County Hall
Cardiff
CF10 4UW
Tel: (029) 2087 2000

Neuadd y Sir
Caerdydd
CF10 4UW
Ffôn: (029) 2087 2000

AGENDA

Committee ENVIRONMENTAL SCRUTINY COMMITTEE

Date and Time of Meeting TUESDAY, 2 APRIL 2019, 4.30 PM

Venue COMMITTEE ROOM 4 - COUNTY HALL

Membership Councillor Patel (Chair)
Councillors Derbyshire, Philippa Hill-John, Owen Jones, Lancaster, Jackie Parry, Owen, Wong and Wood

Time approx.

1 Apologies for Absence

To receive apologies for absence.

2 Declarations of Interest

To be made at the start of the agenda item in question, in accordance with the Members' Code of Conduct.

3 Highways Resurfacing Programme *(Pages 3 - 10)* 4.35 pm

An item to provide Members with an opportunity to raise any questions that they might have on the current highways resurfacing programme.

4 Lamby Way Solar Farm - Progress Update *(Pages 11 - 66)* 5.05 pm

An item to provide Members with a progress update on the development of the Lamby Way Solar Farm, and consider the work that needs to be undertaken to complete the scheme.

5 Food Hygiene Rating Scheme - Verbal Update 6.05 pm

A short summary on the current position of the food hygiene rating scheme for Cardiff, as requested by the Committee. Delivered by the Principal Scrutiny Officer.

This document is available in Welsh / Mae'r ddogfen hon ar gael yn Gymraeg

6 **Environmental Scrutiny Committee - Work Programme 2018/19 - Verbal Update** 6.15 pm

7 **Urgent Items (if any)** 6.30 pm

8 **Way Forward** 6.35 pm

To review the evidence and information gathered during consideration of each agenda item, agree Members comments, observations and concerns to be passed on to the relevant Cabinet Member by the Chair, and to note items for inclusion on the Committee's Forward Work Programme.

9 **Date of next meeting**

Tuesday 7th May 2019 at 4.30pm in Committee Room 4, County Hall.

Davina Fiore
Director Governance & Legal Services
Date: Wednesday, 27 March 2019
Contact: Graham Porter, 02920 873401, g.porter@cardiff.gov.uk

This document is available in Welsh / Mae'r ddogfen hon ar gael yn Gymraeg

CYNGOR CAERDYDD
CARDIFF COUNCIL

ENVIRONMENTAL SCRUTINY COMMITTEE

02 APRIL 2019

HIGHWAYS RESURFACING PROGRAMME

Reason for the Report

1. To provide the Committee with an opportunity to ask questions on the current Planned Maintenance Identified Scheme List (attached as **Appendix 1**) and the methodology that is used to prioritise the highways schemes for this list.

Background

2. **Planned Maintenance – Outline Scheme Identification** – The creation and management of the Planned Maintenance Identified Scheme List (attached as **Appendix 1**) is the responsibility of the Section Leader – Public Rights of Way (PROW) & Assessment. This dynamic scheme list is referred to as the "matrix" and is updated on an ongoing basis by the PROW & Assessment team as new data sets become available. Data that is used to create the matrix and inform the annual scheme list is gathered using the following methods:

- **SCANNER** – This machine survey collects data that is processed by the United Kingdom Pavement Management System (UKPMS), which provides a report detailing all the sections of road with red and amber levels of condition. Portions of the network are surveyed on an annual basis, i.e. A, B and C class networks. Due to geographic constraints, it is felt that this survey methodology does not provide robust output for the U class network, therefore, alternative survey methods are used on this category.

- **SCRIM** – This machine survey assesses skid resistance on the classified road network (A, B & C), with results being processed, assessed and prioritised by

need. Areas identified as having sub-standard skid resistance will be prioritised for treatment.

- **AEI** – The AEI is a driven visual condition inspection of the carriageway that is carried out on all roads within the Councils Adopted Highway Network. It is designed to highlight only major carriageway defects (as defined by the UKPMS User Manual) and is carried out annually over a period of approximately four to six weeks by two highway inspectors. It provides a replicable and effective means of assessing the entire carriageway network, from which a list of the poorest condition carriageway sections is generated.

- **Safety Inspections** – The output from highway safety inspections is generally used to identify defects likely to create short term danger or serious inconvenience to users of the network. Inspectors will sometimes identify areas of deterioration that are better treated through planned maintenance, these observations are passer to the PROW & Assessment team and logged against the matrix.

- **Customer & Councillor requests** – These requests for treatment are logged onto the matrix. In order to promote a customer focussed service these requests for treatment add a factor to the more rigid condition based data and, help inform the overall process.

Planned Maintenance – Detailed Scheme Selection

3. Once all of the data sets are input into the matrix, a detailed scheme selection process is started. The first draft of the programme of schemes referred to as the “long list” is confirmed when the planned maintenance budget is approved; the long list contains more schemes than there is available budget allowing for refinement at later stages. The following steps are then followed:

- **Engineers Site Inspection** – All previous data being used to generate the long list is provided from machine or driven surveys, and an inspection is undertaken on foot by the supervising engineer. This inspection considers many criteria and will confirm treatment selection, location, length area and overall cost. Other aspects are considered at this time, for example, scheme collaboration or

contribution to other Council works programmes, to ensure maximum benefit is achieved. This information is transferred to the matrix so overall scheme costs can be viewed.

- **Creation of the "short list"** – The output from the Engineers site inspection allows a "short list" to be compiled which will generally form the scheme list for that year, and is subject to Cabinet Member review.

- **Production of Tender Documentation & Tender Process** – A competitive tender process is undertaken. The successful contractor is appointed following an appropriate tender evaluation.

- **Construction & Site Supervision** – Site construction information is recorded.

- **Post Construction Inspections** – This is done to ensure that any defects not apparent during the construction phase are identified. Post construction inspections are undertaken by the PROW & Assessment team at 1 month, 6 month and 10 month intervals. This process is managed and data stored in the AMX asset management system. It should be noted that in accordance with the ICE conditions of contract contractors guarantee periods for this type of work are for a 12 month period only.

Way Forward

4. Councillor Caro Wild, Cabinet Member for Strategic Planning & Transport has been invited to attend for this item. He will be supported by officers from the Planning, Transport & Environment Directorate.

Legal Implications

5. The Scrutiny Committee is empowered to enquire, consider, review and recommend but not to make policy decisions. As the recommendations in this report are to consider and review matters there are no direct legal implications. However, legal implications may arise if and when the matters under review are implemented with or without any modifications. Any report with recommendations for decision that goes to Cabinet/Council will set out any legal implications arising from those recommendations. All decisions taken by or on behalf of the Council must (a) be

within the legal powers of the Council; (b) comply with any procedural requirement imposed by law; (c) be within the powers of the body or person exercising powers on behalf of the Council; (d) be undertaken in accordance with the procedural requirements imposed by the Council e.g. Scrutiny Procedure Rules; (e) be fully and properly informed; (f) be properly motivated; (g) be taken having regard to the Council's fiduciary duty to its taxpayers; and (h) be reasonable and proper in all the circumstances.

Financial Implications

6. The Scrutiny Committee is empowered to enquire, consider, review and recommend but not to make policy decisions. As the recommendations in this report are to consider and review matters there are no direct financial implications at this stage in relation to any of the work programme. However, financial implications may arise if and when the matters under review are implemented with or without any modifications. Any report with recommendations for decision that goes to Cabinet/Council will set out any financial implications arising from those recommendations.

RECOMMENDATION

The Committee is recommended to:

(i) Consider the information in this report and the information presented at the meeting;

(ii) Determine whether they would like to make any comments, observations or recommendations to the Cabinet on this matter; and,

(iii) Decide the way forward for any future scrutiny of the issues discussed.

DAVINA FIORE
Director of Governance & Legal Services
27 March 2019

Carriageway Works 2018/19

Ward	Road name	Estimated Area m2
ADAMS	RUBY STREET	1337
ADAMS	HELEN PLACE - ALL	1463
ADAMS	SPRING GARDENS TERRACE	1041
ADAMS	SPRING GARDENS PLACE	1159
BUTET	LETTON ROAD	600
CAERA	KNIGHTSWELL ROAD	1150
CAERA	THE SANCTUARY	2250
CAERA	SANCTUARY COURT	150
CAERA	HEOL EBWY	1400
CAERA	AMROTH ROAD	3000
CAERA	BISHOPSTON ROAD RAB	1400
CAERAU	COWBRIDGE RD JCT VINCENT RD	1500
CAERAU	BISHOPSTON RD RAB	1400
CANTO	ATLAS ROAD	1600
CATHA	RHYMNEY STREET	300
CATHA	WHITCHURCH ROAD	2000
CREIG	CARDIFF ROAD	4400
CREIG	CROFFT-Y-GENAU ROAD	2500
CREIG	TYNANT ROAD	3500
CYNCO	GWYNANT CRESCENT	1254
CYNCO	PENNANT CRESCENT	1500
CYNCO	DUFFRYN AVE	500
ELY	MACDONALD CLOSE	200
ELY	PONTRILAS CLOSE	546
ELY	CAENEWYDD	1000
ELY	FRANK ROAD	3000
ELY	CROSSWAYS ROAD	2200
FAIRW	FAIRWOOD ROAD	1400
FAIRW	PLAS MAWR ROAD	2500
GABAL	LAYTONIA AVENUE	1000
GABAL	EXCELSIOR ROAD RAB	1600
GRANG	SLOPER ROAD	1300
HEATH	ST AMBROSE ROAD	2200
HEATH	KING GEORGE V DRIVE WEST	1500
HEATH	TYN-Y-PARC ROAD	1825
HEATH	HEOL POWIS	2250
LISVA	COTSWOLD AVENUE	1500
LISVA	PLAS Y DELYN	1600
LISVA	MILL ROAD	2500
LLAND	FAIRWATER ROAD	1500
LLAND	DANESCOURT WAY	2000
LLAND	GABALFA AVENUE RBT	1500
LLAND NTH	HAWTHORN ROAD WEST	800
LLAND NTH	HAZELHURST ROAD	2432
LLAND NTH	RADYR ROAD	1309
LLAND NTH	TY MAWR ROAD	800
LLANI	NEWBOROUGH AVENUE	2100

LLANI	TEMPLETON AVENUE	500
LLANI	LAUNCELOT CRESCENT	1600
LLANI	LLANISHEN COURT	700
LLANI	COED GLAS ROAD	1000
LLANR	BAMPTON ROAD	1600
LLANR	WOOLACOMBE AVENUE	1600
LLANR	BRIDGWATER ROAD	2100
LLANR	BROWNING CLOSE	810
PENTW	AEL-Y-BRYN	3000
PENTW	CHURCH ROAD	2000
PENTW	SPRINGWOOD	2519
PENTY	PARC ST CATWG	2000
PENTY	RHIWSAESON LANE	1200
PENTY	CAERAU LANE	1100
PENYL	COLCHESTER AVENUE	700
PENYL	LADY MARY ROAD	4000
PLASN	TYN-Y-COED PLACE	1488
PLASN	DALCROSS STREET	3026
PLASN	SHIRLEY ROAD	1600
PLASN	OXFORD LANE	700
PONTP	TY-DRAW ROAD	1600
PONTP	NEWPORT ROAD	2500
RADYR	TAFF TERRACE	850
RADYR	KINGS ROAD	1150
RADYR	HEOL ISAF	1550
RHIWB	LON ISA	1163
RHIWB	CLOS WILLIAM	914
RIVER	FITZHAMMON EMBANKMENT	3000
RIVER	KYVEILOG STREET	800
RIVER	DE CROCHE PLACE	250
RIVER	DE BURGH PLACE	558
RIVER	MANDEVILLE STREET	847
RIVER	PONTCANNA PLACE	423
RIVER	ROMILLY CRESCENT	2300
RUMNE	RELF ROAD	500
RUMNE	PENRHOS CRESCENT	1500
RUMNE	GREENWAY ROAD	1200
SPLOT	ADELINE STREET	2050
SPLOT	RAILWAY STREET	2828
SPLOT	MARION STREET	2136
SPLOT	DEHAVILLAND ROAD	721
SPLOT	SANQUHAR STREET	3360
SPLOT	SPLOTT ROAD	1400
SPLOT	NORTH PARK ROAD	1000
SPLOT	ROVER WAY	600
TROWB	GREENMEADOWS	3000
TROWB	WESTONBIRT CLOSE	1218
TROWB	COLEFORD DRIVE	2180
TROWB	CYPRESS DRIVE	1500
WHITC	WYNDHAM STREET	629

WHITC	QUEEN STREET	1500
WHITC	HERMON HILL	361
WHITC	TAFF STREET	350
WHITC	CROSS STREET	238
WHITC	CLOS CAE WAL	250
WHITC	RAILWAY TERRACE	425
WHITC	GLAN-Y-NANT ROAD	1725
WHITC	GLAN-Y-NANT TERRACE	500
WHITC	PARK AVENUE	2000
WHITC	PENDWYALLT ROAD	2300
		162585

MICRO ASPHALT
RESURFACING
RECONSTRUCTION

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CYNGOR CAERDYDD
CARDIFF COUNCIL

ENVIRONMENTAL SCRUTINY COMMITTEE

02 APRIL 2019

LAMBY WAY SOLAR FARM – PROGRESS UPDATE

Reason for the Report

1. To provide the Committee with an update on the progress of the Lamby Way Solar Farm project and to detail the next steps in the delivery of this scheme.

Background

2. The capped landfill site at Lamby Way has for some time been considered to be a suitable location for a large scale solar farm which could:

   - Provide a substantial amount of clean, renewable energy to supply the local electricity grid and connected Council buildings;
   - Make a positive contribution to national and local renewable energy generation and carbon reduction targets;
   - Provide a localised economic activity and long-term productive use for a site that would be otherwise difficult to develop; and,
   - Contribute to the new Welsh Government directive for the Council and all public sector organisations in Wales to be “carbon neutral” by 2030.

3. The Council’s Capital Programme includes provision for the development of the Lamby Way Solar Farm using invest to save funding. This provision was subject to the approval of a detailed business case for the scheme that was agreed by Cabinet in June 2018. A copy of the Cabinet report titled ‘Lamby Way Solar’ that was approved on the 14th June 2018 includes information on the detailed business case, and is attached to this report as **Appendix 1**.

4. As well as delivering on the Council's ambitions, carbon reduction targets and other obligations relating to renewable energy, the detailed business case presented in 2018 also identified that the proposal would:

- Be based on the business case projections, provide an acceptable and attractive return on the Council's invest to save commitment;
- Make full use of Council funds already expended on grid connection in the area;
- Provide clean renewable energy to a major neighbouring utility site; and,
- Open opportunities for further innovation, carbon reduction and air quality management by, for example, providing a potential new and renewable energy source for the Council's Low Emission Transport plans.

Site History

5. In July 2014 Cabinet approved a proposal to publicly offer a land lease opportunity for the development of a solar farm at the site. This was to be funded and delivered by a third party developer, with the Council collecting a small ground rent on the long-term lease. To facilitate the arrangement, and to secure the longer term opportunity, the Council also funded a grid connection to the site at this time.

6. Despite significant negotiation with four separate developers, none of the proposals received by the Council reached a satisfactory position from which to proceed. In summary, the reasons for this were:

- The removal of the Government Incentives for Solar Farms shortly after the Cabinet decision;
- The consequential reduction in institutional investment funders' appetite for risk on solar farms nationally; and,
- The inability of scheme developers to reach a satisfactory pricing level on the sale of energy on the open market to cover the lost government support element.

7. This outcome was not unique to Cardiff and many proposed schemes in the United Kingdom stalled at this time. This led Welsh Government to focus attention on the issue, seeking to understand the current barriers to, and solutions for the delivery of Welsh public sector led renewables schemes in the post Government incentives landscape.

Welsh Government Support & Policy Changes for Renewables

8. As part of its Green Growth Wales agenda Welsh Government undertook an audit of all of the stalled, public sector led renewables schemes in Wales and identified the Lamby Way Solar Farm as one with the highest potential to deliver. This was because of the ready availability of the site, its good solar radiation characteristics on an incline facing south, and the pre-existing grid connection on site.

9. During this period Welsh Government also strengthened its own policy context around renewables, most notably publicising targets for:

- 100% green energy consumption in Welsh Public Sector from 2017;
- 70% of all energy consumed in Wales to be generated by Welsh based renewable sources by 2030;
- At least 1 Giga Watt of this generation to be locally owned; and,
- For all public sector organisations in Wales to be “Carbon Neutral” by 2030.

10. Together, these policy changes have provided a significant drive for both the Council and Welsh Government to pursue the solar farm and other local renewable energy schemes.

11. On this basis Welsh Government offered the Council free access to consultancy expertise to help develop an options appraisal and detailed business case to examine the viability of the scheme. This assistance has been in place since summer 2017 and has been provided by a solar expert who has helped to develop the business case. Their output, in turn, has been peer reviewed by energy staff at Local Partnerships who have been contracted by Welsh Government to support the Green Growth Wales Agenda.

Other Market Changes

12. Along with the policy changes mentioned above several key changes have happened which have affected the overall viability of the solar farm proposal at Lamby Way, these are:

1) **Solar Panel Price Reduction** - The price of solar panels has continued to reduce and has fallen at a much faster rate since the removal of Central

Government incentives in 2015. Prices for installed ground mounted solar PV have fallen by around 75% between 2010 and 2016 and global prices for solar components continue to reduce.

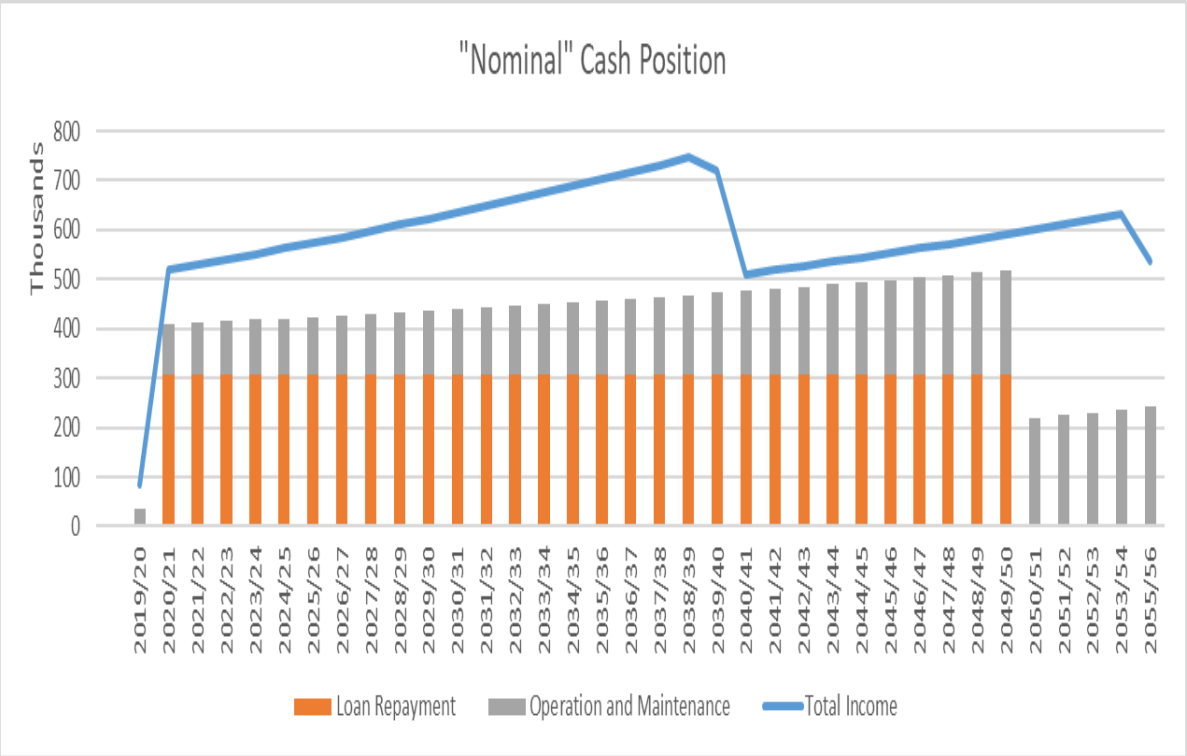
2) **Private Wire Connection** - The Council has had extensive dialogue with an organisation based near to the site with regard to a private wire connection between the proposed Solar Farm and their operation. This dialogue, conducted under the terms of a signed non-disclosure agreement, has been very positive and has settled on an outline deal for the organisation to take 4.5MW of generation capacity at the Solar Farm over a 20 year period. This means that the energy sale rate that the Council has negotiated is significantly higher than the other rates available to the scheme through the usual sale-to-grid route. This is possible because the purchaser of the energy avoids the “non-commodity” costs associated with buying energy from the grid (including various charges for grid maintenance and balancing, and other taxation elements). Private wire purchasers can therefore pay a higher rate for the “wholesale” energy and still achieve a saving on the final unit cost. This new rate for the sale of energy has been modelled for the first 20 years of the scheme’s operation and has significantly increased its income generation capacity. A memorandum of understanding has been drafted between the Council and the organisation to capture the key commercial features of this negotiation. This settles on an energy sale price, index linked to RPI for a supply period of 20 years. The deal is considered to be a low risk, high gain option given the partner organisation’s published aim to secure 100% renewable energy supplies for their operations, and will provide them with significant overall savings on electricity bills.

3) **Larger Solar Farm -** A direct result of the private wire there is now an opportunity to develop a slightly larger solar farm than was originally planned. The maximum capacity of the installed grid connection at the site is 5MW, and previous iterations of the scheme were based around this constraint. With 4.5MW of the farm’s generating capacity now proposed to be diverted away from the grid via the private wire, the size constraints for the solar farm are altered. The Council has, therefore, examined a scenario that looks at the relative costs of a much larger scheme. The site can easily accommodate a larger facility.

This increased capacity also has the potential to open up further strategic opportunities for the Council. For example, there is a particular opportunity to explore on-site use of energy to link directly to our strategy for Low Emission Transport Fuels. Energy storage options may also exist, which could contribute to grid balancing in the area and further boost the scheme's business case.

13. **Figure 1** (below) summarises the nominal cash position of the detailed business case submitted in June 2018, i.e. it includes projected inflation, over the anticipated lifetime of the project. It illustrates that income covers the cost of loan repayment, operation and maintenance with some additional headroom. The dip in income towards the latter years of the model reflects the end of the 20-year private wire arrangement. There would clearly be scope to renegotiate and extend this at the appropriate time, although this option has not been modelled.

Figure 1 – Nominal Cash Position



Risks

14. The June 2018 Cabinet report explained that in progressing the business case to its current stage, several of the variables in the model had developed a greater degree of certainty. In particular, the grid connection costs are expended and final. The energy generation performance assumptions were based on very reliable national sources of solar irradiance data. At the point of the report the private wire arrangement was well developed and viewed as a relatively low risk given the internal policy and cost drivers of the partner organisation.

15. The key risks identified in June 2018 are outlined below:

- Much of the hardware required for the development of the solar farm will probably be supplied from Europe or America. This means that final costs will be subject to exchange rate fluctuations. This will be monitored over the course of the project development and procurement, with the model will being reviewed if any major fluctuations occur.

- The modelled lifetime of the project is 35 years. Although there is confidence and market evidence that the equipment, with proper maintenance and routine component replacement, will function adequately through this period there may be external changes that could affect overall viability. This could include step changes in costs and technologies for renewable energy or other unknown future regulations being imposed on production. These sorts of risks are more difficult to quantify but it is considered that the private wire arrangement and other potential innovative options for the Council to use the energy on site will provide significant protection for the asset in the longer term.

- The proposal will require a planning consent and, therefore, there is a risk that this will not be granted. This is considered to be a relatively low risk, and one that has already been managed as far as possible through pre-application consultations with major stakeholders.

- The costs for constructing the private wire are based on the best local and market information available at the time of publishing the June 2018 report. However, any excavation of this nature comes with risks of encountering other

utilities or obstacles beneath ground that may increase costs. The Council has, therefore, allowed for a very generous sum in the model for this element. The Council is also exploring potential synergies with other infrastructure projects in the area that may help to control costs.

Lamby Way Solar Farm – Progress Since June 2018

16. In the nine months since the Cabinet report was approved (see **Appendix 1** for details) the Council has completed a number of actions that are essential for the successful completion of the Lamby Way Solar Farm, these include:

- The commissioning of a technical solar consultant to develop a detailed design specification for an 8.5MW facility at the site – 1MW higher than in the detailed business case submitted in June 2018;
- Engaging ecological consultants to survey the site and produce a mitigation plan to protect ecological assets;
- Commissioned planning consultants to submit a full planning application – February 2019;
- Signing a memorandum of understanding (MOU) with a third party for energy off take, and developed a draft contract for signing after the Cabinet report;
- Developing a detailed tender specification for design and build for the facility – this includes an assessment of the performance of the scheme;
- Wales Coastal Path – agreed a mechanism to complete the Wales Coastal path adjacent to the site. Currently this section diverts inland at this point.

Next Steps

17. The planning application for the 'Installation of a ground mounted photovoltaic solar farm & ancillary development' (Lamby Way Solar Farm) was submitted on the 22nd February 2019. Following the required parts of the planning process it is hoped that this planning application will be approved in April 2019.

18. One of the key documents that supports the planning application is the 'Design & Access Statement'. It provides a detailed summary of the proposals for the Lamby Way Solar Farm and is attached to this report as **Appendix 2**. The 'Design & Access Statement' provides a list of the key features and aspects of the Lamby Way Solar Farm that are set out below:

- Wardell Armstrong LLP have been instructed by Cardiff Council to prepare a planning application for the construction of a ground-mounted solar farm and associated works on land at Lamby Way landfill site. The development will relate to a site area of 16.89 Ha and provide an expected output of 8.5MW.

- The installation of a series of solar panels will be formatted in rows across the site, in an appropriate south facing direction and at an angle of approximately 20 to 25 degrees from the ground.

- The installation will include an estimated 30,688 individual panels combined to form arrays that are arranged in rows. Each array will be supported by a galvanized steel mounting structure supported on a surface mounted ballasted/concrete pad. The arrays are not proposed to exceed 2.8m in height and the lower edge will be will be approximately 750mm above ground level. All panels will be secured onto a ballasted/concrete pad with no penetrative or demolition works proposed.

- The eastern portion of the application site comprises of a former landfill site that has since been capped such that it now resembles a grassland habitat. In addition, the site is in close proximity to the Severn Estuary designations and the Gwent Levels: Rumney and Peterstone SSSI.

- The electricity supply generated from the solar panels will be fed into the National Grid, connecting to a substation found to the north of the site via the installation of subterranean cabling.

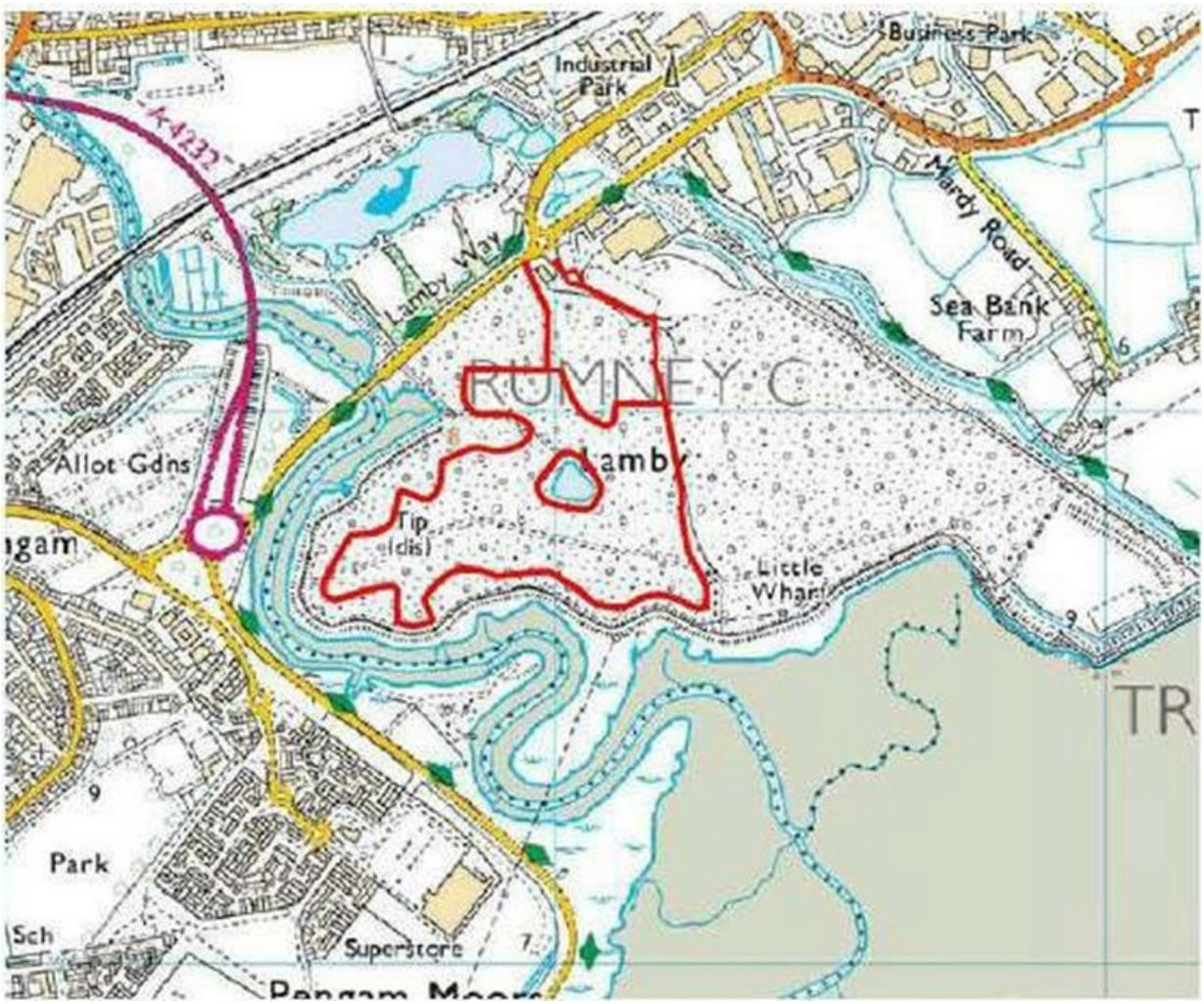
- The proposed development also requires the installation of ancillary containerised and similar structures containing high voltage electrical equipment including inverters, transformers and switchgear. Each will be set on a concrete raft foundation to spread the load across a wider area.

- The solar panel site will require appropriate security protection and as such a fence will be installed at its perimeter with a network of CCTV cameras within the site itself.

- The site is in close proximity to the Severn Estuary designations (Site of Special Scientific Interest, Special Area of Conservation, Special Protection Area and RAMSAR site) and the Gwent Levels: Rumney and Peterstone SSSI - all designations to be treatedas 'Ecological Assets'.

19. **Figure 2** (below) is a map that provides details of the application site for Lamby Way Solar Farm and the surrounding area. The area enclosed in the red line at the centre of the map illustrates the actual site of the solar farm.

- **Figure 2** – A map of the site of the Lamby Way Solar Farm



Way Forward

20. Councillor Michael Michael, Cabinet Member for Clean Streets, Recycling & Environment has been invited to attend for this item. He will be supported by officers from the Planning, Transport & Environment Directorate.

Legal Implications

21. The Scrutiny Committee is empowered to enquire, consider, review and recommend but not to make policy decisions. As the recommendations in this report are to consider and review matters there are no direct legal implications. However, legal implications may arise if and when the matters under review are implemented with or without any modifications. Any report with recommendations for decision that goes to Cabinet/Council will set out any legal implications arising from those recommendations. All decisions taken by or on behalf of the Council must (a) be within the legal powers of the Council; (b) comply with any procedural requirement imposed by law; (c) be within the powers of the body or person exercising powers on behalf of the Council; (d) be undertaken in accordance with the procedural requirements imposed by the Council e.g. Scrutiny Procedure Rules; (e) be fully and properly informed; (f) be properly motivated; (g) be taken having regard to the Council's fiduciary duty to its taxpayers; and (h) be reasonable and proper in all the circumstances.

Financial Implications

22. The Scrutiny Committee is empowered to enquire, consider, review and recommend but not to make policy decisions. As the recommendations in this report are to consider and review matters there are no direct financial implications at this stage in relation to any of the work programme. However, financial implications may arise if and when the matters under review are implemented with or without any modifications. Any report with recommendations for decision that goes to Cabinet/Council will set out any financial implications arising from those recommendations.

RECOMMENDATION

The Committee is recommended to:

(i) Consider the information in this report and the information presented at the meeting;

(ii) Determine whether they would like to make any comments, observations or recommendations to the Cabinet on this matter; and,

(iii) Decide the way forward for any future scrutiny of the issues discussed.

DAVINA FIORE
Director of Governance & Legal Services
27 March 2019

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CARDIFF COUNCIL
CYNGOR CAERDYDD

CABINET MEETING: 14 JUNE 2018

LAMBY WAY SOLAR FARM

CLEAN STREETS, RECYCLING & ENVIRONMENT (COUNCILLOR MICHAEL MICHAEL)

AGENDA ITEM: 5

The Appendices of this report are exempt from publication because they contain information of the kind described in paragraphs 14 and 21 of parts 4 and 5 of Schedule 12A of the Local Government Act 1972

Reason for this Report

1. To present a detailed business case for the delivery of a Solar Farm at the Lamby Way capped landfill site and to seek approval to proceed with the scheme as described in the report.

Background

2. The capped landfill site at Lamby Way has for some time been considered to be a suitable location for a large scale solar farm which could:

- provide a substantial amount of clean, renewable energy to supply the local electricity grid and connected Council buildings,
- make a positive contribution to national and local renewable energy generation and carbon reduction targets,
- provide a localised economic activity and long-term productive use for a site that would be otherwise difficult to develop, and
- contribute to the new WG directive for the Council and all public sector organisations in Wales to be "carbon neutral" by 2030.

3. The Council's recently approved Capital Programme includes provision for the development of the Lamby Way Solar Farm using Invest to Save funds. This provision is subject to the approval of a detailed business case for the scheme which is the subject of this report. The Council has accessed industry experts to help develop this detailed business case, with support from Welsh Government through its Green Growth Wales agenda.

4. As well as delivering on the Council's ambitions and obligations for renewable energy and carbon reduction the production of the business plan has also identified that the proposal will:

- based on the Business Case projections, provide an acceptable and attractive return on the Council's Invest to Save commitment;
- make full use of Council funds already expended on Grid connection in the area;
- provide clean renewable energy to a major neighbouring utility site; and
- open opportunities for further innovation, carbon reduction and air quality management by, for example, providing a potential new and renewable energy source for the Council's Low Emission Transport plans.

5. The Economic Green Paper launched in November 2017 identified the East of the city as the focal point for industry, lower density economic uses that provide options for a different range and choice of both employment and business opportunities. The different options and choices that can be established by providing lower density employment opportunities will help those whose skills or experience may not match those found in a service focussed city-centre, including proposals such as Lamby Way Solar Farm.

Issues

Site History

6. In July 2014 Cabinet approved a proposal to publicly offer a land lease opportunity for the development of a Solar Farm at the site. This was to be funded and delivered by a third party developer, with the Council collecting a small ground rent on the long-term lease. To facilitate the arrangement, and to secure the longer term opportunity, the Council also funded a grid connection to the site at this time.

7. Despite significant negotiation with four separate developers, none of the proposals received by the Council reached a satisfactory position from which proceed.

8. In summary, the reasons for this were:

- The removal of the Government Incentives for Solar Farms shortly after the Cabinet decision,
- The consequential reduction in institutional investment funders' appetite for risk on solar farms nationally, and
- The inability of scheme developers to reach a satisfactory pricing level on the sale of energy on the open market to cover the lost government support element.

9. This outcome was not unique to Cardiff and many proposed schemes in the UK stalled at this time. This led Welsh Government to focus attention on the issue, seeking to understand the current barriers to, and solutions for the delivery of Welsh public sector led renewables schemes in the post-Government Incentives landscape.

Welsh Government Support and Policy Changes for Renewables

10. As part of its Green Growth Wales agenda Welsh Government undertook an audit of all of the stalled, public sector led renewables schemes in Wales and identified the Lamby Way solar farm as one with the highest potential to deliver. This was because of the ready availability of the site, its good solar radiation characteristics on an incline facing south, and the pre-existing grid connection on site.

11. During this period Welsh Government also strengthened its own policy context around renewables, most notably publicising targets for:

- 100% green energy consumption in Welsh Public Sector from 2017;
- 70% of all energy consumed in Wales to be generated by Welsh based renewable sources by 2030;
- at least 1 Giga Watt of this generation to be locally owned; and
- for all public sector organisations in Wales to be "Carbon Neutral" by 2030

12. Together, these policy changes have provided a significant drive for both the Council and WG to pursue the Solar Farm and other local renewable energy schemes.

13. On this basis WG offered the Council free access to consultancy expertise to help develop an options appraisal and detailed business case to examine the viability of the scheme. This assistance has been in place since summer 2017 and has been provided by a solar expert who has helped to develop the business case. Their output, in turn, has been peer reviewed by energy staff at Local Partnerships who have been contracted by WG to support the Green Growth Wales Agenda.

Other Changes in the Market

14. Along with the policy changes mentioned above three key changes have happened which have affected the overall viability of the Solar Farm proposal at Lamby Way.

15. **Firstly**, the cost of required hardware for the scheme has continued to reduce over the period. Prices for installed ground mounted solar PV are reported to have fallen by around 75% between 2010 and 2016 and global prices for solar components continue to reduce as efficiencies and economies of scale increase.

16. **Secondly**, the Council has had extensive dialogue with an organisation based near to the site with regard to a private wire connection between

the proposed Solar Farm and their operation. This dialogue, conducted under the terms of a signed non-disclosure agreement, has been very positive and has settled on an outline deal for the organisation to take 4.5MW of generation capacity at the Solar Farm over a 20 year period.

17. The energy sale rate negotiated is significantly higher than rates otherwise available to the scheme through the usual sale-to-grid route. This is made possible because the purchaser of the energy avoids the "non-commodity" costs associated with buying energy from the grid (including various charges for grid maintenance and balancing, and other taxation elements). Private wire purchasers can therefore pay a higher rate for the "wholesale" energy and still achieve a saving on the final unit cost compared to direct purchase from the grid. This new rate for the sale of energy has been modelled for the first 20 years of the scheme's operation and has significantly increased its income generation capacity.

18. An MoU has been signed between the Council and the organisation to capture the key commercial features of this negotiation. This settles on an energy sale price index linked to RPI for a supply period of 20 years. The deal is considered to be a low risk, high gain option given the partner organisation's published aim to secure 100% renewable energy supplies for their operations and the significant overall saving they will achieve on electricity bills as a result. In turn, it also enhances the Council's ability to increase the income generation capacity of the scheme by securing a higher unit selling price through a large term off-take arrangement with a partner organisation with a very strong financial covenant.

19. **Thirdly**, and as a direct result of the private wire arrangement discussed above, there is now an opportunity to develop a slightly larger solar farm than was originally envisaged. The maximum capacity of the installed grid connection at the site is 5MW and previous iterations of the scheme were based around this constraint. With 4.5MW of the farm's generating capacity now proposed to be diverted away from the grid via the private wire, the size constraints for the solar farm are altered. We have therefore examined a scenario that looks at the relative costs and benefits of a 7.5MW scheme. The site could easily accommodate this increased coverage.

20. This increased capacity also has the potential to open up further strategic opportunities for the Council. For example, there is a particular opportunity to explore on-site use of energy to link directly to our strategy for Low Emission Transport Fuels. Energy storage options may also exist, which could contribute to grid balancing in the area and further boost the scheme's business case. We are exploring these opportunities but none are included in the business case presented here which assumes that all energy surplus to the private wire requirement will go to grid.

Business Case Summary

21. The appendix to this report contains the detailed business case for the Lamby Way Solar Farm. The proposal is based on a solar farm of 7.5MW capacity.

22. For information, the clean, renewable energy generated by a solar farm of this size would offset the equivalent electricity needed to power 2,300 typical homes, or about 15% of the Council's total electricity consumption across all its buildings and street-lighting.

23. The proposal depends on 4.5MW of the generating capacity being supplied through a private wire to a single customer near to the site, and the residual 3MW supplied to the national grid through the connection at the site.

24. The business case looks at the total development costs and total income capacity of the scheme across a 35 year lifespan. This is a reasonable economic life-time assumption for solar schemes provided that routine maintenance and component upgrade occurs across this period. The period for the "Invest to Save" capital financing loan would be 30 years.

25. The model is based on a range of prudent cost assumptions derived from recent market research undertaken by the solar expert advising this project and described in the appendix. This appendix is exempt from publication as noted above. Total costs include some already spent, notably on establishing the grid connection at site. The cost assumptions also include the projected costs of ongoing project management, production of a planning application, ecological management, detailed procurement specification, operation and maintenance contracts for the full life of the scheme, legal fees and the facilitation of the private wire arrangement described above. The business case has been subject to a series of reviews by relevant officers at the Council's Investment Review Board.

26. The table below gives headline costs and benefits.

Business Case Summary	£,000
Total Costs (Including initial development costs, Operation and Maintenance, and Loan interest)	**£14,9m**
Total Income (Private wire (20 years) + Direct grid sale (residual for 20 years, 100% for remaining life))	**£21,2m**
Internal Rate of Return	**6.63%**

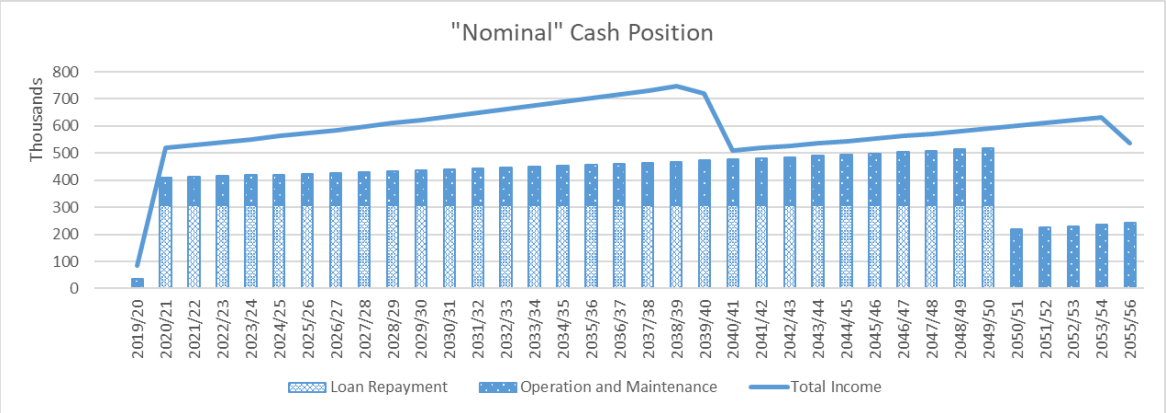
27. The construction costs have been derived with reference to recent known solar farm development costs across the UK but with a significant uplift included in the model. This is a prudent assumption made in recognition of the characteristics of the capped landfill site which will require a specific and non-standard installation method.

28. Total costs also include a generous provision for ongoing maintenance and operational costs. It is proposed that a specialist contractor would be procured to carry out the operation and maintenance function which will be funded directly from income generated.

29. Both the construction and operating cost assumptions in the model have been set at rates that exceed those observed for similar schemes in the UK. This is to ensure that the business model is prudent and robust. We would expect a competitive procurement process for these two contracts to deliver lower rates than those modelled.

30. Total income includes two separate income streams for the sale of energy, one from the private wire and one from sale-to-grid. The former rate is already subject to a signed Memorandum of Understanding with the energy customer and the latter rate is based on current known averages nationally.

31. The graph below summarises the nominal cash position (i.e. including projected inflation) over the anticipated lifetime of the project. It shows that income clearly covers the cost of loan repayment, operation and maintenance with some additional headroom. The dip in income towards the latter years of the model reflects the end of the 20 year private wire arrangement. There would clearly be scope to renegotiate and extend this at the appropriate time though this opportunity is not modelled here.



Project Programme

32. The table below sets out an indicative programme for the delivery of the scheme.

Indicative Programme	
Capital I2S sum approved by Cabinet	Jun-18
Appoint project manager/technical advisor	Jul-18
Procure planning consultants to develop planning application	Jul-18
Commission detailed ecological survey and mitigation plan	Jul-18
Submit planning application	Oct-18
Confirm energy offtake arrangements (private wire and grid)	Oct-18
Planning Consent Granted	Dec/Jan 18
Implement ecological mitigation plan	TBC
Design and Build/Operation and Maintenance tender specification	Oct-Dec 18
Commence procurement of contractors	Jan/Feb 19
Appoint contractors subject to Cabinet approval	Feb/March 19
Commencement on site	April/May 19
Completion and commissioning	Aug/Sept-19

33. The immediate next step would be to prepare a planning application for the development. There have been extensive pre-application discussion on the proposal with key stakeholders, and elements of public consultation have been carried out in respect of the previous private sector led proposals referred to earlier. However, this is a major piece of work that will need to be commissioned and completed over the summer. Costs for this have been included in the business model.

34. One of the more significant challenges for the project relates to the nature conservation value of the site. There are a range of known ecological assets that would need to be treated sensitively prior to, during and after construction. We have already commissioned a “Preliminary Ecological Appraisal” to assess the existing ecological value, identify potential ecological issues associated with the proposed development and make recommendations for general mitigation, compensation and enhancement as appropriate. This has also identified timeframes in the year where regulations prevent survey work, relocation activities and construction works in order to protect various species.

35. This has influenced the delivery timeline given above and also places some urgency to carry out elements of the survey and relocation work early in the summer to ensure that the scheme can progress as planned. The overall ecological mitigation plan for the site will form part of the planning application and its implementation will be controlled by planning condition.

Project Spend Profile

36. The above delivery programme broadly assumes that project development and procurement of a design and build contractor would be carried out during the rest of the current financial year. Construction, and therefore the major spend for the project, would then commence in early 2019/20.

Risks

37. In progressing the business case to its current stage, several of the variables in the model have developed a greater degree of certainty. In particular, the Grid Connection costs are expended and final. Our energy generation performance assumptions are also based on very reliable National sources of solar irradiance data that can predict the performance of the solar panels with some degree of accuracy.

38. The private wire arrangements are also well developed and considered to be a relatively low risk given the internal policy and cost drivers of the partner organisation.

39. Key risks still exist however as outlined below:

- Much of the hardware required for the development of the solar farm will be likely to be supplied form European or American sources. This therefore exposes final costs to fluctuations in international exchange rates. These will be reviewed over the course of the project development and procurement, and the model will be formally reviewed if any major fluctuations occur.

- The modelled lifetime of the project is fairly long at 35 years. Although there is confidence and market evidence that the equipment, with proper maintenance and routine component replacement, will function adequately through this period there may be external changes that could affect overall viability. This could include step changes in costs and technologies for renewable energy or other unknown future regulations being imposed on production. These sorts of risks are more difficult to quantify but it is considered that the private wire arrangement and other potential innovative options for the Council to use the energy on site will provide significant protection for the asset in the longer term.

- The proposal will require a planning consent and there is therefore a risk that this will not be granted. This is considered to be a relatively low risk and one that has already been managed as far as possible through pre-application consultations with major stakeholders.

- The costs for constructing the private wire are based on the best local and market information available to us at the time. However any excavation of this nature comes with risks of encountering other utilities or obstacles beneath ground that may increase costs. We have therefore allowed for a very generous sum in the model for this element. We are also exploring potential synergies with other infrastructure projects in the area that may help to control costs.

Conclusion and Recommendations

40. The modelling exercise described in this report is based on prudent assumptions with known costs included wherever possible. The model has been developed with advice from a solar expert and peer reviewed by Local Partnerships. On this basis the model shows that the proposal is financially viable if final costs are within the general parameters set out, and with the benefit of a formal contractual arrangement for the private wire sale of energy.

41. Strategically, the project meets a series of Council targets and ambitions in generating secure, clean, renewable energy at a site that would be otherwise difficult to develop.

42. It is recommended that Cabinet support the business case outlined in this report and approve the progression of the project to its next phase which will be:

- to prepare and submit a planning application;
- to finalise negotiations on the private wire offtake;
- to commence procurement of a design and build contractor, and operation and maintenance contractor for the scheme.
- to formalise the additional sum required of the 19/20 Capital Programme to facilitate the extended 7.5MW scheme now proposed.

43. It is also recommended final costings, based on the outcome of the formal procurement process, are brought back to Cabinet for final approval to proceed once known.

Local Member consultation

44. Local members were briefed on the scheme at a meeting on 29th May. They were generally supportive but highlighted the need to consider the local impacts and opportunities arising from the proposal as it progressed through the Planning process. In particular they were keen to maximise the potential for protecting and enhancing local biodiversity and amenity value in the area.

Reason for Recommendations

45. To provide I confirmation to progress with the scheme as outlined in the approved Capital Programme and detailed in this report.

Financial Implications

46. The report summarises a business case for a long term Council investment in the construction and operation of a solar farm. The

financial analysis in the business case, based on projected cost and income streams, indicates that the solar farm would be a viable invest to save project. There are however a number of key assumptions that will determine the success of this project in terms of its financial viability. Proceeding with the project will allow these assumptions to be confirmed, and the financial projections updated, before a final decision to commence the construction of the project is undertaken.

47. Although the business case projections are considered prudent, building the solar farm on a capped landfill site at Lamby Way will present some challenges. Until the project has been market tested, by undertaking a procurement, the risk remains that the final construction costs will exceed the projected costs included in the business case. In addition a significant element of the equipment will be supplied from outside the UK so until contracts are signed the project will be exposed to the volatility of Foreign Exchange market fluctuations. A similar position exists with movements in interest rates which again will not be fixed until the construction contract is confirmed. To test the implications of changes in Project costs by amending these key variables a number of sensitivities have been run to assess the impact on the projected Project finances. The results of this sensitivity analysis confirms that the project continues to generate a positive return both in cash terms and for Net Present Value. The results of the sensitivity analysis are included in the Appendix.

48. At this stage the proposed solar farm has not received planning approval. Given the pre-application work done previously and the proposed size of the facility the Directorate consider that the refusal of planning approval is a low risk. If planning approval was not achieved then the council would be in a position where the cost associated with taking the scheme to planning would be abortive and would need to be written off.

49. The report emphasises the considerable benefits of the private wire arrangement in terms of the price received for the electricity, the stability the 20 year term of the arrangement provides and the financial strength of the partner organisation. Negotiations are continuing with this organisation and have reached the Memorandum of Understanding stage. If however, this arrangement was not concluded the affordability of the solar farm would be detrimentally impacted and the financial projections, including the size of the facility, would need to be reassessed.

50. Following the introduction of the private wire a larger facility is now proposed to maintain the export of electricity to the grid. This is the scenario presented in the business case as although additional upside would be expected from, for example, cost avoidance from electric vehicle charging these proposals are at an early stage of development and are not yet robust enough to include in the business case.

51. The larger facility will require additional capital expenditure. The construction of the facility is programmed for 2019/20 and a bid for additional resources in the 2019/20 Capital Programme as part of the budget setting for 2019/20 will be required. This will remain as an Invest To Save scheme.

Legal Implications

52. The procurement process will need to be in accordance with the Council's Contract Standing Orders and Procurement Rules. The Council has power to sell electricity under section 11 of the Local Government (Miscellaneous Provisions) Act 1976(as amended) provided that the electricity is generated from heat and renewables. The power is subject to the requirements of the Electricity Act 1989 in regard to a distribution or supply licence, which in turn are subject to exceptions under the Electricity (Class Exemptions from the requirement for a Licence) Order 2001

RECOMMENDATIONS

Cabinet is recommended to approve the Business Case and Invest to Save allocation for the scheme and to commence the delivery plan for implementation.

SENIOR RESPONSIBLE OFFICER	**ANDREW GREGORY** **Director Planning, Transport & Environment**
	7 June 2018

The following appendices are attached:

Appendix 1 – Detailed Business Case (confidential)

The following background papers have been taken into account

Green Book 5 Case Business Case Analysis (Confidential)

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ENERGY AND CLIMATE CHANGE
ENVIRONMENT AND SUSTAINABILITY
INFRASTRUCTURE AND UTILITIES
LAND AND PROPERTY
MINING AND MINERAL PROCESSING
MINERAL ESTATES
WASTE RESOURCE MANAGEMENT

CARDIFF COUNCIL

LAMBY WAY SOLAR FARM

DESIGN AND ACCESS STATEMENT

FEBRUARY 2019

wardell armstrong

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CARDIFF COUNCIL

LAMBY WAY SOLAR FARM

DESIGN AND ACCESS STATEMENT

FEBRUARY 2019

PREPARED BY:

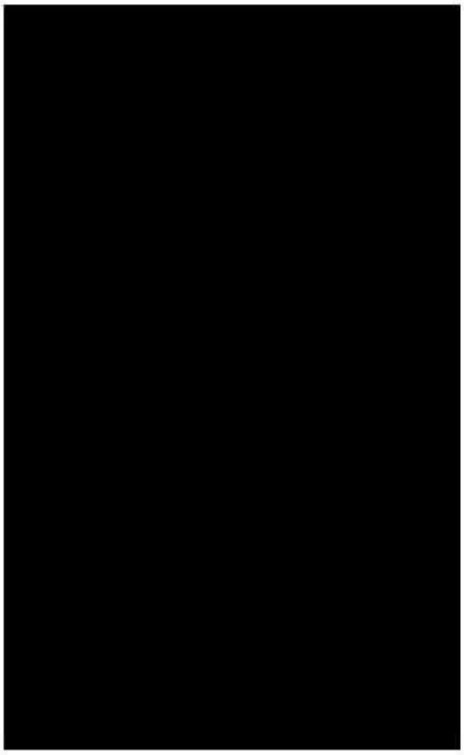
Sophie Jones Graduate Planner

REVIEWED BY:

Simon Williams Technical Director

APPROVED BY:

Simon Williams Technical Director



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1 INTRODUCTION

1.1 Synopsis

The purpose of a Design and Access Statement (DAS) is to provide a clear and logical document to demonstrate and explain the various facets of design and access in relation to the application site, and outline planning policy relevant to the proposal. The DAS also acts as a method of demonstrating the details of a planning application in a way that can be read by both professionals and the public.

1.2 Overview of the Proposals.

Wardell Armstrong LLP has been instructed by Cardiff Council (the applicant) to prepare a planning application for the construction of a ground-mounted solar farm and associated works on land at Lamby Way landfill site. The development will relate to a site area of 16.89 Ha and provide an expected output of 8.7MW.

The installation of a series of solar panels will be formatted in rows across the site, in an appropriate south facing direction and at an angle of approximately 20 to 25 degrees from the ground.

The installation will include an estimated 30,688 individual panels combined to form arrays that are arranged in rows. Each array will be supported by a galvanized steel mounting structure supported on a surface mounted ballasted/concrete pad. The arrays are not proposed to exceed 2.8m in height and the lower edge will be will be approximately 750mm above ground level. All panels will be secured onto a ballasted/concrete pad with no penetrative or demolition works proposed.

The eastern portion of the application site comprises of a former landfill site which has since been capped such that it now resembles a grassland habitat. In addition, the site is in close proximity to the Severn Estuary designations and the Gwent Levels: Rumney and Peterstone SSSI.

The electricity supply generated from the solar panels will be fed into the National Grid, connecting to a substation found to the north of the site via the installation of subterranean cabling.

The proposed development also requires the installation of ancillary containerised and similar structures containing high voltage electrical equipment including inverters, transformers and switchgear. Each will be set on a concrete raft foundation to spread the load across a wider area.

The solar panel site will require appropriate security protection and as such a fence will be installed at its perimeter with a network of CCTV cameras within the site itself.

The site is in close proximity to the Severn Estuary designations (Site of Special Scientific Interest, Special Area of Conservation, Special Protection Area and RAMSAR site) and the Gwent Levels: Rumney and Peterstone SSSI – all designations to be treated as 'Ecological Assets'.

1.3 Structure of the Document

The DAS will start by studying the features of the site and provide a contextual analysis in regard to the local character and surrounding land uses, concluding with the identification of key issues. Following this, the planning policy framework with which to appraise the development proposal will be put forward. The document will go on to examine the relevant design and access facets before holistically assessing the planning permits associated with the scheme. The document will finish by concluding why the proposal should be given planning permission.

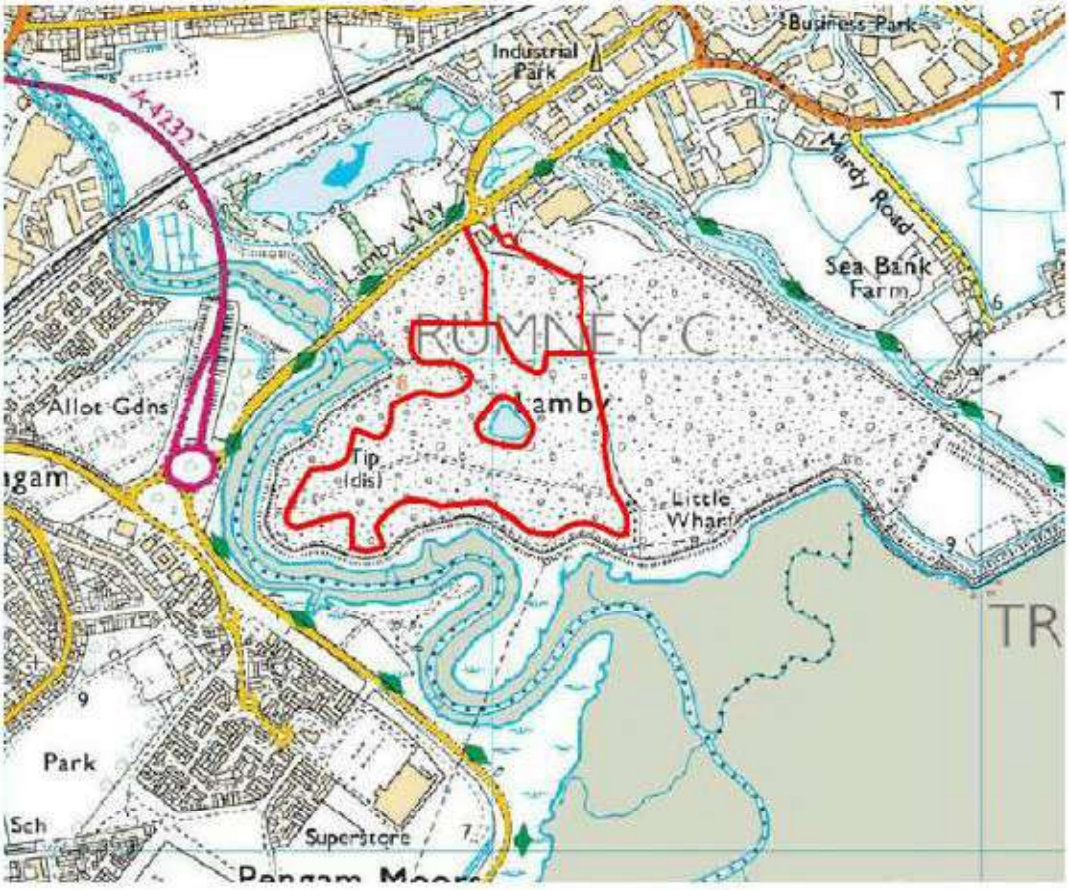
2 SITE CONTEXT AND ANALYSIS

2.1 Location and Access

The site is located within the vicinity of the district known as Rumney, located to the east of Cardiff and therefore falls under Cardiff Council jurisdiction.

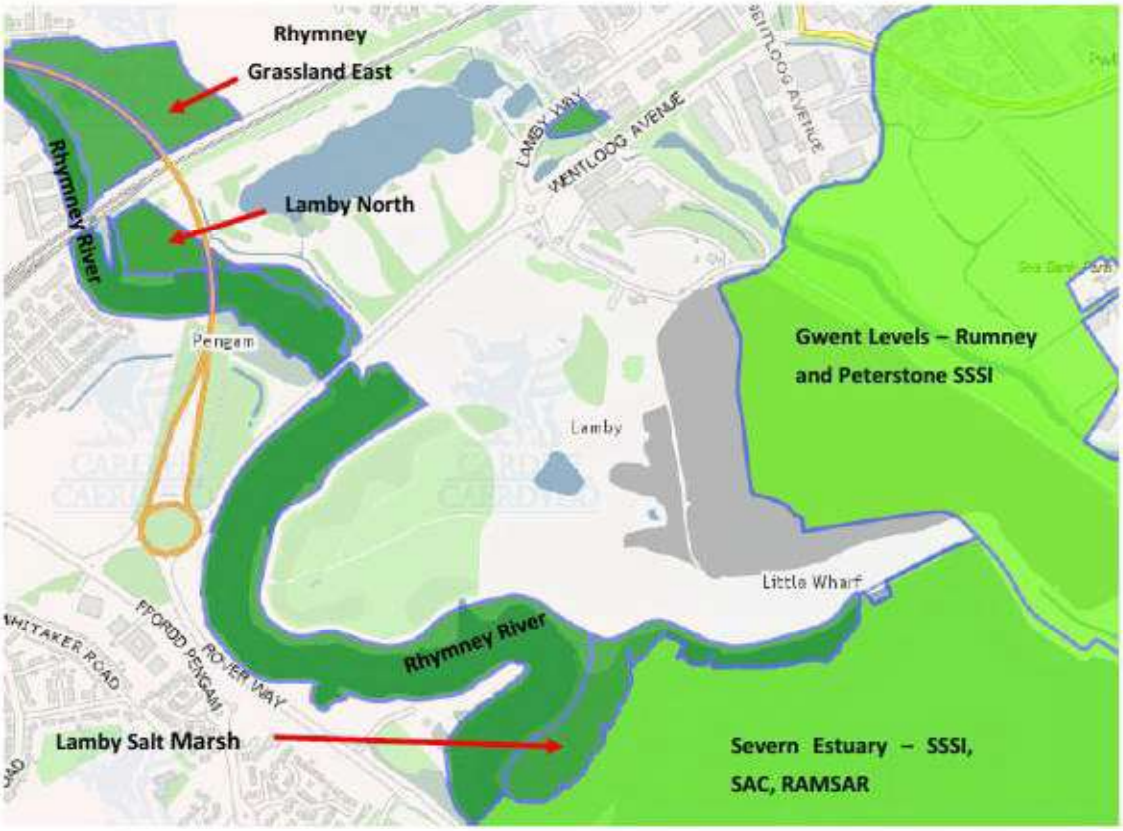
The application site consists of a 16.89Ha parcel of land that is generally bounded by the Rhymney River to the south west, Lamby Way to the north west and the Severn Estuary to the south and south east. The remainder of the landfill site bounds the site to the east.

Figure 1: The application site and the surrounding area



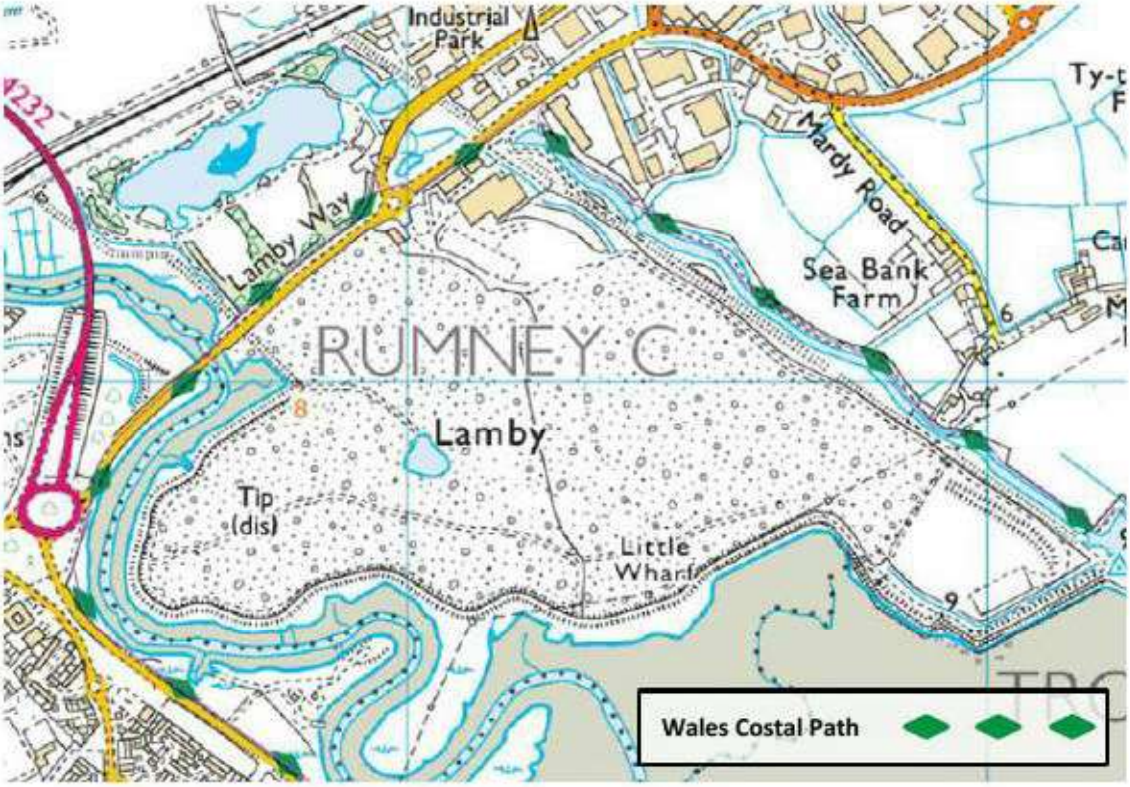
There are several ecological assets located in close proximity to the site including the Severn Estuary designations (Site of Special Scientific Interest, Special Area of Conservation, Special Protection Area and RAMSAR site). Furthermore, the Gwent Levels: Rhymney and Peterstone SSSI is located approximately 114m to the east and the Rhymney River which constitutes a Local Nature Conservation Site is found to the west.

Figure 2: Map illustrating ecological assets near to the application site (courtesy of http://ishare.cardiff.gov.uk/). Not to scale.



The Wales Coastal Path is situated approximately 110m away from the site to the north of the site. In total the Wales Coastal path provides leisure and amenity value to the welsh coast. Figure 3, displayed overleaf, illustrates the exact location of the current Wales Coastal Path around the Lamby Way site.

Figure 3: Map of the Wales Coastal Path near to the Lamby Way site (courtesy of: https://www.walescoastpath.gov.uk/plan-your-visit/interactive-coast-path-map/).



The site can be accessed via Lamby Way, located to the north west of the site. Additionally, the A4232 is positioned to the north west of the site providing direct access to the A48 and further access to the M4.

Several bus stops are situated further to the north of the site. The Brachdy Lane bus stop is the closest public transportation stop to the application site (approximately 0.5 miles to the north) and offers several services between St Mellons, Llanrumney and Cardiff.

For completeness, a satellite image of the site of the application site and the surrounding area which illustrates the main transport links is shown overleaf.

Figure 4: Map denoting the accessibility of the Lamby Way site (image courtesy of Google.com)

For further information in respect of the application site location, please refer to Drawing: LAM-DWG001, which also shows the extent of Cardiff Council's land ownership surrounding the site.

2.2 Land Use Context

The surrounding area is heavily urbanised and comprises of industrial and residential land uses. The nearest industrial point comprises a waste recycling centre known as Cardiff Household Waste and Recycling Centre which is approximately 194m from the northern point of the site. A variety of other industrial businesses lie further afield being active components of the Eastgate Business Park, Waterside Business Park and the Capital Business Park respectively.

The nearest residential settlement is located on the opposite side of the Rhymney River approximately 230m to the west of the site (Tremorfa). In addition, there is another residential settlement (Rumney) and community allotments located to the north west of the site.

2.3 Site Features

The application site comprises part of the former Lamby Way Landfill Site and also adjacent land to the west. The landfill portion has since been remediated and capped, subsequently developing as a rough grassland and shrub habitat. Established woodland blocks are identified around the perimeter of the landfill, partially surrounding the site.

Most of the surrounding land is flat at or below 10m Above Ordnance Data (AOD) with land to the north/ north west rising gently to an area of higher ground. The tip itself forms a local large mound and as such the site is elevated relative to the surrounding landscape. Around its perimeter, the tip is between 9 and 10m AOD and rises to a relatively central point towards the north east of the site at just below 25m AOD.

Reflecting the remediation and capped nature of this site, a network of gas wells are distributed throughout the area to monitor the gas levels within the ground. It is essential that appropriate easements are maintained around each gas well to provide easy access to the infrastructure for maintenance and monitoring purposes. For reference, Figure 5 illustrates the appearance of a typical gas well.

Figure 5: Example of gas infrastructure at former Lamby Way Landfill site.

A 3,000m^2 attenuation pond is situated centrally within the application site. In periods of high rainfall, water from the pond travels down slope towards the north east of the site and discharges directly into the Rhymney River. For the purpose of this application, the pond is not included in the site boundary as it cannot be developed and will remain free of development for ecological purposes. It will however, be utilised for the management of surface water on the site as it currently is. Please see figure 6, which displays an image of the pond area with a red arrow indicating the location of the pond for clarity.

Figure 6: Pond area located centrally within the proposed site.

For further details about the location of the pond area, please refer to drawings LAM-DWG001 and LAM-DWG002.

2.4 Site Access

The application site is currently accessed via a network of private tracks, connecting to the House Waste Recycling Centre (HWRC) to the north, all of which are within Cardiff Council's ownership. The network of private tracks connects to the public highway at Lamby Way which is positioned to the north of the site. A private road connects immediately to the Lamby Way/Wentloog Avenue roundabout found at grid ref. ST21977 78309 which provides access to the east and west of Cardiff.

Lamby Way is well connected to the A48 which in turn offers direct access to the M4.

2.5 Site Visit

An initial site visit to the former Lamby Way landfill was undertaken on 26th November 2018. To provide a further understanding of the current state of the application site, this section comprises a selection of photographs taken at the time of the visit.

Figure 7: Existing maintenance track located to the south of the application site. Presence of linear overhead National Grid infrastructure providing separate service from the coastline.

Figure 8: Gates located to the south of the application site providing access to National Grid services and overhead infrastructure.

Figure 9: Newly installed sub-station located on Lamby Way (north of the application site).

Figure 10: Image displaying pylons surrounding the application site and an example of gas monitoring apparatus (foreground).

Figure 11: Close up of gas monitoring apparatus present within the application site.

3 PLANNING POLICY FRAMEWORK

3.1 Overall Context

The overall planning policy context for the determination of this application comprises the following:-

- Planning Policy Wales (PPW)
- The Wales Spatial Plan (WSP)
- Technical Advice Notes (Wales)
- Cardiff Local Development Plan 2011-2026

These will be summarised under the following subsections. For further details on policies presented in this section please refer to the planning statement to accompany the submission.

3.2 Planning Policy Wales

Planning Policy Wales (PPW) (Edition 10, December 2018) is the Welsh Government's principal planning policy document as it identifies land use planning policy guidance for Wales. Furthermore, PPW confirms that The Environment (Wales) Act 2016 sets a legal target of reducing greenhouse gas emissions by at least 80% by 2050 in addition to other interim targets (for 2020, 2030 and 2040) and associated carbon budgets for key sectors.

The importance of delivering sustainable development is consistently emphasised throughout PPW. The Welsh Government has set targets for the generation of renewable energy:

- For Wales to generate 70% of its electricity consumption from renewable energy by 2030;
- For one Gigawatt of renewable electricity capacity in Wales to be locally owned by 2030; and
- For renewable energy projects to have at least an element of local ownership by 2020.

The Environment (Wales) Act 2016 sets a legal target if reducing greenhouse gas emissions by at least 80% by 2050 in addition to other interim targets (for 2020, 2030 and 2040) and associated carbon budgets for key sectors.

Paragraph 5.7.8 outlines the benefits of renewable and low carbon energy and states that they are of paramount importance. With that in mind, the planning system should:

- Integrate development with the provisions of additional electricity grid network infrastructure;
- Optimise energy storage;
- Facilitate the integration of sustainable building design principles in new development;
- Optimise the location of new developments to allow for efficient use of resources;
- Maximise renewable and low carbon energy generation; and
- Move away from the extraction of energy minerals, the burning if which is carbon intensive.

Sub-section 5.9 of PPW focuses on renewable and low carbon energy and emphasises how planning authorities should facilitate all forms of this type of development. Furthermore, planning authorities should seek to ensure their area's full potential for renewable energy generation is maximised and renewable energy targets are achieved.

In determining applications for the range of renewable and low carbon energy technologies, planning authorities should take into account:

- The contribution a proposal will make to meeting identified Welsh, UK and European targets;
- The contribution to cutting greenhouse gas emissions; and
- The wider environmental, social and economic benefits and opportunities from renewable and low carbon energy development.

Planning authorities should give significant weight to the Welsh Government's targets to increase renewable and low carbon energy generation, as part of the overall approach to tackling climate change and increasing energy security. In circumstances where protected landscape, biodiversity and historical designations and buildings are considered in the decision-making process, only direct irreversible impacts on statutorily protected sites and buildings and their settings should be considered.

3.3 Wales Spatial Plan

The Wales Spatial Plan (WSP) (updated in 2008), entitled 'People, Places, Futures', sets a strategic framework to guide future development and policy interventions.

A main principle of the WSP is that development should be sustainable. Sustainable development is about improving wellbeing and quality of life by integrating social, economic and environmental objectives in the context of more efficient use of natural resources. In addition, the WSP recognises that climate change is an urgent and compelling issue which will have fundamental impact in communities and working environments, the way of life and health and well-being in Wales.

3.4 Technical Advice Notes

Technical Advice Notes (TANs) provide detailed planning advice on a variety of different subjects accompanying the land use policy set out in PPW.

The following TANS are considered to be of relevance: -

- TAN8: Planning for Renewable Energy (July 2005)
- TAN 12: Design (March 2016)
- TAN 15: Development and Flood Risk (July 2004)

3.5 Cardiff Council Local Development Plan 2011-2026

On the 28th January 2016 Cardiff City Council adopted their Local Development Plan (LDP). The LDP is used to guide and manage development, providing a basis by which planning applications will be determined.

Key policies of relevance include the following:

- Policy KP5: Good Quality and Sustainable Design
- Policy KP6: New Infrastructure
- Policy KP7: Planning Obligations
- Policy KP15: Climate Change
- Policy KP16: Green Infrastructure
- Policy EN3: Landscape Protection
- Policy EN4: River Corridors
- Policy EN5: Designated Sites

- Policy EN6: Ecological Networks and Features of Importance for Biodiversity
- EN7: Priority Habitats and Species
- Policy EN10: Water Sensitive Design
- Policy EN12: Renewable Energy and Low Carbon Technologies
- Policy EN14: Flood Risk

3.6 Cardiff Council Supplementary Planning Guidance

Supplementary Planning Guidance (SPG) is introduced to provide further details in specific polices sand proposals contained within Cardiff's Development Plan.

Specific SPG documents of relevance include: -

- Green Infrastructure

4 DESIGN EVOLUTION

Upon appointment of the development team by Cardiff Council, a capacity layout plan was prepared. This showed the maximum development/ energy generation from the site based on an area of 16.5ha and entailed the installation of 1,258 structural support units each containing 24 panels. The maximum output of the application site was calculated as 7.5MW. The first draft of the proposed site layout is illustrated in figure 12 below.

Figure 12: Initial site layout plan of proposed solar farm at Lamby Way

Analysis of the capacity layout through a combination of desk-top research and a site visit identified the following principal constraints:

1. Previous use and site remediation;
2. Ecology;
3. Landscape and Visual Impact;
4. Site security; and
5. Surface water drainage.

The following immediate actions were taken by the team in response:

1. Providing details of existing comprehensive suite of information requested from Cardiff Council;
2. Instruction of ecology assessments to understand the full nature of constraints, both for the site and adjacent land;
3. Instruction of technical assessment to advise on the likely impact from public viewpoints;
4. Identifying the need to ensure sufficient means of enclosure to maintain; and
5. The impact created by a change to the status quo from a drainage standpoint. Instruction of a technical assessment to advise further.

The following commentary on each constraint outlines how the design evolved to address the constraint.

Gas Infrastructure

The application site comprises of a former landfill site therefore, it is essential that the ground gas levels are monitored and maintained on a regular basis. Gas infrastructure including gas wells and pipes are present across the site both above and below the surface of the capping. The gas wells each require an easement of 3m to ensure that they can be easily and regularly accessed. Taking this into consideration led to a significant reduction of the total amount of solar panels that can be installed at Lamby Way if the original site area was to be taken forward.

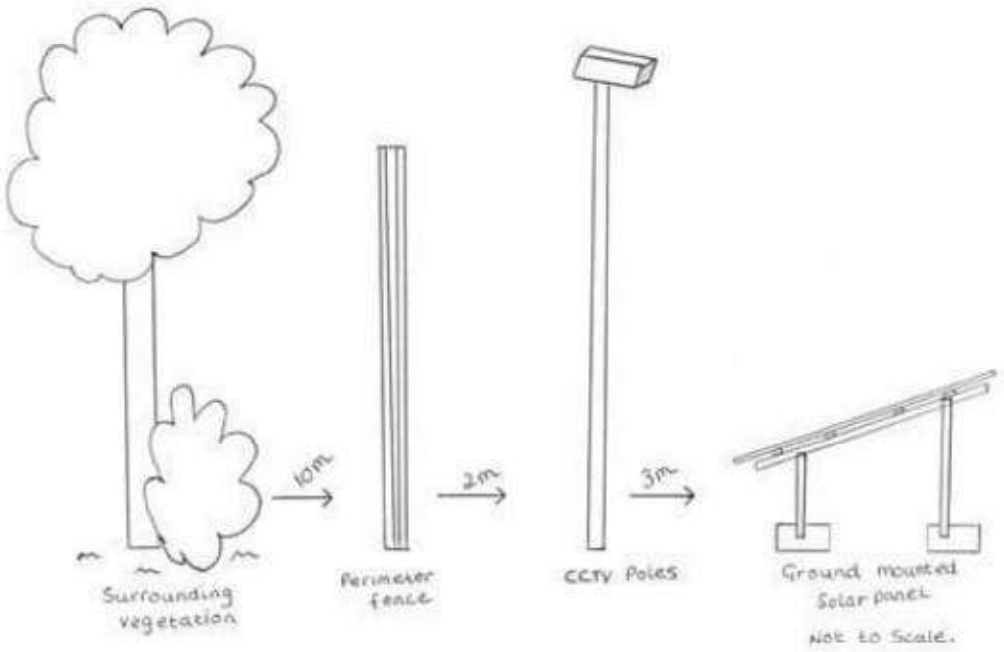
Ecology

Since the remediation of the land at Lamby Way, wildlife has inhabited the site. Part of the site has developed a grassland habitat and, historically, it has been used as an area for reptile translocation. A key part of the design evolution entailed providing enough spacing between the photovoltaic solar panels and small pockets of land around the site to ensure linear corridors for fauna. In addition, maintaining the strips of open grass land surrounding the pond area to allow enough room for birds to take off and land and gain access to the pond.

A 10m radius around the pond has been introduced to ensure that the development does not impact upon the pond habitat and any wildlife using this space. Additionally, a 5m distance between the perimeter fence and the solar panels is proposed to ensure that wildlife can

circulate around the site. The perimeter fence itself has been moved inwards from original intentions as shown in the capacity layout to ensure a 10m clearance from nay tree/scrubs areas.

Figure 13: Sketch of the cross-section of the proposed Lamby Way Solar Farm (not to scale)



Ensuring adequate space has been left clear for wildlife has consequently led to the reduction of space available for in the installation of solar panels within the original site. Subsequently, the total output of the site (originally 7.5MW) would be significantly jeopardised in making these necessary changes.

Landscape and Visual Impact

For the purpose of protecting the surrounding landscape of the application site, a Landscape and Visual Impact Assessment (LVIA) has been undertaken by Wardell Armstrong LLP. Details of this assessment have guided the design of the overall site layout in terms of its shape, solar arrangement and screening.

The site is already well screened to the north and vegetation along the Rhymney River softens views from the west and the LVIA concludes that during operation, effects of the proposed development are not considered to be greater than Negligible to Slight Adverse. Taking this

into consideration, the LVIA does not proposed any additional mitigation that need to be incorporated into the site layout.

Security

It is a legal requirement that appropriate security measures are put in place for the protection of National Grid infrastructure. For that reason, it was essential that the solar farm at Lamby Way was fully enclosed by a secure fencing. Security will ensure there is no animal or human interference with the grid electricity equipment.

The proposed fencing will be approximately 2.2m in height and will run around the entirety of the site's perimeter. As already stated, the fence will be situated at a distance of 10m from any trees outside of the site. It was also key that there was an additional 5m between the fence and the arrays, 2m distance for CCTV camera poles and a further 3m to the arrays.

Surface Water Drainage

To ensure that the proposed development will not cause a detrimental impact to the surface water drainage of the site and subsequently increase the potential of floods, it was considered essential to prepare a surface water drainage strategy to support this planning application.

The strategy proposes the retention of the existing surface water drainage systems that are already in situ comprising of the attenuation pond and the Geocomposite drainage layer which conveys the flow to the existing drainage system. In addition to the existing features, the drainage strategy proposes that rainwater gaps should be designed into the solar panels to allow rainwater to infiltrate into the ground beneath each row of panels. Furthermore, ancillary equipment should be contained in small cabinets so that roof water is discharged directly onto the surrounding ground. These recommendations have been incorporated into the proposals to ensure that surface water on the site is sufficiently drained.

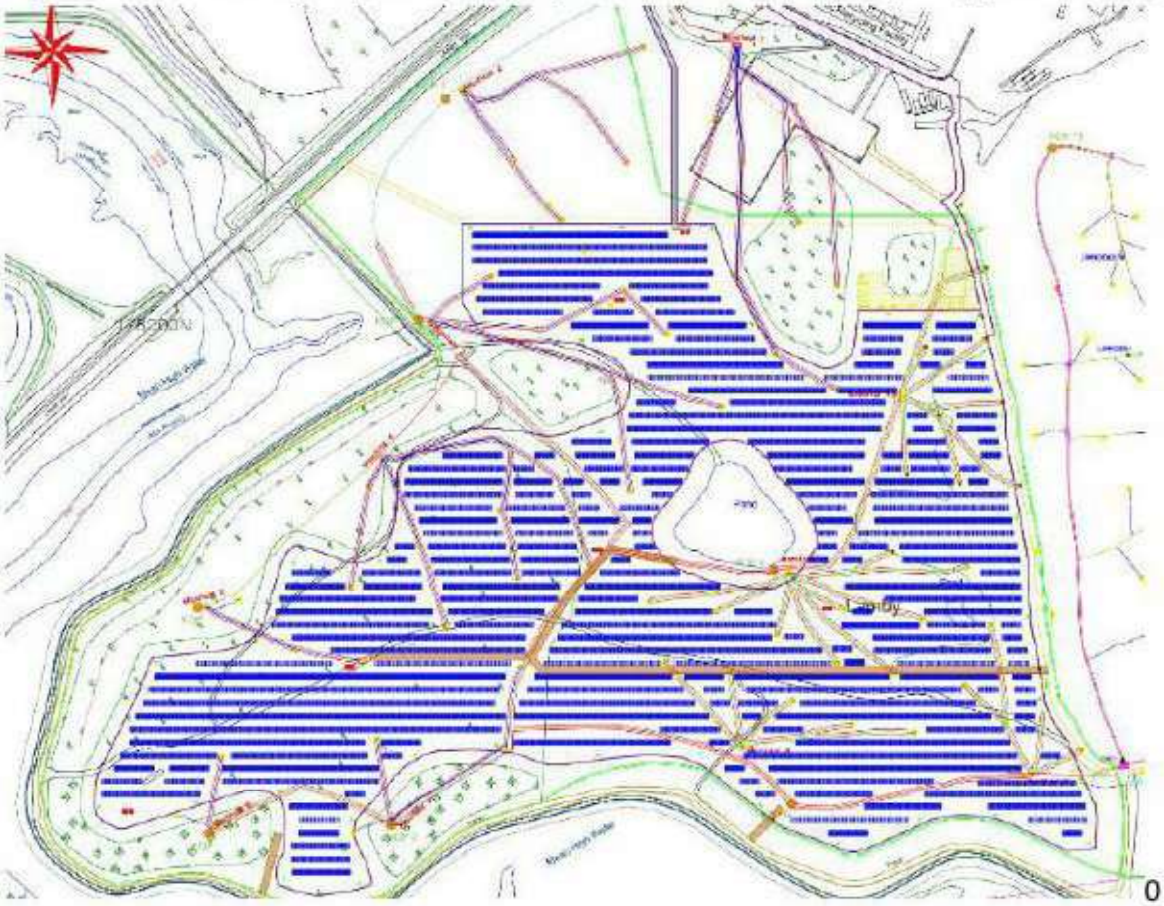
Introduction of additional substation

An additional substation has been incorporated into the proposed design to future proof the development in case of a private wire arrangement with a third party. The proposed substation will be positioned to the south west of the application site. Although the route of any private wire has not been established at this juncture, it was considered best practice to include the additional substation in this formal planning application. For further information in regard to the additional substation, please refer to drawing LAMDWG-002.

Implications of Site Constraints

Due to the factors outlined above, the overall output of the site (as shown on page 16) was significantly reduced from 7.5MW and as a result this had a negative impact on the viability of the whole project. It was essential for the project to increase the renewable energy output which led to the inclusion of land to the north of the original application site outlined figure 1. Expanding the site area to 16.89Ha allows the total renewable energy output to be increased to 8.7MW whilst ensuring the appropriate ecological mitigation, site security and access to the gas infrastructure. Figure 14 illustrates the final site layout of the proposed solar farm.

Figure 14: Final site layout plan of the proposed solar farm at Lamby Way (not to scale)



Please refer to drawings LAM-DWG002 LAM-DWG003 and LAM-DWG006.1 for further details in regard to the final site layout.

5 RESPONSE TO OBJECTIVES OF GOOD DESIGN

5.1 Access and Movement

The Cardiff Household Waste Recycling Centre (HWRC) is served by a dedicated entrance off the Lamby Way/Wentloog Avenue roundabout found at grid ref. ST21977 78309. The access off this roundabout represents the end of the public highway, and beyond this the road into the HWRC is private in nature.

The road serving the HWRC is dual width and constructed in an adoptable manner (see figure 15 below).

A further roundabout is found within the site which forms part of a circulatory system of roads for vehicle movements.

Figure 15: North west facing image (towards the roundabout) of the unnamed road leading to Cardiff HWRC.

The access route continues to the bottom of the Cardiff HWRC until it adjoins a junction leading to an off-road single width track which travels south towards the north east corner of the site.

Figure 16: South east facing image of the unnamed road leading to Cardiff HWRC junction to single width track visible on the right-hand site (denoted by red arrow).

Figure 17: Access to the single width track from the unnamed road

Figure 18: Satellite image illustrating the access track to the proposed site (image courtesy of Google.com)

As shown in figure 17, a junction with a slight incline will adjoin the unnamed road and the track. The existing dirt track initially travels westwards before continuing in a south direction.

This track will provide direct access to the Lamby Way Solar Farm site for all vehicles during construction and for maintenance purposes. The proposed access route will be reinforced with a hardcore base where necessary.

For completeness, the overall access route is denoted by a red arrow on Figure 19 overleaf.

Figure 19: Site access route from Lamby Way (image courtesy of Google.com)

Most equipment will enter the site in HGV trucks, with approximately 50 vehicles expected throughout the construction period. It is estimated that there will be 5 tracks (4 for transformer stations and 1 for customer substations) across the construction site in order to install the solar farm. Please note that not all 50 HGV will be on site at the same time.

In total, the construction period is expected to last 12 weeks. Deliveries to the site will be spaced out over the installation period with a likely maximum of 10 deliveries per day. Larger electrical infrastructure will be lifted into place using 20T cranes which are proposed to be on site for 2 days throughout the installation.

For further information in regards of site access please refer to drawings LAM-DWG002.

5.2 Character

Amount and Layout

The application site is proposed to be utilised for solar panel generation with an output of 8.7MW. The panels will be arranged in arrays on galvanized steel structures supported on mounted ballasted/ concrete pads.

In total, there will be 30,688 individual solar panels positioned in rows across the site projecting the solar panels to be in a south facing orientation to maximise their solar exposure.

The panels would be set back from the boundary with the scrub adjacent to the Rhymney River being retained.

The proposed development also requires a series of containerised and similar structures containing high voltage electrical equipment including inverters, transformers and switchgear. Each will be set on a concrete raft foundation to spread the load across a wider area.

To provide areas of open habitat and safeguard for the potential for a realigned Wales Coastal Path route, a 10m buffer will be retained between any areas of scrub surrounding the site and any means of enclosure. To this end, the site will be enclosed using a 2.2m high security fence constructed from agricultural posts and wire. CCTV camera poles approximately 3 to 4 m high will be positioned in intervals inside the site and in close proximity (2m) to the fence. Panels will be positioned 3m from CCTV cameras and therefore 5m from the fence line. In total, there will be a distance of 15m between any surrounding scrub/ trees and solar panels.

For further information in regard to site layout, please refer to the following drawings LAM-DWG002, LAM-DWG003 and LAM-DWG006.1.

Scale

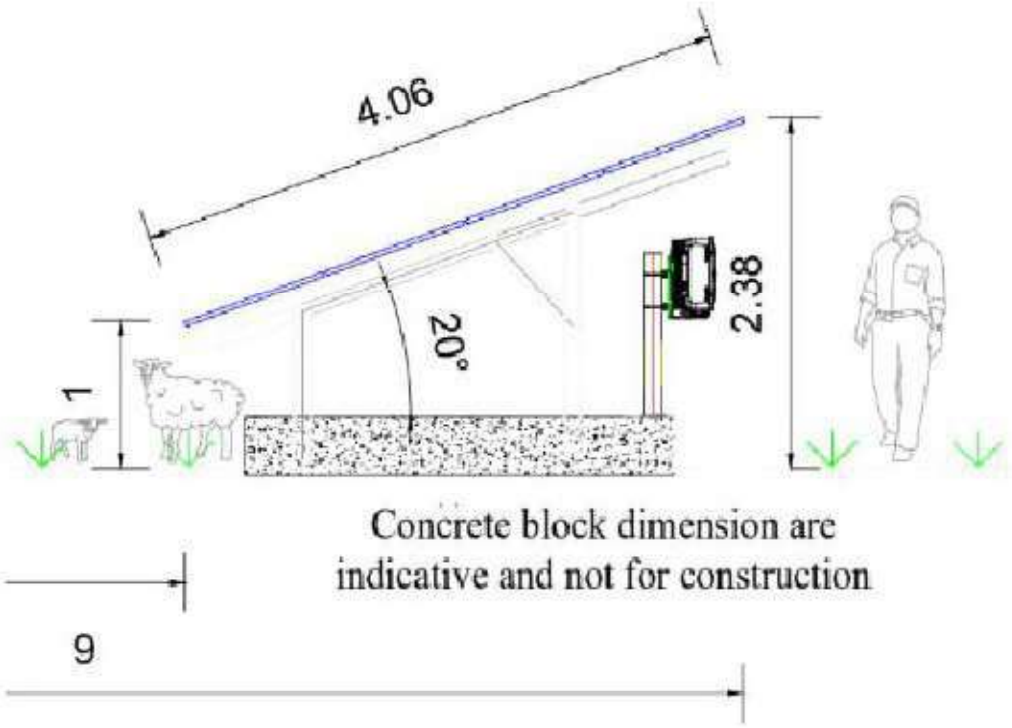
The total area of the site is 16.89 hectares in total. This comprises the solar arrays and ancillary equipment, access route and cable route to substation.

The dimensions of the solar panels will each measure 1m x 1.67m and will be fixed directly to a galvanized steel supporting structure which combined are referred to as arrays.

The arrays will not exceed 2.8m in height and the lower edge of the array will be approximately 750mm above ground level. Due to the uneven nature of the ground

level within the application site an exact height of the lower arrangement cannot be specified.

Figure 20: Side view of proposed solar panels (image not to scale)



For further information in regard to the scale of the solar panels, please refer to the following drawings LAM-DWG004.1 and LAM-DWG004.2.

Appearance

The site is currently a vacant grassland area with various elements of gas infrastructure apparatus present and therefore the installation of a solar farm will change the nature of the site in appearance, albeit temporary for the duration of the planning consent.

The solar panels will be tilted at an angle of 20 to 25 degrees to the ground facing in a southerly direction ensuring that they are facing away from residential areas. The visual appearance of the site will therefore vary depending on the viewpoint.

For further details of the solar panel appearance, please refer to the following drawings LAM-DWG004.1 and LAM-DWG004.2.

Landscaping

It is considered that the existing landscape will allow for robust containment of the proposed development such that no further planning by way of mitigation is required.

Furthermore, any existing vegetation within the application site will be retained and allowed to recover after construction has been completed.

Please refer to the submitted Landscape and Visual Impact Assessment for additional details in regard to necessary landscape mitigation.

5.3 Environmental Sustainability

As stated Technical Advice Note 12, the objectives that developers need to respond to in respect of Environmental Sustainability include that of achieving efficient use and protection of natural resources, enhancing biodiversity and designing for change.

The proposals enable the site to be utilised for renewable energy creation on a temporary basis. The development therefore does not represent an irreversible impact on the land. At the end of the life span of the energy generation it is also likely that necessary site remediation will have concluded.

There is a natural buffer of vegetation to the north east and east between the application site and the Rhymney River which will be retained. Tree planting around the site provides screening from the majority of the surrounding area to the north and east, although some areas are elevated. The views from the north are controlled by vegetation along Lamby Way and the household waste recycling plant. In addition, vegetation along the Rhymney River softens views from the west as does the embankment immediately south of Rover Way. Beyond this existing built development within east Cardiff screens any potential views from the west.

5.4 Community Safety

The construction of the development should have no impact on the community's safety as it is taking place on land owned by Cardiff Council. To provide extra assurance, the installation of a perimeter fence and CCTV serve a dual purpose of protecting the solar farm equipment from wildlife interference and keeping nearby communities at a safe distance.

6 CONCLUSION

Wardell Armstrong LLP has been instructed by Cardiff Council (the applicant) to prepare a planning application for the construction of a solar farm on land south of Lamby Way partly comprising of the former Lamby Way Landfill Site. The proposals entail the installation of ground-mounted photo-voltaic solar panels and ancillary equipment with a maximum output of 8.7MW.

The proposed development is supported in principle by national and local planning policy in that there is a presumption in favour of sustainable development and that there is a need to encourage renewable energy generation across the nation.

Overall, the acceptability of the proposed development is emphasised by Technical Advice Note 8 which states that:

"Other than in circumstances where visual impact is critically damaging to a listed building, ancient monument or a conservation area vista, proposals for appropriately deigned for solar thermal and PV systems."

Taking all the above into consideration, it is contended that there are no material considerations of sufficient merit or weight to resist the accompanying planning application for the proposed development and therefore it should be approved.

wardell-armstrong.com

STOKE-ON-TRENT
Sir Henry Doulton House
Forge Lane
Etruria
Stoke-on-Trent
ST1 5BD
Tel: +44 (0)178 227 6700

BIRMINGHAM
Two Devon Way
Longbridge Technology Park
Longbridge
Birmingham
B31 2TS
Tel: +44 (0)121 580 0909

CARDIFF
Tudor House
16 Cathedral Road
Cardiff
CF11 9LJ
Tel: +44 (0)292 072 9191

CARLISLE
Marconi Road
Burgh Road Industrial Estate
Carlisle
Cumbria
CA2 7NA
Tel: +44 (0)122 855 0575

EDINBURGH
Great Michael House
14 Links Place
Edinburgh
EH6 7EZ
Tel: +44 (0)131 555 3311

GLASGOW
2 West Regent Street
Glasgow
G2 1RW
Tel: +44 (0)141 433 7210

LONDON
46 Chancery Lane
London
WC2A 1JE
Tel: +44 (0)207 242 3243

MANCHESTER (City Centre)
76 King Street
Manchester
M2 4NH
Tel: +44 (0)161 817 5038

MANCHESTER (Greater)
41-50 Futura Park
Aspinall Way
Middlebrook
Bolton
BL6 6SU
Tel: +44 (0)120 422 7227

NEWCASTLE UPON TYNE
City Quadrant
11 Waterloo Square
Newcastle Upon Tyne
NE1 4DP
Tel: +44 (0)191 232 0943

SHEFFIELD
Unit 5
Newton Business Centre
Newton Chambers Road
Thorncliffe Park
Chapeltown
Sheffield
S35 2PH
Tel: +44 (0)114 245 6244

TRURO
Baldhu House
Wheal Jane Earth Science Park
Baldhu
Truro
TR3 6EH
Tel: +44 (0)187 256 0738

International offices:
ALMATY
29/6 Satpaev Avenue
Regency Hotel Office Tower
Almaty
Kazakhstan
050040
Tel: +7(727) 334 1310

MOSCOW
21/5 Kuznetskiy Most St.
Moscow
Russia
Tel: +7(495) 626 07 67

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