Sustainability Assessment
Shepperton Studios

August 2018
The proposed development is in a highly sustainable location and will provide a range of social, economic and environmental benefits.
Executive Summary

This sustainability appraisal has been prepared to demonstrate how Shepperton Studios’ expansion proposals are underpinned by the Pinewood Studios Group’s (PSG) corporate approach to sustainability, are in a sustainable location, and through measures incorporated into the development’s design will deliver social, economic and environmental benefits, mitigating and adapting to the impacts of climate change.

Pinewood Studios Group Approach to Sustainability

PSG is the leading independent provider of the real estate that is required for the production of film and television content. PSG owns and operates studios in the UK and internationally, including Shepperton Studios in England.

PSG has a proactive approach to sustainability and has set in place a number of key corporate sustainability targets including reducing CO₂e emissions by 50% by 2025. PSG already achieves and will continue to target zero waste to landfill.

To achieve these targets PSG has put in place a range of measures including the development of a Carbon Management Group and installation of renewable energy systems and centralised waste storage and collection services.

To facilitate sustainable travel PSG has in place a range of measures including the provision of shuttle bus services to and from Shepperton Studios and local railway stations, use of Hybrid Vehicle pool cars, provision of EV charge points and secure cycle storage.

Part of PSG’s environmental management includes the ongoing monitoring of ecological habitats, ensuring the potential for pollution and damage is minimised. At Shepperton this includes the River Ash.

PSG’s Corporate Social Responsibility (CSR) programme includes initiatives, funding and sponsorship in three principal areas: the local community, charities and organisations which provide access, training and support for people who want to work in the British screen based industries.

This CSR programme demonstrates PSG’s proactive approach to ensuring that its activities deliver ongoing sustainability benefits during the operational phase of the studios.

A Sustainable Location for Development

The Local Development Plan of Spelthorne Borough Council (SBC) supports the continued growth of Shepperton Studios. In particular the Spelthorne Means Business Economic Strategy (2017) highlights that the creative sector is very important to the local economy and SBC’s support of Shepperton Studios is in the interests of economic development.

In terms of sustainable connections the existing Shepperton Studios site and its expansion site (the Site) is well situated with walking and cycling links to local settlements and amenities. Sustainable transport links including bus services available less than 400m from the Site provide links to the local area. The on-site free shuttle bus service provides links to the local Shepperton and Staines railway stations providing services to Reading and London Waterloo.

These sustainable transport links confirm that the Site is well located with respect to local amenities and services including nurseries, schools, banks, post offices and grocery stores. This offers excellent opportunities for the reduction of private vehicle use.

1 Parent company of Shepperton Studios Ltd
As part of the sustainable transport strategy the expansion of the Site will look to extend the existing sustainable transport services, including considering an extension to the shuttle bus services, increased EV charging points and new secure cycle storage and changing facilities. These measures ensure that the Site is in a sustainable location making good use of the existing sustainable transport infrastructure.

Sustainability at Pinewood Studios

In addition to benefiting from PSG’s proactive approach to sustainability and being in a sustainable location, a number of measures are to be included within the proposed development to deliver economic, social and environmental benefits and to further enhance the sustainability of the Site.

Building a Strong and Competitive Economy – Government policy is to sustain the rapid growth of the UK film and HETV sectors of the creative industries, the expansion of Shepperton Studios will contribute towards both local and national economic growth. The capital investment of approximately £500m will lead to a direct local benefit of £74.4m during construction, as well as supporting 5,312 UK jobs during operation with 2,823 of these from the local area contributing £193.6m to the local economy.

Promoting Sustainable Travel – Investment and enhancement of existing sustainable travel measures through additional measures including creation of cycle and pedestrian routes, promotion of sustainable transport links, and support for bicycle users’ groups.

Requiring Good Design and High Quality Development – The illustrative masterplan demonstrates how the development could be designed in accordance with the parameters. The parameters themselves have evolved from consideration of the site-specific constraints and opportunities including improved site accessibility and protection and enhancement of the River Ash Corridor.

Promoting Healthy Communities – The expansion of the Site will include measures to promote the health and well-being of those working and visiting the Site with new green spaces, footpaths and connections to the local area.

Meeting the Challenge of Climate Change – Climate change in the UK is anticipated to lead to increased summer and winter temperatures, increased winter rainfall and reduced summer rainfall.

In this context the proposed expansion aims to mitigate the impacts of climate change by incorporating measures to reduce Greenhouse Gas (GHG) emissions. Key measures will include a full GHG assessment during the detailed design of the development including the assessment of embodied carbon materials targeting a 10% reduction in emissions.

In accordance with Policy CC1 of the Core Strategy, 10% of the operational regulated energy of the new buildings will be provided through low carbon renewable energy technologies: at this stage Solar PV, Solar Thermal and ASHP are considered potentially feasible technologies.

In addition to these mitigation measures the development will include a range of measures to adapt to climate change including detailed modelling of new buildings to reduce the risk of overheating, a commitment to reducing water use beyond the requirements of typical buildings and the design of the surface water management system to include a 40% allowance for climate change.

Conserving and Enhancing the Natural Environment – Maintaining, conserving and enhancing the natural environment is a key objective of the expansion. In this context the development will include a range of mitigation and enhancement measures to protect and improve the site habitats and biodiversity. Key measures include the management and improvement of the River Ash corridor, the creation of new wetland habitats around the on-site attenuation ponds and the installation of features to attract species including bats, birds, invertebrates, reptiles and mammals.

Sustainable Waste Management – In accordance with the Pinewood Group’s zero waste target the Shepperton Expansion will aim to minimise waste
and maximise recycling during demolition, construction and operation. During the operation of the Site the existing waste management plan will be extended with the aim of ensuring that as much waste as possible from the Site is either recycled or used in the generation of energy.
The proposed development will deliver a sustainable development in a sustainable location providing a wide range of social, economic and environmental benefits.
This Sustainability Appraisal has been prepared to demonstrate how the proposed redevelopment and expansion of Shepperton Studios will deliver a range of economic, social and environmental benefits. This Appraisal has been structured to support the outline planning application for the redevelopment and expansion of Shepperton Studios, demonstrating how the redevelopment of the Site will deliver a sustainable development and local economic, environmental and social benefits.

Site Context
Shepperton Studios is located adjacent to the village of Littleton in Surrey and currently comprises of 83,560m² of stages, workshops and ancillary buildings used for the production of film, television and other screen based media content.

The existing Site is bordered by areas of residential development, the River Ash Corridor to the south and the Queen Mary reservoir to the north.

The Site benefits from good access including bus services which run through the village of Littleton and the Shepperton railway station located approximately 1.7km to the south east providing direct links to London Waterloo.

Proposed Development
To ensure the sustainable future of Shepperton Studios the PSG applicant proposes to redevelop the Site and surrounding land to provide new, state of the art production facilities.

As part of the redevelopment of the Site 51,859m² of the existing floorspace will be demolished, with the construction of 164,708m² new sound stages, workshops, offices and other ancillary buildings on the existing Site and land to the north west and south. Figure 1 shows an illustrative masterplan for the proposed redevelopment.

The proposed description of development is as follows:
“Outline planning permission with all matters reserved (except for access) for the redevelopment and expansion of Shepperton Studios, comprising the partial demolition and replacement of existing accommodation; construction of new sound stages, workshops, office accommodation, entrance structures and reception, security offices and backlots; creation of a new vehicular and pedestrian access from Shepperton Road and the retention of existing access off Studios Road; with associated car parking; landscaping and ecological enhancements.”

Further details of the proposed development are set out in the Planning Statement and Design and Access Statement which accompany the application.

Sustainability Appraisal
To demonstrate the sustainability of the proposed development this appraisal is set out under the following headings:
2. **Policy Context** – A review of national and local planning policy, setting out key sustainability policies and guidance relevant to the redevelopment of Shepperton Studios.


4. **Shepperton Studios: A Sustainable Location for Development** - Demonstrating how the proposed development is in a sustainable location.

5. **Sustainability at Shepperton Studios** – In accordance with NPPF and local policy requirements setting out the key sustainability measures incorporated into the design of the development and resulting social, economic and environmental benefits.

*Figure 1: Illustrative Masterplan*
This chapter of the report provides an overview of the relevant planning policy and guidance regarding Climate Change and carbon emissions for new non-domestic developments from a national and local perspective.

National Policy
This section sets out a summary of current national guidance and policy in relation to sustainable development.

UK Sustainable Development Strategy
In 2005, the Government published an updated strategy for implementing sustainable development across the UK.

This strategy acts as an overarching document from which a range of specific policies and legislation was derived. Although published in 2005, the strategy has taken a recently renewed focus in light of the government’s definition of Sustainable Development in the NPPF.

One of the key aims of this strategy is to recognise the threats of climate change and ensure that the UK develops a strategy to mitigate and adapt to this phenomenon.

The document established five key principles that will underpin the national sustainable development strategy:

- Living within Environmental Limits;
- Ensuring a Strong, Healthy and Just Society;
- Achieving a Sustainable Economy;
- Promoting Good Governance; and
- Using sound science responsibly.

The strategy will be implemented at a national level through the development of more specific strategies at a government department or sector level.

With regards to planning and the built environment, this document sets the basis for the development of plans and Policies that promotes development that mitigates and adapts to climate change.

Climate Change Act
The Climate Change Act (2008) sets a legally binding target for reducing UK CO₂ emissions by least 80% on 1990 levels by 2050.

At the end of June 2016, the Government published the Fifth Carbon Budget. The budget sets a target for emission cuts of 57% from 1990 levels by 2030.

The House of Lords passed the Carbon Budget Order 2016 on 19 July, making the budget and its target law. A bill passed in early July to abolish the Department of Energy and Climate Change (DECC) and absorb its functions into the new Department for Business, Energy and Industrial Strategy, will not affect the implementation of the Carbon Budget.

UK Carbon Plan
In 2011, the Government published an updated Carbon Plan setting out how the UK will achieve decarbonisation and make the transition to a low carbon economy. It sets this objective within a framework of mitigating and adapting to climate
change and maintaining energy security in a way that minimises costs and maximises benefits to the economy.

With regards to development, the Carbon Plan presents the Government’s approach to promoting the delivery of low carbon, resilient and adaptive buildings and enabling sustainable transportation as positive contributions to aid national carbon reduction targets.

In late 2015, the Green Construction Board published, Low Carbon Routemap for the Built Environment. This updated the Low Carbon Routemap for the Built Environment prepared in 2013 aimed at delivering an 80% cut in UK built environment carbon emissions by 2050 compared to 1990 levels.

It found that annual emissions in the UK had actually increased since 2009, primarily due to an increase in gas consumption from heating. The report states “There has been a growing divergence occurring over just a few years (2009 through 2013). Given the steepness of the trajectory required to meet the ambition for built environment carbon reductions (and statutory targets for the UK as a whole), a significant transformation from the ongoing ‘status quo’ trajectory is needed.”

Building Regulations

Whilst not planning policy, in April 2014 the Part L regulations changed and it is now a requirement for non-domestic development to deliver a 9% reduction in carbon emissions compared to equivalent 2010 Part L standards. This change aimed to strike a balance between the commitments to reducing carbon emissions and improving energy efficiency and ensuring that the overall effect of regulation upon consumers and businesses does not stifle growth.

The Government has stated that developers and house builders should have full flexibility in how they meet carbon reduction targets and that in accordance with the energy hierarchy the emphasis should be on a Fabric First approach towards the design and construction of new homes.

National Planning Policy Framework

Updated in July 2018 the NPPF provides a framework for the development of locally-prepared plans and the government’s planning policies for England and how these are expected to be applied.

Paragraph 7 of the NPPF states that ‘the purpose of the planning system is to contribute to the achievement of sustainable development’.

It states clearly that in order to deliver sustainable development, the planning system must perform three distinct objectives, aligned to the three pillars of sustainability, which must not be taken in isolation and should be pursued jointly:

An economic objective to contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure.

A social objective supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community’s needs and support its health, social and cultural well-being; and

An environmental objective contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

These objectives are key to the preparation of local plans and the NPPF sets out a number of key themes for consideration which guide the preparation of local plans and policies, ensuring the delivery of sustainable development.

Planning Policy Guidance

The revised Planning Practice Guidance (PPG) provides further advice on various planning issues associated with development, including those linked to sustainability and renewable
energy and underpins the policies within the NPPF.

The PPG is an important material consideration in planning decisions and should generally be followed unless there are clear reasons not to. It sets out how local authorities should include policies that protect the local environment and strategies to mitigate and adapt to climate change and supports developments that are functional and adaptable for the future.

The Guidance reiterates that local authorities should set sustainability policies for new housing that are in line with the Government’s Housing Standards Review.

Updates to the PPG in April 2016 confirmed Local Authorities have the option to set technical requirements exceeding the minimum requirements of the Building Regulations in respect of access, water and space where sufficient evidence is produced to justify the target.

The Guidance also states that the distribution and design of new development, and the potential for servicing sites through sustainable transport solutions, are particularly important considerations.

The Local Development Plan

The Local Development Plan for Spelthorne Borough Council currently comprises of the Spelthorne Core Strategy and Policies Development Plan Document (Adopted 2009) and supporting documents. The Council is in the process of preparing the Spelthorne Local Plan, however this is not planned for adoption until 2020.

Spelthorne Core Strategy and Policies Development Plan Document (Adopted 2009)

The Core Strategy sets out the Council’s spatial strategy and planning policies to guide development in Spelthorne.

Objectives

The objectives contained within the Core strategy demonstrate how the vision will be achieved, and include:

- To protect and improve the quality of the environment, including improving the landscape, promoting biodiversity and safeguarding the Borough’s cultural heritage.
- To ensure the Borough develops in a way that minimised harmful Carbon Dioxide (CO2) emissions contributing to climate change and that caters for potential future climate change.
- To ensure new development is designed to a high standard appropriate to its setting.
- To support the retention of sufficient well located employment land to enable the maintenance of the local economy and to support redevelopment of well-located land to meet business needs.

Spatial Strategy

The following table is extracted from the Core Strategy demonstrating how Shepperton Studios is identified as an area for the development of employment space.

Table 1: Shepperton Development Requirements

<table>
<thead>
<tr>
<th>Shepperton</th>
<th>Employment</th>
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<tr>
<td>Designation for employment includes 11.1ha at Shepperton Studios</td>
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Below is a summary of key sustainability policies which guide new development.

Policy LO1: Flooding – The Policy states that the Council will seek to reduce flood risk and its adverse effects on people and property in Spelthorne by:

- Supporting flood risk management measures;
- Reducing the risk of flooding through sustainable drainage schemes;
- Requiring development in Zones 2, 3a and 3b to be designed to be flood resilient and resistant.

Policy EM1: Employment Development – The Policy states that the Council will maintain employment development by supporting inn
principle proposals in Shepperton Studios for employment development.

Policy SP6: Maintaining and Improving the Environment – The Policy states that the Council will seek to maintain and improve the quality of the environment of the Borough. The Council will:

- Ensure the design and layout of new development incorporates principles of sustainable development;
- Contribute to improving the air quality in the Borough;
- Protect and enhance areas of existing environmental character including sites of nature conservation value and open space of amenity and recreation value;
- Promote the improvement of poor quality environments both within the urban area and in the green Belt.

Policy EN1: Design of New Development – The Policy states that the Council will require a high standard in the design and layout of new development. Development should demonstrate they will:

- Incorporate measures to minimise energy consumption, conserve water resources and provide for renewable energy generation in accordance with Policy CC1; and
- Incorporate provision for the storage of waste and recyclable materials and make provision for Sustainable Drainage Systems (SuDS).

Policy EN8: Protecting and Improving the Landscape and Biodiversity – The Policy states that the Council will seek to improve the landscape and biodiversity of the Borough by:

- Ensuring that development, where possible, contributes to an improvement in the landscape and biodiversity and avoids harm to features of significance in the landscape or of nature conservation interest.

Policy SP7: Climate Change and Transport – The Policy states that the Council will seek to minimise the impact of climate change, by:

- Promoting the inclusion of provision for renewable energy, energy conservation and waste management facilities; and
- Ensuring development is located in a way that reduces the need to travel and encourages alternatives to car use.

Policy CC1: Renewable Energy, Energy Conservation and Sustainable Construction – The Policy states that the Council will support the provision of renewable energy, energy efficiency and promote sustainable development by:

- Requiring development of buildings or extensions exceeding 100m² to:
  - Optimise design, layout and orientation of development to minimise energy use.
- Include measures to provide at least 10% of the development’s energy demand from on-site renewable energy sources.
- Encourage high standards of sustainable construction including the use of recycled construction material; and
- Encourage developments to attain high energy efficiency and minimum impact on the environment to at least Code for Sustainable Homes – 3 star or BREEAM ‘Very Good’ standard.

Policy CC3: Parking Provision – The Policy states that the Council will consider the scope for encouraging alternative means of travel to the development that would reduce the need for on-site parking. The Council will require the provision of sufficient, safe, weatherproof, convenient and secure cycle parking within developments to assist in promoting cycle use.

Emerging Local Plan – Issues and Options

The Local Development Scheme indicates that the Spelthorne Local Plan will set out vision, objectives, spatial development strategy, development management policies and allocations for the Borough.

The Emerging Local Plan is currently at the Issues and Options consultation stage and is proposed to be adopted in September 2020.

Whilst no specific policies have yet been drawn, the following key challenges have been
identified, which the Emerging Local Plan will address:

- Maintaining and intensifying employment land, anticipating growth in the Borough.
- Protecting valuable open spaces, recreation and leisure facilities and biodiversity sites.
- Managing further risk of flooding and prevent or mitigate harm from environmental impacts such as poor air quality and noise pollution.
- Ensuring the Borough has the right amount of social, cultural and community facilities, including opportunities to support the arts.

**Pre-application Consultation**
As part of the pre-application discussions with the council it was confirmed that the BREEAM policy requirement would not be required as part of the proposed development.

**Summary of Sustainability Policy**
Both local and national policy aims to ensure the delivery of sustainable development which is well designed and includes measures to mitigate and adapt to the potential impacts of climate change.

The Spelthorne Core Strategy identifies the importance of mitigating against and adapting to climate change. The Core Strategy includes a range of positive sustainability requirements for new development.

This includes requirements for development to reduce the risk of flooding, maintain and enhance the environment and biodiversity, facilitate the use of sustainable transport, and ensure the use of sustainable construction methods and low carbon renewable energy.

The following section of this Sustainability Appraisal sets out the design measures included at this stage and to be considered at the detailed design stage to ensure the delivery of a sustainable development providing economic, social and environmental benefits.
3. Pinewood Studios Group – Approach to Sustainability

The Pinewood Studios Group has a proactive approach to sustainability and has developed a comprehensive sustainability strategy to reduce resource use, minimise waste and encourage sustainable travel.

This section sets out the PSG sustainability strategy, demonstrating how PSG tackles energy use, waste, environmental protection and sustainable travel, and how these are implemented at the Site.

Through these measures PSG aims to minimise its environmental impact and has set itself a number of sustainability targets which include:

- reducing CO₂e by 50% of the 2010/11 benchmark by 2025, and
- continuing to achieve zero waste to landfill.

The following paragraphs summarise PSG’s key sustainability strategies and how these will be implemented at Shepperton.

**Sustainable Waste Management**

PSG has a zero waste to landfill policy with all waste either recycled or turned into energy.

Both the Pinewood and existing Shepperton Studios sites include designated recycling centres where waste is collected and compacted onsite. This reduces the needs for daily waste collections.

As part of the expansion of the Shepperton Site the recycling centre will be enlarged to accommodate additional storage capacity to facilitate on-site operational recycling.

Prior to construction, a Site Waste Management Plan (SWMP) will be prepared and implemented to reduce construction waste.

During the operation of the Site, training will be provided to new staff members to facilitate operational recycling.

**Energy and Carbon Strategy**

To help realise PSG’s reduction in carbon dioxide emissions it has established a Carbon Management Group (CMG) where measures to cut carbon emissions are discussed and implemented. Projects include:

- the replacement and updating of gas boilers across the estate to improve efficiency;
- installation of LED lighting;
- installation of Solar PV systems;
- installation of an on-site wind turbine (at Pinewood Studios Wales) which generates approximately 950,000kWh of year and 75% of the sites annual electricity use.

As part of the Shepperton Studios expansion, consideration will be given to the use of low carbon renewable energy to deliver 10% of the Site’s regulated energy use in accordance with Policy CC1 of the Core Strategy.

**Sustainable Travel**

PSG has implemented a range of proactive sustainable travel measures to encourage the use of sustainable travel.
Shuttle Buses – PSG operates a free shuttle bus service at Pinewood and Shepperton Studios which travels from the studio sites to the local underground and mainline train stations. The Shepperton buses travel to Shepperton and Staines railway stations.

The buses include a tracking system which allows users to follow the location of the buses and time their travel accordingly.

At Pinewood Studios, access to the bus service has been extended to qualifying local residents and this will be considered as part of the sustainable travel strategy at Shepperton.

Electric Vehicles – At Shepperton and Pinewood hybrid pool cars are available for business travel and since 2013 they have saved 14.5 tonnes of carbon dioxide.

A number of electric vehicle charge points have been installed at Pinewood and Shepperton Studios which are well used. In this context further charge points will be installed as part of the Shepperton Studios expansion.

Cycling – PSG’s Sites provide bicycle racks, shelters and showers to encourage cycling to work.

As part of the proposed development additional EV charge points will be provided as well as new cycling storage and changing facilities in the new buildings.

Environmental Sustainability

PSG recognises the importance of environmental protection and sustainable development.

As Pinewood and Shepperton Studios are located next to environmentally sensitive areas PSG carries out monthly inspections to ensure these areas are protected and maintained.

At Shepperton, the Site’s surface water discharges into the River Ash therefore a system of drains, filters and cleaning systems are used to ensure surface water is clean prior to entering the river.

As part of the expansion additional surface water drainage systems will be provided including permeable paving, underground storage, swales and attenuation basins to control surface water discharge from the Site.

As part of the operational management of the studios an Ecological Management Plan is available which sets out a strategy to reduce the impact of filming on the local ecology.

Corporate Social Responsibility

PSG is committed to its staff, to the communities in which it operates and to the advancement of skills and training in the industry.

Charitable Support – PSG nationally supports charities linked to the film and television industries, including the Cinema and Television Benevolent Fund, MediCinema and Save the Children, as well as local charities, clubs and organisations.

Training – PSG continues to foster the next generation in the British screen-based industries by supporting the following:
- The National Film and Television School through a BA Masters degree;
- The Rye Studio School with visits to the studios;
- Sponsorship to the Iris Prize Festival;
- The BFI Academy Scheme introduces young people to film and television production.

Local Schools – PSG is committed to offering careers advice and support to all local schools and colleges, with careers events held annually at both sites to inform young people of the opportunities available to them.

Summary

The PSG has a proactive approach to sustainability and in accordance with its key sustainability targets has in place a range of measures to reduce operational waste, reduce energy use and carbon dioxide emissions, encourage sustainable travel and protect the environment.

As part of the redevelopment of Shepperton Studios these measures will be further incorporated into the development with additional measures including:
- Inclusion of a target for waste management during construction.
- Inclusion of low carbon renewable energy systems to provide a target of 10% of the new development’s regulated energy as a minimum.
- A commitment to target further energy and carbon emission reductions during detailed design.
- Provision of new EV charging points, secure cycle storage and changing facilities.
- Protection and enhancement of the sites ecological habitats to improve site biodiversity.
- A commitment to engaging with and supporting the local community.
4. Shepperton Studios: A Sustainable Location for Development

This section of the Appraisal demonstrates why the proposed development and expansion of Shepperton Studios is in a sustainable location.

This section sets out how the proposed development is in a sustainable location and how it supports the adopted and emerging local plan, facilitating local economic growth and the future sustainability of Shepperton Studios.

The Local Development Plan and supporting evidence base documents

A review of SBC’s adopted and emerging Sustainability Appraisal (SA) documents has been undertaken to identify evidence to support the expansion of Shepperton Studios

As noted in Section 2 of the adopted Core Strategy, Shepperton Studios is identified as a key employment development area.

The emerging Local Plan currently being prepared includes a range of supporting documents including an Employment Land Needs Assessment and Functional Economic Area Analysis prepared to support the recent Issues and Options Consultation.

The Spelthorne Employment Land Needs Assessment prepared in 2018 states that Shepperton Studios is a major employer and is a potential strategic employment site recommended for retention as part of the new Local Plan.

The Spelthorne Functional Economic Area Analysis prepared in March 2017 states that Shepperton Studios represents a ‘high tech’ industry presence in the Borough.

The Area Analysis document refers to Paragraph 21 of the NPPF (2012) which states that Local Authorities should ‘plan positively for the location, promotion and expansion of clusters or networks of knowledge driven, creative or high tech industries.’ Updated in 2018 the NPPF Paragraph 82 says that council decisions should recognise locational requirements of different sectors, this includes making provision for creative or high technology industries.

The Spelthorne Means Business: Economic Strategy 2017 – 2022, published in 2017 highlights that Shepperton Studios is a major employer in the area and that the creative industries and technology sector is critical to the local economy and nationally. SBC’s strategy emphasises the importance of Shepperton Studios and that there is scope for support to be widened in the interest of economic development.

It is clear therefore that Shepperton Studios is a major source of employment and investment for Spelthorne with expansion and further investment a key sustainability priority for the Borough.

Sustainable Connections

Shepperton Studios is located in the village of Littleton in Surrey, approximately 6km to the south of Heathrow and 26km to the south west of central London.

This section sets out how the Studios are connected to the local and wider area through a
range of sustainable transport links, demonstrating that it is in a sustainable location for employees to commute to and from the Studies by means other than private car.

The Site benefits from a wide range of transport connections which are summarised below.

Walking – The Site is located adjacent to the village of Littleton; footpaths lead through the village onto Squire’s Bridge Road which provides a route through to Shepperton located 2.2km to the south east of the Site.

Cycling – The Site includes a number of secure cycle spaces adjacent to the main site entrance with shower and changing facilities for cyclists. Laleham Road provides a route for cyclists from Shepperton to the Site.

Bus – In addition to the Studio shuttle bus which provides connections to the Shepperton and Staines railway stations there are a number of public bus routes available:

- Bus service 400, available from a stop on Studios Road 40m from the site entrance providing 3 services a day between; Stanwell Moor, Staines, Ashford, Shepperton, and Walton.

- Bus service 574, available from Squires Bridge Road 400m from the site entrance providing 2 services per hour between; Royal Estate, Laleham, Shepperton, Charlton Village, and Sunbury.

- Bus service 458, available from Squires Bridge Road/Magdalane Road providing 1 service a day between – Ashford, Shepperton and Sunbury.

Rail – The closest stations to the Site include Shepperton railway station located approximately 2.5km to the south east of the site and Staines railway station located approximately 6km to the north west.

Both stations are accessible via the Studio shuttle bus service, or via public bus services 400 and 695 and include secure cycle storage, with 36 spaces at Shepperton railway station and 142 at Staines.

Shepperton railway station is at the end of a line providing services to London Waterloo, while Staines railway station provides services both to London and various stations to Reading to the west.

Road Network – The local road network provides access to the local area and to the national road network, with Junction 1 of the M3 approximately 4km to the east and Junction 12 of the M25 approximately 5km to the west of the Site.

In this context it is considered that the Site is well connected to the local transport network with access provided by a range of public and sustainable modes of travel.

The connectivity of the Site means that the Studio is in a sustainable location with access facilitating the travel of employees, contractors, visitors and the delivery of equipment and materials used in filming and supporting the local businesses on site.

Local Services and Amenities

In addition to the sustainable connections available to the Site there are a wide range of local services and amenities which facilitate local employment.

To demonstrate how the area benefits from local services a review has been undertaken, including nearby:

- Public transport;
- Leisure and sports facilities;
- Health and social care services;
- Food stores;
- Communication services such as post offices;
- Banks and ATM cash machines;
- Schools;
- Nurseries, and
- Pubs and restaurants.

In reviewing available local services and distances from the Site the Institute of Highways and Transport (IHT) Guide ‘Providing for Journeys on Foot’ (2000) includes suggested acceptable walking distances in Table 2.
### Table 2: Institute of Highways & Transport Walking Distances

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<tr>
<th>Acceptable</th>
<th>Preferred Maximum</th>
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<tr>
<td>400</td>
<td>800</td>
</tr>
<tr>
<td>1,000</td>
<td>2,000</td>
</tr>
<tr>
<td>800</td>
<td>1,200</td>
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The principles of PPG 13 on Transport, though now superseded by the current PPG can still be applied and align with the above, they state:

- Walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly under 2km.
- Cycling also has potential to substitute for short car trips, particularly those under 5km.

In this context a review of the existing facilities and services has been undertaken by using the following distances in accordance with the above policy guidance:

- within easy walking distance (800m);
- up to 2km (1.2 miles) optimum walking distance; and
- up to 5km (3 miles) cycling distance/accessible via local public transport network.

All distances have been measured from the centre of the Site unless otherwise noted. A walking speed of 1.4m/second has been used to calculate the approximate times based on guidance from the IHT on average walking speeds.

An assessment of the Site based on these requirements has been undertaken using desktop data and is summarised in Appendix 1, showing the distance to key local facilities and Figure 2 shows a visual representation of the local services and amenities.

Further services and amenities are available in the surrounding local area in Laleham and Staines-upon-Thames to the north west, Walton-on-Thames to the south east and Ashford to the east, all accessible via public transport links.

The assessment demonstrates that there are a range of accessible local services and amenities which provide opportunities for local employees to minimise car travel.

**Encouraging Sustainable Travel**

As noted in Section 3 PSG has a proactive approach to promoting sustainable travel with the operation of shuttle bus services, provision of hybrid vehicles and EV charging points, as well as secure cycle storage at the Site.

Through the redevelopment and expansion of the Site these existing services will be enhanced by:

- a review of the shuttle bus service, with the potential for increased services or additional buses to improve the service;
- installation of additional EV charging points; and
- provision of additional secure cycle storage and shower and changing facilities.

Further details on how sustainable transport will be encouraged are set out in Section 4.2

**Summary**

In reviewing the emerging Local Development Plan, transport connections, available services and sustainable transport enhancements proposed, it is considered the proposed development is in a sustainable location with good access to the local transport network and sustainable transport opportunities; is accessible to a wide range of local services supporting local employees; and will through a range of sustainable travel enhancements minimise the reliance on private car, reducing emissions and impacts on air quality.
5. Sustainability at Shepperton Studios

This chapter summarises the sustainable design measures incorporated into the masterplan and measures to be considered during the detailed design to deliver sustainable new development which provides a range of economic, social and environmental benefits in line with local and national policy.

Achieving Sustainable Development

This section of the report outlines the Sustainable Design and Energy Strategy for Shepperton Studios, demonstrating how the development responds to both national and local planning policy, including the NPPF.

In this context the sustainable design measures incorporated into the development masterplan at the outline application stage and measures to be considered during the detailed design are set out under headings which reflect the themes of the NPPF.

This includes details on how the Proposed Development will mitigate and adapt to the impacts of climate change to ensure the long term sustainability of the development.

4.1 Building a Strong and Competitive Economy

The proposed development will contribute to positive economic growth for the district through construction and occupation, providing new employment development opportunities, and supporting the local Spelthorne economy.

The film and high-end TV (HETV) sectors of the UK creative industries are making an increasingly important contribution to the Economy.

Total spend on film production in the UK in 2017/18 was £1,858m more than double that spent in 2011/12. The growth of the UK’s film sector reflects wider global market trends.

Currently the Shepperton Studios site supports a total of 3,013 direct and indirect FTE jobs across the UK with 1,522 jobs in the Spelthorne local area and the expansion of the Site is anticipated to lead to a significant contribution to the local economy.

Construction - The economic benefits of construction are well known with considerable
direct and indirect positive impacts resulting from new construction.

A study by the Confederation of British Industries (CBI) demonstrated that construction projects have a significant benefit on the local and wider economy. The report concluded that for every £1 of construction expenditure £2.84 is injected into the economy.

The construction of the proposed development is estimated around £500m and is anticipated to be completed between 2019 and 2030. The high cost of the Proposed Development is due to the specialist nature of the facilities and infrastructure.

The construction is anticipated to lead to 1,469 direct and indirect FTE jobs in the UK with 255 jobs in the local area. It is estimated to deliver a significant contribution to the local and UK economy with a total of £392m GVA, with £74.4m directed into the local Spelthorne economy.

Operation – Further positive economic impacts resulting from the operation of the new extended Shepperton Studios include:

- An increase in employment opportunities with an anticipated 5,312 FTE jobs in the UK, with 2,823 jobs through the local area.
- A significant contribution to the UK and local economy with £322.7m GVA increase into the UK economy with £193.6m of that contributed to the local economy.

In addition the development will provide the SBC with an increase in business rates which contribute towards supporting local services and infrastructure projects.

4.2 Promoting Sustainable Transport

A detailed Transport Assessment has been prepared to support the application which assesses the impact of the development on the local infrastructure network and sets out measures to be incorporated into the development to encourage the use of sustainable transport.

Primary access to the expanded Site will be via a new roundabout junction on the Shepperton Road providing access to the southern part of the Site, and through a relocated entrance on Studios Road.

As detailed in the previous section the Site benefits from good connections into the local area with access to a range of local sustainable transport options.

As part of the redevelopment the existing on-site sustainable transport measures will be extended, in addition the Travel Plan which accompanies the outline application sets out a number of other sustainable travel measures which will help further reduce the reliance on car travel, reduce emissions and improve local air quality. These measures include:

- creation of a network of pedestrian and cycle paths through the Site to encourage employees and visitors to travel on foot or by bicycle;
- promotion of local sustainable transport services and events, including local lift share services; and
- creation of a bicycle users’ group to encourage cycling.

More detailed information on transport issues is contained in the Transport Assessment and Travel Plan that accompany the outline planning application.

4.3 Requiring Good Design and High Quality Development

The development seeks to promote character and quality in its design approach and responding positively to the local area and the constraints and opportunities of the Site.

The parameters for the development have been developed in response to the specific constraints and opportunities of the Site and its local context. The project aspirations include:

- To expand and modernise production capacity, enable growth and provide a step change in the quantum and quality of facilities.
- To provide a scale of configuration of development which responds to the context of the Site and its surroundings and mitigate the impacts of the development on the environment.
In this context the parameters have been designed in accordance with the following Sustainability and Sensitivity objectives:

- Ensure there is no net loss of ecological value or biodiversity.
- Create a development which can be sensitively screened to reduce visibility and enhance the accessibility and quality of the landscape around the Site.
- Improve the recreational provision in the accessible parts of the Site.
- Enhance the accessibility of the Site responding to the anticipated transport requirements and impact on the surrounding network.
- Protect local amenity.

In response to these objectives the parameters include a number of measures to create a unique design, including:

- Creation of a network of footpaths around the River Ash corridor, extending the existing provision for neighbouring residents.
- Provision of new woodland planting along the western site boundary connecting to the existing woodland in the north west of the Site.

More detailed information is contained within the Design and Access Statement that accompanies the outline planning application.

4.4 Promoting Healthy Communities

Creating a high quality development that promotes health and wellbeing is a key aim of the scheme, which supports measures to enhance human health and safety through the provision of healthier transport options and improved green infrastructure.

The design has been developed incorporating a number of features including:

- Safe and secure accessibility supported by the development encouraging walking and cycling.
- Joined up streets and spaces connecting to the surrounding area providing connections to the local settlements.
- Creation of a network of paths through green spaces to provide recreational opportunities.

In addition the design of buildings will consider measures to improve internal environments to promote health and wellbeing including:

- Prioritisation of natural ventilation, contributing to good internal air quality; and
- Utilisation of materials and services that have low emission rates and pollutants.

4.5 Meeting the Challenge of Climate Change

One of the main challenges facing the UK and new development is the need to mitigate and adapt to a changing climate. The Government is committed to tackling climate change and has an ambitious long-term goal to reduce carbon emissions by 80% by 2050.

The UKCP09 Climate Change projections prepared in 2009 set out the projected UK Climate Change impacts. Qualitatively the impacts of climate change in the UK are likely to lead to:

- an increase in summer mean and daily maximum temperatures;
- an increase in summer temperatures;
- a decrease in summer rainfall; and
- an increase in winter rainfall.

In the South East of England the UKCP09 projections predict the following effects:

- An increase in summer mean temperature of 3.1 leading to reduced summer rainfall and increasing the potential for summer drought periods and water stress.
- An increase in summer maximum daily temperature of 4.3 degrees potentially leading to increased risk of heat stress and overheating in buildings.
- An increase in winter mean temperature of 2.5 degrees will lead to a reduction in snow days improving winter operational conditions and reducing heating demand.

2 http://ukclimateprojections.metoffice.gov.uk/23907?emission=high
A reduction in summer rainfall of 19% will potentially lead to periods of drought and water stress limiting operational water availability.

An increase in winter rainfall of 19% will potentially lead to increased fluvial and surface water flood risk.

Given the potential effects of climate change, including increased flood risk potential, increased heat stress and a reduction of water availability ensuring the design of the development and new buildings mitigate and adapts to the effects of climate change is key.

In this context the following sections outline the key climate change mitigation and adaptation measures considered appropriate for this development based on the latest national guidance under the following headings:

- Water Efficiency.
- Flood Risk and Drainage.

The Institute Environmental Management Association (IEMA) sets out guidance for the consideration of climate change adaptation and mitigation which has been used in the preparation of the following sections.

4.5.1 Energy and Carbon Strategy

Developing energy efficient, low carbon buildings is a key objective of national policy and reducing carbon dioxide emissions is key in mitigating the impacts of climate change.

The following Energy and Carbon Strategy sets out how the proposed development will reduce energy use and Greenhouse Gas (GHG) emissions through both construction and operation. When reporting GHG emissions figures are commonly referred to in the form of Carbon Dioxide Equivalent (CO\(_2\)e) emissions.

**Construction Stage GHG Emissions**

During construction the key GHG emissions are anticipated to be related to the embodied energy and emissions from the materials used in construction.

At the outline application stage an estimate of the developments product stage embodied carbon has been carried out.

To minimise the impact of the Proposed Development Shepperton Studios are committed to reducing the GHG emissions associated with the embodied carbon.

During the design of the development consideration will be given to the embodied energy and GHG emissions of materials.

For example where possible the development will specify materials with a lower carbon content, i.e. recycled aggregates for the use in foundations and road construction.

Table 3 below sets out the estimated embodied carbon emissions of the Proposed Development.

The estimate has been based on data available from the Royal Institute of Chartered Surveyors (RICS).  

<table>
<thead>
<tr>
<th></th>
<th>Floor Area (m(^2))</th>
<th>Embodied Carbon (tonnes CO(_2)e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Development</td>
<td>83,560</td>
<td>54,286</td>
</tr>
<tr>
<td>Retained Buildings</td>
<td>31,701</td>
<td>18,656</td>
</tr>
<tr>
<td>New Development</td>
<td>164,714</td>
<td>87,454</td>
</tr>
<tr>
<td>Embodied Carbon of the Development</td>
<td>106,610</td>
<td>10,661</td>
</tr>
<tr>
<td>Reduction in Embodied Carbon</td>
<td></td>
<td>10%</td>
</tr>
</tbody>
</table>

As part of the detailed design of the development, an embodied carbon assessment will be undertaken to target a 10% reduction in emissions.

**Operational Energy Use**

The reduction of regulated energy demand and carbon dioxide emissions related to the operational use of buildings is set through the

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Building Regulations. The Building Regulations encourage the reduction of energy use through efficient building design.

This approach is highlighted by the Council’s Development Plan Policies NE1 and CC1 which encourage the reduction of energy use and consideration of low carbon renewable energy.

In this context the proposed development will be designed in accordance with the energy hierarchy, which aims to reduce energy demand through passive design measures and a fabric first approach before utilising low carbon energy and the production of on-site renewable energy.

At the outline application stage full details of the proposed development buildings is not available and therefore the following strategy will need to be confirmed prior to construction.

The following sections set out an illustrative strategy and the measures to be considered during detailed design to deliver an energy efficient, low carbon development.

**Be Lean – Reducing Energy Use**

Central to the delivery of low carbon and energy efficient buildings is the ‘Fabric First’ principle which recognises the most effective way of minimising carbon emissions is to reduce the demand for heat and power through well-insulated, energy efficient building fabric and services.

Reducing the primary energy demand of a building through the use of efficient fabric and services is widely regarded as best practice and is therefore the first and most important step to reducing carbon emissions.

This ‘fabric first’ approach has a number of distinct benefits including:

- carbon savings delivered are ‘locked-in’ for the lifetime of the building (60 years or more) rather than the much shorter lifespan (around 25 years) of a renewable energy technology; and
- virtually no maintenance and/or replacement costs to maintain carbon reductions through improved fabric.

Through the following fabric and energy efficiency measures the proposed development will aim to reduced regulated energy use beyond the requirements of the Building Regulations.

**Fabric Energy Efficiency Measures** – The proposed mix of development involved in the redevelopment of the Site will require different approaches for the different building types included. Generally the following approach will be applied to all new buildings, including:

- the specification of building materials with low u-values to minimise heat loss;
- the use of high performance glazing with appropriate u-values and g-values to both reduce heat loss and optimise passive solar gain; and
- the use of Accredited Construction Details to minimise thermal bridging.

During this stage consideration will be given to the potential for building overheating taking into account the UK climate change projections which show a significant increase in anticipated summer mean and daily maximum temperatures. This will be key to ensuring that buildings and occupants do not suffer from heat stress impacting on their health and well-being.

**Energy Efficiency Measures** – Additional measures to reduce the regulated energy use of the proposed buildings will consider the following:
- design and layout to promote passive solar gains, maximise natural daylight, sunlight and natural ventilation;
- energy efficient lighting including PIR lighting sensors to reduce energy use;
- installation of a sophisticated building energy monitoring system (BEMS) together with a number of energy sub-meters. This system will constantly monitor the existing building, measure energy use in a number of locations and report any excess energy use.

With regards to unregulated energy, Shepperton Studios will aim to specify energy efficient equipment to further reduce energy use.

**Sustainable Materials –** The development will aim to use a range of sustainable materials and design features and will consider:

- use of sustainable timber from FCS (or equivalent) sources; and
- specification of materials using the BRE Green Guide.

The final design and specification of the new buildings will be determined during the detailed design of the development.

**Be Clean – Efficient Energy**

The next stage of the Energy Hierarchy is the provision of energy efficiently, i.e. from a decentralised energy system such as a Heat Network.

District Heating Networks (DHN) comprise a centralised heat generator, typically a gas fired Combined Heat and Power (CHP) engine. CHP systems generate electricity and waste heat which can be fed into a network of insulated pipes which deliver low carbon heat to buildings to provide heating and hot water via individual heat transfer units.

DHNs are suited to development with high thermal demand, typically provided by sufficient density or a large anchor load, e.g. high density flats, leisure centres and industrial processes. Shepperton is located to the south of the Queen Mary Reservoir and while connected to the surrounding urban settlements of Shepperton, Sunbury-on-Thames and Staines-upon-Thames the site itself is surrounded by green fields and there are no nearby sites which could provide an existing anchor load.

It is anticipated that the development at Shepperton will comprise a range of sound stages, workshops, offices and ancillary buildings. Given that the heating of the sound stages and workshops will not be constant or predictable, it is not considered that the proposed development contains sufficient heat demand to warrant the development of a new on-site heat network.

In this context given the lack of local heat loads and development of high efficiency buildings there is limited on-site heat demand and therefore the feasibility and viability of the installation of CHP and district heating, making it unsuitable for this development.

**Be Green – Low Carbon Renewable Energy**

The final stage of the energy hierarchy is the generation of on-site low carbon renewable energy. The Council’s existing Local Development Plan Policy CC1 requires development to deliver 10% of its energy through low carbon renewable energy.

At this stage it is anticipated that the proposed development will meet, and where possible exceed the requirements of the Building Regulations, through a fabric first approach to design and construction.

Further reductions in on-site energy demand and carbon dioxide savings will aim to be achieved through the use of low carbon renewable energy to deliver 10% of the sites regulated energy use.

Below is a review of potential low carbon renewable energy options which has been carried out to demonstrate potential technologies and appropriate design considerations.

Based on the review of available technologies above Table 4 sets out the proposed development use types and how suitable the different systems are given the anticipated building uses.

**Solar PV –** Solar Photovoltaic panels convert the sun's energy to electricity. These systems are
most efficient when installed on south facing pitched or flat roof spaces with limited or no obstructions.

Systems comprise of an array of solar panels and an inverter. Additional systems such as battery storage can be included to improve the efficiency and benefit of systems.

This type of system is typically suitable for all building types and can even be installed as ground based standalone systems.

Energy generated can be used on-site offsetting external energy demand and reducing carbon dioxide emissions.

Excess electricity generated can be fed back to the national grid or stored onsite using a battery for use in peak demand periods.

**Solar Thermal Hot Water** – Solar Thermal panels convert the sun’s energy to deliver hot water. Similar to Solar PV these systems are most efficient when installed on south facing pitched or flat roof spaces with limited or no obstructions.

Systems comprise of a panel or tubes which convert the sun’s energy and are connected to a hot water tank to pre-heat water in hot water systems.

This type of system is typically suitable on buildings where there is a high hot water demand. Pre-heating hot water in hot water systems can reduce primary energy demand reducing carbon dioxide emissions.

**Heat Pump Systems** – Heat pumps provide low grade heat from the ground (Ground Source Heat Pumps, GSHP) or air (Air Source Heat Pumps, ASHP).

Air source heat pumps generate heat for use in heating and hot water systems. Systems can achieve high seasonal efficiency and work by extracting latent heat from the air via a heat pump, they can also be used in reverse to provide cooling.

This type of systems requires external space and can generate significant noise and therefore need to be suitably located to minimise operational impacts.

ASHPs are best suited to high efficiency buildings with low heating demand and the decarbonisation of the electricity grid will, over time, reduce the carbon dioxide emissions of this system.

### Table 4: Low carbon renewable energy assessment

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>Regulated Energy</th>
<th>Potential low carbon renewable technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stages</td>
<td>Energy demand likely to be predominantly lighting with limited heating.</td>
<td>Given the lack of heating demand suitable technologies are limited; Solar PV is considered the only potential technology suitable for this building type.</td>
</tr>
<tr>
<td>Workshops</td>
<td>Energy likely required for heating and cooling, as well as electricity for lighting.</td>
<td>Given the proposed building use it is considered heating and hot water systems may not be suitable, Solar PV is anticipated to be the most effective system for this type of building.</td>
</tr>
<tr>
<td>Office Accommodation</td>
<td>Energy likely required for heating and cooling, hot water, as well as electricity for lighting.</td>
<td>Given the anticipated energy requirements and thermal efficiency of new buildings suitable technologies include Solar PV, Solar thermal and ASHP.</td>
</tr>
<tr>
<td>Other (including entrance structures/ cabins, recycling facilities and pass office)</td>
<td>Energy likely required for heating and cooling, as well as electricity for lighting.</td>
<td>Given the anticipated energy requirements and thermal efficiency of new buildings suitable technologies include Solar PV and ASHP.</td>
</tr>
</tbody>
</table>
Ground source heat pumps generate heat for use in heating and hot water systems. Systems can achieve high seasonal efficiency and work by extracting latent heat from the ground via a heat pump and a system of horizontal ground coils or boreholes, systems can also be used in reverse to provide cooling.

This type of systems requires space for the installation of ground coils or digging of boreholes.

Similarly to ASHPs this type of system is suited to high efficiency buildings with low heating demand and the decarbonisation of the electricity grid will, over time, reduce the carbon dioxide emissions of this type of system.

**Biomass Systems** – Biomass systems can be used to generate heat for heating and hot water and systems comprise of a biomass boiler which burns either wood chips or pellets. This type of system is suited to buildings with high heat demand.

The use of wood fuel is deemed to be low carbon and this type of system can save carbon dioxide emissions.

Other low carbon renewable energy systems such as wind power and hydroelectric systems have been discounted due to a lack of sufficient onsite resource.

At this stage given the anticipated energy requirements of the proposed building types, while GSHP are technically feasible and could similarly be used within the proposed office spaces the development site is relatively constrained limiting space for the installation of this system, in addition this system has a relatively high cost and in this context it is not considered feasible for use at Shepperton.

**Low Carbon Renewable Energy Summary** – Table 5 sets out the estimated regulated energy demand of the proposed new buildings and demonstrates how meeting the Council’s 10% renewable energy requirement will reduce energy use and carbon dioxide emissions.

**Table 5: Low Carbon Renewable Energy Summary**

<table>
<thead>
<tr>
<th></th>
<th>Energy Demand (kWh/yr)</th>
<th>Carbon Dioxide Emissions (Tonnes CO₂e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating and Hot Water</td>
<td>2,170,112</td>
<td>471</td>
</tr>
<tr>
<td>Cooling and Auxiliary</td>
<td>99,701</td>
<td>52</td>
</tr>
<tr>
<td>Lighting</td>
<td>3,126,748</td>
<td>1,623</td>
</tr>
<tr>
<td>Total</td>
<td>5,396,561</td>
<td>2,145</td>
</tr>
<tr>
<td>10% Reduction in Energy (kWh/yr)</td>
<td>58,443</td>
<td></td>
</tr>
<tr>
<td>Estimated Reduction on Carbon Dioxide Emissions (tonnes CO₂e/yr)</td>
<td>278</td>
<td></td>
</tr>
</tbody>
</table>
**Energy Strategy Summary**

In summary an aim of the proposed development will be to reduce carbon dioxide emissions, mitigating the impacts on climate change during construction and operation through:

- the assessment of embodied carbon for key development materials with a target to reduce embodied carbon dioxide emissions by 10%;
- designing the buildings in accordance with the energy hierarchy to reduce operational regulated energy use and carbon dioxide emissions, and
- the use of a range of fabric, energy efficiency and low carbon renewable energy measures.

In accordance with Policy CC1 the proposed development will deliver 10% of its regulated energy through low carbon renewable energy. At this stage it is considered technologies including Solar PV, Solar Thermal and ASHP are suitable for installation.

Should the 10% energy requirement be delivered solely through Solar PV this would equate to the use of approximately 635kWP of Solar PV saving around 280 tonnes carbon dioxide.

Table 6 sets out an estimate of the development’s total energy use and carbon dioxide emissions, taking into account both the new and existing buildings, over a 30 year period demonstrating how grid decarbonisation will significantly reduce the annual carbon dioxide emissions of the development over time.

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 15</th>
<th>Year 30</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cumulative Energy Demand (MWh)</strong></td>
<td>16,405</td>
<td>246,068</td>
<td>492,136</td>
</tr>
<tr>
<td><strong>Annual Carbon Dioxide Emissions (tonnes CO2e)</strong></td>
<td>3,499</td>
<td>1,679</td>
<td>1,030</td>
</tr>
<tr>
<td><strong>Cumulative Carbon Dioxide Emissions (tonnes CO2e)</strong></td>
<td>3,499</td>
<td>37,831</td>
<td>59,535</td>
</tr>
</tbody>
</table>

The final energy use and carbon dioxide emissions will be dependent on the final specification of the development.

A full GHG assessment will be provided alongside future reserved matters applications to set out how emissions of the proposed development will be mitigated.
Regulated Energy and Carbon Dioxide Emissions at Shepperton

The graph below shows the estimated regulated energy carbon dioxide savings of the proposed redevelopment of Shepperton demonstrating how the development will reduce energy use and carbon dioxide emissions through the use of low carbon renewable energy.

Figure 3: Carbon Dioxide Emissions
4.5.2 Water Efficiency

Potable water is an increasingly important natural resource and with the majority of the UK classed as being in an area of moderate or severe water stress, the conservation of water is becoming a more significant sustainability metric.

The future impacts of climate change are anticipated to lead to a reduction in summer rainfall which could lead to increasing periods of drought during summer months.

Reducing water consumption is therefore a key target for the proposed development.

In this context the proposed new buildings will be designed to reduce water consumption through a range of water efficiency measures such as:

- Dual flush WCs;
- Water meters;
- Low flow fittings; and
- Where appropriate, water efficient appliances.

Through the use of these measures the new buildings will target a water reduction beyond the requirements of the typical buildings.

During the detailed design consideration will be given to the use of rainwater harvesting and grey water use to provide water for toilet flushing and irrigation to further minimise water use.

4.5.3 Flood Risk and Sustainable Drainage

A Flood Risk Assessment (FRA) and Drainage Strategy report has been prepared to accompany the outline application which sets out the potential for flooding on site and the proposed drainage strategy.

As noted at the start of this section climate change is anticipated to lead to an increase in winter rainfall and therefore consideration and mitigation of potential flood risk is key to ensure development can adapt to changing climate.

The FRA sets out the current flood risk of the Site noting that it is intersected by the River Ash and potential fluvial flood risks.

Through updated modelling of the Site and due consideration of existing flood defences it is concluded that the Site is located predominantly in Flood Zone 2. Through this modelling the Site can be shown to be free from flooding during the 1 in 100 year storm event including a 35% allowance for climate change.

The report sets out the proposed drainage strategy for the Site which aims to reduce the post development surface water discharge rate.

Currently surface water from the existing Site discharges via the River Ash, however this includes no prior attenuation to manage discharge.

As part of the Proposed Development a series of Sustainable Drainage Systems (SuDS) will be created to attenuate discharge from the Site, taking into account the existing development area.

At this stage the SuDS strategy includes:

- Permeable paving and/or underground storage under the proposed new northern car park area and backlot areas.
- A series of ribbon ponds, basins and swales along the western boundary of the Site.

The proposed surface water management system has been designed to attenuate flows up to and including the 1 in 100 year plus 40% rainfall event to take into account the impacts of climate change.

The final surface water drainage strategy and SuDS will be determined during the detailed design stage.

Further information on the Site’s flood risk and the proposed surface water management system can be viewed in the accompanying FRA and Drainage Strategy.
4.6 Conserving and Enhancing the Natural Environment

The Proposed Development will incorporate measures to support and enhance the environment through consideration of the existing site ecology, including measures to mitigate the impact of the Site and enhance site biodiversity, as well as incorporate measures to reduce pollution from the Site.

4.7.1 Ecology

An Ecological Assessment was undertaken by LUC in July 2018, comprising a desk study, an Extended Phase 1 Habitat Survey and specific faunal surveys.

The Site is within 5km of nine statutory sites, and within 2km of 19 non-statutory sites, including the River Ash.

The Ecological Assessment indicates the presence of bats, breeding birds and reptiles.

Below, mitigation and enhancement measures to be considered in the proposed development of the Site, as outlined in the Ecological Assessment and Pinewood Studios’ Sustainability Handbook are described.

Mitigation Measures – The following mitigation measures aim to protect existing onsite habitats and species, in particular those areas of value such as the River Ash Corridor:

- Provision of protective fencing for retained habitats with ecological importance, such as retained trees and woodland.
- Best practice measures to minimise dust and other contamination impacts, including as a result of runoff.
- Implementation of appropriate tree protection zones.
- Management of the wider River Ash woodland to maximise its biodiversity value.
- Creation of additional habitat of importance elsewhere within the site e.g. scrub, woodland, wetland swales and wet meadow grassland.
- A sensitive lighting scheme to minimise the potential effect of lighting on species such as bats.

Inspections are conducted monthly to ensure environmentally-sensitive areas are protected and maintained. PSG inspects all ponds, neighbouring rivers and lakes, gas oil tanks, calor gas tanks, interceptors and spill kit materials, and regularly communicates with and is assessed by the Environment Agency to ensure the environment is unharmed.

At Shepperton this will continue as part of the ongoing management of the Site and areas of ecological value.

Enhancement Measures - In addition to the proposed mitigation measures a range of ecological enhancement measures will be included in the development to improve the biodiversity of the site, including:

- Enhanced biodiversity through the diversification of habitat niches.
- High quality water environment through the removal of fallen trees, management of vegetation and cleansing of surface water run-off.
- Ecological connectivity through the provision of new linear habitat corridors and enhancement to existing corridors.
- Species-specific enhancements including specific features aimed at benefitting protected and notable species.
- Multi-functional and integrated landscape including green and blue infrastructure which serves a landscape purpose and provides valuable ecological habitat corridors e.g. SuDS.
- A habitat management plan to ensure that the value of habitats are maximised.
- Pond/wetland creation to provide opportunities for amphibians, birds, reptiles, mammals and invertebrates.
- Improvements in access will be coupled with provision of educational resources such as interpretation boards including an interpretation of the site’s history and ecological interest.
Through these measures it is anticipated the development will result in a net increase in site biodiversity. Further details on the site habitats, species and biodiversity is set out in the Ecological Assessment which accompanies the outline application.

4.6.2 Pollution

The proposed development will aim to minimise any negative impacts on the natural environment considering the impacts of water use, materials, and air quality.

Water – Throughout construction water quality will be maintained by the following measures:

- Reduce erosion and run-off by minimising land disturbance and leaving vegetation cover where possible.
- Cover skips and trucks loaded with construction materials and continually damp down with low levels of water.
- Use non-toxic paints, solvents and other hazardous materials wherever possible.
- Segregate, tightly cover and monitor toxic substances to prevent spills and possible site contamination.

The construction works will be carried out in such a manner as to avoid adverse effects on the ponds, streams and downstream habitats in accordance with Environment Agency Pollution Prevention Guidance (PPG).

To improve water quality, the surface water drainage strategy will give consideration to measures to minimise pollution run-off.

Sustainable Materials – Insulation materials containing substances known to contribute to stratospheric ozone depletion or with the potential to contribute to global warming will not be used. Natural insulation materials such as mineral wool, rock wool or cork board will be considered as they are amongst the lowest Global Warming Potential (GWP) rating.

Air Quality – The proposed site is within a borough wide AQMA declared by Spelthorne Borough Council. This has been declared due to the transport related emissions from major trunk roads, including the M3 and M25. An Air Quality Assessment has been prepared by Hydrock which includes measures to reduce the impact of the development on local air quality during construction and operation such as:

- implementation of a Dust Management Plan to reduce dust emissions;
- avoiding the use of onsite generators; and
- design of the Site as a low vehicle scheme with low car parking numbers and a high number of cycle spaces to encourage sustainable travel.

To further enhance the development a number of additional measures will be considered during the detailed design of buildings to minimise pollution, including:

- the use of key internal finishes and fittings which comply with best practice emissions levels of Volatile Organic Compounds (VOCs) and other substances; and
- the specification of low Global Warming Potential (GWP) and zero Ozone Depleting Potential (ODP) insulation materials.

4.7 Sustainable Waste Management

The proposed development will ensure the minimisation of waste and maximisation of recycling of any waste generated during demolition, construction and operation of the new industrial space.

In accordance with PSG policies the development will aspire to generate zero waste where possible.

Demolition

During the demolition of the existing site measures will be put in place to maximise the recycling and reuse of materials. Measures will include:

- Where possible bricks and concrete will be crushed on-site and reused in foundation and hardstanding construction.
- Major building elements such as steel framing will be recycled or reused if possible.
- Provision will be made for sorting and storing of materials to facilitate recycling.
Prior to demolition a Demolition Environmental Management Plan (DEMP) will be prepared to manage waste during demolition and maximise the reuse and recycling of materials.

**Construction Waste Management**

To minimise waste during construction the following measures will be implemented and considered to reduce waste to landfill and maximise recycling:

- Design to minimise the use of raw materials, including the specification of sustainable materials with low embodied carbon and reuse of materials from demolition.

- Use of modern methods of construction such as the use of prefabricated building elements to minimise waste and facilitate construction efficiency.

- Preparation of a Site Waste Management Plan (SWMP) to minimise waste during the construction phases of the development, including the use of a scheme for recycling/disposing of waste arising from construction works.

- The reduction, reuse and recycling of construction waste through measures such as avoidance of over-ordering, supervision of deliveries, use of secure materials storage facilities and reuse of materials onsite where feasible.

In addition the development will be registered with the Considerate Constructors Scheme and achieve certification against the Code of Considerate Practice.

**Operational Waste Management**

The design of the development and new buildings will make provision for the on-site storage of non-recyclable waste and recyclable waste in an accessible location to facilitate collections and maintain the Shepperton Studios 100% waste reuse and recycling.
The redevelopment of Shepperton Studios will include measures to mitigate and adapt to the impacts of climate change.
This Sustainability Assessment has been prepared to demonstrate how the proposed expansion of Shepperton Studios will be delivered in accordance with the PSG sustainability policy, how the proposed development is in a sustainable location and how a range of economic, social and environmental benefits will be delivered.

PSG Approach to Sustainability – The PSG has a proactive approach to sustainability which includes a set of corporate energy, carbon reduction and waste targets. Ensuring the expansion is delivered in accordance with these targets is a key aim for the proposed development.

A Sustainable Location for Development – The Shepperton Studios site and its contribution to the local economy is recognised by SBC and enhancing the existing film and HETV facilities and expertise is a key development target. In addition the expansion site benefits from excellent sustainable transport links which are reinforced by the Shepperton site sustainable transport plans, including shuttle bus services and on-site cycle storage and changing facilities. Extension of these measures and additional sustainable transport enhancements will further encourage sustainable travel and reinforce the sustainable location of the site.

Sustainability at Shepperton Studios – Through a range of measures the expansion of Shepperton Studios will lead to a range of economic, social and environmental benefits including:

- The provision of 2,823 local jobs during operation and an annual local contribution of £74.4m during construction and £193.6m during operation.
- Sustainable transport enhancements including the continuation of existing sustainable transport plans and new sustainable travel links.
- Good design which responds to the constraints and opportunities of the site including the protection of River Ash corridor.
- Measures to enhance the health and wellbeing of site visitors through the creation of green spaces and healthy working environments.
- A commitment to mitigating and adapting to the impacts of climate change targeting a 10% reduction in embodied carbon emissions, 10% of the new buildings’ regulated energy through renewable energy, reducing on-site water use, and inclusion of a 40% allowance for climate change in the surface water management system.
- Implementation of measures to protect and enhance site environments including the improvement of the River Ash corridor, creation of new wetland habitats and provision for a range of on-site species.

In this context it is concluded that the proposed development reflects the sustainability objectives of the Pinewood Studios Group, is in a sustainable location, and will deliver a range of economic, social and environmental benefits.