



Holding Back the Hudson (5/6/19)

00:00:24 Jan Seidler Ramirez: I'll introduce them. Just point... point to who each is, having heard a bit about them. (clears throat) Okay. Okay, without further ado, we have Harriet Senie, at the end, and Ken Lustbader, and Peter Rinaldi, and Lisa Conte, who will be running the conversation, so...

00:01:02 Lisa Conte: Hi, everybody, thank you again.

(applause)

I want to thank everybody for coming tonight. I know that there are a lot of friends in the audience who the slurry wall also means a lot to, and it's taken on new meaning for me through this project. And I also just want to single out my colleague Joe Graham-Felsen for his participation, contributions, and unending support throughout this project, so thank you.

00:01:33 And we'll turn now to a conversation, learn a little bit more than we already have during the course of the past 20 minutes about the slurry wall and the work of Harriet, Ken, and Peter. And then we'll be very interested to learn a little bit more about what you find to be curious about this really special wall and other aspects of its preservation and history.

00:02:01 So, we are going to go back in time a little bit here from the slurry wall and the video to learn a little bit more about our panelists. And I was going to start with Ken, so that we can maybe set the scene for historic

preservation. And you have a long history in historic preservation, and kind of in thinking about, why do we preserve buildings and places? And I was hoping that you could talk a little bit about your experience working on the preservation of sacred sites prior to 9/11, and how that work informed your thinking about the Trade Center as a site of significance.

00:02:48

Ken Lustbader: Sure, thank you. Thanks for having me here. And I just want to acknowledge, the film was wonderful, so I just want to give a round of applause.

Harriet Senie: Absolutely. (applause)

Lisa Conte: I should have thanked all of the people who are not on stage that participated in that project, as well. So thank you for acknowledging that, as well.

Ken Lustbader: Sure.

Lisa Conte: So applause to all of them, too. Yeah.

Ken Lustbader: It was great.

(applause)

00:03:14

So I worked as a, for a not-for-profit organization, in charge of their religious properties program. And I think when I got involved with the preservation of Ground Zero-- I should say preservation of Lower Manhattan-- with the five preservation groups that banded together to have a single voice, they hired me because I was the person that could sort of facilitate multiple groups.

00:03:38 But our focus was initially off of Ground Zero, looking at sites in Lower Manhattan for grant-making, that if they were affected by the collapse, such as providing grants for repainting a building or fixing masonry. And it wasn't really until Anthony called me that the a-ha moment happened, and I was, like, "Wow, this is big."

Lisa Conte: Right.

00:04:02 Ken Lustbader: So I think what I was enabled, able to do, based on my experience with religious properties, was at least bring to the table a sensitivity of, A, that this was a site potent with emotion-- and raw emotion-- and that level of sensitivity, understanding it was a place of significance and sensitivity of memory, of people's sacred feelings, and emotions about their own loss. And having multiple parties involved was also something that was very familiar with me from working with religious properties in the city and state.

00:04:38 Lisa Conte: Certainly. In thinking about sites of significance in another way, Harriet, I was hoping that you could maybe talk a little bit about how your research became focused on monuments and memorials, what brought you to that. And, also, from your perspective, what is the purpose and function of a memorial today, in terms of their importance to our communities.

00:05:06 Harriet Senie: Sure. Well, I had just pretty much finished a book on the "Tilted Arc" controversy, Richard Serra's sculpture in Lower Manhattan. Just for my own curiosity, how many of you remember the "Tilted Arc" controversy? I ask that because the last time I taught a course at the Grad Center, somebody raised their hand and said, "I was three." And so now I don't assume that it's common knowledge.

(laughter)

00:05:29 Harriet Senie: So that was a very toxic atmosphere around a work of public art, and I needed to get away from that. And I went down to see the Vietnam Veterans Memorial, because Maya Lin had studied with Richard Serra at Yale, and has acknowledged that he was an influence on the Vietnam Veterans Memorial.

00:05:48 So I was really struck by, well, here's Richard Serra's sculpture that's an object kind of hate, and here's Maya Lin's memorial that has become such an iconic memorial that everybody seems to love. And when I was standing there, I was very much moved by the fact that I realized it was a pilgrimage site. My officemate at the time had just translated "The Pilgrim's Guide to Santiago de Compostela," and I said the Vietnam Veterans is a pilgrimage site. And she said, "Oh, no." And I said, "Well, tell me, what's a pilgrimage site?" I mean, yes, of course, it is.

00:06:22 So I kind of took that away, and then I think after 9/11, everybody felt the need to do something. And what I do is teach. So I began to teach courses in memorials at the Graduate Center, and then subsequently, at City. And then one thing led to another.

00:06:41 The second part of your question is much more difficult. (chuckles): What do I think is the purpose and function of a memorial today? Obviously, it's to help us remember. I also feel that certain memorials have an obligation to contextualize. The thing that I most wrestle with is whether they also should have a function to console.

00:07:08 The Vietnam Veterans Memorial, it's been pointed out, was our first memorial that had that function. And I'm not sure, in terms of how that's translated and come down to us, where we should be with it today.

Lisa Conte: Thank you, Harriet. Peter, we are going to turn to some more practical concerns here for your question. And I was hoping that you could share with all of your friends from the Port Authority in the audience a little more about your history at the World Trade Center.

00:07:40 Peter Rinaldi: I see many colleagues here.

Lisa Conte: And how you got involved with the slurry wall.

Peter Rinaldi: Well, I first started at the Port Authority as a young engineer, and the World Trade Center was still under construction. The main towers were up, but the... And the slurry wall was in place, but the rest of the buildings and the plaza were still under construction, and I was part of a team that was able to design some, engineer some of the foundations and actually design some of the foundations for the World Trade Center.

00:08:08 So it was a very interesting time. Like I said, the slurry wall was in place. But in 1993, it was the first time we really had a first issue with the slurry wall after there was a bombing, the first attempt to destroy the World Trade Center. You may not have known that at the time, but there was a concern about the slurry wall moving and partially collapsing because the bomb that the terrorists had planted had blown out quite a few of the floors and basement floors. No one saw that. That was something we were working on below-grade.

00:08:39 But there was a concern that the slurry wall would be compromised. It's actually in the area of the slurry wall that's on display now in the museum. It was that section of slurry wall and the new wall on each side that we started to monitor and measure to see if it would move. And it didn't.

But, so, we got very-- that was the first time that I really got involved intimately with the slurry wall. Then later on, of course, I mentioned before, I was assigned to the emergency response team here at the site, and was very much involved in recovery efforts and the stabilization of the slurry wall all the way through.

00:09:13 Lisa Conte: Thank you, Peter. You mentioned right now about 1993, and that makes me think about, when you're in the museum today and you are looking at the wall, are there... are we looking at the original wall as it was in the 1960s, or were there interventions post-'93, and after 2001, that transformed its physical appearance?

00:09:48 Peter Rinaldi: Probably in... not '93. The wall was pretty much intact. But if you look at the wall today, it went through quite a bit of trauma during the collapse of the buildings, as well as the actual stabilization process. Parts of the face of the wall were chipped off. When we put in the tiebacks, we had to remove part of the concrete to get those in.

00:10:11 And so when you look at the wall today, if you look at it back in-- after the recovery and part during, just before the rebuilding process, I had a layer of concrete put over the entire wall to protect the exposed steel. If you saw that cage that Charlie talked about, that was beginning to rust because it was exposed. And at that time, I was concerned that the wall would actually start to corrode. We didn't know how long the rebuilding process was going to do-- go.

00:10:41 So a layer of concrete, a thin layer, was spread over to protect that steel. And that's what you see today in the exposed wall. But if you look at the wall, you can see the original contour. It's a very thin layer of concrete that was put over it. And if you look at the wall, it's not a smooth wall, because as was explained when it was excavated, it actually followed a little bit of the contours of the earth as it went down. So it's bumpy and dimply-looking all the way around, and that is the natural wall that you see today.

00:11:10 Lisa Conte: So it retains some of its natural history, which is wonderful.

Peter Rinaldi: It remains its shape, its original shape. The tiebacks that you see were new and added as part of the stabilization process.

Lisa Conte: So this isn't a question that's directed at any one person, but if anyone would like to answer it, I welcome that. So just hearing from Peter, knowing that the wall has somewhat-- I guess we could say dramatically-- changed over time, in the film, we heard Charlie say that he thought of the slurry wall as a living object.

00:11:47

And does anyone want to comment on that in terms of either material or conceptual terms? Do you agree with the artifact as a living thing?
Harriet. (laughs)

Harriet Senie: Well, I've been thinking about its symbolic significance. I'm not sure I think it's a living thing, although I understand why people would say that. But I think it's both a witness and a survivor. And those two things are really essential in terms of containing memory.

00:12:21

And I think when we respond to it in the visceral way that-- I think that is true, we do respond to it in a visceral way-- that's what we're responding to, both of those things going on. And that's-- that becomes, then, a container of memory. Whether that makes it a living thing, I think we attribute that quality to it.

Lisa Conte: Yeah.

00:12:44

Ken Lustbader: And I think it provides, as it was said in the film, why is it so powerful? Why do people have such an emotional response? It's scale. When you come down there, you see the scale of it. And you're not-- you can't look up anymore. I remember looking up from the Trade Center, the two buildings when I was by the sphere, you could see the enormous scale of it. Now you can only get a sense of that scale by looking at the slurry wall in some ways or the box columns.

Lisa Conte: Yeah.

Ken Lustbader: So it provides that context.

00:13:11 Lisa Conte: Absolutely. Ken, since you're just speaking about the original site, you spoke a little bit in the film about your involvement in the efforts to preserve the archaeological remnants of the site. But can you, again, maybe elaborate a little bit more on your participation in the Section 106 process, and with that, maybe speak a little bit about the various parties that were involved, and, you know, their roles in that. Because it was very complicated.

00:13:49 Ken Lustbader: Right. So, so first I want to acknowledge Anthony again, Anthony Gardner and Bob Kornfeld, who are the ones that really identified these as issues on the Trade Center site. Otherwise, I could possibly say there may not be anything other than a vanilla box where the museum would be right now. Because without the Section 106 process, there was no motivation, in some ways, to possibly have those revealed and part of the interpretation of the museum.

Lisa Conte: Right.

00:14:20 Ken Lustbader: So it served a purpose to get people at the table to discuss those issues. And the Section 106 process, without going into all the jargon, the site was made eligible for listing on the National Register, which is the first step to acknowledge something on a federal registry. There are 93,500 sites on the National Register. This one is eligible for listing, which then means you have to identify what specific elements are within the Trade Center site that are significant, and why they are significant.

00:14:50 So the slurry wall was one. The box columns that I mentioned, the survivors' staircase is another, and I can go on and on and on. But all of those get then part of a mitigation process when federal funds are used. And you have consulting parties. So I was one of many-- I think 70 consulting parties, which is insane, really.

(laughter)

00:15:16 Normally, it's a building, an architectural building, and then you're looking at it and going, "Oh, no, you can't add that to the building as a renovation because you're destroying integrity," so you mitigate it by discussing, "Well, no, don't do the window that way." Here, you have the most important 20th-century-- 21st-century attack on soil, and we're arguing about, how do you preserve what's there? And how do you rebuild it?

And that was the conundrum and dialogue between the Port Authority, the LMDC, the preservation consulting parties, and the stakeholders.

00:15:50 Lisa Conte: Exactly. And, actually, Peter was the Port Authority's representative during the Section 106 process. So, maybe, Peter, kind of coming off of Ken's response, how did you feel about the elements from the Trade Center being saved? And, you know, there are obviously multiple perspectives. We heard from some in the film, and as Ken is alluding to now, there are 70 other voices that participated in this process. And, you know, kind of within your own community and family at the Port Authority, were people on the same page about the way to move forward?

00:16:30 Peter Rinaldi: Well, let's start during the recovery, because, actually, many of the artifacts that are here and displayed in the museum were actually gathered during the recovery process. So there was a feeling and a thought back after the building's collapse about preserving artifacts. And I give Bob Davidson, who was the chief architect at the time at the Port Authority, the foresight to put a small team together to start looking at that during the recovery.

00:16:57 And many of the items that are on display here were recovered during that process. So we were, we were sensitive to that. Myself, also, I identified and recovered some of the large artifacts you have displayed here. But in the Section 106 process-- so we, it wasn't new to us. I think the, not the issue so much as much as preserving it, but how to preserve

those artifacts that were going to be in situ, or displayed in a way that also would allow the plans for the memorial itself and the rebuilding on the site to go forward.

00:17:35 And as Ken says, that became a little bit of a discussion. But we were sensitive to that at the Port Authority. We actually, before some of these artifacts were really identified, started protecting some of them with the idea that they might be historical significance, including the footprints. We put protection over them. And Andrew got involved in identifying them, you know, as a preservation.

00:18:00 But we actually started to protect them early on for a number of reasons. So the process was interesting. And I think it, you know, when you get a group of people together, usually the best ideas start to come out after... It took a little bit of time, but it did actually work through. And you can see the fruits of that right here in this wonderful edifice and museum today.

00:18:21 Lisa Conte: Absolutely. Harriet, you spoke a little bit earlier about why public commemoration has become so important in our culture. And I was hoping that you might be able to reflect a little on, as an object of history, maybe what we can learn from the slurry wall.

Harriet Senie: I think what we can-- I'm going to back into that one.

Lisa Conte: That's fine.

00:18:56 Harriet Senie: I think what we can learn from the slurry wall is that the power of secular relics cannot be overestimated. They function very much in the same way as religious relics, and I think we can all relate to that without my having to explicate. I think from my experience as an art historian, memorials were largely ignored. Um, you know, they weren't art. A modern artist didn't do them. But around the turn of the century,

there was sort of a little bit of a beginning of, you know, concern that we were losing our place in space, or our place in the past century.

00:19:35 So that was one moment that I noticed some more interest. The other was, I would say, in the '70s and '80s, when identity politics became more important and more of an object of interest, that there began to be different claims on the public landscape and different claims, rightly so, for different kinds of representation, although it didn't focus on the memorials. And then I think everything changed after Charlottesville.

00:20:02 Lisa Conte: Yeah.

Harriet Senie: That just brought an avalanche of attention onto memorials, and certainly from my own experience, that's been rather overwhelming. So for me, those were the three points where I think historically we could see, you know... In the 19th century, of course, they were super-important.

00:20:25 Lisa Conte: Yeah, thank you, Harriet. So thinking about the slurry wall as a significant object, as an engineering marvel, Peter, and then the symbolic significance that it took on during the recovery period that we've been talking about... As you mentioned in the film, the rescue and recovery effort depended upon the stabilization of the wall.

And during that effort, I was wondering if you might be able to talk a little bit about the energy on the site and the way that you were able to balance all the relationships between the various people and organizations involved.

00:21:08 Peter Rinaldi: Uh...

(laughter)

Peter Rinaldi: Well, I have to say, I mean, it was a tragic event, and everyone was there under an emergency response, under pretty dire circumstances. But I will tell you, from the perspective of the people involved at the site during that time, and the energy and the feeling that went on, everyone felt affronted by this and wanted to do something, from the people working the equipment to, obviously, the police and fire searching for people to try and find them, to us trying to figure out how we could do all of this and make it safe for everyone, everything that was going on.

00:21:48

And the volunteers from the Salvation Army, and the Red Cross, they came down, and the people that were there. It was just incredible work ethic, if you will, in terms of what was going on. You know, in the construction industry, there's always talk about unions, and unions have these little fiefdoms of what you do and you have the rules that you have to follow. All of that went away. Everyone became one big focus on what had to be done and to do it. And that part was exhilarating in the middle of this tragedy.

00:22:20

So people worked-- I mean, I actually lived in a temporary quarters there around the clock. We put our lives on hold, many of us. We were there seven days a week. The site never shut down, by the way. It was one of those things that if you went away for a couple of days, it was like, I said, a week there was like a month anywhere else because of what was going on.

00:22:40

And that was a testament to-- people didn't want to go home. They had people sleeping on floors, in schools and stuff around. So as a result of that, things moved much quickly, quicker than anyone thought in terms of the recovery and the search and the removing the material. And it was because of that drive and that work ethic. And it was a purely American thing. And it was purely a New York thing, too, by the way.

(laughter)

00:23:05 I say that because at one point, I'll share this with you, at one point, the federal government, with the Army Corps of Engineers, was thinking about coming in and taking over the whole recovery process. And they came and watched what we were doing. They came to my slurry wall meetings, and finally they decided, "Okay, these guys know what they're doing. It's going along fine. Let's back off and leave this alone."

So that's why we always said, it was that camaraderie and everything that went on there during the site, made things work.

00:23:38 Lisa Conte: Yeah. Well, as the slurry wall, as, you know, a witness to this history and a container of memory, and thinking about this site, Harriet, I'm going to turn back to you, and think about what role site plays in relation to memorialization, and how do memorials, for example, that occupy generic public spaces, how do they differ from those like this, that are on the authentic site of an event?

00:24:11 Harriet Senie: I really like to say that the site frames the content if it doesn't determine it. And I think, if you think of any number of memorials that you know, and even public art that you know, if you move them somewhere else, they mean something differently, because they're framed by whatever their site is. And the authenticity of the 9/11 site is an essential part of its content. I can't possibly imagine you could have put it somewhere else.

00:24:41 And that's been true of a number-- Oklahoma City, say. They want to be where this thing happened. And we can feel the difference. Now, just in general, and I've been thinking about this a lot, and I'm curious, maybe somebody later can contribute to this, why do we care if George Washington slept here?

(laughter)

Harriet Senie: What difference does that make, really? But we do, right? I mean, we visit places, not only actual historical sites, but sites that feature in fiction. "Bridges of Madison County." People go there...

(laughter)

00:25:14

Harriet Senie: No, seriously, because I've looked at some of these pilgrimage places, and I don't really get it.

(laughter)

Harriet Senie: I don't. That's why, probably, I'm still looking at them. But, I think, when it comes to memorials, there can be no question.

Lisa Conte: Thank you, Harriet. Ken, just kind of expanding maybe a bit on what Harriet's talking about in terms of site and thinking about the museum and the remnants within it as ruins, why are sites of archaeology like this important? What can they teach us about the past? And what kind of memory do you think they generate?

00:25:58

Ken Lustbader: I should preface this by saying I'm not an archaeologist. However, since working on this project, I was working with a lot of archaeologists in Greece and Turkey, which sort of reformed or re-educated me on sort of my innate interest in connection to this project, just because sites of archaeology are... tell stories. And you're deciphering what that story is. And in this case, it's contextualized, because you're in the actual vessel that is the bathtub that, you know, this building has been built around and rebuilt.

00:26:37

So I think that it provides an emotional connection, a visceral connection, in a really powerful way that you could not tell the story of the museum, or the events and the rebuilding, without being here. And I think the film also is another way to show how those remnants and artifacts-- which

are two different things-- and, you know, the in situ element, could tell engineering stories. Like a history of engineering, which you would never think of, that is going to be coming out of the memorialization of the slurry wall.

00:27:13

But here today, we, everybody's going to walk away understanding how powerful that was as part of the 9... you know, of the, the story of the World Trade Center site, and I think that's really important, too, as another narrative that comes out of this.

Lisa Conte: Absolutely. And I actually... One thing that is seemingly an aside, but I just want to say, we want to thank 1950s Italian engineering for the slurry wall. I don't think we've said that yet today.

Peter Rinaldi: Those Italians!

(laughter)

00:27:46

Lisa Conte: So that is maybe the one detail that we do not include in the film. But the technique was developed in Milan in the 1950s, and made its-- I believe-- and made its way here for the first time for the World Trade Center in the '60s. Did I get that right?

Peter Rinaldi: Yes.

Lisa Conte: Okay. (laughing): But kind of...

Peter Rinaldi: Actually, one of the originators of that process, and who actually came up, partially came up with the idea, is sitting in the audience. Arnold Aronowitz is the original design engineer for the slurry wall.

(applause)

(inaudible)

00:28:21

Peter Rinaldi: Arnold was my mentor when I first started working at the Port Authority and he's traveled in. I just saw him for the first time in years here today, but...

Lisa Conte (laughing): Well, I hope we can meet.

Peter Rinaldi: Welcome, Arnold.

Lisa Conte: But kind of continuing on that, in that line of thought, you know, I've been thinking about, you know, so was the slurry wall venerated even prior to 9/11 in that way by the engineering community in it being this kind of marvel and feat, ingenuity of kind of, you know, human building and people?

00:28:59

We were, you know, certainly a building community in the 1960s. And so, also, I was hoping that you could maybe touch on that. And then a question I'm not sure that you're going to like, but I like to ask.

Peter Rinaldi: Uh-oh.

Lisa Conte: From a materials and engineering standpoint-- and for the other engineers in the room, I hope you will speak up at the end and give your feedback on this question-- do you think the slurry wall has a life span?

00:29:28

Peter Rinaldi: Oh, here we go. That's a question always engineers get asked, "How long will it last?", kind of thing. Let's go back to the first question. In the 1960s, when this technology, which had been used,

actually, for construction of the subway system in Milan by the Italians. That's where they first came up with some deep construction problems. There was a conundrum here in that, you know, this was, in Lower Manhattan, it was a very congested site where they were going to build the World Trade Center. If you look back at the streets there in the 1960s, it was called Radio Row.

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And as I mentioned before, it was also on the bed of the former Hudson River. And so the foundations for the buildings-- at that time, these were the largest and heaviest buildings that were ever going to be built-- had to find a way to get down to bedrock to support them.

Not only that, but the Hudson and Manhattan Railroad at the time ran right through the middle of the site. You know it as PATH now. So you had a railroad running right through the middle of the site, and all of this. And the idea of using the slurry wall was floated, and Arnold, who I mentioned, was part of that team that came up with this. And it was a bold move, because no one had gone that deep before in a congested metropolitan area on such a large scale.

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And the site is 16 acres, but the slurry wall takes up about ten acres of that, you know. It's tremendous. So when it was... when it was going forward-- and there was a lot of trepidation about whether it would work and the issues, because of what was going on, and there was a real danger of getting flooding, and you had a railroad right in the middle of this...

00:31:02

But it worked. And since then, it's been used. Right after that, when the Big Dig went on in Boston, they used this technology. They were able to build that whole Boston Artery project because of the technology that was demonstrated here. So to that extent, there was... And it set the tone to be able to use that technology, which made that type of construction safe around the country.

00:31:24

As to life span, everything has a life span, all right? We all have a life span. Manmade materials, especially, have a life span, you know.

Materials made by God or nature have much longer life span, I think, when you look at nature. But when we make something, it has a certain life span. And the world, too, has a certain life span. I mean, you can see it now. I mean, you talk about the weeping of the wall.

What's happening there is actually, there's tremendous water still behind the wall that seeps through. And some of those stains you see are the rusting of the reinforcing steel that I mentioned that I covered. So over time, eventually, that's... it has a finite life. How long is that?

00:32:04

Look, it was there for the—no one envisioned that the buildings were to collapse. We thought those buildings would last hundreds of years, and the wall was going to last hundreds of years along with it. But then they collapsed. We exposed it. We traumatized it. It moved, so now it will lift. The thing you should know is that the wall piece that's exposed, there's another wall behind it, okay? There's a permanent wall that's been put there.

00:32:27

So the engineering, structural part of that wall has been taken away, and it's done by a new wall that's behind it that you can't see, and the new walls that are on each side. So I think as a... It'll last as long as the memorial will last. That's my opinion.

(laughter)

Lisa Conte: Since you were just talking about, you know, the wall, you know, being traumatized...

Peter Rinaldi: Yeah.

00:32:56

Lisa Conte: I am going to turn to Harriet and talk about how... which you've elaborated on already, so this maybe takes some of that thinking one step further, in that, how does a traumatic event, how it changes the

meaning of utilitarian remnant artifacts, like the slurry wall or the survivors' stairs, which survived the destruction of 9/11. It changes their meaning, we've established that. So, if you could talk a little bit about what role they play in public memory. And do you think they serve as surrogates of national identity?

00:33:38 Harriet Senie: I think that was one of the things that really astonished me in post-9/11, dealing with these various relics, was the ceremony when they removed the last standing beam, which had been signed by all kinds of people and it was very moving. They wrapped it in an American flag and took it away on a flatbed truck.

00:34:07 And I thought, if that doesn't conflate a secular relic with national identity, I don't know what does. And some of the other "relics"-- the survivor cross, of course, went on to have another life, if you will, when it was placed next to... Was it St. Paul's, or one of the churches...

Ken Lustbader: St. Peter's. >>

00:34:30 Harriet Senie: St. Peter's, sorry. So each of them kind of were taken out of that context and used in a way that made, I guess, a spiritual sense to the people involved. Certainly, nobody ever thinks about a staircase, right? I mean, do you think about any staircase you walk on? I certainly don't. You know, unless there's something wrong with it. So that's a really good example, how when something becomes a secular relic, we treat it with a certain amount of respect, and we try to save it because it does carry this meaning.

00:35:03 Lisa Conte: Yeah. So I have another hard question for Ken, about, maybe, life span. So, something that I've been curious about, and hopefully you can elaborate on it, so the wall and other things were placed as eligible for listing on the National Register. Once they're there, are they there in perpetuity?

00:35:33

Ken Lustbader: That's a good question right now, since everything is up for grabs in the Department of Interior, in some ways.

Lisa Conte: Uh-huh.

(laughter)

Peter Rinaldi: I wonder how that happened.

(laughter)

Lisa Conte: Another talk.

Ken Lustbader: Yeah. And the issues related to the National Register are actually being... Questions were closed, I think it was on Friday, for changes on the National Register. It is, it is deemed eligible for listing on the National Register, but theoretically, yes, in perpetuity, it is federally recognized as significant for the reasons that are outlined in the statement of significance. I think Peg Breen in the documentary alluded to this.

00:36:17

Without getting too wonky. This criteria G, which is... The event has to be so extraordinary to make it listed on the National Register within 50 years of the event. And, clearly, this was put on the register, eligible within, you know, two to three, three years, which is really unheard-of.

Lisa Conte: Mm-hmm.

Ken Lustbader: So the exceptional significance of it, I don't think will ever sort of threaten its continuation that way.

00:36:48 Lisa Conte: Sure, sure. I mean, it's something that I've been, I've been thinking more about just in terms of, you know, time. So I am going to ask one or two more questions, and then we are going to open it up to, I'm sure, all of those that are in the audience that can hardly wait to ask questions of our panelists.

00:37:14 And I would like to also, again, maybe address life span with Harriet, since I've asked a similar question of Peter and Ken. And do you think that public monuments and memorials have-- of course, they have a lifespan, maybe, in a material way, but in terms of their relevance to communities, maybe you could talk a little bit about that.

00:37:51 Harriet Senie: Sure. One of the things I think about memorials that's really important is, their meaning is determined by ongoing use. If nobody goes there, nothing happens there... You know, a tree falls in the wilderness, et cetera. That said, there were a number of public hearings that I went to when I was on the mayor's commission, just to find out how people felt about these controversial memorials.

00:38:17 And there was one in the Bronx where a local guy got up and said, "That was then, this is now." And I thought that really encapsulated the kind of thinking that's important to bring to memorials. What happens in the future, when "now" becomes "then"? How do we update the significance of those memorials?

And that's a huge question to which nobody I've spoken to has any answers, myself included. But I think when we build memorials, it's important to think that the meaning we fix to them now is going to shift over time.

00:38:52 Lisa Conte: Absolutely. And so with that, I think I'm going to conclude with this question for the group, anyone who would like to answer it. And I think we've really addressed some of this during our conversation over the past 45 minutes or so. But from early on, you know, many people have talked about this, this place and site as sacred ground. And why do

you think so many people come to this site and make pilgrimages, as Harriet used that word earlier, to sites like these?

00:39:31

Harriet Senie: My sense of it is-- and that's a really, that's a question I've been thinking about for a long time, "Why are they here?" I think it's a way of being part of history. It's a way to participate. And it's a way to feel a stronger connection to our time and place.

Peter Rinaldi: You know, it's interesting, I volunteer as a tour leader sometimes here at the memorial-- at the site. Not with the museum, but with the Tribute Center. And I always ask the group where they're from. And it's interesting. I never get anyone that's from New York or from the area.

Harriet Senie: Yeah, that's right.

00:40:11

Peter Rinaldi: And very few people from the States, even, you know? Just a few. Everyone from all over the world comes here. So I think, you know, this was an international event.

Harriet Senie: Yes.

Peter Rinaldi: And so that's why I think, just from my exposure, I ask people, and that's it. They're all interested. They all saw this. It's all part of this affront that I mentioned that we here on the site felt. I think people all over the world shared that.

00:40:37

Ken Lustbader: And I think it's a place of loss, where people are going to the memorial to actually make that connection of what that tragic event, events were here. And I think, from a preservation perspective, it is a form of time traveling. That, you know, the authenticity of the spot, that this is where it took place, so you are... As Harriet was saying, you're connected to it, but in a... Like other sites that are preserved, you're time

traveling back in time, where Mount Vernon, where George Washington did sleep...

00:41:07

Harriet Senie: Right, right.

Ken Lustbader: But, you know...

Harriet Senie: And lived, right.

Lisa Conte: Well, I think that I have to thank Harriet, Ken, and Peter for helping us all to understand today a little bit more about this site as a sacred site, as a site of significance, and the slurry wall as a really important object in our history and understanding of 9/11, but also of, you know, engineering history. And there's a lot more that we could say about it. But let's continue the conversation with the audience.

00:41:50

And I, and I thank you all so much for coming. And I'd like to thank Steve again for recording this story, the filmmaker, in perpetuity about the slurry wall. So thank you all. And please, if there are questions...

(applause)

Well, there are questions. And there will be microphones going around, So, in the front of the room.

Audience Member: Sure, so...

Lisa Conte: There's just a microphone. Yes, thank you.

00:42:21 Audience Member: For you, Peter. I don't know the difference between landfill and a bathtub. So is there a bathtub around Battery Park City? And why didn't that-- would that have collapsed if the slurry wall would have...

Peter Rinaldi: Part of... That's interesting, the construction of Battery Park City is done in a couple of ways. Actually, the original, the fill that was excavated out of the World Trade Center is the lower third of Battery Park City, and that's contained in a series of cofferdams-- that's an engineering thing-- that hold the fill in place, and then the buildings were built on that.

00:42:50 The center is a slurry wall, the center section. And then the other section is on fill and deep foundation. So there isn't a slurry wall around the whole of Battery Park. The other thing that was a concern is that there's still, the old bulkhead from Lower Manhattan is still in place there. And there are, you know, some buried connections there that do get to the river. As a matter of fact, there was a... The outfalls from the World Trade Center, from the cooling system, there was a flume that went across the West Side Highway and then connected to the river, and part of that flume is still there in place and was in place on 9/11.

00:43:22 So there were those concerns in terms of the connection to the river that gave us angst. So much angst, by the way, I didn't mention, that we actually plugged, put concrete plugs in the PATH tunnels there, right in September. Because we were so concerned that that would flood across to New Jersey. And there was a PATH up to... The tunnels in New Jersey go up and across to Christopher Street, and then they come around and go Uptown to 33rd, but around 14th Street, they intersect the, New York City's I.R.T. system. And you would have had a catastrophic flooding system. So that was the issue that went on.

00:44:02 Lisa Conte: Over there? Yep.

Audience Member: Hi, just a technical question. When you built the slurry wall, why did you only cover the western 11 acres instead of all the 16 acres of the site?

Peter Rinaldi: Good question. The difference was that the tall buildings with the heavy foundations were being built on the western portion of the site. On the eastern portion of the site, we were able to use conventional foundations-- piles and caissons and stuff. Now, what happened in the rebuilding was the reverse, okay?

00:44:34

The memorial now takes up basically most of, most of the bathtub, except where the One World Trade Center is. And now that area on the east side of the site that wasn't, didn't have a slurry wall excavated now has a slurry wall and was excavated down to rock for the tall buildings that you see there. So it was kind of carried forward.

Lisa Conte: And, Peter, could you maybe just, also, elaborate on, so the original bathtub had 154 panels. But what streets were deconstructed of those panels after 9/11? Because it was...

00:45:09

Peter Rinaldi: Oh, okay, the original slurry wall was, think of it as a rectangle, kind of, okay, with West Street on one side, Greenwich Street and Liberty and Vesey Streets, for those of you who are familiar with the streets here. That's the box of the original slurry wall. Right now, the only existing portions of the original slurry wall that are left are the West Street wall and the Vesey Street wall.

00:45:31

So, basically, half of the original slurry wall was removed as part of the rebuilding process. But the slurry wall was extended now onto the east side of the site, and to the south of the site. So there's still a new slurry wall that perimeters the entire site, et cetera.

Lisa Conte: And in the museum, it's West Street, correct?

Peter Rinaldi: West Street is still there.

Lisa Conte: Right.

Peter Rinaldi: And that's the part of the wall we have exposed.

Lisa Conte: Great. Over here. Yep.

Peter Rinaldi: Uh-oh, this is going to be a tough question.

(laughter)

Peter Rinaldi: This guy's dangerous here.

00:46:07 Audience Member: No, this is not a question, but it's an answer to this gentleman on the end. I started working on this in 1960, and we had 13 schemes of what to build here. And so the question really comes up, why a slurry wall at all? And why was it that size? Actually, our group, which, Peter was part of our group, determined what happened.

00:46:37 At that time, parking was required for any structure that was going to be built. And our group were caught... We had to determine how to build underneath the building to put parking. And what happened was, the water was very high. And either we had to put a very heavy weight of concrete to hold the building down, the parking lot down, or anchors.

00:47:06 So what we decided to do was to excavate all the way down to rock and-- because we knew that the rock was very impermeable-- and this way, we went all the way down to rock, and we created a space 70 feet below rock. We didn't need that much for the parking.

00:47:26 At this point, the PATH people came around and said, "Do you think we could move PATH into this area? Could we use the same concept?" So the geometry of the area was determined by PATH and the turning radius of the cars. That's how we came up. So we think of engineers as technocrats, but I like to say that engineers are really artists.

(laughter)

Audience Member: And innovators.

Lisa Conte: I'll second that.

00:47:59 Audience Member: Because the outgrowth of this really came out as an engineering design in order to solve a very practical problem.

Peter Rinaldi: For some of you that might not be familiar with the original Trade Center, that space which is now occupied by the memorial and where you see the 70-foot... there was actually what we called... almost-- there were seven levels from the concourse level down to basement level. So there was a whole underground complex.

00:48:23 It was one of the largest underground complexes in the world when it was built. And it included a train station. It included parking. It included office storage space. It included a large cooling plant and heating plant for the World Trade Center. That was all part of this underground infrastructure, if you will.

00:48:42 And a lot of that has been recreated on the other side of the site for the buildings. You don't see that now, but there's a whole network that my colleagues still working at the Port Authority have been building and putting in place that resembles much of what was there in the '60s. You don't see it, but there's a whole underground world there on the other side of the site, much like it was in the 60s, where the memorial is now.

Lisa Conte: In the back.

Audience Member: Has the construction of slurry walls significantly changed because of the experience with this one here? And its durability or how it lasted for now, moving forward?

00:49:20 Peter Rinaldi: Well, we put in a new slurry wall in 2007, '8, and '9 on the other side of the site, and the technology is basically, we, the same. What we did learn is, we could make the walls stronger and not as thick, actually, and that's only thing that-- because of the change in materials, technology, with concrete, so forth, and steel. But basically, it's almost identical. It was the same construction techniques. A little more modern equipment. But it was-- that's how they're done even now, 30, 40 years later.

00:49:51 Lisa Conte: So the composition of the concrete has changed?

Peter Rinaldi: It's... you know, you could... We've, in material sciences, advanced where we've, we've had very, very strong concrete. To give you a for instance, One World Trade Center, the center core of the building, was designed with the strongest concrete ever used in New York City, okay? It's, like, four times stronger than what was in the original buildings, so... And that was done with a reason, because of what happened in the attack.

Lisa Conte: Over here.

00:50:27 Audience Member: Hi. This is not exactly a question, but I want to bring up a subject and just see who would like to discuss it. But one of the things with this redevelopment was the pressure of time and just how it happened so quickly after an event that was so kind of deeply emotional and traumatic for the country.

00:50:50 So, for example, one issue with the determination of eligibility, which is what, you know, made the... determined the site as historic. That has a component that's the, like the period of significance, which in the very first draft that we got as consulting parties was just 9/11 itself.

And some of us lobbied very strongly to have that expanded to include the recovery, because we felt that it wasn't just the disaster itself, that what was really meaningful for the country was also the response and, you know, people searching for their, for their loved ones.

00:51:30 And, you know, people stood outside the gates of the site and cheered when, you know, workers were coming off the site. So, you know, that was something that there's not really a lot of time to discuss. You know, there was a lot of pressure because of the pressure to rebuild. And another another issue having to do, I guess, with having a a museum built on the site itself... (clearing throat): Was that... Sorry, I kind of lost my train of thought. But, you know, building...

00:52:12 Oh, that there was a sense in the community of, like, such a sort of trauma and loss in the community, and people felt that their... They had sort of taken a hit, you know, in their own, like, sort of backyard. And, you know, they didn't, they didn't want to have to sit there as... you know, while the world, you know, sort of created a pilgrimage site and sort of lose their own neighborhood.

00:52:36 And, you know, I think we felt strongly as consulting parties then, that if you look at it with a perspective of 20 years or 50 years, this is all going to look different. You know, people didn't want to see anything that reminded them of the disaster. And how do you make a memorial when you're trying to make it so it doesn't remind people of the thing? It's sort of the opposite of a memorial.

00:52:57 I mean, I was saying a lot of people wanted it to, really, to be an oblivial, so they wouldn't have to think about 9/11. And I felt at that time that,

sort of like when you have a relative that dies, and when you see their photograph, it kind of shocks you at first, and you almost, you know, want to turn it around so you don't have to be reminded. But, you know, after ten years or 20 years, you know, you feel good when you see their photo. And I just felt that, you know, with the pressure to redevelop, it was very difficult to have a rational approach to the redevelopment.

Lisa Conte: Thank you. In the front.

00:53:41

Audience Member: Hello, and thank you very much. I really felt it very deeply. And I'd like to comment. I had forgotten about this, but I just remembered. On the night that 9/11 happened, I was doing tele... I don't know, research or telemarketing for a major television station. And part of it was to call around the country and get people's reaction to 9/11. They did not care. I just couldn't, couldn't believe it. You know, I kept calling and calling. And that was the major reaction. It was only until, let's say, the next day, where they were told how to feel, that they began to feel. That's just, that was my experience.

00:54:28

Lisa Conte: Thank you for sharing that. In the back, with the black shirt. And we have about five more minutes, and then we can all chat afterwards, if you'd like.

Audience Member: The original Memory Foundations concept by Daniel Libeskind had proposed to leave the bathtub open with the people down at bedrock as a sort of memorial plaza, and the slurry wall as major feature.

00:55:03

I recall that that created a certain amount of anxiety among some of the structural engineers in terms of how that would actually be executed. And, ultimately, a different design is what's been realized here at the site. So I was just wondering, Peter, if you could talk through a little bit about what some of the concerns were with that and how the ultimate design addresses those concerns.

Peter Rinaldi: Yeah. It's funny you mention that. I was with Daniel-- I took him down into the site for that first time that he mentioned when he talked about being down there and looking at the slurry wall. He was part of putting together...

Lisa Conte: He was the engineer.

(laughter)

00:55:38 Peter Rinaldi: I was the engineer he talked about there and there and there, explaining to him what it was he was looking at. And then he was, like, "Oh!" You know, he wanted to preserve the whole thing. You know, if you sort of understood what was involved in just trying to preserve the small section of slurry wall that's exposed right now, what the memorial... the museum had to go through to do that, I won't get into the details. It was daunting. It was very challenging. That slurry wall and that basement was never meant to be left open.

00:56:14 You know, when it was built, that floor system I described to you is what actually gave the support, the lateral support that George was talking about in the film that you saw, to hold everything up. To just leave it as, you know, an empty space with the wall standing over... expected useful life of eternity, let's say now, you know, was just almost impractical to do.

00:56:39 And besides that, you still had... you know, a railroad that had to go through there, and a station, and you still needed to put, you know, something above, you know. You were trying to do a memorial at that time. And, remember, the memorial... not displaced, but it took up most of the office space that existed on the site, so the balance here was not only to build a memorial with meaning, but also to restore some of the economic activity that we... that was here in the downtown.

00:57:09 And the balance was, put the office buildings on one side of the site and put everything else, you know, and the memorial on the other side,

except for the train station and a few other things. And that became kind of the balance of doing it. But it would have been a daunting challenge to try and just leave that whole hole open.

And I think, personally, you talked about visually, I think that what, what happened, I think, is really nice here now. I think leaving a big open gaping wound was just not the way to go, from my own personal perspective, being involved, and from a technical perspective, it would have been a daunting challenge.

00:57:49 Ken Lustbader: You know, that just touches on the Section 106 process, and what Bob was talking about in terms of saving what's there as in situ parts of the museum. It it was costly, expensive, and competing against, "Let's rebuild this," with so many different emotional feelings and practical feelings of people who were living in the neighborhood and so forth. So it was probably one of the most satisfying preservation exercises I've ever and will ever be involved in, but certainly the most unprecedented.

00:58:20 Peter Rinaldi: And Dan came around. He was happy to have a section of wall. His concept was-- it did come forward. It just didn't come forward to the extent. But what he saw and what he wanted to do you actually see in the museum. It is, it did come to fruition, just on a little smaller scale.

Lisa Conte: But thinking about archaeology again, you know, I think it was extraordinarily challenging, because you are in the present looking at something, and trying to also imagine its significance in the future, you know, as a... in terms of its significance to history.

00:58:54 So that was certainly something in that present moment, when you needed to make decisions very quickly, you know, it's very easy to kind of reflect on and digest why artifacts maybe have significance, you know, once we've ascribed that to them.

But in that moment, kind of working through all of that was tremendously complicated. And I applaud everybody who was involved in that process, so... One more question, right here. Yep.

00:59:26

Audience Member: Good evening. So the slurry wall could be considered a ring of concrete. What prevents the water from seeping underneath and coming up in the bottom? Because this is not truly a bathtub.

Peter Rinaldi: Okay.

Audience Member: There was no slurry or concrete at the bottom to prevent water from rising up.

Peter Rinaldi: Okay, here's a little secret for you all.

(laughter)

00:59:50

Peter Rinaldi: Rock seeps water, even though... It's almost impermeable, it's not totally. And there was a series of drains built in when Arnie's team designed it. There was a whole series of drains to let the natural water seep. And it was pumped out of the World Trade Center. There were sump pumps, so water did come in.

And that became an issue even during the recovery, when we got down to rock, we had water seeping in. And we had pumps going. So, and to this day, there's still water that seeps. It's not a large amount of water, but it is water. You get water in your basement. It seeps in through the floor, if you think about it. That's a big basement. So that's what happens there.

01:00:25

Lisa Conte: Well, on that note, I thank everyone who came tonight.

(laughter and applause)

Lisa Conte: Go home and check your basements.