

**CHESHIRE INLAND WETLANDS AND WATERCOURSES COMMISSION
PUBLIC HEARING
TUESDAY, MAY 6, 2014
TOWN HALL 84 SOUTH MAIN STREET
COUNCIL CHAMBERS AT 7:30 PM**

Members present: Robert de Jongh, Charles Dimmick, Dave Brzozowski, Kerrie Dunne, Will McPhee and Thom Norback.

Member absent: Earl Kurtz

Staff: Suzanne Simone.

I. CALL TO ORDER

Chairman de Jongh called the public hearing to order at 7:30 p.m.

II. PLEDGE OF ALLEGIANCE

All present recited the pledge of allegiance.

III. ROLL CALL

Ms. Dunne called the roll.

Members in attendance were Robert de Jongh, Charles Dimmick, Dave Brzozowski, Kerrie Dunne, Will McPhee and Thom Norback.

IV. DETERMINATION OF QUORUM

Chairman de Jongh determined there were enough members present for a quorum.

V. BUSINESS

Ms. Dunne read the legal call to open the public hearing on the following application:

1. Permit Application	APP	#2014-012
Kathie A. Welch	DOR	4/01/14
Reservoir Road	SW	4/05/14
Resubdivision	PH	4/15/14
	PH	5/06/14
	MAD	6/10/14

Darin Overton, a licensed professional engineer in the State of Connecticut and William Root, soil scientist of Milone and MacBroom were present on behalf of the applicant.

Chairman de Jongh explained for those of you who have not had the opportunity to participate in a public hearing before this Commission – we'll allow the applicants to make their presentation - this is a continuation of a public hearing that took place at our meeting back on April 15. So we'll apply the applicant to address any issues; Commission members will then be allowed to ask any questions - we'll open up the floor to the public where they can ask questions and then we'll entertain any comments pro and against following those questions.

Mr. Overton addressed the Commission.

Mr. Overton said at the last public hearing there were some comments that had been submitted for the record and there were also some concerns that the Commission had – we've made some revisions to the plans and issued response letters relative to those concerns.

Mr. Overton said one of those concerns had to do with the topography on the map – this is the rendering that we had presented at the last hearing.

Mr. Overton said since the last hearing we looked at the new 2012 GIS town topography and we looked at an overlay of that on our previous mapping and we made some adjustments to the topography based on what we saw on that updated mapping and we submitted a revised plan that corrects a lot of the locations where the topography didn't really match up with the wetlands or watercourse delineation that was on there.

Mr. Overton said so in overlaying that it clarified a number of the discrepancies in the topography so we've submitted that as part of the revised plans.

Mr. Overton said the town engineering department has submitted a review letter and one of the concerns was peck rates of runoff – attenuation for the 100 year storm; as part of that we added an additional rain garden or bio-retention basin (shown on plan).

Mr. Overton showed the Commission the revised plan that was submitted – he explained what they did was we added another retention area at the base of the slope of the driveways where the

driveway split – we did some minor regrading to the driveways in order for the runoff of the driveway to collect along the mid-point so this area that's highlighted down towards that green basin is basically a broad grass swale so the runoff from the driveway will collect in the swale and then come down to a rain garden or bio-retention area.

Mr. Overton said the other two rain gardens – we enlarged those slightly in order to provide enough storage to have a zero increase in peak rates of runoff for the 100 year storm so the previous calculations that were submitted noted that 4,830 CF of storage was required – these three basins have an estimated 9,000 CF of storage so we meet the storage requirements and there's a little extra as well.

Mr. Overton said also based on a concept that we presented to the Commission for an open bottom arch culvert and based on feedback we got from the Commission we moved forward with a design of the arch culvert to replace the 36" pipe crossing that was proposed for the lot 2 stream crossing; so we've redesigned it with 10' wide metal arch that is now 22' 6" long as opposed to the 50' – 36" culvert that was proposed before; by doing this we are able to maintain the natural stream channel through the arch – it reduces the length of watercourse impact that was noted in the application from 100' down to 50' – essentially the watercourse impact remaining is for the smaller cross culvert for the intermittent watercourse further to the east on this map; that culvert was also upsized based on clogging concerns – he said he believed we showed a 15" before – we increased the size of that to a 24" now.

Mr. Overton explained the arch crossing also reduces the permanent wetland impact – before with the cross culvert and the fill being placed there was a permanent loss of wetland within the entire footprint of that culvert crossing; now with the arch we are able to preserve much of the natural wetland area so our impact goes down from roughly 2,000 SF of wetland loss before to only about 300 SF now so a significant reduction in putting an arch culvert in verses the pipe and the fill.

Mr. Overton said there was also a concern about clogging of the 36" pipe and the engineering department had a concern about back water extending off of the property on to lot 1 – with the arch there's no more back water and he thought it was very unlikely that we'd see any clogging of a 10' wide arch culvert that's about 3.5' high.

Mr. Overton said so we did also provide formal responses to the comment letters that were submitted – he said he was not going to

read through all of those but he believed the information that was submitted does adequately address those comments but if the Commission has any specific questions he would be happy to go through any of those items.

Mr. Overton said he did realize in going through this today that he intended to attach the UCONN Rain Garden Design and Maintenance Guide to the letter that responded to the Meriden Water Department comments.

Mr. Overton stated he did have a copy of that and would submit it for the record (the guide was submitted into the record).

Mr. Overton said in addition our wetland scientist and soil scientist Bill Root wasn't able to attend the last public hearing so he'd just like him to come up and do an overview of his wetland delineation as well as the impact assessment that he had prepared and submitted as part of the project.

William Root, certified soil scientist and wetland ecologist with Milone and MacBroom addressed the Commission.

Mr. Root explained that he filed the two reports that Darin referenced in support of the application – the wetland delineation report and the impact assessment report – he said he'd just go through those briefly.

Mr. Root stated the wetlands were delineated in November 2011 and as Darin has shown you the site plans – the wetlands consist of a perennial watercourse that originates south of Reservoir Road – flows northerly along the western part of the property – there's an open brush area in the wetland just as it crosses Reservoir Road and there's a small dam impoundment just behind the existing home; from that point on where most of our delineation really started and focused on the stream corridor and the proposed crossing.

Mr. Root said the stream is really kind of a riffle and pool morphology – it kind of tumbles down a fairly steep gradient – it's a rocky stream as you probably saw from the photographs – it makes good habitat for small wildlife – small mammals – birds would utilize it for a local watering source; you might find salamanders in the stream or frogs things like that – a very small stream – small watershed but provides good local wildlife habitat.

Mr. Root said the stream crosses under the gas line right of way in the northern part of the property has it heads toward Broad Brook

Reservoir - in that area where the broad right of way is cut into the banks – there are a lot of seep areas from this slope so the wetlands are much broader than they would have been historically so those areas are maintained as an opening so what was once a forested wetland area for most of this landscape – that's kind of a grassy sedgy meadow sensitive fern – things like that and then the stream tumbles down into Broad Brook Reservoir.

Mr. Root said on Broad Brook Reservoir as you saw in the function and value assessment – there is a natural diversity database hit in this area and we've filed inquiries with DEP about that are waiting their reply – it's likely to be a species associated with the reservoir which is where the origin of the hits are and not likely to be an upland species that might be found on this side.

Mr. Root said the other wetland feature was a small intermittent watercourse which is shown on the site plans – this originated as what looks like road drainage from Reservoir Road in effect they used to be catch basins and an old pipe that outlets on the property but it's sized enough so it gets a little bit of ground water support and flows northerly and eventually joins the perennial watercourse; that has very low functions and values – it's merely drainage conveyance runoff from the fields and runoff from the developed parts of the site.

Mr. Root said so functions and values – there are low functions and values in the stream course and are moderate and certainly worthy of protection and worthy of an alternative consideration for any crossing that's proposed.

Mr. Root said as far as the impact assessment that he prepared – the impacts consist of choosing an appropriate methodology to cross the stream from one developable portion to the other developable portion of the site and try to minimize the wetland impacts both short term and long term.

Mr. Root explained to minimize short term impacts often times you choose a pipe crossing because that work is done quickly and is over with – there's not much disturbance to the banks but there's a lot of fill and you have a longer impact generally to the watercourse itself so depending on the value of the watercourse you might choose a pipe crossing to make it quick and easy and fairly inexpensive but that often has impacts on the stream bottom as Darin was mentioning so if there are valuable or moderately valuable water resources in the stream then it's prudent to consider a different type of crossing which Darin has described – something

that preserves the stream bottom whether it's a culvert that's incised into the stream bottom and you restore a stream bottom or you span it in some way with a box or an arch or another 3-side culvert – here Darin has presented some alternatives for an arch culvert which does a good job of crossing the stream and protecting the stream bottom – it necessarily involves more site work but it's often worth it to do that if you're trying to preserve the resource area – the stream in this case on a long term basis; if its cost effective to do it and the stream merits protection in that way then that's a good solution to span the stream course in some way.

Mr. Root said from the pictures that we showed and from the times we've been out there and maybe on your own site walks you might have a feeling that this stream although its small is in a nice woodland setting and really does merit some additional level of protection beyond just a pipe crossing so that he thought is why he thinks the arch alternative considered is a good one in this case as long as the project can financially support it.

Mr. Root said aside from that the important measures – the standards ones that you face – erosion control measures and water handling and engineering measures to get across the stream and he knows Darin has submitted those to you for your consideration as well.

Mr. Root said that's the essence of his delineation report and impact assessment – he said he thought the alternative selected for the crossing is a prudent one in this case and probably is the best selection for crossing from one developable portion of the site to another upland setting with certainly a suitable and similar to other houses that are in this area.

Mr. Root said if there are questions or if the public has questions – he'd be glad to entertain them.

Chairman de Jongh asked about the assessment you referred to in your comments – is that based on the old map or is that the new map that's before us.

Mr. Root stated he had never noticed that there was a difference in the mapping – Darin showed him that the wetland flagging that he had done was laid over one topography which didn't mesh but the wetland flagging is really the same – he said it's the underlying topography that has slid around to accommodate the wetland flagging; so as far as he knew there really hasn't been any changing in the flagging work he did or where the wetland flags are or where

the crossings are or anything that has to do with this underlying topography issue that maybe Darin can correct that.

Chairman de Jongh said he just wanted to make sure the comments that we have on the record are for the revised map that's in front of us – that's why he raises the question.

Mr. Root stated yes – that's true – the comments he's made refer for the updated set of mapping.

Chairman de Jongh said so there's no document for the design –

Dr. Dimmick said in other words you've proposed a new culvert design which he might generally find better than the old one there's documentation for it.

Mr. Root said that's true – in the original assessment report the original design was a pipe type crossing and he discussed in the short section of the report how there are other alternatives to be considered and one of them was an arch which Darin has chosen here so he was just making comments tonight that he thinks it's a very suitable method for crossing a stream like this and particularly when it's a valuable or moderately valuable resource as long as the development project can support it – which he is not the judge of that.

Chairman de Jongh said he thought one of the other concerns that we had too was the maintenance of the rain gardens and while the information on the UCONN study is submitted tonight as part of the record – he said he didn't think it talks about the maintenance – our concerns are more often than not are with the current homeowner – it's with the homeowners who have yet to be determined and then tend not to be as conscious about their properties as the initial homeowner; so the maintenance of the rain garden was an issue that we talked about as well because it's a critical component of the whole system.

Chairman de Jongh said he didn't see any notes relative to the maintenance of the rain gardens.

Mr. Root said no – he didn't review that in his report – that was sort of outside the regulated areas – he said he understood it as more of a home site development type issue like the septic system and things like that so he didn't review that – we often design them and although there is some long term maintenance – as long as there's an area on the landscape that functions in a green way to filter and

infiltrate runoff that generally provides some good measure of protection for many, many years; if you are worried about someone coming along and filling it that's a different topic but as long as the owner or future owner understands the purpose of that and the sensitivity of the resources that are downstream which their benefiting from then he thought most homeowners today at least are encouraged to protect them and generally do.

Mr. Norback said Mr. Chairman – isn't that always our challenge.

Chairman de Jongh said yeah – and if we were ignorant or if we didn't raise the issue then it would be shame on us – that's why I raised the issue in the first place.

Mr. Norback said is it then better addressed through not so much the engineering aspect of it but the deed conveyance – it would seem that's the only way anybody could keep any semblance of control – but he didn't know if that is within their purview – that's my question.

Ms. Simone said its always advisable that whatever information regarding maintenance would be part of the site plan so it's all one document – the Planning and Zoning Commission does have a covenant that when there's a rain garden on the property that's its recognized and recorded on the land records; that may not really specifically address maintenance issues; rain gardens – the vary in size and have specific needs she would imagine so to have an actual maintenance guide on file in a plan would be very helpful.

Ms. Simone said she had a question – back to the assessment – so do you have anything in writing for an assessment of this particular design that shows this new revised crossing.

Mr. Root stated no – just the testimony I've provided tonight.

Ms. Simone asked if that's something she will be providing.

Mr. Root stated if the Commission wanted something further in writing he could submit that.

Chairman de Jongh said he thought that probably would be to everyone's benefit if that can be submitted and that way the T's are crossed and the I's are dotted.

Dr. Dimmick said at the previous session of this public hearing – one of the neighbor's brought up a question about this area formerly being used orchard and he thought staff has been able to verify that

this area was part of the Bishop Orchard areas and at a time when it was common to use pesticides and fungicides and such that included arsenic – copper and lead – this question was raised in a couple of the communications and in your various responses he hasn't seen any response to this.

Dr. Dimmick said he knows from his own experience in an orchard down in lower Naugatuck Valley when we started sampling previous orchard meant for housing development we were finding arsenic and lead in depths of as much as 3' below the surface in an area that was to be excavated for putting the new buildings in – thus there's a question here particularly with the concerns of the Meriden Water Company where we'll be moving earth around in an area that may very well have had these compounds as to whether or not they are present at the present time.

Dr. Dimmick asked if they've done any testing – are you plan on doing any testing.

Mr. Overton replied as part of that issue when it was brought up we did say we'd go back and look at whatever we could find as far as history on the property – he said he did go back and look at the UCONN magic site as far as the historical aerials – back in the 1934 aerial – it showed this area and actually a majority of the surrounding area as being orchard much of that area is developed as subdivisions and houses now; he said he thought it appears also on the 1950's mapping but later the orchard kind of fades away in the 60's and beyond.

Mr. Overton explained it's his understanding that the products that we used – they were mostly lead based and they used lead because it was a good binder – those compounds usually bind to the soil and usually in the surface layers – he said he thought the only time you find them in the deeper layers of soils is if the soil is ever plowed and that was plowed and tilled into the soil.

Mr. Overton said while there is some evidence that this was an orchard at one time – we have no testing to show that these chemicals exist on the site and he doesn't think there's been any testing in the neighborhood along Reservoir Road and to his knowledge this hasn't been an issue before in the past developments that have been built along Reservoir Road there.

Dr. Dimmick said as he was mentioning in his own testing – we found the material was moving down to about 3' down – mostly as you say it does attach to the soil particles – it preferentially attaches

to find soil particles particularly those that are somewhat clay-like in nature which is exactly what I'm worried about because if you start moving this soil around – as in your cut for lot 2 – you are going to be cutting down 8' at one point – if such that material is disturbed then fine particulate material could be carried off and potential to getting into the reservoir - so thus it becomes a matter of concern whether it's there; we found lead in the orchard he did found lead, arsenic and copper compounds all present.

Mr. Overton said so the best way to control it with these compounds being bound to the soil comes in the erosion controls – to stop the soil from migrating into the streams so we've proposed both a double row of silt fence and hay bales and for the size of the disturbed area that's suitable according to the Connecticut Erosion Control Manual.

Mr. Overton said if there's some additional erosion controls that the Commission would like to see we can add those in – the rain gardens themselves – we can also show temporary berms and direct more of the runoff into those where some of the final particles can settle out in a pool if those were used as temporary sediment traps; to date we haven't dealt with this in any sort of subdivision application.

Mr. Overton stated we hadn't planned any testing of the soil.

Dr. Dimmick said his problem is that also having a great deal of experience with silt fences clay size particles go right through a silt fence otherwise the silt fence wouldn't function to hold back the sand and the silt – so that it adheres to the finest particles the silt fence might not do a bit of good in stopping – if the stuff is there – we just don't know – it's a problem of something that came up last time and our investigation indicated there's a sudden gap in our knowledge – we don't know if it can happen or not because we don't know what's there.

Mr. Overton said the best answer he can give at this point is if it hasn't been a problem in the past it's not likely to be a problem now – in the past when many of these subdivisions were developed they're either weren't erosion control standards or they were less than what they are now.

Mr. Overton said he would say the standards they design to now better control runoff – another option to control the finer particles is we can use the flock logs – he said he wasn't sure they were familiar with those.

Dr. Dimmick stated yes.

Mr. Overton said but if we use those say in the swale ahead of the rain gardens – if we use those as sediment traps that would bind any of the suspended materials in the water and settle them out so that would be another option to collect the finer particles as well as part of the E&S plan we can add that in.

Mr. Norback asked is there a cost effective way to do some testing – it does seem like we're asking for something that's never been asked before which he's a little bit uncomfortable with but then again there's no reason – you know once you discover a problem – you say we never dealt with that before – he said he guessed that's not a fair way to handle things – he said it just seems like its nebulous – we're worried about something but we don't know that it exists.

Dr. Dimmick said if it were not for the reservoir sitting there he wouldn't worry about it either.

Mr. Norback said he gets it – would some early testing be in order – is it cost effective to do some testing.

Dr. Dimmick said at this stage he is asking questions – he's not trying to propose a solution – he's just proposing a problem that has come up.

Mr. Norback stated me too.

Chairman de Jongh said he guessed the question Darin is whether there is a cost effective way of trying to answer that question since it has come up.

Mr. Overton stated at this point he didn't know – he's not sure how the Commission wants us to address that.

Mr. Norback said or is he already on track with the filtering and settling out the particulates – is that in lieu of testing.

Dr. Dimmick said Tom you're asking me something that he could prepare a report on but he's in the wrong position to be doing this under the circumstances.

Mr. Norback said that was not his intention he was trying to educated himself as well – recognizing that there is a problem and he is also trying to define it and you are certainly among us all the authority

and that's the only reason he's appealing to him (Dr. Dimmick) – he said he didn't mean to put him on the spot.

Dr. Dimmick said he thought it was up to the applicant to try to come up with finding answers – he said he may comprise something if he tries to provide an answer at this point.

Mr. Norback thanked him for his efforts.

Neil Welch addressed the Commission.

Mr. Welch stated his wife is the owner of the property. He said he just wanted to make the point that there have been several larger subdivisions then this two lot subdivision around the reservoir.

Mr. Welch said you've got Oregon Road – you have the northern section of the Bishop property – and you have John Ricci's subdivision off of Reservoir Road – totally probably a few dozen lot; they were not required to do the testing – most of them do not have rain gardens and did nowhere near the level of sediment and control that we're talking about and still there's no evidence of lead, cyanide or copper levels raising in the reservoir as a result of those lots that don't have all that.

Mr. Welch said his point is there's the imperial evidence that these were all orchards back in the day – all part of the same orchards and the reservoir has not been effected one iota even though they have no erosion control or rain gardens in those subdivisions – we are going to have far more then that so he just wanted to point that out.

There were no other questions from Commission members.

Chairman de Jongh opened up for questions from the audience – we'll take comments after that but if there are any questions the audience would like to pose to the applicant.

Cindy Kleist of 251 Lancaster Way asked Mr. Root if they were doing the arch culvert – how big is the arch culvert.

Mr. Overton stated its 10' wide.

Ms. Kleist asked if the culvert was stone or metal; and are they concerned about if that gets clogged up – does that need maintenance – from vegetation – debris – because apparently that was the problem with the regular culvert – she said those were her two questions.

Mr. Overton explained that it's a metal arch that's proposed – it has a concrete footing and stem wall – it's about 3.5' high and so as he mentioned in the testimony that based on the size of that as high and as wide as it is – it's not likely there would be any clogging issues there; or course if there were any debris that was to fall into that area he would expect that the homeowners – there would be some maintenance that would be done on that if they were to notice a tree falls down across it or something like that – just as if something fell across their driveway there could be potentially be some maintenance but this is probably the lowest maintenance type of culvert crossing you could have.

Chairman de Jongh asked if there were any other questions – none were asked. He opened it up to comments if Commission members had any – and then opened it up to comments from the audience – he said we'll take comments in favor or against depending upon your persuasion.

Dennis Waz, Director of Public Utilities for the City of Meriden addressed the Commission.

Mr. Waz said you probably have in your packet some response – his comments from the last public hearing – he said he received in an email form yesterday what Mr. Overton had presented to you and he has not had sufficient time to actually review and he also received and email on his way here today from Mr. Overton with the UCONN guidelines which he has not been able to review as well.

Mr. Waz said if he can make some comments – they Broad Brook Watershed is composed of over 3,000 acres – 2,373 acres that are located in the Town of Cheshire.

Mr. Waz said with regard to the rain gardens and the maintenance of he said he understands there are guidelines and he would like to bring to the Commission's attention the issues that we face when we do watershed inspections; he explained that the City of Meriden has watershed properties in Wallingford, Meriden, Cheshire, Berlin and we have to inspect all the watershed properties yearly – these amount to over hundreds of properties.

Mr. Waz said in his comments he had suggested and made comment about maintenance of these rain gardens and the onus being the homeowner in order to carry this out – he said he heard some of the Commission members mention that normally you would hope that homeowners would take the proper course of actions – he said he'd

just like to bring a few instances that we faced within the last year and these were actually located in the Town of Cheshire: we had one instance where people had animals on their land – they would take the manure from the animals and push it to the stream banks allowing the waters from heavy rain to wash into our feeder streams – when our watershed inspector had approached the property owner naturally the property owner took offense asked our inspector to leave – we had to get the Chesprocott people who oversee the Cheshire area for the health inspections who in turn had to bring the State Department of Health to get involved which takes time – in the meantime the violation continues to occur.

Mr. Waz said we had a couple others – one which we found a sail boat in a feeder stream – apparently someone was leaving – sold the property – dumped the sail boat in the stream and left that for the new property owner to deal with – we found it during our inspection – we found the sail boat and had to go through the exercise with the property owner in order to have it removed.

Mr. Waz said another was a construction trailer on watershed property which was left with pails of unidentified substances in them which causes people in the water industry to get a bit nervous because when you're not able to identify what the substance is we don't know how long they've been there – if they're leaking so forth and what the impact is going to have on the receiving waters.

Mr. Waz said he hopes you don't take his comments lightly when we are concerned about maintenance particularly around our feeder streams around our watershed area because we have had several issues.

Mr. Waz said with him this evening he has Dr. Robert Kortmann of Ecosystems Consulting – we've had issues with Broad Brook over the years and have worked with Dr. Kortmann – he will probably be the next presenter to address those issues and some of the concerns that we have.

Mr. Waz said with regard to disturbances obviously we are opposed to any disturbances on the feeder streams and the issues they would cause – turbidity being one of them – Dr. Kortmann will cover that in his presentation.

Mr. Waz said in regard to the revelation of the property being formally an orchard – he said he had staff members after our last meeting collect three samples from the site – the secondary – the primary – and the confluence of feeder streams – he said he was

happy to report – and we tested strictly for arsenic because that was one of the primary ingredients used in the insecticidal and fungicidal applications and all three came back less than .0004 milligrams per liter – he is however concerned about what may be bound in the soil as Dr. Dimmick had alluded to earlier.

Mr. Waz said he would just like to reiterate that the issues that we have had in the past – we've worked with Ecosystems and we've made actually significant strides in bring our reservoir around – we had a fairly good year last year – we are currently in the process of constructing a nearly \$20,000,000 water treatment facility in order to address the issue we currently have in there – previous comments were made about previous developments and not having any impact on Broad Brook – he said he would contest that comment – if people knew the challenges that we've had over the past – it isn't just for the residents of Meriden we also serve customers in the Town of Cheshire – we've spent numerous dollars and time address the issues that we've had and we hope that your Commission will act on the comments that are being brought before you.

Mr. Waz said if he may – he'd like to introduce Dr. Robert Kortmann from Ecosystems to speak on some of the issues that he's been dealing with Broad Brook Reservoir and with some of the issues with the proposed development.

Bob Kortmann, a professional limnologist who has been working in water supply limnology for 35 years addressed the Commission.

Dr. Kortmann said he works with the City of Meriden basically on all their surface water source systems – in particular Broad Brook Reservoir; he said he thinks it's unfortunate that there's no position to speak neutrally not for nor against the development – he's certainly opposed to a development of this type but he did want to highlight some of the issues that he has.

Dr. Kortmann said he'd start with the long term post-development once its completed – the impacts of the development term will not be unlike much of the existing development – indeed some of the impacts have been dealt with by the Connecticut legislature with two years ago passing the fertilizer phosphorus elimination for residential lawns – if that is adhered to there will be less impact through nutrient loading.

Dr. Kortmann said the long term impacts – the one that he is a little concerned with is long term maintenance of the rain gardens as he reviewed them – he hasn't seen the most recent plans – the rain

garden on lot 2 is approximately 30' from the foundation footprint and on lot 3 approximately 10' from the house – he said rain gardens are depressions in the ground that are then vegetated as filter systems as well as infiltration into the ground – typically of the first flush – from this case the roof surfaces and there's a surprising amount of particularly nutrient material that falls out of the clear blue sky – he said he did much of that research back in the early 70's on phosphorus loading and much of that occurs between storms so particles accumulate on impervious surfaces and get washed off in the first rinse of the impervious roof tops.

Dr. Kortmann said his concern is with the close proximity to the house the longevity of a functional rain garden is not as likely as if that rain garden were at the perimeter of the developed lawn area of the edge of the woods; he said he knew he won't want a depression that filled up with rain water 10' from my house every time it rained.

Dr. Kortmann said rain gardens are very good particulate if they're well sized and do collect the first flush of at least a half to three-quarters of an inch and his impression is that these exceed that – and he thinks the additional rain garden which he's not seen on the plans – he's not seen the revised plan but to deal with the runoff from the driveways is a very good addition.

Dr. Kortmann said during disturbances really his main concern here – there's along relatively steep perpendicular to contours disturbance with significant cut fill in order to create these driveways; the sediment and erosion control systems have to be very meticulous in this kind of a setting; he said he has had experience with washed out driveways effecting reservoirs and an experience in East Hampton where sediment and erosion control abatement orders were issued – the problem of sediment deposition at the confluents of the lake was a minor problem in comparison with the turbidity episode that crossed throughout the lake; in a water body where the bottom is typically illuminated by sunlight you have a plant dominated system – when you get a turbidity episode it kills the plants by shading – the plants decay – you loss oxygen and you get nutrient release from the sediments and that can trigger cyanobacteria or a blue-green allege blooms and that's exactly what happened in East Hampton related to that erosion control problem.

Dr. Kortmann said the impacts of that type certainly it's the cumulative impacts of all the nutrient loading that ultimately lead to greater productivity of algae in a water body but in that particular case it was once specific poorly implemented erosion control plan

that was the straw that broke the camel's back and the lake has been different ever since.

Dr. Kortmann said he thinks the rain garden at the base of the two driveways is a good addition – perhaps it can be used as a sedimentation basin with the phosphorus binding particle locking type materials that are now available and then convert it into a long term rain garden at the base of those driveways – perhaps the driveway sequencing can be very meticulously planned and implemented so that the duration of exposure of soils – raw soils – is absolutely minimized – perhaps the seasonality can avoid the beginning of the growing season in the reservoir.

Dr. Kortmann said so his main concern is meticulous attention to detail for turbidity episodes in the reservoir during site disturbance.

Dr. Kortmann stated he would highly recommend there be a storm episode based inspection program – so following any significant rain fall the erosion controls are looked and maintained as necessary – he said he's seen many erosion controls where the hay bales or the silt fences aren't actually dug into the ground and packed at its base – they need to be implemented well and they can be.

Dr. Kortmann said he did spend nearly a decade as the Inland Wetland consultant in Suffield so he's seen a lot of construction sites and erosion controls systems both well done and not so well done and if they are well done and if the additional rain garden can serve as a sedimentation basin with additional controls and then converted to a rain garden perhaps that would be adequate control.

Dr. Kortmann said in the event of a turbidity episode reaching the reservoir to contain it from becoming reservoir wide as it did in East Hampton.

Dr. Kortmann said he'd entertain any questions you have (the Commission).

Dr. Dimmick wanted to make sure that he had clear your stating that it's not the design that's been the problem it's been the implementation in most cases.

Dr. Kortmann said in many cases – this is a difficult site to design – it's a very wide corridor for the two driveways nearly the entire corridor needs to be either cut or filled so stabilizing that rapidly will not be an easy feat – recovery of the soils will not be an easy feat – if the rain garden could serve as an effective sedimentation basin that

would be certainly a help but it's a difficult site for the driveway disturbances.

Dr. Kortmann said there are by the way materials that could help to stabilize soils – some polymeric type soils amendments that could be sprayed on the raw soil once its disturbed to minimize mobilization of soils right on the site; recovery of the fines as you know is more difficult once it is mobilized in a flowing water and here you have the watercourses that basically present a straight shot into that arm of the reservoir.

Dr. Kortmann said and where it enters Broad Brook Reservoir is to the north of Reservoir Road and many of our blooms now have been contained south of Reservoir Road so it's coming in closer to the raw water intakes – into part of the reservoir that has been successfully managed.

Dr. Dimmick said he understands that there is a question of maintenance of a rain garden – but do you have much experience in terms of how likely it is if the rain garden is not properly maintained – it's always possible it won't be maintained but what in your experience and having seen them what are the chances – can you give any concrete numbers.

Dr. Kortmann said all he could offer is he's concerned with the rain garden that's going to hold an inch of first flush from a roof that's within 10' of the footprint of the house – that to him is something that's going to be a nagging issue to a homeowner that close to the house and that close to the septic system when rain gardens infiltrate storm water; if they are further away from the house at the edge of lawn to woods with some type of level spreader overflow he thought it was more likely to persist.

Dr. Dimmick said let me explain part of my problem here as a Commissioner – there are all kinds of things that can go wrong but the courts have told us there's not enough to say that something can go wrong what they would like to see if we make a decision is whether something is either more likely than not to go wrong or has a significant probability of going wrong; we can't make any decision just based on what can go wrong – this is part of what he's searching for here.

Dr. Kortmann stated in his opinion and he's worked with watershed management and rain gardens and infiltrators and developed nutrient allocation plan for watershed wide plans – in his opinion it would be less likely to be a problem long term as an effective rain

garden treatment system where it further away from the footprint of the home.

Dr. Dimmick thanked Dr. Kortmann.

Chairman de Jongh asked one of the questions he has in the back of his mind is since the commentary really talks in detail about the need to have someone paying attention to the sedimentation and erosion controls and making sure that they remain – not only effective but that there properly put where they should be – who is the expected developer on the property – do you know.

Mr. Overton stated they didn't know who the developer would be at this time.

Chairman de Jongh said we have no way of knowing whether or not the developer is going to be someone who – recently hung out a shingle of whether or not they have an idea as what they're doing – so we're expected to make a decision without knowing who actually going to develop the properties.

Mr. McPhee said he didn't think they can weigh that into their decision at all – this application is here by the Welches are the property owners and he thought that we had to prove it based on or not approve it based the information in front of us.

Chairman de Jongh said he didn't disagree – the only reason why he raised the question was because of the detail testimony that was given about the S&E controls and making sure they were properly put in place if we have a new developer who's going to build the house that doesn't necessarily mean he/she will do it as effectively as somebody who's been doing it for a long time – he said he was not saying we need to judge based on that but it's something we need to be aware of.

Mr. McPhee said he thinks then that puts the onus back us as a Commission and staff to put a very detailed outline together of what they have to do in order to maintain the silt fences and everything and all the processes of the inspections as detailed as we have to be.

Chairman de Jongh said and that bring me back to a comment that he thinks he needs to address to the applicant and that is the construction sequence he thinks the construction sequence is going to have to include a very detailed explanation of how the soils are going to be maintained and to Mr. McPhee's comments to making sure those issues are detailed out on the map as much as you can be

where you can use through the use of words kind of hold their hand as opposed to being with them side by side; he said he appreciated the comment by his colleague – he said that needs to be included on the map which he didn't think currently does.

Ms. Dunne asked for a clarification on something – you say that standard practices of silt fences and hay bale barriers are not likely to prevent erosion episodes during construction – do you mean because the way this site is steep.

Dr. Kortmann said primarily because of trajectory of the driveways and the cut fill in the driveway corridor and at the point that he reviewed it the lack of sedimentation basin, sedimentation collection system at the base of those driveways – were the water to just be allowed to flow down exposed soils to the base of those driveways he didn't believe that would be fully contained given the intermittent watercourse immediately adjacent that then flows into the more perennial stream.

Mr. McPhee said just to be clear – so you don't feel the hay bales and silt fence is enough for that but it's your opinion that if they use the rain garden for sediment pool that would be sufficient.

Dr. Kortmann said if its adequately sized to contain the major storm as presented then you get a major storm event and your sediment laden water ends up in that depression and that would need to be maintained but that can remove the sediment before it gets to a stream bed.

Mr. Norback said didn't Mr. Overton offer that up in his original presentation here this evening – he was going to have the rain garden be a dual purpose.

Dr. Kortmann said he didn't hear that – he heard it with the rain garden.

Mr. Norback said he thought he heard that he was going to use it temporally in that capacity and then after the fact turn it back into a rain garden – wasn't that part of the presentation – whether it was drawn or not that was at least the spirit if he understood him (Mr. Overton) so this being an informational hearing – you've some gleaned some information of some of the things of the concerns and it's your intention to expand some of these protections – the erosion controls – is that fair.

Mr. Overton said he did offer that as an additional measure to use these as sediment traps with the swales directing the water to them – even went one step further of offering the flock logs which would basically further coagulate the sediments and settle them out in the basins – recognizing the concerns of the potential for sediment transferring and hearing the issues we'd be willing to do that - so that was an offer and we can add that into – and it seems like the Commission would like to see more detail as far as the sequence of the erosion controls and more notes related to that so we can certainly address that as well.

Mr. Norback said so it seems like the spirit is moving in that direction where you're getting more information that addresses some of the concerns.

Mr. Overton said as far as design and maintenance of the rain gardens – he said he disagreed with some of the information that Dr. Kortmann presented – he said he believed that rain gardens are more likely to be maintained if they are close to the house – maintenance of a rain garden being a shallow depression is really not much different than a raised landscape bed and everybody maintain the landscape beds around their homes – he said he won't say everyone but most people do – there's a tendency to maintain them more meticulously than something that further away from the house – he said in his experience out of sight is out of mind and then less maintenance occurs the farther away it is.

Mr. Overton said the UCONN guidelines says rain gardens should not be more than 30' away from a house from the roof leaders is their recommendation – it doesn't mean that they can't be put that's their recommendation that they have and also regarding – Dr. Kortmann did bring up an infiltration issue – you don't want to store a bunch of water upgrading your foundation – you spend a lot of money waterproofing your foundation and putting a footing drain in to keep the water away from the house so your basement's not wet - the rain gardens that we designed are on the down gradient slope and the UCONN guideline recommends that they are not within 10' of the foundation so we believe that as long as you are outside of that 10' window the down gradient – the water that's stored there and infiltrated is not going to make its way back into the basement.

Mr. Overton said as far as and its noted – there is section six in the UCONN corporative extension guideline that does talk about the maintenance; and again it is relatively simple but it does need to be done and again he thinks the closer these are to the house and the more their implemented as a landscape feature as well as a

stormwater management feature the more likely they are to be maintained and functional.

Chairman de Jongh asked how long does the water typically sits in a rain garden.

Mr. Overton said they would usually drain dry in less than 24 hours – in certain situations depending on the soil types we may put an underdrain in them to make sure that they do go dry within the 24 hour period.

Chairman de Jongh said there's been a number of comments and questions and requests for details that were raised this evening – notwithstanding the fact that we have three pieces of information that were received tonight by the City of Meriden, by the engineering department and by staff which the applicant had responded to – they were received yesterday – he said he didn't know whether or not each of those parties has had sufficient time as well as the applicant to address the information and rebut what have you – he said he thinks 24 hours probably is not enough time based on the normal duties we do throughout the day – he said he's thinking those three parties certainly as well as the applicant need time to a little bit more.

Chairman de Jongh said we have an issue and the issue has to do with the mandatory action date of June 10 – and we also have a time issue with regard to how long this public hearing can be left open since this is a continuation of a public hearing from April 15.

Ms. Simone said the date by which the public hearing has to close is May 19 which is a Monday prior to the next meeting unless the applicant wanted to extend the public hearing.

Chairman de Jongh said the other issue that we have and it's not the applicant's problem but the other issue we have is the May 20 meeting is going to be very hard to conduct – neither Dr. Dimmick nor I will be presented – we will both be out of the state – not that the other members can't conduct it but it's going to create a real burden particularly if some of the Commission members have to recuse themselves and there won't be staff support so we have been effectively neutered for the meeting on May 20.

Chairman de Jongh said so the question that he poses the applicant is whether or not they would be willing to allow this to be continued to the June 3 meeting – the difficulty is that if we don't close the public hearing tonight with these unanswered questions it is likely that a decision would not be rendered favorably not because any

information received but because of information we haven't received and the Commission members could choose to deny without prejudice because of the lack of information – he said he throws that out there and certainly welcomes comments from the applicant.

Mr. Overton said the applicant is willing to grant the extensions necessary for the Commission to make an informed decision on this.

Chairman de Jongh said thank you – he appreciated that.

Chairman de Jongh said then what he would recommend is that we continue this public hearing again recognizing that it will be held on June 3 and will give all parties a chance to communicate with each other and get the necessary information back and forth.

Chairman de Jongh said before we close this he wanted to make sure there were no other comments from the general audience.

Cindy Kleist of 251 Lancaster Way said she just had a comment – she said she's not against the homeowner building the (homes) she said we have a situation where she has her house in New Hampshire and it's kind of like the same thing because they are only a few miles from Lake Winnepesaukee – and we have like 900' up – and the State of New Hampshire is “like really anal with Lake Winnepesaukee” they don't want anything going into that lake – nothing because they drink that water – its crystal clear – so when we went to build the house – it's in the Belknap Mountains the town that we were in told us – you can't have one piece of dirt on that road – you can have no runoff from that lot on that road so what we did was we did – we put in an earth berm in the back and then we brought sand in and then we put all rip rap down on each side of the driveway and across the back – we put 600 tons of gravel on that driveway because that driveway is like a 200' driveway and we didn't have it paved for a while and when it rains up there – “like if you were to go like stand outside my house when it rains you'd get knocked unconscious because it sheet flows – it comes straight down because we are high up and you can even ask my husband we don't get once piece of dirt on that road – we don't get anything on that road – there's not any runoff coming out – no ruts nothing” so that might be a suggestion.

Ms. Kleist said she had a couple of other suggestions based on a situation that occurred in a neighboring community that she's familiar with – as far as the culvert she is suggesting no construction during the winter – and quarterly inspection by the Environmental Planner – they should have no vegetation removed and no clearing of the slope and you should declare this a significant activity and

you should – like this development that was in Wallingford – they put it in the deed “no mowing in back: they have the grass – just let it grow so when they change homeowners the homeowner – it’s up to them to look at the deed – they’ll know that.

Ms. Kleist said so we don’t have rain gardens – we don’t have anything – I’m telling you we don’t get anything up there in New Hampshire because if there’s something on that road they come out.

Chairman de Jongh thanked Ms. Kleist. He also said just to let her know this was declared significant that’s the reason for the public hearing.

Chairman de Jongh asked if there were any other comments from the audience; there were no other comments made.

Chairman de Jongh said we’ll suspend any further conversations about this item until our June 3 meeting – he said he appreciated the comments from everybody and the patience on the part of the applicant.

VI. ADJOURNMENT

The public hearing was adjourned at 8:36 p.m. by the consensus of Commission members present.

Respectfully submitted:

**Carla Mills
Recording Secretary
Cheshire Inland Wetland and
Watercourse Commission**