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THE STATE OF SOUTH CAROLINA
In the Court of Appeals

APPEAL FROM SOUTH CAROLINA ADMINISTRATIVE LAW COURT

Honorable Shirley C. Robinson, Presiding Judge

RECEIVED

JUN 23 2015

SC Court of Appeals

Case No. 12 ALJ-07-0434-CC

Ken Bruning, Janet Bruning, David Feron, individually and as Trustee,
Mary Feron, individually and as Trustee, Sally Saegmuller Haley and
Terrell Page Haley, individually and as Co-Trustees, Martha James
and Don Haarmeyer, individually and as Co-Trustees, and
Pamela S. North.....Appellants,

v.

SCDHEC and Cat Island POA, c/o Gary Meyer..... Respondents.
In Re: Garfield Park, Phase 3

Case No. 12 ALJ-07-0436-CC

Cat Island POA, c/o Gary Meyer.....Petitioner,

v.

SCDHEC.....Respondent.
In Re: Garfield Park, Phase 3

RECORD ON APPEAL

VOLUME III

John E. North, Jr.
Regions Bank Bldg.
916 Bay Street, Ste. 100
Beaufort, SC 29902
843-379-0800

Mary Duncan Shahid
Angelica M. Colwell
PO Box 486
Charleston, SC 29402
843-720-1769

Stephen Peterson Groves, Sr.
205 King Street, Suite 400
Charleston, SC 29401
843-720-1725

Nathan Michael Haber
1362 McMillian Ave, Suite 400
Charleston, SC 29405
843-953-0229

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STATE OF SOUTH CAROLINA
ADMINISTRATIVE LAW COURT DIVISION

Ken Bruning, Janet Bruning,)
David Feron, individually and as) Docket No.
Trustee, Mary Feron, individually) 12-ALJ-07-0434-CC
and as Trustee, Sally Saegmuller)
Haley, and Terrell Page Haley,)
individually and as Co-Trustees;)
Martha James and Don Haarmeyer,)
individually and as Co-Trustees;)
and Pamela North,)

Petitioners,)

v.)

South Carolina Department of)
Health and Environmental Control,)

and)

Cat Island POA, c/o Gary Meyer,)

Respondents.)

In Re: Garfield Park Phase 3.)

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Petitioner,)

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South Carolina Department of)
Health and Environmental Control,)

Respondent.)

In Re: Garfield Park Phase 3.)

ADMINISTRATIVE HEARING

PART 2

COPY



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- 1 A: Definitely.
- 2 Q: And is the last page, then, a close-up of that
- 3 view?
- 4 A: It certainly could be.
- 5 Q: Well, you see the three ---
- 6 A: Yeah.
- 7 Q: --- the four stakes that are at the top of each
- 8 of those photos?
- 9 A: Oh, yeah, I do. I do, yes.
- 10 Q: Okay. Would you agree that that is a close-up
- 11 photo of your view?
- 12 A: Uh-huh (affirmative response). It certainly
- 13 is.
- 14 Q: Okay. Have you done anything to try and avoid
- 15 that view?
- 16 A: Well, we don't -- we don't -- well, I say we,
- 17 before my husband died, we were not
- 18 entertaining that much on our deck, which we
- 19 used to do a lot just because it was not very
- 20 attractive, and we don't use our screen porch
- 21 as much as we used to. But other than that,
- 22 no.
- 23 Q: Does your house have very dramatic views of
- 24 either the lake or the mud pit, whichever, at
- 25 any point in time?



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1 A: We have -- we have glass all across the back of
2 the house.

3 Q: Okay. When visitors come into your house, did
4 they used to see this beautiful lake?

5 A: A story that I love is my sister-in-law, the
6 first time she came to visit, she was thinking
7 about buying a house on Cat Island, which she
8 subsequently did. She walked into the house
9 and burst into tears because she said it was
10 the most beautiful view she'd ever seen.

11 Q: Okay. And because of all of those windows and
12 all that glass, is the house now far less
13 attractive to your guests?

14 A: Definitely.

15 Q: Do you find that you keep the drapes pulled to
16 not see the view?

17 A: I don't have drapes.

18 Q: Oh. Then I need a better assistant. I have no
19 further questions.

20 **THE COURT:** Mr. Haber?

21 **MS. HALEY - CROSS EXAMINATION BY MR. HABER:**

22 Q: Hi, Ms. Haley, nice to see you again.

23 A: Nice to see you.

24 Q: I just have a couple questions. Do you
25 remember -- we met during your deposition down



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1 in Beaufort.

2 A: Uh-huh (affirmative response).

3 Q: Do you remember during that deposition you had
4 stated that some of the shrubbery in your
5 backyard adjacent to the pond has died, but
6 that you are unsure whether it was because of
7 salt water or old age?

8 A: I don't think it was old age because it was --
9 it was small -- it was volunteer greenery. It
10 was Chinese tallow trees and yaupon holly and
11 it could be either, but, I mean, the fact that
12 it died after the infringement of the salt
13 water, it seems logical that that's what fueled
14 it.

15 Q: Okay. Well, let me get you to read a portion
16 of your deposition.

17 MR. HABER: May I approach, Your Honor?

18 THE COURT: Yes.

19 MR. HABER: Thank you.

20 Q: I'm handing you your deposition that we took
21 down in Beaufort, South Carolina. If you could
22 look at page 13 and read to the Court from
23 number -- see line 12 to line 19.

24 A: Have you suffered any property damage resulting
25 from the influx of tidal waters following the



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1 breach of impoundment? Some of the shrubbery
2 in my backyard was adjacent to the pond -- that
3 was adjacent to the pond has died. Uh-huh
4 (affirmative response). Some of the shrubbery
5 -- let's see, whether it's because of the salt
6 water or old age, I don't know. I still don't
7 know. I'm just saying ---

8 Q: Sure. But it's possible that it could be
9 either one ---

10 A: Yes, right.

11 Q: --- is that right? Do you remember stating in
12 your deposition that you don't know if you had
13 any -- lost any land because of erosion?

14 A: I don't think there's been any erosion.

15 Q: And that no utility lines have been exposed or
16 a threat to your property?

17 A: No.

18 Q: You also stated in your deposition that you
19 weren't suffering any erosion from periods of
20 heavy rain, is that correct?

21 A: That's correct.

22 Q: And you also stated in your deposition that
23 there are no ocean waves, is that correct?

24 A: No ocean waves. There's not that much water.

25 Q: Lastly, you had provided that your objection to



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1 this permit is because it doesn't bring the
2 lake back.

3 A: Correct.

4 Q: Do you recall that?

5 MR. HABER: Thank you, Your Honor, no further
6 questions.

7 THE COURT: Ms. Colwell's.

8 MS. COLWELL: Just one question, Your Honor.

9 MS. HALEY - CROSS EXAMINATION BY MS. COLWELL:

10 Q: Good afternoon, Ms. Haley.

11 A: Good afternoon.

12 Q: As you recall at the time of your deposition
13 when you were asked to describe your injury,
14 the injury that you were claiming in this
15 lawsuit and the one that you filed in Beaufort
16 County, and you characterized that injury as
17 loss of view?

18 A: Loss of view?

19 Q: Of the lake.

20 A: Yes.

21 Q: Nothing else.

22 THE COURT: Anything else?

23 MR. NORTH: No further questions, Your Honor.

24 THE COURT: Okay.

25 MR. NORTH: If the Court would have the patience



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1 for it, if we spent five more minutes, we might
2 get the last of the petitioners done.

3 **THE COURT:** Ms. Henderson has childcare issues, Mr.
4 North.

5 **MR. NORTH:** Understood. We've had many children
6 and we always tried to find a way to avoid
7 going home, but I grew up ---

8 **THE COURT:** Okay. But ahead and call your last ---

9 **MR. NORTH:** Oh, okay. Oh, no, I thought we had to
10 quit.

11 **THE COURT:** No, we can go ahead. She's going to
12 bear with us for a while longer.

13 **MR. NORTH:** Mr. Ken Bruning.

14 **KEN BRUNING,** being duly sworn, testifies as follows:

15 **COURT REPORTER:** State your name for the record.

16 **THE WITNESS:** Ken Bruning, B-R-U-N-I-N-G.

17 **MR. BRUNING - DIRECT EXAMINATION BY MR. NORTH:**

18 Q: Could you state your address, please?

19 A: 4 Rush Street.

20 Q: Is it correct that your property doesn't
21 physically touch the lakebed?

22 A: That's correct; we're separated by Rush Street.

23 Q: Okay.

24 A: It's on the other side of the road.

25 Q: The other side of Rush Street is the lake right



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1 adjacent to the road?

2 A: Very close. Ten or 15 feet probably.

3 Q: Okay.

4 A: Previously.

5 Q: Okay. Previously. And now the mud pit is 10
6 or 15 feet across the road?

7 A: Correct.

8 Q: Okay. Tell me do you feel that you also have
9 a loss of view because of the loss of the dike
10 in the lake?

11 A: Yes, because one of the things when we bought
12 the house here, we lived in South Carolina for
13 -- since 1982 and had been to Beaufort a number
14 of times during that period and really fell in
15 love with Beaufort and we had never had a house
16 that was on the water and we found this house
17 and also because of the fact that it has a
18 dock, but I think the thing that was special
19 about this house was the fact that virtually
20 every room in the house had a water view. The
21 rooms in the back faced out to Cowen Creek; the
22 rooms in the front faced out to what was the
23 lake. That's the reason that -- from our
24 perspective that it was a really special place
25 and, obviously, we now have five rooms that



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1 don't have a water view any more.

2 Q: You have a relatively high house, don't you?

3 A: Correct.

4 Q: And from your house, did you have excellent
5 views down the lake?

6 A: Yes.

7 Q: And now you have excellent views down the mud
8 pit?

9 A: That's correct.

10 Q: Do you feel that you've lost the aesthetic
11 value of that property to a large degree
12 because of the loss of the lake?

13 A: Certainly in the front, that's correct.

14 Q: Do you feel that you've also lost economic
15 value because of that view?

16 A: I would expect, but I have nothing to measure
17 that by. I've had no appraisals made since we
18 purchased the house.

19 Q: Is it fair to say that the view with the water
20 in the lake with the wildlife was far more
21 attractive than what you feel you have now?

22 **MS. SHAHID:** Object to Mr. North testifying,
23 leading the witness and not questioning.

24 **THE COURT:** Sustained. Mr. North, if you -- you
25 know what. I am overruling that objection so



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1 that we can move this along.

2 **MS. SHAHID:** Okay. Thank you, Your Honor.

3 **Q:** Tell the Court in your own words what the loss
4 of the lake has meant to you and your family.

5 **A:** Well, I think it's not just me and the family;
6 I think it's living where we -- where we do it
7 also has impact on a lot of other people in the
8 community. One of the things that we found
9 after we moved in was the number of people that
10 came down, stood there, looked at the lake for
11 a good period of time, left. There was a
12 couple that was in Garfield Park that used to
13 come at last once a day and the husband was in
14 a motorized wheelchair, but they would come
15 every day. And seeing that, we had put a bench
16 out there and people would stop during their
17 walks, sit down, look at the -- at the lake.
18 We many times sat there and looked at the lake
19 and observed the wildlife and when the lake
20 disappeared, we found that the -- that the
21 bench was sitting in a few inches of water at
22 times and so it's gone and not being used by
23 ourselves and other people in the community.
24 So from our standpoint, yes, the -- it's had a
25 basic impact on where we live.



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1 Q: Okay. And you've sat here, haven't you,,
2 through the testimony this afternoon of all of
3 the other petitioners?

4 A: That's correct.

5 Q: And do you agree with every single thing you've
6 heard them testify to?

7 A: Yes.

8 Q: If you were asked all the same questions over
9 the course of the next hour, would you give the
10 same answers?

11 A: Yes.

12 Q: I have no further questions.

13 **THE COURT:** Thank you. Mr. Haber?

14 **MR. BRUNING - CROSS EXAMINATION BY MR. HABER:**

15 Q: Hi, Mr. Bruning.

16 A: Hello.

17 Q: We didn't have the pleasure to meet in
18 Beaufort, but it's ---

19 A: I was out of town.

20 Q: Yes, sir. You said you wanted to move down to
21 Beaufort because you wanted to live on the
22 water, is that correct?

23 A: That's correct.

24 Q: Is your house still currently on the water?

25 A: Yes, it is.



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1 Q: Still have your dock?

2 A: Yes, I do.

3 MR. HABER: No further questions, Your Honor.

4 THE COURT: Okay.

5 MR. BRUNING - CROSS EXAMINATION BY MS. SHAHID:

6 Q: Mr. Bruning, I'm just going to show you a
7 document just to orient your property. This is
8 a document we prepared to use in your
9 deposition, but I don't think we ever got the
10 opportunity to depose you. Does that shaded
11 lot appear to be your property?

12 A: Yes, it does.

13 Q: Okay. Let me show Mr. North, if you don't
14 mind. Okay. I want to mark this as 44 and
15 offer it into evidence. I think 44 is my last
16 number.

17 MR. HABER: No objection from the department, Your
18 Honor.

19 THE COURT: Mr. North, any objection to it?

20 MR. NORTH: Oh, I'm sorry; no, Your Honor.

21 THE COURT: Okay. It's admitted.

22 (Cat Island's Exhibit Number 44 was admitted into
23 evidence.)

24 MS. COLWELL: Mary, I think that's actually marked
25 2B, which is already in.



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- 1 MS. SHAHID: Oh, gosh.
- 2 MS. COLWELL: It doesn't need to be in.
- 3 MS. SHAHID: Well, we have already.
- 4 MS. COLWELL: I saw the 2B.
- 5 Q: And now I'm going to just use the overhead
- 6 projector and ask you, Mr. Bruning, you
- 7 testified about a loss of view of the lake, but
- 8 you would agree with me that you still have a
- 9 waterfront view to the water by where your dock
- 10 is located, right?
- 11 A: That's correct. I still have the views ---
- 12 Q: That water view?
- 13 A: That's correct. But just the water views from
- 14 the front.
- 15 Q: Right, from what you're calling the front of
- 16 the house ---
- 17 A: House, right.
- 18 Q: --- is what faces the lake?
- 19 A: Correct.
- 20 Q: Okay. No further questions.
- 21 THE COURT: Mr. North, anything else?
- 22 MR. NORTH: No further questions.
- 23 THE COURT: Thank you, Mr. Bruning.
- 24 MR. BRUNING: Thank you.
- 25 THE COURT And at this point, I'm going to adjourn



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1 the hearing until 9:00 a.m. tomorrow morning.

2 MR. NORTH: Thank you very much, Your Honor.

3 (There being nothing further, the hearing was
4 recessed at 5:10 p.m.)

5 DAY 3 - THURSDAY, JANUARY 16, 2015:

6 THE COURT: Do we have everyone?

7 MR. NORTH: Yes we do, Your Honor. And I'd like to
8 introduce Chris Moore who will be here this
9 morning. He will be our expert and our 2nd
10 witness of the day.

11 THE COURT: Oh, okay. I notice that we don't have
12 some of our audience members today.

13 MR. NORTH: Yes. We have elderly petitioners. We
14 have one that fell down and broke two ribs. We
15 have one who's having lightheadness and
16 inability to stand. We have one hit with the
17 flu. I mean, I won't bore you with the laundry
18 list but they're pretty whimpering after two
19 days. I think they're going to stay in
20 Beaufort today and come back tomorrow. If
21 that's okay with the court.

22 THE COURT: I can understand that. Getting old is
23 not not fun.

24 MR. NORTH: Well, I don't know how you would know
25 but I know.



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1 THE COURT: Are we ready to begin?

2 MR. NORTH: We are.

3 THE COURT: Okay, Mr. North.

4 MR. NORTH: I'd like to call Ryan Lyle.

5 THE COURT: Mr. Lyle.

6 THE WITNESS: Yes, good morning.

7 THE COURT: Is it LyleS or Lyle?

8 THE WITNESS: Lyle.

9 THE COURT: Lyle.

10 MR. NORTH: L-Y-L-E.

11 THE COURT: Okay.

12 COURT REPORTER: If you'll raise your right hand.

13 RYAN C. LYLE, being duly sworn, testifies as follows:

14 COURT REPORTER: State your name for the record.

15 THE WITNESS: Ryan Collins Lyle.

16 MR. LYLE - DIRECT EXAMINATION BY MR. NORTH:

17 Q: You can be seated. Can you tell me your place
18 of employment?

19 A: Andrews and Burgess, Beaufort, South Carolina.

20 Q: And is that firm the engineering firm for the
21 developer of Cat Island?

22 A: Yes.

23 Q: Okay. And pursuant to your employment, have
24 you worked on a variety of projects for Chowan
25 Creek Partners?



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1 A: Yes.

2 Q: Tell me your educational background.

3 A: Clemson University, I graduated 2003 with a
4 bachelor's in civil engineering.

5 Q: Are you a licensed professional engineer?

6 A: Yes.

7 Q: What -- when did -- tell me the chronology and
8 dates of when you got various licenses relating
9 to engineering?

10 A: Graduated in December of '03, started work
11 January of '04, had to work four years under a
12 PE before sitting for the exam. I believe, I
13 passed the exam in 2010.

14 Q: What was your first project on Cat Island?

15 A: This project, Garfield Park Phase 3.

16 Q: Okay. Did you have any involvement with Phase
17 I or II?

18 A: No, sir.

19 Q: Would you agree that Garfield Park Phase 3
20 relied upon the Cat Island Lake and it's
21 outfall structure for quality and quantity
22 control treatment of storm waters?

23 A: That is -- yes, sir.

24 Q: Tell me about the involvement of your firm in
25 having a wetlands determination done in 2008.



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1 A: 2008? Would that be for the tract G?

2 Q: Yes. G tract, yes.

3 A: Mr. Meyer contracted with our surveying
4 department to do a tree, topo, and boundary
5 survey of tract G.

6 Q: Okay. I'm handing you what's been marked as
7 the Cat Island POA Exhibit 11. Can you tell me
8 what that document is?

9 A: It's the letter from the consultant our firm
10 hired or worked with to do -- to perform the
11 wetland delineation for Cat Island tract G.
12 And it contains the jurisdiction or
13 determination for the Corps of Engineers
14 stating the wetland acreages.

15 Q: Tell me or tell the court the chronology of
16 what it takes to have a wetland determination.

17 A: I believe it's a number of -- a number of
18 factors that go into the delineation of
19 wetlands. I'm not a wetlands expert, so I know
20 that they flag a line for the wetland, and then
21 the Corps determines with a consultant, you
22 know, what to -- if that line is indeed
23 accurate and then the classification of the
24 wetland.

25 Q: So is it fair to say that the United States



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1 Army Corps of Engineers is the one that
2 actually makes the determination?

3 A: The consultant maps out the wetlands, and they
4 place on the plat, you know, I believe
5 freshwater, saltwater, critical area and submit
6 it to the Corps of Engineers for review. And
7 then the Corps sends personnel in the field
8 most of the times to review and -- if they
9 agree with it after their study, they issues a
10 determination letter.

11 Q: Okay.

12 A: Jurisdiction or a determination letter.

13 Q: And is it fair to say that the Corps is the
14 only outfit that is authorized to issue those
15 jurisdictional determinations?

16 A: It's authorized, yes.

17 Q: Okay. And you're talking about authorized by
18 law to make that final determination?

19 A: That's my understanding, yes.

20 Q: Okay. Take a look, if you would, at the
21 portion of Exhibit 11 that is a January 8
22 letter from the Department of the Army Corps of
23 Engineers.

24 A: Yes, sir.

25 Q: Do you see in that letter that they have issued



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1 and made a determination of the critical area
2 and approved the depiction of the boundaries on
3 a particular reference plat?

4 A: Yes.

5 Q: Okay. And do you see that that plat is one
6 prepared by your office that's dated January 7,
7 2008?

8 A: Yes, it states that.

9 Q: Okay. I'd like to hand you what I've marked as
10 Exhibit 84.

11 **MR. NORTH:** And Your Honor, unlike the other
12 exhibits that we've presented, we only have one
13 copy for the witness, the Corps, myself, and
14 everybody else. But if we can endeavor to
15 supplement the record. But this would be the
16 original that would be part of the record.

17 Q: Is Exhibit 84 a document that you brought with
18 you today?

19 A: It is.

20 Q: And is that the same document that was relied
21 upon by the Corps of Engineers in making it's
22 wetland determination?

23 A: It is.

24 Q: And do you see on Exhibit 84 a variety of
25 different wetland areas that have been



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1 established and determined by the Corps of
2 Engineers?

3 A: I do.

4 Q: Is one of those areas a salt marsh or a
5 critical area?

6 A: It is.

7 Q: And where is that located on the map?

8 A: Along Chowan Creek.

9 Q: Okay.

10 A: The western most -- eastern most side.

11 Q: Okay. An area that is to the south of the Cat
12 Island Lake?

13 A: Correct.

14 Q: And outside of the dike that formed the Cat
15 Island Lake?

16 A: It is.

17 Q: So would it be fair to say that that saltwater
18 critical area is actually a portion of the
19 tidal area of Chowan Creek and not part of the
20 Cat Island Lake?

21 A: Correct.

22 Q: Okay. Now, did the Corps also establish
23 freshwater wetlands?

24 A: It did.

25 Q: Okay. And were there four different saltwater



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1 or freshwater wetlands determined by the Corps
2 of Engineers?

3 A: Flagged by the consultant and agreed upon by --
4 -

5 Q: Okay. And were all of those freshwater
6 wetlands the low lying areas that were part of
7 the water system of the Cat Island lake?

8 A: Fringe wetlands to ---

9 Q: To the lake?

10 A: To the -- yeah.

11 Q: Okay..

12 A: Or the pond.

13 Q: So would it be fair to say that the wetlands
14 within the property line of G tract for the low
15 lying areas that flowed to and connected to the
16 lake?

17 A: They were wetlands adjacent to the lake.

18 Q: Well not just adjacent. I mean, actually
19 touching and being part of the lake that
20 happened to encroach upon the property line of
21 G tract?

22 A: Wetlands upon tract G, yes. They're adjacent
23 to.

24 Q: Well, I mean, I understand adjacent, but I want
25 you to also clarify that they are actually part



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1 of the water of the lake.

2 A: I can't state that. I mean, it's part of the
3 water of the lake.

4 Q: Let's take a look at the first one if we could,
5 the one closest to the dike.

6 A: Yes.

7 Q: Do you see the one that's about a 5th of an
8 acre in size?

9 A: Right.

10 Q: And is that an area that Mr. Meyers has in the
11 past referred to as the borrow pit?

12 A: Yes.

13 Q: Okay. Now, is it not possible from your
14 observation of the lake to be in a kayak and
15 actually paddle right up into that area?

16 A: Yes, when the lake level is high enough, you
17 could go into that portion.

18 Q: Okay. Would it be fair to say then that the
19 freshwater in that freshwater wetland is
20 actually water that's a part of the lake?

21 A: That portion, yeah.

22 Q: Okay. What about the other fresh land area or
23 wetland areas? Are you suggesting that there
24 was separation between the lake and the
25 freshwater, or ---



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1 A: I'm just saying that there probably were not --
2 may not have been inundated with water the
3 entire time, so ---

4 Q: Okay. So is it fair to say that if the level
5 of the lake during a drought receded and got
6 low that perhaps that -- those wetland areas
7 would not have water connecting to the water of
8 the lake?

9 A: Right.

10 Q: But it -- when the lake was up at it's normal
11 level, would it be fair to say that those
12 freshwater wetland areas were inundated by the
13 water of the lake?

14 A: Yes. They were the lower lying areas that
15 could receive water from the lake.

16 Q: Okay.

17 A: Yeah.

18 Q: And those were all determined to be freshwater?

19 A: Yes.

20 Q: Okay. I'm handing you what's been marked as
21 Exhibit 73. Is that a tree and topographical
22 survey prepared by your office or somebody in
23 your office for G tract?

24 A: Yes.

25 Q: And does that document incorporate the same



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1 information that was determined by the Army
2 Corps of Engineers?

3 A: The boundaries in the wetlands, yes.

4 Q: Or at least it used the same -- I note that
5 it's dated, you know, a month or two before the
6 determination, but is this the same information
7 that was provided to the U.S. Army Corps of
8 Engineers by your department?

9 A: In general, yes.

10 Q: Okay. And I notice that it -- the designation
11 of freshwater wetlands is already a part of
12 this drawing.

13 A: Right.

14 Q: Is it fair to say that your office then even
15 before the Army Corps of Engineers confirmed
16 everything had determined that the areas along
17 the Cat Island Lake were freshwater wetlands?

18 A: The consultant told us it was freshwater
19 wetlands.

20 Q: Okay.

21 A: Yes, according to (inaudible.)

22 Q: Okay.

23 **THE COURT:** Mr. Lyle?

24 **MR. LYLE:** Yes.

25 **THE COURT:** Can you speak up?



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1 MR. LYLE: Yes, ma'am.

2 THE COURT: Thank you.

3 Q: After the breach in the dike, do you recall of
4 your office sending a letter to Mr. Meyer
5 recommending that the most efficient,
6 effective, and easiest way to handle the storm
7 water requirements of Garfield Park would be to
8 simply repair the dike?

9 A: I do recall.

10 Q: Do you recall that Mr. Meyer was opposed to
11 fixing the dike?

12 A: My understanding was that he had attempted once
13 before hiring us. He attempted once on his own
14 to hire a contractor to fix the dike back. And
15 after it failed, he brought us in to permit
16 another extension to the maintenance and repair
17 permit.

18 Q: Well, if he was opposed to fixing the dike,
19 what was the purpose of getting an extension of
20 a maintenance or repair permit from OCRM?

21 A: Initially from my recollection, it wasn't the
22 intent to do any retrofit. It was to fix the
23 dike. After we coordinated with the OCRM
24 wetlands section and critical area folks to
25 extend the maintenance and repair and provided



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1 cost estimates and permitting, I believe,
2 that's when we started going through the
3 process of what are most cost-effective
4 alternatives.

5 Q: Would you agree that at the very same time you
6 were asking for a second repair authorization
7 that you were also soliciting bids and
8 information for storm sewer inlet filters?

9 A: Not at the same time of the maintenance and
10 repair.

11 Q: Of the first one, but what about the second
12 one?

13 A: No. I think when we were pursuing the second
14 maintenance and repair, we had a -- the first
15 maintenance and repair permit in attempt to fix
16 the dike failed because they tried to fix it
17 from Chowan Creek.

18 Q: From a barge?

19 A: From a barge. So the second maintenance and
20 repair permit we sought or -- the first one
21 that we sought, but the second chronologically
22 required we bring in equipment from the land
23 and which route to bring that through. And if
24 we were to fix it, how would we continue to
25 maintain it. So a further expenditure of money



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1 plus plating an offsite easement through tract
2 G or from Rush Street seemed to be a daunting
3 task from my recollection with Mr. Meyer. And
4 that after some back and forth, it -- he
5 requested we pursue other alternatives. What
6 other options could we do to meet the storm
7 water requirements for tract G.

8 Q: What did you do to pursue those other
9 requirements?

10 A: Cost estimates to dike off the Finger --
11 between Rush Street and I believe the
12 Bruning's. There were multiple cost
13 alternatives. We looked at what could we do.
14 One was to ---

15 Q: Are you talking about creating a retention pond
16 across the street from the Bruning residence?

17 A: It was -- what options existed to keep Mr.
18 Meyers and Garfield Park Phase 3 meeting the
19 storm water requirements without having to fix
20 the dike breach.

21 Q: Okay. Did you recall that the biggest
22 impediment to simply fixing the dike was the
23 refusal to grant access through G tract?

24 A: That was one.

25 Q: Were there others?



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1 A: Rush Street extension. The perpetual
2 maintenance ---

3 Q: What was the problem with the Rush Street
4 extension?

5 MS. SHAHID: Your Honor, he's talking over the
6 witness. I'd like the witness to be able to
7 complete his responses.

8 THE COURT: Thank you. Mr. North, allow him to
9 finish.

10 A: Could you rephrase the question about Rush
11 Street extension?

12 Q: Yes. What was the problem -- what do you mean
13 by a Rush Street extension, and what was the
14 problem with doing it?

15 A: One was cost, one was potential critical area
16 permitting for additional disturbance in the
17 prior lakebed.

18 Q: Was the disturbance in the lakebed also an
19 issue with regard to any potential new
20 detention pond across from the Bruning
21 residence?

22 A: It was our opinion or understanding that the
23 dike had breached, and it had not been repaired
24 in a quick enough fashion successfully to allow
25 us to go in and do improvements to what we



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1 thought would be critical area. It's -- I
2 understood that if you didn't fix an
3 impoundment over a certain amount of time that
4 it becomes -- waters of this state are critical
5 area. So that was one item.

6 Q: You did although yet a reasonably long
7 extension, didn't you, on your repair
8 authorization from OCRM?

9 A: An extension over a new maintenance and repair,
10 I think they're good for six months.

11 Q: I'm handing you what has been marked as Exhibit
12 33. Do you recognize those as repair
13 authorizations obtained in connection with the
14 repair of the dike?

15 A: I do.

16 Q: And could you tell me the date of the second
17 repair authorization and when it would have
18 expired?

19 A: Issued September 3rd of 2010, expiration March
20 3rd of '11.

21 Q: Okay. So it would have expired a year and nine
22 months after the dike breach?

23 A: I'm not sure of the exact date of the dike
24 breach.

25 Q: I'll represent to you that it was in June of



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1 2009.

2 A: Okay.

3 Q: And tell me again the date of the second
4 authorization.

5 A: To be clear, the first one was issued to
6 Oakland Marine Construction February 18th of
7 2010, expiring August 18, 2010. The one we
8 applied for, the second one, was issued
9 September 3, 2010, go through March 3, 2011.

10 Q: What efforts, if any, during the period of the
11 second repair authorization were actually
12 undertaken to pursue a repair?

13 A: No contract was granted -- I mean, entered into
14 between Meyer and a contractor to do any
15 additional work.

16 Q: Are you aware of any efforts or activity during
17 that period of time to actually move forward
18 with a repair?

19 A: We were dealing with a permitting enforcement,
20 all sorts of folks at the time that he was
21 reviewing, I guess, his options.

22 Q: Okay. So the answer would be no?

23 A: Right, no.

24 Q: Okay. At some point, did you work on putting
25 together an application for a retrofit?



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1 A: I did.

2 Q: Okay. And tell the court what you mean by a
3 retrofit.

4 A: Basically after we reviewed the cost and the
5 residual effects of the dike repair, meaning it
6 had to have clear access for future ongoing
7 perpetual maintenance to this dike with a few
8 various routes that had a few fairly large
9 obstacles in the mind of the developer, he
10 asked that we review another mechanism on the
11 hill that treated the storm water before it
12 ever reached the lake. So we reviewed inlet
13 filters in the catch basin so that the polluted
14 runoff from Garfield Park Phase 3 before it
15 ever reached the lake was treated instead of
16 depending on the lake, the wet detention pond,
17 to provide the treatment.

18 Q: When you discussed that treatment option, did
19 you have any concerns that such a treatment
20 method would not meet the requirements of the
21 South Carolina Coastal Zone Management Program?

22 A: No, sir. We reviewed their pollutant removal
23 efficiencies and submitted an application we
24 had back and forth with the state to ensure
25 that it was indeed a permissible alternative



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1 that met the Coastal Zone Management
2 requirements.

3 Q: So to determine whether or not it would be
4 acceptable, did you review the program
5 requirements, or did you just ask OCRM
6 personnel if they would accept it?

7 A: We looked at the requirements, and the first
8 fresh storage volume, there's a inch -- one
9 inch, inch and a half -- there's all these
10 depths of water that equate to a volume of
11 storm water that the state says treat this
12 volume of water because as soon as it rains,
13 that's when the most pollutants get washed
14 away. And the filtration device that we
15 reviewed targeted those pollutants. So rather
16 than treating and withholding and retaining to
17 allow pollutants to settle out in a wet pond,
18 we let the water flow through a filter to
19 remove those pollutants and not require them go
20 through the pond.

21 Q: Are you aware that there are only three types
22 of storm water treatment that are allowed
23 within a half a mile of the coastal zone?

24 MS. SHAHID: Object, Your Honor, to the -- well, I
25 withdraw my objection.



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1 A: Could you repeat the question?

2 Q: Yes. Are you aware that there are only three
3 types of storm water treatment techniques that
4 are authorized under the Coastal Zone
5 Management Program for treatment within one-
6 half mile of the coastal zone?

7 A: There's many, many regulations if you've got a
8 ---

9 Q: As you sit there today, do you have any
10 knowledge about any such requirement?

11 A: Within a half mile ---

12 Q: Yes.

13 A: --- it requiring it be wet detention?

14 Q: Wet detention or some other type of treatment?

15 A: Yeah. I know there's requirements, I just
16 can't state them right off.

17 Q: Okay. Do you know whether or not ---

18 A: On a case by case basis.

19 Q: --- treatment methods are limited to detention,
20 retention, or infiltration?

21 A: Yeah. That's -- there are certain requirements
22 with certain distances from certain things
23 you've got to do.

24 Q: Do you know whether or not any of those
25 requirements came into play with -- in



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1 connection with the retrofit?

2 A: We were merely trying to treat the first flush
3 volume of water. And rather than doing it
4 through a wet pond that we could not construct
5 within Garfield Park, we studied this
6 alternative that performed the same function as
7 the wet pond would that replaced the function
8 but in a much more easily maintainable fashion.

9 Q: And a less costly type of treatment?

10 A: It could be. Yes, sir.

11 Q: Less cost to implement and less cost to
12 maintain?

13 A: In comparison to another dike breach. Yes,
14 sir.

15 Q: Or in connection with fixing and maintaining a
16 wet detention pond?

17 A: Assuming no catastrophic failure, those could
18 be similar I would assume, treatment of ---

19 Q: Do you recall that when you sought and obtained
20 a storm water permit for wet detention in 2004
21 for Garfield Park, that the sediment removal
22 efficiency was found by you to be 94 percent?

23 A: I recall there being a calculation and it being
24 in the 90's.

25 Q: In the 90's somewhere?



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1 A: I guess so.

2 Q: Okay. Do you recall that these filter inlets
3 only remove 74 percent of sediment if they are
4 clean to begin with?

5 A: I recall there being a removal efficiency that
6 caught the amount of pollutants needed.

7 Q: Well, is there not a requirement that storm
8 water capture at least 80 percent of sediment?

9 A: Mainly for, I guess, during construction
10 process when you've got the entire site graded,
11 and rain would cause massive amounts of total
12 suspended total suspended solids would, you
13 know, turbidity -- conturbidity (ph) in the
14 water. You want that wet detention pond or a
15 sediment trap to capture that runoff and allow
16 it to bleed out leaving the sediments behind
17 and letting clean water pass through.

18 Q: Do you recall that your proposed inserts
19 captured less than that 80 percent?

20 A: I recall they capturing a 70 some odd percent
21 ---

22 Q: Okay.

23 A: --- trapping efficiency.

24 Q: So approximately 20 percent less efficient than
25 the detention provided by the lake?



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1 A: If you look at it that way, yes.

2 Q: Okay. So would you agree that your proposed
3 retrofit provided a lesser quality of storm
4 water treatment with regard to sediment capture
5 than the detention provided by the Cat Island
6 Lake?

7 A: The percentages of pollutant removal
8 efficiencies just given a certain amount for a
9 wet detention pond, there is manufacturer's
10 data, you know, third party testing saying that
11 these filters and others like it provide this
12 amount of pollutant removal. And there is a
13 far less amount of total suspended solids and
14 -- from a developed residential subdivision.
15 It's not a construction site anymore, so ...

16 Q: Would you agree that a wet detention pond such
17 as the Cat Island Lake would capture more
18 pollutants including sediment than the proposed
19 inline filters?

20 A: Probably for the Cat Island site. It was seven
21 acres drain into a four acre pond. Certainly,
22 you know, I mean ---

23 Q: So you would agree with that?

24 A: It has the potential to -- yeah.

25 MS. SHAHID: Your Honor, I'm sorry. The witness'



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1 voice keeps falling off. And I -- I know I
2 can't instruct him. Would you mind reminding
3 him to sort of speak up.

4 **MR. LYLE:** I apologize.

5 **MS. SHAHID:** I want to make sure everybody hears
6 what he says. It's important.

7 **MR. LYLE:** I scaled it back to a one-on-one
8 conversation. I apologize.

9 **MS. SHAHID:** I know. You're not -- Mr. North would
10 love for you to treat it like one-on-one, but
11 talk to all of us.

12 **MR. LYLE:** Okay. Yes, ma'am.

13 **Q:** Okay. Just to make sure everybody heard your
14 answer, you agreed, did you not, that the
15 detention provided by the Cat Island Lake would
16 have provided a higher quality of storm water
17 treatment than the proposed inline filters?

18 **A:** Yeah. The calculated percent removal
19 efficiency of the pond was greater than our
20 calculated or the third party testing of an
21 inline filter.

22 **Q:** Now, when you get the efficiency percentages
23 for inline filters, do not those efficiencies
24 assume that the filter is clean when they do
25 those testing percentages?



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1 A: I can't state that for certain. I would assume
2 that they can't assume that it's clean. I'm
3 sure they test it under all sorts of
4 conditions.

5 Q: Are these percentages that are provided to you
6 by the manufacturer?

7 A: Yes.

8 Q: Would it be reasonable to assume that the
9 manufacturer when establishing those
10 percentages does not first clog up his filter
11 with debris before testing?

12 A: That's probably one of the tests he does
13 perform to see what removal efficiencies it
14 does provide with a filter being nearly
15 clogged. And that's why they recommend
16 maintenance.

17 Q: Okay. Now, tell me -- tell the court the
18 information you got about how this filter works
19 when it is clogged?

20 A: It ---

21 Q: It doesn't result in any backup flooding, does
22 it?

23 A: No, sir. What it does provide is a removal
24 efficiency, I guess, -- in simpler terms, the
25 first flush runoff volume, as soon as it starts



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1 raining and washing off pollutants, it allows
2 it to drain those low flows through a filter.
3 Then when it goes through that filter, there's
4 a trap that collects the other debris, larger
5 debris, cans and cups and what have you. And
6 -- so during the low flow events that we're
7 trying to target that has the most amount of
8 pollutants, it routes that through the filter.
9 Higher intensity storms, however, it's -- the
10 system is designed such that those higher
11 intensity storms, larger volumes of water but
12 the more clean water is allowed to bypass the
13 filtration system and flow through the mesh
14 only, not the filter, the tight filter, and to
15 the lake downstream to not backup water. We
16 wouldn't want to put anything in place that
17 didn't have a safety mechanism that would allow
18 high flows to bypass that would result in
19 flooding if clogged.

20 Q: Okay. Would it be fair to say that when these
21 heavy flows go through and bypass the filter,
22 that they are passing through the system
23 without any storm water treatment?

24 A: Yes. Once it's beyond the filter, there would
25 be no "treatment" for the first flush volume.



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1 Q: Are you aware of any regulation in South
2 Carolina that is referred to as Anti-
3 Degradation ---

4 A: No, sir.

5 Q: --- Policy? Pardon?

6 A: No, sir.

7 Q: Okay. Would you agree that if the storm water
8 treatment of these filters is inferior to the
9 storm water treatment of the Cat Island Lake,
10 that the water quality of the storm water
11 discharge would be degraded to some degree?

12 A: Degraded?

13 Q: Degraded, lessened?

14 A: Uh-huh (affirmative response). It could be
15 based on the percentages of the anticipated
16 removal efficiency of a wet detention pond. It
17 says it provides greater treatment than the
18 filter, so I'm not saying that it's not
19 treating. It's just ---

20 Q: Not filtering?

21 A: I guess, perceived as a lesser treatment.

22 Q: Okay. Now, let's get back to this retrofit
23 project. As a part of that project, was the
24 lakebed of the Cat Island Lake left exposed to
25 tidal flows?



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- 1 A: Is that a question? I'm sorry.
- 2 Q: Yes. Was -- as a part of that project, was the
3 lakebed of the Cat Island Lake then left to
4 exposure of tidal flows?
- 5 A: Yes.
- 6 Q: Okay. And by doing so, would you agree that
7 the acreage of the Cat Island Lake would be
8 added to the critical area?
- 9 A: Yes.
- 10 Q: Would you agree that adding acres of Cat Island
11 lakebed to the critical area would effect the
12 critical zone?
- 13 A: Could you rephrase the question?
- 14 Q: Yes. Would you agree that adding acres of Cat
15 Island lakebed to the critical area would
16 effect the critical zone?
- 17 A: What do you mean by the critical zone?
- 18 Q: Well, let me ask you, do you know what is meant
19 by the critical zone? The critical area?
- 20 A: Yes.
- 21 Q: Okay. I -- let me rephrase that because you're
22 -- that's a good point. Critical area, not
23 critical zone.
- 24 A: Okay.
- 25 Q: That's the correct term, isn't it?

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1 A: Yes.

2 Q: Okay. Would you agree that adding acres of Cat
3 Island lakebed to the critical area would
4 effect the critical area?

5 A: Effect it? I'm not following how it -- I can't
6 ---

7 Q: I'm not asking you to determine whether or not
8 it does so positively or negatively. I'm just
9 saying does it have an effect on the critical
10 area to add acreage to it?

11 A: Yes. I would assume it -- it could effect it.

12 Q: Okay.

13 A: I'm not sure in what manner.

14 Q: Okay. As a part of this project, were you
15 required to stabilize the dike?

16 A: We proposed stabilization of the dike to
17 eliminate the perpetual maintenance of a dike
18 that would continue to erode. It appeared that
19 it was near naturalizing during the normal tide
20 flows, but it still had some vertical elements,
21 and we wanted to come back and shave the banks
22 down so that it was a complete project just
23 stabilized opposed to ...

24 Q: Okay. And did that involve applying matting or
25 other stabilizing materials to the areas that



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1 were being exposed to the tidal flows?

2 A: Yes. Removing a tree that kind of labored
3 over. It was just being undermined. So
4 shaving the banks back and putting down a --
5 something like a turf reinforcement mat too so
6 that we wouldn't have to go back out there and
7 address any ...

8 Q: And would it have contemplate with regard to
9 the portions of the dike that are actually
10 being hit by tidal flows, the part that's
11 underwater at high tide?

12 A: It did not. We were proposing to reinforcing
13 the top portions where we were going out there
14 to shave the tops back. It appeared that the
15 breach itself where the water flowed in and out
16 was fairly naturalized. It was not continuing
17 to erode and, you know, shouldn't get much
18 greater in width than it is today. I mean, it
19 had been flowing in and out for years.

20 Q: The erosion that you were worried about is
21 caused by tidal flows, isn't it?

22 A: It could. Mainly the fact that we were
23 disturbing those vertical shelves, we were
24 going to tie those back, sorry. Slope them.

25 Q: Would not your matting and other stabilization



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1 techniques have proceeded all the way down into
2 the water area ---

3 A: To the water line.

4 Q: --- that's covered at high tide?

5 A: Uh-huh (affirmative response).

6 Q: You have to speak verbally ---

7 A: Yes.

8 Q: --- or the court reporter can't pick it up.

9 A: Yes.

10 Q: Yes? Okay. And would you agree that that
11 would involve work in the critical area?

12 A: We had discussions with the critical area folks
13 to -- you know, was a permit going to be
14 required for that work we chose -- you know,
15 what we saw was the lakebed was the same
16 elevation as the marsh outside of the dike
17 because the dike was an impoundment created
18 lake, and it was going back to just being tidal
19 marsh. So to answer your question, we were
20 just stabilizing the two ends of the prior dike
21 above the elevation of the critical area. So
22 we were not requesting a critical area permit,
23 no.

24 Q: Okay. But would you agree that the work
25 involved some stabilization of areas that might



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1 be covered at high tide?

2 A: At high tide, yeah.

3 Q: Okay.

4 A: Uh-huh (affirmative response).

5 Q: So would you agree that that work, by
6 definition, effects the critical area?

7 A: Effects, yes.

8 Q: Okay. What information do you have about when
9 the Cat Island Lake was formed?

10 A: Aerial photography and discussions with the
11 developer. The aerial photography we
12 researched showed that there was a 1955 and a
13 '60 and '65. And between '60 and '65, it
14 appeared that the prior land owner impounded
15 that. They created the dike and built duck
16 ponds out in the marsh.

17 Q: Okay. So you're saying that your research
18 indicated that some time in the early 1960's,
19 the lake was formed, and it's been that way
20 since?

21 A: Right.

22 Q: And the dike has been in place since?

23 A: Right.

24 Q: And would you agree that once that dike is in
25 place, that it would then capture all of the



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1 storm water runoff from the entire drainage
2 basin of the lake that was formed?

3 A: Yeah. All the water that flowed through it.
4 Yes, sir.

5 Q: Now, when it captures all of that water --
6 well, strike that. Is it also your
7 understanding that the dike also had an outfall
8 structure?

9 A: Yes.

10 Q: And would that outfall structure skim off the
11 top portions of whatever storm water was
12 captured by the dike and allow it to be
13 released to Chowan Creek?

14 A: Captured by the pond?

15 Q: Yes, captured by the -- well, we can call it
16 the pond or the Cat Island Lake.

17 A: Uh-huh (affirmative response).

18 Q: So same body of water?

19 A: Right.

20 Q: Is that how it worked?

21 A: Yes. Water that flowed in, flowed out over
22 flashboard riser.

23 Q: Okay.

24 A: Uh-huh (affirmative response).

25 Q: And is that the same type of outfall structure



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1 that is typically used in a wet detention pond?

2 A: These days, no. We do -- go with a fixed
3 elevation. The reason why they did a
4 flashboard riser in the past for duck hunting
5 purposes were to be able to easily manipulate
6 the water level. You can drain it dry, plant
7 it, corn, sorghum, what have you. We -- and
8 they would put the riser boards back in to
9 allow it to flood up over the crops. So I
10 believe that structure just remained in place.

11 Q: Okay.

12 A: And we ---

13 Q: So other than the ability to adjust the water
14 level, does that function the same as a typical
15 wet detention outfall device?

16 A: Yes.

17 Q: And by -- and when I say function, I'm talking
18 about the water that falls into it and is
19 discharged effectively, is skimmed off of the
20 top of the lake, is it not?

21 A: Right.

22 Q: Okay. So is that part of the reason why this
23 setup was approved in 2004 as a wet detention
24 pond for Garfield Park Phase 3?

25 A: Yeah.



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1 Q: Now, if this has been in place since the early
2 1960's, would you agree that effectively it
3 acted as the detention basin, a wet detention
4 basin, for the entire drainage basin of that
5 lake?

6 A: Yeah. Any pond with a tributary drainage basin
7 area, you know, water flows into it and then
8 out.

9 Q: Would you agree then that for the entire
10 drainage basin since the early 1960's, there
11 was wet detention of storm waters for the
12 drainage basin?

13 A: Yes.

14 Q: Okay. And would you agree that the bottom of
15 the Cat Island Lake would then have whatever
16 pollutants and sediment and whatever else gets
17 filtered out by a wet detention pond over a 60
18 year period?

19 A: Yes.

20 Q: Would you agree that when you don't repair the
21 dike and allow the tidal flows to go back and
22 forth across that mud bottom with all of those
23 pollutants that that can have an adverse
24 consequence to the critical area?

25 A: It could.



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- 1 Q: Would you expect it to?
- 2 A: Depending on how much dilution it got during a
3 tidal loom, you know, during that tidal flow,
4 was it just ---
- 5 Q: You mean the rate of the tidal flow?
- 6 A: Yeah. I mean, there's -- if it took it all out
7 in one clump, that'd be one thing. But, you
8 know, over time just slowly taking piece by
9 piece, you know, I guess it all depends on the
10 rate of sediment flowing out as to how much
11 damage it would ---
- 12 Q: Okay. Are you saying that if it flowed out all
13 at once, that would be a big disaster. And if
14 it just went slowly, it may not be great, but
15 maybe not so bad?
- 16 A: Right.
- 17 Q: Okay. Still not positive, is it?
- 18 A: No.
- 19 Q: Do you agree that these inline filter inserts
20 that were proposed for Garfield Park retrofit
21 are different than a type of storm water that's
22 called infiltration?
- 23 A: Yes.
- 24 Q: Okay.
- 25 A: They're two different.



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1 Q: Would you agree that infiltration involves
2 allowing storm water to settle through the
3 earth?

4 A: Yes.

5 Q: Do you recall doing some calculations with
6 regard to the retrofit to determine the effect
7 of a 10-year storm?

8 A: Yes.

9 Q: And describe for the court what you did and
10 what you found.

11 A: OCRM has a requirement for you to study the
12 10-year storm event. And -- do you have a more
13 specific question or just in general what ---

14 Q: Well, if you could just -- you know, I get
15 yelled at for leading the witness, so I try not
16 to do that even though I forget. I was hoping
17 you could just tell the court what you had to
18 do for OCRM to demonstrate the effects of a
19 10-year storm and what you found.

20 A: Okay. What we've been talking about had been
21 water quality with the water -- the inlet
22 filters. So now we're taking a step toward --
23 from quality treatment to quantity treatment.
24 The 10-year storm event was reviewed for storm
25 water runoff rates and volumes. So if we were



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1 not on a tidal creek that had the ability to
2 accept our increased runoff, then we could --
3 we would have to retain onsite and have to have
4 a pond to allow the water to stage up and just
5 bleed out over time. So we reviewed the
6 hydrograph, a 10-year, 24 hour storm event that
7 drops four and a half inches of rain over that
8 period, and route it through the pond. So what
9 effect does it have as far as stage and then
10 the outflow through the outfall structure. So
11 ---

12 Q: And what did you find when you studied that?

13 A: That the pond was capable of providing the
14 detention for the 10-year storm event for
15 Garfield Park Phase 3.

16 Q: Capable of providing detention or capable of
17 not having adverse consequences resulting from
18 storm water flows?

19 A: Are you asking about when the dike is in place
20 or not?

21 Q: Well, that's what we need to clarify. You're
22 not suggesting that with the hole in the dike
23 that the storm water in Garfield Park is being
24 detained, are you?

25 A: No, sir.



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1 Q: Okay. Is it fair to say that you studied the
2 consequences of four and a half inches of rain
3 both with the dike in place and without the
4 dike in place?

5 A: Yes.

6 Q: And what did you find?

7 A: We found that with the dike in place and the
8 detention pond, there was storm water storage
9 in the pipes that created an increase stage.
10 Without the dike in place, there was not much
11 difference in the elevation of the pond with
12 the dike gone because it -- the volume of water
13 in the river was much greater than the volume
14 of storm water runoff. So the lakebed level --
15 -

16 Q: Would it be fair to say that you found that
17 with the dike in place, the water rose somewhat
18 but not enough to cause any flooding issues?

19 A: It -- yes. It did increase. It rose in
20 elevation.

21 Q: Okay. And you had to make that same
22 demonstration in 2004, didn't you?

23 A: I believe so, yeah.

24 Q: Okay. And didn't you find in 2004 and in
25 connection with the retrofit that this Cat



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1 Island Lake could handle a 10-year storm
2 without a problem?

3 A: Right.

4 Q: Okay. And did you then also find that without
5 the dike in place, the water flowed out quickly
6 enough that it didn't even raise the level of
7 the water?

8 A: Right.

9 Q: Okay. Tell the court what you did to study
10 whether or not there was an issue as to erosion
11 from a 10-year storm.

12 A: Erosion? The erosion component came from the
13 dike breach because Garfield Park Phase 3
14 proper -- upstream of the lake has been
15 stabilized for years, so we weren't concerned
16 with erosion there. There's paved roads, it's
17 grassed lawns. What we were concerned about
18 was the dike breach and the fact that -- I'm
19 not sure if you saw any of the photographs, but
20 there are some scrubby oak trees and what have
21 you on the banks. It has a root systems that,
22 you know, have just been undermined. So rather
23 than allowing two to three years from now,
24 those trees could just fall over into the dike
25 breach, so we'll just go out there and remove



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1 -- shave the banks back. Instead of having
2 them vertical, we're just going to lay them
3 back. So to reinforce the tip ends of the dike
4 breach, we were proposing to do that with turf
5 reinforced mat.

6 Q: Did you also as a part of this retrofit project
7 have to provide information to OCRM about the
8 discharge velocity of the storm water?

9 A: Yes. We reviewed -- if the dike breach had a
10 lot of water going through a narrow gap, it
11 would continue to erode. But the wider the gap
12 gets, the less it's going to erode because the
13 velocity is less. And so we reviewed how much
14 water is coming in and out, and what is the
15 velocity of that water and deemed it to be --
16 the cross-sectional area, the V for lack of
17 better words, that we observed was not going to
18 really continue to erode greatly because it had
19 already stabilized. What we were concerned
20 about was the upland portions, the dike that
21 remained on top with the overlying trees that
22 were being undermined. So we were shaving the
23 banks back to stabilize those areas that had
24 the potential to wash, erode with wind and
25 water, whatever, rain water.



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1 Q: Okay. My question though had to do with
2 copulating the velocity of the discharge of the
3 water. Do you remember doing a calculation for
4 OCRM to demonstrate that the water flows in a
5 10-year storm would not be erosive?

6 A: Yes.

7 Q: Okay. Tell the court what you did to make that
8 determination.

9 A: The velocity of the water that exits the pond
10 -- the flow and area and velocity are all --
11 the flow is equal to the velocity and the area,
12 so the flow through the dike in that cross-
13 sectional area tells us the velocity of that
14 flow. Does it -- is it greater than five feet
15 per second, which is the -- what OCRM deems to
16 be the, you know, an erosive velocity, or is it
17 less than that. And we found it to be less
18 than that once we lay the banks back. So ...

19 Q: Okay. And you found it to be just short of
20 four feet per second?

21 A: Yes.

22 Q: Now, if it -- when you say OCRM says five feet
23 is not erosive, is that over a grassy area?

24 A: Storm water flow over a stabilized surface. So
25 we were planning to stabilize the surface to



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1 allow for the perpetual flow of water.

2 Q: Well, you weren't planning to stabilize the
3 entire lake bottom, were you?

4 A: No. We were not going to plant grass below the
5 tide line. So no, it would act just like the
6 rest of the dike, you know, spartina could grow
7 on the edges. The -- we were planning to
8 stabilize the portion of the dike above the
9 critical area.

10 Q: Okay. And would you agree that the tide only
11 flows in the tidal area?

12 A: Uh-huh (affirmative response). Yeah. But
13 there's also wind erosion, there's rainwater,
14 that falls on disturbed area that creates
15 gullies and what have you, so ---

16 Q: Okay.

17 A: --- that was our intent to just stabilize.

18 Q: Okay. So then you were not going to do
19 anything to plant grass or anything like that
20 below the high tide line?

21 A: No, sir.

22 Q: Okay. So would you agree that that is not a
23 grassy stabilized area?

24 A: Right.

25 Q: Okay. And would you agree that the erosive



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1 velocity when it isn't a grassy stabilized area
2 and it's instead a mud pit would be a much
3 slower rate could be erosive?

4 A: It's marsh mud areas have tidal influence all
5 the time. And depending on the tidal
6 influence, they kind of -- they reach their
7 certain width. They have no reason to continue
8 to erode and just get wider and wider and
9 wider. They flow a certain amount. The
10 channel that's created by continual flow of
11 water, you know, it reaches it's maximum width,
12 if you want to call it that.

13 Q: Okay. We'll get to that in a second.

14 A: Sure.

15 Q: But my question is would you agree that tidal
16 flows over a mud bottom would be erosive at a
17 slower speed than tidal flows over a grassy or
18 stabilized surface?

19 A: Yes.

20 Q: Okay. So that would be something less than
21 five feet per second, wouldn't it?

22 A: Could be.

23 Q: Okay. Now with regard to these flows, you
24 talked about the tidal flows going across marsh
25 areas. Would you agree that when those tidal



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1 flows from the entire drainage basin get down
2 to the dike and the opening in the dike is a
3 narrowing of those water flows that as it goes
4 through that opening, it speeds up?

5 A: Yes.

6 Q: The water speeds up?

7 A: Right.

8 Q: Okay. And would you also agree that the higher
9 the tide, the slower the discharge of the storm
10 water?

11 A: The higher the tide, the discharge -- can you
12 please rephrase that question? The higher the
13 tide? My problem is the verbiage you used on
14 storm water. It's tidal water flows and storm
15 water flows all co-mingled in the impoundment.

16 **THE COURT:** Mr. North, could you clarify your
17 question for the witness?

18 **MR. NORTH:** Yes, Your Honor. I was making a couple
19 notes.

20 Q: You made kind of a V-shape with your arms. Is
21 that representing the area of the dike that
22 would be open?

23 A: Yes.

24 Q: Okay. Tell you what, let me give you a
25 document so you don't have to use your arms,



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1 but you can actually have a drawing. I'm going
2 to hand you Exhibit 64. Do you recognize that
3 as the final submittal that you made to OCRM,
4 the final drainage plan system retrofit plans,
5 for Garfield Park?

6 A: I do.

7 Q: And directing your attention to the last --
8 directing you attention to sheet 4 of the
9 second to the last sheet, at the bottom of that
10 page, do you see a drawing of this opening of
11 the dike that you've been talking about?

12 A: I do.

13 Q: Okay. And do you see across the middle of the
14 dike you've drawn in mean high high water level
15 of 4.48?

16 A: I do.

17 Q: And mean high water of 4.12 -- or, I'm sorry,
18 10?

19 A: Yes.

20 Q: Okay. Is 4.1 feet the elevation of the mean
21 high tide at that location?

22 A: Yes.

23 Q: And is 4.48 feet the elevation of the mean high
24 high tide at that location?

25 A: Yes.



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- 1 Q: Can you tell the court the difference between
2 mean high water and mean high high water?
- 3 A: The definition, I would say that the mean high
4 water is the average of the high water events
5 in this area. And the mean high high water is
6 the average or the mean of the higher water.
7 There's higher water elevations.
- 8 Q: But it's the mean -- the average of what?
- 9 A: The higher of the high tides.
- 10 Q: Okay. Just to clarify, would you agree that
11 every day, every 24 hour period, there are two
12 high tides?
- 13 A: Yeah.
- 14 Q: And would mean high water be the average of all
15 of the tides that happen over a period of time?
16 Of the two tides each that -- and if you're not
17 certain, that's ---
- 18 A: I'm not certain.
- 19 Q: Okay. Are you certain of how you calculated or
20 what mean high high-tide means?
- 21 A: It's an elevation given to us. The surveyors
22 provide us with that information based on where
23 you are in a tidal water body.
- 24 Q: Okay.
- 25 A: It's based on ---

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1 Q: Do you know how it's calculated?

2 A: No, sir.

3 Q: Okay. Now, with regard to calculating the rate
4 of discharge of the storm water of a 10-year
5 event, would you agree that the smaller the
6 hole that water has to go through, the faster
7 it moves?

8 A: Yes.

9 Q: And would you agree that if the water level at
10 the time of a 10-year storm event was at the
11 level of 4.48, the mean high high water level,
12 ---

13 A: Uh-huh (affirmative response).

14 Q: --- that it would be discharging at a much
15 slower rate than if there was no tide at all
16 and it was only going through the narrow part
17 of the bottom of that drawing?

18 A: Yep.

19 Q: Okay. And would you be able to calculate the
20 increase by comparing the area underneath the
21 mean high high water mark versus the height of
22 the discharging storm water?

23 A: Could.

24 Q: Okay. So just hypothetically, if the storm
25 water discharging without any tide only filled



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1 up one-third of that area, would you expect the
2 discharge rate to be three times the discharge
3 through the area that's three times larger
4 roughly?

5 A: I would have to first see if there's enough
6 storm water volume coming through the lakebed
7 to create a stage that high with no tide.

8 Q: Okay. Because it might not be one-third?

9 A: Right.

10 Q: It could be very low.

11 A: Right.

12 Q: And the lower it is, the faster it moves?

13 A: Depending on how wide it is.

14 Q: Okay. Well, let's assume that volume was a
15 10-year storm event. And just hypothetically,
16 it may only be one-tenth as high. It may be
17 one-third. I'm not trying to suggest anything
18 about that. I have no idea how high it would
19 be. But could you almost have a ratio to
20 determine the difference in speeds depending on
21 the relative sizes of the hole it's going
22 through?

23 A: It could.

24 Q: Okay. And I'm not suggesting that it would be
25 to a mathematical certainty, but just generally



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1 if it went through a hole half as big, would it
2 go through twice as fast?

3 A: It would be an increased flow, yes.

4 Q: Okay. And would it be roughly twice as fast?

5 A: Yes.

6 Q: Okay. Now, when you determined your rate of
7 discharge, what level of tide did you use to
8 make your calculation?

9 A: I'm sorry, could you repeat the question?

10 Q: Yes. When you calculated for OCRM the rate of
11 discharge of the storm water of a 10-year
12 event, what tide level did you use in that
13 calculation?

14 A: We were requested based on, I think, some of
15 the correspondence they had with you during the
16 permitting process, they requested a model
17 against a mean high water elevation. And then
18 a separate submittal requested I, you know,
19 take a step beyond that and -- for everyone's
20 sake and me model against a mean high high
21 water elevation.

22 Q: Okay. So was the calculation of velocity that
23 was just under four feet per second, was that
24 done at the mean high high water level?

25 A: Yes. And the intent was to review the entirety



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1 of that dike breach flowing full.

2 Q: Okay. And would you agree that when you take
3 a 10-year storm event and you dump it into a
4 high high tide, that it just kind of disappears
5 out into the ocean, doesn't it?

6 A: Uh-huh (affirmative response).

7 Q: Okay. And would you agree that the rate of
8 discharge when the lake is full of ocean would
9 be much slower than if it was just the storm
10 water gushing out over the mud?

11 A: The rate or the velocity?

12 Q: The velocity.

13 A: It's all dependent on the geometry. Whatever
14 stage is created by the storm water that flows
15 through the dike, it creates the velocity.

16 Q: All right.

17 A: And, you know, you can have the same velocity
18 for a larger stage but a large area.

19 Q: Right.

20 A: So ...

21 Q: But we're dealing with just Garfield Park.

22 A: Uh-huh (affirmative response).

23 Q: And it's the same area for all stages.

24 A: Uh-huh (affirmative response).

25 Q: So aren't you right back to the situation where



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1 the going through the smaller hole makes it go
2 a lot faster?

3 **MR. HABER:** Objection, Your Honor. I'm not sure Mr.
4 North is testifying to that statement if
5 there's a question.

6 **THE COURT:** Let's let him answer it to the best of
7 his ability.

8 **MR. HABER:** Thank you, Your Honor.

9 **Q:** Do you understand the question?

10 **A:** The geometry of the lower same -- with the same
11 geometry as we see here, a lower storm water
12 flow rate coming through that lake bottom would
13 create a certain velocity.

14 **Q:** Okay.

15 **A:** Are you asking if it's greater?

16 **Q:** No, I'm -- well, first of all we established
17 that when you take the 10-year storm event and
18 you put it into the ocean, you have your mean
19 high water level high, you have the hole
20 through the dike maximized, and you have the
21 rate slower than if there wasn't the ocean
22 there to capture all that water; is that
23 correct?

24 **A:** I'd have to review it to be completely certain.
25 I don't want to make the statement.



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1 Q: What I'm getting at is if there was no water at
2 all from the tides ---

3 A: Uh-huh (affirmative response).

4 Q: --- in that cut, would you not agree that the
5 discharge of a 10-year storm event would go
6 through the narrower portion of the dike
7 opening and be traveling at a greater rate of
8 speed as it discharges than if it was simply
9 feeding in to the ocean filling the lake?

10 A: Yes.

11 Q: Okay. Thank you. While we have this out,
12 let's look because it's so hard to deal with
13 these things. Take a look if you would at
14 sheet 1.

15 A: Okay.

16 Q: Do you see there the drainage basin of -- that
17 you have determined for the Cat Island Lake?

18 A: I do.

19 Q: And is that depicted by the dotted lines?

20 A: It is.

21 Q: And would you -- are you saying that all of the
22 storm water that would fall within that
23 drainage basin would drain to the lake and be
24 discharged?

25 A: Yes.



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1 Q: Okay. And this is the same drainage basin that
2 would -- that I was referring to earlier when
3 I wanted to confirm that all of the storm water
4 since the early 1960's had drained to this
5 lake and had detention by the lake; is that
6 correct?

7 A: Correct.

8 Q: Okay. Now, under the retrofit program, would
9 it be fair to say that the retrofit project
10 only treated the portion of that drainage basin
11 that is Garfield Park?

12 A: Correct.

13 Q: And the balance of that drainage basin, would
14 it simply in the future under the retrofit
15 permit flow to the lake and out through the cut
16 ---

17 A: Uh-huh (affirmative response).

18 Q: --- without the detention?

19 A: It would.

20 Q: Okay.

21 A: I would clarify that without the added
22 detention of the lake because other developed
23 areas have other means of storm water
24 treatment.

25 Q: Okay. And are you aware that part of this



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1 drainage basin immediately to the left of
2 Garfield Park is the golf club house for the
3 Cat Island Golf Course?

4 A: Yeah.

5 Q: And was it developed prior to the effective
6 date?

7 A: I understand that it was.

8 Q: And it does not have any storm water treatment,
9 does it?

10 A: Oh, sorry. I'm -- I understand from OCRM that
11 the only project that required storm water
12 treatment that depended on this lake was
13 Garfield Park Phase 3, developed after a
14 certain date.

15 Q: Okay. And -- but you're familiar with this
16 area, aren't you?

17 A: Yes, I am.

18 Q: Okay. And would you agree that there are golf
19 course properties, golf course club house, a
20 couple of fairways ---

21 A: Uh-huh (affirmative response).

22 Q: --- that are in that drainage basin?

23 A: Yep.

24 Q: And they all -- all the drainage from those
25 areas, that was all developed prior to the



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1 effective date and was not required to meet any
2 of these storm water requirements?

3 A: We did not design them nor permit them to
4 today's standards, no.

5 Q: Okay. And would it be fair to say that under
6 the retrofit permit, those areas would simply
7 have its -- their storm water discharge to the
8 lake without storm water treatment in
9 accordance with the regs?

10 A: I would say that based on this plan, Garfield
11 Park Phase 3 because it was designed and
12 permitted after a certain date, discharge to
13 the lake and we utilized the lake for storm
14 water detention.

15 Q: Right.

16 A: All right. The other area surrounding Garfield
17 Park Phase 3, be it the club house, Tabby Park,
18 because those are developed areas, they have
19 the capacity to one flow through this one inlet
20 filter and the other side of the development
21 can flow through the Tabby Roads, Tabby Park,
22 detention pond, then through the second
23 detention pond and through the wetlands and
24 then to the lake. So I'm not saying it's not
25 getting any treatment. And to be clear on



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1 tract G, it's undeveloped, so it's -- it would
2 have to meet it's own requirements in the
3 future.

4 Q: Okay. But without the retrofit, tract G was
5 detained by the lake, and now it simply drains
6 to the lakebed and out to concrete, does it
7 not?

8 A: Right.

9 Q: And it has no storm water treatment?

10 A: It doesn't need any, right.

11 Q: Well, I know it's not required by the law, but
12 it also doesn't have any, does it?

13 A: It doesn't have any yet.

14 Q: Okay. Would you agree that if you had a
15 10-year storm event on G tract that there would
16 be some level of discharge of sediment or other
17 materials from that land in a 10-year storm
18 event?

19 A: There's to my knowledge no disturbed area.
20 It's just woods. It was -- it's been
21 untouched.

22 Q: All right.. You were -- are you telling the
23 court that in a 10-year storm event with four
24 and a half inches of rain in a 24 hour period
25 that the water that comes off a G tract would



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1 be ---

2 A: Just leaf litter ---

3 Q: --- crystal clear?

4 A: No. Leaf litter, but no pollutants that you're
5 typically targeting which are heavy metals,
6 sediments from -- you know, not storm water
7 pollutants. It's just ---

8 Q: Sediments from what? You'd have sediments from
9 soil, wouldn't you?

10 A: Yes.

11 Q: Okay. So you'd have that, but none of the
12 other pollutants?

13 A: Right.

14 Q: Okay. But you do agree you'd at least have
15 sediments from soil?

16 A: Sure.

17 Q: Okay. Take a look, if you would, at sheet 2.
18 It has a little more detail about what is
19 within the drainage basin. Do you see
20 immediately to the left of Garfield Park the
21 golf club house?

22 A: I do.

23 Q: And was it developed prior to the effective
24 date?

25 A: I understand that it was.



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1 Q: Okay. Okay. Now, take a look at sheet 3.
2 Does this sheet show where under the retrofit
3 permit the project includes the installation of
4 inline filters?

5 A: Yes.

6 Q: And directing your attention to the
7 intersection of Waveland Avenue and Sheridan
8 Road.

9 A: Right.

10 Q: Do you see two different locations where insert
11 filters are being installed?

12 A: I do.

13 Q: And do those then flow down a pipe between the
14 Lot B3 and B4 and discharge out of a concrete
15 pipe to the lakebed?

16 A: Yes, sir.

17 Q: Okay. And is that all far a part of the
18 Garfield Park Phase 3 retrofit?

19 A: Yes.

20 Q: And it would capture -- would it capture the
21 storm water that flows down Waveland Avenue
22 from it's midpoint?

23 A: Right.

24 Q: And when I say midpoint, would you agree that
25 there's a hump by the driveway up the golf



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1 course and the rest of Waveland would flow
2 toward Islands Causeway?

3 A: Yes. There's a high point in Waveland.

4 Q: Okay.

5 A: Yep. Uh-huh (affirmative response).

6 Q: So from the driveway of the golf course or
7 somewhere in that area on, would you agree that
8 the storm water along Waveland Avenue and along
9 the lots of Garfield Park Phase 3 would flow
10 down to these two inlets by Lot B3?

11 A: I do, yeah.

12 Q: Okay. And they would then be treated by --
13 that your filter insert and then discharged
14 down underground to the outlet on the lakebed?

15 A: Yes.

16 Q: Okay. Now with regard to the storm water that
17 flows the other direction from the driveway on
18 Waveland Avenue, does it then go down to
19 Islands Causeway and then flow toward Chowan
20 Creek and get picked up by other inlets in the
21 Garfield Park storm system?

22 A: Yes.

23 Q: Okay. And isn't there a ditch that runs along
24 Islands Causeway that directs and allows that
25 storm water to run down to the squares that are



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1 depicted along Islands Causeway?

2 A: It does.

3 Q: And are those inlets there?

4 A: That's an open-ended pipe with a riprap little
5 stone dam around the end of it. It's -- that
6 water flows through a roadside grass swale down
7 to that.

8 Q: Okay. And then it flows into the open pipe?

9 A: Yes.

10 Q: Why is there no filtering device at that
11 location?

12 A: Our review, you know, we had interior lots that
13 were created Garfield Park Phases I and II were
14 a mix of existing lots. When we picked this
15 project up, Phase 3, it was -- we were
16 concerned with the new lots created in the
17 interior. So the new roads created new storm
18 water runoff. This is existing roads that
19 didn't have prior treatment.

20 Q: Okay. So are you saying that the lots along
21 Islands Causeway were not part of Phase 3, or
22 that you're saying that Islands Causeway was
23 already there with that pipe?

24 A: Right. It was already there.

25 Q: Okay. So these lots along Islands Causeway are



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1 a part of Phase 3, aren't they?

2 A: I'd have to look at the lot layout plan. I'm
3 not sure which one. There was a haphazard
4 number of lots that were already existing lots
5 of record.

6 Q: Okay. Well, if -- let's assume that these lots
7 along Islands Causeway are a part of Phase 3,
8 wouldn't there -- they would drain at least in
9 part toward Islands Causeway, wouldn't they?

10 A: Yeah. They're backyards, yeah.

11 Q: Okay. And would those then be picked up by
12 this open pipe in that ditch?

13 A: It could, yes.

14 Q: The storm water would enter that pipe there.
15 And then, would it flow from there on down
16 across Garfield Park toward the lake?

17 A: It would.

18 Q: Would not that storm water that's flowing off
19 of Phase 3 have to be treated?

20 A: Roof runoff onto grass lots along -- roadside
21 grass swales. There's the ability for, you
22 know, for it not be carrying a bunch of
23 sediment, so yeah. I mean, it's not flowing
24 straight.

25 Q: Okay.



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1 A: To the lake.

2 Q: Okay. Now directing your attention down to the
3 intersection of Rush Street and Sheridan down
4 close to the staples holding these sheets
5 together, do you see the discharge adjacent to
6 Sheridan Road of the various storm sewer lines
7 that are running toward the lake?

8 A: I do.

9 Q: And does the item that looks like it's got
10 little circles in it, does that indicate a
11 concrete pipe?

12 A: That is to illustrate riprap apron for energy
13 dissipation.

14 Q: Okay.

15 A: Uh-huh (affirmative response).

16 Q: But at that point, is that also the same
17 location at the end of the concrete pipe ---

18 A: Yes.

19 Q: --- that carries the storm water of Phase 3?

20 A: Yes.

21 Q: Okay. Now immediately across from that on
22 Sheridan, I see a square. Is that one of your
23 inlets for storm water?

24 A: That is a catch basin, yep.

25 Q: Okay. And storm water would enter at that



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1 location, wouldn't it?

2 A: It does have a grate on top of it, meaning it
3 could accept ---

4 Q: Storm water?

5 A: --- storm water.

6 Q: Why is there no filter for that?

7 A: Our plan showed initially we -- sometimes
8 contractors put a grate inlet where we had
9 specified a manhole cover. So we weren't
10 routing storm water to it, but it is a grate
11 inlet.

12 Q: Okay.

13 A: And we would be obliged to put inlet filters in
14 anything that would potentially accept storm
15 water.

16 Q: Okay. So would you agree that this is an inlet
17 then of storm water in Garfield Park right on
18 Sheridan Road?

19 A: Yep.

20 Q: Okay. Okay. Take a look, if you would, at
21 sheet 5. Does this sheet set forth the various
22 elevations in and around the lake?

23 A: It does, Lidar topography.

24 Q: Okay. And I notice a dark line around the lake
25 with a 5 on it. Is that indicated in elevation



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1 of five feet?

2 A: Yes.

3 Q: Okay. And is that roughly the border of the
4 lake give or take some amount depending on
5 amount of rainfall?

6 A: 4.48, yeah. There's -- that's the main high
7 water elevation, and 5 is the elevation of the
8 grade, the ground around the lake.

9 Q: Okay. But now, this was also the elevation
10 before the break in the dike, wasn't it? It's
11 the drawing of the border of the lake?

12 A: Yeah.

13 Q: Okay. And I think you said 4.8. Did I hear
14 you say that?

15 A: 4.48, mean high water elevation, if that's what
16 you were referring to.

17 Q: No. I mean, -- I'm talking about the border of
18 the lake is what I'm talking about, before the
19 break in the dike. Is that what this dark line
20 is to indicate?

21 A: No, sir. That's the 10-year storm stage.

22 Q: With the dike in place or not in place?

23 A: With the original outfall in place. Excuse me.

24 Q: Okay. So that shows the level of water in the
25 lake at 4.48. But isn't 4.48 the level that



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1 you took at mean high high water with the dike
2 open? Isn't that the elevation that you got
3 for your 10-year storm event?

4 A: Yes.

5 Q: Okay. Okay. What I wanted you to tell me is
6 based on this, how do you show the original
7 layout of the lake with the dike in place?

8 A: We never, I guess, surveyed the -- what this is
9 is aerial photography/Lidar. It's -- it gets
10 the ground elevations.

11 Q: Okay.

12 A: So this is showing elevation of the land based
13 on Lidar topography around the lake.

14 Q: Okay. And does this drawing also show the same
15 freshwater wetlands in the various areas?

16 A: We overlaid our survey data on top of that
17 global elevation data.

18 Q: Okay.

19 A: Uh-huh (affirmative response).

20 Q: Okay. Now, do you remember testifying in your
21 deposition that spring tides can approach seven
22 feet in elevation?

23 A: I kind of recall discussing spring tides, yep.

24 Q: Well, isn't it a fact that they -- the
25 elevation of spring tides in this area can



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1 approach seven feet?

2 A: It can, yep.

3 Q: Okay. Now, does this chart show the elevations
4 of the pipes that run underneath Sheridan
5 Street?

6 A: Yes.

7 Q: And what are those elevations?

8 A: Roughly elevation 4.

9 Q: Okay. And does this show the elevations within
10 the wetland area that is to the north or east
11 of Sheridan Street, the dedicated wetlands?

12 A: Yes, it does.

13 Q: And what are -- what would be the outer -- the
14 elevation of the outer boundary of that
15 wetland?

16 A: On the northern most end, it's elevation 7.

17 Q: Okay. At the very tip.

18 A: Right.

19 Q: And I see right next to that a 6.07 and a 6.51.

20 A: Right.

21 Q: Now, there are different types of measurement,
22 are there not? There's Lidar and then there's
23 another one that's used?

24 A: In a -- yes. There's vertical datums.

25 Q: Okay.



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1 A: Yep.

2 Q: Are these calculations, these elevations, on
3 the same datum as the measurements of the mean
4 high water and mean high high water?

5 A: Yes, that one. Yes.

6 Q: Okay. So would it be fair to say that during
7 a spring tide, the entirety of that dedicated
8 wetland would be submerged with saltwater?

9 A: It could be if it made it up through all those
10 pipes, yep.

11 Q: Well, is there anything -- these are just open
12 pipes under the road, aren't they?

13 A: Yep.

14 Q: And aren't they designed to allow the free flow
15 of water whether it's storm water or tide water
16 back and forth underneath Sheridan?

17 A: Yep.

18 Q: So is there any reason to think that at a
19 spring tide, that dedicated wetland would not
20 be full of saltwater?

21 A: Could be, yep.

22 Q: Well, it would be, wouldn't it?

23 A: Uh-huh (affirmative response). Yep.

24 Q: Okay. And at a spring tide, would it be fair
25 to say that all of the other wetlands that are



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1 delineated on this sheet would all be saturated
2 with saltwater?

3 A: As they were prior to the dike being
4 constructed, yes.

5 Q: As they were prior to the 1960's?

6 A: Right.

7 Q: Okay.

8 A: Uh-huh (affirmative response).

9 Q: Now, you've got contour lines on here, don't
10 you?

11 A: Yes.

12 Q: Now, in order to translate contour lines into
13 tide elevations on a different datum, isn't
14 there some addition or subtraction of .93 feet?

15 A: There is.

16 Q: Okay. So if you were going to say -- for
17 instance, let's take a look at G tract. You
18 see there where it says an elevation of 6?

19 A: Uh-huh (affirmative response).

20 Q: If you were going to put that on the same datum
21 as the measurement of the high tide water
22 marks, what do you do to that number 6? Do you
23 just add 9.3?

24 A: Call it a foot for ---

25 Q: Well, I mean, if you wanted to be really



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1 persnickety, would we add .93 to it?

2 A: Yeah. But we're talking about Lidar elevations
3 that are plus or minus in their location. So
4 ---

5 Q: Okay. So, yeah.

6 A: --- the general elevation ---

7 Q: You don't have a ---

8 **THE COURT:** Mr. North?

9 Q: Sorry.

10 **THE COURT:** Let him finish.

11 Q: I'm very sorry. Go ahead.

12 A: Continue with your question, sorry.

13 Q: Okay. I realize that there's no stake or
14 anything that says that that is exactly right
15 there. But generally, don't these Lidar
16 contours that are fairly accurate as they run?

17 A: Fairly. Uh-huh (affirmative response).

18 Q: Okay. And they're measured by surveyors,
19 aren't they?

20 A: No.

21 Q: Who determines the Lidar lines?

22 A: Beaufort County had a contract. They do it
23 with airplane. They fly over. They map out
24 the entire county.

25 Q: Okay.



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1 A: With elevation data.

2 Q: In your experience, is that elevation data
3 fairly reliable?

4 A: Fairly.

5 Q: Okay. Okay. So with regard to this G tract,
6 you have a number 6 here. Do you subtract .93
7 or do you add .93?

8 A: It says survey elevations above are based on 29
9 datum. Lidar contours are shown based on 88
10 datum. In order to convert Lidar to the
11 provided survey data, one must add
12 approximately one foot to the Lidar contour.
13 So that would be elevation 7.

14 Q: Well, or 6.93.

15 A: Correct.

16 Q: But about seven feet.

17 A: You got it, yeah.

18 Q: Okay. So is it fair to say that during a
19 spring tide, that water level would get on this
20 chart up to the six foot line all the way
21 around this lakebed?

22 A: Yes, sir.

23 Q: Okay.

24 A: Based on that.

25 Q: And taking a look if you would at the



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1 properties of the petitioners, do you see A5?

2 A: I do.

3 Q: Do you see how far into that lot line that
4 contour 6 runs?

5 A: I do.

6 Q: And do you see that over on the other side of
7 -- or along Sheridan, that the 6 runs across
8 B1? It runs across B2. We don't care about B3
9 because nobody that the petitioner lives there,
10 but do you see how it does run across B4 and
11 B5?

12 A: I do.

13 Q: Okay. Now it does not run across A4, does it?

14 A: No, sir.

15 Q: Okay. Would you agree then that a spring tide,
16 every single petitioner other than the one
17 living at A4 would have ocean water in their
18 lot?

19 A: They could have been at elevation 7.

20 Q: If it got up to a spring tide of 7?

21 A: Yes, sir.

22 Q: Okay. And do spring tides happen -- tell me
23 your understanding of their frequency.

24 A: I don't have a great understanding of their
25 frequency.



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1 Q: Okay. Is it fair to say that they relate to
2 full and new moons?

3 A: It -- they do, yes.

4 Q: Okay. And is it fair to say the full and new
5 moons twice a month?

6 A: No expert.

7 Q: Okay. You get them periodically, don't you?

8 A: Periodically, yes.

9 Q: Okay. Or regularly?

10 **MR. HABER:** Objection Your Honor.

11 **MR. NORTH:** Your Honor, would it be possible to get
12 a five minute recess?

13 **THE COURT:** Yes. Let's take a 10 minute recess.

14 **MR. NORTH:** Okay..

15 (Off the Record)

16 Q: Mr. Lyle, I'm handing you what the court has
17 marked as Exhibit 56. Do you recognize that as
18 a drawing produced by your office?

19 A: I do.

20 Q: Okay. Directed your attention to the very
21 bottom center of that exhibit, do you see the
22 information there as to the elevation of the
23 spill way?

24 A: I do.

25 Q: Do you recall that there are boards that



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1 control what the exact level would be of the
2 outfall device?

3 A: I do.

4 Q: And is the range that's depicted here between
5 high water and low water the range of those
6 boards?

7 A: I'm not positive. That was 1994 prior to me
8 being involved.

9 Q: Okay. Well, I represent to you that Mr. Meyer
10 testified that there were three boards in there
11 that were -- he thought three two-by-six's.

12 A: Okay.

13 Q: Do you know what -- where the information came
14 from for the elevation of the spill way?

15 A: No, sir.

16 Q: Okay. I'll also represent to you that Mr.
17 Meyer testified that he kept all of the boards
18 in there to maximize the depth of the lake. Is
19 it your understanding that the actual elevation
20 of the lake with the dike in place was right
21 about 4.66 feet elevation? Is that consistent
22 with your work in and around the lake?

23 A: I believe we modeled it with a elevation of 3.

24 Q: Three?

25 A: Three. something, 3.4 was it.



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1 Q: Based on what?

2 A: It may have been a survey shot on that outfall
3 structure. I'm not certain about that high
4 water elevation, but I believe we were
5 utilizing the low water elevation.

6 Q: Of 3.39?

7 A: Yes, sir.

8 Q: As the lowest part?

9 A: Right.

10 Q: Would you agree though that if all the boards
11 were in, the lake would be at a higher level?

12 A: Yeah.

13 Q: Okay. I'm handing you what's been marked as
14 Exhibit 61. Can you tell the court what that
15 is?

16 A: Exhibit 5, maximum 10-year stages with tail
17 water of mean high water of 4.48.

18 Q: Okay. Now, I notice around the perimeter of
19 the lakebed what appears to be a red and a blue
20 line. Can you tell me what those denote?

21 A: The blue line denotes a 10-year storm stage of
22 4.47 based on the original outfall with mean
23 high high water tail water condition. The red
24 line represents the 10-year storm stage with
25 the dike breach.



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1 Q: Okay. So the blue line shows the 10-year flood
2 stage with the dike in place?

3 A: Yes.

4 Q: Okay. And would not that also then be showing
5 the elevation of the lake with the dike in
6 place?

7 A: Yes.

8 Q: Okay. And would you agree that with a lake
9 that size, the 10-year storm event did not have
10 a material impact on it's elevation?

11 A: Could you repeat that question?

12 Q: Yes. With the dike in place, would you agree
13 that the -- even with the dike in place, the
14 10-year storm event with a lake this size did
15 not materially increase the elevation of the
16 lake?

17 A: There was a stage increase due to the runoff
18 from the entire drainage basin area.

19 Q: Okay.

20 A: Yeah.

21 Q: Was it less than a foot?

22 A: Probably.

23 Q: Yeah. Okay. If your 10-year stage with the
24 storm water added to the lake water is 4.47 --
25 no, strike that.



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1 A: Okay.

2 MS. SHAHID: What drawing are you showing?

3 MR. NORTH: Pardon?

4 MS. SHAHID: Which drawing are you showing?

5 MR. NORTH: The 56 and 61.

6 MS. SHAHID: Okay.

7 Q: Is it fair to say that based on your experience
8 with the lake, the elevation of the lake with
9 the dike in place was not a whole lot different
10 than the lines drawn in red and blue around the
11 lake?

12 A: Please repeat.

13 Q: Yes. Based on your experience in dealing with
14 this lake, would you agree that the water level
15 of the lake was not a whole lot different than
16 what is shown by your red and blue lines ---

17 A: The stages ---

18 Q: --- around the lake?

19 A: The stages of the water? Yeah. That's what we
20 represented on this plan.

21 Q: Okay.

22 A: Uh-huh (affirmative response).

23 Q: Okay. I'm handing you what's been marked as
24 Exhibit 54. Do you recognize that as a
25 submittal made by you to OCR -- well, let me



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1 ask you, did you submit Exhibit 54 at some
2 point in time to OCRM?

3 A: Potentially, yes.

4 Q: Okay. Is this a -- an earlier version of the
5 retrofit ---

6 A: It is.

7 Q: --- application?

8 A: Yeah.

9 Q: Okay. Do you remember at some point in time --
10 well, strike that. Okay. Directing your
11 attention to sheet 1. What is that?

12 A: This is the overall drainage basin map we
13 prepared in 2010.

14 Q: Okay.

15 A: Looking at the amount of planned area draining
16 toward this tidal pond.

17 Q: Okay. Would it be fair to say that it depicts
18 that the Rookery subdivision and G tract and
19 Garfield Park are the only portions that are
20 shown as in the tidal -- in the drainage basin?

21 A: No. Tract G is also shown.

22 Q: I thought I included that in my question. To
23 be precise, the dashed line again depicts the
24 drainage basin that you're presenting to OCRM;
25 is it not?



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1 A: Right.

2 Q: And do you notice that -- well, tell me what
3 these arrows indicate that run through the golf
4 course lagoons.

5 A: That showed what we perceived to be at the time
6 the flow of water from the golf course pond out
7 to the north. Subsequently, you'll see on
8 another drainage basin map we revised it after
9 reviewing again to show that actually more land
10 area, the club house area, and a portion of
11 Tabby Roads, it indeed flowed out of that pond
12 into the golf course pond and eventually to
13 here.

14 Q: Okay. Do you recall that those revisions
15 occurred after the homeowners were complaining
16 that other areas were draining to the lake?

17 A: I'm not sure. I had a conversation with
18 Richard.

19 Q: Mr. Geer?

20 A: Yes.

21 Q: Okay.

22 A: Richard Geer.

23 Q: What was the source of your information that
24 led you to believe that all of the water flowed
25 away from the lake?



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1 A: Just the piping. There was no flow of water at
2 the time, just our -- when we walked out on
3 site, took a look around, there was, you know,
4 it's all rather flat, fairly flat.

5 Q: Okay.

6 A: So ---

7 Q: Are you familiar with the well pump that is in
8 the first of the golf course lagoons?

9 A: I've seen it. Yes, sir.

10 Q: Okay. And you'd seen that it just runs -- tell
11 me your observations, just a 24 hour pump?

12 A: I have no earthly idea how long it runs.

13 Q: Okay.

14 A: I have seen it running in the past and other
15 times it's been off, so ---

16 Q: You've seen it off?

17 A: Yeah. When I've walked over there one time, it
18 was -- I don't believe it was running. We've
19 been -- as we were mapping out the land areas,
20 I went to the boat storage yard, looked at the
21 topography to see how everything flowed, and I
22 don't recall it flowing one day. I came back
23 another time, I believe it was when we were
24 reviewing this, and I noticed it was, you know,
25 flowing.



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- 1 Q: Okay. You've been out there many times,
2 haven't you?
- 3 A: Over the course of this project, probably, you
4 know, three or four to this area.
- 5 Q: Okay. Other than that one time, has it always
6 been flowing?
- 7 A: I just noticed it flowing that one time. I
8 took some photographs of it.
- 9 Q: Okay. Let me give you those photographs, if I
10 could. I'm handing -- I'm handing you what's
11 been marked as Exhibit 77. Is that a
12 photograph you took?
- 13 A: It appears to be.
- 14 Q: Okay. And tell the court what that shows.
- 15 A: This is a two or three inch well head directly
16 discharging into the -- a pond ---
- 17 Q: Okay.
- 18 A: --- in Tabby Park.
- 19 Q: Is that part of the irrigation system of the
20 golf course?
- 21 A: I would assume so, yes.
- 22 Q: Okay. And what does the next page show? Is
23 that the same thing ---
- 24 A: Same thing.
- 25 Q: --- just further away?

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- 1 A: Yes, sir.
- 2 Q: Okay. And does that just send a constant
3 stream of well water into the golf course
4 lagoons?
- 5 A: It does.
- 6 Q: And -- okay. Now, when that water goes into
7 the golf course lagoons, are you aware that
8 they're interconnected with pipes between the
9 various lagoons?
- 10 A: I observed an equalization pipe underneath the
11 International Boulevard, is it, ---
- 12 Q: Yes.
- 13 A: --- Tabby Park. Then there's a pipe leading
14 from that pond to another golf course pond.
- 15 Q: On the other side of the 18th fairway?
- 16 A: I'm not sure about the fairways.
- 17 Q: Toward the lake anywhere.
- 18 A: Toward the lake, yes.
- 19 Q: Okay. And then does that water then, how does
20 it go from that third golf course lagoon
21 closest to the lake to the lake?
- 22 A: It overflows through a vegetative-like wetland
23 with ---
- 24 Q: Okay.
- 25 A: --- swale and then it ---



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1 Q: Does it just run along the ground in a ditch?

2 MR. HABER: Objection, Your Honor. You can answer
3 the question.

4 A: It's a wetland. I'm not sure. It's along the
5 edge of the golf course.

6 Q: Okay.

7 A: Uh-huh (affirmative response).

8 Q: Would it be fair to say then that the water
9 that's being pumped from the well just flows
10 right on through the wetlands from the third
11 golf course lagoon and then into the lake?

12 A: When flowing, I would assume yeah. It could --
13 it's being utilized for golf course irrigation
14 from my understanding. Could it and should it
15 flow this direction, yeah. After our
16 observation, it does flow in that general
17 direction.

18 Q: Okay.

19 A: Uh-huh (affirmative response).

20 Q: Would you agree that when you go out to the
21 dike of the lake you see the stream of water
22 from the irrigation running out the dike?

23 A: I'm not sure if it's the -- if it is indeed the
24 well water or storm water or -- but it's --
25 there's been water in the lake. You know, I've



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1 been out there at high and low tides.

2 Q: Well, I'm talking about after the break in the
3 dike.

4 A: Uh-huh (affirmative response).

5 Q: Would you agree that you can be out there on a
6 sunny day and the water will still be running
7 out the cut?

8 A: I've seen water flowing on a sunny day, yes.

9 Q: Okay.

10 A: But I'm not sure what -- if that's well water
11 or not.

12 Q: I'm handing you what's been marked as Exhibit
13 17. Do you know what that is?

14 A: It appears to be a table from the -- this looks
15 like the Beaufort County Storm Water BMP
16 Manual; is that correct?

17 Q: Well, let me ask you a foundational question.
18 Are you familiar with the Beaufort County best
19 management practices handbook?

20 A: Yes. We have to apply their standards on many
21 projects. Yes, sir.

22 Q: Okay. Do you recognize on that table, that
23 being a portion of the requirements that relate
24 from -- or that arise from that Beaufort County
25 best management practices handbook?



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1 A: It does look like a copy of an excerpt from
2 that BMP manual. Yes, it does.

3 Q: Okay. You work in Beaufort County.

4 A: Uh-huh (affirmative response).

5 Q: Your place of employment is in Beaufort County?

6 A: It is.

7 Q: And have you had many projects in Beaufort
8 County?

9 A: We have.

10 Q: Okay. And are you familiar with Beaufort
11 County's requirements?

12 A: I am.

13 Q: Okay.

14 A: It's a continually updating BMP manual, so you
15 know, the date in which this table was
16 prepared, I don't know.

17 Q: Do you recognize the requirements on that table
18 as being Beaufort County requirements?

19 A: They appear to be excerpts from what they
20 perceive to be the state requirements
21 generally.

22 Q: In your work, do you actually have a copy of
23 the Beaufort County best practices manual?

24 A: We do, 2012.

25 Q: Okay. I'm handing you one. Can you tell me



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1 whether that is ---

2 A: Yeah.

3 Q: --- the current copy of the Beaufort County
4 manual?

5 A: Yes, sir.

6 Q: And does this then contain the storm water
7 management requirements for Beaufort County?

8 A: It does.

9 Q: Can you take -- take a peek in here and see --
10 well, you're probably more familiar with it
11 than I am. Can you find the table that would
12 relate to the quality requirements within the
13 coastal zone?

14 A: State regulations 2-4, state regs.

15 Q: Is this the manual you work with regularly in
16 your work?

17 A: Yes, sir. There, 2-9.

18 Q: 2-9?

19 A: Table 2 and 3 ---

20 Q: Can you compare those two and tell me whether
21 they're identical?

22 A: They appear to be. Yes.

23 Q: Okay. Now, directing your attention to water
24 quality requirements within 1,000 feet of
25 shellfish beds, can you tell me what those



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1 provide for?

2 **MR. HABER:** Objection, Your Honor. This -- neither
3 one of these two documents have been admitted
4 into evidence. They're -- one is a manual of
5 Beaufort County, the other one is a table from
6 that manual of Beaufort County. As established
7 in Richard Geer's testimony, any further --
8 that the county ordinances is not being
9 challenged in this case. It's not at issue in
10 this case. What is at issue in this case is
11 the state permit. It is not the county
12 regulations as to what a manual produced by
13 Beaufort County has effective on this permit.
14 I think it's already been satisfied from Geer's
15 testimony. So my objection would be as to
16 relevance of the permit that's being challenged
17 in front of this court in this matter.

18 **MS. SHAHID:** I join that objection, Your Honor.

19 **THE COURT:** Okay. Thank you.

20 **MR. NORTH:** Yes. And Your Honor, one of the
21 regulations that we reviewed with Mr. Geer
22 yesterday provided that the Department should
23 take into account local requirements. And I
24 want to simply demonstrate very briefly to the
25 court that the local requirements do not allow



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1 a permit such as the retrofit.

2 **MR. HABER:** And, Your Honor, I -- a lot was
3 discussed during this -- Mr. Geer's testimony.
4 However, if you'd like to clarify specifically
5 what you're referencing to in that testimony
6 because there was reference made to the Coastal
7 Towns and Wetlands Act in creation of the
8 Management Program Document, that was taken
9 into account local ordinances and things like
10 that, but that deals more with the Beach
11 Management Plan. If that's what Mr. North is
12 referring to, it has not been again to do with
13 this permit.

14 **MS. SHAHID:** Do you know which regulation?

15 **MR. NORTH:** Not without digging.

16 **MR. HABER:** And again, Your Honor, and during Mr.
17 Geer's testimony, we went through what would be
18 required, and that -- this is a statement that
19 it's not a county permit. Again, requirements
20 would have to be that the county level and this
21 is at the state level.

22 **MR. NORTH:** Your Honor, I have a simple solution for
23 this. The only thing I was intending to
24 establish with this manual is that this chart
25 represents Beaufort County requirements period.



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1 The court can then evaluate it for what it's
2 worth.

3 **THE COURT:** I'm going to allow it.

4 **MR. HABER:** Thank you.

5 Q: Do you recognize Table 2.3 as setting forth the
6 requirements of Beaufort County with regard to
7 the best management practices for storm water
8 treatment both within half a mile of the
9 coastal zone and within 1,000 feet of shellfish
10 beds?

11 A: Yes.

12 Q: Okay.

13 **MR. HABER:** And, Your Honor, just for clarity and
14 the record none of those exhibits have been
15 into evidence.

16 **MR. NORTH:** Your Honor, I would offer Exhibit 17.

17 **MR. HABER:** Okay. Your Honor, but be it the same
18 objection I had against the introduction of the
19 information from those documents.

20 **THE COURT:** Your objection is noted, Mr. Haber. I
21 am admitting the Exhibit over your objection.

22 **MR. HABER:** Thank you, Your Honor.

23 (Petitioners Exhibit Number 17 was admitted into
24 evidence.)

25 **THE COURT:** Mr. North?



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1 MR. NORTH: Yes.

2 THE COURT: While we're at a point here, you earlier
3 questioned the witness with Exhibit 84. That
4 is not -- that was not an exhibit that was on
5 your list.

6 MR. NORTH: Yes. Actually, I'm glad you caught that
7 and clarified that. The document -- you may
8 recall that one of the other counsel had as one
9 of their exhibits a letter that I objected to
10 because it was not completed was the POA's
11 Exhibit 11 that referenced a plat. And I was
12 happy to have the letter come in as long as we
13 have the plat.

14 THE COURT: Uh-huh (affirmative response).

15 MR. NORTH: The plat that the witness brought with
16 him today is that missing component that we've
17 already reviewed. I would withdraw my
18 objection to their Exhibit 11, and I would
19 affirmatively ask that it be admitted into
20 evidence along with the plat that shows the
21 determination of wetlands.

22 THE COURT: Okay. So it's not going to be Exhibit
23 11. Is that going to supplement Exhibit 11 as
24 proposed by the Cat Island, or are you wanting
25 this admitted as a part of your exhibits?



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1 **MR. NORTH:** I'm assuming that if they offer an
2 exhibit and it's received into evidence that I
3 don't have to separately offer the same
4 document. The document and it's evidence is
5 before the court, and that that would suffice.

6 **THE COURT:** Okay. So Ms. Shahid, you don't have a
7 problem with that plat being included with your
8 Exhibit 11?

9 **MS. SHAHID:** I don't have a problem with it. I
10 would like the record to reflect that it was
11 not a part of Exhibit 11 ever. So it was not
12 an incomplete exhibit.

13 **THE COURT:** Okay.

14 **MS. SHAHID:** But I don't have a problem with that
15 plat coming into evidence ---

16 **THE COURT:** Okay.

17 **MS. SHAHID:** --- and be part of Exhibit 11.

18 **THE COURT:** Okay.

19 **MR. NORTH:** And I before I lose Exhibit 11, I'd like
20 to return it to the court reporter.

21 **THE COURT:** Okay. So with the objection, Exhibit 11
22 is admitted.

23 **MR. NORTH:** Thank you, Your Honor.

24 **(Cat Island's Exhibit Number 11 was admitted into**
25 **evidence.)**



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1 Q: Mr. Lyle, do you remember in the letter that
2 was sent to Mr. Meyer recommending that he fix
3 the dike, some discussion about potential
4 mitigation credits?

5 A: Mitigation credits? Yes, sir.

6 Q: Okay. Can you tell the court what it meant by
7 a mitigation credit?

8 A: My understanding was that because certain
9 entities have the need to impact critical area,
10 in order for them to be permitted to impact
11 critical area, they need to purchase mitigation
12 bank credits. And there's not a bank out there
13 of mitigation credits to my knowledge for -- to
14 create new critical area. And so we were
15 trying to think of options we -- I'd heard from
16 a wetlands consultant that there may be a
17 project that was in need of credits, and that
18 the re-establishment of previously prior
19 critical area, letting it go back to it's
20 natural state, there may be the opportunity to
21 sell wetland mitigation credits.

22 Q: To some other developer?

23 A: I think specifically, it was the federal
24 government. There was a Marine Corps station,
25 Beaufort or Paris Island, one of those



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1 entities, they were going to have to do
2 something rather extravagant to create wetlands
3 when we had wetlands on site.

4 Q: So are you saying that the developer could then
5 exchange a mitigation credit for the Cat Island
6 Lake, and so that the federal government to
7 make up for loss of wetlands in connection with
8 the Air Corps station?

9 A: That was the option we were thinking about.

10 Q: Okay. And tell me the status of that.

11 A: It was discussed, never brought up again. I
12 haven't -- we had one meeting with Mr. Meyer at
13 Cat Island trying to think of fix options, and
14 that was just one item on there. You know, if
15 we maybe could sell wetland mitigation credits,
16 so that's ---

17 Q: Okay. Is it -- are you saying that by having
18 the lake changed to a saltwater marsh, the
19 developer has some credits that possibly could
20 be utilized in the future?

21 A: That was our thought at the time, yeah.

22 Q: Okay. And was that the thought when it was
23 decided to go ahead and move forward with the
24 inline filter system and have the lake revert
25 to a saltwater marsh?



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1 A: We didn't pursue it, and I haven't heard any
2 discussion of it since. So I don't know if
3 that had any bearing on Mr. Meyer's desire to
4 not come back out here and spend a ton of money
5 again to try to fix this dike.

6 Q: Okay. Was there some meeting with some
7 representative of the air station?

8 A: No, sir.

9 Q: Or with any of their engineers?

10 A: No, sir.

11 Q: Are you aware of any discussion with OCRM
12 personnel or Corps of Engineer personnel about
13 mitigation credits?

14 A: Zero.

15 Q: Are you saying there have been none or ---

16 A: I am not aware.

17 Q: --- you are not aware?

18 A: I am not aware of any.

19 Q: Okay. Do you recall testifying last summer
20 that if you had tidal water coming on to your
21 lot, you would consider that an adverse
22 consequence?

23 A: I do recall that. That was after a barrage of
24 questioning. That was my final statement.

25 Q: Okay. I'm going to hand you what's been marked



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1 as Exhibit Number 2. Do you recognize that as
2 a copy of the letter from DHEC approving the
3 retrofit permit and issuing it's coastal
4 consistency determination?

5 A: I do.

6 Q: Okay. Take a look if you would at the coastal
7 consistency determination, which is the fifth
8 page of that exhibit.

9 A: Fifth page? Yes, sir.

10 Q: Okay. Do you recognize that as the coastal
11 consistency determination in connection with
12 the retrofit?

13 A: Yes.

14 Q: Okay. Now, is it fair to say that every permit
15 that you deal with in Beaufort County has to
16 have a coastal consistency determination?

17 A: I believe if they qualify based on acreage. I
18 could be wrong.

19 Q: Okay. In any event, have you many, many times
20 received a coastal consistency determination in
21 connection with various projects?

22 A: I have.

23 Q: And would you recognize this page as part of
24 basically a form where all of these
25 determinations have similar language?



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- 1 A: Yes.
- 2 Q: Okay. Directing your attention to sub-
- 3 paragraph D, do you see that the certification
- 4 is not intended to authorize any direct or
- 5 indirect impacts to freshwater wetlands?
- 6 A: Right.
- 7 Q: Would you agree that that language is in every
- 8 single certification that you've seen?
- 9 A: Yes. I believe it's standard language.
- 10 Q: Would you agree that flooding freshwater
- 11 wetlands with tidal waters will destroy the
- 12 freshwater wetland?
- 13 A: No, sir.
- 14 Q: Will it change their character?
- 15 A: Over time if inundated perpetually, but this is
- 16 just during certain very peak high tide events
- 17 would any saltwater be going into those
- 18 freshwater wetland areas for, you know, an hour
- 19 or so.
- 20 Q: Okay. So is it your view and your testimony
- 21 that having tidal waters go into these wetlands
- 22 would not kill the vegetation of those
- 23 wetlands, the freshwater vegetation?
- 24 A: Based on the information that I've heard and
- 25 read, I don't have the exhibit numbers, but I



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1 believe the Corps of Engineers made that
2 determination that the -- and I believe it was
3 this project specific that the -- any temporary
4 innovation with saltwater wouldn't have a great
5 effect on the freshwater wetlands.

6 Q: Okay. Now you're familiar, aren't you, ---

7 A: Or would ---

8 Q: --- with the area of the dedicated wetlands?

9 A: Right. And that was specifically the reason
10 why they were to come out to the site. Were we
11 damaging this wetland by allowing the potential
12 for tidal waters to go up in there. And I
13 believe the answer was no, it was not going to
14 adversely impact that wetland area.

15 Q: Are you aware that there is about 84 trees that
16 have died in that wetland area?

17 A: I'm not.

18 Q: Would you agree that if the vegetation in that
19 wetland area is dead or dying that that would
20 be an adverse impact to the freshwater wetland?

21 A: If indeed they died since or as the cause being
22 the saltwater, then potentially yeah, that's
23 adverse impact I would assume.

24 Q: Okay. And do you recall when we looked at the
25 elevations of those four pipes that run



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1 underneath Sheridan that those elevations were
2 about three and a half feet?

3 A: Four-ish, yeah.

4 Q: Well, it's not -- half a foot makes a
5 difference here. Okay. I'm handing you again
6 Exhibit 61. Do you recognize the elevations on
7 that exhibit of the four pipes?

8 A: I do.

9 Q: And what is the lowest of the four?

10 A: 3.84.

11 Q: Feet? Okay. And what's the highest?

12 A: 4.11.

13 Q: Okay. And high tide -- the average high tide
14 is 4.1, isn't it?

15 A: Right.

16 Q: Okay. Would you agree then that with three of
17 those pipes, you would have saltwater entering
18 the wetlands at every average high tide?

19 A: Yeah, based on this elevation. Yeah, the ---

20 Q: Okay.

21 A: --- tide can go in. That would be on the
22 downstream invert elevation. I'm not sure
23 about the upstream invert elevation on the
24 north side of Rush ---

25 Q: Would you assume ---



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1 A: --- or Sheridan.

2 Q: --- that those pipes would be for the most part
3 level?

4 A: If they were flat.

5 Q: Okay. Are you familiar with the definition of
6 a detention structure?

7 A: No, sir. I could -- are you asking me to
8 define?

9 Q: Well, I'm asking you whether -- yes. I mean,
10 if you know what one is, and can you describe
11 it?

12 A: In general, I'd say something that has the
13 capacity to store and release a certain volume
14 of water.

15 Q: At a controlled rate? Yes?

16 A: Yeah. It would -- yes.

17 Q: Okay. Are you aware of a state regulation that
18 would require the detention and release of
19 storm water over a 24 hour period?

20 A: I am.

21 Q: And is that a requirement for detention ponds?

22 A: That's a typical requirement of wet detention
23 ponds.

24 Q: Okay. Are you aware of any detention structure
25 in any of the three golf course lagoons that



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1 are depicted on your drawings?

2 A: Tabby Roads, the portion they closed south, I
3 think it has an outfall structure in it. The
4 portion of the ponds that release to this lake,
5 I think they're governed by the size of the
6 pipe that discharges out of it.

7 Q: Okay. Just to clarify, when you talk about an
8 outfall structure on the southern end, ---

9 A: Uh-huh (affirmative response).

10 Q: --- is that an area outside of the drainage
11 basin ---

12 A: Yes.

13 Q: --- of the lake at the far end of Tabby Park?

14 A: Uh-huh (affirmative response).

15 Q: Okay. So that's a completely different
16 detention pond ---

17 A: Right.

18 Q: --- with a detention structure ---

19 A: Correct.

20 Q: --- that drains an area outside this drainage
21 basin?

22 A: Correct.

23 Q: Okay. So but then the north side or the
24 northeast end of Tabby Park, that's within the
25 drainage basin, isn't it?



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1 A: Yes.

2 Q: Okay. And is it fair to say that those areas
3 drain to the golf course lagoons?

4 A: Yes.

5 Q: Okay. And are you aware of a pipe that runs
6 from National Boulevard underneath the 18th
7 fairway or underneath the 8 fairway ---

8 A: Uh-huh (affirmative response).

9 Q: --- and discharges into the wetlands adjacent
10 to the lake?

11 A: Yes.

12 Q: Okay. And there's no detention structure in
13 connection with that outfall, is there?

14 A: No. It's just a small downward pipe that links
15 the two.

16 Q: Okay. So that would be untreated storm water
17 draining to the wetlands surrounding the lake,
18 wouldn't it?

19 A: Anything that has the ability to flow out would
20 directly flow based on the -- as fast as the
21 pipe would let it flow.

22 Q: Okay.

23 A: Uh-huh (affirmative response).

24 Q: And certainly, would you agree then that it's
25 not being detained by a detention structure



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1 that can detain and slowly release over a 24
2 hour period?

3 A: I'd say it all depends on what elevation that
4 pipe is in relation to the elevation of the
5 water when it rains. The storm water that
6 flows into the lake has the ability to stage up
7 and then flow out through that pipe.

8 Q: So if we're talking about some drizzle, the
9 pipe may be wet, but it may sit there for a
10 month; is that what you're saying?

11 A: It would hold -- nothing can leave the pond
12 without going out the pipe. Uh-huh
13 (affirmative response).

14 Q: And I'm talking about the pipe that runs
15 directly from the street on National Boulevard
16 underneath the golf course and discharging
17 directly to the wetlands of the lake.

18 A: Okay.

19 Q: Okay? And now let me ask the same question in
20 context of a 10-year storm event.

21 A: Uh-huh (affirmative response).

22 Q: In a 10-year storm event, would you agree that
23 there is nothing that would detain a 10-year
24 storm event amount of water and slowly release
25 it over 24 hours?



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- 1 A: The circular area of the pipe has the ability
2 to restrict flow. So it has the ability -- the
3 storm water that drains into that pipe or into
4 that retention pond -- detention pond ---
- 5 Q: The lake, you're talking about the lake?
- 6 A: The golf course ponds where the road traverses
7 across. Is that what you're asking?
- 8 Q: I'm talking about the pipe that runs from
9 National Boulevard. Not from the golf course
10 lagoons, but the pipe that runs from National
11 Boulevard underneath the golf course and into
12 the wetlands of the lake.
- 13 A: Those are what I'm referring to as golf course
14 ponds. Could you depict it on the map?
- 15 Q: Okay. I'll tell you what. Let's get -- let's
16 take a look if we could at Exhibit 43. Do you
17 recognize that as an aerial of the golf course
18 lagoons and the lakebed of the Cat Island Lake?
- 19 A: I do.
- 20 Q: Okay. Now, do you see where West National
21 Boulevard and East National Boulevard divide --
22 -
- 23 A: Yes.
- 24 Q: --- off to the south of the golf course
25 lagoons?



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1 A: I do.

2 Q: Okay. And are you aware just before -- at
3 about that location where they divide, a pipe
4 that is connected to National Boulevard that
5 then takes the storm water underneath the golf
6 course and over to the wetlands of the lakebed?

7 A: I'd have to see the survey or the design plan.

8 Q: Okay. Well, would you agree that if water is
9 flowing directly from the street into an inlet
10 and through a pipe to those wetlands, that that
11 would have to have some sort of detention basin
12 and detention structure to store the water and
13 slowly release it over 24 hours?

14 A: That's another offsite project. We weren't
15 permitting I'd say, you know, in general.
16 Could you just show the plan showing that pipe?

17 Q: Okay. I'll see if I can find that. Let's skip
18 for a minute to the three gold course lagoons.

19 A: Okay.

20 Q: Do you see the one to the north of National
21 Boulevard?

22 A: Yep.

23 Q: And do you agree that there are two large 36
24 inch pipes connecting that to the second
25 lagoon?



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- 1 A: Yes.
- 2 Q: And then there's a pipe that connects
3 underneath the fairway to the third lagoon?
- 4 A: Yep.
- 5 Q: Okay. I'm handing you what's been marked as
6 Exhibit 79. Is that a photo you took?
- 7 A: Yes. It appears to be, yes.
- 8 Q: And is that the area that you mentioned where
9 the water in the third lagoon seeps into the
10 wetlands adjacent to the lake?
- 11 A: Right. I believe it flows to the left of the
12 picture.
- 13 Q: Okay. And when the well water is pumping into
14 the lagoons, would you agree that there would
15 be a steady stream of water through these
16 lagoons and then seeping through into the
17 wetlands?
- 18 A: If it runs all the time and keeps it up to
19 where it reaches the overflow, then the water
20 would continue to ---
- 21 Q: The overflow ---
- 22 A: --- flow out.
- 23 Q: The overflow here that you took the picture of?
- 24 A: Uh-huh (affirmative response).
- 25 Q: Okay. Would you agree that the edge of that

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1 pond is not a detention structure?

2 A: The edge of the pond is not a detention
3 structure?

4 Q: As defined by the regs.

5 A: I would say that any device that has the
6 potential to allow a vertical stage increase is
7 allowing it to detain water in -- because it
8 backs up the water.

9 Q: Okay.

10 A: And it flows out only as fast as ---

11 Q: Okay.

12 A: --- it can ---

13 Q: If the water is ---

14 **MR. HABER:** He was still talking.

15 **THE COURT:** Mr. North, allow him to finish his
16 answer.

17 Q: Yes. If the water is already flowing across
18 these lagoons and through the wetlands to the
19 lake because of the well water being pumped
20 constantly, would you agree that there is no
21 place for that water to rise and be detained?

22 A: I would say that it would only be slowed by the
23 vegetation and the undulation of the wetlands
24 and ---

25 Q: Okay.



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1 A: Uh-huh (affirmative response).

2 Q: And would you agree that in this picture or
3 anywhere along that lagoon, you're not aware of
4 any detention structure that is designed to
5 detain and release at a controlled rate over 24
6 hours the storm water of a 10-year event?

7 A: There's no concrete structure there with --
8 boards or fixed elevations with orifices. No,
9 sir. It overflows ---

10 Q: Okay.

11 A: --- but over topping.

12 Q: Over topping the lake through the lagoon?

13 A: Right.

14 Q: Okay. And would you agree that in order to
15 detain, as that term is defined in the
16 regulations, that it would need to be able to
17 detain the storm water of a 10-year event and
18 slowly release it in a controlled rate over 24
19 hours?

20 A: To meet the regs.

21 Q: Okay. Thank you. Now, if the water flowed
22 through these golf course lagoons, overflowed
23 this lagoon, and funneled through the wetlands
24 to the lake, but was then detained by the lake
25 and it's outfall device, would you agree that



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1 that would meet the regulations?

2 A: I believe that water would just continue to
3 overflow. It's either just getting to the
4 marsh at the same rate ---

5 Q: No, I ---

6 A: --- if it's overflowing the pond into the lake,
7 the golf course pond into the lake. And if the
8 lake is up at the top of the ware boards, you
9 know, going to flow across -- just when does it
10 reach tidal water.

11 Q: Okay. But would you agree that when it goes to
12 the lake with an outfall device that you have
13 regulatory detention as it's defined in the
14 regs?

15 A: I'd say the lake does provide some sort of --
16 or provided some sort of detention.

17 Q: Okay.

18 A: Because it was just another chec -- by, you
19 know, another pipe it had to flow through.

20 Q: And but did not the lake have a detention
21 structure ---

22 A: It did.

23 Q: --- that was designed to skim the water off of
24 the top and discharge the storm water at a
25 controlled rate?



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1 A: Designed, I'd say no. I'd say it was an
2 existing structure that was constructed by the
3 land owner for duck hunting purposes to
4 manipulate the water elevation. We utilized
5 that structure or we continued to utilize that
6 structure when we developed to allow storm
7 water treatment for Garfield Park Phase 3. I
8 wouldn't say it was designed ever to treat
9 storm water from any drainage basin area. It
10 was merely there to backup water to attract
11 birds.

12 Q: Looking again at Exhibit 79, would you agree
13 that this particular golf course lagoon cannot
14 detain storm water without some additional free
15 board to keep the water from simply flowing
16 through the wetlands that are photographed in
17 Exhibit 79?

18 A: If that photo depicts it being at it's maximum
19 stage, then any more water would flow directly
20 out.

21 Q: Okay.

22 **THE COURT:** Mr. North?

23 **MR. NORTH:** Yes?

24 **THE COURT:** If I'm correct that you just questioned
25 the witness on 79 as well as 77 and 78. That



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1 was in your notebook, but the Department had
2 objections to them.

3 MR. NORTH: Okay.

4 THE COURT: So they're not written down?

5 MR. NORTH: Well, I would like to offer them, Your
6 Honor.

7 THE COURT: Mr. Haber?

8 MR. HABER: Thank you, Your Honor. I apologize for
9 not catching that, and I appreciate it. A
10 little overwhelmed with exhibits.

11 THE COURT: I understand.

12 MR. HABER: Thank you.

13 THE COURT: It's the photograph 77, 78, and 79.

14 MR. HABER: Yes, Your Honor. My objections to those
15 were based on who took them, when they were
16 taken.

17 THE COURT: But just to clear it up.

18 MR. HABER: Yes, Your Honor.

19 THE COURT: Okay.

20 MR. HABER: Thank you.

21 THE COURT: Very good, so ---

22 MR. HABER: No objections.

23 THE COURT: Yeah.

24 (Petitioners Exhibit Numbers 77, 78 and 79 were
25 admitted into evidence.)



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1 THE WITNESS: I'm going to need a break shortly.

2 MR. NORTH: Do you need one?

3 THE WITNESS: Uh-huh (affirmative response).

4 MR. NORTH: Your Honor, the witness is requesting a
5 break.

6 THE COURT: Oh, I'm sorry.

7 THE WITNESS: It can be very short.

8 THE COURT: I didn't hear you. Let's see, we're now
9 at 12:00. Let's just go ahead and break here
10 for lunch.

11 MR. NORTH: Okay.

12 THE COURT: For an hour, and by my watch, I don't
13 know if it's -- 12:02, okay. Well, let's just
14 get back at 1:00.

15 (Lunch was taken from 12:13 p.m. to 1:14 p.m.)

16 Q: Mr. Lyle, I'm handing you what has been marked
17 Exhibit 72. Can you tell the court what that
18 is?

19 A: It's an overlay drawing showing the aerial
20 photography and -- of the lakebed and distance
21 measurements to shellfish beds surveyed by Mr.
22 North's surveyor.

23 Q: Okay. Is that a document prepared by you?

24 A: Yes. We overlayed the two and looked at some
25 routes. Yes, sir.



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1 Q: Okay. Okay. If I understand you correctly,
2 you're saying that this has an overlay of David
3 Youmans survey measurements that were provided
4 to OCRM; is that what you're saying?

5 A: Correct.

6 Q: And are those the dotted lines that run from
7 the outfall between Lots B3 and B4 down to the
8 dike, and then out to the oysters?

9 A: Yes.

10 Q: And do you also then see his survey mark going
11 from the 24 inch concrete pipe on Sheridan Road
12 out and with a couple of different segments,
13 153 foot segments, and then continuing on again
14 to the break in the dike?

15 A: I do.

16 Q: Okay. And you see that those survey
17 measurements -- would you agree that they add
18 up to about 700 feet from the 24 inch concrete
19 pipe and about 775 feet from the 15 inch
20 concrete pipe?

21 A: The dimensions I have show 150, 150, and 190,
22 200.

23 Q: Right.

24 A: Yeah.

25 Q: Would you agree that you add up those four



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1 numbers and you're just short of 700?

2 A: Yes.

3 Q: Okay. And from the 15 inch pipe, it'd be a
4 little further, wouldn't it? Wouldn't you then
5 be adding your 576 plus the 200?

6 A: Right.

7 Q: Okay.

8 A: I'm replicating his measurements.

9 Q: Right. So from the other pipe, it would be 775
10 to the oyster bed; is that right?

11 A: Roughly.

12 Q: Okay. Now then, did you then superimpose a set
13 of measurements done by your firm?

14 A: Yes, we did.

15 Q: And describe for the court what measurements
16 you have put in there for your high tide
17 measurement.

18 A: Can you clarify our -- okay. The high tide
19 measurement labeled in Chowan Creek ---

20 Q: Well, do you see the end of a high tide
21 measurement that indicates a total length of
22 1,005 feet?

23 A: I do.

24 Q: Okay. And do you see that the endpoint of that
25 measurement is some distance behind the white



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1 that's depicted on that shot?

2 A: Yes.

3 Q: Okay. Is it your belief that the white are
4 dead oyster shells?

5 A: They could be, yes.

6 Q: Okay. Is there anything else it could be?

7 A: Sand flats, you know -- it appears to be dead
8 oysters.

9 Q: Okay.

10 A: Shell rake.

11 Q: Up in the middle of top of that paper, I see
12 that you've written on here, start measurement
13 at closest storm water quality treatment device
14 within Garfield Park Phase 3; is that correct?

15 A: Yes.

16 Q: And does this drawing then show the start point
17 of that measurement?

18 A: At station 00, right.

19 Q: Okay. And is it fair to say that all during
20 the measurement of this high tide measurement,
21 you have periodically put in the cumulative
22 number of feet as you move toward the dike?

23 A: Correct.

24 Q: Okay. What is located at the point that you
25 started your measurement, at 00?



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1 A: What is located up in Garfield Park at ---

2 Q: What is the significance of the point that you
3 started your measurement from?

4 A: Where we were going to place the proposed inlet
5 filter.

6 Q: Okay. And why did you pick that location?

7 A: Because that was the closest one when we were
8 reviewing this that had -- it was a curve inlet
9 accepting water from the new road construction.

10 Q: Okay. And when you started that point and you
11 proceed on down, would you agree that right at
12 about the 300 foot mark, you have the riprap
13 for the 24 inch outfall from the Garfield Park
14 storm system?

15 A: Yes. I see the riprap, yep.

16 Q: And do you see the measurement that right in
17 that area is 300 feet?

18 A: Yes.

19 Q: And it continues from that point on out to your
20 final measurement at 1,005 feet?

21 A: Yes.

22 Q: Would you agree that if you start your
23 measurement at that riprap or at that 24 inch
24 outfall, that the measurement would be about
25 705 feet?



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1 A: Right.

2 Q: Okay. Do you recall Richard Geer taking the
3 position that the measurement should start at
4 that outfall point, the 24 inch concrete pipe,
5 that discharges the Garfield Park storm water?

6 A: Richard Geer mandating that we start a
7 measurement?

8 Q: Not mandating to you, but taking the position
9 that in his opinion, the appropriate start
10 point would be that 24 inch pipe?

11 A: I don't recall that conversation being had.

12 Q: Okay. If you were going to do the high tide
13 calculation from the outfall of the 15 inch
14 pipe, how, if at all, would it vary from the
15 measurement of Mr. Youmans, the survey
16 measurement?

17 A: Again, what this plat depicts is us generally
18 following Mr. Youmans' in the field survey of
19 what he deemed to be a linkage between the
20 development and these oyster beds. The
21 commonality being the fact they both go through
22 the breach in the dike. But we were just
23 merely measuring to overlay the aerial to see
24 if his measurement corresponded with the, you
25 know, lot lines. His survey just rotating it



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1 in and us in AutoCAD verifying that those
2 distance measurements were true and accurate.
3 It was just our position that the water would
4 flow -- the channel which is created, but as
5 another option, per say, we show this arched
6 line going through the dike because it was some
7 back and forth conversation that, you know, was
8 going to take a -- the storm water would take
9 a direct measurement -- a direct flow path, and
10 we didn't believe that. But we were
11 entertaining options, so we showed both. We
12 believe it follows the channel; however, we did
13 review and depict on this plan the line shown
14 with arrows that has an arch shape through the
15 lakebed.

16 Q: Well, when we went through this in your
17 deposition, wasn't it your view at that time
18 that the arched path may well more accurately
19 represent the flow of water at a high tide?

20 A: The water is going to seek it's lowest point,
21 and we believe it follows the channel after --
22 you know, much back and forth. We -- that was
23 just an in between the very ultra-conservative
24 Youmans plan that follows the bank, which we do
25 not agree with. And our -- it's not our plan.

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1 It's what is in the field shown by the aerial,
2 the fact that there's scour through the lakebed
3 that creates a channel.

4 Q: Okay. Well, first of all, it didn't Mr.
5 Youmans' measurement from the 24 inch pipe get
6 measured 30 feet out into the water or out into
7 the lakebed from the shoreline?

8 A: I don't see a -- approximately yeah, that
9 distance it looks like it's following the tree
10 line.

11 Q: Okay. But it looks like it's approximately 30
12 feet out away from the edge of the lakebed?

13 A: I guess it could be.

14 Q: Okay. And again, with regard to the 15 inch
15 outfall, how would your measurement or your
16 view of the proper measurement differ, if at
17 all, from what Mr. Youmans showed on his line
18 to the dike?

19 A: Following the definition of the channel,
20 there's -- I believe there's another exhibit
21 that shows our measurements. Have they been
22 reviewed? This seems to be slightly dated.
23 Could it be?

24 Q: Are you saying there's something after August
25 of 2013?



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1 A: I believe. There was a line that came from the
2 15. And it wasn't a direct measurement of Mr.
3 Youmans' route. Because that's all we've
4 defined here is -- we just replicated what he
5 showed.

6 Q: Okay. Are you saying that at some point you
7 showed on a piece of paper or a plat one of
8 your numbered routes that went from the 15 inch
9 outfall to the dike?

10 A: I believe so.

11 Q: Okay. Well, I will represent to you that I
12 have never seen such a document.

13 A: Okay.

14 Q: Would you agree that this drawing was created
15 in August of 2013?

16 A: Yes.

17 Q: Okay. And that was after any presentation to
18 the DHEC Board, wasn't it?

19 A: I don't recall those dates. Sorry.

20 Q: Okay. Well, from -- can you recall how your
21 measurement from the 15 inch outfall may have
22 varied, if at all, from the line that Mr.
23 Youmans drew?

24 A: You see the crevice coming through the lakebed?
25 It could have ---



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1 Q: It would have intersected with that crevice?

2 A: It could have, yes.

3 Q: Okay. Would you agree that that crevice is not
4 significantly different in distance or
5 direction than the straight line that Mr.
6 Youmans measured?

7 A: Significantly, no. I would say no.

8 Q: Okay.

9 A: Uh-huh (affirmative response).

10 Q: So -- and when I say significantly, I -- would
11 you agree that you would not be adding another
12 25 percent to that distance by catching that
13 trough, would you?

14 A: I would say that what we would add to it would
15 be the length of pipe that runs up between Lots
16 B3 and B4 from our proposed catch basin
17 filters.

18 Q: Okay.

19 A: Yeah.

20 Q: If the proper place to measure was from the
21 catch basin filter?

22 A: Correct.

23 Q: Okay. And do you know what that distance is?

24 A: No, sir.

25 Q: Okay. I'm handing you what's been marked as



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1 Exhibit 68. Do you recognize that as a plat of
2 lot B4 that shows the measurement between Lot
3 B4 and Lot B3?

4 A: I do.

5 Q: Okay. And what is that measurement?

6 MS. SHAHID: What number, Mr. North?

7 MR. NORTH: 68.

8 MS. SHAHID: 68?

9 A: 142 feet.

10 Q: Okay. So if Mr. Youmans' measurement from the
11 15 inch dike -- the 15 inch outlet is 776 feet,
12 in your view, would you be adding 142 feet to
13 that in order to reach the distance to your
14 outfall that is within Lot B3?

15 A: Correct.

16 Q: Okay. And would those -- the sum of those
17 still be less than 1,000 feet?

18 A: I could -- 150 plus this distance following my
19 alignment that shows the tying it at roughly
20 station 625 following the length of the channel
21 out, I would agree with that.

22 Q: Okay. So that would still be less than 1,000
23 feet, wouldn't it?

24 A: No. I believe it's longer when it follows the
25 channel.



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1 Q: Take a look, if you would, at the outfall
2 immediately -- or not the outfall, the inlet
3 immediately adjacent to Sheridan Road. Do you
4 see two different inlets on that drawing?

5 A: I do.

6 Q: And I believe this morning you testified that
7 those are both opening grate that can accept
8 storm water.

9 A: Right.

10 Q: And is it your position that the measurement
11 should start at the closest quality treatment
12 device?

13 A: Yes.

14 Q: And I believe you testified this morning that
15 devices should be in each of those two inlets
16 because they're open grates that can accept
17 pollutants. Do you recall that?

18 A: I do.

19 Q: Okay. Would it be fair then to say that the
20 measurement in your opinion should start from
21 the nearest inlet, which would be the one
22 closest to that outfall pipe?

23 A: Correct.

24 Q: And would you agree that that's about 50 feet
25 further than -- further away than the outlet



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1 pipe?

2 A: Yes.

3 Q: Okay.

4 A: Roughly. It appears to be at about station 240
5 or so.

6 Q: Before you, you have a book that's got some
7 exhibits. Can you take a look at Exhibit 6 for
8 me?

9 A: Okay.

10 Q: Do you recognize that as the finger of the lake
11 that runs up to that 24 inch outlet pipe?

12 A: I do.

13 Q: And do you see the tape measure on the second
14 page at the outfall pipe itself?

15 A: I do.

16 Q: Okay. And on the third page, do you see a tape
17 measure running from that point over to the
18 outlet grate?

19 A: I do.

20 Q: And would that be that one that's closest to
21 the outlet pipe?

22 A: It is.

23 Q: Okay. And do you see on the next page the
24 distance of 40 feet?

25 A: I do.



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1 Q: Okay. Well, let's assume that those are all
2 truly and accurately depicting a correct
3 measurement. Would you agree then that that
4 inlet would be 40 feet upstream of the 24 inch
5 outlet?

6 A: Yes.

7 Q: Okay. And if it's that far out, would you
8 agree that if you are then deducting from your
9 measurement the 240 or 250 feet that is
10 calculated before you get to that point, that
11 your high tide measurement as shown on Exhibit
12 72 would be 750 or 800 feet?

13 A: 1,275 minus 240.

14 Q: No. You're going to a further away. I'm
15 talking about the one where you show a high
16 tide measurement, not the low tide measurement.

17 A: I normally ---

18 Q: High tide measurement, would you agree that
19 that distance, if corrected for the last inlet,
20 would be less than 800 feet?

21 A: Yes, along that route that we merely
22 superimposed and illustrated.

23 Q: Okay.

24 A: The dimension.

25 Q: Now, are you familiar with some regulations



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1 that say that if you are within 1,000 feet --
2 if the development is within 1,000 feet of
3 oyster beds, then you have certain retention
4 requirements?

5 A: I do.

6 Q: Okay. Does that regulation talk in terms of
7 the circuitous route of water flow, or does it
8 simply say 1,000 feet from the development to
9 the oyster beds?

10 A: Without reading it, I couldn't say. But I --
11 downstream of the development.

12 Q: Take a look, if you would, in the book in front
13 of you at Exhibit 3.

14 **THE COURT:** What was that exhibit?

15 **MR. NORTH:** Exhibit 3, Your Honor.

16 **THE COURT:** Thank you.

17 A: Yes, sir.

18 Q: Within Exhibit 3, flip to page 3 if you could.

19 A: Yes.

20 Q: Do you see in paragraph 11 the definition of a
21 detention structure?

22 A: I do.

23 Q: And the requirement that a detention structure
24 be able to store, runoff, and release at
25 controlled rates?



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1 A: I do.

2 Q: Okay. Flip if you could to page 8. Do you see
3 there 72-302 that deals with exemptions,
4 waivers, and variances?

5 A: I do.

6 Q: And if you would turn two more pages to page
7 10. Do you see subsection B of that regulation
8 that deals with waivers?

9 A: I do.

10 Q: Under B2, do you see that a project can be
11 eligible for a waiver or variance of storm
12 water management for water quantity control if
13 the applicant can demonstrate that the
14 proposed project will have no significant
15 adverse impact on the receiving natural
16 waterway or downstream properties?

17 A: Yes.

18 Q: Would you agree that the Petitioners home sites
19 are downstream properties?

20 A: Their properties are downstream.

21 Q: Downstream from Garfield Park.

22 A: Yes.

23 Q: Okay. And you've already acknowledged, I
24 believe, that having tidal flows would be an
25 adverse impact; is that correct?



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- 1 A: Yes.
- 2 Q: Yes. And would you agree under this section
3 that the adverse impact is not limited to
4 impacts from storm water, it's impacts from the
5 proposed project?
- 6 A: All in relation to storm water. Does the
7 increase in storm water volume discharge from
8 the development have an adverse impact on the
9 downstream property owners ---
- 10 Q: Can you point out where in the wording of this
11 regulation all that talk about from storm water
12 comes from?
- 13 A: A project may be eligible for a waiver or
14 variance from storm water management for water
15 quantity control. Storm water quantity.
- 16 Q: Yes. Unless the project has a significant
17 adverse impact on downstream properties; is
18 that correct?
- 19 A: The way I understand it is that if there's a
20 water body downstream that's capable of
21 accepting storm water increased rates and
22 volume, that a waiver is eligible, and that's
23 for storm water quality control.
- 24 Q: Would you agree that any project that
25 contemplates leaving that dike open to tidal



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- 1 flows will result in the adverse impacts to --
2 of tidal surge or tidal flow on the Petitioners
3 property as we talked about this morning?
- 4 A: How ---
- 5 Q: Let me reword ---
- 6 A: Yeah, please.
- 7 Q: Let me reword the question for you. Would you
8 agree that leaving the dike open in any
9 retrofit, whether it's inline filters or
10 anything else, will result in the same adverse
11 consequence to homeowners resulting from tides
12 being able to come upon their property?
- 13 A: The tides have the ability to reach upon their
14 property. And what material damage it is, I'm
15 unsure of, and I've not been made aware of.
- 16 Q: Understood.
- 17 A: Okay.
- 18 Q: Take a look, if you would, at page 28.
- 19 A: Is that Exhibit 3?
- 20 Q: Yes. Would you agree that these regulations
21 apply to the retrofit?
- 22 **MS. SHAHID:** My pages aren't numbered. Can you tell
23 me which regulation? 72 -- I mean, just what's
24 on the page you're looking at?
- 25 **MR. NORTH:** Your Honor, are you pages numbered?



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1 THE COURT: Yes, they are.
2 MR. NORTH: I though all of them were. Unless yours
3 is some -- oh. Are you sure?
4 MS. SHAHID: Your respondent Exhibit 3 ---
5 MR. NORTH: Okay.
6 MS. SHAHID: --- you removed the page numbers from
7 when copied.
8 MR. NORTH: I didn't remove them. They evidently
9 got copied before they got numbered.
10 MS. SHAHID: Okay.
11 MR. NORTH: If I'd have thought of it, maybe.
12 MS. SHAHID: If you would just tell me which reg,
13 numbered reg, and I'll ---
14 MR. NORTH: I would be happy to. It's 72-307.
15 MS. SHAHID: Okay.
16 MR. NORTH: Specific design criteria minimum
17 standards and specifications.
18 MS. SHAHID: Okay.
19 MR. NORTH: And then within that, it is subsection
20 I(3) E(2).
21 MS. SHAHID: Got it.
22 Q: Would you agree that these regulations apply to
23 the retrofit project?
24 A: To clarify, page 27I ---
25 Q: 28.



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- 1 A: Right. But that starts out the section. It
2 defines what is on 28, and that is -- it's
3 discussing storm water management, sediment
4 erosion control, plan for land disturbing
5 activities greater than two but less than five
6 acres, which are not part of a larger common
7 plan of development or sale shall contain the
8 following is applicable, and it's talking about
9 site plans, storm water management calculations
10 ---
- 11 Q: Would you agree that the requirements with
12 regard to discharge velocities applicable to
13 the retrofit would be these or a higher
14 standard because it's a great -- project
15 greater than five acres? Let me ---
- 16 A: It just says it's -- yeah, please rephrase that
17 question.
- 18 Q: Without getting hung up on the exact wording,
19 would you agree that the regulations applicable
20 to this project require that discharge
21 velocities of storm water for a 10-year 24 hour
22 storm event have the velocity reduced to a non-
23 erosive velocity flow?
- 24 A: Yes.
- 25 Q: Would you agree under -- on the next page under



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1 72-308 that the permittee of a storm water
2 permit has a duty of maintenance to maintain
3 the components of the storm system, storm
4 treatment system, that has been approved?

5 A: Yes.

6 Q: Take a look, if you would, at Exhibit 19. Do
7 you have any knowledge -- first of all, do you
8 have any knowledge with regard to whether or
9 not the oysters in Chowan Creek have any
10 special designation?

11 A: No, sir.

12 Q: Do you know whether or not they are officially
13 recognized shellfish harvesting beds?

14 A: I think the waterway is open for harvesting.

15 Q: Okay. And what does that mean with regard to
16 discharges of storm water?

17 A: What does that mean?

18 Q: Would the requirements having to do with
19 shellfish areas that are open to harvesting
20 include a requirement that the water quality
21 not be degraded?

22 A: I would assume so. That's why ---

23 Q: Are you familiar with an anti-degradation ---

24 A: No, sir.

25 Q: --- ordinance or regulation?



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1 A: No, sir.

2 Q: Are you familiar with geographic areas of
3 particular concern?

4 A: I am slightly ---

5 Q: What's your understanding of it?

6 A: --- better than --- mainly to do with
7 archaeological and historic structures.

8 Q: Okay.

9 A: That's -- I'm limited to that understanding.

10 Q: Do those types of areas of particular concern
11 ever include shellfish beds?

12 A: This would be the first.

13 Q: Okay.

14 A: I've never been made aware of that.

15 Q: Okay. Take a look, if you would, at the page
16 that's numbered III-6.

17 A: Yes.

18 Q: In -- under residential development, the policy
19 1.B, do you see the residential development
20 which would require a permanent alteration of
21 fresh water wetlands will be prohibited unless
22 no feasible alternatives exist?

23 **MR. HABER:** Objection, Your Honor. This -- I would
24 prefer if he wants to read the section in the
25 summarizing section to be an accurate



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1 reflection of what's summarized.

2 Q: Well, let me read it absolutely verbatim
3 including adding the words that aren't
4 pertinent.

5 MR. HABER: It's one sentence, Your Honor.

6 Q: Okay. Residential -- I want to know whether or
7 not you're familiar with this regulation.
8 Residential development, which would require
9 filling or other permanent alteration of salt,
10 brackish, or freshwater wetlands will be
11 prohibited unless no feasible alternatives
12 exist or an overriding public interest can be
13 demonstrated, and any substantial environmental
14 damage can be minimized. Are you familiar with
15 that?

16 A: I'm not familiar with that.

17 Q: Okay. Are you aware of any over riding public
18 interest that would relate to this retrofit
19 project?

20 A: Define overriding.

21 Q: Are you aware of any public interest, other
22 than the interest of the developer, in the
23 retrofit application?

24 A: I would say the one that would come to mind
25 would be the residents of the POA would be



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1 assessed for any repair work, the cost would
2 probably somehow passed along to the POA. I'm
3 unsure of that, but cost effective alternative
4 may be the filters so that -- that's the public
5 that could have a say in the preference to go
6 back with the filters.

7 Q: Looking out for the interest of the members of
8 the POA, is that what you're referring to?

9 A: It could be. Uh-huh (affirmative response).

10 Q: Okay. Now, the existing permit is for
11 detention by the lake provided by the dike; is
12 it not?

13 A: The existing -- the '04 permit?

14 Q: Yes.

15 A: Yes.

16 Q: And that's still in effect until it's changed,
17 isn't it?

18 A: Until it's changed? It's ---

19 Q: Until some retrofit application or some
20 modification becomes final?

21 A: Meaning a retrofit permit being granted?

22 Q: Yes.

23 A: And it has been granted, has it not?

24 Q: It's not final. It's been appealed.

25 A: Okay.



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1 Q: So we do agree that as of right now, the 2004
2 permit is still in place?

3 A: Okay.

4 Q: You would -- okay. And would you agree that
5 the developer, Chowan Creek Partners, is the
6 permittee of that permit?

7 A: Yes.

8 Q: And would you agree that Chowan Creek Partners
9 is the one that has an obligation to maintain
10 the storm water system that was granted and
11 permitted to it?

12 A: The landowner of the roads and drainage
13 systems, I'm not sure if that's still the
14 developer or the POA.

15 Q: I'm talking about -- isn't the permittee the one
16 that has the maintenance and repair obligation
17 to OCRM?

18 A: I believe it was -- could I clarify, you know
19 -- do you have the application of whether or
20 not I ---

21 Q: I'll represent to you that the 2004 permit was
22 issued in the name of Chowan Creek Partners.

23 A: Okay.

24 Q: And if that's the case, would you agree that
25 it's the permittee that has the obligation of



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- 1 repair and maintenance?
- 2 A: I do.
- 3 Q: Okay. Now, would you agree that the permittee
- 4 for the retrofit is the homeowner association?
- 5 A: It could be. That's my confusion.
- 6 Q: Okay.
- 7 A: A second ago, I wasn't sure which was the
- 8 applicant.
- 9 Q: Okay. So if there's going to be some money
- 10 spent to fix it, would you assume that the
- 11 applicant would be the one expending those
- 12 sums?
- 13 A: Yes.
- 14 Q: So if there's a public interest looking out for
- 15 the homeowners, wouldn't denying the retrofit
- 16 be the way to go?
- 17 A: Denying the retrofit requiring the
- 18 reconstruction of or another alternative?
- 19 Q: To be determined, but at least not approving a
- 20 plan that shifts the repair obligations of the
- 21 dike to the homeowners under a filter permit.
- 22 A: Clarify the question. Would it be a ---
- 23 Q: I don't need to followup with that question.
- 24 A: Okay.
- 25 Q: Do you consider Cat Island to be a barrier



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1 island?

2 A: I don't know the definition of a barrier
3 island.

4 Q: Okay. Take a look, if you would, at the page
5 marked III-60.

6 A: Okay.

7 Q: Do you see the requirement of this regulation
8 that for all projects regardless of size, which
9 are located within one-half mile of a receiving
10 body in the coastal zone, this criteria shall
11 be storage of the first one-half inch of runoff
12 for the entire site or storage of the first one
13 inch or runoff from the build upon portion of
14 the property, which ever is greater?

15 A: I agree that that's what this regulation says.

16 Q: Well, and that's what the regulations require,
17 isn't it?

18 A: This is policies and procedures updated in
19 1995.

20 Q: Yes.

21 A: Uh-huh (affirmative response). Has that -- any
22 of that changed is ---

23 Q: I'll represent to you that those are the
24 current -- that is the current version of the
25 coastal zone management program.



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1 MR. HABER: Objection, Your Honor.

2 A: It was ---

3 MR. HABER: We clarified earlier this is the policies
4 and procedures, and this is an excerpt from the
5 program document spectra regulation; however,
6 this is not the full program document.

7 THE COURT: Yes.

8 MR. NORTH: I agree. That was my intent. But it is
9 treated as a regulation.

10 MR. HABER: Under the court's decision, the spectra
11 the Supreme Court had held that the program
12 document and the policies and procedures are
13 requirements thereof are treated as if it's a
14 regulation though they were not codified
15 through the full regulation.

16 MR. NORTH: Okay.

17 Q: In designing this retrofit application, were
18 you aware of this requirement?

19 A: I was.

20 Q: Okay.

21 A: In general, it sounds like ---

22 Q: It sounds like what?

23 A: Yeah. The first half inch and -- or the -- or
24 one inch, and the detention in release.

25 Q: Okay. And then do you see where it says that



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1 the storage then is required may be
2 accomplished through retention, detention, or
3 infiltration systems as appropriate for the
4 specific site?

5 A: I see that.

6 Q: Okay. And I believe you've already testified
7 that these inline filters are not either
8 detention, retention, or infiltration; is that
9 right?

10 A: Correct.

11 Q: How do you -- would you agree then that the
12 retrofit permit violates this provision?

13 A: I would state that the intent behind this
14 regulation is to filter storm water runoff in
15 that volume, in that pollutant load. And when
16 we have the option being the filter that met
17 the same requirement for that first flush
18 runoff volume, that it's an acceptable
19 alternative in my opinion.

20 Q: What's your basis for having that opinion?

21 A: The pollutant load, the residential
22 development, being stabilized, having runoff
23 only from developed streets and curving better
24 development in nice kept, well kept. The -- if
25 it were within, you know, -- I would say that



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1 that -- the filters are an adequate replacement
2 for the same function that the wet detention
3 pond would provide.

4 Q: Would you agree that the inline filters
5 strictly speaking do not meet the description
6 of the requirements on page III-60?

7 A: We are not providing retention, detention, or
8 infiltration.

9 Q: So you would agree?

10 A: That we are not providing those methods of
11 treatment.

12 Q: Would you also -- I'm sorry. Were you
13 finished?

14 A: Yes.

15 Q: Would you also agree that Beaufort County's
16 storm water requirements within a half a mile
17 of the coastal zone require a wet detention
18 basin?

19 **MR. HABER:** Again, Your Honor, same objection. It's
20 reported in Beaufort County ordinances are not
21 applicable in this matter regarding state's
22 permitting issue.

23 **MR. NORTH:** I disagree with that objection. I think
24 asked and answered would have been better, and
25 I would concede that one.



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1 **THE COURT:** Okay, Mr. North. If you know that it's
2 been asked and answered ---

3 **MR. NORTH:** I didn't think of it. Okay. I will.
4 I'll try to do that.

5 **MR. HABER:** Thank you, Your Honor.

6 **Q:** I'm handing you what's been marked as Exhibit
7 84. And that's the document that you brought
8 with you this morning that shows the wetland
9 delineation, and it was approved by the U.S.
10 Army Corps of Engineers; is that correct?

11 **A:** Yes.

12 **THE COURT:** Mr. North, let's get this -- 84 is a
13 part of the Cat Island's 11.

14 **MR. NORTH:** Oh. I thought 84 was my exhibit.
15 Because this was not actually enclosed in
16 Exhibit 11. It was referenced in Exhibit 11.

17 **THE COURT:** It was referenced in Exhibit 11, but the
18 agreement was, I thought, that it would become
19 a part with the understanding that it was not
20 originally a part of the document that was
21 being introduced as 11.

22 **MS. SHAHID:** We had that discussion right before
23 lunch. I thought we agreed to that. It
24 doesn't matter ---

25 **MR. NORTH:** I don't think it matters as long as it's



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1 in evidence and ---

2 **THE COURT:** Right. I don't think it matters except
3 that we need to have it in order for the court
4 reporter for the record.

5 **MR. NORTH:** Okay. But we will continue to refer to
6 it as Exhibit 84, won't we?

7 **THE COURT:** Well, if we're going to do that, then
8 let's then just have it introduced as Exhibit
9 84.

10 **MR. NORTH:** Okay.

11 **THE COURT:** Okay?

12 **MR. NORTH:** Yes.

13 **THE COURT:** And that way, 11 is 11. The way you --
14 because it is in evidence, 84 is a separate
15 exhibit, and it is your exhibit, and it is ---

16 **MR. NORTH:** Okay. And I would introduce it an offer
17 it into evidence.

18 **THE COURT:** It is.

19 **MR. NORTH:** Okay. And I think that all parties can
20 stipulate that Exhibit 84 is the same document
21 that is referenced in Exhibit 11.

22 **MR. HABER:** Your Honor, I have never seen this
23 document.

24 **MR. NORTH:** Okay.

25 **THE COURT:** You have not seen it?



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1 MR. HABER: I've never seen this document.
2 MR. NORTH: Okay.
3 THE COURT: Let's let him ---
4 MR. HABER: So this is in regards to her 11?
5 MR. NORTH: Yes.
6 MR. HABER: That is the Army Corps?
7 MR. NORTH: The Army Corps wetland determination.
8 MR. HABER: Okay. So would you -- this is what? I
9 see that it's entitled ---
10 MR. NORTH: This is the plat that was used to make
11 the determination.
12 MR. HABER: Okay. And just for ease so we don't
13 have to spend 10 minutes on it, where -- this
14 is 17 fairway. I see this.
15 MR. NORTH: The dike runs right here ---
16 MR. HABER: I see the tidal ---
17 MR. NORTH: --- over.
18 MR. HABER: Oh, okay.
19 MR. NORTH: The inlet is inside the dike.
20 MR. HABER: Uh-huh (affirmative response). And
21 then, so where is the outfall structure on the
22 ---
23 MR. NORTH: It would be up ---
24 MR. HABER: Okay. So ---
25 MR. NORTH: --- off the chart.



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1 MR. HABER: Okay.

2 MR. NORTH: The dike ---

3 MR. HABER: Freshwater wetland?

4 MR. NORTH: Yeah.

5 MR. HABER: Okay.

6 MR. NORTH: The dike starts here. Everything along
7 the lake ---

8 MR. HABER: Okay. No objection. All right.

9 MR. NORTH: Oh, and one thing you might want to know
10 ---

11 MR. HABER: Uh-huh (affirmative response).

12 MR. NORTH: --- the letter refers to critical area.
13 It's outside of any of the lake areas. It's
14 out here on the beach of Chowan Creek south of
15 the area that we're talking about.

16 MR. HABER: My only objection would be to that is I
17 do not know whether or not that critical area
18 was delineated by OCRM, where that information
19 came from -- I haven't had ample opportunity as
20 just receiving this document to verify whether
21 or not that's an OCRM critical area line. That
22 would be my only objection.

23 THE COURT: Okay. We will have it admitted ---

24 MR. HABER: Sure.

25 THE COURT: --- for what it's worth.



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1 MR. HABER: Sure. Thank you, Your Honor.

2 (Petitioners Exhibit Number 84 was admitted into
3 evidence.)

4 Q: I'm handing you again Exhibit 84. Does that
5 document show the determination of the critical
6 line in the area of G tract?

7 A: It does.

8 Q: And is it fair to say that that critical line
9 runs along the eastern boundary of G tract that
10 borders directly onto Chowan Creek?

11 A: It does.

12 Q: Okay. And would you agree that there are no
13 critical lines shown anywhere along the
14 property line that abuts the lake, the Cat
15 Island Lake?

16 A: L55, which is shown in the line table, it's
17 adjacent to -- there's critical area line
18 directly adjacent to the freshwater wetland D
19 by L55 and L56.

20 Q: But no critical area shown inside the property
21 line, is there?

22 A: Inside the property line? It's all inside the
23 property line.

24 Q: Okay. I see it. Okay.

25 MR. NORTH: I have no further questions, Your Honor.



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1 THE COURT: Are you going first with your witnesses?

2 MS. SHAHID: I'll let him go first. This is brief.

3 THE COURT: Okay.

4 MS. SHAHID: If it's all right with you.

5 MR. HABER: I'll do my best just to make reference.

6 MR. LYLE - CROSS EXAMINATION BY MR. HABER:

7 Q: Mr. Lyle, my name is Nathan Haber. We had met
8 at your deposition. Is the coastal system
9 dynamic?

10 A: It is.

11 Q: In fact, is nature pretty dynamic?

12 A: It is.

13 Q: I know it's not your background, but do you
14 know what an oxbow lake is?

15 A: Oxbow lake? I know oxbow in a river.

16 Q: Sure.

17 A: Uh-huh (affirmative response).

18 Q: Have you heard of -- like a meandering stream
19 would create an oxbow lake?

20 A: Sure.

21 Q: Are you aware if it does that naturally?

22 A: It would have to.

23 Q: Okay. Mr. North had shown you petitioner -- I
24 believe, it's Petitioners 33. I remember it
25 was in reference to the maintenance and repair.



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1 A: Right.

2 Q: Do you have a copy of that? I'm not sure what
3 you have over there or how it's organized. I
4 can attempt to find mine. I got it. The
5 quickest exhibit I've found yet.

6 **MR. HABER:** My I approach, Your Honor?

7 **THE COURT:** Yes.

8 Q: This should be a copy of Petitioner Exhibit 33.

9 A: Right.

10 Q: Again, this is Department's Exhibit. If you
11 could look through there and specifically look
12 at Department's Exhibit Number 4. Do you see
13 that? Yeah, that's it. In comparison in
14 looking at Petitioners 33 and compared to
15 Department's 4, Petitioners 33, would really be
16 a complete copy or an accurate reflection of
17 the exchange between you and the Department
18 regarding the maintenance and repair request.
19 Would that be correct?

20 A: One second. I commingled those exhibits. The
21 Department's Exhibit Number 4 being the
22 construction authorization, the construction
23 placard.

24 Q: Yeah.

25 A: Okay.



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- 1 Q: Flip through those pages in compare it to
2 Number 33, and please let me know if
3 Department's 4 is more of a complete reflection
4 of the exchange between you and the Department
5 regarding maintenance and repair work. Do you
6 recognize or see some pictures in Department's
7 4? Do you recognize those pictures?
- 8 A: The first -- I have not seen ---
- 9 Q: Did you not submit those pictures with your
10 maintenance and repair request?
- 11 A: That would have been Oakland reconstruction.
- 12 Q: Okay. That would be on the first one. How
13 about the second one?
- 14 A: The second one? Yes. I submitted this
15 picture.
- 16 Q: Okay. So photographs are contained in
17 Department's Exhibit 4 are in regards to your
18 maintenance and repair request to the
19 Department?
- 20 A: Correct.
- 21 Q: Are those included in Petitioners 33?
- 22 A: They are not.
- 23 Q: Okay. Now -- and Mr. North amongst other
24 issues you went through, you spoke about work
25 in the critical area. Do you recall that?



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1 A: I do.

2 Q: Talked about mean high water, work at the
3 bottom, stabilization, issues like that. Do
4 you recall?

5 A: I do.

6 Q: Now, if riprap was to be installed below the
7 mean high water, okay, is it your understanding
8 you would need a critical area permit for that?

9 A: Or maintenance and repair.

10 Q: Or -- okay.

11 A: Uh-huh (affirmative response).

12 Q: But if maintenance -- if it wouldn't fit within
13 the definition of a maintenance and repair,
14 would you need to have a department permit?

15 A: To do work in the critical area, you would,
16 yeah.

17 Q: In fact, I'll posit to you that under the
18 maintenance and repair in the regulations, if
19 it exceeds it, you either have to get
20 department approval or a permit. Do you
21 recall if that was in the critical area
22 regulations?

23 A: No, sir. Not right off. I'm sorry.

24 Q: Say later, if it was determined that you put a
25 bunch of riprap in the critical area and you



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1 didn't have a permit, potentially in your mind,
2 do you think there'd be some sort of
3 repercussion? .

4 A: It could be.

5 Q: Do you think maybe enforcement and compliance
6 would come after the contractor for doing the
7 work and perhaps against Mr. Meyer as well as
8 the -- for the owner?

9 A: It could, yes.

10 Q: Okay. And that would either require you to
11 perhaps get an after the fact permit ---

12 A: Uh-huh (affirmative response).

13 Q: --- and perhaps pay a fine?

14 A: Right.

15 Q: Do you think that'd be right?

16 A: Yes.

17 Q: Okay. So the work that you and Mr. North had
18 talked about regarding the top of what used to
19 be the dike ---

20 A: Uh-huh (affirmative response).

21 Q: --- would that be out -- in your mind, out of
22 the critical area? Would that be on top of the
23 dike?

24 A: Yes.

25 Q: Is that how you understand it?



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1 A: Right.

2 Q: Okay. And if your work did go down to the
3 critical area, would it be your understanding
4 you would have to get a permit?

5 A: I believe I would.

6 Q: Or if you put rocks down there, you would
7 likely be fined to have to go through some
8 issues with that, correct?

9 A: Yes.

10 MR. HABER: No further questions, Your Honor.

11 MR. LYLE - CROSS EXAMINATION BY MS. SHAHID:

12 Q: Mr. Lyle?

13 A: Yes.

14 Q: Will you tell me a little bit about your work
15 experience after you graduated from Clemson?

16 A: I worked in -- on commercial, residential,
17 industrial projects in four or five coastal
18 counties.

19 Q: Okay. Maybe be a little more specific. Where
20 did you begin your employment?

21 A: Andrews and Burgess.

22 Q: Oh. You've been working at Andrews and Burgess
23 since graduating from Clemson?

24 A: Yes.

25 Q: And where is Andrews and Burgess?



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1 A: Located in Beaufort.

2 Q: And what year was that that you began your
3 employment with Andrews and Burgess?

4 A: January of 2004.

5 Q: Okay. So approximately nine years ago or
6 exactly nine years ago?

7 A: Yes.

8 Q: All right. And who were you supervised by?

9 A: Steve Andrews.

10 Q: All right. And Steve Andrews is a professional
11 engineer?

12 A: Correct.

13 Q: And does Andrews and Burgess also have a
14 surveying component?

15 A: They do now, yes.

16 Q: And that's Mr. Burgess?

17 A: Yes.

18 Q: And he's a licensed professional land surveyor?

19 A: Dual licensed, PE and PLS.

20 Q: Oh. He's a PE and a professional land
21 surveyor?

22 A: Yes.

23 Q: Okay. And the work that Andrews and Burgess
24 focuses on, is it commercial and residential
25 development work?



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- 1 A: It is.
- 2 Q: All right. Is that primarily the majority of
- 3 civil engineering work that you do designing
- 4 commercial and residential development?
- 5 A: Yes, ma'am.
- 6 Q: All right. And is that work done all over
- 7 Beaufort County?
- 8 A: Uh-huh (affirmative response).
- 9 Q: Does that include Hilton Head?
- 10 A: It does.
- 11 Q: Fripp Island?
- 12 A: Yes.
- 13 Q: Any other municipalities or areas within
- 14 Beaufort County?
- 15 A: Yeah. Any and all of the above.
- 16 Q: All of the above?
- 17 A: Uh-huh (affirmative response).
- 18 Q: How about -- do you work -- does your work
- 19 extend to Colleton County and Walterboro?
- 20 A: It does.
- 21 Q: Is Andrews and Burgess busy with regard to
- 22 commercial and residential development?
- 23 A: Yes. That's what we focus on.
- 24 Q: All right.
- 25 A: Uh-huh (affirmative response).



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1 Q: And what has been your role -- what was your
2 role initially in helping Mr. Andrews who is a
3 professional engineer?

4 A: Preparing drainage calculations, controlling
5 drainage plans, water and sewer designs,
6 filling out permit applications.

7 Q: All right. So when you design a residential or
8 commercial development, you've got to design a
9 sewer system that satisfies state regulations,
10 right?

11 A: Right.

12 Q: A water system that satisfies state
13 regulations, right?

14 A: Right.

15 Q: A storm water management system that satisfies
16 state regulations, correct?

17 A: Correct.

18 Q: And then you've got to satisfy all the other
19 standards, building and design standards,
20 imposed by local government, right?

21 A: Correct.

22 Q: And is that what you do?

23 A: Yes.

24 Q: Is that what Mr. Andrews does?

25 A: It is.



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1 Q: Okay. And when were you able to work without
2 the supervision of Mr. Andrews?

3 A: Once you pass the PE, you don't have to have
4 "guidance".

5 Q: Okay. And do you work independently now of Mr.
6 Andrews?

7 A: He's -- we review all of each other's
8 information, so independently it's a -- yes.
9 However, checks and balances.

10 Q: Okay. You don't depend on Mr. Andrews to tell
11 you how to do things, right?

12 A: No, ma'am.

13 Q: You know how to do this?

14 A: Yes.

15 Q: All right. Can you give me, and it doesn't
16 have to be an exact number, but approximately
17 how many developments in Beaufort County and
18 surrounding areas have you been involved in
19 with regard to civil engineering design over
20 the past -- since your tenure at Andrews and
21 Burgess?

22 A: 100.

23 Q: 100?

24 A: Uh-huh (affirmative response).

25 Q: Okay. And how many of those developments have



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1 you been involved in designing storm water
2 management systems and obtaining storm water
3 permits?

4 A: Over half.

5 Q: Over half?

6 A: Uh-huh (affirmative response).

7 Q: So more than 50?

8 A: Uh-huh (affirmative response).

9 Q: And are these residential developments?

10 A: Some, yes.

11 Q: Are they commercial developments?

12 A: Yes.

13 Q: All right. And in doing that work, do you
14 advise the client on how to comply with state
15 standards and regulations?

16 A: Yes.

17 Q: Are you familiar with state land disturbing
18 standards and storm water standards and
19 regulations?

20 A: I am.

21 Q: And you testified that you're very familiar
22 with Beaufort County regulations?

23 A: I am.

24 Q: Okay. And you made a distinction today at some
25 point in your testimony, I believe, about water



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1 quantity and water quality? Those are the two
2 components that drive storm water permitting,
3 aren't they?

4 A: Uh-huh (affirmative response).

5 Q: Okay. You probably need to say yes or no.

6 A: Oh, yes.

7 Q: Okay. And you're a licensed professional
8 engineer?

9 A: I am.

10 Q: Your degree was in civil engineering?

11 A: Yes.

12 Q: And the work that you've done over the past
13 nine years, has that been pretty exclusively
14 that discipline called civil engineering?

15 A: Yes.

16 Q: Okay. And your license is in good status?

17 A: Yes.

18 Q: Okay.

19 **MS. SHAHID:** Your Honor, at this time, I would offer
20 Mr. Lyle as an expert witness in engineering in
21 the state of South Carolina with emphasis on
22 civil engineering.

23 **THE COURT:** Based on his -- excuse me, education, I
24 find that he's qualified.

25 **MS. SHAHID:** Okay. Thank you, Your Honor. And I



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1 wish I could say I'm going to do the rest of
2 this as fast as I did that.

3 **THE WITNESS:** Uh-huh (affirmative response).

4 **MS. SHAHID:** But it involves me finding -- jumping
5 from topic to topic and finding some exhibits.

6 Q: But the first one I'm going to start with is a
7 document in evidence as DHEC's Exhibit -- and
8 I believe it might be Exhibit 2. Okay. It's
9 Exhibit 1. And you don't need to find -- well,
10 that might be -- oh, no. I'm going to show it
11 to you. You might be looking at Petitioners 2.
12 I'm going to show it to you. This is Bates
13 stamped page 16, and it's actually Department's
14 Exhibit 1. And I'm going to show you this e-
15 mail. And if you could, just read for the
16 court this very short e-mail. Before I do
17 that, do you know who Debbie King is?

18 A: Yes.

19 Q: Who is Debbie King?

20 A: She is the permitting official at the Corps of
21 Engineers in Charleston.

22 Q: Okay. And you talked about some -- you're
23 aware that there's been some claims that there
24 are some freshwater wetland violations, these
25 claims being initiated by some of the



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1 petitioners in this case?

2 A: Yes.

3 Q: You've been personally involved in that?

4 A: Yes.

5 Q: Okay. And were there -- were there some
6 discussion with the Corps of Engineers to
7 attempt to see if there was going to be a
8 problem with the Corps? Do you have some
9 knowledge of that?

10 A: Yes.

11 Q: Okay. And Debbie King is a person at the Corps
12 of Engineers in Charleston?

13 A: Yes.

14 Q: All right. Can you read that e-mail?

15 **MR. NORTH:** Your Honor, I object to this e-mail as
16 hearsay. If they want to try and prove that
17 somehow flooding freshwater wetlands with
18 saltwater is not something that's violated by
19 the regs, then they can bring a representative
20 from the U.S. Army Corps of Engineers before
21 the court. They previously indicated that they
22 were going to do so. And the fact that they
23 opted not to shouldn't allow them to then use
24 some hearsay statement of Debra King that I
25 can't cross examine.



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1 **MR. HABER:** Your Honor, I believe the first -- it's
2 Department's Exhibit, and that exhibit has
3 already been complete in total. Two,
4 Department has never made a representation to
5 Petitioners counsel that they would be bringing
6 in Ms. King as a witness, and I'm not sure if
7 that was directed at the Department or to Ms.
8 Shahid. It's in evidence. Part of it when we
9 spoke during Mr. Geer's testimony, the minutes
10 that had come from that e-mail is also in
11 evidence. And Mr. Geer testified to those
12 notes as well. There was a worksheet regarding
13 coastal consistency determination.

14 **MS. SHAHID:** Your Honor, the federal -- the
15 employees at the Corps of Engineers are --
16 cannot be subpoenaed. There's a particular
17 federal statute that protects them from
18 subpoena and state and administrative
19 proceedings. Regardless, the document I've
20 understood was already in evidence, and we had
21 questioned Mr. Geer about it yesterday.

22 **THE COURT:** It is already in evidence.

23 **MR. NORTH:** There was also in evidence some e-mail
24 communication. I'm not sure where it is. It's
25 in one of the documents of the other counsel



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1 talking about her understanding that the
2 dedicated freshwater wetlands were upstream of
3 this lake basin. And I would like if they're
4 going to bring this out with the witness to
5 bring both documents out with the witness.

6 **MR. HABER:** Forgive me, Your Honor, this -- I'm not
7 using this exhibit. My exhibit is already in.
8 This is -- Ms. Shahid and I are not the same
9 party in this action. In fact, Ms. Shahid is,
10 as you remember, is petitioner against the
11 Department in this action as well. I just
12 wanted to let the court know what's in
13 evidence.

14 **THE COURT:** Okay. And actually, Mr. Geer did
15 testify about this document. I'm going to
16 allow it. And question him about it having to
17 read it.

18 **Q:** Can -- would you read that for me, please?

19 **A:** It states, Good morning, Geordie. The issue
20 that you've described on Cat Island does not
21 pose a violation to the restrictive covenants
22 for SAC 26-94-1458. The dike breach downstream
23 from this mitigation site is essentially
24 restoring the intertidal nature of this system.
25 Debbie King.



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1 Q: Okay. And had you seen that before today?

2 A: I just heard that it -- that the Corps reviewed
3 and had no issue.

4 Q: And saltwater areas area also wetlands
5 jurisdictional to the Corps of Engineers,
6 correct?

7 A: Yeah.

8 Q: Okay. I'm also going to show you a letter
9 that's in evidence as Defendant's Exhibit 2,
10 Department's Exhibit 2, and it's a letter on
11 Bates labeled 22, and ask you if you've ever
12 seen that label -- letter?

13 A: I may have.

14 Q: Okay.

15 A: I can't recall.

16 Q: Who is Dan Ahern?

17 A: He is an employee for Beaufort County, storm
18 water manager at the storm water utility.

19 Q: And then that letter to Mr. Geer, Mr. Ahern
20 says, we don't have a recommended alternative
21 for what you do with this Cat Island situation,
22 but please do something, right?

23 A: Right.

24 Q: Okay. And they're not dictating any certain
25 resolution, right?



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1 A: Right.

2 Q: And is that consistent with your understanding
3 of Beaufort County's position?

4 A: Yes.

5 Q: Okay. Now, let's talk a little bit about the
6 letter that's in evidence that you were
7 questioned about. Mr. Andrews wrote the letter
8 outlining some options for Mr. Meyer, right?

9 A: Right.

10 Q: Do you remember that discussion?

11 A: I do.

12 Q: Let's see if I can lay hands on the letter.
13 It's in evidence as Petitioners Exhibit 35, and
14 I'm going to hand you a copy.

15 **MS. SHAHID:** No, wrong letter. Let me look again.
16 Have you got a copy?

17 Q: I'm going to show you Petitioners 18 which is
18 a letter or at least reflects some discussions
19 that you were asked about by Mr. North on
20 direct examination outlining the options for
21 Mr. Meyer. And you recall those discussions?

22 A: I do.

23 Q: Okay. Now, the -- there's some cost estimates
24 in that letter, are there not, on the second
25 page?



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1 A: There are.

2 Q: Okay. The estimate to rebuild the dike, has
3 that changed any since the time of that letter?

4 A: Yes.

5 Q: Has it increased or decreased?

6 A: It increased from that budget.

7 Q: And has it -- what kind of increase are we
8 talking about?

9 A: I think it was in the \$200,000 range opposed to
10 the \$75,000 range.

11 Q: Okay. And any idea what was added to increase
12 the cost?

13 A: The amount of improvements to hard armor the
14 dike breach and the entire face of the dike.

15 Q: And the hard armoring that you're talking about
16 is a measure to increase the stability?

17 A: Right.

18 Q: All right.

19 A: Uh-huh (affirmative response).

20 Q: Make it more like a detention pond, I guess?

21 A: To reinforce the previous duck pond dike that
22 was constructed.

23 Q: Okay.

24 A: It ---

25 Q: So that it doesn't breach again, I assume?



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1 A: Correct. Right.

2 Q: In your lifetime?

3 A: Right.

4 Q: Okay. All right. Now, there's been some
5 discussion about tract G and access and
6 easements. Can you give me a little more
7 detail on that, what that actually means? Are
8 you saying that if you're going to repair this
9 dike, you've also got to have permitted access
10 to it?

11 A: Correct.

12 Q: And why do you think that?

13 A: For continued maintenance. And to prevent
14 something such as what just happened.

15 Q: Okay.

16 A: The dike breached.

17 Q: Okay.

18 A: And there was no good maintenance access road
19 to get there; therefore, the contractor that
20 repaired -- that prepared the repair last had
21 to come in from Chowan Creek on a barge.

22 Q: Okay.

23 A: Uh-huh (affirmative response).

24 Q: And that effected the integrity of the repair?

25 A: Yeah, potentially.



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1 Q: Okay. Now, there's been a lot of discussion
2 about one of the options being a tract through
3 -- a road through tract G.

4 A: Right.

5 Q: Do you have any idea how long that road would
6 be?

7 A: 1,000 to 1,500 feet.

8 Q: Okay. And would it have to be an improved
9 road, or would it be a dirt road?

10 A: To be able to get the dump trucks with riprap
11 and what have you, you'd have to improve it.
12 You would take some trees down and ---

13 Q: Okay. And right now, tract G is undeveloped?

14 A: Correct.

15 Q: Okay. And an improved road of 1,000 plus feet,
16 a paved road, something that can accommodate
17 construction trucks, that's a pretty expensive
18 undertaking; isn't it?

19 A: Yeah. It could be, and we'd have to get that
20 route permitted.

21 Q: Yeah.

22 A: Land disturbance.

23 Q: And if it's going to become the permanent
24 maintenance road, you'd have to develop around
25 it, right?



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1 A: Right.

2 Q: So the developer would have the sort of
3 untenable choice when he hasn't even got
4 development plans yet for tract G of going
5 ahead and putting a road in?

6 A: Right.

7 Q: Without being able to plan for the development?

8 A: Yes.

9 Q: Was that some of the reasons that Mr. Meyers
10 articulated to you for why he just felt like he
11 wanted to try something else?

12 A: It was. Definitely.

13 Q: Okay. You made a statement to the judge that
14 at some point as Mr. North was walking you
15 through the chronology and particularly the
16 fact that in September 3, 2010, you and Steve
17 got in an RNM extension to March 3, 2011. And
18 you were asked how that time was spent, how
19 that six months was spent. One of the
20 statements you made is that you were reviewing
21 another mechanism on the hill to treat runoff
22 before it reaches the lake. What do you mean
23 by on the hill? There's not hills out there on

24 ---

25 A: Yeah. We are in the low country. But options



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1 other than the lowest elevation, which is the
2 pond.

3 Q: Uh-huh (affirmative response).

4 A: On the hill being the development.

5 Q: Okay.

6 A: Treated within the development.

7 Q: All right. So you were looking at other
8 options other than dealing with the impoundment
9 located on the upland area ---

10 A: Correct.

11 Q: --- of Garfield Park? Okay.

12 A: Uh-huh (affirmative response).

13 Q: Tell me some more about the first flush. We've
14 talked about the coastal zone consistency
15 regulation and the -- or the policy and the
16 storm water regulations that require capturing
17 this water. I think I heard you call it the
18 first flush. Exactly what is that?

19 A: It's a volume of water gaged in inches of
20 rainfall ---

21 Q: Uh-huh (affirmative response).

22 A: --- that as soon as it starts raining, that's
23 when the pollutants that are sitting on top,
24 the oils, greases, and other sediments that
25 carry some of those other pollutants, they're



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1 washed off initially.

2 Q: Okay.

3 A: So treating it at the source as soon as it goes
4 in the catch basin, there's an opportunity for
5 water cleansing.

6 Q: And that is the focus of these policies that
7 talk about the first half inch of runoff or the
8 first one inch of runoff from the build up on
9 portion? The first runoff -- the first one
10 inch or half inch reference tier is the first
11 flush?

12 A: Right.

13 Q: And it's your testimony that the first flush is
14 where all the pollutants are contained?

15 A: Right.

16 Q: Okay. And so your task when you permitted
17 Garfield Park in 2004, your task was to treat
18 the first flush?

19 A: Right.

20 Q: And that first flush was treated by modeling it
21 in -- by doing calculations in determining if
22 it could settle out for 24 hours in the
23 existing lake?

24 A: Right.

25 Q: Okay. If you had to -- if you didn't have that



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1 lake and you had to construct a detention pond
2 for that first flush, any idea big that pond
3 would have to be?

4 A: Typically, it's 15 to 20 percent of the
5 developed area, results in a detention pond.
6 So if Garfield Park Phase 3 were a seven acre,
7 it would be over an acre of a ---

8 Q: Okay. So you ballpark it, you would have
9 needed over an acre of land to capture that
10 first flush?

11 A: Right.

12 Q: To construct a pond? Okay. And while we're on
13 this topic, and I'm going to hand you a very
14 marked up copy, this document is in evidence --
15 let me see if -- it's a Petitioners exhibit.
16 Let's see, Petitioners Exhibit 19, which are
17 the policies and procedures include the first
18 flush provisions, and I'm going to show you
19 that language if I can find it. And you'll
20 have to ignore my handwritten notes if you can.
21 But there's been some discussion today about
22 this particular provision of the policy. And
23 if you'll start here with "storage" and read
24 that first sentence ending with "specific
25 site".



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- 1 A: Storage may be accomplished through retention,
2 detention, or infiltration as appropriate for
3 the specific site.
- 4 Q: Okay. And you see the use of the word "may"
5 there?
- 6 A: May.
- 7 Q: Okay. And then if you could read on this last
8 sentence.
- 9 A: In addition, for those projects which are
10 located within 1,000 feet of shellfish beds,
11 the first one and a half inches of runoff from
12 the built upon portion of the property must be
13 retained on site.
- 14 Q: And you see the word "must" there?
- 15 A: Yes.
- 16 Q: And as somebody who has to apply these
17 standards and advise clients who consult with
18 you on these standards, do you understand that
19 word "must" to mean that you have to do it,
20 there's no discretion?
- 21 A: Right.
- 22 Q: And do you have a different understanding of
23 the word "may"?
- 24 A: Yes.
- 25 Q: And you would advise your clients accordingly?

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1 A: I would.

2 Q: Okay. And these policies I'll represent to
3 you, at least that particular policy, was
4 promulgated in 1993. Have we come a long way
5 with storm water in terms of the development of
6 BMP's since 1993?

7 A: We have.

8 Q: In the nine years you've been a practicing
9 engineer, have we made a lot of progress in
10 terms of the development of best management
11 practices?

12 A: We have.

13 Q: Just in those nine years? Is it possible that
14 in 1993 the only three known effective BMP's
15 were infiltration, detention, and retention?

16 A: Yes.

17 Q: With regard to the discussion about the
18 pollutant removal efficiency, your
19 manufacturing specs that you provided to the
20 agency and that are in evidence, showed a 74
21 percent sediment or total suspended solids
22 removal efficiency.

23 A: Uh-huh (affirmative response).

24 Q: Is that the thing that we should be comparing
25 to sediment TSS?



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1 A: Yes.

2 Q: Is that the closest one?

3 A: Yes.

4 Q: In your professional opinion, is a 74 percent
5 removal efficiency for a post-construction
6 activity adequate to treat water quality?

7 A: Percentage of disturbed area? I would say yes.

8 Q: 74 percent efficiency is adequate? Okay. And
9 I'm going to show you some documents that are
10 in evidence in Petitioners Exhibit 1.
11 Petitioners Exhibit 1 is a handout that was
12 prepared and submitted to the Board of Health
13 and Environmental Control for their board
14 hearing. And it includes on Bates labeled
15 pages 35, 36, 37, 38, 39, something called a
16 checklist. Are you familiar with this
17 checklist?

18 A: Yes.

19 Q: Tell me about how you utilize this checklist.

20 A: OCRM requires as far as checks and balances go
21 that each application be reviewed to make sure
22 that each submittal include the items outlined
23 on the ---

24 Q: Okay.

25 A: --- within the checklist.



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1 Q: All right. Now, is there some distinction made
2 in the checklist for requirements? Well, let
3 me start a little bit over. You have something
4 called construction requirements, correct? And
5 it -- am I right? There's storm water
6 construction standards and then storm water
7 post-construction standards?

8 A: There's -- if you disturb an area greater than
9 a certain acreage, you have to put in like
10 sediments traps and do more things during
11 construction.

12 Q: Okay. So ---

13 A: But not final stabilization and BMP's, no.

14 Q: Okay. Is the period of construction a large
15 focus of storm water regs because of the
16 potential for disturbed land that isn't somehow
17 contained to flow into waterways?

18 A: Yes.

19 Q: And that's a lot of sediment potentially to
20 flow into waterways if you have an uncontrolled
21 site?

22 A: Right.

23 Q: And are there certain things that you as an
24 engineer are required to provide and do to
25 address impacts during construction?



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- 1 A: Yes.
- 2 Q: Okay. And if we look at the checklist and look
3 particularly at Number 16 on the checklist,
4 sedimentology.
- 5 A: Uh-huh (affirmative response).
- 6 Q: Do you see Number 16?
- 7 A: I do.
- 8 Q: Does -- do the items under Number 16 apply
9 during construction?
- 10 A: Yes.
- 11 Q: And here, when I talk about construction, I'm
12 talking about the 2004/2005 construction of the
13 Garfield Park development. You would have been
14 required to address sedimentology, correct?
- 15 A: Yep.
- 16 Q: All right. And if you turn over to page 39
17 under 16, you're referenced to look at the BMP
18 handbook. I'm sorry. I have lost my place.
19 I may have to come back to this. There's a --
20 there's references to trapping efficiencies of
21 80 percent.
- 22 A: Uh-huh (affirmative response).
- 23 Q: And Mr. North asked you about an 80 percent
24 trapping efficiency, didn't he?
- 25 A: He did.



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1 Q: And just reference to this checklist, which is
2 some guidance provided to you by OCRM, is the
3 80 percent trapping efficiency applicable
4 during construction?

5 A: Yes.

6 Q: Okay. Not necessarily at the conclusion of
7 construction when the areas are grassed and
8 stabilized and sediment is not as big an issue?

9 A: Correct.

10 Q: Okay. And what we're talking about now in
11 terms of TSS or sediment removal efficiency is
12 a finished construction site that is
13 stabilized, right?

14 A: Right.

15 Q: There's not great big piles of dirt in the
16 vicinity that are uncontained by silt fencing,
17 et cetera that are going to flow and clog
18 waterways, right?

19 A: Right.

20 Q: Okay. The level of sedimentation that flows
21 off a finished site, a site that has BMP's in
22 place, is less of a threat than sediment on an
23 active construction site, correct?

24 A: Correct.

25 Q: Okay. Now, tell me with a high flow event,



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1 because you made a distinction between a low
2 flow event and a high flow event, explain to me
3 in a high flow event how your filters will not
4 be bypassed but will still capture the first
5 flush?

6 A: The low flow through the filter treats the
7 first flush volume.

8 Q: Okay.

9 A: The high flows have the potential -- the higher
10 flows have the potential to bypass the filter.
11 There's still a metal grate in there to catch
12 the larger trash and litter things that you get
13 in like a commercial parking lot.

14 Q: Okay. Will -- the filter will still capture
15 some of the high flow?

16 A: Certainly. Whatever is coming through.

17 Q: Okay.

18 A: Uh-huh (affirmative response).

19 Q: So the bypass that you're talking about, not
20 all of the storm water flow will have a high
21 flow that bypasses the filter?

22 A: Right.

23 Q: Okay. And is the first flush captured?

24 A: The first flush is the low flow prior to the
25 higher flows.



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- 1 Q: Okay. So the assumption is an arch with a
2 rainfall event?
- 3 A: Right.
- 4 Q: And that is a mathematical -- there's a word
5 for that, hydrograph.
- 6 A: Hydrograph.
- 7 Q: Okay. And that is an engineering assumption
8 that is applied to all rainfall events?
- 9 A: Right.
- 10 Q: And that assumption is that you start out with
11 a lower flow, you work your way to a peak flow,
12 ---
- 13 A: Uh-huh (affirmative response).
- 14 Q: --- and then you come back down to a lower
15 flow?
- 16 A: Right.
- 17 Q: Okay. And you by law apply that assumption to
18 all rainfall events, correct?
- 19 A: Uh-huh (affirmative response).
- 20 Q: So when you're modeling, you model the
21 hydrograph?
- 22 A: Right.
- 23 Q: Okay.
- 24 A: Some storm events are not going to be large
25 rain events.



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- 1 Q: All right. But -- so the assumption is that
2 there is never a high flow event that
3 immediately hits with a large burst? There's
4 time to capture the first flush?
- 5 A: Right.
- 6 Q: Okay. The water -- the assumption is the water
7 that bypasses the filter is not the first
8 flush?
- 9 A: Right.
- 10 Q: Not the first inch and a half?
- 11 A: Right.
- 12 Q: Inch or whatever.
- 13 A: Correct.
- 14 Q: Okay. You were asked about water quality
15 degradation. Do you know about water quality
16 sampling, right?
- 17 A: Yes, ma'am.
- 18 Q: Okay. Do you know about water quality
19 standards that support water quality uses?
- 20 A: I know there's TMDL's maximum.
- 21 Q: Okay.
- 22 A: Pollutant loads.
- 23 Q: All right. And do you understand that waters
24 are classified to protect their uses and Chowan
25 Creek is classified SFH for shellfish



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1 harvesting?

2 A: Yes.

3 Q: Okay. And are you aware that the regulation
4 61-68 that's in evidence as Exhibit 81 has
5 established bylaw water quality standards for
6 shellfish harvesting waters? And I'll show
7 them to you.

8 A: Okay.

9 Q: It's on page 31. Fecal choliform, dissolved
10 oxygen, toxic pollutants, treated waste,
11 garbage cinders, ashes, oils, sludge, or other
12 refuse.

13 A: Uh-huh (affirmative response).

14 Q: Are you aware of these standards?

15 A: Yes, I am.

16 Q: Okay. And are you aware of any water quality
17 data or analysis that is indicated a violation
18 of any of these standards in Chowan Creek since
19 the breach of the dike?

20 A: No, ma'am. There's water quality that stations
21 downstream.

22 Q: There are water quality stations downstream?

23 A: Uh-huh (affirmative response).

24 Q: Are those DHEC stations?

25 A: Yes. DHEC reviews the results of them. I'm



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1 not sure who checks and ---

2 Q: Okay.

3 A: --- reports, but ---

4 Q: But water quality data is being collected
5 downstream of this breached dike?

6 A: Yes.

7 Q: Okay. And as far as you know, there's been no
8 change in the classification of the water body?
9 It's still SFH?

10 A: Correct.

11 Q: It still supports swimming? Still -- you need
12 to say yes or no.

13 A: Yes.

14 Q: Boating?

15 A: Yes.

16 Q: Other water recreational activities?

17 A: Yes.

18 Q: There's a prevalence of oysters out there?

19 A: There is.

20 Q: Oysters seem to be thriving and propagating in
21 the waters based on your observation? You've
22 seen some oyster beds out there?

23 A: I've seen oyster beds out there, and they're
24 open for harvesting, yes.

25 Q: So based on your observation, based on lack of



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1 any information of any water quality data
2 indicating violations of standards, is it your
3 opinion that water quality has not been
4 effected by the breach of the dike?

5 A: Yes.

6 Q: It has not been effected?

7 A: Correct.

8 Q: Now, we had some talk about stabilizing the
9 dike. Is that part of the retrofit permit?

10 A: Yes.

11 Q: Okay. Tell me what is proposed for the dike.

12 A: For the dike, in the critical area, the width
13 is what it is. The top bank still has the
14 potential to erode underneath some of the
15 overhanging trees.

16 Q: Okay.

17 A: And to ---.

18 Q: So you're focused on the surface elevation?

19 A: Right. Yeah. And that's to shave the banks
20 back, lay them back, and put grassy and turf
21 reinforced mat.

22 Q: Okay. And that would prevent soil falling off
23 from the top of the bank and going into the
24 river? Is that what you're worried about?

25 A: Yes. Just losing a tree two years from now ---



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1 Q: Okay.

2 A: --- when we can take it out now and be done
3 with it.

4 Q: As far as you know, that work has not been
5 done?

6 A: It has not.

7 Q: And that work is part of this permit that's the
8 subject of this appeal?

9 A: It is.

10 Q: Okay. What -- from an engineering perspective,
11 what is the purpose of that proposal? Why did
12 you feel like you had an obligation or a duty
13 to address conditions at the dike?

14 A: A duty and obligation, it was to ---

15 Q: Was it something OCRM asked you to do, or ---

16 A: No.

17 Q: Okay.

18 A: No. We were -- not to my recollection were we
19 required.

20 Q: It's part of ---

21 A: We were slaying the banks back to, I guess for
22 -- one could be aesthetics.

23 Q: Okay.

24 A: Yeah. We just saw how the erosion had taken
25 place when the dike breached, and we were going



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1 to stabilize that.

2 Q: Okay. And have you seen what condition the
3 dike is in recently?

4 A: A few months ago.

5 Q: Okay.

6 A: Uh-huh (affirmative response).

7 Q: And is there any evidence that it's naturally
8 stabilized?

9 A: Yeah. Where the water is continuing to flow,
10 yeah.

11 Q: Okay.

12 A: There's still a -- there was still a tree
13 hanging over, so ---

14 Q: Okay. Now, have you observed what kind of
15 natural situation is evolving in the old
16 lakebed? Do you see a tidal marsh, incipient
17 tidal marsh?

18 A: The marsh grass is growing back.

19 Q: Okay.

20 A: Uh-huh (affirmative response).

21 Q: In the storm water permitting, does a tidal
22 marsh provide any filtration, water quality
23 filtration?

24 A: I believe it does.

25 Q: Does a tidal marsh provide any holding or



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- 1 trapping of anything for any period of time?
- 2 A: By virtue of having to flow through grass, it
- 3 ultimately slows the water down and ...
- 4 Q: Do you ever incorporate existing wetlands or
- 5 marshes into a storm water management plan?
- 6 A: No, ma'am.
- 7 Q: I understand you don't do it as BMP's.
- 8 A: Right.
- 9 Q: Right. But are you familiar with the storm
- 10 water management functions associated with
- 11 natural marshes?
- 12 A: As far as wetlands go, you know, they have
- 13 their benefits because of evapo-transpiration
- 14 with trees and vegetation. So, you know,
- 15 that's a great way to remove pollutants. So
- 16 there are man-made wetlands.
- 17 Q: Uh-huh (affirmative response).
- 18 A: To build on outside of existing wetland areas
- 19 to treat storm water.
- 20 Q: Okay. So natural wetlands are sort of the
- 21 model for man-made structure ---
- 22 A: Right.
- 23 Q: --- BMP's?
- 24 A: Uh-huh (affirmative response).
- 25 Q: In your opinion, is that tidal mudflat and



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1 marsh area providing any storm water treatment
2 function in the basin in it's current -- the
3 way it currently exists? I know it's not
4 detained.

5 A: Right.

6 Q: Is it providing any other filtration or
7 absorption?

8 A: Any storm water, the lakebed is fairly dry. It
9 allows for a certain amount of infiltration for
10 a limited amount of time.

11 Q: Okay.

12 A: Uh-huh (affirmative response).

13 Q: And what about the marsh grass?

14 A: The marsh grass is infilling.

15 Q: Okay. But how about does it help filter the
16 water?

17 A: It does, and it will when it fully establishes
18 itself again.

19 Q: Okay. Now, OCRM expressed some concerns to you
20 about the effect of removal of the dike and
21 tidal action within the dike; does that sound
22 familiar?

23 A: Right.

24 Q: And they asked you to perform some work or
25 modeling to determine whether or not at certain



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1 tidal stages there might be harm to surrounding
2 properties; is that correct?

3 A: Right.

4 Q: And that work was depicted on an exhibit that
5 was shown to you by petitioner if I'm not
6 mistaken. There was an exhibit where you drew
7 -- you had mean high water, mean high high
8 water.

9 A: Right.

10 Q: And I'm going to look for that exhibit. Was
11 that exhibit contained in your full set of
12 plans?

13 A: I believe the last page.

14 Q: The last page, okay. And it's in evidence as
15 Petitioners 68. But for ease of reference, we
16 have a color copy. Okay. All right. So tell
17 me -- just if you could explain what you did.
18 You were -- what you were asked to do and what
19 you did and what it showed.

20 A: Uh-huh (affirmative response). Initially, we
21 were requested by OCRM to review the 10-year
22 storm stage with and without the dike being in
23 place to be illustrated two lines that depicted
24 the elevations of the storm water.

25 Q: So that was the 10-year stage in the lake by



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1 rainfall.

2 A: Uh-huh (affirmative response).

3 Q: With or without the dike, ---

4 A: Right.

5 Q: --- but without any consideration of tides or
6 with consideration of tides?

7 A: We modeled against the peak high tide -- the
8 mean high high water.

9 Q: All right. And the mean high high water is a
10 different term than then spring tide, right?

11 A: It is.

12 Q: Okay. And as I -- I understand what mean high
13 is. And you characterized mean high high as
14 the highest of the highs.

15 A: It's -- I don't have a great explanation for
16 it, but it's ---

17 Q: Well, if you look at a pie chart, every day
18 it's a different number, right? It's never the
19 same number every day?

20 A: It's given to us based on a -- based on a
21 national geodatic monument. It states that in
22 this area of Chowan Creek, we would be -- the
23 mean high water elevation would be 4.01, and
24 the mean high high water would be 4.48. And
25 those are defined elevations. But they're



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1 means, meaning they're -- could be slightly
2 higher and slightly lower. And so it's the
3 average of that so that we have something to
4 model against.

5 Q: Okay. But you didn't model what Mr. North is
6 calling spring tide?

7 A: We did not.

8 Q: Okay. And that's a less frequent tide,
9 correct?

10 A: Right.

11 Q: And it has varying heights?

12 A: Uh-huh (affirmative response).

13 Q: To your knowledge?

14 A: Yeah. It's -- they're greater than mean high
15 high water.

16 Q: Right. But they vary?

17 A: Yeah.

18 Q: They can vary from six to seven or do you know?

19 A: I'd say ---

20 Q: From 4.8 ---

21 A: --- greater -- you got it.

22 Q: From 4.8 to 7 in Beaufort County?

23 A: Right. Uh-huh (affirmative response).

24 Q: Okay. Now, do you have any reason to believe
25 or have an opinion as to whether or not before



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1 the breach the lake was influenced by those
2 seven feet spring tides that Mr. North
3 described?

4 A: The seven feet -- I would say that the dike
5 prior to being breached, it had a storm water
6 control structure on it called a flashboard
7 riser. And if you're standing on lake side,
8 basically at low tide, the water is being
9 withheld only by those ware boards.

10 Q: Okay.

11 A: And as the tide rises on the outside of the
12 lake in the river, the river rises, and it has
13 the ability to back flow through the pipes,
14 over the boards, and raise the level of the
15 dike.

16 Q: Okay. So is it your opinion that it is
17 possible during spring or extreme tidal action
18 that the tidal water got into the lake?

19 A: Yes.

20 Q: Given the elevations construction structures
21 that comprise the dike?

22 A: Right.

23 Q: Okay. And you're familiar with regulation 72-
24 300 governing land disturbing activities,
25 right?



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1 A: Yes, ma'am.

2 Q: And that regulation actually has a definition
3 of adverse impact in 72-301. Can you read that
4 definition if you don't mind?

5 A: Adverse impacts means a significant negative
6 impact to land, water, and associated resources
7 resulting from a land disturbing activity. The
8 negative impact includes increased risk of
9 flooding, degradation of water quality,
10 increased sedimentation, reduced ground water
11 recharge, negative impacts on aquatic
12 organisms, negative impacts on wildlife and
13 other resources, and threatened public health.

14 Q: Okay. And it means an impact associated from
15 or resulting from a land disturbing activity,
16 correct?

17 A: Yes.

18 Q: Okay. And have you been -- you're aware of the
19 concerns of the petitioners, Mr. North's
20 clients, in this case regarding loss of the
21 lake, correct?

22 A: Yes.

23 Q: Have you ever been provided any evidence or
24 seen any information by which you would
25 conclude that they have experienced significant



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1 flooding to the extent that it is significantly
2 and negatively impacted their property?

3 A: I have not.

4 Q: Okay. You're aware that some roots have been
5 exposed on one of the Petitioners trees?

6 A: I've heard that, yes.

7 Q: All right. And you're aware that another
8 petitioner planted some camellias and other
9 landscaping that was lost?

10 A: I've heard.

11 Q: You've heard that also? Now, when you apply
12 these standards, do you consider that to be a
13 significant negative impact when you're talking
14 about flooding in the context of storm water
15 permitting?

16 A: It's not loss of life, flooding of buildings,
17 causing material, damaging and scouring and --
18 no, ma'am.

19 Q: Okay. Now, loss of life might be a little
20 extreme standard, but in terms of loss of
21 property?

22 A: Loss of property? No, ma'am.

23 Q: Also, you're aware of the exemptions in 72-300
24 and the regs that are embodied within 72-300
25 and how they don't apply to developments before



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1 1992? You're familiar with that?

2 A: Right.

3 Q: And you -- how much trouble would you have if
4 OCRM told you that you had to tell your client
5 that not only did you have to dig a pond big
6 enough for his storm water, he had to detain
7 all the storm water within the basin for
8 developments that never had to do any storm
9 water treatment? How would that go over with
10 your client base?

11 A: I believe they'd be very happy or receptive.

12 Q: Okay. And you don't advise your clients or do
13 any design work for them to address anything
14 other than the impacts of their regulated
15 development?

16 A: Right.

17 Q: And you would never advise your clients that
18 it's their responsibility to take on
19 unregulated or pre-1992 development discharges?
20 No?

21 A: No, ma'am.

22 Q: How many inlet filters are we -- I don't know
23 what they're called. Are they called curb
24 inlet filters?

25 A: There's a grate inlet filter and a curb inlet



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1 filter.

2 Q: Do you recall approximately how many were
3 installing?

4 A: I would -- I believe it was seven.

5 Q: Okay. And that's based on you or somebody
6 physically identifying open areas where storm
7 water could enter the system?

8 A: Yes. Yeah.

9 Q: Okay. And if you missed an area, you could
10 order another filter and put it in?

11 A: Certainly.

12 Q: Okay.

13 A: And we've agreed ---

14 Q: All right.

15 A: --- that we would.

16 Q: If it required some additional authority from
17 OCRM, you could get that? You missed a curb
18 inlet or a grate?

19 A: I would request it.

20 Q: All right. And Mr. North showed you an exhibit
21 which was provided to him probably in advance
22 of your deposition that you and Mr. Andrews
23 prepared, and it's Exhibit 72. And if you were
24 to measure 1,000 feet, would you use any of the
25 measurements that Mr. Youmans provided, meaning



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1 the path, the path of the storm water flow? Is
2 that how you do it?

3 A: There a very straight line.

4 Q: Okay.

5 A: No, I would not.

6 Q: Okay. And you've done -- you have measured
7 1,000 feet in other instances; have you not?
8 This isn't your first time?

9 A: Right. As far as shellfish beds and distances
10 to that, yeah.

11 Q: You've done that before?

12 A: No.

13 Q: Okay. Has Mr. Andrews done it before?

14 A: This is the first for him.

15 Q: First for both of y'all?

16 A: Uh-huh (affirmative response).

17 Q: Now, the information that was provided by Mr.
18 Youmans, is the sole purpose of this exhibit to
19 overlay that survey onto aerial photography and
20 tie it into the development?

21 A: That was the main intent.

22 Q: Okay.

23 A: Uh-huh (affirmative response).

24 Q: Because his wasn't quite as detailed as what
25 you were able to create?



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1 A: Right.

2 Q: His was just a land survey?

3 A: Right.

4 Q: All right. Now, if you took Mr. Youmans'
5 measurements and the path that he chose and
6 measured from the discharge pipe, it wasn't
7 1,000 feet, right?

8 A: Correct.

9 Q: All right. And you had been advised of that
10 when you attended the DHEC Board hearing?

11 A: Right.

12 Q: You knew that he had developed a method of
13 measurement that made it less than 1,000 feet?

14 A: Yes.

15 Q: And you were concerned about where the point of
16 measurement should be, right?

17 A: Right.

18 Q: And you thought the point of measurement could
19 be another feature on the site. What was that
20 other feature instead of the drainage pipe?

21 A: Where we proposed to have an inlet filter.

22 Q: Okay. And your rationale for that was what?

23 A: That's the distance from where the treated
24 water is in proximity to the shellfish beds.

25 Q: Okay.



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1 A: It would flow clean water greater than 1,000
2 feet ---

3 Q: Okay.

4 A: --- to the shellfish bed.

5 Q: So your rationale had to do with -- that was
6 the location where the first treatment was
7 received?

8 A: Right.

9 Q: Okay. Now -- and you had not done this before?

10 A: No, ma'am.

11 Q: Okay. But this drawing, which is Petitioners
12 Exhibit 72 does not reflect your belief as to
13 how the path that the water actually takes,
14 right?

15 A: The line that is defined by -- what we refer to
16 in civil engineering as an alignment, it's
17 aligned with 50 foot stations, 25 foot tic
18 marks. They illustrate roughly the path that
19 we felt the water would flow.

20 Q: Okay. Now, but -- which one -- what is the
21 work that Mr. Youmans did?

22 A: Mr. Youmans prepared the one that's a straight
23 dashed line from the 15 inch ---

24 Q: Right.

25 A: --- straight to the breach in the dike, ---



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- 1 Q: Right.
- 2 A: --- and straight over to what he perceived to
3 be a limited shellfish bed.
- 4 Q: Okay.
- 5 A: And conversely on the Sheridan Park, the 24
6 inch through the finger traversing around Mr.
7 North's or Lot 85, and straight to the dike
8 breach, and straight to the ---
- 9 Q: Okay. And when you labeled them low tide
10 measurement and high tide measurement ---
- 11 A: Uh-huh (affirmative response).
- 12 Q: --- that doesn't reflect your belief that
13 that's exactly how -- what it does at low or
14 high tide, right?
- 15 A: No, ma'am. That was the conversation we were
16 having. How did Mr. Youmans determine his
17 route. It must have been his perception of a
18 high tide flow path.
- 19 Q: And in fact, you're aware that we took his
20 deposition. And he said he just used
21 judgement.
- 22 A: Okay.
- 23 Q: It wasn't observation, he just used judgement.
- 24 A: Okay.
- 25 Q: And so, did you adopt his methodology to see if



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1 we could reconcile everything and exercise your
2 own judgement and try to estimate a path?

3 A: The only similarities we had are the dike
4 breach location. Yes, the water flows through
5 there.

6 Q: Yeah.

7 A: Otherwise, it flows along the channel.

8 Q: Okay.

9 A: It's defined by the aerial. That's why we get
10 an aerial overlay to ---

11 Q: Okay.

12 A: --- follow the path where the water actually
13 flows.

14 Q: Okay. Now, I'm going to show you another
15 document that is not in evidence yet. And
16 unfortunately, Ryan, I did not ask you to bring
17 the larger copy of this. And all we have are
18 smaller copies, but it's Exhibit -- it is ---

19 **THE COURT:** Ms. Shahid?

20 **MS. SHAHID:** Sure.

21 **THE COURT:** Let's take a break here. Take a ten
22 minute break.

23 (Off the Record)

24 Q: Mr. Lyle, did you have any discussions with Mr.
25 Geer during the permit application process and



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1 permit review process as to the 1,000 foot
2 measurement?

3 A: Which permitting?

4 Q: I'm sorry, the 2012 retrofit permit.

5 A: With Richard, we discussed it. I believe it
6 was brought about by Amanda Nodolf.

7 Q: Okay.

8 A: Uh-huh (affirmative response).

9 Q: But you discussed perhaps needing to do the
10 measurement, but how about how to do the
11 measurement? Have you had those discussions?

12 A: Specifically, I can't recall.

13 Q: Okay. Well, I'm going to show you Mr. Youmans'
14 survey that shows actually two measurements and
15 two measurement points, correct?

16 A: Correct.

17 Q: You and Mr. Andrews chose in a -- do you
18 believe that this drainage pipe and/or the curb
19 inlet catch basin behind it is the point that
20 you should be measuring from for the Garfield
21 Park project?

22 A: Right.

23 Q: Okay. Not this second point shown under Lot B4
24 on Exhibit 72, right?

25 A: Right.



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1 Q: Okay. And let me show you some other plated
2 information. I'm going to leave this with you.
3 This is in -- this is the set of approved
4 drawings for the retrofit, Petitioners Exhibit
5 64. And page 2 of 64 -- in fact, all the
6 drawings, but I pulled out page 2 for starters,
7 show some boundaries around Garfield Park Phase
8 3, right?

9 A: Right.

10 Q: Is that red line intended to depict the
11 boundary of the project Garfield Park Phase 3?

12 A: Right. It follows the right-of-way line.

13 Q: And the 15 inch outfall pipe that Mr. Youmans
14 also measured from that is reflected both on
15 his survey on an -- and on Exhibit 72, the pipe
16 located near the shared property line between
17 Lots B4 and B3 on Sheridan Road, that measuring
18 point is located outside of the boundaries of
19 Garfield Park, correct?

20 A: Yes.

21 Q: Those boundaries as shown in red on this set of
22 plans, Exhibit 64?

23 A: Right.

24 Q: Okay. Is the 15 inch pipe outside of the
25 project area?



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1 A: Outside of Garfield Park Phase 3 proper, I
2 would say, yes, it is.

3 Q: Okay. All right. Now, do you remember that we
4 took some depositions and Mr. North took some
5 depositions in his office in Beaufort?

6 A: Yes.

7 Q: And you participated in those depositions?

8 A: Yes.

9 Q: And I don't know if you were present for the
10 deposition of Richard Geer, but do you remember
11 some -- you were not present?

12 A: I was not.

13 Q: Do you remember discussions with me after the
14 deposition of Richard Geer regarding the
15 existence of a DHEC 1,000 foot measurement that
16 utilized GIS layers?

17 A: Yes.

18 Q: And tell me what a GIS layer is.

19 A: Similar to AutoCAD, there are certain
20 attributes and a way to quickly go through and
21 select certain things as to lump them all as an
22 attribute or a layer. And I guess shellfish
23 beds would be an attribute or a layer that you
24 could turn on onto an aerial or a USGS map or
25 what have you until you'd see is there a



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1 shellfish bed present.

2 Q: And was Mr. Geer able to provide to the parties
3 an aerial photo where he had turned on various
4 GIS layers?

5 A: I recall seeing that, yeah.

6 Q: Okay. And I'm going to show you what's in
7 evidence as Exhibits 1A, 1B, and 1C and ask you
8 if you recognize these. And I'm going to move
9 these plans out of your way.

10 A: I do recall seeing these.

11 Q: Okay. Did you help make those exhibits?

12 A: Exhibit 1A, I did prepare. Again, it was an
13 overlay.

14 Q: Okay.

15 A: 1B and 1C were documents that we received
16 through e-mail or some otherwise electronically
17 that was ---

18 Q: From Mr. Geer?

19 A: I'm not sure who they came from ---

20 Q: Okay.

21 A: --- specifically, but they were -- the state's
22 mapping system that illustrated the shellfish
23 beds.

24 Q: Okay. So did you utilize either the
25 information -- well, let me ask --



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1 MS. SHAHID: Your Honor, at this time, I'd like to
2 admit 1A, 1B, and 1C into evidence.

3 THE COURT: Mr. North?

4 MR. NORTH: Could you repeat quickly what 1C
5 depicts?

6 A: I believe it's merely a zoomed out version of
7 -- more of Cat Island than -- and 1B is zoomed
8 in onto the dike breach.

9 MR. NORTH: Okay. I have no objection, Your Honor.

10 THE COURT: Okay.

11 MR. HABER: None from the Department, Your Honor.

12 THE COURT: Okay. They're admitted.

13 (Cat Island's Exhibit Numbers 1A, 1B, and 1C were
14 admitted into evidence.)

15 Q: All right. And did you and Mr. Andrews take
16 the information provided by Mr. Geer and
17 determine an ending point for the 1,000 foot
18 measurement being the GIS mapped oyster beds?

19 A: Yes.

20 Q: Okay. And did that -- prior to receiving that
21 information from Mr. Geer, did you have any
22 information from DHEC to tell you exactly where
23 to end the measurement?

24 A: No.

25 Q: Okay. Was that the first time you were able to



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1 get some determination of an ending point for
2 the oyster bed measurement?

3 A: Yes.

4 Q: All right. And then you had -- and it's -- I'm
5 sorry that we don't have a larger copy of
6 Exhibit 1A because it has some text on it. But
7 is there a line with a particular color from 1A
8 that is intended to depict the measurement of
9 the drainage path as defined from the channel
10 between the outfall pipe and the oyster beds as
11 mapped with -- by South Carolina Department of
12 Natural Resources? Is there a particular color
13 line?

14 A: That shows the DHEC's measurement?

15 Q: Correct.

16 A: I don't -- no. We didn't show DHEC's
17 measurement. We prepared -- where we see the
18 flow, and that's shown in magenta or pink.

19 Q: Okay. Now, you weren't here for Mr. Geer's
20 testimony, but his testimony was that he would
21 measure the flow in the channel, and the
22 magenta or pink appears to be placed in the
23 channel.

24 A: Correct.

25 Q: Okay. So that would be consistent with



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1 testimony that he would measure the flow of the
2 channel?

3 A: Yes.

4 Q: All right. And so that is in pink. And is it
5 from the outfall pipe?

6 A: There were two measurements ---

7 Q: Okay.

8 A: --- from -- if you measured from the end of the
9 pipe to the shellfish bed, we were 1,100 feet.
10 If we went from the catch basin at which we
11 plan to place an inlet filter, it would be
12 1,135 feet.

13 Q: And you're using the starting point as the
14 pipe?

15 A: Yes.

16 Q: And that's the starting point that Mr. Geer
17 uses?

18 A: Okay.

19 Q: And you're using the GIS mapped oyster bed
20 information.

21 A: Yes.

22 Q: Okay. And that's the first time you've done
23 the measurement with the mapped oyster beds,
24 right?

25 A: Correct. Uh-huh (affirmative response).



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1 Q: Okay. And you exceed 1,000 feet?

2 A: Yes.

3 Q: When you follow the flow of the channel? All
4 right. Now, you did another measurement. What
5 is that measurement intended to represent, and
6 what color is it for the court's guidance?

7 A: We did another measurement in blue that runs
8 off to the left and up between B4 and B3, and
9 that measurement is to a catch basin inlet
10 filter 1,245 feet or if measured from the end
11 of the pipe 1,100 feet as well.

12 Q: Okay. And you followed the flow of a channel
13 that ties into the main drainage channel?

14 A: We did.

15 Q: And that's shown in blue?

16 A: Correct.

17 Q: Okay. And went all the way out through the
18 dike into the mapped oyster beds?

19 A: Yes.

20 Q: All right. And you started at the 15 inch
21 pipe?

22 A: Yes.

23 Q: And that's the pipe you just testified was
24 outside the project boundary?

25 A: Right.



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1 Q: Okay. Now, there's one more measurement on
2 there which does not conform to the channel.

3 A: Right.

4 Q: And what was that -- what -- by under what
5 theory or -- did you use that measurement?

6 A: I guess the other arguments that we had heard
7 were that it doesn't flow along a channel, it
8 flows across another path, and ---

9 Q: Would that be the high tide argument that
10 you've heard?

11 A: Right, yes.

12 Q: Okay. Is that your argument, or was that
13 another argument proffered by another party?

14 A: Another party.

15 Q: Okay.

16 A: So we were just entertaining that theory, that
17 logic, and we depicted another arch -- various
18 straight line from Sheffield down to the
19 lakebed, and then arching along the perimeter
20 of Mr. North's property to the dike breach.
21 And that measurement was 1,002 feet.

22 Q: Okay. And Mr. Youmans, when he did his survey,
23 he used an arch, or did he use a straight line?

24 A: I think he used straight line measurements.

25 Q: Straight lines? Okay. Did -- I think we heard



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1 his were 30 to 50 feet from the shoreline.

2 A: Okay.

3 Q: Okay. Did you make any effort to sort of
4 choose and equal distance between your
5 measurement and where you thought Mr. Youmans
6 was trying to measure?

7 A: We utilized what we perceived to be the --
8 where it entered into -- basically where the
9 tree line, where you start to see mud.

10 Q: Uh-huh (affirmative response).

11 A: The bottom of the lakebed.

12 Q: Uh-huh (affirmative response).

13 A: And then the dike breach location and just put
14 an arch ---

15 Q: Okay.

16 A: --- in there.

17 Q: Okay. But it runs -- it seems to run sort of
18 between the channel and the shoreline.

19 A: Right.

20 Q: Is that accurate?

21 A: Yes.

22 Q: Okay. And let me just put this up on the Elmo
23 and confirm what you said. This blue line up
24 here, is this the line that measures from the
25 15 inch pipe and ties into the main channel?



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1 A: It is.

2 Q: Okay. This line, magenta line, going this way
3 on Exhibit 1A and conforming to the channel,
4 that's the line that conforms to the storm
5 water drainage channel?

6 A: Right.

7 Q: Okay. And then finally, this hatched line that
8 runs between these two white poles, that was
9 just an arch you created to measure from?

10 A: Right.

11 Q: Okay. Of those two pipes that you're measuring
12 from, is it your opinion that you should
13 measure from the 24 inch pipe or the 15 inch
14 pipe to achieve this measurement?

15 A: I'd say the 24 because it flows directly from
16 the Garfield Park Phase 3 development.

17 Q: Okay.

18 A: I would offer that, you know, we are planning
19 to place inlet filters in the other catch basin
20 as well for the -- at the intersection of
21 Sheffield and I forget the name of the street.

22 Q: Okay. But using the 24 inch pipe and looking
23 at the three paths depicted, which of those
24 paths in your opinion reflects the path of
25 drainage through the lake?



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- 1 A: The magenta.
- 2 Q: Because it conforms with the channel?
- 3 A: Right.
- 4 Q: Okay. And what is that measurement again?
- 5 A: I can barely read it on this ---
- 6 Q: Here, I'll bring it back to you.
- 7 A: Okay. The 35 foot long pipe underneath
- 8 Sheridan Road is the only difference between
- 9 the two measurements. If we measure from the
- 10 end of the pipe, as you say Richard did, to the
- 11 shellfish, it was 1,100 feet.
- 12 Q: Okay. You were asked about some policies that
- 13 relate to wetlands. They're embodied in
- 14 Exhibit 19, which is an excerpt from the South
- 15 Carolina Program document. And I would like
- 16 for you to just read -- this is on Petitioners
- 17 Exhibit 19, III-6, Policy B. You were
- 18 questioned by Mr. North about this policy.
- 19 A: Uh-huh (affirmative response).
- 20 Q: If you would just read the first sentence.
- 21 A: Residential development, which would require a
- 22 filling or other permitted alteration of salt,
- 23 brackish, or freshwater wetlands will be
- 24 prohibited.
- 25 Q: And is Garfield Park a residential development?



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1 A: It is.

2 Q: And is the former lakebed now breached
3 impounded area a salt marsh wetland?

4 A: It is now.

5 Q: Okay. And if you were to restore that lakebed,
6 would you permanently alter that salt marsh
7 wetland if you were blocking tidal flow? I'm
8 not -- that didn't make any sense. If you were
9 to restore that dike, and block tidal flow,
10 would you permanently alter that salt marsh
11 wetland?

12 A: Yes, it would.

13 Q: Would you create an open body of water as
14 opposed to a wetland?

15 A: Yeah. It would be recreating what was
16 previously impounded.

17 Q: Okay.

18 A: The lake.

19 **MS. SHAHID:** If I could just consult for a minute.

20 Q: I do have one more thing, Mr. Lyle. You did
21 some investigation and research into the
22 efficacy of the storm water filters, right?

23 A: Yes.

24 Q: And I'm going to show you what's in evidence as
25 Exhibit 18 and ask if you recognize this



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1 information, Cat Island Exhibit 18. And it's
2 several pages.

3 A: I do.

4 Q: Okay. Just tell me, what kind of investigation
5 did you do or did you have your staff do to
6 determine if the inline filters would be
7 effected in this application?

8 A: Looking at the target pollutants that typically
9 are associated with first flush volume, did
10 they or did they not -- or could an inlet
11 filter meet that requirement.

12 Q: Okay.

13 A: And are those inlet filters accepted in other
14 jurisdictions and what is their third party
15 testing data state as far as removal
16 efficiencies.

17 Q: Okay.

18 A: Uh-huh (affirmative response).

19 Q: And did you receive any information back that
20 provided you any assurances about the function
21 of these filters?

22 A: Yes.

23 Q: What, was that information from the
24 manufacturer?

25 A: Yes.



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1 Q: Was that embodied in Exhibit 18?

2 A: It appears to be so, yeah.

3 Q: Had the filters been tested?

4 A: They have.

5 Q: Okay. All right. And you verified that?

6 A: Yes, third party testing.

7 Q: Okay.

8 A: That's what the manufacturer was letting us
9 know.

10 Q: Okay.

11 A: It wasn't just their word for it.

12 **MS. SHAHID:** If I could just take a second, Your
13 Honor, and make sure I haven't left anything
14 out.

15 Q: I'm going to show you what's been marked as
16 Exhibit 39. I'm going to quit telling you one
17 last thing. I'm getting there. Do you
18 recognize Exhibit 39, Cat Island Exhibit 39?

19 A: This is for?

20 Q: That's a general permit from the Corps of
21 Engineers that I believe I got from your files.
22 That's why I would think you would be familiar
23 with it, but ---

24 A: For the court's -- for this project, I'm not
25 aware of one. Maybe ---



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1 Q: Right.

2 A: I was doing a fair amount of research ---

3 Q: Okay.

4 A: --- to determine critical area impacts and
5 Corps of Engineers ---

6 Q: Okay.

7 A: --- coordination.

8 Q: Right. Well, what I'm going to show you is
9 something -- you're familiar with the term
10 general permit?

11 A: Yes.

12 Q: Okay. And a general permit is a general
13 authorization that then you can see coverage
14 under?

15 A: Uh-huh (affirmative response).

16 Q: All right. Well, in the course of the files
17 that you provided me, the research that you
18 did, it included Exhibit -- now I don't even
19 remember what my own exhibit number is, 39,
20 which is the Department of the Army general
21 permit to authorize routine normal maintenance
22 and repair activities within currently
23 functioning tidal impoundments.

24 A: Uh-huh (affirmative response).

25 Q: Okay. Do you recall finding that in your



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1 internet research?

2 A: Yes.

3 Q: All right. And is it your understanding that
4 the Corps would also regulate this impoundment
5 in terms of requiring permits for it?

6 A: Uh-huh (affirmative response).

7 Q: And that by that general authorization, the
8 Corps -- under that general authorization, you
9 could repair a functioning impoundment, right?

10 A: Yes.

11 Q: All right. And if you could, read the
12 conditions, specific conditions, here. This
13 general permit does not authorize the following
14 activities. If you would read Number 4.

15 A: General permit does not authorize the following
16 activities: Number 4, the restoration of areas
17 currently not functioning as impoundments or
18 fields.

19 Q: Okay. And is this area functioning as an
20 impoundment or field in it's current state?

21 A: Current now?

22 Q: Right.

23 A: No.

24 Q: Okay. Based on that, would you conclude that
25 that general permit coverage is not available



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1 as the federal authorization for this project?

2 A: Right. It would -- we did not pursue that.

3 Q: Okay.

4 A: Uh-huh (affirmative response).

5 Q: And some other permit from the Corps would be
6 required?

7 A: Yes.

8 Q: Correct?

9 A: Uh-huh (affirmative response).

10 **MS. SHAHID:** That's all I've got Mr. Lyle. If you
11 will, you know, I hate to tell you this, you
12 have to be -- there's more questioning to come.

13 **THE WITNESS:** Sure.

14 **MS. SHAHID:** I saw you getting up ready to go, but
15 it's not quite time.

16 **MR. NORTH:** Just assume it will never happen.

17 **THE WITNESS:** I'm coming to that realization.

18 **MR. LYLE - REDIRECT EXAMINATION BY MR. NORTH:**

19 Q: All right. Mr. Lyle, you were shown the
20 Respondent's Exhibit Number 2, which was an e-
21 mail from the Army Corps of Engineers. Do you
22 remember that?

23 A: Yes.

24 Q: Okay. Take a look -- let's take a look at that
25 if we could very quickly. It's page 16, Bates



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1 number 16 on Exhibit 1. Oh, I'm sorry,
2 Respondent's Exhibit 1. That's the wrong
3 stack. Page 16.

4 A: Yes.

5 Q: Do you see the e-mail from a representative of
6 the Corps of Engineers indicating that there
7 was no known violation of the restrictive
8 covenants that were referenced?

9 A: Yes.

10 Q: And are those the restrictive covenants that
11 were dedicated in connection with Garfield
12 Park?

13 A: I believe so.

14 Q: Okay. Do you notice or would you agree that
15 this e-mail states that the dike breach that
16 we're talking about is at some point downstream
17 from the dedicated freshwater wetlands?

18 A: Yes. It states downstream.

19 Q: Okay. Would it be fair to say then that this
20 Corps of Engineers representative did not
21 necessarily understand that this dedicated
22 wetland could or was being flooded with salt
23 waters?

24 A: I believe ---

25 MR. HABER: Objection, Your Honor. Speculative as



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1 to the Corps of Engineers as to what would be
2 and what she understood them to be.

3 **MR. NORTH:** And just to make the court's life
4 easier, ---

5 **THE COURT:** Uh-huh (affirmative response).

6 **MR. NORTH:** --- I think the document speaks for
7 itself, and I could withdraw that last
8 question.

9 **THE COURT:** Thank you.

10 **Q:** You were questioned about expenses to fix the
11 dike. Do you recall early on that there was a
12 bid from Mr. O'Quinn to repair the dike?

13 **A:** Yeah. Yes, sir.

14 **Q:** I'm handing you what's been marked as Exhibit
15 36. Do you remember after the first repair
16 attempt failed that Mr. O'Quinn provided a
17 second cost estimate in the amount of \$24,760
18 to fix the dike with access through G tract?

19 **A:** Right.

20 **Q:** Do you remember being questioned about a
21 variety of different headaches going through G
22 tract including the cost of clearing a road to
23 get to the dike for heavy equipment?

24 **A:** I do.

25 **Q:** Okay. And now isn't it a fact that there's



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1 already a dirt road that cuts through G tract
2 that goes down to the dike?

3 A: Right.

4 Q: So that road already existed, didn't it?

5 A: Yes..

6 Q: Okay. Would you agree that the first two
7 components of the cost of this repair included
8 \$4,800 for work that would be necessary to make
9 the existing road able to handle large trucks?

10 A: Yes.

11 Q: Okay. And was that \$4,800 included in the
12 \$24,760 estimate or actual proposal and
13 contract from O'Quinn Construction?

14 A: It appears it was.

15 Q: You were also questioned about some expenses to
16 repair that dike that escalated from this
17 \$24,000 up to hundreds of thousands of dollars;
18 do you remember that?

19 A: I do.

20 Q: Is it fair to say that the cost estimates that
21 your firm provided that were hundreds of
22 thousands of dollars had to do with building an
23 entirely secondary dike inside of the first
24 dike, and having it structured in a way that
25 the homeowners called it the Hoover Dam?



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1 A: It could be construed as such.

2 Q: So we're not talking about simply fixing the
3 cut in the dike? That cost estimate had to do
4 with a proposal to construct something the
5 entire width of the lake, didn't it?

6 A: It was a substantial increase armored dike
7 opposed to what exists today, which was done by
8 probably farmers back in the 60's. We don't
9 know if it had a core in it. We don't know of
10 the structural integrity of the existing dike.
11 So to do any repairs to place it back would be
12 a patch. And it, you know, it could wash again
13 in the future; therefore, if we had to improve,
14 we were going to improve it.

15 Q: Well, is it fair to say that the dike failed
16 right at the point that the outfall device was
17 installed?

18 A: Uh-huh (affirmative response).

19 Q: And is that a point that is especially
20 susceptible to erosion and water flow and other
21 things that could compromise the structural
22 integrity of the dike?

23 A: That is.

24 Q: Would you agree that throughout the remaining
25 portions of the dike that are all vegetated



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1 that there is no sign of erosion or failure or
2 any other defect in the remaining portions of
3 the dike?

4 A: That our naked eye can see.

5 Q: Okay. You were asked some questions along the
6 theme of the 1993 Coastal Zone Management
7 Program being predating some, maybe some more
8 modern engineering techniques. Would you agree
9 that as of today, the South Carolina Coastal
10 Zone Management Program, whether it could be
11 improved or not, is in effect and is binding on
12 this retrofit?

13 A: I believe, yes.

14 Q: Okay.

15 A: Uh-huh (affirmative response).

16 Q: And if it limits the possible storm water
17 techniques to infiltration, detention, or
18 retention, would you agree that you need to
19 follow the regulatory effect of that document?

20 A: I would state that the state and local
21 governments have BMP manuals with innovative
22 ways to treat storm water problems for downtown
23 elements where there is no potential for
24 constructing a wet detention pond. They want
25 to clean up the waterways. The only way to do



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1 it is do something in a small area. So I'm not
2 familiar with another permit that says the
3 filters are -- what I'm getting at is the
4 filters provide the treatment for the first
5 flush volume, and they're accepted locally and
6 permitted by the state.

7 Q: Okay. Are you able to advise the court of any
8 basis for saying that this retrofit application
9 and the storm water system for Garfield Park
10 because it's within a half mile of the coastal
11 zone does not have to comply with the strict
12 wording of the Coastal Zone Management Program?

13 A: That was a lot.

14 Q: I agree. I'll try and cut it up for you to
15 make it easier. Would you agree that the
16 strict wording of the Coastal Zone Management
17 Program is binding upon the Garfield Park storm
18 water system as retrofit?

19 A: I believe the wording should be complied with.
20 And that was some of the verbiage in that was
21 "may" and not the "shall"'s.

22 Q: Okay. Well, let's take a look at that if we
23 could while we're on that topic. Turn on
24 Exhibit 19 to III-60.

25 A: Your exhibits?



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1 Q: Yes.

2 A: Okay.

3 Q: We have a couple of "shall"'s and a "may" in
4 this paragraph; do we not?

5 MR. HABER: Objection, Your Honor. I believe this
6 was asked and answered here in direct
7 examination.

8 MR. NORTH: I am responding to cross, which went
9 right back in and tried to undo it, and I want
10 to make it perfectly clear to the court how
11 that language works together.

12 THE COURT: But you're only making your case to me.
13 And I'm really -- I ---

14 MR. NORTH: Okay. So you don't need any?

15 THE COURT: I really don't.

16 MR. NORTH: Got it.

17 MR. HABER: Thank you, Your Honor.

18 Q: Flipping back to Exhibit 1, and within Exhibit
19 1 to page 35, you testified about this 80
20 percent requirement relating to the
21 construction period of the project. Do you
22 recall that?

23 A: Exhibit 1?

24 Q: Actually -- page 38. I'm sorry. Exhibit 1,
25 page 38.



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1 **THE COURT:** Mr. North, you're on the Department's
2 Exhibit?

3 **MR. NORTH:** No, I'm sorry. Petitioners Exhibit 1.

4 **THE COURT:** Petitioners?

5 **MR. NORTH:** Page 38.

6 **THE COURT:** Okay. Got you.

7 A: Yes.

8 Q: On cross-examination, you alluded to the fact
9 that this 80 percent rule applied during the
10 construction period of a project. Would you
11 not agree that the same 80 percent continues to
12 apply whether you're in the construction period
13 or the permit portions of the project?

14 A: It could. It's just in the sedimentology
15 section 80 percent trapping efficiency.

16 Q: Right. And in that section, it doesn't say
17 anything about distinguishing between a
18 construction period and post-construction
19 permitted treatment, does it?

20 A: The bullet points trapping efficiency for
21 sediments traps and what have you, it talks
22 about construction conditions, the last bullet
23 point. I just perceive it to be a more so
24 intended to regulate 80 percent TSS during the
25 construction period.



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1 Q: You were asked about these -- having no
2 knowledge about any degrading of the quality of
3 the water. Do you remember that?

4 A: You mentioned something specific about an anti-
5 degradation rule.

6 Q: Well, I did. But then on cross-examination,
7 you said you had no knowledge of any degrading
8 of the water quality. Do you remember that?

9 A: Any degrading? Yeah. We haven't -- I have not
10 heard that DHEC or others have reviewed the
11 monitoring station and shut down shellfish
12 harvesting.

13 Q: Okay. Is it fair to say you don't have any
14 knowledge one way or another as to the status
15 of the quality of the water?

16 A: We checked the monitoring stations looking to
17 see if it's ---

18 Q: Okay. Now, would you agree that monitoring
19 stations only test for fecal chloriform or
20 fecal whatever it is?

21 A: I believe it's turbidity and other -- I'm not
22 sure exactly what all they are testing at these
23 monitoring stations. But the target
24 pollutants, which I would perceive to be
25 turbidity, that shuts down shellfish beds. And



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1 fecal choliform shuts down shellfish beds. Or
2 -- if they raise above a certain level, then
3 the state says closed for harvesting.

4 Q: And tell the court what turbidity is.

5 A: Total suspended solids, murkiness in the water.

6 Q: So is that related to sediment ---

7 A: Yeah.

8 Q: --- discharges?

9 A: It is.

10 Q: Is it basically the same topic, the amount of
11 sediment that may be in the water?

12 A: Uh-huh (affirmative response).

13 Q: Do you recall testifying in your deposition
14 that the elevation of the top of the dike was
15 high enough to keep the ocean waters out at all
16 tides including all spring tides?

17 A: I don't recall. I'm sorry.

18 Q: Okay. Would you agree that the top elevation
19 of the dike is higher than seven feet?

20 A: It's in the seven foot range.

21 Q: Okay.

22 A: Right.

23 Q: But it's higher than seven feet?

24 A: When spring tides approach seven feet.

25 Q: Okay. But you would agree ---



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1 A: Has it ever been over top, I'm not aware.

2 Q: Okay. So it would have effectively protected
3 the petitioners properties from spring tides
4 and any encroachment from those spring tides,
5 would it not?

6 A: Up to the peak of that spring high, right.

7 Q: Do you recall testifying in your deposition
8 that if you had two and a half feet of ocean
9 water on your residential property, you would
10 consider that an adverse impact?

11 A: I do.

12 MR. HABER: Asked and answered on direct
13 examination, Your Honor.

14 Q: Do you consider that a significant adverse
15 impact to have two and a half feet of ocean
16 water on your property, your residential
17 property?

18 THE COURT: Mr. North, we did cover that.

19 MR. NORTH: Right, but not the significant part. On
20 cross, they were trying to act like this isn't
21 a significant adverse impact. I agree I've
22 covered it extensively as far as an impact. I
23 suppose you could argue that whether it's
24 significant or not. It would be your call.
25 Okay. We won't worry about his opinion.



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1 MR. HABER: Thank you, Your Honor.

2 Q: You were asked about the inlets that are by
3 Lots B3 and B4.

4 A: Right..

5 Q: Now, those inlets still drain water from Phase
6 3 Garfield Park, don't they?

7 A: We looked at what could perceivably drain from
8 Garfield Park into that street section;
9 therefore, we put inlet filters ---

10 Q: Okay.

11 A: --- in there. We want to protect the storm
12 water.

13 Q: And you consider those outlets part of the
14 Garfield Park Phase 3 storm water system?

15 A: They were not -- they have been in place for
16 years. It just so happens that we officially
17 plated a lot adjacent to that street where
18 storm water runoff may go. So we picked it up.

19 Q: Okay.

20 A: Yes, sir.

21 Q: So you're saying Garfield Park Phase 3 storm
22 water goes to those inlets, and so you added
23 filters and made it part of the retrofit
24 program; is that what you're saying?

25 A: We did.



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1 Q: Okay.

2 MR. NORTH: I have no further questions, Your Honor.

3 MR. HABER: Nothing from the Department, Your Honor.

4 THE COURT: That went more quickly than I
5 anticipated. Okay. Thank you, Mr. Lyle.

6 THE WITNESS: Thank you.

7 MR. NORTH: Your Honor, can I have one request?

8 THE COURT: Sure.

9 MR. NORTH: If we simply have two, possibly three,
10 but probably two short witnesses tomorrow
11 morning, since people have to check out of
12 hotels and all that, would it be possible to
13 start at 9:30?

14 THE COURT: It's fine with me. I just wanted to
15 give us adequate time to complete the case
16 tomorrow.

17 MR. NORTH: Oh, no doubt it. And ---

18 THE COURT: Okay.

19 MR. NORTH: --- since the -- our expert will not be
20 here until 1:00, I would agree with the court
21 that I will not allow my cross-examination to
22 run us into the noon hour.

23 THE COURT: Okay. Very good. 9:30 is fine.

24 MR. NORTH: Thank you.

25 THE COURT: Okay. I think that's all for this



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1 afternoon.

2 **MS. SHAHID:** Well, Your Honor, we would rest our
3 case on the -- technically, we are also a
4 petitioning party and may have some rebuttal.
5 But prior to resting our case, we would like
6 the court to take judicial notice of the civil
7 action filed by Kenneth Bruning, Janet Bruning,
8 David Feron, Trustee Mary Feron, Trustee Renold
9 Haley, Trustee Martha James, Don Haarmeyer, co-
10 trustees, and Pamela North versus Chowan Creek
11 Partners, LP and Chowan Creek Developing
12 Corporation. And these are the same
13 petitioners that are before the court. This
14 case was filed in the 14th judicial circuit,
15 case number 2010-CP-07-3113. The amended
16 complaint is dated April 30, 2012. And we
17 would just like the court to take note that
18 it's in action against Chowan Creek Partners,
19 LP and Chowan Creek Development Corporation
20 which includes my client Gary Meyer. And it
21 relates to the breached impoundment. And money
22 damages are sought. An alternative relief
23 appears to be sought declaring an implied
24 negative reciprocal covenant or easement that
25 would allow the -- require the lake to always



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1 be a lake. And I just want the court to take
2 note that many of the petitioners claims in
3 evidence have been raised in another forum.

4 **THE COURT:** How would that impact what I'm being
5 asked to decide which is before me?

6 **MS. SHAHID:** It doesn't necessarily impact anything
7 that you're being asked to decide. But it's
8 necessary to put into context a couple of
9 different things. Mr. North seems to believe
10 that testimony relating to property damage and
11 land values is significant in this regulatory
12 forum. You can decide if it is or it isn't.
13 I don't think that's a regulatory issue. I
14 don't think it's an issue that's necessarily
15 looked at in determining issuance of storm
16 water permits in the context that he's raised
17 it. And to the extent that you at the end of
18 the day would agree to us -- with us, I think
19 it's significant to note that they have raised
20 those issues in the proper forum, not the
21 improper forum as we would state. And in that
22 proper forum, that court has the jurisdiction
23 to award them money damages. That court also
24 has the jurisdiction to declare that the lake
25 should always be a lake under the real estate



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1 and property law theories that they've raised.
2 We've contended that you cannot order the
3 reimpoundment of that lake because of the
4 permitting issues that are associated with it.
5 But that's not necessarily relief you can
6 afford -- that you can order under the theories
7 that that court, the Court of Common Pleas has
8 jurisdiction over, that's a potential outcome.
9 Whether or not they can achieve that outcome is
10 something else. But the authority exists by
11 which the court could say, we're going to imply
12 a view easement. I'm not sure the facts are
13 there. I'm not sure the law would support the
14 facts because I'm not handling that case. But
15 certainly, that is a potential outcome. So
16 that's why we think these pleadings are
17 relevant. And it doesn't dictate anything that
18 you're going to determine. But it supports our
19 argument that there are arguments raised here,
20 value and enjoyment and loss of lake that this
21 is not the appropriate forum for that relief.
22 And the appropriate forum has been invoked in
23 another case. So that's what -- that's simply
24 the reason we think it's important.

25 **MR. NORTH:** Your Honor, the only reason any of those



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1 topics are brought up is that the regulations
2 make it clear that certain waivers that were
3 granted in this case cannot be granted if there
4 are adverse consequences to homeowners. And in
5 order to show that the waivers should not be
6 granted, we have to demonstrate adverse
7 consequences. That doesn't mean that the
8 claims in Beaufort County have anything to do
9 with what you have to decide other than in the
10 context of deciding whether or not because
11 there may have been adverse consequences,
12 certain waivers shouldn't have been granted.

13 **THE COURT:** Okay. And ---

14 **MR. HABER:** Your Honor? Sorry, I didn't want to
15 speak over you.

16 **THE COURT:** No, go on.

17 **MR. HABER:** From the Department standpoint, we are
18 responding to both actions that's been
19 consolidated in front of this court; however,
20 I do not believe to my knowledge that we are
21 responding to any circuit court action. I'm
22 not familiar with the facts of the circuit
23 court action. With that being so, the
24 Department would take no position as to whether
25 or not judicial notices ...



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1 **THE COURT:** Well, I'm not even sure that it's
2 necessary for me to take judicial notice that
3 the action existed in circuit court. Mrs.
4 North testified on the stand that it does
5 exist. And Ms. Caldwell questioned her on the
6 issues in that case. I'm told -- I mean, the
7 fact that it exists is already a part of the
8 record in this case.

9 **MS. SHAHID:** That's acceptable, Your Honor. I
10 understand.

11 **THE COURT:** Okay. Anything else? Okay. If nothing
12 else, we're adjourned for the day.

13 (Off the Record)

14 (There being nothing further, the hearing was
15 recessed at 4:10 p.m.)

16 DAY 4 - FRIDAY, JANUARY 17, 2015:

17 **THE COURT:** If everyone is ready, we can begin.

18 **MR. HABER:** Good morning, Your Honor.

19 **THE COURT:** Good morning.

20 **MR. HABER:** I think we agreed to let some of the
21 Department's witnesses go this morning.

22 **THE COURT:** Yes.

23 **MR. HABER:** At this time, I'd like to call George
24 Madlinger.

25 **THE COURT:** Okay. Mr. Madlinger. And before you



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1 take your seat, if you'll raise your right hand
2 and the court reporter will swear you in.

3 **GEORGE MADLINGER**, being duly sworn, testifies as
4 follows:

5 **COURT REPORTER:** state your name for the record.

6 **THE WITNESS:** George Joseph Madlinger, III.

7 **MR. MADLINGER - DIRECT EXAMINATION BY MR. HABER:**

8 Q: Good morning, Mr. Madlinger.

9 A: Good morning.

10 Q: There's some water there if you need it and if
11 you need to take a break, just let us know.
12 Also, this is the -- well, it should be the
13 last day of -- it's been a four-day trial so
14 far, so I'm going to attempt not to speed
15 through these questions, but if I cut you off
16 while you still have a response, just let me
17 know, just tell me to stop and I'll let you
18 finish your thought. But I'll do my best not
19 to cut you off. What's your educational
20 background?

21 A: I've got a BS degree in Marine Science from the
22 College of Charleston.

23 Q: And when about did you receive that degree?

24 A: I graduated in 1978.

25 Q: Okay. And how long did you work for -- we call



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1 it the Department now, for DHEC?

2 A: It will be 25 years in June.

3 Q: Does that also include time spent with the
4 Coastal Council?

5 A: Yes.

6 Q: Okay. And just by way of background, was the
7 Coastal Council, was that affectionately what
8 OCRM is now today?

9 A: That's correct.

10 Q: Okay. What is your current position with the
11 Department?

12 A: I am the senior wetland project manager in the
13 Beaufort office of OCRM.

14 Q: And what does -- what does that job entail?

15 A: Generally, the job entails critical area review
16 for permitting. Coastal some consistency
17 review for some federal licenses and permits,
18 establishment of critical lines and beachfront
19 activities.

20 Q: Okay. So that's in the Beaufort office, is
21 that correct?

22 A: That's correct.

23 Q: And so I presume you live in Beaufort?

24 A: I do.

25 Q: And how long have you lived in Beaufort?



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- 1 A: All my life, 57 years.
- 2 Q: Fifty-seven years?
- 3 A: Yes.
- 4 Q: Do you fish in Beaufort?
- 5 A: I do.
- 6 Q: Do you take a boat out to fish in Beaufort?
- 7 A: I do.
- 8 Q: How often do you try to go fishing in Beaufort?
- 9 A: Well, it's not as often as I'd like, but maybe
- 10 about 20 trips a year.
- 11 Q: Twenty trips a year?
- 12 A: Twenty trips, yes.
- 13 Q: Okay. And I'm just going to ask you a
- 14 roundabout number. How many times do you think
- 15 you've gone out on a boat in the waters of
- 16 Beaufort?
- 17 A: In the waters of Beaufort?
- 18 Q: In your 57 years of ---
- 19 A: Oh, hundreds, hundreds.
- 20 Q: Hundreds. So going out in a boat in Beaufort
- 21 to go fishing, would it be safe to say that
- 22 you're -- when you take a boat out that you
- 23 need to be familiar with tides?
- 24 A: Yes, absolutely.
- 25 Q: Would it be safe to say you'd be familiar with

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1 the tides in Beaufort?

2 A: Yes.

3 Q: The site that's been discussed in this matter
4 is along Chowan Creek. Do you know where
5 that's located?

6 A: Yes, I do.

7 Q: Are you familiar with the tides and the waters
8 in Chowan Creek?

9 A: Yes, I am.

10 Q: Okay. Now, I'm going to hand you, if I may
11 approach, Your Honor?

12 **THE COURT:** Yes.

13 Q: I'm going to hand you a stack of exhibits.
14 These are the Department's exhibits that have
15 been admitted into evidence. All those
16 exhibits are labeled on the front page, but the
17 groupings are stapled together so you could
18 take that binder off the top, it might be
19 easier. If you could, could you take a look at
20 what's been labeled Department's Exhibit Number
21 4? Do you have that?

22 A: Yes, I do.

23 Q: Could you take a gander at those and let me
24 know if those documents look familiar to you?

25 A: They do. This is the maintenance repair that



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1 was issued to Chowan Creek Partners. The
2 initial M&R was granted in February 18th of
3 2010.

4 Q: Okay. Let me ask you a couple of questions
5 about this document. So these documents
6 contain -- pertain to maintenance and repair
7 requests by Chowan Creek Partners, is that
8 correct?

9 A: That's correct.

10 Q: And this is a maintenance and repair
11 authorization, not a Department permit, is that
12 correct?

13 A: It's maintenance -- yes, it's authorization.

14 Q: Now, if you look through those documents, it
15 appears and one's issued for a contractor named
16 O'Quinn Marine Construction, is that correct?

17 A: That is correct.

18 Q: And there appears to be another authorization
19 that was issued for a contractor named Andrews
20 and Burgess, is that correct?

21 A: That's correct.

22 Q: Do you remember having to issue two of these
23 authorizations because work was attempted under
24 one of the authorizations and the repair
25 failed?



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1 A: That is correct.

2 Q: And that's how you remember it, okay. If you
3 could, look at the Department's next exhibit.
4 That would be Department's Exhibit Number 5.
5 Does that document look familiar to you?

6 A: Yes, it does.

7 **MS. SHAHID:** What Bates label is that?

8 **MR. HABER:** I apologize. I think I only did Bates
9 labels on the big ones.

10 Q: What is that document?

11 A: This was a memo that I had written to Richard
12 Geer in regard to some concerns from a memo
13 that he had received.

14 Q: Okay. And you can see at the top, towards the
15 top of this document, is that your initials
16 beside your name?

17 A: Yes, it is.

18 Q: Okay. What was this document -- you said it
19 was in response to a memo or a request of a
20 memo by Richard Geer. Do you remember what may
21 have prompted Richard Geer to ask you to draft
22 this memo?

23 A: This is in response to a memo that was sent to
24 Richard, I believe by Chris Moore in regards to
25 his findings at the pond and he wanted to go



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1 ahead and get our view.

2 Q: Okay. So a lot of issues are evaluated in this
3 memo, but I'd like to focus your attention.
4 Let's just -- I'm going to ask you to read the
5 last two sentences in this summary. So it will
6 be on the second page, the last two sentences
7 from the bottom.

8 A: Beginning with it was or it is wetlands?

9 Q: In absence, in absence of.

10 A: Oh, I'm sorry, okay. In absence of the water
11 control structure, the lake system appears to
12 be naturalizing and returning to its historical
13 state and uses. Based on wetlands staff, on-
14 site inspections, no violations as indicated in
15 Mr. Moore's analyst were observed.

16 Q: So one of your conclusions was this area was
17 naturalizing, is that correct?

18 A: That's correct.

19 Q: Do you still believe that to be correct?

20 A: I do.

21 Q: When did you last look at this site?

22 A: This past Wednesday.

23 Q: And have you visited the site prior to this
24 past -- two days ago?

25 A: I have. I was back at the site, I believe, in



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1 September of this past fall and periodically
2 prior to that over the last couple of years.

3 Q: Okay. So is it safe to say you visited this
4 site numerous times?

5 A: Yes, that's correct.

6 Q: Would you take a look at what has been labeled
7 Department's Exhibit Number 6? Do you have it?

8 A: Yes, I do.

9 Q: Okay. Are these pictures that you've taken?

10 A: Yes, they are.

11 Q: Okay. And do these pictures depict the site of
12 the former impoundment?

13 A: Yes, it does.

14 Q: Now, in some of these, there appears to be in
15 the upper right-hand corner what appears to
16 have been the date that might have been cut
17 off. Do you recall what month and year, say,
18 this first picture was taken?

19 A: I believe this one was taken in December of
20 2011.

21 Q: I think you can kind of make that out from what
22 was left of the cutoff. Let's take a gander at
23 these pictures. Let me get you to tell me what
24 you see. Now, is this one of the pictures
25 you've just testified was taken in December of



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1 2011, is that correct?

2 A: Yes, it is.

3 Q: Now, it's got a neat thing on that screen right
4 there. If you need to point anything out to
5 the Court, you can touch that screen and it
6 will either put an arrow or draw a little line
7 over there.

8 A: Okay.

9 Q: So while you're telling the Court, describing
10 to the Court some characteristics, if there's
11 anything you'd like to point out, feel free to
12 draw on that. So this is a picture from
13 December of 2011, that's correct?

14 A: That's correct.

15 Q: And this depicts the site of the former
16 impoundment?

17 A: That's correct.

18 Q: I'm going to show you the next picture. What's
19 the date of this picture?

20 A: This is September 5th of 2013.

21 Q: And it says that at the bottom of the picture?

22 A: That's correct.

23 Q: And that's your initials beside that?

24 A: That is.

25 Q: Is this also a picture of the former



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1 impoundment?

2 A: Yes, it is.

3 Q: Does this appear to be somewhat of the same
4 area that we just looked at in the first
5 picture?

6 A: It is. You can see the runoff coming down
7 through the center, and this is taken from the
8 dike looking toward, I guess, toward the west
9 into the impoundment. And I think you can
10 reference the -- from the previous photograph,
11 there is a log that shows up to the left corner
12 and it shows up in ---

13 Q: Let's do this.

14 A: Do you want me to point on here?

15 Q: Touch on the screen where that log is and we'll
16 try to match it up.

17 A: (Witness does as requested.)

18 Q: There we go. So this log here?

19 A: That's correct.

20 Q: Do you see that log on this picture?

21 A: I do. It's right there (indicating).

22 Q: And let's touch that again.

23 A: (Witness does as requested.) Right there.

24 Q: So for reference point, this is -- would it be
25 safe to say it's approximately taken from the



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1 same location?

2 A: That's correct.

3 Q: Okay. Just to get his dots clear. Now, is
4 there a difference you see between those two
5 pictures?

6 A: Yes.

7 Q: What would some of that difference be?

8 A: The difference is the propagation of the
9 spartina or the smooth cord grass.

10 Q: Okay. Would it be safe to say that there's
11 more marsh grass in this more recent picture
12 than there would have been in 2011?

13 A: Yes.

14 Q: Now, let's look at the second -- this next
15 picture. And this will be the third in the
16 sequence. This again has a cutoff on the top
17 but appears to have about the same amount of
18 information as before. Do you remember exactly
19 when this was taken?

20 A: Yes. This is again taken December of 2011.

21 Q: Is this one maybe a June? I see something ---

22 A: Oh, I'm sorry.

23 Q: --- might be a June in 2011.

24 A: I believe that may be.

25 Q: We'll withdraw that question. Do you believe



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1 that this picture was taken sometime in the
2 year of 2011?

3 A: I do.

4 Q: Now, what is depicted in this picture? Is that
5 a picture of the former impoundment?

6 A: It is.

7 Q: Okay. I'm going to show you the next picture
8 and it says at the bottom of this was around
9 September 2013, is that correct?

10 A: That's correct.

11 Q: And has your initials beside those dates?

12 A: That's correct.

13 Q: It's also a picture of the former impoundment?

14 A: Yes, it is.

15 Q: Let's do kind of what we did with those last
16 pictures. If you can find some type of
17 identifying characteristic between those two
18 pictures?

19 A: All right.

20 Q: And again ---

21 A: That's just a log that's laying out there on
22 the sediment.

23 Q: Okay. Do you see that in those pictures ---

24 A: I do.

25 Q: --- 2011 as well?



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1 A: I do.

2 Q: Okay. So would it be safe to say generally
3 these two pictures are taken from the same
4 vicinity?

5 A: That's correct.

6 Q: Now, do you see any differences between this
7 picture I'm showing you here and 2011?

8 A: I do.

9 Q: Compared to this picture that is in 2013?

10 A: And, again, it's the propagation of the cord
11 grass, the marsh grass.

12 Q: I believe I have one more set of pictures
13 that's in this sequence that's in evidence.
14 Again, this is cut off. I'm going to ask you
15 if you believe this picture was taken sometime
16 in the year of 2011?

17 A: I do.

18 Q: You took this picture?

19 A: I did.

20 Q: Does this picture depict the site of the former
21 impoundment that's at issue in this matter?

22 A: It does.

23 Q: I'm going to show you another picture in this
24 sequence. Is this a picture that you took in,
25 I believe it says September 2013?



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1 A: That's correct.

2 Q: And is that your initials beside the date?

3 A: It is.

4 Q: Does this area also depict the site of the
5 former impoundment?

6 A: Yes, it does.

7 Q: Is there a distinguishing characteristic that
8 you can find between those two pictures? Okay.

9 So ---

10 A: Using that pine tree in the upper right-hand
11 corner.

12 Q: I think I spoke over you, and I apologize.

13 A: I'm sorry.

14 Q: No, no, that's my fault. What are you pointing
15 to?

16 A: The pine tree in the upper right-hand corner.

17 Q: Okay. I'm going to show you again that picture
18 from 2011. Do you see that characteristic as
19 well in this picture?

20 A: I do in the pine tree in the upper right-hand
21 corner.

22 Q: Okay. I'm going to clear this for ease.
23 Again, I'm going to ask you do you see any
24 differences between the picture in 2011 and
25 2013?



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1 A: I do. And that's the significant increase in
2 the amount of marsh grass.

3 Q: Okay. And it's not coming out very clear here,
4 but I want to ask another question about this
5 picture in particular. You took this picture,
6 that's correct?

7 A: That's correct.

8 Q: Now, hopefully, it is more clear in the Court's
9 version and your version in your hand. I see
10 some, if I may approach, Your Honor.

11 **THE COURT:** Yes.

12 Q: It is a little bit cleaner in here. There's
13 some white dots; do you see that?

14 A: I do.

15 Q: Is that a problem with the camera?

16 A: No, it's not.

17 Q: What is that?

18 A: These are wading birds that are probably out
19 there feeding.

20 Q: Okay. Now, you had testified that one of your
21 conclusions in your memo provided a request of
22 Richard Geer was that this area was
23 naturalizing, is that correct?

24 A: That's correct.

25 Q: When you had testified to, I think you said the



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1 promulgation of grass, propagation ---

2 A: Propagation.

3 Q: --- propagation of grass, is that also evidence
4 that this area is naturalizing?

5 A: Yes.

6 Q: Do you believe based on what you have seen in
7 your numerous site visits that this area will
8 continue to naturalize?

9 A: I do.

10 Q: Now, is there anything to your knowledge that
11 the developer could do that could possibly
12 speed up this naturalization process?

13 A: He could possibly go in there and maybe sprig
14 with cloves of spartina to go ahead and maybe
15 speed up the process, but it seems to be that
16 it's doing it pretty well under its own accord
17 right now. And by going out there to install
18 plugs may, you know, cause some damage to the
19 sediment, so it's probably just best to leave
20 it alone as it is for the time being.

21 **MR. HABER:** No further questions at this time, Your
22 Honor.

23 **MR. MADLINGER - CROSS EXAMINATION BY MS. SHAHID:**

24 Q: Good morning, Mr. Madlinger.

25 A: Good morning.



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1 Q: If I did the math correctly, you started at
2 OCRM in 1989?

3 A: That's correct.

4 Q: Okay. And you've been at the Beaufort County
5 office since 1989?

6 A: That's correct.

7 Q: Working exclusively on Beaufort County critical
8 area of permit applications?

9 A: I actually started off in enforcement for about
10 a year and then went to permitting.

11 Q: Okay. And I want to ask you a few more
12 questions about what's in evidence is
13 Department's Exhibit 5 which is a memo that you
14 sent to Richard Geer. Do you have a copy of
15 that in front of you?

16 A: I do.

17 Q: Okay. And in particular, there have been
18 several issues raised during the course of this
19 week regarding the propriety of this retrofit
20 permit, one of those issues being potential
21 impacts to protective freshwater wetlands. Did
22 you personally inspect the site to see if there
23 had been potential impacts to protective
24 freshwater wetlands?

25 A: I did, yes.



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1 Q: Okay. And did you do that in or around January
2 9, 2012 which is the date of the memo?

3 A: That's correct, about that time.

4 Q: Okay. And did you have enough information to
5 know the location and identity of the areas
6 protected by the Corps?

7 A: I did, yes.

8 Q: Okay. And did you go at any particular tidal
9 stage?

10 A: I believe I tried to schedule that visit on a
11 high tide.

12 Q: Okay. And in your memo, you say that the
13 wetland that is protected under covenant is
14 located north of Sheridan Road. The wetland
15 area is south of Sheridan Road is noted as an
16 existing stormwater management pond. And then
17 you say you have not observed any or, I'm sorry
18 -- did you observe anything of concern with
19 regard to the health of those wetlands and
20 whether they were being invaded by saltwater,
21 saltwater intrusion?

22 A: I did not.

23 Q: Okay. So there was no evidence to you that the
24 wetland character had changed because of tidal
25 action?



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1 **MR. NORTH:** Objection, Your Honor, could we not
2 have the counsel leading the witness.

3 **THE COURT:** If you would, would you rephrase your
4 question?

5 **MS. SHAHID:** And, Your Honor, it is not my witness.
6 I am on cross examination, but I'll try to be
7 clear with him.

8 **THE COURT:** Okay. I'm sorry.

9 **MR. NORTH:** Well, it's cross examination, but it's
10 hardly a hostile witness, so I don't think
11 she's entitled to just testify for the witness.

12 **MR. HABER:** Your Honor, Ms. Shahid is a petitioner
13 against the Department in this action.

14 **THE COURT:** I'm sorry?

15 **MR. HABER:** Ms. Shahid is a petitioner against the
16 Department in this action.

17 **THE COURT:** Okay.

18 **MS. SHAHID:** But I'll attempt to testify less and
19 ask more in the question. It'd be more
20 efficient.

21 **MR. HABER:** Thank you.

22 **MS. SHAHID:** You're welcome.

23 **Q:** I think what would be helpful is what would you
24 see in these wetland areas that would indicate
25 that their nature and character was changing?



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1 A: More likely, it'd be a change in type of
2 vegetation.

3 Q: Okay. And did you observe any change in
4 vegetation?

5 A: At this time, I did not.

6 Q: And that's because the freshwater wetland
7 supports one type of vegetation and a saltwater
8 wetland supports another type of vegetation?

9 A: Generally, yes.

10 Q: Okay. And you're familiar with those species?

11 A: Yes, ma'am.

12 Q: You can tell them apart?

13 A: Yes, ma'am.

14 Q: You are tasked with establishing critical
15 lines, correct?

16 A: That's correct.

17 Q: And the establishment of a critical line is
18 based on the presence of salt tolerant
19 vegetation?

20 A: That's correct.

21 Q: Okay. And you know how to distinguish between
22 salt tolerant vegetation and vegetation that
23 thrives in a freshwater condition?

24 A: That's correct.

25 Q: Okay. Now, I'm curious about one of your



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1 observations here, that the upper reaches, you
2 say, and I'm looking at the bottom of page --
3 of Department Exhibit 5, these last three
4 lines. Directly inundated freshwater areas
5 that tie into upper reaches of the lake. The
6 upper reaches exhibit a predominance of black
7 needle rush which is more a transitional
8 species. When you talked about the upper
9 reaches being transitional, did that refer to
10 the portion of the lake and the surrounding
11 wetlands that is farthest away from the breach?

12 A: That's correct.

13 Q: Okay. And what do you mean by a transitional
14 species?

15 A: The predominance species in the lagoon system
16 is spartina alterniflora which is smooth cord
17 grass which thrives on a good tidal exchange.
18 Juncus is more of a transitional -- it can
19 survive or it thrives in a less saline
20 environment.

21 Q: Okay.

22 A: So the further you get away from the actual
23 tidal influence and get more of a mix or
24 brackish environment, more predominantly you'll
25 see the other black needle rush.



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1 Q: So if there has been a conversion within the
2 lake from fresh to saline, that conversion has
3 less of effect as you go further up the lake?

4 A: Would you repeat that?

5 Q: If the lake -- assume for the sake of argument
6 that this lake was freshwater and is now been
7 converted to tidal water, that tidal influence
8 is less in the upper regions of the lake in
9 terms of the effect on vegetation?

10 A: Yes.

11 Q: Okay. You looked at number seven on the second
12 page of Exhibit 5 at effects on critical area.
13 And in particular, if I'm correct, number seven
14 addresses the erosion. Do you recall what
15 negative effect you were checking on in this
16 regard?

17 A: At this point in time, the breach had been a
18 couple years old ---

19 Q: Okay.

20 A: --- and concern about how much of the existing
21 dike was eroding away and possibly depositing
22 material in the channel creek and into the
23 interior part of the lagoon system.

24 Q: Okay. And that had been expressed by Mr. Moore
25 in his comments to his staff.



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1 A: That's correct.

2 Q: Mr. Moore being the Petitioners engineer?

3 A: Yes.

4 Q: Okay. And what did you observe or investigate
5 or inspect to arrive at the conclusion that
6 erosion doesn't seem to be harmfully affecting
7 the tidal waters?

8 A: At that time, there was not a lot of sediment
9 lost in the breach. It appeared that it really
10 had not eroded that much since the initial
11 break.

12 Q: Okay.

13 A: And I really didn't notice any deposition of
14 material on either side of the break, either
15 outside of the lagoon or inside the lagoon.

16 Q: Okay. Then there's a second point that's
17 labeled as number nine in Exhibit 5,
18 significant erosion of lake bend and dike. Is
19 that encompassed by your earlier comments or is
20 that something separate?

21 A: I think it may have been an early observation
22 but I think this is the first time I've
23 commented on it. And based on the photographs
24 that have been taken over the years, I really
25 don't see where it's been much of a change.



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1 Q: In terms of the character of the ---

2 A: Of the channelizing within the lagoon
3 deepening.

4 Q: Okay. And as a marine scientist, you
5 understand the habitat that critical area of
6 salt marsh provides?

7 A: Yes, I do.

8 Q: What types of species utilize critical area
9 salt marsh for foraging and habitat?

10 A: The list is pretty much endless, you know,
11 starting with anything from benthic organisms
12 in the mud to the creation of detritus which is
13 dead marsh grass. It supports the
14 microorganisms which in turn feed nursery stock
15 of fin fish and shell fish and crabs and then
16 on top of that wading birds, diving birds, all
17 sorts of animals.

18 Q: All right. And have you observed wading birds
19 and diving birds in critical area marsh
20 habitat?

21 A: I have.

22 Q: Is that a frequent or infrequent observation?

23 A: It's a frequent observation.

24 Q: And in fact the birds that are reflected in the
25 photographs in evidence as Exhibit 6, those are



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1 wading birds?

2 A: I believe so, yes.

3 Q: Do you know the name of that species?

4 A: I believe those are white ibis.

5 Q: Okay. Let me take just a minute.

6 **MS. SHAHID:** Nothing else for Mr. Madlinger.

7 **MR. NORTH:** Your Honor, can I ask for some
8 clarification in terms of how we're approaching
9 this because I have a number of topics for Mr.
10 Madlinger that we go far beyond the scope of
11 the direct examination. I need to know from
12 everybody whether I should cover those now or
13 simply recall him as my witness.

14 **MR. HABER:** Your Honor, we've been very informal
15 about subpoena issuance. Mr. Madlinger had
16 been offered to Mr. North numerous times for a
17 deposition throughout this entire process. A
18 subpoena's never been issued. As we discussed
19 earlier, we're in day three of a trial -- day
20 four of a trial that's been scheduled to go
21 through today. Mr. Madlinger and Mr. Williams,
22 as I expressed to the Court earlier, based on
23 what Mr. North has provided to the Court, that
24 they be done by this afternoon and they're
25 scheduled to go back to Beaufort today. We



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1 also have Christopher Moore as well.

2 **MR. NORTH:** First of all, the people's made clear
3 that these individuals would be here for the
4 trial and that there would be no need to
5 subpoena them. That doesn't mean that we are
6 barred from calling them or having them talk
7 about the other issues in the case that you
8 chose not to bring up on direct.

9 **MR. HABER:** Like I said, Your Honor ---

10 **THE COURT:** I'm going to give him some leeway here
11 to go beyond the direct.

12 **MR. HABER:** Okay. Sure.

13 **THE COURT:** In order to move this matter along.

14 **MR. HABER:** Yes. I will provide to the Court that I
15 won't process an objection throughout.

16 **THE COURT:** Okay. Thank you.

17 **MR. MADLINGER - CROSS EXAMINATION BY MR. NORTH:**

18 Q: Mr. Madlinger, let's start where you left off.
19 You said in this picture that you see off in
20 the distance some white specs that you are
21 assuming are birds that are feeding?

22 A: Yes, correct.

23 Q: Okay. Was that in a low tide period of time?

24 A: It was a low tide period.

25 Q: Okay. And are you -- do you have knowledge of



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1 the fact that ibis often go to mudflats and eat
2 crabs and dig into the holes to try and get
3 crabs out of the mud?

4 A: Yes, I do.

5 Q: Okay. Would you agree that birds like great
6 herons and wood storks and egrets are -- they
7 would use a lake to get fish as opposed to the
8 manner in which ibis would feed?

9 A: Yes, I would.

10 Q: Would you agree then that any birds that are in
11 those pictures during the periods of low tide
12 at a mudflat would likely be ibis and not any
13 of the other wading birds that used to inhabit
14 the lake?

15 A: Yes.

16 Q: Okay. In your photos, you have a bunch of them
17 from 2011. Are you aware that the dike broke
18 in June of 2009?

19 A: In June of 2009?

20 Q: Yes.

21 A: I don't believe I was aware that's when it
22 broke.

23 Q: Okay. But in any event, would you agree that
24 June 2009 is two years before, two years or
25 more or two and a half years before your photos



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1 were taken that depict the lack of marsh grass?

2 A: Yes.

3 Q: Okay. So would it be fair to say that for at
4 least the first two and a half years this
5 process of naturalizing had not really taken
6 hold?

7 A: I really can't say. I would need to -- I know
8 there are photographs available when the M&R
9 was applied for that may show something from a
10 different phase of the progression than is
11 shown here in this earlier photograph.

12 Q: Okay. Now, when you say that the area is
13 naturalizing, tell the Court what you mean by
14 naturalizing.

15 A: In the case of this breached lagoon, the
16 spartina has certain characteristics that it
17 needs to be able to propagate or grow and
18 usually you don't see it in an open water
19 environment. When something becomes tidally
20 influenced, it will seek a level of elevation
21 that will help support its growth. Which we've
22 seen occurring here is if you can look back at
23 the photographs before it was -- the
24 propagation began, the higher humps of marsh
25 seems to start supporting the marsh grass. And



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1 also it's growing out from the fringes. And I
2 think just because of the exchange of
3 nutrients, it becomes more of an ideal
4 condition for marsh grass growth.

5 Q: Okay. But when you say naturalizing, are you
6 saying naturalizing from a freshwater lake to
7 a salt marsh?

8 A: No, I'm saying it's naturalizing more from an
9 open water environment to a tidally influenced
10 environment.

11 Q: Okay. And the open water would be the non-
12 moving water of the Cat Island lake?

13 A: Yes.

14 Q: Okay. Do you remember advising Mr. Geer that
15 the concern with regard to erosion would be at
16 low tides when the ocean waters did not fill
17 the lake basin?

18 A: I don't recall that.

19 Q: Would you agree with that, though?

20 A: Erosion between low tide?

21 Q: Determining the potential for erosion, would
22 you agree that the concern would be far greater
23 at low tide as opposed to high tide when
24 stormwaters would simply be adding to the
25 existing ocean waters?



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1 A: I would say only under certain circumstances
2 where they may be a severe rain event that
3 you'd have to worry about erosion at low tide.

4 Q: Okay. Would you agree -- well, we've got some
5 exhibits in these books and I want to show you
6 a couple of them quickly. If you look at
7 Exhibit 1 in this particular book, and within
8 Exhibit 1, and you can turn to page 30. Hang
9 on a minute.

10 A: Okay.

11 Q: There it is. Sorry. Okay.

12 **MR. HABER:** Do you now have Exhibit 1?

13 **MR. NORTH:** I do.

14 Q: Take a look at Exhibit 30. Do you recognize
15 that as a picture of the pluff mud at the
16 bottom of the Cat Island lake? Is that what it
17 looks like?

18 A: I can't say for sure.

19 Q: Okay. You know what pluff mud is, don't you?

20 A: I do.

21 Q: How would you describe pluff mud to the Court?

22 A: Black goo.

23 Q: Okay. Would you agree that if you walked into
24 pluff mud, you could very easily sink up to
25 your knees?



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1 A: You could, yes.

2 Q: And people have drowned, have they not, sinking
3 in and not being able to get out of the mud?

4 A: I've heard that, yes.

5 MR. HABER: Objection, Your Honor, relevance.

6 Q: Would you agree that the bottom ---

7 THE COURT: Mr. North, there was an objection for
8 the Court. So, let me rule on that objection.
9 He's already answered the question, so the
10 objection is overruled.

11 MR. NORTH: And sadly, Your Honor, I was on such a
12 roll, I didn't even hear him objecting.

13 THE COURT: I know, I know.

14 Q: Now, would you agree that the picture on page
15 30 does not represent any sort of stabilized
16 surfaces for purposes of evaluating erosion?

17 A: I really can't say.

18 Q: You think that this picture could depict a
19 stabilized surface?

20 A: I really can't say.

21 Q: Okay. Are you aware that the Cat Island lake
22 had acted as a detention basin since its
23 construction in the early 1960's?

24 A: I'm not sure if I know that it actually served
25 as a detention basis since then. I knew that



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1 it had been serving as one for a while. I
2 didn't know when it first became a detention.

3 Q: Well, okay. And just to clarify my question,
4 I'm not suggesting that it was somehow a
5 formally approved detention basin under the
6 regs. I'm saying that it had performed the way
7 a detention basin performs in terms of
8 collecting the stormwater of its drainage
9 basin.

10 A: Yes.

11 Q: Okay. And would you agree that when a lake
12 does that, the pollutants settle to the bottom
13 to the lakebed?

14 A: Yes.

15 Q: Now, you testified about changes to the amount
16 of spartina grass in the lake. Would you agree
17 that the growth of the spartina grass started
18 and is primarily at the west end of the lake in
19 terms of the bulk of it?

20 A: The west end being the farthest ---

21 Q: Closest to the golf course.

22 A: Close to the golf course. That was probably the
23 largest -- no, I think it's been spreading
24 pretty much around the perimeter and in the
25 center pretty much uniformly.



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1 Q: Would you agree that there are many vantage
2 points around the lake where you can look
3 across the lake and see nothing but mud at low
4 tide?

5 A: Not any more, no.

6 Q: Take a look, if you would, I'll hand you an
7 exhibit. I'm handing you what has been marked
8 as Exhibit 63 and I represent to you that these
9 are photographs that were taken last Friday of
10 the Cat Island lake. And my question would be
11 is that consistent with your observations of
12 the Cat Island lake that you have made even the
13 ones most recently?

14 A: Yes, I would.

15 Q: Okay. And are you familiar with Bellamy Curve
16 in Beaufort?

17 A: I am.

18 Q: Okay. And would you agree that at Bellamy
19 Curve there is a huge mudflat that would expand
20 for blocks that has been a mudflat for as long
21 as you've lived in Beaufort?

22 A: Yes.

23 Q: Why is it that some areas grow grass and others
24 don't?

25 A: It could be a number of factors, probably is



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1 the -- probably the water elevation over the
2 mud at high tide.

3 Q: Because the elevation is too high, you mean?

4 A: Yes.

5 Q: Okay. Would you agree then that the areas that
6 are closest to the dike where that water would
7 be -- well, first of all, would you agree that
8 the areas closest to the dike would be the
9 deepest portion of the lake?

10 A: Yes.

11 Q: And would you agree that those areas may well
12 never have spartina grass because of that
13 elevation?

14 A: I wouldn't say that, no.

15 Q: Okay. Is it quite possible, though?

16 A: Anything's possible but.

17 Q: Wouldn't you assume that after four and a half
18 or actually more than four and a half years
19 that if spartina grass was going to grow at
20 those locations, it would have started the
21 process?

22 A: Yes.

23 Q: Thank you. I'm going to hand you what's been
24 marked as Exhibit 63, no, I'm sorry, not 63 --
25 well, first of all, is it fair to say you've



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1 been familiar with the Cat Island lake for
2 decades?

3 A: I wouldn't say decades.

4 Q: You've had your position in Beaufort County
5 working for the Coastal Council for 25 years as
6 I understand?

7 A: That's correct.

8 Q: Okay. As a part of that, didn't -- well, tell
9 me, when did you first become familiar with
10 your employment or personally with the
11 characteristics of the Cat Island lake?

12 A: Well, I've known about the impoundment for even
13 prior to work because I have friends who used
14 to duck hunt over there. But from a
15 professional or a working standpoint, probably
16 not until I started working more in some of the
17 dock permits in the immediate area that I
18 became associated with the lagoon system here.

19 Q: Would you agree that that area, for most of the
20 time that you've been familiar with it, was
21 full of wood storks and egrets and blue herons
22 and various birds that wade in the shallow
23 waters to feed them?

24 A: Yeah, I had seen those type of birds there on
25 occasion, yes.



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1 Q: And did you see that the trees surrounding,
2 especially on G tract, the south side of the
3 lake, were filled with bird nests?

4 A: I did see a lot of birds in the trees. I don't
5 really know about the nests or not, but I did
6 see the birds.

7 Q: Take a look, if you would again, at Exhibit
8 Number 1. And turn to page 31.

9 A: (Witness does as requested.)

10 Q: Would you agree that that what's the lake has
11 historically looked like before the dike failed
12 with the population of birds depicted in
13 exhibit or page 31?

14 MR. HABER: Objection, Your Honor. I believe this
15 has all been asked and answered.

16 THE COURT: I'm going to allow it, Mr. Haber. Go
17 on.

18 A: Would you repeat the question, please?

19 Q: Yes. Would you agree that Exhibit 31 is
20 consistent with your observations over the
21 years of the bird population in the Cat Island
22 lake?

23 A: Yes.

24 Q: And would you take a look at 32 if you would.
25 Would you agree that that photo is consistent



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1 with your prior observations of the wildlife
2 that inhabited the trees around the Cat Island
3 lake?

4 A: Yes.

5 Q: Take a look, if you would, at the photos
6 quickly on 33 and 34. Are those photos all
7 consistent with your observations in the past
8 of wildlife around the Cat Island lake prior to
9 the breach of the dike?

10 A: Yes.

11 Q: And is it fair to say that you recognize that
12 many of those pictures are pictures of wood
13 storks?

14 A: Yes.

15 Q: Would you agree that with the water gone that
16 those birds would find other places to inhabit?

17 A: Yes.

18 Q: Now, you talked about not observing during your
19 visit any change in the freshwater wetlands, is
20 that correct?

21 A: That's correct.

22 Q: And was that done at the point in time that Mr.
23 Geer was evaluating, first evaluating his
24 stormwater permit application?

25 A: I believe so, yes.



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1 Q: Would that be back in the 2010 or 2011 time
2 period?

3 A: About 2011 timeframe.

4 Q: Okay. Do you recall in your memo to Mr. Geer
5 noting on page one that you were talking about
6 the freshwater wetlands surrounding the Cat
7 Island lake? Well, let me ask you. Do you
8 have Department Exhibit 5 in your hands?

9 A: I do.

10 Q: Okay. And do you see in the second paragraph
11 that you're talking about the freshwater
12 wetlands surrounding the lake?

13 A: I make reference to the wetland that is located
14 north of Sheridan Road, .14 acres.

15 Q: And you say you make the observation to Mr.
16 Geer that you have not observed any tidal
17 exchange. But isn't it fair to say that you
18 also state in this memo that you've not been to
19 the area on an extreme high tide to determine
20 how far the salt intrusion may extend?

21 A: That's correct.

22 Q: And with regard to tree die back, you note that
23 the dead trees that you observed were Chinese
24 tallow?

25 A: That's correct.



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1 Q: Okay. Is it fair to say that you did observe
2 a large number of dead Chinese tallow?

3 A: Yes, I did.

4 Q: Okay. And is Chinese tallow a freshwater
5 vegetation?

6 A: It's in a base of species that basically can be
7 found in most type situations, either uplands
8 and/or wetland areas.

9 Q: But not saltwater areas?

10 A: Not saltwater areas.

11 Q: Okay. And did you then recommend to Mr. Geer
12 that an evaluation be made to determine the
13 amount of tidal influence into that wetland
14 area?

15 A: That's correct.

16 Q: Now, you're not suggesting, are you, that it
17 would be a good idea to flood freshwater
18 wetlands with saltwater, are you?

19 A: It would probably create a change in vegetation
20 types.

21 Q: Okay. And would that be an impact to
22 freshwater wetlands that would be barred by the
23 regulations?

24 A: I don't see how. It's still a wetland area.

25 Q: Pardon?



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1 A: It's still a wetland. I don't think that it
2 would be something that we would consider to be
3 intrusive.

4 Q: Okay. Are you aware of any regulations that
5 would bar negative impacts to freshwater
6 wetlands?

7 A: I can't recall of anything that -- no.

8 Q: In doing your work, do you proceed on the
9 assumption that as long as it stays a wetland,
10 that's what you're looking to accomplish?

11 A: Yes.

12 Q: Whether it's fresh or salt to you, does it have
13 a material distinction in terms of your goals?

14 A: Well, it's -- most of my goals are concerned
15 with critical area salt permitting and the
16 amount of influence we have with freshwater
17 wetlands through Corps permit certifications
18 generally is something totally different than
19 what we do with the critical area.

20 Q: Say that again, I didn't follow that.

21 A: Yeah. We're looking at -- well, it's looking
22 at two different areas right here. Primarily,
23 I deal with critical area permitting, which is
24 salt and brackish waters and the permitting
25 influence that we have would be through



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1 certification the Corps permits, which is
2 dealing mostly with jurisdiction of freshwater
3 wetlands. And seldom do we see where there's
4 an intermingle between the two.

5 Q: Okay. Would you agree, I mean, I believe you
6 testified that if saltwater is entering
7 freshwater wetlands, you're going to see a
8 change in the nature of the vegetation, is that
9 correct?

10 A: That's correct.

11 Q: Okay. And that change would be changing from
12 freshwater vegetation to saltwater vegetation,
13 is that correct?

14 A: That's correct; that's correct.

15 Q: Okay. And would you agree that that change
16 will take place if the freshwater wetland
17 receives regular exposure to saltwater tides?

18 A: Yes.

19 Q: Now, you say in your memo that you've not seen
20 any evidence of upper tidal influence where it
21 has encroached, but in your memo at the end, do
22 you not recommend to Mr. Geer that mean high
23 high tide elevations be surveyed and documented
24 on drawings to determine the extent of the
25 tidal reaches with reference to the wetland



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1 areas?

2 A: Yes.

3 Q: Do you know whether or not that was ever done?

4 A: Yes, it was done.

5 Q: Okay. And why whom?

6 A: I believe that was done through Andrews and
7 Burgess Engineer.

8 Q: And do you know what, if anything, was done
9 with the results of their documentation?

10 A: They presented a plat showing the mean high
11 high water or the line where the influence
12 should be within the lagoon system and we used
13 for reference.

14 Q: Okay. Do you see in your memo where you are
15 also recommending that higher tide elevations
16 be surveyed and documented in reference to
17 adjacent residential properties? I'm looking
18 at the last paragraph on page two of your memo.

19 A: That was the plat that they did present to us
20 that did show the mean high water and mean high
21 high water lines within the lagoon system
22 adjacent to properties.

23 Q: So you relied on the same one for both
24 purposes?

25 A: I did.



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1 Q: Now, would you agree that spring tides can be
2 almost three feet higher than the mean high
3 tide?

4 A: Yes.

5 Q: So whatever line may have been drawn adjacent
6 to properties, or wetlands, would you agree
7 would not take into account the saltwater
8 exposure at tides higher than at average tide?

9 A: Yes.

10 Q: Were you asked at any point in time to
11 determine whether or not the retrofit
12 stormwater application of the developer had an
13 impact on the critical area?

14 A: I don't recall.

15 Q: Okay. You don't recall one way or another or
16 you have no recollection of being involved in
17 that process?

18 A: That was not my area and I don't think I was
19 involved with any of that with the stormwater.

20 Q: Okay. Is your area within OCRM dealing with
21 critical area issues?

22 A: That's correct.

23 Q: Would you agree that if you add four to eight
24 acres of freshwater lake bottom to the tidal
25 zone that that would have an effect, not



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1 whether it's good or bad, but would have some
2 effect on the critical area?

3 A: Yes.

4 Q: Would you agree that leaving the dike open and
5 allowing the entire drainage basin of the Cat
6 Island lake to flow out would have some effect
7 on the critical area?

8 A: Yes, I would say that.

9 Q: Would you agree that work that would stabilize
10 the dike that touches any part of the dike
11 below the mean high water level would have an
12 effect on the critical area?

13 A: Yes.

14 Q: Now, if the pollutants for the last 50 years
15 that may have collected on the bottom of the
16 Cat Island lake were then allowed to be tidally
17 influenced and wash back and forth in the
18 critical area, would you agree that that has
19 some effect on the critical area?

20 A: Yes.

21 Q: Would you agree that it would be a negative
22 effect?

23 A: I can't say.

24 Q: Why?

25 A: Well, I would say yes, it would have a negative



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1 effect.

2 MR. NORTH: I have many more questions but in the
3 interest of not irritating the Court, I will
4 have no further questions at this time.

5 THE COURT: Thank you, Mr. North. Mr. Haber?

6 MR. HABER: Thank you, Your Honor.

7 MR. MADLINGER - REDIRECT EXAMINATION BY MR. HABER:

8 Q: Do you need a break? I should be quick. While
9 Mr. North has gone over a multitude of other
10 issues with you, I'm going to try to condense
11 it down. You had spoken about naturalizing; do
12 you recall that?

13 A: Yes.

14 Q: Now, would this be naturalizing as opposed to
15 what could have existed before with the manmade
16 structure in place?

17 A: The manmade structure in place would have
18 probably maintained an open water system which
19 would not have seen the propagation of grasses
20 in there like we have since it's become more
21 tidally influenced.

22 Q: So would it be safe to say that that would be
23 a manmade system as opposed to a natural
24 system? Would it be fair to say that with the
25 dike in place, that would be a manmade system



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1 as opposed to a natural system?

2 A: Yes.

3 Q: And you spoke about what your understanding was
4 about why this area was impounded; do you
5 recall that?

6 A: I believe it was impounded for water fowl,
7 water fowl hunting, yes.

8 Q: And I posit to you I've never hunted and I've
9 never shot a gun. So I'm not familiar with
10 water fowl hunting. But as I understand it, do
11 you need to drain an area to plant to encourage
12 ducks to come to an area?

13 A: Ideally, if you could drain and plant an
14 impoundment and re-flow, it would be ideal but
15 in some of the coastal impoundments and I
16 believe similar to the one at Cat Island is
17 that not so much planted but it was maintained
18 to grow widgeon grass which is a type of
19 aquatic weed that ducks prefer to eat. And
20 that's usually done through the regulation of
21 salt and freshwater.

22 Q: So to your knowledge, do you have any knowledge
23 as to whether water was let out of this system
24 or saltwater was let in to this system at any
25 point for duck hunting?



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1 A: I don't know if it was or not.

2 Q: Now, would you agree that if water was let out
3 of this system and drained, while that water
4 was being let out, it wouldn't, as Mr. North
5 pointed, as a function as a detention structure
6 because there would be nothing holding the
7 water back?

8 A: Yes.

9 Q: Now, Mr. North had talked about elevations
10 whether or not marsh could grow by the area
11 directly adjacent to the dike; do you recall
12 that?

13 A: I do.

14 Q: Is one of the, one of the results of marsh
15 grass growing the accumulation of sediment
16 around that marsh grass?

17 A: That's correct.

18 Q: Would it be possible that areas that were
19 growing marsh grass and the collection of that
20 sediment, the elevation could possibly rise?

21 A: That's correct.

22 Q: And with that elevation rise, could it be more
23 susceptible to growing marsh grass?

24 A: Yes.

25 Q: Now, Mr. North then talked to you about some



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1 wildlife issues, do you recall?

2 A: Yes.

3 Q: Is it your experience, and I'm going to focus
4 on the critical area permit because that's what
5 you issue, is that correct?

6 A: That's correct.

7 Q: Is it your experience in working with the
8 Department or for the Department that you would
9 coordinate with other agencies in regard to
10 wildlife issues?

11 A: Yes.

12 Q: Predominantly what agency would that be?

13 A: Fish and Wildlife Service, National Marine
14 Fisheries and South Carolina Department of
15 Natural Resources.

16 Q: And that's pretty much the standard, correct?

17 A: That's correct.

18 Q: Would that be because that's their area of
19 expertise?

20 A: One of them, yes.

21 Q: Now, a lot of hypotheticals were thrown at you
22 during Mr. North's cross examination and I'm
23 going to ask you another hypothetical and
24 another what if situation. Could it be
25 possible that some of those same birds that you



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1 were discussing through the pictures with Mr.
2 North, could they possibly use this area now?

3 A: Yes.

4 Q: Are you sure?

5 A: Yes.

6 Q: Okay. Mr. North also asked you questions
7 regarding restricted covenants and freshwater
8 wetlands; do you recall that?

9 A: I do.

10 Q: If a restricted covenant is issued by the Army
11 Corps of Engineers, who in your mind would have
12 the obligation to enforce that?

13 A: The Army Corps.

14 Q: In fact, is it stated almost as much so in that
15 memo, do you recall?

16 A: In this particular memo?

17 Q: Yes.

18 A: I ---

19 Q: I'll point you to -- it's Department's Exhibit
20 5 about the middle of paragraph number six on
21 the first page.

22 **MR. HABER:** May I approach, Your Honor?

23 **THE COURT:** Yes.

24 Q: I'm going to point out to you a sentence I'd
25 like for you to read. I'm not going to show



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1 you my exhibits. I have notes. Right here
2 (indicating). Do you see that sentence right
3 here beginning with in addition?

4 A: Yes.

5 Q: Could you please read that for the Court?

6 A: In addition, the US Army Corps of Engineers is
7 the permitting agency with the responsibility
8 of enforcing the conditions of the restricted
9 covenant as recorded under condition number
10 six.

11 Q: Thank you. Now, Mr. North had gone through
12 some pictures with you and he went through a
13 bunch so I'll clarify. It's what's been
14 labeled as Petitioners Exhibit 63. Do you
15 still have that up there with you?

16 A: I don't think so.

17 **MR. HABER:** Your Honor, do you have a copy of
18 Petitioners Exhibit 63?

19 **THE COURT:** I do.

20 **MR. HABER:** Do you? okay.

21 Q: I'm going to show this on the board, maybe it
22 will be easier.

23 A: Okay.

24 Q: We'll go through a couple of these pictures.
25 Now, you had testified previously that this



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1 from what you could tell could accurately
2 reflect the former impoundment, is that
3 correct?

4 A: Yes.

5 Q: Now, do you see these strands here?

6 A: Yes.

7 Q: What does that appear to be?

8 A: That appears to be marsh grass, smooth cord
9 grass.

10 Q: Do you see this here?

11 A: Yes.

12 Q: What does that appear to be?

13 A: The same.

14 Q: And you might not be able to see in this
15 picture, but do you see this here in the back?

16 A: Yes, I can.

17 Q: What does that appear to be?

18 A: The same, it's smooth cord grass.

19 Q: Let's flip to the next picture in the sequence.
20 Again, this is the same area. What does this
21 appear to be?

22 A: Smooth cord grass.

23 Q: And again here?

24 A: Same.

25 Q: And again here?



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- 1 A: Smooth cord grass?
- 2 Q: And again here?
- 3 A: Also there.
- 4 Q: It's interesting. You had pointed back here as
- 5 well, right?
- 6 A: Correct.
- 7 Q: And that limb just happens to be in the way
- 8 there. Now back here?
- 9 A: Same thing, smooth cord grass.
- 10 Q: Let's flip to the next page. What does this
- 11 appear to be?
- 12 A: Smooth cord grass.
- 13 Q: And there?
- 14 A: Same thing, smooth cord grass.
- 15 Q: Can you see back here?
- 16 A: Yes, I can.
- 17 Q: What does that appear to be?
- 18 A: It looks like the same, smooth cord grass.
- 19 Q: And in here?
- 20 A: Again there, yes.
- 21 Q: Let's go to the next picture in the sequence.
- 22 Back through here? Zoom in if you need to.
- 23 A: Yeah, I can see all of those.
- 24 Q: What is this?
- 25 A: It's all the same. It's all smooth cord grass.



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- 1 Q: And all through back here?
- 2 A: All through there, yes.
- 3 Q: And here?
- 4 A: Yes.
- 5 Q: Now, this might be more speculative but behind
- 6 this limb here as well. What does that appear
- 7 to be?
- 8 A: That appears to be a patch of smooth cord
- 9 grass.
- 10 Q: And over here on the edge, here on the edge?
- 11 A: That looks like smooth cord grass also.
- 12 Q: Let's go to the next picture in Mr. North's
- 13 exhibit. Back through here?
- 14 A: All smooth cord grass.
- 15 Q: And here?
- 16 A: Yes.
- 17 Q: And here?
- 18 A: Yes.
- 19 Q: Does it appear that it goes some distance back?
- 20 A: It does, yes.
- 21 Q: And even on the zoomed in picture, what does
- 22 that appear to be?
- 23 A: It still appears to be smooth cord grass.
- 24 Q: And that's the end of that sequence. I'd like
- 25 to ask you a question. If I took this picture



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1 here in Mr. North's exhibit, you had testified
2 that there's smooth cord grass in the back, is
3 that correct?

4 A: That's correct.

5 Q: Let's zoom in here a little bit. Do you see
6 any smooth cord grass?

7 A: No.

8 Q: Thank you.

9 **MR. HABER:** No further questions, Your Honor. Well,
10 might have one more.

11 Q: Do you have a copy of the regulations up there?

12 A: No, I don't.

13 Q: I'm going to hand you a clean copy of the
14 regulations.

15 **MR. HABER:** If I may approach, Your Honor.

16 Q: I'm going to posit to you these are SCDHEC OCRM
17 critical areas permit regulations. Are you
18 familiar with these?

19 A: I am.

20 Q: Does that document look the same?

21 A: Yes, it does.

22 Q: Does it appear to be a clean version of that
23 document?

24 A: It does.

25 Q: If you could, flip to page number two. It'd be



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1 30-1(a) -- or no, sorry, 30-1(b)(4). It should
2 be on page two. Do you see that?

3 A: Yes, I do.

4 MR. NORTH: Could I ask for clarification? What
5 exhibit number are you referring to?

6 MR. HABER: I'm referring to the Department's
7 regulations.

8 MR. NORTH: So it's not an exhibit. And which
9 regulation?

10 MR. HABER: I just said, it's 30-1.

11 MR. NORTH: Is it marked as an exhibit?

12 MR. HABER: If you like, I can have it marked as an
13 exhibit.

14 MR. NORTH: I just want to have something to look at
15 so I can follow along.

16 MR. HABER: I didn't bring in the critical area
17 argument into this -- this matter.

18 THE COURT: What regulation is it?

19 MR. HABER: 30-1, Your Honor.

20 THE COURT: 30-1.

21 MR. NORTH: Do you have an extra copy by chance?

22 MR. HABER: I don't. Your Honor, I'm simply going
23 to use them to read in two sections of 30-1.

24 THE COURT: Okay. Go ahead.

25 Q: If you could, could you read for me 30-1, the



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1 fourth ---

2 A: Sure. Marshes also perform a valuable waste
3 treatment function since the dense vegetation
4 acts as a filter tracking sediments and
5 pollutants which enter as runoff from upland
6 areas. The trapping of sediments helps
7 maintain water clarity, a factor important to
8 clam, oyster and phytoplankton productivity.
9 The marshes also assimilate pollutants and
10 recycle nutrients through various biochemical
11 processes.

12 Q: By that statement, if there are areas that
13 predate stormwater regs, assuming they do not
14 receive -- they're not required to receive
15 stormwater treatment, in your understanding of
16 what you just read, would the marshes act as a
17 type of filter to that area?

18 A: Yes.

19 Q: Would you also look at number five? Could you
20 read that for the Court?

21 A: Sure. Coastal waters in the adjacent marshes
22 are also significant as aesthetic, recreational
23 and educational resources. Much of the
24 expenditure for recreation and tourism in South
25 Carolina coastal zone is for purposes of



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1 enjoying outdoor activities and the aesthetic
2 pleasures of undisturbed tideland areas. These
3 natural areas lend themselves to meaningful and
4 important academic pursuits such as bird
5 watching and wildlife population in nutrient
6 recycling studies.

7 Q: When an area that was previously blocked off
8 for public enjoyment or access from a river,
9 would that increase recreational activities for
10 the public?

11 A: Yes.

12 MR. HABER: Thank you, Your Honor. No further
13 questions.

14 **MR. MADLINGER - RECROSS EXAMINATION BY MR. NORTH:**

15 Q: Mr. Madlinger, you just read from regulation
16 30-1 talking about the attributes of marshes.
17 Are you familiar with other portions of
18 regulations that have similar attributes about
19 the benefits and functions and qualities of
20 freshwater wetlands?

21 A: Yes.

22 Q: Now, you said that birds could continue to use
23 the area now, is that correct?

24 A: That's correct.

25 Q: Would you agree that the wading birds that are



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1 looking for fish are not going to come to the
2 area at all unless there was water in the
3 lakebed?

4 A: Well, they will come when there's tidal, when
5 the tide is up within the lakebed.

6 Q: Okay.

7 **MR. HABER:** Objection, Your Honor. I'm not sure --
8 I might not be familiar with this proceeding,
9 Judge, this might be re-cross, is that correct?
10 I believe some of these questions were already
11 asked and answered during his cross
12 examination. He's not happy with the questions
13 that I asked on my re-direct. It seems that
14 the same questions were answered.

15 **THE COURT:** I'm going to go ahead -- I don't want
16 Mr. North to think that the Court is in any way
17 hostile to it. And I'm going to allow him to
18 give me whatever information I need and I'm
19 going to allow that question, so the objection
20 is overruled. I think it fits in with your
21 cross.

22 **MR. HABER:** Thank you, Your Honor.

23 **MR. NORTH:** Thank you.

24 Q: Would you agree that those types of birds would
25 only be back when there is water to stand in



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1 and fish to be able to go after them?

2 A: Yes.

3 Q: Okay. And would you agree that because of the
4 elevation of the lakebed that would only be for
5 a very brief period of time toward high tide?

6 A: I wouldn't say a brief, it would depend on how
7 long during the tidal cycle there actually is
8 water within that system.

9 Q: Okay. Now, you said something about letting
10 water out. If you let the water out of the
11 lake while it was functioning as a duck hunting
12 asset, that if you let the water out of the
13 lake, it wouldn't continue to function as a
14 detention basis. Do you remember something
15 like ---

16 A: If it was up and the water would flow, freely
17 flow out of the pond area.

18 Q: Would you agree that since the dike was built,
19 it has always had an outfall device?

20 A: I don't know that for a fact.

21 Q: Okay. Would you agree that it has never had a
22 mechanism that would allow for the draining of
23 the lake to the bottom?

24 A: That it never has had a mechanism?

25 Q: It has never had a mechanism where you could



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1 simply open it all up and let the water go out.

2 A: I can't answer that. I don't know.

3 Q: As long as you've been around that lake, would
4 you agree that it always had a dike and it had
5 an outfall device and no mechanism that could
6 drain the entire lake?

7 MR. HABER: Objection, Your Honor. It's asked and
8 answered.

9 THE COURT: It's sustained. It has been asked and
10 answered as a no.

11 MR. NORTH: I have no further questions, Your Honor.

12 THE COURT: I'm sorry, Mr. Haber.

13 MR. HABER: I was going to tell you we have nothing
14 else.

15 THE COURT: Okay. Obviously, you have nothing
16 further, Ms. Shahid, okay. Thank you Mr.
17 Madlinger.

18 MR. HABER: Your Honor, if I may. I didn't
19 anticipate having to use these critical area
20 regulations and you had gotten a copy from
21 someone else that I could provide to Mr. North.
22 It just has a little bit of highlighting but
23 other than that, it's a fairly clean copy. And
24 my next witness needs a short break. If I
25 could give it to Mr. North now to let him look



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1 through this.

2 **THE COURT:** Okay. We'll take a ten minute break
3 then, okay?

4 **MR. HABER:** Thank you.

5 (Break from 10:50 a.m. until 11:14 a.m.)

6 **MR. HABER:** The Department would like to call Blair
7 Williams.

8 **THE COURT:** Mr. Williams if you would face the court
9 reporter and raise your right hand, she will
10 swear you.

11 **BLAIR WILLIAMS,** having been duly sworn, testifies as
12 follows:

13 **COURT REPORTER:** State your name for the record.

14 **THE WITNESS:** Blair Williams.

15 **MR. WILLIAMS - DIRECT EXAMINATION BY MR. HABER:**

16 Q: Good afternoon, Mr. Williams.

17 A: Good afternoon.

18 Q: Were you here during Mr. Madlinger's testimony?

19 A: Yes.

20 Q: The same kind of introduction. If I cut you
21 off while you're giving me an answer, please
22 tell me to stop and I'll let you finish.

23 A: Okay.

24 Q: What is your educational background?

25 A: I received my Bachelor of Science and Masters



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1 of Forest Resource from Clemson University.

2 Q: Okay. And what year was that?

3 A: That was in 2000 and then 2001.

4 Q: Okay. How long have you worked for the
5 Department?

6 A: Roughly eight and a half years.

7 Q: And what is your current position at the
8 Department?

9 A: I'm the manager of the wetland permitting
10 section.

11 Q: And what does that job entail?

12 A: I oversee the staff that administer requests
13 for authorization for the alteration of
14 critical areas. Also we look at beachfront
15 modifications, maintenance and repair requests
16 and then we also certify state and federal
17 permits that may involve any type of freshwater
18 wetland impacts.

19 Q: And so you said oversee. Is it safe to say
20 your job requires you to be in a supervisory
21 capacity?

22 A: Yes.

23 Q: Initially, let's try to clear the air regarding
24 some confusion that was created earlier in the
25 trial. I'm going to provide you, I guess you



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1 should have it over here, what's been numbered
2 Petitioners Exhibit Number 46.

3 **MR. HABER:** If I may approach, Your Honor?

4 **THE COURT:** Yes.

5 **MR. NORTH:** Is it in this first file?

6 **MR. HABER:** The first book, no. That goes to 25.

7 **Q:** Again, I direct you to Petitioners Exhibit
8 Number 46.

9 **A:** Okay.

10 **Q:** Do you have that in front of you?

11 **A:** Yes, I do.

12 **Q:** Is that a copy of the Coastal Tidelands and
13 Wetlands Act?

14 **A:** Yes, it is.

15 **Q:** Okay. I'd like to direct you to page six of 15
16 of that exhibit.

17 **A:** I'm there.

18 **Q:** Is that the statute that's before you 48-39-
19 130?

20 **A:** Yes.

21 **Q:** What is the title of 48-39-130?

22 **A:** It's entitled Permits Required to Utilize
23 Critical Areas.

24 **Q:** Now, generally, does that statute say you must
25 have a critical area permit to conduct certain



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1 activities between Section -- for ease, I'll
2 reference you to A, B and C.

3 A: Yes. In order to utilize a critical area, it
4 says that you need a permit, a permit's
5 required.

6 Q: All right. Now, under that same statute, I
7 direct you to subsection D; do you see that?

8 A: Yes.

9 Q: What does D itself say?

10 A: D itself lists a set of activities within the
11 critical area that are exempt or is an
12 exception to require an authorization from the
13 Department, essentially a critical area permit.

14 Q: So if I understand you correctly, there are
15 certain activities that could potentially have
16 some effect on the critical area but a critical
17 area permit itself is not required, is that
18 correct?

19 A: Correct.

20 Q: Look at number three under subsection D. Could
21 you read that for me?

22 A: The discharge of treated effluent as permitted
23 by law provided, however, the Department shall
24 have the authority to review and comment on all
25 proposed permits that would affect critical



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1 areas.

2 Q: Do you interpret that to apply to stormwater
3 applications that would be permitted under the
4 Stormwater Act within the Coastal zone?

5 A: Yes.

6 Q: Do you know whether this stormwater permitted
7 issue in this matter was under review to be
8 permitted by law?

9 A: Yes.

10 Q: To your knowledge, did the critical area
11 section have the ability to review and comment
12 on this application?

13 A: Yes.

14 Q: They also provide a consistency determination?

15 A: The critical area section?

16 Q: I guess I'll be more clear. Was a consistency
17 determination made?

18 A: Not by my section, no.

19 Q: Okay. So there was comment or review on this
20 permit during the permitting process by the
21 stormwater?

22 A: Could you clarify that?

23 Q: Sure. Essentially, it's the same question as
24 before just for clarity. To your knowledge,
25 the critical area section had the ability to



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1 review and comment, and did they comment and
2 review it?

3 A: We do have the ability to comment on any state
4 or federal permit that requires, that triggers
5 our interaction as far as certifying that state
6 or federal permit, but there wasn't anything
7 here that triggered our review for that actual,
8 that particular activity.

9 Q: But to clarify, would you have the ability to?

10 A: Yes, we do have the ability to comment.

11 Q: To your knowledge, is this statute repeated
12 almost verbatim in the critical area
13 regulations?

14 A: Yes, it is.

15 Q: Now, when did you last look at the site?

16 A: It was Wednesday. I went out with Mr.
17 Madlinger.

18 Q: Have you visited the site prior to that?

19 A: Yes.

20 Q: Is it safe to say that you visited the site
21 numerous times?

22 A: Yes.

23 Q: Would you describe to the Court the difference
24 in the former impoundment in between those
25 visits?



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1 A: Yeah. From the initial time that I saw the
2 impoundment to today, this past Wednesday, the
3 system has gone from primary an exposed mudflat
4 to more of a heavily vegetated combination a
5 mudflat of spartina.

6 Q: And to avoid duplication, were you here during
7 -- you testified you were here during Mr.
8 Madlinger's testimony, is that correct?

9 A: Yes.

10 Q: Would you agree with some of the descriptions
11 he had discussed regarding the naturalization
12 and the growth of marsh grass on this site?

13 A: Yes, I would agree.

14 Q: Has this area been receiving, to your
15 knowledge, a constant tidal flow of saltwater
16 since the dike washed out?

17 A: Yes.

18 Q: And that blowout occurred some four, about four
19 years ago?

20 A: That's my understanding.

21 Q: Through the ZCMA, does the Department have
22 direct authority to permit alterations in the
23 critical area? And I'll rephrase it. I see a
24 question mark. Through the ZCMA and that's the
25 promulgation that goes with Tidelands and



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1 Wetlands Act ---

2 A: Yes.

3 Q: --- does the Department ---

4 A: Yes.

5 Q: In regard to critical area regulations, with
6 constant tidal influx of saline water into this
7 former impoundment have any implications in
8 terms of the critical area review for work to
9 now incur within that former impoundment?

10 A: If there's proposed work for the impoundment
11 now?

12 Q: To incur inside of the impoundment, the former
13 impoundment, would the constant flow in tidal
14 influx of saline waters affect your
15 determination?

16 A: I'm not sure I understand that question. If
17 there's -- what triggers a critical area
18 permit, if there's an alteration to that
19 critical area, such as someone wanted to put a
20 dock in there, if someone wants to re-impound
21 it, put an earthen structure, some type of
22 structure back into that critical area, yes.
23 That would trigger a critical area permit, but
24 there's nothing here that's triggered a
25 critical area permit.



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- 1 Q: Correct. And I guess what I'm asking and this
2 might be the point of confusion. It's more of
3 a hypothetical situation. Now that this area
4 is receiving a tidal influx of saline waters --
5 -
6 A: Right.
- 7 Q: --- if someone wanted to do work within that
8 area, would that affect your review in terms of
9 critical area regulations?
- 10 A: Yes.
- 11 Q: Bring them into play?
- 12 A: Yes.
- 13 Q: Now, I'm going to show you on the overhead some
14 of the critical area regulations and they
15 should show up on the screen in front of you,
16 okay. I'm going to refer to regulation 30-2.
17 Is that regulation 30-2?
- 18 A: Yes.
- 19 Q: I'll zoom out so you can see it and that's on
20 page 12 of the regulations, do you see that ---
- 21 A: Yes.
- 22 Q: --- on the Department's copy? In particular,
23 I want you to look at the last sentence of 30-
24 2-B. This would be 30-2-B, is that correct?
- 25 A: Correct.



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- 1 Q: If you look at that last sentence for me here,
2 the following; do you see that?
- 3 A: Yes.
- 4 Q: Would you read that sentence for me?
- 5 A: The following minimum information shall
6 ordinarily be required before a permit
7 application is considered complete.
- 8 Q: So at a minimum, some of the information be
9 required to be submitted to the Department for
10 a critical area review for the application to
11 even be considered complete, is that correct?
- 12 A: Correct.
- 13 Q: Just as an aside, did you receive a critical
14 area permit application at all in this?
- 15 A: We have not received a critical area permit
16 application.
- 17 Q: So the testimony you're providing is would you
18 say more or less just kind of an overall
19 guidance in regard to the regulations?
- 20 A: Yes.
- 21 Q: Explaining to the Court what would be required?
- 22 A: Yes.
- 23 Q: Now, we're going to look at 30-2-B(6); do you
24 see that?
- 25 A: Yes.

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1 Q: Would you begin reading it and I'll stop you.
2 It starts with a brief description?

3 A: A brief description of the proposed alteration,
4 its purpose and intended use, including a
5 drawing of the type of structure ---

6 Q: Okay. I'm going to stop you there. This
7 regulation requires a drawing of the type of
8 structure at minimum submitted to the
9 Department for the application to be complete,
10 is that correct?

11 A: Correct.

12 Q: So that's something that would be required on
13 any critical area permit?

14 A: Correct.

15 Q: A drawing of the structure?

16 A: Correct.

17 Q: Now, let's talk in terms of structure. I'll
18 posit to you I could not find a definition of
19 just the term structure in the statute or the
20 regulations. However, how would you interpret
21 structure?

22 A: Structure -- our critical area permits are
23 construction activity or permits that are
24 issued based on construction activities and
25 structures within the critical area -- examples



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1 of things that we permit would be something,
2 like I said earlier, a dock. It could be a
3 growing in the beachfront. It can be some type
4 of physical hard material that's erected in the
5 critical area.

6 Q: Okay. And there is a definition of habitable
7 structure ---

8 A: Correct.

9 Q: --- found in the regulations, is that correct?

10 A: Correct.

11 Q: Is that habitable structure utilizing the
12 regulations that would potentially be placed in
13 the beach dune system critical area,
14 specifically kind of the relationship between
15 the base line and the setback line?

16 A: Correct.

17 Q: Okay. Erosion control structures are also
18 defined and examples are provided in the
19 statute as well?

20 A: Correct, like a seawall, riprap bulkhead.

21 Q: Okay. Now, would a seawall bulkhead or
22 revetment as applied in the statute in the
23 regulations that be a structure that would be
24 placed in the critical area?

25 A: Correct.



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1 Q: A bulkhead in the critical area or revetment on
2 the beach or in the critical areas?

3 A: Correct.

4 Q: Okay. Now, even as a stretch, the word pool is
5 defined in the statute. It contains the word
6 structure, too, okay. Now, as to pools are
7 concerned within the statute and the
8 regulations, is the focus of pools located
9 within the beach dune system?

10 A: Yes.

11 Q: And is that one of the critical areas?

12 A: Yes.

13 Q: So a pool would be a structured placed, you
14 know, as the regulations are concerned, would
15 that be between the base line and the setback
16 line?

17 A: Correct.

18 Q: Again, that's a critical area?

19 A: Correct.

20 Q: Would it be fair to say that a common theme of
21 all these examples contain the word structure
22 is that it refers to a structure placed in the
23 critical area?

24 A: Yes.

25 Q: Now, if work was to be done at this point to



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1 fix the dike to its previous condition with an
2 outfall structure in the critical area, would
3 that be considered placing a structure in the
4 critical area?

5 A: Yes.

6 Q: Would such a placement of the structure and
7 associated filling in your mind require a
8 Departmental permit?

9 A: Yes, it would.

10 Q: To your knowledge, would it likely require any
11 other permits?

12 A: Yes.

13 Q: What other permits do you think it might
14 require?

15 A: Well, because it constitutes fill of state
16 waters but also it would be US waters, the
17 federal government and Army Corps of Engineers
18 would require a 404 permit and then that 404
19 permit would then trigger a 401 water quality
20 permit through the Bureau of Water.

21 Q: So at minimum, we're looking likely at three
22 different permits if that activity was to take
23 place, is that correct?

24 A: Three different authorizations, yes.

25 Q: Okay. Now, I'm not going to ask you to speak



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1 to the Court, but to your knowledge, the Court
2 permit would also likely be required before any
3 of this work could be conducted, is that
4 correct?

5 A: Yes.

6 Q: Now, I think it'd be helpful to the Court. I'd
7 like for you to provide some form of a snapshot
8 regarding some of the Department's requirements
9 for this area to be re-impounded, okay? And to
10 be clear, I'm not asking you, have you received
11 any information to make a decision on a
12 critical area permit in this case?

13 A: We have not received any critical area permit
14 requests for anything associated with this
15 project.

16 Q: Okay. To be clear ---

17 A: --- to this site.

18 Q: I'm sorry. Go ahead. To this site?

19 A: Yeah.

20 Q: Okay. And to be clear, I'm not asking you to
21 make a decision. I simply want to walk through
22 and see what you would consider in these
23 regulations, okay?

24 A: Okay.

25 Q: Does the Department have any type of specific



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1 project standards that you'd refer to if you
2 received an application to re-impound an area?

3 A: Yes. There's specific project standards for
4 impoundments. There's also specific project
5 standards on dredging and filling activities.

6 Q: Well, let's take a look. To your knowledge,
7 would regarding re-impoundment fall under
8 regulation 30-12?

9 A: Yes, 30-12-K.

10 Q: And that runs two pages, but I'm going to try
11 to put for the Court the first page, okay.
12 Does that appear to be in the specific project
13 standard that you mentioned 30-12-K and, again,
14 this would be the first page of that
15 regulation?

16 A: Yeah. This is specific project standards for
17 marsh impoundments.

18 Q: Could you read the title of 30-12-K to the
19 Court?

20 A: Marsh Impoundments for Recreational and
21 Commercial Activities.

22 Q: Are you aware of the definition in the
23 regulations or statutes of recreational and
24 commercial activities?

25 A: No.



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1 Q: 30-12-K(a), do you see that or K(1)?

2 A: Yes. K(1) or K(2)?

3 Q: K(1).

4 A: K(1).

5 Q: Yeah. It mentions recreational water fowl
6 hunting; do you see that?

7 A: Yes.

8 Q: Wildlife sanctuaries?

9 A: Yes.

10 Q: And other commercial, agricultural and
11 preservation uses; do you see that?

12 A: Yes.

13 Q: Do you have any knowledge whether this area,
14 which I believe previous testimony stated was
15 created for water fowl hunting and it's still
16 utilized for water fowl hunting?

17 A: From my understanding, it's not used for water
18 fowl hunting.

19 Q: Do you have any knowledge as to whether this
20 former impoundment was utilized for commercial
21 activities when it was impounded or ---

22 A: I have no knowledge of that, no.

23 Q: Do you believe this section would allow you to
24 re-impound an area just to utilize that area
25 for detention of stormwater?



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- 1 A: No.
- 2 Q: Well, let's make an assumption this area's
3 going to be re-impounded for something other
4 than stormwater, so it's hypothetical, okay.
5 Was this area previously impounded to your
6 knowledge?
- 7 A: Yes.
- 8 Q: So we wouldn't really apply (2)(a), is that
9 correct?
- 10 A: That's correct.
- 11 Q: Would (2)(a) apply to areas that were
12 previously unimpounded?
- 13 A: Yes.
- 14 Q: Okay. So would you apply Section (2)(e) and ©?
- 15 A: Yes.
- 16 Q: Then this would be (b) here?
- 17 A: Correct.
- 18 Q: Six on this side and © would go to the next
19 side?
- 20 A: Correct.
- 21 Q: Okay. Does (2)(b) provide you factors to
22 consider on whether you could permit an area to
23 be re-impounded?
- 24 A: Yes. I mean, we would have to consider all
25 those -- those items under (2)(b).

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1 Q: And I'm going to flip this over to (2)© there.
2 Does (2)© provide for requirements for a
3 detailed management plan?

4 A: Yes.

5 Q: And I'm going to flip this back over. In
6 looking at (2)(b), would you be applying all of
7 those factors?

8 A: Yes.

9 Q: Okay. In an effort to save time, I'm just
10 going to touch on a few of these factors. In
11 B(2), can you read it on your screen?

12 A: Yes, I can read it.

13 Q: In B(2), what does it mean to consider the
14 amount of wetlands proposed to be re-impounded?

15 A: It's exactly what it is, I mean, whether you're
16 impounding, you know, .5 acres of a wetlands or
17 if you're impounding, you know, 20 or 30 acres
18 of wetlands.

19 Q: Would it be correct to say the larger the area,
20 the more difficult it may be to re-impound it?

21 A: Yes.

22 Q: In B(3), what does it mean to consider the
23 extent to which the project would block waters
24 presently used for recreation and navigation by
25 the public?



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1 A: We'd have to take into consideration of any
2 uses that that system offers today as it exist
3 and whether or not if, you know, recreational
4 fishermen are going up there and fishing or not
5 or any of the public, if the public's currently
6 using that area.

7 Q: Would it be safe to say if an area's been
8 demonstrated -- has a demonstrated use by the
9 public, it'd be more difficult to receive this
10 permit?

11 A: It's a higher regulatory hurdle if there's a
12 demonstration, a demonstration of use.

13 Q: Now, you were not here during previous parts of
14 this hearing, previous days of this hearing, is
15 that correct?

16 A: Correct.

17 Q: I'll posit to you that a Petitioner testified
18 that somebody was on a boat, I believe it was
19 a skiff, fly-fishing in the former impoundment,
20 is that a demonstrated use by the public for
21 recreation?

22 A: Yes.

23 Q: Now, he was also in a boat. So is that also a
24 demonstrated use in navigation?

25 A: Yes.



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1 Q: Looking at B(4), what does it mean to consider
2 the degree of salinity of waters impacted by
3 the proposed project?

4 A: We would look and see what the system is, I
5 mean the wetlands, you know, is it a critical
6 area of wetlands or is it freshwater wetlands
7 and see what the impacts would be on that
8 change.

9 Q: Again, would it be safe to say the higher the
10 salinity level, the more difficult it would be
11 to obtain a permit?

12 A: Yes.

13 Q: Do you have knowledge as to whether or not
14 Chowan Creek which is providing tidal water
15 into the former impoundment has a high salinity
16 level?

17 A: Say that again.

18 Q: Do you know whether or not Chowan Creek has a
19 high degree of salinity?

20 A: I mean, yeah, there's a -- it's a fairly high.
21 I don't know what the exact salinity level is
22 but it's a direct connection. It goes into
23 Chowan Creek, then it hits the Beaufort River,
24 then it hits the Port Royal Sound, then it hits
25 out to the Atlantic Ocean. So it's not



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1 directly adjacent or connected to the Atlantic
2 Ocean, but it's -- it's a very high tidal flux
3 exchange back and forth, which there's a higher
4 degree of salinity in Chowan.

5 Q: You provided kind of an idea of where that
6 creek went. It's been referred to as ocean
7 water. Would you consider this to be ocean
8 water?

9 A: No.

10 Q: Now, lastly I want to look at B(6). What does
11 it mean to consider the primary purpose of the
12 impoundment?

13 A: Well, we would look to see what the primary --
14 I mean, the primary itself essentially
15 translates to what is it going to be used for,
16 why is someone wanting to impound this wetland.
17 What we typically see is, you know, folks that
18 are impounding a majority of impounded wetlands
19 are managed for water fowl, water fowl hunting.

20 Q: Now, I know I told you that forget about it
21 being for stormwater permit, but if -- would
22 the re-impoundment of the area to act as a
23 stormwater detention basin, would that come
24 into this evaluation?

25 A: Yes, if that was the purpose to re-impound this



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1 impoundment, that would come into the -- that
2 would come into the evaluation, yes.

3 Q: Okay. That's just part of the evaluation. You
4 had said that there'd be -- also you'd have to
5 apply regulations in regard to filling, is that
6 correct?

7 A: Yes.

8 Q: I'm not going to spend time going through all
9 that as well, but you would have to apply those
10 as well, correct?

11 A: Yes.

12 Q: Now, I'd like to direct you to 30-11-B; do you
13 recognize that document?

14 A: Yes.

15 Q: And what does 30-11-B provide you?

16 A: For every permit application that we go in, we
17 have to evaluate a permit application on
18 general considerations. So it will go through
19 general considerations for the guidelines and
20 then specific project standards. This is one
21 of the general guidelines that we have to apply
22 to all permit applications.

23 Q: And then also this down here you mentioned
24 further guidelines, is that under ©?

25 A: Yes.



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1 Q: And then that goes from (1) through (3), is
2 that correct?

3 A: Correct.

4 Q: Okay. I'm going to -- so when you receive a
5 critical area permit application, those general
6 guidelines and further guidelines have to be
7 applied every time?

8 A: Yes.

9 Q: Okay. I'm not going to walk through all of
10 them but could you take a look at B(2); can you
11 see that?

12 A: It's a little blurred. There you go.

13 Q: How's that?

14 A: That's good.

15 Q: Okay. What does it mean the extent to which an
16 activity would harmfully obstruct the natural
17 flow of navigable water?

18 A: Well, a scenario that you posed for re-
19 impounding the dike, the wetlands there, the
20 actual activity would be placing the structure
21 in the critical area and then associated fill
22 and then we would look to that to see, you
23 know, if there's currently open water free, a
24 natural flow of navigable water which if
25 there's a demonstration of navigability, then



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1 we would take that into consideration.

2 Q: And with Petitioner testified as I posited to
3 you earlier in this trial, the boat using that
4 area to go inside of the former impoundment,
5 that would be a demonstrated navigability of
6 this area?

7 A: Yes.

8 Q: Okay. Would erecting a dike obstruct the
9 natural flow?

10 A: Yes.

11 Q: And it would obstruct the navigability of a
12 boat to get into that area?

13 A: Correct.

14 Q: B(3), could potentially placing a dike there
15 obstruct the accessibility to crabs or other
16 marine life?

17 A: Yes.

18 Q: I'm looking at (4). Could it affect existing
19 public access to tidal and navigable waters?

20 A: Which one are you looking at?

21 Q: It's under B, no, I'm sorry. It's under (5),
22 the extent to which -- in evaluating that,
23 could it affect existing public access to tidal
24 and navigable waters?

25 A: Yes.



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1 Q: Kind of the same reasons we talked about under
2 number (2)?

3 A: Yes.

4 Q: In addition, we had gone through some minimum
5 standards. We had talked about drawings of
6 structures being required, do you recall?

7 A: Yes.

8 Q: In addition to that, does the ownership of the
9 area also have to be demonstrated to you?

10 A: As part of a permit application, I read that
11 thing for you about the minimum requirements
12 for a complete application and part of the
13 application is a demonstration of ownership.

14 Q: As this area's been titled the influence for
15 some four years now, would there be a question
16 as to whether who owns that area?

17 A: I mean, I think they would have to demonstrate
18 ownership and typically an area that is a
19 critical area that's submerged land, if an
20 individual doesn't have a King's grant
21 demonstrating ownership, then it's assumed that
22 the state owns the property, the Budget and
23 Control Board.

24 Q: And that's something that would have to be
25 proven even before the permit application's



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1 considered?

2 A: Before we can even consider it complete and go
3 out on public notice, we would have to have
4 that rectified.

5 Q: Now, what we just went through, were those just
6 factors you would have to consider, what we
7 went through, sorry, under the re-impoundment
8 and the further guidelines and the general
9 guidelines?

10 A: Yes.

11 Q: So these are just factors you would have to
12 consider to issue ---

13 A: To be able to make a decision on a permit
14 application, yes. We'd have to consider those
15 factors.

16 Q: But would that application also have to go out
17 on public notice?

18 A: Yes.

19 Q: Would you also have to evaluate comments
20 received by the public and other agency
21 resources?

22 A: Yes.

23 Q: Or other resource agencies?

24 A: Yes.

25 Q: Is your permitting decision also appealable?



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1 A: Yes.

2 Q: When you testified earlier that a permit from
3 the Court would also be needed, is that
4 correct?

5 A: Yes.

6 MR. HABER: Thank you, Your Honor. There's no
7 further questions.

8 MS. SHAHID: Nothing from me, Your Honor.

9 MR. WILLIAMS - CROSS EXAMINATION BY MR. NORTH:

10 Q: Would you agree that a project cannot affect
11 the critical area without bringing into play
12 the various regulations and the need for a
13 critical area permit?

14 A: No.

15 Q: Why not?

16 A: Well, it depends on the activity. I mean,
17 there's a lot of activity that are upland based
18 that don't bring in critical area regulations
19 or trigger a critical area permit.

20 Q: Take a look, if you would again, at Exhibit 46,
21 the statute.

22 A: Okay.

23 Q: Tell me when you have it handy.

24 A: I have it.

25 Q: Take a look on page six of the statute. At the



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1 bottom right-hand corner, you'll see the page
2 numbers.

3 A: Okay.

4 Q: Would you agree that Section 48-39-130,
5 subsection C, says that no person after 1977
6 shall in any way alter a critical area without
7 first obtaining a permit?

8 A: Yes.

9 Q: And would you agree that a permit is required
10 any time a project affects the critical area?

11 A: No.

12 Q: What types of effects on the critical area do
13 you contend do not require a permit?

14 A: Well, there's certain exceptions to requiring a
15 permit in the critical area. So it would
16 depend on the activity.

17 Q: Okay. When you say exceptions, are you
18 referring to the various list of exceptions
19 that are listed right there in Section 130?

20 A: 48-39-130-D, yes.

21 Q: Okay. And those list the exceptions that
22 you're talking about?

23 A: Yes.

24 Q: Okay. But with -- other than those limited
25 exceptions, would you agree that any permit



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1 activity that has an effect on the critical
2 area would require a critical area permit other
3 than those exceptions?

4 A: I would say that any effect as in that fill,
5 remove drain, dredged drain, erect any
6 structure on it or in any way alter the
7 critical area is in effect.

8 Q: Okay. And you would agree that the statute
9 says erect any structure or in any way alter,
10 correct?

11 A: That's what the statute says, yes.

12 Q: Okay. So all your testimony talking about how
13 many times in the race, you're talking about a
14 structure, you would agree that the basic
15 prohibition with regard to the critical area is
16 either structure or in any way altering the
17 critical area, is that correct?

18 A: That's what the statute says, yes.

19 Q: Okay. Would you agree that adding land to the
20 critical area affects the critical area or it
21 alters the critical area?

22 A: What do you mean by adding land?

23 Q: Well, if you have say for instance, a
24 freshwater lake and you then add that
25 freshwater lake to the critical area, would you



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1 agree that that alters the critical area by
2 adding that acreage?

3 A: No.

4 Q: Why?

5 A: Are you saying adding, I mean you're talking
6 about the dike breaking and so that area that
7 was previously impounded is now more exposed to
8 tidal waters; is that what you mean by -- is
9 that what you mean by adding land? I'm not
10 sure I understand your question.

11 Q: That's the context of which I'm asking that
12 question. When the dike breached, did not the
13 area of the lake become tidal?

14 A: I think it's exposed more to tidal flow, yes.

15 Q: Okay. Are you saying is it your understanding
16 with the breach in the dike the tides flow in
17 and out of that lakebed?

18 A: Yes.

19 Q: Okay. And would you agree that when the tides
20 flow, all tidal areas by definition in this
21 statute are part of the critical area?

22 A: Yes,

23 Q: And would you agree that before the breach in
24 the dike, that area was not part of the tidal
25 area and not part of the critical zone?



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1 A: No.

2 Q: Why?

3 A: From my understanding, I believe it still had
4 some tidal influence and it still had a degree
5 of salinity where there is saltwater
6 vegetation. And if you'll look at our
7 definition of our tidelands, it talks about
8 coastal -- it talks about saltwaters and
9 connections whether they're artificial
10 connections or not, they're still considered a
11 critical area.

12 Q: Okay. You're proceeding on the assumption that
13 wetlands in this area were saltwater wetlands,
14 the wetlands adjacent to the lake?

15 A: The wetlands adjacent to the lake? No, you
16 asked about the lakebed, not the wetlands
17 adjacent to the lake. Now, if we're talking
18 about the wetlands adjacent to the lake, as Mr.
19 Madlinger testified earlier, there's a
20 transition to black needle rush. And then as
21 you go, I believe there's a canal that connects
22 to a wetland just below a pond from the golf
23 course. Now that is freshwater wetland.

24 Q: Tell the Court what your assumption is with
25 regard to whether this lake was primarily a



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1 freshwater lake or primarily a saltwater basin.
2 A: Your Honor, my understanding of this system
3 prior to the break in the dam is that there's
4 different degrees of salinity. A typically .05
5 or less is freshwater. Then you have .05, the
6 three percent, which is brackish water which
7 has some salinity in it and then you have
8 everything that's greater than 3.5 percent,
9 which was the saline salt waters. My
10 understanding is the water inside the dike had
11 enough saline in it to support a critical area
12 of vegetation. Therefore, and if you'd like,
13 I can read that definition to you. That would
14 be classified as critical area waters within
15 the dike. Now, that's not addressing adjacent
16 wetlands to the actual lakebed itself.

17 Q: Are you aware that the US Army Corps of
18 Engineers went out to the site and went out to
19 the lake and looked at the wetlands that are
20 along the south side of the lake and determined
21 that all of those were freshwater wetlands?

22 A: Which ones?

23 Q: All of the wetlands, there are four wetlands
24 along the south side of the lake.

25 A: Adjacent to the lake?



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1 Q: Not adjacent, part of -- let me show you a map.
2 I'm handing you what's been marked as Exhibit
3 73 and let's just deal for a minute with the
4 very first wetland that's closest to the dike.
5 Do you recognize a wetland area here that
6 comprises a fifth of an acre that is an
7 indentation right immediately adjacent to the
8 dike?

9 A: Let me get my orientation first. Where's the
10 dike?

11 Q: Right here (indicating).

12 A: Okay. Okay.

13 Q: And do you see on Exhibit 73 that that has been
14 determined by the Corps of Engineers to be a
15 5th of an acre of freshwater wetlands?

16 A: Is this a determination? I mean, do you have
17 a letter saying it is? Do you have a Corps
18 determination?

19 Q: Yes.

20 A: Can I see that, please?

21 Q: Sure. Do you want the letter as well as the
22 drawing or can we just have counsel agree that
23 prior witnesses have established that Exhibit
24 84 is the chart that reflects the determination
25 of the Corps of Engineers?



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1 A: No, I mean, that's fine.

2 MR. HABER: I think that was addressed to me. This
3 witness hasn't been able to be here during the
4 entire trial as to what was testified to. I
5 will not posit anything. This line of
6 questioning is completely different from my
7 line of questioning. If he intends to go
8 through this line of questioning, he can
9 provide the foundation for that line of
10 questioning.

11 THE COURT: Okay.

12 Q: I'll represent to you that evidence in the case
13 has established that the area depicted on
14 Exhibit 84 as a .201 acre freshwater wetland
15 was a determination that was made by the United
16 States Army Corps of Engineers.

17 A: I agree. And, Your Honor, this is a unique
18 piece of property and there are some properties
19 that will have saltwater and freshwaters. And
20 matter of fact, I just met with the Corps this
21 past week to talk about this but there be, like
22 for instance, say a developer wants to come and
23 develop say a hundred acres and it's adjacent
24 to saltwaters. Well, they have freshwater and
25 saltwaters on that property and some of these



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1 funnels, there's transitional areas where it
2 goes from saltwater to freshwater. So there
3 are incidents that you will have a saltwater
4 system and then it slowly transitions into a
5 freshwater system. So, I mean, yeah, I have no
6 disagreement that that the Corps called that a
7 freshwater.

8 Q: Okay. And I will also tell you that we've had
9 evidence in the case that you could actually
10 kayak into this wetland as a part of the lake
11 and that the waters of the lake fill that
12 wetland.

13 A: Okay.

14 Q: Okay. Would you agree if that is true that the
15 water that is in this freshwater wetland is
16 primarily freshwater? Would you rely on the
17 finding of the US Army Corps of Engineers, that
18 that is in fact a freshwater wetland?

19 A: Yes. And, again, they explain that to you.
20 These transitional areas, we kind of work with
21 the Corps on, that there will be a line that
22 the Department will say okay, this is a
23 critical area and then the Corps will determine
24 the rest as freshwater area. You know, you go
25 back to this is a very -- it's a brackish water



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1 type system that may have a certain degree of
2 salinity.

3 Q: Okay. What is your understanding about the
4 source of freshwater within the lake?

5 A: My understanding that, you know, there's sheet
6 flow from adjacent undeveloped property.
7 There's drainage that comes in from the golf
8 course through a canal in the north end and
9 then I think also there's drainage that comes
10 in from the adjacent development.

11 Q: Okay. So there is, you would agree, a fairly
12 substantial flow of freshwater into this
13 lakebed?

14 A: Yes.

15 Q: Okay. And would you agree that having all of
16 the wetlands adjacent to the lake being
17 determined to be freshwater wetlands, would be
18 some indication that the lake itself was also
19 freshwater?

20 **MR. HABER:** Asked and answered.

21 A: No, sir.

22 Q: And what is your basis for that?

23 A: Again, there are areas that are unique and that
24 are transitional areas. You can go from salt
25 to brackish to freshwater and the Corps'



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1 limitations on the freshwater stop -- they're
2 stopped. They're not calling the actual lake
3 itself freshwater.

4 Q: Okay. Take a look, again, at Exhibit 73. Do
5 you see the elevations that are indicated on
6 that chart in the areas of the freshwater?

7 A: I do see some elevations.

8 Q: Okay. Would you agree that those elevations
9 for the most part would show an elevation of
10 five feet or below for the freshwater wetland
11 areas?

12 A: I do see one little concord that says five
13 feet.

14 Q: Okay.

15 A: I don't see anything else that would indicate
16 that it's below five feet, though.

17 Q: Would you agree that that would indicate that
18 that particular finger pier that you're looking
19 at, the one closest to the dike, is completely
20 filled with lake water because there are no
21 other contours?

22 A: I don't -- I don't think this gives me enough
23 information to make that. I mean, you can
24 assume that, but I don't think it gives enough
25 information to make that fact, determination.



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1 Q: Would you agree that if that finger was filled
2 with lake water, that the diagram would not
3 show the contours within that finger?

4 MR. HABER: Objection. I think it's speculation.
5 He said there wasn't enough information for
6 that already for that ---

7 A: Yeah, I don't ---

8 THE COURT: Well, I'm going to see if he can, he can
9 answer to the best of his ability.

10 Q: When you spoke of reviewing as a part of a
11 permitting process, the purpose for impounding
12 or re-impounding a dike, would avoiding tidal
13 flows on residential properties that had been
14 platted 25 years ago and contain home sites be
15 a consideration that you would take into
16 account in such a process?

17 A: If we were to receive a critical area permit
18 application and that was the purpose, we would
19 consider that under that request. But we would
20 also see what other alternatives were available
21 to serve that purpose.

22 Q: To serve the purpose of avoiding tidal flows on
23 the property of the residents?

24 A: Yes.

25 Q: Okay. Would you agree that if there was no way



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1 that other than re-impounding the dike, that
2 that would be a strong consideration for
3 considering the re-impoundment after you look
4 at all of the other factors?

5 A: We would take that into consideration, yes.

6 Q: Okay. You testified that your section did not
7 issue a coastal zone consistency determination
8 with regard to the retrofit, is that right?

9 A: That's correct.

10 Q: Okay. The way your department works, does it
11 today have exclusive control of issuing those
12 coastal zone consistency determinations?

13 A: Yes, not my section. The Department, DHEC
14 does.

15 Q: Okay. Haven't the responsibility for making
16 those determinations been put within a group
17 within your department?

18 A: Your Honor, DHEC's made of different deputares
19 (ph). One of deputares (ph) is the Office of
20 Coastal Resource Management and under OCRM we
21 have a regulatory division. In the regulatory
22 division, we have three sections. We have the
23 enforcement and compliance. We have the
24 coastal zone consistency section and then we
25 have the wetland permitting section. And the



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1 section responsible for issuing coastal zone
2 consistency comes out of the coastal zone
3 consistency section.

4 Q: Okay. Is that a section that Mr. Madlinger
5 works in?

6 A: No, Mr. Madlinger works for me under the
7 wetland permitting section.

8 Q: Do you know who issued the coastal zone
9 consistency determination with regard to the
10 retrofit?

11 A: Not off the top of my head. But from my
12 understanding, that would have come through the
13 stormwater section.

14 Q: Somebody in the stormwater division?

15 A: Yes, at that time.

16 Q: Would you agree that none of these permits that
17 you're talking about for critical area permits
18 would have needed to be obtained in order to
19 fix the break in the dike if it had been
20 undertaken during the period of one of the two
21 repair authorizations issued by OCRM?

22 A: Yes. We issued a maintenance and repair that
23 at the time they could have fixed the dam at
24 the time the maintenance and repair
25 authorization had been issued.



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1 Q: Would you agree that if a repair authorization
2 is effective, then the repairs can go forward
3 without any further permitting?

4 A: No.

5 Q: Okay. And what qualification are you making?

6 A: Well, I mean, if there's anything that's
7 outside the scope of the maintenance and
8 repair, I mean, there's things that come up all
9 the time with maintenance and repairs that
10 people will ask us and if it's outside the
11 scope, then ---

12 Q: No, I'm talking ---

13 MR. HABER: I'd appreciate it if he would allow the
14 witness to finish the answer.

15 THE COURT: Okay. Mr. North, let him complete his
16 answer.

17 MR. NORTH: Well, if we could interrupt him, though.
18 He's going off in a tan... I was going to
19 clarify with my question. I'm not asking for
20 what might happen with other additions.

21 THE COURT: Still let him complete his answer before
22 you clarify.

23 A: I'm saying if it goes outside the actual
24 acknowledgment on the maintenance repair that
25 we did, yes, sir, it may require another type



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1 of authorization.

2 Q: Okay. If they are only proposing to repair
3 exactly what they had to begin with, and
4 there's no additional components or additional
5 requests, would you agree that the repair
6 authorization is all that is required to fix
7 the dike and no further permitting is required?

8 A: For that specific activity, yes.

9 MR. NORTH: I have no further questions, Your Honor.

10 MR. HABER: I just have one, Your Honor.

11 THE COURT: Okay.

12 **MR. WILLIAMS - REDIRECT EXAMINATION BY MR. HABER:**

13 Q: Mr. Williams, what's the difference between a
14 maintenance and repair and a permit in terms of
15 the process?

16 A: Well, maintenance and repair is not a permit.
17 It's just an acknowledgment that the activity
18 that they're doing conforms to our regulatory
19 definition of maintenance and repair. And so
20 if someone wants to do work, we make sure that
21 it meets that regulatory definition of
22 maintenance and repair and then we'll
23 acknowledge that work. Otherwise, if it's
24 outside the scope of that regulatory
25 definition, it requires an individual permit



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1 which then goes through the public comment
2 process and the comment period and evaluation
3 of that activity with the general guidelines,
4 further guidelines and the specific project
5 standards that are applicable.

6 Q: So is there public comment or a notice for
7 maintenance and repair?

8 A: No, there's not.

9 Q: Is there one for a permit?

10 A: Yes, there is.

11 Q: Now, the House has extended, has implemented
12 extension bills. Are you aware of that?

13 A: Yes.

14 Q: Does the Department consider maintenance and
15 repair authorizations to be included under
16 that?

17 A: No.

18 Q: Thank you.

19 **MR. HABER:** No further questions, Your Honor. At
20 this point, Your Honor, the Department would
21 rest.

22 **THE COURT:** Thank you. Thank you. Okay. At this
23 point, the Department is resting, rests its
24 case. We're going to take a break for lunch
25 and we'll come back at -- what time is it now?



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1 Mr. North, your witness will be here at 1:00,
2 right?

3 MR. NORTH: Yes.

4 THE COURT: Okay. We'll re-adjourn at ten after
5 1:00.

6 (Lunch break from 11:52 a.m. until 1:09 p.m.)

7 THE COURT: Mr. North, you can call your witness.

8 MR. NORTH: Thank you, we call Chris Moore.

9 THE COURT: Mr. Moore, if you will come forward.

10 CHRISTOPHER W. MOORE, having been duly sworn, deposes
11 and testifies as follows:

12 COURT REPORTER: State your name for the record.

13 THE WITNESS: Christopher W. Moore.

14 MR. MOORE - DIRECT EXAMINATION BY MR. NORTH:

15 Q: What is your occupation?

16 A: I'm a civil engineer.

17 Q: Okay. And are you licensed by the state of
18 South Carolina?

19 A: I am.

20 Q: Can you describe, for the court, your
21 educational background, and your credentials,
22 as an engineer?

23 A: I graduated from The Citadel in 1996, with a
24 degree in civil engineering, and since then,
25 I've worked at three different engineering



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1 firms, and have practiced civil engineering at
2 all those firms, since 1996.

3 Q: And where are you now employed?

4 A: I'm now employed with Jon Guerri Taylor and
5 Associates.

6 Q: And do you own that firm?

7 A: I do.

8 Q: You have other engineers that you supervise?

9 A: I do.

10 Q: And are you a licensed professional engineer?

11 A: I am.

12 Q: Does the work that you do involve civil
13 projects?

14 A: Yes.

15 Q: Do you -- does it involve designing storm water
16 projects for OCRM approval?

17 A: Yes.

18 Q: Prior to being affiliated with your current
19 employer -- the firm that you own, is that all
20 that you did as an engineer?

21 A: In my -- the two other firms I was with, that
22 is all I did.

23 Q: Okay.

24 A: And at the -- at the -- at Jon Guerri Taylor
25 and Associates, I do all the drainage and civil



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1 projects that our firm gets.

2 Q: Okay. How many of those projects -- how many
3 storm water systems do you think that you have
4 designed, in your career?

5 A: That's hard to say, it could be anywhere from
6 50 -- I mean 75 to 100 plus.

7 Q: Okay. Are the majority -- is the majority of
8 the work that you've done in the coastal
9 counties of South Carolina?

10 A: Yes.

11 Q: Are most of the projects in and around
12 Saltwater?

13 A: Yes.

14 Q: Are you familiar with the rules, regulations
15 and statutes that relate to development and
16 control -- development of projects and the
17 implementation of storm water requirements?

18 A: I am.

19 Q: Can you tell us some of the projects you've had
20 in and around tidal areas?

21 A: We, at Jon Guerry Taylor and Associates, we
22 specialize in marine, coast and water front,
23 in civil engineering projects, so nearly every
24 project that we deal with is on the water, or
25 associated with the water, in some way or



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1 another, so I would say about 90 percent of the
2 projects, 95 percent of the projects that we
3 deal with.

4 Q: Okay. And as a part of that, you represent
5 cities and towns?

6 A: We do.

7 Q: And as a part of your work as an engineer, have
8 you been hired, in the past, by Ms. Shahid's
9 firm, as an expert witness?

10 A: My firm has, I have not.

11 Q: Okay. The people that you supervise have been
12 hired?

13 A: My partner, I believe, has -- has dealt with
14 her, yes.

15 MR. NORTH: Okay. Your -- Your Honor, I'd ask that
16 the court find this witness qualified as an
17 expert.

18 MR. HABER: Your Honor, would you clarify as to the
19 dimensions of what his area of expertise would
20 be?

21 THE COURT: Could you?

22 MR. NORTH: Yes, an expert in the design
23 requirements of storm water systems, and the
24 regulations, rules and requirements, relating
25 to storm water systems.



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1 **MR. HABER:** The regulations are very broad, in terms
2 of what would be utilized to apply those
3 regulations, and the evaluations that would
4 come into play, and the fact that you've been
5 applying those regulations would also, in my
6 mind, require some -- some other areas of
7 expertise. I could agree to have him admitted
8 as an expert in engineering, and then, if an
9 issue does arise that I believe will be outside
10 of his scope of expertise, I could level with
11 an objection at that point, but if that would
12 be okay, Your Honor.

13 **THE COURT:** Mr. North, again, tell me, what areas are
14 you asking he be qualified in?

15 **MR. NORTH:** Let me ask one additional question of the
16 witness, that might assist with this issue,
17 that the court is presented with. May I ask
18 him one additional?

19 **THE COURT:** Yes.

20 **Q:** Mr. Moore, in your work, of designing storm
21 water systems, in and around critical areas of
22 South Carolina, are you required, in making
23 those designs, to comply with all applicable
24 regulations?

25 **A:** Yes.



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1 Q: And are you familiar with those regulations and
2 know how they are to be applied, in the context
3 of storm water design and management?

4 A: I am.

5 MR. NORTH: That's all, Your Honor.

6 MR. HABER: Your Honor, I would simply say that they
7 be constrained to the applications of solely
8 storm water regulations, and doesn't involve
9 the application of other areas of expertise
10 into making such determinations. I'm not sure
11 if that last question cleared up my issue.

12 MR. NORTH: Your Honor, on a Friday afternoon, I
13 believe we need to make people happy. What if
14 I qualify my request to eliminate him as an
15 expert in anything having to do with critical
16 area issues, is that what you're worried about?

17 MR. HABER: Critical area issues, wetland issues,
18 things of that sort.

19 MR. NORTH: But not storm water issues.

20 MR. HABER: As to the low engineering side of storm
21 water issues, I would have no problem with
22 that.

23 THE COURT: Yes, Ms. Shahid?

24 MS. SHAHID: I'd just like a little bit of limited
25 voir dire, before you qualify him.



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1 THE COURT: Okay.

2 MR. HABER: Thank you, Your Honor.

3 MR. MOORE - VOIR DIRE EXAMINATION BY MS. SHAHID

4 Q: Mr. Moore, do you remember when I took your
5 deposition?

6 A: I do.

7 Q: I inquired into your work experience ---

8 A: Yes.

9 Q: --- and qualifications. And you've been at
10 Jon Guerry Taylor since 2000?

11 A: Correct.

12 Q: So you've worked at Jon Guerry Taylor for
13 approximately 14 years?

14 A: Correct

15 Q: And at Jon Guerry Taylor, your primary focus is
16 on marine and coastal waterfront engineering
17 projects?

18 A: That's the majority of our work, yes.

19 Q: And when you say marine, that specific
20 description means marina type facilities, is
21 that correct?

22 A: Anything dealing with the water.

23 Q: Okay.

24 A: So, it could be bulkheads, marinas, piers.

25 Q: Okay.



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1 A: Anything dealing with the water, whether it be
2 freshwater, saltwater.

3 Q: And the bulk of your work at JGT, since 2000,
4 has not been subdivision design, correct?

5 A: It has not been the bulk. I do handle all the
6 -- all that type of civil design that comes in
7 our office.

8 Q: Okay. But the majority of your work is marina
9 construction, or water ---

10 A: It's water ---

11 Q: --- marine related ---

12 A: --- water related engineering, yes.

13 **MS. SHAHID:** Your Honor, I think, clearly, he's -- if
14 I can speak, at this point?

15 **THE COURT:** Yes.

16 **MS. SHAHID:** I think, clearly, he is an expert, by
17 virtue of his professional license, and he's an
18 expert in civil engineering, which encompasses
19 storm water management, but when you take it a
20 step further, as Mr. North did, to provide
21 specific expertise in storm water management, I
22 think my voir dire at least, the information I
23 acquired in the deposition doesn't make me that
24 comfortable with that, because the bulk of his
25 work has not been subdivision design, so I'm



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1 very willing to recognize that he has the same
2 credentials that my expert had, but taking it
3 that step further -- and civil engineering does
4 include storm water design, but taking one step
5 further, to say he's an expert in storm water
6 design is -- I'm not quite sure that we've
7 established that, and unless it's storm water
8 design with regard to marine type facilities.

9 **THE COURT:** Mr. North, would you like to ask him some
10 additional questions, so that we can clearly?

11 **MR. NORTH:** Yes.

12 **MR. MOORE - CONTINUED DIRECT EXAMINATION BY MR. NORTH**

13 Q: Would it be fair to say that designing marinas
14 is a small part of the work that you've done in
15 your career?

16 A: Designing marinas?

17 Q: Yes.

18 A: It would be a smaller part of marina, yes.

19 Q: Okay. And how many different residential
20 development projects have you worked on that --
21 worked on, in the context of storm water?

22 A: In my career?

23 Q: Yes.

24 A: Couple dozen.

25 Q: Okay. And with regard to commercial



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1 developments, are there many others that
2 involve storm water?

3 A: Oh, yes.

4 Q: And how many would you think of?

5 A: Again, a few dozen, yes.

6 Q: Okay. And what about storm water of cities and
7 towns?

8 A: Yes.

9 Q: Do you do the storm water design and work for
10 the city or town of Mount Pleasant?

11 A: We do. We currently have a project with the
12 town of Mount Pleasant right now in storm
13 water.

14 Q: Okay. So, are you saying that out of all the
15 engineers in Charleston, they have selected
16 you, and your firm, to design their storm water
17 needs?

18 A: Correct. This is actually the third phase of
19 this project, so we've been working on this
20 project since 2007.

21 Q: Okay.

22 **MR. NORTH:** Your Honor, I think he's clearly
23 qualified as an expert in these areas.

24 **MR. HABER:** Your Honor?

25 **THE COURT:** Yes?



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1 **MR. HABER:** Could I ask a couple questions, just to
2 follow up?

3 **THE COURT:** Okay.

4 **MR. MOORE - VOIR DIRE EXAMINATION BY MR. HABER**

5 Q: Mr. North -- Mr. North had mentioned to you a
6 project in Mount Pleasant?

7 A: Uh-huh (affirmative response).

8 Q: Is that a drainage improvement project?

9 A: It is a drainage improvement project.

10 Q: Is that necessarily a land disturbing?

11 A: It can be, because we're adding sidewalks, so
12 yes.

13 **MR. HABER:** Your Honor, I still believe, with the
14 same questions, asked by Mr. North, I would
15 concur with Ms. Shahid's terms of expertise in
16 departmental regulations, it's -- in my mind,
17 is almost a thin line, there's a core
18 precedence in terms of agency deference, and
19 agencies' interpretations of deference as to
20 one's expertise in regulations, it's seems as
21 if it's kind of a borderline -- and, I don't --
22 -

23 **THE COURT:** Well, I mean, I'm not going to qualify
24 him as an expert in agency regulation. I mean,
25 he applies those regulations as a part of his



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1 work, and that's recognized, I think, by
2 everyone here.

3 **MR. HABER:** Sure, no problem. Thank you, Your
4 Honor.

5 **MR. NORTH:** Thank you. Do we have that finding,
6 then?

7 **THE COURT:** Yes, I do have -- I can find him
8 qualified as an expert in the area of storm
9 water -- I'm sorry, tell me exactly ---

10 **MR. NORTH:** Storm water design and management.

11 **THE COURT:** Okay.

12 **MR. NORTH:** And the rules and regulations that he
13 must comply with, in designing storm water
14 systems.

15 **THE COURT:** Let's leave out the rules and
16 regulations, let's just find him qualified,
17 otherwise, but, we're going to -- we'll leave
18 out the rules and regulations which, to me,
19 would then imply that he's an expert in
20 department regulations. It's understood that
21 he applies those regulations, as a part of his
22 work, if we can question him on his application
23 of those regulations.

24 **MR. NORTH:** Yes, and I'm sure you are the expert,
25 then, on applying regulations, so, there



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1 shouldn't be a problem.

2 **THE COURT:** Okay.

3 **MR. MOORE - CONTINUED DIRECT EXAMINATION BY MR. NORTH**

4 Q: Did you go to the Cat Island Lake and inspect
5 the physical terrain and the conditions present
6 after the break in the dike?

7 A: I did.

8 Q: Tell me what else you did, in connection with
9 doing work on behalf of the petitioner?

10 A: I looked over the information from the Andrews
11 and Burgess engineering company. The
12 information that they provided on the -- the
13 project, and then I visited the site, took
14 pictures, walked around the site, and reviewed,
15 again, all the documents that were provided to
16 me.

17 Q: Okay. And did you prepare a report of various
18 findings, having to do with the proposed
19 retrofit project?

20 A: I did.

21 Q: And are those findings marked as Exhibit 38, in
22 this proceeding? Let me hand you Exhibit 38,
23 and ask you do you recognize that as a true and
24 correct copy of your report and it's various
25 attachments that you prepared at the request of



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1 Mr. Geer, of OCRM?

2 A: I do.

3 Q: Okay. And do you recall that he contacted you,
4 or somebody from OCRM contacted you and
5 requested that report?

6 A: Correct.

7 Q: Okay. And are the contents of that report true
8 and accurate, as far as you're concerned?

9 A: Yes.

10 Q: Okay.

11 **MR. NORTH:** And, Your Honor, just to clarify, I
12 believe Exhibit 38 is already in evidence, is
13 it not?

14 **THE COURT:** Yes, it's already been marked.

15 **MR. NORTH:** Thank you.

16 Q: Do you recall an issue, in connection with the
17 proposed retrofit that had to do with
18 calculation of the velocity of storm water
19 discharging through the break in the dike
20 during a 10-year storm event?

21 A: I don't remember the -- I remember there being
22 a discrepancy in the discharge into the lake.

23 Q: Okay. Are you talking about the manner in
24 which it's calculated?

25 A: Correct.



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1 Q: Okay. And could you tell the court what that
2 discrepancy was?

3 A: In the original report, in, I believe, 2004,
4 that was the original drainage package for the
5 development, I utilized the lake as storage for
6 the storm water, then in the revision, in, I
7 believe, 2010, 2011, showed that post
8 development, there was actually a reduction in
9 storm water flow into the pond, or what was the
10 pond, for the 10 -- for the 10-year storm, and,
11 I believe, maybe the 25 year storm.

12 Q: Okay. And did that inconsistency -- could you
13 figure out the source of that inconsistency?

14 A: I could not.

15 Q: Okay. Would you agree that unless the post
16 development discharge is slower than -- or less
17 than the pre development discharge, that the
18 water needs to be treated and detained and
19 water quantity controls need to be implemented?

20 MS. SHAHID: Object, Your Honor, Mr. North is
21 leading his own expert witness, suggesting the
22 exact testimony that he wants to elicit from
23 the witness in his answer, and I don't think he
24 should be allowed to lead his expert.

25 THE COURT: Mr. North, you are -- you will refrain



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1 from asking those leading questions, and I
2 contend that he is -- Mr. Moore is capable of,
3 kind of following your line of questioning.

4 Q: Tell the court, if you could, the major
5 defects, in your mind, with regard to the
6 proposed retrofit.

7 A: The issues I see with it, is overall
8 maintenance. In the manufacturer's
9 specifications, they -- it recommends that it
10 be cleaned out four times -- three to four
11 times a year, in addition to certain storm
12 events, where heavy pollutants may be put into
13 it. It has a design life, I believe, of 10 to
14 15 years, and it takes a -- there's -- the
15 portion that takes sediment, but, then, there's
16 another whole portion that takes out the
17 hydrocarbons and the oils, an oil boom has to
18 be installed, also, and maintenance has to be
19 done on that on a regular basis, also.

20 Q: Are these types of filters as efficient as wet
21 detentions, at removing pollutants?

22 A: No.

23 Q: Okay. Do you recall what the percentage
24 removal for sediment was with these filters?

25 A: I believe, from previous testing, it was 74



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1 percent.

2 Q: Okay. And, is that consistent with your
3 recollection of what you saw, when you looked
4 at the -- the material supply?

5 A: Correct.

6 Q: And would you agree that wet detention provides
7 approximately 20 percent better -- better
8 removal of the sediment and pollutants?

9 A: I do.

10 Q: Okay. Have you ever used an in line filter in
11 any of your storm water designs?

12 A: Not for a permanent solution.

13 Q: Are those types of storm water treatments
14 allowed within a half a mile of the coastal
15 zone?

16 A: From my interpretation, no.

17 Q: Okay. Are -- what types of storm water
18 treatment methods are allowed within half a
19 mile of the coastal zone?

20 A: Retention, detention and infiltration.

21 Q: Okay. And if it's not one of those three types
22 of treatment, is it your view that the system
23 does not meet the requirements of the
24 regulations?

25 A: Correct.



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1 Q: I'm going to hand you what's been marked as
2 Exhibit 19. Or, better, I'm going to get a
3 book for you that will give you 19. Would you
4 turn to the page that's marked III-60?

5 A: Okay.

6 Q: I'm directing your attention to the section A.
7 Is it your understanding that all of the storm
8 water of a development within a half a mile of
9 a coastal zone has to be stored?

10 A: Can you repeat that?

11 Q: Yes. Is it your understanding that all
12 projects within a half a mile of a coastal zone
13 have to have their storm water stored?

14 A: Yes.

15 Q: Okay. And would you agree that an in line
16 filter does not store storm water?

17 A: Correct..

18 Q: Now, if a project is with 1000 feet of an
19 oyster bed, what does that require, in your
20 design?

21 A: 1000 feet, they have to take care of the first
22 flush, and store that, and release it over a
23 period of time.

24 Q: Detain or retain, for the 1000 feet?

25 A: For the 1000 feet? It has to be retained and



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1 then released at a slow rate, over 24 hours.

2 Q: Okay. Take a look, if you would, at the last
3 sentence of that first paragraph, in subsection
4 A. You see where it says in addition for those
5 projects that are located within 1000 feet of
6 shellfish beds ---

7 A: Uh-huh (affirmative response).

8 Q: --- the first one and a half inches of run off
9 must be retained on site?

10 A: Correct.

11 Q: Okay. Would you agree, then, that if the
12 retrofit project, the Garfield Park Phase 3, is
13 within 1000 feet of oyster beds, that that
14 requirement would have to be met in a storm
15 water design?

16 A: Correct.

17 Q: Have you, in your work, measured the distance
18 between a development and oyster beds, before?

19 A: We have.

20 Q: Okay. For the most part, is it fair to say,
21 you make that measurement on a straight line
22 basis?

23 A: A lot of times, yes, it all depends on the flow
24 patterns.

25 Q: Okay. Describe, for the court, what you mean



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1 by that?

2 A: You know, it could be ditches, it could be
3 streams, it could be any number of, you know,
4 creeks, whatever.

5 Q: Okay. Now, if I understand you correctly, if
6 storm water is being discharged into a ditch,
7 and it stays in that ditch, would you measure
8 along that ditch toward the oyster beds?

9 A: Yes.

10 Q: Okay. And what if the storm water can flow
11 directly toward the oyster beds, how do you
12 measure that?

13 A: If it flowed directly toward it, in a straight
14 line.

15 Q: Okay. I'm going to hand you what has been
16 marked as Exhibit 72. And I represent to you
17 that this is a document, prepared by Andrews
18 and Burgess, in which various measurements are
19 overlaid onto an aerial view of the Cat Island
20 Lake.

21 A: Uh-huh (affirmative response).

22 Q: You recognize the aerial view of the Cat Island
23 Lake?

24 A: I do.

25 Q: And do you see the various types of



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1 measurements?

2 A: I do.

3 Q: Do you see how some of the measurements are
4 following the contours of a ditch?

5 A: I do.

6 Q: And if the amount of water flowing was confined
7 to that ditch, would you agree with that method
8 of measurement?

9 A: I would.

10 Q: Okay. And if the water wasn't confined to that
11 ditch, would you have a different methodology?

12 A: I would.

13 Q: And what would the different methodology be?

14 A: It would flow in more of a straight line
15 pattern.

16 Q: Okay. Are you saying that once the depth of
17 the water was higher than the top elevation of
18 whatever ditch we're talking about, the water
19 would no longer be controlled by that ditch?

20 A: Correct.

21 Q: Is it your view that the surface water of the
22 Cat Island Lake, from one side of the lake to
23 the other, at high tide, would not jitter bug
24 back and forth, just because there was a ditch
25 on the bottom of the lake?



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1 A: Correct.

2 Q: Getting back to this exhibit, and the method of
3 measuring, do you see where we have a
4 surveyor's mark in segments, running out close
5 to the land of the lake?

6 A: I do.

7 Q: And do you see, also, then, a different
8 measurement, that's more of an arc, toward the
9 lake?

10 A: I do.

11 Q: Okay. Now, if water was up in that finger,
12 where all that starts -- well, actually, let's
13 just ignore what the other people put on there.
14 If the water was at high tide, and the water
15 was up in that fingerlet, how do you believe it
16 would flow toward the dike, on an outgoing
17 tide?

18 A: On an outgoing tide, it would flow in more --
19 in a more direct pass.

20 Q: A path toward the opening in the dike?

21 A: Correct.

22 Q: And once it exited the dike, if the storm
23 water, or the tidal waters, whatever waters
24 draining is higher than the elevation of
25 whatever ditch might be outside the dike, is it



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1 your view that it would flow out and over the
2 surfaces?

3 A: Yes.

4 Q: Okay.

5 **THE COURT:** What is the -- you're referencing a
6 finger thing?

7 **MR. NORTH:** Yes, this finger ---

8 **THE COURT:** Okay.

9 **MR. NORTH:** --- that goes up to the drainage, ---

10 **THE COURT:** Okay.

11 **MR. NORTH:** --- where the storm water discharges.

12 **THE COURT:** Okay. Go on.

13 Q: Okay. If you were going to do a high tide
14 measurement on this property of storm water,
15 that is discharging from up in the end of that
16 finger at the indicate -- at the place where
17 it's got a 24 inch concrete pipe indicated, how
18 do you believe that water would flow just after
19 a high tide?

20 A: It's going to flow toward the break in the
21 dike. It would follow more of a direct path
22 toward the dike.

23 Q: Okay. Is it your view that it would go more in
24 a straight line than the arc that is shown with
25 the arrowheads?



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1 A: Yes.

2 Q: Okay. And once -- at high tide, again, once
3 water exits the dike, the cut in the dike, what
4 influence, if any, would the wind and the tidal
5 direction have on the flow of that storm water?

6 A: Repeat that.

7 Q: Yes, once the water exits the dike ---

8 A: Uh-huh (affirmative response).

9 Q: --- would it be fair to say that it would, at
10 that point in time, also have an impact from
11 whether or not the tide was moving up or down
12 Chowan Creek?

13 A: It would.

14 Q: Okay. And would you agree that, if it was
15 after high tide, but still rather slack ---

16 **MS. SHAHID:** Objection, Your Honor, I think he needs
17 to ask a direct question, and not ask a leading
18 question that dictates the response.

19 **MR. NORTH:** Well, I'm trying to set up different
20 scenarios that he can respond to without
21 suggesting what is answer might be.

22 **THE COURT:** Okay. Go ahead. Overruled.

23 Q: Is it fair to say that there are a number of
24 different things that could determine the exact
25 direction of that flow, once it exits the cut



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1 in the dike?

2 A: Yes.

3 Q: And is the incoming and outgoing tide one of
4 those things?

5 A: Definitely.

6 Q: Okay. So, is it possible, on an outgoing tide,
7 that the waters could go at an angle, down
8 toward the Atlantic Ocean?

9 A: Yes.

10 Q: And is it possible then, that on an incoming
11 tide, it could actually go along the shoreline
12 of Chowan Creek, and go on up toward the docks
13 of the nearby residences?

14 A: Yes.

15 Q: Okay. And can the wind also affect that?

16 A: Yes.

17 Q: Okay. And if there was no wind, and it was
18 just after high tide, but still relatively
19 slack, would you expect the direction of the
20 flow to be just about where they have shown the
21 high tide measurement to end up?

22 MS. SHAHID: Objection, Your Honor, he can ask him
23 where he would expect the direction ---

24 MR. NORTH: Okay. Where would ---

25 MS. SHAHID: --- of the water ---



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1 MR. NORTH: --- you ---

2 MS. SHAHID: --- not to suggest where it is.

3 THE COURT: Agreed.

4 Q: Where would you expect it to end up?

5 A: If you could just repeat the question?

6 Q: If there was no wind ---

7 A: Right.

8 Q: --- and we were just after high tide, and the
9 tide is starting to go out, where would you
10 expect the discharge to go -- in what direction
11 would it go, as it enters Chowan Creek?

12 A: It's just going to go, probably, straight out.

13 Q: Okay. Now, take a look, if you would, at the
14 measurements that relate to the 15 inch
15 concrete pipe, you see a discharge point
16 between lots B3 and B4?

17 A: I do.

18 Q: How would you expect, in a high tide, the
19 water, coming out of that discharge point, to
20 flow to the dike?

21 A: Probably very similar to that.

22 Q: Similar to what?

23 A: In a straight line fashion.

24 Q: Would you expect it to follow, basically, the
25 line of the surveyor?



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1 A: Yes.

2 Q: Okay. Would you agree that, if it was
3 absolutely low tide, and the mud of the lake
4 was exposed, that it would then, some of the
5 water, depending on volume, could follow the
6 trench that may be cut in the bottom of the
7 lake?

8 MS. SHAHID: Objection, Your Honor.

9 MR. HABER: Objection, Your Honor.

10 THE COURT: Sustained.

11 Q: Okay. At low tide, do you think that the
12 direction of the flow, could vary at all?

13 A: Yes.

14 Q: In what way?

15 A: It would -- it's going to go to the lowest
16 point, and depending on the slopes, it's going
17 to travel across the bottom, to the lowest
18 point, which is then channelized, and then
19 flows out through the dike.

20 Q: Okay. And would you expect a different result
21 as the tide increases in height?

22 A: Until that flow no longer became channelized,
23 it would -- as the tide came in, it would
24 change.

25 Q: Okay.. And when you say channelized, are you



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1 talking within the channel?

2 A: Within the cut that -- that is established on
3 the bottom of the pond.

4 Q: Okay. Well, we don't have that measurement
5 here, but it -- let's assume, for purposes of
6 arguments, that the channelized cut was six
7 inches deep.

8 A: Uh-huh (affirmative response).

9 Q: Are you saying that -- at what point in the
10 tidal cycle would the waters quit following the
11 channel?

12 A: It's hard to say, but it would be greater than
13 the six inches.

14 Q: Okay. And if we had three feet of water in the
15 lake as it discharged, what effect, if any, do
16 you believe the channel on the bottom of the
17 lake would have on the direction of the flow of
18 the water on the surface?

19 A: It would be minimized, it would have very
20 little effect.

21 Q: Okay. Were you here, yesterday, when there was
22 some discussion about stabilizing the breach in
23 the dike?

24 A: I was.

25 Q: Okay. Did you have some concerns, from an



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1 engineering standpoint, with what was proposed
2 to be done to the dike?

3 A: I do.

4 Q: What were those concerns?

5 A: My concerns were -- was that the modifications
6 to the dike was everything above the critical
7 line, or above the high tide mark. Stabilizing
8 that is going to, you know, stabilize it for
9 rainfall and things like that, but it's not
10 going to stabilize the rest of the channel
11 during the tide cycle, so over time, that
12 channel could further erode, and then undermine
13 more of the bank, and the stabilization that
14 was done above the critical line.

15 Q: Okay. If somebody were to suggest to you that
16 the area in the middle of the cut, below the
17 critical line, was no longer eroding at the
18 rate it had in the past, would that alleviate
19 your concern?

20 A: No.

21 Q: Why?

22 A: Because, I think, as we've all heard, the
23 coastal area is very dynamic, and I would --
24 you know, over time, it's going to continue to
25 erode; it may not erode as fast as it has up



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1 until this point, but it will continue to
2 erode, and giving different conditions, whether
3 it's a storm, tidal, wind, there could be
4 additional erosion take place.

5 Q: Okay. I'm going to hand you what has been
6 marked as Exhibit 64, and I'll represent to you
7 that this is the final set of plans, submitted
8 by the developer -- or by the POA, to OCRM, in
9 connection to the retrofit. And directing your
10 attention to sheet number four, you see on
11 there a depiction of the cut in the dike?

12 A: I do.

13 Q: And do you also see on there a plan for turf
14 reinforcement?

15 A: I do.

16 Q: Okay. Now, take a look at the turf
17 reinforcement mat, does that indicate to you
18 anything about work below the critical line?

19 A: It does not specifically say anything about the
20 critical line.

21 Q: Okay. Taking a look at the cross section of
22 the cut in the dike; what portion of the area
23 below the critical line are you saying would
24 need attention?

25 A: The critical line is not depicted on this, but,



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1 I would take the -- in order to stabilize it,
2 I would take it all the way down to the bottom,
3 and wrap the entire break in -- to stabilize
4 it, because leaving this part exposed is going
5 to open up for more erosion, that could then
6 undermine the rest of it.

7 **MS. SHAHID:** What part was he gesturing to?

8 **THE WITNESS:** Very bottom.

9 **MS. SHAHID:** Okay.

10 **MR. NORTH:** The very bottom of the cut.

11 **THE WITNESS:** The very bottom of the cut, yes, sir.

12 Q: You're talking about -- you would have it
13 matted all the way to the one foot elevation
14 that's shown on that drawing?

15 A: Correct.

16 Q: And have that matting go all the way up, and
17 intersect with the areas that are above the
18 mean high water mark?

19 A: Correct.

20 Q: Is the mean high water mark roughly the
21 critical area?

22 A: It can vary, but I would say that's a good
23 estimate.

24 Q: Okay. Do you believe that any stabilization of
25 that dike cut, that does not include extending



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1 the protection below the critical area line,
2 would be a flawed design in ---

3 MR. HABER: Objection.

4 Q: --- stabilizing the dike?

5 MR. HABER: He's leading the witness, again, I think
6 he could rephrase that question.

7 MR. NORTH: I'm certainly not suggesting an answer.

8 MR. HABER: Do you believe, as to whether or not ---

9 THE COURT: Yeah.

10 MR. HABER: --- you feel he's leading, Your Honor?

11 MR. NORTH: Okay.

12 THE COURT: He is leading.

13 MR. NORTH: Okay.

14 THE COURT: You need to rephrase the question.

15 Q: I'd be happy to, Your Honor. As a professional
16 engineer that supervises other engineers, what
17 would be your response to somebody that
18 presents you with a plan that does not extend
19 the stabilization techniques down into the
20 water, to control the effects of tidal flows?

21 A: I would say that, you know, that's an area that
22 -- that can still experience erosion, and if it
23 does experience erosion, it could undermine the
24 existing -- what has been already placed there,
25 that would then further -- you know, this



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1 matting would -- could possibly be washed away,
2 or fall in, and then become very ineffective.

3 Q: Okay. Now, do you see on this cross section
4 and indication of the area where the proposed
5 grade stabilizing, using turf reinforcement
6 mat, will be applied?

7 A: I do.

8 Q: And, do you -- describe for the court what that
9 area is?

10 A: It is a sloped bank from the top down to -- it
11 looks like three feet above -- I'm not sure
12 what the reference is, but down to about the
13 three foot mark.

14 Q: Okay. And is that a mark on this drawing that
15 indicates it's below the mean high water mark?

16 A: Yes.

17 Q: Okay. And would that, to you, be work in the
18 critical area?

19 A: It would.

20 Q: Are you familiar with something called an
21 antidegradation rule?

22 A: I -- I'm familiar with it, yes.

23 Q: Okay. In your work, did you determine that
24 there were various aspects of the retrofit
25 project that violated that rule -- that



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1 degraded the waters?

2 A: Yes.

3 Q: Can you tell the court some of the different
4 types of aspects that, in your view, might
5 lessen the quality of the water -- the storm
6 water that is discharged?

7 A: What I saw was with the bottom of the lake, and
8 at low tide levels from the lake's exposed,
9 being at rainfall or additional runoff, could
10 further erode the bottom of the lake that is
11 mostly made up of sediment, from being 50 years
12 of being a pond. There's sediment there from
13 the golf courses, as the water is -- some of
14 the water flows through there, which is full of
15 fertilizers, pesticides, any number of
16 different types of chemicals that are
17 associated with a golf course, in addition to
18 other drainage that could flow through there,
19 and that has settled out, as that was a pond.

20 Q: Okay. And can you think, off the top of your
21 head, of other types -- other aspects of the
22 retrofit that result in a degrading of water
23 quality?

24 A: You know, just with the -- with the in line
25 filters, just how effective they would be, and



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1 in high flow situations, if regular maintenance
2 is not done, you know, the oil booms that
3 collect the hydrocarbons, are those going to --
4 are those, once that oil boom needs to be
5 replaces, is it just going to flow over; is
6 the, you know, if it has not been maintained
7 regularly, if it's going to wash over the
8 sediment, if it's going to wash over any other
9 debris that may be in there, into the pond, and
10 eventually out the dike.

11 Q: Were you made aware of any aspects of these
12 filters that allows for them to simply overflow
13 the filter during periods of high flow?

14 A: Yes.

15 Q: Do you view that as a negative?

16 A: I do.

17 Q: Okay.

18 A: I do.

19 Q: From the standpoint of water quality?

20 A: I do.

21 Q: Okay. If it overflows the filter, what, if
22 any, storm water treatment does the portion
23 that overflows obtain?

24 A: There isn't any.

25 Q: Okay. Is there a degrading of water from the



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1 fact that the drainage basin, then, is no
2 longer detained?

3 A: If the drainage basin -- the drainage basin
4 where the retrofit is, or what portion?

5 Q: Well, if you don't have the dike in place, and
6 instead leave it open, would that result in any
7 degrading of water quality?

8 A: I would say yes.

9 Q: Okay.

10 A: In that -- with the pond there, you'd have
11 flows coming from the golf course, and that's
12 one more layer of sediment to allow some of
13 these, again, pesticides, fertilizers, any
14 number of chemicals that they use in golf
15 courses to be settled out before they enter the
16 -- enter the creek and enter the, you know, the
17 ocean.

18 Q: Okay. With regard to G tract, if you had a
19 10-year storm event, what is your opinion, as
20 to whether or not sediment would be discharged
21 to the lakebed?

22 A: Sediment would be discharged -- sure, there
23 would be.

24 Q: Okay. And if the dike was in place, would it
25 be fair to say that that sediment would be



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1 treated by the detention of the lake?

2 A: It would be.

3 Q: Without the dike in place, would it flow out to
4 the coastal zone?

5 A: Yes.

6 Q: Do you have an opinion as to whether or not
7 allowing tidal flows over the former detention
8 basin to flow into the critical zone has an
9 effect, one way or another?

10 A: To allow the tidal flows -- repeat it, one more
11 time?

12 Q: Yes, do you have an opinion as to whether or
13 not allowing tidal flows to now go back and
14 forth, across the bottom of the former
15 detention basin, has an effect on the critical
16 area?

17 A: You know, you're exposing yourself, again, to
18 50 years of sediment that has accumulated in
19 that pond, you know, once further erosion can
20 take place, you know, all that -- all that is
21 just going to be washed out into the creek, and
22 other areas of the critical area.

23 Q: Take a look, if you would, at Exhibit 1. And
24 within Exhibit 1, if you could turn ---

25 A: Actually, I don't have Exhibit 1.



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1 Q: Okay. If you could turn to page 30?

2 A: Okay.

3 Q: Okay. Do you recognize page 30 as one of the
4 photographs provided to you by the petitioners
5 of the bottom of their mud pit?

6 A: I do.

7 Q: Do you have an opinion as to whether or not
8 that material, as depicted, is a stabilized
9 surface?

10 A: It is made up of very -- you know, it's
11 sediment, so it's very fine, which to me lends
12 itself to be not very stable, because it does
13 not take much velocity or flow to break it
14 loose.

15 Q: Okay. Were you here yesterday when there was
16 some discussion about anything under five feet
17 per second over a stabilized surface could be
18 non erosive?

19 A: Yes.

20 Q: Do you have an opinion as to whether or not
21 material such as that depicted on page 30,
22 would be erosive at a lower speed?

23 A: Oh, definitely.

24 Q: Okay. And what is that opinion?

25 A: That just the make up of that material, the



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1 very fine particles that are very light, where
2 it doesn't need much velocity to break it
3 loose, and carry it down the stream.

4 Q: Okay. And were you here yesterday, when there
5 was discussion of Mr. Lyle doing a calculation
6 of the discharge velocity of a 10-year storm
7 event?

8 A: I was.

9 Q: And do you recall his testimony, that his
10 calculations showed that it was just something
11 slightly less than four feet per second?

12 A: Yes.

13 Q: Okay. Would you believe that that velocity,
14 over material such as that depicted on page 30,
15 would be erosive?

16 A: I do.

17 Q: Now, with regard to that calculation, do you
18 have an opinion as to whether there is a
19 difference in the velocity between calculating
20 that velocity at a mean high high tide, as
21 opposed to a time when there was no ocean water
22 in the lakebed?

23 A: Yes.

24 Q: And what is that opinion?

25 A: That when the mean high tide, the -- the



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- 1 velocity would dissipate and would just
2 dissipate into the -- the back flow of the
3 water; at a low tide, where there is no water
4 there, it would just flow free and would
5 continue at whatever velocity, based on slope,
6 and how it was channelized.
- 7 Q: Would you expect a velocity at a low tide to be
8 greater or lesser than discharging into the
9 ocean at a high high tide?
- 10 A: It would be greater.
- 11 Q: Significantly greater?
- 12 A: It would -- it would be a free flow situation,
13 so it would be -- it would definitely be
14 greater, because with a -- in a back flow
15 situation, it's there, it's dissipated at --
16 and it's able to be fanned out, wherein this,
17 it comes out and it's -- it's channelized,
18 which has a greater flow rate or a greater
19 velocity, once it's channelized than if it's
20 just dissipated.
- 21 Q: Okay. In your opinion, would it's rate of
22 discharge exceed five feet per second?
- 23 A: In a channel ---
- 24 Q: And in a low tide.
- 25 A: In a low tide, in a channelized situation,



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1 possibly, yes.

2 Q: What would you have to do to calculate it's
3 discharge velocity?

4 A: You would look at the flow, the slope, and the
5 channel in which it's flowing, the confines it.

6 Q: Is a part of your work that you study whether
7 or not Tabby Park was being treated for
8 detention by the Cat Island Lake?

9 A: Yes, I looked at that.

10 Q: Okay. And what did you do, and what did you
11 find?

12 A: The area was flowing through the lake, and
13 based off of the pipes that we saw running in
14 -- that I saw running in, it was -- it was not
15 being treated for water quantity. It was being
16 discharged into the lake where there was no
17 control structure in those areas, the only
18 control structure was at this lake.

19 Q: Do you consider pipes connecting the golf
20 course lagoons underground to be control
21 structures?

22 A: They can be.

23 Q: Okay. Do you think that, if they were
24 functioning as a control structure, that they
25 would meet the requirements for a detention



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1 structure.

2 A: Possibly, depending on their size and the
3 amount of water that was flowing through them.

4 Q: Okay. In the context of the Tabby Park pipes,
5 do you have an opinion as to whether or not
6 that with those pipes, they would function as
7 a detention structure that meets the regs?

8 A: These are the large pipes?

9 Q: Yes.

10 A: They would not -- I believe they are 36 inch
11 pipes, I believe. Those pipes are large
12 drainage pipes, and can flow a lot of water, so
13 until the flow rate coming in exceeds the
14 capacity of those pipes, it will free flow.

15 Q: Okay. Is there a requirement that a detention
16 structure release, at a controlled rate, over
17 24 hours?

18 A: There is.

19 Q: Okay. Would you -- do you have an opinion as
20 to whether or not these pipes could detain
21 storm waters and release them in a controlled
22 manner over 24 hours? The pipes in Tabby Park.

23 A: No.

24 Q: They could not?

25 A: No.



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1 Q: Okay. I'm handing you what has been marked as
2 Exhibit 79. Do you recognize that as the
3 portion of the golf course lagoons that begin
4 draining across some wetlands, into the lake?

5 A: I do.

6 Q: I represent to you that there has been
7 testimony that the edge of that lake is an
8 earthen spillway. In your opinion, does the
9 edge of that lake have the capacity to detain
10 a 10-year storm event, and to release it in a
11 controlled manner over 24 hours?

12 A: As an earthen spillway of this size, there are
13 a lot of factors -- it possibly could, but the
14 -- but yet, it possibly could not, based on it
15 -- based on the size of it.

16 Q: Tell me the factors that you're thinking of.

17 A: The amount of water flowing through it.

18 Q: Okay.

19 A: The size of it, the vegetation, but in general,
20 you know, these are designed to -- when there
21 are spillways like this, they're designed to
22 hit a certain mark and then spill over. They
23 are not necessarily designed to -- a lot of
24 times, in these type of situations, you have a
25 lower section that is smaller and then a more



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1 level section, so when it starts to spill over,
2 there is a small section that -- that will
3 release over time, and while the sides is there
4 for greater spillway. This from what I've
5 seen, does not have that, so it would all
6 release at the same time, and not necessarily
7 would release over a period of -- it would
8 release over a period of time, but whether or
9 not it was 24 hours or not, is ...

10 Q: Would you agree that the edge of a pond is not
11 a structure?

12 A: Correct.

13 Q: And would you agree that it's not a detention
14 structure?

15 A: Correct.

16 Q: And is there anything about that picture, or
17 the edge of that pond, that would make it
18 release water at a controlled rate?

19 A: No.

20 Q: And in your observation, did you see the water
21 flowing directly and constantly out of the edge
22 of that pond and into wetlands to the lake?

23 A: I did, I did.

24 Q: Without free board, do you believe that that
25 golf course lagoon could detain a 10 hour storm



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1 event and slowly release it over a 24 hour
2 period?

3 A: Without free board, no.

4 Q: Okay. And, in your observation of the Tabby
5 Park lagoons and this particular pond,
6 specifically, was there any free board there
7 that would enable it to retain a 10-year storm
8 event and discharge it over 24 hours?

9 A: Not that I saw.

10 Q: Do you have an opinion as to whether or not
11 Tabby Park relied upon the lake for it's
12 detention? The lake and it's outfall device?

13 A: This lake, or the ---

14 Q: No, no, I'm sorry, the Cat Island Lake.

15 A: Oh. That's the only controlled structure that
16 there was, with water -- with discharge flowing
17 into that lake, there was reliance on that
18 outfall structure.

19 Q: Did you review the development files for Tabby
20 Park?

21 A: I did, yes.

22 Q: Okay. Did you see any reference in there to
23 the storm water being treated by the lagoon
24 system?

25 A: I didn't -- you know, there is a lagoon system,



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1 there were no out -- there were no control
2 structures, other than pipes.

3 Q: Was there anything in that file that indicated
4 the Cat Island Lake was not part of the lagoon
5 system?

6 A: I did not see anything like that.

7 Q: Did your file indicate that Tabby Park was, in
8 fact, developed after the effective -- after
9 1992?

10 A: I honestly can't recall.

11 Q: Let's -- let's assume, for purposes of my
12 question that it was.

13 A: Okay.

14 Q: And that the regulations apply. If the Cat
15 Island dike is not put back into place with its
16 detention structure, do you have an opinion as
17 to whether or not there is any storm water
18 treatment by detention, from those golf course
19 lagoons that would meet the requirements of the
20 regulations?

21 A: If it was developed after, then I would say no.

22 Q: Okay. Do you have an opinion as to whether the
23 Cat Island Lake, with the dike in place, can be
24 considered to function as a retention pond?

25 A: Yes.



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1 Q: And what's that opinion?

2 A: Based on the elevation of the flashboard risers
3 in the control dike -- in the control
4 structure, you know, there may -- the water
5 level may be below those, so there is retention
6 that can occur on, you know, during storm
7 events.

8 Q: Okay. Are you referring to periods, say for
9 instance, of drought, where the water level of
10 the lake drops?

11 A: Yeah, correct.

12 Q: And during those periods, would it function as
13 a retention pond?

14 A: It would.

15 Q: Let's assume for a minute that the level of the
16 lake was all the way up to the top of the riser
17 boards.

18 A: Okay.

19 Q: Is it fair to say that it would not technically
20 meet the definition of a retention pond?

21 A: There's a vague area in there, because
22 depending on the amount of water that comes in
23 in the sides of the lake, it may have a very
24 small impact on the lake, so the amount of
25 water coming in may not affect the water level



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1 that great, but yes, it could.

2 Q: Are you aware of any special considerations
3 with regard to storm water discharges from golf
4 courses?

5 A: Right off hand, I'm not -- I can't recall any,
6 I don't have the regulations right in front of
7 me, so ...

8 Q: Okay. I have no further questions.

9 MR. MOORE - CROSS EXAMINATION BY MR. HABER

10 Q: Thank you. Good afternoon, Mr. Moore. I just
11 have a question about some of your testimony.

12 A: Okay.

13 Q: Does a 10-year storm have to be released over
14 a 24 hour period?

15 A: No, it does not ---

16 Q: That's ---

17 A: --- only -- only the first flush.

18 Q: So when Mr. North asked you whether or not a
19 certain pond would release a 10-year storm over
20 a 24 hour period, that's not something that
21 you're familiar that would be required, under
22 the regulations?

23 A: It's required that it's released -- the first,
24 either inch or half inch, or depending on its
25 location, has to be released over a 24 hour



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1 period.

2 Q: Okay. And you ---

3 A: So the -- so the entire pond does not, or all
4 -- all the drainage does not, but the first
5 flush does.

6 Q: Okay. Now, I can understand some confusion as
7 detention and retention are very close and they
8 have very separate meanings, would that be
9 correct?

10 A: Yes.

11 Q: Okay. And definitions under the regulations,
12 as well, would that be correct?

13 A: Yes.

14 Q: Okay. So, I want to -- I'd ask -- I'm going to
15 ask for a clarifier, based on your testimony
16 earlier. When referencing the 1000 foot issue
17 as set forth in the policies and procedures,
18 your reply to Mr. North was that it would have
19 to -- if it was located within 1000 feet of
20 shellfish it would have to retain and that
21 water would be released over time?

22 A: Right.

23 Q: Now, as a clarifier, does retention mean either
24 infiltration or evaporation?

25 A: Retain, it would encompass those.



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1 Q: And per the department's regs it would say
2 that, is that correct, under retention
3 structure?

4 A: Under retention structure, it could be -- as
5 long as it is released over a 24 hour period,
6 it could evaporate, it could in -- it could
7 infiltrate, it could be released through the
8 outfall structure.

9 Q: That's the difference, correct, between a
10 detention structure and a retention structure;
11 the detention structure would be released over
12 time, is that correct? And then the retention
13 structure, that release of time would either be
14 infiltration or evaporation, ---

15 A: Well, ---

16 Q: --- is that correct?

17 A: --- correct. And there is a difference between
18 a retention structure and a detention structure
19 and I believe during -- through that regulation
20 it has to be retained and released over a 24
21 hour period, so if there is a retention pond is
22 different than a detention pond.

23 Q: Now, I'll read to you the -- the part in this
24 regulation, under -- it defines retention
25 structure. It means a permanent structure



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1 whose primary purpose is to permanently store
2 a given volume of water -- of storm water
3 runoff. Release of that given volume is by
4 infiltration and/or evaporation.

5 A: Correct.

6 Q: Is that correct? Now, you had stated that what
7 has been referred, continually, through out
8 this matter as a detention basin could possibly
9 function as a retention basin, do you remember
10 that, or a retention structure?

11 A: Correct.

12 Q: It could possibly not, as well, is that
13 correct?

14 A: Correct. It depends on the location of the
15 outfall.

16 Q: And you would have to analyze many factors?

17 A: Right.

18 Q: You and Mr. North had gone through a kind of
19 split screen diagram of what the breach in the
20 dike looks like, do you recall that?

21 A: Uh-huh (affirmative response).

22 Q: Who owns the dike?

23 A: I believe it's a -- I believe it's the
24 developer, I'm not -- I'm not exactly sure who
25 owns the dike.



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1 Q: Do you know whether or not there is a condition
2 on the storm water permit that if any
3 alteration was to occur to the critical area
4 you would have to achieve a -- to receive a
5 department of critical area permit?

6 A: I have -- I've heard of that, yes.

7 Q: In your history of dealing with the department,
8 are you typically aware that is a condition
9 that is ---

10 A: Yes.

11 Q: --- part of just about any of them, is that
12 correct?

13 A: That is correct.

14 Q: And do you understand that to be the same on a
15 coastal zone consistency determination?

16 A: Uh-huh (affirmative response).

17 Q: Do you know if a critical area permit was
18 applied for, in this?

19 A: I'm not -- I'm not sure.

20 Q: Do you know of any -- if you're working on a
21 site and you alter the critical area, under a
22 storm water permit and you haven't received a
23 critical area permit, do you know if there
24 would be possible repercussions for that?

25 A: Oh, definitely.



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- 1 Q: Okay. So it would be fair to say that it would
2 be advantageous for someone if they are going
3 to alter the critical area put a riprap or
4 something out there, then that they probably
5 should receive a departmental permit?
- 6 A: Yes. Yeah, they have -- storm water permit,
7 and a critical area permit are two different
8 things.
- 9 Q: Sure. Now, in your job you deal with the
10 department on permitting matters now and in the
11 past, is that correct?
- 12 A: Uh-huh (affirmative response).
- 13 Q: Would it be safe to say you're familiar with
14 the permitting process, when comments are
15 received?
- 16 A: I am.
- 17 Q: Typically, a project manager would evaluate
18 those comments, initially?
- 19 A: (Nods head affirmatively.)
- 20 Q: He or she might send those to other sections
21 where those -- where those comments might
22 address their particular area of focus?
- 23 A: Yes.
- 24 Q: Okay. Do they also send it out to perhaps
25 other resource agencies to address some



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1 concerns that might have been raised?

2 A: They do.

3 Q: They also send it back, say, to you, if you
4 were an applicant or representing an applicant,
5 back out to you for comment?

6 A: That's correct.

7 Q: And those are all in response to comments that
8 are received, is that correct?

9 A: Yes.

10 Q: Okay. So, it would be your experience that the
11 -- that comments are also received from the
12 public?

13 A: That is correct.

14 Q: Petitioners in this situation, that typically,
15 if they comment on a permit that that would
16 also go back out to you, to address an issue
17 perhaps?

18 A: That's correct. It's put on public notice and
19 it is also sent to agents and property owners.

20 Q: And that, essentially, would go through the
21 same process as if an engineer or anybody else
22 remitting comments regarding the project, is
23 that correct?

24 A: Yes.

25 Q: Okay. Now, I believe this has been labeled as



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1 Petitioners 38, is that correct? It should be
2 the report you had submitted?

3 A: Okay. I don't have it in front of me.

4 **MR. HABER:** I think it's -- if I may approach, Your
5 Honor, I apologize.

6 **THE COURT:** Yes.

7 Q: I think that might be it. It's on a binder.
8 That goes to 20. There we go. Okay.

9 A: Okay.

10 Q: Is this a report you were asked to create?

11 A: It was.

12 Q: Or, I guess, hired to create?

13 A: Correct.

14 Q: I presume you didn't do this pro bono?

15 A: No.

16 Q: To be clear, in your deposition, you had
17 testified you had been to this site one time?

18 A: Correct.

19 Q: And that was in 2011?

20 A: I believe so, based on the date of this I can't
21 remember the exact date, but yes.

22 Q: And the purpose of this report, is it correct
23 for the department to utilize and review for
24 evaluation the permit at issue in this -- in
25 this matter?



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1 A: Correct.

2 Q: And this is your company's letterhead at the
3 top?

4 A: It is.

5 Q: Is your signature at the end of this document?

6 A: Yes.

7 Q: And you had testified, at your deposition, that
8 you and someone name Megan Dove created this
9 document?

10 A: That's correct.

11 Q: In section eight of this document -- I don't
12 think mine has the page number, but it would be
13 the -- it comes up right before the beginning
14 of section nine. You discussed issues with the
15 repair of the dike, previously?

16 A: Uh-huh (affirmative response).

17 Q: Who did you receive that information from?

18 A: My client.

19 Q: Did you do any investigation into that?

20 A: I was provided, I believe, some documents, but
21 that was ...

22 Q: In number nine of the report you discuss how
23 long the dike has been in place.

24 A: Uh-huh (affirmative response).

25 Q: That says since the 1920s ---



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1 A: Correct.

2 Q: --- sound right? Do you stating in your
3 deposition, you said you had done some Google
4 aerial image searches of the property in
5 question?

6 A: (Nods head affirmatively.)

7 Q: But those Google aerial images don't go back
8 into the 1920s, do they?

9 A: They don't.

10 Q: And so, that information that it was formed in
11 the 1920s -- you can date back a little bit
12 with those Google aerial images, but the rest
13 of the information, it's safe to say, came from
14 Mr. North, is that correct?

15 A: That's correct.

16 Q: Number six in the report you had mentioned that
17 42 trees had died due to encroachment?

18 A: Uh-huh (affirmative response).

19 Q: You state in your deposition that you had done
20 some research in looking at photos and talking
21 with Mr. North, is that correct?

22 A: That's correct.

23 Q: You also state that you have no educational
24 background, in terms of tree -- trees or being
25 an arborist, is that correct?



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1 A: That's correct.

2 Q: Now, again, in number nine you represent -- you
3 discuss the history of the report and you
4 stated previously in this testimony that was,
5 again, information provided to you from the
6 petitioners, correct?

7 A: Uh-huh (affirmative response).

8 Q: Not much research?

9 A: Correct.

10 Q: Section 10 you go on to talk about home and
11 property values, does that sound right?

12 A: Correct.

13 Q: Do you remember stating in your deposition you
14 have no history in evaluation of home or
15 property values?

16 A: I do.

17 Q: Do you recall that you stated that this was
18 just your opinion and you don't remember if any
19 information on this was provided to you by
20 anyone?

21 A: I do.

22 Q: Number 10 of your report you discuss wildlife.
23 You said that you got pictures -- you looked at
24 pictures provided you, from Mr. North, do you
25 recall that?



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1 A: Uh-huh (affirmative response).

2 Q: Now, on number nine of the report you had
3 mentioned ocean waves. We went through a
4 little bit of discussion in that, you -- I
5 believe you had stated, and correct me if I'm
6 wrong, that you may have used the wrong
7 terminology in that, does that sound right?

8 A: That is correct.

9 Q: Okay. And -- but, you said you didn't remember
10 where you got that terminology from, I believe?

11 A: And this was in nine?

12 Q: Uh-huh (affirmative response). Allow --
13 "allowing the ocean waves to enter the lakebed
14 will result in unpredictable erosion issues in
15 an area that has been developed with houses as
16 close as eight feet to the water's edge?"

17 A: Correct.

18 Q: You said you couldn't recall where you got the
19 terminology ocean waves?

20 A: Well there would -- there -- that is correct
21 and I believe in my deposition I said that
22 there are windblown waves ---

23 Q: Uh-huh (affirmative response).

24 A: --- from the ---

25 Q: From the creek?



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1 A: --- from the creek. And there were, because of
2 the fetch, there were larger waves.

3 Q: So, am I to believe that it's just coincidence
4 that throughout the petitioners pleadings,
5 comments to the department, during the review
6 process, information sent to the department's
7 board, information filed with this court, and
8 throughout this -- this matter, that the
9 petitioners have been the only ones referring
10 to this as ocean water or ocean waves, and it
11 merely might be a coincidence that you utilized
12 ocean waves in this?

13 A: That's -- that could -- sure.

14 Q: Now, we had talked about your experience in the
15 permitting process with the agency and the many
16 steps that are required by the department to
17 evaluate comments that are received from the
18 outside, do you recall that?

19 A: Uh-huh (affirmative response).

20 Q: Now, you have put information on your company's
21 letterhead with your signature, with much
22 information that was simply provided to you by
23 someone you are hired to write the report for,
24 is that correct?

25 A: Correct.



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1 Q: Without much research on some of these issues,
2 is that correct?

3 A: Well, we were, you know, we came on board after
4 the dike had failed, so yes, we did not have
5 prior knowledge before the -- when the dike was
6 in place, so we -- yes, we had to go off of
7 what information we could find.

8 Q: But likely, and you testified earlier with me
9 that public comment is treated, essentially,
10 the same as something that's coming in from the
11 -- from an engineer, is that correct?

12 A: Sure.

13 Q: So, if the petitioners are raising similar
14 issues, they are going to be reviewed by the
15 department in all likelihood, is that correct?

16 A: Uh-huh (affirmative response).

17 Q: So, if you found it imperative to then
18 resuscitate this information that you had not
19 had an ability to factually verify to the
20 department, for an extensive evaluation, that
21 you knew that was going to occur, is that
22 correct?

23 A: (Shakes head negatively.)

24 Q: So, if I can't say -- this much information
25 that is in here that is unsubstantiated, how



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1 then, can we then touch the credibility to the
2 other sections, that you did evaluate?

3 A: Because much of the other sections are directly
4 engineering related.

5 Q: But, is it under your same company's letterhead
6 ---

7 A: It is.

8 Q: --- and under that same signature?

9 A: It is.

10 Q: No further questions, Your Honor.

11 **MS. SHAHID:** I'll not be that long, I just wanted to
12 see if he needed a break, or not.

13 **THE COURT:** I'm -- let's go on.

14 **MS. SHAHID:** Okay.

15 **MR. MOORE - CROSS EXAMINATION BY MS. SHAHID**

16 Q: You have been out to the site, correct?

17 A: Correct.

18 Q: One time?

19 A: One time.

20 Q: In 2011?

21 A: Yes.

22 Q: And for how long a period of time?

23 A: I believe I was out there for about a half a
24 day.

25 Q: Half a day?



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- 1 A: Uh-huh (affirmative response).
- 2 Q: What tide was in the lake during that half a
- 3 day period?
- 4 A: It was a low tide.
- 5 Q: Okay. And did you watch it become low tide or
- 6 did you watch it convert from low to mid during
- 7 that half day period?
- 8 A: I can't exactly recall the tide cycle, but I
- 9 know I was there during a lower tide.
- 10 Q: Okay. What areas did you inspect?
- 11 A: I walked around the developed area along with
- 12 the golf courses area.
- 13 Q: You walked around an edge of -- well, when you
- 14 say the developed area, you're talking Garfield
- 15 Park Phase 3?
- 16 A: Correct.
- 17 Q: Okay. And where were you in relationship to
- 18 the lakebed during that walk?
- 19 A: There were times when I was right on -- right
- 20 at -- to the edge of it.
- 21 Q: All right. Are there other times when you were
- 22 some distance from it?
- 23 A: Yes.
- 24 Q: Okay. Was the lake always visible to you
- 25 during that walk?

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- 1 A: No.
- 2 Q: Okay. Did you take any measurements?
- 3 A: I did not, not at the time, no.
- 4 Q: All right. Have you since taken measurements
5 within the lakebed?
- 6 A: No.
- 7 Q: Okay. So you did not measure the depth of the
8 channel, the storm water flow path?
- 9 A: No.
- 10 Q: Okay. So, when you're asked questions about
11 assume it is only six inches, that's clearly an
12 assumption?
- 13 A: That is.
- 14 Q: You have no information sitting here today, to
15 provide the court as to actually how deep the
16 channel is?
- 17 A: Not in -- I do not.
- 18 Q: And it's possible the channel could be deep
19 enough to hold the flows for a considerably
20 period -- longer, period of time than you
21 testified?
- 22 A: It's a possibility, yes.
- 23 Q: Talking a little bit about the filters, was it
24 your testimony that they have to be replaced
25 four times a year?

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- 1 A: No. They need maintenance up to four times a
2 year.
- 3 Q: Okay.
- 4 A: Or qualified storm events, I believe is what it
5 was.
- 6 Q: Okay. Now, as a civil engineer that assists
7 municipalities and private clients in obtaining
8 storm water permits, you're aware of the use of
9 BMPs to control storm water?
- 10 A: I am.
- 11 Q: And those BMPs, in many -- in most instances,
12 aren't limited to detention and retention,
13 right?
- 14 A: Correct.
- 15 Q: You've got a variety of other BMPs, correct?
- 16 A: Uh-huh (affirmative response).
- 17 Q: And in fact, haven't we seen in the past decade
18 a lot of development in the field of storm
19 water, with different types of BMPs coming on
20 board and being recommended for use?
- 21 A: Correct.
- 22 Q: Some of that comes to mind is the, just for
23 example, the paving that would absorb water,
24 rather than reject it, correct?
- 25 A: Uh-huh (affirmative response).



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1 Q: Bioswales, things like that?

2 A: Uh-huh (affirmative response).

3 Q: So we have seen some significant development in
4 technology and handling storm water since the
5 '90s, wouldn't you agree?

6 A: I would agree.

7 Q: Okay. And as we develop these products and
8 depart from things like your typical
9 maintenance -- retention and detention, these
10 developed products are going to require
11 maintenance, right?

12 A: That's correct.

13 Q: And yet, you've done design and recommended to
14 clients to use products other than ponds,
15 right, for storm water quality control?

16 A: On a temporary basis, yes, on a permanent
17 basis, no.

18 Q: Okay. But, you're aware that these products
19 are used on a permanent basis -- and I'm not
20 talking about just filters, but I'm talking
21 about water -- products that address water
22 quality issues?

23 A: Sure.

24 Q: They are used on a permanent basis?

25 A: Some are.



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1 Q: Okay. And those products require maintenance,
2 right?

3 A: There are some that do, yes.

4 Q: And the mere fact that a storm water BMP is
5 being installed that requires maintenance, is
6 not a reason to reject the BMP, is it?

7 A: It's not a reason to reject it, but, when you
8 have a pond that is virtually maintenance free
9 -- I don't want to say maintenance free, but
10 has a much -- a lot less maintenance than, you
11 know ...

12 Q: Until it blows out, right?

13 A: Well, until it blows out.

14 Q: Until you lose the dike. And that's a pretty
15 serious maintenance problem, isn't it,
16 repairing and impoundment?

17 A: It can be done.

18 Q: It can be done, but it's pretty significant
19 repair?

20 A: It can be, yes.

21 Q: Now, you testified, under Mr. North's
22 examination, that the only options available --
23 let me pull up the regulations, so I don't put
24 words in your mouth.

25 MS. SHAHID: I'm sorry, Your Honor, I was looking at



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1 the wrong regulation. Here we go.

2 Q: I think what we've been talking about here and
3 the function that that pond served, when the
4 impoundment was in place, was the capturing of
5 the first flush volume, right?

6 A: Correct.

7 Q: And I don't -- I don't mean to show you all my
8 written notes, but that's about the cleanest
9 copy I have of this regulation, I'll bring it
10 to you. We're talking about, for all projects
11 in the coastal zone, the storage requirement,
12 within a half mile of a receiving water body
13 and that storage requirement may be
14 accomplished through retention, detention, or
15 infiltration, as appropriate for the specific
16 site ---

17 A: Correct.

18 Q: --- and it's your opinion, based on your answer
19 to Mr. North's question, that there is nothing
20 else that you can do to capture that first
21 flush if you're within a half mile of a
22 receiving water body, you're limited to those
23 three?

24 A: As a permanent structure, I would say yes.

25 Q: Okay. Now, would it surprise you that OCRM



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1 interprets its regs differently?

2 A: Sure.

3 Q: And would you, in consulting with your clients,
4 and advising them what to do, rely on what OCRM
5 tells you the regulations mean?

6 A: No. I mean, we would follow the regulations,
7 but we would ask questions.

8 Q: Okay. All right. You agree with me that the
9 word may is a permissive term?

10 A: Sure.

11 Q: Okay. And the word shall is a mandatory term?

12 A: Sure.

13 Q: Now, as I understand it from your deposition,
14 when I asked you if you had ever implemented
15 the particular standard -- regulatory standard
16 or policy that I just showed you, that is the
17 1000 foot from shellfish bed regulation -- let
18 me change my question. The standard that you
19 and I focused on was the capturing of the first
20 flush?

21 A: Correct.

22 Q: The second sentence, after that standard, is
23 the sentence that says that if you're within
24 1000 feet of shellfish beds, you've got to
25 retain ---



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1 A: Uh-huh (affirmative response).

2 Q: --- you're familiar with that?

3 A: Yes.

4 Q: All right. Do you remember in your deposition
5 when I asked you if you ever implemented that
6 second standard, that you said you had not?

7 A: Second standard, as in to ---

8 Q: The 1000 foot regulation?

9 A: I do not remember.

10 Q: Okay. Is it your testimony, today, that you
11 have applied the 1000 foot measurement for
12 compliance? Not in this case, not in ---

13 A: Right.

14 Q: --- consulting with Mr. North, but for other
15 clients?

16 A: I mean, I have, yes.

17 Q: Okay.

18 **MS. SHAHID:** So, if I may, Your Honor, I need to show
19 him his deposition.

20 **THE COURT:** Okay.

21 Q: Mr. Moore, I'm going to take the sealed version
22 of your deposition to show you the testimony
23 that I'm speaking of. On page 30 of your
24 deposition, I asked you, so you actually
25 measured to determine, I'm looking at your



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1 point number five, now, the proximity of
2 shellfish bed to the outfall from Garfield
3 Park, and you replied I mean, I know there are
4 shellfish directly outside of the dike, whether
5 you know -- whether or not, you know, when it,
6 the regulation, I believe the regulation states
7 shellfish beds so whether or not they are
8 approved or just shellfish, I don't know. My
9 question, have you implemented this regulation
10 before, answer, I have not. Question, the 1000
11 foot regulation, answer no. Do you remember
12 providing that testimony?

13 A: Yes.

14 Q: Okay. Was there some misunderstanding?

15 A: Yes, I believe there was.

16 Q: Okay. Did you have the opportunity to read and
17 sign your deposition?

18 A: I did not.

19 Q: Did you ask for that opportunity, did your --
20 did Mr. North advise you that you had that
21 opportunity?

22 A: I did not, no.

23 Q: Was he -- did he advise you of that
24 opportunity?

25 A: No.



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1 Q: Okay. All right. Perhaps you better explain
2 the misunderstanding, after you told me on the
3 date of your deposition, which was December
4 23rd, 2013 ---

5 A: Correct.

6 Q: --- that you had not implemented the regulation
7 before, the 1000 foot regulation?

8 A: On this project, but on other projects, yes we
9 have, because we do boat ramps, we do marinas
10 where they're directly adjacent to shellfish
11 beds and we have implemented that, in that --
12 were there, all the time for our projects.

13 Q: Okay.

14 A: So, that was a misunderstanding, I'm sure, in
15 association with this project.

16 Q: Okay. So, as of December 23rd, you had not
17 attempted to measure 1000 feet from Garfield
18 Park Phase 3?

19 A: No, I haven't.

20 Q: Okay. And so, the testimony you provided
21 today, is that the first time you've attempted
22 to endorse or provide a measurement of 1000
23 feet from Garfield Park Phase 3?

24 A: It is.

25 Q: Okay. And, basically, what you did, is you



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1 looked a document that a surveyor -- well, that
2 included some straight lines provided by Mr.
3 North's surveyor, David Youmans, are you aware
4 of that?

5 A: I've seen the document, yes.

6 Q: Have you read Mr. Youmans' deposition?

7 A: I have not.

8 Q: Okay. Well, when Mr. Youmans was asked what he
9 did, he did not observe the flow of water, he
10 merely used judgement to assume what might be
11 a flow path at high tide. Would you agree with
12 me that it might be helpful before assuming a
13 high tide pathway of water, that you might
14 observe the flow of water at high tide?

15 A: Sure.

16 Q: And you haven't done that either, have you?

17 A: I have not.

18 Q: Okay. Have you seen any recent pictures of the
19 Cat Island Lakebed?

20 A: I have not.

21 Q: I have some that are in evidence that I can
22 show you. It goes old, new, old, new, old, new
23 -- I'm going to show you what's in evidence as
24 Department's Exhibit 6, and represent to you
25 that the testimony was from Geordie Madlinger,



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1 that this photograph was taken of the lakebed,
2 in or around June, of 2011?

3 **MR. NORTH:** Is that old or new?

4 **MS. SHAHID:** Old.

5 **MR. NORTH:** Old, can you pass me that?

6 **MS. SHAHID:** Okay.

7 Q: And the more recent photographs were taken in
8 September, of 2013, and it appears Mr.
9 Madlinger might have been out there the same
10 year that you were out there, 2011, does this
11 look different, the photograph that is page two
12 of Exhibit 6, than it might -- it looked to you
13 in 2011?

14 A: I'm not sure, exactly, where I'm looking at,
15 where this is taken from, but it ---

16 Q: did you ---

17 A: --- it looks like the lakebed, yes.

18 Q: Okay. Did you -- do you recall these stands of
19 marsh grass, when you were out there in 2011?

20 A: I don't recall.

21 Q: Okay. This is another older picture from ---

22 A: Uh-huh (affirmative response).

23 Q: --- 2011, and then, this is the same spot in
24 2013, again, do you see these stands of marsh
25 grass in the lakebed?



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1 A: I do.

2 Q: But, you don't remember whether they were out
3 there or not?

4 A: No.

5 Q: Okay. You would agree with me that a marsh can
6 filter pollutants, correct?

7 A: It can.

8 Q: Now, were you here for the testimony of Richard
9 Geer?

10 A: I was not.

11 Q: Are you aware that upon receipt of your memo,
12 Richard Geer did research to look into the
13 points that you raised?

14 A: I did not.

15 Q: Okay. And included in that research, he
16 testified that he looked at the Tabby Park
17 files and he could find nothing that
18 affirmatively stated that Tabby Park was
19 relying on Cat Island Lake for storage?

20 A: Okay.

21 Q: Would that be consistent with your review?

22 A: I saw no control structures, you know, my basis
23 is, you know, in the limited amount that I
24 could find that there were no control
25 structures in the Tabby Park area.



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1 Q: Okay. So, because of something you didn't see
2 in the Tabby Park area, you are assuming that
3 they relied on the lake for detention?

4 A: That was the only outfall structure that I
5 found -- control structure.

6 Q: But, there was no direct reference in any of
7 the Tabby Park documents that said we are
8 modeling to this outfall, the lake, and the
9 lake has the capacity to receive our storm
10 water flows?

11 A: No, I did not.

12 Q: And that's typically the language you would see
13 or something similar, when somebody's coming in
14 for a permit and they would tell the agency
15 where their flows are going to, correct?

16 A: Correct.

17 Q: Talking about any degradation of water quality,
18 you're aware that the waters are classified
19 SFH?

20 A: Yes.

21 Q: And you are, based on your work with marine
22 construction, I'm sure you're aware of the
23 water quality standards, established by
24 regulation for SFH?

25 A: I am.



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1 Q: And is it your understanding, that if you meet
2 the -- those standards exist to maintain water
3 quality and degradation occurs when those
4 standards are exceeded?

5 A: Correct.

6 Q: Okay. And, have you seen any evidence from any
7 water quality analysis or sampling that any
8 standards have been exceeded downstream --
9 immediately downstream of what was the Cat
10 Island Lake?

11 A: I have not seen that, no.

12 Q: So, you really do not know, sitting here today,
13 if the alleged, untreated pollutants, that
14 might be running through the lake are degrading
15 those waters?

16 A: Correct.

17 Q: Are you aware that the current condition of the
18 area -- are you aware of the definition of
19 normal maintenance and repair that OCRM
20 utilizes?

21 A: I am.

22 Q: Okay. Are you aware that the determination has
23 been made that given the current condition of
24 the area, it no longer qualifies for
25 maintenance and repair?



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1 A: Uh-huh (affirmative response).

2 Q: You would agree with me that, if that lake were
3 to be restored, it would have to be done
4 through permitting action?

5 A: Sure.

6 Q: If it didn't qualify for normal maintenance and
7 repair. And have you, in your storm water
8 design and experience, ever taken a six acre
9 tidal marsh and turned it into a detention
10 pond, for any of your clients?

11 A: I have not.

12 Q: And you probably wouldn't, would you?

13 A: No.

14 Q: Okay. That's all I've got.

15 **THE COURT:** Before you do any redirect, Mr. North,
16 let's let him take a break.

17 (Off the Record)

18 **THE COURT:** It looks like everyone is ready, Mr.
19 North.

20 **MR. NORTH:** Thank you, Your Honor.

21 **MR. MOORE - REDIRECT EXAMINATION BY MR. NORTH**

22 Q: Mr. Moore, in your visit to the site, did you
23 stand on the dike?

24 A: I did.

25 Q: Okay. And, did you happen to notice an open



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1 view of the Atlantic to the Southeast?

2 A: I -- in the distance, yes, there is.

3 Q: Okay. And would be fair to say that, if the
4 wind driven waves were coming from the
5 direction of the open view of the Atlantic that
6 that particular location, the dike area, could
7 be hit with those ocean waves?

8 A: Sure.

9 Q: Did the homeowners express to you a concern
10 about that?

11 A: They did, yes.

12 Q: Isn't it -- strike that. You were asked about
13 whether or not you had any information as to
14 the depth of the lake when we were talking
15 about the trenches in which the water might
16 flow at low tide, do you recall that?

17 A: I do.

18 Q: Do you have Exhibit 1 handy, there?

19 A: I do.

20 Q: If you would, turn to page 23. Do you have
21 that handy?

22 A: I do.

23 Q: Do you see there a picture taken from the dike
24 that shows the lakebed, as well as trenches
25 that might carry storm water at low tide?



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1 A: Yes.

2 Q: Okay. Could you explain to the court, in the
3 context of this photograph, what you mean about
4 how the water would travel at different
5 elevations of tide?

6 A: Well, once the tide got above these low areas
7 it would no longer be channelized, so as long
8 as it's -- if it's less than the bottom, and
9 within these channels, it flow as channelized,
10 and then up above, it will -- it will not
11 necessarily flow as channelized flow.

12 Q: From your view of this with it showing the edge
13 of the lake, would you agree that by the time
14 the lake -- the tide water in the lakebed is
15 all the way up to a shore line, that it would
16 be some amount of distance above the elevation
17 of those trenches?

18 A: Definitely.

19 Q: Is it your view, that if the water was up -- up
20 in the lakebed, but prior to that sharp turn
21 that you see there before the entrance, that at
22 high tide, the water on the top of that lakebed
23 would flow directly toward the cut in the dike?

24 A: It would.

25 Q: And, if I understand your testimony, are you



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1 saying that the entire width of the lake would
2 not somehow shift to the left and then shift to
3 the right, as it flowed toward that open dike?

4 **MR. HABER:** Objection, Your Honor, he's leading and
5 somewhat testimony.

6 **THE COURT:** It is, but I'm going to allow it.

7 A: It would not shift around, it would just flow
8 right over, and directly toward the -- where
9 it's being released.

10 Q: Okay. Now, just to be clear, would you also
11 agree that at a full tide, whatever water
12 happens to be scraping along the bottom, could
13 still be channelized?

14 A: Sure.

15 Q: And, along the bottom, even at a full tide,
16 some of the water could be following that route
17 and probably would be, wouldn't it?

18 A: It would.

19 **MR. HABER:** Objection, Your Honor.

20 **THE COURT:** Yes.

21 **MR. HABER:** Thank you.

22 **THE COURT:** Sustained.

23 A: Okay. So there would become a point where the
24 flow would no longer be channelized.

25 Q: Okay.



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1 A: And what that -- what that point in it would be

2 ---

3 MR. HABER: Your Honor, the witness' ---

4 THE COURT: Yeah, the ---

5 MR. HABER: --- response ---

6 THE COURT: --- the objection, yeah.

7 THE WITNESS: Oh, okay. I'm sorry.

8 THE COURT: And I think that your question is
9 addressed, the answer.

10 MR. NORTH: Okay.

11 Q: You were asked about whether or not a pond --
12 a dike blowout is a maintenance problem; is
13 maintenance required on a dike?

14 A: There is a small amount of maintenance
15 required, yes.

16 Q: Okay. Does that maintenance involve anything
17 having to do with the outfall device?

18 A: It could.

19 Q: Okay. Where on this dike, did the failure
20 occur?

21 A: At the outfall structure.

22 Q: Okay. If you were told that no maintenance had
23 been done on the dike for 35 years, would you
24 be surprised by a failure at the outlet
25 structure?



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1 A: No.

2 Q: Why?

3 A: Because those are -- those are places where
4 there is areas of weakness where places, such
5 as where the pipe goes through the dike, where
6 that -- where the soil butts up against it,
7 those are paths for water to flow, because it's
8 not -- it's two different types of material.
9 Also, there is -- that's where the flow is
10 concentrated, so there is usually a higher
11 amount of erosion that occurs, around the
12 outfall, and in -- and inflow, of structures.

13 Q: Okay. You were asked about whether or not a
14 marsh can filter pollutants. Can a marsh be
15 used, under the regulations, to treat storm
16 water?

17 A: I'm -- I can't answer that. I'm not sure,
18 because I'm -- I don't have the regulations in
19 front of me.

20 Q: You were asked about reviewing the file on
21 Tabby Park, and whether or not the file
22 indicated, specifically, that the Cat Island
23 Lake was a part of it's detention system, do
24 you remember that?

25 A: I do.



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1 Q: Okay. Did you see any indication, one way or
2 another, as to whether or not the lake, and
3 it's detention structure were part of Tabby
4 Park's detention system?

5 A: No.

6 Q: Okay. Did you see an indication that Tabby
7 Park relied upon the lagoon system to detain
8 water and thereby treat it?

9 A: From the information that I saw or that I had
10 access to, I did not see anything.

11 Q: Okay. When you inspected the lagoon system for
12 that East end of Tabby Park, did you find
13 anything, other than the dike and its outfall
14 structure that could detain the storm water of
15 Tabby Park in accordance with the regs?

16 A: No.

17 **MR. NORTH:** I have no further questions, Your Honor.

18 **MR. HABER:** The department has no further questions,
19 Your Honor.

20 **MS. SHAHID:** I might have one question, I'm trying
21 to find this particular exhibit, part of
22 Exhibit 1, just to confirm something. No
23 questions, Your Honor.

24 **THE COURT:** Okay. Thank you, Mr. Moore, thank you
25 for coming. That was your last witness, Mr.



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1 North, correct?

2 MR. NORTH: That is.

3 THE COURT: Okay. Mr. Haber, did you have anything
4 to followup?

5 MR. HABER: No, Your Honor, the department rests.

6 THE COURT: Okay.

7 MS. SHAHID: No rebuttal, Your Honor.

8 MR. NORTH: And, Your Honor, we would rest, but
9 before we do, I would like to take a quick spin
10 through our exhibits and see if we have any
11 outstanding problems.

12 THE COURT: Okay.

13 MR. NORTH: The ones that I have, as not in
14 evidence, yet, would include Number 4 -- and I
15 assume that if I go by a number, then it's in
16 evidence. Number 4, but, the pertinent part
17 was admitted as some other exhibit, so, Number
18 4 could be considered abandoned, if that's
19 okay?

20 THE COURT: Okay.

21 MR. NORTH: Number 7 were photos of the dedicated
22 freshwater wetland area, those -- the
23 foundation for that was identified by Pamela
24 North, and the things depicted were testified
25 about, by Geordie Madlinger, and we asked that



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1 Number 7 be admitted.

2 **MR. HABER:** Your Honor, I believe that's the
3 /department's objection, as to the foundation of
4 -- as the extent of foundation provided by Mr.
5 North, in this matter, the department would not
6 object to this admission.

7 **MS. SHAHID:** No objection.

8 **THE COURT:** Okay. Number 7 is admitted.

9 **(Petitioners Exhibit Number 7 was admitted into**
10 **evidence.)**

11 **MR. NORTH:** Okay. We have Number 9 and Number 10,
12 which we would be happy to simply withdraw,
13 those topics were covered by witnesses orally,
14 and we don't need get into all of that.

15 **THE COURT:** Okay.

16 **MR. NORTH:** Exhibit 11, Mr. Lyle took those photos,
17 the foundation was laid, and we asked that the
18 exhibit be admitted.

19 **MR. HABER:** Again, the department has no objection to
20 the admission.

21 **MS. SHAHID:** No objection.

22 **THE COURT:** Okay. Number 11 is admitted.

23 **(Petitioners Exhibit Number 11 was admitted into**
24 **evidence.)**

25 **MR. NORTH:** Okay. All right. Number 22, I don't



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1 believe is admitted, but I also believe it's
2 identical to Exhibit 2, so we would withdraw
3 it.

4 **THE COURT:** All right. My records indicate that
5 that was -- 22 was admitted.

6 **MR. NORTH:** Well, please don't read Number 2 and 22
7 both, twice, I mean, it was just, I think it's
8 a duplication.

9 **THE COURT:** Okay.

10 **MR. NORTH:** Number 32 can be considered withdrawn.
11 The 2004 Garfield Park range calculations, I'm
12 not sure what the objection would be, it's also
13 the same as a deposition Exhibit 301, of our
14 opposing counsel, does anybody actually -- I
15 have a -- I'm showing that the POA objected to
16 34.

17 **MS. SHAHID:** I don't think so, because I've got it
18 in, myself.

19 **MR. NORTH:** Okay. Well, then, can we consider 34
20 admitted?

21 **MR. HABER:** I don't believe that was a department
22 objection, Your Honor.

23 **MS. SHAHID:** Yes.

24 **THE COURT:** No, it wasn't, but I've got, in my
25 notes, that ---



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1 MS. SHAHID: I objected to that ---

2 THE COURT: --- yeah, that you did. Okay. At this
3 point, then, 34 is admitted.

4 MS. SHAHID: Oh, you know, Your Honor, I think I
5 know. It might just -- can I look at his 34?
6 I think the basis of the objection had to do
7 that it might not be the most current, but I
8 don't even know if that's applicable to 2004,
9 that's why our notes say. I know that we put
10 in a portion of the drainage report, from 2004.
11 I think it was the inconsistency between what
12 we put in, and what he put in -- where is our
13 34 -- okay. No objection, Your Honor.

14 THE COURT: Okay. The objection is withdrawn, 34 is
15 admitted.

16 (Petitioners Exhibit Number 34 was admitted into
17 evidence.)

18 MR. NORTH: 37 was objected to, by the POA, those are
19 the wetland preservation covenants, that apply
20 to the dedicated wetlands, that Mr. Meyer
21 testified about. I can't imagine why they
22 wouldn't be admissible, to show what the
23 limitations were, that were imposed by Mr.
24 Meyer himself, on that property.

25 MS. SHAHID: Did I object?



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1 MR. HABER: Yes.

2 MR. NORTH: Yes.

3 THE COURT: Yes.

4 MS. SHAHID: Withdraw the objection.

5 THE COURT: Okay. 37 is admitted.

6 (Petitioners Exhibit Number 37 was admitted into
7 evidence.)

8 MR. NORTH: 47 is the same as sheet four of 64, so we
9 can consider that withdrawn, if you'd like?

10 THE COURT: Okay. 47 is withdrawn.

11 MR. NORTH: But, just to be clear, the POA objected
12 to that, but I'm sure their objection was
13 because the copy I had, had handwritten notes
14 that they probably didn't want to have on
15 there.

16 MS. SHAHID: I have no idea.

17 MR. NORTH: And that's all of the exhibits that I
18 show out, with objections, I'm assuming
19 everything else, through Exhibit 84, is
20 received.

21 THE COURT: Okay. 46 is a code section.

22 MR. HABER: Your Honor, I believe that was a
23 department's objection, as to relevance, it's
24 positive that it's discussed throughout this
25 trial, and I have no objection at this time.



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1 Perhaps the labeling of it, I would object to;
2 what is admitted as Exhibit 46, is 48 -- SC
3 Code 48-39-10 et seq, as opposed to
4 specifically that section.

5 **THE COURT:** I'm sorry, say that again?

6 **MR. HABER:** I believe Petitioners Exhibit 46 is the
7 entire coastal towns and wetlands act is
8 labeled as 48-39-10.

9 **THE COURT:** Oh, okay.

10 **MR. HABER:** But, Your Honor can obviously make the
11 distinction.

12 **THE COURT:** Right.

13 **MR. NORTH:** Well, that's a good change, because,
14 actually, there are two or three parts of that
15 exhibit, other statutes that are in that
16 series, that's a very good objection. Or a
17 very good suggestion. And if all the other
18 exhibits are received, the petitioners rest.

19 **THE COURT:** Okay. Okay. I think you all agree that
20 you all will not -- will omit closing
21 arguments, you all will submit proposed orders
22 in lieu of closing arguments?

23 **MR. HABER:** Yes.

24 **MR. NORTH:** Yes, Your Honor.

25 **MS. SHAHID:** Yes.



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1 **THE COURT:** Now, let me ask you this, before we set
2 timelines for submission of the proposed
3 orders, do you need to wait for the transcript?
4 Does everyone need the transcript?

5 **MS. SHAHID:** I want the transcript.

6 **THE COURT:** You want the transcript?

7 **MS. SHAHID:** Right. But, I don't want to be the
8 only one paying for the transcript, and have
9 everybody else use it. I don't quite know how
10 that works, I had that problem with another
11 case.

12 **MR. HABER:** Your client is the only one that can
13 afford a transcript.

14 **MS. SHAHID:** And I had a conversation -- this has
15 been about a year or so, and I had a
16 conversation about a bill, I don't remember how
17 it was resolved. Once I order and pay for the
18 transcript, is the court reporter, then,
19 obligated to produce it to other parties, but
20 charge a much lesser fee, because it's not the
21 original creation of the transcript?

22 **THE COURT:** I'm not sure.

23 **COURT REPORTER:** No ma'am.

24 **THE COURT:** No?

25 **COURT REPORTER:** If they order it, later.



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1 THE COURT: If they order it later?

2 COURT REPORTER: It's still the same.

3 THE COURT: It's still the same price, okay.

4 COURT REPORTER: If they want, they can divide it
5 between the three of them.

6 THE COURT: Okay. Did you hear what she said?

7 MS. SHAHID: Yes, I order it now -- if they order it
8 now, we divide it ---

9 THE COURT: If you all order it now, it's divided
10 between the three of you all; later, it would
11 be each one of you pay the same price.

12 MS. SHAHID: Okay. Thank you.

13 MR. HABER: I would prefer to have a transcript, as
14 well.

15 THE COURT: Okay.

16 MR. NORTH: So you are ordering one?

17 MS. SHAHID: Yes, I am ordering a transcript.

18 THE COURT: Okay. Here is what I'm going to do,
19 then. I'll have the court reporter notify my
20 office when the transcript is complete. So,
21 from the time that you all get the transcript,
22 you will have 45 days to prepare and submit
23 your proposals.

24 MS. SHAHID: Okay. She will notify your office, so
25 I don't need to notify anybody when I receive



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1 it?

2 **THE COURT:** No.

3 **MS. SHAHID:** Okay.

4 **THE COURT:** She'll notify me when it -- when she
5 gets it completed, and gets it to me.

6 **MR. NORTH:** Your Honor?

7 **THE COURT:** Yes

8 **MR. NORTH:** If all parties, other than the
9 petitioners are going to have a transcript, we
10 will have to figure out some way to share the
11 cost, and I'll have one, also.

12 **THE COURT:** Okay. Okay. Thank you, Mr. North.

13 **MR. NORTH:** If I had known that, I wouldn't have
14 worn out my wrist, writing so hard. Before we
15 break, did you want me to review page III-60
16 anymore?

17 **THE COURT:** No. I think you've done that quite ---
18 and what I'll do, also, is once the -- as Ms.
19 Henderson was brought it to my attention, once
20 I get the proposed orders, I am going to give
21 each side 10 days to review the others'
22 proposed orders, and submit any comments.

23 **MR. NORTH:** Is there any opposition to may be,
24 shortening the 45 days?

25 **THE COURT:** Well, we've gone through a four day



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1 hearing, which means, it's going to be rather
2 lengthy, and with the exhibits, here, it's
3 going to be a lengthy transcript.

4 **MR. NORTH:** Right.

5 **THE COURT:** And, I want to give everyone adequate
6 time to -- but, I mean, if you all want to
7 side, and shorten it -- but, I'm giving you 45
8 days.

9 **MR. HABER:** I've got, maybe three hearings before
10 this court, between next 45 days, so I
11 appreciate the time.

12 **THE COURT:** Okay.

13 **MR. HABER:** Thank you, Your Honor.

14 **MR. NORTH:** With regard to the extra set of
15 exhibits, would the court just as soon retain
16 those, for its use in reviewing the matter?

17 **THE COURT:** I'm sorry?

18 **MR. NORTH:** With -- we have two sets of exhibits,
19 the one that the witness has been using, and
20 then one that was supplied to the court, would
21 the court just as soon retain that set for its
22 use in reviewing the matter?

23 **THE COURT:** Yeah, I've made some notes on some of
24 the stuff, so I do want to retain those.

25 **MR. NORTH:** Okay. Not a problem.



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1 **THE COURT:** Okay.

2 **MR. NORTH:** I have a lid, if I figure out a way to
3 cram them all in there, if you want the fancy
4 lid, to seal the stack.

5 **THE COURT:** Is there anything else that we need to
6 address before we adjourn, here? Okay. If
7 that's it, then the hearing is adjourned.

8 **MR. HABER:** Thank you, Your Honor.

9 **MS. SHAHID:** Thank you, Your Honor.

10 **MR. NORTH:** Thank you very much, Your Honor.

11 **THE COURT:** Thank you all.

12 (There being nothing further, the hearing adjourned
13 at 3:29 p.m.)



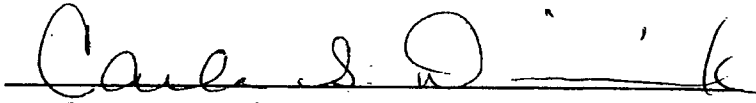
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CERTIFICATE

This is to certify that the within hearing consisting of nine hundred eleven (911) pages, is a true and correct transcript of the testimony given by said witnesses after being duly sworn; said hearing was reported by the method of Stenomask with Backup.

I further certify that I am neither employed by nor related to any of the parties in this matter or their counsel; nor do I have any interest, financial or otherwise, in the outcome of same.

IN WITNESS WHEREOF I have hereunto set my hand and seal on February 4, 2014.


Carla S. Dominick
Court Reporter

Notary Public for South Carolina
My Commission Expires: 3/13/2022

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DHEC BOARD REVIEW CONFERENCE
August 9, 2012

DHEC PERMIT NUMBER SCR10N463

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Byrnal Haley

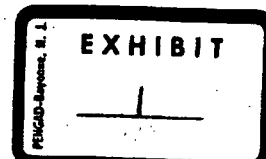
Sallie Haley

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John North

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Policies and Procedures

of the South Carolina Coastal Management Program

- An excerpt of the South Carolina Coastal Management Program Document -

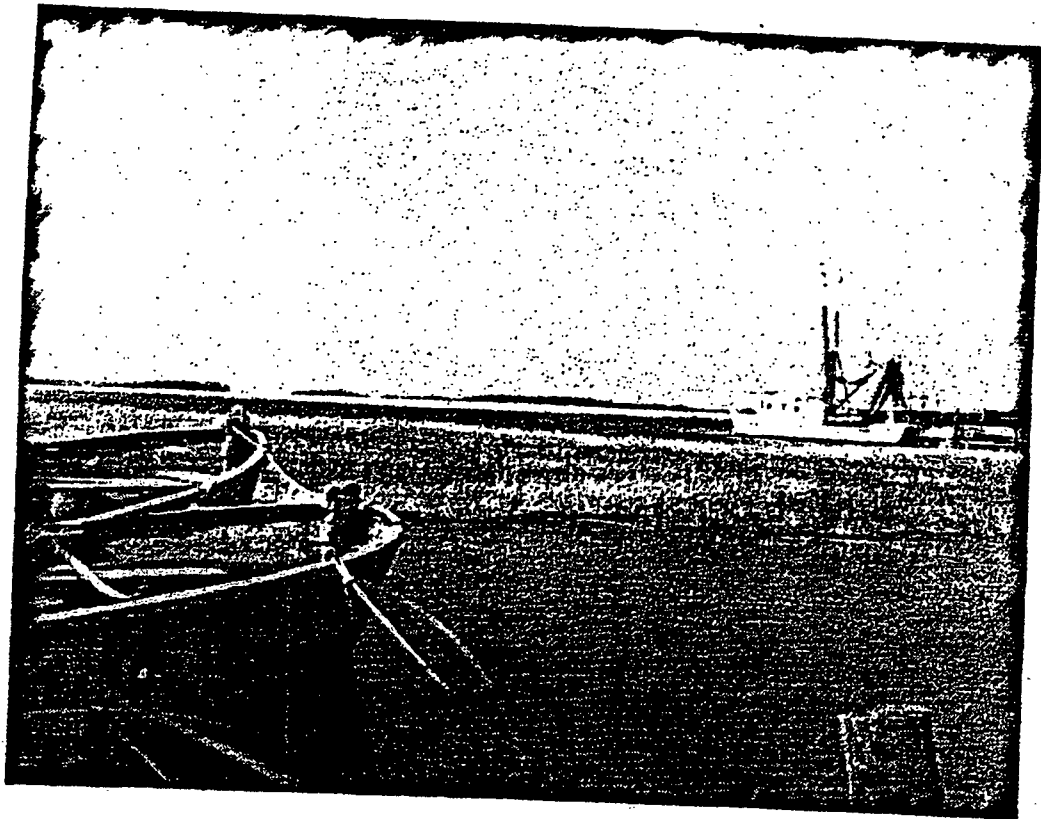
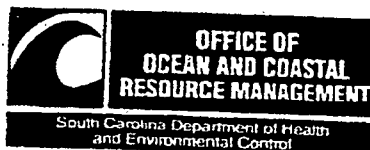


EXHIBIT E



Updated July 1995

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XIII. STORMWATER MANAGEMENT GUIDELINES

Most land disturbing activities in South Carolina must comply with the requirements and applicable regulations of the Erosion and Sediment Reduction Act of 1983 (48-18-10, *et. seq.*), or the Stormwater Management and Sediment Reduction Act of 1991 (48-14-10, *et. seq.*). The final regulations, effective on June 26, 1992, pursuant to the Storm Water Management and Sediment Reduction Act of 1991, establish the procedure and minimum standards for a statewide stormwater program. Section R.72-304F of the regulations states that "OCRM, in coordination with the Commission, will serve as the implementing agency for these regulations in the jurisdictions of the local governments which do not seek delegation of program elements in the counties of Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Horry and Jasper." In addition, Section R.72-307C(5)(g) states that "For activities in the eight coastal counties, additional water quality requirements may be imposed to comply with the OCRM Stormwater Management Guidelines. If conflicting requirements exist for activities in the eight coastal counties, OCRM guidelines will apply."

Pursuant to the Coastal Zone Management Act, OCRM is responsible for protecting the environmentally sensitive areas of our coast. While the regulations of the Stormwater Management and Sediment Reduction Act adequately address most nonpoint source pollution problems, the need exists for establishing additional criteria to protect sensitive coastal waters.

A. STORMWATER RUNOFF STORAGE REQUIREMENTS

The regulations of the Stormwater Management and Sediment Reduction Act require that "permanent water quality ponds having a permanent pool shall be designed to store and release the first 1/2 inch of runoff from the site over a 24-hour period. The storage volume shall be designed to accommodate, at least, 1/2 inch of runoff from the entire site." For all projects, regardless of size, which are located within one-half (1/2) mile of a receiving water body in the coastal zone, this criteria shall be storage of the first 1/2 inch of runoff from the entire site or storage of the first one (1) inch of runoff from the built-upon portion of the property, whichever is greater. Storage may be accomplished through retention, detention or infiltration systems, as appropriate for the specific site. In addition, for those projects which are located within 1,000 (one thousand) feet of shellfish beds, the first one and one half (1 1/2) inches of runoff from the built-upon portion of the property must be retained on site.

Receiving water bodies include all regularly tidally influenced salt and freshwater marsh areas, all lakes or ponds which are used primarily for public recreation or a public drinking water supply, and other water bodies within the coastal zone, excluding wetlands, swamps, ditches and stormwater management ponds which are not contiguous via an outfall or similar structure with a tidal water body.

B. PROJECT SIZE REQUIRING STORMWATER MANAGEMENT PERMITS

Section R.72-305B(1) states that "for land disturbing activities involving two (2) acres or less of actual land disturbance which are not part of a larger common plan of development or

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D. GOLF COURSES ADJACENT TO RECEIVING WATER BODIES

Golf course construction and maintenance practices result in the potential for significant negative impacts from the runoff of sediments, pesticides, herbicides and other pollutants. For this reason, when golf courses are constructed adjacent to receiving water bodies then the following practices are to be incorporated:

- 1) Minimum setbacks from the receiving water body of 20 feet for all manicured portions of the golf course (fairways, greens and tees) are required unless other acceptable management techniques are approved and implemented to mitigate any adverse impacts.
- 2) All drainage from greens and tees must be routed to interior lagoons or an equivalent stormwater management system.
- 3) To prevent the conversion of the stormwater system to critical area and to maintain positive drainage at high tides, all outfalls from the lagoon system must be located at an elevation above the critical area (if the discharge is to critical area) AND above the normal water elevation a distance to allow for storage of the first one inch of runoff. The volume which must be stored shall be calculated by multiplying the area of all the greens and tees by one inch. (Previously constructed stormwater management systems which meet all current and future storage requirements will not be required to modify outfalls.)
- 4) No greens or tees shall be located on marsh hummocks or islands unless all drainage can be conveyed to the interior lagoon system or to an equivalent onsite stormwater management system
- 5) Stormwater impacts to freshwater wetlands shall be limited by providing minimum 20 foot buffers, or an accepted alternative, between manicured areas (fairways, greens and tees) and the wetlands. This minimum buffer must be increased if land application of treated effluent is utilized in the area.
- 6) An integrated pest management system designed in accordance with current best technology practices must be employed on the course to limit the application of chemicals which, if over applied, may leach into the ground and adjacent surface waters.
- 7) In accordance with S.C. Department of Health and Environmental Control requirements, a two (2) foot separation must be maintained between the surface of the golf course and the ground water table where spray effluent is applied.
- 8) The normal ground water elevation must be established by a registered engineer or soil scientist.
- 9) All projects which are within 1000 feet of shellfish beds must retain the first 1 1/2 inches of runoff as otherwise described in c above.

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Special considerations also apply when the development is within 1,000 feet of shellfish beds (determined from State mapping or by site inspection). In this case, the regulations require that 1.5 inches of runoff per impervious acre of drainage must be retained. Of the three BMP types discussed above, only infiltration facilities are designed to retain runoff (i.e., captured runoff is depleted by storage through evapotranspiration and infiltration into the underlying soil, rather than released to a drainage channel or waterbody). In contrast, facilities such as ponds are designed to detain runoff (i.e., captured runoff is detained for treatment and is then released to a drainage channel or waterbody).

Table 2-3 shows how the shellfish bed regulation has been interpreted for this report. The requirement for infiltration facilities is 1.5 inches per impervious acre of drainage, which is 50 percent greater than the general requirements. For facilities with a permanent pool, it was presumed that the requirement would be met by providing a permanent pool volume equivalent to 1.5 inches of runoff per impervious acre. For storms producing runoff of 1.5 inches or less, the runoff will be stored in the permanent pool and an equal volume of water will be displaced from the pool and discharged to a drainage channel or waterbody. The table provides no interpretation of the shellfish bed requirements for other facilities without a permanent pool. Such a facility would actually be operating as an infiltration facility.

As mentioned earlier, DHEC administers the federal NPDES Program on behalf of EPA; therefore, along with having jurisdiction over the NPDES Construction Program, DHEC also has jurisdiction over the NPDES Industrial Program. Under the latter program, the general permit (SCR000000) covers all categories of stormwater discharges associated with industrial activity, except the construction activity, which is covered under the Construction Program. SCR000000 requires the development of a stormwater pollution prevention plan (SWPPP) which identifies potential sources of stormwater pollution and describes practices to be implemented for reducing stormwater pollutant discharges. These practices may include structural BMPs (e.g., wet detention ponds), good housekeeping practices, spill prevention procedures, and employee training. Annual or semi-annual monitoring of stormwater discharge from the site is required for certain industrial facilities. The monitoring would include measurement of specific pollutants such as nutrients and metals, and acute whole effluent toxicity tests.

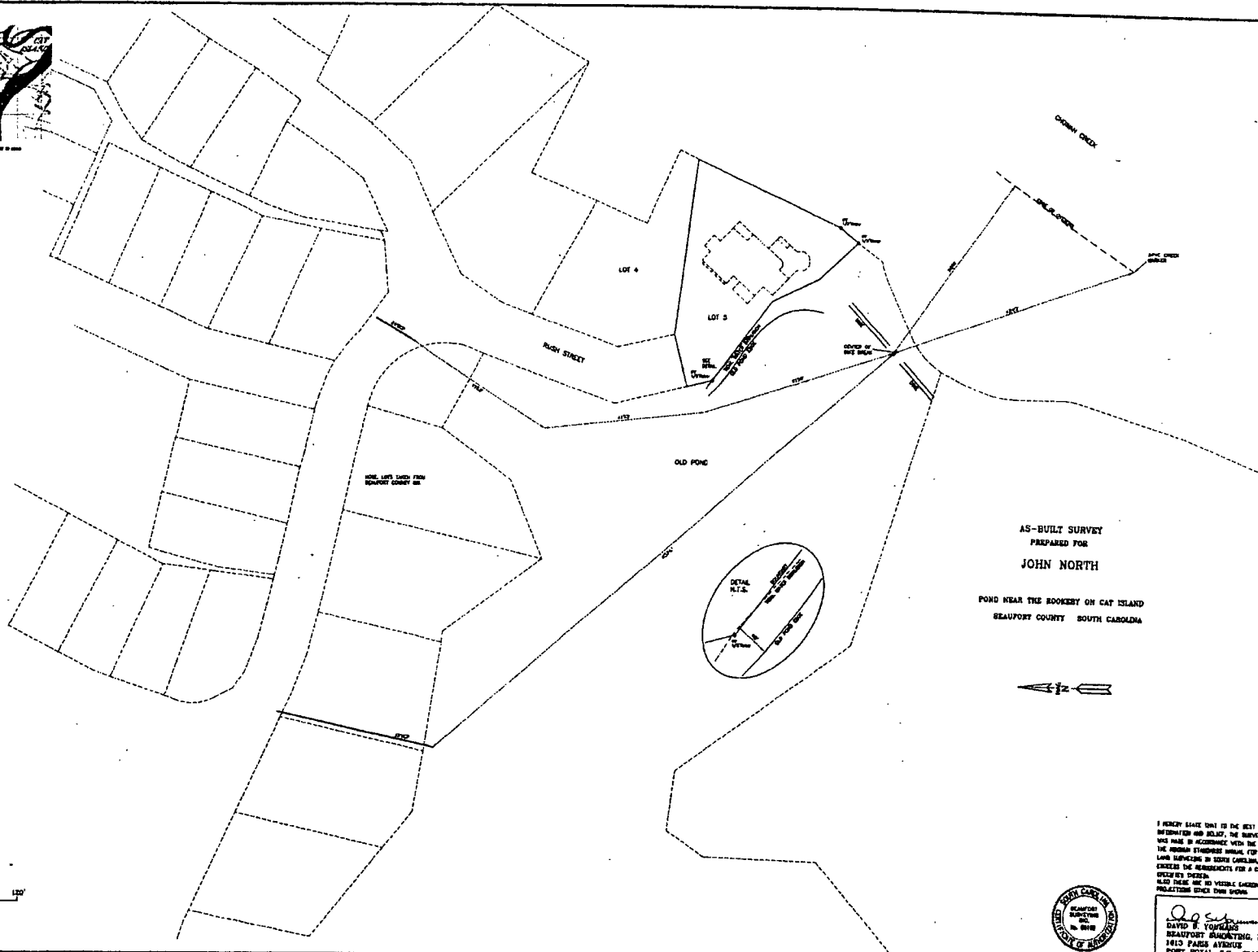
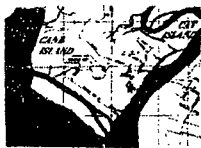
Information on the South Carolina Sediment, Erosion, and Stormwater Management Program can be found at: <http://www.scdhec.net/water/html/erfmain.html>.

Information on NPDES Stormwater Program Implementation in South Carolina can be found at: <http://www.scdhec.net/eqc/water/html/swnhistory.html>.

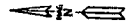
TABLE 2-3

**SOUTH CAROLINA COASTAL ZONE MANAGEMENT PROGRAM
STORMWATER QUALITY BMP REQUIREMENTS
BEAUFORT COUNTY**

BMP Facility Type	Water Quality Volume Requirements		
	General	Within 0.5 Miles of a Receiving Waterbody in the Coastal Zone	Within 1,000 Feet of Shellfish Beds
Water quality facility with permanent pool of water (e.g., wet detention pond)	Permanent pool volume of 0.5 inches of runoff per acre of drainage; storage above permanent pool of 0.5 inches of runoff per acre of drainage, required to bleed down over a 24-hour period	Permanent pool volume of 0.5 inches of runoff per acre of drainage <u>or</u> 1.0 inches of runoff per impervious acre of drainage, whichever is greater; same general storage requirement above permanent pool	Permanent pool volume of 0.5 inches of runoff per acre of drainage <u>or</u> 1.5 inches of runoff per impervious acre of drainage, whichever is greater; same general storage requirement above permanent pool
Water quality facility without permanent pool of water (e.g., extended-dry detention pond)	Storage of 1.0 inches of runoff from the entire drainage area, required to bleed down over a 24-hour period	General requirements apply	Not applicable
Infiltration practices	Storage of 1.0 inches of runoff per impervious acre of drainage, required to drain completely in 72 hours	General requirements apply	Storage of 1.5 inches of runoff per impervious acre of drainage, required to drain completely in 72 hours



AS-BUILT SURVEY
PREPARED FOR
JOHN NORTH
POND NEAR THE BOOKERY ON CAT ISLAND
BEAUFORT COUNTY SOUTH CAROLINA



K200-021-00A-0134-0000
SCALE 1" = 40'
JANUARY 13, 2012
PHOTOGRAPH



I HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THE SURVEY BEING HEREON WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GEODESIC STANDARDS MANUAL FOR THE PRACTICE OF LAND SURVEYING IN SOUTH CAROLINA, AND THAT I AM A LICENSED SURVEYOR IN THE STATE OF SOUTH CAROLINA. ALSO THERE ARE NO VIOLATIONS OR VIOLATIONS SINCE THIS SURVEY.

David F. Youngblood
DAVID F. YOUNGBLOOD, SLS 9765
BEAUFORT SURVEYING, INC.
2413 PARRIS AVENUE
PORT ROYAL, S.C. 29683
PHONE (843) 524-2281

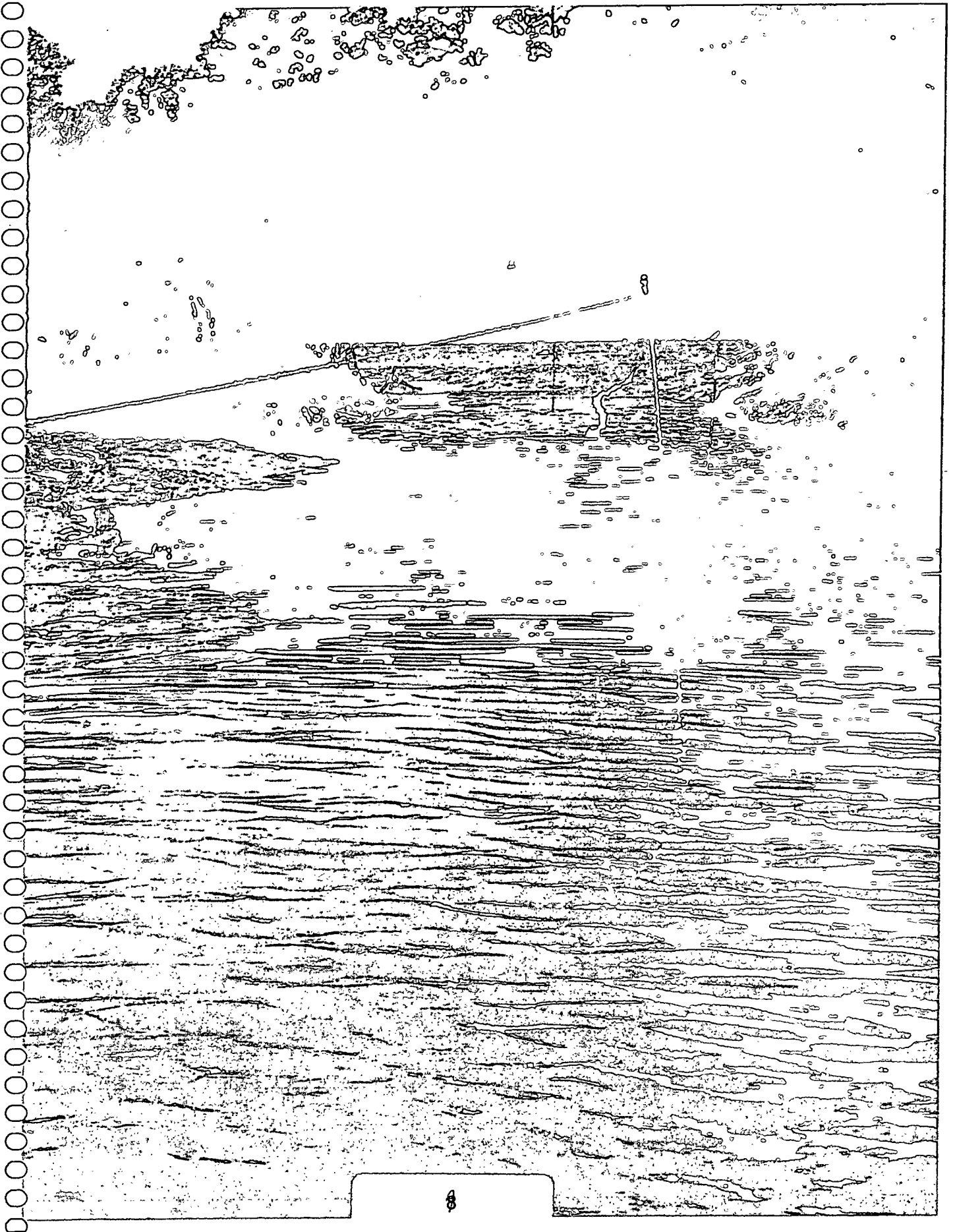
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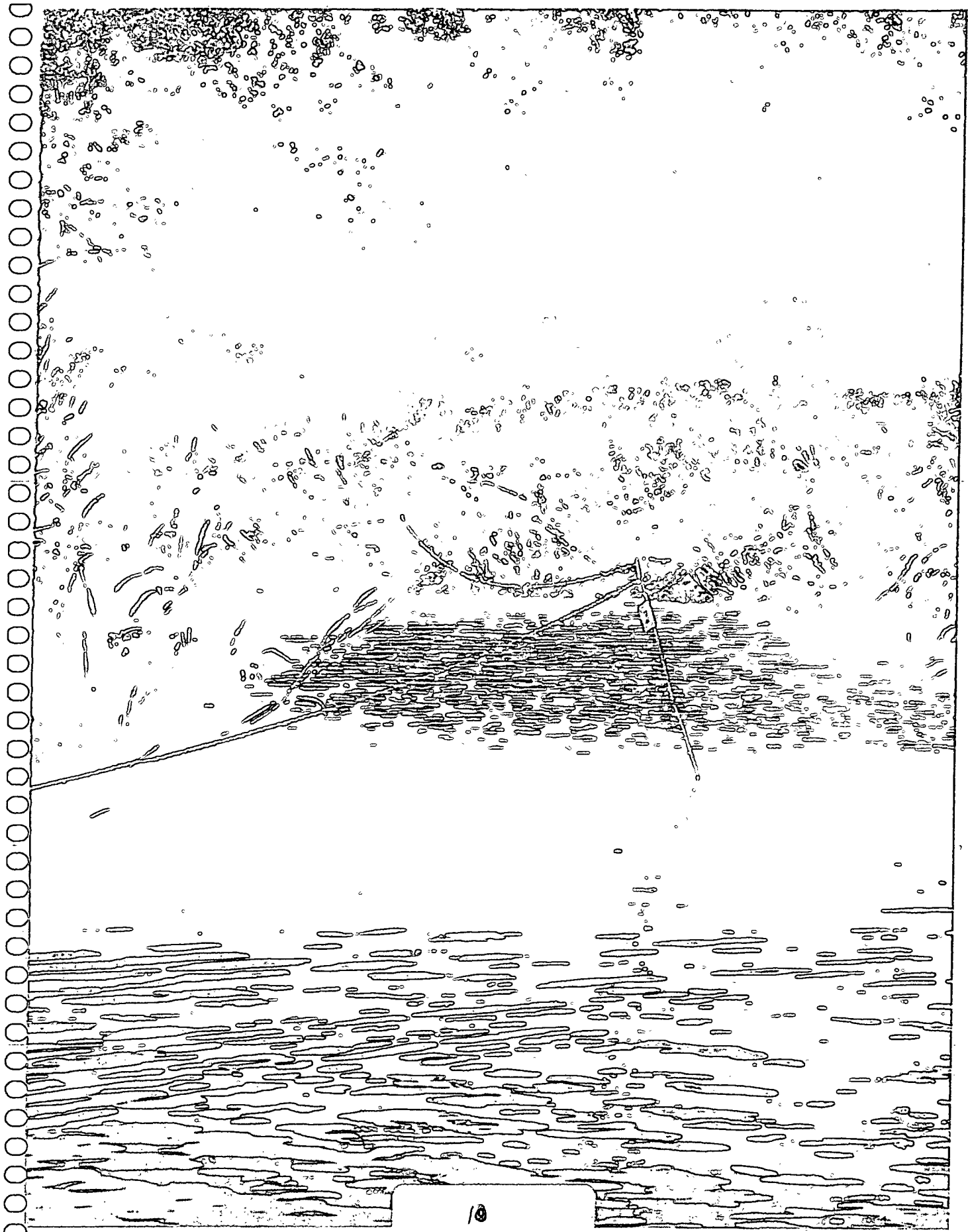
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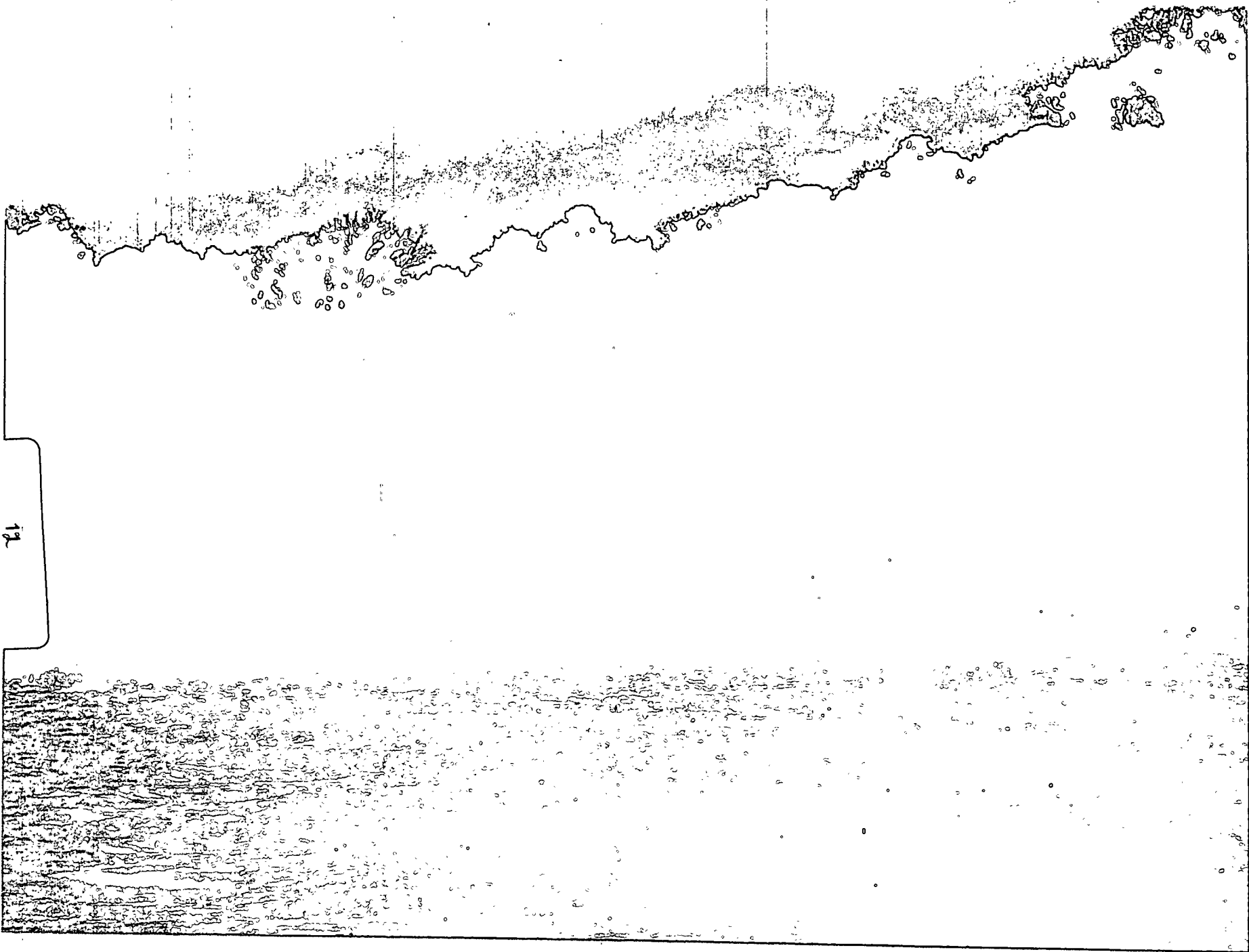


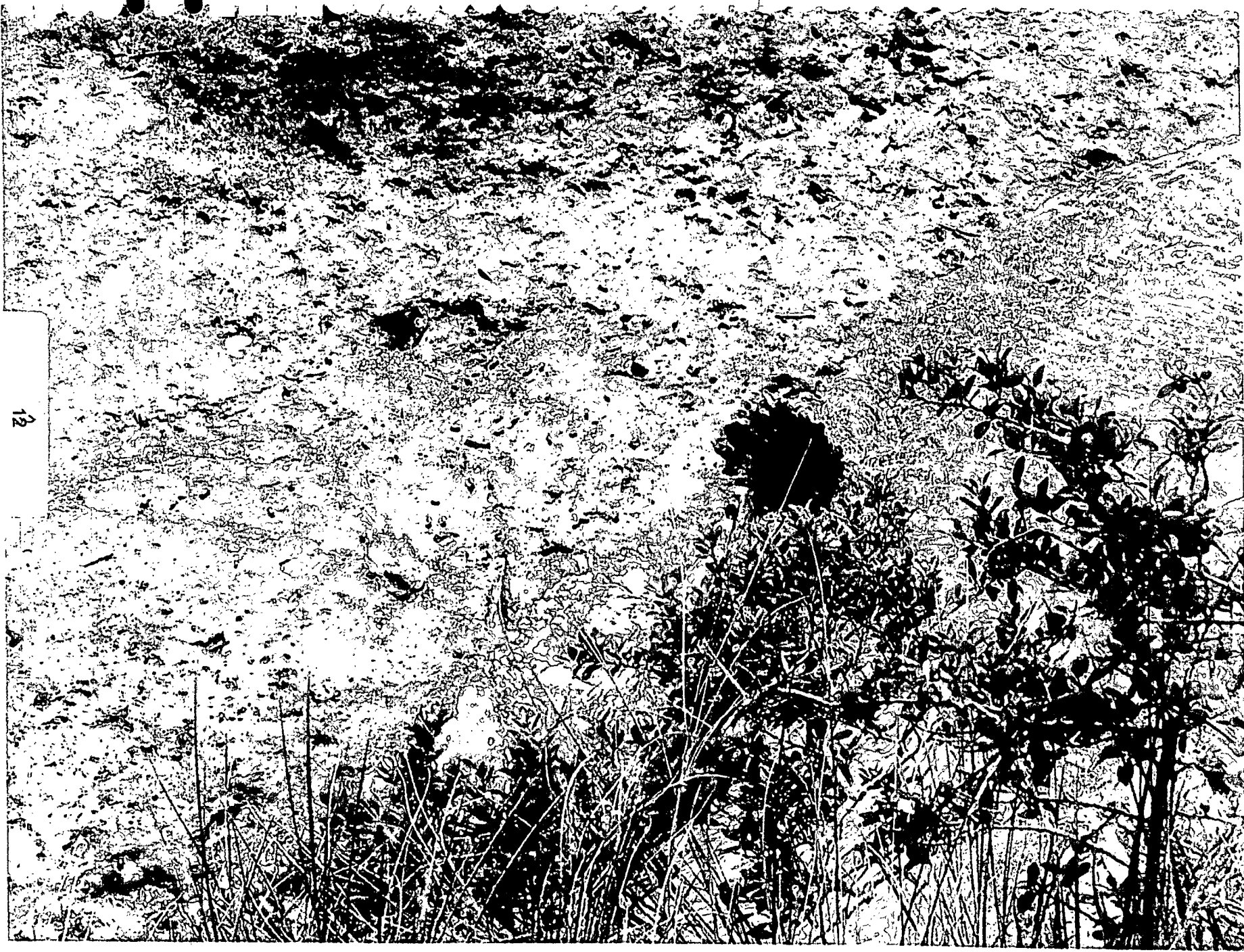
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1394





Ryan Lyle

From: Ryan Lyle
Sent: Wednesday, April 13, 2011 12:57 PM
To: 'Tom Carpenter'
Subject: Beaufort - dike breach stabilization
Attachments: 100_1273.JPG; biv2.PNG; 100_0850.JPG

Tom,

Please see attached photographs of a dike breach.

The existing freshwater duckpond had an outfall structure that blew out about a year ago and replacement by barge was attempted and failed.

The top bank is elevation 7.5 and the bottom of pond is roughly elevation 2.0, so we need to reinforce/stabilize the face of the exposed bank to eliminate further erosion into the saltmarsh. The mean high tide is roughly elevation 4.1 but spring tides approach elevation 7.0, nearly topping the bank.

The owners do not wish to replace the outfall pipe, but do wish to stabilize the opening as cost effectively as possible.

We are planning to feather out the slopes to 1 or 2:1 and add either riprap or scourstop reinforcement.

We are meeting with the owners this afternoon to discuss their preferred aesthetic look (rock vs veg. mat) at 1:30pm this afternoon, but money talks and we believe your methods may save them money.

If you get a chance, my boss and I will be travelling to the site and you could catch me on my cell phone at 843-562-7005 to speak generally about your product and its potential use on this project.

They have a golf course maintenance crew who could potentially install this material as they are familiar with installing other geotextile reinforcement on golf course slopes, but this is tidally influenced and once installed we don't want to touch it again.

Call when you get a chance today, or reply by email at your convenience.

Thanks,

Ryan Lyle, P.E.
Project Manager

Andrews & Burgess, Inc.
Engineering and Surveying
40-A Shanklin Rd.
Beaufort, SC 29906
(843) 466-0369 tel.
(843) 466-9766 fax

From: Tom Carpenter [mailto:tom@scourstop.com]
Sent: Wednesday, October 13, 2010 5:01 PM
To: Ryan Lyle
Subject: webcast response

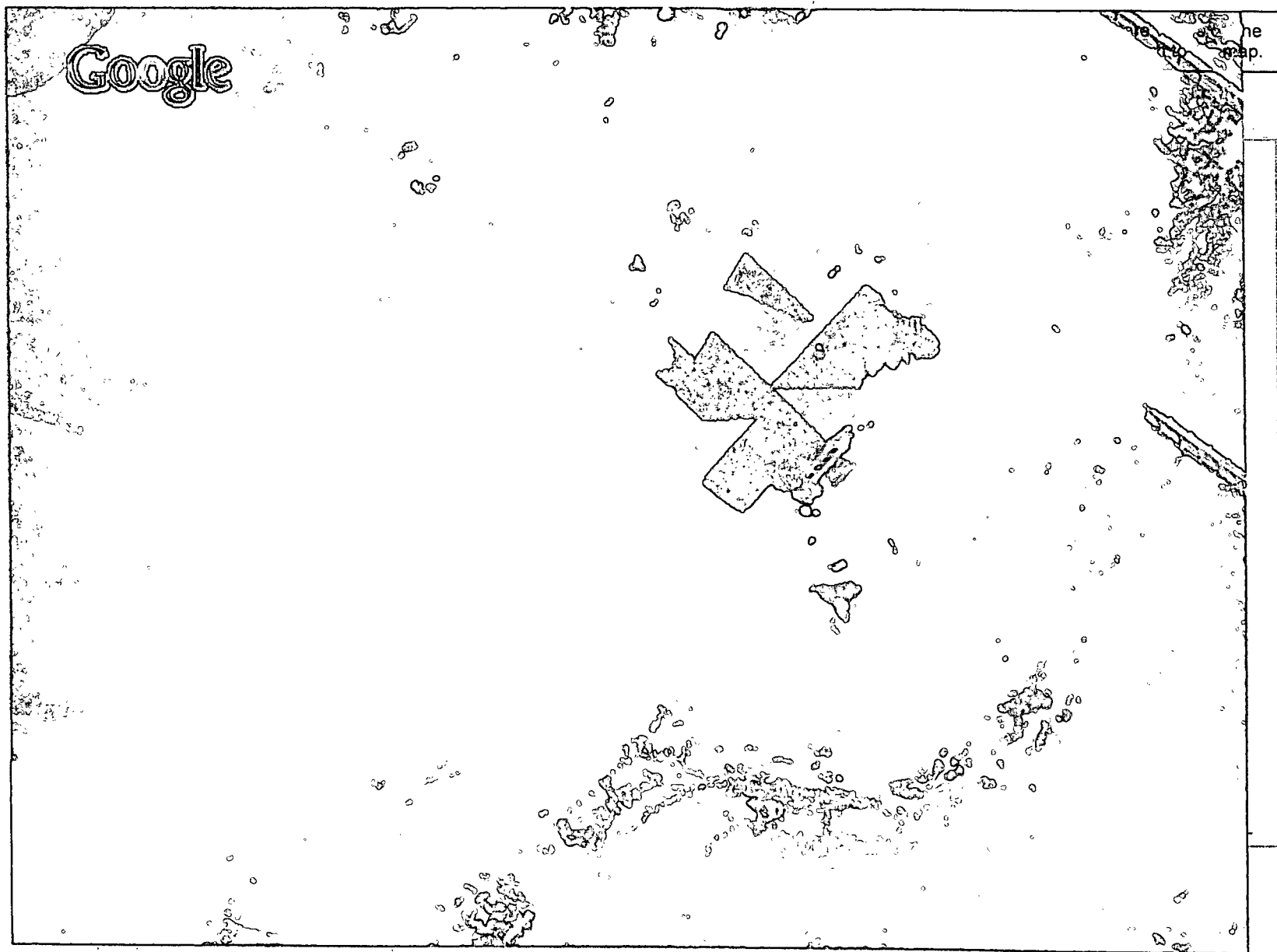
how about saltwater applications. we are interested in using this for protecting a trapezoidal weir that will be tidally influenced (flow reversal from inflow of incoming tides and outflow during ebb tides) on a pond bank adjacent to the marsh.

Saltwater applications are not a problem. Many species of saltwater plants can be plugged or over-lain with the mats. If new construction, we have details for both vegetated and non-vegetated applications.

Please reply email for the entire Q&A.

Thomas Carpenter, CPESC
515-202-0568
www.scourstop.com

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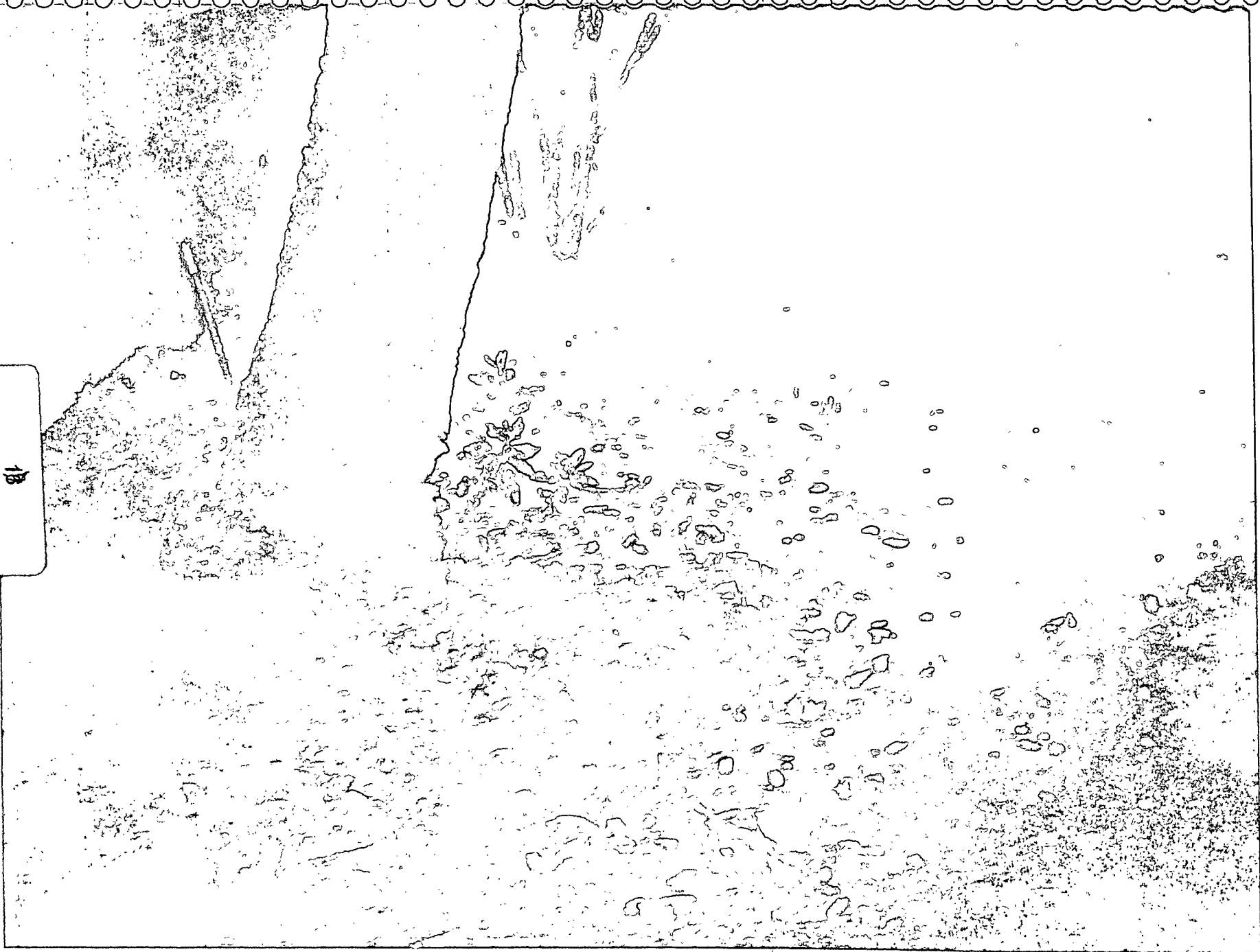


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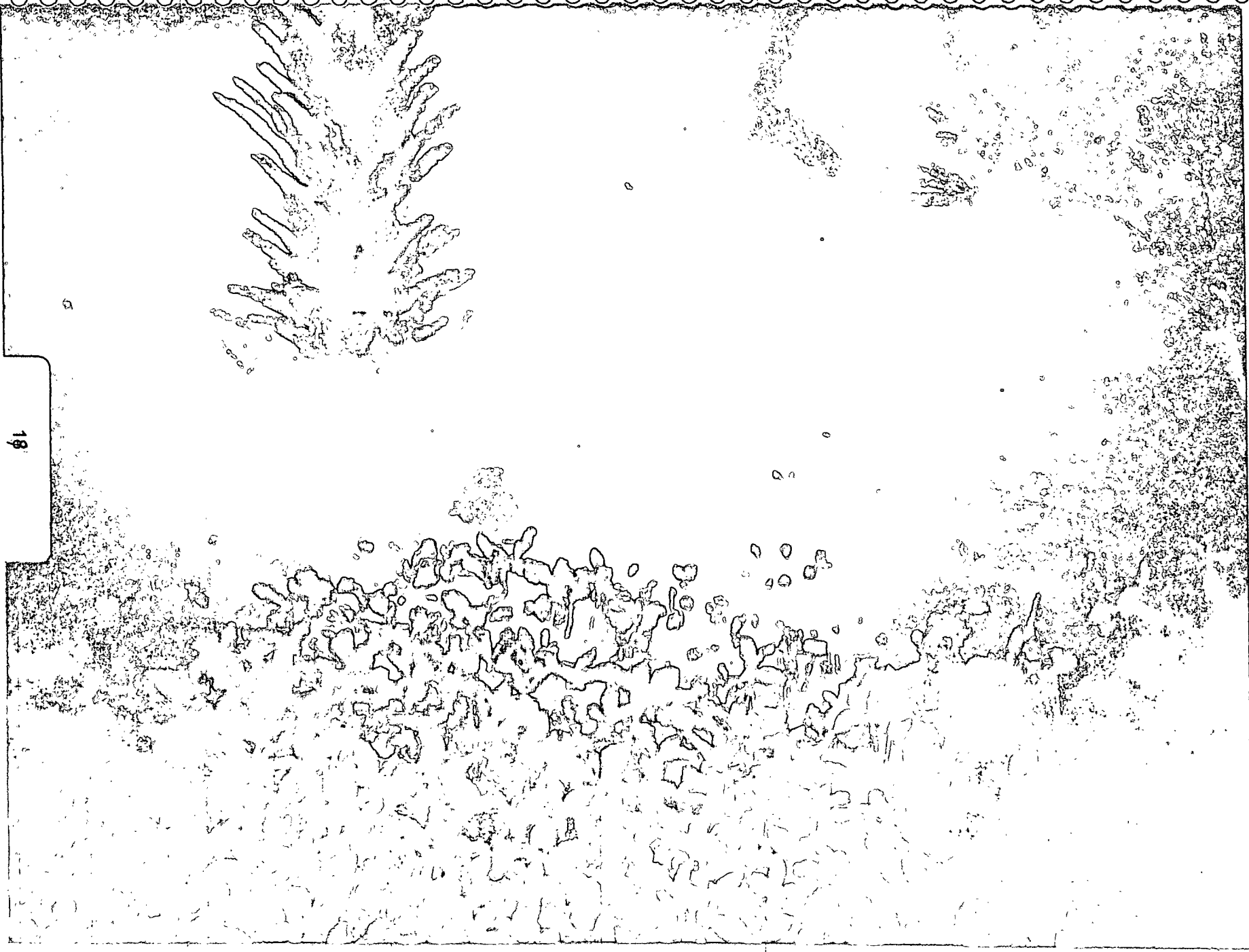
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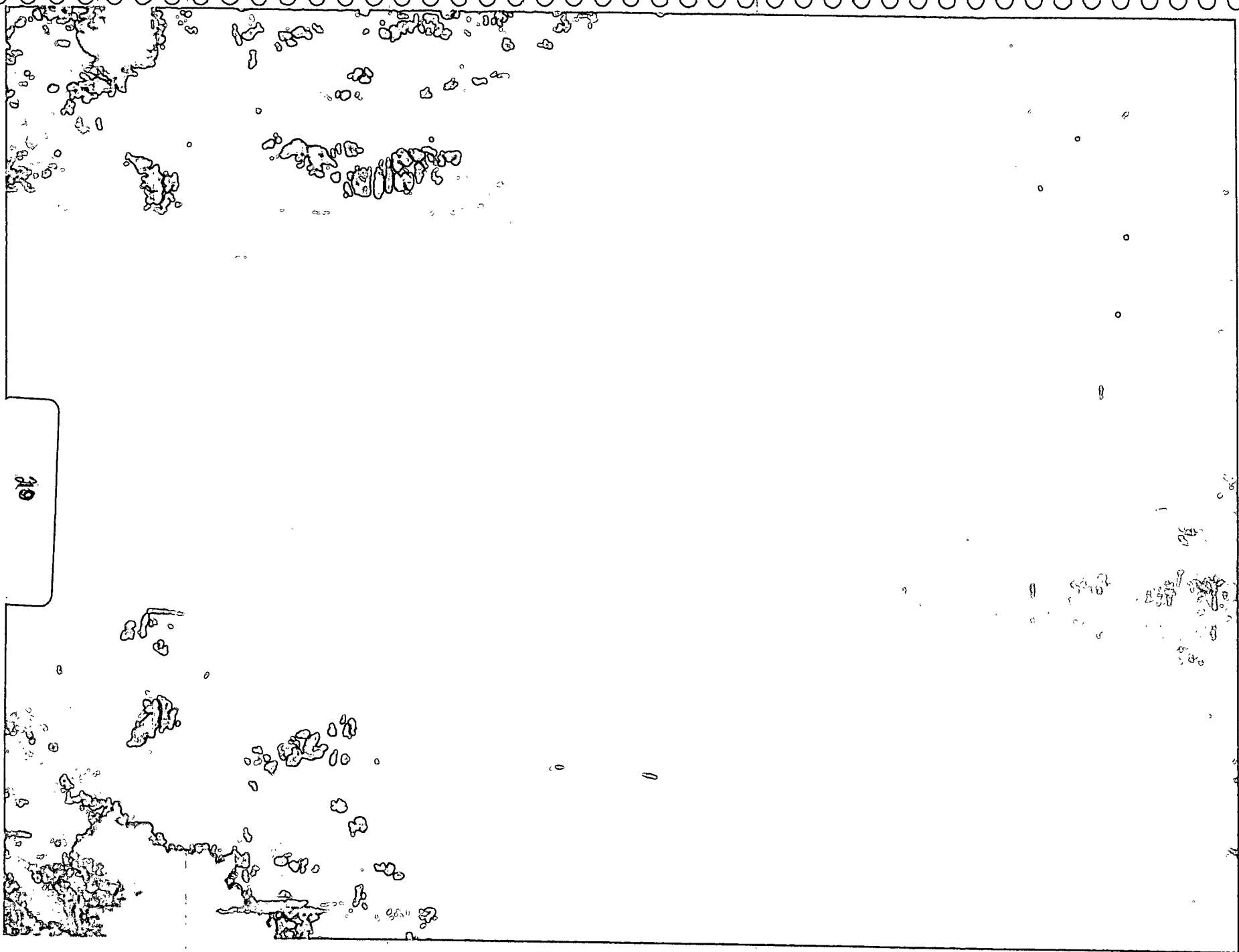


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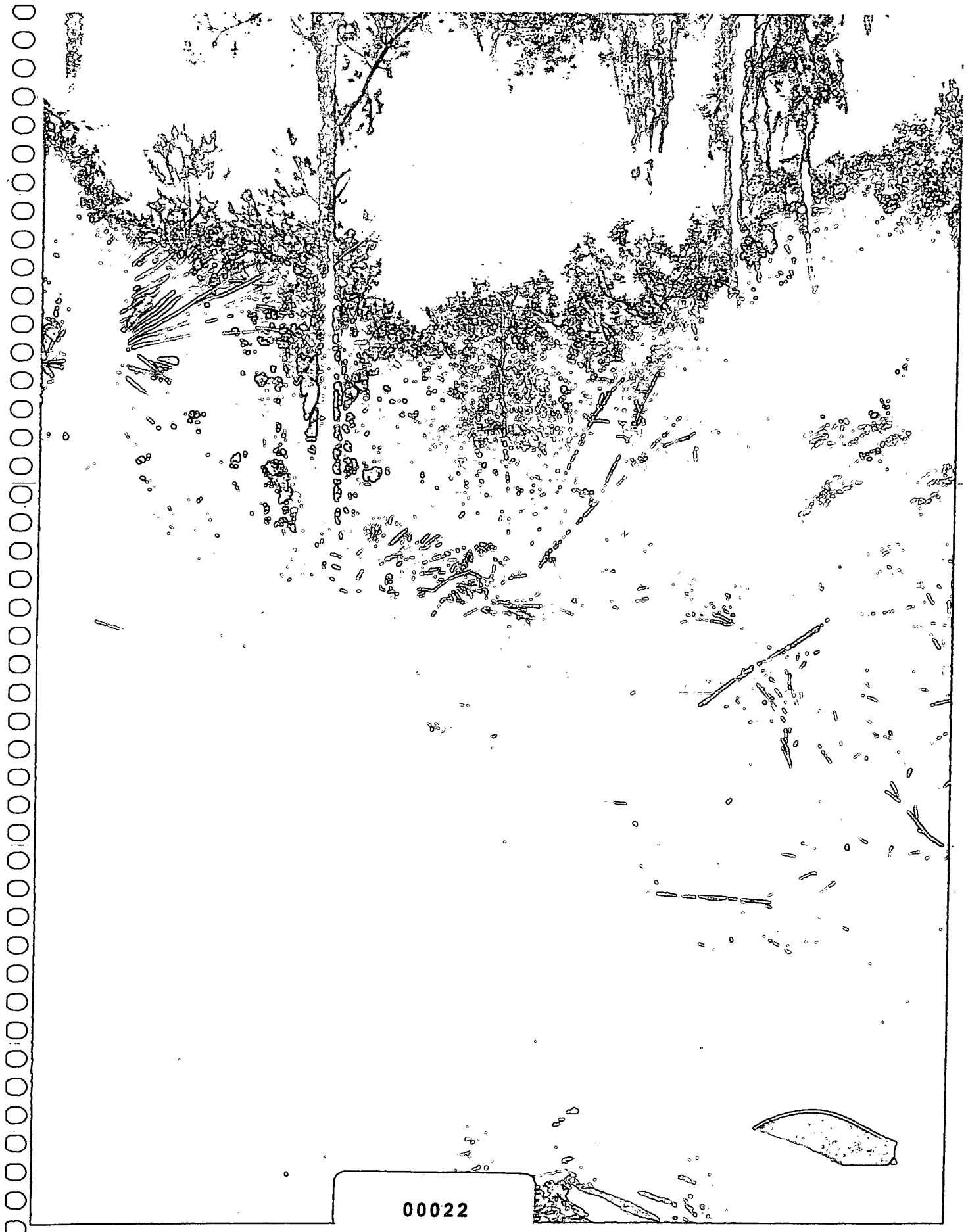
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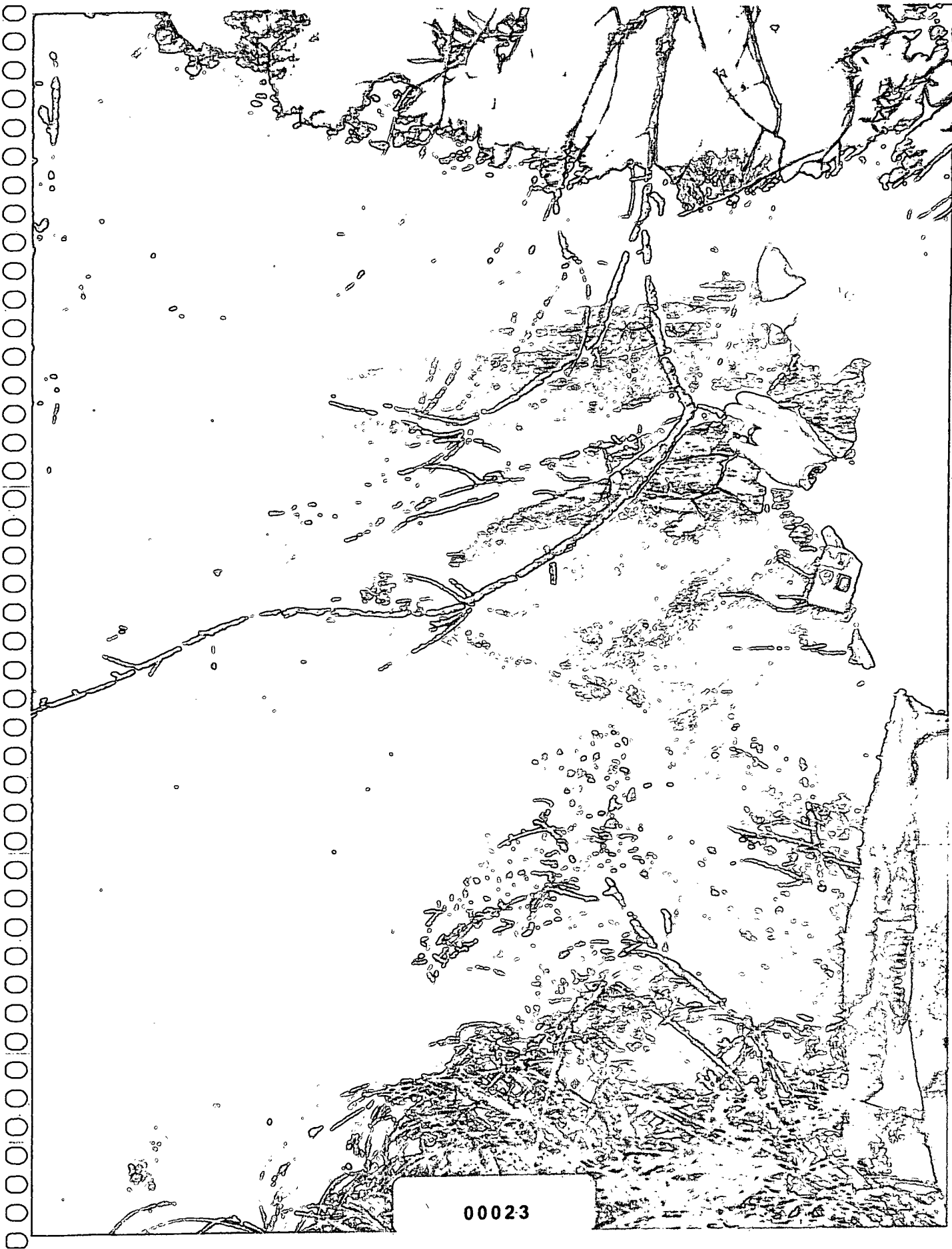


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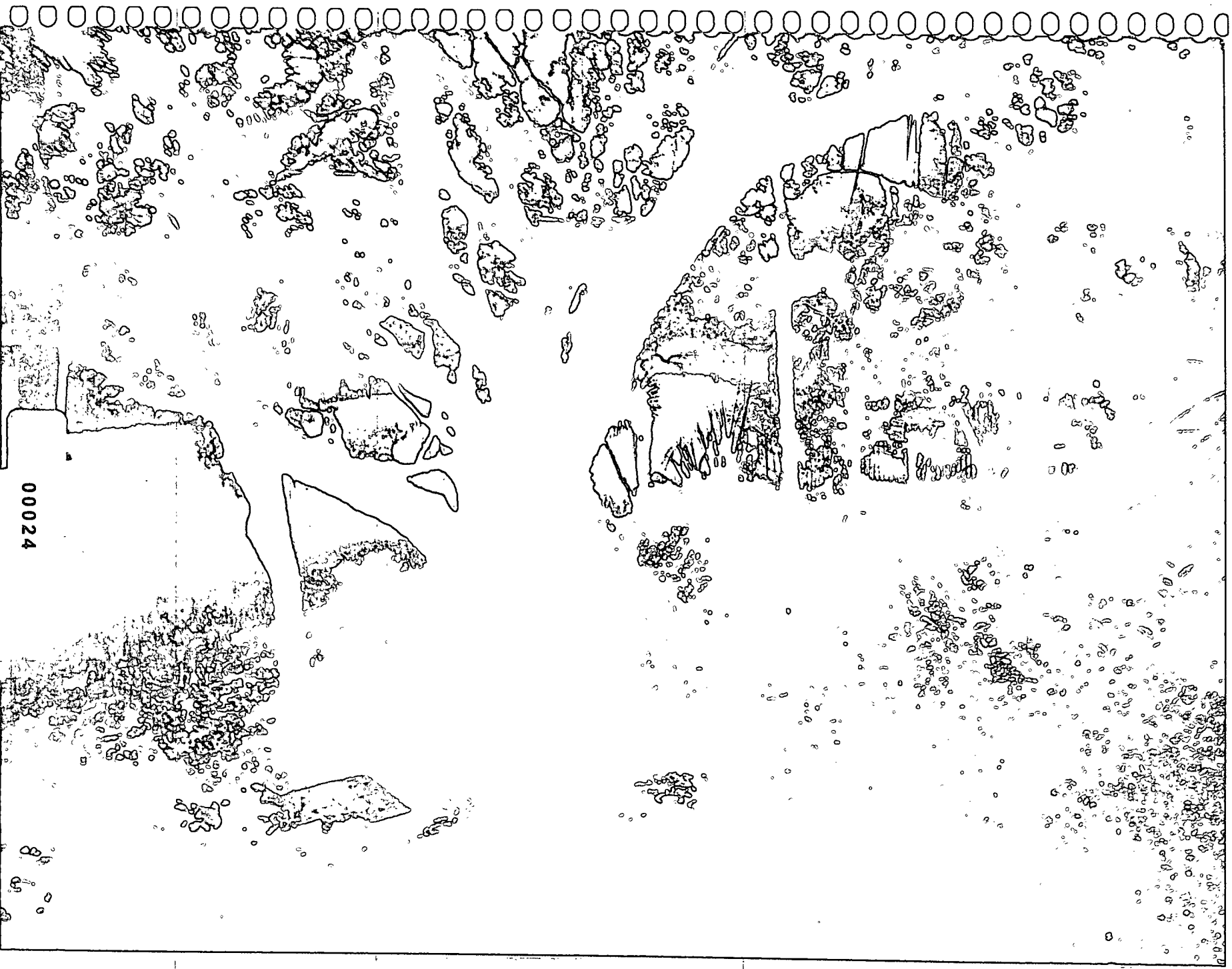
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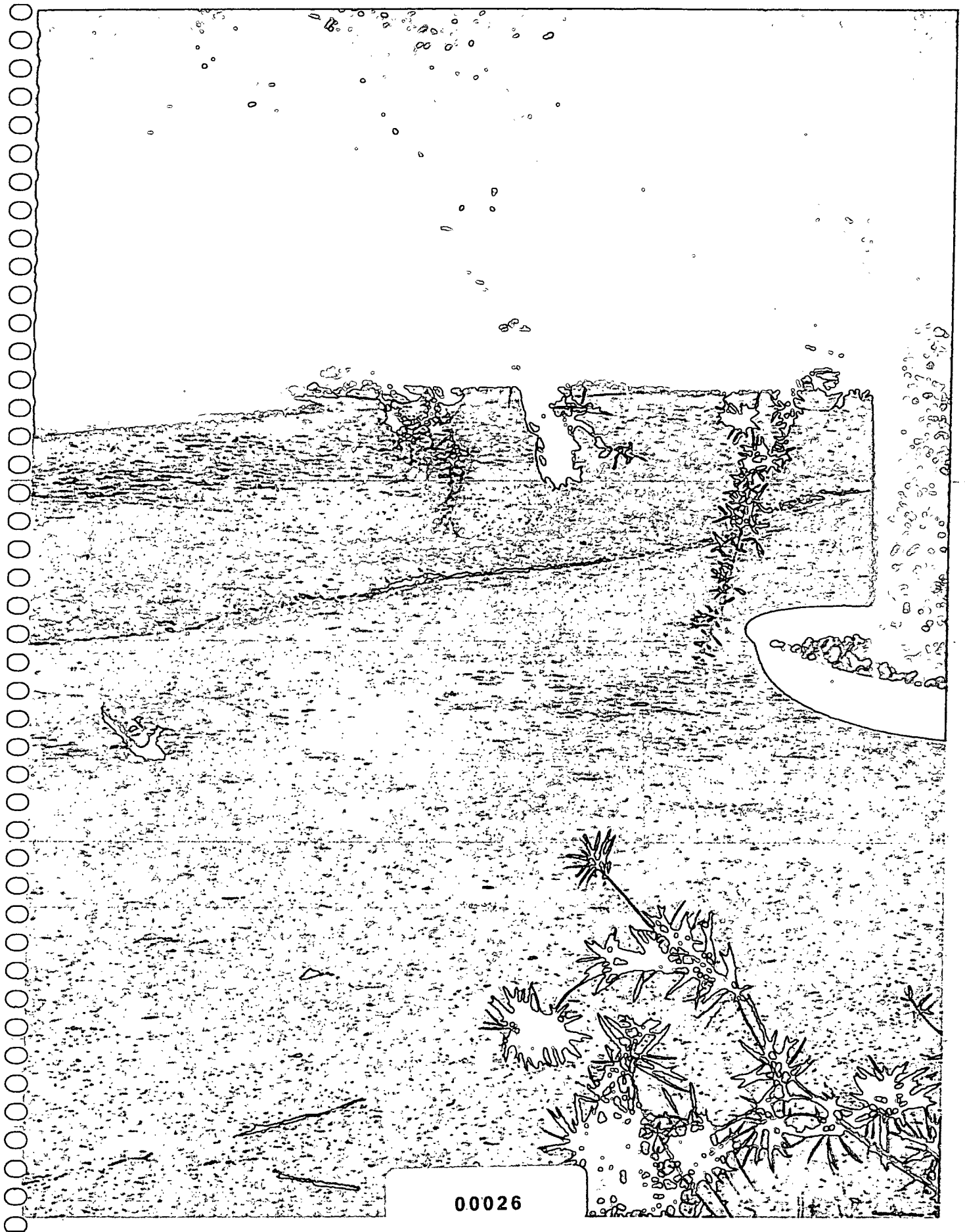
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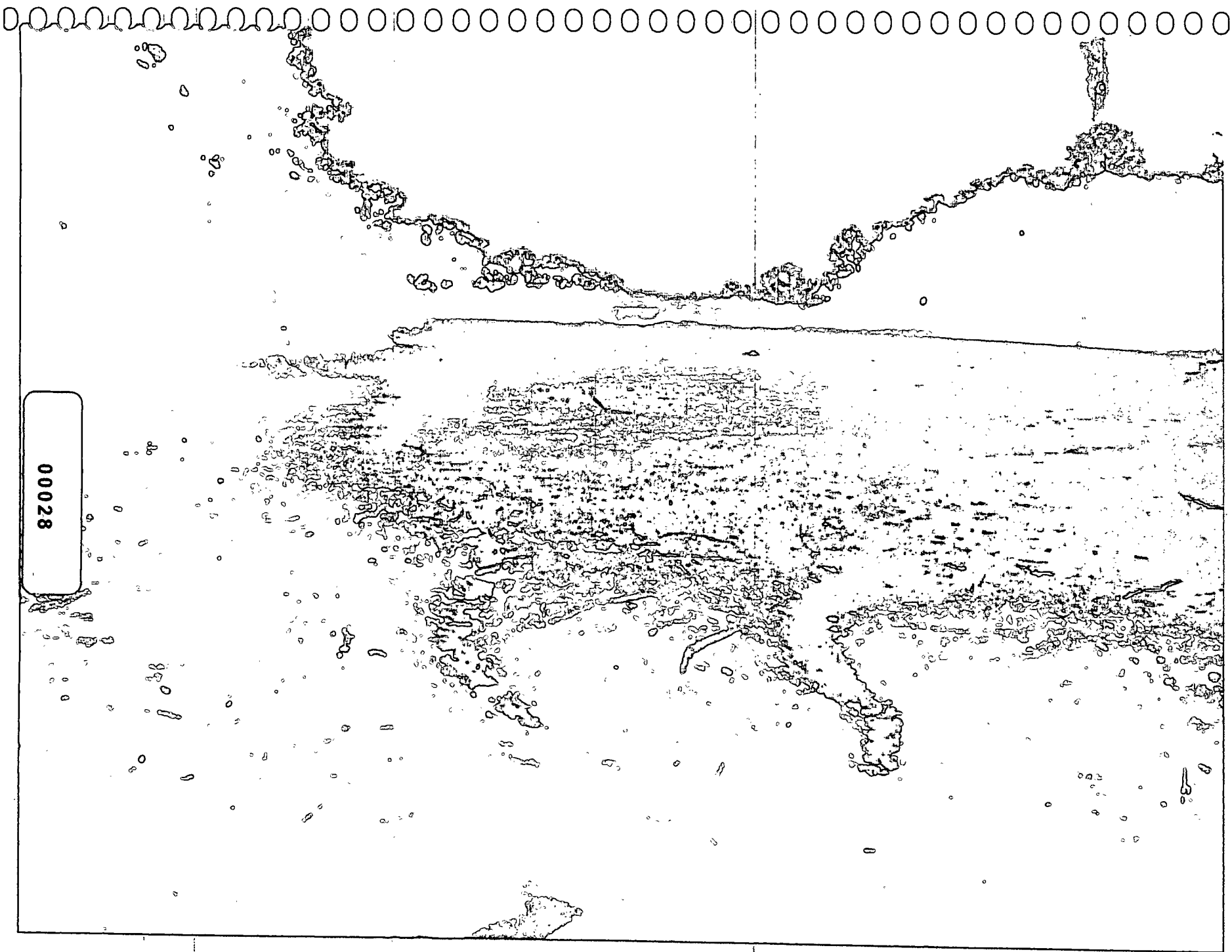
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Google

To see all the details that are visible on the screen, use the "Print" link next to the map.



m Service Agency, Map data ©2012 Google -

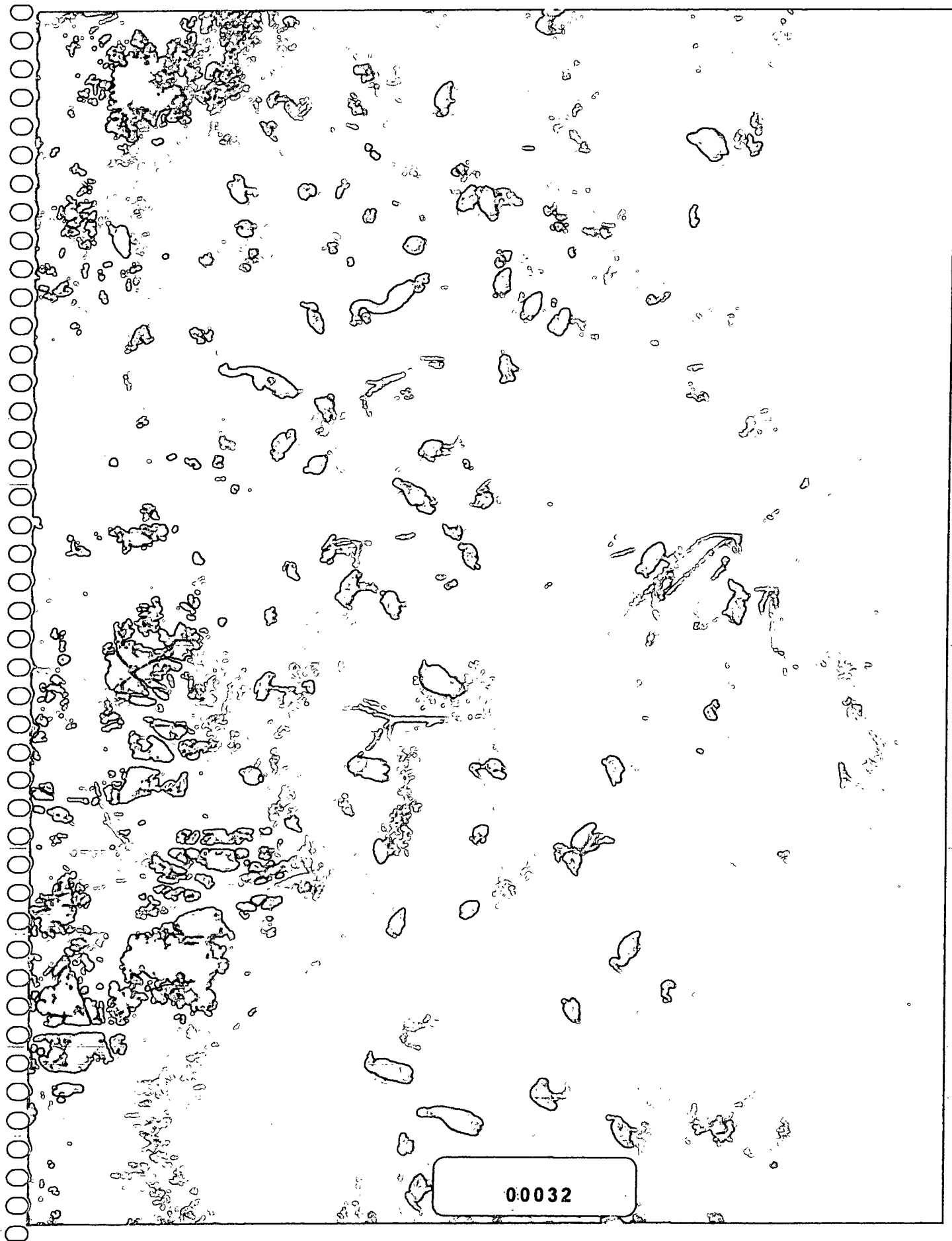
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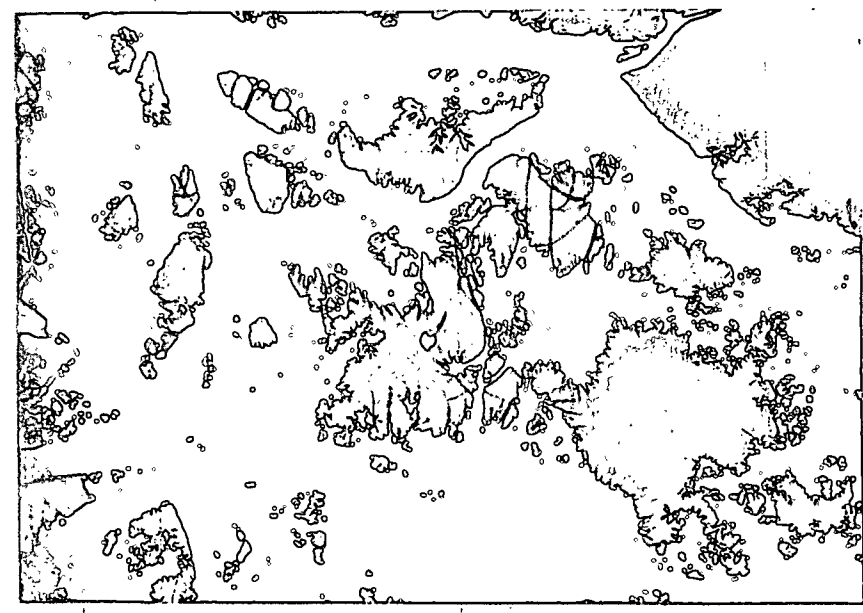


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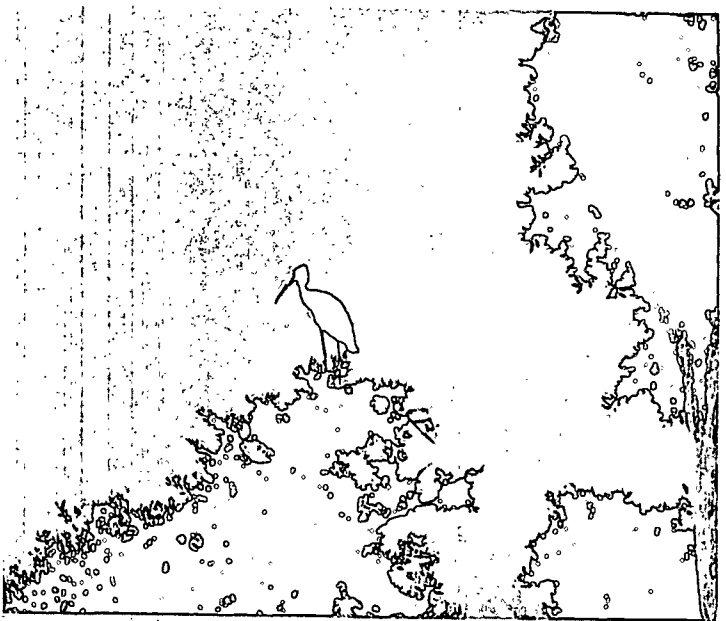
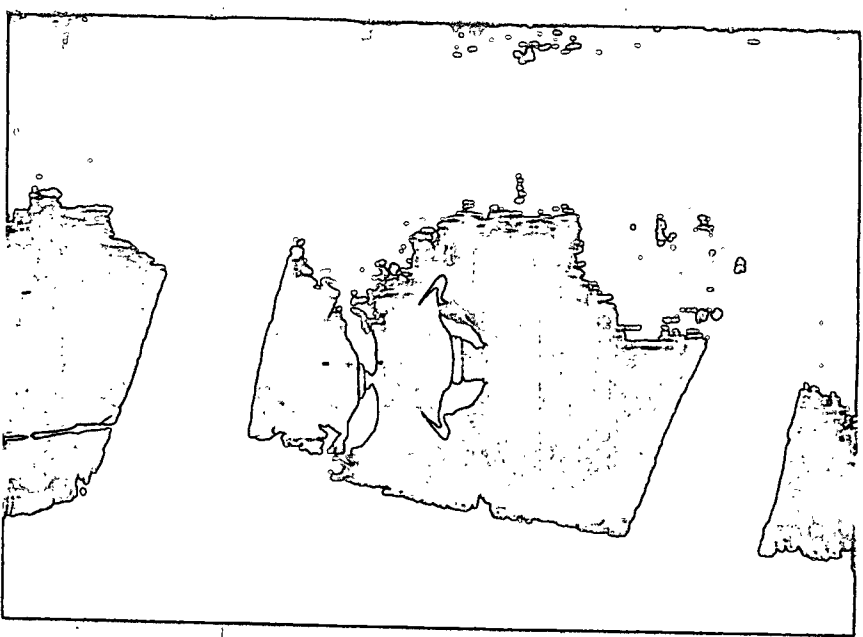
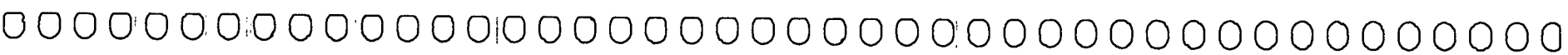


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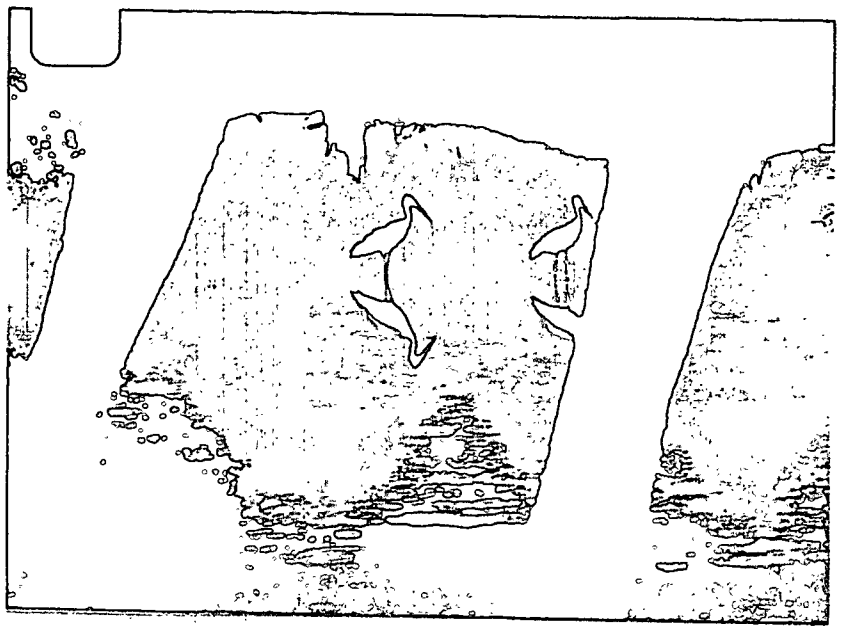
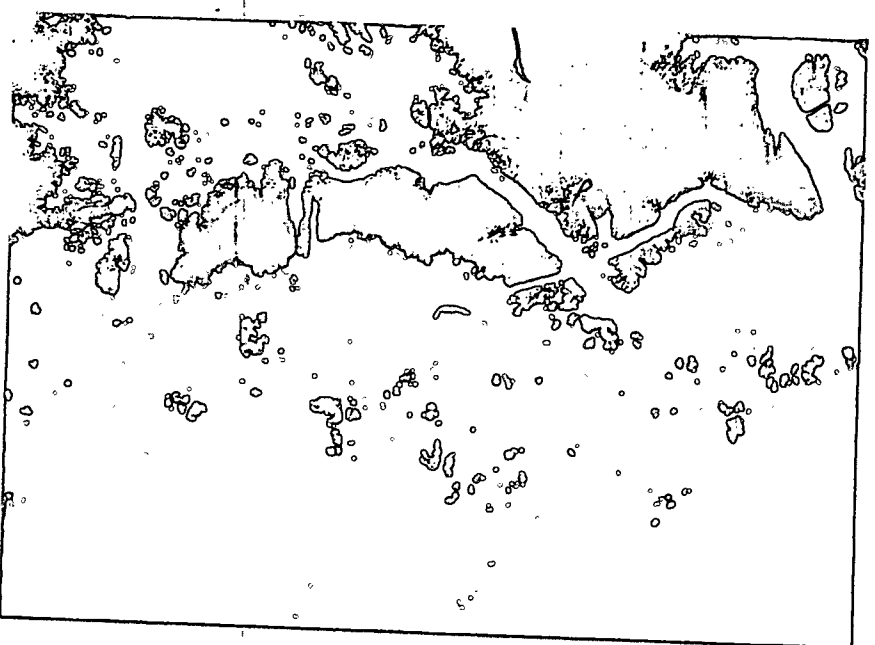




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Stormwater Management and Sediment and Erosion Control Plan Review Checklist For Design Professionals

Please indicate the location and page number(s) where each item below can be found in your SWPPP or supporting calculations. If an item is not applicable, put N/A. The Department reserves the right to modify this checklist at any time. The Coastal Zone consists of the following counties: Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Horry, and Jasper.

Checklist Completed by:

Printed name: _____ Signature: _____ Date: _____

1. CURRENT COMPLETED APPLICATION FORM

- Original signatures
- Signatory authority
- All items completed and answered
- Fee Schedule
- Note: State and local government projects are not exempt from the plan review fee of \$100 per disturbed acre.

2. COPIES OF PLANS AND CALCULATIONS

- Plans stapled together
- For projects that disturb more than 2 acres, less than or equal to 2 acres but are part of a larger common plan of development or sale (LCP), or more than 0.5 acre and within ½ mile of a receiving waterbody (RWB) in the Coastal Zone, ONE set of plans and supporting documentation (report, calculations, maps, etc.)
- For projects that disturb less than or equal to 2 acres (not part of LCP and not within ½ mile of RWB in the Coastal Zone), THREE sets of plans and one set of supporting documentation [Note: You may submit up to 2 additional sets of plans to be stamped for approval.]
- Supporting documentation tabbed (e.g., Maps, Pre-Development calculations) and pages numbered [no loose pages]

3. LOCATION MAP

- North arrow and scale
- Outlined project location
- Labeled road names

4. PROJECT NARRATIVE

- Scope of project outlined, including a brief description of pre- and post-development conditions
- Summary table of pre- and post-development flows (at least 2- and 10-year, 24-hour storm events)
- Existing flooding problems in the surrounding area described
- Disturbed area calculations included for subdivision projects or LCP disturbing 1 or more acres
 - For subdivisions if the site is not to be mass-graded, the following formula should be used to determine the amount of disturbance:
$$\text{Amount of Disturbance} = 2(\text{Max Restricted Building Size})(\text{Number of Lots}) + \text{Right of Way (ROW) areas (ROW areas include clearing for roads, utilities, easements etc.)}$$
 - If this equation is used, include a note on the plans stating: "The site is not to be mass-graded. Only 2 times the footprint is to be cleared as the lots are developed. The assumed disturbance on each lot is ____ sq. ft."

5. USGS TOPOGRAPHIC MAP

- Project boundary outlined
- Route of runoff from site to nearest waterbody shown
- Road names adjacent to site labeled

6. SOILS INFORMATION

- Project boundary outlined
- Predominate soil types found at the site identified on the plans or on a separate map
- Note: Soils information is available from the Natural Resource Conservation Service through their website:
<http://websoilsurvey.nrcs.usda.gov/app/>

7. FLOODWAY MAPS/FEMA FLOOD INSURANCE MAP

- Project boundary outlined, if in close proximity to floodplain/ floodway
- Note: The Department does not regulate the placement of fill in floodplains. Please see your local city or county official.

Updated 10/3/06

00035

8. WATERS OF THE STATE, INCLUDING WETLANDS

- Delineation of all waters of the State (WoS), including wetlands, shown and labeled on plans (delineation not required if a 100-ft undisturbed buffer can be maintained between the WoS and all land-disturbing activities)
- Additional, separate plan sheet that shows all WoS on the site and the impacted areas with a description of the activity(s), whether it is permanent or temporary, and any other relevant information.
- If impacts to WoS, outlined areas of impacts and labeled that no work can begin in this area until all necessary USACOE permits and SCDHEC 401 certifications have been obtained.
- Double row of silt fence provided in all areas where a 50' undisturbed buffer cannot be maintained between the disturbed area and the WoS
- Minimum 10' maintenance buffer provided between last row of silt fence and WoS; or, if buffer not provided, then statement from P.E. on plans indicating how silt fence will be installed and maintained without impacts to WoS
- *Note: If there are proposed impacts to WoS, then it is advised that you contact USACOE (866-329-8187) and/ or S.C. DHEC Water Quality Certification, Standards & Wetlands Programs Section (803-898-4300) to determine additional requirements before submitting the Notice of Intent (NOI).*
- *Note: If WoS are to be impacted, work cannot be performed in these designated areas until all necessary permits have been acquired*
- *Note: If a USACOE permit is required for construction of or access to a temporary or permanent stormwater management structure, NPDES permit coverage cannot be granted until the USACOE permits and S.C. DHEC 401 Section certifications are obtained.*
- *Note: The Department recommends a minimum 20-foot buffer between a sediment trap/basin and WoS.*

9. HYDROLOGIC ANALYSIS

- Pre- and post-developed hydrologic analysis calculations for the 2- and 10-year, 24-hour storm events at each outfall point
- Drainage area maps that clearly correspond to the calculations (pre- and post-development)
- Analysis points for comparing runoff rates and the total drainage area analyzed do not change from pre- to post-development, although the immediate drainage areas contributing to each analysis point might shift.
- Post-development discharges less than pre-development discharges for each outfall point (if not, then see "Detention Waiver" section below)
- Analysis performed using SCS 24-hour storm (Rational method is not acceptable)
- Rainfall data from South Carolina DHEC Storm Water Management BMP Handbook (BMP Handbook) used in all calculations
- *Note: The curve number for open water, marshes, etc. should be 98 to 100.*

10. DETENTION ANALYSIS/DESIGN

- **Analysis**
 - Pond routing using a volume-based hydrograph for the 2- and 10-year, SCS 24-hour storm event (Drain:Edge, ICPR, HEC-1, SedCAD, HYDRAFLOW, etc. perform full pond routings; TR55 does not perform a full pond routing; rational method cannot be used)
 - Hydrologic and hydraulic calculations necessary to determine the impact of hydrograph timing modifications of the proposed land-disturbing activity, with and without the detention structure (results of analysis will determine the need to modify the detention design or eliminate the detention requirement—see note 2 below)
 - Inputs and outputs from analysis program
 - Summary table of the peak inflows, peak outflows, discharge velocities, and maximum water surface elevations (WSE) for the 2- and 10-year, 24-hour storm events for each detention structure
 - Stage-storage-discharge relationship for the outlet structure of each detention structure
 - If a rating curve for the outlet structure must be generated externally from the analysis program (Drain:Edge, HEC-1, etc.), data and equations used to rate the outlet structure
 - As-built of existing detention pond if the site drains to an existing detention pond (see below)
 - *Note: SedCAD users please refer to the memo regarding the input of outlet structures.*
 - *Note: The Department recommends using the 10% rule in performing analysis. The hydrologic analysis should be conducted for the larger drainage area, where the site in question encompasses 10% of the total drainage area. For example, if your site is 10 acres, then the hydrologic analysis should be performed at the point downstream where the contributing drainage area, including your 10-acre site, is approximately 100 acres.*
- **Design**
 - Detail of outlet structure and cross-section of the dam/ berm or pond bank, including elevations and dimensions that correspond to the calculations
 - Orifice constructability considered (do not specify orifice diameters with increments of less than ¼")

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Updated 10/3/06

00036

- Maximum WSE for the 10-year storm event below the emergency spillway with 0.5-ft of freeboard between maximum WSE for the 10-year storm and the emergency spillway
- Maximum WSE for the 100-year storm event below the embankment with 0.5-ft of freeboard between maximum WSE for the 100-year storm and the embankment
- Dewatering time calculations for the 10-year storm event (dry ponds must drain completely within 72 hours)
- Bottom of all detention and retention ponds graded to have a slope of not less than 0.5%
- If the pond is to be used for sediment control during construction, temporary horseshoe-shaped riprap berm in front of any low level outlets provided during construction and shown on the pond detail
- Permanent maintenance access to all permanent detention structures (easements may be needed for structures surrounded by lots)
- Infiltration systems designed in accordance with S.C. Reg. 72-307.C(11) [specify how items a-j have been addressed]
- *Note: Emergency spillways should not be built on fill slopes.*
- *Note: The Department recommends installation of a trash rack or other debris-screening device on all pond risers.*
- *Note: The Department recommends a maximum slope of 3:1 on pond embankments to allow for ease of maintenance.*
- *Note: The Department recommends installation of sediment forebays at each outfall into the detention/ sediment basin.*

11. AS-BUILTS

- Provided for all previously approved detention ponds that will receive flows from new drainage areas
- Prepared by a South Carolina Licensed Land Surveyor
- Grades/ contours/ depths for pond
- Elevations and dimensions of all outlet structures, including:
 - Pipe and orifice inverts and diameters
 - Weir elevations and dimensions
 - Riser dimensions and elevations
 - Emergency spillway dimensions and elevations
 - Locations and inverts for all pipes discharging into the pond
- If the elevations or dimensions of the structures listed above do not match those used in the approved plans, certification statement signed by the project's Registered Engineer indicating that the pond, as built, will function within all applicable standards provided [new analysis of the pond (routing) may be necessary]
- For projects located in the eight coastal counties: For any construction project permitted after September 1, 2006, as-built/record drawings will be required by DHEC-OCRM prior to stormwater permit closeout. Prior to the contractor requesting a final site inspection, one as-built drawing hard copy and 1 digital (scanned plan sheets as .tif or .pdf document) copy must be provided to OCRM staff.
- *Note: As-built survey and /or analysis must be submitted and accepted by the Department before Notice of Termination (NOT) is submitted.*

12. PERMANENT STORMWATER MANAGEMENT STRUCTURE MAINTENANCE

- Signed agreement from the responsible party accepting ownership and maintenance of the structure
- Description of maintenance plan to be used
- Schedule of maintenance procedures (e.g., every 6 months)
- Detailed or manufacturer-specific maintenance items for proprietary control devices (oil-water separators, etc.), underground detention structures, exfiltration systems and non-traditional stormwater controls (constructed wetlands, bioretention, etc.)
- Typical maintenance items to be addressed
 - Grass to be mowed
 - Trees to be removed from within the pond and on the embankment
 - Trash and sediment to be removed from inside of and around the pond outlet structure
 - Orifices to be cleaned and unclogged
 - Outlet pipe to be cleaned, inspected, and repaired
 - Sediment accumulation to be removed from pond
 - Pond bottom to be regraded to provide proper drainage towards the outlet discharge point
 - Energy dissipator to be cleaned and repaired
 - Emergency spillway, if applicable, to be inspected and repaired
 - Erosion on side slopes, if present, to be addressed
 - The Department must be notified in writing of any changes in maintenance responsibility for the stormwater devices at the site (include this statement in agreement).

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Updated 10/3/06

00037

- *Note: The Department recommends that the county, city, or other governing utility, which has the authority to accept the ownership and maintenance of a storm drainage system also accept the permanent stormwater management structure.*
- *Note: If the entity or person with maintenance responsibility changes, then a new maintenance agreement, signed by the new person responsible for maintenance, must be provided to the Department. If a new, signed maintenance agreement is not provided to the Department, then the entity/ person who signed the most recent maintenance agreement on file with the Department will be considered the responsible entity.*

13. DISCHARGE POINTS

- Storm drainage or pond outfalls carried to an existing drainage outfall such as a pipe, ditch, etc.
- No new point discharges onto adjacent property where there was not a point discharge previously, unless written permission from the adjacent property owner is provided
- Level spreaders, plunge pools, etc. provided when the proposed outlet is near the property line and not directed to an existing outfall, such as a creek or ditch
- Twenty (20)-foot minimum buffer is provided between the property line and the discharge point
- Outlets shall not discharge on fill slopes

14. DETENTION WAIVER

- *Note: If the 2- and 10-year, 24-hour post-developed flow rates exceed the pre-developed rates, waivers from detention may be granted in accordance with regulation 72-302(B) on a case-by-case basis*
- Justification and a written request, including the following statement: "the increased flows will not have a significant adverse impact on the downstream/adjacent properties"
- A project may be eligible for a waiver or variance of stormwater management for water quantity control if the applicant can demonstrate that:
 - The proposed project will have no significant adverse impact on the receiving natural waterway or downstream properties; or
 - The imposition of peak control requirements for rates of stormwater runoff would aggravate downstream flooding
- Waiver signed by the project's Professional Engineer
- *Note: See note in checklist item 10 regarding the 10% rule.*

15. PERMANENT WATER QUALITY REQUIREMENTS

- Permanent water quality addressed (all projects or LCP that disturb 5 or more acres)
 - Wet ponds designed to catch the first 1/2" of runoff from the entire area draining to the pond and release it over at least a 24-hour period
 - Dry ponds designed to catch the first 1" of runoff from the entire area draining to the pond and release it over at least a 24-hour period
 - *For areas not draining to a pond, show how permanent water quality requirements were addressed?*
- Projects disturbing less than five (5) acres but within one-half (1/2) mile of a receiving water body in the Coastal Zone must meet Section III.C.3.XIII.A of the Coastal Zone Management Program Refinements. Designs must show that the first 1/2 inch of runoff from the entire site or the first one (1) inch of runoff from the built upon area, whichever is greater, can be stored onsite.
- Waters of the U.S./State are not used for permanent water quality control (alternative means of treatment must be used if an existing pond is to be used for water quantity control).
- *Note: Other non-traditional stormwater controls such as Bioretention areas, constructed wetlands, etc. may be used. Consult the BMP Handbook for information on the design of these devices.*
- *Note: Pre-fabricated or proprietary treatment devices are approved on a case-by-case basis if adequate removal efficiency can be demonstrated. Provide pollutant removal efficiency data, preferably from a third-party testing company. Type of system selected should be based on the ability to remove the pollutants of concern in that area/situation (bacteria, hydrocarbons, etc.).*

16. SEDIMENTOLOGY

- Trapping efficiency calculations showing that all sediment basins/ traps are capable of achieving a sediment trapping efficiency of at least 80% for the 10-year, 24-hour storm event, if more than 10 disturbed acres drain to a common point (stream, lake, etc.)
- Sediment basins provide storage for the 10-year, 24-hour storm event for disturbed conditions or 3600 ft³/acre draining to the basin, if more than 10 disturbed acres drain to a common point (stream, lake, property line, etc.)
- Sediment traps only used for drainage areas of less than 5 acres
- Sediment trap storage calculations, showing that 1800 ft³/total acre draining to each trap is provided below the spillway 420
- If trapping efficiency calculations are required for sediment traps, then provide peak outflow, q_{po} , calculations; the 10-year, 24-hour storm event for construction conditions cannot overtop the trap's spillway

Updated 10/3/06

00038

- Sediment basins and traps designed for total area draining to them
- Drainage area map outlining the area draining to each basin/ trap
- Copies of figures used to determine V_{15} (SV-1) and trapping efficiency (ST-1, SB-1, SB-2), if Design Aids from BMP manual are used to determine trapping efficiencies
- Silt fence only used in areas with drainage areas of less than $\frac{1}{4}$ acre per 100 LF of fence and not used in areas with concentrated flows
- Clean-out stake, marked at $\frac{1}{2}$ the designed sediment storage depth, provided in all sediment basins/ sediment traps
- Note: Consult the BMP Handbook for information on the design of these and other devices.
- Note: The Design Aids in the BMP Handbook cannot be used to determine trapping efficiencies for structures in series. If the flow for the 10-year, 24-hour storm for construction conditions overtops the structure or the structure's spillway, then the Design Aids cannot be used. If multiple soil types are in the area draining to the structure, then the soil type with the smallest D_{15} for the appropriate depth should be used to determine the settling velocity, V_{15} ; an average D_{15} should not be used.
- Note: SedCAD users please refer to the memo regarding the input of outlet structures.

17. STABLE CHANNEL CALCULATIONS

- All channels and diversion ditches able to handle the 10-year storm event with non-erosive velocities of less than 5 feet per second during construction (use appropriate CN for disturbed areas) and post-construction (if velocity exceeds 5 ft/s, then permanent measures to reduce the velocity to a non-erosive rate must be provided)
- Rock check dams provided in temporary diversions
- Installation detail for erosion control blanket (ECB) or turf reinforcement matting (TRM) if ECBs or TRMs to be used

18. INLET PROTECTION

- Provided at all inlets
- Hay bales not used
- Steel posts and buried fabric shown for filter fabric inlet protection
- Inlet protection details provided for pre-paving and after roadways have been paved
- Note: The Department recommends that an inlet not have more than one (1) acre draining to it.

19. ENERGY DISSIPATORS/ OUTLET PROTECTION

- All outlets stabilized
- Riprap aprons sized appropriately
- Riprap detail shows apron dimensions and stone sizes for each pad or each pipe diameter
- Filter fabric installed beneath all riprap

20. FILL SLOPES AND/ OR EMBANKMENTS

- All slopes stabilized
- Slope drains designed in accordance with the BMP Handbook
- Slope drains provided where concentrated flows discharge onto a fill slope
- For all slopes steeper than 1.5:1, identification of stabilization practice (e.g., ECB, TRM)
- Note: Measures, in addition to grassing or hydroseeding, include synthetic or vegetative matting, diversion berms, temporary slope drains, etc.
- Note: If retaining walls or fill slopes are to be constructed at the downstream property line, the Department recommends a 10' buffer to allow for construction and maintenance. If a 10' buffer is not provided, then provide permission from the adjacent property owner for possible land-disturbing activities on his property.

21. UTILITY LINES

- Limits of disturbance include areas disturbed for water and sewer line installation
- Inlet protection provided at all existing inlets that receive flows from the disturbed areas; also add this as a note on the plans
- For all utility lines crossing WoS, narrative and detail showing sediment and erosion control measures provided on plans
- Note for construction entrances to be provided at all locations where construction traffic accesses a paved roadway

22. TMDL/ 303d IMPAIRED WATERBODIES

- List the nearest S.C.DHEC Water Quality Monitoring Station (WQMS) that the site's stormwater discharges drain to and the waterbody on which it is located: _____

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Updated 10/3/06

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Suntree Technologies, Inc., 798 Clearlake Rd., Cocoa, FL 32922, Phone 321-637-7552, Fax 321-637-7554, web: www.suntreetech.com

Grate Inlet Skimmer Box - Removal Efficiencies

Numeric Reductions (mg/L)

Location	Total Suspended Solids mg/L			Total Phosphorus mg/L			Total Nitrogen mg/L		
	Inlet	Outlet	Removal Efficiency	Inlet	Outlet	Removal Efficiency	Inlet	Outlet	Removal Efficiency
Site Evaluation - Reedy Creek			74%			57%	24.3	10.4	57%
Creach Engineering Report			73%			79%			79%
Witman's Pond	978	329	66%	18.6	0.452	98%	48.08	9.86	79%
UC Irvine			53%						

Location	Zinc mg/L			Lead mg/L			Copper mg/L		
	Inlet	Outlet	Removal Efficiency	Inlet	Outlet	Removal Efficiency	Inlet	Outlet	Removal Efficiency
UC Irvine			11%			99%			
Longo Toyota	13.7	0.73	95%	1.5	0.2	87%	1.9	0.1	95%

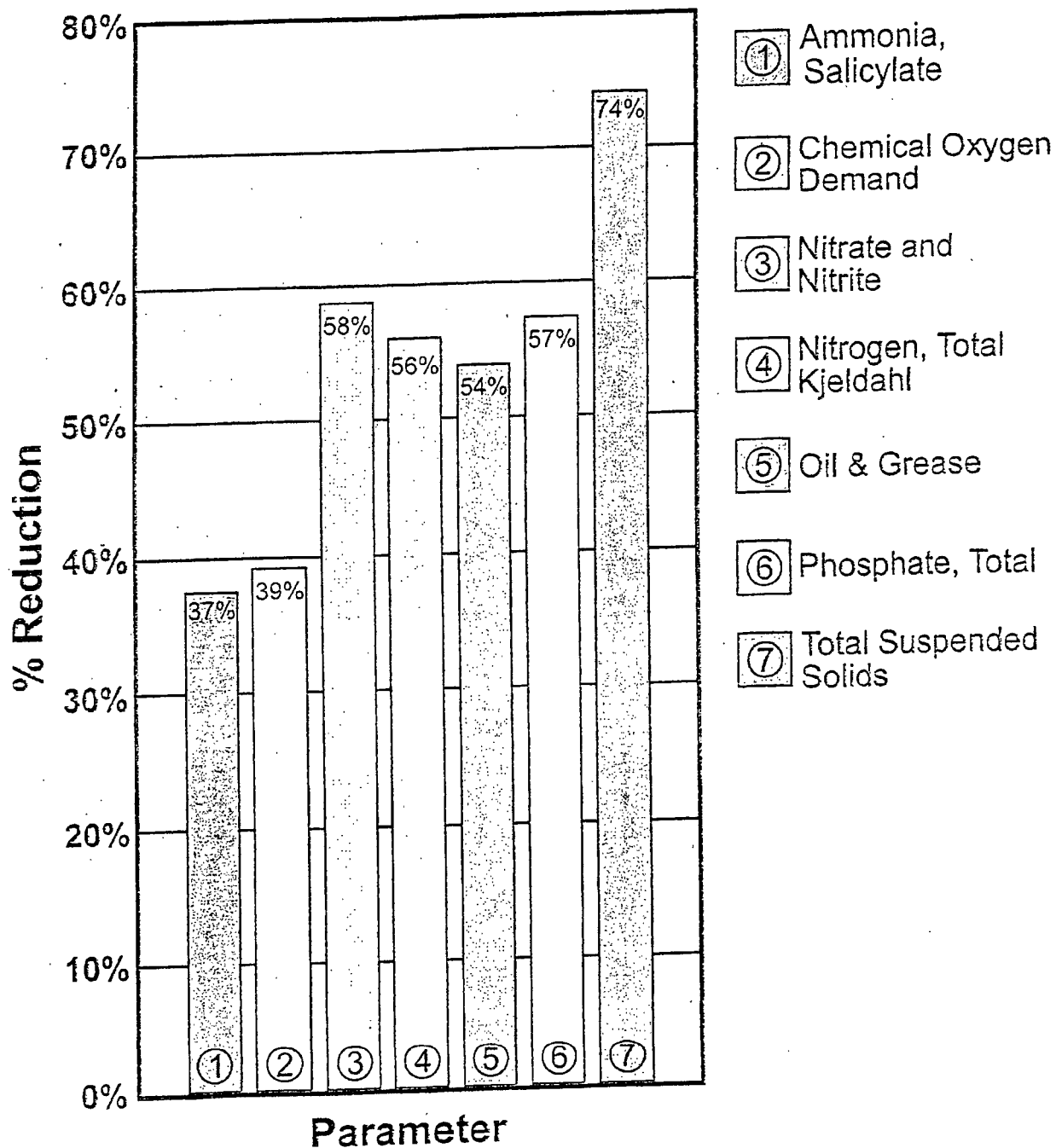
Location	Ammonia, Salicylate mg/L			Fecal Coliform CFU/100 mL			Cadmium		
	Inlet	Outlet	Removal Efficiency	Inlet	Outlet	Removal Efficiency	Inlet	Outlet	Removal Efficiency
Site Evaluation - Reedy Creek	0.38	0.23	39%						
UC Irvine						33%			94%

Location	Hydrocarbons mg/L			COD (mg/L)		
	Inlet	Outlet	Removal Efficiency	Inlet	Outlet	Removal Efficiency
Site Evaluation - Reedy Creek			54%	2670	1490	44%
Witman's Pond	110	50	55%			
UC Irvine			90%			
Longo Toyota	199	10.43	95%			

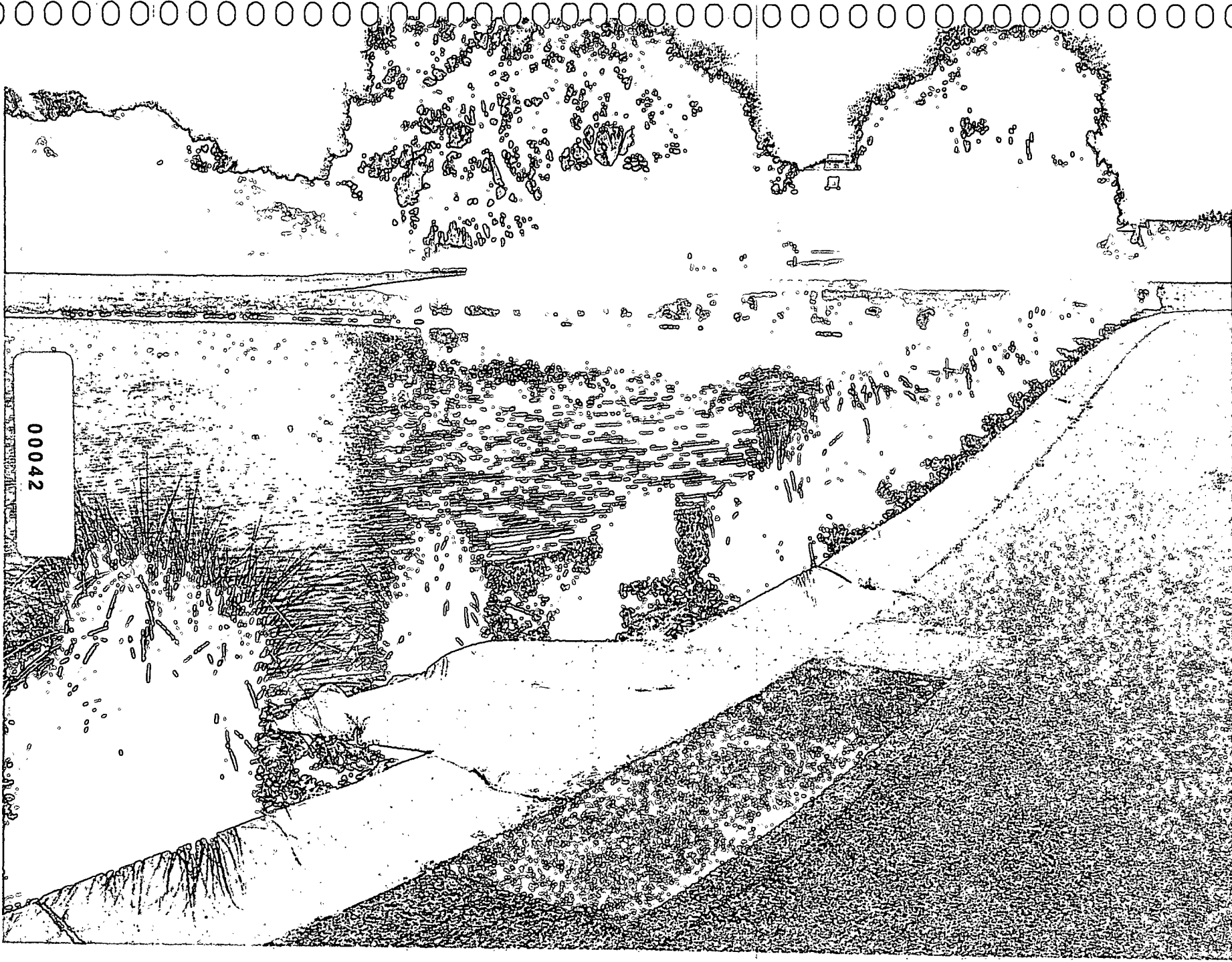
Reedy Creek - Site Evaluation of a Grate Inlet Skimmer Box for Debris, Sediment, and Oil & Grease Removal - 1999 - Independent Test
 Creach Engineering Report - Pollutant Removal Testing for a Grate Inlet Skimmer Box - 2001
 Witman's Pond - Restoration Project - Massachusetts Dept of Environmental Management - 1998 - Independent Test
 UC Irvine - Optimization of Stormwater Filtration at the Urban/Watershed Interface - Dept of Environmental Health - 2005 - Independent Test
 Longo Toyota - Field Test - City of El Monte - 2002 - Independent Test

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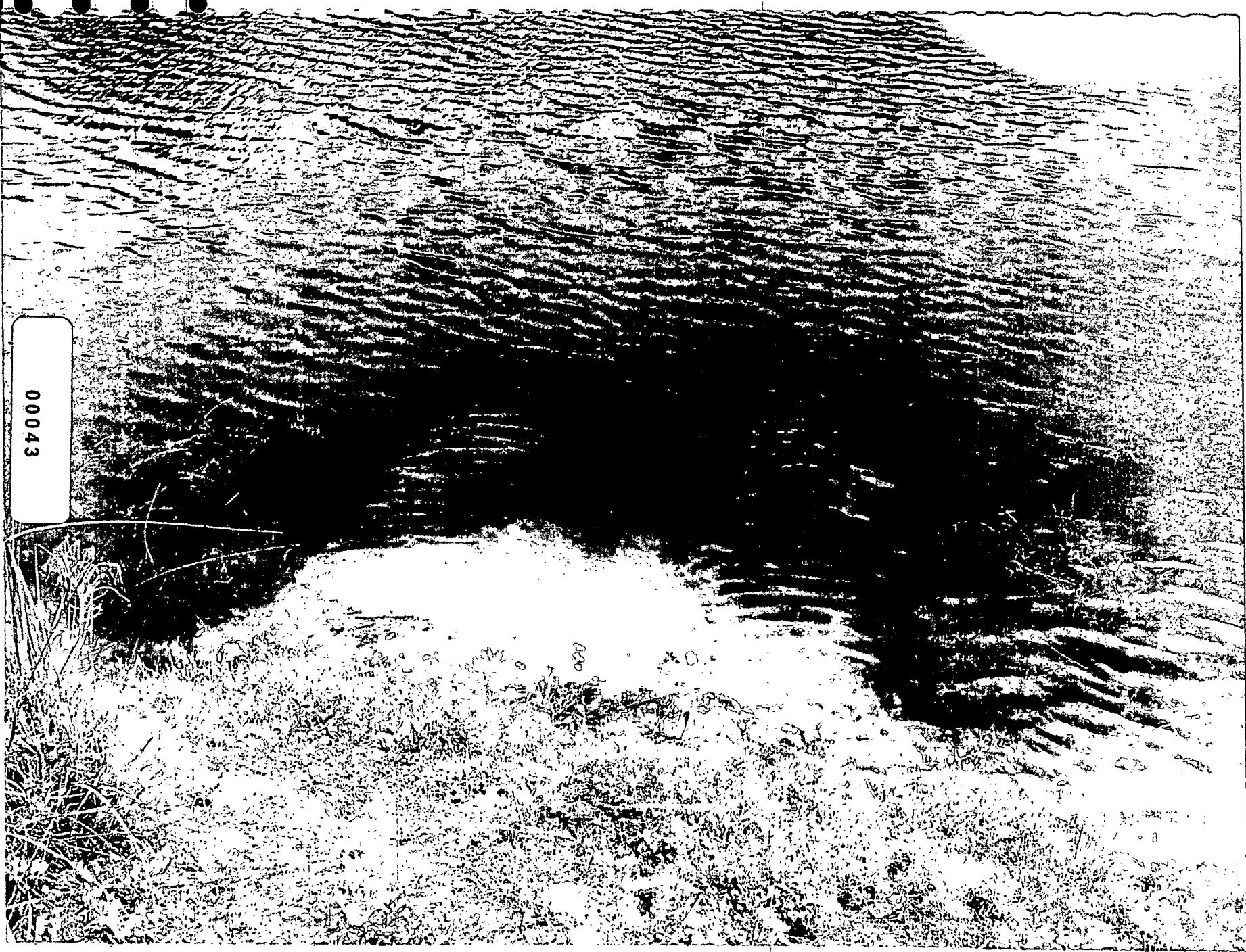
Pollutant Removal Efficiency



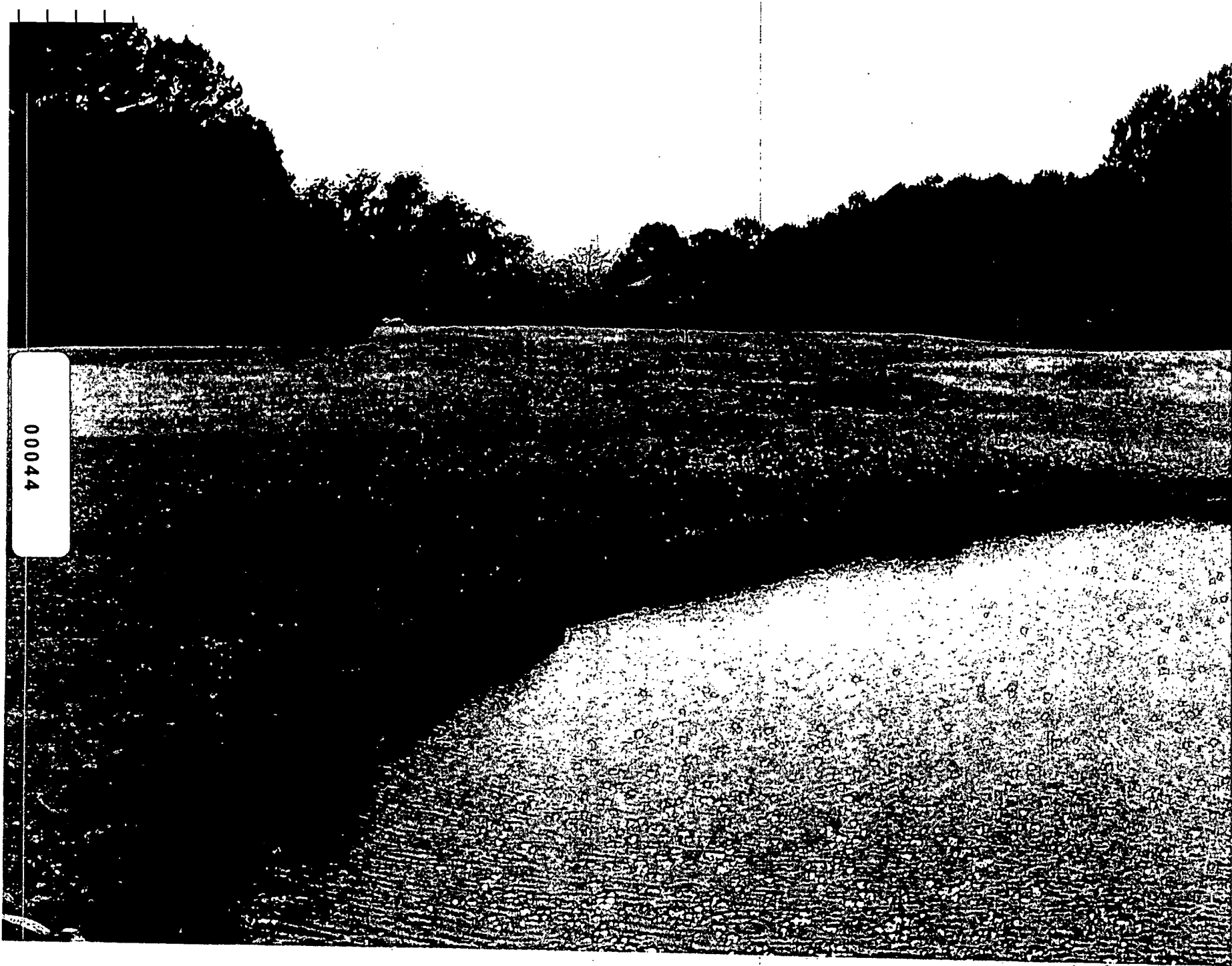
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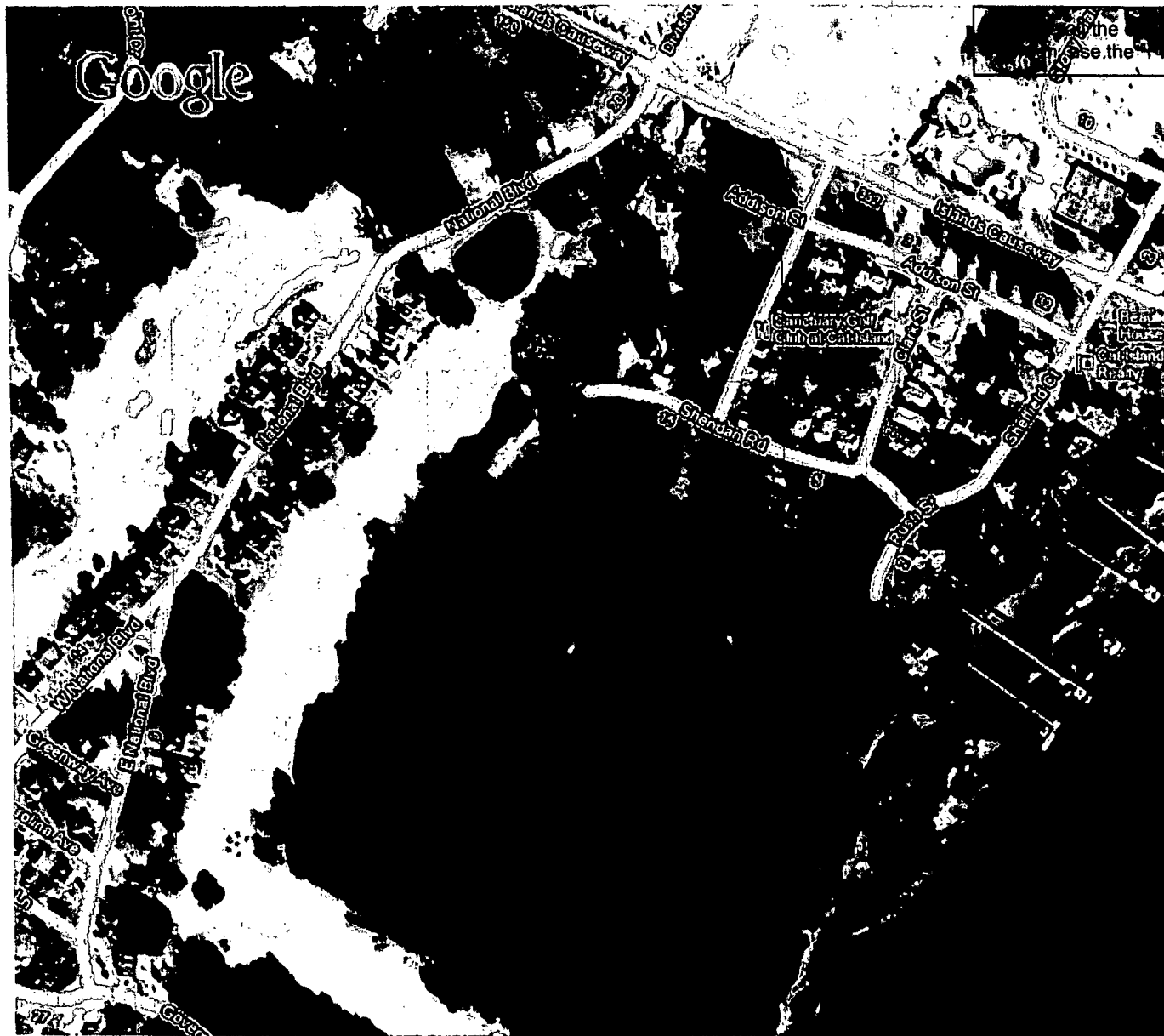
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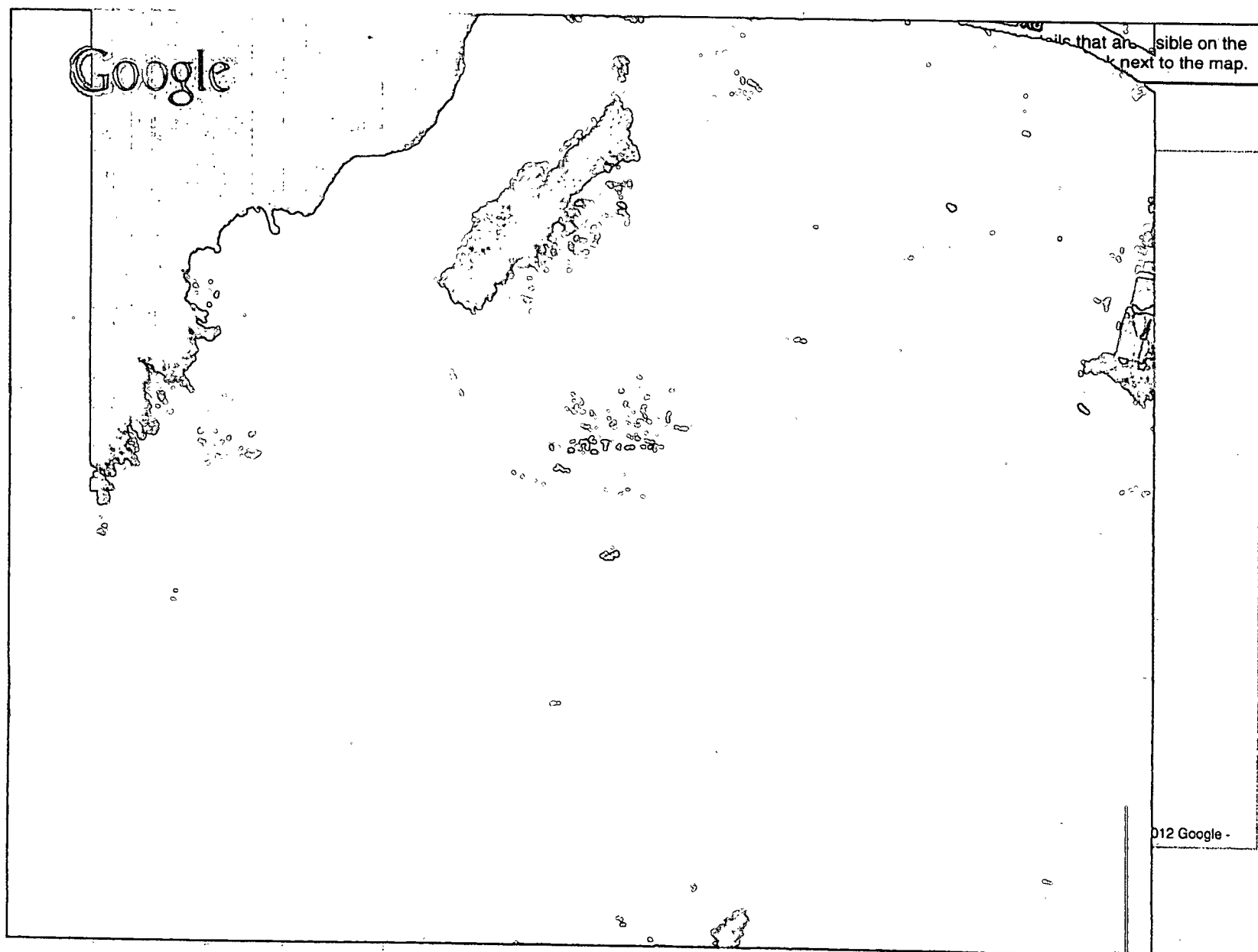
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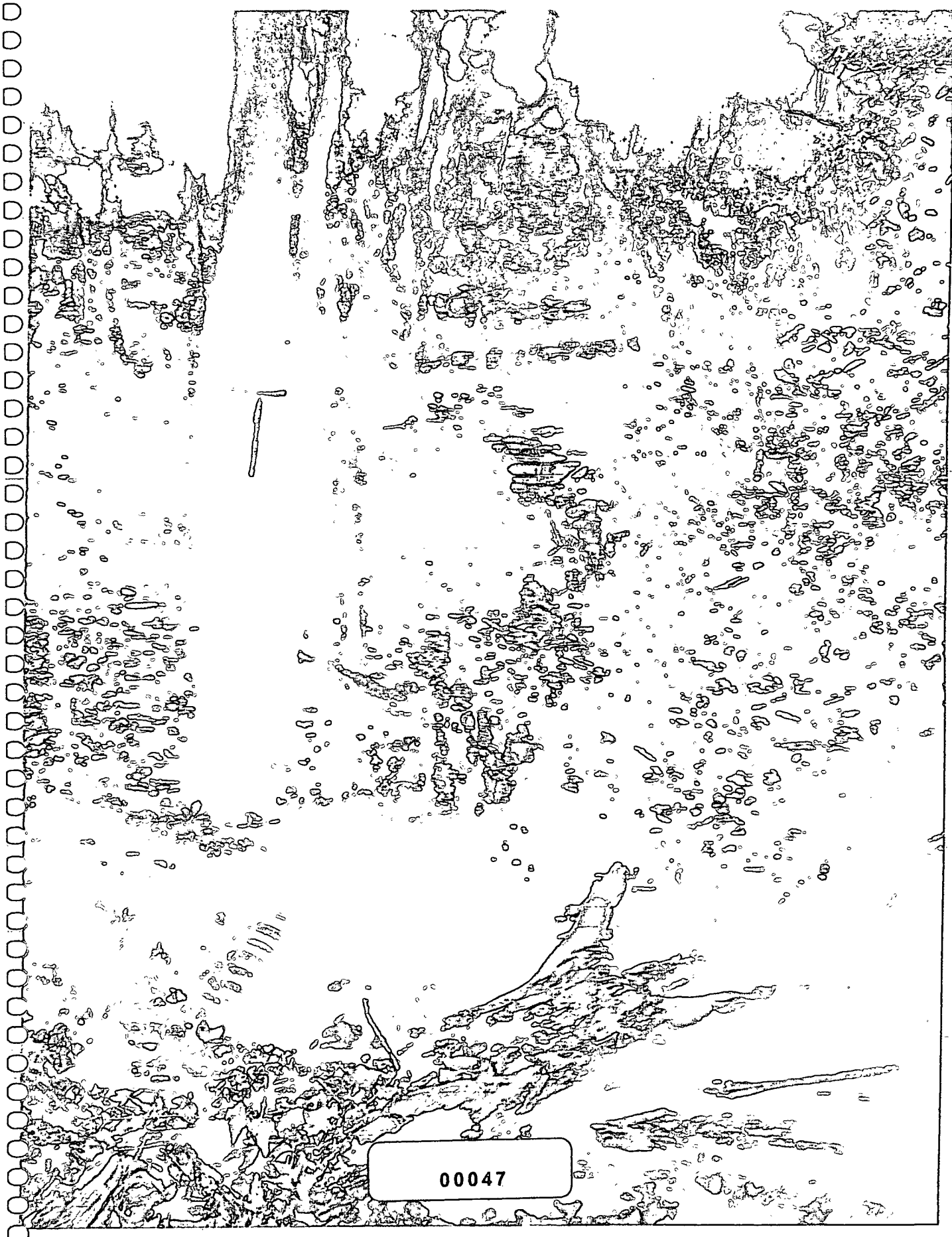


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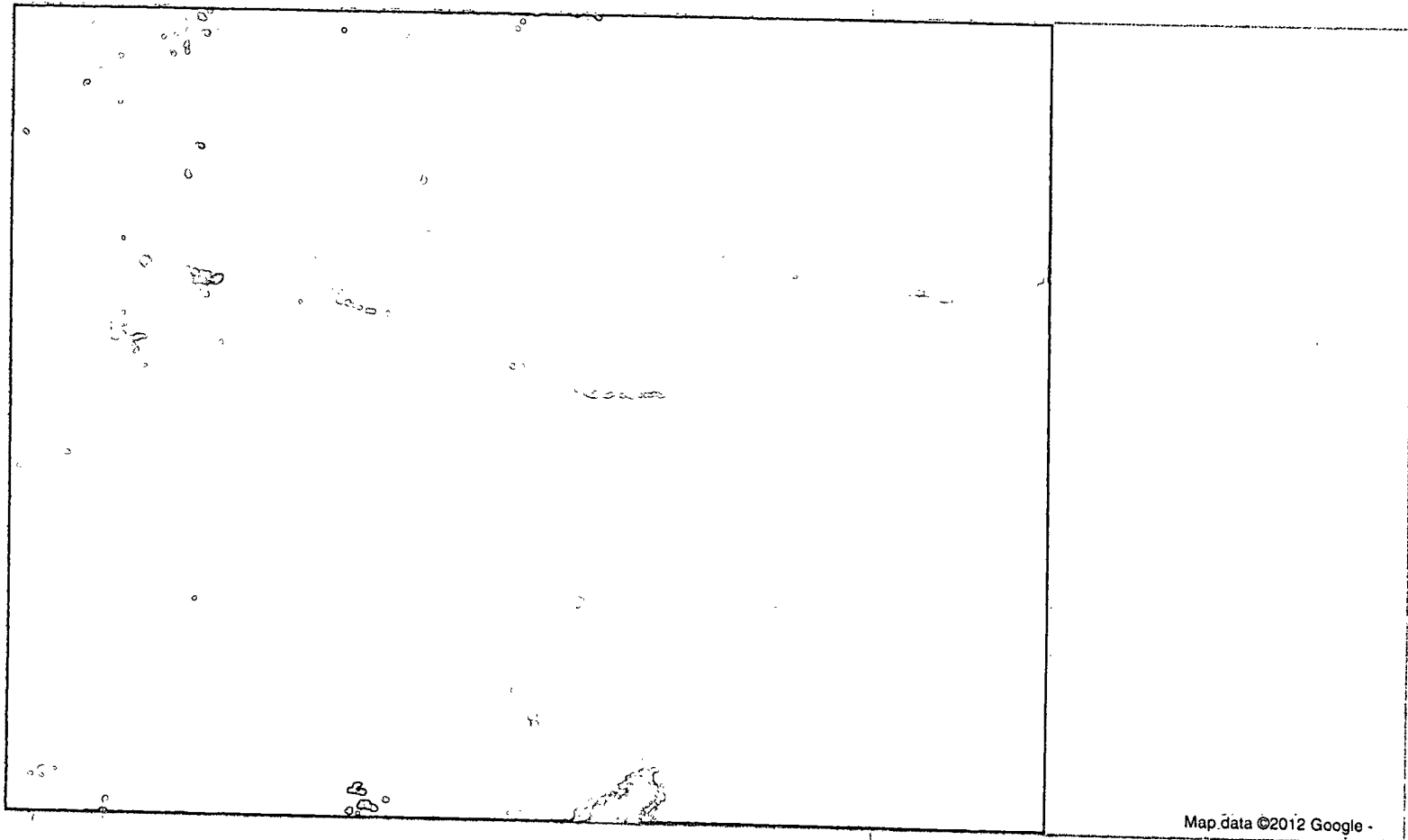
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To see all the details that are visible on the screen, use the "Print" link next to the map.



Map data ©2012 Google -

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- § 72-302
- (7) Activities relating to the routine maintenance and/or repair or rebuilding of the tracks, rights-of-way, bridges, communication facilities and other related structures and facilities of a railroad company.
 - (8) Activities undertaken on state-owned or managed lands that are otherwise regulated by the provisions of Chapter 18 of this title, the Erosion and Sediment Reduction Act.
 - (9) Activities undertaken by local governments or special purpose or public service districts relating to the repair and maintenance of existing facilities and structures.

B. Implementing agencies with responsibility for plan review and approval may grant waivers from the stormwater management requirements of these regulations for individual land disturbing activities provided that a written request is submitted by the applicant containing descriptions, drawings, and any other information that is necessary to evaluate the proposed land disturbing activity. A separate written waiver request shall be required if there are subsequent additions, extensions, or modifications which would alter the approved stormwater runoff characteristics to a land disturbing activity receiving a waiver.

- (1) A project may be eligible for a waiver of stormwater management for both quantitative and qualitative control if the applicant can demonstrate that the proposed project will return the disturbed area to a pre-development runoff condition and the pre-development land use is unchanged at the conclusion of the project.
- (2) A project may be eligible for a waiver or variance of stormwater management for water quantity control if the applicant can demonstrate that:
 - (a) The proposed project will have no significant adverse impact on the receiving natural waterway or downstream properties; or
 - (b) The imposition of peak control requirements for rates of stormwater runoff would aggravate downstream flooding.
- (3) The implementing agency will conduct its review of the request for waiver within 10 working days. Failure of the implementing agency to act by end of the tenth working day will result in the automatic approval of the waiver.

C. The implementing agency with responsibility for plan review and approval may grant a written variance from any requirement of these regulations if there are exceptional circumstances applicable to the site such that strict adherence to the provisions of these regulations will result in unnecessary hardship and not fulfill the intent of these regulations. A written request for variance shall be provided to the plan approval agency and shall state the specific variances sought and the reasons with supporting data for their granting. The plan approval agency shall not grant a variance unless and until sufficient specific reasons justifying the variance are provided by the applicant. The

CHAPTER 30.

DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL-- COASTAL DIVISION

(Statutory Authority: S.C. Code Section 48-39-10 et seq.)

30-1. Statement of Policy.

A. South Carolina Coastal Zone Management Act.

(1) The South Carolina Coastal Zone Management Act was passed by the 1977 General Assembly of South Carolina to provide for the protection and enhancement of the State's coastal resources. This legislation creates the South Carolina Coastal Council which is given the task of promoting the economic and social welfare of the citizens of this State while protecting the sensitive and fragile areas in the coastal counties and promoting sound development of coastal resources. The South Carolina Coastal Zone Management Act was amended by Act 181 of 1993 which merged South Carolina Coastal Council with the South Carolina Department of Health and Environmental Control. South Carolina Coastal Council became the Office of Ocean and Coastal Resource Management (OCRM).

(2) Through the efforts of an overall coastal zone management program and permitting process, the Department seeks to guide the wise preservation and utilization of coastal resources. These rules and regulations are intended to:

- (a) aid developers and others in taking advantage of state-of-the-art techniques in developing projects compatible with the natural environment;
- (b) insure consistent permit evaluations by the Department; and
- (c) serve as a stimulus for implementation of better and more consistent management efforts for the coastal zone.

(3) These regulations are the Department statements of general public applicability that implement and prescribe policy and practice requirements of the Department. They are to be read as part of, and to be construed with, the policies set forth in the South Carolina Coastal Management Program.

B. The Value of Tidelands and Coastal Waters.

(1) The tidelands and coastal waters of the South Carolina coast are a very dynamic ecosystem and a valuable natural resource for the people of the State. The tides regularly ebb and flood through the coastal inlets, bays and marshes which constitute a fragile area, vulnerable to the impacts of many human activities. Tidelands and coastal waters are identified as "critical areas" over which the Department has direct permitting authority.

(2) The saline marshes are highly productive components of the marine food web of coastal waters and estuaries. Decaying organic material, called detritus, serves as the basis of the food web and is the major biological contribution of the saline marshes. Many commercially and recreationally important fish and shellfish species depend on the marshlands and estuaries for all or part of their life cycle. In addition, many birds and other forms of wildlife utilize wetlands as habitat as well as a source of food. Tidelands and coastal waters also have become increasingly important in recent years for the purposes of aquaculture.

(3) Among the important functions of the salt and brackish marshes is their role in protecting adjacent highlands from erosion and storm damage. Marsh vegetation absorbs and dissipates wave energy and establishes a root system which stabilizes the soils. Its effectiveness as a buffer depends on the surface area available which, combined with the composition of the underlying substrate, allows tidelands to act as "sponges," absorbing and releasing waters during storms or times of heavy riverine discharge.

(4) Marshes also perform a valuable waste treatment function since the dense vegetation acts as a filter, trapping sediments and pollutants which enter as run-off from the upland areas. The trapping of sediments helps maintain water clarity, a factor important to clam, oyster, and phytoplankton productivity. The marshes also assimilate pollutants and recycle nutrients through various biochemical processes.

(5) Coastal waters and the adjacent marshes are also significant as aesthetic, recreational and educational resources. Much of the expenditure for recreation and tourism in the South Carolina coastal zone is for

EXHIBIT H

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30-11. General Guidelines for All Critical Areas.

A. Preface: The critical areas are of vital importance to the State, and there is strong and growing pressure for the development of these areas. The Department has established these rules and regulations for permit applications in an effort to reduce the irreversible loss of productive tidelands, coastal waters, beaches, and dunes while meeting long-range State development needs.

B. General Considerations: In assessing the potential impacts of projects in critical areas, the Department will be guided by the policy statements in Sections 48-39-20 and 48-39-30 and the following ten considerations in Section 48-39-150:

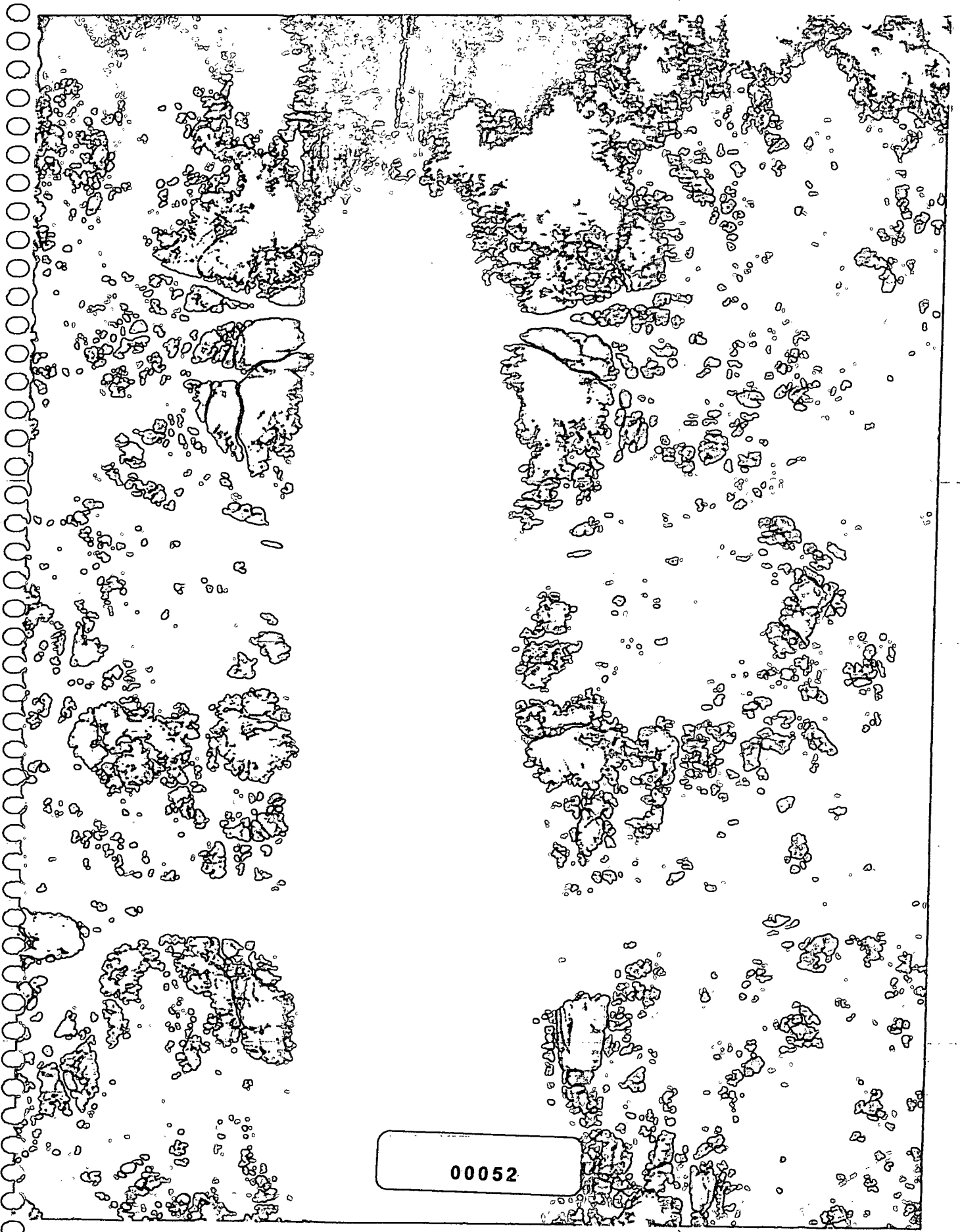
- (1) The extent to which the activity requires a waterfront location or is economically enhanced by its proximity to the water;
- (2) The extent to which the activity would harmfully obstruct the natural flow of navigable water. If the proposed project is in one or more of the State's harbors, or in a waterway used for commercial navigation and shipping, or in an area set aside for port development in an approved management plan, then a certificate from the South Carolina State Ports Authority declaring that the proposed project or activity would not unreasonably interfere with commercial navigation and shipping must be obtained by the Department prior to issuing a permit;
- (3) The extent to which the applicant's completed project would affect the production of fish, shrimp, oysters, crabs, or clams or any marine life or wildlife, or other natural resources in a particular area, including but not limited to water and oxygen supply;
- (4) The extent to which the activity could cause erosion, shoaling of channels or creation of stagnant water;
- (5) The extent to which the development could affect existing public access to tidal and submerged lands, navigable waters and beaches, or other recreational coastal resources;
- (6) The extent to which the development could affect the habitats for rare and endangered species of wildlife or irreplaceable historic and archeological sites of South Carolina's coastal zone;
- (7) The extent of the economic benefits as compared with the benefits from preservation of an area in its unaltered state;
- (8) The extent of any adverse environmental impact which cannot be avoided by reasonable safeguards;
- (9) The extent to which all feasible safeguards are taken to avoid adverse environmental impact resulting from a project;
- (10) The extent to which the proposed use could affect the value and enjoyment of adjacent owners.

C. Further Guidelines: In the fulfilling of its responsibility under Section 48-39-150, the Department must in part base its decisions regarding permit applications on the policies specified in Sections 48-39-20 and 48-39-30, and thus, be guided by the following:

- (1) The extent to which long-range, cumulative effects of the project may result within the context of other possible development and the general character of the area.
- (2) Where applicable, the extent to which the overall plans and designs of a project can be submitted together and evaluated as a whole, rather than submitted piecemeal and in a fragmented fashion which limits comprehensive evaluation.
- (3) The extent and significance of negative impacts on Geographic Areas of Particular Concern (GAPC). The determination of negative impacts will be made by the Department in each case with reference to the priorities of use for the particular GAPC. The priorities of use are found in Chapter IV of the Coastal Management Program.

D. General Guidelines for Beaches and the Beach/Dune System: In addition to the provisions of the South Carolina Coastal Management Act of 1977, the policies of the South Carolina Coastal Management Program, and applicable rules and regulations, the Department shall base its decisions on activities in the beach/dune system on the findings and policies specified in Section 48-39-250 and Section 48-39-260 of the 1977 Coastal Zone Management Act, as amended, and the following:

- (1) The Department shall discourage new construction in the beach/dune system and encourage those who have erected structures within the system to retreat.



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JUN 23 2015

THE STATE OF SOUTH CAROLINA
In the Court of Appeals

SC Court of Appeals

APPEAL FROM SOUTH CAROLINA ADMINISTRATIVE LAW COURT
Honorable Shirley C. Robinson, Presiding Judge

Case No. 12 ALJ-07-0434-CC

Ken Bruning, Janet Bruning, David Feron, individually and as Trustee,
Mary Feron, individually and as Trustee, Sally Saegmuller Haley and
Terrell Page Haley, individually and as Co-Trustees, Martha James
and Don Haarmeyer, individually and as Co-Trustees, and
Pamela S. North.....Appellants,

v.

SCDHEC and Cat Island POA, c/o Gary Meyer.....
Respondents.

Case No. 12 ALJ-07-0436-CC

In Re: Garfield Park, Phase 3

Cat Island POA, c/o Gary Meyer.....Petitioner,

v.

SCDHEC.....Respondent.

PROOF OF SERVICE

John E. North, Jr., # 06570
North & Black, P.C.
916 Bay Street, Suite 100
Beaufort, SC 29902
(843) 379-0800 (tel)
(843) 379-0900 (fax)
Attorney for Appellants

The undersigned hereby certifies that the Appellants' Brief, Appellants' Reply Brief and the Record on Appeal were served upon the attorney for Cat Island POA, Mary Shahid, P.O. Box 486, Charleston, SC 29402 and the attorney for DHEC, Nathan Haber, 1362 McMillan Avenue, Suite 400, Charleston, SC 29405 by United States Mail, postage prepaid on the 22 day of June, 2015.

John E. Fortt