

TEXT_SizewellC_ISH7_Part1_Session2_1507 2021

Thu, 7/15 1:50PM • 1:18:27

00:01

Well, good afternoon. Welcome back. As promised, I just want to finish off the triple si crossing issue but with some which is broader, which is about water level monitoring. So to the applicant that we're about to ask I say is a general point, it's in respect to the size of the martyrs triple si as a whole, not just the triple si crossing. And what I would like you to outline to me, please is in relationship, so what level monitoring is is obviously important. In the marshes, I guess it seems to be something that you're doing at the moment. But we will have to continue continue doing it. And I think that the provisions you've proposed, begin to address that. What I would like to understand is in terms of monitoring, then what happens with what you find out from your monitoring? Because somebody explained to me so briefly, how actually you maintain the levels? Is it pumps weirs? Do you have telemetric measurement and reporting or whatever? So I can see the context we're talking about? Then I would like to understand how what do you propose by way of a monitoring? Well monitoring how all that how all that is actually secured, and how your, your maintenance of levels at the right levels are secured in the combination of the decio the csep or or elsewhere in your documentation. My next question is about who monitors your monitoring, what do you about what do you do with this monitoring results? Who else is seeing it? And coming to conclusions with you about it? Tell me what are the tests for remedial measures? When you see that something is happening, and what you know, what what are the Yes? What are the thresholds for for change? When I look at the statement of common ground with the Environment Agency, and I hope the varmint agency is is listening at this point, we're particularly now that refers to a side agreement between the undertaker or the applicant and I presume the Environment Agency but enhanced monitoring and maintenance of the list and drain. I'd like to understand why. Why is that not not being dealt with as a requirement or more formally in the regulatory documentation in relation to eland fish passes. The sh CG says that more detail is awaited. The movement and natural migration of eels over and around the water management structure, as it says, can be mitigated using a range of products details which are to be agreed in due course. Now I'm not sure that we know what the range of mitigation products is. So are you going to provide that range to us so we can understand it? And whereas the appraisal of it. And I think we ought to understand more in more detail how the idea that it will be agreed in due course, would satisfy us as to the significance of the impact. So could you help me us with that, please, Mr. Fillmore and your team?

03:23

Yes, I'm trying to take a note of the list of points. I'm not sure whether it will be one person, I suspect it might be multiple people who have to deal with those points. Do you always want do you want to run through the points again? So you know, what, I think that might be helpful if we can enumerate them, because it may be that on some of them, for example, how the controls fit together, where things are

secured, and so on. I suspect that that because it's a question of essentially fact. And then law, whether what is proposed to secure these things is adequate and fat as to whether where it's secured and whether it's secured, that might be most helpfully dealt with in writing trial, rather than trying to put it together. Now, but there may be other things where I've got people here who can actually deal with it straight away. So if

04:19

I don't want you to, I don't want you to tell me things which you don't know about, quite, quite honestly. Let me I got numbers on on my on my questions to you. So first one was how physically do you actually maintain the water levels? The second one is how is that all secured in the decio? The cscp or elsewhere? Yes, you can make a written submission to us on that. The third is who is actually monitoring you're monitoring and keeping an eye on what you're doing. I'd like to have that dealt with today if possible. The fourth is what are the tests and the remedial measures if everything goes wrong, And that doesn't have to be disastrously wrong. It could just be a little bit wrong. And I think it'd be good to if you could help me with that now. misfortune I could see you there and there will be a time an opportunity for interest parsers yourself to to ask questions in a moment. We're all make submissions to us when I got to Yahoo monitors your monitoring the site agreement with the Environment Agency in relation to laced and drain Why is that not a requirement? If you can't answer that today then pop it in writing place. eland fish passes detail I wait we are is being awaited says your statement common ground. And there's something about the movement and natural migration of the eels over and around the water management structures, which I guess is how you keep these levels. Right. It says that can be mitigated using a range of products. But details are to be agreed in due course. So I don't think we know what the range of mitigation products is. And I would like to understand how being agreed in due course is going to satisfies this stage as the significance of the impact. That was it.

06:17

Thank you. So that's very helpful. What I'll do to make this manageable, there's what the two points which will it with your agreement pick up in writing. The first was how it secured in the DCA The second is a side agreement with the EA. Again, I think that partly because it will be helpful to make sure that we are aligned with the EA if possible on that that might be best dealt with in writing. But again to turn first to a new witness. This is Mr. Mark Lee from Atkins, who's the groundwater LEED. he'll pick up the the water points and then when he's finished, I'm going to turn to back to Mr. Lewis to pick up the eels and fish. If I can put it that way. Yep. Okay. Mr. Lee there, Mr. Lewis? Yes. Good afternoon, sir. Can you hear me okay, I can hear you and see you. Excellent.

07:13

I'm falling into that trap this morning was afternoon. Mark Lee speaking on behalf of the applicant. To pick upon your your first point about how the water levels in the site are managed and maintained. that falls under the auspices of the Suffolk Wildlife Trust, who use a series of control structures within the water, several channels in the marshes to hold back and allow the passage of water either blind buns which block the flow of water or pipe connections that maintain the levels that are set a set height within that within that system. There's more detail on that and our submission. App 304, which is the site conceptual model, which includes a plan that was provided by the separate Wildlife Trust to us to

inform our conceptualization which shows the location and nature of those structures. Right? Who owns the land and believe it's EDF land holding that managed by the Wildlife Trust.

08:18

Okay, you're gonna carry on doing? So you just roll forward the arrangements that you've got at the moment? Is that it?

08:24

That's my understanding, yeah, the Wildlife Trust effectively acts to to operate the triple si and deal with the the day to day management and running of that and keeping it in good order.

08:37

Was that done? And? Well, I get a support for your colleagues to take away but I would like to understand how that is secured a at the moment, and how it's going to be secured in the future. I suppose it's possible that you deal with it under the triple si legislation, but somebody will tell me and I'm sorry, it's a question of sluices and pumps, is

09:00

it No, no pumps, it's sort of pipe connections. So just fixed pipes at a set level within the within bonds within the the drainage network across the triple Si, and some channels blocked off to prevent the through movement of water and divert it around in different parts of the system. For what what happens, somebody goes off and moves the moves the sluice gates. It's a very passively managed system. So it's, there's not a huge amount of intervention in terms of changing levels on a kind of a day to day basis. My understanding is that the, the RSPB reserve is more actively managed where Yes, you'd have people going in and changing levels in response to observe changes in the water water environment, whereas the the triple si is a much more passively managed system.

09:50

Okay, so all right. So for example, when I you won't notice, but I had an unaccompanied site visit some weeks ago now. When he Meaning between the accompanied site visit days and I went off across the fen meadow, which was unbelievably wet but and that's I understand is wetter than it would normally be at this time of year.

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It is yes, we've had, we've had challenges, shall we say with the undertaking our monitoring due to access because of the the amount of water is being retained on the site at the moment? But would you not?

10:38

So do we just say, well, that's natural and that's that's the way in which things go or do you? Or would you normally move the sluice gates and let some of it out?

10:45

The challenge there comes in that it's ultimately controlled by the draining of the means vs loose, which is tied locked twice a day, and a nice water being retained. So the the site being so close to the coast, you're very susceptible to downstream obstructions to sort of free discharge from the site.

11:06

You can open as many sluices as you want at triple Si, but at the times of which this the minsmere sluice is closed, it makes not a lot of difference.

11:17

That's I'm sure you must have must have seen on your your sidewalk over there's not a great deal of distance between the bottom end of the sizewell marshes and the mainspace leaves just a bit of the coast. Yeah,

11:27

I see. The egg Okay. Anything else you want to tell me about 948? Isn't it? That's That's how that's how the how the water level is monitored? Who's going to tell what happens if it all goes wrong? Or what the tests are?

11:50

That would probably be a follow on follow me again, if if anything changes, essentially, we were we carried out our assessment, which was sort of reported in a submission to nine seven, we showed that there was little anticipated change. And that was based on the numerical modelling that we undertook to, to inform the assessments and see what the anticipated change would be. We're in the process of drafting a monitoring and Response Plan, which will set out our target thresholds for change based on the baseline data set that we've collected over the last sort of seven year period or so to effectively try and maintain levels in in line with existing conditions so that they're not affected by the development. And the detail on that will be incorporated in the monitoring plan that's anticipated to be submitted at deadline six, following consultation with the appropriate stakeholders. What action then can you take if it goes wrong? In terms of change associated with the development, the main predicted change that we're seeing is a slight reduction in water levels at some times of the year, and as part of the proposed development, there's the realignment of the sizeable drain that runs adjacent to the site boundary. As part of that realignment, one of the design features in there is a new control structure at the bottom end of the of the realign drain, which you can that the incentives for that structure to be an adjustable structure. So essentially, you can alter the height on that sluice to hold water back in the system and prevent that drawdown manifesting.

13:42

So So okay, so the fear is drawdown not not, not flood. Yeah. Yeah, so I think I knew that.

13:52

Right.

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So you're in the course of talking to the Environment Agency about those, I guess, and stuff at Wildlife Trust as well. Yes, we're

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going out to the console, we're in the process of finalising the draft document to to consultation with them on and sort of try and come to an agreement about how our approach and our proposed trigger levels and an interval everyone's comfortable with what we're submitting rather than submitting a document to yourselves and then you know, having to

14:22

presume it's quite it's fairly straightforward test, isn't it? It's but it has the ground water will have the water dropped by more than x centimetres.

14:31

You Yes, we're in a fortunate position on this project that we've got a very extensive baseline data set to work with to to define pre existing conditions within which the the ecology is comfortable. Comfortable existing. Right.

14:47

Okay. Thank you. Now, you're the right person for me to ask about 11 fish passes. I feel that might drift beyond my beyond my professional knowledge. But Mr. Mr. Phil, Boss volunteers Well,

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I'm fascinated by Elson fish but more as an amateur than his professional. So I'm going to pass over to someone who can give you some expert input on this. This is Alan Lewis again.

15:12

Okay. Thank you. Thank you, Mr. Lee. Hello again, sir. Well, as you know, ecology is a wide area and eels aren't actually my specialism either we do we do have them specialists within the supporting the organisation that will be able to pair a note on this. We know we are we are discussing this. With the Environment Agency. We think we're making good progress in relation to the solution three all passes. But we can probably do a note on that I guess it a D six to update you. I think that's

15:44

not really your bag, then I'd rather have a sensible night. Sorry. I have a good. Well, we'll do that, sir. Thank you very much. That's That's fine. Right. Those are the questions and clarifications. I wanted. Let me go to natural England and ask if there's any kind which you want to make or question which you wanted to put about. These water level matters. I have been looking at

16:19

higher jack Haynes, natural England,

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Lewis, you can switch off your camera now. He's frozen them over I really good. Yes. Mr. Haynes?

16:31

Hey, thanks. Yeah. So our position on this is outlined in issue 11 of our written representation. But yet to summarise, our advice is that it's essential to properly assess the risk of any changes on water levels arising from the proposals to the national important habitats and species. So as a Marty's triple Si, and fully consider and agree any necessary mitigation of compensation measures to ensure that adverse effects do not occur through this impact pathway. And

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where does that get me, Mr. Haines? That's the kind of sort of policy statement I can say. So

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yeah, well, but well, if I outlined some of our concerns in terms of size marshes, it's the long term impact of the cut off all on groundwater flow, the impact to the surface water flow during the construction phase, and impacts water level drawdown during the construction phase. And, and this is, as we understand this is up to 10 centimetres, which is considered ecologically significant in terms of the triple sigh in our opinion. And, as we've heard, the applicant considers that it's possible to mitigate this through the appropriate water level management measures that they've outlined. And while we consider this is possibly the case, obviously, the specifics of this mitigation needs to be provided now so that we have confidence that they will be effective in avoiding adverse effects through psi. So yeah, we welcome the water monitoring and response strategy we produced by that deadline five. And I think it was previously unclear to us as to whether or not this would integrate the water level management plan, but it sounds like the applicants just set out like it well.

18:06

So yeah, we are they are they talking? Are they talking to you about not you personally, but they're talking to the maybe you personally, Brian? No, but are they talking to the national natural England about this?

18:17

I'm not, we have been we have been involved in some of the discussions, perhaps not as many as we would have liked. But yeah, hopefully we can follow that up. And once we've received these deadline, five submissions, because yeah, we've got quite clearly have an interest in soil water levels. Okay. Anything else you want to say about that says thank you. Thank you. Does the Environment Agency want to comment?

18:52

I miss Brock Cameron scared Environment Agency is just perhaps to provide a point of clarity on the the the sort of side agreement referred to so our understanding is that the what the Environment Agency haven't requested this side agreement? Our understanding is that it is something that is being prepared through requests from riparian landowners under the parties. And so detailed proposals are being drafted at the moment with with riparian landowners and, and other stakeholders. We've looked, I saw EDF where the riparian land and across the whole piece it's it's certainly not apparent exactly what will be to us what will be included within that, that that side agreement and we've yet to see any

details. So I just want just like a play wasn't a requirement. We've necessarily requested but would be welcome to, to look at it once it's received. Again, many thanks. That's helpful.

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Suffolk Wildlife Trust you have been named in the discussions hid the two. Do you want to contribute? Thank you very much. Yeah.

20:29

So from our perspective, so we've been managing the triple OSI for for many, many years, decades, in fact, obviously have an intimate knowledge of how the system works. And I think the, from my perspective, a lot of the discussions been on water levels, but actually from our understanding of how to manage the site, and also the ecology of the fan habitat, particularly the nationally where am 22 fan habitat, actually, its water quality that is fundamental to the ecology rather than water level. Okay. So we've spent many years on the site effectively trying to separate the drain water system from the ground water fed system within the fan itself. And separating that conductivity basically helps retain the high water quality coming from the ground into the cage, that then helps drive the diversity, the botanical diversity within the fan. Family, our understanding of the mitigation provided by the applicant, what the proposals will potentially put at risk is raising the water level. So they will be able to create consistent water level with the with the historic baseline. But by doing that they are risking, in our view, increasing the influence of surface water within the fan at the expense of the high water quality groundwater. And that's where our concern is actually it's it's water quality, not water level, because we do agree with the applicant that they are able to maintain water level. How do you how do you separate the groundwater from the surface water? It's difficult, but effectively, what we need is a system that retains the water in ditch, because then the groundwater is then able to influence the fan in a more more effective way. Much of the the ditch water is downstream from from laced and sewage treatment works for example. So it's pretty high in nitrates. And a lot of the really rare plants need very low nutrient water. So our our feeling is that the mitigation that's been proposed really does risk the triple si. And those changes generally take a long time. So it's a little bit like turning a tanker. But

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okay, so, from the little I know about groundwater and surface water are the ditches not in hydraulic continuity with the groundwater.

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There is some hydrological hydrological activity. And in terms of the detail, I would refer to Dr. Rob Lowe, the hydrologist who works for Friends of the Earth. However, it is a fine balance. And at the moment, the rare plants particularly as I said the M 22 do will rely on a high degree of influence from the groundwater. So it's not sort of mutually exclusive. There is interaction, but it's the balance that might change. And that's where the risk is I think, zone 22 is the fan Meadow grass. m 22 is one of the fellas it's one of the fan community types. Yes, that's correct. Yeah. Okay, because anything else you want to say? Well, I would just like to defer to Dr. Rob Lowe, if he if he has anything to add, if that is possible.

23:59

I would say that sounds like a suitable juncture to bring in several close friends yet. I see Mr. Lowe, Dr. lowfat. It's got his hand up as well. So Thompson, if you'd like to join us, that would be helpful at this point.

24:14

Hi, yeah, it's Dr. Rob Lowe speaking on behalf of Friends of the Earth. And yeah, I've got a few points here. And I'll address Ben's point in a little while after camp, and the first point is the width the the fan meadow and 22 community. And I think it's widely agreed that the main variable, hydrological variable through which the supporting conditions are defined, is the elevation of the water table or the phreatic surface. relative to the ground relative to the ground level. And the water level monitoring within the fan is being carried out using shallow peaks on metres, which are to my knowledge screen down to half a metre below ground level. So, technically stop you there, I want to make a note of something. Thank you carry on. So, so technically those pizza monitors and monitoring what we call the pizza metric level, which is basically the water pressure at some half a metre in downwards for a short interval within the fan. So and that is a different variable to the water table. So there's a risk here that the monitoring instruments that are in the fan at the minute monitoring completely the wrong variable in relation to the fan medic. So what one question that I would ask the question in relation to this that I would ask the African is, can they show the shallow peaks amateurs? Can they demonstrate that the sharp peaks amateurs are monitoring the water table elevation, or that the water table elevation is exactly the same as the variable that they're monitoring in their pizza metres. And the context or one of the important contexts to this is that there's an awkward hydraulic gradient through the system and a pizza ometer is likely to measure or this is an awkward hydraulic gradient, a pizza metre will measure a higher water level than the water table elevation at the same point. So their instruments might be overestimating the water level within the fan. So that's the that's the first point that in and the second point in, in their replies to, to my or our written representation. That is quite a few comments as to the the information which is available for the ecohydrological or basically the ecohydrological guidance for guidelines for m 22. Fun murder community. It's quite quite a lot of reference to that being generic information, and they would prefer to concentrate on the site specific monitoring. And I i do i disagree with that? I think that the ecohydrological guidelines are really useful in this context. And specifically, they've got seven years of monitoring of the what, you know what, what we I'm going to say we assume is the water table, the largest question not in my previous point, if we say that it's the water table that they're measuring, and they've got seven years of data. And if they look at that against it relative to the ground surface, which is the key variable that's that's describing these these conditions that the 22 likes, and then they refer that or they compare that with the the conditions which m 22.

28:43

Piece supports and 22. So around the country. So in that in the document I'm referring to which is referred to throughout lots of documents. There is a range of water table regimes, which n 22 likes or can tolerate. So if the applicant looks at the monitoring that they've been carrying out over the last seven years, and then compares it with the guidelines, they would be able to work out the relative vulnerability of the 22 within sizewell marshes. So the water levels inside our marshes might be quite low already in a baseline condition compared to other standards are then 22 around the UK. And that would be that would be an important context for the impact assessment. Because if the M 22 is in its

baseline condition or hydrologically, if in its baseline condition is quite vulnerable, then that that is clearly an important context for the impact assessment.

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Okay, can I just take you back? So I should raise it before you move on to your second point? You? Your question is, are is the applicant actually monitoring the water table level itself, as opposed to

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a shallow pizza metric level? Yeah. Okay. And I suppose the question is, can they demonstrate that those are? Those are essentially both the same things? Or they or they provide both the same data.

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You're expected to provide different data, wouldn't you?

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Well, this is the question. And so the system we know, we know that the system has an awkward hydraulic gradient. And also, I've confirmed this morning that the applicant said that the the peat, in which the shallow pizza metres are installed is poorly permeable. And that would that would also lead us to think that a shallow pizza, there's a risk that a shallow pizza ometer will give a different water level to the to the water table at the same point. Right. Remind me what an upward hydraulic gradient is. All. Although I would, I would demonstrate an upward hydraulic gradient, it's three years and exactly what we're talking about, really, if you measure the water pressure at a at a depth, and then compare it with the water pressure to shallower depths, if the water pressure at the deeper depths is higher, then that's an awkward hydraulic gradient. And that awkward hydraulic gradient demonstrates the potential for upward flow in the direction of the hydraulic gradient, the amount, the amount of upward flow is dependent on the hydraulic conductivity of the medium, medium that the water is flowing through. Gotcha. Thank you very much. Thank you. That's something else you wanted to say. Yeah. And then the other thing was, and it's a sort of related point. And I'll also come on to to Ben's point in a lot of the in relation to determining the sensitivity or the significance of the impacts, which have been modelled using numerical model, there's a lot of reference to 10 centimetres, as a, as effectively as a threshold for significance in water table drawdown. And, certainly in the in the replies they, the African wrote an appendix to essentially to to flesh out the conceptual model in response, partly in response to our written representation. And then that it said that this 10 centimetre threshold is back is based on ecological sensitivities. And my question, my question is simply, can you expand on that and justify the use of or the reference the reference to 10 centimetres, as the as the kind of threshold for significant water level change in the system. And again, it's useful to use to refer to to the ecohydrological guidelines for m 22 fan Meadow in that regard, which, which, as I say, has been in Environment Agency documents in 2010, which is the sort of a match to the Holy Grail for this kind of assessment. And

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we just stopped you there. It's not the applicant to say, on your 10 centimetre point, he said it's an ecological sensitivity. Isn't isn't that point that there's a really small range within the water within which the water can go up and down without without detrimentally affecting the flora and fauna, which are in the triple si.

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Yeah, I mean, there's a risk there's a risk that you there's a sort of confusion and I've made it I've made a note of this because I read Yeah, in I think it's in 1.4 point seven with Eric Appendix B, which is the restatement to the conceptual model, I think. And in that I in first and that, and that they're saying that the actually drawdown in the water table is not significant, as long as it's less than the annual range in the water table elevation. Now, that's, I mean, that's simply not true. If you, you know, if you lower, you can lower the whole regime. And you might, there might be quite a large annual fluctuation in the water table. And if you lower the whole regime by just less than that annual fluctuation, then you've got a significant impact. It's not it's not necessarily related to the No, those those two things aren't related at all. I don't think. Okay. Because the I mean, part partly because partly because the community is supported by the water, the water regime, which demonstrates an annual fluctuation. Yeah. And that's not necessarily I don't think that's necessarily linked at all, with significant drawdown

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is the point you're making, that's an annual fluctuation from the current level, that might be one plus a plus or minus five centimetres, over the current level, which, let's say seven metres and, if I draw down, if you draw down to five, to take an absurd example, if you draw down to five, then a fluctuation of plus or minus five centimetres is not the right test, it's the fact that you've gone down to five.

37:08

Yeah, I mean, as I understand it, you know, you could, you could in the baseline condition, you could have a natural fluctuation, and I'm not necessarily saying that this is just the case in this life, but just as an example, you could have an annual fluctuation in water table elevation of 50 centimetres. And now, you know, drawing that whole system down by 50 centimetres, is, you know, clearly not acceptable. I see the point you're liking? I don't know, I don't think those two things and it should be should be kind of equated basically. Okay. It can just quickly an answer to, I've got a number of other points. And I'll, I'll put those in written representations. But yeah, if you could just deal with Mr. Yeah. Ben? Yes, Mr. Farr's five point, I think that the the water quality and this is another point about hydraulic gradients, but in this case about horizontal hydraulic gradients. And the poor quality water, which is entering the fan at the upstream end of the system is managed, it's basically expressed through the system by keeping the water level, in, in the dirt in the ditch, that's a relatively low level. And by doing that, horizontal hydraulic gradients from the fields, into the ditches, are maintained. And that and so water can't flow against a hydraulic gradient. So if you if you maintain a low water level in the ditch in which you've got, you know, anywhere in which the water is poor quality, and you will, you will maintain a flow from the field into the ditch, so that poor quality water in the ditch can't flow in the reverse direction into the field. And the M 22. is known to be sensitive to that kind of poor quality water. And, you know, and to expand on what Ben was saying. Well, basically I agree with him, I can't see that. Well, the detail that we've been given so far have any kind of mitigation of anything that goes wrong, and I don't you know, I I mean, I maintain an independent judgement on the on the, the modelling and the impact assessment and bend. You know that I can't see how that mitigation can't push more poor quality water into the fan to maintain the water levels. Because the abstraction from the construction, take some water from underneath the fan. And that water has got to be at the expense of something. And if they're maintaining the water levels in the fan, it's got to be water which is migrating from the ditch into the fan. And that's poor quality

water directly from a sewage treatment works, which is going to be high nutrient and very damaging to the fan down 22 fan community. What about the water which comes down the sizewell drain? I'm not sure about the quality of that. But I do think the you know, the the control structures also include the water that's coming down the laced and drain with use high nutrients. So I yeah, I can't comment directly on on the size while drying. Okay. Right. Just one more question to you. So the applicant told us that the

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systems for maintaining the levels are pretty much passive. Really, because the minsmere sleeves is closed for a considerable amount of each day. Therefore, the water simply simply backs up and there's no point in opening anything upstream because there's nowhere for it to go whilst the minsmere sluice is closed. I guess there's also an impact even when the minutes of its sluices open. Your point about the ditches so you're keeping the flows low in the ditches certainly doesn't migrate out into the fields and therefore into the groundwater. How, why is that not scuffle? Like, by the minsmere slicks?

42:20

I think it's, I think it's just a question of changing the balance from the baseline. So yeah, I think there is there is clearly some tidal effect. But if if there is drawdown in relation to the groundwater, then the the balance will be changed in relation to the water flow. From from I

42:47

can see I can see that I understand that. But how do you go right. So your point is, yeah, you don't you're you are, you're not fearing more surface water in the ditches. Your fear is drawdown groundwater because of the construction of the power station.

43:11

Yeah, and and because of that drawdown that will affect the hydraulic gradient between the ditches and the fields. And that's likely that's likely to push more near.

43:30

Yeah. But right. Is there anything else that you want to say doctor? No, no, I think that's fine. Thanks.

43:37

Thank you. That was that was helpful. I got a few hands up. I'm going to go through those in the order in which they went up. Mr. Lee, you can put your hand down. And then I will go to the applicants. So as I'm going through these through the hands, which Mr. Collins Mr. deaq and Mr. Fulcher I would say if there are any other interested parties who want to contribute, if you could put your hands up now that would be good as you pass on. Sorry, Scott. That's like a solid Miss. Miss. Miss Fulcher because she has suffered Wildlife Trust. big one. She is Friends of the Earth. misfortune you've got your hand up.

44:30

Yeah, thank you. Just a very quick point you asked about the quality of the water and the size while rain. We do know that that's contaminated with hydrocarbons. And this is runoff and traffic from the

road that goes into the firewall v station, and also from traffic counter side bar village that is somewhere in the documents. But this is not cheap. pure water, we would really not want to see this.

45:04

Yeah, yeah. Thank you for reminding me that. I have seen that. But it's set my mind at the moment. Right, Mr. Collins, I will go to you now.

45:19

Thank you. I certainly wasn't going to add very much to what Dr. Lowe has already said. But just for a point of clarification, when you talked about the high levels, water that were in there, sizewell Marsh over the last winter period, is partly due to the fact that there's a blockage in the less than drain itself. It has nothing to do with this loose, as loose as operating quite nicely. And I believe an agreement has been reached between the EIA, the IDB, sighs, well, size will be to actually get that drain unblocked this autumn. And so water will continue then to flow. Normally, it was abnormal, plus the fact that we had quite a lot of rain, this particular winter. So that's, so that's my only point.

46:07

Thank you. That's, that's very helpful, because I'm going to pass that point over to the applicants. And if you have to cook, just remember when I asked you to respond, we talked about what you told me about monitoring and about system and the constraints caused by the minsmere sluice. But Mr. Collins's point is that there's another blockage coming along, so we just know how you deal with that issue as well. Now then, Mr. Collins, you put your hand down. Thank you, Mr. diac.

46:44

Yeah, thank you, Ian Diack from natural Strickland. Hello, can you hear me? I can hear you today. Good. Thank you. Yeah, it was to pick up two points that Dr. Lowe had made and to expand on one of them both about the applicants sort of description of little anticipated change to water levels. So the first point was just to sort of state agreement with Dr. Lowe on the his points about the annual range in fluctuation of water levels. And it's, it's, it's in relevance to the impact of the changes as a result of the development. And this is something that comes up quite often in these sorts of cases. And obviously, the change to water levels as a result of the development is additional to annual fluctuations. So yeah, it's in my opinion is not relevant. And the the issue of the 10 centimetres as a kind of threshold for significance, I this, it comes back to how the vegetation communities described. So we call this fan m 22, which describes quite a range of variation in vegetation, although it has certain components that make it m 22. So certain plants always occur together to give it that kind of coherence. But within that, there is a lot of variation, depending on you know, small differences in wetness, small differences in nutrient availability, small differences in base status. So, particularly looking at sizewell specifically, there are plants in the M 22. At sizewell that are reliant on very hot or high water levels, permanent high water levels, and they're adapt to those conditions by having very shallow roots. So they avoid anoxia. And, therefore, they if the water level drops by 10 centimetres for extended periods of time, or nine centimetres for extended periods of time, which may be the case here that won't be picked up because it's not 10 centimetres, they are, obviously, their existence is threatened because they can't chase the water table down because they're raped, that that is not they're not adapted to those conditions. So you may still have em 22 but you will have lost quite a lot of the special species that occur on this site. And

therefore you're losing diversity losing some of the significance of this site itself. And a lot of invertebrates are also reliant on a very high sort of saturated water table throughout the year. So just saying 10 centimetres Yeah, I'm 22 will be fine. is not adequate. And in our opinion, there will still be m 22. But you may have lost some of the really uncommon species that are characteristic of enter into two and this bm 22. At this site, particularly,

50:19

are those going to be species for which the site was designated as a triple si.

50:27

They are listed on the citation. So they make up they are part of the, the, the vegetation that the site was notified for. Yes. Okay.

50:38

I take it that you're you've alerted the applicant. Will that? Yes, we have. Yeah. Thank you. Thank you. Okay, thank you very much. Just I just need to make a note of So Mr. Ty said to me. Right, let's dive in and put your hand down, Mr. Collett. I see your hand is up. Hello, Mr. Collett.

51:21

Good afternoon. Thank you, Mr. Botha for giving me an opportunity to just make one quick comment. Just remind me on whose behalf you are making representations with Scott party rather than one of your invited parties. Very good. Thank you. My interest is a local resident, you will have heard from me before in written submissions. I forwarded to a book in connection called ms for minsmere. So that's how I might be recognised. But the common I just wanted to make. And I've been listening to this debate about SSRIs generally. And of course, in this day and age of biodiversity crisis, something which was never really envisaged, or even come into our language, I suspect at the time that the WPA and 90 1981 was was drafted. I'm still amazed that we are considering developing on triple si in this day and age and what concerns me most is what if all the consultants are wrong? What if we find that all the measures that people think they can take to mitigate any damage do not work? Who is responsible? And who is going to pay for the loss of the biodiversity in this tricycle sssi? car I just like to hear people's views on that, please. Thank you,

53:01

I suspect is something which the applicant would like. And I would like the applicant to come back on in writing rather than in order now that Thank you. Right, unless there are any other I in trust interested parties, you want to raise something on this Mr. Phil board, I am going to come to you now. Mr. Collette, you can put your hand down. Thank you. Thank you very much, sir.

53:31

So you've heard quite a lot of material there. There was reference made to a note we put in deadline three, I'm sure you've got the reference ready, but it's rep three, zero 43. And that's Appendix B within that document, that's the detailed groundwater paper on ground and surface water. So there's quite a lot of detail in that. But I'm getting asked Mr. Martin Lee, to come back on the points that you've just heard.

54:04

Yeah, that'd be good. So read through 43. That's the one way you set out the replies and the comments on the replies, isn't it? Was that a 47? I'll find it.

54:15

That's the one that was being referred to by Dr. Loh. Yeah. As responding to some of the points that he had made, I'd have to check what 47 is, but I'll pass over to Mr. Lee. So Mr. Lee, thank you.

54:32

Good afternoon again. Mark Lee speaking on behalf of the applicant. Yes, it is Appendix B of Rep. 3043. It's a specific paper that was drafted to support the comments in response to the written representations, setting out the technical detail behind why some of the concerns that have been raised aren't aren't actually an issue in this bottom row says he's he still disagrees with Yeah, yes. Effectively, that paper sets out the how the the water balance functions within the marshes. And the point that was raised around the change in water quality, fully recognise that introducing a lot of nutrient rich water would drastically change the nature of the of the water environment and the setting there. That's not what's being proposed. In this case, what we're talking about with the control structure on the, the discharge point from the marshes on the realigned sizewell drain, is effectively retaining water that's already within the marshes, in the marshes, rather than letting it drain out more freely, and lowering the levels as a consequence. So it's not about introducing more nutrient rich water at the upstream end of the system. It's about stopping water leaving the marshes at the bottom end more rapidly. Hence, the drop in levels. So

55:54

there is a basis his his worry is that you're you're going to either draw down the groundwater so much that, like you say, well, surface water makes up for it. And he says that surface was not adequate quality, or he just got mixing.

56:14

The water in the pizza in the central water system at the moment are a mix of peat groundwater, crack groundwater, surface water runoff from outside of the marshes. And there's that the appendix B that we've submitted sets out the the water balance and the mix of waters that's within the the triple si footprint at the moment, and how that would change under a development scenario and shows that there's very little change in terms of the sources of water that make up the overall water content within

56:42

the triple si. And that tells me which is groundwater and which is surface, does it.

56:47

Yes. And one of the points that was mentioned as well around the the upwelling of crack groundwater and the upward hydraulic gradient of of cracked groundwater coming up into the peat as well, that's that's addressed in that note. Okay. Right.

57:03

Does that mean you're not gonna make a further response to Dr. Lowe, and we'll leave it if you leave it as it is. I want to make in writing, let's say there's there's, that sets out a lot of the

57:13

sort of technical response to those points, there were a couple of the things that he raised. One was around the monitoring installations, and the sort of use of shallow photometers. And when they represented the water table, the monitoring network has actually agreed with with stakeholders, before installation, agree with Wildlife Trust, natural England Environment Agency. During the peace officers, it is yes, this series of parameters within the the triple OSI footprint. They're also standard instruments for monitoring water levels in this sort of setting. And yes, we believe that they're reflective of the actual water table there, they're installed as shallow depth to intercept the water table, and therefore give you as accurate representation of that as you're going to get with a measurement measuring instrument in that setting. The other points as well, one was around the degree the the monitoring system with it was several wildlife trusts natural England and the Environment Agency. It was about seven years ago prior about six or seven years ago when they were actually installed. Okay. I'm sorry, I interrupted you. Sorry. That's okay. So another point that was raised was the issue of the M 22. Literature, the referencing to it being more generic values, the point that was being made in the in the written response, or the response to the written responses was around the fact that we've got seven years worth of baseline monitoring, which shows that the water levels at the site are out of regime based on the published literature values at the moment. Hence, using that as a using the baseline data set as a more appropriate reference rather than published literature values to assess the degrees of change and impact of change.

59:05

So you're saying you've got specific, real monitoring data? We'll take that rather than general generic literature is that is the proper way forward?

59:22

Yes, I mean, we've got site specific measurements. And it's, you know, it's evident that the ecology is in good order, in the triple si with the water regime as it is. So we, you know, when we're producing our monitoring plan, the intention is to use that baseline data set as a reference to define what's a suitable trigger for intervention rather than the published literature because that would go beyond the sort of the scope of the development and changes associated with the development you'd be looking to change the overall management of the site. Rather than maintaining the existing conditions and not inducing a change from The power station

1:00:02

where you say generic literature or Mr. Lowe Dr. Loza journalist, are you talking about this show which draws on experience and data from that I know the whole country, the whole world, or you're saying it's it's the origin extract some generic? What is it? It's,

1:00:23

it's literature based on on science with M 22. Present. So it's sites around the country, there's different sites with with this. These are ecological group, which is present. And it's the conditions in which the plants that define those assemblages are sort of, you know, understood to. And

1:00:44

so, what you're saying to me, so I, I'm thinking we're talking about monitoring, but but water monitoring, what you're saying to me is that the generic literature will tell you will draw certain conclusions based on entering to do up and down up and down the country. But when you look at the M 22, in the sizewell marshes, the last seven years of data, which you've got shows that it is in good condition.

1:01:16

It's in good condition from ecological perspective and the water levels are not what they are that Yeah, exactly.

1:01:26

What about Mr. Dr. diags point that there are some you may still have 22 but important plants for which the triple si is designated will deteriorate and or die if you have a less than 10 centimetre fluctuation, which might because be nine or 9.9.

1:01:54

Yes, no, it is, it has caused a fair amount of headaches in terms of trying to develop an calibrate and agree or a numerical model to that level of accuracy to undertake the the assessment with but it's worth saying that there's a time component to the variability of water levels as well as a spatial component.

1:02:18

And it says 10 if you drop it down by 9.9 centimetres for a prolonged period, that will cause a problem. Whereas if it goes down today and comes back up tomorrow, there's no problem.

1:02:29

Yes, that's in its question in duration. And it's question of timing as well, during the during the years that we see a greater change predicted in the winter months, relative to the summer months. So actually, there's less drawdown in associated with the development in the summer months when the ecology is more sensitive to change in that respect. The during the winter months when the water levels are higher and a change in 10 centimetres is is less significant because there's still water available to plants to to access. Okay.

1:03:00

Well, if you don't want the sector state, we happen to take your view on that you need to bottom is out with natural England. Yeah, yeah. Okay. Okay. Is there anything else you wanted to say? Mr. Lee?

1:03:13

I think that covers the most thing. I think one of the other points that was raised well, was the question about the blockage on the waist and drain. Oh, yeah. Well, yeah, that's, that's something that we noted.

And we've picked up in our monitoring, it's it was occurred a couple of years ago, as well. And you can see the effects of

1:03:33

it's drowning some of these species, which Mr. Doctor diet is so so concerned about. So I noticed that she's having some sort of, or it might have a detrimental effect. My question to you is, why haven't you unblock the drain?

1:03:48

Yes, I think the problem is, it's it's a question of who who does the unblocking? I believe it's sort of, you know, it's who's who's the riparian landowner to go and do the unblocking? And how does that actually take place? And, like, that's the one of the issues that's hopefully going to be covered under this site agreement. And it's a recognition of the fact that whilst we have a potential, you know, we have control over our development and, and the impacts of that and the changes associated with development, the site is also very susceptible to wider effects from the network and the water network in the area, and how that's managed to how our project integrates with the wider management of water across the area.

1:04:31

Yeah, I mean, in terms of looking at environmental effects, and the mitigation which you need to put in place, you can't say, Well, I'm terribly sorry, I couldn't deliver it because we've got an awkward landowner downstream.

1:04:45

Oh, no, no, it's it's it's more a question of the changes that we're seeing within the triple si and and making sure that there's a joined up approach from all of the responsible parties who, who operate you know, who are responsible For the proper functioning of the watercourses in the in the surrounding area so that the triple si itself isn't impacted.

1:05:09

Yeah, I mean, there are references in quite a lot of your your clients to ask for an authority documentation to putting monitoring measures in place or putting in remedial measures, as agreed with little local stakeholders or local lender or land managers is, I think is is the phrase and we've asked questions and if I haven't got to the answers, which you've given, but you know, what happens if they say, Well, I don't agree. So I rather than answer that now, because I suspect you may do something which is better dealt with by the by the real estate lawyers, I didn't know that then I just won't say when you put in, you're putting in some D six documentation for us in relation to the triple si crossing. And this discussion all flows out a triple A, so crossing a level was even wider that that's what I intended to do. Please, can you make sure that you bottom that point out, and especially as I've now got a real understanding of an instance where it is causing an issue? Okay, so I was there any other things that you want to say, Mr. Lee?

1:06:18

I think that covered most of the most of the points that were raised.

1:06:23

Very good. Okay. Thank you. Thank you. Thank you very much, Mr. Phil. But I've got Mr. Lowe. Mr. Woodfield, you've got their hands up. I have had it go already. But I'm just going to go back to them and see, see quickly, where they where they're going? And then I'll come back to you. Dr. Lowe? I just can't, can I just say to you that I'm obliged to give the applicants the last word, or the right or the right to reply. So do you raise some new points with with me now? I have to get I have to go back to them. And it pushes the timescale, timescale out. If you really won't make those points, then I under brief, I will let you do so. But I made that comment to you and to and to and to everybody. Or if you would prefer to put them in writing, I will be happy to read them that,

1:07:21

ya know, just three very quick points in direct, direct reply to what Mr. Lee's just said. The first is that, that the pizza limiters that are in place in the in the fan are certainly not standardised instruments. My I've got 15 years experience of monitoring wetlands. And if you if we had the time, I could go down two minutes and fetch a deck? Well, I've got a massive stock of them in a garrige. They on they are certainly not the standard instrument for doing this kind of stuff. And on that basis, believing I think it was said that they believe that the the water level that's monitored in the pizza amateurs is the same as the water table. And I just don't think that's good enough, we need evidence to say that the water the the pizza metric level that they're measuring is the same as the water table. Exactly coordinate is that the second point is the the baseline water actual water level monitoring, which has been undertaken, I think was said, it says that the water table is very low. And it's outside the range outside the accepted range of M 22. Water, water table regimes. But surely in my judgement, that means that the that means that the M 22 in this site is extraordinarily vulnerable. Because it's not, you know, this ng 22 isn't completely atypical to all of the other m 22. That the document is based on. Yeah, and the third point is that um, my, my point is I'm not saying that they're going to import extra high nutrient water into the system. The point is, and I think you you understood this last time i was i was talking about it was that the managing the water levels by sluices in the fan is going to be in association with the drawdown from the construction is going to is going to alter the net hydraulic gradients between the ditches and the fan. So you will get you will change the balance of water which is supplied to the fan. Not enough balance will be changed in favour of high nutrient water. My point is not to, to sort of reiterate my point is not that they're going to import extra high nutrient water into the system. They're just going to deal with it differently. Okay.

1:10:18

Thank you. Thank you. But I believe that that students feel that make the same points to you.

1:10:29

Thank you, Mr. Brock. Yes. very brief point. If I may not see Mr. Woodfield. Though I'm still bedridden. I suppose you're determined to see me in my nightclubs? No. Please do. It's a vent is essentially an extension of points that I think you've picked up on sir. And I think Mr. Dyer has as well. There's m 22. And there's n 22. There, it's it. There's, there's home pride and there's home baked sourdough bread. And and and the concern I have from what I'm hearing from the applicant is that they will measure success on the basis of achieving a community This is referable to N 22, by NBC standard methodology. So if they find sufficient number of the plants associated with M 22, they will pronounce

that as a success. And what we're hearing from everybody is that the particular m 22 represented on this site is extremely special. That's why it's a triple si. And the corollary to this point really is it brings in some real concern about what their objectives are for the compensation site, are they going to simply measure success in delivery of this habitat and compensation sites by popping along and, and seeing the odd few plants of Yonkers submodular osis coming up and saying, okay, we've we've successfully created it. There's a there's an important nuance here between creating high quality triple si standard habitat, and creating something that is very much a degraded version of it. And I'm not being reassured from what I'm hearing from the applicant, that they have the right bar in mind in terms of their objectives. Thank you. So

1:12:11

don't get away, I just wanted to ask you something. You just said to me that this triple Si, it doesn't need to because of this m 22. Does that mean to say that not all m 20 do get diseases the triple si.

1:12:27

m 22 is a fairly scarce habitat. But I think there are representations that are not subject to triple si designation. The particular suite of interests on this sites are not just the presence of the M 22. community, but also the particular suite of scarce plants associated with it. And in particular, the scarce invertebrate communities associated with it. So this this isn't your average m 22. And that's my concern is that is that if you were to aim your compensation targets or your mitigation targets, and average m 22. Even if you're successful, and you overcome all the issues that Dr. Lowe and others have spoken about, you may end up with something significantly less valuable, and making much less of a contribution to critical natural capital than what you've got at the moment.

1:13:15

Okay, so you got invertebrates, which are reliant on them 22 on this quality earned 22 will not rely on that. But which are

1:13:24

they're an integral part of what makes this site of special interest. Absolutely. Yeah.

1:13:30

Okay, thank you very much, Mr. fields. Hello, you can put down your hand. I think it's valuable to clear this off. So Mr. Diack?

1:13:43

Yes, thank you. I've just coming back to Dominic's point about triple A size and M 20. t, just to clarify that in recent reviews of notification guidelines for triple A size M 22. Because of its national rarity. Our recommendation is that all m 22. Examples 22 are potentially notifiable again. So that's it, it's less than 10,000 hectares, and it's probably less than 5000. up to date figures and not not the best, but just to Yeah, pick up on again, on the point that there is variation across it this this is a good example. And that there is a whole series of different invertebrates and other animals associated with particular conditions. So it's it's much more complex and you're saying yes, we've got m 20. t as we've said, so I that clarifies that.

1:14:48

Thank you. That's that's helpful. Right. I'm gonna go back to the applicant. Now. To finish off, Mr. Mr. Phil plot. There's quite a lot there. But if we could Wrap it up, and then we will adjourn for lunch? I think they'll keep they're gonna keep the the flow of thinking?

1:15:09

Well, yes, I'm very, very confident is, of course, one of the things I'm trying to bear in mind is the balance between on the one hand, the need to maintain the timetable, on the other hand, the need for us in fairness, to have an opportunity to comment and when, when we keep going round again, balance becomes all the more difficult. What I'm going to do is I'm going to ask Mr. Lee to provide a brief overview. And then we're going to come back and writing is not ideal, but otherwise, we're simply not going to get on to the other items in the agenda. So that's what I'm going to suggest.

1:15:45

Well, thank you. And I'm grateful to you for your concern of over my agenda. I let these other parties come back in, because it is helpful to hear, and for me to be able to ask questions off them about indeed to ask questions of your of your team, as well. So you want to go back to Mr. Lee now that's fine. It's Yeah, that will be good. Thank you.

1:16:15

Hello, again, sir. Hello, marking on behalf of the applicant? Yes, just just to sort of reiterate, a lot of the material has been submitted in writing Previously, we do recognise that this is a very complicated system. And it's there's, it's very hard to get into the finer points of detail in this setting. And I think that we've tried to address these, these concerns that have been raised in the written representations in our previous submissions. We're not suggesting that the site is a uniform entity, nor are we suggesting uniform standards of change across the whole of the triple si would be appropriate. I think that a lot of the technical detail is is presented in our written submissions. But you know, where we're confident based on the assessment that we've carried out, and the details that need to be put forward in the water monitoring plan, that's to be submitted deadline, six, that the concerns, from interested parties around the potential change to the the water environment that supports the ecology of interest, can be managed in the impact, that we're not predicting an impact. We don't foresee the need for mitigation as part of our environmental assessment, as submitted in support of the decio. And where we're comfortable at our water monitoring plan will allow and give assurance that the assessment that's been made, and the change that we see is appropriate.

1:17:43

Fine, okay. As you say it is it is complex. And if you can set it out with clarity in your D six submission on that, that would be very helpful. Mr. Philips, you were there briefly, only to confirm so that that's that's how we'll deal with it. Thank you very much, indeed. Very good. Well, in that case, I am going to adjourn it's now 28 minutes past one. And I'm going to adjourn until a quarter past to say thank you and we are adjourned.