

**LAND SOUTH OF BURNDELL ROAD
YAPTON SCHEME 18-1065-SK 07A**

**PROPOSED ENERGY STRATEGY
FOR BOVIS HOMES DEVELOPMENT**

Prepared by

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Executive Summary

- The proposed development is for 108 new residential dwellings containing a mix of market (76) and affordable (32) properties.

- In line with section 17 of the Planning Consent :-

“ At least 10% of the energy supply of the development shall be secured from decentralised and renewable or low-carbon energy sources or equivalent fabric first standards that would secure a 10% reduction in energy use. Details and a timetable of how this is to be achieved, including details of physical works on site, shall be submitted to and approved in writing by the local planning authority as a part of the reserved matters submissions required by condition 2. The approved details shall be implemented in accordance with the approved timetable and retained as operational thereafter.”

1. Introduction

The proposed development will include a mix of affordable and private dwellings built to energy standards that surpass those in the 2013 Part L building regulations by at least 10%,

The table below indicates the fabric and heating specification modelled.

Attribute	2013 Building Regulations	Bovis Specification
Floor	0.25W/m2K (U value)	0.18 W/m2K (U value)
Wall	0.30W/m2K (U value)	0.25 W/m2K (U value)
Roof	0.2 W/m2K (U value)	0.12 W/m2K (U value)
Windows	2.0 W/m2K (U value)	1.4 W/m2K (U value)
Doors	2.0W/m2K (U value)	0.9 W/m2K (U value)
Ventilation		System 3 ventilation. Air permeability 5.0 m3/hm2
Heating		Ultra erp Promax combination boilers
Hot water		From combi boilers
Controls		Programmer thermostat and TRV's
Thermal bridges		Bovis enhanced spec
Thermal masses		Calculated for each dwelling
PV panels		30.5 KWp across the site

2. Assessment Methodology

Generic SAP 2012 calculations have been done on all dwellings using the above fabric specification in conjunction with each dwellings proposed orientation on the site The specification is based on the Bovis 2018 revision B specification with the addition of PV panels to dwellings with optimum orientation. The figure of 30.5 KWp for the site has been calculated from the SAP results of all the dwellings on site.

The method used was to compare the dwelling emission rate calculated from SAP software with the Target emission rate (2013 Building regulation compliance rate) and calculating a percentage reduction from the formula below:-

Site Layout



3.Results

As can be seen from the SAP results table on page 6 this strategy will achieve the desired reductions in carbon dioxide for each individual dwelling across the proposed site with a predicted overall reduction in carbon dioxide of 10.8 % over the 2013 Building Regulations.

In addition the site layout has been examined for suitability of PV panels sited on the rear of dwellings. There are 17 dwellings which have been selected with sufficient roof space on the rear of the property, within the 180 degree arc from east via south to west orientation . These have been highlighted on the schedule. This would work out to 2 KWp (8 panels) to 10 dwellings and 1.5KWp (6 panels) to 7 dwellings, giving arrays of 4X2 and 3X2 respectively.

The figures have been chosen because this gives the dwelling optimum benefits of utilising the power from PV.

Dwelling	Reference	Built Form	Orientation	SAP	DER	TER	Percent Improve ment	Total Floor Area	Air permeability	PV Energy Produced (kWh)	Total CO2 (DER)	Total CO2 (TER)	Boiler Make	Boiler Model	Model Qual	Ventilation Type	PV kwp	PV Orientation
Plot 34 T4	T4	Mid-terrace	South West	8.84 (83.8667456533521)	17.4	18.15	4.13	78.98	5	0	1374.44	1433.55	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 44 T4	T4	Mid-terrace	North East	8.84 (84.0624415732949)	17.01	17.79	4.38	78.98	5	0	1343.82	1405.37	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 41 T4	T4	Mid-terrace	North East	8.84 (84.0624415732949)	17.01	17.79	4.38	78.98	5	0	1343.82	1405.37	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 17 T4	T4	End-terrace	North West	8.84 (83.8428133725584)	17.29	18	3.94	78.98	5	0	1365.68	1421.49	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 16 T4	T4	End-terrace	North West	8.84 (83.8428133725584)	17.29	18	3.94	78.98	5	0	1365.68	1421.49	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 102 T4	T4	End-terrace	North West	8.84 (83.8428133725584)	17.29	18	3.94	78.98	5	0	1365.68	1421.49	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 101 T4	T4	End-terrace	North West	8.84 (83.8428133725584)	17.29	18	3.94	78.98	5	0	1365.68	1421.49	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 26 T4	T4	End-terrace	South East	8.84 (83.8082438684932)	17.36	18.07	3.93	78.98	5	0	1371.13	1426.83	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 29 T4	T4	End-terrace	South East	8.84 (83.8082438684932)	17.36	18.07	3.93	78.98	5	0	1371.13	1426.83	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 33 T4	T4	End-terrace	South West	8.84 (83.6632015727884)	17.65	18.35	3.81	78.98	5	0	1393.91	1449.05	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 35 T4	T4	End-terrace	South West	8.84 (83.6632015727884)	17.65	18.35	3.81	78.98	5	0	1393.91	1449.05	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 38 T4	T4	End-terrace	North East	8.91 (91.491726058259)	9.1	17.72	48.65	78.98	5	-1204.8	718.42	1399.83	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	1.5	SW REAR
Plot 39 T4	T4	End-terrace	North East	8.91 (91.491726058259)	9.1	17.72	48.65	78.98	5	-1204.8	718.42	1399.83	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	1.5	SW REAR
Plot 40 T4	T4	End-terrace	North East	8.84 (83.9818989231662)	17.01	17.72	4.01	78.98	5	0	1343.71	1399.83	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 42 T4	T4	End-terrace	North East	8.84 (83.9818989231662)	17.01	17.72	4.01	78.98	5	0	1343.71	1399.83	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 43 T4	T4	End-terrace	North East	8.84 (83.9818989231662)	17.01	17.72	4.01	78.98	5	0	1343.71	1399.83	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 45 T4	T4	End-terrace	North East	8.84 (83.9818989231662)	17.01	17.72	4.01	78.98	5	0	1343.71	1399.83	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 21 T5	T5	Semi-detached	South West	8.84 (84.0820530845483)	16.95	17.57	3.53	86.7	5	0	1469.27	1523.28	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 15 T5	T5	Semi-detached	South West	8.84 (84.0820530845483)	16.95	17.57	3.53	86.7	5	0	1469.27	1523.28	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 8 T5	T5	Semi-detached	South West	8.84 (84.0820530845483)	16.95	17.57	3.53	86.7	5	0	1469.27	1523.28	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 9 T5	T5	Semi-detached	South West	8.84 (84.0820530845483)	16.95	17.57	3.53	86.7	5	0	1469.27	1523.28	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 10 T5	T5	Semi-detached	South West	8.84 (84.0820530845483)	16.95	17.57	3.53	86.7	5	0	1469.27	1523.28	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 11 T5	T5	Semi-detached	South West	8.84 (84.0820530845483)	16.95	17.57	3.53	86.7	5	0	1469.27	1523.28	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 20 T5	T5	Semi-detached	South East	8.84 (84.175251763542)	16.77	17.4	3.62	86.7	5	0	1453.79	1508.27	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 52 T5	T5	Semi-detached	North West	8.84 (84.1824321210459)	16.75	17.38	3.62	86.7	5	0	1452.6	1507.11	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 55 T5	T5	Semi-detached	South East	8.84 (84.175251763542)	16.77	17.4	3.62	86.7	5	0	1453.79	1508.27	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 75 T5	T5	Semi-detached	North West	8.91 (91.2520480283622)	9.54	17.38	45.11	86.7	5	-1204.8	827.31	1507.11	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	1.5	SE REAR
Plot 80 T5	T5	Semi-detached	South East	8.84 (84.175251763542)	16.77	17.4	3.62	86.7	5	0	1453.79	1508.27	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 88 T5	T5	Semi-detached	South East	8.84 (84.175251763542)	16.77	17.4	3.62	86.7	5	0	1453.79	1508.27	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 100 T5	T5	Semi-detached	North West	8.91 (91.2520480283622)	9.54	17.38	45.11	86.7	5	-1204.8	827.31	1507.11	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	1.5	SE REAR
Plot 76 T7	T7	Detached	North East	8.92 (92.176258599074)	9.22	17.64	47.73	102.9	5	-1606.39	948.58	1814.9	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	2	SW REAR
Plot 79 T7	T7	Detached	North East	8.92 (92.176258599074)	9.22	17.64	47.73	102.9	5	-1606.39	948.58	1814.9	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	2	SW REAR
Plot 76 T7	T7	Detached	North East	8.92 (92.176258599074)	9.22	17.64	47.73	102.9	5	-1606.39	948.58	1814.9	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	2	SW REAR
Plot 78 T7	T7	Detached	North East	8.84 (83.7779514254254)	17.32	17.64	1.81	102.9	5	0	1782.3	1814.9	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 77 T7	T7	Detached	North East	8.84 (83.7779514254254)	17.32	17.64	1.81	102.9	5	0	1782.3	1814.9	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 54 T7	T7	Detached	North East	8.92 (92.176258599074)	9.22	17.64	47.73	102.9	5	-1606.39	948.58	1814.9	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	2	SW REAR
Plot 53 T7	T7	Detached	North East	8.84 (83.7779514254254)	17.32	17.64	1.81	102.9	5	0	1782.3	1814.9	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 19 T7	T7	Detached	North East	8.84 (83.7779514254254)	17.32	17.64	1.81	102.9	5	0	1782.3	1814.9	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 1 T7	T7	Detached	North West	8.92 (92.0578816513086)	9.42	17.81	47.11	102.9	5	-1606.39	969.04	1833.07	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	2	SE REAR
Plot 89 T7	T7	Detached	South East	8.84 (83.757588596192)	17.36	17.67	1.75	102.9	5	0	1785.97	1818.16	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 99 T7	T7	Detached	South East	8.84 (83.643206349721)	17.56	17.85	1.62	102.9	5	0	1806.49	1836.36	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 10 T9	T9	Semi-detached	South West	8.85 (85.3010512568417)	15.03	15.73	4.45	109.74	5	0	1649.47	1726.51	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 12 T9	T9	Semi-detached	South West	8.85 (85.3010512568417)	15.03	15.73	4.45	109.74	5	0	1649.47	1726.51	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 7 T9	T9	Semi-detached	South West	8.85 (85.3010512568417)	15.03	15.73	4.45	109.74	5	0	1649.47	1726.51	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 6 T9	T9	Semi-detached	South West	8.85 (85.3010512568417)	15.03	15.73	4.45	109.74	5	0	1649.47	1726.51	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 21 T9	T9	Semi-detached	South East	8.85 (85.3010512568417)	15.03	15.73	4.45	109.74	5	0	1649.47	1726.51	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 22 T9	T9	Semi-detached	South East	8.85 (85.3010512568417)	15.03	15.73	4.45	109.74	5	0	1649.47	1726.51	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 23 T9	T9	Semi-detached	South East	8.85 (85.3010512568417)	15.03	15.73	4.45	109.74	5	0	1649.47	1726.51	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 24 T9	T9	Semi-detached	South East	8.85 (85.3010512568417)	15.03	15.73	4.45	109.74	5	0	1649.47	1726.51	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 83 T9	T9	Semi-detached	South East	8.85 (85.3010512568417)	15.03	15.73	4.45	109.74	5	0	1649.47	1726.51	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 84 T9	T9	Semi-detached	South East	8.85 (85.3010512568417)	15.03	15.73	4.45	109.74	5	0	1649.47	1726.51	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 48 T9	T9	Semi-detached	North West	8.85 (85.3605260862021)	14.92	15.62	4.48	109.74	5	0	1637.82	1714.48	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 50 T9	T9	Semi-detached	North West	8.85 (85.3605260862021)	14.92	15.62	4.48	109.74	5	0	1637.82	1714.48	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 50 T9	T9	Semi-detached	North West	8.85 (85.3605260862021)	14.92	15.62	4.48	109.74	5	0	1637.82	1714.48	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 51 T9	T9	Semi-detached	North West	8.85 (85.3605260862021)	14.92	15.62	4.48	109.74	5	0	1637.82	1714.48	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 14 T12	T12	Detached	South West	8.84 (84.1636790061987)	16.78	17.03	1.47	113.3	5	0	1901.67	1929.83	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 31 T12	T12	Detached	South West	8.84 (84.1636790061987)	16.78	17.03	1.47	113.3	5	0	1901.67	1929.83	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 32 T12	T12	Detached	South West	8.84 (84.1636790061987)	16.78	17.03	1.47	113.3	5	0	1901.67	1929.83	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 18 T12	T12	Detached	North West	8.92 (92.079273713284)	9.3	16.91	45	113.3	5	-1606.39	1053.86	1915.9	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	2	SE REAR
Plot 46 T12	T12	Detached	North West	8.92 (92.079273713284)	9.3	16.91	45	113.3	5	-1606.39	1053.86	1915.9	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	2	SE REAR
Plot 105 T12	T12	Detached	North West	8.92 (92.079273713284)	9.3	16.91	45	113.3	5	-1606.39	1053.86	1915.9	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	2	SE REAR
Plot 107 T12	T12	Detached	North West	8.92 (92.079273713284)	9.3	16.91	45	113.3	5	-1606.39	1053.86	1915.9	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	2	SE REAR
Plot 25 T12	T12	Detached	South East	8.84 (84.271366320421)	16.6	16.85	1.48	113.3	5	0	1880.98	1909.37	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 27 T12	T12	Detached	South East	8.84 (84.271366320421)	16.6	16.85	1.48	113.3	5	0	1880.98	1909.37	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 28 T12	T12	Detached	South East	8.84 (84.271366320421)	16.6	16.85	1.48	113.3	5	0	1880.98	1909.37	Potterton	Promax Ultra	Combi 40 ER	Decentralised whole house extract	0	
Plot 86 T12	T12	Detached	South East	8.84 (84.271366320421)	16.6	16.85	1.48	113.3	5	0	1880.98	1909.37	Potterton					

4. Conclusion

As can be seen from the results on the previous page, the improvement of 10.8 % over the 2013 Building Regulations is achievable with this strategy. The construction design as indicated in this document will create carbon savings over the 2013 Building Regulations and exceed those specified in section 17 of the Planning Consent.

Generic SAP calculations, based on the Bovis Group Specification 2018 rev B, have been calculated to get the performance and amount of PV required.

Detailed design SAP calculations will be completed when the final working drawings become available.

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