

Saundersfoot Harbour Office

Harbour Services

Description

Services Report

1516.042/RT-01

ISSUE 00



SABA CONSULT

10 PENTREPOETH ROAD

MORRISTON

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Contents

1. Introduction	4
2. Incoming Electrical Services	5
3. Incoming Gas Services	7
4. Incoming Water Services	8
5. Appendix 1 – WPD Plan	9
6. Appendix 2 – WPD Costs	10
7. Appendix 3 – WWU Gas Layout Plan	12

1. Introduction

The purpose of this report is to provide an overview of the existing services infrastructure and capacities currently installed at the Harbour, together with a developed strategy to provide sufficient services throughout the harbour vicinity to facilitate the new developments and refurbishments currently proposed by Saundersfoot Harbour Office.

As part of the basis of our review we have liaised with the 3x main utility providers (Western Power Distribution, Wales & West and Welsh Water.) in order to attain realistic costs and timescales for their associated necessary upgraded works.

In order for us to determine the necessary incoming capacities of each of the services for each of the proposed new/refurbished developments, we have prepared initial building services design philosophies to ensure that correct capacities and diversities are applied.

2. Incoming Electrical Services

From the initial discussions with WPD, they confirmed that there was very limited spare electric capacity the harbour, and approximately only circa 20KVA was left spare at the far end of the harbour quayside, at the position proposed for the new Coastal Centre of Excellence. This spare capacity is provided via a recently installed overhead WPD service routed overhead at the bottom of the

From their records a recent electric service was routed overhead to the former Builder's merchants, currently providing the only spare capacity of approximately 20KVA within that area which would not be large enough to feed the new Centre of Excellence building.

Likewise as there is very limited spare capacity around the harbour area, there would be little opportunity to refurbish/upgrade any local developments within that vicinity without the need for a WPD infrastructure upgrade.

In order to attain realistic budget costings and to provide flexibility for future growth throughout the harbour areas, we have used the following electrical loads to allow WPD to generate their associated quotation costs:-

Building/Development	Electrical Load 400V TP/N	Comments
Marine Centre of Excellence	600KVA	Building's M&E services, together with fit-out of the boat workshop. Allowance for a commercial kitchen.
Ocean Square Heritage & Arts Centre	140KVA	Refurbishment of existing building, with provision of a new TP/N supply.
National Events Deck	40KVA	Amenity external lighting & Local Feeder Pillars
Coastal Schooner Centre	140KVA	Building's M&E services, including allowance for stage lighting and cinema use.
Coastal Tidal Sea Lido	140KVA	General Electrical supplies for pumps, controllers, and possible the sluice gates.

The above loadings are ideally generous, but will allow for future growth/development within the Harbour Office's area. The exact loads shall be determined over the course of the detailed design stage of each of the individual scheme's design development stages.

In order to distribute the above new WPD supplies, it was agreed that WPD allow for the installation of 2x new 1MVA sub-station, 1 at the within the car park to feed the harbour area, and the other adjacent to the new Centre of Excellence Facility at the end of the harbour quayside.

(as indicated on the WPD drawing attached in Appendix 1)

For the purpose of this report and the possibility of an enabling contract that may be let to procure these new electrical supplies, the sizes of the required WPD transformers, be it a 500 or 800KVA units has little cost difference. The major element of the costs are derived from the extent of excessive route lengths and excavations (possible in hard material) that will be required to accommodate the new WPD cabling to the furthestmost position of the new Centre of Excellence building.

Following discussions with WPD based upon the new services required they have confirmed the following costs, comprising the contestible and non-contestible items.

Item	Cost	Comments
2x 800KVA Sub-stations & Switchgear	£44,000	Transformers and Switchgear.
HV Cabling & Joints	£7,000	
LV Cabling & Joints	£18,300	
Concrete Plinths for Subs	£10,000	
Excavations & Civil Works	£105,000	This full cost is contestible, ie any licensed civil contractor can undertake the necessary civil works, which is generally cheaper than the initial costs submitted by WPD. As stated this trench shall be shared and made common for all new utility supplies.

The quotation received from WPD (as included within Appendix 2) Shows their total cost of £184,544 split approximately as £8K for non-contestible items (only WPD can procure) and £176K as contestible works, (including supply and lay of all HV and LV cabling) which contractually any contractor can install.

However we would normally let WPD undertake their non-testible items together with the supply and installation of all their HV & LV cabling, with the civil contractor procuring all actual bases, trenching and road crossing etc.

As it will be required to also provide both a new gas and water supplies to the Centre of excellence, it shall be required that all utility providers utilise the same common trench.

WPD have also confirmed that as their local HV infrastructure is up to its limit with the number and capacity of private generation, they will not permit any PVs to be connected onto the grid using the Feed in Tariffs. Generally all commercial buildings built now within Wales would require PVs to be installed to comply with Building Regs, which would be connected back for FITs.

However if PVs are required once the design SBEM is calculated, they can be installed in "island" mode with no connection back onto the grid.

3. Incoming Gas Services

From discussions with Wales & West Utilities at present there is no gas main serving the Harbour. Therefore it is proposed that a new gas main be laid by Wales & West Utilities as follows.

A new gas supply to the Ocean Square will come off the existing main in the road as shown on the design plan within appendix. Gas supply shall terminate to a surface mounted kiosk.

The new gas supply to the proposed Schooner Centre and Marine Centre shall be provided from WWU suitable connection point within the road for the the new buildings as shown on the design plan within appendix.

Budget quotation for Ocean Square expected by 28.09.2016 and with Schooner Centre & Marine Centre due by 12.10.2016.

We can confirm that the following gas loads have been applied for.

Building/Development	Gas Load kWh	Comments
Marine Centre of Excellence	200kW	To serve Heating Boilers & Hot Water Plant for new development with allowance for a commercial kitchen.
Ocean Square Heritage & Arts Centre	200kW	To serve Heating Boilers & Hot Water Plant for refurbished existing building.
Coastal Schooner Centre	100kW	To serve Heating Boilers & Hot Water Plant for new development.

Costs for WWU gas pipework and metering work we envisage to be in the region of £30,000 excluding trenching.

4. Incoming Water Services

Water supply applications have been submitted and design fees paid to Welsh Water.

Welsh Water reference numbers are assigned as below.

Ocean Square – NCW0010559

Coastal Schooner Centre – NCW0010556

Marine Centre of Excellence – NCW0010557

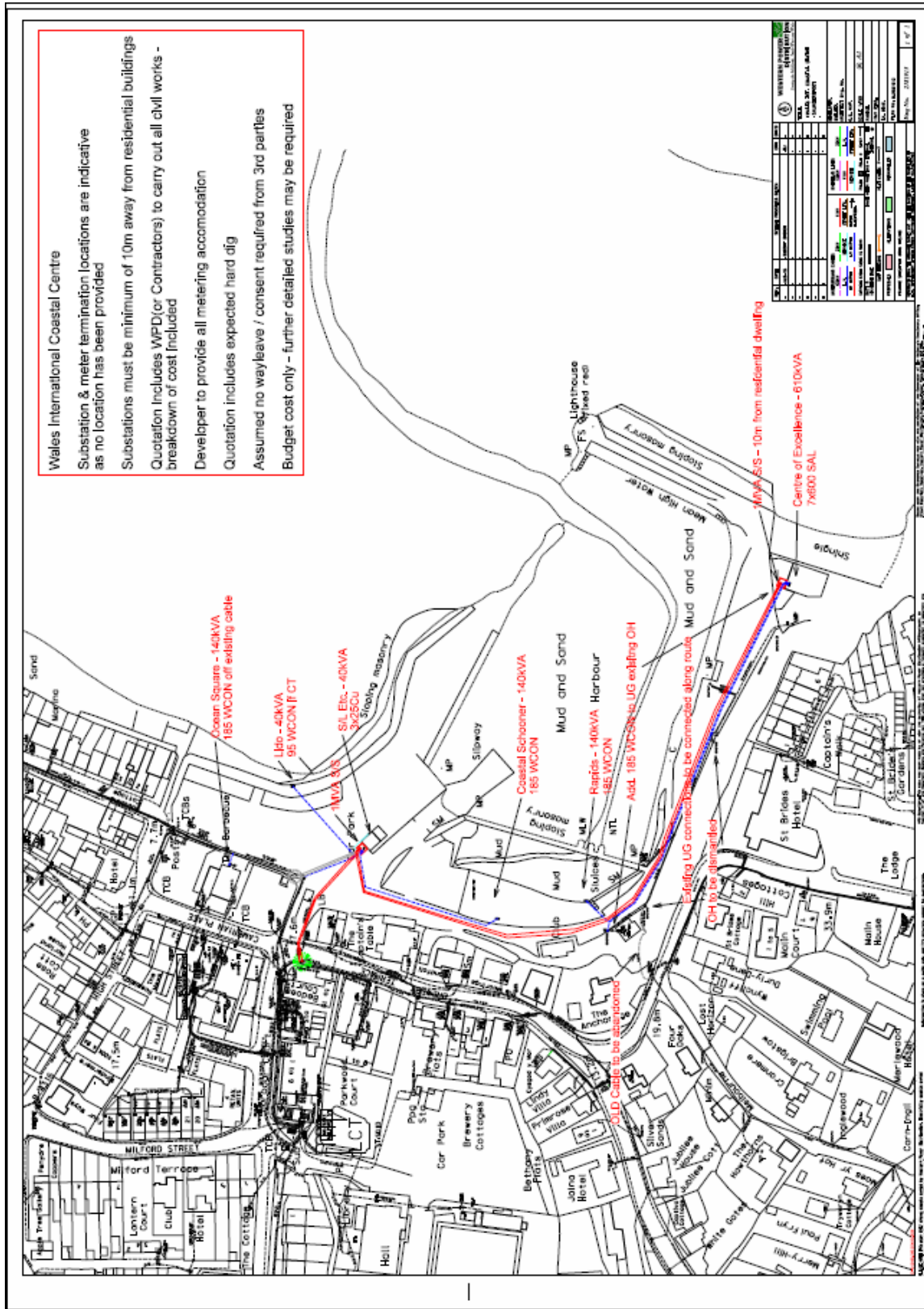
It is proposed that each building be provided with an independent Welsh Water meter for individual billing. Locations of Water Meters are subject to Welsh Water infrastructure design and shall be confirmed upon receipt of quotations.

Design Parameters

Building/Development	Water Load m3 Day	Comments
Marine Centre of Excellence	4000	To serve all sanitary appliances within the new development with allowance for a commercial kitchen.
Ocean Square Heritage & Arts Centre	4000	To serve all sanitary appliances within the refurbished existing building.
Coastal Schooner Centre	2000	To serve all sanitary appliances within the new development with allowance for a commercial kitchen.

Costs for new water supplies and metering work we envisage to be in the region of £30,000 excluding trenching.

5. Appendix 1 – WPD Plan



6. Appendix 2 – WPD Costs

Customer Connection Offer Breakdown				
WESTERN POWER DISTRIBUTION <small>Serving the Midlands, South West and Wales</small>				
Page 1 of 2				
Scheme Title: S.Foot Harbour Development				
Enquiry Ref: 2581913	Scheme: 955138	Version: 1	Date of Estimate: 22/08/2016	Designer: Ben Jones

Summary	
Fees	£1,150.00
Non-contestable connection works	£6,789.66
Contestable connection works	£176,604.38
Sub Total	£184,544.04
Total Connection Charge excluding VAT	£184,544.04


Fees		Fees Cost
Assessment and Design	Connection greater than 1MVA and up to 3MVA at HV	£1,150.00
Fees Sub-Total		£1,150.00

Description of Works	Quantity	Non-Contestable Charges	Contestable Charges
Civil 11 KV			
Construction Of Distribution Substation Plinth	2	£0.00	£9,755.20
Works Sub-Total		£0.00	£9,755.20

High Voltage Cable			
Cable Duct (Mtrs)	60	£0.00	£119.15
Extra Rate for Hard Substance (Mtrs)	150	£0.00	£27,331.98
High Voltage Cable 185mm ² (Mtrs)	800	£0.00	£16,700.90
Install Cable in Footway/Roadway (Mtrs)	730	£0.00	£39,558.58
Joint Hole in Footway/Roadway	4	£0.00	£3,877.33
Marker Tape (Mtrs)	400	£0.00	£41.28
Supply - 70 mm ² Cu Conductor (Mtrs)	200	£0.00	£707.95
Works Sub-Total		£0.00	£88,337.18

High Voltage Jointing			
High Voltage Branch Joint	2	£2,577.92	£0.00
High Voltage Straight Joint	4	£0.00	£3,256.88
High Voltage Switching (Hrs)	6	£293.81	£0.00
High Voltage Termination	4	£0.00	£2,581.15
Travel		£145.58	£411.00
Works Sub-Total		£3,017.29	£6,249.03

Low Voltage Cable			
3 Phase Service Cable (Mtrs)	40	£0.00	£135.46
Cable Duct (Mtrs)	60	£0.00	£119.15
Earthing - copper conductor (Mtrs)	15	£0.00	£98.53
Install Cable in Footway/Roadway (Mtrs)	330	£0.00	£8,403.31
Low Voltage Cable 185 mm ² (Mtrs)	300	£0.00	£4,335.49
Low Voltage Cable 600 mm ² (Mtrs)	140	£0.00	£1,599.85
Low Voltage Cable 95 mm ² (Mtrs)	50	£0.00	£383.94

Customer Connection Offer Breakdown			 Page 2 of 2
Scheme Title: S.Foot Harbour Development			
Enquiry Ref: 2581913	Scheme: 955138	Version: 1	Date of Estimate: 22/08/2016 Designer: Ben Jones

Description of Works	Quantity	Non-Contestable Charges	Contestable Charges
Marker Tape (Mtrs)	100	£0.00	£10.32
Road Crossing (Mtrs)	20	£0.00	£3,218.94
Works Sub-Total		£0.00	£16,304.96
Low Voltage Jointing			
Low Voltage Termination	11	£0.00	£1,821.36
Travel		£0.00	£185.52
Works Sub-Total		£0.00	£2,006.87
Service Termination			
7 Core Metering Multicores	5	£0.00	£559.49
Cable Clipping (Mtrs)	5	£0.00	£29.12
Fused cut-out - three phase	2	£0.00	£165.32
Low Voltage CT Panel	4	£0.00	£4,474.02
Low Voltage Termination	2	£0.00	£4,849.10
Metering CT/VT Commissioning	4	£3,677.25	£0.00
Travel		£95.12	£275.92
Works Sub-Total		£3,772.37	£10,352.97
Substation Plant			
Earthing - copper conductor (Mtrs)	200	£0.00	£1,313.81
Ground Mounted Transformer 800kVA	2	£0.00	£20,988.79
Low Voltage Fuse Board/Cabinet	2	£0.00	£9,749.57
Supply - RMU with 200A CB with TLF (No Actuators)	2	£0.00	£11,242.75
Travel		£0.00	£303.22
Works Sub-Total		£0.00	£43,598.14
Works Total		£6,789.66	£176,604.38

Notes:
Our charges include labour and materials as appropriate
VAT is not included in any costs in the Customer Connection Offer Breakdown
"LV", "HV", or "EHV" described within the Fees section above denotes the highest voltage of assets installed or worked upon including any associated reinforcement or diversionary works

Glossary	
Extra High Voltage	In relation to this breakdown this is typically equipment operating at nominally 25,000V, 33,000V, 66,000V, and 132,000V
High Voltage (HV)	any voltage exceeding LV. In relation to this breakdown this is typically equipment operating at nominally 6,600V and 11,000V
Low Voltage (LV)	a voltage up to 1000V phase to phase, or 600V phase to earth. In relation to this breakdown and supply voltage this is nominally 400/230V
Contestable	is work that may be carried out by WPD or by an accredited independent connections provider
Non-Contestable	is work that may only be carried out by WPD
Land Rights	is the Non-contestable element of any legal permissions to install and maintain plant or equipment. Where agreed, certain works may be carried out by an ICP.
Travel Time	is the cost associated with travelling to and from site

7. Appendix 3 – WWU Gas Layout Plan

