

BEDMINSTER TOWNSHIP
LAND USE BOARD

IN THE MATTER OF: : TRANSCRIPT
:
CASE: LUB# 12-015 (BOA) :
KDC Solar SA55 LLC : OF
Solar Project :
Country Club Road :
Block 71.02, Lot 1 : PROCEEDINGS
Block 62, Lot 10 :
Block 69, Lot 4 :
_____X

Thursday, December 5, 2013
Bedminster Township School
234 Somerville Road
Bedminster, New Jersey
Commencing at 7:14 p.m.

BOARD MEMBERS PRESENT:

LANCE BOXER, Chairman
NICK STRAKHOV
CAROL GUTTSCHALL
GEORGE RODELIUS
KENNETH OLSEN
DORN STEWART
LOUIS DiGIOVINE

ALSO PRESENT:

TRINA LINDSEY, Board Secretary
FRANK BANISCH, Board Planner
PAUL W. FERRIERO, Board Engineer

IRIS LaROSA,
Certified Shorthand Reporter

PRECISION REPORTING SERVICE
Certified Shorthand Reporters
(908) 642-4299 (phone)
(908) 704-7361 (fax)

Page 2

1 APPEARANCES:

2

3 THOMAS F. COLLINS, JR., ESQ.
Attorney for the Board

4

5

6 McCARTER & ENGLISH, LLP
BY: GARY T. HALL, ESQ.
Attorneys for the Applicant

7

8

9 MICHELE R. DONATO, ESQ.
Attorney for the Objectors - Stop Somerset Hills
Power Plant

10

11

12 RICHARD M. SASSO, ESQ.
Attorney for the Objectors - Steve and Sabina Forbes

13

14

15

16

17

18

19

20

21

22

23

24

25

Page 4

1 (Pledge of Allegiance.)

2 (The Board discusses other Agenda matters.)

3 CHAIRMAN BOXER: All right. So why don't

4 we get ready with KDC Solar which is really the

5 continuation of this. Good evening, Mr. Hall. It's

6 nice to have you.

7 MR. HALL: Good evening. Gary Hall for

8 KDC Solar. Yes, I guess when we stopped Mr. Kennedy,

9 our engineer, was testifying. I think we marked

10 Exhibit A-6 and that's sort of where we broke off. So

11 I guess we can pick back up with Mr. Kennedy.

12 CHAIRMAN BOXER: Yeah, we can do that. And

13 also you did hear that we have a scheduling constraint

14 next month?

15 MR. HALL: I was wondering what we can do,

16 the day after the holidays, the 2nd?

17 CHAIRMAN BOXER: Yeah, we can't. Just to

18 way the schedules are, we can't -- I think the

19 committee's meeting on the second, right?

20 MR. FERRIERO: On the 6th.

21 CHAIRMAN BOXER: That's the issue. So

22 we're not going.

23 MR. HALL: You think you'll add a second

24 meeting later in the month?

25 CHAIRMAN BOXER: I don't know if we would

Page 3

1 INDEX

2

3 WITNESS: PAGE

4

5 RONALD KENNEDY

6 BY Mr. Hall.....102/105

7 By Ms. Donato.....103

8

9 EXHIBITS

10 IN EVD. DESCRIPTION PAGE

11 A-7 Construction details 8

12 A-8 Earth Work Analysis 22

13 A-9 Sight-Line plan 25

14 A-10 Sight-Line profile A and
B dated 11/14/13 25

15

16 A-11 Sight-Line profile C and D 49
dated 11/14/13

17

18

19

20

21

22

23

24

25

Page 5

1 then, I'll have to see. Because right now other than,

2 you know, we're trying to hold one meeting, do you have

3 a preference, does the 9th work with you?

4 MR. HALL: Yeah, I'll make it work.

5 CHAIRMAN BOXER: Is the 9th the next

6 meeting for us?

7 SECRETARY LINDSEY: Yes.

8 MR. HALL: The 9th.

9 SECRETARY LINDSEY: It's technically the

10 second Thursday of the month, but it will be our first

11 meeting because of the 2nd.

12 CHAIRMAN BOXER: And we committed to you.

13 MR. HALL: I'll make it work for me.

14 CHAIRMAN BOXER: Okay. So just for

15 planning purposes we'll just do KDC on the 9th.

16 SECRETARY LINDSEY: Okay.

17 CHAIRMAN BOXER: Okay. Mr. Hall, why don't

18 we continue with Mr. Kennedy?

19 MR. HALL: You were previously sworn and

20 remain under oath. We stopped at A-6. Why don't you

21 pick up or whatever is appropriate to make the

22 transition from last time.

23 R O N A L D K E N N E D Y, having been previously

24 sworn, testifies as follows:

25 THE WITNESS: Sure enough. I just want to

Page 6

1 make sure the boards are in the place where the Board
 2 can see it and the public can see it.
 3 I'll just go back for a second just to give
 4 a quick overview. Last month my objective was just to
 5 go through the existing conditions of the property. We
 6 really hadn't gotten into any of the proposed
 7 improvements on the property, but as a quick recap
 8 this -- on the upper right sheet here of A-5, indicates
 9 an image of -- an aerial image of the property. North
 10 is straight up. The property's generally a rectangle.
 11 You can see Country Club Road, that comes on the right
 12 side or east side of the property. 287 is all the way
 13 on the east side or right side. 78's to the north, and
 14 the intersection in the center lower portion of the
 15 property is Meadow Road and Country Club Road.
 16 We spoke about the environmental
 17 constraints, the various colors we went through, and
 18 the shading we went through, and described the various
 19 constraints of environmental issues of steep slopes,
 20 the wetlands, flood plain, riparian buffers, and those
 21 are the elements that are shown on this exhibit. And
 22 where I left off generally with this, and I don't think
 23 I got into A-6, maybe I introduced that.
 24 MR. COLLINS: I think you introduced it,
 25 yes.

Page 7

1 THE WITNESS: Okay. And it's called
 2 Proposed Site Plan Rendering exhibit. The date is
 3 November 14, 2013. And this exhibit is the same scale,
 4 the same layout as Exhibit A-5, and the representation
 5 shows where the solar panels are proposed on the lot.
 6 And you can see what is in gray on these linear
 7 elements that are there are the proposed arrays of
 8 solar panels.
 9 There's a lot of other detail on this that
 10 I'm going to start to get into, but my objective with
 11 explaining the proposed improvements I am not an
 12 electrical expert, a solar expert. I'm talking about
 13 taking components of the solar and putting it on a
 14 site. And I'm going to walk through the various
 15 components that are proposed to be built on this site
 16 just to understand what we're proposing to build.
 17 Going through the main components it's
 18 going to be support posts, to racking systems, to the
 19 solar panels themselves. I'm going to talk about
 20 combiner boxes, to inverters, to transformers, to
 21 switchgear, to a jack bore pit, and those are the main
 22 components of what this solar project is. And, again,
 23 without explaining what each one does it's more of how
 24 they sit on the landscape on the proposed plan you see
 25 on A-6.

Page 8

1 I'd also like to put up a new exhibit.
 2 It's entitled A-7.
 3 (Exhibit A-7, construction details, was
 4 received and marked.)
 5 THE WITNESS: And it's entitled
 6 construction details. It is dated May 31st, 2013, with
 7 no revision, and it is Sheet 31 of 31 in the documents
 8 that we submitted to the Land Use Board. So anyone can
 9 see the actual documents. It's the last sheet of that
 10 section. And those things I just read off to you,
 11 those components, they're generally shown on this
 12 exhibit. So I'm going to go through the details of
 13 each one of those and try to relay those over to A-6
 14 just to get an understanding of what it is -- what
 15 we're proposing to actually construct.
 16 The first element that we're going to talk
 17 about is in the array of solar panels we have to put
 18 support posts into the ground. And these are posts
 19 that will hold the racking system and hold the panels
 20 that will go into the ground. They're going to be
 21 galvanized steel. The proposal here is to have them
 22 approximately 18-foot apart from each other, each one
 23 of the posts that would be on here. They'll be in the
 24 shape of an "H," a "V," or a "U" shape that will be
 25 driven into the ground. There will be a mini track

Page 9

1 mounted machine that will drive these posts into the
 2 ground, relatively small machine. It's not going to be
 3 one that you sit in, it's one that you would walk
 4 behind.
 5 The number of posts that are proposed, and
 6 I believe this was discussed in an earlier
 7 presentation, but we have 3,391 posts that are proposed
 8 on the plan based on this layout that would be posts
 9 that would be driven into the ground.
 10 CHAIRMAN BOXER: Mr. Kennedy, how deep are
 11 these posts?
 12 THE WITNESS: They're approximately 6- to
 13 8-foot below the surface. They would be driven.
 14 CHAIRMAN BOXER: Thank you.
 15 THE WITNESS: Okay. They're, again, the
 16 smallest profile. They're a galvanized metal, and they
 17 will be driven into the ground. And we're going to go
 18 into at the end of my discussion construction timing,
 19 but it's one of the first elements that are done for
 20 the project, that is after soil erosion and cuts and
 21 fills, the first component of the system would be
 22 driving these posts into the ground.
 23 After the posts are driven into the ground
 24 there will be a racking system. And the racking system
 25 is shown in the side-view on the lower left of the

<p style="text-align: right;">Page 10</p> <p>1 sheet, Exhibit A-7. That will be connected to the post 2 that will hold these racks in what they call tables. 3 And in this case what we show on our plans are panels 4 that will be four high. Each panel would be in 5 landscape view similar to this piece of paper, and 6 they'd be four high by "X" number of feet long, and 7 they'll vary depending on the layout. 8 That rack would be generally, I'd say, 20- 9 to 30-foot wide and it would have these two posts that 10 would be placed into the ground. So you've got the 11 posts in the ground. The racking system would be 12 placed up, and then on top of that would actually be 13 the panels, the solar panels themselves. 14 The panels themselves, the size of those 15 panels are generally 39 inches, and depending on the 16 manufacturer, 65- to 70-inches long. Okay. So, again, 17 a little smaller than the sheet size in Exhibit A-6. 18 All right. Each one of those would be that size. 19 Okay. Again, we're proposing those four 20 high, and then again you see those lanes on Exhibit 21 A-6. In some cases they're a few-hundred-foot long. 22 The panels themselves, as I believe was 23 stated before, but the number that we have in our plans 24 are 40,484 of these sized panels would be put on the 25 site that's being proposed right now.</p>	<p style="text-align: right;">Page 12</p> <p>1 panel, and on these support posts there will be 2 combiner panels every -- anywhere from 8 to 20 posts 3 there will be these combiner boxes. Basically, all the 4 wires would be in the panels or in the trays going back 5 to this combiner box. 6 Once it gets to this combiner box it will 7 then go underground, and there will be conduits 8 underground that will be constructed from those 9 combiner boxes back to inverter pads. The inverter 10 pads are shown on A-6. There's a total of seven 11 inverter pads. Six of those pads are shown to be 12 12 foot by 40 foot in size. That's the concrete footprint 13 that they are. Again, it's shown on Sheet A-7 on the 14 left side of Sheet A-7. And on those pads there will 15 be a series of four inverters, and there will be a 16 transformer in the center of that inverter. So the 17 power from the combiner boxes goes back to these 18 inverters, then the inverters there will be someone 19 else to explain how it works electrically, the 20 inverters will go to the transformers. And, again, 21 there are seven of those on the property. And then 22 once that energy gets to the transformers there will be 23 a conduit from each of these transformers back to 24 something called a switchgear. Again, that's one for 25 this whole property. That switchgear is shown, and</p>
<p style="text-align: right;">Page 11</p> <p>1 The angle that's shown on this plan is the 2 angle that the mounting system, the racking system, and 3 the panels is 20 degrees to the sun. That is the 4 optimum angle that's used in the sun. That's why you 5 see all these generally facing south. And there's a 6 gap in between each one of the panels. On our plans 7 we're showing a 9-foot gap between one set of panels to 8 the next set of panels. And that's mostly for one 9 panel not having sun glare or sun shading on the next 10 panel that would be down, or the next series of arrays 11 being down. And that's how you typically see those. 12 It's a way to control height. When we put 13 the panels on the racking system on top of those posts 14 the total height of the panels we're proposing no 15 greater than 8-foot. So at that 20-degree angle, four 16 high this size, would be a maximum of 8-foot high. Off 17 the ground it would be approximately 18 to 24 inches. 18 It's shown again on the side-view. It would be 18 to 19 24 inches off the ground. And it would be a maximum of 20 8 foot in height of the panel height from the backside 21 of the panel. And, again, that simple detail that's 22 shown on Exhibit A-7 is what's repeated on these long 23 lines that are shown on Exhibit A-6. 24 Once they're installed there will be 25 combiner boxes that will take all the wires from each</p>	<p style="text-align: right;">Page 13</p> <p>1 again I'm going to point to Exhibit A-6. It's shown on 2 the northeast side of the panels that are in the 3 northeast corner of Lot 10. 4 So in this Exhibit A-6 on the west side, 5 where the panels are shown on the west side of the 6 property there are a total of four of the inverter pads 7 with the transformers, on the west side of the 8 property. So the wires from the panels go to the 9 combiner boxes, get trenched to the inverters. Once 10 they go to the transformers they're trenched and 11 brought back eventually to the switchgear, four on the 12 west side. There will be three inverters on the east 13 side. 14 The size of those are shown on Exhibit A-7. 15 And the maximum height of all that equipment, the 16 largest piece of equipment height is 7 foot 11 inches. 17 And that is a box that collects all these wires between 18 the inverter and the transformer. And it's shown on 19 that exhibit. 20 The inverters themselves are somewhere 21 about 7 foot in height, although below that 7 foot 11. 22 The transformers are somewhere between 5- and 6-foot 23 height. So, again, on that pad the highest thing is 7 24 foot 11 inches within that pad. And on those pads 25 there's seven of them on the site.</p>

Page 14

1 If we go over to the switchgear, and again
 2 that's one on the whole property. That takes all the
 3 energy from the transformers, brings it back to one
 4 point on the site where I'm pointing to on Exhibit A-6,
 5 which is in the northeast corner of the northeast
 6 panels. That has a height, a profile that's shown on
 7 Exhibit A-7. That's approximately 24-foot wide, and
 8 12-foot-6 inches high. That's the highest piece of
 9 equipment on the property. Okay, 12-foot-6 inches
 10 height, and it's approximately 24 foot in length. I
 11 think the depth of it is only about 4 or 5 foot in
 12 depth.

13 Once the energy gets from panels through
 14 all those other components I just described it all ends
 15 up at this one location, the switchgear box. From that
 16 point what was discussed is height, and again what
 17 we're proposing is a jack bore from this location
 18 underneath Country Club Road and underneath 287, to the
 19 site, the Sanofi site that is on the east side of Route
 20 287 shown on Exhibit A-3.

21 So, again, it's not drawn on A-3, but I'd
 22 like to show that on the plan. It's generally, and I
 23 don't know if this is appropriate, do you want me to
 24 show this on this plan? Well, I'll try to describe it.
 25 Well, where my pointer is now is the same location as

Page 15

1 A-6 of where the switchgear is. Okay. And I'm going
 2 to point, it's going to go under 287 and go over to the
 3 Sanofi site buildings that are shown on Exhibit A-3.

4 That jack bore pipe will be approximately a
 5 14-inch casing that will be put under the road system.
 6 And it will have a series of four pipes that would be
 7 in there: Two pipes of 4 inches, and one pipe of 3
 8 inches. And it's basically taking the energy, and some
 9 of those conduits will take communication and send that
 10 back to the buildings that are located on the Sanofi
 11 site.

12 We, obviously, for that will have to go
 13 through approvals through the Department of
 14 Transportation to get underneath the highway, and
 15 certainly have to do something with Bridgewater
 16 Township to put in those infrastructure improvements on
 17 their property.

18 CHAIRMAN BOXER: Mr. Kennedy, can you
 19 explain the word communications? What encompasses
 20 that?

21 THE WITNESS: I think there's elements of
 22 the system that monitor the system, rather than just
 23 the power itself. There will be cameras that will be
 24 up there, communication -- not communications, cameras
 25 that would visually observe what's going on on the

Page 16

1 property. That would go back. The communications of
 2 how the operation is working, the energy is working,
 3 those wires will be go back.

4 CHAIRMAN BOXER: So this is monitoring
 5 alarms and some type of cameras?

6 THE WITNESS: Yes. I'm going to say it's
 7 generally low voltage type of equipment that's
 8 monitoring the system of how it's working.

9 BOARD MEMBER OLSEN: Are there any moving
 10 parts? Is the aspect of the panels fixed or do they
 11 move with the aspect of their design?

12 THE WITNESS: These panels do not rotate,
 13 they're fixed. So the racking system that we're
 14 proposing is a fixed-racking system. You'll see some
 15 that you rotate, these are not rotator sites.

16 All right. So, that's the components that
 17 we're proposing for the energy side of things. Due to
 18 that there's a whole host of other aspects that are
 19 more site related that I want to walk through.

20 In order, obviously, to construct and to
 21 maintain these panels what's proposed is an access
 22 road, construction and maintenance. Currently off of
 23 Country Club Road to get to the house there's a
 24 driveway that's there. It's paved to the house. As I
 25 described at the last meeting there's a small garage to

Page 17

1 the rear of the house. We're proposing to keep that
 2 driveway in its state to use it for construction, and
 3 after construction to use that as the only access into
 4 the property for this use.

5 We are proposing to construct a gravel
 6 drive that will connect to each one of the pads that
 7 are the inverters/transformer pads. There's seven of
 8 them on the property. So at or the area around the
 9 existing house there's a small path that will go in a
 10 southerly direction to a transformer inverter pad
 11 location, and then there will be another drive that
 12 will go directly north. And then between the two
 13 sections, the east side -- I'm sorry, am I pointing in
 14 the right direction? On A-6 the east side and the west
 15 side where the panels are located we have a large
 16 environmentally constrained area of wetlands and flood
 17 plains in the center. We are proposing to use an
 18 existing path drive that's along the eastern -- excuse
 19 me, the northern property line. We're proposing to
 20 reuse that, enhance it by graveling it, and we will put
 21 gravel a 12-foot wide width, and then connect back to
 22 the existing house area with that drive.

23 We continue that drive to pick up the other
 24 four inverter pads that are located on the west side.
 25 There will be a small driveway that will come down

Page 18

1 from -- on the east side of the panels that will come
2 down generally the northern setback line to another
3 inverter box for the switchgear. So everything's
4 proposed to be gravel. The only exception is we were
5 keeping the drive in its condition, now it's paved. If
6 the Board wants it gravel we can make it gravel, we're
7 just keeping what's there today.

8 CHAIRMAN BOXER: Mr. Kennedy, question: Do
9 you know if the gravel coverage, which is impervious
10 surface, is factored into this whole coverage?
11 THE WITNESS: It has.
12 CHAIRMAN BOXER: So the proposal that
13 you're making is already factored in to the ratio as
14 seen earlier?
15 THE WITNESS: Yes.
16 MS. DONATO: I'm sorry, Mr. Boxer, I didn't
17 hear your question.
18 CHAIRMAN BOXER: I apologize. My question
19 was, does the gravel roads, the additional gravel
20 roads, has that already been factored into the site
21 coverage ratios that we heard earlier on?
22 MS. DONATO: Thank you.
23 MR. HALL: Mr. Kennedy, along that, one of
24 our design waivers is to keep gravel and not pave the
25 driveways?

Page 19

1 THE WITNESS: Well, yes, that is one of the
2 requirements. In your zone or actually in your
3 ordinance, in your design standards you have a blanket
4 comment that any nonresidential must be curbed and
5 paved. We're asking for a design waiver on that.
6 We're proposing gravel, no curbs, no shoulders, those
7 things.
8 Just giving you some quick numbers. The
9 total length of the gravel road is about 3,900 linear
10 feet from your perspective of what I just pointed to on
11 the site. And I also want to make, we'll get into, I'm
12 sure more in depth, but the reason why this was reused
13 was to use the path that was defined already through
14 the environmentally constrained area through the
15 wetland corridor and riparian corridor.
16 We are in for permits to DEP for this. One
17 of the aspects that we can talk about with this Board
18 is actually moving that driveway and putting it in the
19 center of the lot, not up in here. And, again, the
20 reason that was done originally was to reuse what was
21 there already. If we can get permission from DEP to
22 have it crossing in the center of the lot I'm sure the
23 Board will kindly move that back down to the
24 centerline. It's a detail we can talk about later, but
25 I just want to touch base on that now.

Page 20

1 It does not have to be here, but it was the
2 ability to get the permit to cross from one side to the
3 other. If we can get the permit down here I think the
4 Board's inclined to do that. I think the applicant
5 would pursue that.
6 So, again, built besides the panels and the
7 electrical system itself, access road, that's new. And
8 we're proposing 3,900 linear foot of gravel road to
9 generally connect all the inverter pads to be able to
10 construct the project and then obviously have an
11 accessway to maintain the project.
12 The next thing is fencing. Around the
13 site -- actually, it's not even around the whole site,
14 around the perimeter of the east side and the west side
15 of the panels we have proposed a 7-foot high,
16 chain-link fence. We have discussed with the
17 applicants of changing that to a 6-foot high box wire
18 fence.
19 When we talked about this before and why
20 the need for the chain-link, it was just a barrier
21 that's needed. And, again, we're in keeping with what
22 we consider or what I consider something that's less
23 invasive into the landscape would be putting a box wire
24 fence, a 6-foot high, as opposed to a chain-link fence.
25 CHAIRMAN BOXER: What is a box-wire fence?

Page 21

1 THE WITNESS: It's just a cattle fence. It
2 would either be a 4-by-4 square box, wire square. It
3 looks like something that would be more agricultural.
4 You put those in with wood posts, as opposed to metal
5 posts that you would typically see in agricultural or
6 equestrian type of use.
7 So that's something that's, again, a
8 detail, but the enclosed area, I'll go back to numbers,
9 it's a total of 38.4 acres that would be enclosed. The
10 west side of the property would be 22.3 acres; the east
11 side of the property 16.08 acres. It would be access
12 gates on the drive, as I just described, to get in and
13 out of each one of those gates.
14 CHAIRMAN BOXER: And will those gates be
15 manually operated or electrically operated?
16 THE WITNESS: Manually. I did touch on
17 that. There will be some type of cameras that would be
18 on the property to monitor this remotely. There would
19 also be some type of very mini weather station that
20 would be on one of, maybe two of the inverter pads that
21 would monitor sun, weather, I'm not sure all the
22 details, but temperature, wind speed, there's different
23 variables, but again it's a very small box that would
24 be there, it's not a large structure. And it would be
25 inside that inverter pad area no higher than any of

Page 22

1 those dimensions I gave you before.
2 There's no lighting proposed. We're not
3 proposing any site lighting at all. The only lights
4 would be in the structure itself, that house, but
5 there's no lighting proposed, there's no lighting
6 needed for this property. There's no lights that are
7 needed on the converter areas.
8 Tom, what's the next number?
9 MR. COLLINS: A-8.
10 (Exhibit A-8, Earth Work Analysis, was
11 received and marked.)
12 THE WITNESS: The next Exhibit A-8 is Earth
13 Work Analysis exhibit. And, again, same scale, same
14 orientation as the other exhibits. The difference
15 here, what I'm attempting to show is the amount of
16 grading or cuts and fills that we're proposing to do
17 for the property. So we're going to be referring back
18 and forth from this, a bit for the next part of the
19 discussion, but let's just take the west side of the
20 project.
21 In the area of the west side of the project
22 is where the panels are generally proposed, we are not
23 changing the existing grade. All right. There's
24 cedars in those areas that will be removed but we're
25 not proposing to change the existing grade in the

Page 23

1 non-colored areas.
2 There are two sections on the west side
3 that we are changing the grades. And one on the
4 westerly side of that would be for a detention basin.
5 And then a swale is another element that goes to the
6 north. A swale that will take drainage and runoff to
7 that basin.
8 On the west side, on the southeast part of
9 the west side there's another detention basin with a
10 swale that you see a long linear basin that's being
11 proposed as well. So in those cases the majority of
12 the colors you see there are in the hues that are cut.
13 We're actually excavating to the ground.
14 The maximum excavation is somewhere in the
15 7- to 8-foot range. Majority of the excavation is in
16 the 2- to 3-foot range in that area, in that color.
17 On the east side you'll see a lot more
18 color. And we're going to show a lot of graphics on
19 the different elements of what is towards the
20 neighboring properties to the north, the berms that we
21 have there, the re-sculpting the land that we're going
22 to talk about in the front, the berms or agricultural
23 features, it's semantics. We're going to go through
24 what the grade changes are. Those is generally the
25 darker colors here, and that's where fill is. And then

Page 24

1 this area that I'm pointing to on the south side of the
2 eastern array, that would generally be a cut area of a
3 couple of feet, a cut area of a couple of feet, and
4 that is what generates the fill in the darker areas,
5 the purple and blue hue colors. That's what generates
6 the fill for those areas.
7 You'll also see in the center of the
8 eastern section some colors, and that's some swales,
9 and there's some small water quality basins.
10 I'm going to spend some time now going
11 through these elements that we're going to resculpt the
12 land to try to -- what we'll say is protect viewsheds,
13 and berm areas. I am not going to spend time tonight
14 talking about detailed stormwater management. I'm
15 going to leave that to my associate, Rob Moschello,
16 that will after I'm done, if the Board prefers, he can
17 talk about the details of that. But the general
18 concept is there's two -- there's actually three
19 elements of stormwater detention facilities, a couple
20 of water quality basins, and he'll go through the
21 details of that.
22 What I want to spend some time on now is
23 actually going through some cross sections that we
24 would see from the neighbors to the north, and from
25 Country Club Road and from Meadow Road to get an idea

Page 25

1 of what we're attempting to do by shielding the
2 viewshed from the panels, from neighbors to the north,
3 and the two road systems that are to the east and to
4 the south. Rob, let's put those cross sections up.
5 Tom, I'm going to do an exhibit called
6 sight-line plan exhibit dated November 14th, and that's
7 A-9.
8 (Exhibit A-9, sight-line plan dated 11/14,
9 was received and marked.)
10 THE WITNESS: While Rob's putting that up
11 I'll just talk. I'm not going to talk -- I'm not going
12 to talk.
13 (Robert Moschello putting exhibit up.)
14 THE WITNESS: A-10.
15 MR. COLLINS: Yes, same thing.
16 THE WITNESS: A-10 is sight-line profile
17 Exhibit A and B with a November 14th, 2013 date.
18 (Exhibit A-10, sight-line profile A and B
19 dated 11/14/13, was received and marked.)
20 THE WITNESS: You can't see that?
21 CHAIRMAN BOXER: No, we can see.
22 THE WITNESS: Again, the attempts are to
23 try to take cross sections, long cross sections through
24 the site. I'm exaggerating the scale up and down, so
25 the scale up and down is much greater than the scale

Page 26

1 right to left in the horizontal scale. So, we'll just
2 take the first profile, which is Profile "A," and I'll
3 just show you where that is on this exhibit, on Exhibit
4 A-9. And "A" is taken from the end of Preston Terrace
5 and taken all the way across to Meadow Road where it
6 deflects from the property. Basically, from Country
7 Club Road and Meadow if you were heading toward
8 Bridgewater where the road takes a bend in the road it
9 comes to that location, that's what I tried to do with
10 that.

11 So, through this in plan view you're going
12 to see it -- I'm starting at Meadow, you're going to
13 see it going up a slope, like down a steeper slope
14 inside the panels, across the panels, all right, across
15 the second array of panels, across the drive, new
16 access drive, across another berm that I'll say is a
17 more traditional berm, and then to the adjoining
18 residents at Preston at the end of Preston. That's the
19 attempt to show that line.

20 So, if I start at Meadow -- can you see
21 that? If I start at Meadow you can see the car is
22 exaggerated higher than it's wider. I also put a
23 person in there to perspective, and then there's a tree
24 row right across Meadow.

25 What our attempts were to do with this

Page 27

1 grading is currently the slope and this section is
2 somewhere between three and four percent. That's the
3 slope of the grade, if I take that section there. And
4 that is a field right now. It's a hay field that's
5 been there. And instead of constructing a sharp berm
6 that you see in this exhibit where I'm pointing to on
7 A-10, that's typically a three and one slope, I'm
8 trying to make that extremely gradual that slope. If
9 I'm going from a 3 percent, to a 4, to 5 percent, to a
10 6 percent, and at the tip it gets to a 12 percent
11 grade. That is something that is over a 200-foot
12 distance can easily look natural to what you would see
13 down a Lamington Road with rolling terrain, and
14 something that could be farm. It could be a meadow
15 with grasses on there. You could hay it or you could
16 just have it as a meadow grass. That's the attempts of
17 what we're trying to do with that area. So it just
18 doesn't look abruptly up and back down again that you
19 would typically see with a berm, but we're resculping
20 the land to try to make it functional, make it look
21 agricultural, and obviously have the panels behind it.
22 That's the attempt that we're trying to do with this
23 exhibit and what we're trying to do with the grading
24 here.

25 When it gets to that top there's about a

Page 28

1 6-foot flat section at the top, then it drops down to a
2 quick three-to-one slope that goes back down to the --
3 to the area of the panels, and then inside that area of
4 the panels you could see here on this Exhibit A-10 just
5 where the fence is being proposed. So the fence is not
6 seen outward, it's inside that panel.

7 So, again, the attempts that we're trying
8 to do is make this a gradual slope, not abrupt slope,
9 and have a land use on there that would look indicative
10 of other land use patterns in Bedminster. You can
11 sculpt it, we can change it, we can vary the shapes, it
12 doesn't have to look totally uniform, but that's the
13 attempts to make it look like it belongs in that space
14 rather than just a screening or just a berm.

15 MR. BANISCH: Quick question: You mention a
16 couple of feet of soil coming off of the area, of the
17 array would be creating a berm?

18 THE WITNESS: Yes. And, again, it's hard
19 to see on here. You can see the dashed line as the
20 existing conditions, and you can see that couple of
21 foot cut for the proposed condition.

22 In the plan right now the goal is to
23 balance the site. So there's no import, there's no
24 export, it's a balanced site.

25 MR. BANISCH: How big is the topsoil in

Page 29

1 that area?

2 THE WITNESS: The test that we've seen done
3 by the other consultant and that we've done range from
4 zero, but it generally -- it's 6 to 12 inches. Some
5 areas it's a little higher than that, it's been up to
6 14 inches. In other areas it's zero. There's nothing
7 there, it's just fractured shale.

8 MR. BANISCH: The reason I ask the question
9 is, if this were a traditional development, let's say a
10 home development, and you were going to till topsoil
11 you would bring it back when you were done. When we
12 talk about the future farmland potential of this land
13 when you're done cutting off whatever you were going to
14 cut off what would the surface of the ground be like?

15 THE WITNESS: Well, again, the goal here is
16 not to just put a thin blanket of 2 or 3 or 4 inches
17 back on this slope. The goal here is to take and put a
18 blanket that would be 12 to 18 inches of soil that
19 would be put back on this area so it can actually grow.

20 MR. BANISCH: Right, but under the arrays
21 when they're removed later what would the condition of
22 the ground there be?

23 THE WITNESS: Same thing. Soil back there,
24 topsoil placed underneath, and then a ground cover that
25 would be planted underneath that. Again, we're

Page 30

1 proposing a different mix. We're proposing a pasture
2 mix on the landscape plan underneath the panels. We're
3 proposing more of a meadow mix that could be hayed that
4 would be out on the perimeter. So there's two
5 different growths that we would want out in that area.
6 MR. BANISCH: But you won't be creating a
7 barrier?
8 THE WITNESS: No. The goal is to always
9 have everything relandscaped with grasses, meadow
10 mixes, pasture mixes.
11 MR. BANISCH: I guess the point that's
12 confusing me is, it seems as though, maybe I'm just not
13 getting it, it seems as though there's somewhere
14 between zero and a foot of topsoil that you're going to
15 take away from the array area and create the other
16 berm. I can't imagine how you're going to have a lot
17 of topsoil left over to put back over the array area
18 when you're done.
19 THE WITNESS: Again, it's a good point.
20 The tests that we have there's -- the majority of those
21 areas are in that 6- to 12-foot range. There's little
22 area. It's mostly out in the perimeter areas towards
23 environmentally constrained areas where we're seeing
24 the less topsoil.
25 MR. BANISCH: So, in the area where you're

Page 31

1 creating a berm how much of the new fill material will
2 be topsoil versus the other -- the other materials?
3 THE WITNESS: That's a good question.
4 Let's just say where the berm section is where my
5 pointer is right now. What we would do is before we
6 put the fill in here we're going to take away all that
7 topsoil here first, stockpile it. Take the other
8 material, put it back, the other non-topsoil material,
9 and then on top of this get a 12-inch to 18-inch
10 blanket of soil in this area, topsoil in this area.
11 In the other areas underneath the panels
12 we'd be talking more of 6 to 12 inches underneath that
13 area. All right. Again, what we're thinking is that
14 this soil area that's out along the perimeter of the
15 road would be tilled, okay. It could be cut, it could
16 be hayed. Where generally the area underneath the
17 panels would be something that would be drill seeded
18 during construction and not replanted, reseeded.
19 Obviously, if you have a barrier it would have to be,
20 but it's not something that's going to be continuous to
21 be planted or tilled or excavated. Where the front
22 fields could be, and that's where we said let's take
23 more of the topsoil and put it out on there.
24 And, again, on plan view in respect to the
25 whole site -- in plan view with respect to the whole

Page 32

1 site these flatter berm areas that we're talking about,
2 in these agricultural areas it is primarily just in
3 these two locations in the southeast corner of the
4 property. Okay. So it's along Meadow, and as you turn
5 at the intersection along Country Club there's a break
6 for the driveway, and then continue again along Country
7 Road. So those are the areas that we're talking about
8 doing that sloped -- gradual slope to make it look
9 agriculturally -- mimic agricultural views as opposed
10 to the historic berm that comes up and comes back down.
11 MR. BANISCH: Thank you.
12 CHAIRMAN BOXER: Mr. Kennedy, how much
13 outside soil or topsoil are you anticipating for the
14 site?
15 THE WITNESS: Not much at all. I started
16 to give you that and then I stopped. It's a balanced
17 site where we have it growing right now. The cut and
18 fills average is about 38,000 cubic yards, just to give
19 you some indication of what the cuts and fills are.
20 At the peak of the berm it would range --
21 along Country Club and along Meadow it would range from
22 7- to 9-foot high. The peak of the berm over existing
23 grade would be somewhere between 7- and 9-foot high.
24 BOARD MEMBER OLSEN: May I ask, when you're
25 describing before the topography, the plan grading

Page 33

1 there, I couldn't help but notice being a lawyer for
2 25 years that you used words like "intent, attempt,
3 goal." And I just want to clarify, what degree of
4 confidence is there that the plans will achieve what
5 we're hearing, as opposed to attempts to, in essence,
6 shield the view? It was just kind of a curious
7 question.
8 THE WITNESS: That's a good point. I'll
9 clarify it this way. The plans that we submitted to
10 you are hard numbers, okay. That if the site, and I'm
11 going to assume it is, is constructed as shown on the
12 plan, it will shield those panels. Okay. That's an
13 easy statement to set. The attempt is, or the goal is
14 to make from this top of this area down to the road the
15 attempt is to make it look natural like it belongs
16 along a scenic corridor because of the concern.
17 I can say that that's a judgment. That's
18 the attempt. That's our goal. That's what we want to
19 try to do. And I'll say landscape that. I can be
20 assured that I can hide, if you want to call it that,
21 hide the panels behind this area. I can show lines on
22 a plan. It can be constructed to a plan, but the
23 judgment is, if this is done and completed this way
24 does it look like what I'm stating it to look like?
25 And that's our attempt.

Page 34

1 The attempt is to make it fit into the
 2 streetscape as best as you can by taking it or we're
 3 changing the grade, no doubt about it, but we're trying
 4 to do it in a gradual way rather than a bunch of plant
 5 material and we're trying to make it meadow rather than
 6 a wall of trees. So that is the intent. And the
 7 detail of putting all the construction behind the berm
 8 is shown on the plan. I'm confident with that.

9 CHAIRMAN BOXER: Mr. Kennedy, let me ask
 10 you a question, maybe Mr. Hall once we progress. It
 11 might be helpful for us to see a more layman eye
 12 rendition of what the berm will mean to the average
 13 citizen driving down many of the perimeter roads.

14 What I mean by that is, if I'm driving down
 15 Country Club Road and I take your plan as just stated,
 16 what heights will I actually see driving down Country
 17 Club Road? I'm in a car. My car is about 4-foot high,
 18 maybe 5-foot high, how high is the berm at the highest
 19 point?

20 Will there be a point during any of these
 21 drives where somebody will look over and see nothing
 22 but dirt, just a big berm?

23 THE WITNESS: Well, that's a good question.
 24 That's all you see. It's, again, set back 200-foot
 25 from the road that's there. And what -- when we looked

Page 35

1 at land sculpting that area we looked beyond -- well,
 2 this isn't the right angle, but what we looked at is
 3 areas -- we'll go to A-6.

4 So as you drive down the road with this
 5 berm that's higher than the grade is today, okay, what
 6 we looked at, and you'll see a section, we wanted to
 7 see that you can see the trees back here all the way
 8 through this viewshed. So your view isn't a wall, and
 9 the wall's laid back, but it's still a wall, that you
 10 see something beyond like you do today. That was again
 11 what you see the section that we drove there, and if
 12 the Board wants to see something I can put stakes up at
 13 "X" number of feet higher to that and say this is the
 14 top of where it could be.

15 CHAIRMAN BOXER: I personally think at some
 16 point I'd like to see a very, you know, whether we go
 17 to the site and look at stakes so we can understand the
 18 condition of the berms or see it on the plan, my
 19 biggest fear, as I listen to you, is that these berms
 20 will be protected with -- these roads will have berms
 21 that represent a complete blockage rather than an
 22 improvement of site and I worry about that. I worry
 23 that it does change the dynamic of those perimeter
 24 roads. So it might be helpful to at some point go see
 25 what the heights are as you lay them out by using

Page 36

1 sticks or a type of surveyor devices.
 2 THE WITNESS: They're actually -- probably
 3 the detail would be to give a realistic view of that.
 4 I'm sure we can do something. And I'm not sure a photo
 5 simulation would be appropriate. We could do that,
 6 but --

7 CHAIRMAN BOXER: I think it's going to be
 8 hard. Personally, I always like to go to the site and
 9 have a -- just stand on a perimeter road or in a car
 10 and look out, look at the marker that you would put out
 11 there to see what kind of a height we're dealing with
 12 these berms, because in the worst case we're going to
 13 stand on these roads and see nothing but dirt and
 14 that's not a pretty site.

15 THE WITNESS: And, again, I'll say, the
 16 attempts here is not to see dirt, it's to see meadows
 17 that are out there. But you don't want to see a wall.
 18 And that's why it wasn't just a hard berm that goes up
 19 the property line, or just a continuous row of
 20 screening for that, it's to use what we have out there
 21 to grade and sculpt the land.

22 CHAIRMAN BOXER: Well, your explanation is
 23 very helpful. I think just at a practical level it's
 24 going to be difficult for us to get a context of what
 25 the -- unless we have some way of seeing it firsthand.

Page 37

1 MR. FERRIERO: Ron, if I could. I just had
 2 a question on that just to help with the perspective a
 3 little bit, because it is very difficult to visualize
 4 it from these profiles unless you are used to dealing
 5 with them all the time. There is an exaggerated scale
 6 here. What are your vertical and horizontal scales?

7 THE WITNESS: Certainly. It's --
 8 horizontally it's one inch equals 30 feet. So from
 9 this hatched line to this hatched line it's four plus
 10 zero to five plus zero. That distance there is
 11 100 feet. In the vertical scale it's one-inch equals 5
 12 feet. So, again, between you get -- it's pairs of
 13 lines between this line and this line it's elevation
 14 140 to 150 to 160 to 170.

15 MR. FERRIERO: So, visually things are --
 16 they look six times steeper than they really are?

17 THE WITNESS: Yes.

18 MR. FERRIERO: That graphic representation
 19 things are exaggerated vertically by a factor of six?

20 THE WITNESS: Right. And we had it down to
 21 an equal scale, okay, and you couldn't see anything.
 22 If I was sitting here on this Board tonight presenting
 23 that and I had a scale that was one inch equals 30-foot
 24 horizontally, and one inch equals 30-foot vertically,
 25 in this Board room you wouldn't see any difference. It

Page 38

1 would look like a very linear line. You wouldn't be
2 able to see anything that shows what the changes in
3 grades were.

4 MR. FERRIERO: I had one other question
5 just to go back to some of your testimony. You said
6 the topsoil on the site averages 6 to 12 inches. And
7 then on the outbound portion of the berm you were going
8 to end up with 12 to 18, and 6 to 12 on the inside.

9 I don't understand how that mathematics
10 work. Will you be supplementing the soil there to kind
11 of create a topsoil mix? Because if you're putting the
12 same material back on the same area you can't double
13 the depth.

14 THE WITNESS: Let me put it this way. I
15 haven't gone into that much detail, and I can. The
16 previous engineer had a lot of soil tests that were
17 done. I think they were submitted to the Board. I can
18 put a matrix together and try to figure out, based on
19 the tests that were done, of those ranges of topsoil
20 there to give the Board some assurances that there's
21 enough topsoil that's listed there and that's on there.

22 MR. FERRIERO: But you don't have the
23 intention of bringing in topsoil or augmenting the soil
24 that's there that may not be topsoil?

25 THE WITNESS: I'd rather prove to you first

Page 39

1 that there's enough on the site.

2 BOARD MEMBER STRAKHOV: I have another
3 question, if I may, Mr. Kennedy. Are we -- are there
4 plans then to put plantings on the I guess we're
5 starting to call it a berm now, are things going to be
6 planted there and mowed or maintained or, what happens
7 with that area?

8 THE WITNESS: I'll say this: In the area
9 that's blue and purple, in these wider areas that are
10 along Meadow Road and Country Club Road the intent is
11 not to have any vegetation on the top or on the sides
12 of these slopes. The attempt is to make that look and
13 appear like a rolling field. Okay. That would be "A."

14 MR. HALL: You said no vegetation. I
15 assume you meant no trees?

16 THE WITNESS: No trees. Yes.

17 BOARD MEMBER STRAKHOV: Oh.

18 THE WITNESS: Again, it would be a meadow
19 mix similar to what's out there today.

20 BOARD MEMBER STRAKHOV: So you would plant
21 a meadow mix?

22 THE WITNESS: Yes, we plant a meadow mix,
23 something that could be hayed, could be cultivated, it
24 could be cut, that would be there, that wouldn't have
25 trees on it.

Page 40

1 BOARD MEMBER STRAKHOV: And so part of the
2 plan is there will be money spent to mow or whatever --

3 THE WITNESS: For agricultural purposes.

4 BOARD MEMBER STRAKHOV: -- whatever needs
5 to be done to keep it from going completely wild?

6 THE WITNESS: And, again, this is what -- I
7 say attempt, but this is what we're trying to convey
8 is -- and the design is to try to make that functional
9 from an appearance standpoint and from an agricultural
10 standpoint on that grade. There's -- the steepest it's
11 6 to 12 percent. We can go out to plenty of areas in
12 Bedminster Township that have active agricultural uses
13 that are in the 6- to 12-percent range.

14 So what we're presenting is the ability to
15 create that same space here rather than a wall of trees
16 or an up and down berm. We're trying to create
17 something that exists in the landscape today, not here
18 but in other sections, based on the fact that we want
19 to put the panels behind them.

20 MR. HALL: Mr. Kennedy, on the north end
21 you would have trees; correct?

22 THE WITNESS: Yes. So I want to have that
23 distinction. On the north end -- and I didn't get to
24 that whole cross section -- on the north end that would
25 be a typical berm that would go up on a three-to-one

Page 41

1 slope. And on exhibit -- the cross section here, A-10,
2 I'm still on section -- Profile "A," on A-10 on the
3 left side of the sheet as it gets closer to I think
4 it's Preston, yes, Preston Terrace you see in this
5 location we have I'll say a typical berm. It's about
6 8-foot high at max. Okay. It goes up on a
7 three-to-one slope. It has a top of about I think it's
8 8- to 10-foot top of that. And at the top of that we
9 have landscape. It's shown on the landscape plans.
10 Actually, we have landscape that's shown on the side.
11 And also to supplement that behind the landscape that
12 faces the residents we're proposing a solid 7-foot high
13 wood fence. Okay. The landscape itself would be on
14 the high side of that fence. Okay. But that was just
15 to supplement the landscape features along there. So
16 again it does not have the view from those residential
17 neighborhoods of the panel.

18 MR. HALL: Mr. Kennedy, while we're on
19 A-10, I think you mentioned but didn't explain the
20 sight lines, you show a person figure all the way to
21 the right?

22 THE WITNESS: I do.

23 MR. HALL: What is the height of that
24 line-of-sight?

25 THE WITNESS: From the person, the height

Page 42

1 is 5 feet to the line. And, again, it's just the
2 height that you would go across to the top of on -- the
3 agricultural berm as opposed to the other berm. The
4 top of that you'd see, you continue seeing up. The
5 fence is behind it, and again the panels are all below
6 that. So you would not see the panels. That I can be
7 certain of if it's constructed to that height. Okay.
8 Vice versa, on the north side looking back from the
9 house you would look back, again, berm, landscape, and
10 fence, you'd look over the top of it.
11 BOARD MEMBER OLSEN: So what could defeat
12 it not appearing to be a natural meadow, are we talking
13 about maintenance or failure of the soil to adhere?
14 What would be -- so how could it go wrong?
15 THE WITNESS: Well, I think you have to
16 break it down twofold: One, is during construction.
17 The completion of construction. There's land grading.
18 I can say this is a design parameter, but what happens
19 from this point here on A-10 to the road, okay, what
20 you see driving down that road after, the first thing,
21 would be does it meet the objectives of making it look
22 like a meadow, like it belongs in the scape, that you
23 can see trees behind it. It doesn't look like this is
24 a wall of grass or meadow, so that's the first thing is
25 during construction at the end of construction did you

Page 43

1 make that objective.
2 After that is completed then it's a
3 maintenance program, is it being maintained, whatever,
4 is it agriculturally being maintained correctly? And
5 that would have to be the process that we would propose
6 a plan that you would have to go through that we would
7 maintain it a certain way along the frontage.
8 BOARD MEMBER DiGIOVINE: Mr. Kennedy, could
9 you show us where in that landscape picture is in
10 relationship to the aerial view? This one over here,
11 this one over here.
12 THE WITNESS: This one here?
13 BOARD MEMBER DiGIOVINE: Well, either or?
14 THE WITNESS: Okay.
15 BOARD MEMBER DiGIOVINE: I mean, you show
16 that there's a person standing there 5-foot tall.
17 Where would that person be standing in that --
18 THE WITNESS: Well, I'm going to show it in
19 the line and then I'll transfer it over there. The
20 line itself is from this line "A," okay, that was all
21 the way on the right-hand side of the sheet. That's
22 where you were standing in the vehicle on top. And
23 it's looking where the pointer is in a top right
24 direction, a northeast direction, all the way to
25 Preston Terrace. So that's the line that you see

Page 44

1 behind it on that exhibit. So right here at this point
2 "A," in the center of the sheet on the south end on
3 Meadow Road is where that vehicle is in this cross
4 section.
5 BOARD MEMBER DiGIOVINE: So, if you would
6 just take that one down for a second. The one that's
7 up there. If that person were standing where you just
8 noted that he was would he still be shielded from the
9 top view of the top part of the hill up there to the
10 second level of --
11 THE WITNESS: Are you talking about the
12 second level back here?
13 BOARD MEMBER DiGIOVINE: No.
14 THE WITNESS: Or are you talking about
15 right here?
16 BOARD MEMBER DiGIOVINE: That right there.
17 THE WITNESS: So, again, I'm pointing on
18 this Exhibit A-6 where that line is. I started on
19 Meadow where it deviates from the property, and it went
20 generally in the northeast direction towards Preston.
21 So the first set of panels are right here, okay. They
22 represent these first set of panels on A-10. Okay.
23 The second set of panels which are the
24 northern side on the eastern portion of the property
25 would be right here where I'm pointing to on A-6. That

Page 45

1 would represent these group of panels right here on
2 this exhibit.
3 BOARD MEMBER DiGIOVINE: So are you saying
4 that that person standing there is 5-foot tall would be
5 able to be shielded from that second set of panels at a
6 higher elevation?
7 THE WITNESS: Yes, because here's the view
8 line that that person has. So this sight line here
9 from the top of this area would shield both sets of
10 panels.
11 BOARD MEMBER DiGIOVINE: Did you do any
12 kind of measurement to say how far back you would have
13 to stand before you could see over that berm and then
14 beyond into the hills above to see the next level of
15 panels? In other words, stretch the sight line out
16 further than just 200 feet from the berm?
17 THE WITNESS: We have it shown in the cross
18 section further in this direction, let's assume that
19 for a second. But from this location where "A" stops,
20 the cross section "A" stops, if the grade of this
21 drive, of this road quickly changed and started going
22 uphill then that would be a concern, the farther down,
23 but this grade does drop off.
24 BOARD MEMBER DiGIOVINE: So the road slopes
25 down?

Page 46

1 THE WITNESS: So, I can answer it
 2 generically. I don't have topo behind 200 feet of the
 3 property. I can look at a bigger map. Maybe Mr.
 4 Ferriero has a mapping down here of the topography, but
 5 I do know it slopes away. If it did slope back up I'd
 6 have a concern about that. Same thing on Country Club
 7 Road. But, generally, if I stand on Country Club Road
 8 at this location you're heading down towards Chambers
 9 Road in a southerly direction. So, again, it's not
 10 going back up that you have from a farther distance
 11 away, you're now looking down the top. That's how the
 12 general topography works that way. If we have some
 13 detail mapping off-site I can pop that up and show it
 14 to you.

15 BOARD MEMBER OLSEN: So, have you done this
 16 exercise around the entire perimeter? Is this like the
 17 worst-case scenario?

18 THE WITNESS: Well, I did one section I was
 19 just talking about, but obviously on Exhibit A-9 you
 20 can see that there is a series of seven cross sections
 21 that I've taken. And I'm going to say that they're
 22 generally in two focused areas along the frontage of
 23 Country Club Road and Meadow Road that's visible
 24 currently today without any, the landscaping or
 25 reshaping any of the land, would currently be visible

Page 47

1 to the panels. I didn't do it in the rear of the
 2 property because, again, I'll say it, it's generally
 3 wooded that's around the rear of the property so I
 4 didn't do it from sight lines coming through here. And
 5 I focused on the residences on the northern side along
 6 Preston in the other section.

7 BOARD MEMBER OLSEN: What type of trees are
 8 those along --

9 THE WITNESS: Along here? These are mature
 10 hardwoods here primarily cedars along this edge. And
 11 you can see I have some additional landscaping from the
 12 residence that's out here on Lot 4. I added additional
 13 landscaping in the rear of that property.

14 BOARD MEMBER OLSEN: The hardwoods that
 15 would lose their foliage and there would be a
 16 line-of-sight?

17 THE WITNESS: They would. And, again, the
 18 Board wants some landscaping. There is some cedars
 19 along here before you get out to the neighboring
 20 property. But we can look at that type of detail, but
 21 again the focus was more up at the intersection, and
 22 where the residential houses were closer to the
 23 property.

24 BOARD MEMBER DiGIOVINE: Mr. Kennedy, did
 25 you do a sight line from the second floor or second

Page 48

1 story of any of the homes?

2 THE WITNESS: I did.

3 BOARD MEMBER DiGIOVINE: In the area
 4 behind?

5 THE WITNESS: Yes. The houses that had the
 6 second floor I did sight lines from there. And I can
 7 show those -- do you want to spend time to look at
 8 those?

9 CHAIRMAN BOXER: I think we should let Mr.
 10 Kennedy continue and try to, you know, get a bigger
 11 picture and then see where our questions lead us, if
 12 that's okay. I don't want to get you too distracted,
 13 Mr. Kennedy.

14 THE WITNESS: Well, again, I think a
 15 majority of the conversation is about the sight line,
 16 so I'll spend a couple of minutes. I've got one more
 17 section I'll put up now, and then I'll show another one
 18 at a different view of how we looked at it and see the
 19 breakdown focused on the line.

20 MR. HALL: Mr. Kennedy, before you do that,
 21 A-10, there's -- the one that's already up there,
 22 there's a an elevation in the bottom that I don't think
 23 you told us what that was. Is that a different -- no,
 24 yeah.

25 THE WITNESS: So, there's a sight line on

Page 49

1 "B," so a sight line on the lower side of A-10. And,
 2 again, the attempt with this sight line is the highest
 3 proposed structure on the property is the switchgear.
 4 And as I said before, it's 12-foot high. So this is a
 5 sight line that comes from, again, that same house over
 6 on Preston that's closest to that switchgear. And what
 7 we're showing with that is the berm, the landscaping,
 8 the fence from the elevation of that, the house, and it
 9 shows that the sight line with the fence you're looking
 10 over the top of the switchgear which is 12-foot high in
 11 the existing landscape.

12 So, again, I'm trying to take the highest
 13 things in the landscape that are on the proposed
 14 improvement, and then the closest folks to that to show
 15 how that would affect.

16 I'm going to put up another section.
 17 (Exhibit A-11, sight-line profile Exhibit C
 18 and D dated 11/14/13, was received and marked.)

19 A-11. Exhibit A-11, and it's sight line
 20 profile Exhibit C and D, dated November 14, 2013. So
 21 on Exhibit A-9 cross section "C" was directly
 22 north/south on the property, through the area that we
 23 want the agricultural berm, through the panels, and
 24 then it goes through the other berm that's closer to
 25 the residences.

Page 50

1 And what you'll see with this sight line is
 2 on the left side is the residences, or resident. And
 3 you'll see the berm. You'll see the fence that we have
 4 above the berm. You'll see the proposed chain-link
 5 fence that we have on our plan. Proposed inverters to
 6 scale that's on there. The panels themselves as we
 7 work our way across, proposed evergreens. We have the
 8 access road, another inverter, more panels, gets out to
 9 another fence, and then that agricultural feature that
 10 we want to construct closer to I believe this is
 11 Meadow, Meadow Road. And, again, sight lines is we
 12 take one of the first floor and show what that sight
 13 line is, and then we take one at the second floor and
 14 show what that sight line is. And on both of those
 15 with the berm and the fence we don't see the tops of
 16 the -- either the inverters or the panels on this cross
 17 section.

18 MR. HALL: And on that one you're going
 19 over the fence, you're going through the landscaping?

20 THE WITNESS: I am.

21 MR. HALL: So the landscaping you can see
 22 it less?

23 THE WITNESS: It is, it diffuses. It
 24 doesn't block, but it diffuses.

25 So, and again I'll say while I have this

Page 51

1 up. Profile "D" same type of view. This is at the
 2 intersection of Country Club and Meadow where the
 3 vehicles are. This is a house that is on Country Club
 4 Road just south of Meadow. And I'd say that's the
 5 closest house to the intersection of Meadow and Country
 6 Club so that's Section "D." So, again, you can see the
 7 view from the house, the berm, and then above the
 8 panels from both the house, as well as someone -- I
 9 didn't do the vehicle because that's usually shorter so
 10 I do a person standing outside.

11 MR. HALL: You can show that on the aerial
 12 just so we understand.

13 THE WITNESS: This is Exhibit A-6. In that
 14 line -- we'll go over this side -- the line I can show
 15 was from this house on Lot 2.01, through the
 16 intersection of Country Club and Meadow, and then into
 17 the site.

18 MR. SASSO: I'm sorry. Did you say the
 19 height of the person from that view is that also
 20 another 5-foot person?

21 THE WITNESS: Well, it's -- I'm saying the
 22 eyes are 5 foot. The one below this, right, this one
 23 right here?

24 Let's go back to Exhibit A-8 that shows the
 25 cuts and fills based on what I was just describing with

Page 52

1 the different features of regrading. The areas in
 2 color where we're changing grade represent 15.5 acres.
 3 Again, I'm trying to give a perspective of numbers, but
 4 that represents about 15.5 acres of area that has a
 5 grade change. And the other area is construction will
 6 occur on it, but we're not proposing changes to the
 7 grade.

8 In order to achieve the graded plan on
 9 Exhibit A-8 the tree removal is in a couple of formats.
 10 Primarily, the area on the western side of the tract of
 11 land is currently cedared, they would be removed. The
 12 only exception to that that would follow your tree
 13 ordinance is there's a thin tree line of trees that you
 14 would regulate, deciduous trees that you would
 15 regulate. And some of those trees, primarily in the
 16 center of that tree line would have to be removed and
 17 we would have to conform to your tree ordinance.

18 MR. HALL: And Mr. Kennedy, that's A-4
 19 you're referring to?

20 THE WITNESS: It is. It is A-4.

21 Additionally, there would be a current tree line that's
 22 generally the extension of Somerset Terrace in a
 23 north/south fashion. Some of those trees in order to
 24 do the grading and the panels on A-8 would be removed.
 25 And there's also some trees that are generally around

Page 53

1 the house itself that would be removed.

2 We have to conform to your ordinance. The
 3 total of tree count of the hardwood trees of the
 4 ordinance would be 42 trees. Using your calculations
 5 you would require 210 trees to be replaced. And we
 6 would comply with that on this site in and around the
 7 berm.

8 As shown on the plans that were submitted
 9 to you we're proposing to have a seed mix that would be
 10 under and around the panels that would be a pasture
 11 type of mix. One that doesn't grow too fast, one that
 12 doesn't grow too high, that generally needs once a year
 13 maintenance that would be on there. And there's a mix
 14 of that seed product that's on the submitted documents.
 15 But they worked with seed companies that you want about
 16 a 6-inch to a foot growth of plant material in that
 17 area. It doesn't require too much growth and you have
 18 to constantly cut it, but still gives a good ground
 19 cover in and around.

20 Along the perimeters we show on our plan a
 21 meadow mix that would be planted that we talked about
 22 before. So, again, different seed type, but a Meadow
 23 mix. And then the last thing would be in the detention
 24 basins themselves we would just have a different mix in
 25 the bottom of those basins that are shown on the plan.

Page 54

1 Construction. In order to build something
 2 like this we see the order of construction would follow
 3 that soil erosion measures would have to be put up
 4 first. That the bulk cuts and fills is basically
 5 what's on Exhibit A-8 would be done. And then after
 6 the bulk cuts and fills and soil erosion would be put
 7 up is the piles for each one of these posts, I think it
 8 was 3,300 posts, they'd be installed. After they're
 9 installed at that point is when the bulk of the
 10 restabilization, the re-seeding of the area all under
 11 the panels would be done. Okay. What they've been
 12 doing is drill seeding those and stabilizing the ground
 13 first before coming back and then putting the arrays or
 14 the actual arrays up and the racking system up. So we
 15 generally know the sequence that we do, put the post
 16 in, actually you do some of the trenching too that
 17 would be assisted by the conduits, then do the whole
 18 seeding program, then come back, put the panels up,
 19 reseed any of the exposed areas, and then finish the
 20 project that way, as opposed to seed planting. In most
 21 residential/commercial jobs you construct everything
 22 and the last thing you do would be working out of
 23 there. Because the way this is constructed, the method
 24 that seems to be working for the solar installations is
 25 drive piles to the end of the conduits and then the

Page 55

1 seed and stabilizer, and come back for that.
 2 As I said, I'm not going to touch the
 3 detailed stormwater, because Moschello will take care
 4 of that, but I want to go through the last couple of
 5 simple things. Just zoning, and I say zoning on
 6 setbacks and the land use zoning, not the land
 7 setbacks, the numbers as opposed to use. The proposed
 8 panels would all be in excess of 200-foot from the
 9 setbacks of the property lines, so there's no relief
 10 proposed for the panels or any of the inverters or any
 11 of the above grade structure. We're proposing to keep
 12 the house. The barn's been removed. The floor area
 13 ratio is well below the required floor area ratio in
 14 the R10 zone.
 15 Discussion about lot coverage. I'm going
 16 to give you a bunch of numbers, is the solar panels in
 17 plan view represents 16.8 acres. 16.8. You heard the
 18 engineer and planner opine that that is lot coverage,
 19 but that's 16.8. The driveways represent .15 acres, or
 20 the paved driveway. The gravel drives are 1.07 acres.
 21 The farmhouse and cottage is .05 acres. And if we take
 22 the foundation and inverter pads it's .14 acres. When
 23 we add that up, if my math is correct, it's
 24 17.15 percent of the total land area, where 5 percent
 25 is allowed.

Page 56

1 MR. HALL: Mr. Kennedy, that's the land
 2 area to the big lot, not the entire whole --
 3 THE WITNESS: Let me clarify that. It is
 4 only -- the denominator of that calculation is only
 5 based on Lot 10. It does not include Lot 4 and does
 6 not include across the street Lot 1 on Block 7102.
 7 We stated before to be a waiver required
 8 from paving and curbing on Section 13A, 508.3. There
 9 will be a series of easements that will be required,
 10 conservation easements along stream corridors in the
 11 Township of Bedminster. Sight triangle easements at
 12 the intersection of Country Club Road and Meadow. And
 13 then a series of maintenance easements for stormwater
 14 management, and I believe it was Mr. Ferriero had
 15 suggested there would need to be easements for any of
 16 these berms or landscape features that we talked about
 17 earlier.
 18 Third-party approvals are required from
 19 Planning Board, the Soil Conservation District, DEP
 20 which is with the wetlands general permits for the
 21 driveway, and then a flood hazard area riparian zone is
 22 required also. The wetlands Letter of Interpretation
 23 has already been sought and received for the property.
 24 That's all I have on my direct.
 25 CHAIRMAN BOXER: Thank you, Mr. Kennedy.

Page 57

1 If I could ask everybody just to do me a favor to turn
 2 off their mobile phones or pagers. They're being very
 3 distracting for the people if you wouldn't mind. Thank
 4 you.
 5 Okay. I think what we should do is before
 6 we go into cross and question maybe we should take a
 7 ten minute break. Let Mr. Kennedy gather up some
 8 energy. And Mr. Sasso, Ms. Donato, how do you want to
 9 handle -- do you have cross?
 10 MS. DONATO: Yes, I do. Thank you.
 11 CHAIRMAN BOXER: Mr. Sasso, do you?
 12 MR. SASSO: Absolutely.
 13 CHAIRMAN BOXER: Would you have a
 14 preference in order of questions?
 15 MR. SASSO: Yes, we do. We discussed it,
 16 and Ms. Donato will go first.
 17 CHAIRMAN BOXER: Okay. So, Ms. Donato,
 18 we'll have you go first when we get back and then the
 19 Board will have questions when the attorneys are done.
 20 (A break is taken at 8:24 p.m.)
 21 (Back on the record at 8:38 p.m.)
 22 CHAIRMAN BOXER: Sorry for the longer than
 23 expected break. I think everybody just needed to
 24 regain their energy. So let me just remind everybody,
 25 if you can turn off your mobile phones or your

Page 58

1 electronic devices that would be much appreciated.
2 We have completed Mr. Kennedy's direct
3 testimony and now we're going to have Mr. Sasso do the
4 first of the crosses and then follow up by Ms. Donato
5 tonight.
6 MR. SASSO: Thank you, Mr. Chairman. We're
7 actually flip flopping that. In other words, Ms.
8 Donato is going to go first and then I'm going to
9 follow.
10 CHAIRMAN BOXER: You're a formidable tag
11 team. Whatever you guys want to do is fine. Ms.
12 Donato, are you going to go first?
13 MS. DONATO: Yes. Thank you.
14 CHAIRMAN BOXER: All right. Nice to have
15 you here tonight.
16 CROSS-EXAMINATION BY MS. DONATO:
17 Q. Good evening, Mr. Kennedy. Can you tell me
18 whether or not you were involved in preparing the
19 initial plans that were submitted to the Board of
20 Public Utilities Commissioners?
21 A. **I was not. My firm was not.**
22 Q. Your firm was not?
23 A. **It was not.**
24 Q. Do you know who was involved in preparing
25 those initial plans that were submitted to the BPU?

Page 59

1 MR. HALL: I object. I don't know the
2 relevance to this.
3 MS. DONATO: I think that it's quite
4 relevant. If you'd like me to explain? Would you like
5 me to make a proffer?
6 CHAIRMAN BOXER: Please, if you wouldn't
7 mind, Ms. Donato.
8 MS. DONATO: And I think we broached this
9 topic slightly at a prior hearing. When an applicant
10 comes before the Board they have an obligation to be
11 able to demonstrate that there's a fundamental
12 feasibility in their plan. It's often called the field
13 feasibility test, but there are many cases that address
14 it and they address it from different perspectives.
15 And one -- there's the hospital case in which the
16 applicant required a Certificate of Need from the State
17 Department of Health, and they did not have it. And
18 that Certificate of Need was critical to qualify as an
19 inherently beneficial use as a hospital.
20 Similarly, in this instance, to qualify as
21 an inherently beneficial use for solar you would have
22 to know what did the BPU, at least whatever action they
23 did take, what did they have before them, and how does
24 that compare to what is before this Board? And is it,
25 you know, does the use continue to be fundamentally

Page 60

1 feasible? Are all the components of use here? And is
2 it the same as what was presented to the BPU?
3 CHAIRMAN BOXER: Mr. Hall, do you not agree
4 with that?
5 MR. HALL: I totally disagree. The
6 statute, the land use law says inherently beneficial
7 use, solar energy facilities. Period. And he said he
8 wasn't involved with BPU anyway, so what's the
9 difference? And I think we heard this argument, this
10 is the third time, saying you need other approvals and
11 you didn't get them yet. And I think at the beginning
12 of the first meeting we said we're not there. And we
13 acknowledge, I mean --
14 MS. DONATO: Are you saying you don't have
15 BPU approval?
16 MR. HALL: No, we do. I'm saying we don't
17 have final approval. We had the DOT to cross the
18 highway, and no --
19 MR. SASSO: That's different than BPU, Mr.
20 Chairman. What she's saying is, and we all know a
21 hospital is an inherently beneficial use, but the point
22 of the matter is, that Mr. Hall is not really
23 addressing is, in the case that she cites which is an
24 Appellate Court the court said if they can't, meaning
25 the applicant, show that this hospital is required then

Page 61

1 the inherently beneficial use tag doesn't go along with
2 what they're doing. Here we have what has been
3 described by the applicant is, I already have BPU
4 approval, I'm ready to go solar is inherently
5 beneficial, period. But that's not what the Court
6 said. Because if that were the case that hospital who
7 couldn't get a Certificate of Need wouldn't have been
8 defeated based on the beneficial use argument.
9 So, I hear what he's saying. It would be
10 nice if that were true for the applicant, but that's
11 just not the state of the law.
12 MR. HALL: But how does that relate to
13 asking Mr. Kennedy about this, which he didn't testify
14 to on direct. Mr. Lynch, and we spent two meetings
15 with him, testified about BPU approval, what net
16 metering is, et cetera, et cetera. Mr. Kennedy
17 testified about the layout, period. I just don't see
18 why we -- I don't know where she's going with this
19 questioning of Mr. Kennedy.
20 CHAIRMAN BOXER: Let me ask you a question,
21 Ms. Donato. I'm not sure that, and Mr. Collins can
22 certainly weigh in. It seems to me that this argument
23 may be better made later on. I mean, I think this
24 testimony -- would you agree that the testimony still
25 has to continue, Mr. Kennedy being very insulated in

Page 62

1 his direct, you know.

2 We have sort of talked about the

3 application's steadiness here, I think in the early --

4 in the early days where we talked about whether or not

5 we should proceed with this hearing. And you and Mr.

6 Sasso had some very interesting arguments. And I think

7 Mr. Collins correctly guided us to continuing the

8 application and the hearing process. And it feels like

9 when we start getting into this discussion over again

10 inherently beneficial that might be something better

11 left till later and try to deal with Mr. Kennedy's sort

12 of insulated and isolated testimony, you know.

13 MS. DONATO: Well, actually, I think the

14 debate on the question is much longer than the question

15 would be. And it does raise a concern with me because

16 Mr. Hall submitted --

17 MR. COLLINS: I think I'll just -- I think

18 that we'll -- it's best to just deem the question -- to

19 rule that the objection for relevance is overruled, to

20 have the witness answer the question, but it sounds

21 like he doesn't know. So I think we might as well get

22 to that other part. And this legal argument is

23 interesting but it's actually not for this witness,

24 unless you have something you'd like to cross-examine

25 about direct that he gave that is relevant to the

Page 63

1 issue. It's probably something that your own planner

2 is going to have to try to espouse since it's very

3 unlikely that the applicant's witnesses are going to

4 agree with your submission itself. So your question

5 was, I think, maybe we'll read it back.

6 MS. DONATO: Yes, let's read it back.

7 (Whereupon, the following question was read

8 back by the court reporter: "QUESTION: Do you know

9 who was involved in preparing those initial plans that

10 were submitted to the BPU?")

11 BY MS. DONATO:

12 Q. Now, on November the 4th are you aware that

13 Mr. Hall at the request of the Planning Board -- I

14 mean, of the Land Use Board submitted a letter with

15 certain documents to the Land Use Board regarding the

16 BPU approval?

17 **A. I don't recall.**

18 Q. I'd like to show you a copy.

19 MR. HALL: I object again. He says he

20 doesn't know, so what --

21 MS. DONATO: I'm going to show him.

22 MR. HALL: He didn't testify about BPU

23 approval, and she's going down that road. We're

24 wasting our time.

25 MS. DONATO: Mr. Kennedy, I'd like to show

Page 64

1 you --

2 MR. COLLINS: She has the opportunity to

3 show him a document. First, see if he can -- if he

4 recognizes the document.

5 BY MS. DONATO:

6 Q. I'm going to show you a letter. The cover

7 letter is from Mr. Hall at the McCarter & English.

8 It's dated November 4th, 2013, directed to the

9 attention of the Board Secretary. And he indicates in

10 his letter that there were plans submitted to the BPU?

11 **A. Yes.**

12 Q. And these are the plans that are attached

13 to that. Can you tell me who prepared these plans?

14 **A. The plans that you have here are a**

15 **conceptual plan layout and a layout. It was prepared**

16 **by Gladstone Design, and the date is December 13, 2011.**

17 Q. So, Mr. Hall said that these were submitted

18 to the BPU, but you say that your firm did not do this?

19 **A. No. What I said is if I knew what was**

20 **submitted to the BPU, I don't know. I prepared a plan**

21 **back in 2011. I don't know where it went.**

22 Q. Okay. I asked you if your firm did it.

23 You said no. So you forgot, correct?

24 **A. No. Let's be clear, I may have done a plan**

25 **for it. Where it went once it was given to the client**

Page 65

1 **or Mr. Hall I'm unaware of. I don't know that it went**

2 **to BPU.**

3 Q. Oh, so you don't know that this plan went

4 to BPU, but you prepared it?

5 **A. You asked me if the plan went to the BPU.**

6 **Of course I prepared that plan. Our name's on it, but**

7 **I have no idea of where it went once I prepared it.**

8 Q. And I just want to direct your attention to

9 the section of the property which has the pond, area

10 "C." That's where the pond is; is that correct?

11 **A. That's correct.**

12 Q. Are there panels that are proposed there?

13 **A. There are panels there.**

14 Q. Are those panels proposed in the plans that

15 are before the Board?

16 **A. They are not.**

17 Q. Do you know why they were eliminated?

18 **A. I don't know.**

19 Q. Do you know whether or not those panels are

20 located in an environmentally constrained areas?

21 **A. I do know now.**

22 Q. And if the outside of the open waters of

23 the pond is the area where this pond -- where the piles

24 are located is that in any environmentally constrained

25 area itself?

Page 66

1 **A. Some of them are. Some of that area is.**
2 Q. Now, have you ever prepared any plans to
3 show how this facility would be connected to the Sanofi
4 Campus?
5 **A. I believe on our site plan before this**
6 **Board we have a dashed line that shows connectivity**
7 **from the switchgear to the property.**
8 Q. Were you here on the first evening when Mr.
9 Sasso and I objected to the notice because the notice
10 did not include areas within 200 feet of the connection
11 to the Sanofi Campus?
12 **A. I was at that meeting. I don't recall the**
13 **details of that discussion.**
14 Q. So you don't recall the argument that the
15 connection --
16 MR. HALL: I object. This has nothing to
17 do with his testimony.
18 BY MS. DONATO:
19 Q. You do not recall --
20 MS. DONATO: Would you like to rule on the
21 objection?
22 MR. COLLINS: You should just don't do
23 another question, because you lost that one. Go ahead.
24 BY MS. DONATO:
25 Q. I just want to understand. I know the

Page 67

1 issue's being passed us. All I want to know is whether
2 or not these plans show the jacking? Is it just a
3 dashed line, that's all that is shown?
4 **A. Our plans --**
5 Q. For the -- it would be a conduit, am I
6 correct, that would be proposed to extend under the
7 roads and under 287 to extend to Sanofi?
8 **A. You asked two different questions. Which**
9 **question do you want me to answer?**
10 Q. Answer them both.
11 **A. I just want to get it right. Our plans**
12 **that have been submitted, I think it's 31 sheets were**
13 **drawn, show a dashed line from this site that goes**
14 **underneath 287. Okay. We show a representation of the**
15 **conduit that connects from this property to the Sanofi**
16 **property in Bridgewater. We show that on there.**
17 **There's not a lot of detail of it, but we show the**
18 **line.**
19 Q. Do you know how long that line is?
20 **A. I do. (Witness looking through paper.)**
21 **Approximately 2,025 feet. 2,025.**
22 Q. And is that from the point where that
23 jacking station is? Is that the beginning point on the
24 Kirby Farm site?
25 **A. Yes.**

Page 68

1 Q. And then where is the end point?
2 **A. Near the buildings at the Sanofi site.**
3 Q. When you say near, how near?
4 **A. Within a hundred feet.**
5 Q. Okay. And do you know what building on the
6 Sanofi site? We both have different accents for the
7 word. I don't know which is right.
8 **A. They don't either, so don't worry about it.**
9 **I can say this: We show it in a general area of the**
10 **building. We haven't been involved, our firm, with any**
11 **detail around that building of exactly where the**
12 **inner-connect is. So to ask, you know, me of any of**
13 **the detail around the building I don't know. We showed**
14 **a line that would go to the general area of the**
15 **buildings, and that's what we show on our plan.**
16 Q. Okay. And can this solar facility function
17 without that line?
18 **A. I'm the wrong guy to ask. I'm not an**
19 **electrical guy, so I can't --**
20 Q. Well, you showed it on the plan, but let me
21 ask you this.
22 **A. Then it would be required.**
23 Q. I don't know if we need to be an electrical
24 guy. If you use some common sense, the electricity's
25 going to be generated from the solar facility on the

Page 69

1 Kirby Farm; is that correct?
2 **A. That's correct.**
3 Q. And it has to be somehow transmitted to the
4 Sanofi Campus; is that correct?
5 **A. That's correct.**
6 Q. Can the facility on this site, on the Kirby
7 site, the solar facility deliver its power to the
8 Sanofi Campus without this line being extended?
9 **A. Yes. It would have to be some**
10 **connectivity. And we're showing a plan that shows an**
11 **underground connection on our site plan.**
12 Q. Is there any other way to connect it?
13 **A. I haven't studied that at all.**
14 Q. Who will be the person responsible for
15 studying that?
16 **A. You have to ask Mr. Hall.**
17 Q. Do you know what the subsurface conditions
18 are? Did you evaluate those when you drew the line
19 from the Kirby Farm to the Sanofi Campus?
20 **A. No. It's going to be a directional drill**
21 **proposal. So knowing the general soils on the property**
22 **based on the soils map that we would directional drill**
23 **from that location, the 2000 feet, to the Sanofi site.**
24 Q. So do you know what the subsurface
25 conditions are where you would be directionally

Page 70

1 drilling?

2 **A. They're similar soils to this site. Some**

3 **of it is on this site. We have done not only our firm,**

4 **but the other firm that was previously working on this**

5 **has done detailed soil logs, and they've been submitted**

6 **as part of this application.**

7 Q. Can you direct me to any soil logs that

8 would be in the location of where the conduit would be

9 located to connect? Are you sure that you have soil

10 logs for those?

11 **A. Right underneath the location -- I can't**

12 **tell you that right now. I'd have to look. I know**

13 **that the previous engineer did a fair amount of soil**

14 **testing there. There was a map generally on the**

15 **hundred acres of where soil testing was done. Can I**

16 **tell you and pinpoint exactly underneath this jack bore**

17 **area that we did a soil or they did a soil, I can't**

18 **tell you.**

19 Q. I thought that's what you said earlier.

20 I'm just trying to confirm. Would you like to check

21 your stormwater management report and soil logs that

22 are in there to see whether or not you have any soil

23 logs for those conditions that would exist where the

24 jack bore would be located?

25 **A. It's a lot of detail. I'll come back and**

Page 71

1 **give you that answer.**

2 Q. All right. Okay. I'm going to make a note

3 of that.

4 **A. Rob is, too.**

5 Q. For things to be continued.

6 MR. HALL: I think it's safe to say we

7 won't finish with this witness tonight.

8 BY MS. DONATO:

9 Q. Okay. And you're referring, when you say

10 the previous engineer for this applicant, you're

11 referring to the Birdsall firm; correct?

12 **A. That's correct.**

13 Q. And they prepared the plans and then you

14 took over the studies from that point?

15 **A. Yes.**

16 Q. Okay. Now, what work of Birdsall did you

17 rely on when you prepared the plans that are submitted

18 to the Board?

19 **A. I mean, it's a whole host of things. They**

20 **did topography, boundary survey. They did some of the**

21 **initial wetlands investigations. They had I'll say a**

22 **general layout of the solar panels. And we relied on**

23 **the general -- well, the detailed information of**

24 **topography boundary, environmental constraints, we**

25 **relied completely. The general layout we used**

Page 72

1 **generally, and then we amended some of the elements in**

2 **the layout between their plan and our plan.**

3 Q. Did you do any independent evaluation of

4 the soil types up to this point in time?

5 **A. In the way of soil logs?**

6 Q. Yes, sir.

7 **A. We did a couple of soil logs in our design**

8 **for stormwater management of the proposed detention**

9 **basins.**

10 Q. Have they been submitted to the Board yet?

11 **A. I'll have to check. I'm being told no.**

12 Q. I didn't think they were either. So I'll

13 put that on my list of to-do-list?

14 **A. We can submit those. I think there was a**

15 **handful. I think there was six or seven soil logs that**

16 **we did in those locations.**

17 MS. DONATO: You'll have to bear with me.

18 I have many piles of questions here.

19 CHAIRMAN BOXER: No problem.

20 BY MS. DONATO:

21 Q. Okay. Now, did you do any independent

22 evaluation of the seasonal high water table on any

23 portions of this site?

24 **A. Other than the soil logs that we did for**

25 **the basins, no.**

Page 73

1 Q. So the soil, there's a couple of additional

2 soil logs that haven't yet been filed. Were they --

3 for what purpose were they performed?

4 **A. Stormwater design.**

5 Q. Were they performed for permeability?

6 **A. Well, they were performed as part of the**

7 **requirements of the stormwater management plan.**

8 Q. Okay. What aspect of the stormwater

9 management plan?

10 **A. Well, since I really didn't testify in the**

11 **stormwater plan --**

12 Q. I understand.

13 **A. -- and we're going to give additional**

14 **information, let me get the additional information and**

15 **let us testify on stormwater and then we can ask**

16 **questions on that.**

17 Q. That's fair. Thank you.

18 **A. If that would be okay.**

19 Q. And just so that when you come back, and

20 Mr. Moschello is his name?

21 **A. Close. Moschello.**

22 Q. Like my name with an "O." Had there been

23 any additional stormwater management reports that were

24 submitted that you're aware of, just so we kind of wrap

25 up what we might need to present later?

Page 74

1 **A. No, but obviously I'll check.**
2 Q. Okay. Now, do you have any details on the
3 plans regarding the phasing you testified to this
4 evening?
5 **A. No.**
6 Q. Will you be providing that information so
7 that an analysis can be conducted?
8 **A. The only thing we have is just a generic**
9 **phasing plan required by a soil conservation, but I'm**
10 **assuming that's not the details that you're asking**
11 **about.**
12 Q. Okay. And are you saying that there have
13 been phasing plans submitted to the Soil Conservation?
14 **A. No, as part of any soil conservation**
15 **application, which this one is submitted, there's a**
16 **general phasing plan, but it more has to do with soil**
17 **erosion measures as opposed to the true construction**
18 **activity that would occur on the site.**
19 Q. Well, doesn't the sequence of construction
20 potentially affect any other -- a number of other
21 considerations that would be of interest to the local
22 Land Use Board?
23 **A. On a site like this I think so, yes. And I**
24 **think during the process for this application we'll**
25 **talk about construction phasing, and this Board will**

Page 75

1 **likely ask for some more details of construction**
2 **phasing and we'll provide that.**
3 Q. Okay. Now, the soils in general, what is
4 the bedrock that exists under this site? If it's
5 different in different areas describe it as such.
6 **A. The soils in this site where the proposed**
7 **development are are primarily Norton and Penn soil.**
8 **And I'll call it, it's typical Bedminster in this**
9 **region of Bedminster shale, decomposed shale, and then**
10 **on top a heavy clay material. And that's --**
11 Q. So that's the topsoil?
12 **A. No.**
13 Q. Is the Norton and the Penn?
14 **A. No, this is is all the way down 8, 10, 9,**
15 **11 foot in the ground. It's shale. The soil's**
16 **characteristics are a shale based product that's out**
17 **there, and some of the sections you'll have decomposed**
18 **shale as it gets closer to the surface. There will be**
19 **a layer of heavy clay that will be near the surface.**
20 **And then there will be something above at the surface,**
21 **the topsoil level that will have a high clay content.**
22 Q. Before I continue with this discussion
23 about the soil types are they going to -- I mean, I
24 know you spoke about some aspect of the soils in your
25 direct testimony, will you associate, Mr. Moschello,

Page 76

1 will he be addressing the soil types in his testimony?
2 **A. It depends on what context of that. So**
3 **let's see where you're going with that and I'll tell**
4 **you where I reached the limits of an expertise of a**
5 **geotechnical engineer, as opposed to a civil engineer.**
6 **We do soil testing, but I am not a geotechnical**
7 **engineer.**
8 **I do know soils. I work in these soils in**
9 **this township all the time. I know the cause and**
10 **effect of the soils, and I can talk generally about the**
11 **constructability in these soils. If we start getting**
12 **into things that are very technical in nature I can't.**
13 Q. Okay. My initial question to you is, what
14 is the bedrock under this site? So we've got the
15 Norton and the Penn shale, so we'll go back to that,
16 but what's the bedrock under this site?
17 **A. Again, it's shale that becomes unrippable**
18 **with a large machine.**
19 Q. It becomes what?
20 **A. Unrippable.**
21 Q. What does that mean?
22 **A. With a large backhoe or a dozer you can't**
23 **rip these pancake -- shale's generally a pancake-type**
24 **of structure. Anyone that's dug out there understands**
25 **what that is. It comes off in these relatively flat**

Page 77

1 **thin layers of material. Once you get to a certain**
2 **elevation in these soils with machines that you're**
3 **digging with, whether they're small or large, you can't**
4 **get through that material any farther. Whether that's**
5 **classified as bedrock or not, if I'm doing the soil**
6 **test for a septic system, that would be classified as**
7 **bedrock.**
8 Q. Is this red shale?
9 **A. It is.**
10 Q. Do you know if there's any blue shale, as
11 well?
12 **A. No.**
13 Q. Have you ever seen blue shale intermingled
14 in the pancake of the red shale?
15 **A. You'll see discoloration in the shale that**
16 **will be more gray. And mostly that is by horizontal**
17 **and vertical seepage of water. It's like ground water.**
18 Q. I'm not talking about modeling, I'm talking
19 about a different type of shale called blue shale.
20 You're not familiar with that?
21 **A. No, and again, we do a lot of digging of**
22 **holes out here. I haven't run into that. The way**
23 **you're describing it I don't run into that in these**
24 **soils in this area of the township.**
25 Q. Well, I know that in the New Brunswick area

Page 78

1 that --

2 MR. HALL: Objection. She's testifying.

3 MS. DONATO: I'm not. It's going to be a

4 question.

5 BY MS. DONATO:

6 Q. There's a certain type of blue shale that I

7 don't know if you're familiar with it?

8 **A. Yeah.**

9 Q. That runs in veins. It's not modeling.

10 Are you familiar with the blue shale that is often

11 found in areas of red shale such as Brunswick Shale,

12 which I believe -- is this kind of what you would call

13 Brunswick Shale here?

14 **A. If we looked at a geological map I'm sure**

15 **one of the words in different levels of geology would**

16 **be Brunswick Shale, but what you just described is that**

17 **discoloration or that color I haven't seen in the --**

18 **not only on this site, but in the other properties in**

19 **this region of Bedminster.**

20 Q. So you're not familiar with blue shale, not

21 discolored shale, but blue shale?

22 **A. No.**

23 MR. HALL: He's already answered that

24 question twice.

25 MS. DONATO: He said discolored in his

Page 79

1 answer twice. My question was not as to discolored,

2 Mr. Hall, it was as to different types of shale. Thank

3 you.

4 BY MS. DONATO:

5 Q. Okay. Now, I'd like to ask you something

6 about the posts, the 3,300 posts that approximately

7 will be installed in order to hold the panels. So do

8 you know, let's just say I took you -- could you put up

9 one of your exhibits that has the site plan, that one

10 on the bottom?

11 **A. With the proposed panels, A-6?**

12 Q. A-6. So you said that you'd be putting in

13 posts about 3,300, isn't that correct, for the entire

14 site, is that the number?

15 **A. That's correct.**

16 Q. Okay. So let me just direct your attention

17 to the -- I want to direct your attention to the

18 first -- to the first set of arrays. I can see. I

19 have great distance vision, I just can't read. The

20 first set of panels to the southeast. Okay. How deep

21 did you say the panels have to go, I mean, the posts

22 have to go?

23 **A. The posts are proposed to be driven 6 to 8**

24 **foot into the ground.**

25 Q. Below the surface?

Page 80

1 **A. Below the surface.**

2 Q. Okay. So in this particular area in the

3 first -- I'm talking about that first set of arrays

4 there, exactly, the first set of arrays on the

5 southeast corner section. So if I look at the exhibit

6 with your cut-in, okay, and in that brightly colored

7 orange and yellow and green boundary area that's an

8 area of a cut?

9 **A. It is.**

10 Q. Okay. Do you know how much you're cutting

11 from that area?

12 **A. In the darker colors of that area in the**

13 **center 2 to 4 foot.**

14 Q. And how about in the lighter colors?

15 **A. 1 to 2 foot.**

16 Q. Okay. Do you know in that particular area

17 if you have any soil logs that tell you the depth of

18 bedrock?

19 **A. I don't know.**

20 Q. You don't know?

21 **A. Obviously sitting here right now I don't**

22 **know. If we look at the maps --**

23 Q. I'll get your report.

24 CHAIRMAN BOXER: Mr. Kennedy, while Ms.

25 Donato is finding some material, let me ask you a

Page 81

1 question. Is Rob going to provide detail on the

2 effects of 3,800 posts being dug into the ground 6 or

3 8 feet affecting the shale, and of course it's the flow

4 of the drain, is that all going to be part of the

5 stormwater management, or is this a completely

6 different issue?

7 THE WITNESS: That narrow question about

8 the posts and how it affects ground water or water

9 below the road?

10 CHAIRMAN BOXER: In other words, my

11 concern, just a question, I don't know the answer. Is

12 the effects in the ground after we plug in 3,300, 3,800

13 posts does it have any negative effect to water flow or

14 drainage subsurface?

15 THE WITNESS: Rob's report, the stormwater

16 management report, is more about surface runoff. So

17 that narrow question -- no, that's generally what he

18 wouldn't testify on.

19 CHAIRMAN BOXER: Who would?

20 THE WITNESS: Well, again, the narrowness

21 of the question is what happens with the ground -- I'm

22 trying to, ground water movement of water around that

23 post?

24 CHAIRMAN BOXER: Effectively drainage, so

25 my -- I'm trying to understand as we have such a major

1 disturbance on this property, subsurface, does that
 2 disturbance have any effect downstream to any part
 3 outside of the Kirby property, or could it affect
 4 anything outside of the Kirby property? That's my
 5 question, I don't know the answer to it.
 6 THE WITNESS: Let us think about how to
 7 respond to that aspect, whether it's Rob or I, or if we
 8 need someone else to respond.
 9 CHAIRMAN BOXER: Thank you. I appreciate
 10 that.
 11 THE WITNESS: But I understand the
 12 question.
 13 CHAIRMAN BOXER: Thank you.
 14 BY MS. DONATO:
 15 Q. Okay. Mr. Kennedy, in your -- I'm
 16 referring to KDC-SA55-LLC Solar Project Stormwater
 17 Management report prepared by your firm dated May 31st,
 18 2013. Okay. Now, I'm going to direct your attention
 19 to test pit 32. Do you have a plan in front of you
 20 where you can show me where test pit 32 was taken?
 21 **A. I don't have that exhibit, Ma'am.**
 22 Q. All right. I'll get my plans.
 23 **A. I may have a folded-up exhibit.**
 24 Q. Do you have your plans? It's on page --
 25 Sheet 15 of 31, Mr. Kennedy.

1 **A. I have a reduced size copy here. I can't**
 2 **put it -- well, I can put it up on the board.**
 3 Q. So, test pit 32, is that located in
 4 proximity to that second array, essentially, right of
 5 the panels?
 6 **A. If you can tell me which one is 32, I don't**
 7 **have my glasses on.**
 8 CHAIRMAN BOXER: Ms. Donato, just so I can
 9 understand what you're asking, I'm just trying to
 10 follow your question. You're trying to figure out
 11 where within the property these particular tests are
 12 actually being done?
 13 MS. DONATO: Yes, I know where they are.
 14 THE WITNESS: Okay. Thank you.
 15 BY MS. DONATO:
 16 Q. So test pit 32, which is right there.
 17 **A. Based on the plan and the question, on A-6**
 18 **where my pen is right now it's essentially the eastern**
 19 **side of the arrays. On the southern side is the**
 20 **general area of where this test pit that was done by**
 21 **Birdsall would be performed.**
 22 Q. Okay. So do you have access to -- I'm
 23 going to show you the test pit in your manual, okay?
 24 **A. Okay.**
 25 Q. So looking at this test pit you see the

1 words "bucket refusal at 5.5 feet"
 2 **A. Yes.**
 3 Q. What does that mean?
 4 **A. That means whatever machine they had out**
 5 **there, which I believe was a small rubber tire backhoe,**
 6 **only got down 5 foot into the ground, or 5.5 foot below**
 7 **the surface before they stopped.**
 8 Q. And why did it only get down to 5.5 feet
 9 below the surface?
 10 **A. I wasn't there. I can't tell you that. I**
 11 **can make some assumptions, if you'd like.**
 12 Q. Well, you can make an assumption, yeah,
 13 sure.
 14 **A. It was a relatively small machine, and**
 15 **generally rubber tire backhoes in these soils will not**
 16 **get that deep. When we do septic system testing in all**
 17 **of Bedminster we don't use a rubber tire backhoe,**
 18 **because in these soils you'll hit the shale at a**
 19 **relatively shallow level and you won't get through that**
 20 **shale. We bring in a bigger excavator and we generally**
 21 **dig down 10 to 12 foot into the ground with a bigger**
 22 **excavator before we use the word "we hit refusal." We**
 23 **didn't say bedrock.**
 24 Q. Okay. So, we hit refusal. But at five and
 25 a half feet it was some type of shale, wasn't it?

1 **A. At 6 inches below the surface, or at 2 foot**
 2 **below the surface there's some type of shale, it's just**
 3 **decomposed shale.**
 4 Q. There's decomposed shale, but decomposed
 5 shale wouldn't result in bucket refusal, would it?
 6 **A. Sure.**
 7 Q. Oh, it would?
 8 **A. I think so.**
 9 Q. Do you know how many of these test pits
 10 have those words "bucket refusal"?
 11 **A. I don't. I haven't looked at it that close**
 12 **to say how many were in there, how many even tests were**
 13 **done.**
 14 Q. So you're not saying that bucket refusal is
 15 a layer of shale, you don't know if it is a layer of
 16 shale?
 17 **A. No, I don't. I mean, other -- unless I'm**
 18 **observing that I'm not sure exactly why the bucket was**
 19 **refused. Typically, as you got to harder material, but**
 20 **I don't know if I brought in a different machine in**
 21 **that's larger that I could get deeper.**
 22 **I do know, and I've done a tremendous**
 23 **amount of holes relatively deep in these soils in**
 24 **Bedminster, and I don't use rubber tired backhoes for**
 25 **even testing for septic systems. I used a bigger**

1 **machine, because I need to get down deeper into the**
2 **ground.**

3 Q. So in order to be able to adequately
4 evaluate the depth of bedrock you need to do more
5 testing?

6 A. No.

7 Q. Well, you can't -- you don't know what the
8 depth of bedrock on test pit 32 is. There's a bucket
9 refusal and you said it's not necessarily the depth of
10 bedrock, so what is it?

11 A. **What's the relevance? I'm going to be**
12 **putting posts into the ground that are going to be**
13 **driven, pile driven into the ground.**

14 Q. They're going to be driven into the shale?

15 A. Yes.

16 Q. So, if that bucket refusal just at test pit
17 32 happened to be bedrock shale didn't you say it's
18 unrippable? So now, what did you mean by that?

19 A. **In what context, at five and a half feet?**
20 **I have no idea if it's unrippable.**

21 Q. What if five and a half feet when this test
22 pit and the operator of this test pit encountered
23 bucket refusal, what if that is the bedrock?

24 A. **Well, there's so many different levels of**
25 **discussion here, but let me just get to where I think**

1 what type of drilling and what type of impact of that
2 drilling would take place in order to safely secure the
3 panels to the posts and the racking system?

4 A. **That's a fair question. It really is -- we**
5 **have that already from the manufacturers that KDC uses**
6 **with the soil conditions that were shown to them says**
7 **that it would be a depth of about 6 to 8 foot for the**
8 **depths of the posts.**

9 Q. Okay. You know that. My question is this:
10 How do you determine how you're going to get those
11 posts down the 6 or 8 feet?

12 A. **With a track-mounted post driver that would**
13 **come to the site and drill those down 6 to 8 foot to**
14 **the ground.**

15 Q. And is this a big piece of equipment or a
16 little piece of equipment?

17 A. **The ones I've seen used at other sites, to**
18 **give a hockey reference, a size of a Zamboni.**

19 Q. I don't know what a Zamboni is?

20 A. **It would be a 6-foot wide, okay, by 6- or**
21 **8-foot long, and about 5- to 6-foot high.**

22 Q. And it has like a big drill bit on it or
23 something that drills into the bedrock?

24 A. **No, it has a hydraulic ram that rams the**
25 **posts into the ground.**

1 **you're going here is, is that area you just pointed to**
2 **we're cutting 2 to 4 foot. And then we're going to**
3 **pile drive an additional 6 to 8 foot in the ground.**
4 **Okay. So in that case we're going to be somewhere**
5 **between 10 and 12 foot below existing grade. Okay. I**
6 **understand that.**

7 I know we've taken a long time to get to
8 that point, but I understand that. My point is that
9 the pile driver will go to that depth. If they can't
10 get to that depth because of bedrock or hard material
11 then we look at less of a depth to that and they'll do
12 an analysis of -- if that structure, that post reached
13 a design capacity for that panel.

14 Q. Is there any code, construction code or
15 structural standard that says how deep these posts need
16 to be driven in order to prevent the panels from
17 uplifting in the wind or during storms?

18 A. **There's design parameters that the**
19 **manufacturers of the racking and post systems have for**
20 **that. And there's an analysis that would be done, a**
21 **structural analysis before these panels are built and**
22 **would tell you how deep these would have to go based on**
23 **the soil conditions that are there.**

24 Q. So when would there be a geotechnical
25 analysis so that this Board could know how deep and

1 Q. You're going to drive these piles into
2 bedrock into the shale?

3 A. **Yes. No different, no different than I**
4 **drive any fence posts for the equestrian centers that**
5 **are throughout Bedminster that go 4 foot into the**
6 **ground. It's no different than that.**

7 I mean, and those posts that we drive are
8 much larger. We drive wooden posts in fence that we do
9 miles and miles of fence in the equestrian area of
10 Bedminster that we take 8-inch diameter wood posts and
11 drive 4-foot into the ground.

12 Q. And in those 4 feet into the ground, here
13 you have bucket refusal at five and a half feet. So
14 4 feet, five and a half feet, that's a fairly big
15 difference. Do you have posts that would drive into
16 shale?

17 A. Yes.

18 Q. And you've done that yourself?

19 A. **No. I haven't done it myself.**

20 Q. I mean, you haven't done it, you oversee a
21 project that was developed in that manner?

22 A. **I've witnessed seeing those going in.**

23 Q. Drive piling into shale?

24 A. Yes.

25 Q. And then you described shale as unrippable.

1 Didn't you say it was unrippable?
 2 **A. No. You asked the question about when you**
 3 **get to bedrock. And I said it is when with whatever**
 4 **machine that you have out there that you can no longer**
 5 **rip it. You're trying to find bedrock, and in shale.**
 6 **I guess I don't define bedrock as something that I stop**
 7 **refusal with the piece of machine I have. I can always**
 8 **get a bigger piece of machine to go in and get farther**
 9 **into that soil, or that rock, or decomposed shale or**
 10 **whatever term you used.**
 11 Q. Let me back up a second. Do you know what
 12 type of equipment was actually used when Birdsall had
 13 these test pits conducted?
 14 MR. HALL: He already answered that. He
 15 said he didn't, and then you asked do you want me to
 16 speculate, he speculated.
 17 MS. DONATO: I just want to now make sure,
 18 does he know?
 19 MR. HALL: He answered it. We don't need
 20 to waste time on repeating answers.
 21 MR. COLLINS: That is correct. You should
 22 move on.
 23 BY MS. DONATO:
 24 Q. Okay. So let's just presume, you can
 25 presume this question: That the five and a half feet

1 to bucket refusal was where they met bedrock, just
 2 presume that for the moment.
 3 **A. Okay.**
 4 Q. You're then cutting this area 4 feet. So
 5 now you have a foot and a half to bedrock, right?
 6 **A. No. You're presuming it's bedrock. I'm**
 7 **not agreeing it's bedrock.**
 8 Q. I just said to you let's presume it's at
 9 that -- the bucket refusal could be the bedrock, could
 10 it not?
 11 **A. Yes.**
 12 Q. Okay. So let's presume that it's bedrock.
 13 Let's presume that bucket refusal equals bedrock?
 14 **A. Okay.**
 15 Q. You're cutting 4 feet in this area?
 16 **A. That's what I said.**
 17 Q. So now we have one and a half feet of this
 18 decomposed shale and clay, and then you hit this
 19 bedrock that we're presuming it could be bedrock,
 20 right?
 21 **A. Yes.**
 22 Q. So now you have to go down how many feet
 23 for the post from the surface?
 24 **A. I said that before, 6 to 8.**
 25 Q. Six to 8 feet. So you've got to go down,

1 do you not, how many feet below that surface and into
 2 that presumed bedrock, could you just answer that
 3 question?
 4 **A. No, because it's all based on a presumption**
 5 **that it's bedrock. I don't know that it's bedrock.**
 6 Q. I just said to you, it could be bedrock.
 7 You're the engineer, don't you think you should know
 8 where the bedrock is, Mr. Kennedy?
 9 MR. HALL: I think she can present her own
 10 witness on that. I think we're wasting time. I
 11 object.
 12 BY MS. DONATO:
 13 Q. How many -- we've taken a hypothetical
 14 question. You're an expert. No one ever asked you a
 15 hypothetical question?
 16 **A. Every day, but I'm not going to answer**
 17 **that --**
 18 CHAIRMAN BOXER: So let me just, if I
 19 could. I don't want to get in the middle of a
 20 question, but I am curious now where this is going. As
 21 I heard it you've already said that you're going down 6
 22 to 8 feet. You're already suggesting that you
 23 understand the machinery that potentially couldn't get
 24 through bucket refusal. You've already said that you
 25 would be bringing in much larger machinery. You've

1 already testified that you've seen much larger devices
 2 be piled into the ground in our area. So I'm just
 3 trying to understand what concern, Ms. Donato, do you
 4 have that Mr. Kennedy hasn't answered. I just don't
 5 understand.
 6 MS. DONATO: Certainly. I'm more than
 7 willing to try to answer that.
 8 CHAIRMAN BOXER: If you wouldn't mind that
 9 would be helpful.
 10 MS. DONATO: I will. There's a very clear
 11 statement in the report of the planner, Mr. Banisch, in
 12 which he notes that there is in Bedminster, in general,
 13 and on this site in particular a shallow depth to
 14 bedrock. If there's a shallow depth to bedrock and
 15 bedrock is shale then they have to drill six and a half
 16 feet into unrippable shale. He said it was unrippable.
 17 He said, flat, thin layers of materials you can't get
 18 through.
 19 So not only are they doing six and a half
 20 feet into unrippable shale, but they're going to jack
 21 2,200 feet from the end of the site, and they're going
 22 to put all this conduit under? So we need to know what
 23 is the depth to bedrock on this site. I think it's
 24 unfair for this Board to be asked to go forward without
 25 that specific information.

Page 94

1 CHAIRMAN BOXER: I mean, I understand now
2 the context. As I listen to you, I mean, your deepest
3 concern is that the site is full of bedrock and you see
4 4,000 posts almost being put in, and there's going to
5 be core drilling underneath it. What you're trying to
6 get at is disturbance, whether or not this site can
7 even tolerate it, is that a fair point?
8 MS. DONATO: That is a very fair point, but
9 it's not my deepest. I have others that are deeper --
10 CHAIRMAN BOXER: No, no. I'm just trying to
11 understand it.
12 MS. DONATO: -- but that is, yes, but that
13 is a very significant concern, the amount of
14 disturbance to this site. The amount of activity that
15 will be necessary. And that we're still, all of us, in
16 somewhat of -- I honestly thought that Mr. Kennedy
17 would know the answers to these, but we don't. So we
18 don't really know what bucket refusal was. And if you
19 look at the soil logs that term appears throughout the
20 log, so we don't know where bedrock is. And we don't
21 know where other things are that we need to know. So,
22 I mean, I'm not trying to drag anything out, but I do
23 think we need to have this information.
24 CHAIRMAN BOXER: No, this is helpful. And
25 I think now that I understand the broader picture I

Page 95

1 understand it. I just think that when you kept going
2 after Mr. Kennedy about depth and whether things can
3 actually could go into shale is a little bit of an odd
4 line of questioning. I'm not sure he could have given
5 you anymore answers. Now I understand where you're
6 going, and I think you have -- look, you have issues
7 and we'll deal with Mr. Hall and Mr. Kennedy as a Board
8 and you can certainly continue to follow-up your
9 questions. Thank you.
10 BY MS. DONATO:
11 Q. Thank you. Now, I just want to make it
12 clear in my mind, so the intention -- let's assume, I'm
13 going to do another one of your favorite hypotheticals.
14 Let's assume that in order to get posts down, 6 to
15 8 feet below the surface, you need to go through shale.
16 Will you then be able to drive a wooden pile through
17 shale?
18 A. Well, we're not proposing a wooden pile,
19 we're proposing a galvanized steel pile.
20 Q. You're going to drive that through the
21 shale?
22 A. Yes.
23 Q. You'll dry drive a galvanized pile through
24 the shale?
25 A. Yes.

Page 96

1 Q. Isn't it true that you're not supposed to
2 impact galvanized materials with a, like a hammer or
3 some heavy object?
4 A. No. The plans that would be done with the
5 piers would be pile driving those, they're galvanized
6 material, and they will be put in into the shale 6 to 8
7 foot to the ground.
8 Q. I understand that. Are you going to drill
9 the hole first and put the galvanized post into it?
10 A. No.
11 Q. So, you're not familiar with the fact that
12 galvanization can be compromised when it is impacted by
13 steel or other metal, because galvanization is just a
14 surface on the pipe, is it not?
15 A. Again, I know where you're going with that
16 question, but that's the standard detail that the
17 manufacturer would be using in this type of
18 installation that they've used in the past in shale
19 material.
20 Q. What manufacturer are you using here?
21 A. There's two or three different
22 manufacturers.
23 Q. I'm going to grab some water first.
24 A. The type of system that would be proposed
25 here is called Schletter, S-c-h-l-e-t-t-e-r. Okay. And

Page 97

1 that's the main one that they have been looking at for
2 this property, which would be a galvanized type of
3 material, steel, that would be driven into the ground.
4 Q. Is that a German company?
5 A. I don't know.
6 Q. Okay. Can you provide us with the
7 specifications from the manufacturer as to how these
8 galvanized posts can be installed in shale?
9 A. I'm sure I can.
10 Q. Okay. Can you -- well, let me ask you
11 this: If the manufacturer said you could just put
12 these galvanized posts into shale does that make it
13 right?
14 A. Make what right?
15 Q. Make it right to put -- would that be a
16 correct approach to just put galvanized posts into
17 shale just because the manufacturer said it was?
18 A. That would be the proposal that they have
19 done in other properties, other projects in this area.
20 I personally don't see any problem with putting the
21 galvanized material into the ground, but again it's
22 their system that takes into account stability, uplift,
23 all the structural requirements, that's not my system.
24 Q. Okay. Now, do you know whether or not the
25 panels that this -- if you use Schletter do you know

1 whether the panels have that cadmium in them or not?
 2 **A. I don't know.**
 3 Q. Can you find that out?
 4 **A. There will be someone else here to talk**
 5 **about that.**
 6 Q. Someone would be here to testify on that?
 7 **A. On the whole -- there's going to be someone**
 8 **to talk about how the system works, as far as the**
 9 **electrical side and the panels and those things.**
 10 Q. But not the electrical side, I'm not
 11 talking --
 12 **A. It would be how the panels are made and**
 13 **what material's in them. I don't know that.**
 14 Q. Okay. And if one were to drive a metal
 15 post into shale is that -- does that make any noise?
 16 **A. There will be noise associated with that,**
 17 **sure.**
 18 Q. Have you ever had an occasion to listen to
 19 metal posts being driven into shale?
 20 **A. I've been on construction sites, varied**
 21 **construction sites that have all different types of**
 22 **noises, including these types of noises.**
 23 Q. Do you have any idea what kind of decibels
 24 would be generated?
 25 **A. Well, we're going to have another person,**

1 **and I think that would be appropriate.**
 2 Q. And they'll address that?
 3 **A. Yes, they can. Once we start getting into**
 4 **noise I can't -- I can give you anecdotal, but you're**
 5 **going to want more detail.**
 6 Q. And do you know how long it takes to put in
 7 one post? Let's presume that we're looking at test pit
 8 32, presume that five and a half feet below surface is
 9 bedrock shale, okay?
 10 **A. Okay.**
 11 Q. So we're going to put one post in. Do you
 12 know how long it will take to put one post in, is that
 13 your jurisdiction or somebody else's?
 14 **A. I can find that answer out. I don't know**
 15 **off the top of my head, but I understand the question.**
 16 **How long it will take to put all of the driving in the**
 17 **piles. Is that fair? You're looking for duration of**
 18 **the project, not for individual posts, but 3,300 posts**
 19 **how long is this going to take?**
 20 Q. Right. Another question about shale. When
 21 shale is penetrated does it create a nice, neat little,
 22 you know, cylindrical hole in the shale, or is it
 23 sometimes pliable or it breaks in an unpredictable
 24 manner?
 25 **A. Anything that's pile driven is**

1 **displacement. In sandier soils it's uniform**
 2 **displacement. In bonier soils it's more random the**
 3 **displacement. So I would say in a circumference around**
 4 **that pipe there has to be displacement. It has to**
 5 **occur because you're putting in a new surface into the**
 6 **ground.**
 7 Q. Do you know to what extent there might be
 8 displacement?
 9 **A. Only in just the observation of seeing**
 10 **these in similar soils that it was relatively small,**
 11 **within a couple of inches, around the post that I**
 12 **observed displacement.**
 13 Q. Okay. But you've indicated you've seen it
 14 in some equestrian applications where it went 4-feet
 15 below. Have you ever seen it actually being installed
 16 into bedrock shale?
 17 **A. They're two different things you just asked**
 18 **me. The posts at the equestrian were wooden posts**
 19 **installed for fences, okay. In this case we're talking**
 20 **about thinner posts, not as big of a surface area.**
 21 **Smaller surface area that are being driven farther into**
 22 **the ground but being driven into the ground for this**
 23 **type of application. I've seen that happen in a job**
 24 **near here.**
 25 Q. The metal you've seen it?

1 **A. I've seen the galvanized steel placed into**
 2 **the ground with this type of equipment in similar**
 3 **soils, okay, shale based soils, and I saw little**
 4 **displacement around the base of those.**
 5 Q. I'm not asking you whether or not you saw
 6 the galvanized post being put into the types of soils
 7 that are above the actual solidified shale bedrock, my
 8 question was to you, have you ever seen these type of
 9 posts being installed into shale bedrock, not
 10 decomposed shale in the soil with clay, but shale
 11 bedrock?
 12 **A. I couldn't see that. That would happen in**
 13 **the ground. On the surface it's going to have soil.**
 14 **So you're saying if I see it actually going into**
 15 **bedrock it's 2 foot, 4 foot, 6 foot into the ground, I**
 16 **can't see. On the surface I can see generally that's**
 17 **soil, that's not bedrock. So I can't see what's in the**
 18 **ground.**
 19 Q. So you've never really seen it installed in
 20 bedrock?
 21 **A. No one has. It's below the ground. It's**
 22 **an esoteric question. You can't see it. It would be**
 23 **at the tip of the panel or of the pipe, and it would be**
 24 **below ground. It wouldn't be at the surface.**
 25 Q. Well, taking the area we were focusing on

Page 102

1 by test pit 32 where, you know, we presume
 2 hypothetically that bedrock is five and a half feet
 3 below the surface of that ground and you were cutting 4
 4 feet, then your bedrock would be a foot and a half
 5 below?
 6 **A. Well, that scenario, as I said, I feel I**
 7 **could easily excavate deeper than that foot and a half**
 8 **with a machine and with a pile drive. You're making**
 9 **the assumption it's hard bedrock, and I don't believe**
 10 **it is.**
 11 Q. And you're making the assumption that it
 12 isn't?
 13 **A. Correct.**
 14 Q. And you don't know?
 15 **A. No, because --**
 16 Q. You don't --
 17 MR. HALL: I object. He testified based on
 18 his experience. He's very familiar.
 19 **A. We've dug holes on this property with**
 20 **machines that have gone down, I believe, to 12 foot in**
 21 **depth in the same soils.**
 22 Q. You mean are these the soil logs that you
 23 haven't yet submitted?
 24 **A. Yes.**
 25 Q. So we're going to have a chance to look at

Page 103

1 them. I'll go onto another, you know --
 2 **A. There's no notion that this bedrock of**
 3 **granite is existing five and a half below the surface,**
 4 **that's just a bad notion. That doesn't exist.**
 5 Q. Well, it's not my bad notion, it's the test
 6 pits that were submitted to this Board under the cover
 7 of your report, isn't it?
 8 **A. No.**
 9 Q. Well, you don't know where the bedrock is,
 10 do you, Mr. Kennedy, at test pit 32, for example, you
 11 don't know; isn't that correct?
 12 **A. I've dug holes with -- we've observed**
 13 **holes --**
 14 Q. Well, let's not talk about others. I'm
 15 asking you about test pit 32. Let's stick with test
 16 pit 32 and not other holes in the wetlands or other
 17 holes. I don't care about other holes. I care about
 18 test pit 32?
 19 **A. I didn't dig up holes in the wetlands. Why**
 20 **would you ask me to dig up holes in the wetlands?**
 21 Q. I'm not asking you about anything other
 22 than test pit 32?
 23 MR. HALL: I think it's been asked and
 24 answer. I ask that we move on.
 25 **A. I didn't observe that test pit so I could**

Page 104

1 **have no idea on the results of that.**
 2 Q. Okay. So now you indicated that you're
 3 going to have -- you're going to have underground
 4 cable, right, that are going to connect from panel
 5 array to panel array, am I correct?
 6 **A. No.**
 7 Q. Underground electrical panels? I mean,
 8 underground electrical cables?
 9 **A. I think I said conduits.**
 10 Q. Conduits. So the cables are in a pipe, is
 11 that what that is, conduit?
 12 **A. Yes, conduit.**
 13 Q. So there will be these underground conduits
 14 that are located throughout this site?
 15 **A. Yes.**
 16 Q. And how deep will they be installed?
 17 **A. 24- to 30-inches below grade.**
 18 Q. Below finished grade?
 19 **A. Yes, below finished grade.**
 20 Q. And can those cables or can that conduit be
 21 located in seasonal high water if there was a seasonal
 22 high water table problem there?
 23 **A. Yes, it's water tight, so -- the**
 24 **connections are water tight, yes.**
 25 Q. Is it something like they do when they

Page 105

1 installed underground electric to people's houses?
 2 **A. Similar, yes.**
 3 Q. Isn't it true that they will not allow
 4 underground electric to be installed in residential
 5 properties if the seasonal high water table is high?
 6 **A. No. Couldn't build half of the houses in**
 7 **this state because they're under water. No.**
 8 Q. Can you come down and tell us that down the
 9 shore?
 10 **A. You've gotten one out there, and it's in**
 11 **water. Again, we know that there's cables that are in**
 12 **water conditions for electric. We know that. And here**
 13 **we're going to have cables, and we haven't seen a**
 14 **ground water condition on this property in the**
 15 **non-regulated areas.**
 16 Q. When you haven't seen it, you mean, did you
 17 participate in observing the soil borings?
 18 **A. The soil borings that we've done.**
 19 Q. The soil logs that you've done that we
 20 don't have yet?
 21 **A. Yes.**
 22 Q. Can you tell me generally speaking where
 23 the soil logs that we don't have are located on the
 24 site, do you know?
 25 **A. In the area of the stormwater management**

Page 106

1 **systems, the detention basins.**

2 Q. In the area of the basins?

3 **A. Yes. There's infiltration basins, that's**

4 **where they are.**

5 Q. Okay. Now, in order to install this

6 conduit do you need to dig a trench?

7 **A. Yes.**

8 Q. And what is the length of the trench that

9 you would need to do?

10 **A. There will be multiple trenches of varied**

11 **lengths going from the different connector boxes to the**

12 **inverters, and then the inverters back to the**

13 **switchgear.**

14 Q. You don't know the length?

15 **A. No, I mean, it will be very varied. I**

16 **couldn't even calculate what that is today because**

17 **there's not the electrical detail, electrical design**

18 **isn't done. That wouldn't be done until it's built.**

19 Q. Well, I'll get to that later. How about

20 the width of the trench?

21 **A. Depending on the number of pipes anywhere**

22 **from 24-inch to 36 inch.**

23 Q. And does that include the jack?

24 **A. No, that's separate.**

25 Q. How big would that be, wide?

Page 107

1 **A. It's a round sleeve that's 14-inches in**

2 **diameter.**

3 Q. And the length of it?

4 **A. I think I testified --**

5 Q. I'm sorry, not the length. Scratch that.

6 You did say.

7 **A. It's 2,025, something like that.**

8 Q. Now, your -- Mr. Moschello, he will be

9 testifying as to stormwater; is that correct?

10 **A. That's correct.**

11 Q. And you -- will he also be testifying as to

12 soils?

13 **A. Again, depending on the depth of the**

14 **question, yes.**

15 Q. Okay.

16 **A. Not as a geotechnical engineer.**

17 Q. Okay. So can you describe for me then, do

18 you know what soil types are around this property?

19 **A. I do. They're on our plan.**

20 Q. Okay. So do you want to tell me, taking me

21 from the northeast portion of the property, do you have

22 a soil survey map that you'd want to show us?

23 **A. I don't have -- I don't think it's on the**

24 **exhibit.**

25 Q. I don't think you have anything here yet.

Page 108

1 Do you know what I'll do, does anyone know what time it

2 is?

3 **CHAIRMAN BOXER: It's 9:45.**

4 **MS. DONATO: Why don't I do this: Why**

5 **don't I put -- I'll put that on the to-do list. How**

6 **does that sound?**

7 **THE WITNESS: It may be on there. If you**

8 **want to walk through the soils.**

9 **BY MS. DONATO:**

10 Q. Now, let me just go through all of this,

11 because I'm going to skip -- skip everything about

12 soils, stormwater, okay. Do you know whether or not

13 this -- and this site contains soils that are

14 classified as prime farmland soils or prime

15 agricultural soils?

16 **A. Yes, they do.**

17 Q. Do you know what percent of the site has

18 prime agricultural soils?

19 **A. We haven't broken that down, but there's a**

20 **mapping, and I believe it's even in our environmental**

21 **impact statement that was prepared by another**

22 **consultant, that has a copy of I believe it's Mr.**

23 **Banisch's, one of his master plan revisions that showed**

24 **the whole town and show the different types of soil**

25 **class based on prime and significant on a map, and it's**

Page 109

1 **represented in that EIS.**

2 Q. So will there be an environmental scientist

3 who'll testify regarding the EIS?

4 **A. Yes.**

5 Q. And regarding the agricultural soils and

6 the different types of them?

7 **A. Yes.**

8 Q. Okay. Now, can you tell me generally

9 speaking whether those agricultural soils, either

10 prime, statewide significance or local significance,

11 whether any of those soils will be left untouched after

12 the installation of these solar arrays?

13 **A. Will any be touched? Yes, there's going to**

14 **be some areas that we're proposing no disturbance of**

15 **the hundred acres, and some of those areas are prime or**

16 **statewide significance.**

17 Q. Can you tell me whether or not -- and I'm

18 going to direct your attention to your aerial with the

19 site plan. And going to the southeastern first set of

20 arrays, do you know whether there's any prime

21 agricultural soils underneath that set of arrays?

22 **A. I'm going to refer to A-6. And I'm going**

23 **to say generally in the areas where both panels are are**

24 **generally either prime or significant. The areas that**

25 **are not are generally the areas that are wetlands and**

Page 110

1 **flood plain. I mean, that's a very simplification. If**
 2 **you want the specifics of it, the upland areas are**
 3 **prime or significant, the regulated areas are not.**
 4 Q. I'm skipping all stormwater. I just have
 5 to get through the list, okay.
 6 Now, you address the berm only from an
 7 aesthetic and visual perspective; is that correct?
 8 **A. As opposed to what?**
 9 Q. As opposed to a drainage perspective?
 10 **A. From a stormwater management standpoint or**
 11 **a grading standpoint.**
 12 Q. A stormwater management?
 13 **A. Then we've got to -- we should take that**
 14 **under the umbrella of the stormwater management.**
 15 Q. I'll defer that. Okay. There goes that
 16 list. Excuse me. Too many papers standing up here.
 17 Okay. Now, may I -- thank you, Mr. Hall.
 18 That will make life a lot easier.
 19 You said that there are 40,484 panels
 20 proposed, that's correct?
 21 **A. 40,484.**
 22 Q. 40,484?
 23 **A. Correct.**
 24 Q. Is that the same number of panels that was
 25 presented in the plans submitted to the BPU?

Page 111

1 **A. I can't --**
 2 Q. You don't know?
 3 **A. I don't know what's been submitted to the**
 4 **BPU. I just don't know.**
 5 Q. So, all right. I'll ask that to somebody
 6 else. I want to confirm. You say there are seven pads
 7 for your inverters, right?
 8 **A. Inverters and transformers.**
 9 Q. Let's just stick to one at a time. The
 10 inverter pads. How many inverters on each pad?
 11 **A. Six of the seven have four inverters. One**
 12 **of the seven has two inverters.**
 13 Q. And did you say that the size of the
 14 inverter pads was 6 feet by 30 feet?
 15 **A. No.**
 16 Q. Okay. I thought I had it wrong?
 17 **A. No, they're bigger than that.**
 18 Q. They're bigger than that. I agree with
 19 you.
 20 **A. The inverter pads?**
 21 Q. The inverter pads, not the transformer.
 22 **A. They're on the same pad, but I want to make**
 23 **sure.**
 24 Q. Are they on the same pad?
 25 **A. Yeah, they are.**

Page 112

1 Q. So let's just make it inverter/transformer
 2 pad?
 3 **A. I want to refer back to A-7. Okay.**
 4 **There's a detail on the top pad for the top drawing.**
 5 **There's four inverters and one transformer. Okay.**
 6 **Generally, I testified 12 nominally by 35. And in the**
 7 **plan here it says 10 foot 3, and then 15/16 by 34. So**
 8 **mine is a little bigger than stated on the plans, but**
 9 **generally 12 by 35. I think I said 12 by 40 for this**
 10 **pad which is the biggest one.**
 11 Q. That's four inverters and the one
 12 transformer?
 13 **A. And the other one it just gets, it's a**
 14 **little smaller. It's 12 by 25 for the one that only**
 15 **has two inverters and one transformer.**
 16 Q. Okay. Now, I'd like to address the access
 17 road with the gravel access road. Now, in the plans
 18 that you submitted to this Board that are before this
 19 Board do you at any location show a geo-grid road as
 20 part of that access road?
 21 **A. The plans that we submitted, some of the**
 22 **plans that were submitted to DEP for the general permit**
 23 **it was a gravel road in the regulated areas with a**
 24 **geo-fabric underneath the gravel road.**
 25 Q. So it's just --

Page 113

1 **A. A geo-grid underneath the gravel and gravel**
 2 **on top.**
 3 Q. So why did you show a geo-grid under the
 4 gravel in the DEP plans?
 5 **A. To provide a better distribution because of**
 6 **the soil conditions through the regulated areas, better**
 7 **distribution of weight. So if we put the gravel just**
 8 **on the ground in those soil conditions it would**
 9 **disappear into the ground. So here you put the**
 10 **geo-grid on first and then you put the stone on top of**
 11 **it and then protect the stone from dissipating into the**
 12 **ground.**
 13 Q. Do the plans before this Board show the
 14 gravel on top of the geo-grid?
 15 **A. I think -- let me confirm the detail, if I**
 16 **have a detail of that.**
 17 Q. Can you look at sheet four of your plans,
 18 please?
 19 CHAIRMAN BOXER: Ms. Donato, we're just
 20 looking at time here. Maybe what we can do is just for
 21 planning purposes how long do you think you might need?
 22 We can continue, obviously, at the next meeting, but
 23 where do you think would be a natural breaking point
 24 for Mr. Kennedy on cross?
 25 MS. DONATO: I'll really defer to the

Page 114

1 Board. Whatever you think is a natural break.
 2 CHAIRMAN BOXER: I think I'd actually like
 3 to take a break now, if it's okay. I think it's been a
 4 long night for Mr. Kennedy.
 5 MS. DONATO: I think so, too.
 6 CHAIRMAN BOXER: I think so. I think it
 7 will give everyone a chance to sort of reconcile our
 8 heads a little bit. So if it's okay with you we'll
 9 just continue at the next meeting. We'll just confirm
 10 dates in a few minutes, if that's okay.
 11 MS. DONATO: That's quite okay. It's very
 12 warm in here I find it. Don't you think a little warm?
 13 CHAIRMAN BOXER: It is warm, actually, yes.
 14 MR. HALL: It's warm outside.
 15 CHAIRMAN BOXER: Mr. Hall, if that's okay
 16 with you we'll just take a break.
 17 MR. HALL: I agree. That's fine.
 18 CHAIRMAN BOXER: So let's just maybe firm
 19 up the next meeting. So, Trina, I guess it's going to
 20 be the 9th?
 21 SECRETARY LINDSEY: Yes.
 22 CHAIRMAN BOXER: So the next meeting is
 23 January 9th. And we're going to notice it for the Town
 24 Hall.
 25 SECRETARY LINDSEY: Okay.

Page 115

1 MR. COLLINS: We'll carry this application
 2 to the January 9th re-organization meeting of the
 3 Board, 2014, at 7 p.m. We'll have some re-organization
 4 business, but the case will be carried without
 5 additional notices to January 9th, 2014, at 7 p.m. at
 6 the municipal building, at the municipal building.
 7 CHAIRMAN BOXER: Okay. Mr. Hall?
 8 MR. COLLINS: Are there any other
 9 housekeeping for the attorneys?
 10 MR. HALL: No. Actually, one question.
 11 Mr. Kennedy, the soil stuff, I guess I'm just -- what's
 12 the most efficient way -- I know Mr. Moschello is going
 13 to talk about stormwater, but Mr. Kennedy's going to
 14 come back with some things, whether we should present
 15 that first at the meeting or --
 16 CHAIRMAN BOXER: I think let me ask Ms.
 17 Donato, because I think you had some follow-ups that
 18 you'd like. Maybe what you can do is communicate with
 19 Mr. Hall, or you can let him know right now what you'd
 20 like.
 21 MS. DONATO: I do think that whatever
 22 additional soil tests were performed should be
 23 submitted so the engineer and the planner can see them.
 24 CHAIRMAN BOXER: I think that's fair. I
 25 think that would be useful to see.

Page 116

1 MR. HALL: Okay. I just want to know
 2 whether we're presenting him first, or we're just going
 3 to continue cross-examination?
 4 CHAIRMAN BOXER: I think we should continue
 5 cross, and then Mr. Sasso, I guess, will jump in at
 6 some point.
 7 MR. SASSO: Thank you, Mr. Chairman. I
 8 know that there was a request for the specs on the
 9 posts. And I know it's going to come up eventually,
 10 but the specs on the panels, if we can get that, you
 11 know, before the next meeting that may move things
 12 along a little bit.
 13 CHAIRMAN BOXER: Is that possible, Mr.
 14 Hall?
 15 MR. HALL: I'm not sure what wasn't
 16 provided, but we'll -- why don't you put it in a letter
 17 and we'll see what you want.
 18 MR. SASSO: Sure. Not a problem.
 19 CHAIRMAN BOXER: That's fair. Same thing,
 20 Ms. Donato, if you have any specifics --
 21 MS. DONATO: I'll put everything in a
 22 letter. The question, Mr. Hall, was as to the
 23 specifications for driving the pile in shale.
 24 MR. HALL: All right.
 25 MR. SASSO: And I would like to know about

Page 117

1 the panels, the specs on the panels.
 2 MS. DONATO: And the specifications on the
 3 panels.
 4 MR. HALL: I don't understand that one.
 5 That's why I'm trying to understand.
 6 MR. SASSO: Well, dealing with the issue
 7 that I think the Board is going to be interested in,
 8 and certainly the Objectors are, which is the content
 9 of the panels.
 10 MR. HALL: Well, she asked about cadmium
 11 and we said someone else would be dealing with that.
 12 MR. SASSO: I'm not saying Ron, because Ron
 13 already said he's not the electrical guy. If we can
 14 just get the specs regardless of Ron coming back. I'm
 15 not going to ask Ron about the specs, I won't.
 16 MR. KENNEDY: Okay.
 17 MR. SASSO: He doesn't know anything about
 18 it.
 19 MR. HALL: I think the witness will provide
 20 that. I don't know if there's anything to file ahead
 21 of time. I understand the request.
 22 MS. DONATO: Mr. Hall, I'll put it in a
 23 letter, but the specific question that Mr. Kennedy was
 24 unable to answer that I want, I mean, I really wanted
 25 to see is the specification of the manufacturer for the

1 posts going in to bedrock shale.
 2 MR. HALL: I understand. That's different
 3 from what Mr. Sasso's talking about.
 4 MR. SASSO: It is.
 5 MS. DONATO: Well, it may be additional.
 6 MR. HALL: That's fine. I understand.
 7 CHAIRMAN BOXER: Thank you. Okay. Look,
 8 we appreciate your cooperation. I know this is a long
 9 process and it's a complex issue, and we're working
 10 through some of the, you know, the positions that
 11 everybody has. So just keep bearing with us and we'll
 12 try to get through this as quickly as we can. We want
 13 to make sure that everybody has time to ask the
 14 questions and to make sure that we get a record for it.
 15 MS. DONATO: And I thank you, and I wish
 16 everyone would have a Happy Holiday.
 17 CHAIRMAN BOXER: You too. Appreciate that
 18 very much. Appreciate your cooperation. Any other
 19 questions by the Board? Motion to adjourn?
 20 BOARD MEMBER RODELIUS: Motion.
 21 CHAIRMAN BOXER: We'll adjourn for tonight.
 22 Thank you.
 23 (The hearing on this application adjourns
 24 at 9:57 p.m.)
 25

1 CERTIFICATE
 2
 3 I, IRIS LA ROSA, a Notary Public and Certified
 4 Shorthand Reporter of the State of New Jersey, do
 5 hereby certify that the foregoing is a true and
 6 accurate transcript of the testimony as taken
 7 stenographically by and before me at the time, place,
 8 and on the date hereinbefore set forth.
 9 I DO FURTHER CERTIFY that I am neither a
 10 relative nor employee nor attorney nor counsel of any
 11 of the parties to this action, and that I am neither a
 12 relative nor employee of such attorney or counsel, and
 13 that I am not financially interested in the action.
 14
 15 IRIS LA ROSA, CSR, RPR
 16 Certificate No. 30XI 00162800
 17 Dated:
 18
 19
 20
 21
 22
 23
 24
 25

A				
ability 20:2 40:14	adhere 42:13	answers 90:20 94:17 95:5	28:3,3,16 29:1 29:19 30:5,15	asked 64:22 65:5 67:8 90:2,15
able 20:9 38:2 45:5 59:11 86:3 95:16	adjoining 26:17	anticipating 32:13	30:17,22,25 31:10,10,13,14	92:14 93:24 100:17 103:23 117:10
abrupt 28:8	adjourn 118:19 118:21	anymore 95:5	31:16 33:14,21	asking 19:5 61:13 74:10
abruptly 27:18	adjourns 118:23	anyway 60:8	35:1 38:12	83:9 101:5 103:15,21
Absolutely 57:12	aerial 6:9 43:10 51:11 109:18	apart 8:22	39:7,8 45:9	aspect 16:10,11 73:8 75:24 82:7
accents 68:6	aesthetic 110:7	apologize 18:18	48:3 49:22	aspects 16:18 19:17
access 16:21 17:3 20:7 21:11 26:16 50:8 83:22 112:16,17,20	affect 49:15 74:20 82:3	appear 39:13	52:4,5,10	assisted 54:17
accessway 20:11	Agenda 4:2	appearance 40:9	53:17 54:10	associate 24:15 75:25
account 97:22	agree 60:3 61:24 63:4 111:18 114:17	appearing 42:12	55:12,13,24	associated 98:16
accurate 119:6	agrees 94:19	appears 94:19	56:2,21 65:9	assume 33:11 39:15 45:18 95:12,14
achieve 33:4 52:8	Appellate 60:24	Appellate 60:24	65:23,25 66:1	assuming 74:10
acknowledge 60:13	applicant 2:6 20:4 59:9,16 60:25 61:3,10 71:10	applicant 20:17	68:9,14 70:17	assumption 84:12 102:9,11
acres 21:9,10,11 52:2,4 55:17 55:19,20,21,22 70:15 109:15	agreeing 91:7	applicant's 63:3	77:24,25 80:2	assumptions 84:11
action 59:22 119:11,13	agricultural 21:3,5 23:22 27:21 32:2,9 40:3,9,12 42:3 49:23 50:9 108:15,18 109:5,9,21	application 62:8 70:6 74:15,24 100:23 115:1 118:23	80:7,8,11,12 80:16 83:20 87:1 89:9 91:4 91:15 93:2 97:19 100:20 100:21 101:25 105:25 106:2	assurances 38:20
active 40:12	agriculturally 32:9 43:4	applications 100:14	areas 22:7,24 23:1 24:4,6,13 29:5,6 30:21 30:22,23 31:11 32:1,2,7 35:3 39:9 40:11 46:22 52:1 54:19 65:20 66:10 75:5 78:11 105:15 109:14,15,23 109:24,25 110:2,3 112:23 113:6	assured 33:20
activity 74:18 94:14	ahead 66:23 117:20	application's 62:3	areas 22:7,24 23:1 24:4,6,13 29:5,6 30:21 30:22,23 31:11 32:1,2,7 35:3 39:9 40:11 46:22 52:1 54:19 65:20 66:10 75:5 78:11 105:15 109:14,15,23 109:24,25 110:2,3 112:23 113:6	attached 64:12
actual 8:9 54:14 101:7	alarms 16:5	approach 97:16	areas 22:7,24 23:1 24:4,6,13 29:5,6 30:21 30:22,23 31:11 32:1,2,7 35:3 39:9 40:11 46:22 52:1 54:19 65:20 66:10 75:5 78:11 105:15 109:14,15,23 109:24,25 110:2,3 112:23 113:6	attempt 26:19 27:22 33:2,13 33:15,18,25 34:1 39:12 40:7 49:2
add 4:23 55:23	Allegiance 4:1	appropriate 5:21 14:23 36:5 99:1	approach 97:16	attempting 22:15 25:1
added 47:12	allow 105:3	approval 60:15 60:17 61:4,15 63:16,23	approach 97:16	attempts 25:22 26:25 27:16 28:7,13 33:5 36:16
additional 18:19 47:11,12 73:1 73:13,14,23 87:3 115:5,22 118:5	allowed 55:25	approvals 15:13 56:18 60:10	approach 97:16	attention 64:9 65:8 79:16,17 82:18 109:18
Additionally 52:21	amended 72:1	approximately 8:22 9:12 11:17 14:7,10 15:4 67:21 79:6	approach 97:16	attorney 2:3,9 2:12 119:10,12
address 59:13 59:14 99:2 110:6 112:16	amount 22:15 70:13 85:23 94:13,14	area 17:8,16,22 19:14 21:8,25 22:21 23:16 24:1,2,3 27:17	approach 97:16	attorneys 2:6 57:19 115:9
addressing 60:23 76:1	analysis 3:12 22:10,13 74:7 87:12,20,21,25		approach 97:16	augmenting
adequately 86:3	anecdotal 99:4		approach 97:16	
	angle 11:1,2,4 11:15 35:2		approach 97:16	
	answer 46:1 62:20 67:9,10 71:1 79:1 81:11 82:5 92:2,16 93:7 99:14 103:24 117:24		approach 97:16	
	answered 78:23 90:14,19 93:4		approach 97:16	

38:23	32:10 34:24	1:9,10 28:10	berms 23:20,22	58:19 59:10,24
average 32:18	35:7,9 38:5,12	40:12 56:11	35:18,19,20	63:13,14,15
34:12	42:8,9 44:12	75:8,9 78:19	36:12 56:16	64:9 65:15
averages 38:6	45:12 46:5,10	84:17 85:24	best 34:2 62:18	66:6 71:18
aware 63:12	51:24 54:13,18	89:5,10 93:12	better 61:23	72:10 74:22,25
73:24	55:1 57:18,21	bedrock 75:4	62:10 113:5,6	83:2 87:25
A-10 3:14 25:14	63:5,6,8 64:21	76:14,16 77:5	beyond 35:1,10	93:24 95:7
25:16,18 27:7	70:25 73:19	77:7 80:18	45:14	103:6 112:18
28:4 41:1,2,19	76:15 90:11	84:23 86:4,8	big 28:25 34:22	112:19 113:13
42:19 44:22	106:12 112:3	86:10,17,23	56:2 88:15,22	114:1 115:3
48:21 49:1	115:14 117:14	87:10 88:23	89:14 100:20	117:7 118:19
A-11 3:15 49:17	backhoe 76:22	89:2 90:3,5,6	106:25	118:20
49:19,19	84:5,17	91:1,5,6,7,9,12	bigger 46:3	boards 6:1
A-3 14:20,21	backhoes 84:15	91:13,19,19	48:10 84:20,21	Board's 20:4
15:3	85:24	92:2,5,5,6,8	85:25 90:8	bonier 100:2
A-4 52:18,20	backside 11:20	93:14,14,15,23	111:17,18	bore 7:21 14:17
A-5 6:8 7:4	bad 103:4,5	94:3,20 99:9	112:8	15:4 70:16,24
A-6 4:10 5:20	balance 28:23	100:16 101:7,9	biggest 35:19	borings 105:17
6:23 7:25 8:13	balanced 28:24	101:11,15,17	112:10	105:18
10:17,21 11:23	32:16	101:20 102:2,4	Birdsall 71:11	bottom 48:22
12:10 13:1,4	Banisch 1:18	102:9 103:2,9	71:16 83:21	53:25 79:10
14:4 15:1	28:15,25 29:8	118:1	90:12	boundary 71:20
17:14 35:3	29:20 30:6,11	beginning 60:11	bit 22:18 37:3	71:24 80:7
44:18,25 51:13	30:25 32:11	67:23	88:22 95:3	box 12:5,6 13:17
79:11,12 83:17	93:11	believe 9:6 10:22	114:8 116:12	14:15 18:3
109:22	Banisch's	50:10 56:14	blanket 19:3	20:17,23 21:2
A-7 3:11 8:2,3	108:23	66:5 78:12	29:16,18 31:10	21:23
10:1 11:22	barn's 55:12	84:5 102:9,20	block 1:6,6,7	Boxer 1:12 4:3
12:13,14 13:14	barrier 20:20	108:20,22	50:24 56:6	4:12,17,21,25
14:7 112:3	30:7 31:19	belongs 28:13	blockage 35:21	5:5,12,14,17
A-8 3:12 22:9,10	base 19:25 101:4	33:15 42:22	blue 24:5 39:9	9:10,14 15:18
22:12 51:24	based 9:8 38:18	bend 26:8	77:10,13,19	16:4 18:8,12
52:9,24 54:5	40:18 51:25	beneficial 59:19	78:6,10,20,21	18:16,18 20:25
A-9 3:13 25:7,8	56:5 61:8	59:21 60:6,21	BOA 1:4	21:14 25:21
26:4 46:19	69:22 75:16	61:1,5,8 62:10	board 1:1,11,17	32:12 34:9
49:21	83:17 87:22	berm 24:13	1:18,18 2:3 4:2	35:15 36:7,22
	92:4 101:3	26:16,17 27:5	6:1 8:8 16:9	48:9 56:25
	102:17 108:25	27:19 28:14,17	18:6 19:17,23	57:11,13,17,22
B	basically 12:3	30:16 31:1,4	24:16 32:24	58:10,14 59:6
B 3:9,14 25:17	15:8 26:6 54:4	32:1,10,20,22	35:12 37:22,25	60:3 61:20
25:18 49:1	basin 23:4,7,9	34:7,12,18,22	38:17,20 39:2	72:19 80:24
back 4:11 6:3	23:10	35:5 36:18	39:17,20 40:1	81:10,19,24
12:4,9,17,23	basins 24:9,20	38:7 39:5	40:4 42:11	82:9,13 83:8
13:11 14:3	53:24,25 72:9	40:16,25 41:5	43:8,13,15	92:18 93:8
15:10 16:1,3	72:25 106:1,2	42:3,3,9 45:13	44:5,13,16	94:1,10,24
17:21 19:23	106:3	45:16 49:7,23	45:3,11,24	108:3 113:19
21:8 22:17	bear 72:17	49:24 50:3,4	46:15 47:7,14	114:2,6,13,15
27:18 28:2	bearing 118:11	50:15 51:7	47:18,24 48:3	114:18,22
29:11,17,19,23	Bedminster 1:1	53:7 110:6	56:19 57:19	115:7,16,24
30:17 31:8				

118:7,17,21	115:6	23:11 59:13	108:3 113:19	46:6,7,23 51:2
boxes 7:20 11:25	buildings 15:3	casing 15:5	114:2,6,13,15	51:3,6,16
12:3,9,17 13:9	15:10 68:2,15	cattle 21:1	114:18,22	56:12
106:11	built 7:15 20:6	cause 76:9	115:7,16,24	code 87:14,14
box-wire 20:25	87:21 106:18	cedared 52:11	116:4,7,13,19	collects 13:17
BPU 58:25	bulk 54:4,6,9	cedars 22:24	118:7,17,21	Collins 2:3 6:24
59:22 60:2,8	bunch 34:4	47:10,18	Chambers 46:8	22:9 25:15
60:15,19 61:3	55:16	center 6:14	chance 102:25	61:21 62:7,17
61:15 63:10,16	business 115:4	12:16 17:17	114:7	64:2 66:22
63:22 64:10,18		19:19,22 24:7	change 22:25	90:21 115:1,8
64:20 65:2,4,5	C	44:2 52:16	28:11 35:23	color 23:16,18
110:25 111:4	C 2:1 3:15 49:17	80:13	52:5	52:2 78:17
break 32:5	49:20,21 65:10	centerline 19:24	changed 45:21	colored 80:6
42:16 57:7,20	119:1,1	centers 89:4	changes 23:24	colors 6:17
57:23 114:1,3	cable 104:4	certain 42:7	38:2 52:6	23:12,25 24:5
114:16	cables 104:8,10	43:7 63:15	changing 20:17	24:8 80:12,14
breakdown	104:20 105:11	77:1 78:6	22:23 23:3	combiner 7:20
48:19	105:13	certainly 15:15	34:3 52:2	11:25 12:2,3,5
breaking 113:23	cadmium 98:1	37:7 61:22	characteristics	12:6,9,17 13:9
breaks 99:23	117:10	93:6 95:8	75:16	come 17:25 18:1
Bridgewater	calculate 106:16	117:8	check 70:20	54:18 55:1
15:15 26:8	calculation 56:4	Certificate	72:11 74:1	70:25 73:19
67:16	calculations	59:16,18 61:7	circumference	88:13 105:8
brightly 80:6	53:4	119:16	100:3	115:14 116:9
bring 29:11	call 10:2 33:20	Certified 1:20	cites 60:23	comes 6:11 26:9
84:20	39:5 75:8	1:23 119:3	citizen 34:13	32:10,10 49:5
bringing 38:23	78:12	certify 119:5,9	civil 76:5	59:10 76:25
92:25	called 7:1 12:24	cetera 61:16,16	clarify 33:3,9	coming 28:16
brings 14:3	25:5 59:12	chain-link 20:16	56:3	47:4 54:13
broached 59:8	77:19 96:25	20:20,24 50:4	class 108:25	117:14
broader 94:25	cameras 15:23	Chairman 1:12	classified 77:5,6	Commencing
broke 4:10	15:24 16:5	4:3,12,17,21	108:14	1:10
broken 108:19	21:17	4:25 5:5,12,14	clay 75:10,19,21	comment 19:4
brought 13:11	Campus 66:4,11	5:17 9:10,14	91:18 101:10	Commissioners
85:20	69:4,8,19	15:18 16:4	clear 64:24	58:20
Brunswick	capacity 87:13	18:8,12,18	93:10 95:12	committed 5:12
77:25 78:11,13	car 26:21 34:17	20:25 21:14	client 64:25	committee's
78:16	34:17 36:9	25:21 32:12	close 73:21	4:19
bucket 84:1 85:5	care 55:3 103:17	34:9 35:15	85:11	common 68:24
85:10,14,18	103:17	36:7,22 48:9	closer 41:3	communicate
86:8,16,23	CAROL 1:13	56:25 57:11,13	47:22 49:24	115:18
89:13 91:1,9	carried 115:4	57:17,22 58:6	50:10 75:18	communication
91:13 92:24	carry 115:1	58:10,14 59:6	closest 49:6,14	15:9,24
94:18	case 1:4 10:3	60:3,20 61:20	51:5	communicatio...
buffers 6:20	36:12 59:15	72:19 80:24	Club 1:5 6:11,15	15:19,24 16:1
build 7:16 54:1	60:23 61:6	81:10,19,24	14:18 16:23	companies
105:6	87:4 100:19	82:9,13 83:8	24:25 26:7	53:15
building 68:5,10	115:4	92:18 93:8	32:5,21 34:15	company 97:4
68:11,13 115:6	cases 10:21	94:1,10,24	34:17 39:10	compare 59:24

complete 35:21	confusing 30:12	consultant 29:3	119:12	curious 33:6
completed 33:23	connect 17:6,21	108:22	count 53:3	92:20
43:2 58:2	20:9 69:12	contains 108:13	Country 1:5	current 52:21
completely 40:5	70:9 104:4	content 75:21	6:11,15 14:18	currently 16:22
71:25 81:5	connected 10:1	117:8	16:23 24:25	27:1 46:24,25
completion	66:3	context 36:24	26:6 32:5,6,21	52:11
42:17	connection	76:2 86:19	34:15,16 39:10	cut 23:12 24:2,3
complex 118:9	66:10,15 69:11	94:2	46:6,7,23 51:2	28:21 29:14
comply 53:6	connections	continuation 4:5	51:3,5,16	31:15 32:17
component 9:21	104:24	continue 5:18	56:12	39:24 53:18
components	connectivity	17:23 32:6	couple 24:3,3,19	80:8
7:13,15,17,22	66:6 69:10	42:4 48:10	28:16,20 48:16	cuts 9:20 22:16
8:11 14:14	connector	59:25 61:25	52:9 55:4 72:7	32:19 51:25
16:16 60:1	106:11	75:22 95:8	73:1 100:11	54:4,6
compromised	connects 67:15	113:22 114:9	course 65:6 81:3	cutting 29:13
96:12	conservation	116:3,4	court 60:24,24	80:10 87:2
concept 24:18	56:10,19 74:9	continued 71:5	61:5 63:8	91:4,15 102:3
conceptual	74:13,14	continuing 62:7	cover 29:24	cut-in 80:6
64:15	consider 20:22	continuous	53:19 64:6	cylindrical
concern 33:16	20:22	31:20 36:19	103:6	99:22
45:22 46:6	considerations	control 11:12	coverage 18:9	
62:15 81:11	74:21	conversation	18:10,21 55:15	D
93:3 94:3,13	constantly 53:18	48:15	55:18	D 3:1,15 5:23,23
concrete 12:12	constrained	converter 22:7	create 30:15	49:18,20 51:1
condition 18:5	17:16 19:14	convey 40:7	38:11 40:15,16	51:6
28:21 29:21	30:23 65:20,24	cooperation	99:21	darker 23:25
35:18 105:14	constraint 4:13	118:8,18	creating 28:17	24:4 80:12
conditions 6:5	constraints 6:17	copy 63:18 83:1	30:6 31:1	dashed 28:19
28:20 69:17,25	6:19 71:24	108:22	critical 59:18	66:6 67:3,13
70:23 87:23	construct 8:15	core 94:5	cross 20:2 24:23	date 7:2 25:17
88:6 105:12	16:20 17:5	corner 13:3 14:5	25:4,23,23	64:16 119:8
113:6,8	20:10 50:10	32:3 80:5	40:24 41:1	dated 3:14,16
conducted 74:7	54:21	correct 40:21	44:3 45:17,20	8:6 25:6,8,19
90:13	constructability	55:23 64:23	46:20 49:21	49:18,20 64:8
conduit 12:23	76:11	65:10,11 67:6	50:16 57:6,9	82:17 119:17
67:5,15 70:8	constructed	69:1,2,4,5	60:17 113:24	dates 114:10
93:22 104:11	12:8 33:11,22	71:11,12 79:13	116:5	day 4:16 92:16
104:12,20	42:7 54:23	79:15 90:21	crosses 58:4	days 62:4
106:6	constructing	97:16 102:13	crossing 19:22	deal 62:11 95:7
conduits 12:7	27:5	103:11 104:5	cross-examina...	dealing 36:11
15:9 54:17,25	construction	107:9,10 110:7	58:16 116:3	37:4 117:6,11
104:9,10,13	3:11 8:3,6 9:18	110:20,23	cross-examine	debate 62:14
confidence 33:4	16:22 17:2,3	correctly 43:4	62:24	December 1:8
confident 34:8	31:18 34:7	62:7	CSR 119:15	64:16
confirm 70:20	42:16,17,25,25	corridor 19:15	cubic 32:18	decibels 98:23
111:6 113:15	52:5 54:1,2	19:15 33:16	cultivated 39:23	deciduous 52:14
114:9	74:17,19,25	corridors 56:10	curbed 19:4	decomposed
conform 52:17	75:1 87:14	cottage 55:21	curbing 56:8	75:9,17 85:3,4
53:2	98:20,21	counsel 119:10	curbs 19:6	85:4 90:9

91:18 101:10 deem 62:18 deep 9:10 79:20 84:16 85:23 87:15,22,25 104:16 deeper 85:21 86:1 94:9 102:7 deepest 94:2,9 defeat 42:11 defeated 61:8 defer 110:15 113:25 define 90:6 defined 19:13 deflects 26:6 degree 33:3 degrees 11:3 deliver 69:7 demonstrate 59:11 denominator 56:4 DEP 19:16,21 56:19 112:22 113:4 Department 15:13 59:17 depending 10:7 10:15 106:21 107:13 depends 76:2 depth 14:11,12 19:12 38:13 80:17 86:4,8,9 87:9,10,11 88:7 93:13,14 93:23 95:2 102:21 107:13 depths 88:8 describe 14:24 75:5 107:17 described 6:18 14:14 16:25 21:12 61:3 78:16 89:25 describing 32:25 51:25 77:23	DESCRIPTION 3:10 design 16:11 18:24 19:3,5 40:8 42:18 64:16 72:7 73:4 87:13,18 106:17 detail 7:9 11:21 19:24 21:8 34:7 36:3 38:15 46:13 47:20 67:17 68:11,13 70:25 81:1 96:16 99:5 106:17 112:4 113:15 113:16 detailed 24:14 55:3 70:5 71:23 details 3:11 8:3 8:6,12 21:22 24:17,21 66:13 74:2,10 75:1 detention 23:4,9 24:19 53:23 72:8 106:1 determine 88:10 developed 89:21 development 29:9,10 75:7 deviates 44:19 devices 36:1 58:1 93:1 diameter 89:10 107:2 difference 22:14 37:25 60:9 89:15 different 21:22 23:19 30:1,5 48:18,23 52:1 53:22,24 59:14 60:19 67:8 68:6 75:5,5 77:19 78:15 79:2 81:6 85:20 86:24	89:3,3,6 96:21 98:21 100:17 106:11 108:24 109:6 118:2 difficult 36:24 37:3 diffuses 50:23 50:24 dig 84:21 103:19 103:20 106:6 digging 77:3,21 DiGIOVINE 1:15 43:8,13 43:15 44:5,13 44:16 45:3,11 45:24 47:24 48:3 dimensions 22:1 direct 56:24 58:2 61:14 62:1,25 65:8 70:7 75:25 79:16,17 82:18 109:18 directed 64:8 direction 17:10 17:14 43:24,24 44:20 45:18 46:9 directional 69:20,22 directionally 69:25 directly 17:12 49:21 dirt 34:22 36:13 36:16 disagree 60:5 disappear 113:9 discoloration 77:15 78:17 discolored 78:21 78:25 79:1 discussed 9:6 14:16 20:16 57:15 discusses 4:2 discussion 9:18 22:19 55:15	62:9 66:13 75:22 86:25 displacement 100:1,2,3,4,8 100:12 101:4 dissipating 113:11 distance 27:12 37:10 46:10 79:19 distinction 40:23 distracted 48:12 distracting 57:3 distribution 113:5,7 District 56:19 disturbance 82:1,2 94:6,14 109:14 document 64:3 64:4 documents 8:7,9 53:14 63:15 doing 32:8 54:12 61:2 77:5 93:19 Donato 2:8 3:5 18:16,22 57:8 57:10,16,17 58:4,8,12,13 58:16 59:3,7,8 60:14 61:21 62:13 63:6,11 63:21,25 64:5 66:18,20,24 71:8 72:17,20 78:3,5,25 79:4 80:25 82:14 83:8,13,15 90:17,23 92:12 93:3,6,10 94:8 94:12 95:10 108:4,9 113:19 113:25 114:5 114:11 115:17 115:21 116:20 116:21 117:2 117:22 118:5	118:15 DORN 1:15 DOT 60:17 double 38:12 doubt 34:3 downstream 82:2 dozer 76:22 drag 94:22 drain 81:4 drainage 23:6 81:14,24 110:9 drawing 112:4 drawn 14:21 67:13 drew 69:18 drill 31:17 54:12 69:20,22 88:13 88:22 93:15 96:8 drilling 70:1 88:1,2 94:5 drills 88:23 drive 9:1 17:6 17:11,18,22,23 18:5 21:12 26:15,16 35:4 45:21 54:25 87:3 89:1,4,7,8 89:11,15,23 95:16,20,23 98:14 102:8 driven 8:25 9:9 9:13,17,23 79:23 86:13,13 86:14 87:16 97:3 98:19 99:25 100:21 100:22 driver 87:9 88:12 drives 34:21 55:20 driveway 16:24 17:2,25 19:18 32:6 55:20 56:21 driveways 18:25 55:19
---	---	--	--	---

driving 9:22 34:13,14,16 42:20 96:5 99:16 116:23	109:9,24 electric 105:1,4 105:12 electrical 7:12 20:7 68:19,23 98:9,10 104:7 104:8 106:17 106:17 117:13	6:16,19 71:24 108:20 109:2 environmenta... 17:16 19:14 30:23 65:20,24 equal 37:21 equals 37:8,11 37:23,24 91:13	excavated 31:21 excavating 23:13 excavation 23:14,15 excavator 84:20 84:22 exception 18:4 52:12 excess 55:8 excuse 17:18 110:16 exercise 46:16 exhibit 4:10 6:21 7:2,3,4 8:1,3,12 10:1 10:17,20 11:22 11:23 13:1,4 13:14,19 14:4 14:7,20 15:3 22:10,12,13 25:5,6,8,13,17 25:18 26:3,3 27:6,23 28:4 41:1 44:1,18 45:2 46:19 49:17,17,19,20 49:21 51:13,24 52:9 54:5 80:5 82:21,23 107:24 exhibits 22:14 79:9 exist 70:23 103:4 existing 6:5 17:9 17:18,22 22:23 22:25 28:20 32:22 49:11 87:5 103:3 exists 40:17 75:4 expected 57:23 experience 102:18 expert 7:12,12 92:14 expertise 76:4 explain 12:19 15:19 41:19 59:4	explaining 7:11 7:23 explanation 36:22 export 28:24 exposed 54:19 extend 67:6,7 extended 69:8 extension 52:22 extent 100:7 extremely 27:8 eye 34:11 eyes 51:22
E				F
E 2:1,1 3:1,9 5:23,23 119:1 119:1 earlier 9:6 18:14 18:21 56:17 70:19 early 62:3,4 Earth 3:12 22:10,12 easements 56:9 56:10,11,13,15 easier 110:18 easily 27:12 102:7 east 6:12,13 13:12 14:19 17:13,14 18:1 20:14 21:10 23:17 25:3 eastern 17:18 24:2,8 44:24 83:18 easy 33:13 edge 47:10 effect 76:10 81:13 82:2 Effectively 81:24 effects 81:2,12 efficient 115:12 EIS 109:1,3 either 21:2 43:13 50:16 68:8 72:12	electrically 12:19 21:15 electricity's 68:24 electronic 58:1 element 8:16 23:5 elements 6:21 7:7 9:19 15:21 23:19 24:11,19 72:1 elevation 37:13 45:6 48:22 49:8 77:2 eliminated 65:17 else's 99:13 employee 119:10 119:12 enclosed 21:8,9 encompasses 15:19 encountered 86:22 ends 14:14 energy 12:22 14:3,13 15:8 16:2,17 57:8 57:24 60:7 engineer 1:18 4:9 38:16 55:18 70:13 71:10 76:5,5,7 92:7 107:16 115:23 English 2:5 64:7 enhance 17:20 entire 46:16 56:2 79:13 entitled 8:2,5 environmental	erosion 9:20 54:3,6 74:17 esoteric 101:22 espouse 63:2 ESQ 2:3,6,8,11 essence 33:5 essentially 83:4 83:18 et 61:16,16 evaluate 69:18 86:4 evaluation 72:3 72:22 EVD 3:10 evening 4:5,7 58:17 66:8 74:4 eventually 13:11 116:9 evergreens 50:7 everybody 57:1 57:23,24 118:11,13 everything's 18:3 exactly 68:11 70:16 80:4 85:18 exaggerated 26:22 37:5,19 exaggerating 25:24 example 103:10 excavate 102:7	explaining 7:11 7:23 explanation 36:22 export 28:24 exposed 54:19 extend 67:6,7 extended 69:8 extension 52:22 extent 100:7 extremely 27:8 eye 34:11 eyes 51:22 F 2:3 119:1 faces 41:12 facilities 24:19 60:7 facility 66:3 68:16,25 69:6 69:7 facing 11:5 fact 40:18 96:11 factor 37:19 factored 18:10 18:13,20 failure 42:13 fair 70:13 73:17 88:4 94:7,8 99:17 115:24 116:19 fairly 89:14 familiar 77:20 78:7,10,20 96:11 102:18 far 45:12 98:8 farm 27:14 67:24 69:1,19 farmhouse 55:21 farmland 29:12 108:14 farther 45:22 46:10 77:4 90:8 100:21 fashion 52:23 fast 53:11 favor 57:1	

favorite 95:13	filed 73:2	flood 6:20 17:16	55:22	10:15 11:5
fax 1:24	fill 23:25 24:4,6	56:21 110:1	four 10:4,6,19	14:22 16:7
fear 35:19	31:1,6	floor 47:25 48:6	11:15 12:15	18:2 20:9
feasibility 59:12	fills 9:21 22:16	50:12,13 55:12	13:6,11 15:6	22:22 23:24
59:13	32:18,19 51:25	55:13	17:24 27:2	24:2 29:4
feasible 60:1	54:4,6	flopping 58:7	37:9 111:11	31:16 44:20
feature 50:9	final 60:17	flow 81:3,13	112:5,11	46:7,22 47:2
features 23:23	financially	focus 47:21	113:17	52:22,25 53:12
41:15 52:1	119:13	focused 46:22	fractured 29:7	54:15 70:14
56:16	find 90:5 98:3	47:5 48:19	FRANK 1:18	72:1 76:10,23
feel 102:6	99:14 114:12	focusing 101:25	front 23:22	81:17 84:15,20
feels 62:8	finding 80:25	folded-up 82:23	31:21 82:19	101:16 105:22
feet 10:6 19:10	fine 58:11	foliage 47:15	frontage 43:7	109:8,23,24,25
24:3,3 28:16	114:17 118:6	folks 49:14	46:22	112:6,9
35:13 37:8,11	finish 54:19 71:7	follow 52:12	full 94:3	generated 68:25
37:12 42:1	finished 104:18	54:2 58:4,9	function 68:16	98:24
45:16 46:2	104:19	83:10	functional 27:20	generates 24:4,5
66:10 67:21	firm 58:21,22	following 63:7	40:8	generic 74:8
68:4 69:23	64:18,22 68:10	follows 5:24	fundamental	generically 46:2
81:3 84:1,8,25	70:3,4 71:11	follow-up 95:8	59:11	geological 78:14
86:19,21 88:11	82:17 114:18	follow-ups	fundamentally	geology 78:15
89:12,13,14,14	first 5:10 8:16	115:17	59:25	GEORGE 1:14
90:25 91:4,15	9:19,21 26:2	foot 11:20 12:12	further 45:16,18	geotechnical
91:17,22,25	31:7 38:25	12:12 13:16,21	119:9	76:5,6 87:24
92:1,22 93:16	42:20,24 44:21	13:21,24 14:10	future 29:12	107:16
93:20,21 95:15	44:22 50:12	14:11 20:8		geo-fabric
99:8 102:2,4	54:4,13 57:16	28:21 30:14	G	112:24
111:14,14	57:18 58:4,8	51:22 53:16	galvanization	geo-grid 112:19
fence 20:16,18	58:12 60:12	75:15 79:24	96:12,13	113:1,3,10,14
20:24,24,25	64:3 66:8	80:13,15 84:6	galvanized 8:21	German 97:4
21:1 28:5,5	79:18,18,20	84:6,21 85:1	9:16 95:19,23	getting 30:13
41:13,14 42:5	80:3,3,4 96:9	87:2,3,5 88:7	96:2,5,9 97:2,8	62:9 76:11
42:10 49:8,9	96:23 109:19	88:13 89:5	97:12,16,21	99:3
50:3,5,9,15,19	113:10 115:15	91:5 96:7	101:1,6	give 6:3 32:16
89:4,8,9	116:2	101:15,15,15	gap 11:6,7	32:18 36:3
fences 100:19	firsthand 36:25	102:4,7,20	garage 16:25	38:20 52:3
fencing 20:12	fit 34:1	112:7	Gary 2:6 4:7	55:16 71:1
Ferriero 1:18	five 37:10 84:24	footprint 12:12	gates 21:12,13	73:13 88:18
4:20 37:1,15	86:19,21 89:13	Forbes 2:12	21:14	99:4 114:7
37:18 38:4,22	89:14 90:25	foregoing 119:5	gather 57:7	given 64:25 95:4
46:4 56:14	99:8 102:2	forgot 64:23	general 24:17	gives 53:18
few-hundred-f...	103:3	formats 52:9	46:12 56:20	giving 19:8
10:21	fixed 16:10,13	formidable	68:9,14 69:21	Gladstone 64:16
field 27:4,4	fixed-racking	58:10	71:22,23,25	glare 11:9
39:13 59:12	16:14	forth 22:18	74:16 75:3	glasses 83:7
fields 31:22	flat 28:1 76:25	119:8	83:20 93:12	go 6:3,5 8:12,20
figure 38:18	93:17	forward 93:24	112:22	9:17 12:7,20
41:20 83:10	flatter 32:1	found 78:11	generally 6:10	13:8,10 14:1
file 117:20	flip 58:7	foundation	6:22 8:11 10:8	15:2,2,12 16:1

16:3 17:9,12 21:8 23:23 24:20 35:3,16 35:24 36:8 38:5 40:11,25 42:2,14 43:6 51:14,24 55:4 57:6,16,18 58:8,12 61:1,4 66:23 68:14 76:15 79:21,22 87:9,22 89:5 90:8 91:22,25 93:24 95:3,15 103:1 108:10 goal 28:22 29:15 29:17 30:8 33:3,13,18 goes 12:17 23:5 28:2 36:18 41:6 49:24 67:13 110:15 going 4:22 7:10 7:14,17,18,19 8:12,16,20 9:2 9:17 12:4 13:1 15:1,2,25 16:6 22:17 23:18,21 23:23 24:10,10 24:11,13,15,23 25:5,11,11 26:11,12,13 27:9 29:10,13 30:14,16 31:6 31:20 33:11 36:7,12,24 38:7 39:5 40:5 43:18 45:21 46:10,21 49:16 50:18,19 55:2 55:15 58:3,8,8 58:12 61:18 63:2,3,21,23 64:6 68:25 69:20 71:2 73:13 75:23 76:3 78:3 81:1 81:4 82:18 83:23 86:11,12	86:14 87:1,2,4 88:10 89:1,22 92:16,20,21 93:20,21 94:4 95:1,6,13,20 96:8,15,23 98:7,25 99:5 99:11,19 101:13,14 102:25 104:3,3 104:4 105:13 106:11 108:11 109:13,18,19 109:22,22 114:19,23 115:12,13 116:2,9 117:7 117:15 118:1 good 4:5,7 30:19 31:3 33:8 34:23 53:18 58:17 gotten 6:6 105:10 grab 96:23 grade 22:23,25 23:24 27:3,11 32:23 34:3 35:5 36:21 40:10 45:20,23 52:2,5,7 55:11 87:5 104:17,18 104:19 graded 52:8 grades 23:3 38:3 grading 22:16 27:1,23 32:25 42:17 52:24 110:11 gradual 27:8 28:8 32:8 34:4 granite 103:3 graphic 37:18 graphics 23:18 grass 27:16 42:24 grasses 27:15 30:9 gravel 17:5,21	18:4,6,6,9,19 18:19,24 19:6 19:9 20:8 55:20 112:17 112:23,24 113:1,1,4,7,14 graveling 17:20 gray 7:6 77:16 great 79:19 greater 11:15 25:25 green 80:7 ground 8:18,20 8:25 9:2,9,17 9:22,23 10:10 10:11 11:17,19 23:13 29:14,22 29:24 53:18 54:12 75:15 77:17 79:24 81:2,8,12,21 81:22 84:6,21 86:2,12,13 87:3 88:14,25 89:6,11,12 93:2 96:7 97:3 97:21 100:6,22 100:22 101:2 101:13,15,18 101:21,24 102:3 105:14 113:8,9,12 group 45:1 grow 29:19 53:11,12 growing 32:17 growth 53:16,17 growths 30:5 guess 4:8,11 30:11 39:4 90:6 114:19 115:11 116:5 guided 62:7 GUTTSCHALL 1:13 guy 68:18,19,24 117:13 guys 58:11	H H 3:9 8:24 half 84:25 86:19 86:21 89:13,14 90:25 91:5,17 93:15,19 99:8 102:2,4,7 103:3 105:6 Hall 2:6 3:5 4:5 4:7,7,15,23 5:4 5:8,13,17,19 18:23 34:10 39:14 40:20 41:18,23 48:20 50:18,21 51:11 52:18 56:1 59:1 60:3,5,16 60:22 61:12 62:16 63:13,19 63:22 64:7,17 65:1 66:16 69:16 71:6 78:2,23 79:2 90:14,19 92:9 95:7 102:17 103:23 110:17 114:14,15,17 114:24 115:7 115:10,19 116:1,14,15,22 116:24 117:4 117:10,19,22 118:2,6 hammer 96:2 handful 72:15 handle 57:9 happen 100:23 101:12 happened 86:17 happens 39:6 42:18 81:21 Happy 118:16 hard 28:18 33:10 36:8,18 87:10 102:9 harder 85:19 hardwood 53:3 hardwoods 47:10,14	hatched 37:9,9 hay 27:4,15 hayed 30:3 31:16 39:23 hazard 56:21 head 99:15 heading 26:7 46:8 heads 114:8 Health 59:17 hear 4:13 18:17 61:9 heard 18:21 55:17 60:9 92:21 hearing 33:5 59:9 62:5,8 118:23 heavy 75:10,19 96:3 height 11:12,14 11:20,20 13:15 13:16,21,23 14:6,10,16 36:11 41:23,25 42:2,7 51:19 heights 34:16 35:25 help 33:1 37:2 helpful 34:11 35:24 36:23 93:9 94:24 hereinbefore 119:8 he'll 24:20 hide 33:20,21 high 10:4,6,20 11:16,16 14:8 20:15,17,24 32:22,23 34:17 34:18,18 41:6 41:12,14 49:4 49:10 53:12 72:22 75:21 88:21 104:21 104:22 105:5,5 higher 21:25 26:22 29:5 35:5,13 45:6
--	--	---	---	---

highest 13:23 14:8 34:18 49:2,12	102:2	inherently 59:19 59:21 60:6,21 61:1,4 62:10	55:22 111:10 111:14,20,21	KDC-SA55-L... 82:16
highway 15:14 60:18	hypotheticals 95:13	initial 58:19,25 63:9 71:21 76:13	inverters 7:20 12:15,18,18,20 13:9,12,20 50:5,16 55:10 106:12,12 111:7,8,10,11 111:12 112:5 112:11,15	keep 17:1 18:24 40:5 55:11 118:11
hill 44:9	I	inner-connect 68:12	50:5,16 55:10 106:12,12 111:7,8,10,11 111:12 112:5 112:11,15	keeping 18:5,7 20:21
hills 2:9 45:14	idea 24:25 65:7 86:20 98:23 104:1	inside 21:25 26:14 28:3,6 38:8	inverters/trans... 17:7	Kennedy 3:4 4:8 4:11 5:18 9:10 15:18 18:8,23 32:12 34:9 39:3 40:20 41:18 43:8 47:24 48:10,13 48:20 52:18 56:1,25 57:7 58:17 61:13,16 61:19,25 63:25 80:24 82:15,25 92:8 93:4 94:16 95:2,7 103:10 113:24 114:4 115:11 117:16,23
historic 32:10	image 6:9,9	install 106:5	inverter/trans... 112:1	Kennedy's 58:2 62:11 115:13
hit 84:18,22,24 91:18	imagine 30:16	installation 96:18 109:12	investigations 71:21	KENNETH 1:14
hockey 88:18	impact 88:1 96:2 108:21	installations 54:24	involved 58:18 58:24 60:8 63:9 68:10	kept 95:1
hold 5:2 8:19,19 10:2 79:7	impacted 96:12	installed 11:24 54:8,9 79:7 97:8 100:15,19 101:9,19 104:16 105:1,4	IRIS 1:20 119:3 119:15	kind 33:6 36:11 38:10 45:12 73:24 78:12 98:23
hole 96:9 99:22	impervious 18:9	instance 59:20	isolated 62:12	kindly 19:23
holes 77:22 85:23 102:19 103:12,13,16 103:17,17,19 103:20	import 28:23	insulated 61:25 62:12	issue 4:21 63:1 81:6 117:6 118:9	Kirby 67:24 69:1,6,19 82:3 82:4
Holiday 118:16	improvement 35:22 49:14	intent 33:2 34:6 39:10	issues 6:19 95:6	knew 64:19
holidays 4:16	improvements 6:7 7:11 15:16	intention 38:23 95:12	issue's 67:1	know 4:25 5:2 14:23 18:9 35:16 46:5 48:10 54:15 58:24 59:1,22 59:25 60:20 61:18 62:1,12 62:21 63:8,20 64:20,21 65:1 65:3,17,18,19 65:21 66:25
home 29:10	inch 37:8,23,24 106:22	interest 74:21	J	
homes 48:1	inches 10:15 11:17,19 13:16 13:24 14:8,9 15:7,8 29:4,6 29:16,18 31:12 38:6 85:1 100:11	interested 117:7 119:13	jack 7:21 14:17 15:4 70:16,24 93:20 106:23	
honestly 94:16	inclined 20:4	interesting 62:6 62:23	jacking 67:2,23	
horizontal 26:1 37:6 77:16	include 56:5,6 66:10 106:23	intermingled 77:13	January 114:23 115:2,5	
horizontally 37:8,24	including 98:22	Interpretation 56:22	Jersey 1:10 119:4	
hospital 59:15 59:19 60:21,25 61:6	independent 72:3,21	intersection 6:14 32:5 47:21 51:2,5 51:16 56:12	job 100:23	
host 16:18 71:19	indicated 100:13 104:2	introduced 6:23 6:24	jobs 54:21	
house 16:23,24 17:1,9,22 22:4 42:9 49:5,8 51:3,5,7,8,15 53:1 55:12	indicates 6:8 64:9	invasive 20:23	JR 2:3	
housekeeping 115:9	indication 32:19	inverter 12:9,9 12:11,16 13:6 13:18 17:10,24 18:3 20:9 21:20,25 50:8	judgment 33:17 33:23	
houses 47:22 48:5 105:1,6	indicative 28:9		jump 116:5	
hue 24:5	individual 99:18		jurisdiction 99:13	
hues 23:12	infiltration 106:3		K	
hundred 68:4 70:15 109:15	information 71:23 73:14,14 74:6 93:25 94:23		K 5:23	
hydraulic 88:24	infrastructure 15:16		KDC 1:4 4:4,8 5:15 88:5	
hypothetical 92:13,15				
hypothetically				

67:1,19 68:5,7 68:12,13,23 69:17,24 70:12 75:24 76:8,9 77:10,25 78:7 79:8 80:10,16 80:19,20,22 81:11 82:5 83:13 85:9,15 85:20,22 86:7 87:7,25 88:9 88:19 90:11,18 92:5,7 93:22 94:17,18,20,21 94:21 96:15 97:5,24,25 98:2,13 99:6 99:12,14,22 100:7 102:1,14 103:1,9,11 105:11,12,24 106:14 107:18 108:1,1,12,17 109:20 111:2,3 111:4 115:12 115:19 116:1,8 116:9,11,25 117:17,20 118:8,10 knowing 69:21	30:2 33:19 40:17 41:9,9 41:10,11,13,15 42:9 43:9 49:11,13 56:16 landscaping 46:24 47:11,13 47:18 49:7 50:19,21 lanes 10:20 large 17:15 21:24 76:18,22 77:3 larger 85:21 89:8 92:25 93:1 largest 13:16 LaROSA 1:20 law 60:6 61:11 lawyer 33:1 lay 35:25 layer 75:19 85:15,15 layers 77:1 93:17 layman 34:11 layout 7:4 9:8 10:7 61:17 64:15,15 71:22 71:25 72:2 lead 48:11 leave 24:15 left 6:22 9:25 12:14 26:1 30:17 41:3 50:2 62:11 109:11 legal 62:22 length 14:10 19:9 106:8,14 107:3,5 lengths 106:11 letter 56:22 63:14 64:6,7 64:10 116:16 116:22 117:23 let's 22:19 25:4 29:9 31:4,22 45:18 51:24	63:6 64:24 76:3 79:8 90:24 91:8,12 91:13 95:12,14 99:7 103:14,15 111:9 112:1 114:18 level 36:23 44:10 44:12 45:14 75:21 84:19 levels 78:15 86:24 life 110:18 lighter 80:14 lighting 22:2,3,5 22:5 lights 22:3,6 limits 76:4 LINDSEY 1:17 5:7,9,16 114:21,25 line 17:19 18:2 26:19 28:19 36:19 37:9,9 37:13,13 38:1 42:1 43:19,20 43:20,25 44:18 45:8,8,15 47:25 48:15,19 48:25 49:1,2,5 49:9,19 50:1 50:13,14 51:14 51:14 52:13,16 52:21 66:6 67:3,13,18,19 68:14,17 69:8 69:18 95:4 linear 7:6 19:9 20:8 23:10 38:1 lines 11:23 33:21 37:13 41:20 47:4 48:6 50:11 55:9 line-of-sight 41:24 47:16 list 72:13 108:5 110:5,16 listed 38:21	listen 35:19 94:2 98:18 little 10:17 29:5 30:21 37:3 88:16 95:3 99:21 101:3 112:8,14 114:8 114:12 116:12 LLC 1:4 LLP 2:5 local 74:21 109:10 located 15:10 17:15,24 65:20 65:24 70:9,24 83:3 104:14,21 105:23 location 14:15 14:17,25 17:11 26:9 41:5 45:19 46:8 69:23 70:8,11 112:19 locations 32:3 72:16 log 94:20 logs 70:5,7,10,21 70:23 72:5,7 72:15,24 73:2 80:17 94:19 102:22 105:19 105:23 long 10:6,16,21 11:22 23:10 25:23 67:19 87:7 88:21 99:6,12,16,19 113:21 114:4 118:8 longer 57:22 62:14 90:4 look 27:12,18,20 28:9,12,13 32:8 33:15,24 33:24 34:21 35:17 36:10,10 37:16 38:1 39:12 42:9,10 42:21,23 46:3	47:20 48:7 70:12 80:5,22 87:11 94:19 95:6 102:25 113:17 118:7 looked 34:25 35:1,2,6 48:18 78:14 85:11 looking 42:8 43:23 46:11 49:9 67:20 83:25 97:1 99:7,17 113:20 looks 21:3 lose 47:15 lost 66:23 lot 1:6,6,7 7:5,9 13:3 19:19,22 23:17,18 30:16 38:16 47:12 51:15 55:15,18 56:2,5,5,6 67:17 70:25 77:21 110:18 LOUIS 1:15 low 16:7 lower 6:14 9:25 49:1 LUB 1:4 Lynch 61:14
L				M
L 5:23 LA 119:3,15 laid 35:9 Lamington 27:13 LANCE 1:12 land 1:1 8:8 23:21 24:12 27:20 28:9,10 29:12 35:1 36:21 42:17 46:25 52:11 55:6,6,24 56:1 60:6 63:14,15 74:22 landscape 7:24 10:5 20:23				M 2:11 machine 9:1,2 76:18 84:4,14 85:20 86:1 90:4,7,8 102:8 machinery 92:23,25 machines 77:2 102:20 main 7:17,21 97:1 maintain 16:21 20:11 43:7 maintained 39:6 43:3,4 maintenance 16:22 42:13

43:3 53:13 56:13 major 81:25 majority 23:11 23:15 30:20 48:15 making 18:13 42:21 102:8,11 management 24:14 56:14 70:21 72:8 73:7,9,23 81:5 81:16 82:17 105:25 110:10 110:12,14 manner 89:21 99:24 manual 83:23 manually 21:15 21:16 manufacturer 10:16 96:17,20 97:7,11,17 117:25 manufacturers 87:19 88:5 96:22 map 46:3 69:22 70:14 78:14 107:22 108:25 mapping 46:4 46:13 108:20 maps 80:22 marked 4:9 8:4 22:11 25:9,19 49:18 marker 36:10 master 108:23 material 31:1,8 31:8 34:5 38:12 53:16 75:10 77:1,4 80:25 85:19 87:10 96:6,19 97:3,21 materials 31:2 93:17 96:2 material's 98:13 math 55:23	mathematics 38:9 matrix 38:18 matter 1:3 60:22 matters 4:2 mature 47:9 max 41:6 maximum 11:16 11:19 13:15 23:14 Ma'am 82:21 McCARTER 2:5 64:7 meadow 6:15 24:25 26:5,7 26:12,20,21,24 27:14,16 30:3 30:9 32:4,21 34:5 39:10,18 39:21,22 42:12 42:22,24 44:3 44:19 46:23 50:11,11 51:2 51:4,5,16 53:21,22 56:12 meadows 36:16 mean 34:12,14 43:15 60:13 61:23 63:14 71:19 75:23 76:21 79:21 84:3 85:17 86:18 89:7,20 94:1,2,22 102:22 104:7 105:16 106:15 110:1 117:24 meaning 60:24 means 84:4 meant 39:15 measurement 45:12 measures 54:3 74:17 meet 42:21 meeting 4:19,24 5:2,6,11 16:25 60:12 66:12 113:22 114:9	114:19,22 115:2,15 116:11 meetings 61:14 MEMBER 16:9 32:24 39:2,17 39:20 40:1,4 42:11 43:8,13 43:15 44:5,13 44:16 45:3,11 45:24 46:15 47:7,14,24 48:3 118:20 MEMBERS 1:11 mention 28:15 mentioned 41:19 met 91:1 metal 9:16 21:4 96:13 98:14,19 100:25 metering 61:16 method 54:23 MICHELE 2:8 middle 92:19 miles 89:9,9 mimic 32:9 mind 57:3 59:7 93:8 95:12 mine 112:8 mini 8:25 21:19 minute 57:7 minutes 48:16 114:10 mix 30:1,2,3 38:11 39:19,21 39:22 53:9,11 53:13,21,23,24 mixes 30:10,10 mobile 57:2,25 modeling 77:18 78:9 moment 91:2 money 40:2 monitor 15:22 21:18,21 monitoring 16:4 16:8	month 4:14,24 5:10 6:4 Moschello 24:15 25:13 55:3 73:20,21 75:25 107:8 115:12 Motion 118:19 118:20 mounted 9:1 mounting 11:2 move 16:11 19:23 90:22 103:24 116:11 movement 81:22 moving 16:9 19:18 mow 40:2 mowed 39:6 multiple 106:10 municipal 115:6 115:6 <hr/> N <hr/> N 2:1 3:1 5:23 5:23,23 name 73:20,22 name's 65:6 narrow 81:7,17 narrowness 81:20 natural 27:12 33:15 42:12 113:23 114:1 nature 76:12 near 68:2,3,3 75:19 100:24 neat 99:21 necessarily 86:9 necessary 94:15 need 20:20 56:15 59:16,18 60:10 61:7 68:23 73:25 82:8 86:1,4 87:15 90:19 93:22 94:21,23 95:15 106:6,9 113:21 needed 20:21	22:6,7 57:23 needs 40:4 53:12 negative 81:13 neighborhoods 41:17 neighboring 23:20 47:19 neighbors 24:24 25:2 neither 119:9,11 net 61:15 never 101:19 new 1:10 8:1 20:7 26:15 31:1 77:25 100:5 119:4 nice 4:6 58:14 61:10 99:21 NICK 1:13 night 114:4 noise 98:15,16 99:4 noises 98:22,22 nominally 112:6 nonresidential 19:4 non-colored 23:1 non-regulated 105:15 non-topsoil 31:8 north 6:9,13 17:12 23:6,20 24:24 25:2 40:20,23,24 42:8 northeast 13:2,3 14:5,5 43:24 44:20 107:21 northern 17:19 18:2 44:24 47:5 north/south 49:22 52:23 Norton 75:7,13 76:15 Notary 119:3 note 71:2 noted 44:8
--	--	---	--	---

notes 93:12	odd 95:3	53:12 64:25	17:24 20:9	67:20
notice 33:1 66:9 66:9 114:23	off-site 46:13	65:7 77:1 99:3	21:20 55:22	papers 110:16
notices 115:5	Oh 39:17 65:3 85:7	ones 88:17	111:6,10,14,20 111:21	parameter 42:18
notion 103:2,4,5	okay 5:14,16,17	one-inch 37:11	page 3:3,10 82:24	parameters 87:18
November 7:3 25:6,17 49:20 63:12 64:8	7:1 9:15 10:16 10:19 14:9 15:1 31:15	open 65:22	paggers 57:2	part 22:18 23:8 40:1 44:9
number 9:5 10:6 10:23 22:8 35:13 74:20 79:14 106:21 110:24	32:4 33:10,12 35:5 37:21 39:13 41:6,13 41:14 42:7,19 43:14,20 44:21 44:22 48:12 54:11 57:5,17 64:22 67:14 68:5,16 71:2,9 71:16 72:21 73:8,18 74:2 74:12 75:3 76:13 79:5,16 79:20 80:2,6 80:10,16 82:15 82:18 83:14,22 83:23,24 84:24 87:4,5 88:9,20 90:24 91:3,12 91:14 96:25 97:6,10,24 98:14 99:9,10 100:13,19 101:3 104:2 106:5 107:15 107:17,20 108:12 109:8 110:5,15,17 111:16 112:3,5 112:16 114:3,8 114:10,11,15 114:25 115:7 116:1 117:16 118:7	operated 21:15 21:15	pairs 37:12	participate 105:17
numbers 19:8 21:8 33:10 52:3 55:7,16	once 11:24 12:6 12:22 13:9 14:13 34:10	operator 86:22	pancake 76:23 77:14	particular 80:2 80:16 83:11 93:13
O		opine 55:18	pancake-type 76:23	parties 119:11
O 5:23 73:22		opportunity 64:2	panel 10:4 11:9 11:10,20,21 12:1 28:6 41:17 87:13 101:23 104:4,5	parts 16:10
oath 5:20		opposed 20:24 21:4 32:9 33:5 42:3 54:20 55:7 74:17 76:5 110:8,9	panels 7:5,8,19 8:17,19 10:3 10:13,13,14,15 10:22,24 11:3 11:6,7,8,13,14 12:2,4 13:2,5,8 14:6,13 16:10 16:12,21 17:15 18:1 20:6,15 22:22 25:2 26:14,14,15 27:21 28:3,4 30:2 31:11,17 33:12,21 40:19 42:5,6 44:21 44:22,23 45:1 45:5,10,15 47:1 49:23 50:6,8,16 51:8 52:24 53:10 54:11,18 55:8 55:10,16 65:12 65:13,14,19 71:22 79:7,11 79:20,21 83:5 87:16,21 88:3 97:25 98:1,9 98:12 104:7 109:23 110:19 110:24 116:10 117:1,1,3,9	pasture 30:1,10 53:10
object 59:1 63:19 66:16 92:11 96:3 102:17		optimum 11:4	paper 10:5	path 17:9,18 19:13
objected 66:9		orange 80:7		patterns 28:10
objection 62:19 66:21 78:2		order 16:20 52:8 52:23 54:1,2 57:14 79:7 86:3 87:16 88:2 95:14 106:5		PAUL 1:18
objective 6:4 7:10 43:1		ordinance 19:3 52:13,17 53:2 53:4		pave 18:24
objectives 42:21		orientation 22:14		paved 16:24 18:5 19:5 55:20
Objectors 2:9,12 117:8		originally 19:20		paving 56:8
obligation 59:10		outbound 38:7		peak 32:20,22
observation 100:9		outside 32:13 51:10 65:22 82:3,4 114:14		pen 83:18
observe 15:25 103:25		outward 28:6		penetrated 99:21
observed 100:12 103:12		overruled 62:19		Penn 75:7,13 76:15
observing 85:18 105:17		oversee 89:20		people 57:3
obviously 15:12 16:20 20:10 27:21 31:19 46:19 74:1 80:21 113:22		overview 6:4		people's 105:1
occasion 98:18		P		percent 27:2,9,9 27:10,10 40:11 55:24,24 108:17
occur 52:6 74:18 100:5		P 2:1,1		performed 73:3 73:5,6 83:21 115:22

perimeters 53:20	pinpoint 70:16	58:19,25 63:9	possible 116:13	37:22 40:14
period 60:7 61:5 61:17	pipe 15:4,7 96:14 100:4 101:23 104:10	64:10,12,13,14 65:14 66:2 67:2,4,11 71:13,17 74:3 74:13 82:22,24 96:4 110:25 112:8,17,21,22 113:4,13,17	post 10:1 54:15 81:23 87:12,19 88:12 91:23 96:9 98:15 99:7,11,12 100:11 101:6	116:2 Preston 26:4,18 26:18 41:4,4 43:25 44:20 47:6 49:6
permeability 73:5	pipes 15:6,7 106:21	74:13 82:22,24 96:4 110:25 112:8,17,21,22 113:4,13,17	100:11 101:6	presume 90:24 90:25 91:2,8 91:12,13 99:7 99:8 102:1
permission 19:21	pit 7:21 82:19 82:20 83:3,16 83:20,23,25 86:8,16,22,22 99:7 102:1 103:10,15,16 103:18,22,25	plant 2:9 34:4 39:20,22 53:16	posts 7:18 8:18 8:18,23 9:1,5,7 9:8,11,22,23 10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	presumed 92:2 presuming 91:6 91:19
permit 20:2,3 112:22	place 6:1 88:2 119:7	planted 29:25 31:21 39:6 53:21	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	presumption 92:4
permits 19:16 56:20	placed 10:10,12 29:24 101:1	planting 54:20	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	pretty 36:14
person 26:23 41:20,25 43:16 43:17 44:7 45:4,8 51:10 51:19,20 69:14 98:25	plain 6:20 110:1	plantings 39:4	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	prevent 87:16
personally 35:15 36:8 97:20	plains 17:17	please 59:6 113:18	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	previous 38:16 70:13 71:10
perspective 19:10 26:23 37:2 52:3 110:7,9	plan 3:13 7:2,24 9:8 11:1 14:22 14:24 25:6,8 26:11 28:22 30:2 31:24,25 32:25 33:12,22 33:22 34:8,15 35:18 40:2 43:6 50:5 52:8 53:20,25 55:17 59:12 64:15,20 64:24 65:3,5,6 66:5 68:15,20 69:10,11 72:2 72:2 73:7,9,11 74:9,16 79:9 82:19 83:17 107:19 108:23 109:19 112:7	Pledge 4:1	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	previously 5:19 5:23 70:4
perspectives 59:14	plain 6:20 110:1	plenty 40:11	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	primarily 32:2 47:10 52:10,15 75:7
phasing 74:3,9 74:13,16,25 75:2	plains 17:17	pliable 99:23	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	prime 108:14,14 108:18,25 109:10,15,20 109:24 110:3
phone 1:24	plan 3:13 7:2,24 9:8 11:1 14:22 14:24 25:6,8 26:11 28:22 30:2 31:24,25 32:25 33:12,22 33:22 34:8,15 35:18 40:2 43:6 50:5 52:8 53:20,25 55:17 59:12 64:15,20 64:24 65:3,5,6 66:5 68:15,20 69:10,11 72:2 72:2 73:7,9,11 74:9,16 79:9 82:19 83:17 107:19 108:23 109:19 112:7	plug 81:12	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	prior 59:9
phones 57:2,25	planned 10:10,12 29:24 101:1	plus 37:9,10	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	probably 36:2 63:1
photo 36:4	plains 17:17	point 13:1 14:4 14:16 15:2 30:11,19 33:8 34:19,20 35:16 35:24 42:19 44:1 54:9 60:21 67:22,23 68:1 71:14 72:4 87:8,8 94:7,8 113:23 116:6	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	problem 72:19 97:20 104:22 116:18
pick 4:11 5:21 17:23	plains 17:17	pointed 19:10 87:1	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	proceed 62:5
picture 43:9 48:11 94:25	planned 10:10,12 29:24 101:1	pointer 14:25 31:5 43:23	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	PROCEEDIN... 1:6
piece 10:5 13:16 14:8 88:15,16 90:7,8	plains 17:17	pointing 14:4 17:13 24:1 27:6 44:17,25	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	process 43:5 62:8 74:24 118:9
piers 96:5	planned 10:10,12 29:24 101:1	pond 65:9,10,23 65:23	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	product 53:14 75:16
pile 86:13 87:3,9 95:16,18,19,23 96:5 99:25 102:8 116:23	planned 10:10,12 29:24 101:1	pop 46:13	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	proffer 59:5
piled 93:2	planned 10:10,12 29:24 101:1	portion 6:14 38:7 44:24 107:21	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	profile 3:14,15 9:16 14:6 25:16,18 26:2 26:2 41:2 49:17,20 51:1
piles 54:7,25 65:23 72:18 89:1 99:17	plans 10:3,23 11:6 33:4,9 39:4 41:9 53:8	portions 72:23	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	profiles 37:4
piling 89:23		positions 118:10	10:9,11 11:13 12:1,2 21:4,5 54:7,8 79:6,6 79:13,21,23 81:2,8,13 86:12 87:15 88:3,8,11,25 89:4,7,8,10,15 94:4 95:14 97:8,12,16 98:19 99:18,18 100:18,18,20 101:9 116:9 118:1	

program 43:3 54:18	8:15 10:19 11:14 14:17	25:10,13 34:7 38:11 54:13	16:13 54:14 87:19 88:3	refusal 84:1,22 84:24 85:5,10
progress 34:10	16:14,17 17:1	79:12 86:12	racks 10:2	85:14 86:9,16
project 1:5 7:22 9:20 20:10,11 22:20,21 54:20 82:16 89:21 99:18	17:5,17,19 19:6 20:8 22:3 22:16,25 30:1 30:1,3 41:12 52:6 53:9 55:11 95:18,19 109:14	97:20 100:5 p.m 1:10 57:20 57:21 115:3,5 118:24	raise 62:15 ram 88:24 rams 88:24 random 100:2 range 23:15,16 29:3 30:21 32:20,21 40:13	86:23 89:13 90:7 91:1,9,13 92:24 94:18 refused 85:19 regain 57:24 regarding 63:15 74:3 109:3,5
projects 97:19	protect 24:12 113:11	question 18:8,17 18:18 28:15 29:8 31:3 33:7 34:10,23 37:2 38:4 39:3 57:6 61:20 62:14,14 62:18,20 63:4 63:7,8 66:23 67:9 76:13 78:4,24 79:1 81:1,7,11,17 81:21 82:5,12 83:10,17 88:4 88:9 90:2,25 92:3,14,15,20 96:16 99:15,20 101:8,22 107:14 115:10 116:22 117:23	ranges 38:19 ratio 18:13 55:13,13 ratios 18:21 reached 76:4 87:12 read 8:10 63:5,6 63:7 79:19 ready 4:4 61:4 realistic 36:3 really 4:4 6:6 37:16 60:22 73:10 88:4 94:18 101:19 113:25 117:24 rear 17:1 47:1,3 47:13 reason 19:12,20 29:8 recall 63:17 66:12,14,19 recap 6:7 received 8:4 22:11 25:9,19 49:18 56:23 recognizes 64:4 reconcile 114:7 record 57:21 118:14 rectangle 6:10 red 77:8,14 78:11 reduced 83:1 refer 109:22 112:3 reference 88:18 referring 22:17 52:19 71:9,11 82:16	regardless 117:14 region 75:9 78:19 regrading 52:1 regulate 52:14 52:15 regulated 110:3 112:23 113:6 relandscaped 30:9 relate 61:12 related 16:19 relationship 43:10 relative 119:10 119:12 relatively 9:2 76:25 84:14,19 85:23 100:10 relay 8:13 relevance 59:2 62:19 86:11 relevant 59:4 62:25 relied 71:22,25 relief 55:9 rely 71:17 remain 5:20 remind 57:24 remotely 21:18 removal 52:9 removed 22:24 29:21 52:11,16 52:24 53:1 55:12 Rendering 7:2 rendition 34:12 repeated 11:22
properties 23:20 78:18 97:19 105:5	protected 35:20 prove 38:25 provide 75:2 81:1 97:6 113:5 117:19 provided 116:16 providing 74:6 proximity 83:4 public 6:2 58:20 119:3 purple 24:5 39:9 purpose 73:3 purposes 5:15 40:3 113:21 pursue 20:5 put 8:1,17 10:24 11:12 15:5,16 17:20 21:4 25:4 26:22 29:16,17,19 30:17 31:6,8 31:23 35:12 36:10 38:14,18 39:4 40:19 48:17 49:16 54:3,6,15,18 72:13 79:8 83:2,2 93:22 94:4 96:6,9 97:11,15,16 99:6,11,12,16 101:6 108:5,5 113:7,9,10 116:16,21 117:22 putting 7:13 19:18 20:23	qualify 59:18,20 quality 24:9,20 question 18:8,17 18:18 28:15 29:8 31:3 33:7 34:10,23 37:2 38:4 39:3 57:6 61:20 62:14,14 62:18,20 63:4 63:7,8 66:23 67:9 76:13 78:4,24 79:1 81:1,7,11,17 81:21 82:5,12 83:10,17 88:4 88:9 90:2,25 92:3,14,15,20 96:16 99:15,20 101:8,22 107:14 115:10 116:22 117:23 questioning 61:19 95:4 questions 48:11 57:14,19 67:8 72:18 73:16 95:9 118:14,19 quick 6:4,7 19:8 28:2,15 quickly 45:21 118:12 quite 59:3 114:11	Q qualify 59:18,20 quality 24:9,20 question 18:8,17 18:18 28:15 29:8 31:3 33:7 34:10,23 37:2 38:4 39:3 57:6 61:20 62:14,14 62:18,20 63:4 63:7,8 66:23 67:9 76:13 78:4,24 79:1 81:1,7,11,17 81:21 82:5,12 83:10,17 88:4 88:9 90:2,25 92:3,14,15,20 96:16 99:15,20 101:8,22 107:14 115:10 116:22 117:23 questioning 61:19 95:4 questions 48:11 57:14,19 67:8 72:18 73:16 95:9 118:14,19 quick 6:4,7 19:8 28:2,15 quickly 45:21 118:12 quite 59:3 114:11	refusal 84:1,22 84:24 85:5,10 85:14 86:9,16 86:23 89:13 90:7 91:1,9,13 92:24 94:18 refused 85:19 regain 57:24 regarding 63:15 74:3 109:3,5 regardless 117:14 region 75:9 78:19 regrading 52:1 regulate 52:14 52:15 regulated 110:3 112:23 113:6 relandscaped 30:9 relate 61:12 related 16:19 relationship 43:10 relative 119:10 119:12 relatively 9:2 76:25 84:14,19 85:23 100:10 relay 8:13 relevance 59:2 62:19 86:11 relevant 59:4 62:25 relied 71:22,25 relief 55:9 rely 71:17 remain 5:20 remind 57:24 remotely 21:18 removal 52:9 removed 22:24 29:21 52:11,16 52:24 53:1 55:12 Rendering 7:2 rendition 34:12 repeated 11:22
property 6:5,7,9 6:12,15 12:21 12:25 13:6,8 14:2,9 15:17 16:1 17:4,8,19 21:10,11,18 22:6,17 26:6 32:4 36:19 44:19,24 46:3 47:2,3,13,20 47:23 49:3,22 55:9 56:23 65:9 66:7 67:15,16 69:21 82:1,3,4 83:11 97:2 102:19 105:14 107:18 107:21	property's 6:10 proposal 8:21 18:12 69:21 97:18 propose 43:5 proposed 6:6 7:2 7:5,7,11,15,24 9:5,7 10:25 16:21 18:4 20:15 22:2,5 22:22 23:11 28:5,21 49:3 49:13 50:4,5,7 55:7,10 65:12 65:14 67:6 72:8 75:6 79:11,23 96:24 110:20 proposing 7:16	R R 2:1,8 5:23 119:1 rack 10:8 racking 7:18 8:19 9:24,24 10:11 11:2,13	rear 17:1 47:1,3 47:13 reason 19:12,20 29:8 recall 63:17 66:12,14,19 recap 6:7 received 8:4 22:11 25:9,19 49:18 56:23 recognizes 64:4 reconcile 114:7 record 57:21 118:14 rectangle 6:10 red 77:8,14 78:11 reduced 83:1 refer 109:22 112:3 reference 88:18 referring 22:17 52:19 71:9,11 82:16	property 6:5,7,9 6:12,15 12:21 12:25 13:6,8 14:2,9 15:17 16:1 17:4,8,19 21:10,11,18 22:6,17 26:6 32:4 36:19 44:19,24 46:3 47:2,3,13,20 47:23 49:3,22 55:9 56:23 65:9 66:7 67:15,16 69:21 82:1,3,4 83:11 97:2 102:19 105:14 107:18 107:21 property's 6:10 proposal 8:21 18:12 69:21 97:18 propose 43:5 proposed 6:6 7:2 7:5,7,11,15,24 9:5,7 10:25 16:21 18:4 20:15 22:2,5 22:22 23:11 28:5,21 49:3 49:13 50:4,5,7 55:7,10 65:12 65:14 67:6 72:8 75:6 79:11,23 96:24 110:20 proposing 7:16

repeating 90:20	respect 31:24,25	24:25,25 25:3	S 2:1 3:9	seasonal 72:22
replaced 53:5	respond 82:7,8	26:5,7,8,8	Sabina 2:12	104:21,21
replanted 31:18	responsible	27:13 31:15	safe 71:6	105:5
report 70:21	69:14	32:7 33:14	safely 88:2	second 4:19,23
80:23 81:15,16	restabilization	34:15,17,25	sandier 100:1	5:10 6:3 26:15
82:17 93:11	54:10	35:4 36:9	Sanofi 14:19	44:6,10,12,23
103:7	result 85:5	39:10,10 42:19	15:3,10 66:3	45:5,19 47:25
reporter 1:20	results 104:1	42:20 44:3	66:11 67:7,15	47:25 48:6
63:8 119:4	reuse 17:20	45:21,24 46:7	68:2,6 69:4,8	50:13 83:4
Reporters 1:23	19:20	46:7,9,23,23	69:19,23	90:11
REPORTING	reused 19:12	50:8,11 51:4	Sasso 2:11 51:18	Secretary 1:17
1:23	revision 8:7	56:12 63:23	57:8,11,12,15	5:7,9,16 64:9
reports 73:23	revisions 108:23	81:9 112:17,17	58:3,6 60:19	114:21,25
represent 35:21	re-organization	112:19,20,23	62:6 66:9	section 8:10
44:22 45:1	115:2,3	112:24	116:5,7,18,25	24:8 27:1,3
52:2 55:19	re-sculpting	roads 18:19,20	117:6,12,17	28:1 31:4 35:6
representation	23:21	34:13 35:20,24	118:4	35:11 40:24
7:4 37:18	re-seeding 54:10	36:13 67:7	Sasso's 118:3	41:1,2 44:4
67:14	RICHARD 2:11	Rob 24:15 25:4	saw 101:3,5	45:18,20 46:18
represented	right 4:3,19 5:1	71:4 81:1 82:7	saying 45:3	47:6 48:17
109:1	6:8,11,13	Robert 25:13	51:21 60:10,14	49:16,21 50:17
represents 52:4	10:18,25 16:16	Rob's 25:10	60:16,20 61:9	51:6 56:8 65:9
55:17	17:14 22:23	81:15	74:12 85:14	80:5
request 63:13	26:1,14,24	rock 90:9	101:14 117:12	sections 17:13
116:8 117:21	27:4 28:22	RODELIUS	says 60:6 63:19	23:2 24:23
require 53:5,17	29:20 31:5,13	1:14 118:20	87:15 88:6	25:4,23,23
required 55:13	32:17 35:2	rolling 27:13	112:7	40:18 46:20
56:7,9,18,22	37:20 41:21	39:13	SA55 1:4	75:17
59:16 60:25	43:23 44:1,15	Ron 37:1 117:12	scale 7:3 22:13	secure 88:2
68:22 74:9	44:16,21,25	117:12,14,15	25:24,25,25	see 5:1 6:2,2,11
requirements	45:1 51:22,23	RONALD 3:4	26:1 37:5,11	7:6,24 8:9
19:2 73:7	58:14 67:11	room 37:25	37:21,23 50:6	10:20 11:5,11
97:23	68:7 70:11,12	ROSA 119:3,15	scales 37:6	16:14 21:5
resculpt 24:11	71:2 80:21	rotate 16:12,15	scape 42:22	23:10,12,17
resculpting	82:22 83:4,16	rotator 16:15	scenario 46:17	24:7,24 25:20
27:19	83:18 91:5,20	round 107:1	102:6	25:21 26:12,13
reseed 54:19	97:13,14,15	Route 14:19	scenic 33:16	26:20,21 27:6
reseeded 31:18	99:20 104:4	row 26:24 36:19	schedules 4:18	27:12,19 28:4
reshaping 46:25	111:5,7 115:19	RPR 119:15	scheduling 4:13	28:19,19,20
residence 47:12	116:24	rubber 84:5,15	Schletter 96:25	34:11,16,21,24
residences 47:5	right-hand	84:17 85:24	97:25	35:6,7,7,10,11
49:25 50:2	43:21	rule 62:19 66:20	School 1:9	35:12,16,18,24
resident 50:2	rip 76:23 90:5	run 77:22,23	scientist 109:2	36:11,13,16,16
residential 41:16	riparian 6:20	runoff 23:6	Scratch 107:5	36:17 37:21,25
47:22 105:4	19:15 56:21	81:16	screening 28:14	38:2 41:4 42:4
residential/co...	road 1:5,9 6:11	runs 78:9	36:20	42:6,20,23
54:21	6:15,15 14:18	R10 55:14	sculpt 28:11	43:25 45:13,14
residents 26:18	15:5 16:22,23	_____	36:21	46:20 47:11
41:12	19:9 20:7,8	_____	sculpting 35:1	48:11,18 50:1
		S		

50:3,3,4,15,21 51:6 54:2 61:17 64:3 70:22 76:3 77:15 79:18 83:25 94:3 97:20 101:12 101:14,16,16 101:17,22 115:23,25 116:17 117:25 seed 53:9,14,15 53:22 54:20 55:1 seeded 31:17 seeding 54:12,18 seeing 30:23 36:25 42:4 89:22 100:9 seen 18:14 28:6 29:2 77:13 78:17 88:17 93:1 100:13,15 100:23,25 101:1,8,19 105:13,16 seepage 77:17 semantics 23:23 send 15:9 sense 68:24 separate 106:24 septic 77:6 84:16 85:25 sequence 54:15 74:19 series 11:10 12:15 15:6 46:20 56:9,13 SERVICE 1:23 set 11:7,8 33:13 34:24 44:21,22 44:23 45:5 79:18,20 80:3 80:4 109:19,21 119:8 setback 18:2 setbacks 55:6,7 55:9 sets 45:9	seven 12:10,21 13:25 17:7 46:20 72:15 111:6,11,12 shading 6:18 11:9 shale 29:7 75:9,9 75:15,16,18 76:15,17 77:8 77:10,13,14,15 77:19,19 78:6 78:10,11,11,13 78:16,20,21,21 79:2 81:3 84:18,20,25 85:2,3,4,5,15 85:16 86:14,17 89:2,16,23,25 90:5,9 91:18 93:15,16,20 95:3,15,17,21 95:24 96:6,18 97:8,12,17 98:15,19 99:9 99:20,21,22 100:16 101:3,7 101:9,10,10 116:23 118:1 shale's 76:23 shallow 84:19 93:13,14 shape 8:24,24 shapes 28:11 sharp 27:5 sheet 6:8 8:7,9 10:1,17 12:13 12:14 41:3 43:21 44:2 82:25 113:17 sheets 67:12 shield 33:6,12 45:9 shielded 44:8 45:5 shielding 25:1 shore 105:9 shorter 51:9 Shorthand 1:20 1:23 119:4	shoulders 19:6 show 10:3 14:22 14:24 22:15 23:18 26:3,19 33:21 41:20 43:9,15,18 46:13 48:7,17 49:14 50:12,14 51:11,14 53:20 60:25 63:18,21 63:25 64:3,6 66:3 67:2,13 67:14,16,17 68:9,15 82:20 83:23 107:22 108:24 112:19 113:3,13 showed 68:13,20 108:23 showing 11:7 49:7 69:10 shown 6:21 8:11 9:25 11:1,18 11:22,23 12:10 12:11,13,25 13:1,5,14,18 14:6,20 15:3 33:11 34:8 41:9,10 45:17 53:8,25 67:3 88:6 shows 7:5 38:2 49:9 51:24 66:6 69:10 side 6:12,12,13 6:13 12:14 13:2,4,5,7,12 13:13 14:19 16:17 17:13,14 17:15,24 18:1 20:2,14,14 21:10,11 22:19 22:21 23:2,4,8 23:9,17 24:1 41:3,10,14 42:8 43:21 44:24 47:5 49:1 50:2 51:14 52:10	83:19,19 98:9 98:10 sides 39:11 side-view 9:25 11:18 sight 41:20 45:8 45:15 47:4,25 48:6,15,25 49:1,2,5,9,19 50:1,11,12,14 56:11 sight-line 3:13 3:14,15 25:6,8 25:16,18 49:17 significance 109:10,10,16 significant 94:13 108:25 109:24 110:3 similar 10:5 39:19 70:2 100:10 101:2 105:2 Similarly 59:20 simple 11:21 55:5 simplification 110:1 simulation 36:5 sir 72:6 sit 7:24 9:3 site 7:2,14,15 10:25 13:25 14:4,19,19 15:3,11 16:19 18:20 19:11 20:13,13 22:3 25:24 28:23,24 31:25 32:1,14 32:17 33:10 35:17,22 36:8 36:14 38:6 39:1 51:17 53:6 66:5 67:13,24 68:2 68:6 69:6,7,11 69:23 70:2,3 72:23 74:18,23 75:4,6 76:14	76:16 78:18 79:9,14 88:13 93:13,21,23 94:3,6,14 104:14 105:24 108:13,17 109:19 sites 16:15 88:17 98:20,21 sitting 37:22 80:21 six 12:11 37:16 37:19 72:15 91:25 93:15,19 111:11 size 10:14,17,18 11:16 12:12 13:14 83:1 88:18 111:13 sized 10:24 skip 108:11,11 skipping 110:4 sleeve 107:1 slightly 59:9 slope 26:13,13 27:1,3,7,8 28:2 28:8,8 29:17 32:8 41:1,7 46:5 sloped 32:8 slopes 6:19 39:12 45:24 46:5 small 9:2 16:25 17:9,25 21:23 24:9 77:3 84:5 84:14 100:10 smaller 10:17 100:21 112:14 smallest 9:16 soil 9:20 28:16 29:18,23 31:10 31:14 32:13 38:10,16,23 42:13 54:3,6 56:19 70:5,7,9 70:13,15,17,17 70:21,22 72:4 72:5,7,15,24
---	---	---	---	--

73:1,2 74:9,13 74:14,16 75:7 75:23 76:1,6 77:5 80:17 87:23 88:6 90:9 94:19 101:10,13,17 102:22 105:17 105:18,19,23 107:18,22 108:24 113:6,8 115:11,22 soils 69:21,22 70:2 75:3,6,24 76:8,8,10,11 77:2,24 84:15 84:18 85:23 100:1,2,10 101:3,3,6 102:21 107:12 108:8,12,13,14 108:15,18 109:5,9,11,21 soil's 75:15 solar 1:4,5 4:4,8 7:5,8,12,13,19 7:22 8:17 10:13 54:24 55:16 59:21 60:7 61:4 68:16,25 69:7 71:22 82:16 109:12 solid 41:12 solidified 101:7 somebody 34:21 99:13 111:5 Somerset 2:9 52:22 Somerville 1:9 somewhat 94:16 sorry 17:13 18:16 51:18 57:22 107:5 sort 4:10 62:2,11 114:7 sought 56:23 sound 108:6 sounds 62:20	south 11:5 24:1 25:4 44:2 51:4 southeast 23:8 32:3 79:20 80:5 southeastern 109:19 southerly 17:10 46:9 southern 83:19 space 28:13 40:15 speaking 105:22 109:9 specific 93:25 117:23 specification 117:25 specifications 97:7 116:23 117:2 specifics 110:2 116:20 specs 116:8,10 117:1,14,15 speculate 90:16 speculated 90:16 speed 21:22 spend 24:10,13 24:22 48:7,16 spent 40:2 61:14 spoke 6:16 75:24 square 21:2,2 stability 97:22 stabilizer 55:1 stabilizing 54:12 stakes 35:12,17 stand 36:9,13 45:13 46:7 standard 87:15 96:16 standards 19:3 standing 43:16 43:17,22 44:7 45:4 51:10 110:16 standpoint 40:9 40:10 110:10	110:11 start 7:10 26:20 26:21 62:9 76:11 99:3 started 32:15 44:18 45:21 starting 26:12 39:5 state 17:2 59:16 61:11 105:7 119:4 stated 10:23 34:15 56:7 112:8 statement 33:13 93:11 108:21 statewide 109:10,16 stating 33:24 station 21:19 67:23 statute 60:6 steadiness 62:3 steel 8:21 95:19 96:13 97:3 101:1 steep 6:19 steeper 26:13 37:16 steepest 40:10 stenographica... 119:7 Steve 2:12 STEWART 1:15 stick 103:15 111:9 sticks 36:1 stockpile 31:7 stone 113:10,11 stop 2:9 90:6 stopped 4:8 5:20 32:16 84:7 stops 45:19,20 storms 87:17 stormwater 24:14,19 55:3 56:13 70:21 72:8 73:4,7,8	73:11,15,23 81:5,15 82:16 105:25 107:9 108:12 110:4 110:10,12,14 115:13 story 48:1 straight 6:10 STRAKHOV 1:13 39:2,17 39:20 40:1,4 stream 56:10 street 56:6 streetscape 34:2 stretch 45:15 structural 87:15 87:21 97:23 structure 21:24 22:4 49:3 55:11 76:24 87:12 studied 69:13 studies 71:14 studying 69:15 stuff 115:11 submission 63:4 submit 72:14 submitted 8:8 33:9 38:17 53:8,14 58:19 58:25 62:16 63:10,14 64:10 64:17,20 67:12 70:5 71:17 72:10 73:24 74:13,15 102:23 103:6 110:25 111:3 112:18,21,22 115:23 subsurface 69:17,24 81:14 82:1 suggested 56:15 suggesting 92:22 sun 11:3,4,9,9 21:21 supplement 41:11,15	supplementing 38:10 support 7:18 8:18 12:1 supposed 96:1 sure 5:25 6:1 19:12,22 21:21 36:4,4 61:21 70:9 78:14 84:13 85:6,18 90:17 95:4 97:9 98:17 111:23 116:15 116:18 118:13 118:14 surface 9:13 18:10 29:14 75:18,19,20 79:25 80:1 81:16 84:7,9 85:1,2 91:23 92:1 95:15 96:14 99:8 100:5,20,21 101:13,16,24 102:3 103:3 survey 71:20 107:22 surveyor 36:1 swale 23:5,6,10 swales 24:8 switchgear 7:21 12:24,25 13:11 14:1,15 15:1 18:3 49:3,6,10 66:7 106:13 sworn 5:19,24 system 8:19 9:21 9:24,24 10:11 11:2,2,13 15:5 15:22,22 16:8 16:13,14 20:7 54:14 77:6 84:16 88:3 96:24 97:22,23 98:8 systems 7:18 25:3 85:25 87:19 106:1
--	--	---	--	---

S-c-h-l-e-t-t-e-r 96:25	technically 5:9	18:22 32:11	115:17,21,24	35:14 39:11
<hr/>	tell 58:17 64:13	56:25 57:3,10	115:25 116:4	41:7,8,8 42:2,4
T	70:12,16,18	58:6,13 73:17	117:7,19	42:10 43:22,23
T 2:6 3:9 119:1	76:3 80:17	79:2 82:9,13	thinking 31:13	44:9,9 45:9
119:1	83:6 84:10	83:14 95:9,11	thinner 100:20	46:11 49:10
table 72:22	87:22 105:8,22	110:17 116:7	third 60:10	75:10 99:15
104:22 105:5	107:20 109:8	118:7,15,22	Third-party	112:4,4 113:2
tables 10:2	109:17	they'd 10:6 54:8	56:18	113:10,14
tag 58:10 61:1	temperature	thin 29:16 52:13	THOMAS 2:3	topic 59:9
take 11:25 15:9	21:22	77:1 93:17	thought 70:19	topo 46:2
22:19 23:6	ten 57:7	thing 13:23	94:16 111:16	topography
25:23 26:2	term 90:10	20:12 25:15	three 13:12	32:25 46:4,12
27:3 29:17	94:19	29:23 42:20,24	24:18 27:2,7	71:20,24
30:15 31:6,7	Terrace 26:4	46:6 53:23	96:21	tops 50:15
31:22 34:15	41:4 43:25	54:22 74:8	three-to-one	topsoil 28:25
44:6 49:12	52:22	116:19	28:2 40:25	29:10,24 30:14
50:12,13 55:3	terrain 27:13	things 8:10	41:7	30:17,24 31:2
55:21 57:6	test 29:2 59:13	16:17 19:7	Thursday 1:8	31:7,10,23
59:23 88:2	77:6 82:19,20	37:15,19 39:5	5:10	32:13 38:6,11
89:10 99:12,16	83:3,16,20,23	49:13 55:5	tight 104:23,24	38:19,21,23,24
99:19 110:13	83:25 85:9	71:5,19 76:12	till 29:10 62:11	75:11,21
114:3,16	86:8,16,21,22	94:21 95:2	tilled 31:15,21	total 11:14
taken 26:4,5	90:13 99:7	98:9 100:17	time 5:22 24:10	12:10 13:6
46:21 57:20	102:1 103:5,10	115:14 116:11	24:13,22 37:5	19:9 21:9 53:3
82:20 87:7	103:15,15,18	think 4:9,18,23	48:7 60:10	55:24
92:13 119:6	103:22,25	6:22,24 14:11	63:24 72:4	totally 28:12
takes 14:2 26:8	testified 61:15	15:21 20:3,4	76:9 87:7	60:5
97:22 99:6	61:17 74:3	35:15 36:7,23	90:20 92:10	touch 19:25
talk 7:19 8:16	93:1 102:17	38:17 41:3,7	108:1 111:9	21:16 55:2
19:17,24 23:22	107:4 112:6	41:19 42:15	113:20 117:21	touched 109:13
24:17 25:11,11	testifies 5:24	48:9,14,22	118:13 119:7	town 108:24
25:12 29:12	testify 61:13	54:7 57:5,23	times 37:16	114:23
74:25 76:10	63:22 73:10,15	59:3,8 60:9,11	timing 9:18	township 1:1,9
98:4,8 103:14	81:18 98:6	61:23 62:3,6	tip 27:10 101:23	15:16 40:12
115:13	109:3	62:13,17,17,21	tire 84:5,15,17	56:11 76:9
talked 20:19	testifying 4:9	63:5 67:12	tired 85:24	77:24
53:21 56:16	78:2 107:9,11	71:6 72:12,14	today 18:7 35:5	to-do 108:5
62:2,4	testimony 38:5	72:15 74:23,24	35:10 39:19	to-do-list 72:13
talking 7:12	58:3 61:24,24	82:6 85:8	40:17 46:24	track 8:25
24:14 31:12	62:12 66:17	86:25 92:7,9	106:16	track-mounted
32:1,7 42:12	75:25 76:1	92:10 93:23	told 48:23 72:11	88:12
44:11,14 46:19	119:6	94:23,25 95:1	tolerate 94:7	tract 52:10
77:18,18 80:3	testing 70:14,15	95:6 99:1	Tom 22:8 25:5	traditional
98:11 100:19	76:6 84:16	103:23 104:9	tonight 24:13	26:17 29:9
118:3	85:25 86:5	107:4,23,25	37:22 58:5,15	transcript 1:3
tall 43:16 45:4	tests 30:20 38:16	112:9 113:15	71:7 118:21	119:6
team 58:11	38:19 83:11	113:21,23	top 10:12 11:13	transfer 43:19
technical 76:12	85:12 115:22	114:1,2,3,5,6,6	27:25 28:1	transformer
	thank 9:14	114:12 115:16	31:9 33:14	12:16 13:18

17:10 111:21 112:5,12,15 transformers 7:20 12:20,22 12:23 13:7,10 13:22 14:3 111:8 transition 5:22 transmitted 69:3 Transportation 15:14 trays 12:4 tree 26:23 52:9 52:12,13,16,17 52:21 53:3 trees 34:6 35:7 39:15,16,25 40:15,21 42:23 47:7 52:13,14 52:15,23,25 53:3,4,5 tremendous 85:22 trench 106:6,8 106:20 trenched 13:9 13:10 trenches 106:10 trenching 54:16 triangle 56:11 tried 26:9 Trina 1:17 114:19 true 61:10 74:17 96:1 105:3 119:5 try 8:13 14:24 24:12 25:23 27:20 33:19 38:18 40:8 48:10 62:11 63:2 93:7 118:12 trying 5:2 27:8 27:17,22,23 28:7 34:3,5 40:7,16 49:12 52:3 70:20	81:22,25 83:9 83:10 90:5 93:3 94:5,10 94:22 117:5 turn 32:4 57:1 57:25 twice 78:24 79:1 two 10:9 15:7 17:12 21:20 23:2 24:18 25:3 30:4 32:3 46:22 61:14 67:8 96:21 100:17 111:12 112:15 twofold 42:16 type 16:5,7 21:6 21:17,19 36:1 47:7,20 51:1 53:11,22 77:19 78:6 84:25 85:2 88:1,1 90:12 96:17,24 97:2 100:23 101:2,8 types 72:4 75:23 76:1 79:2 98:21,22 101:6 107:18 108:24 109:6 typical 40:25 41:5 75:8 typically 11:11 21:5 27:7,19 85:19	67:14 70:11,16 94:5 109:21 112:24 113:1 understand 7:16 35:17 38:9 51:12 66:25 73:12 81:25 82:11 83:9 87:6,8 92:23 93:3,5 94:1,11 94:25 95:1,5 96:8 99:15 117:4,5,21 118:2,6 understanding 8:14 understands 76:24 unfair 93:24 uniform 28:12 100:1 unpredictable 99:23 unrippable 76:17,20 86:18 86:20 89:25 90:1 93:16,16 93:20 untouched 109:11 uphill 45:22 upland 110:2 uplift 97:22 uplifting 87:17 upper 6:8 use 1:1 8:8 17:2 17:3,4,17 19:13 21:6 28:9,10 36:20 55:6,7 59:19 59:21,25 60:1 60:6,7,21 61:1 61:8 63:14,15 68:24 74:22 84:17,22 85:24 97:25 useful 115:25 uses 40:12 88:5 usually 51:9	Utilities 58:20 <hr/> V <hr/> V 8:24 variables 21:23 varied 98:20 106:10,15 various 6:17,18 7:14 vary 10:7 28:11 vegetation 39:11 39:14 vehicle 43:22 44:3 51:9 vehicles 51:3 veins 78:9 versa 42:8 versus 31:2 vertical 37:6,11 77:17 vertically 37:19 37:24 Vice 42:8 view 10:5 26:11 31:24,25 33:6 35:8 36:3 41:16 43:10 44:9 45:7 48:18 51:1,7 51:19 55:17 views 32:9 viewshed 25:2 35:8 viewsheds 24:12 visible 46:23,25 vision 79:19 visual 110:7 visualize 37:3 visually 15:25 37:15 voltage 16:7 <hr/> W <hr/> W 1:18 waiver 19:5 56:7 waivers 18:24 walk 7:14 9:3 16:19 108:8 wall 34:6 35:8,9 36:17 40:15	42:24 wall's 35:9 want 5:25 14:23 16:19 19:11,25 24:22 30:5 33:3,18,20 36:17 40:18,22 48:7,12 49:23 50:10 53:15 55:4 57:8 58:11 65:8 66:25 67:1,9 67:11 79:17 90:15,17 92:19 95:11 99:5 107:20,22 108:8 110:2 111:6,22 112:3 116:1,17 117:24 118:12 wanted 35:6 117:24 wants 18:6 35:12 47:18 warm 114:12,12 114:13,14 wasn't 36:18 60:8 84:10,25 116:15 waste 90:20 wasting 63:24 92:10 water 24:9,20 72:22 77:17,17 81:8,8,13,22 81:22 96:23 104:21,22,23 104:24 105:5,7 105:11,12,14 waters 65:22 way 4:18 6:12 11:12 26:5 33:9,23 34:4 35:7 36:25 38:14 41:20 43:7,21,24 46:12 50:7 54:20,23 69:12 72:5 75:14
--	---	---	--	--

77:22 115:12	52:2,6 53:9	44:11,14,17	68:18 111:16	112:9,14
weather 21:19	55:11 58:3,6	45:7,17 46:1	<hr/> X <hr/>	12-foot 17:21
21:21	60:12 63:23	46:18 47:9,17	X 1:7 3:1,9 10:6	30:21 49:4,10
weigh 61:22	69:10 73:13	48:2,5,14,25	35:13	12-foot-6 14:8,9
weight 113:7	87:2,2,4 91:19	50:20,23 51:13	<hr/> Y <hr/>	12-inch 31:9
went 6:17,18	92:10 94:15	51:21 52:20	Y 5:23	12-percent
44:19 64:21,25	95:18,19 98:25	56:3 62:20,23	yards 32:18	40:13
65:1,3,5,7	99:7,11 100:19	67:20 71:7	yeah 4:12,17 5:4	12-015 1:4
100:14	102:25 105:13	81:7,15,20	48:24 78:8	13 64:16
west 13:4,5,7,12	109:14 113:19	82:6,11 83:14	84:12 111:25	13A 56:8
17:14,24 20:14	114:23 116:2,2	92:10 108:7	year 53:12	14 7:3 29:6
21:10 22:19,21	118:9	117:19	years 33:2	49:20 55:22
23:2,8,9	we've 29:2,3	witnessed 89:22	yellow 80:7	14th 25:6,17
westerly 23:4	76:14 87:7	witnesses 63:3	<hr/> Z <hr/>	14-inch 15:5
western 52:10	92:13 102:19	wondering 4:15	Zamboni 88:18	14-inches 107:1
wetland 19:15	103:12 105:18	wood 21:4 41:13	88:19	140 37:14
wetlands 6:20	110:13	89:10	zero 29:4,6	15 55:19 82:25
17:16 56:20,22	wide 10:9 14:7	wooded 47:3	30:14 37:10,10	15.5 52:2,4
71:21 103:16	17:21 88:20	wooden 89:8	zone 19:2 55:14	15/16 112:7
103:19,20	106:25	95:16,18	56:21	150 37:14
109:25	wider 26:22 39:9	100:18	zoning 55:5,5,6	16.08 21:11
we'll 5:15 19:11	width 17:21	word 15:19 68:7	<hr/> 0 <hr/>	16.8 55:17,17,19
24:12 26:1	106:20	84:22	00162800	160 37:14
35:3 51:14	wild 40:5	words 33:2	119:16	17.15 55:24
57:18 62:18	willing 93:7	45:15 58:7	05 55:21	170 37:14
63:5 74:24	wind 21:22	78:15 81:10	<hr/> 1 <hr/>	18 11:17,18
75:2 76:15	87:17	84:1 85:10	1 1:6 56:6 80:15	29:18 38:8
95:7 114:8,9	wire 20:17,23	work 3:12 5:3,4	1.07 55:20	18-foot 8:22
114:16 115:1,3	21:2	5:13 22:10,13	10 1:6 13:3 56:5	18-inch 31:9
116:16,17	wires 11:25 12:4	38:10 50:7	75:14 84:21	<hr/> 2 <hr/>
118:11,21	13:8,17 16:3	71:16 76:8	87:5 112:7	2 23:16 29:16
we're 4:22 5:2	wish 118:15	worked 53:15	10-foot 41:8	80:13,15 85:1
7:16 8:15,16	witness 3:3 5:25	working 16:2,2	100 37:11	87:2 101:15
9:17 10:19	7:1 8:5 9:12,15	16:8 54:22,24	102/105 3:5	2nd 4:16 5:11
11:7,14 14:17	15:21 16:6,12	70:4 118:9	103 3:5	2,025 67:21,21
16:13,17 17:1	18:11,15 19:1	works 12:19	11 13:16,21,24	107:7
17:19 18:6	21:1,16 22:12	46:12 98:8	75:15	2,200 93:21
19:5,6 20:8,21	25:10,14,16,20	worry 35:22,22	11/14 25:8	2.01 51:15
22:2,16,17,24	25:22 28:18	68:8	11/14/13 3:14,16	20 10:8 11:3
23:13,18,21,23	29:2,15,23	worst 36:12	25:19 49:18	12:2
24:11 25:1	30:8,19 31:3	worst-case 46:17	12 12:11 27:10	20-degree 11:15
27:17,19,22,23	32:15 33:8	wouldn't 37:25	29:4,18 31:12	200 45:16 46:2
28:7 29:25	34:23 36:2,15	38:1 39:24	38:6,8,8 40:11	66:10
30:1,2,23 31:6	37:7,17,20	57:3 59:6 61:7	84:21 87:5	200-foot 27:11
31:13 32:1,7	38:14,25 39:8	81:18 85:5	102:20 112:6,9	34:24 55:8
33:5 34:2,3,5	39:16,18,22	93:8 101:24		2000 69:23
36:11,12 39:4	40:3,6,22	106:18		2011 64:16,21
40:7,14,16	41:22,25 42:15	wrap 73:24		2013 1:8 7:3 8:6
41:12,18 49:7	43:12,14,18	wrong 42:14		

25:17 49:20 64:8 82:18 2014 115:3,5 210 53:5 22 3:12 22.3 21:10 234 1:9 24 11:17,19 14:10 104:17 24-foot 14:7 24-inch 106:22 25 3:13,14 33:2 112:14 287 6:12 14:18 14:20 15:2 67:7,14	4 1:7 14:11 15:7 27:9 29:16 47:12 56:5 80:13 87:2 89:5,12,14 91:4,15 101:15 102:3 4th 63:12 64:8 4,000 94:4 4-by-4 21:2 4-feet 34:17 100:14 4-foot 89:11 40 12:12 112:9 40,484 10:24 110:19,21,22 42 53:4 49 3:15	<hr/> 7 <hr/> 7 13:16,21,21,23 23:15 32:22,23 115:3,5 7-foot 20:15 41:12 7:14 1:10 70-inches 10:16 704-7361 1:24 71.02 1:6 7102 56:6 78's 6:13	
<hr/> 3 <hr/> 3 15:7 27:9 29:16 112:7 3,300 54:8 79:6 79:13 81:12 99:18 3,391 9:7 3,800 81:2,12 3,900 19:9 20:8 3-foot 23:16 30 37:8 111:14 30XI 119:16 30-foot 10:9 37:23,24 30-inches 104:17 31 8:7,7 67:12 82:25 31st 8:6 82:17 32 82:19,20 83:3 83:6,16 86:8 86:17 99:8 102:1 103:10 103:15,16,18 103:22 34 112:7 35 112:6,9 36 106:22 38,000 32:18 38.4 21:9 39 10:15	<hr/> 5 <hr/> 5 1:8 13:22 14:11 27:9 37:11 42:1 51:22 55:24 84:6 88:21 5-feet 34:18 5-foot 43:16 45:4 51:20 5.5 84:1,6,8 508.3 56:8	<hr/> 8 <hr/> 8 3:11 11:20 12:2 41:8 75:14 79:23 81:3 87:3 88:7 88:11,13 91:24 91:25 92:22 95:15 96:6 8-foot 9:13 11:15,16 23:15 41:6 88:21 8-inch 89:10 8:24 57:20 8:38 57:21	
<hr/> 4 <hr/>	<hr/> 6 <hr/> 6 9:12 27:10 29:4 30:21 31:12 38:6,8 40:11,13 79:23 81:2 85:1 87:3 88:7,11,13,20 91:24 92:21 95:14 96:6 101:15 111:14 6th 4:20 6-foot 13:22 20:17,24 28:1 88:20,21 6-inch 53:16 62 1:6 642-4299 1:24 65 10:16 69 1:7	<hr/> 9 <hr/> 9 75:14 9th 5:3,5,8,15 114:20,23 115:2,5 9-foot 11:7 32:22,23 9:45 108:3 9:57 118:24 908 1:24,24	