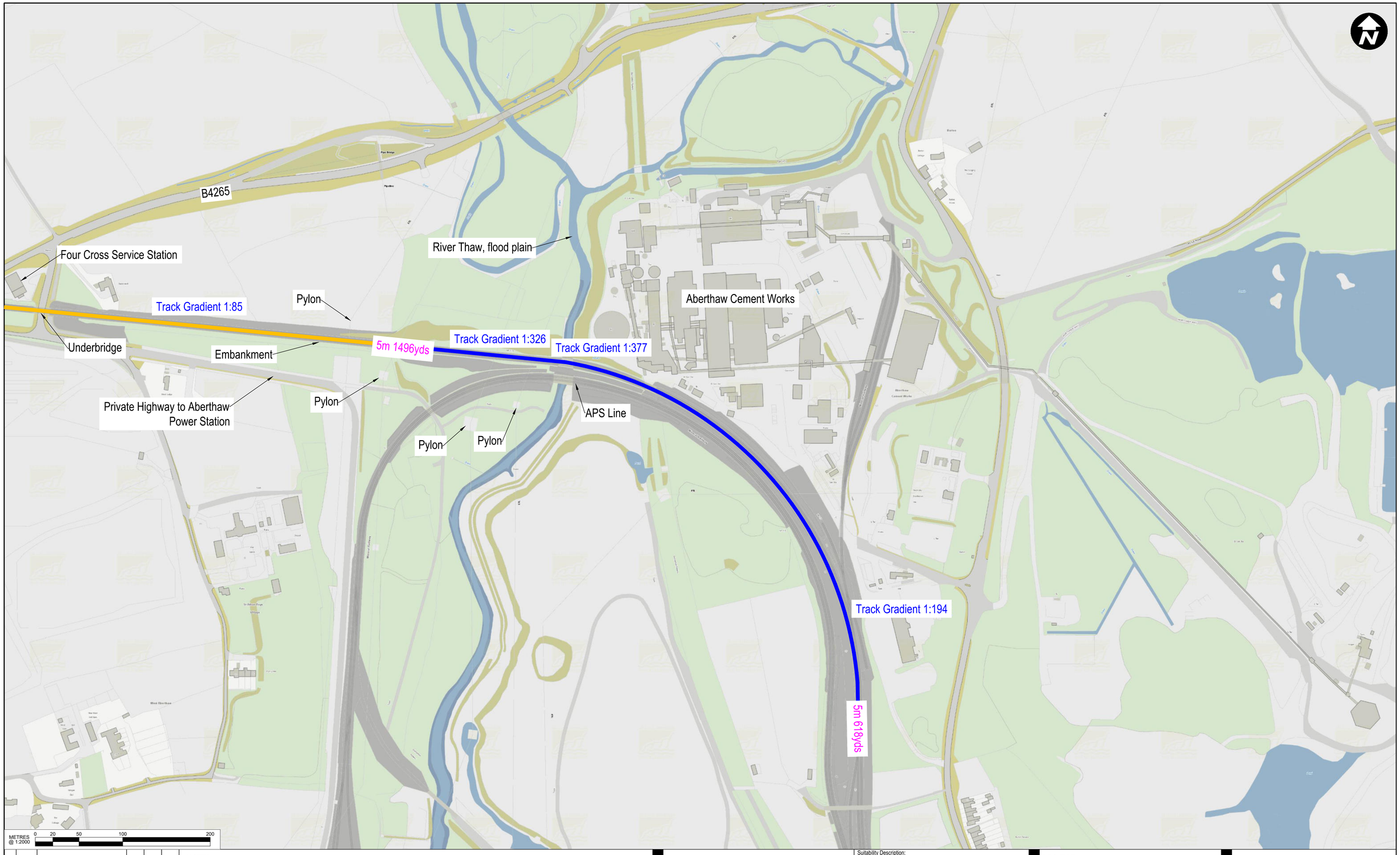
Designed	S. HOWELLS	Date 31JAN22	Signed S.H
Drawn	M. SMITH	Date 31JAN22	Signed M.S
Checked	M. FRY	Date 31JAN22	Signed M.F
Approved	B. NAYLOR	Date 31JAN22	Signed B.N
Scale:	1 : 2000	Datum:	AOD
Original Size:	A1	Grid:	OS
Suitability Code:	S0	Project Number:	10051893
ELR:	VOG	Mileage:	___

PROJECT:
St Athan Railway Station
Feasibility Study

TITLE:
Section D

ARCADIS Design & Consultancy for natural and built assets
Registered office: Manning House, 22 Carlisle Place, Victoria, London SW1P 1JA
Coordinating office: Manning House, 22 Carlisle Place, Victoria, London SW1P 1JA
Tel: 44 (0)203 014 9000
www.arcadis.com

Drawing Number: 10051893-ARC-XX-XX-DG-TP-0005
Revision: P01



NOTES:

1. Mapping data obtained from WMS through Vale of Glamorgan (13/01/2022)
2. Do not scale from this drawing
3. Refer to report 10051893-ARC-XX-XX-RP-TP-0001
4. Option proposed is most suitable from feasibility study, however other options within this section should not be discounted at this stage
5. Track gradient steeper than 1 in 400 is not recommended for a platform as per rail guidance, and would require leveling or a derogation

Section D
Section E

Rev	Date	Description	Drawn	Check	Approv
P01	04/02/22	DESCRIPTION	MS	SH	BN

100mm on Original

Print Date: 2022-02-04 09:21:51

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Vale of Glamorgan Council

VALE of GLAMORGAN
BRO MORGANNWG

Site
Saint Athan
Wales

Client
Vale of Glamorgan Council
Civic Offices,
Holton Road,
Barry, CF63 4RU
Phone +44 1446 70011
Fax
contactonevale@valeofglamorgan.gov.uk
www.valeofglamorgan.gov.uk

Suitability Description:
Feasibility Study
NOT FOR CONSTRUCTION

Designed	S. HOWELLS	Date 31JAN22	Signed S.H
Drawn	M. SMITH	Date 31JAN22	Signed M.S
Checked	M. FRY	Date 31 JAN22	Signed M.F
Approved	B. NAYLOR	Date 31JAN22	Signed B.N
Scale:	1 : 2000	Datum:	AOD
Original Size:	A1	Grid:	OS
Suitability Code:	S0	Project Number:	10051893
ELR:	VOG	Mileage:	___

PROJECT:
St Athan Railway Station
Feasibility Study

TITLE:
Section E

ARCADIS Design & Consultancy for natural and built assets

Registered office:
Manning House
22 Carlisle Place
Victoria
London SW1P 1JA

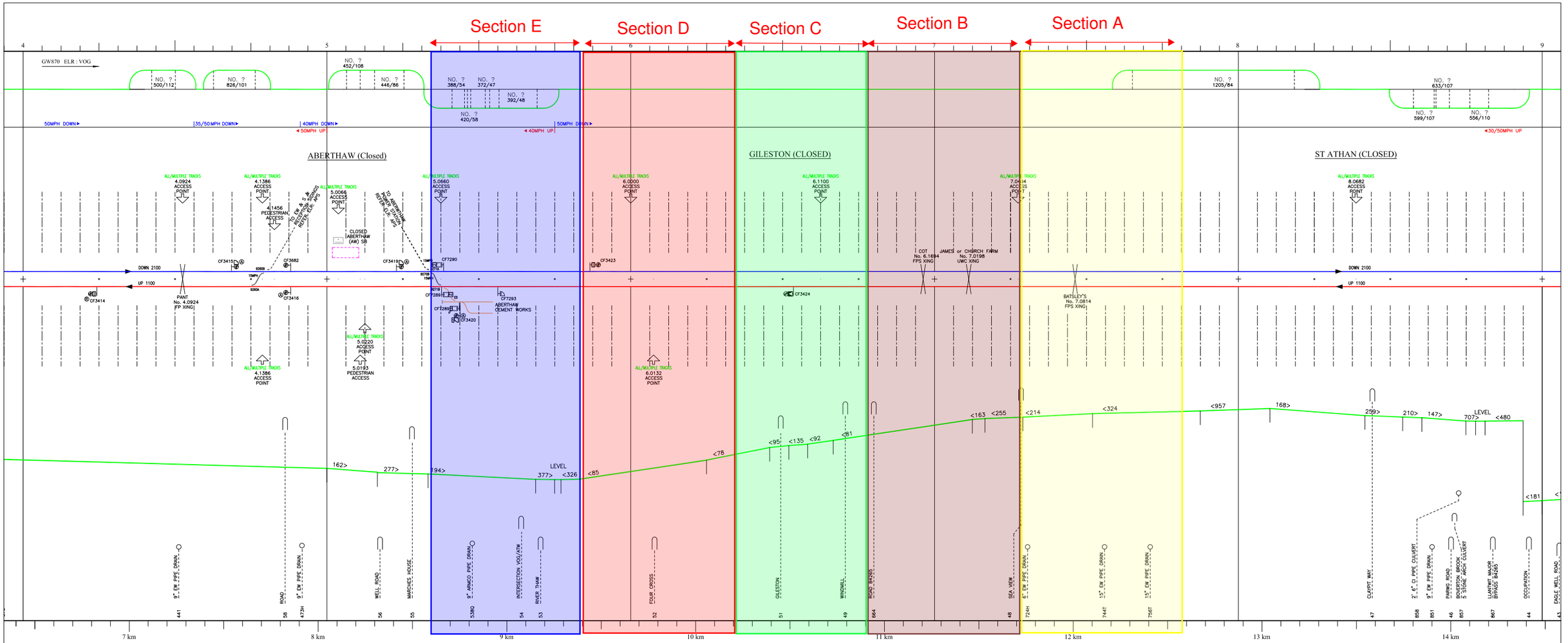
Coordinating office:
Manning House
22 Carlisle Place
Victoria, London SW1P 1JA
Tel: 44 (0)203 014 9000

www.arcadis.com

Drawing Number: 10051893-ARC-XX-XX-DG-TP-0006
Revision: P01

APPENDIX C

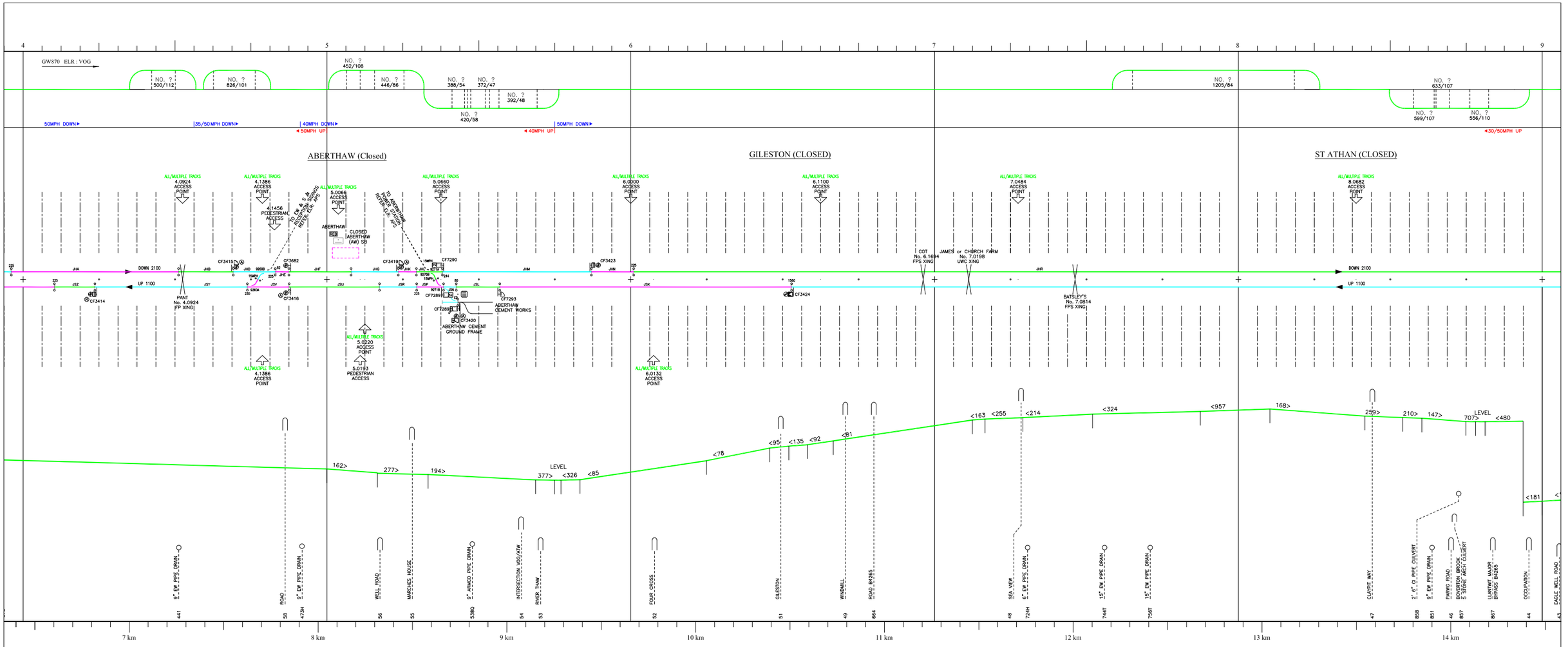
5 Mile Line Diagram



Waterman Pickfords Wharf Clink Street London SE1 9DG t +44 (0)207 928 7888 f +44 3333 444 501 e autorail@watermangroup.com	SOURCE DATA CURVES — DATABASE SUPPLIED BY NR LINE SPEEDS — SECTIONAL APPENDIX TABLE A DIAGRAMS SIGNALLING — SIGNAL SCHEME PLAN, NR TRACK DIAGRAMS LEVEL XINGS — GEOGIS ACCESS POINTS — HAZARD DIRECTORY ISSUE 52 GRADIENTS — DATABASE SUPPLIED BY NR BRIDGE DATA — GEOGIS S&C — GEOGIS, NR TRACK DIAGRAMS NOTE: THE INFORMATION SHOWN ON THIS DRAWING WAS EXTRACTED FROM EXISTING NETWORK RAIL DOCUMENTS AND HAS NOT NECESSARILY BEEN CHECKED BY ON SITE INSPECTION AND IS FOR GUIDANCE ONLY. ANY ERRORS OR OMISSIONS PLEASE ADVISE WATERMAN	NOTES 1. ALL SIGNAL OVERLAP DISTANCES ARE IN METRES AND ARE 180M UNLESS SHOWN OTHERWISE.

DATE	REVISION	SOURCE	DRN	CHK
08-08-11	ACCESS POINTS CHECKED AND UPDATED	NETWORK RAIL	SDH	SDH
31-07-12	POINT 14B MARKED AS O.O.U. (5204)	NR WEST WON 18	MAC	NB
17-10-12	SIGNALLING, S&C AND TRACK CIRCUITS AMENDED AS PER SIGNAL SCHEME PLAN (5279)	NETWORK RAIL	SDH	NB
31-03-14	ABERTHAW CEMENT GROUND FRAME BROUGHT BACK IN USE (6097)	NR WEST WON 51	SDH	NB
08-12-14	ABERTHAW CEMENT GROUND FRAME MARKED O.O.U. (6474)	NR WEST WON 37	NB	PAG
19-02-15	ABERTHAW CEMENT GROUND FRAME BACK IN USE (6615)	NR WEST WON 47	NB	PAG
07-06-18	LINESPEED CHANGES ON THE DOWN LINE AT ABERTHAW (9250)	NR WEST WON 05	NB	SDH

CLIENT: Network Rail	Region: Wales & Western Route: Wales and Borders	**CIVIL ENGINEERING PLAN**	
TITLE: **ABERTHAW**		PROJECT No.	35640107
		DIAGRAM No.	VOG-02
		ROUTE GW870	ELR VOG
		MILEAGE	4 MILE TO 9 MILE
		VALIDATED/DRAWN	25/11/05



Waterman

Pickfords Wharf Clink Street London SE1 9DG

t +44 (0)207 928 7888 f +44 3333 444 501 e autorail@watermangroup.com

SOURCE DATA

CURVES	DATABASE SUPPLIED BY NR
LINE SPEEDS	SECTIONAL APPENDIX TABLE A DIAGRAMS
SIGNALLING	SIGNAL SCHEME PLAN, NR TRACK DIAGRAMS
LEVEL XINGS	GEOGIS
ACCESS POINTS	HAZARD DIRECTORY ISSUE 52
GRADIENTS	DATABASE SUPPLIED BY NR
BRIDGE DATA	GEOGIS
S&C	GEOGIS, NR TRACK DIAGRAMS

NOTES

1. ALL SIGNAL OVERLAP DISTANCES ARE IN METRES AND ARE 180M UNLESS SHOWN OTHERWISE.

NOTE: THE INFORMATION SHOWN ON THIS DRAWING WAS EXTRACTED FROM EXISTING NETWORK RAIL DOCUMENTS AND HAS NOT NECESSARILY BEEN CHECKED BY ON SITE INSPECTION AND IS FOR GUIDANCE ONLY. ANY ERRORS OR OMISSIONS PLEASE ADVISE WATERMAN

DATE	REVISION	SOURCE	DRN	CHK
08-08-11	ACCESS POINTS CHECKED AND UPDATED	NETWORK RAIL	SDH	SDH
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31-03-14	ABERTHAW CEMENT GROUND FRAME BROUGHT BACK IN USE (6097)	NR WEST WON 51	SDH	NB
08-12-14	ABERTHAW CEMENT GROUND FRAME MARKED O.O.U. (6474)	NR WEST WON 37	NB	PAG
19-02-15	ABERTHAW CEMENT GROUND FRAME BACK IN USE (6615)	NR WEST WON 47	NB	PAG
07-06-18	LINESPEED CHANGES ON THE DOWN LINE AT ABERTHAW (9250)	NR WEST WON 05	NB	SDH

CLIENT: Network Rail

Region: Wales & Western

Route: Wales and Borders

TITLE: ABERTHAW

SIGNALLING PLAN

PROJECT No.	35640107		
DIAGRAM No.	VOG-02		
ROUTE	GW870	ELR	VOG
MILEAGE	4 MILE TO 9 MILE		
VALIDATED/DRAWN	25/11/05		

ELECTRICAL PLAN NOT AVAILABLE

Waterman

Plckfords Wharf CIlnk Street London SE1 9DG
t 020 7928 7888 f 020 7902 0992 e p,a,t,goldsmith@waterman-group,co,uk

NOTE: THE INFORMATION SHOWN ON THIS DRAWING WAS EXTRACTED FROM EXISTING NETWORK RAIL DOCUMENTS AND HAS NOT NECESSARILY BEEN VALIDATED BY ON SITE INSPECTION BY THE CLIENT. ANY ERRORS OR OMISSIONS PLEASE ADVISE WATERMAN

DATE	REVISION	SOURCE	DRN	CHK

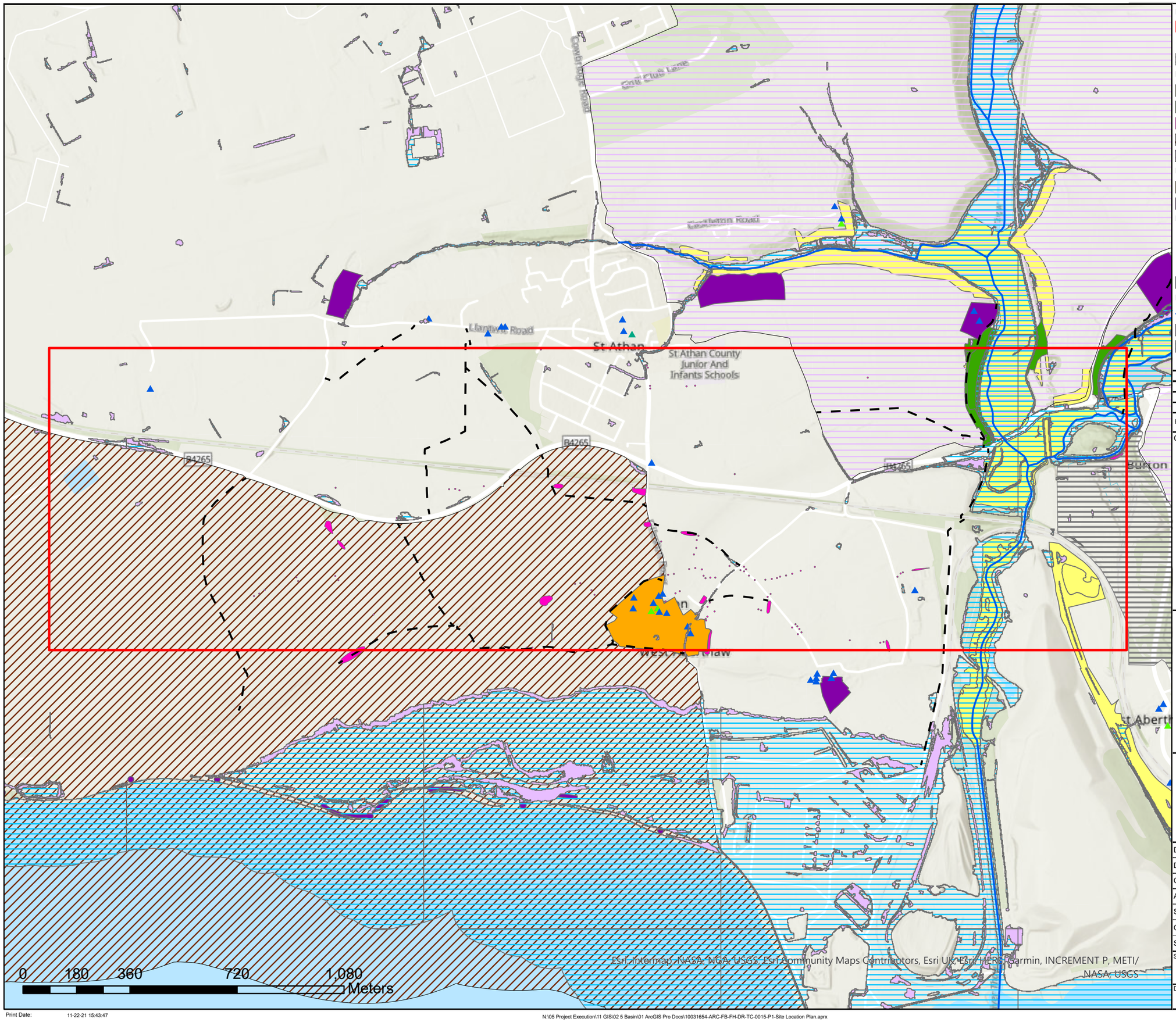
CLIENT: Network Rail — Territory: Territory — Area: Area

TITLE: SOMEWHERE - SOMEPLACE

ELECTRICAL PLAN			
PROJECT No.	XXX		
DIAGRAM No.	XXX-01		
ROUTE	XX1234	ELR	XYZ1
MILEAGE	XX MILE TO XX MILE		
LAST VALIDATED	XX/XX/XX		

APPENDIX D

Environmental Constraints Plan



Legend

- Study Area
- Public Rights of Way
- Quarry Site

Environmental Designations

- Site of Importance for Nature Conservation
- Ancient Woodland
- Tree Preservation Orders
- Heritage Coast
- Special Landscape Area

Designated Hertiage Assets

- Conservation Areas
- Scheduled Monuments

Listed Buildings

- *Grade I*
- *Grade II**
- *Grade II*

- Registered Historic Landscape

Flood Risk Zone

- Main River
- Flood Zone 2
- Flood Zone 3

Rev	Date	Description	Drawn	Check	Approv
P01	08/11/21	INITIAL ISSUE	KF	MF	SP

Client:

VALE of GLAMORGAN

BRO MORGANNWG

ST. ATHAN RAILWAY STATION FEASIBILITY STUDY

Site
St. Athan

Client
Vale of Glamorgan Council
Civic Offices
Holton Road
Barry
CF63 4RU

ARCADIS

Registered office:
80Fen
80 Fenchurch Street
London
EC3M 4BY

Coordinating Office:
Cornerblock
2 Cornwall Street
Birmingham
B3 2DX

www.arcadis.com

Title:

Environmental Constraints Plan

Designed	N/A	Date: N/A	Signed:
Drawn	K. Fischer	Date: 8 NOV 21	Signed:
Checked	M. Fry	Date: 8 NOV 21	Signed:
Approved	S. Price	Date: 8 NOV 21	Signed:
Scale:	1:12,000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	S2	Project Number:	10051893

Suitability Description:

For Information
Not to be used for construction

Drawing Number: 10051893-ARC-EGN-ZZ-DR-ZZ-002-S2-P01

Revision: P01

Print Date: 11-22-21 15:43:47

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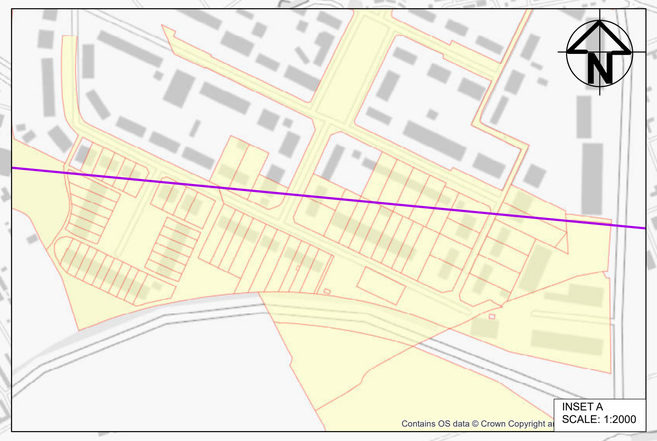
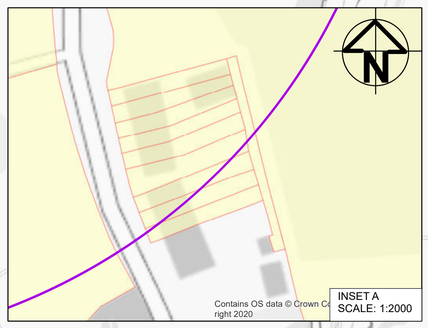
APPENDIX E

Land Ownership Plan





Inset A

Inset B

NOTES

1. DRAWINGS TO BE READIN CONJUNCTION WITH LAND OWNERSHIP SCHEDULE BORDXXXX-CPF

KEY

LINE OF WORK

- Section A
- Section B
- Section C
- Section D
- Section E
- 200m buffer
- Parcels Affected

Rev	Date	Description	Drawn	Chk.	App.
P01	21/01/2022	Draft	DSV	RT	--

Client

VALE of GLAMORGAN
BRO MORGANNWG

Project

ST ATHAN RAILWAY STATION

Site	Client
Address City	Vale of Glamorgan Council Civic Offices Holton Road Barry CF63 4RU United Kingdom

ARCADIS

Registered office:
80 Fenchurch Street
London
EC3M 4BY

Coordinating office:
St Mellons Business Park,
Fortran Road,
Cardiff CF3 0EY
Tel: 44 (0)292 092 6700

www.arcadis.com

Drawing Title

LAND OWNERSHIP PARCELS

SECTIONS (A,B,C,D,E)

Designed:	D. Sanchez Vega	Signed:	Date: 21/01/2022
Drawn:	D. Sanchez Vega	Signed:	Date: 21/01/2022
Checked:	R. Tyrer	Signed:	Date: 21/01/2022
Approved:	---	Signed:	Date: 21/01/2022
Scale	As Shown	Datum:	AOD
Original Size:	A1	Grid:	OS
ELR:		Mileage	
Suitability Code:		Project Number:	

Suitability Description:

DRAFT

Drawing Number	Revision
----	P01

Arcadis Consulting (UK) Limited

Arcadis Cymru House

St Mellons Business Park

Fortran Road

Cardiff

CF3 0EY

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