

Multi-Utility Infrastructure Feasibility Study

Cyngor Bwrdeistref Sirol



Waterfront
Regeneration Development
Eastern Promenade
Porthcawl, CF36 3XB

November 2020

SMS Project no: E000206205 v5 20/11/2020

Prepared by: David Williams

Approved by: Daniel Moore

SMS Plc
Prennau House
Copse Walk
Cardiff Gate Business Park
Cardiff, CF23 8XH

Tel: 029 2073 9500

Fax: 029 2073 9501

www.sms-plc.com

Company Reg no. 3197379

Table of Contents

1	Scope and Objectives.....	3
2	Executive Summary.....	3
3	Electricity	7
4	Gas	12
5	Water	15
6	Sewerage.....	18
7	Telecommunications.....	19
8	Legal Report.....	21
9	Conclusions and Recommendations.....	28
	Appendix 1 – General Assumptions and Considerations	30
	Appendix 2 – HAUC Survey Results.....	31
	Appendix 3 – Title Plans	32
	Appendix 4 – Utilities Pre-Planning Enquiries.....	48

1 Scope and Objectives

This desktop feasibility study covers both on-site and off-site elements for each utility and specifically includes the following information:

- Details of the location of all statutory network apparatus in close proximity to and within the development boundary.
- Assess the existing services for disconnections and diversions.
- Determine the need of and budget costs for any diversions and disconnections required.
- Assess the requirements of and provide budgetary costs for suitable electricity, gas, potable water and telecommunications to the development.
- Investigate and report on any potential wayleave issues.

The findings in this study are therefore based upon published record and other information obtained from the statutory utilities, together with our knowledge and experience of the UK utility connections marketplace, regulatory obligations and utility network capabilities.

2 Executive Summary

This desktop feasibility study has been commissioned by the client to appraise the availability of electricity, gas, potable water and telecommunications services with regards to the proposed development.

The proposed site is a brown field development located to the south and west of the A4106 Eastern Promenade and to the north of Sandy Bay, Porthcawl. The development will consist of two phases.

Phase 1, 328 properties with a 30/70 affordable housing split, 2 x Carparks, 3 x Commercial / Retail areas. The Supermarket electricity connection costs have been removed from the Feasibility Study as a quotation has been accepted and a design fee is to be paid by Bridgend County Borough Council (BCBC).

Phase 2, 900 properties with a 30/70 affordable housing split, 1 x commercial / retail areas and 1 x 1FE Primary School.

The costs below show the difference between including and excluding 7kW EV Charging. Trickle charging will be permissible via a 13A socket only for the excluding EV charging costs.

The development is shown on the following drawings:

Drawing Owner	Title	Document no	Rev	Date
Bridgend County Borough Council	Porthcawl Waterfront Regeneration	-	-	-

Network plans show that all utilities are available close to the development, there are some disconnections and diversionary works are anticipated.

Budget Costs Excluding 7kW EV Charging Excluded. (Trickle charging permitted)

Based on the available information, the overall budget costs are as follows:

Phase 1 - Utility	Connections	Diversions	Disconnections	Total
POC & Reinforcement	£1,126,000			£1,126,000
Electricity	£371,000	£83,500	£4,800	£459,300
Gas	£26,300	£0	£1,500	£27,800
Water	£85,500	£125,500	£2,000	£213,000
Telecommunications	£2,000	£66,000	£1,600	£69,600
Total	£1,610,800	£275,000	£9,900	£769,700

Phase 2 - Utility	Connections	Diversions	Disconnections	Total
Electricity	£508,000	£43,600	£26,300	£577,900
Gas	£300,000	£6,100	£7,500	£313,600
Water	£235,000	£8,400	£9,800	£253,200
Telecommunications	£2,000	£175,800	£9,000	£186,800
Total	£1,045,000	£233,900	£52,600	£1,331,500

Phase 1 & 2 Total	Connections	Diversions	Disconnections	Total
POC & Reinforcement	£1,126,000			£1,126,000
Electricity	£879,000	£127,100	£31,100	£1,037,200
Gas	£326,300	£6,100	£9,000	£341,400
Water	£320,500	£133,900	£11,800	£466,200
Telecommunications	£4,000	£241,800	£10,600	£256,400
Total	£2,655,800	£508,900	£62,500	£3,227,200

All prices are exclusive of VAT.

Important areas of concern to be considered

Extensive EHV / HV reinforcement required.

Hydraulic Modelling Assessment required from the water distribution network.

Budget Costs Including 7kW EV Charging.

Based on the available information, the overall budget costs are as follows:

Phase 1 - Utility	Connections	Diversions	Disconnections	Total
POC & Reinforcement	£8,688,000			£8,688,000
Electricity	£409,000	£83,500	£4,800	£497,300
Gas	£26,300	£0	£1,500	£27,800
Water	£85,500	£125,500	£2,000	£213,000
Telecommunications	£2,000	£66,000	£1,600	£69,600
Total	£9,210,800	£275,000	£9,900	£9,495,700

Phase 2 - Utility	Connections	Diversions	Disconnections	Total
Electricity	£526,000	£43,600	£26,300	£595,900
Gas	£300,000	£6,100	£7,500	£313,600
Water	£235,000	£8,400	£9,800	£253,200
Telecommunications	£2,000	£175,800	£9,000	£186,800
Total	£1,063,000	£233,900	£52,600	£1,349,500

Phase 1 & 2 Total	Connections	Diversions	Disconnections	Total
POC & Reinforcement	£8,688,000			£8,688,000
Electricity	£935,000	£127,100	£31,100	£1,093,200
Gas	£326,300	£6,100	£9,000	£341,400
Water	£320,500	£133,900	£11,800	£466,200
Telecommunications	£4,000	£241,800	£10,600	£256,400
Total	£10,253,800	£508,900	£62,500	£10,845,200

All prices are exclusive of VAT.

Important areas of concern to be considered

Extensive EHV / HV reinforcement required.

Hydraulic Modelling Assessment required from the water distribution network.

Moving forward / removal of risk

It is our belief that additional works / procurement is required in order to de-risk the project further. The timings of when these works are to be carried out would form part of the review of this study between SMS, the client and the greater design team.

1. Procure disconnection and diversion quotations from WPD, WWU, DCWW and BT.
2. Procure a quotation for a Hydraulic Modelling Assessment (HMA) from DCWW.
3. Procure a POC quotation from WPD, new connection and infrastructure quotations for Electricity from WPD / ICP, Gas from WWU / IGT and Water from DCWW.
4. Register the development with BT Openreach new sites.

Following on from these works, SMS would provide further cost and programme advice to the client once a programme has been compiled by BCBC.

All on-site excavations for the utilities are assumed to be provided by the client's contractors and have not been included in the above costs. Indicative cable / pipe routes for the on-site works require more planning information to be in place and will obviously have a major impact on the on-site costs.

The estimated time for the delivery of these major utilities to the new development will need to be provided by the individual utility providers due to the reinforcement identified, upon acceptance of firm quotations, the clearance of all necessary wayleave consents and dependent upon the overall construction programme.

3 Electricity

Existing Infrastructure - Phase 1

Extra High Voltage (EHV)

The Western Power Distribution (WPD) network plans of the area shows EHV 33/11kV primary sub-station designated '56/0191 NOTTAGE 33KV/11KV S/STN' approximately 2.2km to the north west of the proposed phase 1 & 2 development, however this primary sub-station does not have sufficient capacity for the proposed development.

The nearest Grid Supply Point is shown as '56/0030 PYLE GRID 275/33kV S/STN' and is located at Pyle, approximately 8.7km to the north of Porthcawl.

High Voltage (HV)

There are underground HV cables to the north west of Phase 1, the network continues around the southern part of the development where it dissects Phase 2.

A WPD HV distribution sub-station designated '56/3745 DOCK STREET' is located off Dock Street within the existing car park at the south western part of the proposed development where it continues to the north.

It is also noted that there are two 'Not Connected' (NC) HV underground cables within the footway / roadway of Dock Street.

Low Voltage (LV)

From the WPD HV distribution sub-station '56/3745 DOCK STREET' there are a number of underground and overhead flights from support poles to the south east of the sub-station, serving the local properties.

At the north east of the Phase 1 development there is further underground LV cables within the western footway of Eastern Promenade serving connections to the west.

Existing Infrastructure - Phase 2

High Voltage (HV)

The WPD network plans shows HV underground cables within the western footway of Eastern Promenade, where it crosses the carriageway before continuing within the eastern footway.

At the road crossing, the HV underground cables enter the Coney Beach Amusement Park where it loops in the '56/3626 CONEY BEACH PORTHCAWL' customer sub-station.

Located within the western footway / carriageway of Sandy Lane to the east of the development there is an HV underground cable where passes the demolished distribution sub-station, name unknown.

The HV underground cable continues within the frontage of Sandy Bay before entering the development, pass the now demolished WPD distribution sub-station '56/3588 ARENA' and two not connected HV cables. The HV underground cable continues in a northerly direction before exiting the development on to Rhych Avenue to '56/3585 RHYCH AVE' distribution sub-station and onwards to New Road and the greater WPD network.

Low Voltage (LV)

At the Eastern Promenade there are two LV underground cables crossing the carriageway at different locations serving the properties adjacent to the carriageway.

Within the western footway of Mackworth Road there is an underground LV cable serving the local buildings.

At the location of the demolished distribution sub-station there are LV underground cables within the development that are 'Not Connected' (NC).

From the WPD 56/3589 SANDY BAY distribution sub-station there are LV underground cables within the frontage of Sandy Bay where they used to serve the local buildings which appear demolished (this will need to be confirmed). At the now demolished '56/3588 ARENA' distribution sub-station there are a number of NC LV cables.

A further LV underground cable can be seen within the western footway of Rhych Ave, where it enters the development at the western boundary.

Disconnections - Phase 1

An LV disconnection and meter removal will be required to the property on Dock Street prior to demolition and relocation of the WPD sub-station '56/3745 DOCK STREET'.

Two further LV disconnections and meter removal may also be required at the north east of the Phase 1 development.

Budget Cost: £4,800

Disconnections - Phase 2

A HV disconnection, HV meter and sub-station removal will be required to the customer sub-station '56/3626 CONEY BEACH PORTHCAWL'. Both HV and LV cables are to be cut back at the western footway of Eastern Promenade.

Two further LV disconnections and meter removals will also be required to the properties at the western part of the Phase 2 development. Further east, there are approximately eight disconnections and meter removals will be required to the buildings prior to demolition.

It appears from the WPD network drawings that there are a two distribution sub-stations within the touring caravan park area that have already been disconnected / demolished and the associated LV circuits have been abandoned (NC). Confirmation that they are abandoned will be required at some point prior to construction in this area.

At the front of Sandy Bay there is an LV cable and Street Lighting cable that will also need to be disconnected from WPD Distribution Sub-station 56/3589 SANDY BAY.

Budget Cost: £26,300

Diversions - Phase 1

From the WPD network plans there is a diversion / relocation of required to the existing WPD Distribution sub-station '56/3745 DOCK STREET' to a suitable position to be agreed by WPD and the Client.

The WPD network plans shows a potential diversion / lowering of the HV and LV underground cables at the north east of the Phase 1 development should a new entrance way be formed.

Budget Cost: £83,500

Diversions - Phase 2

The WPD network plans shows an underground HV cable within the eastern part of Phase 2, this underground HV cable will potentially need to be diverted or removed to facilitate the construction of properties in this area.

Budget Cost: £43,600

New Connections

Load Assessment

The estimated After Diversity Maximum Demand (ADMD) of both Phase 1 & Phase 2 total approximately 4,709kVA (excluding 7kW EV charging) and 9,621 kVA (including 7kW EV charging).

Phase 1	No of Properties / Area (m ²)	Load (kVA)	EV%	EV Load	Total Load (kVA)
Housing 2,3 & 4 bed	230	460	50%	805	1,265
Affordable (30/70) 2 bed	98	175	50%	343	518
Car Park 1	1,218	69	40%	196	265
Car Park 2	6,391	69	40%	196	265
Commercial 1	8,145	1,344	0%	0	1,344
Commercial 2	1,068	176	0%	0	176
Commercial 3	2,377	392	0%	0	392
Total		2,686		1,540	4,226

Phase 2	No of Properties / Area (m ²)	Load (kVA)	EV%	EV Load	Total Load (kVA)
Housing 2,3 & 4 bed	630	1,260	50%	2,205	3,465
Affordable (30/70) 2 bed	270	483	50%	945	1,428
Commercial 5	1,565	258	0%	0	258
1FE Primary School	32,113	160	40%	84	244
Total		2,162		3,234	5,396

Phase 1 & 2	No of Properties / Area (m ²)	Load (kVA)	EV%	EV Load	Total Load (kVA)
Housing 2,3 & 4 bed	860	1,720	50	3,010	4,730
Affordable (30/70) 2 bed	368	659	50	1,288	1,947
Car Park	7,609	138	1	392	530
Commercial	13,155	2,171	0	0	2,171
1FE Primary School	32,113	160	40	84	244
Total		4,709		4,774	9,621

Infrastructure Requirements

Reinforcement Excluding 7kW EV Charging

An EHV / HV point of connection (POC) Budget Quotation has been received for the total capacity requirement excluding 7kW EV charging of 5,600 kVA from WPD (Appendix 4) as a worst case budget cost, however, the capacity requirement has changed following a reduction in requirements by BCBC.

A further review of exact load / capacity will be required going forward and it is currently anticipated that the requirement would be now be approximately 4,709 kVA for both Phase 1 & Phase 2.

The existing capacity from the local 33kV and 11kV networks will be insufficient to provide for Phase 1 & Phase 2.

The Budget Quotation will provide an 11kV connection for both Phase 1 & Phase 2 to be supplied from the existing '56/0191 NOTTAGE 33KV/11KV S/STN', however, this would also incur additional Reinforcement and Primary Sub-station upgrading at a cost of **£230,000** and a further and **£896,000** will be required for 2 x high voltage (HV) cables from the POC to the development.

Budget Cost Reinforcement Excluding 7kW EV Charging: £1,126,000.

Reinforcement Including 7kW EV Charging

An EHV / HV point of connection (POC) Budget Quotation has been received for the original total capacity requirement to accommodate 7kW EV charging of 13,630kVA from WPD (Appendix 4) as a worst case budget cost (capacity identified in version 1 & 2 of this Feasibility Study), however, the capacity requirement has changed following a reduction in requirements by BCBC.

A further review of exact load / capacity will be required going forward and it is currently anticipated that the requirement would be now be approximately 9,621 kVA for both Phase 1 & Phase 2.

The existing capacity from the local 33kV and 11kV networks will be insufficient to provide for Phase 1 & Phase 2 and the upgrading of '56/0191 NOTTAGE 33KV/11KV S/STN' is not feasible for the load required. It is proposed that a new 33/11kV Primary Sub-station will be required to provide the capacity for both Phase 1 & Phase 2 at the Waterfront Regeneration Development in its entirety.

A suitable location with 24 hour access would need to be provided to facilitate the construction of the WPD 33/11kV Primary Sub-Station, however this would need to be agreed by the client and WPD. The estimated cost for the 33/11kV Primary Sub-station.

Budget Cost Reinforcement Excluding 7kW EV Charging: £8,688,000.

Phase 1

From the WPD 33/11kV POC, WPD or an ICP would provide two underground HV cables laid within the new footway with a number of WPD / ICP HV distribution sub-stations strategically located to provide services to Phase 1 .

LV mains and services would then be provided by WPD / ICP, within proposed new footways and service strips to each of the Properties and Commercial areas within Phase 1, by the Developer once the Parcels have been sold. Costs for the LV have been removed from this Feasibility Study.

Budget Cost Excluding 7KW EV Charging: £371,000

Budget Cost Including 7KW EV Charging: £409,000

Phase 2

Two HV underground cables would then continue through Phase 2 of the proposed development, continuing within proposed new footways and service strip provided via a number WPD / ICP distribution sub-stations.

LV mains and services would then be provided by WPD / ICP, within proposed new footways and service strips to each of the Properties, Commercial areas and the 2FE Primary School within Phase 2 by the Developer once the Parcels have been sold. Costs for the LV have been removed from this Feasibility Study.

Budget Cost Excluding 7KW EV Charging: £508,000

Budget Cost Including 7KW EV Charging: £526,000

General

A full network design would have to be undertaken by WPD / ICP in order to confirm how the requirements will be met from the 33/11kV POC.

The time scales for the completion of the above works would need to be provided by WPD due to the complexity of the works from the completion of leases / wayleaves and be dependent upon the overall construction programme.

Budget Cost Excluding 7KW EV Charging (Trickle charging permitted):

Utility	Connections	Diversions	Disconnections	Total
POC & Reinforcement	£1,126,000			£1,126,000
Phase 1 - Electricity	£371,000	£83,500	£4,8000	£459,300
Phase 2 - Electricity	£508,000	£43,600	£26,300	£1,208,700
Total	£2,005,000	£127,100	£31,100	£2,163,200

Budget Cost Including 7KW EV Charging:

Utility	Connections	Diversions	Disconnections	Total
POC & Reinforcement	£8,688,000			£8,688,000
Phase 1 - Electricity	£409,000	£83,500	£4,800	£497,300
Phase 2 - Electricity	£526,000	£43,600	£26,300	£595,900
Total	£9,623,000	£127,100	£31,100	£9,781,200

4 Gas

Existing Infrastructure – Phase 1

Low Pressure (LP)

The Wales and West Utilities (WWU) network plans shows a 90mm diameter low pressure (LP) polyethylene (PE) gas main within the southern carriageway of Dock Road.

At the junction of The Portway and Eastern Promenade there is a 180mm diameter LP PE gas main, within the southern footway, continuing within the eastern footway of Eastern Promenade to New Road.

Existing Infrastructure – Phase 2

Low Pressure (LP)

The Wales and West Utilities (WWU) network plans shows a 90mm diameter LP PE gas main crossing the carriageway of Eastern Promenade, where it enters the development to the south serving the adjacent buildings, before continuing in an easterly direction within the Phase 2 development.

There is also spur of unknown size off the 180mm PE (In 8" CI LP) serving the adjacent building.

The WWU network plans also shows a 6" diameter cast iron (CI) LP gas main within the eastern carriageway of Mackworth Road, where it reduces to 4" CI LP and then to 63mm PE LP, before continuing in a southerly direction where it joins the 90mm diameter PE LP gas main at the south west of the Phase 2 development.

From the 63mm PE LP there are two 63mm PE LP spurs providing connections to the local buildings at the south of the Phase 2 development.

Disconnections - Phase 1

A disconnection and meter removal may be required for the building at the south west of the Phase 1 development prior to demolition.

Budget Cost: £1,500

Disconnections - Phase 2

There are approximately four disconnections required to from the 90mm PE LP gas main and services to the south east of the proposed Phase 2 development, further investigation will be required to confirm this requirement.

Budget Cost: £7,500

Diversions - Phase 1

None anticipated.

Diversions - Phase 2

A diversion may be required the 90mm diameter PE LP gas main at the southern part of the proposed development, this is dependent on the requirements of the parcel it enters.

A further diversion / lowering may be required where the new roadway cross Mackworth Road, it is suggested that trial holes are carried out to confirm the depth of existing cover.

Budget Cost: £6,100

New Connections

Load Assessment

Phase 1	No of Properties / Area (m ²)	Peak Load (kWh)	M ³ /Hr	AQ MWh
Housing 2,3 & 4 bed	420	13,440	1,238	29,553
Affordable (30/70) 2 bed	180	5,040	464	11,082
Car Park 1	1,219			
Car Park 2	6,391			
Commercial 1	8,145	1,303	120	3,909,600
Commercial 2	1,068	171	16	512,640
Commercial 3	2,377	380	35	1,140,960
Commercial 4 - Supermarket	9,151	750	69	2,250,000
Total		21,084	1,941	7,853,836

Phase 2	No of Properties / Area (m ²)	Peak Load (kWh)	M ³ /Hr	AQ MWh
Housing 2,3 & 4 bed	630	20,160	1,856	44,330
Affordable (30/70) 2 bed	270	7,560	96	16,624
Car Park	7,394			
Commercial 5	1,565	250	23	751,200
Commercial 6	8,392	1,343	124	4,028,160
2FE Primary School	32,113	500	46	1,500,00
Total		29,813	2,745	6,340,313

Phase 1 & 2	No of Properties / Area (m ²)	Peak Load (kWh)	M ³ /Hr	AQ MWh
Housing 2,3 & 4 bed	1,050	33,600	3,094	73,883
Affordable (30/70) 2 bed	450	12,600	1,160	27,706
Car Park	15,003			
Commercial	21,547	3,448	317	10,342,560
Commercial - Supermarket	9,151	750	69	2,250,000
2FE Primary School	32,113	500	46	1,500,000
Total		50,898	4,687	14,194,149

Infrastructure Requirements

A Land Enquiry has been received from WWU (appendix 4) and has confirmed that the connection with sufficient capacity can be made from the 180mm diameter LP gas main located within the eastern footway of Eastern Promenade.

A further full application for the total capacity will be required to WWU / IGT and to reconfirm any reinforcement works required.

Connections

Phase 1

For the purpose of this feasibility study a new LP gas mains and connections would need to be constructed from the 180mm diameter LP PE from the Eastern footway of Eastern Promenade to the proposed Phase 1 development residential and commercial areas.

A further full application for the total capacity will be required to WWU / IGT and to reconfirm any reinforcement works required.

New services will then be installed by WWU / IGT from the main to the meter positions in each property to suit the requirements of the proposed Phase 1 development. This would be carried out by the Developer once the Parcels have been sold. Costs for the Developer services have been removed from this Feasibility Study.

Budget Cost: £26,300

Phase 2

The new LP gas main will follow the footways of the new spine road of the proposed development to the various residential and commercial areas with the Phase 2 development.

New services will then be installed by WWU / IGT from the main to the meter positions in each property to suit the requirements of the proposed Phase 2 development. This would be carried out by the Developer once the Parcels have been sold. Costs for the Developer services have been removed from this Feasibility Study.

A further full application for the total capacity will be required to WWU / IGT and to reconfirm any reinforcement works required.

Budget Cost: £300,000

General

It is assumed that the client will provide suitable meter locations within the individual properties.

The time scales for the completion of the above works would need to be advised by WWU due to the complexity of the development, from the completion of leases / wayleaves and dependent upon the overall construction programme.

Budget Summary

Utility	Connections	Diversions	Disconnections	Total
Phase 1 - Gas	£26,300	£0	£1,500	£27,800
Phase 2 - Gas	£300,000	£6,100	£7,500	£313,600
Total	£326,300	£6,100	£9,000	£341,400

5 Water

Existing Infrastructure

The Dwr Cymru Welsh Water (DCWW) network plans of the area shows a 3" diameter cast iron (CI) distribution water main to the west of Dock Street at the south east of the development.

A 10" diameter CI Trunk main is shown within the western carriageway / verge of The Portway.

From this trunk main a 6" diameter CI water main crosses the carriageway of The Portway where it terminates at a fire hydrant adjacent to the 'Sea Scouts' building.

At the north east of the development there is a 6" diameter CI within the western footway from New Road to the Eastern Promenade, where it crosses the carriageway and terminates at a fire hydrant adjacent to the existing Coney Beach Amusement Park entrance.

Disconnections

Phase 1

It has been assumed that a disconnection will be required to the building at the south eastern part of the development.

Budget Cost: £2,000

Phase 2

Potential disconnection will be required to the buildings at the Western part of Phase one, it has been assumed that there are three disconnections and meter removals.

A disconnection will also be required for the buildings adjacent to the frontage of Sandy Bay. A further disconnection and mains removal will be required at the frontage of Sandy Bay to the valve set on Rhych Avenue.

A further disconnection will also be required to the building off New Road at the northern part of the development.

Budget Cost: £9,800

Diversions

Phase 1

A potential diversion / lowering of the 10" diameter CI Truck main may be required at the new entrance / roadway at the south western part of the Phase 1 development from Dock Street to The Portway.

It is therefore suggested that a trial hole is carried out to confirm the existing depth of cover of the trunk main.

Budget Cost: £125,500

Phase 2

A potential diversion / lowering may be required at the junction of the New Roadway and Mackworth Road. It is suggested that a trial hole is carried out to confirm the depth of cover of the existing water main.

Budget Cost: £8,400

New Connections

Load Assessment

Phase 1	No of Properties / Area (m ²)	Ltrs/s	Lts/day	M ³ /day
Housing 2,3 & 4 bed	420	9	168,000	168
Affordable (30/70) 2 bed	180	4	72,000	72
Car Park 1	1,219			
Car Park 2	6,391			
Commercial 1	8,145	2.8	244,350	244
Commercial 2	1,068	0.4	32,040	32
Commercial 3	2,377	0.8	71,310	71
Commercial 4 - Supermarket	9,151	1.1	96,086	96
Total		18	683,786	684

Phase 2	No of Properties / Area (m ²)	Ltrs/s	Lts/day	M ³ /day
Housing 2,3 & 4 bed	630	14	252,000	252
Affordable (30/70) 2 bed	270	6	108,000	108
Car Park	7,394			
Commercial 5	1,565	0.5	46,950	47
Commercial 6	8,392	2.9	251,760	252
2FE Primary School	32,113	1.0	86,705	87
Total		24	745,415	745

Phase 1 & 2	No of Properties / Area (m ²)	Ltrs/s	Lts/day	M ³ /day
Housing 2,3 & 4 bed	1,050	23	420,000	420
Affordable (30/70) 2 bed	450	10	180,000	180
Car Park	15,003			
Commercial	21,547	7	646,410	646
Commercial - Supermarket	9,151	1.1	96,086	96
2FE Primary School	32,113	1.0	86,705	87
Total		43	1,429,201	1,429.2

Infrastructure Requirements

A Pre-Planning application has been received from DCWW (Appendix 4) and states the following:

'Due to the size of the development. In order to establish what would be required to serve the site with an adequate water supply, it will be necessary for the developer to fund the undertaking of a hydraulic modelling assessment on the water supply network. For the developer to obtain a quotation for the hydraulic modelling assessment, we will require a fee of £250 + VAT.'

However, for the purpose of this feasibility study it has been assumed a connection will be made to the 10" diameter CI trunk main within the western carriageway / verge of The Portway for the Phase 1 & Phase 2 development.

A new distribution main will be installed for Phase 1 and continued through Phase 2.

Phase 1

Based upon 600 properties, commercial areas and Supermarket and a total construction period of five years.

The estimated budget cost for the distribution water main infrastructure works is set out below, however, it excludes expected Developer infrastructure charges and water connection costs for Phase 1.

Phase 1	Cost
Mains laying cost (commuted sum basis)	£85,500
Service costs:	Developer costs
Water / sewerage Infrastructure costs	Developer costs

Budget cost: £85,500

Phase 2

Based upon 900 Properties, Commercial areas, 2FE Primary School and a total construction period of eight years.

The estimated budget cost for the distribution water main infrastructure works is set out below, however, it excludes expected Developer infrastructure charges and water connection costs for Phase 2.

Phase 2	Cost
Mains laying cost (commuted sum basis)	£235,000
Service costs:	Developer costs
Water / sewerage Infrastructure costs	Developer costs

Budget cost: £235,000

Fire Hydrants

Detailed advice should be obtained from the local Fire Authority to establish suitable locations of hydrants within the proposed development phases.

General

A full network study would have to be undertaken by DCWW in order to confirm how the requirements will be met.

The time scales for the completion of the above works would need to be confirmed by DCWW due to the extent of the new water mains to be constructed, from the completion of leases / wayleaves and dependent upon the overall construction programme.

Budget Summary

Utility	Connections	Diversions	Disconnections	Total
Phase 1 - Water	£85,500	£125,500	£2,000	£213,000
Phase 2 - Water	£235,000	£8,400	£9,800	£253,200
Total	£320,500	£133,900	£11,800	£466,200

6 Sewerage

Existing Infrastructure – Phase 1

The DCWW water network plans of the area shows a 300mm diameter unplasticised (uPVC) foul sewer within Dock Street at the south western part of Phase 1 and adjacent to the existing buildings. Additionally, there is 400mm diameter ductile iron (DI) rising main exiting Dock Street, crossing the carriageway of The Portway.

The 400mm diameter (DI) rising main continues in a northerly direction before crossing the central part of the Phase 1 development, crossing the carriageway of Eastern Promenade and again continuing in a northerly direction before entering the beach of Sandy Bay.

Additionally, at the south western part of the Phase 1 development there is also a Private 15" diameter vitrified cement (VC) gravity sewer within the eastern verge of The Portway and continues in a southerly direction. A further short section of Private 9" diameter VC gravity sewer is located at the south carriageway of Eastern Promenade.

At the north western part of the Phase 1 development there is 9" diameter gravity sewer crossing the carriageway of the Eastern Promenade before continue at the frontage of Sandy Bay.

Existing Infrastructure – Phase 2

The DCWW water network plans of the area shows a 9" diameter VC Gravity Sewer within the carriageway of Mackworth Road where it joins the Gravity Sewer exiting on to Eastern Promenade.

Additionally, within carriageway of Mackworth Road there is a 9" diameter VC foul sewer that exists on to New Road to the north.

The 400mm diameter DI rising main that is located within the beach of Sandy Bay exits in a northerly direction as a 375on Sandy Lane, where it exits on to New Road. From this combined sewer there is a 675mm concrete (CONC) combined sewer within the northern part of the Phase 2 development, where it exits on Rhych Avenue.

At the north eastern part of the Phase 2 development there is also a 6" diameter VC foul sewer that exits the development on to Rhych Road.

Within the Sandy Bay Touring Caravan park there is a network of private 6" diameter VC foul sewers.

A Pre-Planning application has been received from DCWW and are in Appendix 4.

7 Telecommunications

Openreach (BT)

Existing Infrastructure – Phase 1

The BT network plans of the area shows a line of duct, chambers, overhead lines and support poles within the northern footway of Dock Street.

Within the eastern verge of The Portway there is a line of ducts and chambers in a southerly direction.

From this line of ducts, there is a planned line of ducts and chambers (not installed) within the western verge of Eastern Promenade in a northerly direction.

Overhead lines and support poles can be seen entering at the north eastern part of the Phase 1 development, a further line of ducts entering from the north of Eastern Promenade within the western footway.

Existing Infrastructure – Phase 2

The BT network plans of the area shows at the south western part of the Phase 2 development lines of ducts crossing the carriageway of Eastern Promenade, further lines of ducts and chambers serve the Griffin Park Tennis Courts, Tennis Club and Coney Beach Amusement Park.

Within the western footway / verge of Mackworth Road there is a line of ducts, chambers and in places overhead lines serving the buildings at the south of the Phase 2 development.

Additionally, within Rhych Avenue there is a line of ducts and chambers within the western footway / verge in a southerly direction. From this line of ducts there is an overhead line and support poles within the Sandy Bay Touring Caravan Park and to the buildings to the south

Disconnections - Phase 1

A disconnection will be required to the building that is to be demolished within Dock Street to the south west of the Phase 1 development.

Budget Cost: £1,600

Disconnections - Phase 2

Approximately five disconnections will be required to the buildings at the south west of the Phase 2 development.

A Further four disconnections will also be required to the building on the frontage of Sandy Bay.

Within the Sandy Bay Touring Caravan Park, the overhead line and associated connections will require disconnection.

Budget Cost: £9,000

Diversions - Phase 1

A relocation of a BT Support pole and overhead flight will be required to maintain connection to local properties on Dock Street at the south western part of the Phase 1 development.

A diversion / lowering may be required at the proposed new roadway from Dock Street to Eastern Promenade. It is suggested that trial holes are carried out to confirm the existing depth of cover of the BT lines of ducts.

A further diversion / lowering may be required at the north western part of the Phase 1 development, again it is suggested that a trial hole is carried out to confirm the existing depth of cover of the line of ducts.

Budget Cost: £66,000

Diversions - Phase 2

A diversion will be required to the overhead line and support poles within Mackworth Road to facilitate the construction of the new spine road through the Phase 2 development.

A further diversion will be required to the overhead line and support poles at the south east of the Phase 2 development that serve the buildings that are to remain connected.

Budget Cost: £175,000

New Connections – Phase 1

A Land Enquiry has been received from BT which states that;

'BT will deploy FTTP, free of charge, into all new housing developments of 20 or more homes.

Openreach can provide your development with Fibre to the Premises, free of charge.

Fibre to the Premises provides estimated speeds of up to 1Gbps enabling your homeowners to stream HDTV, play computer games and write emails simultaneously providing the best communications experience

At this time your site has not been registered, if you would like to proceed to register your site with Openreach, please use the appropriate form on our website.'

Budget Cost: £2,000 (Survey Fee Estimate Only)

Phase 2

The BT network will continue through Phase 2 spine road to adjacent parcels

Budget Cost: Included in Phase 1 Survey Fee

Infrastructure Requirements

A dedicated ducted BT service route will need to be provided around the proposed new footway / roadways as required, to allow connections to the proposed developer areas.

As BT apparatus is adjacent to the development, no abnormal costs are currently envisaged. However, a design fee is normally required for BT to produce a network design. However, this is subject to survey by BT.

Budget Summary

Utility	Connections	Diversions	Disconnections	Total
Phase 1 -Telecommunications	£2,000	£66,000	£1,600	£69,600
Phase 2 - Telecommunications	£2,000	£175,000	£9,000	£186,800
Total	£4,000	£241,800	£10,600	£256,400

Other Utility Infrastructure Providers

Please refer to Appendix 2 of this document for details of the results of HAUC surveys.

8 Legal Report

For the purpose of this report the site is taken as being that provided to SMS by the Client, headed Porthcawl Waterfront Regeneration. We have no reference number or date for this plan.

The site incorporates land within numerous titles although we note that an area within the northern part of the site denoted as Open Space on the above-referenced plan is unregistered. We have examined the title registers as follows although we have not established the adoption status of any highway:

Title CYM255481

This Freehold title is described in the register as Land at The Portway, Porthcawl. The land is located in the western side of the development area. The Proprietor is given as BRIDGEND COUNTY BOROUGH COUNCIL of Civic Offices, Angel Street, Bridgend CF31 4WB.

The register carries no specific reference to utility rights but note the substation 56/3745 DOCK STREET which appears to be located on the south-western corner of land in this title. The substation site is not recorded as a title in its own right at Land Registry. Network plans show HV and LV underground apparatus running to and from the substation's western side, the latter presumed to supply third party properties.

If Electricity apparatus is found not to have legal rights of retention, there is often the opportunity to challenge its location or the cost of diversion under the Electricity Act 1989 (as amended). In this case, however, the Freeholder of the land on which the substation is located is Bridgend Council so it might be prudent to consider whether this course of action would be productive in the long run.

Title CYM350172

This Freehold title is described in the register as Land lying to the east of Glamorgan Holiday Home, Eastern Promenade, Porthcawl. The land is located within the extreme south-western corner of the development area. The Proprietor is given as BRIDGEND COUNTY BOROUGH COUNCIL of Civic Offices, Angel Street, Bridgend CF31 4WB.

The register carries no specific reference to utility rights.

Title CYM256633

This Freehold title is described in the register as Land and buildings at Eastern Promenade, Porthcawl. The land is located in the north-western area of the development, extending south-westwards. The Proprietor is given as BRIDGEND COUNTY BOROUGH COUNCIL of Civic Offices, Angel Street, Bridgend CF31 4WB.

Part of the land in this title is stated to be affected by leases. The leases grant and reserve easements as therein mentioned. Examination of these leases is beyond the scope of this report.

An Agreement dated 7 February 2017 made between (1) ABA Holdings Limited (2) Bridgend County Borough Council (3) Barclays Bank Plc and (4) Dwr Cymru Cyfyngedig pursuant to section 104 of the Water Industry Act 1991 relates to the construction and adoption of sewers, drains or disposal works. Under the Water Industry Act 1991 the operator can claim rights of retention. The cost of any diversion will thus be borne by the developer.

There are recorded a Deed and an Agreement dated 21 June 2019 made between (1) Bridgend County Borough Council and (2) Dwr Cymru Cyfyngedig which reference apparatus located outwith the development area.

Title WA166414

This Freehold title is described in the register as Coney Beach Amusement Park, Eastern Promenade, Porthcawl and foreshore of Sandy Bay. Where the land in this title falls into the development, it is located in the western-central area. The Proprietor is given as FUN FAIR SITES LIMITED (Co. Regn. No. 562902) of 1 Glan Road, Porthcawl CF36 5DF.

The land is subject to access and cable rights granted by a the freehold Transfer of the electricity substation site (annotated 56/3626 CONEY BEACH PORTHCRAWL on the Western Power Distribution (WPD) network plan) edged and numbered WA414880 in green on the filed plan dated 15 April 1988 made between (1) Fun Fair Sites Limited (company) and (2) The South Wales Electricity Board (now WPD). The area affected by the rights is shown on the title plan as an accessway leading in from Eastern Promenade tinted blue. See full reference below under Title WA414880.

The land is subject to the rights granted by a Deed dated 6 February 2018 made between (1) Fun Fair Sites Limited (2) Bridgend County Borough Council and (3) Barclays Bank PLC whereby consent is granted to make service connections within the title for the benefit of the Council's land.

A Deed of Variation dated 6 February 2018 is recorded between (1) Bridgend County Borough Council (2) Fun Fair Sites Limited (3) Jenoa Limited (4) Williams and Brooke Limited (5) Patrick Charles George Evans and Eleanor Edith Scott and (6) Barclays Bank PLC relates to an Agreement dated 11 March 2011, all relating to the installation of utility apparatus within the south-western corner of title WA166414 for the benefit of the Council's other properties.

Title WA414880

This Freehold title is described in the register as The Site of an Electricity Sub-Station at Coney Beach Amusement Park, Porthcawl. The title is located in the western-central area of the overall development. The Proprietor is given as WESTERN POWER DISTRIBUTION (SOUTH WALES) PLC (Co. Regn. No. 2366985) of Avonbank, Feeder Road, Bristol BS2 0TB. The substation is annotated 56/3626 CONEY BEACH PORTHCRAWL on the WPD network plan. As stated above, note that the cable route as shown on the title and network plans are not exactly similar. If it is required to divert apparatus which falls outwith the defined rights, the developer might consider challenging the associated costs which might be charged, subject to further investigation. No copy of the Transfer document is available from Land Registry, so we have been unable to ascertain whether or not there is any Lift and Shift clause associated with the cables. If no such can be ascertained the cost of any diversion of the secured cables would fall to the developer. This substation site is also referenced below under Electric – Western Power Distribution (WPD).

Title WA295544

This Freehold title is described in the register as Land and buildings on the South East side of Mackworth Road, Porthcawl. The title is located in the central part of the development. The Proprietors are given as ALISTAIR JOHN DALTON of 9 Marine Walk, Ogmere By Sea, Bridgend, The Vale of Glamorgan CF32 0PQ and SIMON JOHN DALTON of Penybryn, St Brides Major, Bridgend, The Vale of Glamorgan CF32 0SB.

Rights reserved by a Conveyance of the land in this title dated 17 August 1984 made between (1) National Westminster Bank Plc (Vendor) and (2) Margaret Elizabeth Morgan allow for access across and drainage across the property through existing drains, etc.

The register carries no specific reference to utility rights.

Title WA172568

This Freehold title is described in the register as Buccaneer Bar, Mackworth Road, Porthcawl (CF36 5BT). The title is located in the central part of the development, immediately to the north of title WA295544. The Proprietors are given as ALISTAIR JOHN DALTON of 9 Marine Walk, Ogmere By Sea, Bridgend, The Vale of Glamorgan CF32 0PQ and SIMON JOHN DALTON of Penybryn, St Brides Major, Bridgend, The Vale of Glamorgan CF32 0SB.

The register carries no reference to utility rights.

Title WA166103

This Freehold title is described in the register as 53 to 73 (Odd) Mackworth Road, Porthcawl, Bridgend. The title is located within the central area of the development. The Proprietor is given as FUNFAIR SITES LIMITED (Co. Reg. No. 562902) of 1 Glan Road, Porthcawl CF36 5DF.

There is stated to be a unilateral notice in respect of an Agreement dated 11th March 2011 of which the beneficiary is Bridgend County Borough Council, but no copy is held at Land Registry.

The register carries no reference to utility rights.

Title WA343508

This Freehold title is described in the register as 50 Mackworth Road, Porthcawl (CF36 5BT). The title is located in the central area of the development. The Proprietor is given as JOHN ARTHUR CROLE of 50 Mackworth Road, Porthcawl CF36 5BT.

The register carries no reference to utility rights.

Title WA366594

This Freehold title is described as land adjoining 50 Mackworth Road, Porthcawl (CF36 5BT). The title is located in the central area of the development. The Proprietor is given as JOHN ARTHUR CROLE of 50 Mackworth Road, Porthcawl CF36 5BT.

The register carries no reference to utility rights.

Title CYM363522

The land in this Freehold title is described as Land on the east side of Mackworth Road, Porthcawl. The title is located in the central area of the development. The Proprietors are given as SIMON THOMAS ROYSTON JONES, SONIA JANE LAURETTE ASTON, ANN VERONICA LORRAINE KING and CHRISTOPHER MICHAEL FORDHAM-HALL care of Thomas Simon Solicitors, 62 Newport Road, Cardiff CF24 0DF.

The register carries no reference to utility rights.

Title CYM371048

The land in this Freehold title is described in the register as High Tide, Mackworth Road, Porthcawl (CF36 5BT). The title is located in the southern-central area of the development. The Proprietors are given as FRANCESCA RACHAEL DOWER of Hi Tide Inn, Mackworth Road, Porthcawl CF38 5BT and CECILIA EMILY HELEN MANNIS of 17 Notts Gardens, Uplands, Swansea SA2 0RT.

The register carries no reference to utility rights.

Title CYM255224

The land in this Freehold title is described in the register as Newton Primary School, New Road, Porthcawl (CF36 5BL). It is located in the northern-central area of the development site. The Proprietor is given as BRIDGEND COUNTY BOROUGH COUNCIL of Civic Offices, Angel Street, Bridgend CF31 4WB.

The register carries no reference to utility rights.

Title CYM254031

The land in this Freehold title is described in the register as Land and buildings lying to the south of New Road, Porthcawl. The title forms the majority of the eastern section of the development area. The Proprietor is given as BRIDGEND COUNTY BOROUGH COUNCIL of Civic Offices, Angel Street, Bridgend CF31 4WB.

The land tinted pink in the north of the title plan is subject to the right to install, maintain etc a sewer granted by a Deed dated 31 August 1989 made between (1) Ogwr Borough Council and (2) Welsh Water Authority (now DCWW). The sewer runs broadly west-east and largely follows the route of a partly-made access track which runs along the back of houses fronting New Road. The route is located just within the northern boundary of the proposed development area. The Deed carries no lift and shift provision so this, coupled with DCWW's statutory rights, means that the cost of any diversion works would fall to the developer.

The title is subject to the rights granted by a Lease of an electricity substation site numbered 1 in blue on the title plan dated 28th July 1988, for a term of 21 years from 1st June 1988. This is within the south-western area of the title and roughly the southern-central area of the overall development. The lease grants cable rights along the roadway approaching the substation broadly from the north. The substation is shown on the WPD network plan annotated 56/3589 SANDY BAY with underground LV cables connected from the north and east and LV cables from the east and west, some in accordance with the rights granted and some not. There is no lift and shift clause associated with the lease. Given that the term has expired we assume WPD is 'holding over' in accordance with its rights under the Landlord and Tenant Act 1954. Depending on the developer's requirements for future power, it might be possible to serve a Notice to Quit under the development clause of the said Act. This substation site is also referenced below under Electric – Western Power Distribution (WPD).

The title is subject to the rights granted by a Lease of an electricity substation site numbered 2 in blue on the title plan dated 26 March 1990, for a term of 25 years from 12th May 1989. On the Western Power Distribution (WPD) network plan the substation is denoted 56/3588 ARENA. The Lease is registered under title WA542959. This substation site is more fully referenced below under Title WA542959.

Title WA542959

The leasehold land in this title is described as Land and buildings lying to the west of Rhych Avenue, Porthcawl. The site comprises an electricity substation and it is located in the eastern area of Title CYM254031. The lease is dated 26th March 1990, running for a term of 25 years from 12th May 1989. The parties to the Lease are (1) The Council of the Borough of Ogwr and (2) The South Wales Electricity Board, whereas the titleholder is WESTERN POWER DISTRIBUTION (SOUTH WALES) PLC (Co. Regn. No. 2366985) of Avonbank, Feeder Road, Bristol BS2 0TB. On the Western Power Distribution (WPD) network plan the substation is denoted 56/3588 ARENA. The lease reserves access rights in from the north via Rhych Avenue as well as cable rights running north-west from the substation site. These cable rights do not appear to follow exactly the same route as the cables shown on the network plan; the network plan also records more extensive cables than rights are shown for – these are underground HV cables connected to its western side and it supplies LV cables running away to the south. Given that the term has expired we assume WPD is 'holding over' in accordance with its rights under the Landlord and Tenant Act 1954. Depending on the developer's requirements for future power, it might be possible to serve a Notice to Quit under the development clause of the said Act. See reference below under Electric – Western Power Distribution (WPD).

Title CYM374885

The land in this Freehold title is described in the register as Land on the south side of New Road, Newton, Porthcawl. The title is extensive but only a small corner falls within the south-eastern demise of the development area. The Proprietor is given as NEWTON (PORTHCAWL) ESTATE COMPANY LIMITED (Co. Regn. No. 00285752) of Po Box 73, Bridgend CF32 0NG.

The corner of the title in question is subject to a lease as a caravan park but no specific utility rights are recorded against the title.

Title CYM55581

The land in this Freehold title is described in the register as The Dirty Duck, Rych Avenue, Porthcawl (CF36 5DB). The title falls within the south-eastern corner of the development area. The Proprietor is given as JOHN ARTHUR FORD of Flat 4, Burlington Court, Esplanade, Burnham-On-Sea TA8 2AG.

The Registry carries no reference to utility rights.

Title CYM519435

The land in this Freehold title is described in the register as Land on the west side of Rych Avenue, Porthcawl. The title forms two discrete parcels of land located in the south-eastern corner of the development area. The Proprietor is given as NEWTON (PORTHCAWL) ESTATE COMPANY LIMITED (Co. Regn. No. 00285752) of Registered Office, 10-12 Dunraven Place, Bridgend CF31 1JD.

The Registry carries no reference to utility rights.

We have inspected statutory utility network plans as follows but not established the adoption status of any highway:

Electric – Western Power Distribution (WPD)

Network plans show apparatus located across the development area as follows:

- Underground LV cable running within the footpath and crossing the carriageway of The Portway, supplying a One 2 One mast;
- Underground LV cable subsisting in the footway of the southern end of the Eastern Promenade;
- Underground 11kV cable subsisting within the eastern footway of the Eastern Promenade;
- Underground LV and 11kV cables running more generally through the development area, both following foot- and carriageways as well as running more generally through land titles;
- Electricity substation annotated 56/3626 CONEY BEACH PORTHCAWL. See further information above under the heading Title WA166414.
- Electricity substation annotated 56/3745 DOCK STREET located on the south-western corner of the car park (Title CYM255481) with LV and HV underground apparatus running to and from the substation's western side. See further information above under the heading Title CYM255481;
- Electricity substation annotated 56/3589 SANDY BAY located within the southwestern corner of title CYM254031 with underground LV cables connected from the north and east and LV cables from the east and west. This substation is held under a lease dated 28th July 1988, for a term of 21 years from 1st June 1986. See further information above under heading Title CYM254031;

- Electricity substation annotated 56/3588 ARENA and recorded under leasehold title WA542959 (see entry above) located in the eastern area of title CYM254031, itself forming the eastern part of the development site. The lease is dated 26th March 1990, running for a term of 25 years from 12th May 1989. See further information above under heading Title WA542959.

Gas – Wales and West Utilities (WWU)

Network plans show:

- low pressure mains within the eastern footway of the Eastern Promenade, running broadly north-south within the main body of the development following the route of Mackworth Road and running into title CYM371048 in the central-southern area. The latter appears to be a supply pipe to land within the development area, in which case the cost of any diversion would fall to the developer.

Potable Water – Dwr Cymru Welsh Water (DCWW)

Network plans show:

- a water main located on the western side of Eastern Promenade in the north-western part of the development area;
- a main is also located within Mackworth Road within the development area, as well as one in the roadway running north-south on the eastern boundary of the development area, denoted Primary Active Travel Route;
- we have not researched the adoption status of these roads but if these mains are installed in unadopted land DCWW enjoys statutory rights of retention under the Water Industry Act 1991, meaning that the cost of diversion would fall to the developer.

Foul Water – Dwr Cymru Welsh Water (DCWW)

Network plans show:

- a network of foul drains within the title CYM254031 (which covers perhaps one-third of the development area on the eastern side), as well as within and alongside Mackworth Road;
- foul drains are also located on the boundary of titles WA166414 and WA166103, both of which fall centrally within the development area;
- a foul sewer runs out of the north-eastern development area in title CYM254031;
- a foul sewer also runs out of the north-western area of the development which encompasses title CYM256633 and the unregistered parcel of land;
- additionally, a combined drain is shown running west-east across the car park within title CYM255481 in the development area, connecting with one which runs broadly north-south in the eastern one-third of the development area. This, in turn, connects into the sewer referenced above under the Deed dated 31st August 1989. This latter sewer runs broadly west-east and largely follows the route of a partly-made access track which runs along the back of houses fronting New Road. The route is located just within the northern boundary of the proposed development area;
- finally, a surface water drain is shown located within Mackworth Road.

Where these drains serve land within the development area, the cost of any diversion will be borne by the developer. Where these drains serve properties outwith the development area and not otherwise legally secured, DCWW can claim statutory rights of retention under The Water Industry (Schemes for

Adoption of Private Sewers) Regulations 2011 again meaning that the cost of any diversion will be borne by the developer.

Telecommunications – BT Openreach (BT)

Network plans show the following:

- existing and planned underground distribution apparatus running along the eastern side of The Portway;
- planned underground distribution apparatus running along the western side of the Eastern Promenade;
- existing overhead and underground service apparatus located within the southern and western boundaries of title WA166414 (Coney Beach Amusement Park);
- existing underground distribution apparatus located within Mackworth Road which is connected to overhead apparatus at buildings surrounded by the south-central part of the development and which appear to be being retained;
- existing overhead apparatus running through the southern part of title CYM254031 within the development area, apparently serving that area;
- underground apparatus subsisting in Rych Avenue, serving both title CYM254031 in the development area and the caravan park to the east.

Where apparatus serves properties within the development the cost of diversion will fall to the developer. Where apparatus serves properties outwith the ownership of the development we suggest the cost of diversion is also borne by the developer owing to the process for diversion outlined under the Telecommunications Act 1984 (as amended) being heavily weighted in favour of BT.

Telecommunications – City Fibre

Network plans show no apparatus within the area.

Going Forward

Where apparatus requires relocation or diversion and documentation for legal security cannot be obtained from Land Registry, we suggest approaching the statutory body for any copy it might hold in order better to understand the cost implications of these works.

9 Conclusions and Recommendations

The total budget estimate for delivering disconnections, diversions and new connections to the development is approximately :

Budget Cost Excluding 7kW EV Charging (Trickle Charging permitted): £3,277,200

Budget Cost Including 7kW EV Charging: £10,845,200

All prices quoted are exclusive of VAT.

These costs are based on information obtained from statutory utilities and SMS' knowledge and professional experience of the utilities market. The budget estimates are based on the client's contribution to the capital costs of undertaking the required works.

The on-site infrastructure costs are based on the layout and plans provided for the study, which are indicative at this stage. These costs are subject to variation, particularly if the development specification and / or layout change.

Please refer to Appendix 1 for details of the general assumptions and considerations applied by SMS whilst compiling this study.

Moving forward / removal of risk

It is our belief that additional works / procurement is required in order to de-risk the project further. The timings of when these works are to be carried out would form part of the review of this study between SMS, the client and the greater design team.

1. Procure disconnection and diversion quotations from WPD, WWU, DCWW and BT.
2. Procure a quotation for a Hydraulic Modelling Assessment (HMA) from DCWW.
3. Procure a POC quotation from WPD, new connection and infrastructure quotations for Electricity from WPD / ICP, Gas from WWU / IGT and Water from DCWW.
4. Register the development with BT Openreach new sites.

Following on from these works, SMS would provide further cost and programme advice to the client once a programme has been compiled by BCBC.

Health, Safety and Environmental Considerations

In line with the Construction (Design and Management) Regulations 2015 (CDM) and as part of the internal procedures contained within our safety management system, we have undertaken the early identification of any potential significant risks to health and safety that may need further consideration at the detailed design stage. Additionally, in conjunction with this study and in adherence to SMS's Environmental Management System, we have also given consideration to any potential environmental issues that may also arise.

From the information given by the client to date SMS cannot see the presence of any abnormal or significant risk within the development.

Should you consider this study to represent a feasible option and wish to progress this further, please request information relating to the outcomes of our assessment in order that you can communicate this to other relevant parties. Additionally, please download HSE leaflet INDG411 "Want construction work done safely?" from the HSE website www.hse.gov.uk, which will provide you with guidance relating to client responsibilities under the CDM Regulations.

We recommend that all activities be carried out in accordance with Health and Safety legislation, particularly HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoidance of Danger

from Overhead Electric Power Lines”. We further recommended that all development contractors obtain the latest utility network drawings from the host utility asset owner.

Appendix 1 – General Assumptions and Considerations

Assumptions

In view of the limited information currently available, several assumptions have been made in order to produce this study:

1. The demand for the development has been based on the information provided and SMS' experience of developments of a similar nature and will need to be re-assessed as part of the final design process.
2. Unless otherwise specified, space / water heating for all developments will be by gas.
3. Excavations are in unmade ground and no special measures, such as those that would be required by ground contamination, are needed.
4. The client will carry out all on-site excavations.
5. The proposed service routes have been assumed and will require to be agreed.
6. The existing adjacent utilities in the vicinity of the development have sufficient capacity to provide the required loads (unless stated in this study). This can only be confirmed after network studies by the various utility companies are carried out at the design stage to establish the actual capacity available.
7. It is assumed that the landowner will grant any easement or wayleave that may be required.
8. As details of load structure, demand type or size of properties becomes clearer a further study would be required to review the estimates before submitting a firm application to the host network operator. However, we have assumed the above to be the worst-case scenario for purposes of this study.
9. Utility plans such as those that have been used for this desktop study, do not always show service connections to buildings.

Special Considerations

The utility plan extracts attached to this study are based on utility plans supplied to SMS under license conditions or separately purchased and are not to be used for excavation purposes. They have been included for indicative purposes only. They may have been superseded since the completion of the study.

The cost estimates in our study assume that there are no special conditions applied to any construction works including:

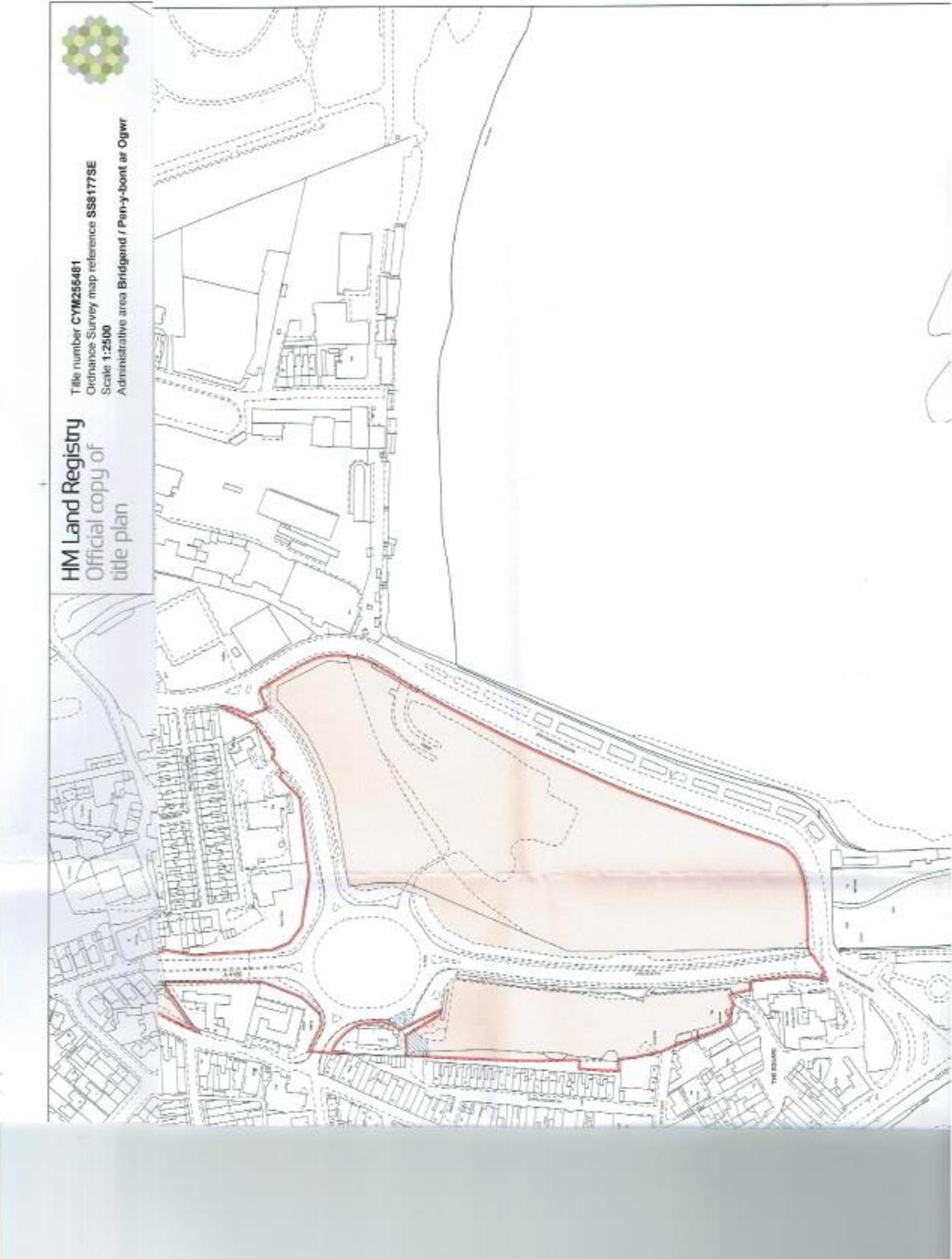
- a) No restricted working hours.
- b) No specific planning conditions to be met.
- c) Any land utilised for development extensions or new developments will not contain contaminated soil.

Appendix 2 – HAUC Survey Results

Results of HAUC enquiries to utility companies based upon information provided by Linesearch.

Utility Provider	Date of Response	Response / Comment
Century Link Communications UK Ltd	01/04/2020	Not Affected
City Fibre	31/03/2020	Not Affected
Colt	15/04/2020	Not Affected
Energetics Electricity	31/03/2020	Not Affected
Engie	31/03/2020	Not Affected
GTC	31/03/2020	Not Affected
KPN / Instalcom	03/04/2020	Not Affected
Mobile Broadband Network	31/04/2020	Not Affected
SOTA	22/08/2019	Not Affected
Sky UK	31/03/2020	Not Affected
Utility Assets Ltd	31/03/2020	Not Affected
Verizon Business	31/03/2020	Not Affected
Virgin Media	31/03/2020	Not Affected

Appendix 3 – Title Plans

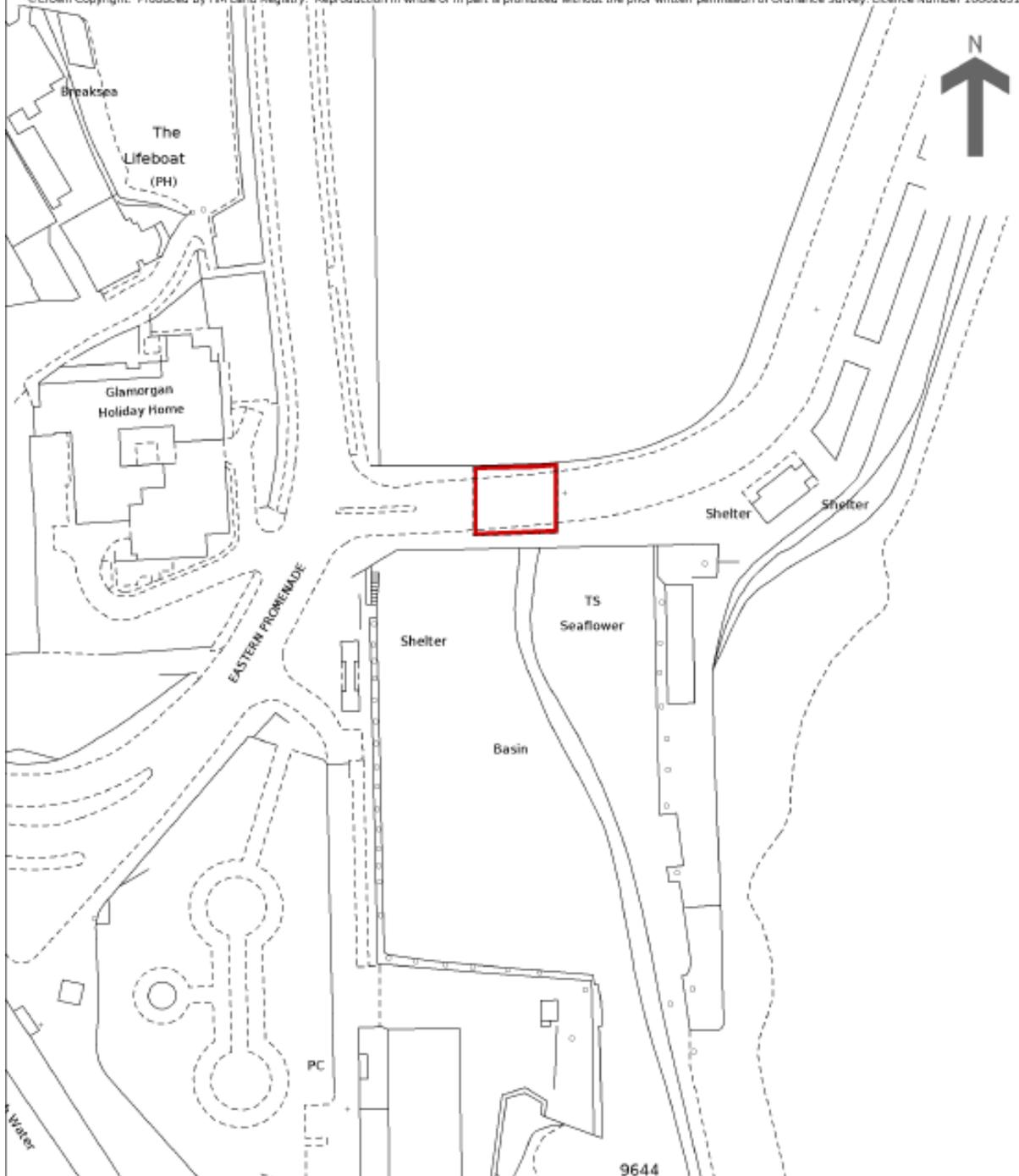


HM Land Registry
Official copy of
title plan

Title number **CYM350172**
Ordnance Survey map reference **SS8176NE**
Scale **1:1250**
Administrative area **Bridgend / Pen-y-bont
ar Ogwr**

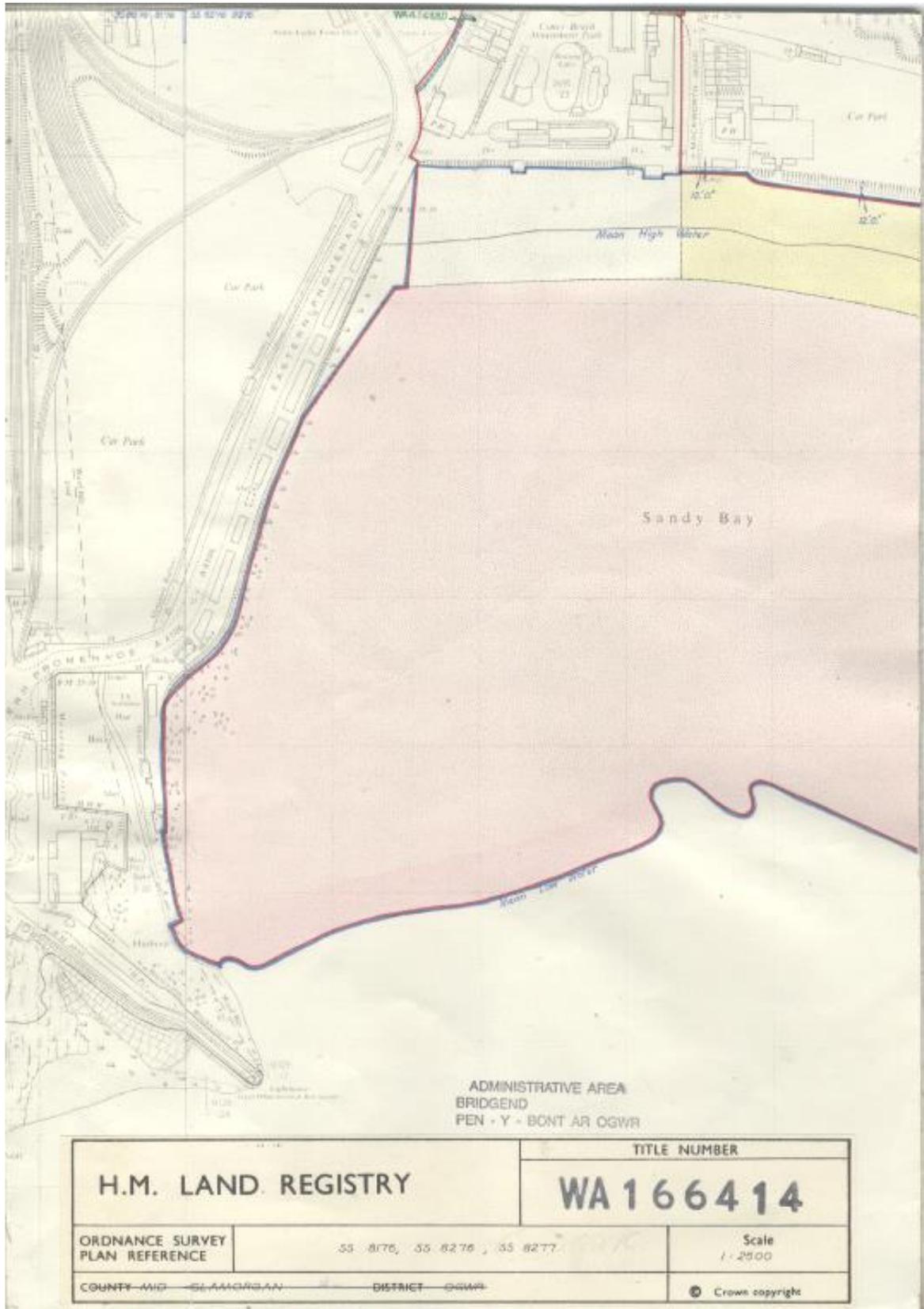


© Crown Copyright. Produced by HM Land Registry. Reproduction in whole or in part is prohibited without the prior written permission of Ordnance Survey. Licence Number 100026314



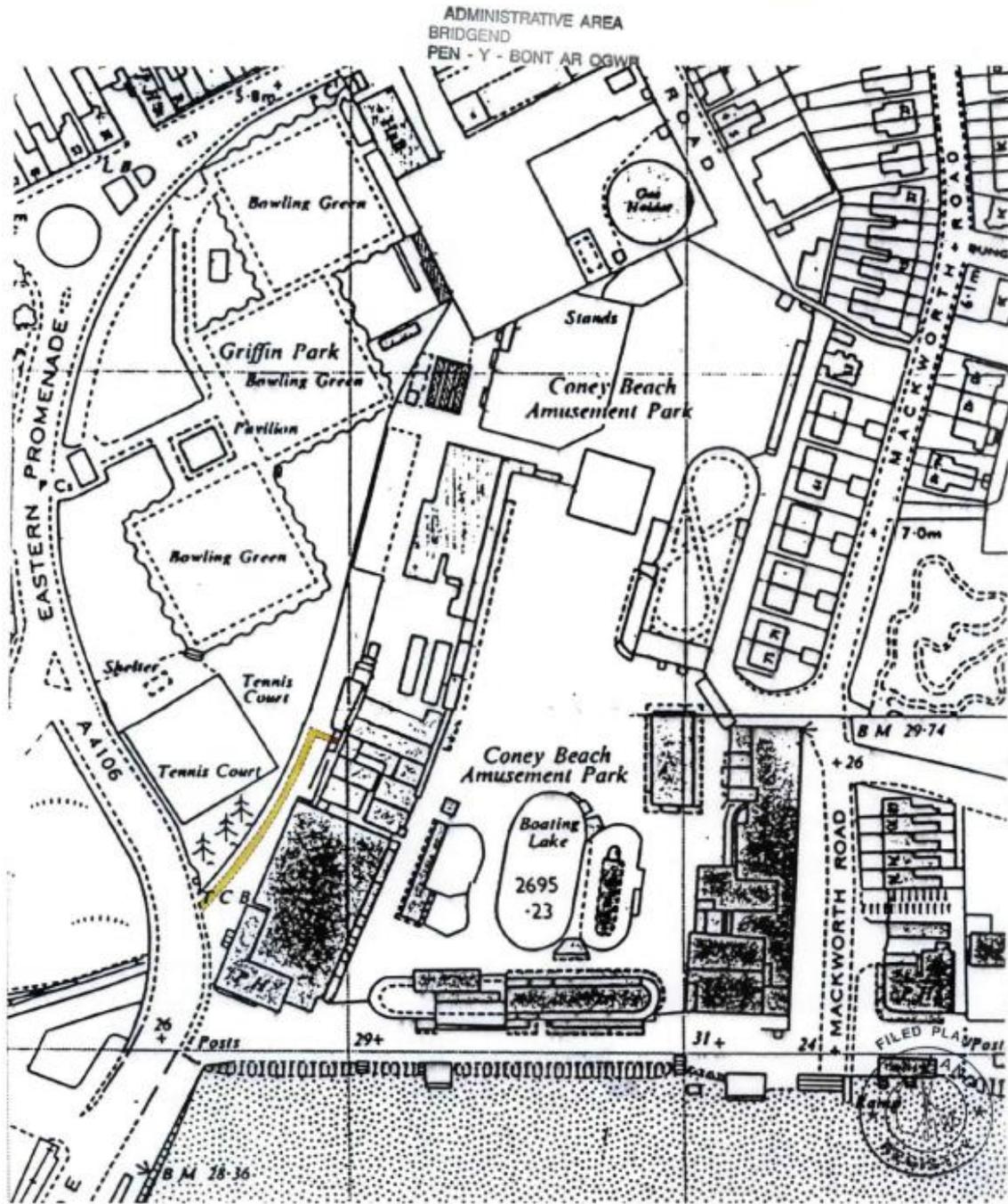
**This official copy is incomplete without the preceding notes page.
Mae'r copi swyddogol hwn yn anghyflawn heb y dudalen nodiadau flaenorol.**





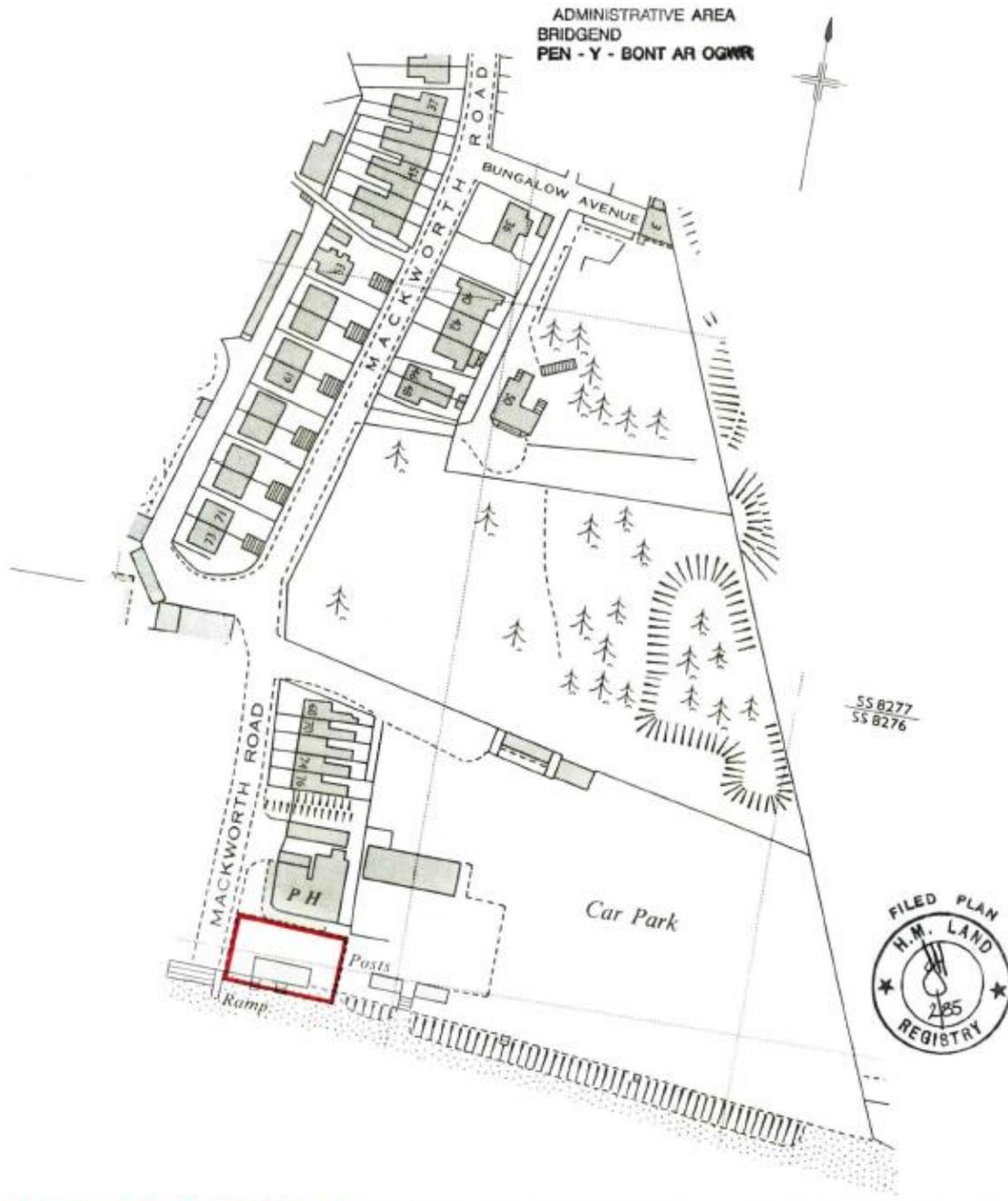
This official copy is incomplete without the preceding notes page.
Mae'r copi swyddogol hwn yn anghyflawn heb y dudalen nodiadau flaenorol.

H.M. LAND REGISTRY		TITLE NUMBER WA414880	
ORDNANCE SURVEY PLAN REFERENCE	SS 8276 SS 8277	Scale 1/1250	
COUNTY—MID—GLAMORGAN		DISTRICT—GGWR	© Crown copyright



This official copy is incomplete without the preceding notes page.

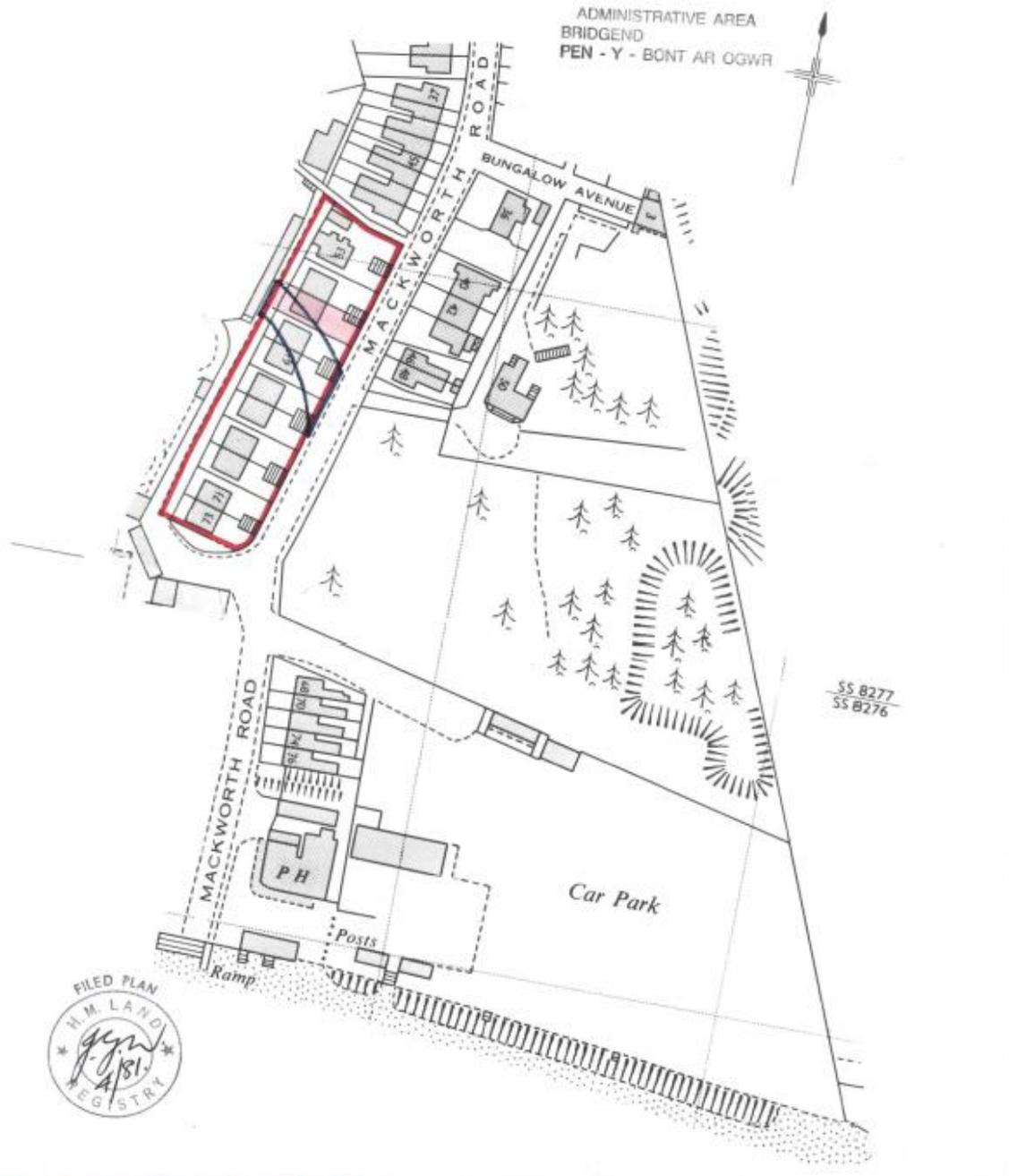
H.M. LAND REGISTRY		TITLE NUMBER	
		WA 295544	
ORDNANCE SURVEY PLAN REFERENCE	SS 8277	SECTION M	Scale 1/1250 Enlarged from 1/2500
COUNTY MID GLAMORGAN DISTRICT OGWR		© Crown copyright 1974	



This official copy is incomplete without the preceding notes page.
Mae'r copi swyddogol hwn yn anghyflawn heb y dudalen nodiadau flaenorol.

H.M. LAND REGISTRY		TITLE NUMBER	
		WA166103	
ORDNANCE SURVEY PLAN REFERENCE	SS 8277	SECTION M	Scale: 1/1250 Enlarged from 1/2500
COUNTY MID GLAMORGAN	DISTRICT OGWR	© Crown copy right 1974	

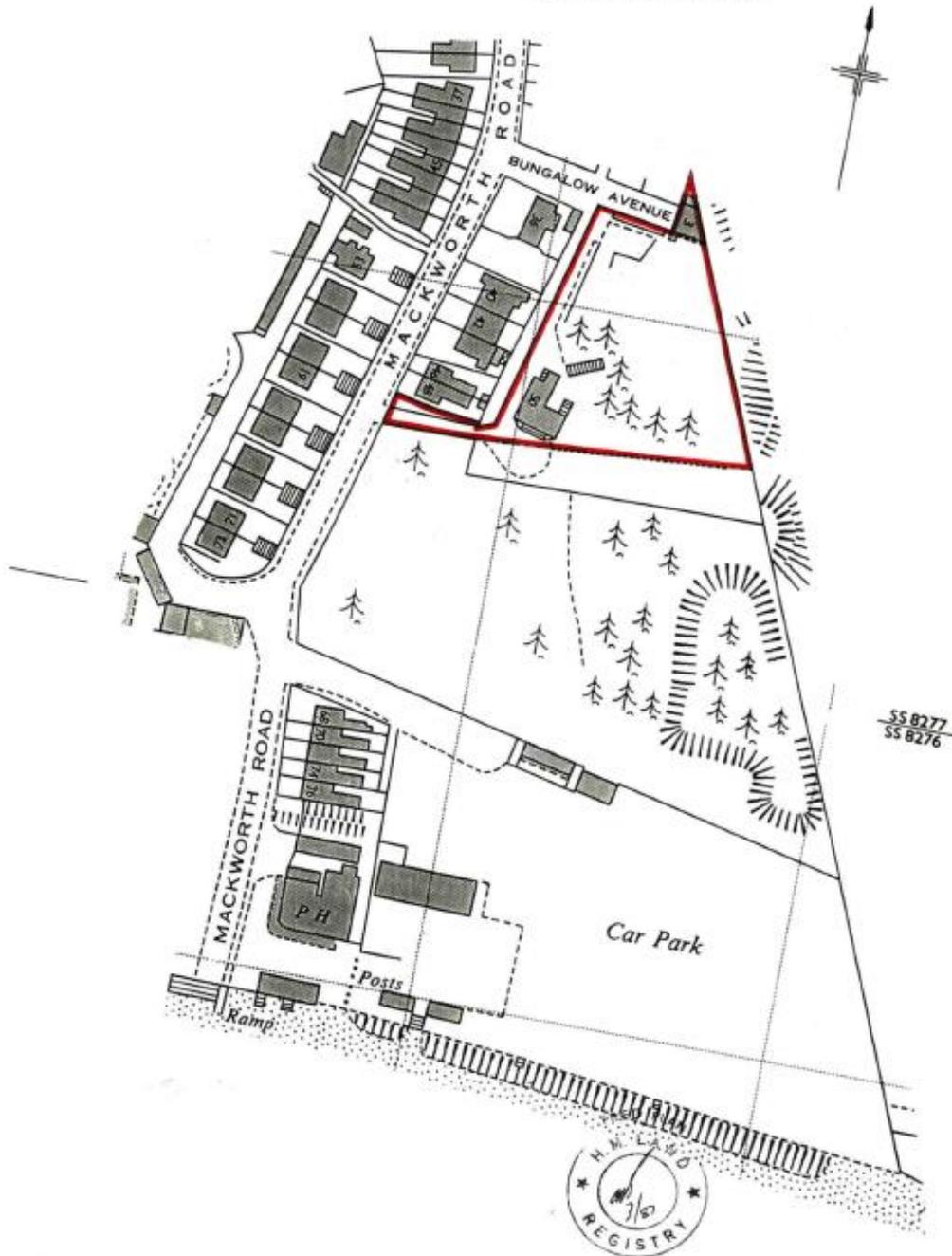
PORHCRAWL COMMUNITY



This official copy is incomplete without the preceding notes page.
Mae'r copi swyddogol hwn yn anghyflawn heb y dudalen nodiadau flaenorol.

H.M. LAND REGISTRY		TITLE NUMBER	
		WA 343508	
ORDNANCE SURVEY PLAN REFERENCE	SS 8277	SECTION M	Scale 1/1250 Enlarged from 1/2500
COUNTY	MID GLAMORGAN	DISTRICT	OGWR
			© Crown copyright 1974

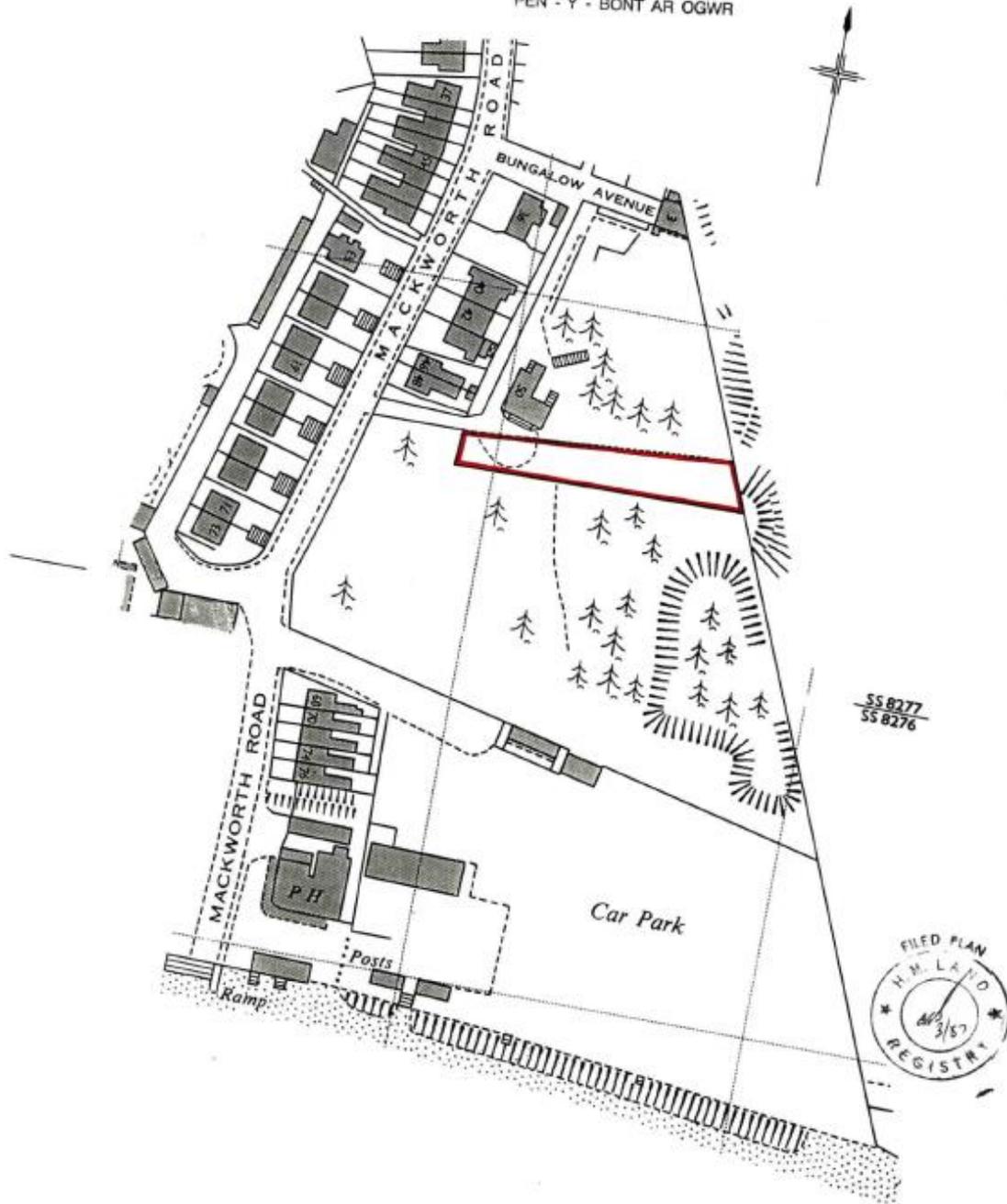
ADMINISTRATIVE AREA
BRIDGEND
PEN - Y - BONT AR OGWR



This official copy is incomplete without the preceding notes pages.
Mae'r copi swyddogol hwn yn anghyflawn heb y dudalen nodiadau flaenorol.

H.M. LAND REGISTRY		TITLE NUMBER WA366594	
ORDNANCE SURVEY PLAN REFERENCE	SS 8277	SECTION M	Scale 1/1250 Enlarged from 1/2500
COUNTY MID GLAMORGAN DISTRICT OGWR		© Crown copyright 1974	

ADMINISTRATIVE AREA
BRIDGEND
PEN - Y - BONT AR OGWR



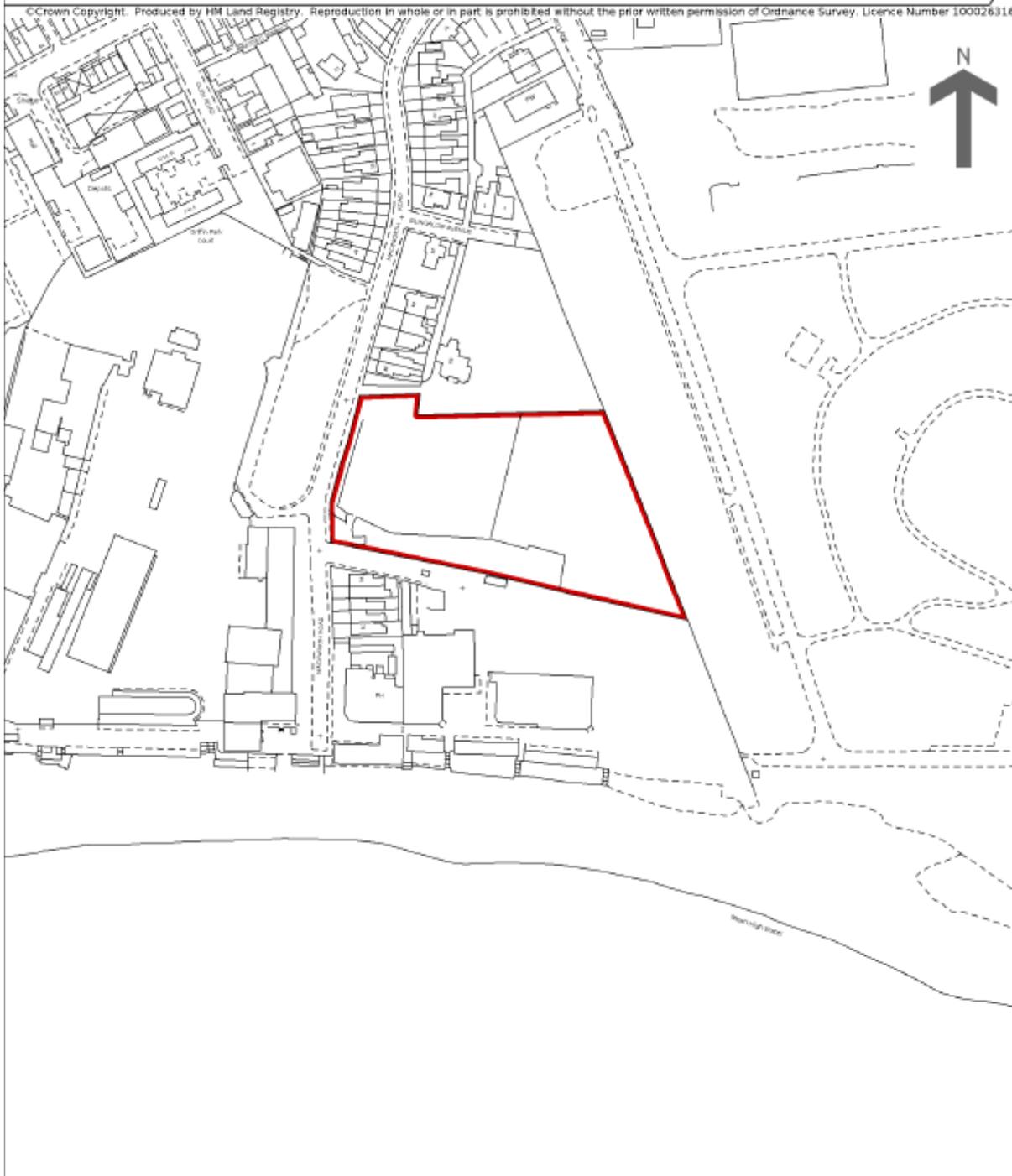
This official copy is incomplete without the preceding notes page.
Mae'r copi swyddogol hwn yn anghyflawn heb y dudalen nodiadau blaenorol.

HM Land Registry
Official copy of
title plan

Title number **CYM363522**
Ordnance Survey map reference **SS8277SW**
Scale **1:2500 reduced from 1:1250**
Administrative area **Bridgend / Pen-y-bont
ar Ogwr**



© Crown Copyright. Produced by HM Land Registry. Reproduction in whole or in part is prohibited without the prior written permission of Ordnance Survey. Licence Number 100026316



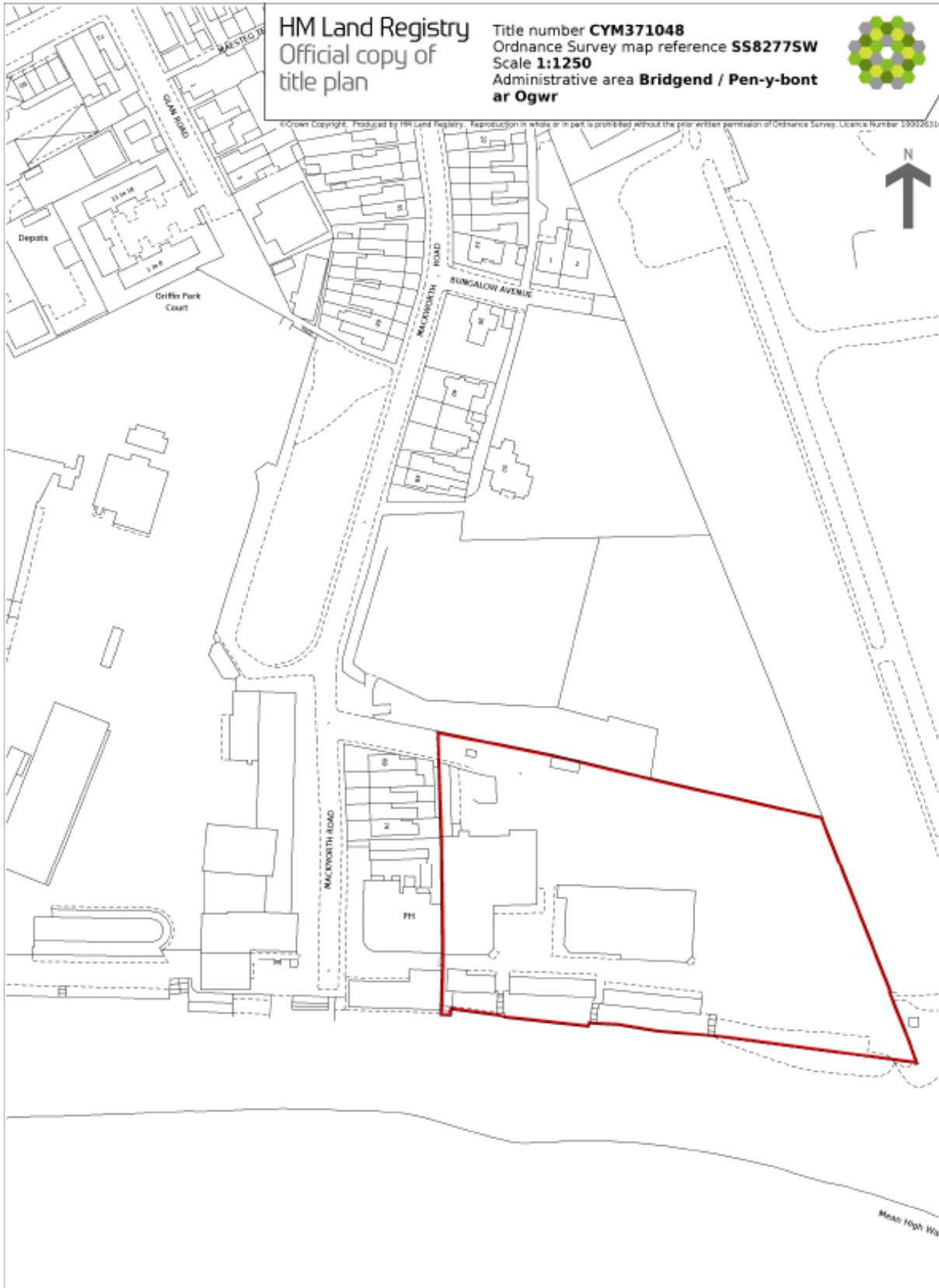
**This official copy is incomplete without the preceding notes page.
Mae'r copi swyddogol hwn yn anghyflawn heb y dudalen nodiadau flaenorol.**

HM Land Registry
Official copy of
title plan

Title number **CYM371048**
Ordnance Survey map reference **SS8277SW**
Scale **1:1250**
Administrative area **Bridgend / Pen-y-bont
ar Ogwr**



© Crown Copyright. Produced by HM Land Registry. Reproduction in whole or in part is prohibited without the prior written permission of Ordnance Survey. Licence Number 100028314



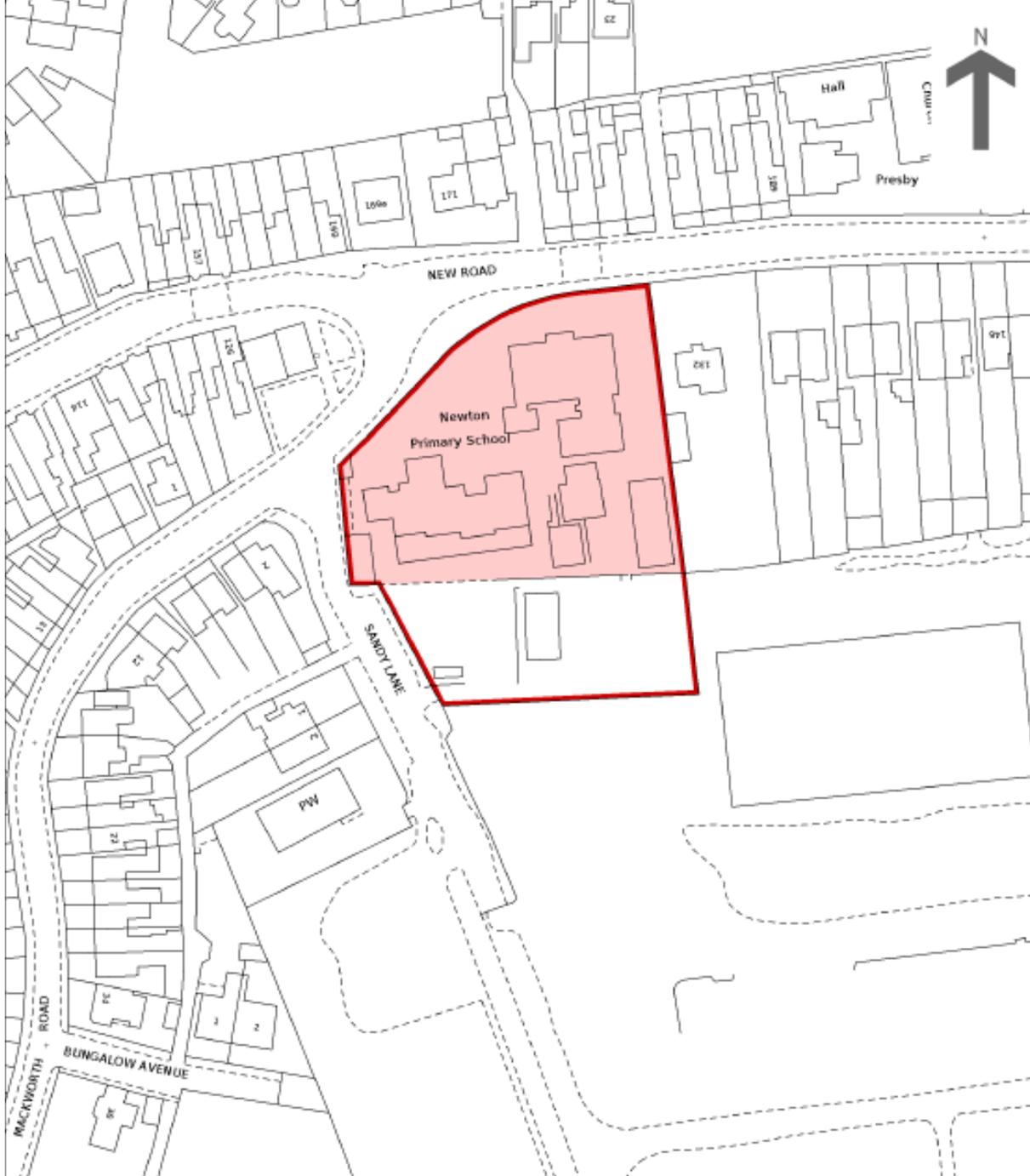
This official copy is incomplete without the preceding notes page.
Mae'r oopli cwyddogol hwn yn anghyflawn heb y dudalen nodiadau flaenorol.

HM Land Registry
Official copy of
title plan

Title number **CYM255224**
Ordnance Survey map reference **SS8277SW**
Scale **1:1250 enlarged from 1:2500**
Administrative area **Bridgend / Pen-y-bont
ar Ogwr**



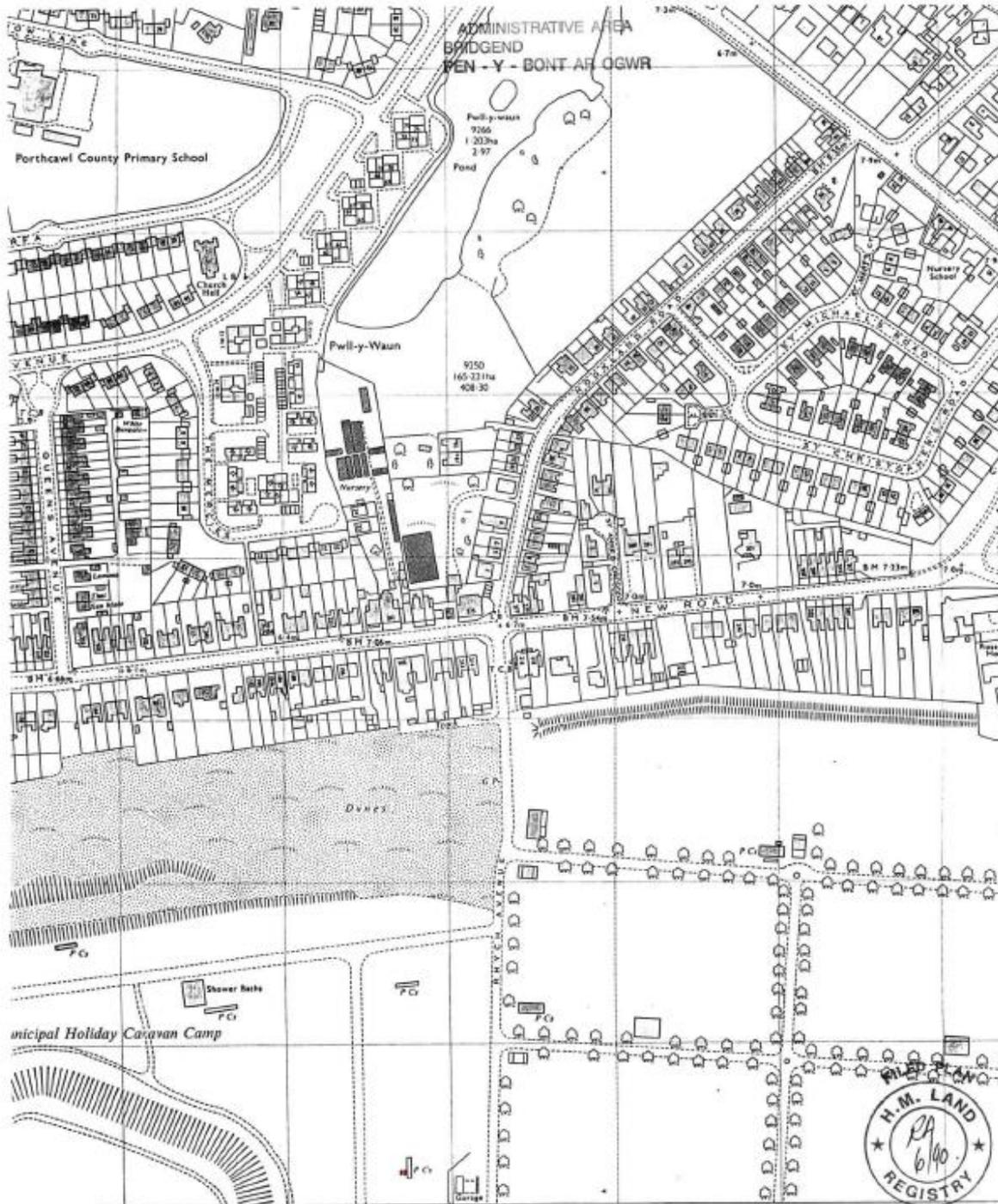
© Crown Copyright. Produced by HM Land Registry. Reproduction in whole or in part is prohibited without the prior written permission of Ordnance Survey. Licence Number 100026316



**This official copy is incomplete without the preceding notes page.
Mae'r copi swyddogol hwn yn anghyflawn heb y dudalen nodiadau flaenorol.**



H.M. LAND REGISTRY		TITLE NUMBER	
		WA 542959	
ORDNANCE SURVEY PLAN REFERENCE	SS 8277	Scale 1/ 2500	
COUNTY MID-GLAMORGAN		DISTRICT OGWR	© Crown copyright



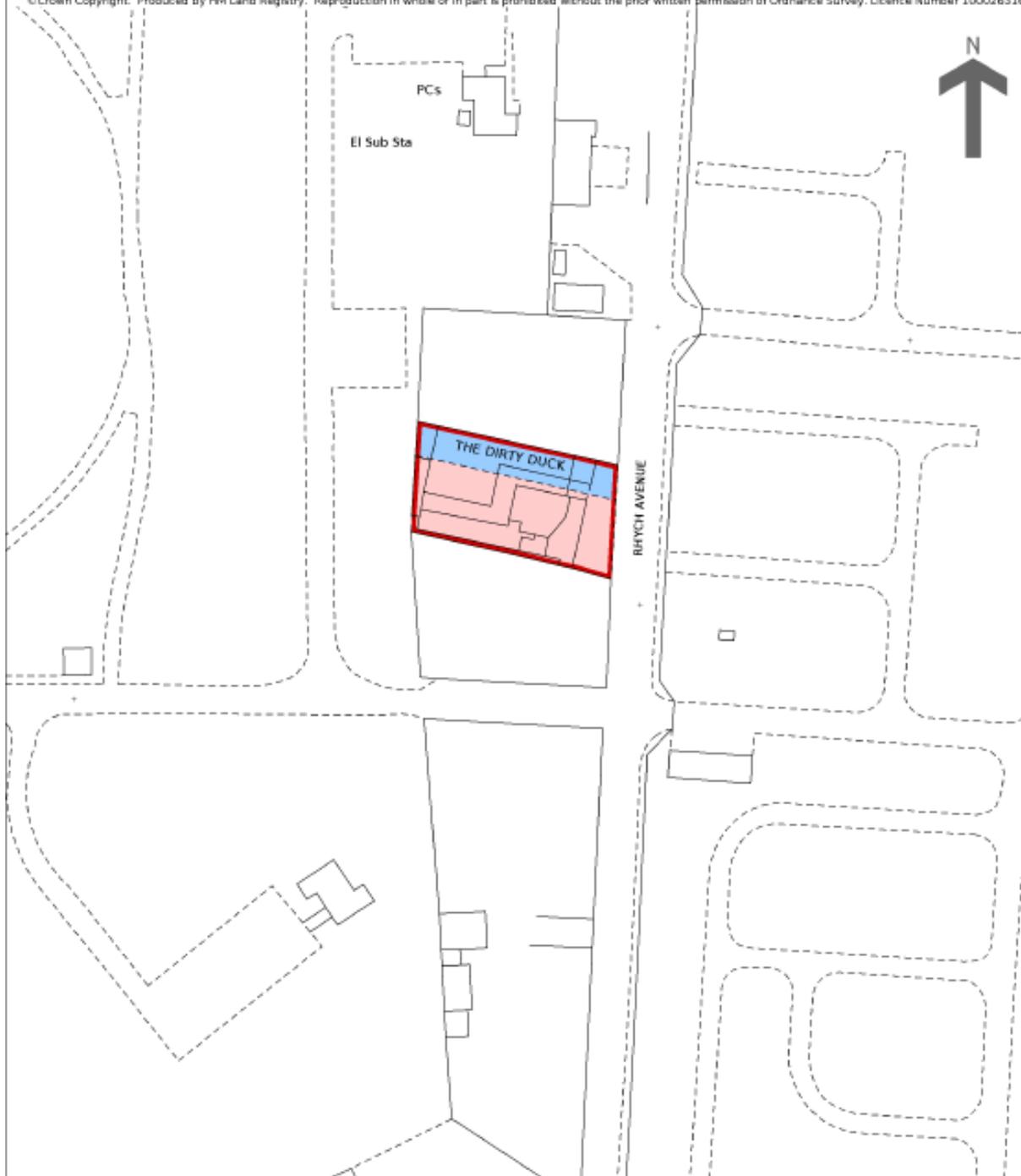
This official copy is incomplete without the preceding notes page.
 Mae'r copi swyddogol hwn yn anghyflawn heb y dudalen nodiadau flaenorol.

HM Land Registry
Official copy of
title plan

Title number **CYM55581**
Ordnance Survey map reference **SS8276NE**
Scale **1:1250 enlarged from 1:2500**
Administrative area **Bridgend / Pen-y-bont
ar Ogwr**



© Crown Copyright. Produced by HM Land Registry. Reproduction in whole or in part is prohibited without the prior written permission of Ordnance Survey. Licence Number 100026316



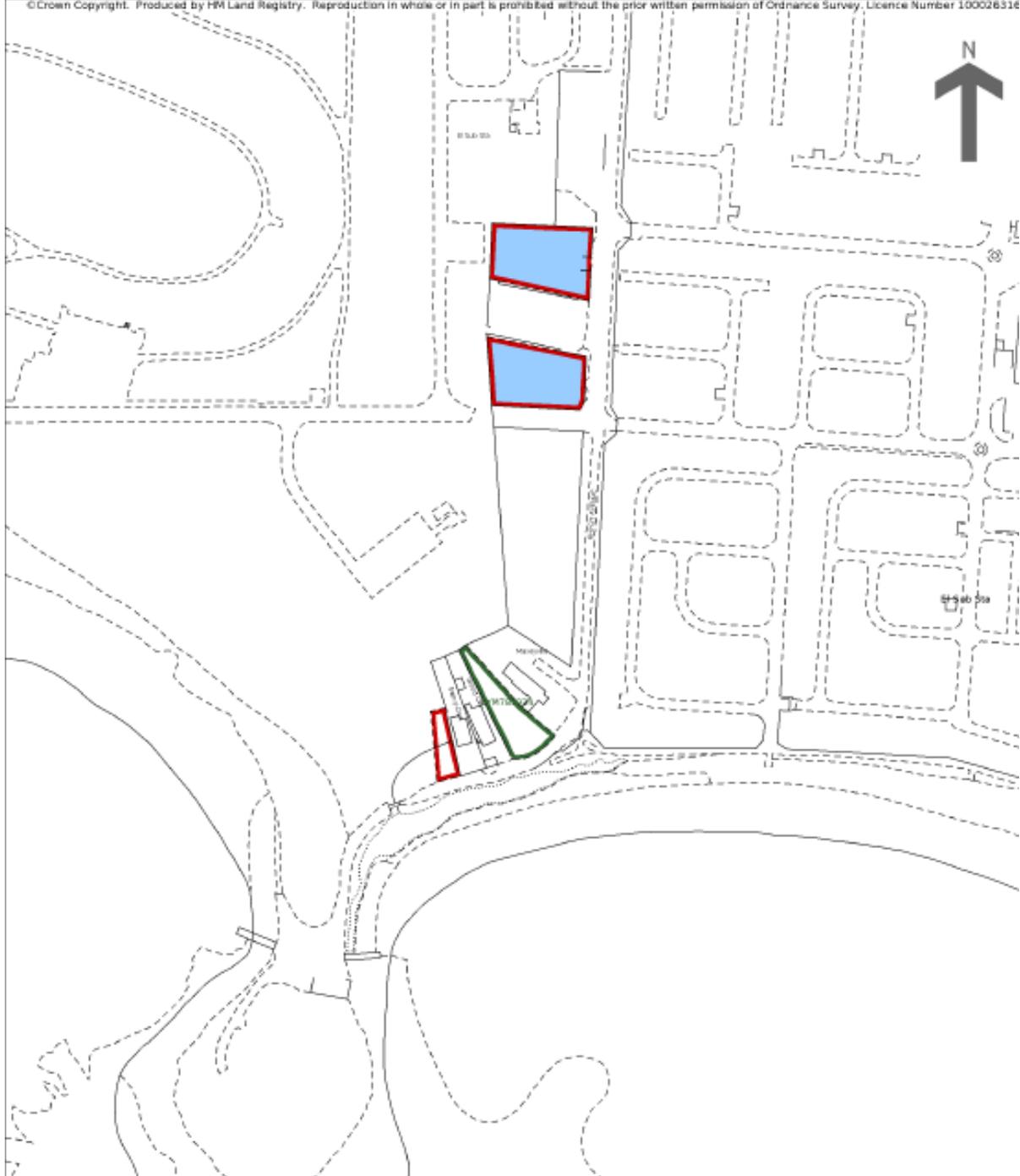
This official copy is incomplete without the preceding notes page.
Mae'r copi swyddogol hwn yn anghyflawn heb y dudalen nodiadau flaenorol.

HM Land Registry
Official copy of
title plan

Title number **CYM519435**
Ordnance Survey map reference **SS8276NE**
Scale **1:2500**
Administrative area **Bridgend / Pen-y-bont
ar Ogwr**



© Crown Copyright. Produced by HM Land Registry. Reproduction in whole or in part is prohibited without the prior written permission of Ordnance Survey. Licence Number 100026316



This official copy is incomplete without the preceding notes page.
Mae'r copi swyddogol hwn yn anghyflawn heb y dudalen nodiadau flaenorol.

Appendix 4 – Utilities Pre-Planning Enquiries

Electricity – Western Power Distribution (WPD)

POC Excluding 7kW EV Charging

Document: 3663032 - Budget Estimate Letter

Drawing: JGG3663032.overlay-Default-000

POC Including 7kW EV Charging

Document: 3655967 - Porthcawl Regeneration 13.1MW - Budget Estimate

Drawing: 3655967 - Geographic Plan

Gas – Wales and West Utilities (WWU)

Document: 7100005510-Land Enquiry Response Letter

Drawing: 7100005510_WWU Plan 7100005510

Water – Dwr Cymru Welsh Water (DCWW)

Document: PPA0004817 - Pre-Planning Response Letter

Drawing: PPA0004817 WATER & PPA0004817 SEWER

Telecommunications – Openreach (BT)

Document: BT Land Enquiry 24102020