Action Group for Campaign Against

One Earth Solar Farm

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Ref F1800218E

Follow on from Open & Issue Specific Hearings (July 2025)

David White, speaking on behalf of the Say No to One Earth Solar Farm and many concerned residents in and around our communities regarding the permanent dumping of between 1,000 and 1,200 kms of XLPE Plastic cables at an approx weight of between 6,500 to 7,800 tonnes of plastics, chemical compounds and heavy metals.
This submission is in addition to the first submission sent in previously and contains responses to some of the applicant's answers from the public hearings.

Transcript Source: https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010159-000375-OES_JUL10_ISH1_PT3.pdf

Introduction / Opening Statement

Around the world, governments, scientists, and communities are taking action to combat plastic pollution across land, rivers, and oceans. The presence of microplastics in soil as well as exacerbating these efforts also represents a significant emerging threat to terrestrial ecosystems and agriculture.

An increasing number of studies show decaying XLPE cables results in **micro- and nano-sized plastic particles and the l**eaching of **additives** (e.g., antioxidants, flame retardants, UV stabilisers) into soil and groundwater systems.

Many in our community believe that allowing this solar farm development to be passed for building as is, would contravene Part IIA of the 1990 Environmental Act, plus Water Resources Act 1991 (s.85), multiple WFD frameworks and drinking water protections.

Our concerns are that allowing the One Earth Solar Farm development, that admits it will permanently leave up to **1,200 km of XLPE cables**—weighing **6.5 kg per metre** and containing between at the very least, **0.5–0.7 kg of plastics plus associated chemicals per metre** — to decay in situ, would contravene **Part IIA of the Environmental Protection Act 1990**, which addresses the remediation of **contaminated land**.

Under **Section 78A(2)**, land is legally defined as "contaminated" if substances are present "**in, on or under the land**" such that they "**cause or are likely to cause significant harm to human health or pollution of controlled waters**."

Additionally, allowing what could between 6,500 to 7,800 tonnes of XLPE cables to decay in situ across a **drinking water protected area** would contravene multiple environmental laws, and permitting this knowingly would breach the statutory duty of regulators and landowners under **Section 78E** to remediate or prevent such contamination.

Furthermore, this scenario may also contravene the **Water Resources Act 1991 (s.85)**, which prohibits knowingly polluting controlled waters, and the **Environmental Permitting (England and Wales) Regulations 2016**, which require authorisation for waste deposits that risk environmental harm. Allowing buried cables to remain unmanaged would therefore amount to the **authorised creation of a contamination pathway**, conflicting with both domestic law and the UK's obligations under the **Waste Framework Directive (2008/98/EC)** to prevent pollution from discarded materials.

Summary Transcript of Our Questions

We Raised the subject of buried cables – firstly seemingly going against the EN-3 National Policy Statement for Renewable Energy. What could be between 1000km and 1200 kilometres of XLPE cables, left in the ground. Asking the developers to recognize the fact that leaving them in the ground will eventually allow the cables to decay and, release microplastics and all the other compounds that are involved in XLPE cables, including bonding agents, flame retardants, and all sorts of other chemicals. Specifically over farmland and specifically in the drinking water protected area, which is not mentioned in any documents for this development.

My question is; Does the developer recognize that those cables will eventually decay and become microplastics?

We did not get to answer to this question at the time, but we did get the following;

Developers made some comment about low voltage cables being removed, but Buried interconnecting cables, medium voltage, would either be removed or left in situ, providing the depth of installation was below 0.9m and would not interfere with normal agricultural operations.

The developers then made a comment that this could include the cables for the grid connection and other underground cables will be dependent upon government policy and best practice at that time. **We're talking about 60 years or hence currently the most environmentally acceptable option is leaving the cables in situ as that avoids disturbance to overlying land and habitats and to neighbouring communities.**

The point was then made by the PI that the question was with regard to whether leaving cables in the ground, the applicant would accept that they degrade over time and consequently then release either microplastics and/or chemicals into the ground. Do you have any evidence? One way or the other?

For the applicant

"I'm not the right person to answer that question from a technical perspective. I need, um, uh, um, colleagues who aren't here. So I think we'll take that as an action too. Um. Oh, yes. Thank you for pointing that".

Mr Griffiths? for the applicant

Yeah. So this is for the applicant. I can answer some of those questions. Um, maybe not all of them. I'm certainly no expert on the degradation of plastics in the environment, and I couldn't comment on the risks to groundwater or anything like that. But in relation to soil health and quality of land restoration, we use plastics as a matter of formality. In in land, anywhere, we put our plastic pipes under ground and, and they're designed to a certain standard to last for years and not worry about them afterwards.

Our Response

We have serious issues with what Mr Griffiths said about use of plastics "as a matter or formality and not worry about them after wards" and consequently many people have concerns about the general approach the developers may have regarding plastic pollution, if this is what the views are.

Thousands of tonnes of permanently buried plastic cables aside, the assertion that buried plastic pipes can be installed "to a certain standard to last for years and not worry about them afterwards" is contradicted by growing scientific evidence that agricultural plastics degrade over time and contribute to persistent soil pollution. The study published on PubMed (PMID: 35819676) provides direct evidence of this issue, documenting **plastic fragments in soil** in farmland in Turkey where plastic irrigation pipes were used. Notably, **41.9% of these fragments were identified as microplastics**, while mesoplastics, macroplastics, and even larger debris were also recorded. This clearly demonstrates that even plastics designed for agricultural use fragment in situ, leaving long-term contamination in soils.

Document Link
https://pubmed.ncbi.nlm.nih.gov/35819676/

Wider Additional Research
This finding is reinforced by broader research across Europe and globally. A UNEP report (2022) identified farmland as the **"largest reservoir of microplastics on the planet,"** largely due to inputs from agricultural plastics, irrigation pipes, and biosolid fertilizers. Studies from Bangor University (2023) and Staffordshire University (2022) further highlight how plastic residues persist in soils for decades, altering soil structure, harming beneficial soil organisms such as earthworms, and providing a pathway for toxic additives and adsorbed pollutants to enter crops and the food chain.

Far from being inert, buried plastic infrastructure represents a long-term contamination pathway.

These studies directly contradict the applicant respondent's claims of **"no further concern"** post-installation and underscores the need for robust lifecycle management, including monitoring, regulated removal, and environmentally safe disposal of agricultural plastics. Without such measures, their degradation into micro- and nanoplastics poses ongoing risks to soil health, food safety, and groundwater quality, particularly in sensitive areas such as drinking water catchments.

We urge the planning inspectorate to recognise that reliance on "design standards" alone is insufficient and that evidence-based safeguards are essential to prevent buried plastics from becoming a source of chronic environmental pollution.

In addition UK regulatory guidance and scientific reviews bolster the argument that buried plastic infrastructure poses long-term environmental risks.

Environment Agency Oversight

- The **Environment Agency (EA)** now explicitly recognises that plastic contamination—both **macroplastics** and **microplastics**—is a growing concern not just in waterways but also in **soils**, with potential implications for plant and human health. They acknowledge emerging but substantial knowledge gaps around **sources, pathways, and effects**, indicating the urgent need to address persistent plastic residues in terrestrial environments.

Scientific & Regulatory Evidence

- A major **evidence synthesis** confirms agricultural practices – including buried irrigation materials—as key drivers of microplastic accumulation in soils. These plastics degrade into persistent particles that affect soil enzymes, microbial communities, crop growth, and soil organisms over time. Please see our other submissions for more details on effects of Micro and Nano plastics.
- Data from the UK Centre for Ecology & Hydrology estimate that annually, **up to 910,000 tonnes** of plastic waste enters terrestrial ecosystems—23 × more than is deposited into the sea.

Links to Studies;
https://pmc.ncbi.nlm.nih.gov/articles/PMC10450477/

https://www.sciencedirect.com/science/article/pii/S0048969723031546

https://www.nature.com/articles/s41598-022-10294-w

Additional
Furthermore, UK regulatory documentation and scientific reviews directly challenge the notion that plastic farm infrastructure can be "installed to standard and then forgotten." The **Environment Agency** now underscores the implications of microplastic pollution in soils—not only for terrestrial and freshwater ecosystems but for the **food chain and human health**—and highlights how plastics degrade over time into secondary contaminants that persist in the environment long after installation.

Link: https://www.gov.uk/guidance/river-basin-management-plans-updated-2022-summary-programmes-of-measures-mechanisms/16-plastics-in-the-environment

00:28:56:00 - 00:29:29:04 Mr Griffiths for the applicant
"Also the cables will be underground in the in the mineral soil, not in the topsoil. So they won't be contaminating the area that gets cultivated. So they won't be mixed and ingested by humans consumption. So it won't have any effect on human health. There is some research to say it might affect or microplastic might affect the plant's ability to uptake nutrients and absorb rainfall and all the rest of it. But the the scale of the cables across the area of only a sort of very narrow trenches across the whole scale of the farmland. "

Our response at the time and also now
The claim that buried cables deeper than 0.9 m in mineral soil pose no risk to cultivated soils or human health is misleading and oversimplifies the pathways of plastic degradation and contaminant migration. Research demonstrates that plastics and their breakdown products, including microplastics and associated chemical additives, can migrate vertically through soil profiles due to processes such as bioturbation, soil cracking, water movement in flood-prone or sandy areas, and agricultural activities like deep ploughing. Studies (e.g., Rillig et al., 2017; Zhang et al., 2020) have shown that microplastics can be transported upwards into topsoil layers where crops grow, while chemical leachates from polymer decay can percolate into surrounding soils and water sources, ultimately entering the food chain, undermining the assumption that burial depth alone eliminates health risks.

00:29:29:06 - 00:30:00:08 for the applicant
"And if we're talking about land quality, we consider the whole field as a whole. And if there's for any one reason, there's a tiny little bit in that middle, that field which is less or better quality than the rest of the field, we still farm that field as one unit if it's also grade two, but there's a bit of grade one in the middle, we still have to farm that field as grade two, and we're not worried about that little bit in the middle. And so the scale of the cables and the down, you know, at a hell of a depth. So we're not worried about them being left in an agricultural perspective."

Our response at the time and also now
We would argue very strongly indeed that the claim that buried XLPE cables amount to just a "tiny little bit in the middle" of a field fundamentally ignores the **sheer scale and cumulative impact** of the proposed infrastructure. We are not talking about an isolated fragment, **but between approx. 1,000 km and 1,200km of cabling** (figures based on similar large solar farms) weighing what could be between 6,500 tonnes and 7,800 tonnes, dispersed across 4,000 acres of agricultural land.

For example, the XLPE cables likely to be used typically contain between **0.5 and 0.7 tonnes of plastic per kilometre**, alongside up to 6 tonnes of copper or aluminium, metallic sheathing and chemicals agents etc.

Scaled across the full project area, this equates to around **4.8 tonnes of plastics, heavy metals and compounds per hectare,** embedded directly within farmland soils.

Far from being negligible, this represents a significant and continuous mass of non-biodegradable material, creating a persistent contamination pathway through microplastic generation, chemical leaching, and disruption of soil structure and ecology. Considering this vast, interconnected network collectively—rather than dismissing each segment in isolation—is essential to understanding its true impact on land quality, soil health, and the long-term sustainability of agricultural use.

Such cumulative impacts surely cannot be ignored or dismissed.

.. for the applicant
Um, in fact, in many ways, from a restoration point of view, we would rather they get left in than ripped up. Because if you every time you handle and disturb soils, you're at risk of causing more damage. So the act of lifting the cables out is more risky to soil, uh, condition than leaving them in. And there are ways you could maybe if they wanted to remove some. I don't know how the cables are laid, I say, but sometimes you could put a duct in with the cable through the duct, and then you can just pull the cable out and just leave the duct in the ground after, as well as to avoid a bit of land disturbance.

Our Response
We disagree and are concerned by several parts of this statement, including the comment for the applicant "I don't know how the cables are laid", if Mr Griffiths does not know this very basic fact for instance; how the cables are laid, but simple knows the depth, we are concerned about how we should be expected to be fully confident in the applicant's response to what we consider extremely important and critical questions.

00:30:33:11 - 00:30:42:22 for the applicant
"So the different ways of doing things, but from an agricultural perspective, we're not worried about these things being left in. They're better left in than taken out in many ways".

00:30:43:24 - 00:31:01:22 And reference was made to them being laid at 0.9m in depth. Yeah. And that's sufficient. Is it for all agricultural activity to ensure that there is no disturbance in due course? If ploughing of various types were to be undertaken.

00:31:02:07 - 00:31:35:20 It wouldn't affect ploughing. The only thing that depth that would affect it as if any other cables or water pipelines came across there, but the laying of land drains would potentially come across and rip through them. And so you don't really want a cable getting caught up in the trench when you're trenching a new land drain in which a landowner is laying a new bit of plastic pipe to improve the soil drainage characteristics, and in this catchment or in this wetland boundary, we've got a lot of the best and most versatile land. Won't rely on land drains anyway **because it's freely draining**, so you won't even be putting them in in those instances.

Our Response
We agree with the respondent's comment that "the laying of land drains would potentially come across and rip through them [cables]" but would strongly disagree with the comment "won't rely on land drains anyway **because it's freely draining".** This development is also supposed to be designed to be resistant to climate change events, if creating additional drainage ditches in the future could cause cable dragging, stripping of plastics etc , how could the design be climate change resistant.

For Example; please see just a small sample of images of areas of waterlogging and ponding across the development zone east of the A1133 plus adjacent to the sustrans route, some of these water bodies can last for weeks in the wetter months.

Drinking Water Protected Area

- 4000 Acre Development Site overlaps a Drinking Water Protected Area GB104028058480, 20 acre reservoir and water treatment plant (Map)

Department for Environment Food & Rural Affairs — Data Services Platform

Environment Agency — Catchment Data Explorer — Home Search Help API

Home / Humber / Trent Lower and Erewash / Trent and Trib / Trent from Carlton-on-Trent to Laughton Drain

Trent from Carlton-on-Trent to Laughton Drain Water Body

Moderate ecological status

Protected areas

PA Name	Id	Directive
Trent from Carlton-on-Trent to Laughton Drain	UKGB104028058480	Drinking Water Protected Area

GB104028058480 is a legally recognised protected catchment for drinking water sources.

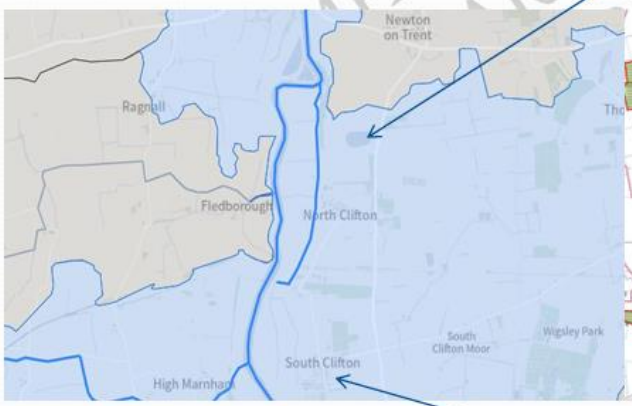
The image shows the zone's boundaries and context.

Included in the solar farm development zone are the 20 acre North Clifton Reservoir And the Anglian Water: Hall Water Treatment works Together providing up to 2million litres of drinking water per day to the city of Lincoln (image below)

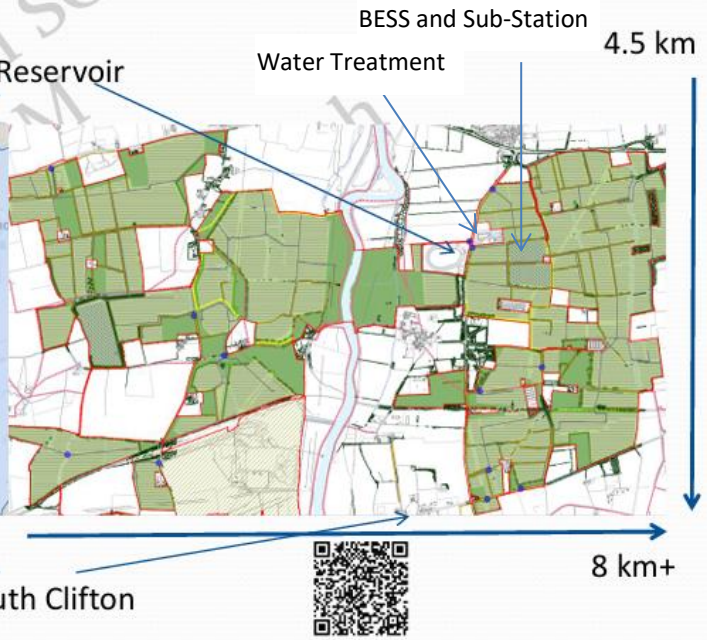
Drinking Water Protected Area
Side by Side Scale Maps, 36km^{sq}

- 'DWPA' Map

Trent from Carlton-on-Trent to Laughton Drain Water Body



One Earth Solar Farm Map



Lincoln Cathedral View Amenity

An area showing standing water – looking from outside the zone but looking east across the zone east of the A1133.

Taken from the footpath on the cliff top, please notice the view to Lincoln Cathedral at the top of the image, today was cloudy but this is particularly beautiful on a clear day –heartwarming when out walking this popular route.

Notice the trees and fields – all of which would be covered by solar panels and trees removed.

Examples of Micro-plastic concerns from governments and the Environment Agency

UK Government & Parliamentary Documents

1. *State of the Environment: Soil* (summary) — GOV.UK (2023)

This Environment Agency–led government report notes that "Microplastics are widespread in soil with unknown consequences" and flags contamination of soils as a growing, poorly controlled risk.

2. Environment, Food & Rural Affairs Committee – *Soil Health* Inquiry (First Report, Dec 2023)

A parliamentary committee report that highlights soil contaminants—including microplastics—from sewage sludge spreading, and explicitly recommends independent evaluation of its risks on farmland.

3. Government Response to the Soil Health Inquiry (Published mid-2024)

The government noted it is reviewing regulatory gaps. By end of 2025, EA and DEFRA must assess regulation of organic inputs, including microplastics, for improved soil contamination protections.

Environment Agency / DEFRA Strategy & Evidence Projects

4. River Basin Management Plans (2022, action plan summary)

These plans include EA-led actions investigating microplastics in effluent and sludge, and partnerships to improve surveillance monitoring and reduce agricultural microplastic inputs to soils.

5. Preventing Plastic Pollution Programme (EA / Defra projects)

Part of the above measures; EA is building evidence frameworks related to tyre-wear and textile particles and assessing microplastic pathways into farmland via water treatment and biosolids.

Academic & Research-Based Reports Commissioned or Referenced

6. Royal Society — *Microplastics in Freshwater and Soil* (2019)

Though not EA-commissioned, it gathers official evidence on microplastic distribution and effects in soils and freshwater, often informing government and EA policy assessments

7. James Hutton Institute Study (Mar 2025)

An EA-supported study underpins government concern: after four years of sludge application, soil microplastic levels surged by up to 1,450%, and contamination persisted for decades afterward.

Summary

Speaker: David White (on behalf of Say No to One Earth Solar Farm and local residents)
Topic: Environmental and legal objections to the permanent burial of 1,000–1,200 km of XLPE cables (approx. 6,500–7,800 tonnes of plastics, metals, and chemicals) across farmland and a drinking water protected area.

Key Points of this submission:

- **Legal Concerns:**
  - Allowing permanent buried XLPE cables would contravene:
    • *Environmental Protection Act 1990 (Part IIA)* – defines contaminated land and requires remediation of pollutants harmful to health or controlled waters.
    • *Water Resources Act 1991 (s.85)* – prohibits knowingly polluting controlled waters.
    • *Environmental Permitting Regulations 2016* – requires authorisation for waste deposits.
    • *EU Waste Framework Directive (2008/98/EC)* – obliges prevention of pollution from discarded materials.
- **Scale of Impact:**
  - Estimated **4,000 acres of farmland affected**, equating to **4.8 tonnes of plastics/metals per hectare**, buried beneath agricultural soil.
  - XLPE cables contain plastics, bonding agents, flame retardants, and heavy metals, which will degrade into microplastics and leach chemicals.

Developer's Position:

- Claimed that cables buried >0.9m "avoid disturbance" and are best left in situ to prevent soil disruption.
- Asserted buried plastics "pose no risk" to cultivated soil or human health, comparing them to underground plastic pipes.
- Admitted lack of technical expertise on plastic degradation and groundwater risks; deferred questions to absent colleagues.
- Suggested future removal would depend on evolving government policy and environmental best practice.

Community/Expert Counterpoints:

- **Plastic Degradation Evidence:**
  - Referenced *PubMed study (PMID: 35819676)* showing irrigation pipes fragmenting into microplastics in farmland.
  - UNEP (2022), Bangor University (2023), and Staffordshire University (2022) studies confirm farmland as a major microplastic reservoir.
  - Microplastics persist in soil, harm soil biology, and leach chemicals into crops and water.

- **Vertical Migration:**
  - Research (Rillig 2017; Zhang 2020) shows microplastics move upwards in soil via water flow, bioturbation, and farming practices, reaching crop zones.
- **Cumulative Impact:**
  - Developers downplayed scale ("tiny bit in the middle of a field"), but objectors stressed thousands of tonnes of plastics and heavy metals etc, interconnected trenches across thousands of acres represent a major contamination pathway.
- **Regulatory Oversight:**
  - EA and CEH data highlight plastics as a rising terrestrial contaminant (up to 910,000 tonnes annually in UK soils).
- **Climate Risk:**
  - Concerns raised over future drainage needs, soil waterlogging, and cable damage from land drains, undermining "climate resilience" claims.

Conclusion:

The hearing highlighted serious legal, environmental, and scientific concerns over leaving XLPE cables permanently buried. Developers failed to provide clear evidence addressing plastic degradation or groundwater risks. Objectors called for strict lifecycle management, removal obligations, and alignment with environmental law to prevent long-term soil and water contamination.

We would conclude that the only safe solution is **not to build this development here at all**, this a "major issue waiting to happen."