

Matting on the Tynning, November 2023

To consider the future of the matting on The Tynning.

Background

The temporary matting on The Tynning was needed for longer than expected because of the ongoing social distancing requirements at the time. Most of the matting is now embedded in the grass and it isn't possible to remove it by hand. The matting has helped provide a more stable path, but was intended only as a temporary measure and concerns about the environmental impact of leaving plastic matting in the ground on The Tynning have been raised. Residents have made representations for keeping the matting and for its removal.

Discussion in April 2023

The PC last considered the future of the matting in April 2023. Quotes for a contractor to remove the matting and reseed the paths were obtained. It was agreed that a professional view on the lifespan and possible implications of the disintegration of the matting should be obtained. A number of points for and against removing the matting were considered, set out in the Minute included below.

Since the April PC meeting, environmental consultants Abricon have provided general information about plastic matting and its environmental impact, included below. They tried to contact the manufacturer but no useful information was provided.

B&NES has been contacted for advice and a response is awaited.

November Consideration

Having received some professional advice, the PC is asked to consider whether a decision on the future of the matting can now be taken.

Some points to consider:

- The fact that the matting was intended as a temporary measure during Covid.
- The environmental impact of leaving or removing the matting, given the PC's Climate and Nature declarations.
- The state of the matting and possible degradation (e.g. where it has been cut by mowing/strimming).
- The possibilities for re-use or recycling of the matting if removed.
- The costs of removing the matting (quotes in April were around £500 for its removal, plus £300 for re-seeding, these would need clarifying)
- Other, more environmentally friendly, path surfaces that could be used if residents wanted the path stabilised in the longer term.
- Views of residents (the PC has been contacted by residents in favour of removing the matting and in favour of its retention).
- The timing of removing the matting and re-seeding the paths, which would need to be cordoned off whilst grass seed grew.

Minute 180, Parish Council Meeting 17 April 2023

180. Matting on The Tying

The temporary matting on The Tying had been in place longer than expected because of ongoing social distancing requirements at the time. Most of the matting was now embedded in the grass and it would not be possible for volunteers to remove it by hand. Once the matting was removed the paths would need re-seeding. Three quotes had been sought to remove the matting and make good the paths.

In discussion the following points were made:

- Whilst it was not ideal to have plastic in green spaces, the matting now served a purpose in maintaining the integrity of the paths and for this reason it was suggested that the matting should be left for the time being.
- Although there would be costs and disruption involved in removing the matting now, it could not be left in the ground indefinitely and the costs and disruption would therefore have to be borne at some point.
- Removing the matting might become more difficult and expensive the longer it was left, due to disintegration of the matting.
- It was difficult to gauge how long the matting would last before it started to disintegrate; the company who provided the matting stated that it depended on circumstances and the level of use.
- Regular checks on the condition of the matting could be undertaken, but it might still be difficult to gauge the point at which it should be removed before disintegration caused problems with its removal.
- Consideration should also be given to the condition of the matting in the passing bay at the top of The Tying.
- The paths are now well used and if the matting was removed an alternative, ecological solution should be considered.
- Professional advice could be sought, and the parks department at B&NES might be able to provide some guidance.
- That re-seeding of the paths would only be possible at particular points in the year and the timing of removal of the matting should take this into account.

Resolved: to seek a professional view on the lifespan and possible implications of the disintegration of the matting.

Email from Gary Nelson at Abricon, 30/08/2023

The product used was manufactured abroad (China?) and the distributors I contacted in this country were not very helpful. One promised to get back to me and hasn't. I can find little evidence that the use of a Recycled HDPE product such as GP-Flex causes much by way of environmental problems. One of the big issues with the use of plastics is fact they do not degrade and it is this that makes HDPE useful for this particular technology. Its resistance to degradation means that there is little risk of leachate (water contaminated by the product) finding its way into groundwater and its inherent stability means that the generation of micro-plastics is much reduced.

This link has some details:

<https://www.multimatts.co.uk/ground-support-stabilisation/gp-flex/gp-flex-grass-protection-mesh-1m-x-10m-x-9mm-1000gm2-gpf-11091000>

I have done some research myself and here are my findings (good and bad):

Raw HDPE product risk assessment:

https://www.ril.com/DownloadFiles/Polymers/assessment/prarelene_pe_hdp.pdf

Extract:

Health Information:

- High Density Polyethylene (HDPE) is non toxic non hazards material and can be considered as material safe for contact with humans and animals,
- Ingestion Low oral toxicity. High Density Polyethylene (HDPE) LD50 (rat) : >5000 mg/kg
- Inhalation: Low acute toxicity. Dusts and vapours evolved during thermal processing may cause irritation to the respiratory system.
- Skin Contact No evidence of irritant effects from normal handling and use.
- Eye Contact Dust may have irritant effect on eyes. Permanent damage is unlikely.
- Long Term Exposure chronic effects are unlikely.

Environmental Information:

- Under normal conditions, High Density Polyethylene (HDPE) exists as a solid granule.
- High Density Polyethylene (HDPE) is susceptible to degradation by exposure to sunlight .
- High Density Polyethylene (HDPE) is insoluble in water. Floats on water. The product has low mobility in soil.
- The product is non-biodegradable.
- Low toxicity to aquatic organisms.
- Unlikely to affect biological treatment processes

Is HDPE Ecofriendly? <https://ecofriendlyguides.com/is-hdpe-ecofriendly/>

How HDPE Reduces the Ecological Impact of Manufacturing

<https://tangentmaterials.com/how-hdpe-reduces-the-ecological-impact-of-manufacturing/>

Extract:

Lesser Chance of Toxic Chemicals in the Environment

Of course, one of the main ways HDPE reduces the ecological impact of manufacturing is that it reduces the chance of toxic chemical agents from impacting local ecosystems. HDPE plastic polymers have stronger intermolecular forces and tensile strength than low-density

polyethylene. This gives it additional heat resistance, resilience, and versatility for heavy-duty applications. Manufacturers who use HDPE significantly lessen the chance of chemical agents from leaching to groundwater. HDPE is flexible, tough, and practical for surface-level and underground processes. Even HDPE entrance mats suit heavy machinery and reduce exhaust fumes and debris from impacting the surrounding environment.

Recycling HDPE Plastic: A Closer Look At The Benefits And Challenges

<https://www.climateofourfuture.org/recycling-hdpe-plastic-a-closer-look-at-the-benefits-and-challenges/>

Extract:

WHY IS HDPE NOT SUSTAINABLE?

High-density polyethylene (HDPE) is a type of plastic that is commonly used for durable and lightweight products such as packaging and containers. While HDPE is a recyclable material and can be repurposed for various uses, it is not considered to be a sustainable material due to the fact that it is made from non-renewable fossil fuels. Additionally, because it is not biodegradable, it can remain in landfills for hundreds of years, which can have a negative impact on the environment. Furthermore, the production of HDPE requires high levels of energy and the production of hazardous chemicals, which can lead to air and water pollution. As a result, while HDPE is a useful material, its production and disposal can be highly damaging to the environment, making it unsuitable for sustainable applications.

IS HDPE BAD FOR THE ENVIRONMENT?

A 100% recycled PE plastic is the most environmentally friendly plastic on the planet because it emits no harmful fumes. plastics require only a fraction of the energy required to produce steel from iron ore in order to be Eco-friendly, which adds to its status as such.

What Makes HDPE Sustainable? <https://www.scrantonproducts.com/makes-hdpe-sustainable/>

POSSIBLE PROBLEMS

7 Types of Plastic Wreaking Havoc on Our Health: <https://www.ecowatch.com/7-types-of-plastic-wreaking-havoc-on-our-health-1882198584.html#:~:text=HDPE%3A%20high%2Ddensity%20polyethylene,dangerous%20to%20fetuses%20and%20juveniles.>

Extract:

HDPE: high-density polyethylene

HDPE is commonly used in milk and juice bottles, detergent bottles, shampoo bottles, grocery bags, and cereal box liners. Like PET, it is also considered “safe,” but has been shown to leach estrogenic chemicals dangerous to fetuses and juveniles.

Estrogenic Substances in Plastic Bottles <http://www.diva-portal.org/smash/get/diva2:749485/FULLTEXT02#:~:text=The%20highest%20estrogenic%20effect%20was,EEQ%20of%200.3%20pg%2Fml.>

Extract:

4. DISCUSSION

The highest estrogenic effect was found in the PP-plastic with a Bio-EEQ of 0.5 pg/ml and the lowest measured value was observed for the PET-plastic with a Bio-EEQ of 0.04 pg/ml, whereas the HDPE-plastic gave a Bio-EEQ of 0.3 pg/ml. This was somewhat expected as the PET plastic is made to withstand higher temperatures (around 254.5°C) compared to the

other two who have melting points around 110°C (HDPE) and 130°C (PP). It is likely that it will take a higher temperature before the chemicals in the PET-bottle will be released into the solution, but it cannot be excluded that the PET material contains less estrogenic compounds.

5. CONCLUSIONS

The plastic bottles in this study leached estrogenic substances and a difference in EEQs could be detected between the bottles. Although nothing other than water was used as solvent the bottles did release substances that gave response in the U2OS-luc assay. Although some values could be determined, further study is needed to be able to tell in which quantities the plastic bottles leak estrogenic substances and if this leakage can result in significant effects in the body. More tests will have to be done to determine why two of the samples did not give a result like the others. It is hard to tell with absolute certainty to which effect the estrogenic activity derived from the bottles will have until more data is obtained.

The results of testing were inconclusive and as PET, HDPE are used in baby's bottles and for milk containers the Human Health Risk appears to be minimal and the risk of exposure to a buried plastic matting is much reduced it is difficult to find any serious exposure risk for the plastic in the ground.