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# *Committee Meeting*

of

SENATE ENVIRONMENT AND ENERGY COMMITTEE

ASSEMBLY ENVIRONMENT AND SOLID WASTE COMMITTEE

*“The committees will meet to hear testimony on the cleanup of the Forsythe National Wildlife Refuge after Superstorm Sandy.*

*The committees will also hear testimony on the need for soil restoration standards”*

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**LOCATION:** Lavallette First Aid Building  
Lavallette, New Jersey

**DATE:** August 10, 2015  
10:00 a.m.

**MEMBERS OF COMMITTEES PRESENT:**

Senator Bob Smith, Chair  
Senator Linda R. Greenstein, Vice Chair  
Senator Samuel D. Thompson

Assemblywoman L. Grace Spencer, Chair  
Assemblyman Herb Conaway Jr.  
Assemblyman Tim Eustace  
Assemblyman Scott T. Rumana  
Assemblyman David W. Wolfe



**ALSO PRESENT:**

Judith L. Horowitz  
Carrie Anne Calvo-Hahn  
*Office of Legislative Services*  
*Committee Aides*

Liz Mahn  
*Senate Majority*  
Mark Goldsack  
*Assembly Majority*  
*Committee Aides*

Brian Ahrens  
*Senate Republican*  
Thea M. Sheridan  
*Assembly Republican*  
*Committee Aides*

***Meeting Recorded and Transcribed by***  
The Office of Legislative Services, Public Information Office,  
Hearing Unit, State House Annex, PO 068, Trenton, New Jersey

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BOB SMITH  
Chairman

LINDA R. GREENSTEIN  
Vice-Chairwoman

RICHARD J. CODEY  
CHRISTOPHER "KIP" BATEMAN  
SAMUEL D. THOMPSON

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## New Jersey State Legislature

### SENATE ENVIRONMENT AND ENERGY COMMITTEE

STATE HOUSE ANNEX  
PO BOX 068  
TRENTON NJ 08625-0068

#### COMMITTEE NOTICE

TO: MEMBERS OF THE SENATE ENVIRONMENT AND ENERGY COMMITTEE

FROM: SENATOR BOB SMITH, CHAIRMAN

SUBJECT: COMMITTEE MEETING - AUGUST 10, 2015

*The public may address comments and questions to Judith L. Horowitz, Michael R. Molimock, Committee Aides, or make bill status and scheduling inquiries to Pamela Petrone, Secretary, at (609)847-3855, fax (609)292-0561, or e-mail: OLSAideSEN@njleg.org. Written and electronic comments, questions and testimony submitted to the committee by the public, as well as recordings and transcripts, if any, of oral testimony, are government records and will be available to the public upon request.*

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**The Senate Environment and Energy Committee and the Assembly Environment and Solid Waste Committee will meet jointly on Monday, August 10, 2015 at 10:00 AM at the Lavallette First Aid Building, 1207 Bay Boulevard, Lavallette, New Jersey.**

The committees will meet to hear testimony on the cleanup of the Forsythe National Wildlife Refuge after Superstorm Sandy. The committees will also hear testimony on the need for soil restoration standards.

Issued 8/4/15

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L. GRACE SPENCER  
*Chairwoman*

JOHN F. McKEON  
*Vice-Chairman*

DANIEL R. BENSON  
JOHN S. WISNIEWSKI  
SCOTT T. RUMANA  
DAVID W. WOLFE

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**New Jersey State Legislature**  
**ASSEMBLY ENVIRONMENT AND SOLID WASTE COMMITTEE**  
STATE HOUSE ANNEX  
PO BOX 068  
TRENTON NJ 08625-0068

**COMMITTEE NOTICE**

**TO: MEMBERS OF THE ASSEMBLY ENVIRONMENT AND SOLID WASTE COMMITTEE**

**FROM: ASSEMBLYWOMAN L. GRACE SPENCER, CHAIRWOMAN**

**SUBJECT: COMMITTEE MEETING - AUGUST 10, 2015**

*The public may address comments and questions to Carrie Anne Calvo-Hahn, Committee Aide, or make bill status and scheduling inquiries to Christine L. Hamilton, Secretary, at (609)847-3855, fax (609)292-0561, or e-mail: OLSAide.AEN@njleg.org. Written and electronic comments, questions and testimony submitted to the committee by the public, as well as recordings and transcripts, if any, of oral testimony, are government records and will be available to the public upon request.*

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Senator Connors, Assemblyman Rumpf, and Assemblywoman Gove  
from  
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Secretary  
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**SENATOR BOB SMITH (Chair):** Good morning, everyone.

Welcome to one of the prettiest places in the planet Earth -- Lavallette, New Jersey. (applause) I knew that would be controversial. (laughter)

On behalf of Chairwoman Spencer, who chairs the Assembly Environment Committee, and myself, Bob Smith, who chairs the Senate Environment Committee, we'd like to thank the Lavallette Rescue Squad and the government of Lavallette for allowing us to be here today. I think this is our second shore hearing in the Lavallette Rescue Squad over these many years. Our two Committees, every year, like to come and have a special shore hearing because we want the people of the New Jersey Shore to know that, whether you're a Democrat or a Republican, the New Jersey Shore is a special place; and we want to make sure we give everybody an opportunity, if there are issues we don't know about that you want to bring to our attention -- you have an opportunity to do that.

Today's hearing is focused on two issues: one being the State of New Jersey not getting its act together on soil standards. We were here five years ago, passed legislation that said the New Jersey Soil Conservation Service -- which is an arm of State government -- should adopt restoration standards for soil. And what that means is that after construction is complete, the developer of the property should restore the soil so that it can percolate water down and not run off into the Barnegat Bay or the nearest water body. And, at the time, we had testimony from a whole bunch of scientists saying that in addition to the fertilizer legislation that we did, the soil restoration law was very important.

We haven't done it. So that's one thing I think is a shame on us, and we want to hear more about it.

And then the second topic for today is the Edwin Forsythe Refuge. It's been damaged by Sandy, and we'd like to hear about what's happening there and what we, if anything, should be doing with that Refuge.

And then, finally, it's like comedy night; it's open mike. So if you have any issues that you want to bring to the Senate or Assembly's attention, you're welcome to do so.

Let me introduce my members who are present. I have Senator Linda Greenstein at my left; and Senator Greenstein represents Middlesex and Mercer counties. Then we have Senator Sam Thompson, who represents Middlesex County and about 17 other counties. (laughter)

SENATOR THOMPSON: Middlesex, Monmouth, Ocean, and Burlington-- Middlesex, Monmouth, Ocean, Burlington, and -- uh-- (laughter)

SENATOR SMITH: Now I will turn the meeting over to Assemblywoman Grace Spencer who chairs the Assembly Environment Committee.

Assemblywoman Spencer.

**ASSEMBLYWOMAN L. GRACE SPENCER (Chair):** Thank you, and good morning, all. And again, welcome to the joint meeting of the Assembly and the Senate Environment Committees.

I am so pleased to be a part of this ongoing tradition. As the Chairwoman, coming down to Lavallette and coming down to the shore in the summer gives us a chance to really hear what's going on. And it's

always such-- I don't think we've come down and it was a rainy day or cloudy day yet. So thank God for the sun, thank God for the good weather, and thank God that we're able to have so many people here today to participate.

As the Senator said, at the end of hearing testimony regarding the issues that are on our agenda, we want to hear what else is going on. Oftentimes we are not privileged to some information because we're not here every day. And you, as residents, you as community people, business people -- you see and hear what's going on because you are at the ground level and you experience it on a day-to-day basis. And we want to hear what's going on.

We need to make sure that the legislation that we write, the legislation that we propose and that we support actually reflects the interest of the people who we are serving. Each of us serves approximately 225,000 people who make up the districts that we represent. And we want to make sure that the job we're doing is a good job.

So come forward and tell us what's going on, tell us about things that we don't know about. And, again, offer the testimony on the issues that are here before you today.

The people who I have with me here today represent various areas in the northern part of the state. Yes, we are here in South -- South Jersey, Shore Jersey? -- we'll call it Shore Jersey -- but some of the same issues do arise in the northern part of the state. When we talk about soil restoration, we have the Passaic River; we have the Raritan River -- which runs through certain areas in the southern northern part of the State of New Jersey. But again, construction happens across the State of New Jersey

and oftentimes we find ourselves-- I represent the City of Newark; we are dealing with dirty soil all the time. And brownfields should not be something that we are continuously dealing with. As we move forward as a state, we need to make sure that we're not constantly cleaning up after superstorms, after other construction comes out. We need to make sure that people are doing what they are supposed to do, that they are being responsible here in the State of New Jersey.

With me today, to my right, is Assemblyman Tim Eustace, who represents the County of Bergen and Passaic County. And on the other side we have Assemblyman Scott Rumana, who represents Bergen and--

ASSEMBLYMAN RUMANA: Passaic--

ASSEMBLYWOMAN SPENCER: Passaic--

ASSEMBLYMAN RUMANA: --Morris--

ASSEMBLYWOMAN SPENCER: --Morris--

ASSEMBLYWOMAN RUMANA: Essex.

ASSEMBLYWOMAN SPENCER: He's an all-around guy.

(laughter)

ASSEMBLYMAN RUMANA: Yes.

ASSEMBLYWOMAN SPENCER: And then, on the far end, we have Assemblyman Dave Wolfe. And Assemblyman Wolfe represents Monmouth County and--

ASSEMBLYMAN WOLFE: Ocean.

ASSEMBLYWOMAN SPENCER: --Ocean; and Ocean County.

So again, we have a wide -- we have a diverse group here on the Assembly side representing different areas across the State of New Jersey.

And each one of us comes with different experiences and different information to offer. Later on we're going to be joined by Assemblyman Conaway, who represents the real southern part of the State of New Jersey.  
(laughter)

Thank you.

SENATOR SMITH: And with your permission, Assemblywoman, let me ask Anita Zalom, who is the Lavallette Council President, to give us a short welcome, if she would like.

A N I T A F. Z A L O M: (off mike) Oh, you know, this is a pleasure. You're happy to be here; we are happy to have you.

Environment is very important no matter where you go. And we have this beautiful Barnegat Bay here; we have the ocean, we have-- And we are very, very careful about the environment ourselves because we know -- we're so close to it. People who are further away maybe don't worry about it as much but, man, you know, you just take five steps this way and you're in the Barnegat Bay, five steps that way and you're in the ocean. And we appreciate that you take the time to think about what's happening here.

And we're so proud to be able to offer this building. We lost a lot of buildings with Sandy, but this building hung on and we have our meetings here, and we're proud that you have taken the time to come down and share some ideas and plans with us.

And thank you all for coming to be with them and give your ideas and your questions. Thank you so much.

SENATOR SMITH: Thank you, Council President.

Our first witness -- and he just came in the door, his timing was absolutely perfect -- Dr. Stan Hales. Stan, would you come up and talk to us about soil standards?

**L. STANTON HALES, Jr., Ph.D.:** (distributes packets and bags to the Legislators)

ASSEMBLYMAN EUSTACE: Uh, oh -- swag.

ASSEMBLYWOMAN SPENCER: Oh, good -- yes, swag.  
(laughter)

SENATOR SMITH: We're getting homework. (laughter)

DR. HALES: (off mike) You're getting some homework. (laughter) If you could pass those down; I think I brought a dozen. I apologize if there's not enough; I would be happy to provide additional ones a little bit later.

There are some useful things there, too, as well. It will help you get away from using plastic bags. You can carry some other things around -- or more homework, if you want.

SENATOR SMITH: And by the way, it's not money. (laughter) It's all homework.

ASSEMBLYWOMAN SPENCER: It's green, but it's not money.

SENATOR SMITH: Take it away, Stan.

DR. HALES: Thank you, sir.

Thank you all for the opportunity to come and talk to an issue that's very important to all of us working for the protection of the Barnegat Bay. And it's also important to the protection of all other watersheds in the State of New Jersey, and actually throughout most of the Mid-Atlantic.

I'm Stan Hales, Director of the Barnegat Bay National Estuary Program, now known as the Barnegat Bay Partnership. I represent essentially all of the Federal, State, county, municipal, and other groups working for the protection of the Bay.

This is the International Year of Soil. Several generations ago, most of the people of the planet were involved in producing food; they were tied to the landscape. And unfortunately, we aren't tied to the landscape right now -- very few people are. So we don't understand soil.

And what you have in your packages are lots of resources about soils. And it's to help educate everybody about the good things, the not-so-good things, and a real challenge for us right now. Five years ago, the State of New Jersey passed a law -- a Soil Restoration law -- that was one of the most progressive in the country. And New Jersey was very much on the cutting edge -- we were at the forefront of soil issues, along with several other states. And since that time the efforts to develop the standard by which we would all adhere to and act responsibly has somehow fallen by the wayside. And I'm here to urge all of you today-- I don't know exactly what you can do, but you all are people of influence and so I would encourage you, on behalf of all of the partners, to take steps to get the soil restoration standard back on track.

Now, there have been a lot of communications back and forth between State agencies, etc. I'd like to remind you that this bill had -- that the law, when it passed, had a very strong bipartisan support. The Governor signed it; it was one of his 10 action plans for the protection of the Bay. And yet five years after the bill was signed and it became law, we still don't have a soil standard.

And you might ask, “Well, what does that mean for all of us?” When the law was passed five years ago, we did not have the smoking gun. That was, we really didn’t have all the information that we have today about what’s contributing to the degradation of the Bay. And what is contributing to the degradation of the Bay increasingly is runoff from the developed landscape.

Now, runoff from the developed landscape -- that’s that little bit of fertilizer that doesn’t make its way into the grass and trees, but washes with rain or your sprinkler system, etc., into the nearest storm drain or directly off your landscape into the nearest water body. And there’s a cost to that -- and that’s the quality of health, the integrity of the Bay -- which faces many other challenges.

Now, why should we all take this little small step? Why do we look for guidance from the State in developing the soil standard? Without this soil standard, essentially, everybody does the cheapest and easiest thing. You know, when houses, properties are developed in this state, and just about everywhere else, we scrape off all the topsoil to a nice firm compacted layer; we run heavy equipment over it, it compacts the soil even further. And so people need a sprinkler system that waters the grass every day because essentially the roots can’t grow into the soil -- even tree roots can’t grow into the soil. And as a result, all the water we put down on the ground, all the rainwater, all the fertilizer -- anything else we put down on that developed landscape -- pesticides, fungicides, herbicides, etc. -- also runs into the Bay.

So the soil standard -- what will it do? The soil standard will establish the infiltration quality that we need to get water back into the

ground so it will sink in and percolate, and carry all those things that we want it to carry into the ground for the use of plants and other materials. That keeps it out of the Bay.

Now, when I said we don't have the smoking gun-- This past year the U.S. Geological Survey, with other Federal dollars, completed a study that was part of the Rutgers NEIWPC study -- and all of you have seen and talked about this in previous hearings. They concluded that increasingly -- and they documented -- that the runoff from turf was contributing increasingly to the nutrient loading to the Bay.

So we have a problem; we've got it well documented. And establishment of this standard would let us get more water back into the ground where it takes decades and centuries to get to the Bay, and it allows it an opportunity to be processed by all the plant material that grows and sink roots into the ground. So we really, really need this standard.

Now, there have been some recent communications between State agencies where they say, "Hey, you know, we think this may be a costly thing to implement." I can't think of anything that's cheaper to implement. It puts the burden of responsibility where it belongs: on everybody who has a developed landscape around any water body. And since we're all in the watershed, we're all around a water body. So this basically places a very small burden on all of us. And in terms of the cost, we haven't yet seen a clear standard from the State, so it's really hard for me to figure out how we can establish something as being too costly.

Now, what you have in that document -- those documents I have given all of you, I'll call your attention to two in particular. You have a lot things produced locally by us and our partners and, in particular, I

want to recognize the leadership of the Ocean County Soil Conservation District on this. And I want to point out two other documents taken from two other very different places: One is a document from the State of Washington. And when they talk about why establish a soil standard: multiple benefits. And you see in there numerous -- this is toward the back of your package -- they talk about numerous cost benefits.

The second thing is just a cover article of a draft standard being developed in the state of Iowa. Now, Iowa and Washington State have very, very different standards; I don't kid you. And I don't want to get into all the technical details of all those. But I do want to point out that with very different standards and very different approaches, they both conclude that this is one of the cheapest and easiest things to do.

Now, some of the other materials that are in this package also provide additional details about how the State might go about assessing the cost and the benefits. One of the comments has been that this is a hard thing to figure out. So I've given you some additional information about lots of different ways to figure it out. And most states that started off about the same time as New Jersey in 2011 -- which is when these documents date to -- have managed to figure it out. So I think we can too.

So I would just ask that all of you use your influence and the powers of this body to bring this matter to the broader attention of the people in the State of New Jersey. And let's move forward on a soil standard. It's one of the simplest, easiest, and most efficient things that we can do to protect water quality here in the Barnegat Bay and elsewhere.

Thank you.

SENATOR SMITH: Stan, part of the background information that our staff checked out was a letter on December 4, 2014, from the local legislators -- the local legislators being Senator Connors, Brian Rumpf, and DiAnne Gove--

DR. HALES: Gove. (indicating pronunciation)

SENATOR SMITH: --Gove, to Secretary Fischer, the New Jersey Department of Agriculture, saying these soil standards are really important to Ocean County, and where do we stand? And Secretary Fischer, on December 5, 2014, responded, and his comments were that, "We're not quite sure, but we think that the cost-benefit ratio makes this too high a cost."

Now, you made the unequivocal statement that this is some of the cheapest things we can do. Would you tell us why?

DR. HALES: Well, in terms of *cheap* -- the numbers I've seen in terms of its being too costly were for a standard that doesn't exist and is actually far more stringent than has been proposed for New Jersey. So the thing that's being pulled out and used as evidence I think is a little misleading. All we're talking about doing is basically turning over the soil -- fluffing it up, so to speak -- so that it is looser and has a lower density, and it becomes lighter afoot.

And this is a problem everywhere -- not only on our lawns, but on just about every stormwater contrivance that's used throughout the state. And I'll give you a couple of examples why I say this is cheap. One of the action plan items that the Governor committed to three years back was a tremendous investment in stormwater infrastructure. He said he was going to put up \$10 million a year for 10 years -- you know, a \$100 million

investment. A tremendous investment; I applaud the Governor for doing so. At the same time, we can't go around spending \$500,000 to \$1 million just to put in a big stormwater basin on a big public property -- or a big private property, for that matter. Nobody can afford that. So this is a far cheaper thing -- probably somewhere around the cost of a couple of thousand dollars per acre to a little more. And I can't imagine -- I cannot imagine that that's prohibitive to the cost of purchasing a new home.

The other thing is, with this soil restoration standard development and the implementation of it, over the long run you're saving water, you're saving all the chemicals that might be used to reinvigorate or promote reestablishment of a lawn when your first one doesn't grow. I mean, we've all seen the lawns that start out in new subdivisions. You know, we all scratch our heads. There's no way anybody can get grass or anything else to grow in dirt. And *dirt* is sort of a bad word for a soil scientist. They say, don't treat your soil like dirt. (laughter) But if everyone started off with better soil, their lawns would grow better, they wouldn't need as much water, they wouldn't need as much chemicals; and those other documents that I gave you -- they actually look at the cost of water and fertilizer and other chemical applications. And they compared putting sod down on a new lawn versus plant seed on good healthy soil. And they basically say that two to five years out, depending upon the specific costs -- and costs in New Jersey are likely to be a little different -- but that's the timeframe we're talking about at which someone would recover the initial upfront investment. So from my perspective, I can't see that it's being prohibitive for someone buying a home.

SENATOR SMITH: We're going to put in the record the correspondence from Senator Connors and the Assemblypersons, and Secretary Fischer's response into today's record. And let me pass them over to staff so we get it in today's record.

And are there any questions for Dr. Hales?

ASSEMBLYWOMAN SPENCER: Assemblyman Wolfe.

SENATOR THOMPSON: I do too.

ASSEMBLYWOMAN SPENCER: Okay. I'm sorry, Senator.

ASSEMBLYMAN WOLFE: Thank you, Stan. Good to see you again.

There's a brochure in our packet called *Going Native*, and it's about planting indigenous trees and bushes to the shore. Senator Holzapfel, Assemblyman McGuckin, and I have introduced that legislation to do this on a statewide basis. It passed the Senate, but it hasn't really come up for a hearing in the Assembly. So because we're having an Assembly Environment Committee meeting here I'm sure that we'll be having, perhaps, a hearing on this in the fall.

DR. HALES: And that's a great companion measure, and thank you for doing that, Assemblyman.

ASSEMBLYMAN WOLFE: Okay. Thanks a lot.

ASSEMBLYWOMAN SPENCER: And I think Assemblyman Bramnick also has--

ASSEMBLYMAN WOLFE: Right; native--

ASSEMBLYWOMAN SPENCER: --native plants; correct.

ASSEMBLYMAN WOLFE: --native plants, yes.

DR. HALES: Native plants are one of the ways that you save money on chemicals, water, etc. They're adapted to the area, they grow well. And what we also have done to promote this, we've also taken some other public money and we've recently developed a website; it's called *Jersey Yards*. We rolled out a soft launch of that with our partners a few weeks ago, but anybody in the room can get to it just by looking up *Jersey Yards*, and it provides all of this soil information as well as a lot of information about native plants and other things that you can do. And all of these things save you money.

ASSEMBLYWOMAN SPENCER: Thank you.

ASSEMBLYMAN RUMANA: Madam Chair?

ASSEMBLYWOMAN SPENCER: Hold on one second.

SENATOR SMITH: Senator Thompson.

SENATOR THOMPSON: I'm not that familiar with the details of the legislation calling for the establishment of the soil standards, or how it is to be accomplished, etc. A question I have is, once the standards are adopted -- now, would this apply only to future developments, or does it require present homeowners to do something, or just how -- or just implementation once it's there?

DR. HALES: It just applies to new construction.

SENATOR THOMPSON: Okay.

DR. HALES: And that's why we also, along with a lot of partners in the watershed, have been looking on sort of some restoration procedures that you could use on existing properties.

SENATOR THOMPSON: All right. Well, if it is only going to apply to the future, then that would reduce -- not prevent -- increased flow, but would not do anything about what is currently there (indiscernible).

DR. HALES: That's true, Senator, and that's why we've been working on those other measures as well. It's nice when you start from scratch, but if you're not starting from scratch, essentially what you're trying to do is get more organic matter into the soil.

SENATOR THOMPSON: Yes.

DR. HALES: This allows you to use a lot of recycled products like Ocean Grow, which is produced by the OCUA, and other things.

SENATOR THOMPSON: Sure.

DR. HALES: But you can use compost and other things. And we've looked at all of the different materials that might be used, and there are benefits and advantages and disadvantages. They have some different costs, and other qualities. But all of them are efficient and help save everyone money, water, and reduces use of other chemicals.

SENATOR THOMPSON: Right. Well, as they say, it sounds like if we get it implemented, it will prevent more runoff from occurring but will not do much about what's currently going -- unless somebody comes back and retrofits.

DR. HALES: Well, these other things will help. And, you know, nonpoint source pollution -- what were talking about -- we're talking about just a few pounds of nitrogen running off the landscape per acre, per year if you're using fertilizer. All of these things help reduce it. I mean, the Bay didn't get to the condition it's in overnight; this won't fix it overnight. The average drop of water running into the Bay takes somewhere around 10

years to get to the Bay. So this helps slow those down so that on down the road we'll see some benefits to the water quality of the Bay.

ASSEMBLYWOMAN SPENCER: Thank you.

Assemblyman Rumana.

ASSEMBLYMAN RUMANA: Yes, I just want to make sure I understand this. What you're advocating for is just to have a tilling process of the soil after the construction is complete.

DR. HALES: Yes.

ASSEMBLYMAN RUMANA: And how deep do you have to go into the soil, from your point of view?

DR. HALES: Well, deeper is always better. You know, old soils can be several feet thick. I think a standard that is currently in draft development talks is somewhere around 4 to 6 inches -- something like that; a little deeper than that would be great. I'd like to see a clear and transparent standard come out that we can all comment on and review so we all know what's going on.

And one of the issues-- And even members of the State Soil Committee who are working on the standard have expressed some frustration with the ways in which this standard might be assessed. And what's being used essentially is a coat hanger. And it's been recognized that that's really variable. And there are some tools around; they are fairly inexpensive, they cost about \$100 -- a soil penetrometer, and some other things. I have one out in the car but I didn't think they'd let me bring it in the room -- it looks like a spear. (laughter)

ASSEMBLYMAN RUMANA: But you think that if you went down about 6 inches, from your technical expertise--

DR. HALES: Well, I would prefer something a little deeper than that, but that's a good start. And that's better than what we have right now.

ASSEMBLYMAN RUMANA: Okay.

SENATOR SMITH: Right now we have nothing.

DR. HALES: Right now we have nothing.

ASSEMBLYWOMAN SPENCER: Assemblyman Eustace.

DR. HALES: And I actually -- I would prefer to leave establishment of that standard to the soil scientists. So I'm a marine biologist; we don't deal much with soils. But the materials that are around -- and that's why I provided these other materials -- talk about that 6-to-8 inch, or down to a foot in some areas.

ASSEMBLYWOMAN SPENCER: Thank you.

ASSEMBLYMAN EUSTACE: Thank you for your testimony, Doctor. I have a two-pronged question.

About 30 years ago I became an Ocean County taxpayer, but not a voter, on Long Beach Island. And at that time most of our lawns were stone so it would percolate down and feed one of the largest aquifers in the area. Now we are landscaping our homes with pavers, which are not pervious. It's compacted ground, with compacted pavers with grouting in it. And the idea was originally that it would be semi-pervious so that the water would go into the system.

So my question is, what's the point of loosening the soil if you're going to compact it to put the pavers on it? Because most of our pebbled-- And I drove here; I drove about 12 miles down the oceanfront and saw that most people are doing this sort of landscaping where it

becomes impervious -- which means you're creating more runoff instead of less runoff. So that's the first part of the question.

The second part of the question is, I've been a small town mayor -- and I see we have some local representatives here, and we sort of have a rash when people tell us what to do. (laughter) So I was thinking that if we were going to solve this problem, this is something that people have to take to their own zoning and planning boards where they say, "No, we need pervious, or at the very least semi-pervious conveyances" -- even our gutters along the streets and things like that -- because this would go a long way to solve the problem. And if we imposed it from the State down, I honestly think it would take forever. If we ask the local people to take the responsibility to solve this problem, I think it would happen almost overnight, and I just wanted your opinion about that, Doctor.

DR. HALES: Well, the sands, and the sandy loams, and other soil types that we find here in the southern part of the state are the same soils that we find from, probably, Cape Cod down to Mexico. So the soils are very, very similar. Local implementation of that -- if every little town has a different rule maybe a small town could start that. But I actually think then the landscapers would be like, "What town am I in and what do I do next?" kind of thing. (laughter) So I think there's-- While I understand your concerns about implementing, and I'm not necessarily agreeing with your comments on the efficiency of State government, (laughter) but what I'll say is I'd like see -- there's good reason for a common standard.

ASSEMBLYMAN EUSTACE: Right.

DR. HALES: And I'll point out one last thing. This bill -- this soil health bill was pointed out -- identified as a companion to the State Fertilizer Law. And you could say the same thing about implementation of a fertilizer law. And New Jersey, again, is very cutting edge; this bill -- this fertilizer law passed at the same time and has been fully implemented. And I think everybody's been overjoyed with the alacrity with which the State has put that into play -- all the different components of it, which were very similar to the components in the draft soil bill, which had training and some other things in front of it.

But this was meant to be a companion. So without implementation of this, we're actually diminishing the effectiveness of the fertilizer law. And increasingly, right now, a lot of folks think New Jersey is behind the times, but the last two times I've traveled up and down the coast, or to talk about New Jersey's fertilizer bill in other states -- and I have another trip coming up to go to New England, but I put it off until the fall. (laughter) But they're all interested in this -- everyone up and down the coast is interested in the steps that New Jersey has taken to protect water quality.

So again, I encourage you to put this into play.

ASSEMBLYWOMAN SPENCER: Assemblyman Conaway.

ASSEMBLYMAN CONAWAY: Well, sort of along those lines about the fertilizer, do you have concerns-- As you turn up soils, as I understand it, you liberate weed seeds and other things to the surface and that causes weeds that people would like to rid themselves of. And so they put down things to kills weeds. And so, do you have a concern-- You know, that suppresses those (indiscernible). Do you have a concern that we

will actually cause people to put more treatments -- chemicals -- on their lawn to deal with weeds that emerge as you turn the soil over and sort of liberate these seeds -- that were sort of down far enough in the ground so that they wouldn't actually sprout -- and liberate them to the surface where they can now grow, and create weeds and a problem that people want to address with chemicals?

DR. HALES: My understanding is those deeper soil levels don't have a lot of weed seeds in them. But most landscapers know the best way to address weeds is by growing healthy grass. And by establishing deeper roots, you get healthy grass and, over time, that healthy grass will get rid of those weeds.

ASSEMBLYWOMAN SPENCER: One last question.

With regards to the different ideas that have been provided in the package that you've given us -- as far as testing soil and things like that -- this information, I'm sure, has been shared with the various municipalities here in Ocean County. Have you interacted with any of the local municipal governments in disseminating information to the homeowners as they go through rebuilding and restoring their properties?

DR. HALES: We share this everywhere we can. All of this is on our website. That's one of the reasons why we've grown this new website with State and Federal money. Again -- *Jersey Yards*.

ASSEMBLYWOMAN SPENCER: Okay. Ideally, have you identified an area in the state -- particularly, in Ocean County, Monmouth County area -- where either a homeowner or a municipality has totally embraced what's going on and can be used as the model for what needs to be done, going forward?

DR. HALES: Well, we're all working on this, and a number of our partners have some great demonstration sites, all over the place. And again, a lot of them are listed on our website: American Littoral Society, the Soil Conservation District, many other groups. Lots of groups are working on this.

ASSEMBLYWOMAN SPENCER: Okay. All right, thank you.

Any other questions? (no response)

Thank you, Doctor.

DR. HALES: Thank you.

ASSEMBLYWOMAN SPENCER: Next up, Helen Henderson from the American Littoral Society.

**HELEN HENDERSON:** Good morning, everyone.

ASSEMBLYWOMAN SPENCER: Good morning.

SENATOR SMITH: Good morning.

MS. HENDERSON: It's been a long time, no see for some of you. It's good to be here in Lavallette.

My name is Helen Henderson; I am the Atlantic Coast Program Manager for the American Littoral Society. We are a nonprofit coastal conservation organization. We protect the coast from harm through education, restoration, and advocacy; and we empower others to do the same.

Sitting to my left, I would like to introduce you to Julie Schumacher. She is our newest employee in our new Barnegat Bay office, which is located on Washington Street in downtown Toms River. And we are very, very happy to be here today to talk about soil restoration. This is her first hearing, so--

**JULIE SCHUMACHER:** Be kind.

**MS. HENDERSON:** Give her a warm--

**ASSEMBLYWOMAN SPENCER:** You want us to be kind to her? (laughter)

**MS. HENDERSON:** Yes, please.

**MS. SCHUMACHER:** She'll do the talking.

**MS. HENDERSON:** I asked Julie to provide some handouts that, while I'm speaking-- I'm going to read a prepared statement, and then engage in any questions you may have about what I'm speaking to.

If you could just look--

**SENATOR SMITH:** Helen, you know what?

**MS. HENDERSON:** What?

**SENATOR SMITH:** We always try to do -- we try to not have people read prepared statements because we can read them. Give it to us from your heart.

**MS. HENDERSON:** Okay, you got it.

**SENATOR SMITH:** Just give us what you think, or what point you want to make.

**MS. HENDERSON:** So Dr. Hales referred to some of the work that we're doing. So to bring you from 30,000 feet to on-the-ground: In 2011, the Society was awarded 319(h) Clean Water grant funding. And that was to reduce nonpoint source pollution loads to the Long Swamp Creek, lower Toms River, and Barnegat Bay. What we have been able to do over the last three-and-a-half years with that funding -- we have studied development and stormwater basins throughout the watershed; we found that many of the existing basins were not functioning in a way that

maximizes pollution reduction benefits and, in most cases, worsening flooding conditions. So we're talking a lot about the value of healthy soils, but I definitely want to touch upon the benefits to flooding reductions.

When we don't have healthy functioning soils and they're not recharging stormwater back into the ground, we have rapid rushes of stormwater into the waterways causing localized and downstream flooding conditions. That can lead to stream bank erosion, increased sediment loadings, flooding of our communities, and worsening water quality -- obviously, in our streams, rivers, and Bay.

The grant funding has allowed us to implement seven projects -- all of them have a form of soil restoration component in all of the projects. In some of the handouts you'll see there's one particular project that I want to highlight called *Laurel Commons*. This is a local 22-acre, 220-unit condominium complex that allowed us to go in and restore a previously compacted, fully manicured lawn area that was supposed to be functioning as their stormwater basin. However, the layer of compacted soil that was on top was so impervious that it was actually -- the runoff conditions were that of the same of concrete or pavement. They had extreme flooding and, obviously, that was causing a lot of pollutant loading during rain events.

So you'll see that we went in to address some of the question about the depth -- of what is deep enough. We removed the top layer of compacted lawn area and we were going down 12 to 18 inches and actually restoring and amending those soils. We went from almost zero infiltration in the previous compacted lawn area to 16 inches per hour. So post-restoration, all of the flooding was alleviated in that community, which had rendered -- cars had to be abandoned and left in several feet of water during

heavy rain events. And now there's absolutely no flooding. And as a matter of fact, one of the requirements of the grant funding was that we go in and do a post-water quality sampling. And we have not been able to fulfill that requirement simply because there is zero discharge at the basin outlet.

SENATOR SMITH: What a big problem to have. (Laughter)

MS. HENDERSON: Yes, exactly.

So I think that Dr. Hales also touched upon that soil restoration was one of the components of Governor Christie's 10-point plan, along with the fertilizer law, as well as DOT looking at their own stormwater basins and how they are functioning in terms of recharging. All those were supposed to work in concert together. We are definitely not seeing the full benefits that the fertilizer law would provide if we do not have healthy soils underneath new development or any development that's gone into the restored or retrofitted.

ASSEMBLYWOMAN SPENCER: Helen, how much did it cost to remediate that area where the condominiums were?

MS. HENDERSON: So this entire project -- it is about a one-and-a-half-acre basin area. And I apologize; we are working with Princeton Hydro -- they are an expert water resource engineering firm -- they could not be here today to provide their expert testimony. But I can tell you that the basin -- we removed the top layer of soil, restored the compacted soils to healthy conditions, planted native grasses and vegetation. The project was less than \$60,000 to fully implement. That included the design, engineering, construction, soil amendments, and all of the native plantings.

ASSEMBLYWOMAN SPENCER: Wow.

MS. HENDERSON: And as I said -- on some of the handouts you can see there's a map -- we are working on many, many different projects in that subwatershed, all of which have not been very expensive -- even those with extremely engineered, manufactured treatment devices that are going underground. And a lot of those -- the most important components are that they have healthy soil media inside them to treat stormwater. So in terms of flooding and pollutant removal values and protecting Barnegat Bay, we've had three-and-a-half years of delay, instead of three-and-a-half years of less flooding and cleaner water.

So we can't stress enough anything that you can do to help with this cost-benefits analysis -- to bring that to some sort of a resolve would be greatly appreciated. We hope that there's a chance for the public to interact in that analysis process. Some of the information that we've received -- the analysis hasn't really taken into account benefits to neighbors and the downstream landowners, the ecological services that healthy soils provide, greater infiltration, vegetative cover, the reduced runoff and erosion -- which also was noted that it maintains the lifetime of our reservoirs and our shipping channels for dredging. So less sediment -- you know, everything recharges back into the ground instead of running off. It's a win-win.

SENATOR SMITH: Great. Helen, thank you for that terrific example of how well this can work. It would be very helpful if your organization would send a letter to Secretary Fischer, Department of Agriculture, indicating that you'd like the benefits side examined a little more thoroughly than may have been on first pass, okay?

MS. HENDERSON: Okay, I'll do that.

SENATOR SMITH: Tom Fote, New Jersey Coast Anglers.

ASSEMBLYWOMAN SPENCER: One comment.

ASSEMBLYMAN CONAWAY: You mentioned the cost of \$60,000, and I'm just curious: Has that been costed out? So for that \$60,000, you said you treated an acre. That's against what savings? I'm just curious what the -- how the cost-benefit analysis actually -- what the result of that analysis is. I don't know if you had a chance to do that, or if someone is going to do that so that we can say, "Well, we're spending the \$60,000 and this is the return we get on that investment."

MS. HENDERSON: This entire grant project will be wrapping up in the middle of October. And then several months after that, we will be writing final reports which will include some form of a more detailed cost-benefit analysis.

SENATOR SMITH: Was this an underground detention system that you were retrofitting, or was it a basin that was existing and not working?

MS. HENDERSON: It was a basin that was not working. It didn't look like many of the basins in that it was not a fenced-in detention basin -- although you can see in some of the photos that it was used as lawn area by the residents walking their dogs, just out enjoying an extension of their backyards.

ASSEMBLYWOMAN SPENCER: Assemblyman, do you have a question?

ASSEMBLYMAN WOLFE: Yes.

ASSEMBLYWOMAN SPENCER: Assemblyman Wolfe.

ASSEMBLYMAN WOLFE: Yes, I want to compliment you -- when you talked about that study, and also what Stan said about the storm runoff.

About a month ago, I got a phone call from my legislative office about what was being done to the jughandles on Route 70 in northern Ocean County. And I had gone by them for about six months; I noticed them, but I didn't really pay too much attention. There was a lot of construction going on. And the jughandles are huge; I'm sure many of you are familiar with them. They look almost like parts of the Bay in some areas. And they were building -- it looked like copper dams. They were made-- It looked like Belgian blocks; they were rectangular, huge structures, and there was like PVC piping coming out of them.

And all of a sudden, there was new growth in those areas and, after a huge rain, all of them were filled with what looked like a swimming pool. And I still couldn't figure out what it was. And I was told the DEP and DOT got a grant to build new retention basis in these jughandles to basically control the storm runoff that goes into the Bay.

So these areas are pretty far from the Bay, but I think it's important to know that these kinds of ongoing projects that may be occurring-- And I think if any of you, the next time you go by a jughandle in northern Ocean County, notice them -- now they're starting to get overgrown with some of the weeds and vegetation. But that's really what they're there for.

So I learned a lot from a phone call, but I think it was a good idea.

Thank you.

ASSEMBLYWOMAN SPENCER: Thank you.

ASSEMBLYMAN WOLFE: It's good to see you again.

ASSEMBLYWOMAN SPENCER: And one last comment.

You had indicated that there were seven projects; and you spoke-- Laurel Commons was one of them; the other six projects -- are they contained in the information we have in front of us?

MS. HENDERSON: Yes, they are.

ASSEMBLYWOMAN SPENCER: Okay, very good. Thank you.

MS. HENDERSON: You're very welcome.

SENATOR SMITH: Thank you very much for participating today.

MS. HENDERSON: Thank you so much.

SENATOR SMITH: Tom Fote from the Jersey Coast Anglers.

Mr. Fote.

**T H O M A S F O T E:** It's always a pleasure to come before these two Committees.

Thinking about soil compaction brings me back to 1967. As an Engineer Officer-in-Training going to Engineer OCS in Fort Belvoir, Virginia -- where I was last week at a fisheries meeting -- and I sat there and basically learned about soil compaction: how do we build roads, how do you crown roads, and things like that. Even though I have never used that since -- I got out of the service in 1970 when they retired me -- it basically always stuck in my head.

A neighbor across the street, a couple of years ago -- probably about 10 or 15 -- he had grass in for years. He had nice drainage, because

that grass has probably been there for 50 years; that's how long he had the house. He decided it was too much work; he was basically going to pull the grass out and put stone in. There's a good way of doing that, but what he did was a get a bulldozer in and basically ran the bulldozer, pulled up all the grass, ran it back and forth, and put all the stones in. I told Ted, I said, "You can't do that. You have to break up the soil because you're going to have a swimming pool."

Well, now it's 15 years later. Somebody else bought the house and every time it rains it basically has a duck pond in the front of his house.

I was on the Policy Committee for the Barnegat Bay for about 15 years before I decided -- almost 18 years -- before I decided that was long enough and let somebody else take charge. Dave Freeman, over the years, has taught me about soil compaction. So I called Dave Freeman; he went over to basically look at this piece of property, brought his tools -- like Stan was talking about -- and he couldn't break through the soil with the tools.

When you compact the soil that much, you don't have any drainage. Now, a lot of you are sitting here asking about the cost. I deal with water -- clean water. I mean, if I don't have clean water, I don't have fish, and I don't have the animals that are basically in the Bay. I mean, that's what I represent as a New Jersey State Federation of the Sportsmen's Clubs and Jersey Coast Anglers. When you talk about runoff, that water goes not back into the soil, but back into the rivers real fast. Also doing erosion, putting soil back in, and basically causing all kinds of problems.

Water is going to be the most costly thing in the next 15 years. All you have to do is look at California. And if we have a drought-- We've been lucky, because the droughts have been on the West Coast, not on the

East Coast, but that could change with weather. The water we're basically losing, going out of the system.

Now, we have enough problems in Ocean County, Monmouth County, Atlantic County, and Cape May County because when we built the sewer plants many years ago, we started pumping the water out of the aquifer going from our faucets, our toilets and everything into the plant. Instead of coming back into the land, we basically put pipes out to the ocean and pump it all out. So we're pumping billions and billions of gallons every year out of the aquifer.

So we need every bit of help to put that water back in there, and that water is going to cost us money. We keep drilling new wells; we keep getting polluted wells. And it takes a long time-- As Dave Freeman has told me over the years -- and now Dave is retired -- but to percolate through these soils it takes 50 years, 60 years. We're still getting some nitrogen from Ocean County when there were all those chicken farms out there. That's still percolating through the system.

So it's important to do it for the health of the Bay, but also for the health of us. I mean, we-- And when you say *dollar value* -- well, yes, it takes a little bit of concern to do that. I mean, if we plant the right stuff-- Earthworms -- you know you have a healthy soil when you see the earthworms come up from the ground on your lawn; if you don't see any earthworms, you don't. If you don't see a mole -- and I know people don't like moles running through their gardens and also through their lawns, but that shows a healthy environment because there are plenty of worms for the moles to eat. So we basically have to look at the signs.

You know, we pass bills -- and you pass bills, and we basically wait for them to be implemented; it takes too long a time in a lot of situations. We look at you for guidance, we look at the Governor for his expertise in this and basically to get us moving in the right direction. And when I heard about going to local towns -- that becomes difficult because who's ever on the town committee-- And I go through townships, we talk about fishing regulations, we talk about access. And every town has different sets of regulations. It makes it very difficult to go through. We need a statewide rule on this.

It's up to you. I mean, I'm looking at the next generation because I'm getting a little older -- I'm going to be 69 next year -- and we're looking at what you're going to have in the future. We're going to have problems with flooding, we're going to have problems with sea level rising. What we need to do is correct some of those problems with percolating back into the system.

I mean, you go up to the Metedeconk -- and Assemblyman Wolfe has worked in this area a long time, and he knows that when we built that reservoir and we did certain things -- that whole part of the Metedeconk had gravel. And all kinds of organisms basically need that to reproduce; they use that for oysters or clams to set their eggs on. By the time you look at it now, it's got silt on it this thick (gestures), and that has basically changed the whole upper environment. I've brought in (indiscernible) late; didn't know what the reasons were. But I went to my friend from the marina up there at the end of the Metedeconk and we looked down -- and that was Bruce Friedman, a scientist from the Division of Fish and Wildlife of many years, and actually did marine fisheries. And

we just cried because we realized that a lot of the crabs, a lot of the minnows, and everything that had supplied striped bass, fluke, all the weakfish -- all those species -- are no longer existing up there. So we cut down the habitat again; I guess that's the problem.

I'm going to keep it short because other people want to talk. But I'll answer any questions you have.

ASSEMBLYWOMAN SPENCER: Any questions? (no response)

Thank you.

Jaclyn Rhoads from Pinelands Preservation Alliance.

**J A C L Y N R H O A D S, Ph.D.:** Thank you for the opportunity to speak. Jaclyn Rhoads; I'm the Assistant Executive Director for Pinelands Preservation Alliance.

And we had the opportunity to be one of the only environmental groups that actually participated on the subcommittee for developing -- or working to start to develop the soil restoration standards under the State's Soil Conservation Committee. It just so happened that at the same time they were working to develop a Pinelands-specific standard as a result of our, I guess you could say, *harassment* to the State's Soil Conservation Committee at the time. These came together at the same time.

What we have found is that the last correspondence we received about looking at the cost-benefit scenario -- we received an e-mail back in January, January of this year, that they were starting to identify projects and trying to come up with what are the benefits and what are the costs associated with doing the soil restoration. We have not heard

anything since then. I think this presents a good opportunity with your Committee to go back to that subcommittee and say, "Okay, where is it? Where are the results of this mockup that you were putting together of a particular project, doing soil restoration, and showing the differences between the two?"

SENATOR SMITH: Who was on the subcommittee?

DR. RHOADS: There were several soil conservation districts; there were several members of the State's Soil Conservation Committee, which included representatives from Rutgers, as well as somebody from the Pinelands Commission -- Robyn Jeney; and then there was also somebody representing the developers -- Tony Del -- however you pronounce it -- Del Vecchio (indicating pronunciation).

So as you can tell, I think, one, having environmental representation -- you need Barnegat Bay there. Obviously we can make a big difference in pulling this analysis together, and get us moving again and getting the restoration standards on the table.

SENATOR SMITH: Who set up the subcommittee?

DR. RHOADS: It was at the direction of John Showler, who is the engineer to the State's Soil Conservation Committee. He's staff at the Department of Agriculture.

SENATOR SMITH: All right. If you would give us the name and address, Assemblywoman Spencer and I will make an inquiry.

DR. RHOADS: Definitely. I think it would be really helpful. Also environmental groups -- any group is actually welcome to attend the State's Soil Conservation Committee meetings. And I think that's really where we can present an opportunity to push them as well.

And I just wanted to reiterate one point -- that these standards look at, one, establishing what the soil bulk density should be. We don't have that now. So when the conservation districts have to go out and check on a project and they're looking at soil restoration, coming up with that standard is critical. So that's an important point; something they have to base on the science and put in the standards. And they've started to do that, but we have some concerns with that.

Second, it then looks at how you're going to test it. And there are a variety of testing methods, as Dr. Hales had indicated, some of which are very cheap -- and that should not be a problem getting through.

It's really the question of the restoration. And by putting out the standard, by putting out there how you're going to test it, it is now up to the developer to prevent the compaction. That could be the most cost-effective thing. If you go through and you design your development and plan properly without having equipment running over the soils that are going to remain as vegetated areas -- whether it be lawns, or trees, or shrubs -- you can avoid a lot of the compaction. Now, granted, there may have been pre-existing conditions there. But you can further enhance the soils by preventing driving through that area, clearing out trees, and doing all the preventative things that are possible in order to avoid the costs in restoring the soils. And I think that needs to be made clear, because when they are complaining so much about the costs associated with it, well, design it better and you can avoid it. We're not talking about the layer of soil that's going to be under the buildings that you want to have compacted, or under your shed, or even under your driveway. Were talking about what's left out

there. And I think that really needs to be out there and made a critical part of this cost-benefit analysis.

So we just wanted to share that information, and hope to work further in getting these things done.

Thank you.

ASSEMBLYWOMAN SPENCER: Thank you.

Questions? (no response)

SENATOR SMITH: All right then, are Doug O'Malley and David Fox here?

ASSEMBLYWOMAN SPENCER: I saw Doug.

SENATOR SMITH: Doug, are you on soil standards?

**DOUG O'MALLEY:** (off mike) No, I'm not.

SENATOR SMITH: You're on Forsythe? Okay, so hold on.

Jeff Tittel, are you on soil standards?

**JEFF TITTEL:** (off mike) Yes.

SENATOR SMITH: Jeff Tittel, from the Sierra Club.

MR. TITTEL: I'm going to talk about Forsythe, too, later.

Thank you.

I also appreciate every year having the hearing here to try to draw attention to the Bay. And soil standards are not just important here; they're important throughout the state -- whether it's Barnegat Bay or in the Highlands.

One of the major problems we face when we develop land is that in the process of construction-- And we spent a lot of time in Ringwood when we did our ordinances on disturbances, to try to limit it. That when you compress the soil it becomes, especially down here, like

concrete. And so when it rains we see that water filtering through the soil, purifying itself and recharging the aquifer -- it runs off, it brings fertilizer and other nonpoint pollutants with it; and ends up causing eutrophication problems in our bays and waterways.

And it's true everywhere. In the Highlands, in particular, the top layer of soil absorbs up to 3 inches of rain during a normal rainfall. And that water is critical because, again, it gets purified, it goes into the groundwater. And one of the things we did when I was on the Planning Board there is we put very strong limits on disturbance for construction. So that when engineers go out there and design-- And I know Wayne did something similar, and other towns did something, where you try to design the property during the construction phase to limit the clearing of trees and limit where the equipment is going to go so you don't get that compaction. And it's really critical.

So one, you also need, as you look at soil standards, design a project-- I'll use an example we did in Ringwood. A development was going in near a stream. And the middle of the properties were relatively level and did not have a lot of constraints. Towards the road, there were streams and wetlands; towards the back was steep slope with forests. So we designed the project when it went in to be built where they came in from the side and they did the clearing straight across, built the houses up on top, and limited the disturbance both in the back and in the front, and kept the native trees and the soils so that it wouldn't cause the compaction.

The other part-- So I think, first, you need to figure out-- And you have to work with the building code folks and everybody else in your town boards on limiting disturbance during construction phase so you don't

have as much compacted soil. So I think prevention or, at least, trying to limit it. For a second, in places along the coast you have to go down at least 6 to 12 inches to really turn that soil over -- in some places, even more. In the Highlands, not that much, because you get stony loam after about 5 to 6 inches. But you have to develop a standard to go out there based on the region and the soil types, to make sure that you're turning over the soil properly and that it's not just going to be basically rototilled -- you know, gravel, it doesn't do anything. So you have to look at the soils as you develop standards. And four years later, we should have these in place.

The other point that I want to make very clearly for the shore -- it's not just about fixing the soil, or trying to fix the soil when it's done. It's impervious cover limits and disturbance limits. Under the CAFR rules, you have areas like around here -- it's 80 percent impervious cover. Well, you don't have anything left because by the time you get done developing your site, what's left is a detention basin and the driveways, and this and that -- and there's nothing there but hard rock soil. We have to do a lot more to limit impervious cover -- to do green roofs, and blue roofs, and other things to help retain stormwater and clean up storm water. We need to do wet gardens, and the whole range of other things on stormwater.

Uncompacting soil is a good thing, but it's one thing out of 20 things we need to be doing. And meanwhile, we're heading in the wrong direction. While we're talking about trying to keep soils from being compacted, there's a rule that's going to put major holes in our 300-foot stream buffers allowing development -- septic tanks within 50 feet of a CI stream; allowing stormwater outfall pipes directly into CI streams. And if we don't protect the CI streams coming into Barnegat Bay, and you build

houses next to those streams, I don't care if you turn over the soil -- you're going to lose the Bay.

So we need to look at impervious cover limits, we need to look at protecting stream buffers and restoring stream buffers, we need to come up with a better way of dealing with stormwater basins -- not just retrofitting a few. I mean, we've got 1,500 in the basin that need to be fixed. We need to use the best science. We see in the Bay algae blooms in May; we see even in the early spring now you get jellyfish because the water is too warm. You know, we have some real serious problems here. And I'm glad we're having this hearing to draw attention to the soil standards and the need, but we also need to have a TMDL for the Bay; the Governor vetoed the bill that Senator Smith worked on for so long. We need to have put in place coastal rules that actually adequately protect the environment and limit development in inappropriate places -- and do it right in the right areas instead of adding more loopholes to those rules. The same thing with the flood hazard rules.

So what I'm saying here today is, this is good and we need to do it. But unless we come up with a holistic plan for Barnegat Bay, all we're doing today is rearranging the deck chairs on the Titanic.

ASSEMBLYWOMAN SPENCER: Any questions for Mr. Tittel? (no response)

Thank you, Jeff.

Next up, Grant Lucking, New Jersey Building Association (*sic*).

**G R A N T L U C K I N G:** (off mike) I'm just submitting written comments.

ASSEMBLYWOMAN SPENCER: Okay, thank you.

SENATOR SMITH: All right; if I might, though, Chairwoman.

The written comments are very short. This is from the New Jersey Builders Association, dated today, from George Vallone, the New Jersey Builders Association President. And it says, “The New Jersey Builders Association appreciates the opportunity to submit the following comments regarding the need for soil restoration standards.

“Over the past several years, NJBA members have been involved in the deliberative process to develop revisions to the Soil Erosion and Sediment Control Standards, specifically for the topsoiling and land grading standards. That process was established by the Department of Agriculture’s State Soil Conservation Committee to ultimately amend the 1999 standards in order to comply with the requirements set forth in the 2010 restoration law.”

That’s the one we all voted on, bipartisan, back in 2010, and which is part of the 10-point plan for the Barnegat Bay.

“Now, NJBA members are directly impacted by any changes to these two existing standards. Amendments to the standards would likely require changes to our current development practice to ensure compliance. Further, developers would be subject to potential enforcement measures taken to address deficiencies. Therefore, we appreciate the Department of Agriculture’s ongoing efforts for rulemaking, while also addressing the practical concerns raised by stakeholders, including the regulated community. This approach would achieve the objectives of the Soil Restoration law regarding soil health and compaction, while also complying with the law’s mandate that such soil restoration measures, with which the

development community would need to comply, are ‘to the maximum extent possible, cost-effective measures--’

“NJBA supports the Department of Agriculture’s rulemaking process and looks forward to continuing the process to completion.”

Terrific comments; however, we’d like to see them adopted already. It’s five years, so-- And I’m not picking on NJBA and Soil Conservation Service -- but, really? It’s taken five years and we still don’t have a standard? This is something that the Legislature, on a bipartisan basis, said should be done. And as Dr. Hales pointed out, this is really necessary, in conjunction with the fertilizer law, to significantly impact the health of the Barnegat Bay.

So again, five years -- really? We can do better. So if you would take back to the Builders Association that we need their enthusiastic interaction to get this job done -- we need to get it done.

MR. LUCKING: (off mike) I certainly will. Thank you, Senator.

SENATOR SMITH: Britta Wenzel, Save Barnegat Bay. Are you on soil standards, Britta, or did you have other comments?

**B R I T T A W E N Z E L:** (off mike) I have a little bit of everything.

SENATOR SMITH: Well, we’re probably -- I think we’re probably getting to that point, because we don’t have anybody else saying *soil standards*.

MS. WENZEL: Great.

SENATOR SMITH: So Britta, why don’t you come on up, and after Britta we’ll go to the Forsythe Refuge.

MS. WENZEL: I brought some show-and-tell.

SENATOR SMITH: Okay.

MS. WENZEL: I actually brought the spear that Stan didn't want to bring in. (laughter)

So my name is Britta Wenzel, and I happen to live in Lavallette. And I thank you for coming here, repeatedly -- I'm not sure how many years it is -- five or six years -- to the shore to hear the things that are going on here, and what's of importance and concern to locals and to the environment.

I serve as the Executive Director of Save Barnegat Bay, which is a 44-year-old, local nonprofit organization. Our mission is very simple: to restore and protect Barnegat Bay and its ecosystem. And we do that in two ways: through effective educational programs and targeted advocacy campaigns.

Being 44 years old, we started out, really, as a group of neighbors at a kitchen table fighting an overdevelopment project -- which, by the way, took some 40 years to win and millions of dollars, to give you an idea of our tenacity. We also are the folks who were responsible for writing the New Jersey fertilizer law in our little office.

I'm here today to talk about basically three items, the first one being the Forsythe Wildlife Refuge cleanup. I have no direct responsibility for that; but in the northern part of the estuary here in Barnegat Bay, it's actually the legacy of Save Barnegat Bay that these areas are protected. And we started out many, many years ago picking up litter and construction debris that had been left by folks who were contractors, who failed to pay for that debris to be taken to a landfill and dumped it into the Wildlife Refuge.

And when Sandy happened, we went out to try to take care of the cleanup that needed to happen. So for those of you who are not familiar, the ocean breeched in Mantoloking, and directly across from that is the land that took us 40 years to protect.

So a lot of us-- I'm 44 years old myself, so I wasn't at that kitchen table. But our members tend to be a little older and they went to litter cleanups. This particular cleanup was a different style. So I brought two pictures that I want to pass around. The first one is-- But before -- and I am going to pass them to you -- but the bottom picture is right after the storm. These are folks cleaning it up; and this is the after. And my question to you is, what do you think the time period between these two photos is? If you look in the top corner you'll see it's exactly the same spot.

So we work closely with the Wildlife Refuge -- Virginia Rettig, who was unable to be here today, the Wildlife Refuge Manager; we work with local officials. So to give you an idea, the Brick Township Department of Public Works, all the mayors and councils, all the way down to Stafford Township -- the mayor down there; Seaside Park -- Mayor Matthies is there. We worked in the Refuge and other adjacent properties, whether they were held by the State of New Jersey, public, or private landholders.

And to give you an example: When we have a cleanup, we could have hundreds of people. So on one particular day, we had over 500 volunteers. This is unaccounted man-hours; and then the dumpsters that the townships provided. So in Brick Township alone, 13,000 cubic yards of debris were removed by hand -- not by Federal contractors or anything else.

In that case -- I had invited a friend, who couldn't make it today -- but we had enormous public support. These cleanups happened in

the winter time, so January, February, March, nor'easters -- because of ticks and mosquitoes and other things.

Just this last week, the State of New Jersey marsh in Point Pleasant Borough -- the Township of Point Pleasant, the local Public Works Department, two local fishermen, commercial fishermen with their vessels, two vanloads of volunteers, and a local homeowners association removed a complete dock, 12-feet long, in the marsh. So it's still an ongoing struggle.

The Refuge has done a fantastic job, and we will continue to partner with them. In fact, I think in September we may be inviting you to a ribbon cutting to install new interpretive educational signs along the trail at the Reedy Creek site.

SENATOR SMITH: So how far along do you think the cleanup of the Refuge is?

MS. WENZEL: I understand from Virginia that it is fairly close to done. We do get a lot of reports; Save Barnegat Bay is a well-recognized organization so people call us, text us, send us e-mails, and then we report them directly to Virginia. And they have been very responsive. Unfortunately, their contractors had to clean up mostly in the summer period -- which, if you are not familiar with the marshes in New Jersey, that was not a fun job. (laughter)

ASSEMBLYMAN EUSTACE: Greenheads, ugh.

MS. WENZEL: Yes, and it's dangerous. Lyme disease is serious.

We did also, along the way, retrieve a lot of personal items. So, you know, in the past -- and I've done this my whole life -- cleaning up litter is very different than cleaning up someone's household belongings.

ASSEMBLYWOMAN SPENCER: Right.

MS. WENZEL: So it was a very emotional experience for all of us.

So my two points regarding these pictures are: that nature is very resilient if it's given a chance -- so Barnegat Bay can come back if it's given a chance. And the second is, that individuals, including you, can make a difference. People can accomplish a great deal if they try.

And so those two pictures are three months apart.

ASSEMBLYWOMAN SPENCER: Wow.

MS. WENZEL: Just to give you the power of nature, if it's given a chance.

So that's what I really wanted to say about the Refuge.

ASSEMBLYWOMAN SPENCER: That's impressive.

MS. WENZEL: With regard to soil restoration standards. So I served as a locally elected official here for six years in this Township -- or, municipality -- with Anita. And my husband, who is in the back somewhere, served 12 years. I actually ran against him, if you want some local humor. I'm a Democrat, he's a Republican. (laughter)

SENATOR SMITH: I can't imagine the pillow talk. (laughter)

MS. WENZEL: Still happily married; one of the best attended Candidate Nights in Lavallette history. (laughter) And his dad served 18 years on the Lavallette Township Council. So in terms of how local elected officials-- You know, the challenges are new, obviously. Ocean County has grown a great deal. But the soils haven't changed in thousands of years. So this is the Ocean County soil study from 1970. And recently we had the USDA here -- the NRCS, Natural Resources Conservation Service -- who

did a subaqueous soil survey of Barnegat Bay. The last time it was done was in the 1930s. Guess what it proved? The soils haven't changed in thousands of years.

So the only part that is new is the increase in development -- the land use of the property. And you know all this. So Ocean County grew in the last 44 years of Save Barnegat Bay from 180,000 people to nearly 600,000 people.

ASSEMBLYWOMAN SPENCER: Oh, wow.

MS. WENZEL: We need the soil standards. And my really basic message about that is: adopt them. We just submitted -- Ocean County submitted its amendments to the Water Quality Management Plan, which includes an additional 18,000 potential acres of development. Barnegat Bay will not survive that. We need the soil standards and we need them now.

So Assemblywoman Spencer, you asked about what's happening, post-Sandy. There are great tools; there are the brochures you've been given, there are nonprofits doing wonderful things. The expense -- the soil pedometer -- this device right here, the spear, with the little point you put on it -- the thing I love about it: it costs \$200 or less; if you buy it in bulk, you get them at a little bit better price. And so Save Barnegat Bay wanted to buy them for Christmas for the 33 municipalities in Ocean County. Why? It's cheap, we can put a tool in their hands, and they can do the right thing. The problem is, it's not required. So is it going to sit in the corner and gather dust?

Second thing -- and if I could show you really quick without stabbing Tom (laughter) -- on the top -- I'm not a soil scientist -- but on the

top there is green, yellow, and red. Green is good; yellow, maybe not so much; and red is bad. All you need is two hands and a person to push it in the soil. This is not an expensive remedy; in fact, it's cost-effective and will do the job to clean storm water. (demonstrates)

So that's what I wanted to show you with that.

So those are the two items that you -- which we are so grateful that you decided are important for the agenda. So there are things that are important, and things that are current. Currently, we have the largest infrastructure reconstruction project in New Jersey happening on Route 35, and soon to happen on Route 72. There are major problems with the design of this project to Barnegat Bay. In fact, we feel that nine new pollution point sources have been established. The pumps are not working.

On Friday afternoon, we made a post about a problem in Seaside Park on 8th Avenue -- I gave you all a photo of it. Unfortunately, now if something ends up in the storm drain it gets immediately pumped into Barnegat Bay. There are chambers that are supposed to keep the soils, and the contaminants, and other pollution from going into the Bay. But, as you can see by the images I gave you, it's basically not working.

So we're really here today to ask you, as a Joint Committee on the environment, since we did not receive the protections of NEPA -- this was an excluded project, like many post-Hurricane Sandy projects -- to request the DOT and DEP to give us a full disclosure report on this project. We need to know that these nine new point sources are not going to damage the Bay.

SENATOR SMITH: All right, just to double check. Are you referring to this document?

MS. WENZEL: I am.

SENATOR SMITH: Okay. What is the-- You have a picture, and the picture is the Bay, correct?

MS. WENZEL: Yes, this is 8th Avenue.

SENATOR SMITH: And you have what looks like a brown circle in the middle of blue water. What is that?

MS. WENZEL: This is a drone photo of a plume of what we believe is sediment coming out of the newly installed stormwater pumps on the Route 35 project. There are nine of them. Right now, they go from Bay Head down to Seaside Park. This is Seaside Park on Wednesday.

ASSEMBLYMAN WOLFE: Mr. Chairman?

MS. WENZEL: We did happen to do water sampling on Wednesday.

SENATOR SMITH: Yes, sir -- Assemblyman.

ASSEMBLYMAN WOLFE: Could I ask -- I don't want to interrupt her -- but that we see to her request and as a Joint Committee request that study--

SENATOR SMITH: Do a Joint letter?

ASSEMBLYMAN WOLFE: --be done immediately.

ASSEMBLYWOMAN SPENCER: Yes.

ASSEMBLYMAN WOLFE: Not six months from now, or three years from now.

SENATOR SMITH: Chairwoman?

ASSEMBLYWOMAN SPENCER: Yes, definitely.

SENATOR SMITH: We will do a Joint letter from both Committees to the DOT asking for--

ASSEMBLYWOMAN SPENCER: And DEP.

ASSEMBLYMAN WOLFE: And DEP.

SENATOR SMITH: --and DEP, asking for--

MS. WENZEL: A full update and disclosure on the system -- how it's working and the impacts.

SENATOR SMITH: And these are stormwater pumps that we're talking about?

MS. WENZEL: Yes.

ASSEMBLYWOMAN SPENCER: And you say there are nine that are recent--

MS. WENZEL: There are nine of them, and I believe the Route 72 project includes this style of pumps. So we want to make sure that if this is not a good idea, it doesn't continue down to LBI.

SENATOR SMITH: And have you listed in this document the nine pumps?

MS. WENZEL: I have, on the back side.

SENATOR SMITH: Okay.

MS. WENZEL: Each one of the sites, and it's 8th Avenue where this particular problem-- Which this image just is a great way to explain to you, very quickly, the problem.

SENATOR SMITH: Yes.

MS. WENZEL: So it doesn't matter if it's a restaurant dumping mop water, somebody putting oil from their vehicle, too much fertilizer on the wrong day and it rains -- whatever it is. In addition to that, these pumps were supposed to be watertight and only be operating in a storm event like a five-year storm event. Well, if you want, you can take a

ride over here -- it's like the Niagara Falls. They run 24/7. They're clicking on and off, yes; which is, at the end of the day, going to damage the pump itself. But we would contend it's not working correctly at all and, in fact, there's groundwater infiltration happening into the system. We did take grab samples on Wednesday; I don't have the results -- I had hoped to have them for you. We tested for nitrates, phosphorus, fecal coliform, mercury, and lead.

ASSEMBLYMAN EUSTACE: At this site.

MS. WENZEL: At seven of the nine sites we were able to get grab samples. This one is now turned off, which is a good thing.

ASSEMBLYWOMAN SPENCER: Okay.

MS. WENZEL: But locals here, including municipal officials, including your DPW folks; contractors who are on the job who are working to make a check, who are following the specifications -- they're all very concerned. We swim, we play, we fish -- this is where we're at. If you look at this picture and you see the orange fencing -- you go to the left and you see sort of a white spot. That's three blocks from a children's swimming beach. If you were to look to the right, you'd see Seaside Park Yacht Club. This is where people are wading into the water; they're doing upright paddle boarding. It's not a good situation, and it needs to be possibly monitored with transparent reports to the public about how frequently the pumps are operating, what's in that water -- we need to know that.

SENATOR SMITH: Did you say you were taking grab samples?

ASSEMBLYWOMAN SPENCER: Yes.

MS. WENZEL: Yes, we have.

SENATOR SMITH: And what are you finding in the grab samples?

MS. WENZEL: We don't have a report yet. We only did it on Wednesday.

SENATOR SMITH: Okay.

ASSEMBLYWOMAN SPENCER: Will you make sure you forward that information to us?

MS. WENZEL: Absolutely.

ASSEMBLYWOMAN SPENCER: Assemblyman Conaway.

ASSEMBLYMAN CONAWAY: Chairs, what-- These pictures that you've taken -- where are you going to send them? I mean, someone, it seems to me -- some responsible authority in the government probably needs to see them. I mean, we are responsible members of the government, but we don't have administrative authority, however. Who should see this picture, and who, therefore, ought to be tasked to do something about this problem?

MS. WENZEL: So locally--

ASSEMBLYMAN CONAWAY: Because this-- I mean, it seems to me that there is nobody who would look at this and say that this should continue on as it seems to be.

MS. WENZEL: So thank you for that. This picture is actually-- The SPDPW is the Seaside Park Department of Public Works. So locally, local government is very aware of it. Also, the Ocean County Health Department has come out and done some testing, and the DOT and the DEP are both aware of the situation.

ASSEMBLYMAN CONAWAY: So somebody in DOT and DEP has seen this picture, or something like it?

MS. WENZEL: Yes.

ASSEMBLYWOMAN SPENCER: So when we send our letter, it will not be something out of the blue? They are well aware of it, and they should be ready to respond to--

MS. WENZEL: They should be ready; and in addition--

SENATOR THOMPSON: It was covered by Channel 12 several days ago.

ASSEMBLYWOMAN SPENCER: Okay.

ASSEMBLYMAN WOLFE: Good.

MS. WENZEL: In addition to this, some over 200,000 people in the social media spheres are all talking about this.

ASSEMBLYWOMAN SPENCER: Okay.

Assemblyman Wolfe.

ASSEMBLYMAN WOLFE: Yes. We received communication this morning -- my Legislative Office -- that Deputy Commissioner Glass is working conjointly with the DEP and the DOT to investigate this. I mean, so they are apparently already looking at it, but I think our request would certainly give them a little bit more impetus to give us some responses.

MS. WENZEL: I appreciate your leadership on that. And unfortunately, oftentimes the process for us is through OPRA requests and such. And it just becomes-- By the time you find out the information, it's too late. And it's really broader than this particular example. We believe that there are system-wide problems. These devices were put in to comply with Federal standards to get some Federal funds, and that's fine. But we

avoided NEPA in that process, because there was an exclusion. And as the Environment Committees, we really need answers locally. The local officials are struggling as well with all of this.

So thank you for that.

ASSEMBLYWOMAN SPENCER: No, thank you.

ASSEMBLYMAN EUSTACE: Thank you for the info.

ASSEMBLYMAN CONAWAY: Do the local officials have the authority or power to do anything to stop this? Can they take action on their own to deal with this issue? Are they empowered to do so? I haven't served in local government.

MS. WENZEL: I don't believe so.

SENATOR SMITH: That would be the Water Pollution Control Act -- New Jersey State, and maybe even Federal.

MS. WENZEL: A couple of other items; I'm sorry to be so long-winded.

There was a local story I thought I would tell you really quickly. In this little town of Lavallette we had an infiltration problem in our drinking water pipes many years ago. And the local municipality did not call the bond on the project. So later, the taxpayers had to pay for the fix. We were on the hook twice, basically. So I would empower you as legislators, as well, to look at that. If this project is not performing to standards, somebody really should be pulling a switch here.

In terms of legislation, Mr. Eustace -- Assemblyman Eustace has a piece in, A-3354, Integrated Roadside Vegetation Management Program. That's a great companion bill; we're very supportive of that to our local Assemblymen. DOT legislation, which is S-2004 and A-3305, requiring the

Department of Transportation to use native plants -- so I have copies of that -- I did provide testimony to the Senate Environment Committee, and you adopted that. We actually hired a landscape architect to do a review of the Route 35 project. And the bottom line is they used one bayberry plant in one location on this enormous project. (laughter) The lack of the use of native plants -- but plants from Asia -- is just unacceptable. So in addition to soil standards, we need requirements to use native plants; it will also make them more available in the marketplace. I'll pass this around in case you haven't seen it.

And this one is more of a present; you can have it. It's from 1976; it's the local issue of *Hurricane Belle*. You want to look at the photos; it has happened before. Hurricane Sandy is not all that new. It's a piece of history.

And the last thing is, on this coming Friday-- Save Barnegat Bay hosts student grants during the summer period. And we have been doing water quality testing on Barnegat Bay -- particularly in places, for example, on the bayside of Island Beach State Park. In areas that are not considered designated swimming areas, they're not required under the law to have water quality tests.

ASSEMBLYWOMAN SPENCER: Oh.

MS. WENZEL: But you might harvest some shellfish and decide to eat them, or you may be kayaking, paddle boarding -- whatever. Over the years we have found, consistently, problems there -- in particular, in a spot called *Tices Shoal*, which is very popular. And if you were taking your boat there -- as many of you, or some of you, might -- and just jump in

the water with your kids, you might be really not doing the best thing, especially by the time August rolls around.

So on Friday of this week we will be releasing the results of this year's summer water quality testing. And we are following up on Beachwood and Pine Beach, also known as the worst beaches in America, historically, because of the fecal coliform count. There's been a lot of work done there by the county and the townships. But we have some concerning results that we will be releasing on Friday.

And the last thing -- and I don't mean to leave on a downer -- but Island Beach State Park, which is a gem on the Barnegat Bay, owned by the State, operated by the State, does not have a sanitary sewer trunk line.

ASSEMBLYWOMAN SPENCER: Are you serious?

MS. WENZEL: So right now, usually the biggest portion of any contract is mobilization of equipment and manpower. We are redoing Route 35; we should be putting a sanitary sewer trunk line down the straight road, which is Island Beach State Park -- especially because I understand that there's movement on putting a Dunkin' Donuts inside of the bathing beach pavilion. And if you look at our water quality results -- which the students will be releasing on Friday -- there is a direct correlation -- seemingly direct correlation to the pavilion and other places where this is leeching into our water. So as State legislators, I would ask you to take a look at finding the money somewhere to put in a straight run down the Island Beach State Park property so that we can properly treat the sanitary sewer there, and the thousands and thousands of folks who come and pay for their badges can swim safely.

That's really all I have for today. (laughter)

SENATOR SMITH: Thank you; you've given us lots to think about.

ASSEMBLYWOMAN SPENCER: Lots to think about.  
(applause)

ASSEMBLYMAN EUSTACE: Thank you, Britta.

ASSEMBLYWOMAN SPENCER: Okay, next up -- sticking with-- Doug O'Malley and Dave Fox. Doug, has your partner arrived yet -- Mr. Fox?

**D A V I D F O X:** (off mike) Yes, I'm here. But let him speak first.

MR. O'MALLEY: Thank you so much.

Which one? (referring to PA microphones)

SENATOR SMITH: The top one.

ASSEMBLYWOMAN SPENCER: The top one, the big one.

UNIDENTIFIED MEMBER OF COMMITTEE: Have you been following the program? (laughter)

MR. O'MALLEY: The top one? I'm so used to Trenton. You know, where's the red light? (laughter)

All right. Thank you so much, Mr. Chairman and Madam Chairwoman, and all the members of the Assembly and Senate Environment Committees. My name is Doug O'Malley; I'm the Director of Environment New Jersey. We represent more than 20,000 dues-paying citizen members across the state.

And I wanted to start off by saying that I think it's an open question of debate about what's going to happen for New Jersey: the soil standards or offshore wind. So we'll see which one wins.

I'm here today to focus specifically on Forsythe Wildlife Refuge, and, more broadly and globally, on the impacts to Forsythe and the impacts of the DEP's Coastal Development regulations. And then specifically to hear testimony from Dave Fox regarding a direct consequence for Forsythe of these DEP coastal regs that affect not only the Refuge, but also residents immediately next to it.

So it's a lot to cover; I'll try to be concise.

I wanted to start off by focusing on perhaps what's the biggest challenge for the Refuge post-Sandy. And that's not only the clean up of Forsythe, but the reality that we need to address what caused Hurricane Sandy; and the impacts the climate change and carbon emissions have in accelerating the role of extreme weather here in this state and in all parts of this country. And I think it's incredibly important to know that the Obama Administration and the Department of the Interior have taken on climate -- not only adaptation, but mitigation -- as a core principal of the Federal government. And no more do we see that than last Monday with the release of the EPA's Clean Power Plan, which actually strengthens carbon reductions from our power plants to 32 percent by 2030 for all power plants across this country -- which, of course, is good news for New Jersey which has made a ton of progress on this.

Now, of course, New Jersey is not taking action on climate. And I think it's important to remind ourselves the impacts that not only the Refuge will face, but also the back bays; and the importance of the Refuge as a massive sink for stormwater and to prevent storm surges. Wetlands are our best protection against a future Sandy and against a future storm surge. However, Rutgers -- through the academic research of Ben Horton and Bob

Kopp -- estimates that we'll see a foot-and-a-half level of sea level rise over the course of the next 35 years. That's not during a storm surge; obviously, it will be much higher during a storm surge. And this obviously not only will impact the Refuge itself, but the communities that adjoin the Refuge.

I'm not going to go on talking about the ways we can solve climate and our massive concerns with the Christie Administration. I do want to focus on our massive concerns with the coastal regulations which were adopted last month in a very, kind of, low-key manner by DEP. And I want to thank the Senate Environment Committee for taking up this issue one year ago at a hearing in Trenton. And as well the Committee should have, because there are more than 20,000 citizen members who commented; more than 19,000 members of the public who Environment New Jersey talked to over the course of the last year before the rules were solidified.

And the overlying message from New Jersey residents was that we should not -- one, we shouldn't (*sic*) be acknowledging climate change when we're thinking about coast development; two, we should not be building even more in the same places that got affected by Sandy; and three, we should not be doubling down in growth centers in places like the Delaware Bay Shore and, more accurately, here, that adjoin and are close to the Refuge -- growth centers like Eagleswood, like Tuckerton, and like Mystic Island, which, in my mind, could become a future Atlantis for New Jersey if we do not take action in the future.

And there are kind of multiple concerns which I've kind of alluded to. I want to focus on a very specific concern, and this is our-- Our overall concern here is that DEP is not looking at the science; it's not

looking at the facts on the ground; it's not listening to residents. And we see that, perhaps, most notably with the inclusion in the Coast Development regs -- a provision that essentially eliminates the 10-year window on CDFs. Now, CDFs -- it's a fancy word for *garbage dump*; it's a Confined Disposal Facility. And the reason why that is in there -- and I'm going to assume that this is no coincidence -- is that DEP is working to gain permits for a massive facility stretching up to 22 acres -- more than 200,000 cubic yards of toxic dredge spoils -- that will be placed immediately adjoining the Refuge, Barnegat Bay, and a residential neighborhood in Eagleswood. And I'm here because -- really, in some ways, as a kind of *before the grace of God go I*. If the residents of Eagleswood, if organizations like ours -- New Jersey Conservation Foundation, as well as the support of the Eastern Environmental Law Clinic (*sic*), and the support of Save Barnegat Bay -- had not brought legal action, we would have seen that massive storm surge we faced in Sandy impact this construction in the fall of 2012. Those neighbors -- and we'll hear from Dave in a little bit -- would have been buried in an avalanche of mud and toxic dredge spoils. That's obviously a disaster that we don't want to see happening. And even if there wasn't a residential neighborhood, the fact of the location next to the Refuge and the Barnegat Bay really is a true head scratcher.

But let me go back to the coastal regs, because in the current-- Well, excuse me. Before the rules were adopted, there was a 10-year provision that prevented open-air dumps -- Confined Disposal Facilities from being constructed if they did not -- previously were used as a location as a CDF. Now, in the rules that were adopted, that provision was gotten rid of. And it is my assumption that that was directly targeted at this

facility in Eagleswood because, in 1983, for one year, there was a limited permit that was used at this property to put dredge spoils on that property. That was more than 30 years ago, and experience of neighbors at the time indicate that was an awful idea. There was much less of an impact than what's being proposed. What is currently being proposed, and what DEP wants to build, is not just a facility to dump dredge spoils from the Westecunk Creek, but a facility that will be used as a repository for the whole state -- essentially, a massive industrial zone right next to the Refuge, and right next to Barnegat Bay and residential neighbors.

Now, just because DEP has whisked away with their wand the 10-year requirement does not mean that this facility should go forward; it still violates the Coastal Zone Management Act, which says a Confined Disposal Facility should not be placed next to a residential neighborhood. As you'll hear shortly, there are residential neighbors who live literally across the street from this facility -- who would have a wall up to 12 feet tall; again, close to -- more than 20 acres and up to and exceeding 200,000 cubic yards of toxic dredge spoils.

This is clearly a travesty, and when we're thinking about how to protect Forsythe, we need to be thinking about how to ensure that we're protecting the Refuge and the communities that adjoin it. We obviously are optimistic about our legal challenge and thankful that so many organizations have joined us; and also thankful for the legal work of Bill Potter, who could not join us here today.

I just want to kind of wrap up my testimony by thanking members of the Committee for their advocacy on these Coastal Development regulations. And, as a reminder, that even small changes in

DEP regulations have real world impacts for our residents. And hopefully, we'll be successful in beating back this attempt to use a loophole in the Coastal Development regs to place a massive garbage dump right next to the Bay, the Refuge, and residents.

Thank you.

ASSEMBLYWOMAN SPENCER: Thank you.

Assemblyman Conaway.

ASSEMBLYMAN CONAWAY: What is the rationale for the dredging?

MR. O'MALLEY: The rationale for the dredging -- that's a great question, Assemblyman. The rationale for the dredging is relatively simple. It takes time to get out of the Westecunk Creek. You have to be careful; you have to follow buoys. You can't get out as fast as you want. And I'm sure if we had residents and municipal officials from Eagleswood you'd hear that there's a desperate desire to dredge the Westecunk. I'm not necessarily going to weigh in on whether the Westecunk should be dredged or not; I do want to cite that clearly the facility that's been chosen by DEP, and the site that's been chosen by DEP, is not appropriate.

ASSEMBLYWOMAN SPENCER: Okay, thank you.

Mr. Fox -- Dave Fox, come on up.

Welcome.

MR. FOX: Thank you. How's everybody doing? I hope okay.

Here we go. I'm not good at this, but I'll give it my all.

I'm a neighbor who lives 35 feet away from where they want to do this dredge spoil site in Eagleswood. It took me eight years to build my home. They used this site in 1983 with a one-year lease. The property is

vacant; it was vacant for 20-some years when I bought my piece of property, and there were two condemned homes. I wanted to rebuild them, and I wanted to build one so I could sell it for my retirement.

Well, I go to do this and, eight years later, I get done building my house. And in the meantime, the DEP and the DOT bought this piece of land because they saw, "Oh, it's an old dredge spoil site. We can use it again."

So they want to pump the mud from Eagleswood, from Little Egg, probably the Intercoastal Waterway -- they say anything within 4 miles. Well, I know a little bit about dredging. It doesn't stop at 4 miles. They can do 8 and 10, 12 miles with booster pumps and everything. They've already done it down there.

And I tried to sell my home; I have to disclose that they might have this 12-foot berm, 30 feet out my front door, and fill it full of mud. And, I don't know; the mud that they pump out -- it's not just mud. It's all the vegetation, all, like, mussels and clams and everything that are in the bottom of the Bay. This land would smell like a seafood dumpster on a hot day, 30 feet out of my front door. And it shouldn't be happening because, under the 10-year law, this was abandoned. Under the law of abandonment -- which is *Vitule* (phonetic spelling) *versus* some township; I can't remember it offhand -- after 15 years, the use is supposed to be abandoned. And that time frame was set forth by the Supreme Court of the State of New Jersey.

Well, anyway, what happens is, they want to do this. Now, I can't sell my property and move ahead or anything. But right across the creek in Forsythe Wildlife Refuge they had -- Ocean County Mosquito Commission did a project where they reditched the mosquito ditches and

blew the mud up on the banks; Rutgers oversaw it and everything; they staked it out to do it. And I'm a duck hunter and stuff; I'm on the Bay a lot. I was like, "Man, they started pumping mud on the meadows." I'm like, "Man, they just trashed this. This isn't ever coming back."

Within a year, you can't tell they were there. And it's so healthy looking and everything, and it raised the meadow. Right in front of this area there's a little sedge island. When we have a full moon tide like now, that island is underneath the water. But Forsythe, where they put the mud -- just a thin layer on top -- you can't even tell they were there.

So they have these plans for these CDFs and stuff -- which are big berms pushed up 12 feet. They're not -- they don't fit the environment, they just look hideous and unsightly -- where they could use the dredge spoils to rebuild the meadows, rebolster Forsythe, spray a thin foam over the meadows and stuff. The CDF that they want to do -- they were talking about pumping it in, letting it settle out, truck it out. Well, now you're using fossil fuel for every step of that, machinery and stuff; where, if they'd pump it on the meadows, they do it one time only, it bolsters the meadows, raises the meadows.

Down on the southern part of the Bay we're missing islands that have eroded out of the Bay. Within a mile of where they want to put this CDF, there was an island; it was called *Thoroughfare Island*. It used to be 14 acres with a channel marker on it and everything. Sandy finished it off. There's nothing there anymore; it's gone. We should take the dredge spoils and rebuild these islands that are missing out of the Bay, which now creates environment. Surround them with riprap because, what I notice when I'm on the Bay, the bay fronts are covered with blankets of mussels that

reinforce the bank to keep them from caving in and stuff. But from boating action and wave action, they cave in and now the mussel colonies are gone to help fortify these banks. And they don't have enough time to reestablish until they fall in again. If we could reestablish these shorelines using riprap and permanent stuff -- riprap absorbs the boat wakes, the energy from them, rather than having backwash. Geotubes create a backwash. Where the riprap is there permanently, it would get covered with mussels and barnacles -- all kinds of sea life, which would now then create bait fish, which would make habitat for fish. They could use the islands that they're pumping back in for habitat again. You just get a map from 80 years ago and look at the Bay, to what it is now, and see what's missing and stuff. And where they have severe erosion along the banks, where the banks are missing, do riprap. Recreate the banks, bring it back for shore protection, move out what is-- In Tuckerton, there's a big area where they have severe erosion at the end of Green Street. Bring that area-- Fill it back in with dredge spoils and surround it with riprap, and recreate environment and habitat. That would be sustaining it. And if you use a riprap now, there's no maintenance once it's done.

Off Beach Haven, they want to raise Mordecai Island. That used to be 67 acres; it's down to 41. Bolster it with riprap where they have severe erosion and pump it back to what it used to be. Create wetlands out on the Bay and stuff.

ASSEMBLYWOMAN SPENCER: Mr. Fox.

MR. FOX: Yes.

ASSEMBLYWOMAN SPENCER: The dredging materials-- Most dredging-- I don't know it to be accurate or not, but sometimes the

dredging material -- isn't it contaminated? We wouldn't want to put the contaminated--

MR. FOX: You wouldn't want to, but they test it.

ASSEMBLYWOMAN SPENCER: Okay.

MR. FOX: They test the mud, they test the silt and everything. And they could put it there. You know, another thing -- it's like, what do you do with the contaminated silt? You don't really want to put it anywhere or stuff--

ASSEMBLYWOMAN SPENCER: Right

MR. FOX: But another thing: Off Harvey Cedars, there used to be two dredge holes down there. In 1963 when the island was cut in half, they were like 60 feet deep. Because back then, they just came in with a dredge and pumped the island back together. Well, the bottoms of those holes were a dead zone. They filled with seaweed and it decayed. It made nothing but a dead zone down there. They pumped from Barnegat Inlet up to Harvey Cedars and filled those back in. I don't know if it has anything to do with it, but offshore we're digging big ditches to replenish the beach. Why don't we pump dredge spoils back to fill those holes in so we don't create dead zones in the ocean like we did in the Bay years ago before we knew what happened?

You know, there are other solutions besides these CDFs. Just bolster the wetlands and stuff with it, because it works. Between Cedar Run and Westcunk Creek the Mosquito Commission pumped that in, and it's a beautiful job with the meadows. They're vibrant, they're higher, they're raised. And it didn't make an unsightly mess with dredge spoils -- with these 10-, 12-foot berms. If you go down to Tuckerton there's an

island called Story Island that they used for years and years for dredge spoils. If you're going across the bridge to Long Beach Island -- that island is eight miles away -- you could see it sticking out like a sore thumb because it's just like a pimple hanging out there; it doesn't fit. And it has to be made to fit the environment. And if they just cover it and recreate these islands and stuff, rather than making these nasty, unsightly dredge spoil sites--

ASSEMBLYWOMAN SPENCER: And certainly, I mean the testimony that you're providing indicates -- or suggests that we haven't learned from our past.

MR. FOX: No, we haven't.

ASSEMBLYWOMAN SPENCER: And the idea is to move forward and build upon the knowledge that we attained from the mistakes that we've made in our past. And I'm sure -- I can speak for myself, of course, that I didn't know all of this. And I have seen the island that you speak of when you look out and you see-- It does look out-of-place. And other than taking the information that you've provided, and creating an opportunity in our Committees to hear more testimony in order to get answers that would suggest and direct people to look to the past and not make the same mistakes, I'm not sure where else we go with this. But having individuals like yourself remain vigilant will fortify us in our efforts in making sure that things are done more correctly, going forward.

MR. FOX: The more habitat along the bank -- like where the banks cave in and the mussels get covered -- that's a filter feeder. We need filter feeders to clean the Bay. So if we could create-- Like where there's heavy boat wake erosion -- cover it with stone and then it will get-- Or

where people fish; they fish near stone and structure. It would create habitat for that. It's so useful, but yet, you know, if they do the site that they want in Westecunk Creek, it uses so much fossil fuel. They have to pump it in with fossil fuel; then if they dig it out, that's fossil fuel. Then they truck it up the road, and the road is an old road that's built on mud, with a sewer line underneath. If the sewer line breaks from settlement and stuff, that could be another nightmare.

ASSEMBLYWOMAN SPENCER: Right.

MR. FOX: And you know, not only the trucking; once they get it out, they were talking about mixing it with sewage sludge to make it into topsoil. So there's more fossil fuel used. And then when they're done mixing it, they have to load it back into the truck again, haul it again, dump it somewhere, spread it again -- fossil fuel, fossil fuel. I mean, if you can move it one time, it saves a lot of fossil fuel and everything else, right on down the road, which is--

ASSEMBLYWOMAN SPENCER: Do it once, do it right.

MR. FOX: Yes, that would be a very nice thing; it would be great to see that. (laughter)

That's it; thank you very much.

ASSEMBLYWOMAN SPENCER: No, thank you.

MR. FOX: You all have a good afternoon.

ASSEMBLYWOMAN SPENCER: You too; thank you.

MR. FOX: You're welcome.

ASSEMBLYWOMAN SPENCER: Next up, Dr. Michael Kennish, Rutgers University.

M I C H A E L J. K E N N I S H, Ph. D.: Chairman Smith, Chairwoman Spencer, other members of the Committee, thank you for giving me the opportunity to make some comments this morning.

I've listened intently at what's been spoken about -- what the other people in the audience this morning said. And it actually comes as no surprise to me at all. I've been involved with studies of Barnegat Bay, researching the system, since 1973. I've watched the degradation go on for many years. And it's one of the situations where, if you start off with 100,000 people, or thereabouts, in 1960 and you're driving that up to close to 600,000 people, as someone mentioned -- it's actually 586,000 people today, around that -- that's the index that you really need to go by. A simple index; it shouldn't be surprising to anybody the condition of Barnegat Bay when you deliver that many people in a 760,000-square kilometer watershed.

It's a coastal lagoon; it's not deep. It's not like Chesapeake Bay. The flow is minimized by the barrier systems we have.

I want to get into the salt marsh situation, but it's all tied together because, quite frankly, it's an ecosystem -- multiple habitats affected by the same thing. And as Jeff Tittel mentioned -- and I think Jeff is right on the money this morning -- the issue is more than just soil restoration. And going forward, the system can't handle what's happened already. And going forward, it's not going to solve this problem. I agree, you have to do those things; but I think you will see that it will not solve the problem. The system is way overdeveloped for this water body. It's a small water body with a water depth average of about 4 feet. And you really have to resolve the dilemma; you have to go to the source of the

problem. You can't go into the Bay and seed the Bay with oysters, with the expectation that this is going to solve your water quality problems, when you continue to grow -- and continue to grow like they're growing. There is really no attempt, in my view, to remediate that -- to address the issue of development and how you're developing, and also population growth. Unless someone gets a handle on these things -- these two things, in particular -- it's not going to recover.

We're working on symptoms instead of really at the source of the problem -- and that's really the source of the problem. You're going to have to not just go out and do soil restoration into the future. You have to go back; you have to take a hold of those areas where the impervious cover is extreme. And we're talking about a system now that has over 10 percent (*sic*) impervious cover. We know a scientist who-- That's where you begin to go over the tipping point for water bodies.

And we're now in a situation where we went from 19 percent development in the early 1970s to close to 35 percent. And it doesn't appear to me that there is any attempt to curb that.

So we have an issue of how to deal with this. People in this room are all, I think, on the same page about trying to deal with what ever way we can to remediate the effect. But someone has to go to the source of the problems, as I mentioned, and try to figure a way. Extending out sewer lines and so on indicates to me that there is really no vision that there is going to be a change in what's going on in the watershed.

And so the expectation is we have problems. Now, I just wanted to get to-- Look, there is nobody in the world that knows the science of Barnegat Bay better than me. I'll let you know that; I've worked

on this system for over four decades; I mean, really, even to the small bits and pieces of it. But I just want to mention that it's tough to see the condition that it has gone to.

I just want to mention, regarding the salt marsh systems -- which I have gotten into now in the watershed area as protection against coastal communities -- we're talking about a situation in the watershed where the salt marshes are creating at a rate of about somewhere between 0.2 and 0.3 centimeters a year. Sea level rise is occurring just at the lower margin of that right now. At the rate we're going -- which my colleague at Rutgers, Ben Horton, has indicated, and he's correct; I think Doug O'Malley mentioned it earlier -- of a range it could be 17 inches to 29 inches by the year 2050 -- an average, let's say, of 22 inches -- in my speaking with Ben Horton.

SENATOR SMITH: You're talking about sea level rise, Doc?

DR. KENNISH: Sea level rise, along with-- You can't also eliminate the subsidence of the coast. That has to be factored in; that's another 6 inches. So you're looking at the total -- it's called *relative sea level rise* -- of just under 2 feet when you look at that at an average by 2050; which is much greater than had been anticipated earlier by other models and so on. But this is what the expectation is for New Jersey.

And the accretion rate is going to be very difficult for that to keep pace. And the reason for that is, our effluent systems are sediment-deprived in New Jersey. And that's a major factor -- that when the sediments come in through the streams and rivers, they're sediment-deprived; and the tidal marshes require mineral deposition onto the surface of the marsh. In order for it to keep pace with sea level rise, you have to

have the tidal flow going into the salt marsh carrying sediment that it then deposits on a platform in the salt marsh. That, along with peat formation -- the organic formation that occurs in a salt marsh itself -- you need those two factors. Without the sediment coming in -- which is occurring again in New Jersey. Barnegat Bay is sediment-starved; we have terraces basically that are ancient, kind of, on the eastern side. I don't want to get into the science about this; it gets complex. But in all honesty, we have a situation where, in the future -- I want to mention this because our coastal communities-- I have a problem with just the natural communities, as you know. But I'm talking about, now, the protection of our people, which is really a serious situation in the long term because-- What I mean is, the subsistence is occurring off New Jersey. We have a bunch of factors going on in New Jersey that are working against us, basically. We have a Coastal Zone which is subsiding; we have sea level rising at an increasing rate, which is not going to stop despite what the deniers say. And the problem of keeping sediment built up on the marshes -- that's where we're-- We're studying this now in Tuckerton as part of the Jacques Cousteau Reserve, which I'm involved in as well.

And so, you know, we're dealing with a situation where sea level is going to overtake the sediment buildup, basically, and it's not going to be able to accrete. In studies that we're seeing now -- including Drexel, and Rutgers, and others -- it's really close to the point where they're about almost equal, those two factors. And in the future, I would say within the next 20 years, sea level rise is going to overtake that situation in terms of the accretion rate. And then it's going to be in trouble, over the course of time -- it's not going to happen overnight, but you see edge effects, which

are a loss of the margin of the salt marsh, at first. And we see that in Tuckerton at the Rutgers Field Station, for example. We've been losing about 1.5 meters of shoreline along that shoreline, the southern margin, which faces Little Egg Inlet. And 1.5 meters of shoreline was lost a year between 1995 and 2010 -- we're looking at that.

So we're looking at a lot of-- You know, when you have a lot of coastal storms -- nor'easters coming in, and the erosion of that. But then you have the tidal flow and the rising sea level that's going to, during storms, have a higher platform, essentially, to cause impact to the coastal communities once the salt marshes are inundated. And by the way, salt marshes are very dynamic systems. You take people -- you could take people out from behind them-- I'm talking about if we did not have communities behind our salt marshes, the salt marshes would actually be able to move inland. They have the ability to do that. But in New Jersey, we have 30 percent of the communities are blocking with roadways and so on. So the salt marshes are going to undergo what's called *coastal squeeze*. They are not going to be able to move. And with sea level rise, you can understand they're blocked from moving inland toward, say, Trenton -- that direction. And you're going to overflow them, and then you're not going to have any buffer at all to protect the communities.

And so we're saying, "Well, why is that our fault?" Well, you build dams, and you're ditching, and you're building dams and levees, and so on. We ditched the-- A salt marsh we're studying, the areas which were ditched heavily -- they now put mounds around and levees around these canals that they have built in the salt marsh areas, especially in the northern part of the Tuckerton peninsula. And that prevents the tide from actually

flooding the surface of the salt marsh during a normal tidal flow. It has to rise higher than normal to get over the mound. And so it can't dump sediment into the surface of the marsh, and so it becomes, essentially, not able to build that layer of sediment, as I mentioned.

Now, there's been some mention today about the building of -- our using thin layer deposition. And that's very -- I think a very valuable prospect of using thin layer deposition -- dredge spoils, or whatever -- to layer regularly a layer and intervene in a positive way to allow the salt marsh to accrete. And so that is being looked at and used, at least experimentally.

The living shorelines, as was mentioned as well -- using biologs, or oyster shells, or whatever rolled up along the shoreline that prevents erosion. It's helpful in some areas, but can also prevent the water from going on top of the salt marsh. So there's positive and negatives with living shorelines that have to be investigated.

SENATOR SMITH: Doc, what's your opinion of the status of the restoration of the Forsythe Refuge?

DR. KENNISH: From the standpoint of the Forsythe Refuge, I have nothing but positive comments about the Refuge personnel. We work with them outstandingly. I have negative things to say about the removal of debris and so on. My feeling about the Forsythe salt marshes and wetlands is just what I just mentioned. I think that New Jersey--

SENATOR SMITH: They're in danger.

DR. KENNISH: New Jersey has a situation where we're right about on the cusp of a problem that's going to be developing with sea level rise. It's just we're so flat and low, near sea level, and if you don't have

these dynamics going on where there's build up and growth of the organic peat in the system, as well as sediment on top, you're going to gradually lose the salt marshes. It's not something that's going to probably affect us in our lifetime, in a sense. I mean, it's going to take quite a while for these things to go. But you're going to see it; it's going to impact our communities.

SENATOR SMITH: Right.

DR. KENNISH: And if you don't start on something now, you're going to have a situation like Barnegat Bay. Somebody should have stepped in at Barnegat Bay many years ago. And now you have an incredible problem with that system. And it's going to be so expensive to turn it around.

SENATOR SMITH: You know, we're going to be back next year. And I think one of the things that would be very helpful would be if you have it in your research during the coming year -- if somebody can tell us how the Bay is doing, health-wise. I have some guess on that, but it would be great if we could hear from the scientists.

DR. KENNISH: Well, I mean, look--

SENATOR SMITH: I know you're not finished on what you're doing on that.

DR. KENNISH: No, I'm not finished. In fact, I just finished a three-year study; it was interesting. We did a very intense research on tracking the fertilizer input. This is not even known; we just completed it with Sea Grant. I was a principal investigator on it. And we tracked the input of fertilizer inputs. We were able to do that by using stable nitrogen isotope tracking, which identifies specifically to fertilizer, for the nitrogen

coming in. We studied that for three years. And we just finished it, completed, which we submitted a report.

SENATOR SMITH: What did you find?

DR. KENNISH: It should be on the website of the Sea Grant in New Jersey.

SENATOR SMITH: What did you find?

DR. KENNISH: Well, in fact, what we found is that we had not seen an improvement in the sea grass. In fact, the sea grasses -- it still continues to be at its lowest level ever for that period of time. But we had a problem, whether we'd be able to tease-- When it occurred the first year, it continued to be very poor in 2012. But then Sandy occurred at the end of 2012. So we're not able to say emphatically whether some of the loss is due to the storm, and some due to the ongoing nitrogen problem.

And I want to mention one thing which is really important. When I studied this situation for 10 years -- I worked on this for 10 years, this eutrophication problem -- as you know; and I mean, we really studied. And it was not just the problem of soil standards; we recommended a nitrogen standard. And there was a tremendous pushback on me, you know. And I'm talking about a TMDL -- a Total Max Daily Load, which we recommended. And they took our reports and put it through the partners -- I'm talking about the regulatory agencies involved. And they put it through intense peer review. And the peer reviewers basically agreed with our results. And they recommended, you know, to back us up for a TMDL -- to do the recommendations of the management level about what needed to be done to fix Barnegat Bay.

Nothing has ever come out of that, so far. I haven't seen anything from the outcome of that report from the regulators -- I'm talking about the DEP and--

SENATOR SMITH: You do know we passed a TMDL bill -- both houses. It was vetoed.

DR. KENNISH: Right.

SENATOR SMITH: Okay.

Any questions for the good Doctor, probably one of the most knowledgeable scientists about the Barnegat Bay?

ASSEMBLYMAN EUSTACE: Thank you very much for your testimony.

SENATOR SMITH: Doc, we do appreciate it.

ASSEMBLYWOMAN SPENCER: Thank you.

SENATOR SMITH: Margot Walsh, Jersey Shore Partnership. And Margot is our second-to-last witness. Gail Coleman will be next.

**M A R G O T W A L S H:** I know it's lunch hour; I'm not going to take your time.

But I think, referring to what you said this morning, Senator, that the Jersey Shore is a very special place -- and as a coastal state, we are conflicted with many, many problems. And I think we've heard a great deal today -- both Jeff Tittel and the Doctor just said everything is linked here in this state. We link the Shore, the beaches, our estuaries, the Bay -- Barnegat Bay -- our rivers. It's all interconnected and presents us with some awesome challenges.

The Jersey Shore Partnership has a special mission, and its focus is as an advocate to ensure that there is funding on the Federal and the State level for beach protection and preservation.

It all starts with beaches. When we have a storm -- mentioned here today, very much so, by the Doctor -- we're facing the reality of sea level rise. With that, we know post-Sandy we're facing many more Sandy-like storms. There's no such thing as the 100-year storm anymore.

So all this brings us to our coast. The coast storm surges we know now impact Barnegat Bay. They impact all the inlets that we have all along our 127-mile coast. So we're faced with tremendous issues that have to be treated, as Jeff Tittel says, holistically.

It's a huge challenge of the State. It requires funding, it requires interagency approaches, and our one effort right now is to get additional funding from the State to take care of our beaches, going forward.

So we have a bill in the Senate, 2775, and a bill in the Assembly, 4215, that we hope they will bring before the Committee for consideration, hearing, and pass before the end of the legislative year. That will be a start-up to ensuring that at least our coast is protected over the coming years -- to pay for the expenses of accelerated costs, more complexity on our coastline, and the outlying bays that are affected by it; and protect people and property going into the future.

Thank you.

SENATOR SMITH: Thank you.

ASSEMBLYWOMAN SPENCER: Thank you.

Last up, Gail Coleman, Councilwoman, Seaside Park.

**MAYOR ROBERT W. MATTHIES:** (off mike) May I ask a question of the Chair? Robert Matthies, Mayor of Seaside Park. And Councilwoman Coleman will be coming up.

Was this the open mike part?

**SENATOR SMITH:** Well, it can be. Why don't the two of you come up?

**ASSEMBLYWOMAN SPENCER:** Come up together, certainly. Or was there something--

**COUNCILWOMAN GAIL COLEMAN:** (off mike) That's fine.

**MAYOR MATTHIES:** No, that would be great.

**COUNCILWOMAN COLEMAN:** Come up, Mayor.

**MAYOR MATTHIES:** That would be great, because we're here with a number of our neighbors also. And I think what's most important is that you understand from us the effect of, I think, the culmination of what's been happening in Seaside Park from last week's bloom that you saw the illustration of.

So I'm going to let the Councilwoman begin.

**ASSEMBLYMAN WOLFE:** Ma'am, you have to speak into that mike there. (referring to PA microphone)

**COUNCILWOMAN COLEMAN:** Okay, we can share.

Good evening -- good afternoon, and thank you for allowing me to speak.

I came here -- I had found out about this meeting from one of my constituents this morning. And we wanted to discuss the whole Route 35 project and how it came about. There is some agreement -- or

disagreement -- whether we really needed the whole project to be done, ripped up the road, and the infrastructure. But however, the issue is, is that plume and ongoing issues at the other pump stations throughout Seaside Park, and including our neighboring town, Berkeley Township -- which we do -- I get to see every day.

This project was not clearly -- I don't believe was thought out correctly. We now are in a situation with that plume, and L Street floods constantly. There's a stench along the Route 35 project where I live on Central Avenue. I own and operate a business as well, where I can smell the water going through the catch basin that was installed underneath. And it's a stench that is nauseating -- nauseating. And that's not even in the heat of the summer. So this whole thing right here with this plume is just the beginning of what I believe to be a major crisis that will be happening in the future with this pump-out -- the pump-out station.

I heard that they shut off 8th Avenue. This was supposed to be a design that was not supposed to be flawed, and that it was supposed to help us through major storms, like a 5-year storm or a 10-year storm. With this, with this happening -- this plume coming-- We haven't had rain in the last -- what would you say, Mayor -- 10 days, 12 days?

MAYOR MATTHIES: Easily.

COUNCILWOMAN COLEMAN: No rain, so this is water that has been infiltrating this pump area. And that's why it's pumping out into the Bay. That plume right there. (gestures)

That is very, very serious -- that amount, that wide berth from that little pump-out station.

I've also requested from the State of New Jersey that we have backup generators because -- in case we do have another superstorm. We've yet to hear back; we've written letters, we've asked for correspondence with the Brick Municipal Utilities Authority who is suppose to be maintaining and taking care of these things. And we have yet to receive any correspondence for that as well.

ASSEMBLYWOMAN SPENCER: So these -- I'm sorry to cut you off.

COUNCILWOMAN COLEMAN: Go ahead, that's fine.

ASSEMBLYWOMAN SPENCER: So these pumps do not have backup generators to operate in case-- All right.

COUNCILWOMAN COLEMAN: The power failure.

COUNCILWOMAN COLEMAN: All right.

COUNCILWOMAN COLEMAN: They were supposed to; but our town -- Seaside Park has three alone, out of the nine that were installed total on the entire barrier island.

ASSEMBLYWOMAN SPENCER: So basically, if the pumps fail because of power, all of the sewage water and everything else backs up? Got it.

COUNCILWOMAN COLEMAN: It's a moot point.

ASSEMBLYWOMAN SPENCER: All right.

COUNCILWOMAN COLEMAN: And then also, the rumor is that the State is planning on coming to, again, rip up the entire Route 35 to reconfigure, or possibly seal the pipes that lead to these pump-out stations. Is this correct?

ASSEMBLYWOMAN SPENCER: According to Ms. Wenzel -- her testimony suggested that there are some pipes that are -- there's some work being done with regards to-- We can make the inquiry and find out, because the point she raised was dealing with Island State Park (*sic*) and the sanitation line, correct?

COUNCILWOMAN COLEMAN: Yes.

ASSEMBLYWOMAN SPENCER: All right -- Island Beach, I'm sorry. Okay.

COUNCILWOMAN COLEMAN: Yes, but that's-- But I'm talking about the entire road of 35.

SENATOR SMITH: Yes, do you know what you need? You need a face-to-face meeting with the Commissioner of the Department of Transportation.

COUNCILWOMAN COLEMAN: We would love it.

SENATOR SMITH: All right. Well, the-- Is it Senator Connors who is the Senator here?

COUNCILWOMAN COLEMAN: Yes.

SENATOR SMITH: All right. I think that local Senator should request that face-to-face meeting.

ASSEMBLYWOMAN SPENCER: Right.

SENATOR SMITH: And if our help is needed, we're happy to request it as well.

COUNCILWOMAN COLEMAN: Thank you.

SENATOR SMITH: You know, you shouldn't -- it shouldn't be a guess, and it shouldn't be a rumor. You should know what the heck is going on.

ASSEMBLYWOMAN SPENCER: And contact Assemblywoman Gove, and I forget the other Assemblywoman (*sic*) down here.

COUNCILWOMAN COLEMAN: Rumpf.

ASSEMBLYWOMAN SPENCER: Rumpf.

COUNCILWOMAN COLEMAN: I'm very well familiar with the--

ASSEMBLYWOMAN SPENCER: And Assemblyman Wolfe is right here as well.

COUNCILWOMAN COLEMAN: And I know Mr. Wolfe very well too, I might add. (laughter)

SENATOR SMITH: You need a face-to-face.

COUNCILWOMAN COLEMAN: Absolutely.

And my Mayor will speak now on behalf--

MAYOR MATTHIES: Certainly Councilwoman Coleman has well described the situation here. And from her perspective, as a long-time resident, a protector of the Bay, a small business owner -- she has the pulse of what is going on here.

Let me go back to what your question was for a minute -- or your statement about a meeting. And it was just interesting that you said that.

On Friday you probably read the essay that Willie deCamp wrote and was published in the *Asbury Park Press*. I don't know if you have that copy or not.

SENATOR SMITH: I think we might have it in the package.

ASSEMBLYMAN WOLFE: It's in there, yes.

MAYOR MATTHIES: It's titled *Route 35 drainage a debacle*.

ASSEMBLYMAN WOLFE: Right.

MAYOR MATTHIES: All right? By noontime, I had this letter faxed off to Commissioner Fox. And it says, "I am enclosing an essay pertaining to the Route 35 project which was published in today's *Asbury Park Press*. The writer's topic is a fire pin in our Borough. In my most recent letter to you I requested, on behalf of our Council, that you travel to Seaside Park and personally inspect the three pump stations so that you may have a basis for further discussion about their design, construction, operation, and unintended post-operation effect on the surrounding area."

Prior to that was another letter to the Commissioner about a month earlier. And in that letter -- hold on -- in that letter it said -- hold on, hold on; I have too many darn pieces here.

COUNCILWOMAN COLEMAN: No, that's fine  
May I comment while you're looking?

MAYOR MATTHIES: By all means.

COUNCILWOMAN COLEMAN: And also, the State promised us that they would put back the Bay front into a natural looking state. I invite anyone of you to come down to Seaside Park and come and look at the three areas at the pump-out stations -- where they are located, there are big black boxes sticking out of the Bay front; there's-- Much to my balking, they didn't even have it boomed -- which is a protected barrier when the stuff falls out of the outfall. It wasn't even installed correctly. And I know how it's supposed to be installed, because my husband builds -- does marine construction -- big marine construction up in the Newark area, by the way. So they finally fixed that.

But it's like the contractor picked up and left, and the Bay is left like a bomb went off. I'm sorry, sir.

SENATOR SMITH: It sounds like you have very legitimate concerns.

COUNCILWOMAN COLEMAN: I mean, it was horrible what they did. They came in, they took rare plants that we can never get back again.

MAYOR MATTHIES: The letter, which is important and segues into this -- this was written about a month earlier. It says, "Dear Commissioner Fox, There continues to exist a number -- (cell phone rings) -- excuse me. This is almost embarrassing. (laughter) "There continues to exist a number of dangerous conditions involving the construction and operation of the three pump stations -- L Street, Island Avenue, and 8th Avenue -- located in our Borough. During the last three storms, which were sizable and extensive in the amount of rainfall collected, the streets on which the pump stations border had manhole covers displaced, and they also experienced overflowing water from the main concrete collection box. These conditions questioned the engineering design of the station. A short video to illustrate these concerns was e-mailed to your Director, Scott Stephens, on 14 July. In addition, the large-- (cell phone rings)

SENATOR SMITH: Mayor, too many people have your phone number. (laughter)

MAYOR MATTHIES: You know--

MR. TITTEL: (off mike) Jamie Fox is calling. (laughter)

MAYOR MATTHIES: It could be. I'd go pick him up if I could.

It says, "In addition, the large open outfall pipes which discharge to the Barnegat Bay invite the curiosity of children and others to enter the openings, to their potential harm. A bar or cage device needs to be in place to prevent access. Also, for the same reasons, the entire construction sites need to be better secured in order to keep the before-mentioned from wandering through an unsafe area. The Council would appreciate your personnel inspection of each station, and welcome the opportunity to interact with you directly."

SENATOR SMITH: Mayor, was the engineering done in-house -- DOT -- or was it subbed out?

MAYOR MATTHIES: I believe it was subbed out.

SENATOR SMITH: Who was it subbed out to?

UNIDENTIFIED MEMBER OF AUDIENCE: (off mike) RBA Associates.

SENATOR SMITH: Who was it?

UNIDENTIFIED MEMBER OF AUDIENCE: (off mike) RBA Associates.

SENATOR SMITH: R-V-A?

UNIDENTIFIED MEMBER OF AUDIENCE: *B* like in boy.

SENATOR SMITH: RBA? So have you also asked for a face-to-face with the engineers? Because you should do that as well.

MAYOR MATTHIES: Well, I want to tell you this. I do-- I'm probably the most communicated with public official that the DOT has. I've been to the DOT; I've had meetings with the DOT. Councilwoman Coleman and I have been in the field office of the DOT. So we've gone through all this.

SENATOR SMITH: So what are they saying?

MAYOR MATTHIES: But is this any surprise?

SENATOR SMITH: Are they saying you have a legitimate gripe, or they are going to do something about it?

MAYOR MATTHIES: No.

SENATOR SMITH: They're just saying, "Have a nice day?" What are they doing? How are they reacting to your complaints?

MAYOR MATTHIES: From the DOT, sir--

SENATOR SMITH: Yes.

MAYOR MATTHIES: --for a number of the things -- such as crosswalks, such as plantings, such as spaces -- they have been very responsive. It's the engineering of these pump stations, not the project, we're talking about. We're talking about specifically what Britta introduced. It's the engineering of these pump stations and the result of those pump stations.

COUNCILWOMAN COLEMAN: These pump stations -- from how I understand it from the hearings that I have attended with the Mayor and the rest of our Council members -- this is an experiment. They have never done this anywhere along any waterway like ours. They're experimenting on the Barnegat Bay with the--

SENATOR SMITH: And you're concerned about the health effects on your population, correct?

COUNCILWOMAN COLEMAN: Of everybody.

SENATOR SMITH: All right. So what I am going to -- I'm going to give you a little free advice.

COUNCILWOMAN COLEMAN: Yes.

SENATOR SMITH: That's why God invented lawyers, all right? Engineers are not allowed to create unhealthy, unsafe conditions. They're supposed to design stuff so that it works, and that it's also protective of public health, safety, and welfare. And I'm not telling you should do it; but it's an alternative that you should take a look at. Because what you're saying to this Committee is that you have an unsafe situation created by this design.

ASSEMBLYWOMAN SPENCER: Right.

COUNCILWOMAN COLEMAN: But with all due respect, when we spoke to the people -- the outreach people -- Mr. Lanigan was one of them; he had spoken many times, saying, "We're absolved. We have a law that we're absolved from this -- that you can't touch us, you can't sue us, you can't do anything." That's what he claims that the State of New Jersey passed--

SENATOR SMITH: What does your lawyer say?

COUNCILWOMAN COLEMAN: Pardon?

SENATOR SMITH: What does your lawyer say?

COUNCILWOMAN COLEMAN: What does *my* personal lawyer say?

SENATOR SMITH: No, your Township Attorney.

ASSEMBLYWOMAN SPENCER: Your Township Attorney.

COUNCILWOMAN COLEMAN: We really haven't discussed trying to sue.

SENATOR SMITH: It's worth a conversation.

ASSEMBLYWOMAN SPENCER: It is worth it, definitely.

MAYOR MATTHIES: Thank you very much.

COUNCILWOMAN COLEMAN: Thank you.

MAYOR MATTHIES: I just want to, again, support your action, in response to Britta, about looking for full disclosure.

COUNCILWOMAN COLEMAN: Yes.

SENATOR SMITH: We're going to send a letter out this week.

MAYOR MATTHIES: I appreciate that very much.

ASSEMBLYWOMAN SPENCER: And then what I would suggest -- the results that come back from the water grabs need to be made public. Because it would not be unrealistic for the State samples to say something along the lines that, "Everything is fine," all right? So be prepared to do what you need to do in order to bring attention to what your results show in comparison to what the State's results may be. And I understood that there was a drone that had done a fly-by to actually capture this picture. It would also be beneficial to have periodic pictures captured of the area to verify whether or not this is an ongoing situation or something that merely occurred on one occasion. Because, again, the response may be, "Oh, this was a one-time occasion; there was nothing there; it never happened again." But the information being gathered needs to be consistent on your part to ensure that what's presented is one that reflects that it is an ongoing problem, and not just a once in a lifetime or one-time thing.

COUNCILWOMAN COLEMAN: Okay, but how much proof does -- what you would think -- because it is your agencies; they are your agencies, because you are the governing body. (groans and laughter) How much proof do you think--

ASSEMBLYWOMAN SPENCER: We're not the governing agency; we are the legislative side, and--

COUNCILWOMAN COLEMAN: Right.

ASSEMBLYWOMAN SPENCER: The best I can tell you is--

COUNCILWOMAN COLEMAN: But, I mean, how-- I'm asking you for a -- like a kind of guideline; like how many pictures do you people really need -- like, they would need? What would you say?

ASSEMBLYWOMAN SPENCER: That's where--

SENATOR SMITH: --your attorney comes in, right? To build a case. That's what attorneys do.

COUNCILWOMAN COLEMAN: Right. But then it goes onto the backs of the Borough -- of the Seaside Park's taxpayers.

Wait a minute -- let me finish, sir, please?

SENATOR SMITH: Sure, sure, sure.

COUNCILWOMAN COLEMAN: Thank you.

And we didn't ask for this; the Borough of Seaside Park didn't ask for these pump-out stations to be put there. They were put there -- with much protest from a lot of the residents -- by the State of New Jersey. And, you know, I kind of, like, balk at hiring an attorney--

SENATOR SMITH: My suggestion is, don't be Blanche DuBois. You don't want to rely on the kindness of strangers. If your people are at risk, and people are not responding to you, take out your hammer and hit them.

COUNCILWOMAN COLEMAN: I have no problem doing that, Senator. (laughter)

SENATOR SMITH: You have to force people to do the right thing. Engineers have to design projects that work. And government is supposed to protect the people who it represents. And you're saying that's not happening. That picture was an eye-opener, all right? First-- I don't know if anybody else heard about this, but the bottom line is you have a responsibility to your citizens.

COUNCILWOMAN COLEMAN: We do.

SENATOR SMITH: We have to get some action on this. We're going to help you as much as we can.

COUNCILWOMAN COLEMAN: Okay, great. That's what we want to hear.

SENATOR SMITH: But we are the Legislative Branch. We pass a budget, we pass laws.

COUNCILWOMAN COLEMAN: Okay.

SENATOR SMITH: We don't enforce the laws; that's the Executive Branch.

COUNCILWOMAN COLEMAN: Okay, got it.

SENATOR SMITH: In this case, you have to get a little more action than you're getting, in my opinion.

ASSEMBLYWOMAN SPENCER: And I'll add this, and then I'll let it go.

I reached out to DEP to get some kind of -- to find out. And my understanding is that the results will be posted on today's website, as far as what their grab said. So depending on what they say, just be prepared.

MAYOR MATTHIES: Okay. And we thank you very much, and we certainly understand that. But we felt this was a very good forum because -- especially because--

SENATOR SMITH: We're glad you came.

MAYOR MATTHIES: --Save Barnegat Bay is involved and has been very involved in protecting that Bay. And, of course, the essay that was published Friday was written about much of the situation in Seaside Park.

I also want to point out one other thing. We have a very good County Health Department in Ocean County and it responds well when we call them -- and has in this particular case.

And then the last thing I just wanted to say is that (cell phone rings) -- oh, my gosh -- and the last thing I just wanted to say to you was about two hours, two-and-a-half hours ago when you sat down, you said, "We're here to find out what's going on," and so on.

SENATOR SMITH: Yes.

MAYOR MATTHIES: Let me tell you, if you were here Friday, my advice to you would be to go to these student presentations. Because I go every year, and they do a great, great job of working with Save Barnegat Bay about the health and what is taking place with Barnegat Bay--

SENATOR SMITH: It's a great organization.

MAYOR MATTHIES: --whether it be Tices Shoal, or whether it be turtles, or whatever it is. But if you want to see some kids who do a great summer project and do a great job -- that's where you might want to get some information from.

Thank you.

ASSEMBLYWOMAN SPENCER: Thank you.

SENATOR SMITH: Mayor, we thank you.

COUNCILWOMAN COLEMAN: We thank you, and thank you from the bottom of my heart for coming here. I know it takes a lot of time out of your--

SENATOR SMITH: We'll send you guys a copy of the letter that we jointly--

COUNCILWOMAN COLEMAN: Yes.

SENATOR SMITH: It will be on behalf of both Committees -- sent out so you can see it.

COUNCILWOMAN COLEMAN: Yes, so we can also keep our constituents informed, because they really are very--

SENATOR SMITH: Important.

COUNCILWOMAN COLEMAN: --concerned as well.

SENATOR SMITH: Absolutely.

COUNCILWOMAN COLEMAN: And thank you so much for taking-- I'm sorry.

SENATOR SMITH: Absolutely.

Assemblyman.

ASSEMBLYMAN WOLFE: Yes. I just want to say, until redistricting, I used to represent Seaside Park.

COUNCILWOMAN COLEMAN: Yes.

ASSEMBLYMAN WOLFE: I have to tell you, these are the most dedicated public officials. The Mayor retired from his real job about three or four years ago to relax.

MAYOR MATTHIES: I retired in June, and Sandy was here in September (*sic*).

ASSEMBLYMAN WOLFE: They had a hurricane; he's got this issue. So, I mean, very, very sincere. And I really hope we can assist them in their efforts.

Thank you.

COUNCILWOMAN COLEMAN: We thank you for your time.

MAYOR MATTHIES: Thank you, Assemblyman. It was always a pleasure to have you represent us.

ASSEMBLYWOMAN SPENCER: I believe we are done.

SENATOR SMITH: All right, that concludes our work for today.

MR. TITTEL: (off mike) I wanted to talk about Forsythe real quick.

SENATOR SMITH: Can you do it in 30 seconds or less?

MR. TITTEL: I'll do it in 30 seconds.

SENATOR SMITH: In 30 seconds or less.

MR. TITTEL: And one other point.

Real quick, on Forsythe. The Federal government is out of money for a lot of the restoration and they have been cutting staff. And with Ocean Drive now open there's a lot of dumping going on. So what we need to do is not only have New Jersey's own people be monitoring that area more -- the State Police and the Park Police -- but also we need to put some pressure on our Congressman to get that money out, because there's money that's either been held up by Congress that hasn't been sent to the

Refuge-- They do a lot of restoration work so they're out of money for a lot they need to do.

And then just one last point. On Route 35 -- this is what happens when you waive environmental standards. The Governor signed an executive order after Sandy to rebuild as quickly as possible. But in that process he waived not only the environmental standards for discharge, but he actually eliminated Executive Order 215 which requires EIS, and he also waived water quality standards, and they waived also soil standards as well. And that's why you have the issue of dredge spoils, because with the dredge issue they also waived those standards, as well. So you can put dredge spoils in that have hazardous materials in them as long as it's Sandy related.

So I just wanted to make sure-- You may want to take a closer look at that, since it's now three years after Sandy, and maybe we shouldn't be waiving environmental standards anymore for Sandy rebuilding.

SENATOR SMITH: We appreciate your comments, and the meeting is adjourned.

ASSEMBLYWOMAN SPENCER: Adjourned. Thank you.

**(MEETING CONCLUDED)**