



Planning Inspectorate
Arolygiaeth Gynllunio

Hearing Transcript

Project:	Lime Down Solar Project
Hearing:	Issue Specific Hearing 5 (ISH5) - Part 3
Date:	15 September 2026

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FULL TRANSCRIPT (with timecode)

00:00:09:16 - 00:00:20:24

Good afternoon. I make the time one forty five and we will reopen this hearing. So starting on to agenda item number four,

00:00:22:10 - 00:00:43:00

you will note that Ms. Labour said she wouldn't be joining us in person, but as you can see she is online, she is joining us virtually. So what I'll do, I won't run through the housekeeping, you'll be pleased to hear. What we'll do is we'll allow everybody to make introductions for new members of their teams. So if I start with the applicant please, if you could introduce anyone new please.

00:00:44:16 - 00:00:54:08

Claire Bojack. For the applicant, yes in respect of this agenda item I'm joined by Mr Josh Rigby and Mr Dan Mayer. So I'll just let them introduce themselves. Thank you.

00:00:56:01 - 00:01:05:15

Hi I'm Mr Joshua Rigby, Director of Arthian Limited, specializing in hydrology, flood risk and drainage. You can refer to me as Mr Rigby.

00:01:09:12 - 00:01:20:16

Hello, I'm Dan Maher from Geosyntech Consultants, where I'm a senior scientist, and I've been leading on the ground conditions element of this. You can refer to me as Mr Maher.

00:01:22:21 - 00:01:32:20

William Barrett, for the applicant technical director at AECOM, environment lead for the project. Mr Barrett.

00:01:35:07 - 00:01:49:15

You. I'll come I think we also have Mr Paul Gregory available online in the event that there are any matters relating to the battery storage. I'll just see if Mr Gregory can introduce himself.

00:01:56:13 - 00:02:01:24

Paul Gregory, Director BST and T for the applicant, Battery Safety.

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Thank you. Anyone else online?

00:02:07:14 - 00:02:12:12

Claire project, no those are the people we envisage having to speak to this particular agenda item. Thank you.

00:02:13:06 - 00:02:15:21

Terrific, thank you very much. I'll come to the council now.

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I'll let the two experts for the council introduce themselves.

00:02:23:16 - 00:02:29:04

Rohit Singh, Principal Technical Officer, Drainage Planning, Wiltshire Council. You.

00:02:32:01 - 00:02:38:13

I'm Welding, Associate at Kinstry Alice. I'm supporting the council.

00:02:40:18 - 00:02:43:05

Thank you. Anyone joining us online, Ms. Shalloughby?

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Adet Shalloughby Wilson, no, that's it.

00:02:45:17 - 00:02:48:18

You. I'll come to Stop Down, please.

00:02:50:20 - 00:02:56:17

Celia Reynolds, counsel on behalf of Stop Lime Down. I'll let Professor Skeffington introduce himself.

00:02:58:15 - 00:03:05:10

So Richard Skeffington working on behalf of Stop Lime Down. Professor Skeffington.

00:03:06:14 - 00:03:31:24

Thank you. Anyone else joining online, Ms Reynolds? No. Thank you. Okay, let's get into agenda four point one. We're going to be looking at the assessment of flood risk and drainage, impact of the PV panels on runoff. So we're going to be approaching the applicant, Wiltshire Council and my apologies, I need to ask if the environment agency are online.

00:03:36:20 - 00:03:41:18

Yes, the Environment Agency are online, the same people who have introduced themselves this morning.

00:03:41:28 - 00:04:13:06

Thank you, and apologies for missing you out, was too keen to get going. I'll start again, Item four point one assessment of flood risk and drainage impact of PV panels runoff and. We'll be asking the applicant, Wiltshire Council and the environment agency. You'll be invited to comment on the stop line down submission Rep five one thirty. This is Appendix D modeling enhanced runoff from solar panels at Limedown Solar Farm. And section two point three, which is document Rep six thousand eighty one.

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So the XA we're looking to. We're seeking clarification on the extent to which applicant's flood risk and drainage assessment has considered those submissions and whether any further assessment mitigation or management measures are required. Can I ask the applicant to display figures seven and eight of the report document Ref five-one hundred thirty, please? He should have been sent this prior to the hearing.

00:04:42:09 - 00:05:18:18

Thank you very much. I'm assuming all parties are familiar with this deadline five submission. So what I'm particularly interested in exploring today are the conclusions of the study in relation to three main things. The impact of large tracker panels and their orientation on surface water runoff. The proposed use of maintaining vegetation between the panels to mitigate runoff and potential off-site flood risk. And thirdly, I would like a comment from parties with respect to the potential impact resulting from climate change resilience, given the recent summer we've just experienced with respect to drought.

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Basically if we don't have the vegetation because of the drought, how is that going to affect runoff when we do have rainfall? So I'm going to come to the council first, please. On those three points, could I ask you to provide comment? Thank you.

00:05:36:13 - 00:06:06:10

Rohit Singh from the council. Well, there is impact of, you know, like when we have solar panels, but the impact can be mitigated using providing appropriate vegetation, also ensuring the density of vegetation is maintained. Also, we need to avoid soil compaction. It depends on a number of factors.

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I would say that modeling these things has mainly been carried out at an academic level. Various universities have been involved, but in terms of

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field projects, It is mainly a function of

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like management of soil, management of vegetation, but

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there's a need to understand what are the assumptions when we are

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developing a management plan. For example, we are developing, let's say, soil management plan or vegetation management plan so that we need to have a certain quantitative assessment. Otherwise, we cannot have, you know, like we do an assessment and we say that we will do another assessment as and when required. So it is important to understand that we understand that what kind of quantitative assessment we need.

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For example, let's say seventy percent vegetation cover. This is just an example. It's up to the applicant what they demonstrate to us as to how much quantitative, let's say, cover of vegetation or quantitative

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uncompacted soil because compaction of soil can increase the rate of flow which can cause flooding. So that's why in my previous submissions, have made sure that certain amount of hydrological verification is required. But that does not mean that we need to do detailed hydraulic modeling, but we need to do a quantitative assessment in terms of vegetation cover, in terms of soil compaction so that the runoff response is maintained to the natural catchment.

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I don't Shadby, Wiltshire Council. So I think the council, just to add to what Mr Singh said there, the council doesn't consider this gives rise some sort of fundamental concern that needs to be addressed now at application stage. But just to reiterate the point that because the effect of using different assumptions can result in different conclusions and that's part of what Stopline DAS evidence has shown. There has to be this hydrological verification framework that we'll come on to address later.

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Okay, I understand.

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Let me just test my understanding then. So if there is a potential increase then you're are you saying at the moment you are satisfied that there's no need for any further modeling work, it's

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not an issue that needs to be resolved, what am I trying to say? It's a matter that can be controlled through appropriate wording within management plans.

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Yes, what we are saying is if the applicant has told us that they will maintain the greenfield runoff rate, they need to demonstrate that post development,

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they need to demonstrate to us in a quantitative way, not just they will say, yeah, we will do it, like if there's erosion, we will change the, like vegetation, add vegetation. I mean, this kind of

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ad hoc arrangement is not useful. When we are developing a large scale project, we need to have proper quantitative verification and assessment. So that, let's say a certain, like based on the initial assumption, like pre development rate that can be maintained post development.

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And Odette Shabby, Wiltshire Council. So yes, Odette Council is saying this is something that can be dealt with post grant of a decision, but not something that can be subsumed into the management

plans, it's a separate hydrological verification framework that's a quantitative assessment that's something different to the management plans.

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Yes, we're going to come on that to later on today.

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I would like to add one more point, and this needs to be demonstrated before we grant them consent because think this is a simple calculation that they can do, Otherwise, it will, I mean, and then it will make us the council as well as the people affected in a better

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like situation, they will have less apprehensions of any flood risk.

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Thank you. Right, I want to come to the EA next actually. And I would like to ask the environment agency, so

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the does environment agency consider the current controls through environment management plans and the use of vegetation are still appropriate considering the evidence that Stop Blindown has submitted?

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Laura Edwards from the Environment Agency. I'll go to Bill on this one.

00:12:08:26 - 00:12:44:07

Good afternoon, sir. So generally as the Environment Agency, yeah, we defer would to the view of the lead local flood authority, so Wiltshire County Council. But, yeah, we have read the submission from, professor Skeffington, a stop line down, and note the impact, of runoff, particularly on some of the shallower, polio drained soils within the development. Just noting the sort of runoff depths reported, particularly for the longer duration storms, the solar area e.

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We did recognize some increases there, but I think it's important to be mindful that any sort of modeling approach, particularly in this context, carries inherent uncertainties. So I think agree with the position from Wiltshire County Council in terms of management and monitoring is probably the best way to deal with those uncertainties in this context

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through the use of a hydrological sort of verification framework as Mr Singh identified. Because we could indeed ask the applicant to undertake some detailed modeling in this context, but again, think that would carry quite a lot of uncertainties and probably would require a rainfall runoff or a distributed modeling approach when there probably isn't the design detail at this stage to do that, to have any real confidence in the outputs. I note the increase identified in solar panel area e, I think it was around fifteen mil for the twenty four hour fifty mil rainfall storm.

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I guess perhaps it might be helpful from the perspective of the applicant for them to consider what that might mean in terms of runoff and whether, you know, in terms of the vegetation, planting,

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ensuring soil compaction isn't increased, that that would sort of mitigate that. But I I think, yeah, I agree with the position from sort of Wiltshire County Council on the matter, really. And I think, yeah, it just requires sort of strict monitoring and management and ensuring those sort of management measures are in place throughout the lifetime of the development.

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Thank

00:14:28:27 - 00:14:58:23

you very much. I'll come back to the council to just explore my understanding. Then Mr Reynolds, did you raise your hand just there on my seat? No, okay. It's the columns in front of me with the cameras on. I'm catching up the corner of my eye and think someone's putting their hand up. So I'll just come back to the council just to confirm my understanding then. So with respect to the evidence submitted by Professor Skeffington and the document, the images we've seen on screen then, so

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if we're using tracker panels, there's different soil types. We'll come on to vegetation between panels etcetera further on through hearings. But in terms then of again like I say the different soil types, tracker panels, the change in direction for those tracker panels, you're quite content that the

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you're quite content that any of those issues can be resolved by management plans and those management plans they need to be updated appropriately now.

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That my understanding correctly?

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Well, so basically the tracker panels and there might be different

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uncertainties it comes to modeling. when So I appreciate the work that Professor Schaffington has done. But in terms of practical project, I think this kind of approach may not be appropriate because

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there

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are a number of assumption in any modeling and there's a lot of uncertainties. And also for such a large area, which is three thousand acres, we cannot be identifying flow paths and different land use

changes, different tracking angles of the solar panels. It becomes really difficult for any assessment to be

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used for a practical project. So that's why it is always recommended to have a catchment based approach. And that's why it is, like for practical projects, this is always the case in any other solar projects as well, that we use a catchment based approach and we identify what is the greenfield runoff and we ask the applicant to maintain the greenfield runoff development post or post installation of solar panels.

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And we ensure that the hydrological parameters, which is impacted due to, let's say, soil compaction, vegetation stripping is mitigated using appropriate control measures such as decompaction of soil, such as reinstatement of vegetation, and any other such issues. So these are the main methods in which we mitigate the impact of installation of solar panels.

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So for these paneled areas, we would recommend to the applicant that they demonstrate to us,

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like how in post development scenario they will maintain

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the greenfield runoff rate.

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And we have to ensure that the Greenfield runoff rate is always the parameters they have to always monitor against whenever they are creating any vegetation management plan, soil management plan. And they have to, because if they miss that target by a, let's say a significant amount, let's say the vegetation amount that they need to maintain is, let's say seventy percent of the site.

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And if they don't maintain that, let's say they make it sixty or fifty percent, then I think we will see increase in the flow rate, which may cause downstream flood risk. So this is how we ensure that you know we are not impacting the downstream receptors like the different communities which are staying in the downstream areas.

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Okay, thank you. I'm going to explore a couple of things further with the applicant and then I'm going to come back to stop limedown to comment on all of that you hear, if that's okay, Ms Reynolds. Thank you. So I'll come to the applicant now. Mean, you've heard what the council have said. I mean,

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first of all, I'll ask, do you have any comments to make on what you've heard from the council and the EA who appear to be on the same page on this matter?

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Josh, on behalf of the applicant, I think we are generally in agreement with the Environment Agency in Wiltshire, apart from with regard to the requirement for a separate hydrological verification framework. We believe that the controls that impact surface water runoff from solar paneled sites are already sufficiently mitigated within the management plans that have been provided already.

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We've reviewed SRDs PV Smart modeling and essentially the calculations that are based, that form the basis of that are the same things that form the basis of the control measures within those management plans. It considers the soil characteristics, soil bulk density, slope, vegetation, condition panel configuration and compaction of the soils. All of those things are controlled through the Outline Soil Resources Management Plan at REP six thousand and thirty five.

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Control the soil trafficking and compaction and provides for remediation. The outlined landscape and ecological management plan at REP six thousand and thirty seven controls vegetation establishment and management. The outlined operational environmental management plan REP six thousand and thirty one provides for inspection of erosion, drilling and channelization and corrective action where required. And construction face all disturbance and runoff of management control through the outline construction environmental management plan at REP six thousand and twenty nine. I think it's always worth considering the baseline that we are considering at this particular site, greater than ninety percent of the site is agricultural land.

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Goes through, necessarily it goes through significant changes throughout any given year. It could be cropped, it could be bare earth, it could be compacted through heavy machinery movements. Post construction it will be and controlled through the management plans a grass field, any sign of any potential detriment that is occurring that could accelerate the rate at which rain gets towards the natural catchment and following the natural topography of the existing ground levels are all controlled with those control measures in place.

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The applicant's position is that whilst we appreciate

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the Wiltshire route seemingly required an additional plan, that all of the potential

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impacts or effects that could be caused through spatial redistribution of surface water around a panel itself and then how that follows into the ground is controlled already through the management plans?

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Yes, I am going to come on to the management plans because there is a matter I want to explore further on that point. comes It down to one of practicalities with respect to the council.

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There was something Mr Singh mentioned and I wanted to explore that a bit further.

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I mentioned it earlier in my bullet points, my points before, what if we have another year and we will have another year like this, that's what the science is telling us with climate change we're going to experience drought. If we're in a situation, call it worst case scenario, you're not getting the vegetation coverage required. First of all, what does that look like? What does worst case scenario look like in terms of vegetation not taking? As you say over the year, I appreciate what you're saying with respect to farming, land changes, etcetera, etcetera.

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I mean, I understand all of that. But here we are relying on the vegetation around and between panels to help control flow of water. What happens if we end up like another year like this, this drought, weeks, months, etcetera, vegetation isn't taking, the ground is fairly bare, at what point do we hit worst case scenario, is it fifty percent ground cover, forty percent vegetation cover, and do we then need to consider, and this is taking it a step further, it's taking the thinking a step further, the outlined drainage strategies, which I think the outlined drainage strategies only account for runoff from permeable surfaces.

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So do we need to consider a bit more security of sorts within those drainage strategies to account for the worst case scenario? And I also don't want to lose my first point in there is what is worst case scenario with respect to vegetation coverage?

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With regards to vegetation coverage and what would be the impact pre and post development if we were to experience a drought or hot weather as we have recently.

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That would occur with the baseline if the construction wasn't undertaken. So the difference between the baseline and what is proposed would be no different. If there's no vegetation in the baseline because we're experiencing drought we be would in the same situation post construction.

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The material question is whether or not we are causing a detrimental impact to the existing situation, not whether or not we can fix that existing situation.

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Sorry, my question is you are relying on the vegetation to control runoff so you don't exceed current rates.

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But what happens if that vegetation doesn't take? That's my question, if we don't have vegetation, and how much vegetation coverage is necessary to achieve what you need to achieve?

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Josh Rigby on behalf of Milacan.

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Again we're relying on the vegetation to take to assume that it would be the same as the baseline situation that is currently occurring?

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Sorry, keep talking about baseline situation. The baseline situation is field, vacant field with crops or cropping or it's been plowed, whatever it is. The base what you would be producing is a field covered in panels. So that does change how the water reacts with what's going on.

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Actually as the applicant is conferring can I ask whoever is controlling the monitors go back up to figures seven and eight please because I think they will help to make my point a bit clearer? Yes, thanks. Just a little bit further up, a bit more, there we are, ideal. That's fine. Right, okay, so I'm probably, I'm maybe not asking the right question. So looking at how water would interact, the top one shows, the top image there, number seven, that shows it quite clearly. You'd have water coming off and then landing in channels.

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And so we can see in the top image, figure seven, that occurring, whereas at the moment

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the water is being spread across an entire field. So that's my point, is that as water is coming down, it's rolling off the soil panels, it's concentrating at a point, at what level, what percentage of vegetation cover is necessary to achieve greenfield runoff? Yes, I think that's probably the clearest way I can put it.

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Josh Rippey on behalf of the applicant.

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The mitigations as part of the drainage strategy do rely on coverage of grassland. So it is assumed that that grassland sward is established as part of the construction environmental management, part of the LEMP and part of the OEMP. So if there is detriment or reeling or observed non takeage of vegetation in particular areas, then remediation measures would be in place and whether or not that's planting and additional watering, then that would have to be considered at that time.

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I think the establishment of the vegetation in the first place, if we do experience drought, that vegetation and the roots and everything else that is inherent in that would still be established and it would rebound

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soon as there is rainfall as any grassland habitat would do. And then post an incident like that, it's obviously, sorry, it would be part of the operational management plan's remit to ensure that that grassland is re established.

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Brodiek, do you want to come in?

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Claire Brodick, the Appkin. Yes, so I think it was just to confirm what Mr Rugby was saying is that there's obviously two distinct elements here. There's the activities that would need to be taken place to get the grassland to establish in the first place, and to the extent there would need to be any measures put in place whilst that grassland was establishing, then those are provided for by the management plans. And then you have a separate situation whereas, if you take a summer like this, that the grass

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experiences is drought and turns brown or whatever during the summer, but it's still there and providing functionality for them the next rain event. But I think our position is that the management plans already provide for that scenario.

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I would like to make a point here.

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Yes, continue and I'll hopefully not lose my train of thought. I

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think what the applicant has not done so far is they have not provided us a number, like let's say seventy percent vegetation for the site, whole site or for the paneled areas, seventy or eighty percent, like whatever they have assumed for providing us the Greenfield rate, they should tell us that this is the number we aim to maintain. I understand it could vary sometimes depending on whether it's drought or too much rain or due to certain issues, But I think that should be the basis of their

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commitment to Wilshire Council that they will aim to maintain this percentage of vegetation, this percentage of uncompacted soil so that we as counsel are assured of a certain minimum performance from the applicant.

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No, thank you, Mr Singh. Yes, I'm

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mean yes, I would be minded to go forth on that point because really we need the grass ward to control runoff, that's established. But equally, I mean we could end up, I mean this ties into climate resilience ultimately, doesn't it? So what we need to make sure is that this takes. Now if this award doesn't take, I appreciate what's been said about management plans. But really,

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and yes we could spend all day going what if, but the reality is you end up with a period where the sword doesn't take, you've been trying to water it, etc, and it's not in a position, the ground is still rock hard from summer and we get heavy rainfall. That will, in my mind, increase the rate of runoff during that event. So if we have an increased rate of runoff, and I might welcome to the Environment Agency on this point because although, yes, I understand the environment agencies just remit that water then be flowing up, flowing at increased volume, increase in rate coming off, going into the water courses, potentially increasing flood risk downstream.

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Now, we really need to bottom out this point because we have evidence here from stop line down with respect to the different soil types and the potential difficulty of getting the grasshopper to take in those soil types. So. And I think it probably comes down to the point of a we need to know. I think what point we have an issue with ground coverage, again as the LLFA have pointed out, is it forty percent, fifty percent, sixty percent before we start experiencing an increase above and beyond greenfield runoff rates?

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And secondly, we also need details on adaptive management for this SWOT.

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I think that there is a question mark there over the adaptive management of that. What if it isn't taking and we keep experiencing and we will the extreme weather events that are predicted by science that we're all aware of? So can I the ask applicant first of all, mean if it's a point we have to take away as an action point, I'm loathe to do that because we are fast approaching the close of examination? So I would like to hear from the applicant with respect to

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how are we going to progress this issue because it may require some further modelling, I don't know, but in terms of how the green sword performs, if it's forty percent, fifty percent, etcetera, how that is managed, and we need further details of adaptive management of that sword to prevent, to give some clarity over the changing climate, likely over the next sixty years. Also talking about, when you think about practicalities, finish for argument's sake lying down, A, it's installed, it's operating, and please don't take that as an assumption of direction on my part, I'm setting out a scenario.

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We could end up in a situation where you've finished, you've got lying down A or whatever, B, C, etc, working and there isn't a grass ward because the ground has been cut up by machinery.

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So I think we need a bit more from you please. Over to the applicant.

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I'm just checking who's the correct person to answer your question because obviously Mr Rigby is hydrological, but your questions are asking about how we can ensure GRAS establishes, which is

potentially for a different expert in terms of the measures you would put in place to actually ensure the correct specie for that particular soil type.

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Species and management overall to make sure it's taking, I assume hydrology and soil experts are talking to one another. I'm assuming this isn't a surprising issue.

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Claire Borjeck for the applicant, no I'm just making sure that Mr Rigby isn't being asked to answer questions that are beyond his area

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of expertise. Please take your time and let's bottom this out today if we can.

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Mr Jackson's just going to explain what happens in terms of vegetation management and the measures that are put in place just to give that background in terms of how that's envisaged to work under the current management plans. We'll just give that explanation initially.

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Thank you. Okay, thank you.

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Christian Hansen on behalf of the applicant.

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Just to come back to the point you were just talking about, about species and establishment,

00:37:52:23 - 00:38:16:11

the OLEMP is the control document for all of the vegetation across the scheme, whether that's trees or hedgerows or any of the grass itself. Obviously, the way that the grass establishment is connected to the hydrology and then issues that we're talking about at the moment, it's key that the GRAS

00:38:17:26 - 00:38:31:10

establishes, as it's anticipated to do, through that control mechanism. So the current wording of the outline length is that prior to any seeding being carried out,

00:38:35:08 - 00:38:50:10

it's important to gain an understanding of soil conditions prior to seeding being carried out. This will include an assessment of soil type, pH, nutrient levels which may affect the species that will establish. Consequently, the information in the outline lamp may be subject to revision following completion of such investigations,

00:38:53:04 - 00:38:58:17

which will further tailor and refine the appropriate seed mixes and hazardous development techniques to be adopted.

00:39:00:12 - 00:39:13:25

So to take that through in the same vein that the outlined length is obviously needs to be materially aligned sorry, the detailed length needs to be materially aligned to the outline length that is consented, I could see no

00:39:15:16 - 00:39:20:02

limitation as to why the approach to that

00:39:22:04 - 00:39:38:13

selection choice of grass species couldn't continue throughout the lifetime of the scheme, in the same way that we would seek to any replacement of tree loss or hedgerow loss. It's something of looking at what is establishing, what's working and responding appropriately to that.

00:39:39:29 - 00:39:41:10

I think it's the

00:39:44:01 - 00:40:05:07

burning a moment. Also in regards to LEMP, it's recognized vegetation that establishment can reduce infiltration capacity on affected soils and lead to increases in runoff if left unmanaged. Crucially measures to deal with flood risk and draining to set out within ES volume three the flood risk assessment and draining strategies. Again,

00:40:05:09 - 00:40:05:24

coming

00:40:05:26 - 00:40:40:05

back to that, moving forward from the outline, it's a detailed length. So investigations will be essential to ensure appropriateness of seed mix establishment and needs to promote high likelihood of success. The seed mixes will be selected to reflect the soil type pH nutrient levels. Now that's continuing. There's no reason, I can't see why that would be limited to that moment in time given as you're talking about the climatic changes that we are potentially looking at. But there is an ongoing management and maintenance piece in place with all of the landscape elements of the scheme.

00:40:40:07 - 00:40:47:11

So again, there's no reason why that wouldn't be would not include or prejudice the grass wall beneath the panels.

00:40:49:06 - 00:40:55:08

So thank you for that Mr Jackson, that's helpful to move things on. So

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again I'm thinking practicalities here. So talk me through this, you're installing the solar panels and it's there. At what

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point do you start doing the preparation work for the grass ward? When does that come into practicalities of building a solar farm that's reliant on the grass ward for runoff?

00:41:21:18 - 00:42:01:18

Chris Chatsworth, on behalf of the applicant. The honest answer is from day one, the approach to the construction management plan, the approach to machinery that's used on-site, focusing on soil compaction, soil storage on-site, compounds, the HDV movements and where it's all decanted onto smaller machinery so that we aren't compacting the soil from the get go. That's all something that obviously we are cognizant of and our design in the scheme allows and the access points to ensure that it's designed into.

00:42:02:15 - 00:42:15:23

And then it's as the seasonality progresses and ensuring that the scheme is being constructed that we are then seeking to get that grass ward established at the earliest opportunity.

00:42:16:03 - 00:42:19:18

Is there a window whereby

00:42:21:06 - 00:42:29:25

the grass ward won't be sufficiently in place to do what you're hoping it will do.

00:42:40:29 - 00:43:14:12

Would probably defer to Ms Proderick on that given that I'm not probably well enough placed to discuss the detail around construction time frames. I appreciate the question that you're asking, but it's into the detail of have we got a grass ward in this winter prior to panels going in this spring? Or is it panels in this winter and grass in this spring? And that's something, at this stage, I'm not exactly familiar with the level of detail that you probably need to answer that question robustly, sir.

00:43:14:17 - 00:43:18:29

No, thank you. I'm quite happy for anyone to answer it from the applicant's side.

00:43:49:23 - 00:44:24:10

Claire project for the applicant. Obviously isn't that level of detail isn't available in terms of the exact sequencing of events per site, and some of them will be different depending on other works that might be taking place. So for example, those that sites have only inter array cabling and those sites that also are subject to the grid connection cabling that's connecting all of the sites together as well. Obviously there are preferable times to doing particular works and those will be adhered to.

00:44:24:12 - 00:45:02:21

For example, think the outline Lemp makes reference to preparation of fields before aversion to grassland and there's various factors that will be taken into account in terms of minimising compaction of soil, which has been mentioned, but also activities that will be done to manage the land in between, so dealing with agricultural weeds, cereals and things like that that may have been utilised on the land before. So there's a whole variety of different factors, and those will all be site dependent, and I think that level of information isn't available to give you.

00:45:02:23 - 00:45:18:04

But we do take on board the point which I think you'll, if I'm correct in summarising here, is that obviously if the potential impact is from the day that the panel is I

00:45:28:18 - 00:45:29:03

point.

00:45:31:17 - 00:46:05:00

Environmental impact assessment in terms of being able to maintain greenfield runoff rate can be assured during any difference in timings between establishment and the erection of the panels I think is one point, and that's separate to the later point which was what happens if the grassland later fails, and Mr Jackson's provided some further information about the ongoing monitoring and replacement and consideration of species types etcetera that will continue throughout the life of the scheme?

00:46:05:02 - 00:46:32:11

Yes, I would imagine it also depends on things like soil type in particular areas as well, I which think has been raised by stop lying down in their submission and their deadline five submission. I'm scribbling an action point actually right now. So what I'm going to do, I'm going to move this on because I think we do need some further details at deadline seven.

00:46:34:06 - 00:46:55:01

We do need some further detail, we do need I think to link vegetation, I'll come back to you in a second Mr Jackson, we do need I think, a comment from you that links the percentage of vegetation needed to address surface water runoff. We need some further details about the a comment about the adaptive management to take account of climate resilience.

00:46:57:20 - 00:47:10:19

And then this all will this will link in with the hydrological verification report scope, which we are coming on to later in the agenda, so I don't want to conflate matters.

00:47:12:10 - 00:47:46:11

There's issues there so I'll just run through some matters that I've written down and I'm going to move this on, but adaptive management measures, climate resilience, minimum support levels to maintain greenfield runoff rates, And I want to come on to actually because if there is an increase in runoff in worst case scenario. Reasonable worst case scenario. Do we need to consider further such measures? So that's that's some points, but I will sum a up potential action point further on. Before I move on to my next query, I'll come back to you, Mr Jackson.

00:47:48:07 - 00:48:20:16

Sir. Just a final point in regards to the wording of the olymp that might give some direction of movement towards what you're suggesting, sir. The current word of olymp is that an inspection will be undertaken early August in the first year following seeding of grassland at the relevant site of PV sites. Inspection will be undertaken by the operating company, should the proportion of bare ground be greater than twenty percent, sowing with an appropriate grass and seed mix should be undertaken or repeated in these areas, depending on the initial methodology for grassland creation.

00:48:20:23 - 00:48:58:09

Re seeding in August would like to be particularly appropriate when the months of May, June and July have been very dry. So there's already that. That's an eighty percent establishment. So we were talking about what the grass world would look like. We've got that eighty percent requirement in there, then below that would then require that reseeding. And while I was touching on the climate change, again, looking at what might be the suitable species mix at that point as well, we're looking at the composition of what has established, what has been successful and recognizing that the grass mix might be more appropriate to be focused on those species that have been successful?

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I

00:49:03:08 - 00:49:07:18

think I know the answer to this but I'm saying that eighty percent, is that linked to hydrology performance?

00:49:09:07 - 00:49:30:06

Protestant marketing applicant, no, so that's separate within the OLEMP obviously. There isn't that, my understanding, and Mr Brinkley might be better placed to answer directly to regards to hydrology, but that eighty percent probably is not be the OLM requirement. So we'll be looking at the sward mix underneath the panels independently than the hydrologist eye on it.

00:49:30:15 - 00:49:31:07

Okay.

00:49:31:26 - 00:49:34:08

But it is linked to

00:49:37:04 - 00:49:54:05

sorry, I'll just rephrase that. Whilst it's not directly linked, it's obviously linked to the performance of the plant species and the establishment of the plant species. And given the interrelationship between the establishment of the grass ward and the hydrology, then yes, technically there is a direct correlation between the two.

00:49:54:07 - 00:50:11:16

Of course. The grass ward also links into other areas which I don't want to get into because if I do we'll end up talking about something totally different for the rest of the afternoon. But you mentioned about dual M and talking about review in August and etcetera. What happens if you finish a site in January?

00:50:13:21 - 00:50:22:10

So if you finish a site in January you're not then undertaking that potential remediation measure until the August. Am I understanding that correctly?

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As it's currently worded, that mechanism would be for the review in August, yes.

00:50:30:06 - 00:50:50:11

Right. Okay, I think we probably need to add to my action point which pointed some up at the end. I think that needs to be reviewed. I'm debating that's the best time to plant etc. I'm a terrible gardener, I recently killed a cactus.

00:50:52:04 - 00:51:18:06

But the serious point is that if you were to finish a site in January, we've got seven seven, eight months until we're looking at potentially doing something, we could end up with all sorts of different weathers between those months. So I've got a note here. Okay, so I'm going to come I'm am going to come round to stop lying down, I want to ask another question first.

00:51:21:19 - 00:51:28:01

Right, Mr Colderbank, who I don't believe is with us today, he certainly didn't register to participate. Oh, Mr Colderbank, oh good,

00:51:29:19 - 00:51:41:14

that's handy. In Mr Colderbank's representation, that's Rep six thousand and eighty three, raises issues regarding flooding at the two cottages at Foxley by Norton Brook. Now,

00:51:43:00 - 00:52:21:29

well I think your colleague is ahead of me, moving on to the other image that they had up earlier with the flow directions. So the document in front of us, submitted by Stop Line Down at deadline five, seems to suggest that off flood risk could potentially increase. And we've had this discussion we've had. Can the applicant comment on impacts at the location when I think it's potential impact in Area B? So if I could have a comment from you please, say Mr Colderbank submission was at Rep six and you wouldn't have had a chance to a response to that yet.

00:52:22:06 - 00:52:24:14

If I could ask you to comment just now please.

00:52:25:28 - 00:52:42:27

Josh Rigby, on behalf of the applicant. The applicant's position is that the proposed development of the scheme will not increase or detrimentally impact surface water runoff off-site. Necessarily if

00:52:45:19 - 00:52:51:04

that's our position and that is what we prove then we won't have a detrimental impact downstream of our site.

00:52:56:02 - 00:53:26:08

Okay. As an action point what I'd like you to do is give a formal response to Mr Colderbank's submission deadline seven please. That would be handy. Mean considering what we've also said and the evidence that Mr Colder Bank has submitted in his representation. You'll have seen it, no doubt photographs, etcetera. So yes, as you say, considering what we've discussed thus far. Worst case scenario is adjusted across order, etcetera. If you could then also provide a response to Mr Colderbank's submission for deadline seven.

00:53:27:14 - 00:53:52:12

I'm going to come now to stop lying down, please. You've heard the discussion. The discussion really has been kicked off by your submission, essentially. Is there anything you want to respond to? What I would say is I have obviously read what you have submitted and so have the other parties, but if there's anything you want to add to it considering what you've heard today,

00:53:54:05 - 00:53:58:20

do so. Over to you please, Professor Skeppington. You, Celia Reynolds, I'll come

00:53:58:22 - 00:54:32:10

in first and then I'll refer you to Professor Skeppington. First, at the outset SLD wants to clarify that the Council's proposal for a hydrological verification framework, SLD does consider it to be a sensible one. In relation specifically, I know we're going to come on to it later, but specifically in relation to the runoff from panels, SLD doesn't consider that deferring consideration of the proposed intervention measures and the adaptive management measures to a later stage to this framework would be satisfactory for the XA at this stage.

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And as your questions have no doubt alluded to,

00:54:37:25 - 00:55:17:11

SLD really considers, and I'll let Professor Skeppington go into this, that there needs to be a consideration as to potential SODS measures to deal with the proposed increase in power runoff. And without, I don't want to anticipate what Ms. Shalabay's points may be in relation to the need for a verification framework, but it should be noted that the measures which so you have discussed, including performance indicators, intervention criteria and adaptive management measures aren't really addressed within the proposed management plans at present, say for what the applicant is suggesting really in respect of the grass board is to give it another go and try again.

00:55:17:13 - 00:55:30:14

But to your point, given the changing world we're in and the new climate impacts, Stop Lime Down has serious doubts in respect to the reliability of such an approach. Professor Skeppington, if you have anything to add to that.

00:55:31:23 - 00:55:41:20

Thank you very much Ms Reynolds, Richard Skeffington for the stop line down. Well there's quite a lot I'd like to say about some of the discussion that we've just heard.

00:55:44:05 - 00:56:14:14

Just starting from what we've just heard Mr Rigby said very clearly that his reason for saying there's not likely to be any off-site flood risk including at Mr Calderbank's cottage is that the applicant doesn't consider there will be excess runoff from the panels. Now the modelling work which is in this document shows that excess runoff from the panels is actually quite likely. It's a plot scale model.

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It's not a catchment model but it's a model that's, I went to a webinar last month by the model developers, so there are three eighty licenses out to use the model that's been used in twenty five countries and forty US states. So it's the go to model at the moment for doing just this, the sort of prospective assessment of risk. It's not going to give you flow run off rates or anything like that but it is going to show you, first of all, is there a risk at all? And if the model

00:56:52:02 - 00:57:23:14

was entirely being built on the Sherborne series that runs through the middle, the model would just say well you're okay actually. Things will behave like they do in EN1. But on the other soils, the other four soil types, they don't and then as it gets progressively wetter and the document actually doesn't go up to very wet, storm dam for instance might well have been some burr sorry might have been seventy or eighty millimetres per day.

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So because the applicant's flood risk assessment depends entirely on that, then I believe the model has shown it's that unlikely to be true and that therefore there should be some off-site flood risk assessment.

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I think you brought up some very relevant points about temporary effects while the grass ward is establishing. Given the logistics of establishing a solar park, they're unlikely to stop building panels just because the season is wrong.

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Will inevitably be a time the when area is more at risk and this ought to be kept under consideration.

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The grass ward under the panels is very crucial.

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It should be possible to establish a grass ward. To some extent from the hydrological point of view it doesn't matter what it is because the key point is to provide protection for the soil surface because that's what starts soil erosion and runoff. But maintaining it in the stress environment under the panels and whether the proposed mitigation measures are actually likely to be sufficient is a different question.

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I think the what else was I going to say? Yes, no one has taken up your points about the orientation of the panels across the slope

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and the size of the panels. And both these come out again in the model as increasing the rate of runoff. So and because the size of the panels is not quite unprecedented but certainly unprecedented in an area as wet as this, then I think that is a definite increase in the risk factor. The orientation across the slope is important and it's because really conventional solar farms are installed along the contours, so

the runoff from the panels, like in the diagrams that you've been showing, potentially there's a dry area to absorb any excess runoff before you reach the set next of panels.

00:59:46:05 - 01:00:13:02

If however the panels are oriented down the slope then you have at the worst case the drip points are going to line up down the slope. So things will get progressively wetter in a very narrow channeled area carrying a very high risk of erosion. And that's why the model comes out with the higher proportions. When you ask it, I asked it. I didn't say they were all going to be down the slope. It allows you to have all across the contours all

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the

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way down the slope or half and half so I was using half and half.

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So

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I'll agree with the council that you know having structured a management and monitoring regime is important and no doubt we'll get to this a little later in the discussion. So is there anything else I should be covering?

01:00:41:13 - 01:00:48:03

Thank you Professor Skeffington, that's very useful. Right I'll

01:00:49:23 - 01:00:58:07

come round the parties just now and then I'll come back to the applicant for any sort of final comments. I'll come to the environment agency first.

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You've obviously heard the discussions. Do we have the environment still with us online? I hope so.

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Yes.

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Thank you.

01:01:12:19 - 01:01:55:23

You've obviously heard the discussion. Yes, I appreciate there's a difference between the LLFA's remit and EA's remit. But I mean, there sounds to me like there could be a worst case scenario at some point during the development, whether it's through drought conditions, the grass ward taking as it should not or not in terms of soil types or climate conditions or indeed during a period of construction or a

wait between sort of finishing an area solar panels in January and then mitigation works or review works being undertaken in the August.

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In my mind, that potential increase in runoff rate, that could well have a knock on effect further down into potential flood risk elsewhere off-site.

01:02:09:19 - 01:02:17:11

In terms of what you've heard today then, and again in terms of the EA's remit, do you have any comments to make?

01:02:18:27 - 01:02:36:15

Especially around what you maybe my comments around sort of adaptive management measures and as well Professor Skeffington has also commented on the points about the different soil types and what the LLFA has said about the minimum sward levels to maintain greenfield runoff rates, these sorts of measures.

01:02:39:09 - 01:03:22:02

Philip Sale on behalf of the Environment Agency. So yeah, think the comments raised by the LLFA are sensible in terms of understanding the minimum amount of grassland planting that is required to limit runoff rates to greenfield runoff rates. Grassland planting is, yeah, sort of a fuzzy intervention. So having some, I suppose, discrete parameters around that, it would be really helpful. And yes, you're right. If there is any sort of breakdown in any of the management measures, then an increased run off off the site could potentially lead to more runoff going into watercourses, which could translate into increased flood risk.

01:03:24:04 - 01:03:38:16

That's not known at the moment in terms of the modeling, that's sort conventional hydrological methods. But yeah, I think sort of those action points that you sort of raised for the applicant to go away and look at are sensible.

01:03:41:26 - 01:03:47:05

Thank you very much. I'll come to the LLFA now, if you have anything further you want to add.

01:03:51:19 - 01:04:26:15

Yeah, I agree with the environmental agency position. I think we are now aligning with each other. And also I agree with ESA earlier comments that the applicant has not demonstrated sufficient risk management of how they are going to maintain the Greenfield runoff rate in the event of, let's say, there is not sufficient rainfall in a particular year.

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So I agree with the comment that they need to have adaptive management plan. For example, they could have, let's say, if there's a rainfall shortage of let's say twenty percent or twenty percent grassland could not come up in time, they need to provide such features. As you said, that such features could provide the required attenuation during that time.

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That can be adaptive management example from the applicant side. So I think the applicant need to think strategically rather than thinking that if there's a patch of grass here, which has eroded, then they will send a gang to just patch that off. They need to have a broader vision for the whole site in terms of, you know, what will happen in terms of drought, what will happen if there's too much rainfall.

01:05:36:14 - 01:06:21:01

Because it's not a small site, it's a site three thousand acres. So I think they need to think about spatial management strategy in terms of how, like, let's say, if there are shortfall of ten percent vegetation, or if they have stripped away, let's say, twenty percent of the land, you know, from the waste station, because they might be building, let's say solar panels in, let's say, three hundred acres land, and they have removed the vegetation and that might create, let's say, and suddenly a one hundred year rainfall comes.

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So they need to have such, sufficient such for, let's say three hundred acres land where they are creating this solar panels. So I don't see this kind of strategic thinking. I think, I mean, they have said that, okay, they will have self fencing, other sediment management and soil management. But in terms of strategic flood management, in terms of strategic thinking.

01:06:52:29 - 01:07:34:04

I don't see enough of that in the various management plans that they have provided. So in the opinion of LLFA, the applicant to needs demonstrate that in their documents that they have produced. I can understand that they may not have had the integrated thinking because when they are doing soil management plan, they might have just have the soil experts and thought of okay we'll need to ensure that the soil is uncompacted and you know so they might have gone into micro detail but they might not I think they need to think strategically as well at a broader level.

01:07:36:20 - 01:07:51:13

You. And you mentioned about SUDs, do we need a percentage increase of attenuation to be provided through SUDs to cater for the potential well, for the climate resilience.

01:07:51:20 - 01:08:17:26

Yes, definitely. I totally agree with you on this point because climate change is a fact. You know, we all agree with that. And if we say we just are just maintaining the certain level of let's say grassland, we may not achieve sufficient attenuation. So we need to account for climate change and

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we need to be prepared for different scenarios. Like, different

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papers have shown that in the UK there has been constant increase in the, you know, rainfall. So how do we create adaptive management which takes into account all these things, you know,

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and have a scenario that, okay, we need to have additional suds in the paneled areas as well, not just lying down DNA. So this kind of approach will provide, you know, us the flexibility of managing flooding downstream. That will provide sufficient robustness in the project so that people downstream are not affected by a scenario of uncertainty because we have seen in recent years different storms, know, the like extreme storm events have been occurring, storm Burt and other storm events, which have caused huge amount of devastation in wheelchair.

01:09:42:04 - 01:09:47:12

So I would advise the applicant to be prepared for the worst.

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Thank you, Mr Singh. I'll come to stop lying down next, please.

01:09:55:25 - 01:10:15:02

Silly around stop lying down and stop lying down has just one point to raise just in respect of some of the proposed corrective measures. Just to check, with the applicant and that's just in relation to receding and potential re watering. This may be a point which is dealt with on Thursday, but the question really is

01:10:17:07 - 01:10:25:00

where is this water going to come from if they are proposing to re water the reseeded beds, and is that controlled with any of management documents?

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You're right, that is a question for Thursday. But let's, as we put it out there, is the applicant happy to answer that today? Mean I'm happy for the applicant to answer that today, presumably it's a clarification in one of the management documents.

01:10:41:02 - 01:10:53:09

Clare Brush of the applicant on specifically where the water comes for watering of vegetation. Mr Jackson, I'm just trying to find it, did mention that earlier on in today's hearing. I'm just trying to find the relevant reference,

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but

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there is a water resources management plan. It's also noted that there is obviously water is currently used for the agricultural purposes for those fields. So the outline water resources strategy just found it, which was APP-two ninety. It can claim some the indicative information about the likely quantities of water that will be required. And then the final watering regime, including frequency method of delivery and duration, will be out in set the detailed LEMP.

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And so obviously that will be dependent, as Mr Jackson said, potentially on a site by site basis in terms of the nature of the planting in that particular site, the nature of the soil, the particular weather at

that point in time. So that will all be secured in the final management plans, but it has been taken into account.

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Okay. Have to admit I'm not entirely clear if that's answered Ms Reynolds' question but we are going to come on to some of those matters later on in this agenda. Let's park that for when we come on to it later, or indeed we will indeed, we'll actually be covering it on Thursday at Asia Pacific hearing seven.

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Focusing on this agenda item then, I'll come back to the applicant if there's anything you wish to add, then I'll touch on the actions that I've got noted down

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and then we'll move on to the next agenda item.

01:12:26:06 - 01:13:19:03

I'll let Mr. Rigby respond just specifically in terms of the robustness of the assessment that we have done. We have noted the point about further information on adaptive management and the temporal point that's been raised. What I would just say is obviously that the applicant has applied a strategic approach, and it's worth noting that all of the specialists have spoken to one another and there has been coherency amongst the various management plans. So whilst it is noted that there are various commitments across the suite of management plans, they do all sit and work together, and the applicant's view is that we don't need necessarily yet a further management plan to cover the same, just because it's called a particular name doesn't necessarily give it any greater functionality if those obligations are included within existing management plans.

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So there has been a strategic approach taken to flood management and in conjunction with all of the other things that we're trying to It's not a stand alone topic, is it?

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No, of course not.

01:13:31:05 - 01:14:01:25

Considered across the board in terms of the suite of mitigation measures and the mitigation roadmap that was submitted tries to bring together, as requested how all of those suites of mitigation measures apply and where they can be found in the various management documents. So it may well be that if that document is had a look at, that holistic approach will be evidenced in that particular document. But I'll just hand over to Mr Woodby who can

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provide some more information just in terms of

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what assumptions we have made and the robustness of the methodology that's been applied.

01:14:16:00 - 01:14:51:00

Josh Rigby on behalf of the applicant. So I think it's worth taking a bit of a step back to the actual PV Smart calculation that's been undertaken. We think it's analogous to the methodology that we've applied within ours. It's a separate calculation methodology, but the assumptions are essentially the same. That is, runoff is controlled by the condition of the soil and vegetation beneath it. We do not dispute that. In order for the site to not have a detriment to the parts off-site, it does require a good grass ward beneath it.

01:14:52:13 - 01:15:24:18

We compare that the baseline to situation, I know that you pulled me away from talking about the baseline situation, but I do think it's important because ninety percent of this catchment for several months of the year are completely bare earth currently, every year. I think when we undertook the site visit, most of the sites that we've viewed during that were tilled bare earth waiting for crop. And it was wet. So that is the existing baseline situation that the site is, that the scheme is currently facing.

01:15:24:26 - 01:15:28:02

It's one that will continue if the scheme does not come forward.

01:15:30:16 - 01:16:04:24

So applying that to an extreme example of the weather that we just experienced, but notably that can and will happen more frequently into the future, the construction environmental management plan does have a surface water management aspect to it, so if corrective measures are required to target and apply measures to capture surface water on-site during extreme events or during drying to ceiling conditions that then turn wet will be managed as part of that construction environmental management plan.

01:16:05:01 - 01:16:15:08

We have got silt and sediment controls in there, protection of the existing land drains which will remain vegetated during those types of periods, separate containment and disposal of potentially contaminated water,

01:16:17:21 - 01:16:40:15

construction compounds and stockpiles located away from those things and temporary drainage measures as required to control those. I think during the operation, if we're, I take Mr Singh's point, the point of us, as part of the solar farm we have to return it back to the existing use post construction.

01:16:42:06 - 01:17:20:29

Implementing hard drainage features throughout a paneled field which could involve large excavation, soil mounding, you'd have to get rid of that soil, you'd have to, you might be imparting a lot of gravel which has to be quarried onto site, and then all of that post construction would have to be taken away. And the research that we point to and it's relied on consistently through these DCO applications shows that won't have it a, solar panels won't have a material impact as long as it has that grass ward in place.

01:17:21:01 - 01:17:33:06

I would suggest also that a grass ward is a form of SOD. Improving grass, improved ground to grassland and improved soil infiltration rates is essentially what a SUD is.

01:17:34:24 - 01:17:41:01

So applying extra built constructed SUD features with little benefit and that have to be removed

01:17:42:25 - 01:17:52:17

post operation would not seem conducive to this type of application. We are applying

01:17:54:13 - 01:18:11:22

positive drainage measures including blue green SODs on the hards of areas that we are proposing on the site, the BAS in the substation. All of those will be drain fire SODs features that we're committing to

01:18:14:05 - 01:18:50:05

the Wiltshire policy requirements of the greenfield run up rates and the attenuation up to the one hundred plus climate change. But yeah, I think the reason why we got to where we got to is not that disagree we with the calculation and the fact that solar panels can redistribute surface water directly around it. Our preface and the research that we've relied on suggests that once that has hit the ground, as long as it's an improved grass ward, would run off, it would infiltrate and it would pass more equitably across the landscape as it currently would.

01:18:52:24 - 01:19:11:06

Okay, thank you. Two points from me on that before we go forward. You said the water runoff performance essentially, and I'm paraphrasing, relies on the grass ward. The discussion we've had is the establishment and maintenance of that grass ward.

01:19:13:25 - 01:19:48:20

Really, yes, like I say you are reliant on that and we've discussed climate change events or if it's struggling to take because of the soil type, and yes, Mr Jackson commented has about appropriate species etcetera. Of course I was listening. But that's what we need as an action point, what we need from the applicant here is a rebuttal essentially to Stop Lime Down's Deadline five report because as far as I'm aware, there aren't any studies about these big solar panels in the UK.

01:19:48:22 - 01:19:54:03

The only one we have in front of in the examination is the one produced by Professor Skeppington and Stockholm town.

01:19:55:28 - 01:20:00:05

They are going to have a different performance from smaller panels. They just are.

01:20:01:28 - 01:20:46:21

I've got three bullet points and excuse their roughness, it's always rather tricky to write action points on the fly as you're going. But we already have a number of action points from this morning, we are going to have a number from this afternoon, give you a heads up now. We will publish as them soon as we can, as soon as practicable after this hearing. But if I just run through very briefly the sort of

points that I've got. The first one is as a rebuttal to stop Limesdown's deadline five report, including details of adaptive management measures considering the different soil types and minimum SWORD levels required to maintain greenfield runoff rates and consider if additional SUDs are required as a result of worst case scenario.

01:20:46:23 - 01:21:16:05

That could be temporary suds. I do appreciate what you're saying about if you were presenting French drains, I understand all that moving soil around and taking you off-site compensation areas, I get all that. But it might be that actually a worst case scenario, like I said earlier, if you finished a site in the January and you weren't then undertaking a review until the August or undertaking the action until the August, it might need you to build something temporary into the construction environment management plan or the operational management plan.

01:21:18:05 - 01:22:11:13

So I'm looking for comments in and around that sort of aspect. That internal point knock on to the outlined drainage strategies, like to say we're covering that in more detail come Thursday. I think we need to see a bit more of an update, and I have touched on this, the management documents considering some of perhaps potentially the updated measures, performance measures criteria for adaptive management, as Ms Reynolds was mentioning, would agree with that. Times when was the risk going to be highest? When is the grasshopper at its most sensitive? I think that's something which we need to know about and certainly I think that would sort of help get towards the nub of the LLFA's concerns about the minimum level and what matters would be taken, again we're talking about reasonable case scenarios in a more challenging climate.

01:22:13:16 - 01:22:36:19

Any additional measures that will need to be undertaken to manage that, a potential review of the SUDS measures, take account of the climate resilience measures and potential gaps during construction early years of operation for the grass sward. I think that needs to be looked at. My final point, action point is looking for a response to Mr Colderbank's submission.

01:22:39:04 - 01:22:40:05

Ms Reynolds?

01:22:41:11 - 01:22:46:03

Professor Skeffington just wanted to respond to a point made by the applicant, if that's all right.

01:22:46:10 - 01:23:09:27

Professor further point. Don't, Richard Skeffington, I don't agree with Mr Wrigley that their modelling is equivalent to the PV Smart modelling because the PV Smart modelling calculates things and what the calculation shows on certain soil types. Even with an established grass sward that's not sufficient to mediate runoff.

01:23:11:12 - 01:23:43:23

Their modeling in their case is simply an assumption. And the other thing that the applicant tends to say is and it is good to see that they understand the factors, the risk factors, the soil compaction and so

on and so forth and they tend to say it's controlled in the plants but understanding and control are not the same thing and it's not the same thing as having a practical means of doing something about it.

01:23:44:10 - 01:23:52:27

Reading the plans, and I know we're going to be talking about this on Thursday, I can't see much evidence of how things would work in practice.

01:23:53:19 - 01:23:55:02

Okay thank you.

01:23:56:29 - 01:24:16:09

In the rebuttal, when I mentioned rebuttal stop line downs deadline five submission, if we can have a commentary on grasshoard soil types and runoff on the different soil types, that would be helpful as well. Did I see a hand up on my right from the council? If you need to confer, please do so and then speak, don't feel rushed.

01:24:16:16 - 01:24:53:15

Ben Wilding, Woolwich Council. It's a question more than anything. Noting you've questioned Professor Skeffington, you've questioned the sort of the model sort of assumptions and the comparative accuracies of the different models. How straightforward is it for the sort of base models that you've done in the PV Smart system to be shared with the counsel and with the applicant in order to sort of interrogate that to sort of form evidence base?

01:24:54:17 - 01:25:34:09

Well I mean I'm very happy to share my own PV Smart modeling. I mean the way it works is the model is based on a quite a complex hydrological model but it's set up so that the lots of scenarios are pre run so you're not attempting to run a data demanding model on your laptop. So what it does is you slot in the conditions you have and then it looks up what the curve number is and then that tells it how much runoff there will be in certain circumstances.

01:25:34:11 - 01:25:55:01

So a it's bit hard to see on anything under you know what it produces. Because you're free to download the model yourself I think they gave it us free of charge because we're a non profit. I'm not sure how they would treat the council, Mr Rigby would have to pay for it but

01:25:56:26 - 01:26:01:27

you know you can explore it for yourself. Have to say it is a little bit clunky but

01:26:03:25 - 01:26:23:10

you can work your way through and explore the way it deals with things and explore what are the most important factors. Another point I want to make really is the model does point out places where the risks are highest and therefore where possible interventions might be most profitable. So

01:26:25:05 - 01:26:31:29

if we are going to have interventions at all then it's something which you know you can take from the modelling.

01:26:34:03 - 01:26:55:08

Okay if there's further discussion it sounds like it might be something worth taking offline. That's fine. I'm keen to move on. Before we do is though anyone else quite warm in this room? Thank goodness it's not just me. Could I ask my colleague from Case Team, Mr. Burney, could we have the air conditioning on for a bit please?

01:27:01:09 - 01:27:11:09

Is it possible for us just to respond in terms of the robustness of the modelling that has been used by Professor Skeffington, which is something to, or do you want those submissions in writing? Can I have

01:27:11:11 - 01:27:25:08

that in writing please as part of your rebuttal to the deadline five items? I don't really want to get into a debate about that now. I think that's something worth doing as part of deadline seven

01:27:26:28 - 01:27:31:25

because we still have an awful lot to get through and we've only got the room till eight o'clock tonight.

01:27:34:19 - 01:27:40:05

Hope we're not here till eight o'clock at night but it has been known. So on that,

01:27:42:18 - 01:28:05:04

Mr. Igloo you've heard everything, you've absorbed everything I'm sure and quite happy that you've got direction of travel for deadline seven. I'm seeing you nod, great excellent. Okay. Item four point two. Assessment of flood risk and drainage. This is specifically relating to limedown D. Can I

01:28:06:19 - 01:28:15:14

come to the EA, the Environment Agency, please? I'm looking for an update of your review of the hydraulic model for the Gorse Brook please.

01:28:19:07 - 01:28:58:23

Hi there, Philip Sale for the Environment Agency. So yes we've reviewed the applicant's hydraulic model for the Gorse Brook and the hydrological assessment for that watercourse. So in terms of the hydrology, which is the estimation of flood flows to go into the hydraulic model, We're broadly happy with that, although we did raise a comment with regards to verifying hydrograph shape, which is applied within the model against recorded flood events at the rod board gauge, which is just about a kilometer downstream of the modeled reach.

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So the applicant has used an unengaged method in terms of estimating input flows to their hydraulic model.

01:29:08:11 - 01:29:43:24

The rationale for that is in part because some of the measurement uncertainty at the rod will engage. So we've just asked them to do some checks against the sort of shape of the flood flow hydrograph

that's applied in the hydraulic model, which they've done and they provided a response to us last week. So an initial review of that looks reasonable, although I do know do not stop blind down's comments with regards to the peak flows at that gauge, the Rodbourne gauge, for recent flood events including storm Burt.

01:29:44:23 - 01:29:46:16

I think it's a valid point.

01:29:48:02 - 01:30:25:06

The gauge sort is of quite uncertain and it's measuring accuracy at high flows, is why the applicant hasn't used it. I think it's something, there's something there for the applicant to explore in terms of how the modeled flows compare against the observed flows at the Rodbourne gauge and investigating the sensitivities of modeled water levels to changes in flow and placing that in the context of the development proposals and also the freeboard allowances, which are proposed for the solar PV infrastructure, which I believe is six hundred mil above the design foot level.

01:30:26:05 - 01:30:57:23

So that was our comments on the hydrology. In terms of the model construct itself, so the applicant has addressed some of the points we made in a previous review of the Gorsebrook hydraulic model, which related to the representation of South Wales Main Line bridge. So we're happy with that. In the updated model, we note a slight change in the representation of a walk course crossing between Norton and Haldington.

01:30:58:07 - 01:31:31:02

So the bed level for that structure in the updated model is quite a bit lower than in the previous submission. It'd just be helpful if the applicant could clarify the reason for that. But other than that, yeah, we're sort of content with the model construct in terms of the hydraulic model. It follows sort of standard practice. They've used a piece of software called two flow. The floodplain representation is sufficiently detailed and uses the latest light detection and ranging survey data.

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So we're happy in that context.

01:31:35:22 - 01:31:46:23

One reporting point we noted was that the latest flood risk assessment for line down D, apologies, I'll just get the reference number for that.

01:32:29:26 - 01:32:57:15

I'll confirm the reference number surely, but in essence, the latest slug risk assessment for Linedown D doesn't appear to reflect the results of the latest modeling, and it appeared to reflect the results from a previous version of the hydraulic model. We'd ask that the applicant update the flood risk assessment for Linedown D to reflect the outputs of the hydraulic modeling and also consider the comments sort of in relation to

01:32:59:06 - 01:33:11:23

design flow estimates and how they compare against flows from the historical record. Appreciate this uncertainty in that rod board gauge measurement, but I think it would just help give some confidence in terms of the design foot level really.

01:33:17:13 - 01:33:21:11

Thank you very much. Can I come to the applicant to respond please?

01:33:23:24 - 01:33:45:01

Josh Rigby on behalf of the applicant. So with regards to the gauge downstream of Robbonbrook we took that away and we responded to that. So we will update the hydraulic modeling report to reflect the discussions that we've had and the extra information that we've given to the environment agency.

01:33:46:21 - 01:34:04:05

The additional crossing which had a lower level than what was previously submitted was due to additional survey that we had done so it's a measured result of that. So that will come out in again an updated version of the hydraulic modeling report.

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With regards to

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Limedown D flood risk assessment appendix

01:34:14:24 - 01:34:21:24

which I believe is REP four, I think it's, which one is it there, sorry.

01:34:33:04 - 01:34:49:06

Rep five thousand and fifty five, that will be updated to reflect the latest hydraulic modeling. It was just a difference in the time of submissions when we were getting the hydraulic modeling report updated and then the suites of flood risk assessments which had to come out of the back of that. So

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in essence I believe

01:34:55:04 - 01:35:08:26

from our point of view the hydraulic model as it's presented in the latest version and what will be presented with the slight changes in the underlying hydrology that we're doing, is representative rather than changing the model at all,

01:35:12:26 - 01:35:27:25

is representative of the actual flood risk to the site based on the typical hydraulic modeling methods. So we wouldn't expect the results of the model as you've seen to change beyond what you've currently seen.

01:35:29:17 - 01:35:42:28

No thank you. It sounds like it's an ongoing situation with the EA but it sounds like we're probably getting towards that being resolved. Are we confident it will be resolved for deadline seven?

01:35:44:09 - 01:35:56:29

Yes, that we've discussed are admin issues and cleaning up of reports. So there's ongoing dialogue with the environment agency and ourselves and we'll ensure that we're closing those points off.

01:35:57:26 - 01:36:04:10

No, terrific. Thank you very much. Just remind me, is this an issue within your statement of common ground with the environment agency?

01:36:07:17 - 01:36:17:07

Geoff Ribby on behalf of the applicant. The remaining points are open in the SOCG so those will be closed off I believe in the latest motion.

01:36:17:09 - 01:36:24:09

That's terrific. Thank you. Just seeking clarification, I couldn't remember off the top of my head, was all. In

01:36:30:23 - 01:36:50:08

the environment agencies deadline six response, that's document rep six seventy four, they said it was unclear whether the predicted flood risk impacts to the proposed development shown in revision five of the outlined drainage strategy, lined down DBESS had changed following the updated hydraulic modelling.

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Can I ask for a comment on that please or did

01:36:59:05 - 01:37:01:26

you just comment to say that will be updated or did I misunderstand?

01:37:02:27 - 01:37:08:10

Yes, that was the report that we're going to update so it's just the timings of the response period.

01:37:08:17 - 01:37:16:10

No, that's fine. Thank you very much. Thanks for confirming that. Sorry, yes. Okay, I'm going to pop round the other parties now with respect to this issue.

01:37:19:14 - 01:37:35:06

So I'll come to the EA first. It sounds like the matter is ongoing, it's evolving and you're still in discussion with the applicant but it sounds like it could potentially be resolved for deadline seven. Coming to the EA first, do you have any further comment to make on that point?

01:37:37:08 - 01:37:41:03

Philip Sale for the Environment Agency, no further comments to make, thank you.

01:37:41:05 - 01:37:43:10

Okay, thank you. I'll come around to the LLFA.

01:37:46:17 - 01:37:51:11

Adet Shallowby, Wilshire Council. We support the EA's position on this point.

01:37:52:00 - 01:37:53:23

Thank you. Stop line down.

01:37:54:21 - 01:38:26:08

Celia Reynolds, stop line down. Just one quick question of clarification. So the Environment Agency mentioned a comment which Stop Line Down had provided within its deadline six representations. I just wanted to clarify first that the comments which I believe were being referred to are two point three seven paragraphs to two point three nine, and what Limestone just want to check is that by updating, I believe, was suggested their assessment, is that going to include testing the current assessment against that flow gauge data?

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I'm happy for the applicant to respond directly. Thank you.

01:38:31:09 - 01:38:58:27

Josh Rippey on behalf of the applicant. We have provided additional information to the Environment Agency as to why we believe that that gauge is not representative of the local catchment. We are undertaking further analysis to double check that, but to go back to the environment agency with a confirmed position. But it wouldn't have an impact on the results of the hydraulic modeling extents that we have provided.

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That's helpful, just to, I suppose, Stop LimeDan's view, just to emphasize the point, and the reason why it's considered that this gauge data is still important and helpful, although Stop Lime Down recognizes is limited, is because if that data is used, it shows, and this is within representation, I believe a flood risk scenario occurring

01:39:23:09 - 01:39:50:25

was it twenty five times in the last thirty years. So that's a paragraph paragraph 2.3.9. And while the applicant's approach aligns with guidance, and can't be criticised for that point, there is some concern that given that data is available, has been being collected for many, many years, why wouldn't the applicant test their model against that available data as well? Professor Skeppington, if you have

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anything to add to that? Not really, but just to say yes we do agree, we do agree this gauge is not calibrated for high flows, but the data are still there. They've been there and you know this is done by measuring the height behind a control structure like a weir. So those data are there and they've been collected and recorded in the official databases since nineteen seventy six. And they wouldn't have recorded them if they thought they were meaningless.

01:40:23:11 - 01:40:49:27

So although it's calibrated, I'm getting you know just as Ms Reynolds has said, if you look at the applicant's prediction of what the I can't remember what percentage AAP it was now there should be roughly one every thirty years there must have been the three point three percent and the actual if you believe the data there are twenty five. And there's also another gauge

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in on the rodborne brook so confusingly the rodborne gauge is on the gauze brook but the rodborne brook has a problem with weeds so like equally you know problematic gauge but this shows exactly the same thing there are twenty five

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exceedances where the applicant's modelling suggests the road only to be one So that gives me an uneasy feeling because the best, you know, it's easy to do models, but the test of a model is how well it actually models the observed data.

01:41:31:24 - 01:41:35:07

I think it's an interesting point there. Can I come to the EA please?

01:41:37:07 - 01:41:45:03

Can I ask you to respond to that point by stop lying down with respect to the use of that gauge data? Personally I would have thought

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that would need a response if you have a gauge which is saying exceedance of levels of twenty five times. That needs to be considered. Perhaps just

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sort of looking for a bit of a yes or no if you consider that that gauge data needs to be used or not, although I do appreciate it's an evolving situation with

01:42:14:11 - 01:42:47:01

Philip Saleh from the Environment Agency. I think the gauge needs to be considered in terms of placing the flows in the context of the modelled flows that the applicant has calculated. The challenge I suppose with using the gauge in design flow estimation is that so there's something called the National Riverflow Archive and that sort of lists all key gauges around the United Kingdom. And there's two sort of classifications for gauges, high flow gauges.

01:42:47:03 - 01:43:19:28

One is whether they're suitable for estimating something called the index flood, which is the sort of median annual maximum flood often referred to as QMED. And another is whether the gauge is suitable for pooled assessment or single site analysis. So the Rodborn gauge, which is about a kilometer downstream of the applicant's model domain, isn't classed as suitable for Q Med or pooled assessment because there's uncertainty in the high flow measurements essentially.

01:43:20:12 - 01:43:54:27

The sort of Professor Scafflington described with a lot of the gauges around the United Kingdom, the way flow is calculated is using something called a stage discharge relationship. So it's not flow that's directly measured, it's water level. And then there's an equation which links the water level to flow. And usually that equation or relationship is derived using spot flow measurements. So sort of hydrometrist will go out to site and measure flows and then develop a stage discharge curve.

01:43:55:02 - 01:44:29:21

So with this particular gauge, there's quite a bit of uncertainty in those higher water levels and what that means in terms of the flows. There's a bit of extrapolation there, which is why the gauge isn't classed as suitable for Qi Med. That's not that it should be discounted, and I think, know, Professor Skeffington raises some valid points in terms of the frequency of those, you know, high flows in the historical record. So I suppose for context, I think Storm Burt recorded a peak flow at that gauge of around thirty one cubic meters per second.

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And in the context of the applicant's hydrological assessment, which sort of follows the standard hydrological methods used in the flood estimation handbook on gauged methods, that puts that flow around a sort of a thousand year plus thirty nine to seventy one percent climate change. So it's within the modeled range that they've assessed, but it's at that upper end. So I think the best way for the applicant to sort of address this rather than revisit the hydrological assessment using a gauge which has some uncertainty would be to explore the sensitivity of water levels between different modeled scenarios to see how water levels change and place that in the context of their development design in terms of freeboard and also the sequential approach that they've taken to, for example, placing the best outside of flood risk areas.

01:45:21:24 - 01:45:41:15

Looking at those flows and the sensitivity of them and what it means for the development rather than revisiting the hydrology. Because I think if they were to revisit hydrology, there would be some questionable uncertainties around that. I think some sensitivity testing and looking at the flows in that context would be helpful.

01:45:43:27 - 01:45:58:16

Thank you. I'll come back to Professor Skeffington if I may. My understanding from that and I'm happy for the EA to correct me is that the data from the Rod Baughan gauge

01:46:00:04 - 01:46:07:27

is questionable in terms of the methodology to be applied, but the information it's telling

01:46:09:29 - 01:46:32:13

isn't being disregarded, they are analysing that in a different way. I'm happy for the EA to correct my understanding on that. Perhaps if we just give them a couple of seconds to turn on the camera and tell me I'm wrong, but if they don't turn on the camera I'll assume I'm right. But then I'll come across to Professor Skeffington if he wishes to add anything further.

01:46:34:08 - 01:46:36:25

I'm not seeing a camera come on. Over to you Professor Skeffington.

01:46:39:17 - 01:46:41:14

Yes, no I think

01:46:43:14 - 01:47:21:29

am largely in agreement with what has just been said with the EA. It shouldn't be discounted. There could be ways of taking into account. Just you know hydrologically experienced over a long time I just have an uneasy feeling that it's underestimating the flows at high near or even moderately high floods and the other bits of evidence we also supplied like the size of the lake above Cawston during storm Burt which is also not well predicted by the model, though it's better predicted by the later model than the earlier one, also sort of lends that weight to that view.

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Okay thank you. That's interesting. I'll come to the applicant now, if you have anything further to add to what you've heard.

01:47:30:09 - 01:47:53:04

Josh Ripley on behalf of the applicant. I think with regards to hydraulic modelling in general there is always some uncertainty built into it. The fact that we use a one in a hundred year storm as a design event is almost a statistical yardstick that we've drawn in the line from applying policy to be able to be able to determine what level of risk we are

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comfortable with. I think the responsiveness of a catchment to, or a watercourse at any given point to the catchment depends on where rainfall is inputted, at what time, for how long, what the antecedent conditions are, and all of those things are infinitely variable. So that is why we imply standard hydraulic methodologies to understand those base flows to be able to design something against it. Because if we were looking at every site ad infinitum you would get various flows and you wouldn't be able to make a decision on

01:48:30:06 - 01:48:31:24

what you were designing against.

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To deal with some of those uncertainties we build in what I call sensitivity tests, and so we build the hydrology based on the accepted methodology using ungauge catchments in this particular instance to allow for us to determine the input hydrographs. But then we allow for additional, we change the parameters that could impact flows and could impact levels so that we have some more confidence in the

01:49:04:28 - 01:49:46:02

extremes of the model that it is currently predicting because all rivers flood and how much they flood depends on how much water you're putting into. And it could be anything. So from this particular site we've built in four different sensitivity tests, each of which we have plus or minus twenty percent roughness, so how quick the water travels across the ground, plus or minus twenty percent of flows,

so additional rainfall on top of what we have modeled to work out what the responsiveness and model to Also minus thirty percent of the downstream boundary condition slope, so how steep it is at the downstream boundary.

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Water leaves quicker, does that have an impact? Or slower, does that have an impact? And there are two flow control number so it's a sensitivity number that is built into it to change all those factors. So modeling can be inherently, and is necessarily, and just by its nature is relatively,

01:50:09:28 - 01:50:21:24

is as robust as what we can put into it. I feel we've done it as per guidance and in conversations with the environment agency and where we're up to at the moment is some minor points to confirm.

01:50:22:27 - 01:50:58:21

Okay, that's helpful. Thank you. Just potential action point, obviously matters will be updated with respect to statement of common ground and any other relevant parties. And just on the back of those discussions with the E A and what you end up agreeing with just the potential to update the outlined drainage strategy and supporting PS figures if needed. Just flagging that. Okay, so. I'm going to move on to item 4.2.2, covering Limedown D and the natural flood management viability report.

01:50:59:05 - 01:51:20:29

Wilshire Council, the EA and Stop Limedown will be invited to comment on the report and its conclusions. The document references Rep five thousand one hundred and nine. In particular, the examining authority is interested in understanding if the parties agree with the applicant's analysis and conclusions. I'm going to come first to the LLFA, please.

01:51:26:24 - 01:51:36:14

Rui Singh, Riltshire Council. We have noted from the applicant that they have provided

01:51:38:14 - 01:52:08:23

natural flood management only for Lyme Down D, but we appreciate the approach that they have looked into Limedown D for natural flood management viability report because Corsham is an area which is affected by flooding. So, you know, providing natural flood management will provide you know, benefits to the downstream community in Corsham.

01:52:10:03 - 01:52:25:12

However, we would have liked that to be included in the wider catchment area as well so that additional flooding issues could also have been resolved using natural flood management based approach.

01:52:27:21 - 01:52:28:27

Okay, thank you.

01:52:30:18 - 01:52:36:13

So I'd like to ask you actually if your comments are regarding opportunities, in terms of

01:52:39:00 - 01:53:02:05

undertaking similar a report for the other areas, A, B, C and E. So I'd like to ask you if your comments regarding opportunities for the natural flood management matters and wider multifunctional benefits, should they be incorporated or enhanced through the outlined drainage strategies when considering such opportunities?

01:53:03:13 - 01:53:38:26

I would agree with that. I think it is kind of like a non structural such if we look at natural flood management because it basically provides attenuation at a catchment scale instead of providing small attenuation structures like basins or ponds. So it distributes the attenuation in a larger area using more maybe a higher density of vegetation

01:53:40:24 - 01:54:05:13

so that additional rainfall is absorbed by the ground instead of abruptly flowing into the rivers and causing flooding to the downstream communities. So, you know, such an approach is helpful because here we are not dependent on structural such providing, you know, large amount of, stored

01:54:07:06 - 01:54:19:28

dams or anything like that. It is just helping the ground to absorb more of the rainfall. So I think this is a very useful approach, which is highly recommended by environment agency

01:54:21:28 - 01:54:36:22

throughout England, so that more benefits can be provided to the downstream communities in addition to the sites that we provide at any site.

01:54:37:07 - 01:55:02:08

Okay. If I may explore that further and just confirm my own understanding then, is this a case of potential missed opportunity in terms of applying green SUDS, natural SUDS measures across the broader site and not just Line Down D? So it's a question of missed opportunities. And establishing that, is it then a case of it is necessary,

01:55:03:24 - 01:55:17:01

is it something that is necessary to make the proposal consistent with policy or is it something which for want of a better expression, something that is nice to have, it would be sort of a positive add on, it would add sort of greater public benefit.

01:55:17:18 - 01:55:20:27

I would say that, I mean,

01:55:22:12 - 01:55:57:08

NPPF and other various government guidance as well as certain water management act, encourages developers to use attenuation, both structural and non structural attenuation. So non structural, I mean, like NFM and structural like such. So, what types of approaches are encouraged by the government guidance and legislation. So I would say that it is government expectation that these things are implemented.

01:55:58:21 - 01:56:36:07

Although I think for, let's say housing development and other normal development sites, these NFM is not actively expected from them because those sites by definition are, let's say, highly engineered sites. But these things are expected where there's a large amount of, let's say, greenfield areas such as solar farms. I mean, these things would be expected, know, from such developments, which are more water compatible developments, I would say.

01:56:37:24 - 01:56:41:15

So I would say that it's more than a missed opportunity.

01:56:43:00 - 01:56:49:10

I would say that it would fall within the realm of government expectation.

01:56:51:03 - 01:57:00:12

We can say maybe the spirit of government expectation may not be the exact wording, but there is enough

01:57:02:05 - 01:57:15:07

legislative provisions and guidance provisions within different acts that a sustainable approach is expected from applicants of such development?

01:57:17:02 - 01:57:17:26

Thank you.

01:57:21:09 - 01:58:00:11

Yes, I mean the wording in the NPS going off the top of my head here, I admit, I don't recall seeing a requirement for natural flood management within the NPS. But SUDs of course are required and I do understand what you're saying about natural measures rather than hard engineered etcetera. As part of your post hearing note following this, can I have just a commentary about the your view on the policy position with respect to the implementation of natural flood management measures? Appreciate everything you are saying,

01:58:02:29 - 01:58:34:16

it would be useful for the XA to have that sort of commentary from the LLFA. I have to admit there's a new NPPF that came out two weeks ago, whenever it was, lose track of time, there are so many occasionally, that I haven't read it cover to cover, I admit, but if there's a commentary from the LLFA with that respect tying in your comments from natural flood management and the expectation to policy and like I say, local plan policy, national policy and NPS.

01:58:34:18 - 01:58:39:15

That would be helpful, please, just as part of the post hearing submission. But no, I understand what you're saying with respect I

01:58:40:02 - 01:58:52:14

would look into, you know, exact government like paras and sections and then provide additional response in this regard.

01:58:52:16 - 01:58:59:05

That would be helpful. Thank you very much. Can I come to the environment agency, please, on the same point?

01:59:03:05 - 01:59:28:05

Philip Sale from the Environment Agency. I don't have much to add to our Wiltshire County Council's representation there other than to perhaps signpost paragraph five point eight point one two within the overarching national policy statement for energy, which may be useful in this regard. It sort of makes reference to making as much use as possible of natural flood management

01:59:28:07 - 01:59:30:29

techniques. That

01:59:33:06 - 01:59:35:15

is helpful and thank you for signposting that.

01:59:38:26 - 01:59:45:23

That does help that will help to move matters along today. If I come now to Stop Down please.

01:59:46:29 - 02:00:19:26

Thank you Richard, Skeffington for Stop Line Down. Have to say I don't dissent too much from the applicant's assessment that for a flood event of this magnitude natural flood management is not going to do anything very much. It is however, and I think the Environment Agency made the same point in their submissions, asking a lot of NFM to deal with a one percent AAP event. Unless you've got an enormous floodplain to go at, which we don't have in this case.

02:00:20:27 - 02:00:30:24

And I was, I mean it would have been better really to model more frequent but less severe events to see if it made any difference. They

02:00:33:27 - 02:00:45:24

did what you could have the biggest possible NFM scheme by digging out a virtual hole through the entire catchment at six hundred millimetres deep.

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Unfortunately for the modeling the hole didn't completely fill up with water I understand.

02:00:55:14 - 02:01:13:07

not that naturally So there wasn't much difference to the baseline case at the top. The other odd thing is here I'm astounded that the one percent AEP event didn't cause the Goosebumps to overflow given that this happens in practice virtually every winter. So I

02:01:15:10 - 02:01:22:21

think just for this site NFM could be a useful for site smaller floods.

02:01:23:18 - 02:01:29:20

Okay, thank you. I'll come to the applicant now to respond to any of those points please.

02:01:31:18 - 02:01:47:21

Josh Rigby on behalf of the applicant. So if we talk about Limedown D first, the reason why we chose Limedown D to do a specific detailed hydraulic model was because of its proximity to cost and downstream, immediately downstream of the site. So it was chosen

02:01:50:06 - 02:02:24:00

as a site which could have the potential of the greatest impact, positive impact on a community that is already unfortunately experiencing flooding on a frequent basis. Like Professor Skevington has said, the work that we did showed that for us to have a meaningful impact we would have to control flows coming through Coulson at eight QMX essentially. During the one hundred plus climate change, Professor Skepticism has said that is a significant volume of water.

02:02:24:22 - 02:03:08:04

We have run the Q30 following conversations with the Environment Agency which is the one in thirty year storm, and that also showed that natural flood management didn't have any material impact. During the lower flows the downstream sensitive receptors, the properties, don't flood during the events where natural flood management would have any meaningful impact on flows, so there would be no, essentially no reason to install them.

02:03:10:28 - 02:03:25:02

More generally, we didn't just, we haven't not assessed the other sites for their potential for net positives from natural flood management, but if we're looking at natural flood management as a potential

02:03:27:02 - 02:03:53:28

fluvial flooding prevention method or something that can help reduce flooding downstream, given the remoteness of most of the sites from downstream sensitive receptors, the impact of any minor retention of water on those sites has no meaningful impact off-site. You'd potentially be retaining water on-site during low flow periods.

02:03:55:13 - 02:04:02:18

Given the summer we've had, if we're going to push back to that, retaining water on a site such as

02:04:04:03 - 02:04:21:15

the limedown schemes rather than have it pass through site, I don't know if that would be of the wider community benefit for the scheme. Natural flood management has been core. Think the embedded mitigation that sets out within our hydrology flood risk in the U. Chapter

02:04:23:25 - 02:05:00:12

considers the embedded mitigation such as the marginal planting, the buffers from existing water courses and flood flow routes and ditches maintains all of that vegetation within close proximity to the flood flow routes. And arguably I know we've had a lot of discussion about it earlier this

afternoon, but the improved grassland would essentially be, know, the definition of a sudden, we had a conversation with the LFA and I last Friday where we went through the definition of natural flood management and that type of intervention could be classified as that.

02:05:00:14 - 02:05:34:16

So yeah I think unfortunately for Kostin the amount of water that would be needed to be retained on the site is not possible within Limesdown D because it makes up such a low percentage of the total size of the catchment, it just gets inundated from elsewhere. We have further developed that model and there are hard interventions that could be installed in Courson itself to essentially solve, alleviate the flooding, But they are hard measures that are outside of the applicant's control.

02:05:34:23 - 02:05:46:16

So if others, I believe the applicant is making that work available to the community so that if anybody would like to take that up and develop it then further that is something that the applicant is willing to do.

02:05:47:24 - 02:06:05:18

Okay thank you. I have to apologise there was a further point for me for the Environment Agency and I think it's probably just a point of clarification. So the environment agency, I think you commented on Rep five one hundred nine and you mentioned

02:06:07:23 - 02:06:22:21

you would like the applicant to review the report and present figures eight and nine as water level difference maps clearly identifying areas that are wet in the baseline but dry with the interventions in place and vice versa. Is that still the case please? Are you still looking for that to be done?

02:06:25:01 - 02:07:06:00

Philip Sohl from the Environment Agency. Yes, it was just in the submissions that they stand, the flood extent differences were compared and there was some depth mapping, it was a bit difficult to understand whether there was any notable change in water level for the design flood event. I appreciate what the applicant's saying regarding the interventions and the limited impact given particularly the flow constriction within Corston itself, but it would just be helpful in terms of visualization and this extends to the more frequent events as well, to present the information as a difference in water levels and flood extent, not just the differences in extent.

02:07:06:02 - 02:07:46:05

Because I think in the report as it stands, it was just a bit difficult to understand whether water levels had reduced significantly. And I think more widely, it would be helpful given the earlier discussions around sort of runoff. It may be helpful to sort of place it in that context as well because this may be an additional layer that the applicants can use in terms of the specimen, noting the uncertainties around vegetation plants and things like that. So I appreciate what the applicant says in terms of, you know, the NFM interventions that have been tested don't provide much benefit at the rarer events.

02:07:46:26 - 02:08:02:03

Obviously there's a point around assessing the more frequent events there. But even if it's a small reduction in level, that can still be of benefit, particularly in the context of cumulative impacts and

runoff from the development. So I think having that visualization in terms of level change would be helpful.

02:08:02:27 - 02:08:08:23

Okay, thank you. I'll come to the applicant are you quite happy to action that for deadline seven please?

02:08:10:23 - 02:08:29:02

Josh Rigby on behalf of the applicant. Have already done depth difference maps, that, I'm looking at them now, they've already been done and will be submitted at deadline seven. With regards to other, and that's for LambdaMD. With regards to

02:08:33:26 - 02:08:53:19

more frequent storm events, we've run the three point three percent AEP storm, the one in thirty year storm, which the is flood zone 3B kind of defined storm. So we've run that as a lower return period storm also. I think given the conversation today we'll run an even smaller

02:08:55:19 - 02:09:03:02

storm to further supplement that so that we get the more frequent storm events captured within that process. But like I said, the

02:09:04:27 - 02:09:30:29

potential impacts and potential effects once it's through Causton and downstream of, it won't have an impact on Causton because during those lower flow events it doesn't flood. It's during the higher events where it just bypasses everything that it does flood. So if we're looking at other sensitive receptors that could benefit from a lower impact, storm, more frequent storm intervention, there is nothing

02:09:32:22 - 02:09:40:15

about a kilometer beyond that, so or even further than that, so there wouldn't be any benefit to installing it.

02:09:41:29 - 02:09:57:04

Okay, thank you. Yes, hear what you're saying. I think if you can submit those figures for deadline seven, that does give the EA a chance to comment before we close the examination.

02:09:59:04 - 02:10:17:03

I am conscious of time. I'm not entirely time blind. I would like to cover the next item and then we will pause for a break and then we will try and power through some more points. I'm just going to check, do we have anyone from Wessex Water with us, either virtually or in the room?

02:10:19:17 - 02:10:53:17

No, I'm not seeing anyone. Okay, what I wanted to do is explore the potential effects of sewage flows discharge into the Gore's brook but without Wessex Water here we may get through this one fairly quickly. This stems from the stop line down submission, I believe it was Rep five thousand one hundred thirty where this issue was raised. I was going to ask Wessex Water to comment specifically

also what type of sewer it was, whether it was combined or whatever. I will come round the parties to see if anyone can shed any light on this.

02:10:54:06 - 02:11:03:00

Otherwise we will have to find another way to explore the issue. Other matters that are open to the XA to explore. I'll come first of all to the

02:11:06:13 - 02:11:18:05

I'll come to the council first. Do you know anything about the sewer referred to by stop lying down in their submission if it's a combined sewer or not?

02:11:19:23 - 02:11:21:03

I

02:11:21:18 - 02:11:25:13

would say that this is a matter for Wessex water.

02:11:26:29 - 02:11:33:26

They have got the whole network. They have got how their assets behave,

02:11:36:03 - 02:11:43:11

areas are at risk of flooding. I think we will defer to their response.

02:11:45:28 - 02:11:53:20

Are you aware of any discharge of sewer flows in the area or are you just happy to defer to Essex Water?

02:11:53:27 - 02:11:56:16

We'll be happy. It's not good for us to

02:11:56:23 - 02:11:58:28

No, I understand. Wouldn't want any

02:12:00:21 - 02:12:12:16

have I just used misinformation, accidentally sort of giving something out which then needs to be corrected? No, that's fine. Stop lying down. You raised this issue at deadline five. Can you shed any light on it please? Yes, I think

02:12:12:18 - 02:12:46:09

I can. I raised it because the applicant's statement said there was no out of catchment water, whereas local knowledge means that I knew that there was in terms of the Grittleton sewage works was decommissioned and the output from Grittleton was connected to the Hullavington sewage works which runs into the Gorse Brook. And it is a CSO, it's a combined sewer outlet. That's an input of water into the catchment from the outside.

02:12:47:03 - 02:13:31:16

said in the submission that sewage per se was unlikely to be significant and while having Madeleine Shire make the bag packet calculation that it would amount if the inhabitants of Grittleton drink the average amount of water, then it would amount to twenty about four thousand cubic metres per year, which is about zero point two percent of the flow of the Gorsebrook. Isn't. Sewage per se is not really significant. The issue comes with the local area has a problem with groundwater ingress into the CSOs in which pipes that are not under the water are Wessex Water's control, but they still have to accept the discharge.

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So these leaky pipes at Wessex Water regularly cite this as the reason why Halvington Sewage Works is

02:13:44:04 - 02:14:17:09

putting untreated sewage into the Goulds Brook even when it's not particularly wet because high groundwater levels are sending excess water that the works can't cope with. So the question for Wessex Water really is do they know I mean that's you know some of this is already it's it'll be in the applicant's flood modelling already if they looked at the Gorsebrook. Of that I mean dry conditions most of the Gorsebrook treated is sewage from Melvington sewage work.

02:14:17:19 - 02:14:26:13

So the but it's whether any extras come in from Brittleton and that's what you can't know without Wessex Water input.

02:14:28:06 - 02:14:50:22

So I did wonder about writing and asking them but if the applicant wrote and asked they were possibly more likely to get a reply they so we could just do that or you could do it with the authority of the exa so that and it may just be that it's not significant. They should know what the flow is.

02:14:52:17 - 02:15:04:20

Okay thank you that's helpful Professor Skeppington. Thank you. I'll come to the Environment Agency to see if they have any comment on this matter and then we'll just come to the applicant for a response.

02:15:08:00 - 02:15:12:05

Philip Searle from the Environment Agency. No, I don't have any further comments to raise on that point.

02:15:12:29 - 02:15:17:18

Thank you. I'll come to the applicant now, please, to respond to points raised.

02:15:18:05 - 02:15:20:17

Claire Portiak, just in respect of the

02:15:22:05 - 02:15:54:29

engagement with Wessex Water, we have had meetings with Wessex Water and we have made them aware of the questions that have been posed by StopLimedown. So we've made them aware of it but obviously can't compel them to respond. But obviously as you're aware you'll free to request the information from them if you thought it would be useful as part of the process. But I'll just let Mr Rugby respond on whether it's actually necessary to have the information or not for the purposes of undertaking the assessment for this particular scheme.

02:15:56:07 - 02:16:19:03

Josh Ripley on behalf of the applicant. I think this is the reason why we have sensitivity testing built into hydrology. I think the cross catchment distribution of water through our wastewater treatment is relatively common, but we take the point we have asked Wessex Water for their permitted discharge

02:16:20:18 - 02:16:29:02

requirements so that we can make an assessment of whether or not that has any significant impacts. The likelihood of that having any

02:16:31:02 - 02:16:33:29

impact on our assessment is extremely low.

02:16:37:22 - 02:16:39:20

Okay, thank you.

02:16:44:16 - 02:16:46:29

Sorry, just give me one second, was gathering my thoughts.

02:16:51:27 - 02:17:12:27

Right, what I propose we do is we take a fifteen minute break and we come at back let's just come back at quarter past four, thirteen minute break and we will continue with item 4.2.4. So I will pause the hearing. Thank you.