



Llywodraeth Cymru
Welsh Government

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Coridor yr M4 o amgylch Casnewydd

Datganiad Amgylcheddol: Crynodeb Annhechnegol - Mawrth 2016

M4 Corridor around Newport

Environmental Statement: Non-Technical Summary - March 2016



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CYFLWYNIAD

1

INTRODUCTION

Cyffredinol

Mae Gweinidogion Cymru yn cynnig adeiladu rhan newydd o'r draffordd i'r de o Gasnewydd. Byddai'r rhan newydd o draffordd tair lôn wedi'i lleoli rhwng Cas-bach (Cyffordd 29 llwybr presennol yr M4) a Magwyr (Cyffordd 23 llwybr presennol yr M4) i'r de o Gasnewydd yn Ne Cymru.

Byddai'r Cynllun hefyd yn cynnwys amrywiaeth o Fesurau Ategol. Mesurau a fyddai'n helpu i liniaru problemau sy'n ymwneud â theithio ar draffordd bresennol yr M4 yw'r rhain. Mae'r mesurau yn cynnwys ailddosbarthu traffordd bresennol yr M4 yn

General

The Welsh Government proposes to build a new section of motorway south of Newport. The new section of three lane motorway would be located between Castleton (Junction 29 of the existing M4) and Magor (Junction 23 of the existing M4) to the south of Newport in South Wales.

The Scheme would also include a range of Complementary Measures. These are measures that would assist in alleviating travel related problems on the existing M4. The measures include reclassification of the existing M4 as a trunk road between Castleton

gefndffordd rhwng Cas-bach a Magwyr, ffordd liniaru i Gyffordd 23A â chysylltiad M4/M48/B4245 newydd a darparu seilwaith a fyddai'n addas ar gyfer seiclo a cherdded.

Gyda'i gilydd, mae'r rhan newydd arfaethedig o'r draffordd a'r Mesurau Ategol yn ffurio prosiect Coridor yr M4 o amgylch Casnewydd, y cyfeirir ato yn y ddogfen hon fel y Cynllun.

Cynhalwyd Asesiad o'r Effaith Amgylcheddol (AEA) mewn perthynas â'r prosiect yn unol ag Adran 105A o Ran VA o Ddeddf Prifyrdd 1980 (fel y'i diwygiwyd) a Chyfarwyddeb 2011/92/EU a chan ystyried gofynion Cyfarwyddeb 2014/52/EU.

Yn unol â'r ddeddfwriaeth isod, lluniwyd Datganiad Amgylcheddol, sy'n nodi yn nodi prif effeithiau amgylcheddol y Cynllun ac yn disgrifio'r mesurau arfaethedig i osgoi, unioni neu leihau'r effeithiau a gwella'r amgylchedd lle y bo'n ymarferol.

Mae'r Datganiad Amgylcheddol yn sicrhau bod pawb sydd â diddordeb yn y Cynllun, gan gynnwys y cyhoedd, yn deall y cynigion ac yn cael cyfreith i fynegi barn arnynt cyn i Weinidogion Cymru benderfynu a ddylid cadarnhau'r Gorchmynion Priffordd a Phrynu Gorfodol sydd eu hangen ar gyfer y Cynllun.

Mae'r ddogfen hon yn cynnwys Crynodeb Annhechnegol o'r Datganiad Amgylcheddol. Mae'n disgrifio'r Cynllun ac yn rhoi trosolwg o ganfyddiadau proses yr AEA mewn iaith annhechnegol.

Mae'r Adroddiad hwn hefyd yn ategu'r 'Gorchmynion Statudol drafft' a gyhoeddwyd ar gyfer y Cynllun, sy'n nodi'r tir y byddai ei angen er mwyn adeiladu a cynnal y Cynllun a'r gwaith lliniaru amgylcheddol a fyddai'n gysylltiedig â hynny. Mae pum Gorchymyn Statudol drafft, sef:

1. Cynllun Traffordd yr M4 (Cyffordd 23 (Man i'r Dwyrain o Fagwyr) i Fan i'r Gorllewin o Gyffordd 29 (Cas-bach) a Ffyrdd Cysylltu) a Thraffordd yr M48 (Ffordd Gysylltu Cyffordd 23 (Man i'r Dwyrain o Fagwyr) 201-
2. Gorchymyn Cefnffordd Llundai i Abergwaun (Man i'r Dwyrain o Fagwyr i Gas-bach) 201-

and Magor, relief to Junction 23A with a new M4/M48/B4245 connection and provision of cycle and walking friendly infrastructure.

Together, the proposed new section of motorway and Complementary Measures form the M4 Corridor around Newport project, referred to in this document as the Scheme.

The Scheme has been subject to an Environmental Impact Assessment (EIA) in accordance with Section 105A of Part VA of the Highways Act 1980 (as amended) and the Directive 2011/92/EU and having regard to the requirements of Directive 2014/52/EU.

In accordance with the above legislation, an Environmental Statement has been prepared, which identifies the main environmental effects of the Scheme and describes the proposed measures to avoid, remedy or reduce effects and provide environmental enhancement where practicable.

The Environmental Statement ensures that all those with an interest in the Scheme, including the public, understand the proposals and are given an opportunity to express an opinion on them before the Welsh Ministers decide whether to confirm the Highway and Compulsory Purchase Orders required for the Scheme.

This document is the Non-Technical Summary (NTS) of the Environmental Statement. It describes the Scheme and provides an overview of the findings of the EIA process in non-technical language.

This NTS also accompanies the 'draft Statutory Orders' published for the Scheme, which set out the land that would be required to build and maintain the Scheme and the environmental mitigation work that would be involved. There are five draft Statutory Orders:

1. The M4 Motorway (Junction 23 (East of Magor) to West of Junction 29 (Castleton) and Connecting Roads) and The M48 Motorway (Junction 23 (East of Magor) Connecting Road) Scheme 201-
2. The London to Fishguard Trunk Road (East of Magor to Castleton) Order 201-

3. Cynllun Traffordd yr M4 (Man i'r Gorllewin o Fagwyr i Fan i'r Dwyrain o Gas-bach) a Thraffordd yr A48(M) (Man i'r Gorllewin o Gas-bach i Laneirwg) (Amrywio Amrywiol Gynlluniau) 201-
4. Gorchymyn Traffordd yr M4 (Cyffordd 23 (Man i'r Dwyrain o Fagwyr) i Fan i'r Gorllewin o Gyffordd 29 (Cas-bach) a Ffyrdd Cysylltu) a Thraffordd yr M48 (Ffordd Gysylltu Cyffordd 23 (Man i'r Dwyrain o Fagwyr)) a Chefnffordd Llundain i Abergwaun (Man i'r Dwyrain O Fagwyr i Gas-bach) (Ffyrdd Ymyl) 201-
5. Gorchymyn Prynus Gorfodol Gweinidogion Cymru (Traffordd yr M4 (Cyffordd 23 (Man i'r Dwyrain o Fagwyr) i Fan i'r Gorllewin o Gyffordd 29 (Cas-bach) a Ffyrdd Cysylltu) a Thraffordd yr M48 (Ffyrdd Cysylltu Cyffordd 23 (Man i'r Dwyrain o Fagwyr)) a Chefnffordd Llundain i Abergwaun (Man i'r Dwyrain o Fagwyr i Gas-bach)) 201-

Bwriedir cyhoeddi'r Gorchymyn Prynus Gorfodol ar 24 Mawrth 2016. Cyhoeddir y Gorchmynion drafat eraill ar 10 Mawrth 2016.

Cefndir a'r Angen am y Cynllun

Mae'r M4 o amgylch Casnewydd yn llwybr o bwys strategol ar lefel leol, rhanbarthol, cenedlaethol a rhyngwladol, sy'n cysylltu de a gorllewin Cymru â de-orllewin Lloegr ac mae'n rhan o lwybrau strategol i lwerddon, Canolbarth Lloegr, de-ddwyrain Lloegr ac ymhellach i gyfandir Ewrop.

Mae'r M4 yn hollbwysig i economi Cymru. Mae'n rhan o'r Rhwydwaith Trafnidiaeth Traws-Ewropeaidd ac yn borth i Gymru, gan gludo pobl a nwyddau i gartrefi, diwydiant a chyflogaeth. Mae'n rhoi mynediad i borthladdoedd a meysydd awyr ac yn gwasanaethu diwydiant twristiaeth Cymru.

Fodd bynnag, ers blynyddoedd lawer, mae tagfeydd traffig wedi bod yn brofiad cyffredin i'r rhai sy'n defnyddio llwybr presennol yr M4 o amgylch Casnewydd ac sy'n byw yn yr ardal. Mae amseroedd teithio yn aml yn annibynadwy, gan ei gwneud hi'n anodd manteisio ar gyfleoedd swyddi neu ddefnyddio gwasanaethau gan gynnwys addysg. Mae a wnelo'r problemau ar draffordd bresennol yr

3. The M4 motorway (West of Magor to East of Castleton) and the A48(M) Motorway (West of Castleton to St Mellons) (Variation of Various Schemes) Scheme 201-
4. The M4 Motorway Junction 23 (East of Magor) to West of Junction 29 (Castleton) and Connecting Roads) and the M48 motorway Junction 23 (East of Magor) Connecting Road) and the London to Fishguard Trunk Road (East of Magor to Castleton) (Side Roads) Order 201-
5. The Welsh Ministers (The M4 Motorway (Junction 23 (East of Magor) to West of Junction 29 (Castleton) and Connecting Roads) and the M48 motorway (Junction 23 (East of Magor) connecting road) and the London to Fishguard Trunk Road (East of Magor to Castleton) Compulsory Purchase Order 201-

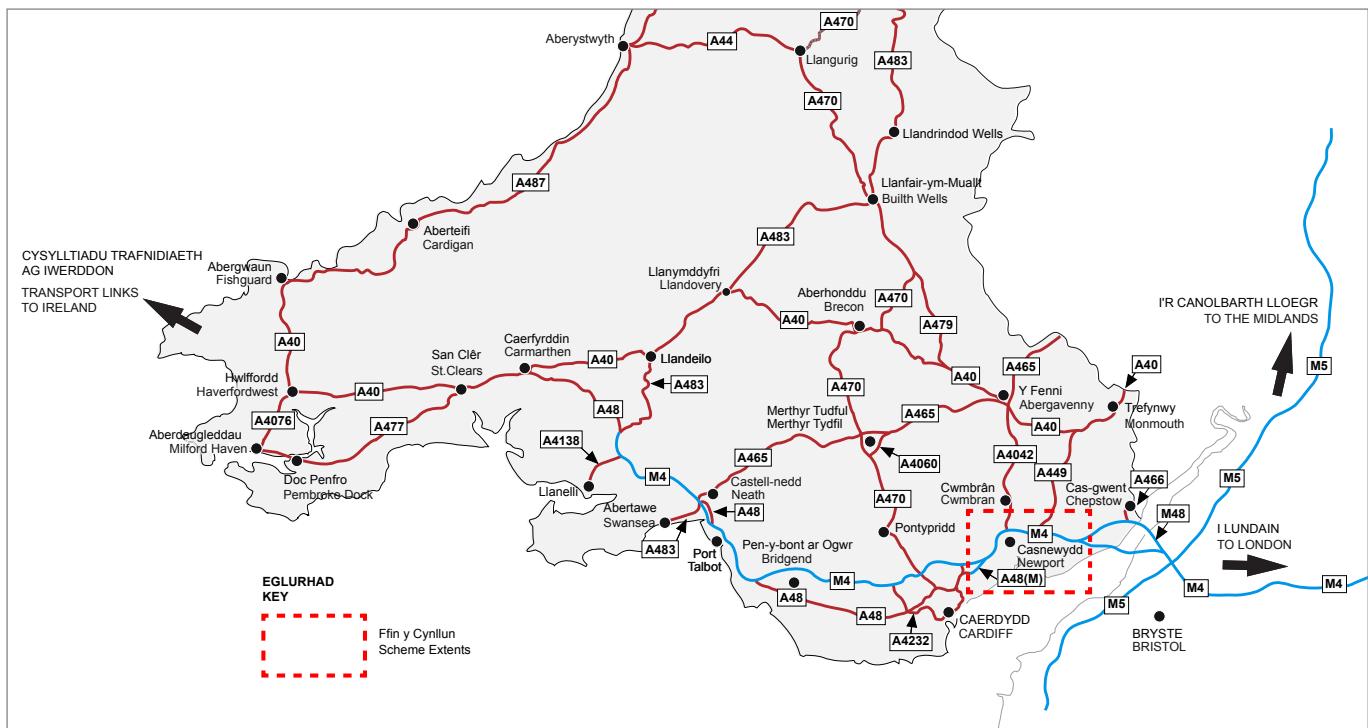
The draft Compulsory Purchase Order is to be published on 24 March 2016. The other draft Orders listed above are published on 10 March 2016.

Background and the Need for the Scheme

The M4 around Newport is a route of strategic importance at, local, regional, national and international levels, linking south and west Wales to the south west of England, and forming part of strategic routes to Ireland, the Midlands, the south east of England and further to continental Europe.

The M4 is critical to the Welsh economy. It forms part of the Trans European Transport Network and is the gateway to Wales, transporting people and goods to homes, industry and employment. It provides access to ports and airports and serves the Welsh tourism industry.

However, for many years, traffic congestion has been a fact of life for those using the existing M4 around Newport and living in the area. Journey times are often unreliable, making it more difficult to access job opportunities or services, including education. Problems on the existing M4 around Newport relate to capacity, resilience, safety and issues



Map yn dangos yr M4 presennol yng Nghymru

M4 o amgylch Casnewydd â chapasiti, y gallu i wrthsefyll, diogelwch a materion datblygu cynaliadwy. Disgwylir i'r problemau hyn waethyg.

Mae'r problemau sy'n ymwneud â thrafnidiaeth o amgylch Casnewydd yn rhwystro buddsoddiad busnes ac mae Llywodraeth Cymru yn anelu at ddarparu system drafnidiaeth sy'n gwella cystadleurwydd Cymru ac yn annog swyddi a thwf.

O ran yr amgylchedd, mae awdurdodau lleol yn y DU yn gweithio tuag at gyflawni amcanion ansawdd aer cenedlaethol. Os bydd awdurdod lleol yn dod o hyd i unrhyw fan lle nad yw'r amcanion yn debygol o gael eu cyflawni, rhaid iddo ddatgan Ardal Rheoli Ansawdd Aer. Mae'r M4 yn dylanwadu ar bedair allan o saith Ardal Rheoli Ansawdd Aer Casnewydd.

Mae'r twf mewn traffig ar hyd traffordd bresennol yr M4 o amgylch Casnewydd hefyd yn gwaethyg llygredd sŵn, gan effeithio ar gymunedau preswyl cyfagos. Mae gan Gasnewydd amrywiaeth o Ardal oedd Blaenoriaeth o ran Cynllunio Camau Gweithredu i Fynd i'r Afael â Sŵn, gan gynnwys ar hyd llwybr presennol yr M4.

Map showing the existing M4 in Wales

of sustainable development. These problems are expected to get worse.

The transport related problems around Newport discourage business investment, and the Welsh Government aims to provide a transport system that improves Wales' economic competitiveness and encourages jobs and growth.

In terms of the environment, local authorities in the UK work towards meeting national air quality objectives. If a local authority finds any places where the objectives are not likely to be met, it must declare an Air Quality Management Area. Newport has four out of seven of its Air Quality Management Areas influenced by the M4.

Traffic growth along the existing M4 around Newport has also contributed to noise pollution, affecting neighbouring residential communities. Newport has various designated Noise Action Planning Priority Areas (NAPPAs), including along the existing M4.

Amodau Presennol

Mae amseroedd teithio annibynadwy a thagfeydd traffig, yn enwedig yn ystod oriau brig, yn digwydd yn aml ar yr M4 o amgylch Casnewydd. Mae hyn oherwydd diffyg capaciti a ffyrdd amgen, yn enwedig yn ystod digwyddiadau a damweiniau. Disgwylir i'r lefel o dagfeydd gynyddu.

Cynlluniwyd yr M4 rhwng Cyffyrdd 28 a 24 yn wreiddiol fel 'Ffordd Osgoi Casnewydd' yn y 1960au.

Nid yw traffordd bresennol yr M4 rhwng Magwyr a Chas-bach yn cyrraedd safonau dylunio traffyrrd modern ac mae mwy o draffig yn ei defnyddio na'r hyn a fwriadwyd yn wreiddiol.

Mae gan rai rhannau o'r draffordd aliniadau (llethrau a throeon) nad ydynt yn cyrraedd y safonau presennol ar gyfer traffyrrd ac mewn manau nid oes llain galed. At hynny, ceir cyffyrdd rheolaidd, sy'n arwain at lawer o symudiadau igam-ogam gyda cherbydau yn cyflymu, yn arafu ac yn newid lôn dros bellter cymharol fyr. Yn olaf, dim ond dwy lôn sydd gan y rhan drwy Dwneli Brynglas ac ar y ffyrdd dynesu atynt, sy'n cyfyngu ar gapasiti, yn enwedig yn ystod oriau brig. Mae'r ffactorau hyn yn codi pryderon yngylch diogelwch y cyhoedd.

Dywed y gymuned fusnes yn Ne Cymru fod tagfeydd ar Iwybr presennol yr M4, yn enwedig o amgylch Casnewydd, yn rhwystro twf economaidd. Lle bo tagfeydd yn cynyddu, mae cost trafenidiaeth i fusnesau, cymudwyr a defnyddwyr yn cynyddu sydd yn ei dro yn cael effaith ar yr economi. Gall mwy o dagfeydd hefyd arwain at amseroedd teithio hirach i'r gwaith. Mae hyn yn lleihau mynediad at gyfleoedd cyflogaeth ac i gyfleoesterau lleol.

Mae traffordd bresennol yr M4 yn rhedeg rhwng Llundain a De Cymru, gan fynd i'r gogledd o ganol Casnewydd a defnyddio Twneli Brynglas yng Nghasnewydd. Lleolir y rhan fwyaf o draffordd bresennol yr M4 rhwng

Existing Conditions

Unreliable journey times and traffic congestion, particularly during peak times, are common occurrences on the M4 around Newport. This is due to the lack of capacity and alternative routes, especially during incidents and accidents. The level of congestion is expected to increase.

The M4 between Junctions 28 and 24 was originally designed as the 'Newport Bypass' in the 1960s.

The existing M4 motorway between Magor and Castleton does not meet modern motorway design standards and a greater volume of traffic uses it than it was originally designed for.

Some sections have alignments (gradients and bends) that are below current motorway standards and in places there is no hard shoulder. In addition to this, there are frequent junctions, resulting in many weaving movements with vehicles accelerating, decelerating and changing lanes over relatively short distances. Finally, the section through and on the approaches to the Brynglas tunnels has only two lanes, which is a capacity constraint, particularly at peak times. These factors give rise to public safety concerns.

Congestion on the existing M4, particularly around Newport, is cited by the business community in South Wales as a barrier to economic growth. Where congestion increases, the cost of transport for businesses, commuters and consumers increases, which in turn affects the economy. Increased congestion can also result in longer journey times to work. This reduces access to employment opportunities and to local facilities.

The existing M4 motorway runs between London and South Wales passing to the north of the centre of Newport and using the Brynglas Tunnels at Newport. The majority of



M4 presennol o amgylch Casnewydd

Existing M4 around Newport

Cyffordd 29 a Chyffordd 23 yn ardal weinyddol Cyngor Dinas Casnewydd ac mae'n croesi ardal weinyddol Cyngor Sir Fynwy i'r gorllewin o Gyffordd 23A, ger Magwyr.

Ceir datblygiadau presennol, gan gynnwys eiddo preswyl, ysgolion, cyfleusterau hamdden, safleoedd diwydiannol a masnachol, yn agos at yr aliniad presennol. Yn ogystal â nifer o eiddo unigol, lleolir sawl anheddiad ger traffordd bresennol yr M4, neu'n agos ati, rhwng Cyffordd 29 a Chyffordd 23.

Mae trigolion Casnewydd sy'n byw'n agos at lwybr presennol yr M4 yn profi ansawdd aer gwael i draffig y draffordd. Mae traffordd bresennol yr M4 yn dylanwadu ar bedair o'r saith Ardal Rheoli Ansawdd Aer sydd wedi cael eu dynodi gan Gyngor Dinas Casnewydd.

Mae traffordd bresennol yr M4 yn croesi nifer o gyrsiau dŵr, gan gynnwys Afon Wysg, Afon Ebwy, Camlas Sir Fynwy a Brycheiniog a nifer o gyrsiau dŵr lleol a ffosydd. Mae Afon Wysg wedi'i dynodi ar y lefel ryngwladol fel Ardal Cadwraeth Arbennig (ACA) ac ar lefel genedlaethol fel Safle o Ddiddordeb Gwyddonol Arbennig (SoDdGA) oherwydd ei gwerth gwarchod natur. Mae traffordd bresennol yr M4 yn croesi dros Afon Wysg, yn union i'r dwyrain o Dwneli Brynglas.

the existing M4 between Junctions 29 and 23 lies within the administrative area of Newport City Council, crossing into the administrative area of Monmouthshire County Council to the west of Junction 23A, near Magor.

Existing development, including residential properties, schools, recreational facilities, industrial and commercial premises, lie in close proximity to the existing alignment. In addition to a number of individual properties, several settlements are located adjacent, or in close proximity to, the existing M4 motorway between Junctions 29 and 23.

Residents of Newport close to the existing M4 experience poor air quality as a result of motorway traffic. Out of seven Air Quality Management Areas designated by Newport City Council, four are influenced by the existing M4.

The existing M4 motorway crosses a number of watercourses, including the River Usk, the River Ebbw, the Monmouthshire and Brecon Canal and a number of local watercourses and ditches. The River Usk is designated at the international level as a Special Area of Conservation (SAC) and at a national level as a Site of Special Scientific Interest (SSSI) for its nature conservation value. The existing M4 motorway crosses over the River Usk, immediately to east of the Brynglas Tunnels.

I'r de o Gasnewydd ceir Gwastadeddau Gwynllwg a Chil-y-coed, y cyfeirir atynt gyda'i gilydd fel Gwastadeddau Gwent. Mae'r ardal hon yn cynnwys corsydd arfordirol wedi'u hadfer gwastad ar dir isel sy'n ymestyn hyd at Aber Afon Hafren. Mae Gwastadeddau Gwent wedi'u dynodi oherwydd eu tirwedd hanesyddol a'u diddordeb ecolegol.

Ar draws Gwastadeddau Gwent ceir rhwydwaith helaeth o ddraeniau dŵr croyw â lociau llanw, a elwir yn "reens" yn lleol, a ffosydd llai o faint. Mae'r rhain yn cynnig cynefinoedd sy'n cynnal anifeiliaid di-asgwrn cefn, gan gynnwys y Gardwenynen Feinlais. Y nodweddion ecolegol hyn yw'r rheswm pam mae Gwastadeddau Gwent wedi'u dynodi'n SoDdGAau. Mae Llywodraeth Cymru, yn unol â'i dyletswyddau o dan ddeddfwriaeth amgylcheddol, wedi gwneud ei gorau i gadw a gwella nodweddion y SoDdGAau yn ystod y broses o ddylunio'r Cynllun.

Nodau ac Amcanion

Nodau Cyffredinol

Cyhoeddodd Llywodraeth Cymru 'Y Cynllun' ar gyfer Coridor yr M4 o amgylch Casnewydd ar 16 Gorffennaf 2014. Mae nodau Llywodraeth Cymru ar gyfer y Cynllun fel y'u hamlinellir yn y Cynllun fel a ganlyn:

- Ei gwneud hi'n haws ac yn fwy diogel i bobl gael mynediad i'w cartrefi, gweithleoedd a gwasanaethau drwy gerdded, seiclo, defnyddio trafnidiaeth gyhoeddus neu ar y ffordd.
- Darparu rhwydwaith trafnidiaeth mwy effeithlon a chynaliadwy sy'n cefnogi ac yn annog ffyniant hirdymor yn y rhanbarth a ledled Cymru, ac yn galluogi mynediad i farchnadoedd rhyngwladol.
- Sicrhau bod y prosiect yn cael effeithiau cadarnhaol ar bobl a'r amgylchedd, gan wneud cyfraniad cadarnhaol tuag at nodau cyffredinol Llywodraeth Cymru i leihau allyriadau nwyon tŷ gwydr a gwneud Cymru yn fwy gwydn i effeithiau newid yn yr hinsawdd.

To the south of Newport lie the Wentlooge and Caldicot Levels, collectively referred to as the Gwent Levels. This is an area of low-lying, flat reclaimed coastal marshes that extend up to the Severn Estuary. The Gwent Levels are designated both for their historic landscape and ecological interest.

The Gwent Levels are dissected by an extensive network of tide-locked freshwater drains, locally known as reens, and smaller ditches. These provide habitats which support invertebrates, including the Shrill carder bee. It is for these ecological features that the Gwent Levels are designated as SSSIs. The Welsh Government, in accordance with its duties under environmental legislation, has used reasonable endeavours to conserve and enhance the features of the SSSIs during the design of the Scheme.

Aims and Objectives

Overall Aims

The Welsh Government published 'The Plan' for the M4 Corridor around Newport on 16th July 2014. The Welsh Government's aims for the Scheme as outlined in The Plan are as follows:

- To make it easier and safer for people to access their homes, workplaces and services by walking, cycling, public transport or road.
- To deliver a more efficient and sustainable transport network supporting and encouraging long-term prosperity in the region, across Wales, and enabling access to international markets.
- To produce positive effects overall on people and the environment, making a positive contribution to the over-arching Welsh Government goals to reduce greenhouse gas emissions and to making Wales more resilient to the effects of climate change.

Amcanion sy'n Benodol i'r Cynllun

Mae nodau penodol y Cynllun a nodwyd gan Lywodraeth Cymru wrth fabwysiadu'r Cynllun fel a ganlyn.

- Teithio mwy diogel, haws a mwy dibynadwy o'r dwyrain i'r gorllewin yn Ne Cymru.
- Gwell cysylltiadau trafnidiaeth o fewn Cymru ac i Loegr, Gweriniaeth Iwerddon a gweddill Ewrop ar gyfer pob dull teithio ar y rhwydwaith trafnidiaeth rhyngwladol.
- Defnydd mwy effeithiol ac integredig o ddewisiadau amgen i'r M4, gan gynnwys rhannau eraill o'r rhwydwaith trafnidiaeth a dulliau eraill o drafnidiaeth ar gyfer teithiau lleol a strategol o amgylch Casnewydd.
- Defnydd gorau posibl o lwybr presennol yr M4, y rhwydwaith ffyrdd lleol a rhwydweithiau trafnidiaeth eraill.
- Amseroedd teithio mwy dibynadwy ar hyd Coridor yr M4.
- Mwy o ddewis i bawb sy'n teithio ar hyd y Coridor trafnidiaeth waeth beth fo'r dull teithio rhwng Magwyr a Chas-bach, yn gymesur â'r galw am ddewisiadau amgen.
- Gwell diogelwch ar Goridor yr M4 rhwng Magwyr a Chas-bach.
- Gwell ansawdd aer mewn ardaloedd wrth ymyl yr M4 o amgylch Casnewydd.
- Llai o darfu ar bobl gan lefelau uchel o sŵn, a achosir gan bob math o ddull trafnidiaeth a thraffig ar hyd Coridor yr M4.
- Llai o allyriadau nwyon tŷ gwydr fesul cilometr (km) cerbyd a/neu unigolyn.
- Gwell profiad teithio i mewn i Dde Cymru ar hyd Coridor yr M4.
- M4 sy'n ddeniadol ar gyfer teithiau strategol sy'n annog llai o ddefnydd gan draffig lleol.
- Gwell rheolaeth traffig yng Nghasnewydd ac o'i hamgylch ar hyd Coridor yr M4.
- Mynediad haws i wasanaethau allweddol lleol a chanolfannau preswyl a masnachol.
- Newid diwylliannol o ran dulliau teithio tuag at ddewisiadau mwy cynaliadwy.

Ni roddir unrhyw bwysoliad i unrhyw un o'r amcanion hyn sy'n benodol i'r Cynllun.

Scheme Specific Objectives

The Scheme specific objectives identified by the Welsh Government in adopting the Plan are as follows:

- Safer, easier and more reliable travel east-west in South Wales.
- Improved transport connections within Wales and to England, the Republic of Ireland and the rest of Europe on all modes on the international transport network.
- More effective and integrated use of alternatives to the M4, including other parts of the transport network and other modes of transport for local and strategic journeys around Newport.
- Best possible use of the existing M4, local road network and other transport networks.
- More reliable journey times along the M4 Corridor.
- Increased level of choice for all people making journeys within the transport Corridor by all modes between Magor and Castleton, commensurate with demand for alternatives.
- Improved safety on the M4 Corridor between Magor and Castleton.
- Improved air quality in areas next to the M4 around Newport.
- Reduced disturbance to people from high noise levels, from all transport modes and traffic within the M4 Corridor.
- Reduced greenhouse gas emissions per vehicle and/or person kilometre (km).
- Improved travel experience into South Wales along the M4 Corridor.
- An M4 attractive for strategic journeys that discourages local traffic use.
- Improved traffic management in and around Newport on the M4 Corridor.
- Easier access to local key services and residential and commercial centres.
- A cultural shift in travel behaviour towards more sustainable choices.
- No weighting is given to any one of these Scheme specific objectives.

Y Rhan Newydd Arfaethedig o'r Draffordd

Byddai'r rhan newydd arfaethedig o'r draffordd (gweler Ffigur 1) yn rhedeg i'r de o Gasnewydd rhwng Cyffordd 29 yng Nghasbach a Chyffordd 23A ym Magwyr, sydd tua 23 km o bellter. Byddai'r rhan newydd o'r draffordd yn gadael llwybr presennol yr M4 yng Nghyffordd 29 ac yn rhedeg i'r de o'r Dyffryn ar arglawdd isel ar draws Gwastadeddau Gwynllwg, cyn croesi Afon Ebwy, Dociau Casnewydd, Afon Wysg a rhagor o ardaloedd diwydiannol ar y lan ddwyreiniol. Ymhellach i'r dwyrain, byddai'r rhan newydd o'r draffordd yn parhau ar draws rhan ogleddol Gwastadeddau Cil-y-coed ar arglawdd isel gan redeg yn gyfochrog â'r A4810 cyn ymuno â llwybr presennol yr M4 i'r dwyrain o Ardal Gwasanaethau'r Draffordd wrth Gyffordd 23A.

Yn ogystal â'r cyffyrdd yng Nghasbach a Magwyr, cai dwy gyffordd newydd eu darparu ar hyd llwybr y rhan newydd o'r draffordd (yn Nociau Casnewydd ac yng Nglan Llyn). Cai hydoedd newydd neu hydoedd wedi'u gwyro o briffordd, hawliau tramwy cyhoeddus a mynedfeydd preifat eu darparu i ddisodli'r rhai yr effeithir arnynt gan y Cynllun.

Proposed New Section of Motorway

The proposed new section of motorway (see Figure 1) would run south of Newport between Junction 29 at Castleton and Junction 23A at Magor, a distance of approximately 23 km. The new section of motorway would leave the existing M4 motorway at Junction 29 and pass to the south of Duffryn on a low embankment across the Wentlooge Levels, before crossing over the River Ebbw, Newport Docks, the River Usk and further industrial areas on the east bank. Further east, the new section of motorway would continue across the northern part of the Caldicot Levels on a low embankment running parallel with the A4810 before joining the existing M4 immediately to the east of the Motorway Service Area at Junction 23A.

In addition to the junctions at Castleton and Magor, two new junctions would be provided along the route of the new section of motorway (at Newport Docks and at Glan Llyn). New or diverted lengths of highway, public rights of way and private means of access would be provided to replace those affected by the Scheme.



Gwastadeddau Gwent a Gweithfeydd Dur Llanwern

Gwent Levels and the Llanwern Steelworks

Câi'r gyffordd bresennol yng Nghas-bach ar draffordd yr M4 (C29) ei haddasu i ymgorffori'r rhan newydd o'r draffordd. Cynlluniwyd y gyffordd i ddarparu cyfnewidfa llwybr llyfn, sy'n rhoi blaenoriaeth i draffordd yr M4 (gan gynnwys y rhan newydd o'r draffordd) gyda thair lôn i bob cyfeiriad. Byddai trefn y ffyrdd yn darparu mynediad i'r A48(M) ac o'r A48(M) a llwybr presennol traffordd yr M4 i'r dwyrain. Byddai angen i'r gyffordd wedi'i haddasu ddefnyddio tir i'r gogledd o lwybr presennol yr M4. Câi'r gyntaf o 15 o ardaloedd trin dŵr ei darparu ar ochr ddeheuol yr A48.

Mae ardaloedd trin dŵr, sy'n cynnwys lagŵn arafu a chorsle, yn rhan annatod o'r system draenio priffyrrd y bwriedir iddi dderbyn, storio ac arafu dŵr ffo o briffyrrd cyn iddo gael ei ollwng i gwrs dŵr lleol (ffosydd draenio). Mae mesurau rheoli llygredd wedi'u lleoli o fewn y system draenio priffyrrd. Mae meintiau'r ardaloedd trin dŵr wedi'u cynllunio i sicrhau bod dŵr sy'n llifo i'r system ffosydd draenio o ansawdd derbyniol.

O gyffordd Cas-bach, sydd wedi'i haddasu, byddai'r rhan newydd o'r draffordd yn troi i'r de-ddwyrain i ddechrau ar arglawdd uchel, wedyn tua'r dwyrain ar draws Gwastadeddau Gwynllwg ar arglawdd isel i Afon Ebwy. Câi pontydd cerbydau eu darparu i gario Church Lane, Lighthouse Road a ffordd ymyl ger New Dairy Farm dros y rhan newydd arfaethedig o'r draffordd. Byddai'r rhan newydd o'r draffordd yn mynd dros y brif linell reilffordd rhwng De Cymru a Llundain.

Câi Green Lane ei chau a châi pont newydd ar gyfer defnyddwyr heblaw modurwyr ei darparu ar gyfer Lôn Percoed. Câi Llwybr Arfordir Cymru ei ddargyfeirio i groesi trosbont New Dairy Farm. Câi tair ardal trin dŵr eu darparu rhwng Cas-bach ac Afon Ebwy.

The existing Castleton junction on the M4 (J29) would be modified to incorporate the new section of motorway. The junction has been designed to provide a free flowing interchange, giving priority to the M4 motorway (including the new section of motorway) with three lanes in both directions. The layout would also provide access to and from the A48(M) and the existing M4 motorway to the east. The modified junction would require land take to the north of the existing M4. The first of fifteen water treatment areas would be provided on the south side of the A48.

Water treatment areas, comprising an attenuation lagoon and a reed bed, are an integral part of the highway drainage system designed to receive, store and attenuate highway runoff before it is discharged to a local watercourse (reen). Pollution control measures are located within the highway drainage system. The sizes of the water treatment areas are designed to ensure water flowing into the reen system is of an acceptable quality.

From the modified Castleton junction, the new section of motorway would curve to the south east initially on a high embankment, then eastwards across the Wentlooge Levels on a low embankment to the River Ebwy. Vehicular bridges would be provided to carry Church Lane, Lighthouse Road and a side road near New Dairy Farm over the proposed new section of motorway. The new section of motorway would pass over the main South Wales to London railway line.

Green Lane would be stopped up and a new bridge for non-motorised users provided for Percoed Lane. The Wales Coast Path would be diverted via the New Dairy Farm overbridge. Three water treatment areas would be provided between Castleton and the River Ebwy.

Byddai'r rhan newydd o'r draffordd yn croesi Afon Ebw ac yn rhedeg i'r de o safle tirlenwi Ffordd y Dociau, cyn croesi Dociau Casnewydd. Câi cyffordd newydd a fyddai'n darparu mynediad i bob cyfeiriad ei darparu ar ochr orllewinol y dociau er mwyn darparu mynediad i ffordd gyswilt i Ffordd Ddosbarthu Ddeheuol yr A48 a chanol Casnewydd.

Byddai'r rhan newydd o'r draffordd yn croesi Dociau Casnewydd ar draphont sy'n ffurfi'o'r ffordd ddynesu orllewinol i Groesfan Afon Wysg. Byddai cliriad yn galluogi llongau i fynd o dan y groesfan, gyda chliriad o 25.5m o leiaf uchlaw lefel dŵr y dociau. Ynghyd â'r draphont ddynesu ddwyreiniol a'r bont ei hun, byddai'r strwythur uchel yn 2.1 km o hyd.

Byddai Pont Afon Wysg ei hun yn bont ceblau (a fyddai'n debyg o ran ei chynllun i Ail Groesfan Hafren) â rhychwant o 440 metr rhwng ei dau dŵr. Byddai pob tŵr yn 146 metr o uchder. Dros Afon Wysg, darperid cliriad o 32m o leiaf uwchlaw Lefel Cymedr Penllanw Gorllanw.

Byddai'r system ddraenio ar Groesfan Afon Wysg yn cynnwys draeniau cyrb i bibell a fyddai'n rhedeg ar hyd y llain ganol. Ar ochr orllewinol Afon Wysg, byddai draeniau yn gollwng i Afon Ebw drwy hidl olew. Ar yr ochr ddwyreiniol, byddai draeniau yn gollwng i Afon Wysg drwy lagŵn storio a ffos mewn cae.

Byddai'r draphont ddynesu ddwyreiniol yn croesi ardaloedd diwydiannol Corporation Road a Stephenson Street. I'r dwyrain o Linell Reilffordd Aber-wysg, byddai'r aliniad yn croesi Gwastadeddau Cil-y-coed ar arglawdd isel tuag at yr hen waith dur. Câi cyffordd aml-lefel newydd ei darparu yng Nglan Llyn, a fyddai'n darparu ffordd gyswilt i'r A4810 a dwyrain Casnewydd. Wedyn byddai'r rhan newydd o'r draffordd yn parhau i'r gogledd o Is-orsaf Whitson ar draws rhan o ardal lagŵn Tata y tu allan i SoDdGA Gwastadeddau Gwent cyn croesi'r SoDdGAau unwaith eto a rhedeg bron yn gyfochrog â'r A4810 i'w chysylltiad â thraffordd bresennol yr M4, ychydig i'r dwyrain o Ardal Gwasanaethau'r Draffordd ym Magwyr.

The new section of motorway would cross the River Ebbw and pass to the south of the Docks Way Landfill site, before crossing Newport Docks. A new junction providing access in all directions would be provided on the west side of the docks to access a link road to the A48 Southern Distributor Road and the centre of Newport.

The new section of motorway would cross Newport Docks on a viaduct that forms the western approach to the River Usk Crossing. Clearance would allow for the passage of ships, with a minimum clearance of 25.5 metres above the docks water level. Together with the eastern approach viaduct and the bridge itself, the elevated structure would be 2.1 km long.

The River Usk Bridge itself would be a cable stayed bridge, similar in design to the Second Severn Crossing) with a span between its two towers of 440 metres. Each tower would be 146 metres high. Over the River Usk, a minimum clearance of 32 metres would be provided above the Mean High Water Springs tide level.

The drainage on the River Usk Crossing would consist of kerb drainage to a pipe that would run along the central reservation. On the west side of the River Usk, drainage would discharge into the River Ebbw via an oil separator. On the east side, drainage would discharge to the River Usk via a storage lagoon and a field ditch.

The eastern approach viaduct would cross the industrial areas of Corporation Road and Stephenson Street. To the east of the Uskmouth Railway Line, the alignment would cross the Caldicot Levels on a low embankment towards the former steelworks. A new grade separated junction would be provided at Glan Llyn, which would provide a link road to the A4810 and east Newport. The new section of motorway would then continue north of the Whitson Substation across part of the Tata lagoon area outside of the Gwent Levels SSSIs before crossing the SSSIs again and running almost parallel with the A4810 to its connection with the existing M4, just east of the Magor Motorway Service Area.



Darlun o Groesfan arfaethedig yr Afyn Wysg

Câi trosbontydd newydd eu darparu ar gyfer Nash Road/Meadows Road yn Pye Corner, North Row a Newport Road ym Magwyr. Byddai'r rhan newydd o'r draffordd yn mynd dros Bareland Street a'r brif linell reilffordd rhwng De Cymru a Llundain yn Llandefenni. Câi rhannau diangen o'r ffordd bresennol eu cau.

Câi pum ardal trin dŵr fel rhan o system ddraenio'r draffordd eu darparu ar Wastadeddau Cil-y-coed.

Ym Magwyr, byddai'r rhan newydd o'r draffordd yn ymuno â lôn gerbydau bresennol yr M4. Er mwyn galluogi cerbydau i gyrraedd traffordd bresennol yr M4 i'r gogledd o Gasnewydd, câi darn o ffordd ddeuol ei adeiladu ochr yn ochr â thraffordd bresennol yr M4 ac i'r gogledd ohoni. Câi'r pontydd presennol sy'n cario Ffordd Llansanffraid Gwynllwg, Knolbury Lane a Rockfield Lane eu hymestyn fel y gellid cynnal y llwybrau hynny.

Câi cyffordd newydd ei darparu i'r gogledd-ddwyrain o Fagwyr rhwng Gwndy a Llanfihangel, ger Rogiet. Byddai hyn yn darparu mynediad i draffordd bresennol yr M4 ac o draffordd bresennol yr M4 i'r rhan newydd o'r draffordd, yr M48, y ffordd ddeuol newydd a'r B4245. Câi llwybr Bencroft Lane ei gynnal.

Illustration of the proposed River Usk crossing

New overbridges would be provided for Nash Road/Meadows Road at Pye Corner, North Row and Newport Road, Magor. The new section of motorway would pass over Bareland Street and the South Wales to London Mainline railway at Llandevenny. Redundant sections of existing road would be stopped up.

Five water treatment areas as part of the motorway drainage would be provided on the Caldicot Levels.

At Magor, the new section of motorway would join the existing M4 carriageway. To enable access to the existing M4 north of Newport, a section of dual carriageway would be constructed parallel to and to the north of the existing M4. Existing bridges conveying St. Brides Road, Knolbury Lane and Rockfield Lane would be extended to enable those routes to be maintained.

A new junction would be provided to the north east of Magor between Undy and Llanfihangel, near Rogiet. This would provide access to and from the existing M4 to the new section of motorway, the M48, the new dual carriageway and the B4245. The route of Bencroft Lane would be maintained.



Darlun o Groesfan arfaethedig yr Afon Wysg

Câi depo cynnal a chadw traffydd newydd ei adeiladu ger Cyffordd newydd Glan Llyn. Byddai'n cynnwys garej, ysgubor halen, swyddfeydd a lleiniau caled ar gyfer parcio cerbydau cynnal a chadw a lleoedd parcio i staff swyddfa ac ymwelwyr. Byddai'r depo newydd yn disodli'r depo cynnal a chadw presennol yn Chwilgrug, a gâi ei ddymchwel.

Gwaith dymchwel

Byddai angen dymchwel 12 eiddo preswyll fel rhan o'r Cynllun, gan gynnwys un adeilad rheftredig ym Magwyr. At hynny, cãi sawl adeilad masnachol (gan gynnwys adeiladau yn Nociau Casnewydd ac ar safle Gwaith Dur Tata) eu dymchwel, ynghyd â nifer o o strwythurau traffordd sy'n bodoli eisoes.

Llwybrau Mynediad

Câi ffyrdd lleol presennol sy'n croesi'r rhan newydd o'r draffordd eu haddasu er mwyn parhau i ddarparu mynediad. Byddai angen addasu nifer o hawliau tramwy cyhoeddus a llwybrau seiclo a châi nifer o llwybrau troed a llwybrau ceffylau newydd a llwybr seiclo newydd eu creu.

Illustration of the Proposed River Usk crossing

A new motorway maintenance depot would be constructed close to the new Glan Llyn Junction. This would include a garage, salt barn, offices and hardstanding areas for the parking of maintenance vehicles and car parking for office staff operatives and visitors. The new depot would replace the existing maintenance depot at Wilcrick, which would be demolished.

Demolition

Twelve residential properties would need to be demolished as part of the Scheme, including one listed building at Magor. In addition, a number of commercial buildings (including buildings at Newport Docks and on the Tata Steelworks site) would be demolished, together with a number of existing highway structures.

Access Routes

Existing local roads that cross the new section of motorway would be modified to maintain access. A number of public rights of way and cycle routes would require modification and a number of new footpaths, bridleways and a new cycle route would be created.

Ffosydd draenio

Câi ffosydd draenio mawr ar hyd llinell y rhan newydd o'r draffordd eu sianeli ar hyd cwlferti o dan y ffordd newydd. Fodd bynnag, byddai angen llenwi tua 2,570 metr o ffosydd draenio a 9,140 metr o ffosydd. Yn lle'r colledion hyn cãi ffosydd draenio a ffosydd newydd eu darparu ar gymhareb ychydig yn fwy nag 1:1, mewn ffordd y bwriedid iddi gynnal cysylltedd hydrolegol y system ffosydd draenio a ffosydd gyffredinol ledled Gwastadeddau Gwent.

Mesurau Ategol

Yn ogystal â'r rhan newydd o'r draffordd, byddai'r Cynllun yn ymgorffori nifer o Fesurau Ategol, gan gynnwys y canlynol:

- Ailddosbarthu traffordd bresennol yr M4 rhwng Cyffyrdd 23 a 29.
- Darparu sealwaith cerdded a seiclo cyfeillgar.
- Cysylltiad rhwng yr M48, M4 a'r B4245 yng Ngwndy/Roiget.

Byddai ailddosbarthu llwybr presennol yr M4 yn gefnffordd, neu'n ffordd 'A', yn ei gwneud yn bosibl i newidiadau gael eu gwneud er mwyn rheoli traffig, sicrhau diogelwch a rhoi trefniadau mynediad diwygiedig ar waith.

Byddai'r ffordd rhwng Cyffyrdd 24 (Coldra) a 23 (Magwyr) bellach yn ffordd ddeuol â dwy lôn.

Byddai'r broses ailddosbarthu yn cynnwys gwaith i ailagor ffyrdd ymuno ac ymadael Cyffordd 25 (Caerllion) tua'r gorllewin, gan wella mynediad i ardaloedd Caerllion a Sain Silian. Byddai hyn yn gwella hygyrchedd i Gaerllion a Sain Silian ar hyd ochr ogledol Casnewydd.

Byddai'r Terfyn Cyflymder Newidiol presennol yn parhau'n weithredol ar hyd llwybr yr M4 a ailddosbarthwyd rhwng Cyffordd 24 (Coldra) a Chyffordd 28 (Tredegar), ond gyda therfyn cyflymder uchaf o 60 milltir yr awr ger Twneli Brynlas.

Reens

Major reens across the line of the new section of motorway would be conveyed in culverts under the new road. However, approximately 2,570 metres of reen and 9,140 metres of ditch would need to be filled in. Those losses would be replaced at a ratio slightly greater than 1:1, in a way designed to maintain the hydrological connectivity of the overall reen and ditch system across the Gwent Levels.

Complementary Measures

In addition to the new section of motorway, the Scheme would incorporate a number of Complementary Measures, including the following:

- Reclassifying the existing M4 between Junctions 23 and 29.
- Provision of walking- and cycling-friendly infrastructure.
- Connection between M48, M4 and B4245 at Undy/Roiget.

Reclassification of the existing M4 as a trunk road, or 'A' road, would allow changes to be made to enable traffic management, safety and revised access arrangements. The road between Junction 23 (Magor) and Junction 26 (Malpas) would become a two lane dual carriageway.

Reclassification would include works to re-open the west facing slip roads of Junction 25 (Caerleon), improving access to Caerleon and St. Julian's areas. This would improve accessibility to Caerleon and St Julian's along the northern fringe of Newport.

The existing Variable Speed Limit would continue to operate along the reclassified M4 between Junction 24 (Coldra) and Junction 28 (Tredegar) but with a maximum speed limit of 60 miles per hour imposed at the Brynglas Tunnels.

Adeiladu'r Cynllun

Os bydd Gweinidogion Cymru yn penderfynu cadarnhau'r Gorchmynion, y bwriad fyddai dechrau ar y gwaith adeiladu yn ystod gwanwyn 2018 a byddai'r rhan newydd o'r draffordd yn agor yn ystod hydref 2021. Câ'i'r gwaith ailldosbarthu ar draffordd bresennol yr M4 ei gwblhau yn ystod hydref 2022. Fodd bynnag, gall dyddiadau wedi'u rhaglennu a chyfnodau adeiladu newid gan ddibynnu ar ffactorau megis y gweithdrefnau statudol, y dyddiad dechrau gwirioneddol, y tywydd ac amodau peirianyddol annisgwyl a geir ar y safle.

Ar ôl y cam adeiladu, byddai cyfnod o bum mlynedd o ôl-ofal tirlunio, fel rhan o fesurau lliniaru'r Cynllun.

Yr oriau gwaith arferol fyddai rhwng 07.00 a 19.00 o'r gloch (o ddydd Llun i ddydd Gwener), a rhwng 07.00 a 17.00 o'r gloch ar ddydd Sadwrn. O dan amgylchiadau penodol, efallai y bydd yn rhaid gwneud gwaith penodol y tu allan i oriau gwaith arferol. Byddai angen gweithio gyda'r nos mewn rhai achosion hefyd. Byddai angen cau'r briffordd ar y penwythnos weithiau pan fyddai angen gweithio 24 awr y dydd ar gyfer rhai gweithrediadau hanfodol a chymhleth. Byddai angen nifer o wyriadau ffordd yn ystod y rhaglen adeiladu. Byddai'r gwyrriadau hyn yn amrywio o ychydig oriau pan fyddai angen cau'r draffordd yn gyfan gwbl i sawl mis pan fyddai angen cau ffordd ymyl yn strategol.

Camau

Byddai dilyniant cyffredinol y gwaith yn ystod cam adeiladu'r rhan newydd o'r draffordd yn dibynnu ar y lleoliad ac anghenion peirianyddol. Fodd bynnag, fel arfer byddai gweithgareddau cyffredinol yn cynnwys y canlynol:

- gwaith galluogi, gan gynnwys mesurau lliniaru ecolegol cyn adeiladu, gwaith ymchwilio archeolegol cyn adeiladu, darparu pwytiau mynediad, ffensys dros dro a ffensys i ddiogelu safleoedd sensitif;

Scheme Construction

If the Welsh Ministers decide to confirm the Orders, it would be intended to start construction in spring 2018 and the new section of motorway would open in autumn 2021. The reclassification works to the existing M4 would be complete in autumn 2022. However, programmed dates and construction periods may be subject to change depending on factors such as the statutory procedures, actual start date, weather conditions and unforeseen engineering conditions experienced on site.

Following on from the construction phase, there would be a five-year landscape aftercare period, as part of the environmental mitigation of the Scheme.

The normal working hours would be 07.00 to 19.00 hours (Monday to Friday), and 07.00 to 17.00 hours on Saturdays. In certain circumstances, specific works may have to be undertaken outside the normal working hours. Night working would also be required in some cases. On a few occasions, weekend closures of the highway would be required where 24 hour working is needed for some essential and complex operations. A number of road diversions would be required during the construction programme. These diversions would vary in duration from a few hours for a total motorway closure to a number of months for a strategic side road closure.

Phasing

The general sequence of works during construction of the new section of motorway would depend on the location and engineering needs. However, the general activities would typically include:

- enabling works, including pre-construction ecological mitigation, pre-construction archaeological investigation, provision of access points, temporary fencing and fencing to protect sensitive sites;



Darlun o'r cynllun arfaethedig yn Nyffryn

- adfer tir neu ddŵr daear halogedig lle y bo angen;
- clirio safleoedd a gwaith rheoli dŵr;
- gwaith dymchwel;
- gwyriadau priffordd a mesurau rheoli traffig dros dro;
- dargyfeirio/diogelu cyfleustodau;
- cloddio;
- adeiladu strwythurau, palmentydd, gwaith ffordd a gosod arwyneb;
- dodrefn stryd, gan gynnwys colofnau goleuadau, arwyddion ffyrdd a rhwystrau diogelwch;
- gwaith er hwylustod (er enghraift, darparu pwyntiau mynediad newydd i gaeau lle yr effeithir ar fynedfeydd a ffensys presennol);
- gwaith tirlunio.

Illustration of the proposed scheme at Duffryn

- remediation of contaminated land or groundwater where required;
- site clearance and water management works;
- demolition works;
- temporary highway diversions and traffic management;
- diversion/protection of utilities;
- earthworks;
- construction of structures, pavement, road works and surfacing;
- street furniture, including lighting columns, road signs and safety barrier;
- accommodation works (for example, provision of new field access points where the existing entrances and fencing are affected); and
- landscaping.

Gofynion Tir Dros Dro

Fel gyda'r rhan fwyaf o brosiectau seilwaith mawr, byddai angen tir dros dro yn ystod y cam adeiladu er mwyn hwyluso'r gwaith. Byddai angen tir dros dro ar gyfer y canlynol.

- Compowndiau safle ar gyfer swyddfeydd a chyfleusterau lles ac i storio tanwydd a darparu lleoedd parcio ar gyfer gweithwyr adeiladu.
- Mannau storio ar gyfer uwchbridd, pentyrrau o isbridd a deunydd arall a gloddiwyd.
- Pyllau benthyg i ddarparu deunydd llenwi cyffredinol ar gyfer adeiladu argloddiau priffyrd.
- Ffyrrd cludo ar gyfer cerbydau adeiladu (lle nad yw'r rhain wedi'u lleoli o fewn y tir a gymerir yn barhaol ar gyfer y rhan newydd o'r draffordd).

Darperir tri math o gompowndiau wrth adeiladu'n rhan newydd o'r draffordd, sef:

- prif gompownd;
- swyddfeydd adrannau;
- is-gompowndiau.

At hynny, byddai angen strwythurau dros dro megis pontydd a chroesfannau ffosydd draenio er mwyn hwyluso'r gwaith adeiladu.

Câ'i'r prif gompownd ei sefydlu i'r de o Imperial Park ger yr A48 yng Nghoedcernyw. Byddai gan y prif gompownd le i tua 100 o staff a byddai'n darparu lleoedd parcio, cyfleusterau swyddfa a lles, cyfleusterau i storio peiriannau dros nos, storfeydd offer bach a deunyddiau ac ardaloedd rheoli traffig.

Rheoli Traffig

Amcan allweddol strategaeth rheoli traffig adeiladu fyddai osgoi defnyddio traffordd bresennol yr M4 a'r rhwydwaith ffurdd lleol lle y bo'n bosibl. Byddai achosion lle nad ellid osgoi hyn, er enghraift ar ddechrau'r rhaglen adeiladu ar gyfer cludo deunyddiau a pheiriannau nes i bwyntiau mynediad adeiladu gael eu sefydlu; yn ystod gwaith cysylltu â'r priffyrd presennol ac wrth ailfodelu cyffyrd yng Nghas-bach a Magwyr; ac yn ystod gweithrediadau gosod palmentydd.

Temporary Land Requirements

As with most major infrastructure projects, temporary land would be required during the construction phase to facilitate the works. Temporary land would be required for the following:

- Site compounds to house offices, welfare facilities, fuel and provide parking for construction workers.
- Storage areas for topsoil, subsoil stockpiles and other excavated material.
- Borrow pits to provide general fill material used for constructing highways embankments.
- Haul roads for construction vehicles (where these are not located within the permanent land take for the new section of motorway).

Three types of compounds would be provided during the construction of the new section of motorway:

- main compound;
- section offices; and
- satellite compounds.

In addition, temporary structures such as bridges and reen crossings would be required to facilitate the construction works.

The main compound would be established to the south of Imperial Park close to the A48 at Coedkernew. The main compound would accommodate approximately 100 staff and would provide car parking, office and welfare facilities, overnight plant storage, small tool and material stores and areas for traffic management.

Traffic Management

The key objective of a construction traffic management strategy would be to avoid the use of the existing M4 and local road network where possible. There would be instances where this is unavoidable, for example early in the construction programme for the transport of materials and plant until construction access points have been established; during tie-in works with the existing highways and junction remodelling at Castleton and Magor; and during pavement laying operations.

Mae sefydlu ffyrrd cludo yn gynnar yn hanfodol i gyflawni'r gwaith cloddio wedi'i raglennu am eu bod yn darparu llwybr uniongyrchol rhwng pob rhan o'r gwaith ar hyd y llwybr. Yn ogystal â'r ffordd cludo ar gyfer gwaith cloddio ar hyd llwybr y rhan newydd o'r draffordd, byddai ffordd cludo benodol ar gyfer gwaith cloddio i gysylltu'r gwaith â Chwarel Ifton. Câi'r ffordd hon ei defnyddio i gludo cerrig o'r chwarel.

Byddai rhai cyflenwadau wedi'u dosbarthu'n llwythi anormal. Mae'r rhain yn debygol o fod yn gysylltiedig â pheiriannau symud pridd mawr, craeniau ac elfennau dur a choncrid rhag-gastiedig trawstiau'r ponydd. Byddai angen mannau dal dros dro i reoli'r broses o ddanfon llwythi anormal i'r mannau gwaith.

Cynllun Rheoli Amgylcheddol Cyn Adeiladu

Mae Cynllun Rheoli Amgylcheddol Cyn Adeiladu wedi'i ddatblygu yn ystod proses yr AEA. Mae'n nodi'r ffordd y caiff y gwahanol weithgareddau adeiladu eu rheoli i gydymffurfio â'r ddeddfwriaeth amgylcheddol berthnasol ac arfer gorau er mwyn lleihau'r effeithiau ar drigolion lleol. Mae'n cynnwys mesurau i ddiogelu'r amgylchedd dŵr ac adnoddau presennol, megis hawliau tramwy, a lleihau effeithiau sŵn, effeithiau ar ansawdd aer ac effeithiau ecolegol.

The early establishment of haul roads is essential to delivering the programmed earthworks as they provide a direct route between each section of work along the route. In addition to the earthworks haul road along the route of the new section of motorway, there would also be a dedicated earthworks haul road to connect the works to Ifton Quarry. This would be used to haul rock from the quarry.

Some deliveries would be categorised as abnormal loads. These are likely to be associated with major earth moving plant, cranes and the steel and pre-cast concrete bridge beam elements. Temporary holding areas would be required to control the deliveries of abnormal loads to the works areas.

Pre-Construction Environmental Management Plan

A Pre-Construction Environmental Management Plan has been developed during the EIA process. This sets out the means by which the various construction activities would be managed to comply with the relevant environmental legislation and best practice to minimise effects on local residents. It includes measures to protect the water environment and existing resources, such as rights of way, and to reduce noise, air quality and ecological impacts.

Mae'r problemau o ran trafnidiaeth ar yr M4 o amgylch Casnewydd yn sefydledig ac mae mesurau arfaethedig i fynd i'r afael â'r problemau wedi cael eu datblygu a'u haddasu dros gyfnod o fwy na 25 mlynedd. Mae'r Datganiad Amgylcheddol yn esbonio'n fanwl sut yr ystyriwyd dewisiadau amgen. Mae hefyd yn nodi'r prif resymau dros ddewis elfennau allweddol y Cynllun, gan gynnwys y canlynol.

- Dewis opsiwn traffordd (yn hytrach nag atebion nad oeddent yn cynnwys adeiladu traffordd).
- Dewis corridor y llwybr yn fras i'r de o Gasnewydd (yn hytrach nag opsiynau amgen ar gyfer llwybrau).
- Dewis yr opsiynau dylunio a gynhwyswyd yn y Gorchmynion Statudol drafft (yn hytrach nag atebion dylunio amgen mewn lleoliadau ar hyd y llwybr).

Wrth ddatblygu'r Cynllun ystyriwyd senario 'Gwneud Cyn Lleied â Phosibl', sy'n golygu peidio â gwneud mwy na'r hyn a gynlluniwyd neu yr ymrwymwyd iddo eisoes. Cadarnhaodd yr ystyriaeth a roddwyd i opsiwn 'Gwneud Cyn Lleied â Phosibl' fod mawr angen gwneud rhywbeth i fynd i'r afael â'r problemau a nodwyd sy'n ymwneud â'r M4 o amgylch Casnewydd.

Gan ystyried y gwaith asesu blaenorol, nododd Llywodraeth Cymru ran newydd o draffordd i'r de o Gasnewydd (a elwid bryd hynny yn 'Llwybr Du'), ynghyd â Mesurau Ategol, fel ei Chynllun drafft ym mis Medi 2013. Nododd y Cynllun drafft ddau ddewis amgen rhesymol i'r opsiwn hwn, sef: y 'Llwybr Coch' a'r 'Llwybr Porffor'.

Nid oedd opsiwn y Llwybr Coch (ffordd ddeuol) yn cynnwys adeiladu traffordd. Nododd gwaith asesu na pherfformiodd yr opsiwn hwn cystal â'r ddau opsiwn traffordd, oherwydd roedd ganddo lawer llai o gapasiti a byddai'n denu llai o draffig o draffordd bresennol yr M4. Daethpwyd i'r casgliad, ar yr amod y gellid darparu cyllid i'w gyflawni fel un prosiect, y byddai opsiwn traffordd yn cynnig gwerth gwell am arian a chyflawni'r amcanion

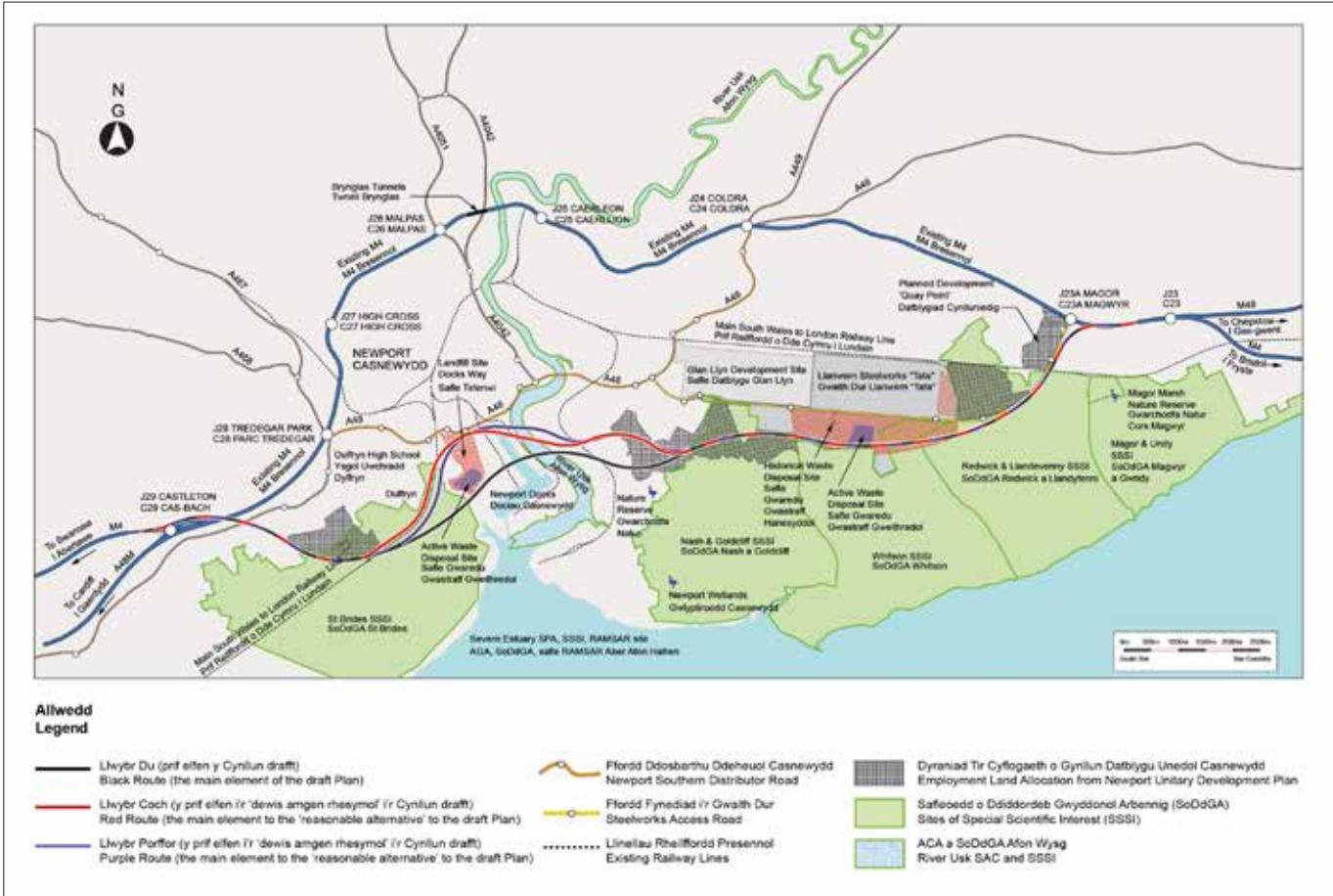
The transport related problems on the M4 around Newport are well established and proposed measures aiming to address the problems have been developed and assessed over a period of more than 25 years. The Environmental Statement explains in detail how alternatives have been considered. In addition, it sets out the main reasons for the selection of the key elements of the Scheme, including the following:

- The selection of a motorway option (compared to non-motorway solutions).
- The selection of the broad route corridor to the south of Newport (compared to alternative route options).
- The selection of the design options included within the draft Statutory Orders (compared to alternative design solutions at locations along the route).

The development of the Scheme has considered a 'Do-Minimum' scenario, meaning doing nothing above what is already planned or committed. Consideration of a 'Do-Minimum' option confirmed that there is a strong need to do something to address identified problems associated with the M4 around Newport.

Taking into account the previous assessment work, the Welsh Government identified a new section of motorway to the south of Newport (known at that time as the 'Black Route'), together with Complementary Measures, as its draft Plan in September 2013. The draft Plan identified two reasonable alternatives to this option: the 'Red Route' and the 'Purple Route'.

The Red Route was a non-motorway (dual carriageway) option. Assessment identified that this option did not perform as strongly as the two motorway options, with significantly reduced capacity and attracting less traffic from the existing M4. The conclusion was that, provided that funding could be made available to deliver it as a single project, a motorway solution would offer greater value for money and better meet the objectives for the M4 Corridor around Newport.



Dewisiadau amgen a ystyriwyd yn y Cynllun drafft

ar gyfer Coridor yr M4 o amgylch Casnewydd yn well.

Cynigiai'r Llwybr Porffor lwybr amgen ar gyfer rhan newydd o draffordd. Fodd bynnag, daeth asesiadau i'r casgliad bod y Llwybr Du wedi perfformio'n well na'r Llwybr Porffor. Ystyriwyd nifer o ffactorau, gan gynnwys y pellter a deithir, amseroedd teithio, agosrwydd at ardal breswyl Dyffryn a'r effeithiau ar Ddociau Casnewydd ac Afon Wysg. Gan ystyried y cyfngiadau a nodwyd, ymatebion i'r ymgynghoriad ac effeithiau tebygol yr opsiynau a ystyriwyd, dewiswyd y Llwybr Du fel y coridor llwybr a ffefrir.

Awgrymwyd dewisiadau amgen ychwanegol yn ystod yr ymgynghoriad ynghylch y Cynllun drafft, gan gynnwys mesurau trafnidiaeth gyhoeddus, gwelliannau i ffyrdd presennol, twnnel o dan Afon Wysg, aliniadau amgen ac opsiwn y ffordd gyflym drwy Gasnewydd, sef y 'Llwybr Glas'. Mae dewisiadau amgen a awgrymwyd wedi'u harfarnu ac, ar sail y canlyniadau, daethpwyd i'r casgliad na allai'r un o'r dewisiadau amgen a gyflwynwyd

Alternatives considered in the draft Plan

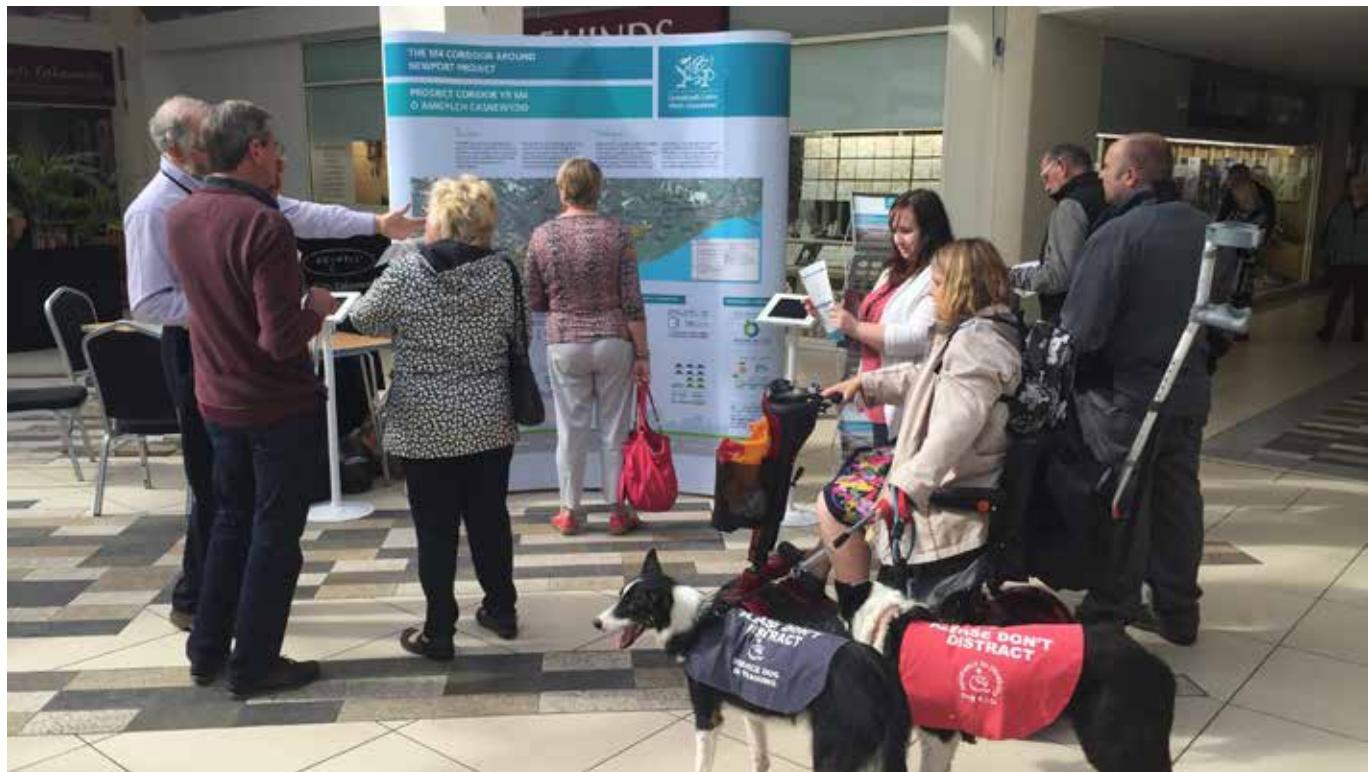
The Purple Route offered an alternative route for a new section of motorway. However, assessments concluded that the Black Route performed more strongly than the Purple Route. A range of factors were considered, including distance travelled, journey times, proximity to the residential area of Duffryn and impacts on Newport Docks and the River Usk. Taking into account the constraints identified, consultation responses and the likely effects of the options considered, the Black Route was selected as the preferred route corridor.

Additional alternatives were suggested during the draft Plan consultation, including public transport measures, improvements to existing roads, a tunnel under the River Usk, alternative alignments and the expressway option through Newport known as the 'Blue Route'. Suggested alternatives have been subject to appraisal, and the results have concluded that none of the alternatives submitted could sufficiently meet the objectives or address the problems for the M4 around Newport.

gyflawni'r amcanion ar gyfer yr M4 o amgylch Casnewydd na mynd i'r afael â'r problemau a geir yno, yn ddigonol.

Ers i'r Cynllun gael ei fabwysiadu, mae Llywodraeth Cymru wedi cyflogi contractor ac ymgynghorydd sydd wedi datblygu'r cynigion gan ystyried dyletswyddau amrywiol Llywodraeth Cymru, gan gynnwys inter alia ddyletswyddau o dan Adran 28G o Ddeddf Bywyd Gwyllt a Chefn Gwlad 1981 (fel y'i diwygiwyd a Deddf Llesiant a Chenedlaethau'r Dyfodol 2015. Mae materion eraill a ystyriwyd wrth ddatblygu'r cynigion yn cynnwys cyfyngiadau a nodweddion amgylcheddol presennol, ynghyd â chanfyddiadau ymgynghoriadau ac ymgysylltu â'r rhanddeiliaid.

Following adoption of the Plan, the Welsh Government has employed a contractor and a consultant who have developed the proposals taking into account the Welsh Government's various duties, including *inter alia* those under section 28G of the Wildlife and Countryside Act 1981 (as amended) and the Well-being and Future Generations Act 2015. Other matters taken into account during the development of the proposals include existing constraints and environmental features, together with the findings of consultation and stakeholder engagement.



Arddangosfa Gwybodaeth i'r Cyhoedd, Medi 2015

Public Information Exhibition, September 2015

Cwmpasu

Cwmpasu yw'r broses o nodi'r materion yr ymdrinnir â hwy yn ystod proses yr AEA. Anfonwyd Adroddiad Cwmpasu at ymgyngoreion ym mis Awst 2015. Nododd fanylion cwmpas arfaethedig asesiadau amgylcheddol a oedd i'w cynnal.

Cafwyd sylwadau ar yr Adroddiad Cwmpasu gan yr ymgyngoreion statudol canlynol.

- Cyngor Dinas Casnewydd.
- Cyfoeth Naturiol Cymru.
- Cadw.

Nododd yr ymarfer cwmpasu sawl maes yr oedd ymgyngoreion am iddynt gael sylw o fewn proses yr AEA. Ystyriwyd yr ymatebion hyn, ynghyd ag ymatebion eraill i'r ymgyngħoriad a ddarparwyd drwy gydol proses yr AEA, wrth nodi cwmpas y Datganiad Amgylcheddol, gan gynnwys faint o waith arolygu sydd ei angen er mwyn llywio'r asesiadau. Ystyriodd cwmpas y Datganiad Amgylcheddol y gofynion deddfwriaethol, natur, maint a lleoliad y Cynllun a'r ymatebion a ddarparwyd i'r ymgyngħoriad.

Ymgyngħori

Tra'n datblygu'r Cynllun, ymgyngħorwyd â nifer o sefydliad, neu gofynnwyd iddynt ddarparu gwybodaeth, gan gynnwys (ond heb fod yn gyfyngedig) i'r canlynol.

- Ymgyngoreion statudol.
- Ymgyngoreion anstatudol.
- Grwpiau buddiant.
- Gweithredwyr masnachol, diwydiannol a busnes.
- Grwpiau hamdden a'r cyhoedd.

Scoping

Scoping is the process of identifying the issues to be addressed during the EIA process. A Scoping Report was issued to consultees in August 2015. This set out details of the proposed scope of environmental assessments to be undertaken.

Comments on the Scoping Report were received from the following statutory consultees:

- Newport City Council.
- Natural Resources Wales.
- Cadw.

The scoping exercise highlighted a number of areas that consultees wished to see addressed within the EIA process. These responses, together with other consultation responses provided throughout the EIA process, have been taken into account in identifying the scope for the Environmental Statement, including the amount of survey work required to inform the assessments. The scope of the Environmental Statement has taken into account the legislative requirements, the nature, size and location of the Scheme and the consultation responses provided.

Consultation

During the development of the Scheme, consultation has been undertaken with, or information requested from, a number of organisations including (but not limited to) the following:

- Statutory consultees.
- Non-statutory consultees.
- Interest groups.
- Commercial, industrial and business operators.
- Recreational groups and the general public.

Sefydlwyd Grŵp Cyswllt Amgylcheddol a/neu Weithgorau Technegol i gynnwys cynrychiolwyr o Gyngor Dinas Casnewydd, Cyngor Sir Fynwy, Cyngor Dinas Caerdydd, Cyfoeth Naturiol Cymru a Cadw. Y bwriad yw y bydd y Grŵp Cyswllt Amgylcheddol yn parhau i gyfarfod yn rheolaidd drwy gydol y cam cyn adeiladu a'r cam adeiladu. Ymgynghorwyd yn ffurfiol â pherchenogion tir drwy gydol y broses, gan gynnwys cwblhau holiadur a oedd yn ymwneud â'r defnydd presennol o dir.

Hysbyswyd y cyhoedd am y Cynllun drwy gyfres o arddangosfeydd a gwefan a sefydlwyd yn benodol ar gyfer y Cynllun. Ystyriwyd yr ymatebion a gafwyd wrth ddatblygu'r Cynllun a pharatoi'r Datganiad Amgylcheddol.

Dull Asesu'r Effaith Amgylcheddol

Mae'r effeithiau tebygol y gallai adeiladu a gweithredu'r Cynllun eu cael ar yr amgylchedd wedi'u hasesu yn unol â gofynion perthnasol Deddf Prifyrdd 1980 a deddfwriaeth a chanllawiau'r AEA.

Oni bai bod y canllawiau yn mynnu fel arall, disgrifir arwyddocâd effeithiau (andwyol a buddiol) yn y Datganiad Amgylcheddol gan ddefnyddio'r termau canlynol.

- Mawr iawn.
- Mawr.
- Cymedrol.
- Bach.
- Niwtral.

Nodwyd yr amodau amgylcheddol presennol a'r amodau amgylcheddol tebygol yn y dyfodol os na chaiff y Cynllun ei adeiladu. Gelwir y rhain yn 'amodau sylfaenol'. Mae amodau sylfaenol y safle a'r ardal astudio yn sail i'r asesiad, sy'n ei gwneud yn bosibl i effeithiau arwyddocaol tebygol y Cynllun gael eu nodi.

An Environmental Liaison Group and/or Technical Working Groups was set up to include representatives from Newport City Council, Monmouthshire County Council, Cardiff City Council, Natural Resources Wales and Cadw. It is intended that the Environmental Liaison Group will continue to meet regularly throughout the pre-construction and construction period. Landowners have been informally consulted throughout the process, including completion of a questionnaire relating to existing land uses.

The public have been informed of the Scheme by a series of exhibitions and a website dedicated to the Scheme. Responses received have been taken into account as the Scheme has been developed and in preparation of the Environmental Statement.

Approach to EIA

The likely effects on the environment which may arise from the construction and operation have been assessed in accordance with the relevant requirements of the Highways Act 1980, EIA legislation and guidance.

Except where guidance requires otherwise, the significance of effects (both adverse and beneficial) is described in the Environmental Statement using the following terms:

- Very large.
- Large.
- Moderate.
- Slight.
- Neutral.

The existing and likely future environmental conditions in the absence of the Scheme have been identified. These are known as 'baseline conditions'. The baseline conditions of the site and study area form the basis of the assessment, enabling the likely significant effects of the Scheme to be identified.

Lliniaru

Mae proses yr AEA yn rhan annatod o'r broses o arfarnu a dylunio'r Cynllun. Yn ystod proses yr AEA, mae'r effeithiau amgylcheddol tebygol wedi'u hystyried ac mae'r materion hyn wedi'u hystyried o fewn proses ddylunio barhaus. Felly, mae proses yr AEA wedi'i defnyddio fel ffordd o lywio a newid y dyluniad er mwyn lleihau effeithiau amgylcheddol, lle y bo'n ymarferol.

Felly, mae'r Cynllun yn cynnwys amrywiaeth o fesurau y bwriedir iddynt leihau effeithiau andwyol arwyddocaol neu eu hatal. O dan Adran 28G o'r Ddeddf Bywyd Gwyllt a Chefn Gwlad mae'n ddyletswydd ar Lywodraeth Cymru gymryd camau rhesymol pellach i gadw a gwella'r nodweddion y dynodwyd Safleoedd o Ddiddordeb Gwyddonol Arbennig Gwastadeddau Gwent o'u herwydd. Er mwyn cydymffurfio â'r ddyletswydd honno, mae amrywiaeth o fesurau wedi'u hymgorffori yn nyluniad y Cynllun. Mewn rhai achosion, bydd y mesurau hyn yn gwella amodau amgylcheddol.

Asesu Effeithiau

Mae'r Datganiad Amgylcheddol yn nodi asesiad o'r effeithiau tebygol yn ystod cam adeiladu a cham gweithredu'r Cynllun. Mae pwysigrwydd rhagweledig effeithiau yn seiliedig ar ystyriaeth o faint tebygol yr effaith ragweledig a sensitifrwydd y derbynnydd yr effeithir arno. O ran y Rheoliadau AEA, fel arfer 'effeithiau arwyddocaol' yw'r rhai lle mae'r effaith yn 'gymedrol' neu'n fwy.

Caiff effeithiau cronnol y Cynllun, pan gânt eu hystyried ynghyd â datblygiadau arfaethedig eraill, eu hystyried o fewn y Datganiad Amgylcheddol, yn seiliedig ar y wybodaeth sydd ar gael.

Mitigation

The EIA process is an integral part of the Scheme appraisal and design process. During the EIA process, the likely environmental effects have been considered and these issues have been taken into account within an ongoing design process. The process of EIA has therefore been used as a means of informing and changing the design in order to reduce environmental effects, where practicable.

The Scheme therefore includes a range of measures that have been designed to reduce or prevent significant adverse effects arising. The Welsh Government has a duty under Section 28G of the Wildlife and Countryside Act to take reasonable steps to further the conservation and enhancement of the features for which the Gwent Levels Sites of Special Scientific Interest are designated. To comply with that duty, a range of measures have been incorporated within the design of the Scheme. In some cases, these measures result in enhancement of environmental conditions.

Assessment of Effects

The Environmental Statement sets out an assessment of the likely effects during the construction and operational phases of the Scheme. The predicted significance of effects is based on consideration of the likely magnitude of the predicted impact and the sensitivity of the affected receptor. In terms of the EIA Regulations, 'significant effects' are generally those where the effect is 'moderate' or greater.

Cumulative effects of the Scheme when considered together with other proposed developments are considered within the Environmental Statement, based on the information available.

Cyflwyniad

Mae'r Datganiad Amgylcheddol yn darparu'r wybodaeth sy'n ofynnol gan ddeddfwriaeth berthnasol ac yn ystyried canllawiau perthnasol o'r Llawlyfr Dylunio ar gyfer Ffyrrd a Phontydd. Ystyriwyd newidiadau i amodau amgylcheddol yn y dyfodol, gan gynnwys newid yn yr hinsawdd.

Ansawdd Aer

Gwnaed gwaith monitro aer i fesur ocsidau nitrogen a gronynnau yn benodol i lywio'r Cynllun yn ystod 2014 a 2015. Ar wahân, mae Cyngor Dinas Casnewydd wedi nodi pedair Ardal Rheoli Ansawdd Aer, sef ardaloedd lle mae ansawdd yr aer eisoes yn peri pryer, a ddynodwyd o ganlyniad i draffordd bresennol yr M4. Dengys gwaith a wnaed fel rhan o'r broses asesu bod problemau eisoes yn bodoli o ran ansawdd aer, gyda lefelau sy'n uwch nag amcanion ansawdd aer y llywodraeth a gwerthoedd terfyn yr UE ar gyfer nitrogen deuocsid eisoes yn cael eu nodi ar hyd traffordd bresennol yr M4 ac yng nghanol Dinas Casnewydd.

Câi effeithiau llwch yn ystod cam adeiladu'r Cynllun eu rheoli drwy roi mesurau lliniaru priodol ar waith, yn seiliedig ar y rhai a nodir yng nghanllawiau'r Sefydliad Rheoli Ansawdd Aer. Byddai allyriadau o gyfarpar safle, Cerbydau Nwyddau Trwm a pheiriannau sy'n gysylltiedig â gwaith adeiladu yn rhai dros dro ac ni chaent fawr ddim effaith ar grynnodiadau llygryddion yn gyffredinol. Gyda mesurau lliniaru priodol ar waith, ni ddisgwylir i effaith y Cynllun yn ystod y cam adeiladu fod yn arwyddocaol.

Introduction

The Environmental Statement provides the information required by relevant legislation and takes into account relevant guidance from the Design Manual for Roads and Bridges. Consideration has been given to changes to future environmental conditions, including consideration of climate change.

Air Quality

Air quality monitoring of oxides of nitrogen and particulate matter was undertaken specifically to inform the Scheme during 2014 and 2015. Separately, Newport City Council has identified four Air Quality Management Areas, which are areas of existing air quality concern, designated as a result of the existing M4 motorway. Work undertaken as part of the assessment process demonstrates that there are existing air quality issues, with government air quality objectives and EU limit values for nitrogen dioxide already being exceeded along the existing M4 and in Newport City centre.

Dust effects arising during construction of the Scheme would be controlled through the implementation of appropriate mitigation measures, based on those set out in the Institute of Air Quality Management guidance. Emissions from site equipment, Heavy Goods Vehicles and machinery associated with construction would be temporary and would result in a minimal impact on overall pollutant concentrations. With appropriate mitigation measures in place, the effect of the Scheme during the construction phase is not predicted to be significant.

Gwnaed gwaith modelu gwasgariad atmosfferig manwl ar gyfer blwyddyn agor a blwyddyn ddylunio'r Cynllun (2022 a 2037). Ni ragwelwyd lefelau uwch nag amcanion ansawdd aer y llywodraeth na gwerthoedd terfyn yr UE ledled yr ardal astudio wrth dderbynyddion dynol. Rhagwelwyd y byddai crynodiadau llygryddion yn cynyddu mewn lleoliadau, gan gynnwys derbynyddion ecolegol, o fewn 200 metr i'r rhan newydd arfaethedig o'r draffordd. Fodd bynnag, ni nodwyd unrhyw effeithiau arwyddocaol.

Byddai'r Cynllun yn trosglwyddo cyfran fawr o draffig o draffordd bresennol yr M4, rhwng Cyffyrdd 23A a 29, i'r rhan newydd o'r draffordd i'r de o Gasnewydd. Dangoswyd y bydd crynodiadau ansawdd aer yn cynyddu mewn sawl ardal, yn enwedig mewn ardaloedd trefol gerllaw corridor presennol yr M4. Rhagwelir y bydd gwelliannau o ran crynodiadau ym mhob Ardal Rheoli Ansawdd Aer yn yr ardal astudio.

Dangosodd yr asesiad rhanbarthol y byddai'r Cynllun yn arwain at leihad mewn allyriadau ocsidau nitrogen a gronynnau yn rhanbarthol.

Detailed atmospheric dispersion modelling has been undertaken for the opening and design years of the Scheme (2022 and 2037). No exceedances of government air quality objectives or EU limit values were predicted across the study area at human receptors. Increases in pollutant concentrations have been predicted at locations, including ecological receptors, within 200 metres of the proposed new section of motorway. However, no significant effects have been identified.

The Scheme would transfer a large proportion of traffic from the existing M4, between Junctions 23A and 29, onto the new section of motorway to the south of Newport. A number of areas are shown to experience a large improvement in air quality concentrations, most notably in urban areas adjacent to the existing M4 corridor. All Air Quality Management Areas in the study area are predicted to experience improvements in concentrations.

The regional assessment showed that the Scheme would result in a decrease in emissions of oxides of nitrogen and particulate matter on a regional scale.



Maen Hir - I'r Dwyrain o Gwndy

Standing Stone - East of Undy

Treftadaeth Ddiwylliannol

Byddai'r rhan newydd arfaethedig o'r draffordd yn croesi Gwastadeddau Gwent, y mae rhan helaeth ohonynt wedi'i dynodi'n Dirwedd o Ddiddordeb Hanesyddol Eithriadol yng Nghymru. Byddai hefyd yn mynd drwy ddwy Ardal Archeolegol Sensitif, ynghyd ag un Ardal o Sensitifwydd Archeolegol Arbennig a ddynodwyd gan Gyngor Sir Fynwy.

Dengys tirwedd Gwastadeddau Gwent gyfnodau olynol y broses o adennill tir a arferai fod yn wastadeddau llaid llanwol a morfeydd heli a'r defnydd a wnaed o'r tir hwnnw wedi hynny. Dechreuodd y broses hon yn ystod y cyfnod Rhufeinig (AD 43-410) a pharhaodd drwy'r 19eg ganrif, er bod cyfnodau pan gafodd tir a adferwyd ei foddi o dan ddŵr ac y bu'n rhaid i'r broses ailddechrau. Y cefnffeniau yw'r enw ar y tir is ymhellach yn ôl o'r arfordir a'r ardaloedd hyn oedd y rhai olaf i gael eu draenio a'u defnyddio. Mae'r rhan newydd arfaethedig o'r draffordd yn rhedeg drwy'r cefnffeniau hyn yn bennaf.

Ni châi unrhyw Heneb Gofrestredig ei cholli o ganlyniad i'r Cynllun hwn. Yn ystod y cam adeiladu, byddai'r Cynllun yn cael effaith arwyddocaol ar leoliad dwy Heneb Gofrestredig. Dim ond un o'r effeithiau hyn (sef yr effaith ar faen hir i'r dwyrain o Wndy) a fyddai'n parhau i fod yn arwyddocaol yn ystod y cam gweithredu oherwydd newidiadau i'w leoliad.

Ficerdy Magwyr yw'r unig adeilad rhesteddig (Gradd II) y byddai angen ei ddymchwel. At hynny, cãi sawl strwythur anghofrestredig, gan gynnwys grŵp o siediau atgyweirio locomotifau a gweithdai peirianyddol a hen sied locomotifau yn Nociau Casnewydd, eu dymchwel, a fyddai'n cael effeithiau arwyddocaol. Hefyd, cãi nifer fach o adeiladau hanesyddol (anghofrestredig) eu dymchwel, er na fyddai'r effeithiau yn arwyddocaol.

Cultural Heritage

The proposed new section of motorway would cross the Gwent Levels, much of which are a designated Landscape of Outstanding Historic Interest in Wales. It would also pass through two Archaeologically Sensitive Areas, along with one Area of Special Archaeological Sensitivity designated by Monmouthshire County Council.

The Gwent Levels landscape demonstrates the successive reclamation of land from the former tidal mudflats and saltmarshes and the subsequent utilisation of that land. This process started in the Roman period (AD 43-410) and continued through to the 19th century, although there were periods when reclaimed land was lost to inundation and the process had to be restarted. The lower-lying land further back from the coast is known as the back fens and these areas were the last ones to be drained and utilised. The proposed new section of motorway predominantly runs through these back fens.

The Scheme would not result in the loss of any Scheduled Monument. During construction, there would be a significant effect on the setting of two Scheduled Monuments. Only one of these effects (on a standing stone east of Undy) would continue to be significant during the operational phase due to changes in its setting.

Magor Vicarage is the only listed building (Grade II) for which demolition is required. In addition, a number of non-listed structures, including a group of locomotive running sheds and engineering workshops and a former locomotive engine shed at Newport Docks, would be demolished, which would result in significant effects. Additionally, a small number of (non-listed) historic buildings would be demolished, although the effects would not be significant.

Bydd rhai effeithiau ar leoliad adeiladau rhestedig yn ystod y cyfnod adeiladu. Fodd bynnag, ni fyddai effeithiau o'r fath yn arwyddocaol. Yn ystod y cam gweithredu, byddai effaith arwyddocaol hirdymor ar Bont Gludo Casnewydd sy'n strwythur rhestedig Gradd I a ffermdy rhestedig Gradd II (sef Fferm Tatton) o ganlyniad i newid parhaol o fewn eu lleoliadau.

O ran olion archeolegol claddedig, byddai effeithiau arwyddocaol ar safle ychydig i'r gorllewin o Fagwyr, sy'n cynnwys clostiroedd aneddiadau sy'n dyddio o ddiwedd yr Oes Haearn a'r cyfnod Rhufeinig, a safle canoloesol sydd wedi lleihau mewn maint yn Llanfihangel.

Byddai'r rhan newydd o'r draffordd yn effeithio ar dir nas triniwyd yn flaenorol a allai gynnwys olion archeolegol claddedig o ddyddiad a natur anhysbys ac, felly, o werth anhysbys.

Câi'r rhan newydd arfaethedig o'r draffordd effaith ffisegol ar saith o'r 21 o Ardaloedd Cymeriad Tirwedd Hanesyddol a geir o fewn y Dirwedd o Ddiddordeb Hanesyddol Eithriadol. Byddai colli'r dirwedd hon yn barhaol yn effaith arwyddocaol. Y tu allan i'r Dirwedd gofrestredig o Ddiddordeb Hanesyddol Eithriadol, byddai'r rhan newydd arfaethedig o'r draffordd yn croesi tir y nodwyd bod ganddo gymeriad tirwedd hanesyddol hefyd, er nad ystyrir bod yr effeithiau hyn o ganlyniad i gymryd tir yn rhai arwyddocaol.

There would be some effects on the setting of listed buildings during the construction phase. However, such effects would not be significant. During operation, there would be a long term significant effect on the Grade I listed Newport Transporter Bridge and on a Grade II listed farmhouse (Tatton Farm) as a result of a permanent change within their settings.

With regard to buried archaeological remains, there would be significant effects on a site just to the west of Magor, comprising settlement enclosures of later Iron Age and Roman date and on a shrunken medieval settlement at Llanfihangel.

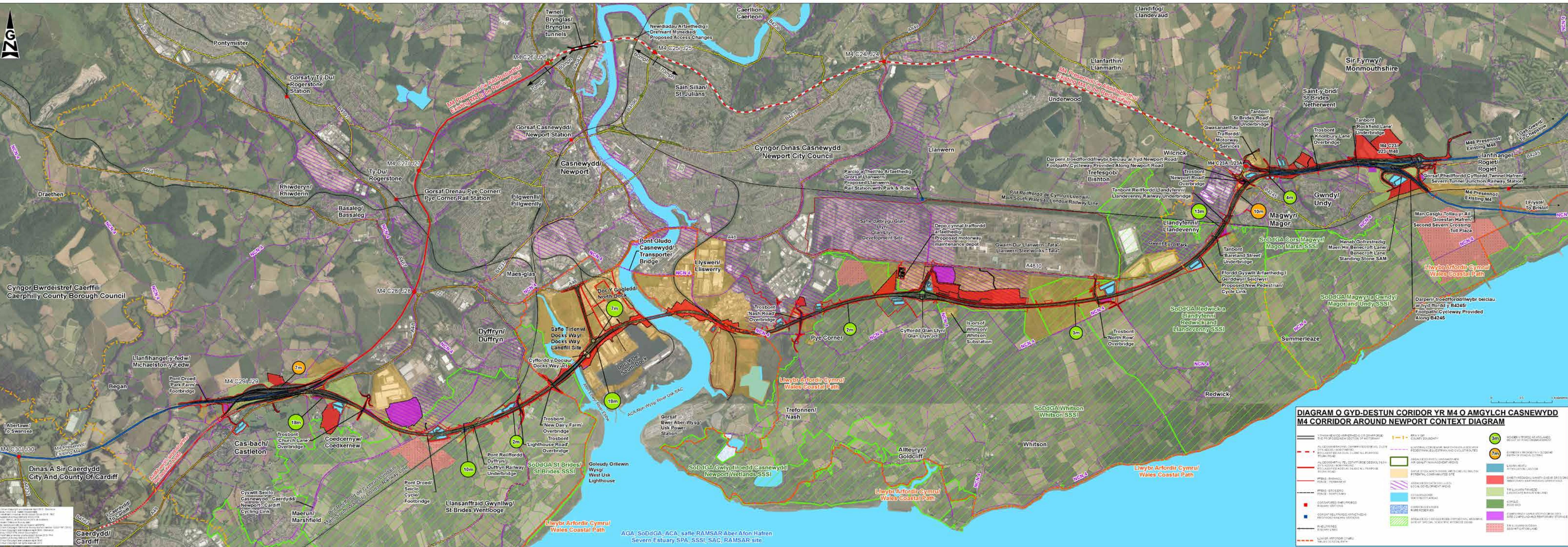
The new section of motorway would affect previously undisturbed land that has the potential to contain buried archaeological remains of unknown date and nature and therefore of unknown value.

The proposed new section of motorway would have a physical effect on seven of the twenty one Historic Landscape Character Areas of the Landscape of Outstanding Historic Interest. The permanent loss of this landscape would represent a significant effect. Outside of the registered Landscape of Outstanding Historic Interest, the proposed new section of motorway would cross land that also has been identified as having historic landscape character, although these land take effects are not considered to be significant.



Pont Gludo Casnewydd

Newport Transporter Bridge



Yn ystod y cam gweithredu, byddai'r rhan newydd o'r draffordd yn effeithio ar 14 o'r 21 o Ardaloedd Cymeriad Tirwedd Hanesyddol o fewn yr ardal astudio a byddai'r effeithiau ar saith o'r ardaloedd cymeriad tirwedd yn arwyddocaol.

Cynhwyswyd mesurau fel rhan o ddyluniad y Cynllun er mwyn helpu i liniaru effeithiau ar asedau treftadaeth yn ystod y cam gweithredu, gan gynnwys ystyried deunyddiau a gorffeniadau, gwaith plannu tirluniol a mesur lleihau sŵn ar ffurf system gosod arwyneb tenau ar y lôn gerbydau.

Câi rhaglen o waith ymchwilio archeolegol pellach ei rhoi ar waith i nodi olion archeolegol claddedig er mwyn 'gwrthbwys' natur andwyol yr effeithiau drwy ddarparu gwybodaeth y gellir ei chyfleu drwy gyfryngau priodol i'r gynulleidfa ehangaf posibl a chynhelid briff gwyllo archeolegol yn ystod y cam adeiladu. Hefyd, byddai'r adeiladau hanesyddol a oedd i'w dymchwel fel rhan o'r Cynllun yn destun gwaith cofnodi archeolegol manwl a châi deunydd dogfennol ei archwilio ymhellach er mwyn darparu gwybodaeth am ddatblygiad hanesyddol y dirwedd y byddai'r rhan newydd o'r draffordd yn effeithio arni.

Yr Effaith ar y Dirwedd a'r Effaith Weledol

Yn ogystal â Gwastadeddau Gwent sydd wedi'u cofrestru'n 'Dirwedd o Ddiddordeb Hanesyddol Eithriadol yng Nghymru', ceir chwe Ardal Tirwedd Arbennig a ddynodwyd gan Gyngor Dinas Casnewydd a Chyngor Sir Fynwy o fewn yr ardal astudio. Yn rhanbarthol, lleolir y rhan newydd o'r draffordd o fewn Ardal Cymeriad Tirwedd 34: Gwastadeddau Gwent, ar Fap Cymeriad Tirwedd Cymru. Mae 11 o Ardaloedd Cymeriad Tirwedd Lleol wedi'u nodi o fewn yr ardal astudio.

Yn y gorllewin, mae Cas-bach a Maerun wedi datblygu yn llinellol a nodweddir yr ardal gan y patrwm caeau bach a ategir gan berthi isel sydd mewn cyflwr da a lleiniau o goed aeddfeud ynghyd â darnau bach o goetir. Yn weledol, mae'r rhan fwyaf o'r ardal yn agored, yn wledig ac yn gymharol heddychlon. Mae coridorau ffordd presennol yr A48(M)/M4 yn amharu ar nodweddion gweledol a

During operation, the new section of motorway would affect 14 of the 21 historic Landscape Character Areas within the study area and the effects on seven of the landscape character areas would be significant.

Measures have been included as part of the Scheme design to help mitigate effects on heritage assets during operation including consideration of materials and finishes, landscape planting and noise attenuation in the form of a thin surfacing system on the carriageway.

A programme of further archaeological investigation would be implemented for buried archaeological remains to 'offset' the adverse nature of the effects through the provision of information which can be communicated through appropriate media to the widest possible audience and an archaeological watching brief kept during construction. Detailed archaeological recording of historic buildings to be demolished as part of the Scheme would also be undertaken, as well as further examination of documentary material to provide information regarding the historical development of the landscape which would be affected by the new section of motorway.

Landscape and Visual Impact

In addition to the Gwent Levels being a registered 'Landscape of Outstanding Historic Interest in Wales', six Special Landscape Areas designated by Newport City Council and Monmouthshire County Council are present within the study area. At a regional level, the new section of motorway is located within Landscape Character Area 34: Gwent Levels, on The Landscape Character Map for Wales. Eleven Local Landscape Character Areas have been identified within the study area.

In the west, Castleton and Marshfield have developed in a linear manner and the area is typified by the small field pattern enhanced by well-maintained low hedgerows and mature tree belts with small woodland copses. Visually, the majority of the area is open, rural and relatively peaceful. The existing

nodweddion synhwyraidd eraill yr ardal. Gan symud i'r dwyrain, byddai'r rhan newydd o'r draffordd yn croesi gwlyptiroedd a adferwyd sy'n werthfawr iawn yn ddiwylliannol ac o safbwyt cadwraeth natur a'r dirwedd hanesyddol. Mae'r tir yn wastad iawn, yn gymharol agored ac yn isel. Fodd bynnag, mae nifer o ddatblygiadau mawr yn y Dyffryn a Choedcernyw wedi effeithio ar yr ardal gan amharu ar ei chymeriad cynhenid.

Byddai'r rhan newydd o'r draffordd wedyn yn croesi ardaloedd diwydiannol mawr, gan gynnwys Dociau Casnewydd a'r rhai yn Stevenson Street ac o'i hamgylch. Mae'r dirwedd oddi amgylch yn wastad ac oherwydd hynny mae peiriannau diwydiannol a pheiriannau wrth ochr y dociau yn nodweddion tra amlwg ar y nenlinell. Ceir rhywfaint o dir gwag a thir diffaith, sy'n diraddio ansawdd gweledol ac ansawdd tirwedd yr ardal. I'r dwyrain o Linell Reilffordd Aber-wysg, mae'r tir yn wastad iawn ac yn isel. Mae gwaith datblygu yn cynnwys creu gwarchodfa gwlyptiroedd yn ardal Goldcliff. Mae Gwaith Dur Tata ynghyd ag is-orsaf Whitson a gorsaf ynni Aber-wysg, sydd wedi arwain at grynhoad o brif linellau pŵer uwchben, yn amharu ar ansawdd gweledol yr ardal. Cyflwynwyd lleiniau o goed aeddfed sydd bellach yn rhannol sgrinio'r gwaith ac yn ei integreiddio yn y dirwedd. Ar draws Gwastadeddau Cily-coed ceir rhwydwaith helaeth o berthi sy'n amgáu tir nad yw wedi'i wella at ddibenion amaethyddol, sy'n ychwanegu at gymeriad gwledig yr ardal. Mae aneddiadau yn ddatblygiadau llinellol, sy'n dilyn y nifer fawr o ffyrdd eithaf syth sy'n rhedeg drwy'r ardal, ac eithrio Redwig, sy'n bentref canoloesol.

Y tu hwnt i'r A4810, ceir cymunedau Llandefenni, Magwyr, Gwndy a Rogiet, sy'n ffinio â'r Brif Linell Reilffordd rhwng De Cymru a Llundain i'r de ac sy'n ymestyn i'r gogledd y tu hwnt i lwybr presennol yr M4 hyd at ardal o dir ffermio ychydig yn donnog. Mae aneddiadau Magwyr a Gwendy yn cynnwys gwahanol fathau o dai o wahanol oedran, gyda sgwâr ddeniadol o adeiladau hanesyddol sydd mewn cyflwr da yng nghanol Magwyr.

road corridors of the A48(M)/M4 detract from the visual and other sensory qualities of the area. Moving east, the new section of motorway would cross reclaimed wetlands of significant nature conservation, cultural and historic landscape value. The land is very flat, relatively open and low lying. However, the area has been affected by a number of large scale developments at Duffryn and Coedkernew that have impinged upon its intrinsic character.

The new section of motorway would then cross large scale industrial areas, including Newport Docks and those in and around Stevenson Street. The flat nature of the surrounding landscape means that industrial and dockside plant dominates the skyline. Some vacant and derelict land is evident, which downgrades the visual and landscape quality of the area. East of Uskmouth Railway line, the land is very flat and low lying. Development includes the creation of a wetland reserve in the Goldcliff area. The Tata Steelworks together with the Whitson substation and the Uskmouth power station, which have resulted in a concentration of major overhead power lines, provide a consequent detraction in the visual quality of the area. Mature tree belts have been introduced that now partially screen and integrate the works into the landscape. Across the Caldicot Levels, there is an extensive network of hedgerows and a lack of agricultural improvement, contributing to its rural character. Settlements are linear, following the numerous fairly straight roads that run through the area, with the exception of Redwick, a medieval village.

Beyond the A4810, lie the communities of Llandevenny, Magor, Undy and Rogiet, bordered to the south by the South Wales to London Mainline and extending north beyond the existing M4 motorway to an area of gently undulating farmland. Magor and Undy settlements comprise housing of mixed age and type, with an attractive square of well-maintained historic buildings in the centre of Magor.

Lluniwyd strategaeth dirlunio ar gyfer y rhan newydd o'r draffordd ac fe'i cynhwysir fel rhan o'r Cynllun. Ymhlieth egwyddorion cyffredinol y strategaeth hon mae'r canlynol:

- Adlewyrchu cymeriad y dirwedd y mae'r rhan newydd o'r draffordd yn mynd drwyddi, gan gynnwys defnydd tir, topograffeg, treftadaeth a phatrwm y dirwedd.
- Ystyried cynllun strwythurau newydd a sut i'w hintegreiddio mewn tirwedd sensitif yn ofalus drwy gydol y broses ddylunio gan ddewis deunyddiau a thriniaethau plannu yn ofalus.

Byddai'r Cynllun yn cael effeithiau dros dro arwyddocaol ar chwech allan o'r 11 o Ardaloedd Cymeriad Tirwedd yn ystod cam adeiladu'r rhan newydd o'r draffordd. Mae hyn yn bennaf gan beiriannau a pheirianwaith adeiladu yn dod i mewn i'r ardaloedd hyn a'r cloddwaith helaeth, gan gynnwys colli llystyfiant, a fyddai'n cael ei wneud o fewn yr ardal gymeriad hon a fyddai'n newid cymeriad y dirwedd.

Yn ystod y cam adeiladu, byddai'r Cynllun yn cael effeithiau gweledol arwyddocaol ar wylfannau, eiddo preswyl, eiddo amhreswyl,

A landscape design strategy has been devised for the new section of motorway and is included as part of the Scheme. General principles of this strategy include the following:

- Reflect the landscape character through which the proposed new section of motorway passes, including land use, topography, heritage and landscape pattern.
- Give careful consideration to the design and integration of new structures into a sensitive landscape throughout the design process with careful selection of materials and planting treatments.

Six out of the eleven Landscape Character Areas would experience significant temporary effects during the construction phase of the new section of motorway. This is primarily from the influx of construction plant and machinery and the large amount of earthworks, including vegetation loss, taking place within this character area altering the nature of the landscape.

During the construction period, there would be significant visual effects on viewpoints, residential properties, non-residential



Terfyn cyflymder newidiol presennol yr M4

Existing M4 variable speed limit

hawliau tramwy cyhoeddus, ffyrdd a llwybrau trafnidiaeth gyhoeddus a thir â mynediad cyhoeddus ar hyd y rhan newydd o'r draffordd. Ymhlieth elfennau'r Cynllun a fyddai'n cael yr effeithiau gweledol mwyaf byddai lleoliadau cloddwaith sylweddol, megis Cyfnewidfa Cas-bach, Croesfannau Afon Ebwy ac Afon Wysg, Trosbont Ffordd Nash, Cyffyrdd Dociau a lleoliadau lle y byddai argloddiau uchel, ardaloedd trin dŵr a'r briffordd ei hun yn agos at dderbynnyddion gweledol.

Ar ôl i'r Cynllun agor ac ar ôl i'r cynigion tirlunio gael effaith, byddai effeithiau arwyddocaol o hyd mewn pedwar o'r 11 o Ardaloedd Tirwedd Arbennig o ganlyniad i'r newid parhaol yng nghymeriad yr ardaloedd hyn a achoswyd drwy gyflwyno'r rhan newydd o'r draffordd. Byddai'r rhain yn cynnwys Gwastadeddau Gwynllwg a Gwastadeddau Cil-y-coed, y mae'r rhan helaethaf ohonynt wedi'i dynodi'n Ardal Tirwedd Arbennig.

Erbyn y 15fed flwyddyn o weithredu, byddai'r strategaeth dirlunio a'r coetir sgrinio newydd wedi cael cyfle i gael effaith. Er y byddai'r gwaith plannu newydd yn sgrinio golygfeydd o nifer fawr o dderbynnyddion, efallai y bydd effeithiau gweledol arwyddocaol ar wylfannau, eiddo preswyl, eiddo amhreswyl, hawliau tramwy cyhoeddus, ffyrdd a llwybrau trafnidiaeth gyhoeddus a thir â mynediad cyhoeddus o hyd o ganlyniad i ychwanegu seilwaith traffordd i'r ardal, gan gynnwys effeithiau goleuadau mewn tirwedd wledig yn bennaf. Mae lleoliadau lle y ceid y newid mwyaf mewn golygfeydd yn ystod y dydd yn cynnwys ardaloedd o fewn Gwastadeddau Gwynllwg, Pye Corner, ar hyd North Row ac ardaloedd ar ymwl Magwyr, Gwndy a Llanfihangel Rogiet.

Efallai y bydd effeithiau arwyddocaol o hyd ar rai eiddo preswyl ac amhreswyl yng Nghasbach, Dyffryn, Maerun, o fewn Gwastadeddau Gwynllwg, Casnewydd (i'r dwyrain o Afon Wysg) a Magwyr. At hynny, byddai newidiadau arwyddocaol hirdymor i amwynder gweledol rhai hawliau tramwy cyhoeddus i'r gogledd o gyffordd Cas-bach a'r A48(M), rhwng Casbach a Maerun, ar draws Gwastadeddau Gwynllwg, Casnewydd (i'r dwyrain o Afon Wysg), i'r de o Fagwyr a'r gogledd o goridor

properties, public rights of way, roads and public transport routes and land with public access along the length of the new section of motorway. The Scheme components that would generate the greatest visual effects would include the locations of significant earthworks, such as the Castleton Interchange, the River Ebbw and River Usk Crossings, the Nash Road Overbridge, Docks Junctions and locations where raised embankments, water treatment areas and the motorway itself would be in close proximity to visual receptors.

Once the Scheme is open and the landscape design proposals have taken effect, significant effects would remain at four out of the eleven Landscape Character Areas as result of the permanent change in character from the introduction of the new section of motorway. These would include the Wentlooge Levels and the Caldicot Levels, which are mostly designated as a Special Landscape Area.

By year 15 of operation, the landscape strategy and new woodland screening would have had chance to take effect. Whilst the new planting would screen views to a large number of receptors, significant visual effects on viewpoints, residential properties, non-residential properties, public rights of way, roads and public transport routes and land with public access may still persist from the addition of motorway infrastructure to the area, including the effects of lighting in a predominantly rural landscape. Locations where the change in daytime view would be greatest include areas in the Wentlooge Levels, Pye Corner, along North Row and areas on the edge of Magor, Undy and Llanfihangel Rogiet.

Significant effects may persist for some residential properties and non-residential properties at Castleton, Dyffryn, Marshfield, within the Wentlooge Levels, Newport (east of the River Usk) and Magor. There would also be long term significant changes in the visual amenity of some public rights of way to the north of Castleton junction and the A48(M), between Castleton and Marshfield, across the Wentlooge Levels, Newport (east of the River Usk), south of Magor and north of the existing

presennol yr M4, er y byddai cysylltedd yn cael ei gadw. Ni fyddai unrhyw effeithiau gweledol andwyol arwyddocaol ar dir â mynediad cyhoeddus.

Byddai Croesfan Afon Wysg yn nodwedd newydd yn y dirwedd ac mewn golygfeydd yn amrywio o dderbynyddion agos i olygfeydd pell. Byddai p'un a yw'r effaith weledol yn gadarnhaol neu'n negyddol yn dibynnu ar ganfyddiad y derbynnydd. Ystyrir y byddai'r bont newydd yn fuddiol ar y cyfan, yn enwedig mewn golygfeydd eithaf agos a phell ond, mewn rhai golygfeydd agosach, gallai agosrwydd y bont a'i maint olygu eu bod yn cael effeithiau negyddol.

Ecoleg a Chadwraeth Natur

Byddai'r rhan newydd arfaethedig o draffordd yn mynd drwy safleoedd a ddynodwyd ar lefel Ewropeaidd ac yn genedlaethol a chynefinoedd eraill lle y ceir rhywogaethau gwarchodedig a nodedig, megis ystlumod, dyfrgwn, pathewod, llygod dŵr, moch daear, draenogod, ymlusgiad, madfalloedd dŵr cribog ac amffibiaid eraill, adar, pysgod, anifeiliaid di-asgwrn-cefn a rhywogaethau ffлora. Cynhaliwyd arolygon i nodi lleoliadau'r rhywogaethau uchod, ynghyd ag arolygon o gynefinoedd a ffлora, yn ystod 2014 a 2015.

Byddai'r llwybr yn croesi Ardal Cadwraeth Arbennig Afon Wysg, safle a ddynodwyd ar lefel Ewropeaidd ar gyfer chwe rhywogaeth pysgod, y mae pedair ohonynt

M4 corridor, although connectivity would be maintained. There would be no significant adverse visual effects on land with public access.

The River Usk Crossing would form a new feature in the landscape and in views ranging from close proximity receptors to distant views. Whether the visual effect is positive or negative would be dependent on the perception of the receptor. Overall, it is considered that the new bridge would in general be beneficial, particularly in medium to distant views, but that in some closer views consideration of proximity and scale may result in negative effects.

Ecology and Nature Conservation

The proposed new section of motorway would pass through European and nationally designated sites and other habitats that support protected and notable species, such as bats, otters, dormouse, water vole, badger, hedgehog, reptiles, great crested newts and other amphibians, birds, fish, invertebrates and flora species. Surveys to identify the locations of the above species, together with surveys of habitats and flora were undertaken during 2014 and 2015.

The route would cross the River Usk/Afon Wysg Special Area of Conservation (SAC), a European designated site for six fish



Pathew
Dormouse



Da byw ar Gwastadeddau Gwent
Livestock on the Gwent Levels

yn rhywogaethau mudol, ac ar gyfer dyfrgn. Mae'r rhan o'r afon a groesir drwy Gasnewydd hefyd yn rhan o ddynodiad cenedlaethol, sef Safle o Ddiddordeb Gwyddonol Arbennig (SoDdGA) Afon Wysg (Rhan Isaf Afon Wysg). Er na fydd y Cynllun yn effeithio'n uniongyrchol ar y safleoedd eu hunain, mae'n bosibl y bydd yn dylanwadu ar rai rhywogaethau y dynodwyd Ardal Gwarchodaeth Arbennig (AGA) a safle Ramsar Aber Hafren ac, o bosibl, ACA Safleoedd Ystlumod Dyffryn Gwy a Fforest Ddena o'u herwydd.

Byddai'r rhan newydd o'r draffordd yn croesi ardal Gwastadeddau Gwent hefyd, y mae bron y cyfan ohoni wedi'i dynodi'n gyfres o SoDdGAau. Y cynefinoedd ffosydd draenio a ffosydd, lle y ceir anifeiliaid di-asgwrn-cefn a chardwenyn meinlais, yw nodweddion arbennig y safleoedd hyn. Mae'r ffosydd draenio a'r ffosydd hefyd yn gartref i amrywiaeth eang o blanhigion dŵr, sydd yn eu tro'n cynnal amrywiaeth eang o fywyd gwylt arall. Ceir dyfrgn, llygod dŵr, nadroedd y glaswellt ac amffibiaid yn yr ardal hefyd.

Byddai'r rhan newydd arfaethedig o draffordd hefyd yn croesi nifer o ddynodiadau anstatudol gan gynnwys wyt Safle o Bwysigrwydd ar gyfer Cadwraeth Natur, sy'n cynnwys cynefinoedd afon a glaswelltir yn bennaf a thair ardal o goetir hynafol.

Heb fesurau lliniaru priodol, gallai'r Cynllun gael effaith andwyol arwyddocaol ar lawer o'r cynefinoedd a'r rhywogaethau gwarchodedig a geir ar hyd llwybr y rhan newydd arfaethedig o'r draffordd, yn enwedig y safleoedd a ddynodwyd oherwydd eu diddordeb o ran cadwraeth natur.

Mae mesurau arfaethedig i lliniaru'r effeithiau y byddai'r Cynllun yn eu cael yn cynnwys y canlynol:

- Osgoi gweithgareddau adeiladu yn sianeli Afon Wysg ac Afon Ebwy islaw lefel cymedr penllanw.
- Darparu ardaloedd trin dŵr sy'n cynnwys pyllau a chorsleoedd er mwyn rheoli faint o ddŵr a gaiff ei ollwng i'r system ffosydd draenio ac ansawdd y dŵr hwnnw.

species, four of which are migratory, and for otter. The section of the river to be crossed through Newport also forms part of a national designation, the River Usk (Lower Usk) Site of Special Scientific Interest (SSSI). Although the sites themselves are not directly affected, the Scheme may have an influence on some species for which the Severn Estuary Special Protection Area (SPA) and Ramsar, and potentially the Wye Valley and Forest of Dean Bat Sites SAC are designated.

The new section of motorway would also cross the Gwent Levels, almost the whole of which are designated as a series of SSSIs. The special features of these sites are the reen and ditch habitats, supporting invertebrates and the Shrill carder bee. The reens and ditches also support a wide range of aquatic plants, which in turn support a wide range of other wildlife. Otters, water voles, grass snakes and amphibians are also present.

The proposed new section of motorway would also cross a number of non-statutory designations including eight Sites of Importance for Nature Conservation (SINCs), which include mostly river and grassland habitats and three areas of ancient woodland.

Without appropriate mitigation, the Scheme could have a significant adverse impact on many of the habitats and protected species found along the route of the proposed new section of motorway, particularly the sites designated for their nature conservation interest.

Proposed measures to mitigate the impacts resulting from the Scheme include the following:

- Avoidance of construction activities in the channels of the Rivers Usk and Ebbw below mean high water.
- Provision of the water treatment areas that includes ponds and reed beds to control the volume and quality water discharged to the reen system.



Gorsaf Bŵer Aber-wysg

Uskmouth Power Station

- Cadw ffosydd draenio sy'n bodoli eisoes drwy sianelu ffosydd draenio a ffosydd a darparu ffosydd draenio a ffosydd newydd yn lle unrhyw rai a gollir o ganlyniad i'r Cynllun (gyda mesurau i annog planhigion dŵr ac anifeiliaid di-asgwrn-cefn i'w cytrefu).
- Darparu ffensys mamaliaid parhaol ar hyd y rhan newydd o'r draffordd, ynghyd â thanffyrdd, cwlffertau mwy nag arfer a chroesfannau mamaliaid mewn lleoliadau addas.
- Symud pathewod, llygod dŵr, madfallod dŵr cribog ac ymlusgiad yn ddiogel o'r ardal adeiladu i gynefin addas newydd ei greu neu gynefin addas a wellwyd yn yr ardal oddi amgylch.
- Gwaith i symud clwydau ystlumod a chau deyerydd moch daear i'w wneud yn ystod y tymor priodol a darparu deyerydd a chlwydau ystlumod artifisiai yn eu lle. Darperir llwybrau llyswennod ar bob llifddor newydd.
- Clirio llystyfiant sy'n addas i adar sy'n nythu y tu allan i dymor bridio adar.

- Retention of existing reens by culverting and the replacement of reens and ditches lost to the Scheme (with measures to encourage colonisation by aquatic plants and invertebrates).
- Provision of permanent mammal fencing along the new section of motorway, together with underpasses, oversized culverts and mammal crossings at suitable locations.
- Safe removal of dormouse, water voles, great crested newts and reptiles from the construction area to newly created or enhanced suitable habitat within the surrounding area.
- Removal of bat roosts and the closure of badger setts to be undertaken during the appropriate season and replaced with artificial setts and bat roosts. Eel passes to be provided on all new sluices.
- Clearance of vegetation suitable for nesting birds outside the bird breeding season.

- Byddai'r gwaith o osod pysf ar gyfer glanfa ddwyreiniol Afon Wysg yn cael ei wneud y tu allan i brif gyfnod mudo pysgod.
 - Lansio rhannau parod o ddec/lôn gerbydau'r bont ar gyfer croesfan Afon Wysg o'r ddwy lan. Dim gwaith yn yr afon.
 - Darperir arolygon cyn adeiladu a gwaith lliniaru priodol ar gyfer pathewod, moch daear, llygod dŵr, dyfrgwn a madfallod dŵr cribog er mwyn cadarnhau unrhyw fesurau pellach sydd eu hangen yn ystod y cam adeiladu.
 - Creu ardaloedd o gynefin newydd, gan gynnwys creu ardal newydd o forfa heli, troi tir ffermio âr yn laswelltir parhaol ym Maerdy Farm a Chors Cil-y-coed, gwella glaswelltir a chyrsiau dŵr sy'n bodoli eisoes yn Tatton Farm a chreu glaswelltiroedd newydd a gwella glaswelltiroedd sy'n bodoli eisoes er mwyn gwneud iawn am gorstir pori a gollwyd o'r Safleoedd o Bwysigrwydd ar gyfer Cadwraeth Natur.
 - Câi perthi a choetir eu plannu yn benodol ar gyfer mamaliaid yn lle ardaloedd a gollwyd.
 - Rheoli a chynnal a chadw nodweddion lliniaru a monitro eu heffeithiolrwydd yn barhaus.
- Byddai angen trwyddedau rhywogaethau gwarchodedig ar gyfer y gwaith a fyddai'n effeithio ar foch daear, pathewod, ystlumod a madfallod dŵr cribog a cheid y trwyddedau hyn gan Cyfoeth Naturiol Cymru cyn dechrau ar y gwaith.

Gan ystyried y mesurau lliniaru uchod, crynhoir effeithiau'r Cynllun ar safleoedd dynodedig, cynefinoedd a rhywogaethau yma.

Yr unig safle a ddynodwyd ar lefel Ewropeaidd y byddai'r Cynllun yn effeithio arno'n uniongyrchol fyddai ACA Afon Wysg, lle y cai peilon dwyreiniol croesfan Afon Wysg ei leoli o fewn ardal o forfa heli. Gan fabwysiadu dull rhagofalus, byddai'r effaith ar ddyfrgwn sy'n defnyddio Afon Wysg, sef un o'r nodweddion cymhwysol ar gyfer yr ACA, yn arwyddocaol, a achosid yn bennaf drwy rannu eu tiriogaeth dros dro. Cai ardal newydd o forfa heli ei darparu yn lle'r un bresennol ac ni fyddai'r Cynllun yn cael effaith arwyddocaol ar

- Installation of piles for the east pier of the River Usk crossing would be undertaken outside the main fish migration period.
- Launching of pre-fabricated sections of bridge deck/carriageway for the River Usk crossing from both banks. No works within the river.
- Pre-construction surveys and appropriate mitigation to be provided for dormouse, badger, water vole, otter and great crested newt to confirm any further measures required during construction.
- Creation of areas of new habitat, including creation of a new area of saltmarsh, conversion of arable farmland to permanent grassland at Maerdy Farm and Caldicot Moor, enhancement of existing grassland and watercourses at Tatton Farm and the creation of new grasslands and enhancement existing grasslands to mitigate the loss of grazing marsh from SINCs.
- Hedgerows and woodland would be planted specifically for mammals to replace areas lost.
- Ongoing management maintenance and monitoring of the effectiveness of mitigation features.

Protected species licenses would be required for works affecting badgers, dormice, bats and great crested newts and these licences would be obtained from Natural Resources Wales prior to the commencement of works.

Taking into account the above mitigation, the effects of the Scheme on designated sites, habitats and species are summarised here.

The only European designated site which would be directly affected by the Scheme would be the River Usk SAC, where the east pylon of the River Usk crossing would be located within an area of saltmarsh. Taking a precautionary approach the effect on otters using the River Usk, one of qualifying features for the SAC, would be significant primarily due to the temporary fragmentation of their territory. The saltmarsh would be replaced, and migratory fish, the other qualifying feature for the SAC would not be significantly affected.

bysgod mudol, sef y nodwedd gymhwys o arall ar gyfer yr ACA. Ni fyddai'r effaith ar yr ACA yn gyffredinol yn arwyddocaol. Ni châi gweithrediad y rhan newydd o'r draffordd unrhyw effaith arwyddocaol ar unrhyw safle Ewropeaidd arall.

Cynhaliwyd Asesiad o Oblygiadau (prosiectau priffyrrd a/neu ffyrdd) ar Safleoedd Ewropeaidd hefyd yn unol â darpariaethau Rheoliadau Gwarchod Cynefinoedd a Rhywogaethau 2010 a chan ddilyn canllawiau'r Llawlyfr Dylunio ar gyfer Ffyrdd a Phontydd Cyfrol 11, Adran 4, Rhan 1 (HD44/09) (yr Asiantaeth Briffyrrd, 2009) ac fe'i cyhoeddir mewn dau adroddiad ar wahân.

Byddai'r rhan newydd o'r draffordd yn croesi SoDdGA Llansanffraid o fewn Gwastadeddau Gwent, SoDdGA Trefonnen a Goldcliff, SoDdGA Whitson a SoDdGA Redwig a Llandefenni. Byddai'r tir a gymerid ar gyfer y Cynllun yn cael effeithiau arwyddocaol ar y SoDdGAau. Byddai'r draffordd newydd yn croesi SoDdGA Afon Wysg (Rhan Isaf Afon Wysg), sydd hefyd wedi'i ddynodi'n ACA fel y nodwyd uchod. Ni châi gweithrediad y rhan newydd o'r draffordd (gan gynnwys newidiadau mewn ansawdd aer) unrhyw effaith arwyddocaol ar y safleoedd hyn a ddynodwyd yn genedlaethol.

Byddai'r tir a gymerid ar gyfer y rhan newydd o'r draffordd yn effeithio ar naw Ardal o Bwysigrwydd ar gyfer Cadwraeth Natur a dwy ardal o goetir hynafol. At hynny, byddai tir yn cael ei gymryd dros dro yn ystod y cam adeiladu o fewn tair Ardal o Bwysigrwydd ar gyfer Cadwraeth Natur. Ar y cyfan, byddai'r effeithiau ar yr Ardaloedd o Bwysigrwydd ar gyfer Cadwraeth Natur yn arwyddocaol.

Mae gwarchodfeydd natur yng nghyffiniau'r rhan newydd o'r draffordd yn cynnwys Gwarchodfa Natur Genedlaethol Gwlyptir Casnewydd a Gwarchodfa Natur yr RSPB Gwastadeddau Gwent a Gwarchodfeydd Natur Ymddiriedolaeth Bywyd Gwyllt Gwent yng Nghors Magwyr a Dolydd Great Traston. Ni fyddai'r Cynllun yn arwain at gymryd tir o unrhyw un o'r gwarchodfeydd natur hyn ac ni fyddai'n cael unrhyw effeithiau arwyddocaol eraill.

The effect on the SAC as a whole would not be significant. Operation of the new section of motorway would have no significant effect on any other European site.

An Assessment of Implications (of highways and/or roads projects) on European Sites (AIES) has also been carried out in accordance with the provisions of the Conservation of Habitats and Species Regulations 2010 and following the guidance of the Design Manual for Roads and Bridges (DMRB) Volume 11, Section 4, Part 1 (HD44/09) (Highways Agency, 2009) and is reported separately.

The new section of motorway would cross the Gwent Levels St Bride's SSSI, the Nash and Goldcliff SSSI, the Whitson SSSI and the Redwick and Llandevenny SSSI. The land take for the Scheme would have significant effects on the SSIs. The new motorway would cross the River Usk (Lower Usk) SSSI, which is also designated as an SAC as referred to above. Operation of the new section of motorway (including changes in air quality) would have no significant effect on these nationally designated sites.

The land take for the new section of motorway would affect nine SINCs and two areas of ancient woodland. In addition, there would be temporary land take during construction within three SINCs. Overall the effects on the SINCs would be significant.

Nature reserves in the vicinity of the new section of motorway are the Newport Wetlands National Nature Reserve and RSPB Nature Reserve, and the Magor Marsh and Great Traston Meadows Gwent Wildlife Trust Nature Reserves. The Scheme would not result in land take from any of these nature reserves and there would be no other significant effects.

Ymhlieth yr effeithiau arwyddocaol ar gynefinoedd o ganlyniad i gymryd tir fyddai effeithiau ar gorstir pori, coetir colldail cymysg iseldirol, perthi a chynefinoedd mosäig agored ar dir a ddatblygwyd yn flaenorol. Yn ystod y cam adeiladu gallai'r Cynllun gael effeithiau arwyddocaol ar afonydd, morfa heli, merddyfroedd ewtroffig a chorsleoedd. Ni châi gweithrediad y rhan newydd arfaethedig o'r draffordd effeithiau arwyddocaol ar gynefinoedd.

Byddai effeithiau arwyddocaol o ganlyniad i gymryd tir yn cynnwys effeithiau ar y gardwenynen feinlais, anifeiliaid di-asgwrn-cefn eraill y tir a thelor Cetti. Yn ystod y cam adeiladu, gallai'r Cynllun gael effeithiau arwyddocaol ar blanhigion dŵr, pathewod, dyfrgwn, anifeiliaid di-asgwrn-cefn dyfrol, cardwenyn meinlais, ystlumod, teloriaid Cetti ac adar sy'n gaeafu (pibyddion coesgoch, hwyaid llwyd a hwyaid llostfain). Yn ystod cam gweithredu'r rhan newydd o'r draffordd, gallai'r Cynllun gael effeithiau arwyddocaol ar ddyfrgwn, anifeiliaid di-asgwrn-cefn dyfrol a theloriaid Cetti.

Daeareg a Phriddoedd

Cynhalwyd sawl ymchwiliad ar y tir ar hyd llwybr y rhan newydd arfaethedig o'r draffordd. Mae'r ddaeareg ar hyd y llwybr yn amrywio o gerrig llaid a thywodfaen o'r cyfnod Defonaidd a'r Cyfnod Silwraidd yn y gorllewin, i gerrig llaid Triasig wedi'u gorchuddio â phriddoedd llifwaddodol meddal yn ardal isel Gwastadeddau Gwent ac i galchfaen carbonifferaidd yn y dwyrain. Mewn rhai rhannau o'r llwybr, mae gweithgarwch dynol hanesyddol wedi effeithio ar y ddaeareg megis yn ardal Dociau Casnewydd ac ar dir sy'n eiddo i gwmni Tata lle mae Tir Gwneud yn gyffredin ac yn gysylltiedig â'r gwaith a wnaed i adeiladu'r dociau. Ni cheir unrhyw safleoedd daearegol a ddynodwyd ar hyd llwybr y rhan newydd o'r draffordd.

Nodwyd 27 o safleoedd posibl y gallai halogiad tir fod wedi effeithio arnynt ar hyd y llwybr sy'n gysylltiedig â gweithgareddau diwydiannol hanesyddol gan gynnwys hen safleoedd tirlenwi, tir gweithfeydd dur a safleoedd cemegion. Mae pob safle wedi'i asesu er mwyn nodi a oes angen rhoi mesur

Significant effects of land take on habitats would be those on grazing marsh, lowland mixed deciduous woodland, hedgerows and open mosaic habitats on previously developed land. During construction there is the potential for significant effects on rivers, saltmarsh, eutrophic standing waters and reedbeds. Operation of the proposed new section of motorway would not have significant effects on habitats.

Significant effects of land take on species would be those on shrill carder bee, other terrestrial invertebrates and Cetti's warbler. During construction, there is potential for significant effects on aquatic plants, dormice, otter, aquatic invertebrates, shrill carder bee, bats, Cetti's warbler and wintering birds (redshank, gadwall and pintail). During operation of the new section of motorway, there is the potential for significant effects on otter, aquatic invertebrates and Cetti's warbler.

Geology and Soils

Several ground investigations have been undertaken along the route of the proposed new section of motorway. The geology along the route varies with mudstones and sandstone of the Devonian and Silurian age in the west, Triassic mudstone covered by soft alluvial soils in the low lying Gwent Levels to carboniferous limestones in the east. In some sections of the route, historical human activity has affected the geology such as within Newport Docks area, and on land owned by Tata where made ground is widespread and associated with construction of the docks. No designated geological sites are located on the route of the new section of motorway.

Twenty seven potential sites that may have been affected by land contamination have been identified along the route associated with historical industrial activities including former landfills, steelworks land and chemical sites. Each site has been assessed to determine whether remediation during construction is needed to protect human health and the environment during and post construction.

adfer tir ar waith yn ystod y cam adeiladu er mwyn diogelu iechyd pobl a'r amgylchedd yn ystod y cam adeiladu ac ar ôl hynny.

Rhoddid nifer o fesurau lliniaru ar waith yn ystod y cam adeiladu er mwyn lleihau effeithiau ar y ddaeareg a phriddoedd a sicrhau bod cyn lleied o dir â phosibl yn cael ei halogi. Mae hyn yn cynnwys strategaeth adfer a nodir mesurau atal llygredd arfer gorau yn y Cynllun Rheoli Amgylcheddol Cyn Adeiladu.

Mae dros hanner y llwybr yn croesi tir llwyd ac, felly, ychydig o uwchbridd a gâi ei golli. Pan fydd angen symud uwchbridd, megis ar dir ffermio, cãi priddoedd eu trin yn ofalus, eu pentyrru a'u hailanddefnyddio.

Ceir gorwelion mawn mewn gwahanol leoliadau ar hyd y llwybr ac yn ystod y cam adeiladu defnyddid mesurau rheoli diogel i ddiogelu'r gweithlu rhag unrhyw nwyon daear naturiol.

Cãi gwaith cloddio mewn ardaloedd y gwyddys y gallent fod wedi'u halogi ei wneud yn ofalus er mwyn atal halogiad rhag lledaenu a lleihau'r risg y bydd halogion yn mynd i mewn i nentydd, afonydd a ffosydd draenio. Cãi cyrsiau dŵr eu diogelu rhag unrhyw halogiad posibl yn ystod y cam adeiladu drwy roi Cynllun Diogelu Dŵr Wyneb ar waith.

Gwyddom fod rhai ardaloedd ar hyd y llwybr wedi'u bomio yn ystod yr Ail Ryfel Byd ac, felly, cãi Strategaeth Lliniaru Ordnans Heb Ffrwydro ei rhoi ar waith yn ystod y cam adeiladu.

Yn ystod y cam gweithredu, mae'r prif effeithiau yn cynnwys y posibilrwydd y bydd y defnydd a wneir o'r rhan newydd o'r draffordd, gan gynnwys tanwydd a chemegion sy'n cael eu gollwng drwy ddamwain, yn llygru cyrsiau dŵr wyneb, y dŵr daear a'r priddoedd gerllaw'r llwybr. Mae dyluniad y Cynllun yn cynnwys mesurau lliniaru ar ffurf systemau draenio addas gyda rhng-gipwyr olew i gasglu dŵr ffo o ffyrdd ac atal yr amgylchedd oddi amgylch rhag cael ei lygru. Cãi'r potensial i ddŵr sy'n tasgu oddi ar wyneb ffordd a llygryddion a gludir yn yr awyr effeithio ar briddoedd cyfagos ei leihau drwy blannu llystyfiant a all oddef amgylcheddau o'r fath.

A number of mitigation measures would be employed during construction to minimise effects on geology, soils and land contamination. This includes a remediation strategy and best practice pollution prevention measures set out within the Pre-Construction Environmental Management Plan.

Over half of the route passes over brownfield land and thus the loss of topsoil will be limited. Where topsoil requires removal, such as on farmland, soils would be carefully handled, stockpiled and reused.

Peat horizons are present in various locations within the Gwent Levels along the route and during construction safe control measures would be used to protect the workforce from any natural ground gases.

Excavations in the known areas of potential contamination would be undertaken carefully to prevent the spread of contamination and mitigate the risks of contaminants migrating into streams, rivers and reens. Watercourses would be protected from any potential contamination during construction through the implementation of a Surface Water Protection Plan.

Some areas along the route are known to have been bombed during World War II and so an Unexploded Ordnance Mitigation Strategy would be put in place during construction.

During operation, the principal impacts include the potential for pollution of surface watercourses, the groundwater and soils immediately adjacent to the route from use of the new section of motorway, including accidental fuel and chemical spills. The Scheme design includes mitigation measures in the form of suitable drainage systems with oil interceptors to capture road runoff and prevent contamination of the surrounding environment. The potential for surface spray and airborne pollutants impacting on adjacent soils would be mitigated by the planting of vegetation tolerant to such environments.

Gyda'r mesurau lliniaru a gynigir, yr unig effaith arwyddocaol fyddai'r effaith ar ddyfroedd wyneb sensitif Gwastadeddau Gwent y rhagwelir y gallai'r Cynllun gael effaith arwyddocaol arnynt yn ystod y cam adeiladu.

Deunyddiau

Câi cyfanswm o 5.4 miliwn metr ciwbig o uwchbridd, dyddodion arwynebol a cherrig eu cloddio o'r safle, a châi'r cyfan ei aildefnyddio o fewn ffiniau'r cynllun lle y bo'n ymarferol. Er mwyn cloddio cerrig, efallai y bydd angen gwneud gwaith ffrwydro mewn mannau lle mae'r garreg yn galed iawn ond cãi hyn ei werthuso gan ddefnyddio canllawiau a dulliau cymeradwy er mwyn lleihau'r risg i'r amgylchedd lleol a'r effaith arno cymaint â phosibl.

Byddai aildefnyddio deunydd a gloddiwyd yn lleihau faint o ddeunydd a gâi ei gludo fel arall i'w waredu mewn cyfleuster gwastraff ar ffyrdd cyhoeddus a faint o ddeunyddiau crai sylfaenol, megis craig a cherrig, a gâi eu mewnforio, gan arbed adnoddau mwynol.

Fodd bynnag, byddai angen mewnforio rhagor o ddeunyddiau yn cyfateb i 1.7 miliwn metr ciwbig er mwyn adeiladu'r Cynllun a, lle y bo'n bosibl, deuai'r rhain o gyflenwyr lleol megis chwareli Machen ac Ifton.

Câi deunyddiau a gafwyd o'r safle eu defnyddio yn unol â'r Cod Ymarfer a gymeradwywyd gan Cyfoeth Naturiol Cymru a gyhoeddir gan CL:AIRE. Er mwyn gwneud hyn byddai angen llunio Cynllun Rheoli Deunyddiau a fyddai'n dangos mesurau rheoli a chofnodi'r ffordd y mae deunyddiau wedi'u haildefnyddio er mwyn sicrhau addasrwydd peirianyddol a diogelu derbynyddion amgylcheddol.

Os ystyri i ddechrau nad yw deunyddiau a gafwyd o'r safle yn addas i'w defnyddio oherwydd presenoldeb halogiad a/neu nodweddion peirianyddol annigonol, dylent gael eu trin a/neu eu prosesu'n briodol fel y gellir eu cadw. Câi hyn ei gofnodi a'i gytuno o fewn strategaeth adfer. Câi unrhyw ddeunydd nad yw'n addas i'w ddefnyddio at ddibenion peirianyddol ei ddefnyddio fel deunydd tirlunio

With the mitigation measures proposed, the only significant effect would be on the sensitive surface waters of the Gwent Levels where a potentially significant effect is predicted during construction.

Materials

A total of 5.4 million cubic metres of topsoil, superficial deposits and rock would be excavated from the site, all of which would be reused within the Scheme boundaries where practicable. The excavation of rock may necessitate the use of blasting in areas where the rock is very hard but this would be subject to evaluation using approved guidance and methods to ensure minimal risk and impact on the local environment.

The reuse of excavated material would minimise both the amount of material that would otherwise be transported for disposal at a waste facility by public roads and the amount of imported primary raw materials, such as rock and stone, thereby preserving mineral resources.

However, further materials amounting to 1.7 million cubic metres required for construction would need to be imported and, where possible, these would be from local suppliers such as Machen and Ifton quarries.

The reuse of site won materials would be undertaken in accordance with the Natural Resources Wales approved Code of Practice published by CL:AIRE. This requires the preparation of a Materials Management Plan that would demonstrate control and document the reuse of materials to ensure engineering suitability and protection of environmental receptors.

Where site won materials are deemed initially unsuitable for use due to the presence of contamination and/or inadequate engineering properties, then appropriate treatment and/or processing would be undertaken to enable retention. This would be documented and agreed within a remediation strategy. Any material not suitable for use for engineering purposes would be utilised as landscaping



Ffosydd Ddraenio ar Wastaddeddau Cil-y-coed

er mwyn helpu i liniaru effaith weledol y rhan newydd o'r draffordd.

Yn ystod y cam gweithredu, ychydig o ddeunyddiau y byddai angen eu mewnforio neu eu gwaredu heblaw am y rhai sydd eu hangen ar gyfer gweithrediadau cynnal a chadw arferol, megis gwaredu ffensys diogelwch a ddifrodwyd, ailosod wyneb ar ffyrdd a deunyddiau tirlunio. Drwy ddefnyddio'r hierarchaeth wastraff o leihau, ailddefnyddio ac ailgylchu gwastraff cyn ei waredu, sicrhed bod cyn lleied o wastraff â phosibl yn cael ei waredu, a fyddai'n lleihau effeithiau posibl. Felly, ni fyddai'r effeithiau ar ddeunyddiau yn ystod y cam gweithredu yn arwyddocaol.

Yn gyffredinol, rhagwelir na fyddai'r effeithiau posibl ar yr adnoddau materol o ganlyniad i adeiladu a gweithredu'r Cynllun yn arwain at unrhyw effaith andwyol arwyddocaol ar yr adnoddau materol.

Sŵn a Dirgrynu

Mae'r amgylchedd sŵn yng nghyffiniau traffordd bresennol yr M4 a'r rhan newydd arfaethedig o'r draffordd wedi'i bennu ac wedi'i ddisgrifio gan ddefnyddio gwaith monitro sŵn sylfaenol. Dengys hyn fod lefelau sŵn

Reens on the Caldicot Levels

material to assist in softening the visual impact of the new section of motorway.

During operation, there would not be a significant requirement for the importation or disposal of materials other than those required for routine maintenance operations, such as the disposal of damaged safety fences, resurfacing and landscaping materials. By employing the waste hierarchy of reduction, re-use and recycling of waste prior to disposal, waste disposal would be minimised thereby reducing potential impacts. The effects on materials during operation would therefore not be significant.

Overall, it is anticipated that the potential impacts on the material resources as a result of the construction and operation of the Scheme would not result in any significant adverse effect on the material resources.

Noise and Vibration

The noise environment in the vicinity of the existing M4 motorway and the proposed new section of motorway has been determined and characterised by means of baseline noise monitoring. This demonstrates that

ar eu huchaf yn ystod y dydd ar hyd traffordd bresennol yr M4. Os na chaiff y Cynllun ei adeiladu, mae'n debygol y bydd lefelau sŵn sylfaenol o amgylch Casnewydd a thrwyddi ar draffordd bresennol yr M4 a'r ardaloedd oddi amgylch yn cynyddu yn gymesur â'r cynnydd disgwyliedig mewn lefelau traffig yn yr ardal.

Câi arfer gorau sylfaenol ei fabwysiadu yn ystod y cam adeiladu. At hynny, lle y bo angen, rhoddir mesurau lliniaru ychwanegol ar waith, gan gynnwys palisiau neu rwystrau sŵn dros dro o amgylch safleoedd gwaith neu weithgarwch arbennig o swnllyd a deunydd inswleiddio rhag sŵn lle y bo'n briodol. Byddai mesurau monitro penodol yn cynnwys monitro sŵn a monitro dirgryndod mewn eiddo preswyl a ddewiswyd yn ystod y cam adeiladu er mwyn cadarnhau cydymffurfiaeth â therfynau sŵn a dirgryndod.

Câi'r rhan fwyaf o'r gwaith adeiladu ei wneud yn ystod y dydd. Dim ond ar gyfer gwaith eithriadol y cynhelid gweithgareddau adeiladu gyda'r nos; er enghraift, codi strwythur pont i'w le.

Mewn ardaloedd lle mae peiriannau a gweithgareddau o fewn tua 115 metr o dderbynnyddion sŵn a dirgryndod sensitif y bydd y gwaith adeiladu yn debygol o gael yr effeithiau mwyaf arwyddocaol. O'r rhain, mae'n bosibl mai gwaith gerllaw pontydd, cloddiadau neu ardaloedd lle mae gwaith symud pridd ar raddfa fawr yn cael ei gyflawni a fyddai'n cael yr effeithiau mwyaf arwyddocaol oherwydd gallai'r rhain bara am gyfnod estynedig mewn lleoliadau penodol a gallent ddigwydd y tu allan i oriau gwaith arferol yn ystod y dydd. Dim ond ar gyfer cyfnod cymharol fyr y byddai gweithgareddau eraill yn para.

Mae gweithgareddau adeiladu a allai arwain at lefelau arwyddocaol o ddirgryndod yn cynnwys defnyddio morthwyl niwmatig i dorri wyneb ffordd sy'n bodoli eisoes, cywasgu dirgrynlol a gweithgareddau gosod pyst. Y tu hwnt i tua 28 metr o waith, ni fyddai unrhyw effaith andwyol arwyddocaol ar dderbynnyddion dynol, er y byddai'r pellter hwn yn llai ar gyfer adeiladau a strwythurau. Gyda'r mesurau lliniaru a gynigir, nid yw'r effeithiau yn debygol o fod yn arwyddocaol.

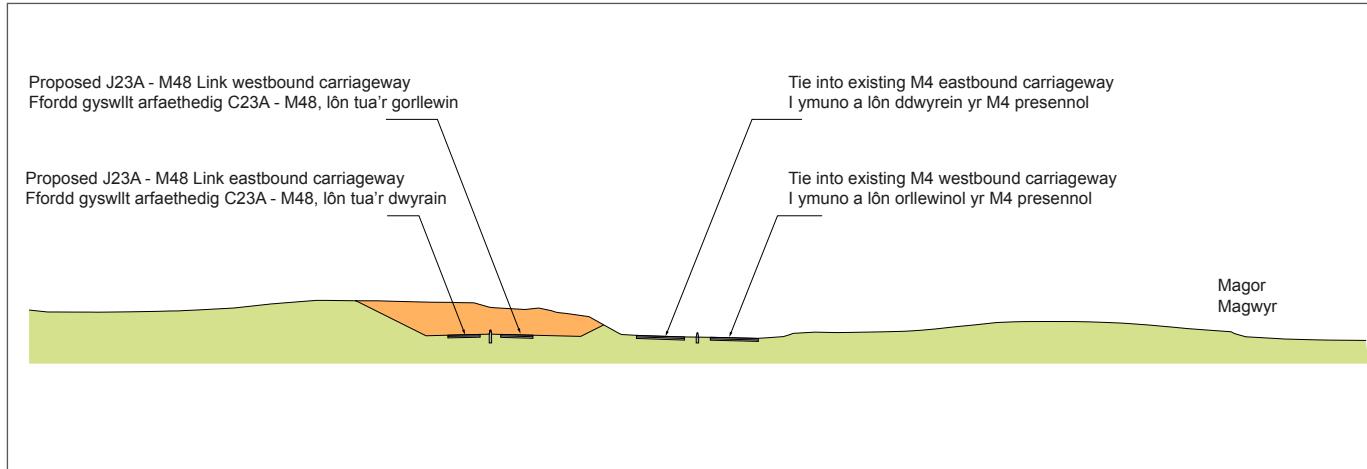
noise levels are highest during the daytime along the existing M4. In the absence of the Scheme, baseline noise levels around and through Newport on the existing M4 and the surrounding areas are likely to increase in proportion to the expected traffic growth for the area.

Standard best practice would be adopted during the construction phase. In addition, where necessary, additional mitigation would be put in place, including temporary hoardings or noise barriers around worksites or particularly noisy activity and sound insulation where appropriate. Specific monitoring measures would include noise monitoring and vibration monitoring at selected residential premises during construction to check compliance with noise and vibration limits.

The majority of construction works would be undertaken during the daytime period. Night time construction activities would only occur for exceptional works; for example lifting a bridge structure into place.

The most significant construction effects are likely to arise in areas where plant and activities are within around 115 metres of noise and vibration sensitive receptors. Of these, works at areas of bridges, cuttings or major earthmoving areas may be the most significant as these may last for an extended duration at specific locations and may occur outside normal daytime working hours. Other activities would only be for a relatively short duration.

Construction activities with the potential to result in significant levels of vibration comprise the use of a pneumatic hammer to break out existing road surface, vibratory compaction and piling activities. Beyond around 28 metres from works, there would be no significant adverse effect on human receptors, although this distance would be lower for buildings and structures. With the mitigation measures proposed, the effects are not likely to be significant.



Croestoriad arfaethedig ym Magwyr

Proposed cross-section at Magor

Fel rhan o gynllun y rhan newydd o'r draffordd, byddai wyneb ffordd tenau a mesurau sgrinio ar ffurf gwaith plannu, byndiau a waliau cynnal yn lleihau lefelau sŵn. Mae mesurau lliniaru a gynigir i reoli sŵn ffordd yn ystod y cam gweithredu yn cynnwys rhwystrau sŵn uchel 2 fetr o uchder mewn pedwar lleoliad ar hyd y rhan newydd o'r draffordd. Efallai y bydd angen cynlluniau inswleiddio rhag sŵn neu gynlluniau gwrthbwysol sŵn eraill ar gyfer anheddau neu eiddo anghysbell a allai wynebu cynnydd mewn lefelau sŵn o hyd.

Yn ystod y cam gweithredu, rhagwelir effeithiau sŵn buddiol ac andwyol arwyddocaol yn y byrdymor a'r hirdymor. Fodd bynnag, byddai'r rhan newydd o'r draffordd yn lleihau tagfeydd ar draffordd bresennol yr M4 ac effeithiau sŵn ohoni. Yn seiliedig ar y newid mewn lefelau sŵn a ragwelir, mae mwy o dderbynyddion yn debygol o weld gostyngiad mewn lefelau sŵn yn hytrach na chynnydd mewn lefelau sŵn.

Effeithiau ar Bob Teithiwr

Byddai'r Cynllun yn effeithio ar nifer o hawliau tramwy cyhoeddus a llwybrau a ddefnyddir yn bennaf gan gerddwyr a seichwyr. Byddai'r rhan newydd o'r draffordd yn effeithio ar un llwybr cenedlaethol, sef Llwybr Arfordir Cymru, ynghyd â'r rhan o Lwybr Arfordirol Casnewydd sy'n rhedeg ar hyd yr un aliniad. Mae hefyd yn croesi Llwybr Rhwydwaith Seiclo Cenedlaethol rhif 4, sy'n llwybr pellter hir rhwng Llundain ac Abergwaun, sy'n ffurio prif ran llwybr seiclo Llwybr Celtaidd y Dwyrafn sy'n mynd drwy Gasnewydd, y mae rhannau ohono yn ddi-draffig.

As part of the design of the new section of motorway, a thin road surface and screening in the form of planting, bunding and retaining walls would serve to reduce noise levels. Mitigation proposed to control operation road noise includes 2 metre high noise barriers at four locations along the new section of motorway. Noise insulation or other compensation may also be required for isolated dwellings or properties that may still be subject to noise increases.

During operation, both significant beneficial and adverse noise effects are predicted in the short and long term. However, the new section of motorway would reduce congestion on and noise effects from the existing M4. Based on the predicted noise change, a greater number of receptors are likely to experience a noise decrease rather than a noise increase.

Effects on All Travellers

The Scheme would affect a number of public rights of way and routes used predominantly by pedestrians and cyclists. One national route, the Wales Coast Path, together with the length of the Newport Coast Path that runs along the same alignment, would be affected by the new section of motorway. It also crosses the National Cycle Network Route 4, a long distance route between London and Fishguard, which forms the main portion of the Celtic Trail East cycle route passing through Newport, parts of which are traffic-free.

Cynhaliwyd nifer o ymweliadau â safleoedd ac arolygon o gyflwr a defnyddwyr hawliau tramwy cyhoeddus er mwyn nodi'r amodau sylfaenol ar gyfer cerddwyd, seiclwyr a marchogion.

Yn ystod y gwaith adeiladu, byddai angen cau rhai llwybrau dros dro neu'n barhaol, a byddai defnyddwyr yn cael defnyddio rhannau eraill o'r rhwydwaith yn ystod y cyfnod hwn.

Gan ystyried y mesurau lliniaru a gynigir i ddarparu gwyriadau dros dro ar gyfer yr hawliau tramwy cyhoeddus a'r llwybrau seiclo hynny yr effeithir arnynt yn ystod y cam adeiladu, gan gynnwys Llwybr Arfordir Cymru a Llwybr Arfordir Casnewydd, ni ragwelir unrhyw effeithiau sylweddol ar hawliau tramwy cyhoeddus, llwybrau seiclo na llwybrau eraill. Ni fyddai unrhyw effeithiau arwyddocaol ar weithrediadau trafnidiaeth gyhoeddus.

Yn ystod y cam adeiladu, byddai llwybrau presennol yr M4, yr M48 a'r A4810, ynghyd â'r rhan fwyaf o'r ffyrdd o fewn yr ardal astudio, yn parhau i fod ar agor o dan fesurau rheoli traffig, lle y bo angen, heblaw am ambell achos pan fyddai'n rhaid cau ffyrdd a lonydd ar y penwythnos dros nos wrth osod pontydd newydd a gwneud gwaith arall megis gwyro cyfleustodau. Fodd bynnag, câi sawl priffordd leol ei chau dros dro er mwyn gwneud gwaith ymestyn ar drosbontydd a thanbontydd presennol a darparu mynediad i draffig adeiladu. Er y câi llwybrau gwyro dros dro eu sefydlu mae'n debygol y bydd effaith andwyol arwyddocaol ar ddefnyddwyr ffyrdd lleol o ganlyniad i darfu ar deithiau o'r gogledd i'r de yn ardal Magwyr a'r cynnydd posibl yn hyd rhai teithiau. O ganlyniad, byddai gwaith adeiladu yn arwain at wahanu cymunedau h.y. efallai y caiff rhai trigolion eu hatal rhag teithio a byddai rhai teithiau yn hirach neu'n llai deniadol. Fodd bynnag, dros dro y byddai'r effaith hon a dim ond tan ddiwedd y cam adeiladu y byddai'n para.

A number of site visits and public rights of way condition and user surveys were undertaken to establish pedestrian, cyclist and equestrian baseline conditions.

During construction, some routes would require stopping up on a temporary or permanent basis and users would access other parts of the network during this time.

Taking into account the mitigation measures proposed to provide temporary diversions for those public rights of way and cycle paths affected during construction, including the Wales Coast Path and Newport Coast Path, no significant effects on public rights of way, cycle paths or other routes are predicted.

There would be no significant effects on public transport operations.

During construction, the existing M4, M48 and A4810, together with most local roads within the study area, would remain open under traffic management, where required, except for some overnight weekend road and lane closures during the installation of the new bridge structures and other works such as utility diversions. However, several local highways would be temporarily stopped up to enable extension works to be undertaken to existing overbridge and underbridge crossings and for construction access. Although temporary diversion routes would be put in place there is likely to be a significant adverse effect on users of local roads due to disruption to north-south journeys in the Magor area and the potential increase in the length of some journeys. This would result in a construction effect on community severance i.e. some residents may be dissuaded from making trips and some trips would be made longer or less attractive. However, this effect would be temporary and for the duration of construction only.

Ar ôl cwblhau'r gwaith adeiladu, cai cysylltiadau'r rhwydwaith hawliau tramwy cyhoeddus eu cadw gyda newidiadau i aliniad rhai llwybrau a rhai cysylltiadau newydd. Mae'r trosbontydd a'r tanffyrdd sy'n croesi traffordd bresennol yr A4 yn gysylltiadau pwysig i'r aneddiadau ar bob ochr i'r ffordd a byddai'r rhain yn cael eu cadw ar agor hyd nes y bydd y strwythurau newydd wedi'u cwblhau ac yn weithredol, lle y bo'n bosibl.

Cai'r asedau newydd canlynol eu darparu fel rhan o'r Cynllun, gan gynnwys Mesurau Ategol.

- Cai pum llwybr ceffylau newydd ac un llwybr troed cyhoeddus newydd eu creu, gan gynnwys un a fyddai'n rhedeg tua'r dwyrafn ar hyd Rush Wall o North Row i'r de o'r lôn gerbydau newydd, gan gysylltu aliniad presennol Tir Comin Barecroft a byddai'n darparu cyswllt oddi ar y ffordd rhwng Llwybr Rhwydwaith Seiclo Cenedlaethol rhif 4 yn North Row a Magwyr.
- Cai saith trosbont neu danbont newydd eu hadeiladu.
- Cai priffyrrd cyhoeddus newydd eu creu fel rhan o'r Cynllun gan gynnwys:
- Ffordd Gyswllt y Dociau a fyddai'n rhedeg o Gyffordd Docks Way i ymuno â'r A48, gan ddarparu mynediad i Ddociau Casnewydd ac ardal ddeheuol ganolog Casnewydd o'r rhwydwaith priffyrrd strategol;
- Ffordd Gyswllt Glan Llyn a fyddai'n rhedeg o Gyffordd newydd Glan Llyn i ymuno â'r A48, gan ddarparu mynediad i'r ardaloedd preswyl a masnachol presennol a newydd yn ne Casnewydd o'r rhwydwaith priffyrrd strategol.

Byddai'r mesurau a ymgorfforwyd yn nyluniad y Cynllun yn sicrhau na fyddai unrhyw effeithiau andwyol arwyddocaol ar bob teithiwr yn ystod cam gweithredu'r Cynllun.

Following completion of the construction works, the connectivity of the public rights of way network would be maintained with changes in the alignment of some routes and some new links provided. The existing overbridge and underpass crossings of the existing M4 provide important links for the settlements located on either side of the road and these would remain open until the new structures are completed and operational, where possible.

The following new assets would be provided as part of the Scheme, including Complementary Measures:

- Five new public bridleways and one new public footpath would be created, including one running eastwards along Rush Wall from North Row to the south of the new carriageway, linking to the existing alignment of Barecroft Common and would provide an off-road link between National Cycle Network Route 4 at North Row and Magor.
- Seven new overbridges or underbridges would be constructed.
- New public highways would be created as part of the Scheme including.
- Docks Link Road running north from the Docks Way Junction to meet the A48, providing access to Newport Docks and the central southern area of Newport from the strategic highway network; and
- Glan Llyn Link Road running from the new Glan Llyn Junction to meet the A48, providing access to existing and new residential and commercial areas in south Newport from the strategic highway network.

The measures incorporated into the design of the Scheme would ensure that there would be no significant adverse effects on all travellers during operation of the Scheme.

Asedau Cymunedol a Phreifat

Mae'r rhan newydd arfaethedig o'r draffordd yn rhedeg drwy amrywiaeth o ddefnyddiau tir trefol a gwledig, gan gynnwys tir amaethyddol (gan gynnwys tir pori ar Wastadeddau Gwent) ar ardaloedd diwydiannol o amgylch Casnewydd.

Lleolir y rhan fwyaf o'r cyfleusterau cymunedol yng nghyffiniau'r rhan newydd o'r draffordd o fewn aneddiadau Casnewydd, Magwyr/Gwendy a Chas-bach. Ymhlieth yr atyniadau i ymwelwyr yng nghyffiniau'r rhan newydd o'r draffordd mae Pont Gludo Casnewydd, Gwarchodfeydd Natur Dolydd Great Traston a Chors Magwyr, Canolfan Gwlyptiroedd Casnewydd a Gerddi a Groto Llanddewi.

O fewn ôl troed y rhan newydd o'r draffordd, ceir eiddo preswyl a masnachol a thir amaethyddol a ffermydd.

Cyfleusterau Cymunedol

Ni châi unrhyw gyfleusterau cymunedol nac unrhyw atyniadau twristaidd sy'n cael eu defnyddio ar hyn o bryd eu colli yn ystod y cam adeiladu a byddai effeithiau'r gweithrediad yn gyfyngedig i newidiadau mewn llifau traffig ar lwybrau sy'n gwasanaethu cymunedau a chyfleusterau lleol a rhai newidiadau mewn amwynder.

Asedau Preifat

Byddai angen dymchwel 12 o anheddu preswyl (gan gynnwys un adeilad rhestrredig) a sawl eiddo masnachol er mwyn darparu



Llwybr 4 Rhwydwaith Beicio Cenedlaethol
National Cycle Network Route 4

Community and Private Assets

The proposed new section of motorway runs through a variety of urban and rural land uses, including agricultural land (including grazing land on the Gwent Levels) and industrial areas around Newport.

The majority of community facilities in the vicinity of the new section of motorway are located within the settlements of Newport, Magor/Undy and Castleton. Visitor attractions in the vicinity of the new section of motorway include the Newport Transporter Bridge, Great Traston Meadows and Magor Marsh Nature Reserves, the Newport Wetlands Centre and Dewstow Gardens and Grottoes.

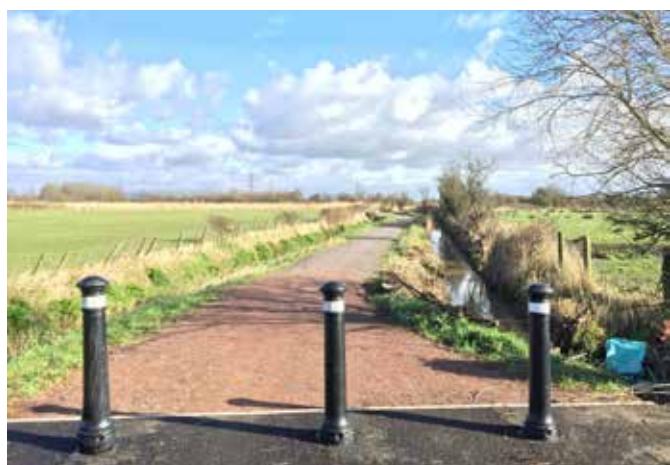
Within the footprint of the new section of motorway, there are residential and commercial properties and agricultural land and farm holdings.

Community Facilities

There would be no loss of community facilities or tourist attractions currently in use during construction and effects from the operation would be limited to changes in traffic flows on routes that serve local communities and facilities and some changes in amenity.

Private Assets

Twelve residential properties (including one listed building) and a number of commercial properties would require demolition to accommodate the new section of motorway.



Esiampi o lwybr beicio a cerdded
Example footway and cyclepath

ar gyfer y rhan newydd o'r draffordd. Câi perchenogion a deiliaid yr eiddo hwn iawndal am eu colled.

Byddai effeithiau gweithredol ar asedau preifat wedi'u cyfyngu, ar y cyfan, i'r newid parhaol mewn amwynder gweledol ac acwstig ger eiddo preswyl oherwydd presenoldeb y rhan newydd o'r draffordd a newidiadau disgwyliedig mewn llifau traffig gweithredol.

Effeithiau ar Fusnesau

Byddai effeithiau o ganlyniad i gymryd tir ar sawl eiddo masnachol ar hyd y rhan newydd arfaethedig o'r draffordd.

Byddai effeithiau dros dro ar adnoddau masnachol yn ystod y cam adeiladu. Effeithid ar ardal o dir o fewn ardal orllewinol Dociau Casnewydd yn ystod y cam adeiladu, a gâi ei dychwelyd i'r perchenog ar ôl i'r gwaith o adeiladu'r bont gael ei gwblhau.

The owners and occupiers of these properties would be financially compensated for their loss.

Operational effects on private assets would generally be limited to the permanent change in visual and acoustic amenity at residential properties due to the presence of the new section of motorway and predicted changes in operational traffic flows.

Effects on Businesses

There would be land take effects on a number of commercial properties along the proposed new section of motorway.

There would be temporary impacts on commercial resources during the construction phase. An area of land within the western area of Newport Docks would be impacted during the construction period, which would be returned to the owner on completion of the bridge construction works.



Planhigion arfaethedig i'r dwyrain o'r Afon Wysg

Proposed planting east of the River Usk

Tir a Ddefnyddir gan y Gymuned

O fewn ôl troed y rhan newydd o'r draffordd, effeithid ar rywfaint o 'Dir a ddefnyddir gan y Gymuned' (e.e. tir comin, meysydd tref neu bentref, rhandroedd tanwydd a gerddi maes a mannau agored cyhoeddus).

Mae hyn yn cynnwys:

- Rhan o'r safle i'r gogledd o'r lleiniau presennol ar safle Tyfu Eich Cnydau eich Hun Cas-bach.
- Byddai rhan fach o lain o dir comin sy'n ymestyn wrth ochr Afon Ebwy a fyddai o fewn yr ardaloedd cymryd tir parhaol a dros dro ar gyfer Tanbont newydd Afon Ebwy.
- Rhan ogleddol safle rhandroedd cofrestredig Green Moor Lane.

Byddai mesurau lliniaru mewn perthynas â cholli tir comin a rhandroedd cofrestredig dros dro neu'n barhaol yn cynnwys tir cyfnewid a gynigid i gymryd lle'r ddau adnodd yn barhaol.

Effeithiau ar Dir Amaethyddol a Ffermydd

Ceir tir amaethyddol o ansawdd gwell yn yr ardaloedd uwch ym mhennau gorllewinol a dwyreiniol y llwybr, tra bod rhan ganol y llwybr, sy'n croesi Gwastadeddau Gwent, o ansawdd is.

Yn ystod y cam adeiladu, cŵi methodoleg trin priddoedd fanwl ei llunio a fyddai'n nodi dulliau arfer gorau ar gyfer tynnu a storio priddoedd ac ailosod priddoedd mewn ardaloedd lle roedd tir wedi'i gymryd dros dro yn ystod y cam adeiladu er mwyn lleihau'r effeithiau ar dir amaethyddol. Câi'r fethodoleg hon ei rhoi ar waith gan y Cynllun Rheoli Amgylcheddol Cyn Adeiladu. Er mwyn lliniaru'r effeithiau ar ffermydd cynigir y dylid gwneud y canlynol:

- adfer tir ar ôl adeiladu'r Cynllun er mwyn lleihau faint o dir y byddai angen ei gymryd yn barhaol;
- addasu'r rhaglen adeiladu er mwyn darparu ar gyfer cynaeafu cnydau lle y bo'n bosibl;
- cadw pwyntiau mynediad i ffermydd lle y bo'n bosibl neu eu hail-ddarparu cyn gynted â phosibl o fewn y broses adeiladu;

Land Used by the Community

Within the footprint of the new section of motorway, some 'Land used by the Community' (e.g. common land, town and village greens, fuel and field garden allotments and public open space) would be affected. This comprises:

- An area of the site to the north of the existing plots on the Castleton Grow Your Own site.
- A small section of a strip of common land that runs alongside the River Ebbw that would be within the permanent and temporary land take areas for the new River Ebbw Underbridge.
- The northern part of the Green Moor Lane registered allotments site.

Mitigation measures in relation to the temporary or permanent loss of common land and registered allotments would take the form of exchange land that would be offered as a permanent replacement for both resources.

Effects on Agricultural Land and Farm Holdings

Better quality agricultural land is located on the higher areas at the western and eastern ends of the route, whilst the central part of the route, crossing the Gwent Levels, is of lower quality.

During construction, a detailed soil handling methodology would be produced which would identify best practice methods for the stripping, storage and replacement of soils on areas of temporary land take during construction to reduce effects on agricultural land. This would be implemented by the Pre-Construction Environmental Management Plan. To mitigate the effects on farm holdings it is proposed to:

- reinstate land following construction to reduce permanent land take;
- adjust construction programme to accommodate harvesting of crops wherever possible;
- maintain farm access points wherever possible or re provision as soon as possible within the construction process;

- cadw gwasanaethau hanfodol drwy gydol y cyfnod adeiladu;
- rhoi gweithdrefnau adeiladu arfer gorau ar waith er mwyn sicrhau na fydd unrhyw groeshalogi rhwng daliadau;
- defnyddio gweithdrefnau adeiladu arfer gorau er mwyn lleihau effeithiau llwch a sŵn ar gnydau a da byw;
- ailintegreiddio tir a adferwyd mewn cynlluniau priodol a weithredir gan y llywodraeth ar ôl ymgynghori â Cyfoeth Naturiol Cymru.

Byddai'r tir a gymerid o'r rhan newydd o'r draffordd yn arwain at golli tua 60 hectar o'r tir amaethyddol 'gorau a mwyaf amldefnydd'.

At hynny, ni fyddai'n arwain at golli tir yn ffisegol o ffermydd a leolir rhwng Cas-bach a Magwyr, ond byddai hefyd yn arwain at effeithiau parhaol eraill ar y ffermydd, gan gynnwys rhannu caeau a llwybrau mynediad o fewn y fferm a newidiadau i'r rhwydwaith o ffosydd draenio, y gallai fod iddynt oblygiadau ar gyfer lleoliad cyflenwadau dŵr i dda byw sy'n pori. Byddai tir a gymerid yn barhaol yn cael effaith benodol ar gyfanswm o naw fferm, a châi un fferm ychwanegol ei cholli'n gyfan gwbl.

Byddai gwaith adeiladu yn effeithio ar dir amaethyddol a phriddoedd y byddai eu hangen ar gyfer compowndiau, tyllau benthyg a ffyrdd cludo. Fodd bynnag, câi'r rhain eu hadfer a byddent ar gael i'w dychwelyd i'r perchenogion. Lle y bydd tyllau benthyg yn benodol wedi effeithio dros dro ar dir amaethyddol o ansawdd uchel ni fyddai ansawdd y tir cystal ar ôl iddo gael ei adfer.

At hynny, byddai gwaith adeiladu yn cael rhai effeithiau dros dro ar ddaliadau tir, lle y byddai'r tarfu a achosid yn effeithio ar nifer o fusnesau ffermio â'r tir a da byw. O'u hystyried ynghyd â'r tir a gymerid yn barhaol, byddai effeithiau arwyddocaol ar dir amaethyddol a ffermydd.

- maintain essential services throughout construction period;
- implement best practice construction procedures to ensure that no cross-contamination between holdings occurs;
- apply best practice construction procedures to minimise impacts of dust and noise on crops and livestock; and
- reintegrate restored land into appropriate government schemes following consultation with Natural Resources Wales.

The land taken from the new section of motorway would lead to the permanent loss of approximately 60 hectares of 'best and most versatile' agricultural land.

It would also not only lead to the physical loss of land from farm holdings located between Castleton and Magor, but would also lead to other permanent effects on the holdings, including the severance of fields and access routes within the farm holding and changes to the network of reens, which may have implications for the location of water supply to grazing livestock. A total of nine farm holdings would be particularly affected by permanent land take, with one additional holding lost in its entirety.

There would be construction effects on agricultural land and soils required for compounds, borrow pits and haul roads. However, these would be restored and available to be returned to the owners. Where high quality agricultural land is temporarily affected by borrow pits in particular the quality of the land would be reduced following restoration.

There would also be some temporary effects on land holdings arising from construction works, where the disruption would affect a number of arable and livestock based enterprises. When considered together with the permanent land take, there would be significant effects on agricultural land and farm holdings.

Draenio Ffyrdd a Dŵr

Cynhaliwyd asesiad o'r effeithiau tebygol y gallai'r Cynllun eu cael ar yr amgylchedd dŵr. Mae'r asesiad hwn yn ystyried yr effeithiau ar ansawdd dŵr, hydroleg ffisegol, hydroddaeareg a pherygl llifogydd sy'n gysylltiedig yn bennaf â'r gwaith o adeiladu'r rhan newydd o'r draffordd gan gynnwys dihysbyddu dŵr daear, systemau draenio ffyrdd gweithredol a gollyngiadau damweiniol posibl.

Mae'r amgylchedd dŵr yn cynnwys y system dŵr wyneb, gan gynnwys y ffosydd draenio, o fewn Gwastadeddau Gwent, cyrsiau dŵr wyneb eraill o fewn corridor y rhan newydd arfaethedig o'r draffordd sy'n cynnwys aberoedd llanwol Afon Wysg ac Afon Ebwy, dŵr daear a geir o fewn unedau dyfrhaenau a leolir o dan y corridor a chyrff dŵr eraill neu nodweddion eraill sy'n dibynnu ar ddŵr.

Yn ogystal â monitro dŵr daear, cynhaliwyd pedwar cylch monitro dŵr wyneb chwarterol ar hyd corridor y rhan newydd arfaethedig o'r draffordd er mwyn llunio disgrifiad sylfaenol cadarn o'r agweddau allweddol ar yr amgylchedd dŵr.

Mae Gwastadeddau Gwent yn ardal o bwysigrwydd a sensitifrywydd amgylcheddol arbennig o uchel. Mae'r Gwastadeddau yn gollwng dŵr wyneb i Aber Hafren drwy rwydwaith o ffosydd draenio â llociau llanw ac wyth cwrs dŵr arall. Mae Cyfoeth Naturiol Cymru yn rheoli lefelau croni dŵr haf a gaeaf. Mae Gwastadeddau Gwent yn system dŵr croyw ag ansawdd dŵr sylfaenol a nodweddir gan grynnodiadau cymharol fach o ocsigen wedi toddi, crynnodiadau uwch o faethynnau ond crynnodiadau bach iawn o fetelau nad ydynt yn uwch na safonau ansawdd dŵr yn aml.

Mae'r system rheoli dŵr wyneb ar gyfer safle Gwaith Dur Tata sydd wedi'i wahanu'n hydrolig oddi wrth Wastadeddau Gwent o'i amgylch yn gollwng drwy bibell arllwys o fewn Aber Hafren, a reolir o dan Drwydded Amgylcheddol.

Road Drainage and Water

An assessment has been undertaken of the likely effects the Scheme may have on the water environment. This assessment considers the effects on water quality, physical hydrology, hydrogeology and flood risk that are principally associated with the construction of the new section of motorway including groundwater dewatering, operational road drainage and potential accidental spillages.

The water environment comprises the surface water system, including the reens, within the Gwent Levels, other surface watercourses within the corridor of the proposed new section of motorway that include the tidal estuaries of the River Usk and River Ebbw, groundwater contained within aquifer units that underlie the corridor and other water bodies or water dependent features.

In addition to groundwater monitoring, four quarterly surface water monitoring rounds have been undertaken throughout the corridor of the proposed new section of motorway to produce a robust baseline description of the key aspects of the water environment.

The Gwent Levels are an area of particularly high environmental importance and sensitivity. The Levels drain surface water to the Severn Estuary through a network of tide locked reens and eight other watercourses. Natural Resources Wales control summer and winter water penning levels. The Gwent Levels is a freshwater system with baseline water quality characterised by moderate concentrations of dissolved oxygen, elevated concentrations of nutrients but very low concentrations of metals that rarely exceed water quality standards.

Surface water management for the Tata Steel site that is hydraulically separated from the surrounding Gwent Levels is drained to an outfall pipe within the Severn Estuary, managed under an Environmental Permit.

Mae'r system dŵr wyneb sy'n croesi Gwastadeddau Gwent wedi'i lleoli ar tua 3 i 12 metr o ddyddodion gwastadedd llanwol llawn clai sy'n ei gwahanu, i bob pwrrpas, oddi wrth y system dŵr daear waelodol. Mae dyddodion tywod a graean a'r creigwely o fewn corridor y rhan newydd o'r draffordd yn dal dŵr daear, ac mae'r olaf wedi'i ddynodi'n uned ddyfrhaen eilaidd gan Cyfoeth Naturiol Cymru.

Er ei fod wedi'i ddynodi'n ddyfrhaen, mae'r dŵr daear a geir o fewn Gwastadeddau Cily-coed ac ardaloedd ger Afon Wysg ac Afon Ebwy yn lled hallt ac, felly, ni ellir ei yfed. I'r gwrthwyneb, mae'r dŵr daear o fewn Gwastadeddau Gwynllwg yn ddŵr croyw fel arfer. Nid oes yr un Ardal Diogelu Tarddiad Dŵr ar gyfer ffynonellau tynnu dŵr daear wedi'i diffinio yng nghyffiniau'r rhan newydd o'r draffordd.

Nodweddir y tir uchel o amgylch Cyfnewidfa Cas-bach gan grym dipyn o weithgarwch dŵr daear ar ffurf ffynhonnau, dŵr sy'n tryddiferu a nodweddion gwlyptir lleol sydd fel arfer yn nodi tarddiad cyrsiau dŵr lleol a ffynonellau tynnu dŵr preifat bach. Dim ond nifer fach o ffynonellau tynnu dŵr daear sydd wedi'u nodi yn yr ardal o amgylch Cyfnewidfa Magwyr.

Mae'r prif effeithiau ar yr amgylchedd dŵr sy'n gysylltiedig â gwaith adeiladu yn gysylltiedig â dŵr wyneb ffo, gollyngiadau o systemau draenio a/neu ollyngiadau damweiniol a achosir gan weithgarwch adeiladu, yn arbennig o fewn Gwastadeddau Gwent. At hynny, gallai'r gwaith i addasu'r system ffosydd draenio o fewn ôl troed y briffordd arfaethedig a chreu ffosydd draenio a ffosydd newydd yn lle'r rhai presennol hefyd effeithio'n uniongyrchol ar ansawdd dŵr a pherygl llifogydd. At hynny, gallai defnyddio sylfeini pysst ar hyd darnau uwch o arglawdd a rhan ganol y rhan newydd o'r draffordd a fydd yn croesi pont achosi halogiad drwy greu llwybrau newydd, yn enwedig yng nghyffiniau safleoedd halogedig hysbys.

The surface water system crossing the Gwent Levels is situated upon approximately 3 to 12 metres of clay-rich tidal flat deposits which effectively separate it from the underlying groundwater system. Sand and gravel deposits and the bedrock within the corridor of the new section of motorway are groundwater bearing, with the latter designated as a secondary aquifer unit by Natural Resources Wales.

Despite its designation as an aquifer, groundwater encountered in the Caldicot Levels and areas close to the River Usk and River Ebbw is brackish in nature and therefore non-potable. In contrast, groundwater within the Wentlooge Levels is typically fresh. No Source Protection Zones for groundwater abstraction sources have been defined in the vicinity of the new section of motorway.

The high ground around the Castleton Interchange is characterised by significant groundwater activity in the form of springs, seepages and localised wetland features that commonly mark the source of local watercourses and small private abstraction sources. Only a small number of groundwater abstractions sources are identified in the area around the Magor Interchange.

The principal construction related water environment impacts are associated with surface water runoff, drainage discharges and/or accidental spillages from construction, particularly within the Gwent Levels. Additionally, the modification of the reen system within the footprint of the proposed highway and the creation of new replacement reens and drains may also affect water quality and flood risk directly. The use of piled foundations along elevated sections of embankment and the central bridged section of the new section of motorway also have the potential to cause contamination by the creation of new pathways, particularly in the vicinity of known contaminated sites.

Câ'i'r rhan fwyaf o effeithiau'r cam adeiladu eu lliniaru drwy ddatblygu a gweithredu nifer o gynlluniau rheoli a gaiff eu llywio gan asesiadau technegol ac arferion gorau'r diwydiant a roddir ar waith drwy'r Cynllun Rheoli Amgylcheddol Cyn Adeiladu cyffredinol. Mae'r cynlluniau hyn yn cynnwys: Cynllun Atal Llygredd, Strategaeth Canfod a Gwirio Halogiad, Cynllun Rheoli Dŵr Wyneb, Cynllun Rheoli Dŵr Daear, Cynllun Strategaeth Adfer ac Asesiad Risg Gosod Pyst. Cynigir mesurau cadarn i fonitro'r amgylchedd dŵr yn ystod y cam cyn adeiladu, y cam adeiladu a'r cam gweithredu.

Mae asesiad ceidwadol o'r risg i ffynhonnell tynnu dŵr daear breifat sydd agosaf at ardaloedd lle y ceir cloddiadau newydd neu estynedig yn nodi mai ar y rhai wrth Gyfnewidfa Cas-bach y bydd y Cynllun yn fwyaf tebygol o effeithio. Byddai'r cyflenwadau dŵr hynny yn destun gwaith monitro sylfaenol a gwaith monitro yn ystod y cam adeiladu a'r cam gweithredu ac yn ddarostyngedig i fesurau wrth gefn y cytunwyd arnynt sy'n cynnwys darparu ffynhonnell amgen o ddŵr.

Mae a wnelo'r risg fwyaf i ansawdd dŵr daear yn ystod y cam adeiladu â gweithgareddau arfaethedig mewn ardaloedd y gwyddys eu bod wedi'u halogi ar hyd y rhan newydd arfaethedig o'r draffordd.

The majority of construction phase effects would be mitigated through the development and implementation of a range of management plans informed by technical assessments and industry best practices implemented through the overarching Pre-Construction Environmental Management Plan. These plans include: a Pollution Prevention Plan, a Contamination Discovery and Verification Strategy, a Surface Water Management Plan, a Groundwater Management Plan, a Remediation Strategy Plan and a Piling Risk Assessment. Robust pre-construction, construction phase and operational phase water environment monitoring is proposed.

A conservative assessment of the risk to all private groundwater abstractors in closest proximity to areas of new or extend cuttings, principally at the Castleton Interchange, are at greatest risk of impact. Those water supplies would be subject to baseline, construction phase and operational phase monitoring and would be subject to agreed contingency measures that include the provision of an alternative source of water.

The greatest risk to groundwater quality during the construction phase relates to proposed activities within areas of known contamination along the proposed new section of motorway.



**Y Rhwydwaith Ffosydd Ddraenio ar hyd Gwastadeddau Gwent
The Reen Network along the Gwent Levels**

Y tu allan i'r ardaloedd hyn, mae'n bosibl y bydd sylweddau a allai fod yn beryglus sy'n cael eu hallyrru/gollwng yn ddamweiniol i'r ddaear a tharfu ar ardaloedd na wyddys p'un a ydynt wedi'u halogi ai peidio ar hyn o bryd yn effeithio ar ansawdd dŵr daear. Lliniarwyd yr effeithiau posibl hyn drwy'r asesiadau a'r cynlluniau rheoli a ddisgrifiwyd uchod.

Cynigiwyd y dylid aildefnyddio priddoedd a gafwyd o'r safle o fewn dyluniad y Cynllun, yn enwedig i lenwi argloddiau neu, os na fyddant yn addas i'w defnyddio fel hyn, i ôl-lenwi tyllau benthyg. Er mwyn diogelu'r amgylchedd dŵr, dim ond priddoedd yr aseswyd nad ydynt yn llygru a gaiff eu hystyried i'w hailanddefnyddio, mewn cytundeb â Cyfoeth Naturiol Cymru.

Dŵr ffo gweithredol o briffyrd a gollyngiadau damweiniol yw'r brif risg i'r Cynllun gweithredol. Lliniarwyd yr effeithiau posibl hyn drwy ddyluniad y rhan newydd o'r draffordd, gan gynnwys ardaloedd trin dŵr. Mae pob ardal trin dŵr wedi'i chynllunio i sicrhau ei bod yn darparu digon o gapasiti trin er mwyn sicrhau y byddai gollyngiadau yn bodloni gofynion ansawdd a llif rheoliadol ar gyfer diogelu SoDdGAau Gwastadeddau Gwent. Ni fyddai'r effeithiau gweithredol ar ansawdd dŵr daear yn arwyddocaol, o ystyried na fyddai unrhyw ollyngiadau uniongyrchol i ddŵr daear.

Cynhaliwyd Asesiad o Ganlyniadau Llifogydd yn seiliedig ar waith modelu llifogydd helaeth a wnaed mewn perthynas â Gwastadeddau Gwent a choridor ehangach y rhan newydd o'r draffordd. Ar sail canlyniadau'r gwaith modelu llifogydd, deur i'r casgliad na ragwelir unrhyw effaith andwyol arwyddocaol ar berygl llifogydd o ganlyniad i adeiladu'r Cynllun. Cynlluniwyd systemau draenio sy'n gysylltiedig â'r gwaith adeiladu er mwyn darparu ar gyfer y cynnydd rhagweledig mewn glawiad a ddisgwylir yn rhesymol a achosir gan stormydd yn ystod y cyfnod adeiladu.

Cynlluniwyd draeniau ffyrdd gweithredol er mwyn darparu ar gyfer glawiad 1 mewn 100 mlynedd â newid yn yr hinsawdd. Felly, byddai'r seilwaith draenio yn gallu casglu, symud a gollwng dŵr o ddraeniau priffydd o fewn terfynau derbyniol.

Outside of these areas, groundwater quality may be affected by accidental emissions/releases of potentially hazardous substances to ground and disturbance of areas of currently unknown contamination. These potential effects have been mitigated through the assessments and management plans described above.

It has been proposed to reuse site won soils within the Scheme design, most notably as embankment fill, or when unsuitable, to backfill borrow pits. To ensure protection of the water environment, only soils assessed as non-polluting will be considered for reuse, in agreement with Natural Resources Wales.

Operational highway runoff and accidental spillages represent the principal risk of the operational Scheme. These potential effects have been mitigated through the design of the new section of motorway, including water treatment areas. Each water treatment area has been designed to ensure that it provides sufficient treatment capacity to ensure discharges would meet regulatory quality and flow requirements for the protection of the Gwent Levels SSSIs. The operational effects on groundwater quality would not be significant, considering the absence of any direct discharges to groundwater.

A Flood Consequences Assessment has been undertaken based on extensive flood modelling of the Gwent Levels and wider corridor of the new section of motorway. From the flood model results, it is concluded that no significant adverse effect on flood risk is anticipated as a consequence of construction. Construction drainage has been designed to accommodate the predicted increase in rainfall reasonably expected due to storms during the construction period.

Operational road drainage has been designed to accommodate 1 in 100 year plus climate change rainfall. The drainage infrastructure would therefore be capable of capturing, conveying and releasing highways drainage within acceptable limits.

Aseswyd yr effaith ar berygl llifogydd ar gyfer y rhan newydd arfaethedig o'r draffordd ar ôl i ffosydd draenio gael eu sianelu ac ar ôl i ffosydd draenio a ffosydd newydd gael eu darparu yn lle rhai presennol er mwyn parhau i symud dŵr wyneb drwy'r aliniad. Rhagwelir llifogydd lleol a fydd yn effeithio ar dir ond nid ar eiddo.

Mae Strategaeth Rheoli Perygl Llifogydd Aber Hafren yn argymhell y dylid gwella amddiffynfeydd ar gyfer Gwastadeddau Gwent, gan ddal i fyny â newid yn yr hinsawdd. Byddai'r amddiffynfeydd arfaethedig ar hyd blaen y traeth a rhannau isaf Afon Wysg ac Afon Ebwy yn amddiffyn y rhan newydd arfaethedig o'r draffordd yn erbyn ymchwydd llanwol 1 mewn 1000 o flynyddoedd yn Aber Hafren.

Ar y cyd â gwelliannau Cyfoeth Naturiol Cymru i amddiffynfeydd môr Gwastadeddau Gwent, byddai'r rhan newydd arfaethedig o'r draffordd yn cydymffurfio â pholisi cynllunio presennol Llywodraeth Cymru o ran perygl llifogydd llanwol hyd at 2030. Byddai gwelliannau parhaus i amddiffynfeydd môr ar ôl 2030, yn unol â pholisi Cyfoeth Naturiol Cymru, yn sicrhau y byddai'r rhan newydd arfaethedig o'r draffordd yn parhau i gydymffurfio â'r polisi yn y dyfodol.

Effeithiau Cronnol

Cyfeirir at effeithiau'r Cynllun ynghyd ag effeithiau datblygiadau eraill nas adeiladwyd eto fel effeithiau cronnol. Mae datblygiadau mawr o ran y broses gynllunio (megis seilwaith mawr a datblygiadau tai mawr, ffermydd solar a thyrbinau gwynt) a thir a ddyrannwyd ar gyfer gwaith datblygu yng Nghynlluniau Datblygu Lleol Casnewydd, Sir Fynwy a Chaerdydd wedi'i ddadansoddi i nodi a allent effeithio ar yr un derbynnyddion neu adnoddau â'r rhai y bydd y Cynllun yn effeithio arnynt.

Mae nifer o fathau o effeithiau cronnol sy'n debygol o ddigwydd yn ystod oes y Cynllun. Mae'r rhain yn cynnwys effeithiau cronnol o ganlyniad i golli tir mewn perthynas ag SoDdGAau Gwastadeddau Gwent; y tir amaethyddol gorau a mwyaf amldefnydd

The effect on flood risk has been assessed for the proposed new section of motorway following the culverting of reens and provision of replacement reen and ditches to maintain conveyance of surface water through the alignment. Localised areas of flooding affecting land, but not property, are predicted.

The Severn Estuary Flood Risk Management Strategy recommends improve defences for the Gwent Levels, keeping pace with climate change. The proposed defences along the foreshore and along the lower reaches of the Rivers Usk and Ebbw would offer protection to the proposed new section of motorway against a 1 in 1000 year tidal surge event within the Severn Estuary.

In conjunction with Natural Resources Wales improvements to the Gwent Levels sea defences, the proposed new section of motorway would be compliant with current Welsh Government planning policy with respect to tidal flood risk up to the year 2030. Continued improvements to sea defences beyond 2030, in line with Natural Resources Wales policy, would ensure that the proposed new section of motorway would remain compliant into the future.

Cumulative Effects

The effects of the Scheme combined with the effects from other as yet unbuilt developments are referred to as cumulative effects. Major developments in the planning process (such as major infrastructure and large housing developments, solar farms and wind turbines) and land allocated for development in the Newport, Monmouthshire and Cardiff Local Development Plans have been analysed for their potential to affect the same receptors or resources as those affected by the Scheme.

There are a number of types of cumulative effects likely to occur during the lifetime of the Scheme. These include cumulative effects due to loss of land in respect of the Gwent Levels SSSIs; best and most versatile agricultural land and various farm holdings; and the loss of terrestrial habitat for otters, dormice and other

ac amrywiol ffermydd; a cholli cynefin tirol ar gyfer dyfrgwn, pathewod a rhywogaethau gwarchodedig eraill. Byddai'r rhan fwyaf o'r effeithiau cronnol posibl yn gysylltiedig â ffermydd solar arfaethedig a gâi eu datblygu yng nghyffiniau'r Cynllun.

Yn yr un modd, efallai y bydd y Cynllun a datblygiadau cynlluniedig neu arfaethedig eraill yn cael effeithiau cronnol ar dirwedd hanesyddol Gwastadeddau Gwent a lleoliad sawl ased treftadaeth ddiwylliannol.

Byddai effeithiau cronnol ar rai o'r anheddu preswyl a leolir agosaf at y Cynllun, ynghyd â sawl hawl dramwy gyhoeddus (gan gynnwys Llwybr Arfordir Cymru a Llwybr Arfordir Casnewydd), yn ystod y cam adeiladu a gweithrediad y Cynllun gyda datblygiadau wedi'u rhaglennu eraill a nodir yng Nghynlluniau Datblygu Lleol Dinas Casnewydd a Chyngor Sir Fynwy, yn ogystal â datblygiadau preifat gan gynnwys ffermydd solar. Byddai'r effeithiau hyn yn benodol mewn perthynas â'r effaith weledol, sŵn ac, o bosibl, ansawdd aer.

Mae'n bosibl y bydd effaith gronnol ar adar sy'n gaeafu o ganlyniad i golli ardaloedd ysbeilio addas o fewn y Cynllun neu'n agos ato ac ardaloedd rhynghlanwol ac islanwol y gallai datblygiadau arfaethedig Lagwnau Llanwol Caerdydd a Chasnewydd effeithio arnynt.

Bellach, mae gan bobl y cyfle i wrthwynebu neu gefnogi'r Gorchmynion drafft, neu gyflwyno sylwadau ar y Datganiad Amgylcheddol.

protected species. The majority of potential cumulative impacts would be with proposed solar farm developments in the vicinity of the Scheme.

Similarly, cumulative effects between the Scheme and other planned or proposed developments may occur in respect of the historic landscape of the Gwent Levels and the setting of several cultural heritage assets.

Some of the closest residential properties to the Scheme, together with several public rights of way (including the Wales Coast Path and the Newport Coast Path), would experience cumulative effects both during construction and the operation of the Scheme with other programmed developments set out in the Local Development Plans of Newport City Council and Monmouthshire County Council, as well as with private developments including solar farms. These effects would particularly be in respect of visual impact, noise and potentially air quality.

Wintering birds may experience a cumulative effect resulting from the loss of suitable foraging areas within or close to the Scheme and intertidal and subtidal areas that could be impacted upon by the proposed Cardiff and Newport Tidal Lagoon developments.

Wedyn bydd Gweinidogion Cymru yn ystyried ymatebion ac yn penderfynu a ddylid cynnal Ymchwiliad Lleol Cyhoeddus, lle y bydd Arolygydd annibynnol yn ystyried y dystiolaeth a gwneud argymhelliaid. Bydd Gweinidogion Cymru wedyn yn penderfynu a ddylid mynd ymlaen i wneud y Gorchmynion a dechrau adeiladu'r Cynllun. Gallai'r gwaith ddechrau yn 2018, gyda'r rhan newydd o draffordd yn agor yn 2021.

Mae rhaglen Llywodraeth Cymru fel y'i nodir isod:

Any person or organisation can object, support or suggest alternatives to the draft Orders, or comment on the Environmental Statement and/or the Statement to Inform an Appropriate Assessment.

Welsh Ministers will then consider responses and decide whether to hold a Public Local Inquiry, where an independent Inspector would consider the evidence and make a recommendation. Welsh Ministers would then decide whether to begin construction. Work could start in 2018, with the new section of motorway open in 2021.

The Welsh Government's programme is:

Gweithgaredd	Dyddiad Allweddol	Beth mae hyn yn ei olygu
Cyhoeddi'r Gorchmynion Drafft, y Datganiad Amgylcheddol a gwybodaeth ategol arall	Mawrth 2016	Cewch gyfle i weld y dogfennau sydd ar gael a mynegi eich barn.
Gweinidogion Cymru yn penderfynu a ddylid cynnal Ymchwiliad Lleol Cyhoeddus	Haf 2016	Byddai Gweinidogion Cymru yn ystyried unrhyw ymatebion ac wedyn yn penderfynu a ddylid cynnal Ymchwiliad Lleol Cyhoeddus.
Ymchwiliad Lleol Cyhoeddu.	Hydref 2016	Byddai Arolygydd Annibynnol yn ystyried y dystiolaeth ac yn gwneud argymhelliaid i Weinidogion Cymru.
Byddai Gweinidogion Cymru yn penderfynu a ddylid gwneud y Gorchmynion Statudol	Hydref/Gaeaf 2017	Yn dibynnu ar ganlyniad yr Ymchwiliad Lleol Cyhoeddus, byddai Gweinidog Cymru yn penderfynu a ddylid gwneud y Gorchmynion Statudol a bwrw ati i adeiladu'r Cynllun.
Dechrau adeiladu	Gwanwy 2018	Byddai gwaith yn dechrau ar adeiladu'r rhan newydd o'r draffordd
Rhan newydd o'r draffordd yn agor	Hydref 2021	Byddai'r rhan newydd o'r draffordd ar agor i'r cyhoedd a byddai'r gwaith o ailddosbarthu llwybr presennol yr M4 yn dechrau.
Cwblhau'r gwaith ailddosbarthu	Hydref 2022	Cwblhau'r gwaith o ailddosbarthu traffordd bresennol yr M4 yn gefnffordd.

Tabl 1: Llinell Amser y cynllun

Activity	Key Date	What this means
Publication of Draft Orders, Environmental Statement and other supporting information	March 2016	Any person or organisation can object, support or suggest alternatives to the draft Orders, or comment on the Environmental Statement and/or the Statement to Inform an Appropriate Assessment. All responses should be sent to arrive at the Welsh Government no later than the 4th May 2016.
Welsh Minister's decision whether to hold a Public Local Inquiry	Summer 2016	The Welsh Ministers would consider any responses and then decide whether to hold a Public Local Inquiry
Public Local Inquiry	Autumn 2016	An independent Inspector would consider the evidence and make a recommendation to the Welsh Ministers
Welsh Ministers would decide whether to make the Statutory Orders	Autumn/Winter 2017	Depending on the outcome of the Public Local Inquiry, the Welsh Ministers would decide whether to make the statutory Orders and to go ahead with the construction of the Scheme
Commence construction	Spring 2018	Works to build the new section of motorway would start
New section of motorway open	Autumn 2021	The new section of motorway would open to the public and works to reclassify the existing M4 route would start
Completion of reclassification works	Autumn 2022	Completion of reclassification of existing M4 to a trunk road

Table 1: Scheme Timeline

Rhagor o wybodaeth

Cyflwynir y Datganiad Amgylcheddol mewn pedair cyfrol.

- Y Crynodeb Annhechnegol hwn.
- Cyfrol 1 – Y prif destun.
- Cyfrol 2 – Set o ffigurau ategol i'w darllen ochr yn ochr â Chyfrol 1.
- Cyfrol 3 – Set o atodiadau technegol i'w darllen ochr yn ochr â Chyfrol 1.

Gellir gweld copïau o'r Gorchmynion drafft, y Crynodeb Annhechnegol hwn, y Datganiad Amgylcheddol llawn a'r wybodaeth ategol yn ystod oriau swyddfa arferol yn y lleoliadau isod.

- Y Gangen Gorchmynion, Trafnidiaeth, Adran yr Economi, Gwyddoniaeth a Thrafnidiaeth, Llywodraeth Cymru, Parc Cathays, Caerdydd, CF10 3NQ.

Further information

The Environmental Statement is reported in four volumes:

- This Non-Technical Summary.
- Volume 1 – Main text.
- Volume 2 – A set of supporting figures to be read alongside Volume 1.
- Volume 3 – A set of technical appendices to be read alongside Volume 1.

Copies of the draft Orders, this Non-Technical Summary, the full Environmental Statement and supporting information are available to view during normal office hours at the locations below:

- Orders Branch, Transport, Department of Economy Science and Transport, Welsh Government, Cathays Park, Cardiff, CF10 3NQ.

- Cyngor Dinas Casnewydd, Y Ganolfan Ddinesig, Godfrey Road, Casnewydd, NP20 4UR.
- Cyngor Sir Fynwy, Neuadd y Sir, Y Rhadyr, Brynbuga, NP15 1GA.
- Cyngor Sir Fynwy, Tŷ Arloesi, Parc Busnes Cymru 1, Magwyr, Sir Fynwy, NP26 3DG.
- Llyfrgell Ganolog Casnewydd, Sgwâr John Frost, Casnewydd, NP20 1PA.

Ceir copïau pellach o'r Crynodeb Annhechnegol am ddim gan Lywodraeth Cymru yng Nghaerdydd yn y cyfeiriad canlynol.

Mae'r Crynodeb Annhechnegol hwn a'r Datganiad Amgylcheddol llawn ar gael i'w darllen a'u lawrlwytho o wefan Llywodraeth Cymru: www.gov.wales/m4newport

Gellir prynu copïau electronig o'r Datganiad Amgylcheddol (ar DVD) o gyfeiriad Llywodraeth Cymru a welir uchod am £20 (gan gynnwys postio a phacio).

Mae copïau papur hefyd ar gael o'r cyfeiriad uchod, er y codir ffi weinyddol i gwmpasu cost ei gopio (pris ar gais).

Eich barn

Os hoffech gefnogi'r Gorchmynion draft, gan gynnwys y Gorchymyn Prynus Gorfodol, cynnig sylwadau arnynt, neu eu gwirthwynebu, cyflwyno cynigion amgen, neu gynnig sylwadau ar y Datganiad Amgylcheddol a/ neu'r Datganiad i Lywio Asesiad Priodol, dylech ysgrifennu at Lywodraeth Cymru yn y cyfeiriad isod.

Y Gangen Gorchmynion

**Trafnidiaeth
Adran yr Economi, Gwyddoniaeth a
Trafnidiaeth
Llywodraeth Cymru,
Parc Cathays,
Caerdydd CF10 3NQ**

Dylid anfon pob gohebiaeth o'r fath fel ei bod yn cyrraedd Llywodraeth Cymru erbyn 4 Mai 2016.

- Newport City Council, Civic Centre, Godfrey Road, Newport, NP20 4UR.
- Monmouthshire County Council, County Hall, Rhadyr, Usk, NP15 1GA.
- Monmouthshire County Council, Innovation House, Wales 1 Business Park, Magor, Monmouthshire, NP26 3DG.
- Newport Central Library, John Frost Square, Newport, NP20 1PA.

Further copies of the Non-Technical Summary can be obtained free of charge from the Welsh Government in Cardiff at the address below.

This Non-Technical Summary, the full Environmental Statement and the Statement to Inform an Appropriate Assessment (SIAA) are available to view and download from our project website: www.gov.wales/m4newport

Electronic copies of the Environmental Statement and SIAA (on DVD) can be purchased from the above Welsh Government address at a cost of £20 (including postage and packaging).

Paper copies are also available from the above address, although an administrative charge will be made to cover the cost of copying (price on application).

Your views

Any person or organisation can object, support or suggest alternatives to the draft Orders, or comment on the Environmental Statement and/or the Statement to Inform an Appropriate Assessment.

**Orders Branch
Transport
Department for Economy, Science and
Transport
Welsh Government,
Cathays Park,
Cardiff CF10 3NQ**

All responses should be sent to arrive at the Welsh Government no later than the 4th May 2016.

