



## Cabinet Member for Environment and Infrastructure

### Climate Change and Nature Recovery Service Transformation Committee – 6 January 2025

## Artificial Grass Environment Issues

<b>Purpose:</b>	To seek the Committee's advice on a corporate position in relation to artificial grass on Council owned land.
<b>Policy Framework:</b>	The adoption of a corporate position would contribute to the Council's duties under the Environment (Wales) Act 2016, Well-being of Future Generations (Wales) Act 2015, along with the Council's well-being objective: Delivering on Nature Recovery and Climate Change, the Swansea Public Service Board's Climate Change and Nature Recovery Well-being objective and the Swansea Local Nature Recovery Action Plan.
<b>Consultation:</b>	Access to Services, Finance and Legal.
<b>Recommendation(s):</b>	It is recommended that:  <ol style="list-style-type: none"><li>1) The Council raise awareness around the environmental impacts associated with artificial grass.</li><li>2) The Council promote the use of sustainable landscaping practices as an alternative to artificial grass.</li><li>3) The Council develops a position statement on the use of artificial grass on Council sites and in Council projects.</li></ol>
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## 1. Introduction

- 1.1 Artificial grass, also known as fake grass, or even 'counterfeit grass' has been used in sports arenas for decades. In recent years it has become increasingly popular for residential lawns and commercial landscapes. It is often marketed as a low-maintenance and versatile alternative to natural grass. It is hard wearing, does not require watering and reduces the need for potentially harmful fertilisers and herbicides. The more expensive versions mimic the colour, texture and softness of natural grass. Some artificial grasses use recycled materials and plant-based components.
- 1.2 There are numerous environmental issues resulting from choosing artificial lawns, which far outweigh the benefits mentioned above. However, the importance of synthetic sports pitches of which artificial grass is a component, i.e. 2G, 3G, 4G and 5G is acknowledged. To reflect this, the use of artificial grass on sports pitches (and other limited locations e.g. specific playground surfaces) is out of the scope of this report, i.e. sports pitches would be exempt from any position statement against using artificial grass on Council owned land.

## 2. Environmental and legislative impacts of artificial grass

- 2.1 The information below has been drawn from a wide range of publication and reports.

### 2.2 Impact on Biodiversity

- Habitat loss: Replacing natural grass with artificial grass can lead to the loss of habitat for various insects, birds, and other wildlife.
- Soil ecosystem health: artificial grass restricts access to the soil for burrowing insects and soil dwellers i.e. worms. It also stops leaf litter and other natural materials from entering the soil ecosystem, reducing soil health, and affecting underground biodiversity.
- Microplastic pollution: microplastics pollution, found in multiple waterways including rivers and lakes in urban settings and national parks around the United Kingdom are likely to be a risk to wildlife through bioaccumulation (i.e. accumulation of substances in an organism).

### 2.3 Climate Change

- Heat island effect: artificial grass absorbs and retains more heat than natural grass, leading to higher surface temperatures. This contributes to the urban heat island effect, where urban areas become significantly warmer than their rural surroundings, impacting local microclimates and increasing energy consumption for cooling.
- Carbon storage: cumulatively, the impacts of replacing large areas of vegetation with artificial grass reduces the opportunity to maximise carbon storage. The use of sand as a stable bed of artificial grass also results in carbon locking soils being removed.
- Carbon emissions: the manufacturing of a 60sqm artificial lawn can generate approximately 435kg of CO<sub>2</sub> emissions. A football pitch size

(9,000 sqm) of plastic grass releases approx. 55.6 tonnes of CO<sub>2</sub>. Natural grass is a carbon sink, absorbing carbon dioxide and storing carbon within its biomass and soils. In comparison artificial grass is a carbon source. Not only is there a carbon footprint associated with its manufacturing, but the plastic compounds release greenhouse gases as they degrade - a process known as 'out gassing' or 'off gassing'.

#### 2.4 **Resource Intensive Production**

- Petroleum-Based Materials: artificial grass is typically made from polyethylene, polypropylene, or nylon, all of which are derived from non-renewable petroleum resources. The production process involves significant energy consumption and greenhouse gas emissions.
- Manufacturing: artificial grass production involves the use of various chemical additives to enhance its durability and appearance, contributing to environmental pollution during production.
- Water use and absorption: the water argument is complicated. Whilst artificial grass will clearly reduce the need for irrigation during hot summer months, most natural lawns can survive drought conditions. On the other side of the water debate, studies have shown that artificial grass increases surface water run-off, whereas natural living grass was significantly better at retaining water and delaying drainage.

#### 2.5 **Life span and recycling**

- Non-Biodegradable: artificial grass has a shelf life of 10 – 20 years. Whilst technically it is recyclable, it is not widely recycled in Wales. Currently (2024), the Council has no viable option but to dispose of it via energy from waste.

#### 2.6 **Microplastic and chemical pollution**

- Infill Materials: many artificial grasses use infill materials like crumb rubber, which can degrade into microplastics. These microplastics do not biodegrade and persist for many years (100's of years) in the environment as a form of pollution. They have been found to accumulate in waterways and drinking water. In September 2023 the European Union enacted a ban on the 'sale of products containing intentionally added microplastics' notably the regulation specifically included granular artificial grass infill (derived from shredded end-of-life automobile tyres).
- Wear and Tear: polypropylene or nylon (polyamide) fragments can also break down filtering into the soil adding to the microplastic pollution problem.
- Maintenance Chemicals: chemicals (e.g., antimicrobial treatments) can lead to runoff into nearby waterways, potentially harming aquatic ecosystems.

## 2.7 Legislation and policy

- The Council has declared both a climate and a nature emergency Climate Change and Nature Strategy 2022-2030 - Swansea and has a duty to nature recovery through the Environmental Act (Wales) 2016, Section 6 duty which requires that the Council “must seek to maintain and enhance biodiversity so far as consistent with the proper exercise of their functions, and in so doing, promote the resilience of ecosystems.
- The resilience goal in the Wellbeing of Future Generations (Wales) Act, requires the Council to work to maintain and enhance a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change).
- The Council approved and endorsed the Swansea Local Nature Recovery Plan in October 2023. This countywide partnership plan identifies the priorities for nature recovery in Swansea. Action theme 4.1 identifies that it is a priority to “Reduce and, where possible, eliminate environmental pollution into terrestrial, freshwater, and marine environs in Swansea. Employing sustainable management and nature-based solutions where relevant.”

## 3. General Issues

- 3.1 This report does not propose that existing artificial grass is removed from sites and replaced immediately. It is suggested that when current artificial grassed areas reach their end of life, or are being upgraded, that alternative sustainable landscaping practises are applied in preference to artificial grass.
- 3.2 Under current planning legislation the planning process cannot be used to restrict the use of artificial grass. However, through the Green Infrastructure (GI) Statement process artificial grass would not be considered an acceptable GI enhancement.

## 4. Integrated Assessment Implications

- 4.1 The Council is subject to the Equality Act (Public Sector Equality Duty and the socio-economic duty), the Well-being of Future Generations (Wales) Act 2015 and the Welsh Language (Wales) Measure, and must in the exercise of their functions, have due regard to the need to:
- Eliminate unlawful discrimination, harassment and victimisation and other conduct prohibited by the Acts.
  - Advance equality of opportunity between people who share a protected characteristic and those who do not.
  - Foster good relations between people who share a protected characteristic and those who do not.
  - Deliver better outcomes for those people who experience socio-economic disadvantage

- Consider opportunities for people to use the Welsh language
- Treat the Welsh language no less favourably than English.
- Ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs.

- 4.1.1 The Well-being of Future Generations (Wales) Act 2015 mandates that public bodies in Wales must carry out sustainable development. Sustainable development means the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle, aimed at achieving the 'well-being goals'.
- 4.1.2 Our Integrated Impact Assessment (IIA) process ensures we have paid due regard to the above. It also takes into account other key issues and priorities, such as poverty and social exclusion, community cohesion, carers, the United Nations Convention on the Rights of the Child (UNCRC) and Welsh language.
- 4.2 This project is limited to Council owned land and Council projects and aims to reduced impacts to the natural environment of artificial grass. The focus of the project is internal and includes raising awareness, providing sustainable alternatives to artificial grass where it has been used in the past and developing a corporate position statement on the use of artificial grass. The project aims to align the use of artificial grass with the Council duties via the Well-being of Future Generations Act and Environment Act and the Swansea Local Nature Recovery Action Plan.
- 4.3 The importance of synthetic sports pitches of which artificial grass is a component i.e. 2G, 3G, 4G and 5G is acknowledged. To reflect this, the use of artificial grass on sports pitches (and other limited locations e.g. specific playground surfaces) is out of the scope of this project, i.e. sports pitches would be exempt from any position statement against using artificial grass on Council owned land.
- 4.4 The proposed project does not suggest that existing artificial grass is removed from sites and replaced immediately. Instead, it is suggested that when current artificial grassed areas reach their end of life, or are being upgraded, that alternative sustainable landscaping practises are applied in preference to artificial grass.
- 4.5 The project will not have an impact on the groups highlighted in Question 2, there is a low positive impact to all people of all ages where artificial grass and its associated negative impacts are removed and replaced with sustainable alternatives.
- 4.6 This small internal project will meet the duties of the resilience goal of the Well-being or Future Generations (Wales ) Act, it meets the needs or present generations without completing those of future generations and it aligns to some of the ways of working i.e. prevention and long-term approach. The project has been reviewed by the Nature Recovery and

Climate Change Programme Board a transdisciplinary corporate group of officers.

- 4.7 There are no risks identified for the project nor any negative cumulative impacts to Swansea communities.

**5. Financial Implications**

- 5.1 There are no financial implications associated with this report.

**6. Legal Implications**

- 6.1 There are no legal implications associated with this report other than those detailed above.

**Background Papers:** None.

**Appendices:** Appendix A - IIA Form