1                          STATE OF IOWA
                      DEPARTMENT OF COMMERCE
2               BEFORE THE IOWA UTILITIES BOARD

3       - - - - - - - - - - - - - - X  **ORIGINAL**
        IN RE:                      :
4                                   :  Docket No.
        SUMMIT CARBON SOLUTIONS,    :  HLP-2021-001
5       LLC                         :
        - - - - - - - - - - - - - - X
6


7


8                    TRANSCRIPT OF HEARING

9                         VOLUME 9

10                     PUBLIC TRANSCRIPT

11

12                              Cardiff Event Center at
                                Fort Frenzy
13                              3232 First Avenue South
                                Fort Dodge, Iowa 50501
14                              Thursday, September 7, 2023

15

16          Met, pursuant to order, at 8:01 a.m.

17

18          BEFORE:  THE IOWA UTILITIES BOARD

19       ERIK M. HELLAND, Board Chair (Presiding)
              JOSHUA J. BYRNES, Board Member
20              SARAH MARTZ, Board Member

21

22                  (Pages 2204 to 2482)

23

24    MELISSA A. BURNS - CERTIFIED SHORTHAND REPORTER

25

IN RE: SUMMIT CARBON SOLUTIONS
IUB HEARING  09/07/2023                                    Page 2205

```
 1    APPEARANCES:

 2    For Summit Carbon Solutions, LLC:

 3         BRET A. DUBLINSKE, ESQ.
           BRANT M. LEONARD, ESQ.
 4         Fredrikson & Byron, PA
           111 East Grand Avenue
 5         Suite 301
           Des Moines, IA 50309
 6
      For Office of Consumer Advocate:
 7
           JOHN S. LONG, ESQ.
 8         Office of Consumer Advocate
           1375 East Court Avenue
 9         Des Moines, IA 50319

10    For Iowa Farm Bureau Federation:

11         CHRISTINA GRUENHAGEN, ESQ.
           DAVID S. MEYERS, ESQ.
12         Wickham and Geadelmann, PLLC
           5400 University Avenue
13         West Des Moines, IA 50266

14    For Shelby, Kossuth, Emmet, Dickinson, Franklin,
      Woodbury, and Wright Counties (the Counties):
15
           TIMOTHY J. WHIPPLE, ESQ.
16         Ahlers & Cooney, PC
           100 Court Avenue
17         Suite 600
           Des Moines, IA 50309
18
      For Hardin County:
19
           DARRELL MEYER, ESQ.
20         Hardin County Attorney
           Hardin County Office Building
21         1201 14th Avenue
           Eldora, IA 50627
22

23

24

25
```

```
 1    APPEARANCES (Continued):

 2    For Sierra Club Iowa Chapter:

 3            WALLACE L. TAYLOR, ESQ.
              Law Offices of Wallace L. Taylor
 4            4403 First Avenue SE
              Suite 402
 5            Cedar Rapids, IA 52402

 6    For Jorde Landowners:

 7            BRIAN E. JORDE, ESQ.
              Domina Law Group, PC, LLO
 8            2425 South 144th Street
              Omaha, NE 68144
 9
      For Murray Landowners:
10
              JOHN M. MURRAY, ESQ.
11            Murray & Murray, PLC
              530 Erie Street
12            Storm Lake, IA 50588

13    For LSCP, LLC; PLCP, LLLP; Green Plains, Inc.; Golden
      Grain Energy, LLC; Corn, LP; Homeland Energy
14    Solutions, LLC; Quad County Corn Processors
      Cooperative; Plymouth Energy, LLC; and Siouxland
15    Energy Cooperative (the Corn Processors):

16            PATRICK B. WHITE, ESQ.
              Schultheis White, PLC
17            3116 Ingersoll Avenue
              Des Moines, IA 50312
18
      For Iowans for a Growing Agricultural Economy:
19
              ALAN R. OSTERGREN, ESQ.
20            Alan R. Ostergren, PC
              500 East Court Avenue
21            Suite 420
              Des Moines, IA 50309
22
      For Republican Legislative Intervenors for Justice:
23
              ANNA K. RYON, ESQ.
24            Law Office of Anna K. Ryon
              3106 Ingersoll Avenue
25            Des Moines, IA 50312
```

IN RE: SUMMIT CARBON SOLUTIONS
IUB HEARING  09/07/2023                                    Page 2207

```
 1    APPEARANCES (Continued):

 2    For Iowa Utilities Board:

 3         HUNTER FORS, ESQ.
           Iowa Utilities Board
 4         1375 East Court Avenue
           Des Moines, IA 50319
 5
      For Kohles Family Farms, LLC:
 6
           JEAN KOHLES
 7         Pro Se

 8    For Hayek Family Farms:

 9         CHRISTINE HAYEK
           Pro Se
10
      For Bold Iowa:
11
           ED S. FALLON
12         Pro Se

13

14

15

16

17

18

19

20

21

22

23

24

25
```

```
 1                           I N D E X

 2    WITNESS:                                            PAGE

 3    Erik Schovanec

 4    Cross-Examination by Ms. Gruenhagen..............
      Cross-Examination by Ms. Kohles..................
 5    Cross-Examination by Mr. Fallon..................
      Further Cross-Examination by Mr. Meyer...........
 6    Examination by Board Member Byrnes..............
      Examination by Board Chair Helland...............
 7    Examination by Board Member Byrnes..............
      Examination by Board Member Martz................
 8    Examination by Board Member Byrnes..............
      Examination by Board Member Martz................
 9    Examination by Board Member Byrnes..............
      Redirect Examination by Mr. Leonard..............
10    Recross Examination by Mr. Jorde.................

11    Andrew Phillips

12    Direct Examination by Mr. Dublinske..............
      Cross-Examination by Mr. Taylor..................
13    Cross-Examination by Mr. Whipple.................
      Cross-Examination by Mr. Meyer...................
14    Cross-Examination by Mr. Jorde...................
      Cross-Examination by Mr. Fallon..................
15    Examination by Board Chair Helland...............
      Redirect Examination by Mr. Dublinske............
16
      Jeremy Ellingson
17
      Direct Examination by Mr. Leonard................
18    Cross-Examination by Mr. Jorde...................
      Cross-Examination by Mr. Meyers..................
19    Cross-Examination by Mr. Meyer...................
      Cross-Examination by Mr. Fallon..................
20    Cross-Examination by Mr. Taylor..................
      Redirect Examination by Mr. Leonard..............
21
      TESTIMONY AND EXHIBITS:           OFFERED    RECEIVED
22
      IFBF Hearing Exhibit 4............   2226        2226
23    IFBF Hearing Exhibit 5............   2256        2256

24    Phillips Direct Testimony.........   2353        2354
      Phillips Rebuttal Testimony.......   2353        2354
25    Phillips Direct Exhibits 1 and 2...  2353        2354
```

```
 1   TESTIMONY AND EXHIBITS:              OFFERED    RECEIVED

 2   Ellingson Rebuttal Testimony.......    2423        2423

 3

 4
     (phonetic) indicates a phonetic spelling.
 5   {sic} indicates the text is as stated.
     Quoted text is as stated by the speaker.
 6

 7

 8

 9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25
```

```
 1                 P R O C E E D I N G S

 2               BOARD CHAIR HELLAND:  Good morning.  It's

 3    September 7, 2023, at 8:01 a.m.  We will go back on

 4    the record for Iowa Utilities Board Docket

 5    HLP-2021-0001.

 6               Mr. Dublinske and Mr. Jorde, I think you

 7    were going to come to an agreement on exhibits.  We

 8    are under the impression all of the exhibits are

 9    already submitted, but we want to make sure that we've

10    got --

11               MR. DUBLINSKE:  All the deposition exhibits

12    were used in those depositions subject to the

13    protective order and those are all confidential.

14               BOARD CHAIR HELLAND:  So we've got

15    everything in?

16               MR. DUBLINSKE:  And I believe that that is

17    how they are currently uploaded into the system.

18    Correct?  Yeah, Deposition Exhibits 6, 7, 8, and 9 are

19    confidential, and I believe that's how they're

20    currently uploaded in the system.

21               MR. JORDE:  So my clarification there,

22    Mr. Dublinske, you're still claiming that the org

23    chart, which is just a visual representation of

24    everything that's already been discussed in open

25    session, is still confidential?
```

1              MR. DUBLINSKE:  We are.

2              MR. JORDE:  Oh, wow.  Okay.  Well, we would

3    dispute that.  I mean, those are public entities,

4    we've already talked about them, there's nothing

5    confidential about it.  And, if there was, they waived

6    it by not objecting during my questioning the last two

7    case days.

8              So we would object and request a ruling to

9    have the confidential designation removed from the

10   organizational chart.

11             MR. DUBLINSKE:  We have no objection to --

12   they were used that way in the deposition.  We think

13   it makes sense to maintain them that way.  But, to

14   remove just the org chart from confidential treatment,

15   we don't have any particular objection to.

16             BOARD CHAIR HELLAND:  Okay.  If there's no

17   objection, the org chart, and org chart alone, will be

18   removed from confidential classification.  Summit, we

19   will need you to file that publicly, please.

20             Okay.  We left off yesterday with Farm

21   Bureau about to question Schovanec.  However,

22   Mr. Dublinske, I think you also mentioned Mr. Phillips

23   needs to get on and off today.

24             MR. DUBLINSKE:  We don't anticipate, given

25   where we are in the list with Mr. Schovanec, that that

1   would be a problem.  So, if the Board wants to finish

2   Schovanec first, we think that we'll still be able to

3   get Mr. Phillips on and off.

4           BOARD CHAIR HELLAND:  Okay.  I think that

5   makes the most sense.

6           Come on back.

7               ERIK SCHOVANEC,

8   called as a witness by Summit Carbon Solutions, LLC,

9   being previously duly sworn by Board Chair Helland,

10  was further examined and testified as follows:

11          BOARD CHAIR HELLAND:  Mr. Schovanec, just a

12  quick reminder, you are still under oath.

13          THE WITNESS:  Yes, sir.

14          BOARD CHAIR HELLAND:  With that,

15  Ms. Gruenhagen.

16          MS. GRUENHAGEN:  Thank you, Your Honor.

17               CROSS-EXAMINATION

18  BY MS. GRUENHAGEN:

19      Q.   Mr. Schovanec, we met during depositions.

20  My name is Chris Gruenhagen representing the Iowa Farm

21  Bureau Federation, and I have a few questions here for

22  you today.

23          In your role with Summit, what are your

24  responsibilities with regard to Exhibit Hs?

25      A.   So, in regards to the Exhibit Hs, I was

1    involved working with our attorneys and outside

2    counsel on compiling those, you know, QA/QC-ing those.

3    You know, I worked with the survey company that helped

4    compile those and the RPLS that stamped those.

5              So generally involved with all the

6    different parties that were involved compiling them,

7    checking them, and submitting them.

8         Q.   So are you also a primary stakeholder in

9    the routing team for Summit?

10         A.   I am.

11         Q.   So are you team lead or are you just one of

12    the major stakeholders?

13         A.   I wouldn't say that there's a team lead.

14    It's more of a collaborative effort.  So, you know, in

15    my testimony, it kind of, you know, outlines all the

16    detail involved with the routing process.

17              But, since the preliminary route was

18    established, you know, we have an internal what we

19    call route variance process that we manage the route

20    with.  And there are environmental stakeholders,

21    right-of-way stakeholders, engineering, construction,

22    et cetera, that review every single route proposition

23    change.

24              And then, ultimately, I sign off as the

25    last person approving it or not approving it.

1              More major reroutes would go to an even

2    higher level.  To Jimmy's level, for example.

3         Q.   So on page 5, lines 1 through 12 of your

4    direct testimony, you state that the pipeline route

5    modifications -- or I think you just said

6    variations -- what was the word that you just used?

7         A.   We call it just the route variance process.

8         Q.   Variance process.  You said that they were

9    made, in part, to minimize impacts and risk to public

10   safety as well as land use conflicts.

11             Can you give me two examples of where there

12   was a variance approved or the route was modified

13   which minimized the impacts and risk to public safety?

14        A.   Yeah, I think I testified yesterday that

15   we've made over 200 route changes at the request of

16   landowners.  Many of those were landowners asking that

17   we move the pipe further away from their house or, you

18   know, their barn, for example.  So I think those are

19   examples that meet that question.

20             You know, I brought up the example

21   yesterday about Merrill.  We routed further around the

22   city to get further away from existing planned

23   developments.

24             You know, to me, safety is not only to the

25   public but the design of the pipe itself.  So, you

1    know, constructability issues and things like that

2    that may cause an unsafe construction or unsafe

3    operation of the pipe, we mitigated those.

4           Q.    What would be an example of that?

5           A.    You know, just looking at the topography

6    of -- you know, of the route, making sure that we're

7    not installing the pipeline on steep side slopes.  You

8    know, over existing infrastructure.  You know,

9    immediately adjacent to a power line or a wind

10   turbine.  You know, several different things like

11   that.

12              And, you know, the other thing that we've

13   done that I think helps, you know, from a

14   constructability standpoint, from a safety standpoint,

15   would be that we conducted a geohazard analysis of the

16   entire pipeline.  It was a phase one analysis.  Which

17   means it was a desktop analysis.

18              And so we collected data from the Iowa

19   Geologic Survey and from the U.S. Geologic Survey as

20   well as the Department of Agriculture and Natural

21   Resources and assessed the entire route for

22   geohazards.  There were actually three locations that

23   were identified as having some risk and those were

24   three karst features.

25              So what we're going to do is do a phase two

IN RE: SUMMIT CARBON SOLUTIONS
IUB HEARING  09/07/2023                                      Page 2216

```
 1   assessment and do field investigation at those

 2   locations.  That's the difference between the phase

 3   one and the phase two.  Is field investigations.

 4   We'll go out to those locations, we're going to have

 5   geotechnical experts there to verify if there is karst

 6   features on the actual route.  And, if there is, we'll

 7   adjust the route slightly to avoid those.

 8            So those types of things, to me, are all in

 9   the interest of safety and building a constructible,

10   safe pipeline.

11        Q.   Can you explain a couple of examples of

12   what you meant by the types of land use conflicts that

13   Summit avoided by modifying the route?

14        A.   Yeah, so land use conflicts, to me, would

15   be an airport, a cemetery, things of that nature.  So

16   whenever we were doing the route, there's a detailed

17   list of avoidance features and land uses that we would

18   avoid.  So those are just a few examples.

19        Q.   Thank you.  Do you recall a couple months

20   ago when we sat down for the depositions that you and

21   I had some discussions about the routing software?

22        A.   Yes.

23        Q.   Do you recall that?  And, at that time, you

24   had mentioned that Pivvot was your contractor, but I

25   think yesterday you testified that Terracon was the
```

 1    contractor.

 2              Did that change in process?

 3        A.   So Terracon is the owner of the Pivvot

 4    software.  I think it's a subsidiary company.  So

 5    Pivvot is the software.  And the company itself --

 6    from my understanding, it used to be owned a company

 7    called TRC.  I believe it was sold to Terracon.  And

 8    then there's a team, a company, Pivvot, within

 9    Terracon.  So it's the company and the software is my

10    understanding.  But it's owned by Terracon.

11        Q.   So Terracon is your contractor.

12        A.   I think we're contracted directly with

13    Pivvot, but I could be mistaken there.

14        Q.   And Pivvot is a subsidiary of Terracon.

15        A.   I believe so.

16        Q.   I was just trying to understand that.

17    Because there's a little bit of difference between

18    your deposition and what you testified to yesterday.

19        A.   I believe the software is called Pivvot as

20    well.  And I can research that and get a

21    clarification, if needed.

22        Q.   Thank you.  Appreciate that.  And, with the

23    Pivvot routing software, was there a structures

24    database that was used as a layer in that software?

25        A.   Yes.

```
 1          Q.    Did the Pivvot routing software also

 2    include a GIS layer from the Iowa DNR of animal

 3    feeding operations?

 4          A.    I believe so, yes.

 5          Q.    Was there a GIS layer of high-consequence

 6    areas included with the software?

 7          A.    Yes.

 8          Q.    And did that also include high-population

 9    areas?

10          A.    I believe we've got a layer, or data, that

11    has all the high-population areas, other populated

12    areas, all those different areas.

13          Q.    I believe in a data request -- and I'm not

14    going to make it an exhibit here, but, in a data

15    request that was provided to OCA, there was a list of

16    things that was included in the software that you

17    considered?

18          A.    Yes.

19          Q.    Were there some of those things listed that

20    said "Avoid" and some of them that said "Low

21    Avoidance" or some categories that were established on

22    those?

23          A.    That's correct.

24          Q.    So, like, on animal feeding operations, I

25    believe it said "Avoid."  What did that mean when it
```

 1   said "Avoid" in that list?

 2        A.    For something such as an animal feeding

 3   operation, that would be avoid going directly through

 4   the actual feedlot or feeding operation, you know,

 5   et cetera.  So there wasn't a set setback distance

 6   from that, for example.  It was just the physical --

 7   you know, going through the actual operation.

 8        Q.    So the physical footprint of it.

 9        A.    Yes.

10        Q.    Okay.  Thank you.  Did the routing team

11   consider the results of the vapor dispersion modeling

12   at all when you were looking at the route?

13        A.    So this was discussed with Mr. Powell and

14   again yesterday with Mr. Jorde.  The dispersion

15   modeling wasn't used during the routing process.  It's

16   a tool to inform risk.  So, no, it was not used.

17        Q.    So, if you're looking at public safety, how

18   is that not informing of the risk?

19        A.    So it does inform risk and allows us --

20   and, again, I'd have to defer detailed conversation on

21   this to some of our witnesses that are coming up

22   behind me, such as Ken Muhlbauer, but it allows us to

23   verify valve spacing, for example.

24              It also allows us to make decisions to

25   mitigate risk further, such as going deeper, which we

1    have.  You know, higher than the federal standard.

2              We've made the decision, which I don't

3    believe this has been stated, that we're going to

4    increase the design factor in HCA direct-effect areas.

5    So the design factor for normal main line points is

6    .72.  We're going to use a .6 design factor for HCA

7    direct-affect areas.

8              So things such as that that help us layer

9    on additional mitigations and protections to reduce

10   risk further.

11        Q.   So what you're saying is that, in your

12   opinion then, the dispersion modeling results wouldn't

13   be helpful in determining safety from locating, say,

14   200 feet, 250 feet from a residence?

15        A.   I'm not necessarily saying that.  I'm

16   saying that it was not used in our preliminary

17   routing.  Or any routing, for example.  It just allows

18   us to layer additional mitigations on to reduce the

19   risk further.  It's not a routing tool.

20        Q.   You talked about doing your initial

21   routing.  During -- there's been a couple of different

22   distances that you've talked about in your direct

23   testimony and the deposition and then also some of the

24   responses to data requests.  And so I just want to get

25   some clarification.

1          A.    Okay.

2          Q.    You've mentioned an initial routing of

3    1,500 feet screen distance.  Can you explain how that

4    was used?

5          A.    So I believe, from my testimony, I said

6    that there were several different routes considered.

7    We did an analysis of that and determined what our

8    preliminary route was.  And then we did a detailed

9    route assessment that was 1,500 feet wide on that

10   selected preferred route and then we refined that.

11              And that route assessment essentially

12   consisted of flying the entire route with a team of

13   subject matter experts with environmental expertise,

14   engineering, construction, et cetera.

15              And then, after that 1,500-foot, you know,

16   swath exercise was completed, then that established

17   kind of our base route.

18              MS. GRUENHAGEN:  I have an exhibit here to

19   hand out.  And it's been emailed.  It's going to be

20   IFBF Hearing Exhibit 4.

21              And I've just provided one of the data

22   responses.  The intervening Counties did a follow-up

23   to our initial one and our initial data request is

24   quoted here.  So, rather than having two exhibits, I'm

25   just consolidating it into one here.

```
 1    BY MS. GRUENHAGEN:

 2         Q.    Did you assist in preparing the response to

 3    this data request?

 4         A.    I did.

 5         Q.    And, in the preface, can you read the

 6    language -- just to back up.  This is a data request

 7    that the Counties asked as a follow-up to a data

 8    request that we had submitted.  That Iowa Farm Bureau

 9    had submitted.

10               Is that correct?

11         A.    Yes, that's my understanding.

12         Q.    Can you read the language in the first

13    introductory paragraph starting with "Four hundred

14    feet."

15         A.    So "The use of a 400-foot setback from

16    structures.  In response, Summit stated as follows:

17    Four hundred feet was the number selected by Summit as

18    the initial screening offset distance from structure

19    boundary lines.  This distance was used for macro

20    routing to establish general parameters and to require

21    that location of the route closer to structures would

22    require manual review."

23         Q.    So, in your direct testimony, and we just

24    got done talking about the 1,500-foot distance, and

25    then in here you talk about a 400-foot distance.
```

1          So can you explain the difference between

2    those two?

3          A.    Yeah, no problem.  So the 400 foot that's

4    identified here was the setback identified for

5    structures themselves.  And the 400 foot was a number

6    that was identified and used on other large

7    infrastructure projects such as DAPL.

8              Some of the Pivvot personnel were actually

9    the same personnel that routed the Dakota Access

10   pipeline.

11             So that was the screening number used, and

12   essentially any structure within 400 foot during that

13   routing analysis was flagged and looked at

14   individually.  And then, you know, manually adjusted

15   the route accordingly, if possible, based off of that.

16             So it's essentially just a more detailed

17   analysis looking 400 feet from the pipeline just for

18   structures themselves.  As opposed to the large or

19   kind of more macro looking at the route from

20   constructability, water features, wetlands, critical

21   habitats, things like that, that weren't analyzed as

22   detailed as the structures themselves.

23         Q.    So the 1,500 distance, when you say that

24   was the macro view of it, did that only look at

25   environmental features or -- I guess what did you look

```
 1   at in the 1,500 -- weren't structures included in that

 2   also?

 3        A.   I mean, essentially, we started very wide

 4   and just kept getting more narrow and looking at more

 5   detailed features as we got closer and the route got

 6   more refined.  So there was a series of different

 7   steps where we looked at the route more specifically.

 8            In that routing analysis, we specifically

 9   went to all structures within 400 foot and zoomed in

10   on those.

11            You know, the detailed analysis looking at

12   all the other layers -- I mean, there's hundreds of

13   data sets with a lot of different considerations.  And

14   so really flying 680 plus miles of pipe looking at

15   those other -- constructability, environmental land

16   use issues are easier to identify just kind of flying

17   at a higher level.

18            You know, zooming in and looking at the

19   detailed structures was done at a more refined level.

20        Q.   So you looked at structures at the

21   1,500-foot distance, but then you looked at it more

22   closely at the 400-foot distance?

23        A.   We looked at every structure within

24   400 feet.  Zooming in, looking at it, identifying it,

25   seeing if we can adjust the route, et cetera, things
```

 1    like that.  So specifically zooming in and looking at

 2    and talking about each individual structure.

 3            Q.    But you did not do that at the 1,500-foot

 4    distance?

 5            A.    No.  I think there was thousands or --

 6    there was a very large number at that level.

 7            Q.    And then on the second page of that

 8    exhibit, in paragraph D, there's a chart there.

 9            Could you describe what that chart

10    represents?

11            A.    Yeah.  So the 400-foot setback buffer from

12    the pipeline center line, this was the quantity of

13    structures that were identified and a breakdown of

14    those structures.  So basically showing, of the 495

15    that were identified, that there were 112 houses, you

16    know, 130 sheds, abandoned structures, et cetera,

17    et cetera.

18            Q.    And are these the structures that are

19    within 400 feet of the current route?  Is that what

20    that is?  Or is it only those that are in Exhibit Hs?

21    What does that represent?

22            A.    I would venture to guess that these were

23    the structures at the time of the data request within

24    400 feet.

25            Q.    So --

1       A.   They may have adjusted slightly.  I'd have

2  to look at the date of this.  It's relatively recent.

3  So, in the last couple months -- you know, we are

4  still making micro reroutes to adjust the pipeline to

5  accommodate landowners.  So I can't say for certain

6  that this hasn't slightly changed, but it should be

7  very close, very accurate.

8       Q.   So is this the list of structures within

9  400 feet as of June 19 of 2023?  Of the route.

10      A.   I believe that's correct.

11      Q.   Thank you.

12           MS. GRUENHAGEN:  Your Honor, I would like

13  to offer IFBF Hearing Exhibit 4 into evidence.

14           BOARD CHAIR HELLAND:  Are there any

15  objections?

16           MR. LEONARD:  No objection, Your Honor.

17           BOARD CHAIR HELLAND:  With no objections,

18  the exhibit will be admitted as IFBF Hearing

19  Exhibit 4.

20           MS. GRUENHAGEN:  Thank you, Your Honor.

21  BY MS. GRUENHAGEN:

22      Q.   Now, amongst those parcels there, are there

23  some of those parcels that are -- I'm sorry, are there

24  some of those structures located on parcels that are

25  not included in the route?

```
 1        A.    Yes.

 2        Q.    Were the owners of those structures ever

 3  consulted?

 4        A.    I don't believe so.

 5        Q.    Were they ever notified?

 6        A.    They would have been notified, you know,

 7  during the initial notification process for the

 8  informational meetings.

 9        Q.    Would they have been notified after the

10  route was established?

11        A.    Potentially.  You know, we did have a

12  300-foot wide survey corridor.  And we've surveyed

13  300-feet.  So 150 foot on each side of the pipe.  So,

14  if we were hugging a property line, for example, and

15  the survey corridor extended over the property line,

16  then they would have been notified as to the survey

17  activities.

18        Q.    Were they ever told that the route was

19  actually planned for that distance from their

20  residence or structure?

21        A.    I can't say for certain whether each

22  individual landowner was told.  I would say, most

23  likely, no.

24        Q.    When your routing team did the examination

25  of those structures within 400 feet, what would have
```

1    caused the routing team to leave the route where it

2    was if it was closer than 400 feet from the proposed

3    route?

4          A.    You know, obviously we're connecting to

5    ethanol plants.  And a lot of the ethanol plants are

6    in more highly populated areas, and we have to get to

7    the ethanol plant with our pipeline.

8                So that would be one example of probably a

9    lot of these where we have to get to the ethanol plant

10   and there's structures and other houses, buildings,

11   et cetera, in the near vicinity of the ethanol plant.

12               Another example would be following existing

13   infrastructure.  We tried to follow existing pipeline

14   corridors and power line corridors where we could.

15               And then, you know, there's other locations

16   where there's just physical constraints to build the

17   pipeline and cross a river, for example, at a certain

18   location, cross a railroad at a certain location, that

19   would constrain us to leave the pipeline really where

20   it's at.

21         Q.    You've been here off and on the last couple

22   of weeks listening to the non-intervening landowners

23   testify; is that correct?

24         A.    I haven't been here in person for the

25   non-intervening landowners, but I did listen in to the

 1    majority of that through the live stream.

 2         Q.    So, in addition to hearing their testimony,

 3    I would assume you also may have evaluated the route

 4    around their structures and things at that time?

 5         A.    Yeah.  I certainly, you know, listened to

 6    their concerns and was looking at opportunities to see

 7    what we could do to try to accommodate their concerns.

 8         Q.    I'm going to have the IUB staff bring up a

 9    couple of examples that we heard.  And I'm going to

10    use the examples from the testimony just because

11    that's already been made public.  But just as examples

12    to get an idea of the considerations that your routing

13    team went through.

14         A.    Okay.

15              MS. GRUENHAGEN:  So if the staff could pull

16    up PA-013.  On the KMZ file.

17    BY MS. GRUENHAGEN:

18         Q.    Were you able to listen to Mr. Fehr

19    testifying regarding his property and his sons'

20    properties?

21         A.    I did not, but I am aware of this.

22         Q.    You're aware of the situation?

23         A.    Yes.

24         Q.    And I'll try to paraphrase the testimony,

25    I'm not going to get it perfect, but the farmstead

1    there that's not red.

2         A.    Yep.

3         Q.    There was testimony that he has

4    approximately 70 H-2A workers that live there.  And he

5    also testified that the pipeline, I believe, is about

6    250 feet from that area.

7              What considerations would your routing team

8    have made to leave that route that close to that

9    population?

10        A.    So our original route actually hugged the

11   south part of that property all the way across.  It

12   was a straight line on the south part of those

13   parcels.

14             After the route was established and after

15   easement documents were presented to the landowner,

16   that section that's not red was subdivided.  And

17   there's, I believe, a large barn that's been

18   constructed on the far south side of that property.

19             So it forced us to adjust the route long

20   into the process.  I think we were well over a year

21   and a half into the process and over a year into the

22   process before that property was subdivided or any

23   construction activities took place.  We'd already

24   submitted Exhibit Hs and we had to file an amendment

25   to adjust the route.

1            Because the route was going right in that

2    little red sliver, which I think is only about 80 foot

3    wide.  It's not even wide enough to construct there.

4    And it would be, I think, tens of feet from the

5    existing barn that they had just built.  So that's

6    what forced us to adjust the route in the manner that

7    we did.

8            Certainly, we could adjust the route even

9    slightly further north, if needed, and requested by

10   the landowner to get an easement signed.

11           But originally the route was hugging the

12   far south side of that property, we were much further

13   away from any inhabitable structure and encumbering

14   the property as little as possible by hugging the

15   property line, and then the lot was subdivided in the

16   fashion that it was, which is rather odd looking, and

17   forcing us to move the route almost two years into the

18   process.

19       Q.   So why was it moved so that it was so close

20   to a home there and a significant -- scratch that,

21   with the population of 70 H-2A workers plus the other

22   workers that are there?  Instead of moving it

23   somewhere else.

24       A.   I'm not aware of any structure that has 70

25   workers -- can you identify where on that property the

```
 1   70 workers are living?

 2            BOARD CHAIR HELLAND:  So, just real quick

 3   to clarify, Ms. Gruenhagen and Mr. Schovanec, those

 4   are two different parcels.  And so instead of just

 5   saying "the green spot," can we just make sure we're

 6   talking about the green spot on the east and the west

 7   side of the road?

 8            THE WITNESS:  Yes, sir.

 9   BY MS. GRUENHAGEN:

10        Q.   So the green area on the east side of the

11   road, I believe Mr. Fehr testified that there were two

12   hog buildings, two hog barns, that were built there?

13        A.   Uh-huh.

14        Q.   And that's what you're referencing, that

15   those barns --

16        A.   Yes.

17        Q.   -- would have conflicted with the route.

18        A.   Yes.

19        Q.   How long does it take to build a hog barn?

20        A.   I don't know the answer to that.

21        Q.   But, because it's a structure, it took some

22   time to build, I would assume.

23        A.   Correct.  I know that the construction

24   started after -- I believe after the Exhibit Hs were

25   filed and the route had been set, and that's why we
```

1    had to file an amendment to adjust the route as shown.

2         Q.    And the Exhibit Hs were, I think, completed

3    in September of 2022?

4         A.    That's right.

5         Q.    And so these barns were built after

6    September of '22?

7         A.    I believe so.  You know, I don't know the

8    exact timeline of this specific parcel.  So, if that's

9    untrue, then I stand to be corrected.

10              But I know that we were aware of activities

11   that were taking place.  We were aware of this for a

12   long period of time and trying to see if we could work

13   this out.  And trying to see if that was a more

14   favorable location.  Still hugging the south side of

15   the property near a hog confinement barn versus closer

16   to their residence.

17              And, ultimately, I believe we didn't get

18   any direction from them, so we made the decision to

19   route further away from the existing barns that were

20   built and, you know, go to the north side of the

21   residence.  Which I believe we're four or five hundred

22   feet away from at this point.

23         Q.    I believe, during testimony, it was

24   measured at 250 feet.

25              MS. GRUENHAGEN:  And if we could zoom in on

 1    the west parcel that's in green.

 2    BY MS. GRUENHAGEN:

 3         Q.    And I may get this wrong, but he did

 4    identify which buildings they were living in on the

 5    site.  And I believe the one that has the rounded roof

 6    was their church, I think he even showed a video of it

 7    there, and they also stayed in some of the buildings

 8    on the site as well.  We'll have to go back to that

 9    testimony as to exactly which buildings.

10         A.    So that large building is the building that

11    seventy-plus people live in?

12         Q.    Yes, that's what he identified.  Yes.

13         A.    And that's measured as 250 feet from the

14    pipeline?

15         Q.    That is what the testimony was, yes.

16         A.    Is there any way that we can measure that?

17               So 310 feet.  Okay.

18         Q.    And I believe there were people also in the

19    other building that's a little bit closer as well.

20         A.    You know, so this is, you know, kind of

21    a -- I mean, that looks like a dilapidated structure.

22    But this is an example of a location where, you know,

23    landowners would be concerned that, "Hey, this is a

24    little too close to me.  Would you mind adjusting the

25    route further to the north."  And we certainly have

 1    done that every single time it's been requested.

 2              If landowners are not willing to work with

 3    us or give us any feedback, we don't just arbitrarily

 4    move the route without any kind of direction.

 5         Q.   So it seems that this particular one was

 6    changed after September of 2022?

 7         A.   Correct.

 8         Q.   And so were there any conversations with

 9    the landowners after September of '22 about the move?

10         A.   Certainly there would have been

11    communications.  I'd have to defer to our right-of-way

12    team on what those would be, but we've got a

13    communications log of all correspondence with

14    landowners.

15         Q.   Thank you.

16              MS. GRUENHAGEN:  Could we also pull up

17    SI-076.  And then zoom out just a little bit.  To the

18    south of that red parcel, there's another hog

19    building.  If you can zoom in on that.

20    BY MS. GRUENHAGEN:

21         Q.   Do you recognize that as a livestock barn?

22         A.   Yes.

23              MS. GRUENHAGEN:  Can you measure the

24    distance between the pipeline and the livestock barn?

25

```
 1   BY MS. GRUENHAGEN:

 2         Q.    Can you read that distance?

 3         A.    Yeah.  Sixty feet.

 4         Q.    Would your routing team view that as a land

 5   use conflict?

 6         A.    I mean, not necessarily.  You know, there's

 7   instances -- you know, very few instances like this.

 8   Where landowners would have requested us to, you know,

 9   hug their property line, which would put the pipeline

10   closer to the adjacent landowner's structures for

11   example.

12             You know, we certainly tried to mitigate

13   issues there.  If there was a dwelling, if there was a

14   hog confinement barn, for example, we didn't

15   necessarily adjust that further away.

16             You know, it's one of those things where

17   we're working with the landowner in question that has

18   the pipeline on their property.  Obviously adjacent

19   landowners have impacts as well.

20             But, as I stated earlier, we didn't reach

21   out or discuss all route changes with existing

22   adjacent landowners.

23             There are instances of, "Well, my neighbor

24   doesn't want this," or whatever, and we've adjusted

25   the route to accommodate neighbors' concerns on
```

1    individual landowners' properties.  I don't recall

2    this being one.  That doesn't necessarily mean that

3    the landowner is not concerned though.

4         Q.   So Summit would not have had discussions

5    with the owner of this building.  In all likelihood.

6         A.   I can't say that they would have.  I know

7    that there are situations like this where our

8    construction management team did go reach out to these

9    landowners and talk to them and see if they were

10   concerned, but I don't have a detailed analysis on

11   this one to know what was done or not done.

12        Q.   Thank you.

13        A.   And I believe this was Mr. Utesch; correct?

14        Q.   Yes.

15        A.   So, if Mr. Utesch requests that we move

16   this route, we certainly can.

17        Q.   So what we learned was the Mr. Utesch that

18   owns the parcel for Exhibit H is not the same

19   Mr. Utesch that owns the hog building.  It's something

20   we learned during testimony.

21        A.   And I think that was maybe part of the

22   confusion with something like this.  Where we're

23   hugging a property line, the landowner seems to be

24   more agreeable with this alignment, and it is the same

25   last name assuming that it could be the same person or

 1    family member, et cetera.

 2          Q.    In this instance, that wasn't the case.

 3          A.    Okay.

 4          Q.    Because we had that conversation with him.

 5          A.    Yep.

 6          Q.    Because I was curious about that.

 7                MS. GRUENHAGEN:  Let's look at WO-041.

 8    BY MS. GRUENHAGEN:

 9          Q.    Do these parcels look familiar?

10          A.    Generally.

11          Q.    There was testimony that there's irrigation

12    systems on both of these parcels as well as a parcel

13    to the north that's owned by the same owner.  But I

14    guess what I want to ask about is there's quite a few

15    residences in this area as well.

16          A.    Uh-huh.

17                MS. GRUENHAGEN:  The one specifically that

18    is to the north of the, I guess, east parcel with the

19    irrigation circle, if you could measure from that

20    house to the pipeline.

21    BY MS. GRUENHAGEN:

22          Q.    Can you read that distance?

23          A.    Yeah, 160 feet.

24          Q.    So is this another instance where the pipe

25    is pushed up against the boundary line, but the

 1   adjoining parcel was not -- they're not an easement

 2   grantor and they're not an Exhibit H -- you know, were

 3   they consulted about the pipeline being that close to

 4   their home?

 5         A.   I would say that's most likely correct.

 6   You know, it was again, you know -- if you zoom out, I

 7   believe that there's houses on the south side of the

 8   property.

 9              So obviously the landowner does not want us

10   just bisecting the middle of his pivot irrigation.

11   They prefer that we hug more of a property line.  And

12   so you've got competing and conflicting priorities and

13   interest there.

14         Q.   But Summit still decided to route the

15   pipeline through this area.

16         A.   Correct.

17         Q.   And why would that be?

18         A.   Well, you know, I don't know the macro look

19   at this area, but I'm sure you'd have similar issues

20   across this entire area.

21              And I can't speak to all the other existing

22   factors that were identified in this specific location

23   on the route.  I know that there's existing pipeline

24   infrastructure in this general location.  There's

25   power lines.

1          And, again, as I mentioned yesterday,

2  pipelines can co-locate.  You know, we've done an

3  analysis, and there's tens of thousands of structures

4  within vicinities of this close to a pipeline existing

5  right now in Iowa.

6          So, you know, although not ideal, these

7  instances are happening every day all day in Iowa.

8  Across the United States as well.

9          So we try to mitigate these issues where we

10 can, but there are select locations where this is

11 occurring.

12      Q.   In fact, there's 112 of those locations

13 according to the list.

14      A.   One hundred twelve that are within 400

15 feet, and I can't identify how many of those are

16 actually immediately adjacent to an ethanol plant or

17 other location that we have no choice on how we route

18 it to.

19      Q.   With this particular parcel, is it in the

20 vicinity of an ethanol plant?

21      A.   It is not.

22      Q.   We're going to pick one more example and

23 then we'll move on to a different topic here.

24          MS. GRUENHAGEN:  Could you pull up WR-002

25 and WR-019.  They're adjacent parcels.  WR-002 and

 1   WR-019.

 2   BY MS. GRUENHAGEN:

 3        Q.   There was also testimony regarding this

 4   parcel.  And this is not a structure issue question

 5   here.  I just want to show the two parcels, and we may

 6   need to pull up the landowner's exhibits, but there

 7   was testimony regarding some very large county tile

 8   going through here and -- multiple laterals and county

 9   tile going through these properties.

10        A.   Okay.

11             MS. GRUENHAGEN:  And so can we pull up -- I

12   believe it was Ritter Hearing Exhibit 1.

13   BY MS. GRUENHAGEN:

14        Q.   I just want to show you what the parcels

15   look like and then he has a tile map that he shows

16   some of that detail.

17        A.   Okay.  And, just for you're information, we

18   digitized all of the drain tile maps that have been

19   given to us.  And we've overlaid that within our GIS

20   platform.  We've also got all the county publicly

21   available digital county tile information.

22             So we do know where the majority of the

23   county tile is located, and we have made adjustments

24   to the design and the route to try to accommodate that

25   where we can.

```
 1          Q.   And I believe Summit has been provided this

 2    map.  But this is the pattern tile.  And you can see

 3    there's a line that traverses -- I don't know how to

 4    describe it.  On the east side of the west parcel

 5    going north and south.

 6          A.   The one that heads in the northwesterly

 7    direction to the north of the parcel?

 8          Q.   Yes.

 9          A.   Yeah.

10          Q.   So he identified that as -- Mr. Ritter

11    identified that as a county main.  And then, in that

12    same parcel going from -- I guess up in the northwest

13    corner there's also a county lateral going through

14    there.  At a diagonal.

15          A.   Yes.

16          Q.   And then there's also another one on the

17    south side as well.  On the southeast side.

18          A.   So all the tile that leaves his parcel, or

19    their parcel, are the county mains is what you're

20    saying?

21          Q.   Yes.  Yes.  With this many county mains on

22    the property, how does your routing team usually

23    accommodate that?

24          A.   Well --

25          Q.   I'm sorry.  I believe it's like a 28-inch
```

 1    pipe, 18, and 16 are the sizes of the drainage tile.

 2    If that helps.

 3          A.    Okay.  You know, so that is one factor

 4    obviously is the size.  I know that one of the other

 5    landowners testified to a 48-inch tile.  You know,

 6    something of that magnitude would very likely be a

 7    drill.  And we would drill that.

 8                You know, the depth of the tile obviously

 9    is part of the consideration as well.  If the tile is

10    4 or 5 foot deep, certainly we're going to go under.

11    If the tile is 10, 12, 15 foot deep, then, based on

12    the diameter of the pipe and the depth of cover and

13    the expected separation between the tile and the pipe,

14    in my estimation it's less impactful to go over the

15    top of the tile.

16                So I think it's really site specific and

17    location and tile specific.

18                You know, whenever we start our

19    construction process, we're going to identify large

20    tile such as this.  And we're certainly working with

21    the drainage districts to identify concerns like this

22    and coming up with the most practical and reasonable

23    solution for constructing across these locations.

24          Q.    A couple follow-up questions to what you

25    just said.

 1          How deep does the drainage tile need to be

 2   for the carbon pipeline to go over top of it?  Rather

 3   than underneath it.  Is there a threshold?

 4          A.   I would say, you know, it's obviously

 5   specific to the diameter of the pipe.  A 6-inch pipe

 6   is going to be buried -- the ditch for the 6-inch pipe

 7   will be less deep than a 24-inch pipe.

 8          So, taking a worst case largest diameter

 9   scenario, we've committed to four foot minimum from

10   top of pipe to top of soil.  Typically, when you're

11   cutting your ditch, you'll cut the ditch six inches or

12   a foot deeper than is actually needed so that you can

13   pad the ditch with good soil when you backfill.  Or

14   when you're fixing to lower in the pipe.  So just

15   doing some math there.

16          And then on top of the fact that we want to

17   keep a minimum of one foot of separation between the

18   tile and our pipe.  Preferably 18 inches or more.

19          So four foot deep plus two foot of pipe

20   plus an extra foot on the ditch depth plus another

21   foot of separation.  Eight foot deep would probably be

22   the minimum depth.  That we would try to tile over --

23   or put the pipe over the top of the tile.

24          Q.   Does it matter whether it's perforated tile

25   or non-perforated tile?

 1          A.    I wouldn't think so.

 2          Q.    You may not know the answer, but do you

 3    know the difference between -- the functions of

 4    perforated tile versus non-perforated tile?

 5          A.    You know, I don't.  The -- so, whenever

 6    we're actually cutting the ditch -- you know, the

 7    surface impacts above that tile will be very minimal.

 8    I don't know if the concern was that -- you know, for

 9    example, in the travel lane, if you're driving over

10    the top of the tile, there's ground disturbance.

11    Those types of concerns, I think, would not be there

12    for cutting the ditch over the top of the tile and

13    laying the pipe.

14          Q.    I'm going to try not to testify, but I'm

15    just going to explain very briefly.

16                So perforated tile performs a drainage

17    function.  Non-perforated tile is more just transport

18    of the water.

19          A.    Okay.

20          Q.    And so the perforated tile -- that's why I

21    was asking about that is because it performs a

22    drainage function and pulls water from the soil.

23          A.    Yeah, I'm familiar with perforated tile.

24    You know, we certainly have a drain tile expert that's

25    going to testify, I believe, later today.  So more

```
 1   detailed questions would need to go to him.  But

 2   thanks.

 3          Q.   That's why I was just asking if the

 4   depth -- if there was a difference in consideration

 5   for the depth of the tile for the pipe to go over it

 6   as to whether it was perforated or non-perforated.

 7               Would it be better to ask Mr. Ellingson

 8   that question?

 9          A.   I believe so, yes.

10          Q.   Okay.  We'll do that.

11               Okay.  We'll switch subjects here.  In your

12   rebuttal testimony on page 7, you stated that

13   pipelines are consistent with the vast majority of

14   land uses.

15               Do you recall that?

16          A.   Yes.

17          Q.   Is there any land use that you would

18   consider to be inconsistent with the pipeline?

19          A.   Some of the ones I mentioned earlier.  Such

20   as an airport, a cemetery.  You know, a school.  You

21   know, there's, I think, a long list of those that are

22   on the tables that were provided.

23          Q.   And you provided some rebuttal exhibits.

24               Do you recall those?

25          A.   Correct.
```

```
 1          Q.   With those examples that were provided in,

 2   I believe, both the case study that was done and -- do

 3   those example pipelines transport substances that are

 4   used by people?  Such as natural gas and petroleum?

 5          A.   I would state that, yes, some of them do,

 6   and I can't testify to exactly what the uses are of

 7   those pipelines and -- what the end uses are, for

 8   example.

 9               You know, Dakota Access transporting crude

10   oil from North Dakota to Illinois, you know, somebody

11   is going to be using that, but I wouldn't -- you know,

12   I don't think you can say that that's going to be used

13   by anybody in the vicinity of that pipeline per se.

14          Q.   Would it make sense to you that in a

15   community that maybe uses natural gas as a heating

16   source, that there would have to be a natural gas

17   pipeline go to that community?

18          A.   I would say that a large diameter

19   transmission line for natural gas does not have to be

20   near the vicinity of development, but they do exist in

21   that way.

22               The small diameter distribution lines that

23   go to individual residences certainly need to go to

24   those houses, but the large diameter pipelines do not

25   need to be in the near vicinity of any major
```

1    establishments from what I can tell.

2         Q.    Wouldn't there need to be a transmission

3    pipeline to come to the community in order to put it

4    into distribution lines?

5         A.    Certainly, but it doesn't necessarily have

6    to be in developed areas.  Which they do exist to the

7    tune of tens of thousands of structures just in Iowa

8    alone.

9         Q.    Do any of the examples that you provided in

10   your rebuttal exhibits transport liquefied carbon

11   dioxide?

12        A.    No.

13        Q.    Do communities ever use liquefied carbon

14   dioxide for their homes or anything?

15        A.    No.  Communities don't use liquefied $CO_2$

16   for their homes.

17        Q.    Were any of those pipelines in your

18   Rebuttal Exhibits 2 and 3 intentionally located in

19   close proximity to those occupied structures?  Or did

20   those occupied structures come later?

21        A.    I have no knowledge of exactly which

22   structures were there when the pipelines were

23   constructed.

24        Q.    I believe your exhibits identify that.  So

25   just one second.

```
 1         A.   Are you referring to the three pipelines in
 2    the Harris pipeline case proximity study or the
 3    exhibits?
 4         Q.   Yes, and there were photos identifying that
 5    the structures were built afterwards in your exhibits.
 6         A.   Yes, on those specific pipelines, yes, the
 7    development did occur after the pipelines were
 8    installed.  But those were a micro snapshot of the
 9    locations where the development did occur.  I can't,
10    you know, state what other infrastructure or
11    structures were in the near vicinity of those
12    pipelines outside of the locations identified in that
13    study.
14         Q.   Isn't there a difference between choosing
15    to locate your home somewhere versus having something
16    come in when you didn't ask it to come into the
17    neighborhood?
18         A.   I would say, yes, there is a difference.
19              MS. GRUENHAGEN:  I have another hearing
20    exhibit.  And we'll just -- this is going to be IFBF
21    Hearing Exhibit 5.  There's more pages to this one.
22    BY MS. GRUENHAGEN:
23         Q.   On page 6 of your direct testimony -- while
24    they're handing that out, we can just -- starting on
25    line 21 of page 6.
```

```
 1                    You identify an Environmental Construction

 2    Plan?

 3          A.    Correct.

 4          Q.    And that's to -- in the testimony, it's

 5    used to mitigate environmental impacts during

 6    construction?

 7          A.    Correct.

 8          Q.    Were you involved in reviewing this

 9    document?

10          A.    Yes.

11          Q.    Have you had a chance to look at it in

12    front of you there?

13          A.    So this is just a copy of our Environmental

14    Construction Plan.

15          Q.    Is that the document that you were

16    referencing in your direct testimony?

17          A.    Correct.

18          Q.    And I believe it's dated January of 2022.

19          A.    Correct.

20          Q.    Is there a more recent draft of that

21    document?

22          A.    Not that I'm aware of.  I believe that this

23    is the most recent version, but I could certainly

24    check on that.

25          Q.    And when will Summit finalize this
```

1    Environmental Construction Plan?  Approximately.  If

2    you know.

3          A.   I would say that it's probably in final

4    form at this point.  The only thing that I would say

5    that could lead to changes in this -- and Jon Schmidt,

6    who will testify later, is certainly better versed in

7    all the environmental construction best management

8    practices and everything else that's detailed in this

9    document, but, to me, this is a final form.

10              If we get some sort of guidance or

11   recommendations on changes here from the Army Corps of

12   Engineers, the Department of Natural Resources,

13   U.S. Fish and Wildlife, for example, then we would

14   incorporate those changes at that time.

15         Q.   Is Summit willing to include this document

16   as a part of its pipeline permit?

17         A.   Certainly.  Yes.

18         Q.   And I'm going to ask you a couple of

19   questions about the document.  If it's not something

20   that you're familiar with, then just let me know who I

21   should talk to about it.  But I'm not going to get too

22   in depth on this because I understand you're more of

23   the overview guy on this; right?

24         A.   Yeah, and, just to put it into perspective,

25   so this Environmental Construction Plan will be used

1    in conjunction with the AIMP.  And, if there's

2    anything that's conflicting between the two, we'll use

3    the more stringent requirements, which is usually the

4    AIMP.  This touches on obviously some additional items

5    that the AIMP does not get into.

6             Q.    Just for the record, what does AIMP stand

7    for?

8             A.    Agricultural Impact Mitigation Plan.

9             Q.    And that was submitted as Exhibit I with

10   the permit application?

11            A.    Correct.

12            Q.    And it was last revised, I believe,

13   August 22?  Do I have the date right?

14            A.    Yeah, I think there were some simple

15   revisions, one of which was just updating the list of

16   county inspectors.

17            Q.    So, with the Environmental Construction

18   Plan, on page 19 under section 5.0.

19            A.    Okay.

20            Q.    In that first sentence there, it says

21   "Wetland delineations will occur before construction."

22               Has that occurred already?

23            A.    Correct.  So part of the surveys that we

24   conducted were what I call bio surveys.  Biological

25   surveys.  And part of what they're doing are wetland

 1   delineations.

 2          So I believe we surveyed well over

 3   97 percent, it could be as high as 99 percent, of the

 4   Iowa route.  And we've done the wetland delineations

 5   as required.

 6          We've presented all that information to the

 7   Army Corps of Engineers.  I believe they had

 8   additional wetlands that were layered on, and we've

 9   incorporated those into our design.

10          And, in the engineering design of our

11   workspace, for example, we nicked down the

12   right-of-way in those locations.  We're required to

13   place mats at those locations, for example.

14          So we have completed wetland delineations

15   for the vast majority of the pipeline route.

16       Q.   So, when you said you did a survey for

17   wetland delineations, is that just involving talking

18   to the Corps or was there visual?

19       A.   It's in-person field surveys walking the

20   entire route.  With biologists.

21       Q.   Did Summit only consult with the Army

22   Corps of Engineers regarding the wetland delineations

23   or did Summit also talk to the NRCS?

24       A.   I'd have to defer to Jon Schmidt on that.

25   I would imagine that we did talk to NRCS and other

 1    regulatory agencies, but I don't have the specifics on

 2    that.

 3          Q.    Okay.  We'll talk to him about that.

 4                Then, on page 24, at the top of the page it

 5    talks about seed mixing.  I may have the wrong page.

 6    Because I don't see it.

 7                MS. GRUENHAGEN:  Scroll down just a little

 8    bit more.  Still page 24, just scroll down a little

 9    bit more.  There we go.  It's at the bottom of the

10    page.

11    BY MS. GRUENHAGEN:

12          Q.    According to this Environmental

13    Construction Plan, Summit is going to be reseeding the

14    areas that are not in crop production; is that

15    correct?

16          A.    That's correct.

17                MR. DUBLINSKE:  Can I jump in for just a

18    second?  Just to clarify the record, there are

19    actually three different page numbers on every page of

20    this document.  And I believe, on the prior question

21    when Ms. Gruenhagen referred to page 19, she was

22    talking about the number at the bottom.  SCS-SC and

23    then the number.  And, on this one, I believe we're

24    using the page number from the top.  The IFBF hearing

25    exhibit.

1              So, just for clarity of the record, I just

2    want to make sure we use the same page numbering, or

3    explain which page numbering we're using, when we're

4    moving through the document if we could.  Thank you.

5              MS. GRUENHAGEN:  Thank you, Mr. Dublinske,

6    I appreciate that.

7              And I believe I may have put page numbers

8    down in my notes before I labeled them here for the

9    exhibit.

10             So why don't we scroll down to the SCS

11   page 24 at the top of the page.  So just scroll to the

12   next page here.  There we go.

13   BY MS. GRUENHAGEN:

14        Q.   And it talks about specific seed mixes

15   there in the beginning.  The first paragraph of SCS

16   page 24.

17             And so it requires the seed mixes to be

18   consistent with the type of habitat, county, or state

19   regulation.

20             Do you see that in the first sentence

21   there?

22        A.   I do.

23        Q.   If a federal contract requires a certain

24   time of vegetation, such as pollinator habitat for

25   CRP, will Summit use the appropriate pollinator seed

 1    mix for the federal regulations?

 2         A.    We will.

 3         Q.    Is Summit willing then to amend the ECP to

 4    include also federal contracts guidance and

 5    regulation?

 6         A.    We can.

 7              MS. GRUENHAGEN:  Thank you.  That's all I

 8    have for that document.

 9              Your Honor, I would like to offer into

10    evidence IFBF Hearing Exhibit 5.

11              MR. LEONARD:  No objections.

12              BOARD CHAIR HELLAND:  Hearing no

13    objections, the Board will admit IFBF Hearing

14    Exhibit 5.

15              MS. GRUENHAGEN:  Thank you, Your Honor.

16         A.    Is this one not titled Exhibit 5 as well?

17    Oh.  So we're admitting it.  Sorry.  Okay.

18    BY MS. GRUENHAGEN:

19         Q.    Yes.  The ECP, we were just discussing

20    admitting that into evidence.

21         A.    So we can make those amendments, as you

22    suggested, and then I will check to see if we can deem

23    this final and then have that part of the record.

24         Q.    Thank you.  I appreciate that.

25              We're going to switch topics again and talk

1    more a little bit about land restoration activities.

2              In your direct testimony on page 9,

3    starting on line 4, you state that "Successful

4    restoration and revegetation of the project workspace

5    is important for landowner relations, maintaining

6    productivity, and protecting the underlying soil from

7    potential damage."

8              Does that sound familiar?

9         A.   Yes.

10        Q.   What do you think are the most important

11   aspects of achieving successful restoration of

12   agricultural land?

13        A.   You know, certainly separation of the

14   topsoil and the subsoil prior to construction

15   starting, I think, is one of the most critical items

16   that can take place.  Protecting the drain tile.

17   Properly repairing the drain tile.  I think those are

18   some of the critical items.

19              And then stabilization of the topsoil

20   during the construction process.  And, you know, I

21   know that since the Dakota Access pipeline was

22   installed, that there were a lot of changes to the

23   Chapter 9 Board rules to address, I believe, all of

24   those items.

25              So those, to me, are the largest

 1    restoration considerations.

 2          Q.    Prior to Dakota Access, wasn't topsoil

 3    already required to be separated from the subsoil and

 4    stabilized?

 5          A.    I believe that the stabilization was not a

 6    requirement.  I'd have to defer to Aaron DeJoia who's

 7    got the specifics on that who will be testifying later

 8    today or tomorrow.  But I believe that there was some

 9    enhanced language around topsoil stabilization.

10          Q.    But topsoil was already required to be

11    separated from the subsoil.

12          A.    I believe so, yes.

13          Q.    And weren't tile lines -- they were already

14    required to be repaired?

15          A.    They were required to be repaired.  I know

16    that, in my experience working on projects that

17    involve tile, best practices are to telescope the tile

18    on both sides of the right-of-way to make sure that

19    the tile wasn't crushed during restoration activities

20    through travel -- you know, through the travel lane,

21    for example.

22                My understanding is that telescoping of the

23    tile was not a requirement for Dakota Access and it

24    now is.  So that would be another example of enhanced

25    kind of requirements.

 1          Q.    When you state there on page 9 that you

 2    will protect the underlying soil from potential

 3    damage, do you mean both the topsoil and the subsoil?

 4    Or what did you mean by that?

 5          A.    You know, so the subsoil, to me, is -- the

 6    damage that occurs there -- and, again, I'm not a soil

 7    expert, I would defer to Mr. DeJoia on that, would be

 8    compaction of the subsoil.

 9                And, you know, we're certainly going to

10    de-compact as required by the Board rules and the

11    AIMP.  So that, to me, is a way to mitigate the issues

12    from the subsoil compaction.

13          Q.    Part of the AIMP talks about wet

14    conditions.  Construction in wet conditions.  And I

15    believe it provides an option for Summit to remove the

16    topsoil in the traveled way to be able to continue

17    construction.

18                Am I paraphrasing that correctly?

19          A.    I believe that's correct.  And I believe

20    the language is verbatim from the Board rules.

21          Q.    So, if that was done and it's in wet

22    conditions and that subsoil is also saturated, can you

23    explain why running heavy construction equipment over

24    the subsoil won't cause compaction?

25          A.    I'd have to defer to Mr. DeJoia.  I know

 1    that there are things you can do to mitigate

 2    compaction.  Such as placing mats down in wet

 3    conditions, you know, and other means to mitigate

 4    those issues.  But we need to defer to Mr. DeJoia on

 5    specifics.

 6          Q.    Okay.  We'll talk to him about that.

 7                In your testimony, and I believe this is

 8    the direct testimony, page 3, lines 12 through 14, you

 9    talk about an easement of 110 feet wide for

10    construction.

11          A.    Correct.

12          Q.    And I believe the statute talks about

13    75 feet.

14                Can you explain why that additional amount

15    of feet is necessary for construction?

16          A.    So the construction footprint does range

17    from 100 to 110.  I believe the breaking point for the

18    increased additional ten feet is 16-inch pipe and

19    above.

20                So the 12-inch pipe and below, the

21    temporary easement is only 50 foot wide.  It's 60 foot

22    wide for the larger pipe.

23                The width of the easement is needed

24    primarily due to the topsoil.  When you strip off, you

25    know, 18 inches, two feet, three feet of topsoil, you

```
 1    have a very large topsoil pile that takes up a very

 2    large footprint.

 3              So that's the primary reason on the width

 4    of the temporary easement.

 5         Q.    And so you need more than the 75 feet under

 6    the statute in order to store topsoil and subsoil?

 7         A.    Correct.

 8         Q.    At the top of page 4 of your rebuttal

 9    testimony, you provide an example of why Summit

10    might -- and we talked about this a little bit

11    already.  I just want to make sure we're clear on it.

12              You provide an example of why Summit might

13    install pipe above a drain tile.  Are there any other

14    reasons why that might occur?

15         A.    No, the reasons I mentioned earlier are the

16    reasons.

17         Q.    Are you also in charge of hiring the

18    contractors for this project and overseeing them?

19         A.    I am.

20         Q.    Can you name who the primary contractors

21    are for this project?

22         A.    I can.  So we're using three contractors in

23    the state of Iowa.  They're all union contractors.

24    Which means that they're going to be required to hire

25    50 percent local.  So there'll be a lot of local jobs
```

```
 1   utilizing union contractors.

 2              So our three contractors are Precision,

 3   Rockford, and Associated.

 4        Q.    Were any of those contractors used during

 5   the Dakota Access project to your knowledge?

 6        A.    Precision was.

 7        Q.    Were you involved in the topsoil surveys or

 8   would you be familiar with that?  Or would that be a

 9   different witness?

10        A.    I'm certainly aware of them and involved

11   from a high-level standpoint.  Specific questions

12   about what those are would need to be directed to

13   Mr. DeJoia.

14        Q.    I'll ask a couple of high-level questions.

15   And, if I get too detailed, then just feel free to

16   tell me that.

17              Okay?

18        A.    Certainly.

19        Q.    Once Summit has conducted the topsoil

20   survey and has the results of that and they share it

21   with the landowner, what is the process, I guess, for

22   sharing it with the landowner?  Can you describe what

23   that is going to be like?

24        A.    I don't know if that's been fully flanged

25   up yet, but certainly we'll follow the Board rules and
```

```
 1   the AIMP.

 2             You know, my understanding is that the data

 3   and the results of that will be presented to us from

 4   the company conducting those, which is actually Soil

 5   and Eco.  Which Mr. DeJoia is involved with.  So he

 6   can give you the exact details.  But whatever is

 7   typical through the Board rules and the process there

 8   is what we'll do.

 9        Q.   Has Summit thought through how they're

10   going to handle the situations where landowners may

11   not agree with that topsoil survey?

12        A.    Certainly.  We've had several landowners

13   that have requested that we strip less topsoil than

14   what was identified in the topsoil survey without them

15   seeing the results.  We've included clauses in our

16   easement docs that reduces the depth of the topsoil to

17   an identified amount, for example.

18             If the landowner says, "Hey, I just want

19   you to strip one foot of topsoil and I don't care what

20   the topsoil survey says," then we're going to abide by

21   what the landowner wants us to do.

22             It will be a part of the construction line

23   list, which is given to the contractor, and they'll

24   know exactly what depth of topsoil that they'll need

25   to strip off.  And the construction line list will be
```

```
 1   made available to the county inspectors as well.

 2              But those types of instances are being

 3   documented in the easement themselves.

 4         Q.   So, if a landowner is a landowner for which

 5   an Exhibit H has been filed, so there's not an

 6   easement on file at this point, are they going to be

 7   able to indicate their wishes for topsoil depth to be

 8   put in your line list?

 9         A.   I would say yes.  At the time that the

10   easement is executed, I would expect that they would

11   want that language in the easement.  If there was

12   another mechanism for us to document that, we

13   certainly would incorporate that.

14              But my expectation would be that those

15   landowners would be treated the same as all other

16   landowners that have signed easements.

17         Q.   So, if a landowner wasn't aware that this

18   was going to be an issue and their easement is

19   condemned, will they still be able to have a say in

20   how much topsoil gets stripped off their property?

21         A.   Specific easement language, conversations,

22   and how that works through condemnations is not my

23   wheelhouse.  So I would defer those conversations and

24   those questions to Mr. Rorie.

25              But, in my opinion, we certainly will work
```

```
 1   with all landowners to the very last day to

 2   incorporate language and things in the easement that

 3   are concerning and important to them.

 4        Q.    On page 9, line 21, of your direct

 5   testimony, you talk about 38 access roads that are

 6   going to be built.

 7             Does that number sound correct?

 8        A.    Sure.  There's a lot of numbers, but, if

 9   that's what I wrote, then, yes, at the time there was

10   38 access roads.

11        Q.    And I believe you also testified that

12   gravel is going to be used on those access roads?

13        A.    Potentially, yes.

14        Q.    In the instances that gravel is used on

15   those access roads across the property, will Summit

16   agree to remove all of the gravel even if it's smaller

17   than three inches in diameter?

18        A.    Yes.  So our intent is to -- you know, for

19   any access roads, temporary access roads I should say,

20   we're going to restore them to original condition.

21   And a lot of -- at least in my experience, in a lot of

22   situations, the landowner wants to us leave the

23   improved road, and we'll certainly do that when

24   requested.  If not, we'll restore it to its original

25   condition.
```

```
 1          Q.   And then I just have two final questions

 2   here so that you'll get to have the rest of your day

 3   back here.

 4               During your deposition, we talked a little

 5   bit about staging areas.

 6               Do you recall that?

 7          A.   Correct.

 8          Q.   Could you describe what a staging area is?

 9          A.   You know, to me, a staging area would be

10   either a pipe yard, a mat yard, or a contractor

11   construction laydown yard.

12          Q.   And about how many acres would that take

13   up?

14          A.   They vary in size.  I think they're

15   anywhere from 5 to 15 acres with the high end being

16   for the pipe storage.

17          Q.   And have those locations been identified?

18          A.   Preliminarily.  I don't believe that we've

19   secured -- or leased any of those yet, but I believe

20   that we've identified all of them in Iowa and are

21   working towards coming to terms with the owners of the

22   properties.

23          Q.   And you're going to have lease arrangements

24   with those owners?

25          A.   Correct.
```

1          Q.    And you're not looking at eminent domain

2     for that.

3          A.    We are not.

4          Q.    Okay.  Very good.  And then also during

5     deposition, and I believe you also have some testimony

6     as well, would you agree that each individual property

7     along the route may have different crop yield outcomes

8     as a result of the pipeline construction?

9          A.    I would say yes.  You know, I would defer

10    to Mr. DeJoia on his expertise in that field.

11              MS. GRUENHAGEN:  That's all the questions I

12    have.  Thank you.

13              THE WITNESS:  Thank you.

14              BOARD CHAIR HELLAND:  Thank you.

15              The Board has several questions.  So,

16    before we get to that, we will take a quick 15-minute

17    break and be back at 9:35.

18              (Recess taken at 9:20 a.m.)

19              (Hearing resumed at 9:37 a.m.)

20              BOARD CHAIR HELLAND:  Okay.  It is 9:37.

21    We are back on the record.

22              I see Ms. Kohles has her name tent up.  And

23    Mr. Fallon.

24              Before we get to that, we need to get some

25    clarification from Mr. Fallon.

 1                    Are you seeking to represent Bold Iowa?

 2                    MR. FALLON:  Yes.

 3                    BOARD CHAIR HELLAND:  You were requested to

 4    make that motion in writing by the Board.  And that

 5    did not happen.  Are you making that motion now to

 6    represent Bold Iowa?

 7                    MR. FALLON:  Yes.  I spoke with somebody

 8    about this last week.  Originally, I was probably

 9    going to be out of town.  But, due to a family

10    illness, my schedule changed and I was able to be

11    here.

12                    There were two other reps from our

13    organization that were going to speak, but -- one of

14    them now has health issues, the other one is wrapped

15    up in some major farm equipment changes.  So that

16    leaves me.

17                    BOARD CHAIR HELLAND:  The motion is

18    granted.

19                    MR. FALLON:  Thank you.

20                    BOARD CHAIR HELLAND:  Ms. Kohles, proceed.

21                         CROSS-EXAMINATION

22    BY MS. KOHLES:

23         Q.   Good morning.  Mr. Schovanec, I'm Jean

24    Kohles with Kohles Family Farms.

25         A.   Good morning.

1          Q.   I'll make it simple.  I want to know do you

2    have equity ownership, or any ownership, in the

3    applicant or any related Summit industries or

4    entities?

5          A.   I do.

6          Q.   Can you name what they are?  I don't know

7    if you can or not.

8          A.   You know, I have equity in the company.  I

9    guess that's all I can say.

10         Q.   And Summit.  Does it also include the

11   Midwest Carbon Express?

12         A.   Yes.  I have equity in the Summit Carbon

13   Solutions project.

14              MS. KOHLES:  Okay.  Thank you.  No further

15   questions.

16              BOARD CHAIR HELLAND:  Mr. Fallon.

17                   CROSS-EXAMINATION

18   BY MR. FALLON:

19         Q.   Good morning.  I've been following the

20   proceedings online, so I haven't missed too much, but

21   I missed a bunch coming up this morning on the drive

22   here.  But I'm going to assume that what I'm going to

23   discuss and ask hasn't been addressed yet.

24              One concern I have -- again, my background,

25   my personal background, is as a state legislator who

 1    worked heavily on eminent domain law.  In fact, the

 2    one bill that I floor managed as a legislator was on

 3    eminent domain.

 4             And why only one bill?  Well, Democrats

 5    didn't get to manage bills when Republicans were in

 6    control.  And that usually works vice versa.

 7             And that was because there was a pretty

 8    strong public opinion, agreement, across the political

 9    spectrum that there were concerns about eminent

10    domain.

11             I want to get back to that, but, first, you

12    mentioned -- you talked a lot about soil.  And the

13    other thing I've done was back in 2015 I walked from

14    southeast Iowa to northwest Iowa --

15             MR. LEONARD:  Objection, Your Honor.

16             BOARD CHAIR HELLAND:  State your objection.

17             MR. LEONARD:  I'm going to object to the

18    lengthy narrative.  This is a time for

19    cross-examination.  If he has a question for the

20    witness, I'd like to hear the question.

21    BY MR. FALLON:

22        Q.    Sure.  The question is that, again, as I

23    made my way across Iowa, I met with a lot of people

24    with concerns about what they were being told by the

25    Dakota Access pipeline agents.

 1              And I know that -- I've heard you say that

 2   things are different now, but I also notice you have

 3   the exact same counsel that Dakota Access had, and a

 4   lot of the concerns that were expressed to me back

 5   then have kind of been borne out.

 6              For example, concern of separation of

 7   topsoil --

 8              MR. LEONARD:  Objection.

 9              BOARD CHAIR HELLAND:  State your objection.

10              MR. LEONARD:  The same objection I made.

11   It hasn't been ruled upon.  I'm going to object to the

12   lengthy narrative.  He's been speaking for a couple

13   minutes now without a question.

14              BOARD CHAIR HELLAND:  Okay.  So

15   Mr. Fallon -- Mr. Fallon.  Mr. Fallon.  Thank you.  So

16   not the house floor.  By that, I mean when we have an

17   objection, they'll state their objection and you can

18   reply to their objection --

19              MR. FALLON:  Sure.

20              BOARD CHAIR HELLAND:  -- and then we will

21   rule on the objection --

22              MR. FALLON:  Ah.

23              BOARD CHAIR HELLAND:  -- and then you can

24   get back to your question.

25              MR. FALLON:  Gotcha.  So, again, I think

 1   some of the background is providing for context of the

 2   questions I'm planning to ask.

 3              BOARD CHAIR HELLAND:  Appreciate that.

 4   Please get to your question.

 5   BY MR. FALLON:

 6        Q.   All right.  So, for example, there's a

 7   landowner in Mahaska County.  I got a photograph of

 8   the topsoil that was thrown back into the trench.  So,

 9   even if it was separated partially, it was thrown back

10   in the trench.

11              I mean, is that -- is that -- how do we

12   have assurance that that's not going to happen again?

13   Because this landowner was told that wouldn't happen.

14   It did happen.

15              What confidence can people have that these

16   types of offenses aren't going to occur again?

17        A.   I would say that the confidence is that

18   we're going to have third-party county inspectors that

19   are representing the counties and the landowners.  And

20   we're going to follow the AIMP.  They're going to

21   enforce the AIMP.  So that will prevent instances,

22   such as you mentioned, of putting topsoil in the

23   ditch.

24        Q.   But, again, that same promise was made

25   before.  What's different this time that's going to

1    allow people to have confidence that the topsoil will

2    be treated with the respect due to it?

3           A.   Again, you know, the expectation is that

4    the county inspectors are going to do their job.  Our

5    contractors are certainly going to do their job.

6                Not only are there going to be county

7    inspectors, but Summit will have third-party pipeline

8    inspectors, agricultural inspectors, environmental

9    inspectors that are going to ensure that we follow

10   what we said we will do and follow the AIMP.  You

11   know, respect all of the wishes of the landowners and

12   the easements that will be captured in the

13   construction line list, follow the Environmental

14   Construction Plan and all the best management

15   practices, et cetera, et cetera.

16          Q.   Is much of the pipeline route slated to go

17   through forestland?

18          A.   I don't have that exact figure.  I know

19   that the vast majority of our pipeline route goes

20   through ag land.

21          Q.   Sure.  But there will be some that would go

22   through forested land?

23          A.   There are some forested areas that we go

24   through.  We do nick down the construction easement in

25   those locations to mitigate impacts.  And some

```
 1   different construction practices and techniques takes

 2   place in those areas.

 3           And certainly a lot of those areas are just

 4   going to be directionally drilled because a lot of the

 5   forested areas are immediately adjacent to large water

 6   bodies.

 7           So those are some of the ways that we're

 8   trying to mitigate clearing of forested areas.

 9       Q.   And I ask that because there were couple --

10   several actually instances of forestland on the DAPL

11   route that weren't treated according to the directions

12   that the landowners were given.

13           One was a big swath was cut out of that

14   forest, and the landowner was told that the logs would

15   be saved for lumber, the smaller stuff for firewood,

16   and then the brush would be burned.  And one night he

17   saw a big fire and everything was burned.

18           So, I mean, is there any precaution that

19   you would be taking to assure that if you do have to

20   cut through a big swath of timber, that that

21   destruction of valuable lumber would not occur?

22       A.   So the typical practice would be to haul

23   off cleared trees.  We certainly ask the landowners if

24   they would like us to give them the trees or -- you

25   know, there's other things that can be specific within
```

1    the easement.

2              But the typical practice is to clear -- to

3    haul off the cleared debris.  If the landowner wishes

4    to do something different with those trees, we

5    certainly can agree to that and have agreed to that on

6    numerous locations.

7         Q.   And, again, that happened in the DAPL

8    situation where the landowner was promised two of

9    those different types of wood and it was all burned.

10             I guess I'm just hoping that people could

11   have real confidence that wouldn't happen again.

12        A.   Yeah, so what I can tell you is we will go

13   through every single easement, and specific requests

14   or things that were a part of that easement will be

15   captured in what we call a construction line list that

16   has the specific requirements on that individual

17   parcel.

18             That construction line list will be given

19   to our inspectors, it will be given to the contractor,

20   it will be given to the county inspectors, and then

21   the contractor will know exactly what they're to do on

22   every single parcel, including the depth of topsoil,

23   et cetera.

24             So I can't speak for Energy Transfer and

25   what they did or didn't do.  All I can say is that

```
 1    we're going to follow the rules and the processes that

 2    are in place.

 3         Q.   How familiar are you with eminent domain

 4    law dating back, say, 25 years?

 5         A.   I am not familiar.

 6         Q.   So this was a big debate back in 1999,

 7    2000, 2005, '6, and a lot of changes were made to

 8    eminent domain law.  And there was a general sense

 9    that --

10              MR. LEONARD:  Objection.

11              BOARD CHAIR HELLAND:  State your objection.

12              MR. LEONARD:  Your Honor, Mr. Fallon is

13    testifying as to what's happened in eminent domain law

14    apparently over a period of decades.  This is a time

15    for cross-examination of a witness.  If he has a

16    question, he should ask a question.

17              BOARD CHAIR HELLAND:  Do you have a

18    response, Mr. Fallon?

19              MR. FALLON:  Again, just a little bit of

20    background in order to frame the question seemed

21    appropriate to me.

22              BOARD CHAIR HELLAND:  Please try to stick

23    to cross-examination.  There may be a very small

24    amount of foundation for that question.

25
```

```
 1   BY MR. FALLON:

 2       Q.   So the small amount of foundation is that

 3   there's been a consensus that eminent domain should be

 4   used for public purposes.

 5            How do you see this as a public purpose?

 6            MR. LEONARD:  Objection to the extent it

 7   calls for a legal conclusion.

 8            BOARD CHAIR HELLAND:  Do you have a

 9   response to that objection, Mr. Fallon?

10            MR. FALLON:  I don't even understand what

11   the objection is, I'm afraid.

12            MR. LEONARD:  He's asking a lay witness to

13   provide a legal opinion.

14            MR. FALLON:  I mean, this is a quasi-legal

15   proceeding, and it's not -- I mean, yeah, I guess he

16   could have a legal opinion on it, but there's also

17   public opinion, and opinions from everybody in

18   between, and it seems like it's a very important and

19   relevant question given the extent to which eminent

20   domain would be used to build a pipeline.

21            BOARD CHAIR HELLAND:  You may answer the

22   question if you know the answer.

23       A.   I certainly do not think I'm qualified to

24   answer that question.

25
```

```
 1    BY MR. FALLON:

 2         Q.   So I guess my -- and maybe it's a -- would

 3    you do me a favor and inquire within the company if

 4    there's someone with the expertise who could answer --

 5    you know, give the company's perspective on how

 6    eminent domain law has changed and whether or not this

 7    qualifies as a public purpose.

 8              MR. DUBLINSKE:  Your Honor, that clearly is

 9    a legal argument, and we will address that in our

10    post-hearing briefs.

11              MR. FALLON:  Got it.

12              BOARD CHAIR HELLAND:  Thank you.

13              MR. FALLON:  That's all I have, sir.

14    Thanks.

15              BOARD CHAIR HELLAND:  Thank you.

16              Ms. Kohles, I see your placard is back

17    up -- okay.  There we go.

18              I don't see any other questions from the

19    parties.

20              Oh.  I'm sorry.  Mr. Meyer.

21              MR. MEYER:  Your Honor, I didn't know if it

22    was out of order to ask for a clarification derived

23    from the two exhibits that were entered in his

24    testimony.

25              BOARD CHAIR HELLAND:  A clarification is
```

```
 1  fine.  Go ahead.
 2              FURTHER CROSS-EXAMINATION
 3  BY MR. MEYER:
 4       Q.    Your surveying and your route planning.
 5  You talked about structures, and then there were other
 6  cultural concerns, things that you were trying to
 7  identify in your surveying; is that right?
 8       A.    Correct.
 9       Q.    Did that include identification of any
10  pioneer cemeteries in Hardin County?
11       A.    Not that I can recall or am aware of.
12       Q.    If a number of those cemeteries are on
13  older plat maps, but, as new plat maps have been
14  created, they've not been reidentified on newer plats,
15  would you believe it would be a good idea for Summit
16  to have access to current information about where
17  pioneer cemeteries are located in Hardin County in the
18  event that this proposed route might disturb those
19  grounds?
20       A.    Certainly.  If there's, you know, updated
21  data sets that we may not have, we would certainly
22  like to have those to analyze that versus our route.
23  And, to the extent that those need to be avoided, I'd
24  have to defer to Mr. Schmidt on his expertise there.
25              MR. MEYER:  Thank you.  No other questions.
```

```
 1                    BOARD CHAIR HELLAND:  I believe Board

 2    Member Byrnes has questions.

 3                    BOARD MEMBER BYRNES:  Is it Schovanec or

 4    Schovanec?

 5                    THE WITNESS:  Schovanec.

 6                    BOARD MEMBER BYRNES:  Schovanec.  Thank

 7    you.

 8                    All right.  We've got a lot of questions.

 9                    So, the first thing, I just want to

10    piggyback on something that was talked about, I

11    believe, yesterday.  I found it interesting.

12                    We had an individual here from the Charles

13    City Area Development Corporation.  And I believe

14    yesterday, and I just want to clarify, you stated that

15    you had multiple conversations with him?  Or the

16    group?  Or all of the above?

17                    THE WITNESS:  I personally went to one of

18    their -- I don't know if it's a board meeting or

19    whatever there is.  We went with our right-of-way team

20    and some of the other project managers.

21                    I know that two of the project managers

22    that report to me met with the Charles City board

23    numerous times.  I don't know the exact quantity of

24    times.  It might have been four, five, six times.

25                    I know that there was continued
```

 1    correspondence for a very lengthy period of time with

 2    multiple parties involved.

 3                    BOARD MEMBER BYRNES:  Do you remember

 4    what -- or do you remember when that board meeting

 5    was?

 6                    THE WITNESS:  I would say probably three or

 7    four months ago.

 8                    BOARD MEMBER BYRNES:  Was anybody else in

 9    this room part of that board meeting that's here

10    today?

11                    THE WITNESS:  I do not believe so.

12                    BOARD MEMBER BYRNES:  Who else from Summit

13    was with you at that meeting?

14                    THE WITNESS:  I believe that Kylie Lange,

15    who is a project manager, was there.  Jeremy Peroni

16    (phonetical), who is one of the right-of-way

17    supervisors.  And I believe two other right-of-way

18    agents were there.

19                    BOARD MEMBER BYRNES:  And I believe

20    yesterday you said you thought you had a verbal

21    agreement.

22                    Can you expand on that just a little bit?

23                    THE WITNESS:  Yeah.  So, you know,

24    Mrs. Lange, again, had been meeting with Charles City

25    members continuously.  And, you know, there was

 1    several meetings that she attended, ultimately they

 2    presented an offer, and I believe that there was a

 3    counteroffer from the Charles City board that we

 4    honored.

 5              And then my understanding is there was a

 6    verbal agreement that that would go to the board for

 7    final approval and that we would execute an easement.

 8    And then something changed and then they no longer

 9    were wanting to move in that direction.  And then they

10    came back with a different offer that was

11    substantially higher.

12              BOARD MEMBER BYRNES:  Thank you.  On

13    April 13, 2022, Summit Carbon also filed a response to

14    Board staff questions.  In Summit Carbon's response,

15    it states it does not intend to perform construction

16    in the winter.

17              Is that still a true statement?

18              THE WITNESS:  Yes.  That is correct.

19              BOARD MEMBER BYRNES:  So if we had a -- I

20    mean, you just don't know in Iowa.  What if we had a

21    mild winter?  Or there's a hard stop date regardless

22    or --

23              THE WITNESS:  I think that -- you know, my

24    understanding is that a winterization plan can be

25    developed.  And I believe that was the case on Dakota

 1   Access.

 2              Our current plans are to end construction

 3   really probably in late November and start

 4   construction probably around April.  You know, it's

 5   all weather dependent.

 6              I can't say that certain construction

 7   activities may not take place during the winter, you

 8   know, such as testing of pipe and things like that.

 9   But major disruptive construction activities currently

10   we are not planning to conduct through the winter.

11              You know, I think it would be prudent to

12   develop a winterization plan in the event that we

13   elected to do that and that was given as an

14   opportunity.

15              And, just for the record, I would state

16   that in other states we have contemplated working

17   through the winter.  Just Iowa is not one of them.

18              BOARD MEMBER BYRNES:  And you would be

19   willing to file a winter construction plan if you were

20   to continue through if it was allowable?

21              THE WITNESS:  Yes.

22              BOARD MEMBER BYRNES:  I believe Farm Bureau

23   asked you some questions about seeding, a weed

24   management plan.  I want to expand on that a little

25   bit.

1              Has Summit conducted an outreach to NRCS

2    on --

3              THE WITNESS:  I believe so.  I would defer

4    to Mr. Schmidt on specifics there.

5              BOARD MEMBER BYRNES:  I have a couple other

6    questions for that, but we'll save them for

7    Mr. Schmidt.

8              I'm going to get into just the wet

9    condition conversation a little bit.  OCA witness

10   Bents in his direct testimony on page 20 -- I don't

11   know if we want to pull that one up so you can

12   reference.  So Bents direct testimony, page 20,

13   recommended that the Board establish an objective

14   standard or test for the term "wet condition."

15             Do you have a proposed objective standard

16   or a test for "wet condition"?

17             THE WITNESS:  I believe that Mr. DeJoia,

18   our certified professional soil scientist, does have

19   some recommendations, and he will be testifying after

20   me.

21             BOARD MEMBER BYRNES:  So he'd be the best

22   individual for anything related to wet conditions.

23             THE WITNESS:  Correct.

24             BOARD MEMBER BYRNES:  Then I will save

25   those questions for Mr. DeJoia.

1              So, on page 3, lines 18 through 19 of your

2    direct testimony, you state Summit Carbon intends to

3    commence construction in 2024 and have the pipeline

4    operational by the second quarter of 2025.

5              Are there any updates to this timeline

6    based on the time you did your direct to where we're

7    at today?

8              THE WITNESS:  You know, I would state that

9    obviously other states are going to, you know, factor

10   in to when we start construction.  So it's going to be

11   dependent on state permits in other states.

12             But, at this time, we're still intending to

13   start construction in 2024 with an in-service date of

14   mid 2025.

15             BOARD MEMBER BYRNES:  So there was an

16   interesting item, and it said that land which produces

17   sorghum was listed as places to avoid.

18             Why is that?

19             THE WITNESS:  Where specifically was that

20   listed?

21             BOARD MEMBER BYRNES:  I don't have it

22   listed right here.  L3 attachment.

23             THE WITNESS:  I would have to defer to

24   Mr. Schmidt on that one.

25             BOARD MEMBER BYRNES:  Okay.  And

1    Ms. Gruenhagen talked about some of these individual

2    buildings or homes that -- the distance from where the

3    pipeline ran.  And, just for clarification purposes,

4    can you explain how you determined that appropriate

5    minimum distance?

6              THE WITNESS:  Well, you know, obviously

7    we're trying to exceed greatly the PHMSA requirements

8    of the 50-foot, and others, depth of cover

9    considerations there.  And, again, it's a balance of

10   trying to accommodate individual landowners' requests.

11             I understand the concerns that

12   Ms. Gruenhagen brought up about adjacent landowners

13   and the impacts there.

14             So, where possible, we try to have the

15   pipeline be hundreds of feet away from structures,

16   houses primarily, where we can.  You know, you have a

17   conflict, obviously, with that one example brought up

18   on the pivot irrigation where you either have to be

19   adjacent to the road -- which, in my experience, is

20   not uncommon for utilities to run parallel with a

21   road.  I think a lot of gas utilities, fiber lines as

22   an example.  Power lines obviously run adjacent to a

23   road.

24             So I think most of the examples where we're

25   close to houses are primarily in those types of

1    situations.

2              BOARD MEMBER BYRNES:  We hear from a lot of

3    people, so sometimes I'm unsure who said what without

4    going back to the record, but I know we've talked

5    about high-consequence areas.

6              So being 400 feet from a home is not a

7    high-consequence area by definition?

8              THE WITNESS:  That's correct.

9              BOARD MEMBER BYRNES:  And, again, just for

10   clarification of the record, what is the definition of

11   a high-consequence area?

12             THE WITNESS:  I'd have to defer to some of

13   the other witnesses on the specific definition of

14   that.  You know, obviously that is defined in the

15   PHMSA regulations.

16             BOARD MEMBER BYRNES:  All right.  We're

17   going to talk about roads here just quickly.

18             So Farm Bureau talked about the 38

19   temporary roads.  I just want to expand on that a

20   little bit.

21             So what are those temporary roads used for?

22             THE WITNESS:  So the temporary roads are

23   used to access the right-of-way to build the pipeline.

24             Generally, we like to traverse across

25   county roads or township roads from the right-of-way

 1    on one side to the right-of-way on the other side.

 2    There's obviously locations where that's not possible.

 3    If there's a railroad, if there's a river, or

 4    something of that nature.

 5            So I would say the vast majority of those

 6    are where we have a directional drill and we need to

 7    immediately access the location where the drill is

 8    exiting or entering.  And it's to get access to that

 9    location so we can again start construction and

10    traverse our way.

11            BOARD MEMBER BYRNES:  And I know there's

12    been a lot of comments from landowners and concerns on

13    construction equipment, heavy equipment, going up and

14    down the gravel roads.  Or just even the secondary

15    blacktop roads in general.

16            So how do you guys -- how does Summit

17    Carbon, how do you mitigate that, how do you work with

18    the county on making sure that those roads are

19    repaired if damaged due to heavy use?

20            THE WITNESS:  Yep.  So a couple of things.

21            One is that we're going to enter road use

22    maintenance agreements with all counties is my

23    assumption.  I think that is the case across all the

24    counties.  Which, you know, is typical.  I mean, I've

25    done that on other projects.

IN RE: SUMMIT CARBON SOLUTIONS
IUB HEARING  09/07/2023                                    Page 2289

```
 1               And so what we will do is --

 2   preconstruction we will have videographers essentially

 3   videotape and document the condition of all of the

 4   roads that we're going to use.

 5               We'll get all the haul routes from the

 6   contractors and all the roads that they intend to use,

 7   and I believe those will all be part of the road use

 8   maintenance agreements.

 9               We'll document the roads preconstruction,

10   we'll document the roads post construction, and then

11   we'll work with the counties to resolve all the

12   locations that have been impacted that need to be

13   repaired.

14               BOARD MEMBER BYRNES:  And so there's 78

15   permanent roads that are necessary to access proposed

16   Summit Carbon locations.  We added up and we got a

17   number of 64.

18               Why would there be a discrepancy on that?

19               THE WITNESS:  You know, all I can say is

20   that, you know, the permanent access roads are used

21   for all of the main line block valves.  There's a

22   quantity of individual main line block valves, and

23   then there's main line valves at launcher/receiver

24   sites, pump stations.

25               All of the permanent access roads that I'm
```

1    aware of are all either a main line valve, a

2    launcher/receiver site, or a pump station.  Or to a

3    capture facility.

4              BOARD MEMBER BYRNES:  On page 10, line 6,

5    of your direct testimony, you stated that no homes

6    will be displaced along the project.

7              How about any structure, in general, being

8    displaced.

9              THE WITNESS:  I'm not aware of any

10   structures at all that would be displaced.

11             BOARD MEMBER BYRNES:  Over the last two

12   weeks -- and you said you listened to a majority of

13   these landowners.  Many, some, I guess, had plans to

14   build structures, potentially homes, that would no

15   longer be possible with construction of the pipeline.

16             I guess how has Summit responded to these

17   concerns?  And there's three that -- or two for sure

18   that come to mind, I guess.  There's one, Nelva

19   Huitink, I believe, I might be mispronouncing her name

20   and I apologize if I am, talked about a new dairy

21   building.  And Mr. David Wildin, he talked about and

22   showed us two unsold residential lots in which the

23   pipeline is running through the front of those two

24   lots.

25             So what kind of conversations have you had

 1   with those individuals where they have situations like

 2   that?  Where it's a development, they have plans.  How

 3   do you try to accommodate?

 4            THE WITNESS:  So I think I've mentioned it

 5   several times, but in the 1,500 or so route

 6   adjustments that we've made, there's been hundreds of

 7   those that were done at the request -- solely at the

 8   request of landowners to accommodate their existing

 9   and future plans.

10            I can't think of a single situation where a

11   landowner has said, "Hey, I've got plans to put a

12   house here," or whatever, and we haven't tried to

13   accommodate that to the best that we can.

14            The example that you gave, and I don't

15   recall how to pronounce her last name.  Huitink.  But,

16   you know, the alignment of our pipeline is following

17   both Dakota Access and a Northern Natural pipeline.

18   So there's two large-diameter pipelines through the

19   same alignment that we're following.

20            If she has a different alignment on her

21   property that suits her better, we're more than

22   willing to consider that and to work with her on that.

23            And then Mr. Wildin.  Again, you know, I'd

24   defer to Mr. Rorie on the right-of-way negotiations,

25   but my understanding is that there was a counteroffer

 1    that he had offered up.  And I believe it included

 2    compensating him for those two parcels, or the two

 3    lots that he claimed he would not be able to sell, and

 4    then when we told him we would honor that

 5    counteroffer, then he changed his mind again.

 6             So, you know, again, that was another

 7    situation where we thought we had come to an agreement

 8    and obviously we did not.

 9             BOARD MEMBER BYRNES:  I know, on that

10    parcel, he had shared with us, like, an alternative

11    route that would go through more of like a county -- I

12    believe like a recreational area, I think, more to the

13    north and west of his property.

14             Do you recall any conversations around that

15    alternative route with him?

16             THE WITNESS:  I don't recall that.  I mean,

17    he's immediately adjacent to a railroad and a river.

18    And we're drilling the entire property.

19             So, in my recollection, to either get off

20    of that property -- and I believe he owns additional

21    properties as well.  But getting off of that property

22    was going to be very problematic and result in a large

23    reroute that I believe was going to get us entirely

24    out of our notice corridor.

25             BOARD MEMBER BYRNES:  On page 10, lines 20

```
 1   through 21 of your direct testimony, you described

 2   open trenching through roads.

 3             In what situations do you need to open

 4   trench the road versus drilling under?

 5             THE WITNESS:  Yeah, so every county has got

 6   different requirements, you know.  So we'll open cut

 7   certain roads.  You know, if it's a dirt road and the

 8   county allows it, we may open cut it.

 9             I think the vast majority of our

10   contractors are wanting to drill every road anyway.

11   And I know that the vast majority of them we are

12   planning to drill and will drill.  And it may be all

13   of them.

14             There's a very high percentage of roads

15   that we're going to drill just because, if you open

16   cut, if there's any kind of settlement issues or other

17   issues that happen post construction, then the

18   contractor has to go back, and it's really in their

19   best interests just to drill it as well.

20             So the vast majority of the roads we are

21   drilling.

22             BOARD MEMBER BYRNES:  So priority number

23   one would be to drill them versus open trench.

24             THE WITNESS:  Correct.

25             BOARD MEMBER BYRNES:  If you did open
```

 1    trench, or had to, how long could the county expect

 2    that road to be out of service?

 3              THE WITNESS:  I think they can get that

 4    done in as quickly as a day.  A day or two days.

 5    They'll have a dedicated crew to be there to get that

 6    done very quickly.

 7              BOARD MEMBER BYRNES:  So we're going to get

 8    into -- we're going to start to get into some

 9    landowner specifics here.

10              Are you familiar with the Mosers' witness

11    Jamie Moser direct testimony -- and we can pull this

12    up for you.  On page 3, lines 16 through 18, they

13    describe flooding and erosion.  So I guess we can stay

14    high level and talk about flooding and erosion.

15              How do you account for those events during

16    and after pipeline construction?

17              THE WITNESS:  Yeah, so there's a number of

18    different things that we do.  For one, we're going to

19    do -- we've done buoyancy calculations to ensure that

20    the pipe is not going to float up after it's installed

21    and before it's filled and then after it's filled in

22    any kind of major rain event, flood event.  You know,

23    if the soils are saturated, et cetera, et cetera.

24              So all of those calculations have been

25    done, and, in my understanding, there's no buoyancy

1    concerns because of the wall thickness and the

2    heaviness of the pipe.

3              Additionally, we've done a hydrotechnical

4    assessment of our entire pipeline route in Iowa, and

5    that was performed by Geosyntec, where they've

6    analyzed all the rivers and streams and creeks to

7    identify any kind of scour concerns, lateral migration

8    concerns.

9              And I can tell you that we did get a

10   preliminary draft report back from them.  There were a

11   couple areas of concern.  We've extended drills, we've

12   changed the route to incorporate -- you know, reducing

13   the risk on those concerns, and then they've reissued

14   the report to us basically stating that every single

15   location across the state of Iowa is deemed below risk

16   in their estimation.

17             But we did incorporate some design changes

18   to make sure that everything was low risk.

19             BOARD MEMBER BYRNES:  So we had some

20   landowners that talked about irrigation systems.

21   We've had a conversation about one of them already

22   today.  I believe we had one where a landowner was

23   concerned about the way the pipeline goes through and

24   their irrigation system.

25             And, I mean, you can have kind of a

 1   windshield wiper type of irrigation system, you can

 2   have -- basically it's on a pivot or you can have

 3   others that go across the entire field.

 4              How do you work around those systems?  And

 5   what if it creates a situation where -- obviously, you

 6   have a trench going through.  The irrigation system

 7   can't come to part of that field.  Obviously, you're

 8   going to have yield differences and there's going to

 9   be an impact.  How does Summit Carbon handle those

10   situations?

11              THE WITNESS:  You know, I think Mr. Rorie

12   would be able to speak better to this, but my

13   understanding is that if we cross pivot irrigation and

14   we're crossing at an angle that orphans some portion

15   of that property from being irrigated, that we'll pay

16   full crop damages for the area.  Not only within the

17   easement, but the full extent of the property that was

18   not able to be irrigated.

19              BOARD MEMBER BYRNES:  Do you do the same

20   accommodations if you had pastureland that was

21   segregated due to pipeline construction?

22              THE WITNESS:  I'd have to defer to

23   Mr. Rorie on that one.

24              BOARD MEMBER BYRNES:  All right.  We're

25   going to get into some specific landowners here.

```
 1   We'll try to pull up the KMZ maps so that you have a

 2   visual so you can take a look at this.

 3              So, on page 41, and this is of Jorde

 4   Landowner Jennifer and Paul Berge testimony, it

 5   recommends rerouting the pipeline north to the county

 6   right-of-way on county road B53.

 7              And I don't know -- this will be our first

 8   one here.  So we'll see how we get these pulled up.

 9              Is there a way to pull them up?  There is

10   not.  Just one second.

11              All right.  We'll do the best we can with

12   just the verbal, I guess.

13              So, on page 41 of Jorde Landowner Jennifer

14   and Paul Berge, their testimony recommends rerouting

15   the pipeline north to the county right-of-way on

16   county road B53.

17              Why is Summit Carbon not utilizing county

18   right-of-ways?

19              THE WITNESS:  Yeah, so there's a number of

20   reasons.  You know, for one, you know -- and my

21   understanding is a lot of counties will not allow us

22   to lay in their right-of-ways.

23              Secondly, you know, you still have to get

24   landowner consent to do that.

25              But, more importantly, being able to lay
```

 1    this pipeline in the county right-of-way is just not

 2    feasible or practical or safe.  You know, most of

 3    these -- most of the area between the actual road

 4    itself and the fence line for the farm, for example,

 5    will be a bar ditch.  Trying to lay in a saturated bar

 6    ditch that has tile dumping into it, has existing

 7    utilities, such as fiber, telephone poles.  There's

 8    just a laundry list of reasons.  Let alone the safety

 9    aspect of having major construction equipment, you

10    know, building immediately adjacent to all roads

11    across the entire project.

12              So there's a long list of reasons why we

13    didn't consider that.  We did look at it, but it was

14    quickly ruled out for all the reasons I mentioned.

15              BOARD MEMBER BYRNES:  On pages 43 through

16    44 of Jorde Landowner Timothy -- I'm probably not

17    going to say his last name correctly, Baughman, it

18    recommends moving the valve to the other side of the

19    road where Summit Carbon already has a voluntary

20    easement and is where the Harrison County REC already

21    has an electric line.

22              Further, the testimony requests a

23    modification of boring under the road and locating the

24    pipeline as near as possible to the edge of the field.

25              As it relates to this request, is it

 1    possible to accommodate the requested modification?

 2              THE WITNESS:  Without seeing the specifics,

 3    I can state generally that, you know, we have to place

 4    valves in certain locations.  There's generally some

 5    flexibility on where exactly those have to go from a

 6    spacing standpoint.

 7              If a landowner signed a voluntary easement

 8    and the valve was not on their property and the valve

 9    was across the street on an adjacent landowner, you

10    know, we can't just move it back onto that other

11    landowner -- and I can tell you that we've moved

12    valves around countless times to try to place them on

13    landowners that are willing and wanting them.

14              That's not always the case.  You know,

15    there's very specific requirements on how those valves

16    can be spaced just from the PHMSA guidelines.

17              So I can tell you that we have moved valves

18    to try to accommodate placing them on willing and

19    wanting landowners numerous times.  This may be an

20    example where that was not possible or the other

21    landowner in question did not want it either.

22              BOARD MEMBER BYRNES:  So, specific to this

23    parcel, you don't recall?

24              THE WITNESS:  I don't have specifics on

25    this one, no.

```
 1              BOARD MEMBER BYRNES:  Page 44 of Jorde

 2   Landowner Delmar Baines and Dillon Baines, in their

 3   testimony it recommends route deviation along 140th

 4   Street west for about a mile and a half, then north

 5   for about a mile, then west for a mile and a half,

 6   then north until reaching Summit Carbon's current

 7   route.  This is referenced as Attachment 22 of this

 8   direct testimony.

 9              As it relates to this request, is it

10   possible to accommodate the requested modification?

11              THE WITNESS:  Again, without having the

12   specifics to look at, I would imagine that's certainly

13   well out of our existing notice corridor and pipeline

14   corridor.  And it looks like it impacts certainly

15   several other landowners that were not the one you

16   mentioned.

17              BOARD MEMBER BYRNES:  On page 41 of Jorde

18   Landowner Cletus Elbert Revocable Trust, they

19   recommended the pipeline be located on the south end

20   of the property instead of the north end.

21              THE WITNESS:  You know, all I can say is

22   that, you know, there's a lot of situations where

23   we've already signed easements for the point of entry

24   and the point of exit.  That may be on the north side

25   of this property.  I don't recollect this property in
```

1    particular.

2                We've tried to accommodate landowners where

3    we can.  You know, certainly a lot of these landowners

4    hadn't mentioned these reroutes until easements were

5    secured on both sides of their property.  And that

6    makes it very difficult to adjust at that point.

7                BOARD MEMBER BYRNES:  Just a second.  I

8    apologize.  I know it's difficult for my words to

9    translate into something visually, especially when

10   we're talking these maps.  So I believe we're going to

11   try to get this so you can see it on the KMZ.

12               What parcel is this right now?  I'm just

13   asking my staff.  And my vision is horrible so can one

14   of you -- all right.

15               So this is the Cletus Elbert parcel.  So,

16   as I referenced before, the pipeline -- they

17   recommended the pipeline be located on the south end

18   of the property instead of the north end.

19               THE WITNESS:  Yeah.  So, obviously, if we

20   secured easements in the vicinity of his property,

21   you'd have to do a complete U shape going all the way

22   south and then all the way back up and around the

23   perimeter of his house as well, and it's just not

24   feasible for us to do that.

25               BOARD MEMBER BYRNES:  So, for this

 1   particular, these two parcels, I believe there's two

 2   of there -- I believe I've seen other parcels where

 3   there have been bends in the line.  There's been

 4   90 degrees.

 5              Every time you have a 90-degree like that,

 6   and I'm not an engineer, does this do anything to the

 7   integrity or the movement of product through the

 8   pipeline?

 9              THE WITNESS:  I would say yes.  I mean,

10   there are some hydraulic -- minimal hydraulic impacts.

11   Certainly lengthening the pipe considerably, which is

12   what this would do, would greatly increase the

13   impacts.  If you hug the entire perimeter of that

14   property, you'd be more than doubling the amount of

15   pipe that's crossing this property at that point.

16              And there are integrity concerns.  Every

17   time you put in a 90-degree fitting there's -- you

18   know, there's a physical fitting that has to be

19   installed and tied into the pipeline.

20              And, historically, failure points on

21   pipelines are generally at fittings and other types of

22   locations like that comparative to installing 80-foot

23   joints of pipe.  You're adding more welds, you're

24   adding more x-ray, you're adding -- it just compounds

25   the quantity of issues when you start doing things

IN RE: SUMMIT CARBON SOLUTIONS
IUB HEARING  09/07/2023                                          Page 2303

 1    like that.

 2              BOARD MEMBER BYRNES:  We're going to go to

 3    Vicki -- again, I'm going to try the best I can on

 4    these last names -- Koeppe's testimony.  Page 40 of

 5    her testimony recommended moving the pipeline to the

 6    edge of the field.

 7              And, again, we will get you a KMZ here.

 8              So my understanding is they want this moved

 9    to the edge of the field instead of what we see here

10    as more of a kind of diagonal.

11              Could that be an accommodation?

12              THE WITNESS:  Again, you know, it's hard to

13    make any kind of determination without knowing -- it

14    looks like we've executed easements -- well, I guess I

15    can't tell from this.  If it's red, then it's an

16    Exhibit H parcel, and if it's not, then -- so we've

17    executed easements on the north and south part of this

18    property.  So the point of entry and the point of exit

19    are pretty well established at this point.  So it

20    would be very difficult to adjust the route.

21              And, at the end of the day, too, some of

22    the landowners are saying that, "Well, can you adjust

23    this route," and we have, and then they still won't

24    sign the easement.  So it doesn't make sense to make

25    arbitrary changes in that situation.  But, you know --

1    you said that she would like it on the far west side

2    of her property?

3              BOARD MEMBER BYRNES:  That's how I'm

4    interpreting it, yes, correct.

5              THE WITNESS:  So you'd have to do a

6    U-shaped situation where you would put in four

7    90-degree bends, add additional impacts, additional

8    pipe on the property, additional disturbances.  Every

9    time that you do one of those tie-ins you have to do a

10   big bell hole, and, I mean, it just adds additional

11   impacts and encumbrance on the property.

12             BOARD MEMBER BYRNES:  So, I mean, to that

13   easement language -- let's say that you have the

14   property to the north, the property to the south.  You

15   secured them through a voluntary easement.  So the

16   points of entry or exit are specifically laid out is

17   what you're saying.

18             THE WITNESS:  I don't believe that is the

19   case with our typical easement.  So I'd defer that to

20   Mr. Rorie.

21             BOARD MEMBER BYRNES:  All right.  We're

22   going to go to Jorde Landowner Joan -- and again --

23   Centlivre.  And on page 41 and 42 of her direct

24   testimony, they recommended the pipeline be moved

25   across the road onto property owned by the Kossuth

1    County Conservation Board.

2            So how does that -- one question would be

3    is how does that work when it's county property?  What

4    have you encountered with that?  And then, specific to

5    this parcel, is that something that can be done or was

6    that looked into?

7            THE WITNESS:  You know, a lot of these

8    requests -- I mean, I've never seen these requests.

9    My understanding is that Mr. Jorde has requested that

10   all correspondence go through him for any of his

11   landowners.  And I don't recall seeing any requested

12   reroutes from Mr. Jorde on any of his landowners.  So

13   I can't speak to any specifics on this one.

14           BOARD MEMBER BYRNES:  All right.  We're

15   going to go to Jorde Landowner Della Curtis.  And on

16   pages 39 and 40 of Ms. Curtis's direct testimony, she

17   recommended the pipeline be routed straight north on

18   property owned by Craig & Company which already signed

19   a voluntary easement with Summit Carbon.

20           And, again --

21           THE WITNESS:  So a lot of these are not

22   even asking for individual reroutes on their property.

23   They're saying, "Just put it on my neighbor."  So, you

24   know, we can't just accommodate those types of

25   requests.

1              You know, an easement was signed for a

2     certain landowner.  We can't just automatically assume

3     that we're just going to route as much pipe on that

4     person as we possibly can just because their neighbor

5     doesn't want it.

6              BOARD MEMBER BYRNES:  So, if the individual

7     had signed a voluntary easement, though, that doesn't

8     weigh in on --

9              THE WITNESS:  Yeah, I can tell you that we

10    have made a lot of changes for that specific reason

11    where we look at the alignment, we look at the

12    ownership around the pipeline, and we say, "Okay,

13    well, Mr. Smith owns all of these properties that are

14    immediately over the property line from where the

15    pipeline is located now and we can stay on him for an

16    extra three or four parcels."

17             And so we'll follow up with Mr. Smith and

18    say, "Mr. Smith, you've signed an easement.  Would you

19    be interested in us putting more pipe on you?"

20             And that has happened a lot, and we've done

21    that numerous times to try to get off of landowners

22    that don't want the pipe as well as putting more pipe

23    on agreeable landowners.

24             BOARD MEMBER BYRNES:  All right.  We're

25    going to move to Jorde Landowner Tom and Susan

 1   McDonald.  And pages 40 and 41 of their direct

 2   testimony, they proposed to relocate Summit Carbon's

 3   proposed hazardous liquid pipeline on the west side of

 4   their property.

 5           THE WITNESS:  Yeah.  So, again, this would

 6   be the same example where you would just have to do a

 7   U-shaped, you know, structure hugging the entire

 8   perimeter of their property adding extensive length of

 9   pipe, fittings, additional disturbances on unsurveyed

10   property.  So it's just another of those types of

11   examples.

12           BOARD CHAIR HELLAND:  So, to a certain

13   extent, it would appear this is kind of a recurring

14   theme.  To a certain extent, the options for one

15   landowner become limited by voluntary easements signed

16   by neighbors.

17           THE WITNESS:  Yeah, so there's -- the

18   voluntary easements, you know, securing the location

19   of the pipeline, certainly we're well within the

20   permitting process with the Army Corps of Engineers,

21   we've conducted field surveys.  There's just a lot of

22   reasons why the pipeline becomes more difficult to

23   move the further you get into the process.  And

24   especially when we don't have any direct requests on

25   these individual properties that I'm aware of on a

 1   route that they would be agreeable to.

 2              So these are all -- you know, requests that

 3   have been made in the field by landowners, a lot of

 4   which have signed, have been accommodated where

 5   possible.  Coming in at this point in the process and

 6   saying, "Well, I'd like this route, I'd like this

 7   route," when it was never requested previously is very

 8   difficult to accommodate.

 9              BOARD CHAIR HELLAND:  So, more or less, if

10   a voluntary easement is executed, that parcel is

11   removed from the bucket.  And so, if you get a

12   situation where there is an opportunity with

13   consecutive properties where a different route may

14   open up, is there a mechanism within the easement to

15   go back and visit?

16              THE WITNESS:  Yeah, and we've done that

17   before too.  Where this landowner had signed an

18   easement, their neighbor was not good with the

19   location that it entered their property, so we've

20   entertained -- and we've changed the route advising

21   with their neighbor and said, you know, "Your neighbor

22   is asking that, you know, we adjust the route in this

23   fashion and it would impact you in this way, and you'd

24   have to sign an amendment to your easement for that to

25   happen.  Would you be willing to do that?"  And they

```
 1   have said yes in a lot of different scenarios.

 2              BOARD MEMBER BYRNES:  All right.  So

 3   continue to bear with me here.  I have 29 more parcels

 4   that we're going to go through.

 5              On page 41 -- and we're talking about Jorde

 6   Landowner Jody Wilson's direct testimony.  They

 7   proposed to relocate the proposed hazardous liquid

 8   pipeline northeast from its current location as shown

 9   in Attachment 22 of the direct testimony.

10              Maybe the previous was better.  I believe

11   that would show the pipeline.

12              So to the north and to the east movement.

13              THE WITNESS:  To the north -- do you know

14   exactly where?

15              BOARD MEMBER BYRNES:  Northwest.  My bad.

16   So north and to the west.  So I'm assuming --

17              THE WITNESS:  So slightly moving it --

18   yeah, things like that can be accommodated.  So,

19   again, it goes back to the -- and I'd have to defer to

20   Mr. Rorie, but I don't recall -- and typically the way

21   the process works is the right-of-way agents would

22   meet with the landowner, the landowner may say, "Hey,

23   I've got concerns about this or that and a more

24   preferred placement of the pipeline is here."  And

25   then we look at it and then we try to accommodate that
```

 1   where we can.

 2              I don't recall ever seeing any reroutes

 3   being provided to us as a suggestion through

 4   Mr. Jorde.  And I stand to be corrected there, but I

 5   don't recall ever seeing anything come from our

 6   right-of-way team for Mr. Jorde's clients.

 7              BOARD MEMBER MARTZ:  Josh, can I clarify?

 8              BOARD MEMBER BYRNES:  I heard a voice come

 9   in and I didn't know where it was coming from.

10              BOARD MEMBER MARTZ:  Just a process

11   question.  If someone does not want to sign a

12   voluntary easement but they had a suggestion for a

13   different route, would you have moved the route by

14   now?

15              THE WITNESS:  Again, if the suggested route

16   was possible -- because not all of them are even

17   possible or practical or feasible for a number of

18   different reasons, but if there was -- all I can say

19   is we've made hundreds of changes at the request of

20   landowners.

21              BOARD MEMBER MARTZ:  Have you made changes

22   for landowners who have not signed easements?

23              THE WITNESS:  We have.  We've made changes

24   with landowners that they say, Hey, if you change this

25   route, I'll sign the easement," and we've changed it

 1    and they still haven't signed.  So, yes, we have.

 2                BOARD MEMBER BYRNES:  All right.  We're

 3    going to go to Mersch Farms direct testimony.  And

 4    they have Attachment 22.  And they have a preferred

 5    construction method.  And I believe they are asking

 6    for -- they have an alternate path and then it looks

 7    like they're requesting boring under some berms.  If

 8    granted the permit.

 9                THE WITNESS:  You know, I'm not aware of

10    this specific parcel again.  I know that we have

11    accommodated, you know, specific requests such as

12    doing small drills underneath, you know, deep drainage

13    locations on certain properties or agreeing to bury it

14    deeper there in those specific locations.  This, to

15    me, would fit that category.

16                I don't recall this specific request or who

17    it would have come through.

18                BOARD MEMBER BYRNES:  So I think we could

19    even generalize here just a little bit.  Not specific

20    to this parcel, but, in general, landowners that

21    may -- and I do know we had an individual that had

22    testified before us that had some preferences in terms

23    of -- I believe he wanted maybe even three different

24    piles of soil based on the soil types and had some

25    concerns over the bore pit and where the bore pit was

1    located based on bringing big semis and whatnot into

2    the field driveway.

3              So I guess in terms of construction --

4    big-picture construction practices, how open is Carbon

5    Summit to accommodating those requests?

6              THE WITNESS:  Yeah, so like you mentioned,

7    we have accommodated requests.  Such as different

8    construction practices.  You know, slightly

9    lengthening drills to get out of -- I know we've done

10   that for certain landowners to get out of their CRP

11   land or to go under some deep drainage or for a number

12   of different reasons.

13             So we have altered our design and

14   construction practices to accommodate landowners we

15   can within reason where practical.

16             BOARD MEMBER BYRNES:  So we're going to go

17   to Jorde Landowner Douglas Gunion.  And I apologize

18   again if I am mispronouncing the last name.  On

19   pages 4 and 5 of the direct testimony, they have a

20   parcel that's H-GR-003.  And they stated that they

21   would be unable to access that parcel during

22   construction.

23             So how will Summit address issues such as

24   this?

25             THE WITNESS:  Yeah, so what we're intending

1    to do is -- you know, we'll have the topsoil stripped

2    and piled up on the side of the right-of-way.  We'll

3    install what I would call a farm plug or a trench

4    plug.  Essentially, it will be a gap in the topsoil

5    pile that will allow access to both sides of the

6    parcel.  So that's what we'll do.

7              We'll have a minimum of one of those on

8    every single parcel.  And, for large parcels, we'll

9    have them, I think, roughly every 500 feet or so.

10             BOARD MEMBER BYRNES:  And we're going to

11   stay with Mr. Gunion.  So they recommended an

12   alternative route shown in Attachment 22.  So it looks

13   like, on this attachment, that they want it moved to

14   the far west side from where it currently is at.

15             So same question as we've been asking.  As

16   it relates to this request, is it possible to

17   accommodate?  Why or why not.

18             THE WITNESS:  If you go back to the other

19   snapshot of the parcel, I believe that both easements

20   have been signed on both the north and south.  And the

21   southern parcel right there, you can see that there's

22   some wind turbines.  If that's what those are.  We

23   obviously -- we can't hug the road and be in the near

24   vicinity of those.  And I think the landowner to the

25   south specifically requested the alignment that we

IN RE: SUMMIT CARBON SOLUTIONS
IUB HEARING  09/07/2023                                    Page 2314

```
 1   have now.

 2             And, again, I don't recall seeing any of

 3   these Jorde-related route changes ever.  So I can't

 4   speak to whether or not we considered them because I

 5   never saw them.

 6             BOARD MEMBER BYRNES:  If staff could go

 7   down just a little bit further to the south.  So I'm

 8   assuming -- there's the ethanol plant.  Okay.  All

 9   right.

10             We're going to go to landowner -- Jorde

11   Landowner Debra LaValle.  And she proposed an

12   alternative route.  Again, she has an Attachment 22.

13             And I would just ask the same question.  Is

14   it possible to accommodate the requested modification?

15             THE WITNESS:  The black line is the

16   proposed?

17             BOARD MEMBER BYRNES:  And, like I stated

18   earlier, my vision is not the best.  So I believe,

19   yes, black is the alternative route being proposed.

20             THE WITNESS:  And the landowner in question

21   owns which parcels?  The red ones?

22             BOARD MEMBER BYRNES:  The red one for sure.

23             THE WITNESS:  Yeah.  So, I mean, this is a

24   request basically asking that we get off of that

25   property entirely and impact even new landowners that
```

 1   have never been impacted before.

 2              So, you know, again, in situations like

 3   this, we've tried to adjust the route on existing

 4   landowners to either mitigate -- or to reduce the

 5   amount of impacts or pipe on a certain property, but

 6   just a wholesale, "Get off of my property, get on my

 7   neighbor's," is not something we generally

 8   accommodated if that landowner wasn't impacted.

 9              BOARD MEMBER BYRNES:  Jorde Landowner Craig

10   and Patricia Beyer.  They propose an alternative

11   route, which is also an Attachment 22, where the

12   proposed hazardous liquid pipeline would run along the

13   edges of their property.

14              So I believe the items that are circled or

15   square boxed in blue.  And it looks -- again, from

16   what I can tell, but just to describe it for the

17   record, it looks like the pipeline would be running a

18   diagonal and they're looking for an alternative route

19   that's more like a stairstep around.

20              THE WITNESS:  Yeah, and it looks like

21   they're also getting off of their properties and

22   putting pipe on their neighbors as well.  So that same

23   situation.  On both the east and west side.

24              BOARD MEMBER BYRNES:  Jorde Landowner

25   Andrew and Kayla Corcoran.  They stated that Summit

 1   Carbon's proposed route is extremely close to their

 2   home.  They wanted to know if Summit Carbon is aware

 3   of this new development and how do you propose to

 4   address the proximity of the new home to the proposed

 5   project.  And we will get you a visual on this.

 6                THE WITNESS:  So that's the location of the

 7   new home is what they're saying?

 8                BOARD MEMBER BYRNES:  So the understanding

 9   is the home is not on the KMZ map.  But it's where the

10   hand is.

11                THE WITNESS:  And that landowner has signed

12   an easement?

13                BOARD MEMBER BYRNES:  No.

14                THE WITNESS:  Is there a reason that it's

15   not red?

16                BOARD MEMBER BYRNES:  Do not know.

17                They stated it was filed this way.  So

18   we're just using how it was filed.

19                THE WITNESS:  So, again, that's why we have

20   been trying to engage with landowners for two years

21   now is to understand situations like this that aren't

22   available by looking at it on aerial imagery on what

23   their future plans are.

24                I haven't seen any kind of specific

25   concerns or requests about anything from Mr. Jorde's

1    clients.  So that's all I can say to that.

2                    BOARD MEMBER BYRNES:  We're going to go to

3    Jorde Landowner James and Margaret Fetrow.  And they

4    also have a proposed alternative route as shown in

5    Attachment 22.

6                    So it would appear their suggested route,

7    instead of going diagonally across the property, would

8    go to the north and then 90 degree down to the east.

9                    THE WITNESS:  Yeah, so, I mean, is there

10   any way that this could be pulled up on the KMZ as

11   well?

12                    BOARD MEMBER BYRNES:  We have some very

13   talented individuals.  I bet they can find that.

14                    THE WITNESS:  I can't tell what's on the

15   far west side of that property.  It appeared from that

16   last image that there may have been a washout area or

17   a creek or something right at the far east side of

18   that property.  It's hard to tell there.  Maybe that's

19   not the case.

20                    But, again, I haven't seen any of these

21   requested changes.  And, again, it's -- we can't just

22   make changes to the route and then no easement gets

23   signed either.  So I haven't seen the change.  And

24   that's all I can say to that.

25                    BOARD MEMBER BYRNES:  The next Jorde

```
 1   Landowner, Lance and Sandra Kleckner.  I really don't

 2   even think we need a map on this.  They brought up

 3   that the county road which goes by them the county

 4   does not maintain, and so their concern was will

 5   Summit Carbon regrade it and use erosion control

 6   measures to make sure the road is in the same

 7   condition or better after construction is complete.

 8             THE WITNESS:  We will.  As I mentioned

 9   earlier, we'll have road use maintenance agreements,

10   we'll document the condition of all the roads prior to

11   construction, and then we'll leave the roads in better

12   condition than before we came.

13             BOARD MEMBER BYRNES:  And I think the

14   maintain component here was that it's currently a

15   non-maintained road.  So I'm assuming like a Level B

16   type of road.

17             So, even if it's not one that the county

18   maintains, you will make every effort?

19             THE WITNESS:  Yeah, I would think that

20   would be something that we would consult with the

21   county on and what their request is for the

22   improvements for that road, but yes.

23             BOARD MEMBER BYRNES:  So we will stay with

24   the Kleckners.  They also have an Attachment 22 with a

25   proposed alternative route.
```

 1              THE WITNESS:  Is there any way that this

 2   could be brought up on the KMZ?

 3              Yeah, so you've got the pipeline alignment

 4   that essentially hugs the section lines all the way

 5   up.  This is causing the pipeline route to bisect the

 6   property in the wrong direction.  So it's just not

 7   possible to accommodate that.

 8              BOARD MEMBER BYRNES:  So the other concern

 9   they have is you can see this there's a lot of wooded

10   area here.

11              THE WITNESS:  Uh-huh.

12              BOARD MEMBER BYRNES:  And there's concerns

13   with the trees on the property.  And there is a

14   question about the ability to directional drill

15   underneath of those trees if possible to.

16              THE WITNESS:  You know, we've adjusted the

17   route for situations like this where you would go

18   further into the farm field, for example, to try to

19   mitigate the trees.  Like cut diagonal to the

20   northeast and then try to skirt around the trees and

21   then cut back to mitigate tree clearing.

22              Drilling an entire parcel is not something

23   that we've considered there.

24              BOARD MEMBER BYRNES:  Can you drill

25   under -- is that a common practice, though, to drill

 1   under trees?

 2              THE WITNESS:  It's not common practice to

 3   drill under the trees because -- if we don't {sic}

 4   drill under the trees, then the construction crews

 5   essentially have to stop, backtrack out, you need an

 6   access road to get back to a road, load up all the

 7   equipment, go all the way around the trees, and it

 8   just becomes very -- it inhibits productivity in

 9   construction, we'll be out there longer, and it

10   just -- for a lot of reasons, it doesn't make sense to

11   do that.

12              BOARD MEMBER BYRNES:  All right.  On

13   page 40, and this is Jorde Landowner Randy Merle

14   Trotter, they proposed an alternative route within the

15   right-of-way on Davis Avenue on the western edge of

16   this property.  And I believe this would probably --

17   you addressed the right-of-ways of roads already.

18   Would this be the same situation?

19              THE WITNESS:  Yes.

20              BOARD MEMBER BYRNES:  Jorde Landowner

21   Martin and Wanda Maher.  They state they will not be

22   able to terrace or install tile as the easement

23   indicates no aboveground activity can be built above

24   the pipeline.

25              So, under Summit Carbon's proposed

 1    easement, would a landowner be prohibited from doing

 2    the above actions on their property?

 3              THE WITNESS:  My understanding is that that

 4    is not the case.  I know that we've allowed landowners

 5    or told landowners that they can build terraces, they

 6    can tile over the top of the pipe.

 7              You know, obviously we'd like to know about

 8    the tiling activities, future tiling activities.  And

 9    we have agreed to go deeper.  Bury the pipeline

10    deeper.  If -- you know, the tile is going to be

11    typically three or four foot deep.  And, if our

12    pipeline is at four feet, obviously that's a conflict.

13              So, for landowners that have been working

14    with us and have said, "Hey, I've got some future tile

15    plans.  Would you go five foot deep so that we can

16    have the separation that we need?  My contractor has a

17    design and the tile is three foot deep," we've

18    accommodated that every single time.

19              BOARD MEMBER BYRNES:  So, in a

20    hypothetical, if a permit was granted, will you still

21    work with these landowners on these requests?

22              THE WITNESS:  Certainly.  You know, the

23    only reason I would state that somebody cannot tile

24    over the top of the pipe is -- if the pipeline is

25    installed at four foot deep top of pipe to top of soil

1    and their tile plan says that that tile needs to be

2    four feet, then that's a conflict.

3              So they can't -- if they wanted to go over

4    the top of the pipe, we'd just request that they have

5    a foot of separation.  But that would obviously

6    disturb their tile design.

7              So, again, we'd rather just go deeper now,

8    and we've granted that hundreds, if not thousands, of

9    times across the entire footprint.

10             BOARD MEMBER BYRNES:  And these individuals

11   also propose an alternative route, which is their

12   Attachment 22.

13             THE WITNESS:  Can you flip back to the KMZ,

14   please.  Yeah, so -- I think I know who this landowner

15   is in particular.

16             The original alignment did go from the

17   PI on -- well, the point of intersection on the south

18   side of that road.  Right there on the southeast

19   corner.  And it went diagonal from that point straight

20   all the way to that location.

21             He requested that we move the pipeline to

22   the location that it's currently located, and we

23   accommodated his request to move it there.  Because,

24   as you can see now, that alignment does not make

25   sense.  There's no reason it needs to be that way.  We

```
 1   accommodated his request to move the pipeline in the

 2   fashion that it is.

 3             And I believe we actually accommodated him

 4   twice.  Two different reroutes.

 5             And then, by the time that we were told --

 6   I believe Board staff asked, "Why did you route the

 7   pipeline this way?  Can you move it in a straighter

 8   line?"

 9             You know, Exhibit Hs were filed and all of

10   that was already done.  We didn't have an Exhibit H

11   for the parcel in question to bisect from the south

12   side of the road to that north location so our hands

13   were tied to where we couldn't make the change.

14             It's preferable for us to cut diagonal.  It

15   shortens the pipe, it lessens the impact, it gets it

16   further away from structures, all these reasons.  But

17   the only reason we did implement that change was at a

18   request of the landowner.

19             BOARD MEMBER BYRNES:  Jorde Landowner

20   Kathleen Hunt.  She proposed an alternative route

21   along the eastern boundary of her property.  It does

22   not say there's an Attachment 22 here, but I'm

23   guessing --

24             THE WITNESS:  I mean, this is something, I

25   think, that could be easily accommodated.  You know,
```

```
 1    if we could work with the landowner to the south and

 2    they would be willing to sign an amendment, you could

 3    change the angle crossing their property to migrate

 4    toward the eastern part of her property and then cut

 5    even further to the east and then go up the property

 6    line.

 7              But those are requests that we've made --

 8    this is going to require a change on not only the

 9    southern landowner but the northern landowner, who

10    have already signed easements.

11              But, again, I've never seen a single route

12    request from Mr. Jorde's clients.

13              BOARD MEMBER BYRNES:  We have Jorde

14    Landowner Kruthoff Farms.  Again, if I mispronounce, I

15    apologize.  They recommended an alternative route

16    along the fence line.  And I am not aware of where

17    their fence line is at.

18              THE WITNESS:  So, if the fence line is on

19    the east side of their property, and, again, they're

20    just wanting us to scoot over, we've done that on

21    countless locations.  To, you know, adjust the

22    alignment of the pipe, to have the edge of the

23    temporary construction easement or permanent easement

24    at the property line, we've done that numerous times.

25              Again, we can't make a change if we've
```

 1    never seen the request.

 2              BOARD MEMBER BYRNES:  And then they also

 3    asked if Summit was able to reroute the proposed

 4    hazardous liquid pipeline off of parcel H-CR-009

 5    completely.

 6              THE WITNESS:  Which parcel is that one?

 7              BOARD MEMBER BYRNES:  So it looks to be

 8    that parcel where it jogs over and then up.

 9              THE WITNESS:  I would venture to guess that

10    there's a reason that it jogs over.  We wouldn't just

11    do that for no reason.

12              It looks to me like there may be existing

13    foreign pipelines -- I know there's a lot of pipeline

14    corridors through Iowa.  And, when we cross them, we

15    have to cross them with angles like that.  So there

16    may be existing pipeline infrastructure in that area

17    crossing through there that we have to cross to get

18    over.

19              If there was no other reason, there's no

20    reason we couldn't continue to the north outside of

21    the fact that easements have been signed by the

22    landowner to the north.  So you would ultimately have

23    to clip the corner of that property in question, but

24    you could certainly reduce impacts if there's not

25    another reason why we are crossing.

 1              BOARD MEMBER BYRNES:  Jorde Landowner Nancy

 2   Erickson.  She has a recommendation of an alternative

 3   route on Attachment 22.

 4              And if we could get her Attachment 22 to

 5   see what she proposed as an alternate.  Could we

 6   scroll back up to the words.

 7              And then if we can go back to the KMZ.

 8              THE WITNESS:  I think is the fence even

 9   further to the south from there -- well, maybe that --

10   so is there a fence line right there?

11              If the fence line is right there, then, you

12   know, obviously you'd be crossing over a creek or a

13   stream twice additionally that you wouldn't have

14   otherwise and you'd be running kind of parallel to

15   that, which obviously can introduce some

16   hydrotechnical risks, you know, if that stream starts

17   to migrate in any given direction which would expose

18   the pipe.  So that's not a preferred location.

19              But I don't recall ever seeing this

20   requested change either.

21              BOARD MEMBER BYRNES:  All right.  Jorde

22   Landowner Raymond and Kathy Stockdale.  They have an

23   alternative route shown in Attachment 22.

24              THE WITNESS:  So that's getting it entirely

25   off of the parcels basically and following -- is that

```
 1    a railroad or -- so that's not something that we can

 2    accommodate when it looks like they're asking to get

 3    entirely off of their property onto other adjacent

 4    landowners that are not part of the project.

 5              BOARD MEMBER BYRNES:  And then they also

 6    had a question if the proposal route is within your

 7    notice corridor, their alternative route if it's still

 8    within the corridor.

 9              THE WITNESS:  In my understanding, it

10    shouldn't matter at this point.  For one, because we

11    don't have Exhibit Hs on any of those other parcels in

12    question there.  And those properties have never been

13    surveyed or anything.  And there's no, obviously,

14    guarantee that those landowners are agreeable.

15              BOARD MEMBER BYRNES:  The next Jorde

16    landowner, pages 51 and 52, would be Eric and Gayle

17    Palmquist.  And they also have an attachment with an

18    alternative route, I believe.

19              THE WITNESS:  What was the alternative

20    route that was suggested?

21              BOARD MEMBER BYRNES:  We are pulling that

22    up.  In my notes, it says Attachment 28.  That might

23    be still a 22.

24              THE WITNESS:  It looks like the blue line

25    is what's being suggested.  Which is getting entirely
```

1    off of their property?  Is that right?

2              BOARD MEMBER BYRNES:  Yes, that's correct.

3              THE WITNESS:  Yeah, so that's not possible.

4              BOARD MEMBER BYRNES:  All right.  Jorde

5    Landowner Betty Nolan and Megan Kennedy.  On pages 41

6    and 42, they have a proposed alternative route shown

7    in Attachment 22.  And this is where the pipeline

8    would stay on the neighbor's property longer before

9    coming onto their property.  They would like to know

10   if this could be an accommodation.

11             THE WITNESS:  Could this be pulled up on

12   the KMZ?

13             So, I mean, this is something that we could

14   certainly explore by asking the landowner to the north

15   if they would be willing for us to run their property

16   line on the southern boundary.

17             Again, you know, there's situations like

18   this where landowners have said, you know, "Okay,

19   yeah, I signed the easement because you're only

20   clipping the corner of my property, but now you're

21   asking to put 3,000 feet of pipe on my property.  I'm

22   not okay with that."

23             So, in that situation, this would not be

24   possible.  But we can certainly explore it.

25             BOARD MEMBER BYRNES:  And it does look like

1    there are wind turbines there on that parcel to the

2    north.

3                THE WITNESS:  Yes.

4                BOARD MEMBER BYRNES:  Do you recall -- I

5    know there was a conversation earlier, it may have

6    been last week -- the distance that you need to be

7    from wind turbines?

8                THE WITNESS:  I don't know if there's a set

9    distance.  I'm sure that it's specific to the wind

10   turbine company, but I know Avangrid, I think,

11   requested 400 feet from the tips of the turbine

12   blades.  And we did have a conference call with them,

13   I believe yesterday, to follow up with them to try to

14   work towards an agreement.

15               BOARD MEMBER BYRNES:  Jorde Landowner Kathy

16   Carter.  On pages 4 and 5 of her direct testimony, she

17   states that Summit Carbon promised to bore under all

18   trees on the property.

19               Is this still the case?

20               THE WITNESS:  So, yes, we -- I'm aware of

21   that landowner.  We are boring her entire property.

22   So there'll be no surface impacts.  So that is being

23   accommodated.  And was accommodated.

24               So, based on the depth of that river and

25   where the drill should come out, it should be on her

1  property.  In the middle of her property.  But, to

2  accommodate her request, we extended that drill into

3  the landowner to the west who has signed an easement.

4  And she still has not been willing to sign an easement

5  or negotiate.

6            So that's an example of a request that was

7  granted that did not result in a signed easement.

8            BOARD MEMBER BYRNES:  Jorde Landowner

9  George Cummins.  Pages 10 and 11 of his direct

10  testimony states he has a shed, fruit trees, and a

11  garden in the area where Summit Carbon proposes to

12  locate its hazardous liquid pipeline.

13            Would Summit Carbon agree to bore under

14  this area?

15            THE WITNESS:  Yeah, so the original

16  alignment was going through what I believe he called

17  an orchard.  We adjusted the pipeline route to move it

18  to the east to avoid that area altogether.  And that's

19  reflected in the current alignment.  And an amendment

20  for an Exhibit H was filed accordingly.

21            BOARD MEMBER BYRNES:  Jorde Landowner

22  Marilyn Arndorfer -- again, I apologize if I messed up

23  that last name -- on page 3 of her direct testimony

24  stated that Summit Carbon's proposed hazardous liquid

25  pipeline would be only 295 feet from the house across

 1    the road.

 2              Would Summit be willing to move the

 3    pipeline further south to be further away from that

 4    stated home?

 5              THE WITNESS:  You know, as Ms. Gruenhagen

 6    questioned me earlier on, there's examples of this.

 7    And this sounds like a prime example of we would have,

 8    and will, adjust the route to get further away from

 9    her neighbor's house.

10              But we've never seen the request from

11    Mr. Jorde.

12              BOARD MEMBER BYRNES:  And, just out of

13    curiosity, if staff could just take a measurement from

14    that home to the pipeline.  It's stated it's 295.

15              And you guys will have to read that out

16    loud for me because I cannot see that.

17              292 for the record.

18              All right.  Jorde Landowner Nancy Conrad.

19    Page 4 of her direct testimony states there's no place

20    on her property where she would recommend the proposed

21    hazardous liquid pipeline be located.

22              Is it possible to continue straight on the

23    property to the south of Ms. Conrad's property to

24    avoid her property?

25              THE WITNESS:  I mean, obviously, I'm not

1    aware of the ownership to the south.  I can tell you

2    that we have contacted adjacent landowners numerous

3    times to see if they would be agreeable to the

4    pipeline traversing their property and have adjusted

5    the route countless times to accommodate that.

6              This request obviously would impact

7    multiple landowners in all directions.  And there's no

8    Exhibit Hs or anything for those properties, so that

9    wouldn't be possible at this time.

10             BOARD MEMBER BYRNES:  Jorde Landowner

11   Jennifer and Paul Berge, page 4 of their direct

12   testimony stated that the route will maximally affect

13   their land.

14             Would Summit Carbon be willing to move the

15   proposed pipeline to the south to reduce the impact to

16   their parcels?

17             THE WITNESS:  We certainly would be willing

18   to consider that.

19             Again, have never seen that request from

20   Mr. Jorde.

21             BOARD MEMBER BYRNES:  Jorde Landowner

22   Michael and Candace White.  Their direct testimony,

23   page 4, stated that they have concerns about location

24   of the proposed pipeline as it relates to the

25   proximity of their home.

 1                    Has Summit Carbon considered routing the

 2      proposed hazardous liquid pipeline further away from

 3      the house potentially along the far western side of

 4      the property?

 5                    And maybe zoom out so we can see --

 6                    THE WITNESS:  I can't state exactly why

 7      that pipeline is located where it's at, but this would

 8      be a situation we certainly would accommodate the

 9      landowner's request to move it if we have seen the

10      request.  So we would be more than willing to move

11      that over and to seek an amendment for the southern

12      landowner.

13                    Can't guarantee that we would hug the far

14      west property and follow property lines, but would be

15      more than willing to move the alignment in the

16      vicinity of their property.  Or their home.

17                    BOARD MEMBER BYRNES:  Gordon Garrison,

18      direct testimony on page 3, stated there will be

19      aboveground infrastructure on the property.

20                    Is Summit Carbon proposing an aboveground

21      structure on this property?

22                    THE WITNESS:  I don't know that for

23      certain.  If anything, it would be right at the road

24      on the far southwest corner of the property.

25                    BOARD MEMBER BYRNES:  Also, with Gordon

```
 1    Garrison direct testimony, pages 4 through 11, it

 2    describes the west fork Des Moines River water trail.

 3              Will the pipeline disrupt the water trail

 4    currently in use on the west Des Moines River?

 5              THE WITNESS:  I don't recall -- I don't

 6    know exactly where that would be located.  Is it on

 7    his property?

 8              BOARD MEMBER BYRNES:  The detail is not to

 9    that extent.  I'm assuming it's --

10              THE WITNESS:  I can't speak -- if I knew

11    exactly where that water trail was located, I could

12    investigate that, but I don't currently know where

13    that's at.

14              BOARD MEMBER BYRNES:  So, on something like

15    the west fork Des Moines River, that would be a bore;

16    correct?

17              THE WITNESS:  Correct.  That would be a

18    directional drill, yes.

19              BOARD MEMBER BYRNES:  And then Mr. Garrison

20    also wondered if Summit Carbon's proposed pipeline

21    would disrupt the existing mature riparian forest

22    tracts adjacent to the west Des Moines River.  And,

23    again, I don't know for sure where on the map that is

24    located.  It does not provide that detail.

25              THE WITNESS:  I mean, I can tell you that
```

 1    if it was a directional drill, I would venture to

 2    guess we're going to be outside of the extent of where

 3    the trees are located near the river.

 4              And so, whenever that happens, we'll do

 5    minimal hand clearing and minimal clearing to just lay

 6    a wire line to guide the drill.  And we won't do the

 7    full clearing and crossing of that river through a

 8    directional drill.  So it would be minimal tree

 9    clearing as required to safely complete the drill.

10              BOARD MEMBER BYRNES:  And I believe this is

11    my last one.

12              On page 1 of Naomi Senn Revocable Trust,

13    witness Naomi Senn recommended rerouting the proposed

14    hazardous liquid pipeline off of the property.

15              As it relates to this request, is it

16    possible to accommodate the requested modification?

17              THE WITNESS:  No.  So it's just that one

18    property in question right there?

19              BOARD MEMBER BYRNES:  So, yeah, just that

20    corner down there.

21              THE WITNESS:  I mean, this -- I would say

22    for something like this where there's a corner clip,

23    we have in situations like this gone to the adjacent

24    corner to say, "Hey, would you be willing for us to

25    clip a corner of your property?"

 1              Obviously, in this situation, you've got

 2    three impacted parcels that all have Exhibit Hs that

 3    would all need to be changed.  So it's not even

 4    possible at this point to investigate that.

 5              BOARD MEMBER BYRNES:  All right.  And I

 6    appreciate your time in going through those parcels

 7    with me.

 8              I don't believe I have any more questions,

 9    but I do believe Board Member Martz -- yeah, that's

10    all I have.  So thank you.

11              BOARD MEMBER MARTZ:  Thanks.  I'm going to

12    go back briefly to the 400-foot criteria that you

13    talked about with Ms. Gruenhagen.

14              In the Farm Bureau Hearing Exhibit 4, the

15    table with the structure type, how was the structure

16    type determined?

17              THE WITNESS:  I believe that they were

18    individually investigated through our GIS program with

19    our GIS team.  So zooming in.  You know, our platform

20    allows us to -- all roads that we cross, and all roads

21    that were in the near vicinity, we had aerial -- or we

22    had videographers drive those roads kind of like

23    Google Maps and document video street views on both

24    sides.

25              So, you know, most of the structures are

```
 1   probably pretty easily identifiable from zooming in on

 2   Google Earth.  However, if that wasn't acceptable to

 3   see what it was, then you can drop a person at the

 4   road and visually see both sides of the road.

 5              So that would be how it was identified.

 6              BOARD MEMBER MARTZ:  So was there any

 7   determination here for businesses, for example, of

 8   what the occupancy of the building was like?  Whether

 9   it was a 24/7 operation with 30 employees or a 9 to 5

10   with two employees.

11              THE WITNESS:  I don't think that level of

12   investigation was done, no.

13              BOARD MEMBER MARTZ:  And then for the

14   structures that were within the 400 feet, you said

15   that a manual review was completed, and you kind of

16   described that as looking closer at it, but what does

17   that specifically entail?

18              THE WITNESS:  So we looked at each of the

19   visual property.  And, you know, we tried to shift the

20   route at that time where we could to get it further

21   away from those properties.  But, again, there's

22   ethanol plants and there's other constraints in

23   certain locations that required that the pipeline be

24   where it's located.  Or if we were following an

25   existing pipeline right-of-way, for example.
```

1              And then, further, again, we've made

2    hundreds of route changes and the route has changed

3    1,500 times from surveys and other things.  So the

4    route may have been, you know, 400 or 450 feet away

5    and then we found something that required the route to

6    shift.

7              So the route has shifted since then because

8    of surveys and other landowner requested shifts.

9              BOARD MEMBER MARTZ:  Did the structure type

10   dictate what you would do when a structure is within

11   400 feet?

12             THE WITNESS:  Yes.  If it was a dwelling,

13   that obviously was given additional consideration.  If

14   it was a dilapidated shed or small barn, that was

15   considered differently.

16             BOARD MEMBER MARTZ:  And this might be for

17   Mr. Rorie, but, in earlier testimony from landowners,

18   we heard from several that they had received a verbal

19   offer that they indicated may have been acceptable but

20   then never received the follow-up written offer.

21             Can you explain why that happened?

22             THE WITNESS:  I'd have to defer to

23   Mr. Rorie.

24             BOARD MEMBER MARTZ:  I've got a couple more

25   questions relating to the testimony we heard earlier

 1    in the hearing from Exhibit H landowners.

 2              So the first is in Merle Shay's testimony

 3    earlier in the hearing he stated that he had asked

 4    Summit about moving the pipeline west to his

 5    neighbor's parcel.  And he said that his neighbor was

 6    willing to sign a voluntary easement.

 7              I don't know if we can pull up --

 8              THE WITNESS:  Yeah, so I'm familiar with

 9    this property.  This is, I believe, leaving the

10    ethanol plant.  I think the ethanol plant may be right

11    there.  Plymouth Energy.

12              So we're needing to head north out of the

13    ethanol plant based on the location of our capture

14    facility.  I believe we actually have a pump station

15    here.  Or this may be one of the locations of the pump

16    stations.

17              The landowner -- I believe we had a verbal

18    agreement with this landowner.  We've made some

19    accommodations.  I can't remember if it was through

20    language or route changes.  But, to get over to the

21    west side to a new landowner, I don't recall ever

22    seeing that request.

23              You know, we could certainly explore that

24    if that was possible and agreeable by the Board.  I

25    believe we'd still have to cross at least a small

```
 1   portion of his property on the south and the north to

 2   get back into the alignment of existing easement

 3   holders, but we could try to get across the street and

 4   back over if that was the case.

 5             You know, you're adding two more additional

 6   road bores, you're adding additional things as well,

 7   so -- but I am familiar with this property.  I don't

 8   recall any request about moving it to the west.

 9             And, generally, it's hard to try to

10   accommodate that request when they say, "Just get off

11   my property and get on my neighbor's."

12             BOARD MEMBER MARTZ:  In Verl Tate's

13   testimony earlier in the hearing, he stated that if

14   the pipeline were to be built, he would want the route

15   through his property to be straightened.  I believe

16   it's kind of a little bit off of north to south.

17             Could this be accommodated?

18             THE WITNESS:  Certainly.  We can adjust the

19   route and straighten it out.  I've spoken with

20   Mr. Tate on the phone several times.

21             BOARD MEMBER MARTZ:  In Richard Davis's

22   testimony earlier in the hearing, he stated that he

23   planned on building a house on H-CK-014 on the south

24   of the parcel and recommended moving the route to the

25   east.
```

 1            THE WITNESS:  So he owns the one southern

 2  parcel only?

 3            BOARD MEMBER MARTZ:  He owns all four of

 4  these parcels, but he was going to build a house on

 5  the southernmost parcel, I believe.

 6            THE WITNESS:  If he's asking can we cross

 7  the road at a more northern location, I think that

 8  would be difficult, but if he's asking that we have

 9  the pipeline change angles to start to move further

10  away from where his house would be, that could be

11  accommodated.

12            BOARD MEMBER MARTZ:  So you're saying

13  crossing the road further north would not be --

14            THE WITNESS:  We can certainly investigate

15  that.  If the adjacent landowner was willing to sign

16  an amendment and we could get to that far northwest

17  corner of that landowner's property and then cross and

18  presumably move five, six, seven hundred feet further

19  away from his future development, then we could

20  explore that as well.

21            BOARD MEMBER MARTZ:  In Robert Ritter's

22  testimony earlier in the hearing, he stated he wanted

23  a trench plug on the south end of his parcel for easy

24  access to the rest of the field.  I think you did

25  mention that trench plugs were planned.

 1              So would this be accommodated?

 2              THE WITNESS:  It would.  Some landowners

 3   have asked that we put that specific language in the

 4   easement.  And we've got a standard plug for that.

 5   But we're going to do it regardless of whether they

 6   ask for it or not.  We'll put at least one trench plug

 7   on every single parcel.

 8              BOARD MEMBER MARTZ:  In testimony for

 9   Avangrid Renewables, the Board heard testimony about

10   crossing near a wind farm.

11              Has Summit Carbon worked to address the

12   concerns raised at the hearing?

13              THE WITNESS:  We have.  I think literally

14   immediately after they testified, Mr. Powell sent an

15   email to our director of engineering copying the

16   gentleman from Avangrid.  There's been multiple emails

17   going back and forth on them providing the maps and

18   overlaying that versus the route, and there was a

19   conference call yesterday on that specific topic and I

20   think we're working towards getting an agreement in

21   place.

22              BOARD MEMBER MARTZ:  In testimony provided

23   earlier in the hearing by Linda Frideres, H-KO-060,

24   she recommended staying on the south side of the route

25   and routing the pipeline through property owned by the

1    Kossuth County Conservation Board and the United

2    States of America.

3              Is it possible to accommodate this request?

4              THE WITNESS:  I don't think so.  I mean,

5    not only for the practical reasons of not having

6    Exhibit Hs and not having any correspondence, but

7    crossing federally owned property is not something

8    that we are trying to do.

9              BOARD MEMBER MARTZ:  And is that because of

10   permit?

11             THE WITNESS:  I believe so.  You know, I

12   think it's a multiyear permitting process if you could

13   even get the permit.  Mr. Schmidt would be better

14   equipped to speak to that.

15             BOARD MEMBER MARTZ:  So are there

16   prohibitions on crossing that land or is it just more

17   difficult and time intensive?

18             THE WITNESS:  I don't want to misspeak

19   here.  So I'd defer to Mr. Schmidt.

20             BOARD MEMBER MARTZ:  In testimony provided

21   by Chris Wittkopf, he recommended moving the route

22   northwest 100 feet off his property and onto property

23   owned by an already participating landowner.

24             Is it possible to accommodate this?

25             THE WITNESS:  Yeah, so this is --

1   Mr. Wildin's property is right there.  I did look at

2   this whenever this landowner was testifying.

3            We can -- this is a drill across the

4   railroad and the river.  So you could move the drill

5   exit on the east side further to the northwest in that

6   direction, and I believe you could redesign the drill

7   to where you would not only not clear those trees on

8   that property of that landowner but that you could

9   avoid that corner clip.

10           The implications of that would be that you

11  would need to get an amendment signed by his

12  neighbor -- which it sounded like he was agreeable.  I

13  think his name is Mr. Hoover.  But then you'd also

14  need to be adjusting the alignment on Mr. Wildin and

15  the other parcel that's shown in red to the

16  southeast -- or southwest because the pullback is on

17  that property.  The pullback for the drill.

18           So, if we could adjust the Exhibit Hs and

19  amend those in a way that allows that, we could

20  accommodate that and get off of that landowner's

21  corner clip.

22           BOARD MEMBER MARTZ:  Thank you.  That's it

23  for me.

24           BOARD MEMBER BYRNES:  If we can just stay

25  there for a second, because I know that through the

1    testimony, I believe, of both of them they talked

2    about going further to the north.  Because there's

3    some county park maybe.

4              If we could zoom out just a little bit.  I

5    don't know if it pops up -- Smith Wildlife Area.

6              I know that that was a recommendation when

7    they were on the witness stand.  I don't know if you

8    heard them when they brought that up as an option.  I

9    don't know if it is an option.

10             THE WITNESS:  Yeah, I can't state whether I

11   know whether that's even in the corridor or not.  It

12   probably isn't.  But, even if it was a wildlife refuge

13   or wildlife area, it is something that we would not

14   intentionally go through.  Mr. Schmidt can speak to

15   the specifics of that and who would be involved with

16   that if we were to try to arbitrarily go through a

17   wildlife area.

18             BOARD MEMBER BYRNES:  And I apologize.  I

19   missed one question that I needed to have answered.

20             On page 5, line 77, through page 6, line

21   97, of Murray Landowner Gregory Kracht's,

22   K-r-a-c-h-t-'-s, direct testimony, it describes a

23   negotiation between the landowner and Summit Carbon

24   where the landowner and Summit Carbon identified a

25   more preferable route yet Summit Carbon reversed

 1    course back to the original.

 2                 Do you know why Summit backed out of that

 3    agreement?

 4                 THE WITNESS:  Not particularly.  I know

 5    that, as Commissioner Martz mentioned earlier or asked

 6    about, that there were landowners that we adjusted the

 7    route and said, you know, "We can accommodate this

 8    route, but we can't guarantee that it stays that way

 9    because the additional landowners around you may sign

10    their easement based on the other alignment and we're

11    not going to make a wholesale change to every

12    interested party.  But, if you will sign the easement,

13    we will work on that."

14                 And so there were a number of situations.

15    And the other one with the extension of that drill

16    where they just never signed.  There were situations

17    like that where we added additional length of pipe and

18    arbitrarily swung out and did things that don't

19    practically make a lot of sense to accommodate

20    landowners, and then they came back and said, "Well,

21    no, I'm not going to sign anyway."

22                 So we said, "Well, if that's the case,

23    we're going to move the pipeline back to the original

24    alignment."

25                 BOARD MEMBER BYRNES:  So would Summit

```
 1   Carbon revise the Exhibit H to match what the

 2   landowner and Summit Carbon agreed to as discussed?

 3             THE WITNESS:  Is there any way to pull that

 4   up on the KMZ?  If it's possible and the landowner is

 5   willing to sign an easement on that alignment, then --

 6   I think I do recall this one.

 7             But I believe he was wanting us to go

 8   further to the west through all the trees maybe and

 9   through more, you know, hazardly {sic} constructible

10   areas with streams and washout areas and creeks.  And

11   going through the middle of the pastureland further

12   away from the neighbor's house was much more agreeable

13   for us.

14             And so, when the landowner was not willing

15   to sign the easement, then we said, "Well, we're going

16   to put this in a safer location further away from your

17   neighbor's property."

18             And so that was the reason that this was

19   adjusted back.

20             MR. MURRAY:  If I may suggest -- over here

21   to your right.  Mr. Murray.  Over here.

22             It may help as a mapping mechanism to show

23   that, we have an exhibit to our direct testimony if I

24   can direct the Board member to that.

25             BOARD MEMBER BYRNES:  I think we've got the
```

1    information we need, but thank you for the offer.

2              MR. MURRAY:  Thank you.

3              BOARD MEMBER BYRNES:  One last thing.  So

4    we were talking about some of these landowners, or

5    some of these different accommodations, and you did

6    mention some of the inconveniences that may have

7    happen or prohibits productivity by making some of

8    these changes.

9              I'm just going to ask you a question.  Does

10   this project also prohibit productivity and create

11   challenges for the landowners?

12             THE WITNESS:  I would say that, yeah, it

13   does present challenges to the landowners.  And,

14   again, we've tried to accommodate their potential

15   issues and things in question as much as we possibly

16   can within easement language, with routing, with

17   adoption, obviously, of the new Board rules that are

18   more favorable for landowners.

19             So, yeah, I certainly don't dismiss the

20   additional challenges that it gives the landowners.

21             BOARD MEMBER BYRNES:  Thank you.  I have no

22   further questions.

23             BOARD CHAIR HELLAND:  Thank you.

24             Summit.

25             MR. LEONARD:  Just one redirect.

```
 1                   REDIRECT EXAMINATION

 2   BY MR. LEONARD:

 3        Q.   Mr. Schovanec, with respect to all the

 4   parcels you've been shown here today during the

 5   Board's questions, in addition to simply looking at

 6   the white line on the screen, in general terms would

 7   it be helpful to Summit in evaluating potential

 8   reroutes to have access to the property to do surveys?

 9        A.   Certainly.  I mean, again, you need to be

10   able to survey the route to know if it will ever work.

11   So any one of these additional requests to move the

12   route -- for any of the route changes that we've

13   implemented into the route, we've asked the landowner

14   that, hey, for us to consider this reroute, we need to

15   go out and survey the alignment with our bio crews,

16   our cultural crews, and our civil crews to make sure

17   that there's not a power line or a cultural site or

18   any other kind of species, habitat area.

19             So, yeah, certainly we need to be able to

20   survey any route that is changing the alignment of

21   where we're at today.

22             MR. LEONARD:  Nothing further.  Thank you.

23             BOARD CHAIR HELLAND:  Thank you,

24   Mr. Schovanec.  You may step down.

25             THE WITNESS:  All right.  Thank you very
```

 1   much.

 2             BOARD CHAIR HELLAND:  But you're not

 3   excused.

 4             THE WITNESS:  I'm not excused?

 5             BOARD CHAIR HELLAND:  You can step down,

 6   but we may need to recall you so you're not excused.

 7             MR. JORDE:  I'm sorry.  Was there a

 8   redirect question from Mr. Leonard?

 9             MR. LEONARD:  Yes.

10             BOARD CHAIR HELLAND:  Yes.

11             MR. JORDE:  Well, then sorry.  I've got a

12   question.

13             BOARD CHAIR HELLAND:  Just a quick

14   reminder, it's limited to the redirect question.

15             MR. JORDE:  Yes.  I got that.

16             BOARD CHAIR HELLAND:  Go ahead.  Sorry.  I

17   didn't see your tag up.

18             MR. JORDE:  No, it wasn't.  It was my

19   fault.

20                    RECROSS EXAMINATION

21   BY MR. JORDE:

22       Q.   So you just said you need to survey the

23   route to make sure it works in regards to a requested

24   reroute on a property you're already targeting.

25             Is that your statement?

IN RE: SUMMIT CARBON SOLUTIONS
IUB HEARING  09/07/2023                                      Page 2351

```
 1        A.    Yes.

 2        Q.    Okay.  So you would agree that if you've

 3  already surveyed in that immediate area, you'd have a

 4  good idea if there's cultural resources; right?

 5        A.    No.  I mean, the cultural resources could

 6  be at any location.  So you have to survey the actual

 7  location of the pipeline construction.  Our survey

 8  corridor is 300 foot wide.  So we've surveyed a wider

 9  swath to allow for adjustments.  But, if you get

10  outside of that survey corridor, we would need to

11  resurvey the new corridor.

12        Q.    Okay.  And you think you'd have to do all

13  of those surveys you've mentioned?  Even the geotech?

14  I mean, isn't it fair that you know the soils in a

15  given area, you've done all the research, and it

16  wouldn't be as intensive as you suggest.

17        A.    If this parcel was adjacent to a river, and

18  geotech had been completed already, I certainly would

19  agree we wouldn't need to go back out if it was a

20  slight adjustment.  However, the cultural resources

21  are specific to the actual location.  And cultural

22  resources are heavy around a river, for example.

23              So we would need to complete generally just

24  a foot traffic survey.  The cultural surveys, the bio

25  surveys, and the civil surveys.
```

1         Q.   And, on the cultural surveys, when you say

2    foot traffic, basically if you walk around and you

3    don't see an arrowhead laying on the ground, then does

4    that satisfy the cultural survey?

5         A.   I'd defer to Mr. Schmidt.  They do shovel

6    tests where they do just very shallow holes where they

7    sift and look at the dirt.  I'm not an expert on that.

8    I'd have to defer to him on the specifics.

9              MR. JORDE:  That's fine.  Thank you.

10             BOARD CHAIR HELLAND:  Thank you.

11             You may go.

12             We would like to call Mr. Phillips and then

13   get him sworn in and started, but we do plan on taking

14   lunch from noon to 1.  So we've got 20 minutes to get

15   started.

16             MR. DUBLINSKE:  Thank you, Your Honor.

17             Summit Carbon calls Andrew Phillips.

18             BOARD CHAIR HELLAND:  Good morning.  Go

19   ahead and get yourself comfortable.  Put the mic where

20   you like as long as we can hear you.

21             Can you raise your right hand, please.

22

23

24

25

```
 1                        ANDREW PHILLIPS,

 2    called as a witness by Summit Carbon Solutions, LLC,

 3    being first duly sworn by Board Chair Helland, was

 4    examined and testified as follows:

 5               BOARD CHAIR HELLAND:  Mr. Dublinske.

 6               MR. DUBLINSKE:  Thank you, Your Honor.

 7                      DIRECT EXAMINATION

 8    BY MR. DUBLINSKE:

 9         Q.   Mr. Phillips, are you the same Andrew

10    Phillips who caused to be filed in this matter direct

11    and rebuttal testimony and two exhibits?

12         A.   I am.

13         Q.   I don't believe your microphone is on.

14         A.   I am.

15         Q.   Thank you.  Do you have any corrections to

16    your testimony before we begin this morning?

17         A.   No, I don't.

18         Q.   And, if I asked you the questions in your

19    testimony on the stand today, would your answers be

20    substantially similar?

21         A.   Yes, they would.

22               MR. DUBLINSKE:  Your Honor, we move

23    admission of Phillips direct, rebuttal, and Exhibits 1

24    and 2.

25               BOARD CHAIR HELLAND:  Are there objection?
```

```
 1              MR. JORDE:  Yes, Your Honor.  As to the

 2  exhibits, object.  Hearsay, hearsay within hearsay,

 3  lack of foundation, and relevance.

 4              BOARD CHAIR HELLAND:  Thank you.

 5              MR. DUBLINSKE:  For all the reasons we've

 6  discussed many times, but here, since Mr. Phillips was

 7  directly involved in the study, I don't know what the

 8  objection would be.

 9              Again, technically, it is hearsay because

10  it was a statement out of court, but there are several

11  exceptions that would apply, not least of which is the

12  administrative procedures act allowance of hearsay.

13              BOARD CHAIR HELLAND:  Thank you.  The

14  objection is overruled.  It will be admitted as named

15  previously.  Thank you.

16              MR. DUBLINSKE:  Your Honor, with that, we

17  tender the witness for cross-examination.

18              BOARD CHAIR HELLAND:  Thank you.

19              I believe Mr. Taylor had his tag up first.

20              MR. TAYLOR:  Thank you.

21                   CROSS-EXAMINATION

22  BY MR. TAYLOR:

23       Q.   Mr. Phillips, I'm Wally Taylor.  I

24  represent the Sierra Club.

25              And, in looking at your report --
```

```
 1                MR. TAYLOR:  We can get that up.  It would
 2    be Phillips Exhibit 1, I think.  And if we go to
 3    page 3, the executive summary.  There we go.
 4    BY MR. TAYLOR:
 5         Q.   The first line says "Summit Carbon
 6    Solutions commissioned Ernst & Young to analyze its
 7    economic and tax contributions from the construction
 8    and operation of its vertically integrated carbon
 9    capture transportation and sequestration project?"
10               So is it fair to say that your analysis
11    only looks at economic contributions; is that correct?
12         A.   That's correct.
13         Q.   It doesn't consider any economic costs or
14    detriments; correct?
15         A.   That's correct.
16         Q.   And is it fair to say that many, if not
17    most, of the inputs of information you used to prepare
18    your report came from Summit?
19         A.   That's correct.  We received budget
20    information, information about employment, payroll,
21    local suppliers, et cetera.
22         Q.   And you did nothing to verify the accuracy
23    or correctness of the information that Summit gave
24    you.
25         A.   For budget information related to the
```

```
 1   capital expenditure program, no, we relied on

 2   information supplied by Summit.  For certain other

 3   parameters in the analysis, we did independently check

 4   reasonableness.  But this was not in any way an audit

 5   of that information.

 6          Q.    Which brings up an interesting point.

 7   Ernst & Young, among other things, is an accounting

 8   firm; correct?

 9          A.    That's right.

10          Q.    You're not an accountant.  Or are you?

11          A.    No.

12          Q.    So, if an investor were going to consider

13   investing in Summit, the investor probably would not

14   rely on this report entirely?

15          A.    I'm not sure this report would provide any

16   basis for an investment decision, but we would not

17   advise anyone to rely on this report for an investment

18   decision in Summit.

19          Q.    In fact, if we can go to the second page of

20   the report.  It's not numbered, but it's just after

21   the cover page.  The next page.

22                Down at the bottom it says "Limitations and

23   restrictions."  And in that disclaimer, I'll call it,

24   it says "Certain analyses and findings in this report

25   are based on estimates and/or assumptions about the
```

1    cost of construction and operation of the Summit

2    Carbon Solutions pipeline project."

3              So it's based on a lot of estimates and

4    assumptions; correct?

5         A.   That's right.

6         Q.   Economists like to use assumptions, don't

7    they.

8         A.   And we try to state them in the report.

9         Q.   And farther down it says "Ernst & Young has

10   no future obligation to update the report."

11             And you have not updated the report, have

12   you?

13        A.   Since the report was issued about a year

14   ago, we have received updated budget information from

15   Summit and we were asked to update the analysis, but

16   we have not updated the report.  So we do have new

17   estimates.

18        Q.   But we, the public, would not have access

19   to that updated report.

20        A.   We have not yet prepared any updated

21   report.

22        Q.   And this Board would not have access to

23   that.

24        A.   Because we have not prepared an updated

25   report.

1          Q.    And then the disclaimer goes on to say

2     "While we," Ernst & Young, "believe the work performed

3     is responsive to Summit's request pursuant to the

4     scope of work, we make no representation as to the

5     sufficiency of the report or our work for any other

6     purposes."

7               And then the important part goes on to say

8     "Any third parties reading the report should be aware

9     that the report is subject to limitations, and the

10    scope of the report was not designed for use or

11    reliance by third parties for investment purposes or

12    any other purpose.  We," Ernst & Young, "assume no

13    duty, obligation, or responsibility whatsoever to any

14    third parties that may obtain access to the report."

15              So you're saying there, aren't you, that

16    anyone who wants to make a decision based on this

17    report is advised to be very cautious about using this

18    report to make that decision; correct?

19         A.    I think the disclaimer sort of notes that,

20    you know, we're not liable for financial decisions

21    that are made based on this report.  We were hired to

22    conduct a process on the data that was given to us.

23    Which was to transform the budget information into

24    estimates of employment and economic activity.

25         Q.    But doesn't the disclaimer say the scope of

1    the report was not designed for use or reliance by

2    third parties for any purpose?

3          A.    That is what the disclaimer says.

4          Q.    And you stick by that.

5          A.    This is standard language that appears in

6    most of our reports.  We were commissioned to do this

7    work with the understanding that it would be made

8    public and it would be used for this purpose.

9    Nonetheless, this is a standard disclaimer that

10   appears in EY reports.

11         Q.    But the disclaimer goes to anybody who

12   might want to rely on this report; correct?

13         A.    That is what it says.

14         Q.    You used a model called IMPLAN; is that

15   correct?

16         A.    That's correct.

17         Q.    And I think you said in your rebuttal

18   testimony at page 5 that the IMPLAN model only

19   considers positive economic impacts.

20               Is that correct?

21         A.    If you were to input a negative event, it

22   would consider the sort of ancillary effects of that

23   negative event.  In this case, we were looking at two

24   positive spending-type impacts.  One is from the

25   construction of the pipeline and the other is from the

```
 1   operation of the pipeline.  And, given both of those

 2   were positive, the end result is positive based on the

 3   way IMPLAN works, yes.

 4         Q.    So it's not a cost-benefit analysis; is

 5   that a fair statement?

 6         A.    It is not a cost-benefit analysis.  There

 7   are other benefits also that we did not include in

 8   this analysis, including environmental benefits.

 9   That's right.

10         Q.    Nor any environmental impacts.  Adverse

11   impacts.

12               Right?

13         A.    That's true.  We don't look at

14   environmental issues per se in this report.

15         Q.    And is it fair to say that your report, or

16   your analysis, is simply a prediction?  You can't say

17   that things will happen or make conclusive statements

18   from your analysis?

19         A.    It's a prediction because the pipeline

20   hasn't been built yet.

21         Q.    But, in your report, you repeatedly say

22   that the project will provide so many secondary, even

23   tertiary, jobs, it will provide so much tax revenue --

24   you know, you use the word "will" all the way through

25   even though it's a prediction.
```

1           So really would you agree that maybe "will"

2    was not the proper word to use?

3           A.   One could say "is expected to" or "is

4    projected to" or "is estimated to" as substitutes for

5    "will."

6           Q.   Wouldn't that be more accurate?

7           A.   I'm not sure.  I think the purpose was to

8    convey the result in the report.  Whether it's "will"

9    or "is expected to" or "estimated to," you know, I

10   would leave it to the reader to sort of know that this

11   is a projection.

12          Q.   And you said the report doesn't look at

13   negative impacts.  For example, we've heard testimony

14   that this project may increase the price of corn, but

15   that would make it more expensive for livestock

16   producers to buy feed for their animals.

17          And would you agree the livestock industry

18   is an important economic aspect of Iowa's economy?

19          A.   As you noted, it's not something that we

20   looked at in the report.

21          Q.   So that could be a negative impact from

22   this project that doesn't appear in the report.

23          A.   In the example you just provided, there

24   were two impacts you mentioned.  There's a positive

25   impact for corn producers and a potential secondary

```
 1    negative impact for livestock producers.  And what the

 2    net of those two would be, I don't know, because it

 3    wasn't something we looked at in the report.

 4          Q.    Either way.

 5          A.    Either way.

 6          Q.    We've also heard testimony that an

 7    important aspect economically of the Summit project

 8    are the 45Q and 45Z tax credits.

 9                Are you familiar with those?

10          A.    Yes.

11          Q.    And I think your report specifically said

12    that you were not factoring those into your analysis;

13    correct?

14          A.    The amount of the credit is included in the

15    report.  From the perspective of Iowa economic impact,

16    other than making the project more financially

17    feasible, there's no impact from that credit that we

18    would have estimated.

19          Q.    Is a part of your analysis what you would

20    consider indirect and induced jobs from the Summit

21    project?

22          A.    Yes.

23          Q.    For the record, explain what you mean by

24    indirect and induced jobs.

25          A.    So indirect jobs relate to supply
```

1   chain-related activity where to the extent Summit has

2   purchases from in-state suppliers of goods or

3   services, those purchases then support some amount of

4   additional in-state activity.  Employment, GDP, and

5   otherwise.

6              The induced economic impact is related to

7   employee re-spending of income within the state

8   economy.  And that employee income includes both the

9   direct employees, meaning Summit employees in Iowa, as

10  well as indirect employees, meaning employees of

11  vendors, contractors, and suppliers.

12       Q.   And, in your report, you don't distinguish

13  full-time jobs from part-time jobs when you're

14  considering indirect and induced jobs; is that

15  correct?

16       A.   That's correct.  The employment numbers are

17  based on an average number of hours worked.  Which is

18  a mix based on industry averages between full-time and

19  part-time.

20       Q.   But wouldn't full-time jobs be more

21  economically beneficial to the economy than part-time

22  jobs?

23       A.   If you have the same number of them.

24       Q.   We've heard testimony in this case about

25  the alleged impact on the ethanol industry in Iowa.

```
 1    And if we can go back to page 3 of your report.

 2              MR. TAYLOR:  Scroll down just a little bit.

 3    Right there.

 4    BY MR. TAYLOR:

 5         Q.   The very last sentence in the first

 6    paragraph says "The project will reduce the carbon

 7    footprint of ethanol production and enhance the

 8    long-term economic viability of the ethanol,

 9    agricultural, and other industries."

10              But, as near as I could tell, after making

11    that statement there's nothing in the report that

12    analyzes the impact on the ethanol industry.

13              Is that correct?

14         A.   That's correct.

15         Q.   So the Board would not have the benefit of

16    your analysis regarding the ethanol industry and the

17    economic impacts; correct?

18         A.   That's correct.

19         Q.   We've heard from some landowners that they

20    had investment plans that they have put on hold or

21    maybe even abandoned because of this project.

22              Did you figure any of that into your

23    analysis?

24         A.   No.  We did not.  We did not have that

25    information and it wasn't part of our approach.
```

1          Q.    And we've heard testimony about the impacts

2    of the construction, and perhaps operation, of the

3    pipeline on farmland and reduced crop yields.

4                Did you factor any of that into your

5    analysis?

6          A.    No.  We're just looking at the spending

7    impacts from construction and operation.

8                I should note the other thing we're not

9    factoring in are the payments to landowners.

10         Q.    Thank you.  In your rebuttal testimony at

11   page 4, line -- it starts at line 7 -- I'm sorry.  It

12   starts at line 8.  You say "However, due to the

13   increased length of the project, average annual jobs

14   have decreased 42 percent."

15               So doesn't that indicate that the economic

16   contribution, in terms of jobs at least, has

17   decreased?

18         A.    No.

19         Q.    Why not?

20         A.    Because you're supporting half as many jobs

21   for twice as long.  Essentially.  So, in terms of the

22   overall contribution to labor in Iowa, it's roughly

23   the same.

24         Q.    So, for those workers who were 50 percent

25   of the original jobs who won't have a job now, if I

1    understand your testimony correctly, that's quite an

2    impact to them, isn't it.

3         A.    Yes, and it's offset by the other half of

4    the workers that now get to work twice as many years.

5         Q.    Well, if I understand you correctly, you're

6    going to have fewer workers, they're just going to

7    work longer.

8              Right?

9         A.    They're going to have jobs for roughly six

10   years instead of roughly three years, yeah.

11             BOARD CHAIR HELLAND:  Mr. Taylor.  We're at

12   noon and I don't want to interrupt you.  So we can --

13             MR. TAYLOR:  That's fine.  We can break.

14             BOARD CHAIR HELLAND:  Is it a good time?

15             MR. TAYLOR:  Yes.

16             BOARD CHAIR HELLAND:  Very good.  We'll

17   take a quick break and be back at 1:00.  We'll be off

18   the record till 1:00.

19             (Recess taken at 12:00 p.m.)

20             (Hearing resumed at 1:01 p.m.)

21             BOARD CHAIR HELLAND:  It's 1:01 p.m.  We're

22   ready to go back on the record.

23             Mr. Taylor, I believe we were with you.

24             MR. TAYLOR:  Thank you.  Can we bring

25   Mr. Phillips' report back up on the screen.

 1              BOARD CHAIR HELLAND:  Just a quick

 2    reminder, Mr. Phillips, you're still under oath.

 3              THE WITNESS:  Yes.

 4              MR. TAYLOR:  And go to page 4.  Page

 5    number 4.  Not the exhibit page number, but the number

 6    on the -- sorry.  Keep going down.  Keep going down.

 7              There you go.  Oops.  There you go.  Right

 8    there.

 9    BY MR. TAYLOR:

10         Q.    Mr. Phillips, we're looking at page 4 of

11    your report.  And, in bold letters, it says "The

12    largest economic contribution from Summit's capital

13    expenditures will occur in South Dakota, North Dakota,

14    and Iowa."  In that order.

15              So Iowa is third; is that correct?

16         A.    In terms of the gross economic output, yes.

17         Q.    And that's the bottom line here, isn't it?

18         A.    We present several economic impact metrics

19    in the report.  Employment, personal income, value

20    added, and gross economic output.  Gross economic

21    output is sort of roughly equivalent to sales for most

22    industries.  Some people would put a lot of value on

23    jobs and income as well.

24         Q.    But the economic contributions are really

25    what your scope of work was designed to come up with,

 1   wasn't it?

 2         A.    Economic contributions, yes, in terms of

 3   jobs, income, GDP, and gross economic output.

 4         Q.    One final topic here before I quit.  In the

 5   Navigator pipeline hearing in South Dakota, they had

 6   an economist, Navigator did, who was doing the same

 7   kind of analysis you are, but he used an economic

 8   analysis tool called REMI.  R-E-M-I.

 9               Are you familiar with that?

10         A.    I am.

11         Q.    Have you ever used it?

12         A.    I have.

13         Q.    What I understood from that testimony was

14   that REMI layers econometric modeling techniques onto

15   the basic input-output modeling and models the impact

16   of the project over time and also has a population

17   impact model.  It's also easier to separate out the

18   initial construction impacts that diminish over time

19   from ongoing impacts.

20               Do you agree with that description of REMI?

21         A.    I agree with the first portion.  Because

22   that's directly from the way they describe the model

23   themselves.  And I think it's accurate.

24               The second portion about -- could you say

25   the last sentence again?

1         Q.    Sure.  "REMI models the impact of the

2    project over time and also has a population impact

3    model.  It is also easier to separate out the initial

4    construction impacts that diminish over time from

5    ongoing impacts."

6         A.    So I would sort of dispute the last

7    sentence.  Because IMPLAN actually, I would argue, is

8    much more transparent in terms of the way impacts

9    occur.

10              REMI, because it's a system of equations,

11   has lots of secondary and tertiary interactions, which

12   are actually quite difficult to sort out, and it's a

13   far less transparent model.

14        Q.    But it is more in depth, so to speak, in

15   analyzing some of this data?  Would you agree with

16   that?  Compared to IMPLAN.

17        A.    Implan is a simpler model, yes.

18              MR. TAYLOR:  Thank you.  That's all the

19   questions I have.

20              BOARD CHAIR HELLAND:  Thank you.

21              Mr. Whipple.

22              MR. WHIPPLE:  Thank you, Your Honor.

23

24

25

```
 1                    CROSS-EXAMINATION

 2   BY MR. WHIPPLE:

 3         Q.   Mr. Phillips, my name is Tim Whipple.   I

 4   represent seven counties.

 5              In your direct testimony at page 4,

 6   line 15, you explain in some detail what the IMPLAN

 7   model is and you talk about the social accounting

 8   matrix.

 9              Is it accurate to say that that data set

10   attempts to estimate secondary and tertiary economic

11   activity?

12         A.   Yes.

13         Q.   So, generally speaking, is it accurate to

14   think about IMPLAN as a tool that attempts to estimate

15   economic ripple effects of large industrial

16   developments?

17         A.   It can certainly be used for that, yes.

18         Q.   Wouldn't you agree that the benefits

19   estimated for this project through the IMPLAN model

20   would also be produced by other large industrial

21   projects?

22         A.   Yes.

23         Q.   So, in terms of the model, a similar large

24   capital expenditure would generate a similar estimate

25   of economic activity.
```

1          A.   Generally, yes, with some caveats that it

2     would have to sort of look the same in terms of the

3     nature of the inputs that are purchased and use of

4     labor, but yes.

5          Q.   Within the same large industry

6     classification, for example, they generally would;

7     right?  As long as we're not comparing a small retail

8     establishment to this project, we could expect similar

9     results; is that right?

10         A.   So, in some ways, yes.  The way that we

11    actually modeled this was to build up the input

12    purchases by understanding purchases of pipe, lumber,

13    all of the different materials and services that go

14    into actually building the pipeline.

15              But, you know, if you had another

16    industrial activity that had that same purchasing

17    profile, then, yes, it would have the same impact.

18         Q.   In your direct testimony at page 6 starting

19    at line 1, you talk about indirect and induced

20    effects.  And I believe you already defined those for

21    Mr. Taylor.

22              Do you recall that?

23         A.   Yes.

24         Q.   How much of the total impact of this

25    project is attributable to indirect effects?

IN RE: SUMMIT CARBON SOLUTIONS
IUB HEARING  09/07/2023                                          Page 2372

1         A.    A good portion.  We classify -- for the

2   capital expenditures impacts, we classify all of the

3   construction contractors and construction employees as

4   indirect.  And that is, in fact, where a very

5   significant portion of the activity sits.

6         Q.    When you say "very significant portion,"

7   can you quantify that?

8         A.    At least half, I would think.

9         Q.    At least half for indirect.

10        A.    Yes, I believe that's true.

11        Q.    Thank you.  How much of the total impact of

12  this project is attributable to induced effects?

13        A.    I'm just estimating here based on memory,

14  but I would say probably about a third.  Because

15  what's left is the direct effect, which would be

16  actual Summit employees.  Of which there are many, but

17  not of the scale that we see construction contractors

18  and businesses that support spending by employees.

19        Q.    So if you could -- and I'm not going to do

20  the math for you, but estimate the remaining direct

21  effects.

22        A.    Oh.  Again, this is an estimate based on my

23  sort of rough memory of the results, but 10 to 15,

24  maybe 20 percent.

25        Q.    Thank you.  What is the magnitude of error

1    of the IMPLAN modeling tool?

2         A.    That isn't -- you know, so in a typical,

3    like, stochastic environment you would have a known

4    error.  In IMPLAN, there is no published known error.

5    The question is how close you can align the inputs and

6    the data in the model to the actual activity that

7    you're trying to model.

8         Q.    Help me understand.  Is what you're saying

9    that there's no good way to compare it to what happens

10   in the real world afterwards?

11        A.    One could go back and look ex post at an

12   impact and try to untangle, for instance, the effect

13   of a given project on employment from all of the other

14   things that are happening in the economy.  That's not

15   something that obviously we could have done for this

16   project since it hasn't happened yet.

17        Q.    And the developers of the IMPLAN model

18   don't do that either; is that right?

19        A.    Not that I'm aware.

20        Q.    What is a computable -- well, are there

21   similar economic impact modeling tools available other

22   than REMI?  You talked about REMI with Mr. Taylor.

23        A.    There are.  So the basic foundation of all

24   of these models; REMI, IMPLAN, the CGE model that you

25   started to ask about, is an input-output matrix from

```
 1    the U.S. Bureau of Economic Analysis.  And that's the

 2    matrix that essentially follows the purchase of inputs

 3    through the economy as it goes from one business to

 4    the next sort of down the supply chain.

 5              On top of that, you can put other

 6    additional information.  IMPLAN has a social

 7    accounting matrix.  A general equilibrium model has

 8    sort of additional elasticities that are built in to

 9    reflect labor capital substitution, price adjustments,

10    those types of things.

11         Q.   Good.  And that's where I wanted to head.

12    As you can tell.  You anticipated me a little bit.

13              But, just for the record, what is a

14    computable general equilibrium model?

15         A.   It is a system of equations that finds a

16    new economic equilibrium after a shock.  And the main

17    sort of distinction between IMPLAN, which is a static

18    input-output model, and a CGE model is the supply side

19    effects essentially.

20         Q.   So you just now characterized IMPLAN as a

21    static model.

22              Does that mean a CGE model is what you

23    might call dynamic?

24         A.   Yes.

25         Q.   And are there advantages to a dynamic
```

 1   model?

 2        A.   Dynamic models are most advantageous for

 3   policy evaluation where you have, for instance,

 4   changes in the cost of capital or cost of production

 5   or really significant changes in relative prices.

 6   Those are the types of dynamic effects where you would

 7   really need a CGE model.

 8        Q.   That seems to be what we're doing here in

 9   this proceeding, doesn't it?

10        A.   I don't think so.

11        Q.   So why wouldn't you use a CGE in this

12   application?  Why choose IMPLAN for this application?

13        A.   IMPLAN is a sort of more transparent model

14   that allows greater customization.  Right?  So we can

15   actually -- there's no industry in REMI, or some other

16   off-the-shelf CGE model, for a carbon pipeline.

17             Within IMPLAN, we have granularity of

18   inputs to actually model purchases of steel and timber

19   mats and drain tiles and all of these things that

20   together sort of comprise the package of inputs that

21   is what we're modeling.  Right?

22             We're not simply modeling a carbon

23   pipeline.  We're modeling this package of purchases

24   that are being made from the Iowa economy.

25        Q.   Package of purchases from the Iowa economy

1    or from the regional economy?

2        A.    Both.

3        Q.    How granular does the model develop those

4    packages?

5        A.    So IMPLAN has about, approximately, 440

6    commodity and service categories.

7        Q.    Sorry.  In terms of geography.  Does it get

8    down to individual cities and counties and

9    jurisdictions or does it stop at the state level?

10       A.    Counties.

11       Q.    So it stops at the county level.

12       A.    Yeah.

13       Q.    Thank you.  Sorry.  That was a bad

14   question.

15             I want to talk a little bit about the

16   "Interpretation of results."  On page 17 of your

17   Direct Exhibit 1 --

18             MR. WHIPPLE:  And I actually mean page 17

19   by the exhibit numbering.  Thank you.

20   BY MR. WHIPPLE:

21       Q.    Here you say "All of the results presented

22   in this report are based, to some degree, on data

23   provided by Summit which has not been independently

24   audited or validated by Ernst & Young.  As such,

25   Ernst & Young offers no opinion on the validity of the

```
 1   data provided by Summit."

 2              Shouldn't the Board attempt to validate the

 3   data?

 4        A.   I have no opinion on that.  As part of our

 5   exercise, because we're not engineers or construction

 6   cost consultants, we had no kind of role in validating

 7   the construction cost data.

 8        Q.   Elsewhere here on page 17 you say that

 9   "Total employment figures presented in this report are

10   not necessarily net new jobs" and that "the net change

11   in employment will likely be smaller than the gross

12   employment impacts shown in this report."

13              Why doesn't the report show the net new

14   jobs?

15        A.   We don't have estimates of the net new

16   jobs.  So construction workers, for instance, who

17   would be employed in the construction of the pipeline

18   may have had another job prior to that.  And so, when

19   comparing the sort of level of employment with the

20   project as opposed to before the project, the change

21   may be smaller than the number of people actually

22   employed to build the pipeline.

23        Q.   Don't we really care in the real world

24   about the net new jobs?

25        A.   Yes.  There are very few models that will
```

```
 1    give you an accurate estimate of the net new jobs.  So

 2    that's why we have this limitation in the report.

 3         Q.    So this is the best you can do.

 4         A.    Yes.

 5         Q.    On page 18 of Exhibit 1, you say "Economic

 6    output reported in this report includes double

 7    counting."

 8              Why does the report double count economic

 9    output?

10         A.    Because, by definition, total gross

11    economic output when you look at it, including direct,

12    indirect, and induced effects, includes double

13    counting.  Right?

14              So, if you have a firm that sells $100 of

15    goods and purchases $50 from another firm, there's

16    $150 of total transaction there.  And so the total

17    gross economic output, as would show up in every one

18    of the models we've talked about, would include the

19    double counting of that $50 of purchased inputs.

20              Value-added, by contrast, does not.  And

21    that's the distinction between gross economic output

22    and value-added.

23         Q.    Do you produce both of those figures in the

24    report?

25         A.    Yes.
```

1          Q.    Also, on page 18, you say "The gross

2    economic output should not be interpreted as gross

3    domestic product."

4               Can you explain that a little bit further?

5          A.    Yeah, that's actually the exact distinction

6    I was just mentioning in the last point.  Gross

7    domestic product and value-added are essentially the

8    same thing.

9          Q.    What is a multiplier?

10         A.    A multiplier, as generally used in this

11   context, is the relationship between the total impact

12   and the direct impact.  So total impact divided by

13   direct impact.

14         Q.    On page 18 of your Direct Exhibit 1, you

15   say the analysis is based on average multipliers

16   rather than marginal effects.

17              What are marginal effects?

18         A.    So the IMPLAN model, and most of the models

19   that we've talked about, are based on data from the

20   Bureau of Economic Analysis that would describe things

21   such as output per worker.  Right?  So, for the

22   typical worker in a given industry, how much output is

23   produced.

24              An expansion of that industry may have a

25   slightly different ratio of output per worker or

```
 1   productivity.  Our model, and all of these models,

 2   assumes an average for the industry.  Right?

 3            So, to the extent we are modeling the

 4   purchase of steel pipe, we're using the average output

 5   per worker and other sort of average industry

 6   characteristics for the steel pipe industry because we

 7   don't have any other information.

 8            Now, were there to be a sort of significant

 9   expansion of the steel pipe industry, it's possible

10   those ratios could look different.

11       Q.   If that were available, would using

12   marginal effects be more accurate?

13       A.   Yes.  And they could be higher.

14       Q.   But it would at least be more accurate.

15       A.   I suppose if you knew how to accurately

16   estimate those prospectively.

17       Q.   Is the analysis geographically limited, for

18   example, to a certain distance of the pipeline

19   corridor?

20       A.   Yes.  So, when we built the model, we -- as

21   I mentioned earlier, we built it up from county-level

22   models.  And, within each state, the state was sort of

23   segregated into pipeline counties where there was a

24   pipeline alignment or a facility and then non-pipeline

25   counties.
```

 1          So the pipeline county impacts were run in

 2     a sort of multi-region framework.  So input purchases

 3     from one region to another region, meaning if you had

 4     a purchase from a pipeline county of some inputs from

 5     an area of the state that did not have a pipeline

 6     alignment, those transactions between the regions

 7     would be reflected in our model.

 8          And so, for each of the states in our

 9     analysis, we have one region which is pipeline

10     counties within the state and then we have the

11     non-pipeline counties within the state.  And that's

12     how the models were run.

13          Q.   So, if there's a transaction between

14     parties in two different counties, is that where

15     there's the double counting going on?  Is it recorded

16     from each perspective?  From each county's

17     perspective?

18          A.   No.  I mean, only -- so, for indirect

19     impacts; employment, personal income, value-added,

20     only get counted once.  It's that gross economic

21     output which is where you see the accumulation of

22     intermediate input transactions.

23          And so, yes, that would happen if the two

24     parties are in different counties or even if they're

25     in the same county.

```
 1          Q.   So, just to try to summarize there, what

 2   you're saying about the double counting isn't true as

 3   to direct, only as to indirect and induced.

 4          A.   Yeah.

 5          Q.   So you told Mr. Taylor that the analysis

 6   doesn't include any costs.

 7               Could you have included an estimate of

 8   total crop damage costs?

 9          A.   I'm not aware of such an estimate.  And we

10   certainly didn't have access to one.

11          Q.   If Summit had provided it, would you have

12   the tools to run it?

13          A.   Yeah, perhaps.

14          Q.   And you could have done the same with, for

15   example, an estimate of the cost to local governments

16   for permitting and compliance.

17          A.   Perhaps.

18          Q.   And the model would accommodate those

19   things.

20          A.   It's not that the IMPLAN model would

21   accommodate them, but they could just be -- they're

22   sort of independent facts.

23          Q.   So the report could have accommodated it

24   even if IMPLAN doesn't.

25          A.   Yeah.
```

1        Q.    Okay.  But the point is you weren't

2   provided any estimates of costs.

3        A.    That's right.

4        Q.    Is there any mechanism after this

5   proceeding to verify whether these predicted effects

6   are actually realized afterwards?

7        A.    Several years from now, many years from

8   now, after the pipeline is built, you know, one could

9   go back and do -- it would require a fairly

10  sophisticated econometric analysis to understand what

11  actually happened in terms of employment effects and

12  the other sort of economic impact metrics.  Because

13  you would need to essentially control for changes in

14  the economy, changes in interest rates, changes in

15  crop prices, all of these -- changes in weather.

16  Right?  All of these sort of exogenous variables.

17            That's why it's not done very frequently,

18  but it's certainly technically possible.

19        Q.    In your direct exhibit at page 26, Direct

20  Exhibit 1, page 26, you've included a column for

21  "Direct contributions."  Explain that, I guess.  Is

22  that any different from direct effects?

23        A.    So those are taxes we estimate would be

24  paid by Summit or Summit employees on their individual

25  income.

```
 1          Q.    Okay.  So it is just slightly different.

 2   But it's directly attributable to Summit.  In the tax

 3   context.

 4          A.    Right.

 5          Q.    In the "Federal" column, you indicate that

 6   the direct federal income taxes contributed by Summit

 7   would be $9 million during the period 2022 to 2024.

 8                Is that estimate still current?

 9          A.    We have slightly revised the tax estimates,

10   although they haven't changed by much.  And that

11   particular number that you're referring to is the

12   estimate of federal individual income tax for Summit

13   employees.

14          Q.    That's where I was headed next.  I want to

15   be clear about that.  That is the amount of W-2

16   withholding from employees; correct?

17          A.    I believe that's correct, yeah.

18          Q.    It's not the corporate income tax.

19          A.    Correct.

20          Q.    Corporate income tax is estimated to be

21   zero.

22          A.    Correct.

23          Q.    In the column labeled "Total

24   contributions," you've indicated a distinction between

25   direct, indirect, and induced.
```

 1            Let's do the same thing there as we did

 2    with "Direct contributions" a minute ago and explain

 3    the significance of that at the top of that column

 4    header.

 5            A.    You mean sort of define what it means?

 6            Q.    Yeah.

 7            A.    So the total contribution reflects the

 8    following:  First, it reflects everything in the

 9    "Direct contribution" column.  Second, it reflects the

10    contributions of Summit contractors.  And then any

11    vendors of goods or services as well as the sort of

12    incremental taxes that would be generated by

13    businesses selling to Summit or contractor or vendor

14    employees.

15            Q.    So I'm going to express to you my

16    understanding of that and you correct me if I'm wrong.

17            You've basically used IMPLAN's ability to

18    do indirect and induced effects to produce an estimate

19    of the taxes paid through those indirect and induced

20    economic transactions.

21            Is that right?

22            A.    Yes.

23            Q.    So let's do the same thing with the tax

24    contributions that we did with the total economic

25    impact a few minutes ago.

1              How many taxes are you attributing to

2  indirect contributions here?

3         A.   The vast majority.  To indirect and

4  induced.  And between the two, indirect and induced, I

5  would need to go back and check.  I would imagine more

6  of them are indirect than induced.  But I would need

7  to go back and check.

8         Q.   I guess that matters less than the bottom

9  line.  What's Summit's relative direct contribution of

10 taxes here?

11        A.   It's shown -- it's a portion of the amount

12 shown in the first block.  In the "Direct

13 contribution" block.

14        Q.   Can you just read that number for us?

15        A.   70 of state and local and 9 of federal.

16        Q.   9 federal.  Which is where we started.

17             And this table is specific to the capital

18 expenditures; correct?

19        A.   That's right.

20        Q.   So let's flip over to Table 4.3 on page 27

21 where we have a similar table for annual operations;

22 is that correct?

23        A.   That's right.

24        Q.   And in terms of operations, the direct

25 federal income tax is expected to be $4 million; is

 1   that correct?

 2        A.   That's right.  For employees.

 3        Q.   Right.  Again, from employees.  And, again,

 4   estimated corporate income tax is zero.

 5        A.   That's right.  And the reason for that is

 6   because Summit isn't operating as a corporation.  It's

 7   a pass-through.

 8        Q.   Well, some LLCs can choose direct taxation,

 9   others can choose pass-through; correct?

10        A.   That's correct.  And we are working under

11   the assumption that Summit would choose to be a

12   pass-through for taxation purposes.

13        Q.   So, at page 27 here, in the introductory

14   paragraph you indicate that the value of Summit's 45Q

15   credits is $414 million just in 2025; is that right?

16        A.   That's right.

17        Q.   And is it true that those credits are

18   claimable for 12 years?

19        A.   I believe that's the case.

20        Q.   Do you happen to know what the estimated

21   value is in those future years?

22        A.   No.

23        Q.   Is it fair to assume that they would be

24   substantially similar?  At least from operations?

25             Well, this isn't specific to operations, is

 1   it.

 2            Is it fair to assume, in the future, the

 3   45Q credits would be substantially similar?

 4        A.    They're based on the volume of sequestered

 5   carbon.  And I believe that that volume would be

 6   similar over the years.  That's not something that we

 7   looked at.

 8        Q.    You have no reason to think the volume

 9   would be meaningfully more or meaningfully less.

10        A.    I don't.

11        Q.    So wouldn't you agree that Summit is

12   receiving far more in direct federal tax benefits than

13   they're contributing?

14        A.    Yes.  414 million in credits.

15        Q.    At page 18 of your Direct Exhibit 1, you

16   say "The direct property tax impact during the project

17   operation is provided by Summit based on its

18   preliminary estimates of operations from a specified

19   point in time, and Ernst & Young has not independently

20   validated the impact."

21            So just walk me through why you didn't try

22   to validate that impact.

23        A.    So the property tax amount that we were

24   provided by Summit we understand KPMG had estimated.

25   We did -- although we did not sort of officially

1   validate that amount, we did review the computation in

2   the Excel spreadsheet that had been developed by KPMG

3   and found it to be generally consistent with the tax

4   rates and the property value, the PP & E value that we

5   saw in the Summit financial model.  And we adopted

6   that as part of our result.

7           Q.    But did you do any independent

8   investigation of local assessed value or local levy

9   rates?

10          A.    We did, yeah.

11          Q.    You did.  And you did that per county?

12          A.    We reviewed the property tax rates in the

13  largest counties.  I believe KPMG was using

14  2.58 percent overall as the average.  And we reviewed

15  the rates and found that to be generally consistent

16  with what we saw.

17          Q.    Did you use the gross capital investment as

18  a proxy for the assessed value?

19          A.    We used the PP & E investment.  We excluded

20  soft costs.  For lack of a better term.  So we

21  excluded right-of-way payments, we excluded

22  capitalized interest and fees, and those types of

23  things.

24          Q.    Did the estimate factor in depreciation of

25  that property?

 1          A.   This was for a point in time.  So no.

 2          Q.   So would it be fair to say that counties

 3   can't expect a million dollars every year of the

 4   project?  That, over time, the equipment will

 5   depreciate and its assessed value will go down?

 6          A.   It's possible that the assessed value will

 7   change.  It's also likely that the assessment approach

 8   would shift to something other than cost over the

 9   future years.

10          Q.   So, if you were a county supervisor, would

11   you build a public budget based on this estimate?

12          A.   I would expect a significant amount of

13   property tax revenue to be generated.

14          Q.   How confident are you in the figure though?

15          A.   I think, given the costs that we've seen

16   that have actually escalated over the period that

17   we've been involved in this project, it's likely that

18   the overall cost of the project will actually

19   potentially be higher than what these numbers were

20   based on.  Which, in that sense, makes those numbers

21   perhaps conservative.

22               As to the level of confidence in terms of

23   the actual property tax impact, I think, you know,

24   it's probably plus or minus 10 percent.  Hard to say.

25               MR. WHIPPLE:  That's all I have for now.

```
 1    Thanks.

 2              BOARD CHAIR HELLAND:  Thank you.

 3              Mr. Meyer.

 4              MR. MEYER:  Thank you, Your Honor.

 5                   CROSS-EXAMINATION

 6    BY MR. MEYER:

 7         Q.   Good afternoon, sir.  I'm Darrell Meyer,

 8    Hardin County.

 9              If we can turn to page 30 of Exhibit 1.  I

10    want to just kind of drill down into the line in

11    Table 5.1.5 where you're talking about how this is

12    going to impact Hardin County.

13              And I apologize if some of these questions

14    are a little redundant, but there's some terms on

15    these columns I want to just make sure I understand

16    what they mean and help the folks in Hardin County and

17    the Board here understand what they mean.

18              So, if you look at the line for Hardin

19    County, it's going to have a pipeline in it obviously.

20    There's 35 miles of pipeline.  At least that's what

21    the chart shows.

22              Is that right?

23         A.   That's right.

24         Q.   And "Total Capital Expenditures."  Is this

25    56,706,000?
```

```
 1          A.    That's correct.

 2          Q.    And that number is derived by taking the

 3   total estimated capital expenditure and prorating the

 4   number of miles that are running through Hardin

 5   County; is that right?

 6          A.    So the numbers in that column reflect the

 7   sum of two amounts.  One, if there's any kind of

 8   facility in the county, then the capital expenditure

 9   for that facility would be included there.  And then,

10   two, yes, for the actual pipeline cost, it would be

11   based on the mileage in the county.

12          Q.    And so, when you talk about a facility, you

13   mean something aboveground?

14          A.    Yes.

15          Q.    Could that be like a pump or a valve?  Or

16   would this include a capture type of --

17          A.    A capture facility, yeah.

18          Q.    Okay.  Now, help me understand the

19   difference between that 56 million as the total

20   expenditure and 65 million as the total output.  Can

21   you define total output and explain the difference?

22          A.    Yeah.  So total output includes the direct,

23   indirect, and induced effects.  So I would sort of

24   describe it as if you spend $56 million on facilities

25   and pipeline in the county, there will be $65 million
```

1    of total sales, including the value of the

2    construction activity that's happening there, the

3    value of supplies and materials that you're purchasing

4    from county vendors, and then also sales of businesses

5    that are selling to employees of the construction

6    contractors, vendors, et cetera.

7           Q.   So how did you determine how much -- let me

8    just ask you.  How much of this pipe is going to be

9    purchased from Hardin County vendors?

10          A.   The pipe itself has barely any impact in

11   our model.  I think for Iowa overall our model

12   estimates only 2 percent of the pipe value would be

13   supplied from any vendor in Iowa.

14          Q.   So what constitutes the lion's share of the

15   56 million?

16          A.   Purchases of other types of materials, the

17   induced effects, purchase services, freight, fuel,

18   utilities.  All of the things that it takes to build a

19   pipeline.

20          Q.   So what percentage of the 56 million are

21   going to be purchased from local contractors, vendors?

22          A.   I don't have the exact percentage.  I could

23   check that and come back, but I don't have it --

24          Q.   Is it even half?

25          A.   So overall, for materials, our model

1    estimates statewide about a quarter of materials would

2    be sourced from within the state.  And then, for

3    services that are used in the construction process,

4    the percentages tend to be a little bit higher.

5    Somewhere around a half.

6         Q.   So, just to manage the expectations of the

7    people back in Hardin County, they're going to see

8    perhaps 28 million new dollars flowing through our

9    economy just based on capital expenditures in Hardin

10   County?

11        A.   Of that type of expenditure, yeah.

12        Q.   And that is occurring -- I see on the chart

13   some of it talks about 2025, some '22 through '24.

14             Is this 56 million over the entire scope of

15   the construction of the project or the life of the

16   project?

17        A.   It's over the scope -- the duration of the

18   construction of the project.  Which, since we did this

19   report, has been extended to about five and a half,

20   almost six years.

21        Q.   In the column "Total labor income," that's

22   a three-year window in this table.  Has that been

23   modified?  Are those years the same?

24        A.   So the construction period overall has been

25   lengthened to -- I believe it's 5.67 years.  And so

1   what was previously a three-year snapshot in this

2   table is now more like a six-year -- five-and-a-half-

3   or six-year snapshot.  The dollar amounts would be

4   roughly the same.  It's just on a per year basis they

5   happen to -- it's a smaller amount because they happen

6   over a longer period of time.

7        Q.   So, over that period of time during

8   construction, there will be 22 million new dollars

9   earned by people in Hardin County that aren't being

10  earned right now?

11       A.   That's right.

12       Q.   How many of those are out-of-town,

13  transient, out-of-the-area contractors drawing a check

14  and sending it home, not spending it locally?

15       A.   It's possible that some of that money would

16  be earned by non-residents.  These would be -- these

17  numbers are establishment based.  Right?  So, if you

18  have a business that's selling to local workers, it's

19  possible that the employees of that business may not

20  reside within Hardin County.

21       Q.   Do you know what percent of the 22 million

22  is based on contract labor that came into the county

23  from outside?

24       A.   I don't know off the top of my head, no.

25  Sorry.

 1        Q.    It may not be off the top of your head, but

 2   do those numbers exist somewhere?

 3        A.    Yes.  So, in our updated analysis, which is

 4   summarized in my rebuttal testimony, we do show that

 5   it's around 55 percent of the total construction

 6   workforce is assumed to be an Iowa resident.  From

 7   county to county, I'm not sure what that looks like

 8   though.

 9        Q.    I want to kind of jump to the column on the

10   right.  The "Property Tax Liability."  And you did

11   provide some explanation.  This, again, is sort of

12   just derived from a larger number and Hardin County's

13   portion.

14              Is that fair or not?

15        A.    That's right.  It starts with a state-level

16   total and is allocated based on the presence of a

17   facility or pipeline mileage.  In proportion to

18   pipeline mileage.

19        Q.    So, even though the table here, 5.1.5,

20   talks about property tax liability for 2025, what year

21   would that be now if you had to update this table?

22        A.    2027, I believe.

23        Q.    So let's assume it's 2027.  Is Hardin

24   County going to receive a check from Summit in the

25   amount of $2,172,000 if your assumptions are correct?

```
 1          A.    Yes.

 2          Q.    And will the county assessor have to send

 3     them a bill for that amount?

 4          A.    I believe there will be a central

 5     assessment process where the value will be provided to

 6     the county assessor.  And then the bill would -- the

 7     tax levy would be sent.  I believe that would be the

 8     mechanical process.  But that's not something that we

 9     looked at here.

10          Q.    Do you know how Iowa property tax works?

11          A.    Generally.

12          Q.    Okay.  What part of what is being assessed

13     is real property that the assessor is going to put a

14     valuation on?

15          A.    I am under the assumption that the

16     assessment would happen centrally.

17          Q.    What do you mean by that?  Somewhere

18     outside Hardin County?

19          A.    Yeah.

20          Q.    So we've got to live with whatever somebody

21     else decides?

22          A.    I believe that's the process.

23          Q.    Because it's not really a property tax, is

24     it.  It's a utility tax, isn't it.

25                Right?
```

```
 1          A.   I think that's a fair characterization.

 2          Q.   Will an updated table show that it's a

 3    utility tax so that you don't mislead people about

 4    what they can project and expect?

 5          A.   We can certainly, yeah, consider that edit.

 6               MR. MEYER:  Thank you.  No other questions.

 7               BOARD CHAIR HELLAND:  Mr. Jorde.

 8               MR. JORDE:  Yes.  Thank you.

 9                    CROSS-EXAMINATION

10    BY MR. JORDE:

11          Q.   Sir, when did Ernst & Young get hired to do

12    any work on behalf of Summit?

13          A.   I'm not exactly sure, but I believe it

14    would have been April, or summer sometime, last year.

15          Q.   So your report is dated April 2022.

16    Certainly, to generate a report of that length, you

17    would have had to have been hired well before that.

18               Would you agree?

19          A.   Yeah, let me correct that.  I think it

20    would have been several months before that.

21          Q.   Very good.  And how many millions of

22    dollars to date has Summit, or any entity working with

23    Summit or promoting this project, paid to Ernst &

24    Young?

25          A.   It has not been anywhere close to that
```

1   amount.

2       Q.    Do you include that amount in your economic

3   analysis of the quote-unquote benefits of this project

4   based on either induced or indirect spending such as

5   your fees?

6       A.    No.

7       Q.    Now, in terms of what entities are covered,

8   did you only analyze Summit Carbon Solutions, LLC, or

9   did you look at all of the web of Summit-related

10  entities of what money may be spent or invested to

11  come up with the total numbers?

12      A.    To the best of my knowledge, we're only

13  looking at Summit Carbon Solutions, LLC, but the way

14  that the analysis was done didn't require an explicit

15  assumption about that.

16      Q.    Is Ernst & Young, any division or

17  department, working on R & D or research activity-type

18  credits or work opportunity credits or research or

19  advising Summit in those regards?

20      A.    It's possible.

21      Q.    Is Ernst & Young advising Summit in order

22  to be able to obtain any federal or state tax

23  incentives or grants of any kind related to this

24  project that you know of?

25      A.    I don't know of that.

1          Q.   You state that "other numbers."  So that

2     some of the numbers were generated by Summit.  I

3     believe you talked to Mr. Taylor about that and said

4     something to the effect that Summit used a customized

5     model.

6               Was that the IMPLAN model?  Did Summit use

7     that?  Or do you know what model they used?

8          A.   I'm sorry, I don't recall what it was I

9     said.

10         Q.   Okay.  Well, did you testify that Summit --

11    you relied on Summit's numbers for a significant part

12    of your findings here; correct?

13         A.   That's right.

14         Q.   All right.  And Summit's numbers.  Do you

15    know if Summit used any type of proprietary model to

16    generate numbers they gave to you?

17         A.   I don't believe so.  There were no economic

18    impact numbers in anything that Summit provided.

19         Q.   In terms of wages calculation, are part of

20    your wages numbers -- do they include like proprietor

21    fees or promoter fees that would be paid to

22    Mr. Rastetter for his efforts on behalf of this

23    project?

24         A.   I don't believe so.

25         Q.   Okay.  And how would you know one way or

```
 1   another?  Did Summit break down those numbers or did
 2   they just give you an estimate of a gross number for
 3   wages?
 4        A.   We had gross numbers for wages and then for
 5   benefits for employees.
 6        Q.   Is it true that Summit did not provide
 7   Ernst & Young audited financial statements?
 8        A.   That's right.
 9        Q.   And they didn't provide any audited balance
10   sheets or equity compensation agreements?
11        A.   That's correct.
12        Q.   And they didn't provide you with any W-2s
13   or bank account statements to tie back any numbers or
14   make sure to audit the numbers provided to you?
15        A.   Given that all of this data is prospective
16   based on a project that hasn't happened yet and
17   employees that aren't necessarily hired, I'm not sure
18   how we could have received W-2s.
19        Q.   Well, but in terms of all the people that
20   have testified they are employees of Summit, you
21   didn't get from Summit any specific wage information
22   for their current employees, did you?
23        A.   I don't believe so.
24        Q.   And you didn't review or analyze any of the
25   ethanol plant offtake agreements in preparing this
```

 1   report, did you?

 2         A.   No.

 3         Q.   And is the same Ernst & Young that you work

 4   for the same one that was ordered to pay a

 5   $100 million penalty for employees cheating on CPA

 6   ethics exams and misleading investigation?

 7         A.   I believe so.

 8              MR. JORDE:  Thank you.  I don't have

 9   anything further.

10              BOARD CHAIR HELLAND:  Mr. Fallon.

11              MR. FALLON:  Thank you, sir.

12                   CROSS-EXAMINATION

13   BY MR. FALLON:

14         Q.   A few questions.  Just from the perspective

15   of federal tax credits, there's a group called

16   Taxpayers for Common Sense.

17              Are you familiar with that group?

18         A.   I'm not sure I am actually.

19         Q.   They put out a report indicating that the

20   ten-year cost estimate -- based on the U.S. treasury

21   department's information, the ten-year cost estimate

22   for the 45Q tax credits is now estimated at

23   30.6 billion.  And there are some estimates that say

24   that's pretty conservative.

25              They consider their own -- their vice

 1   president indicates that there's a lot of concern

 2   about how that tax credit might be abused.

 3               I guess my question is, again, any --

 4   Congress can give and take away.  And it may very well

 5   be that the next generation of the U.S. Congress might

 6   think differently about these tax credits --

 7               MR. DUBLINSKE:  Objection, Your Honor.

 8               BOARD CHAIR HELLAND:  State your objection.

 9               MR. DUBLINSKE:  Same objection that

10   Mr. Leonard made this morning, in part, that

11   Mr. Fallon, if he wanted to testify, could have

12   submitted prefiled testimony on behalf of Bold Iowa by

13   the deadline to do so rather than building it in

14   question by question by question.

15               But I think it's also established that this

16   report does not analyze and does not account in the

17   IMPLAN model the use of 45Qs.

18               So these questions about policy or what

19   some entity that the witness has already said he's not

20   familiar with and may or may not think is well beyond

21   the scope and lacks foundation.

22               BOARD CHAIR HELLAND:  Do you have a

23   response, Mr. Fallon?

24               MR. FALLON:  Yeah, I don't think that we'd

25   even be here right now if it wasn't for these 45Q tax

```
 1    credits.  So I think it's pretty relevant.
 2              BOARD CHAIR HELLAND:  Please ask a
 3    question.
 4              MR. FALLON:  Sure.
 5    BY MR. FALLON:
 6         Q.   So, I mean, given the very political nature
 7    of the foundation of the economic model we're looking
 8    at here, what if that goes away?  How does that affect
 9    the economic projections you've come up with?
10         A.   It's not something that we looked at in
11    terms of the financial feasibility of the operation of
12    the pipeline.
13         Q.   So the 45Q tax credits have never even come
14    into consideration in putting together this structure?
15         A.   In terms of the economic impact of spending
16    money to construct and then operate the pipeline, no,
17    they don't directly enter the equation.
18         Q.   So another element of the economic model,
19    let's call it, is the state and local taxes that are
20    being paid to provide the services that make these
21    hearings possible.  I mean, IUB is a creature of the
22    taxpayers.  I mean, the county governments have all
23    these costs to incur.
24              Has that been factored into the economic
25    model at all?  What impact on local and state
```

```
 1   taxpayers this might have.

 2        A.   So we're quantifying our estimate of the

 3   taxes that would be generated by the project.  We have

 4   not looked at any kind of incremental public service

 5   costs.

 6        Q.   Well, I get that you would want to look at

 7   the tax revenue potentially generated, but isn't it

 8   reasonable to also look at the tax revenue spent to

 9   accommodate for the project?

10        A.   That's what I mean by public service costs.

11   We haven't looked at incremental public service costs.

12        Q.   Right.  And what I mean is how can you

13   really do a model about the economic impact without

14   factoring in the costs?

15        A.   The costs are far less predictable.  And

16   often, in this type of report, we don't look at the

17   costs.

18        Q.   I would think the costs would actually be

19   more predictable.  We know what it costs to finance an

20   IUB hearing.  We can probably get estimates from

21   people here about what the counties are spending to

22   accommodate for their role in it.  I mean, I would

23   think that would be fairly predictable.

24             No?

25        A.   You know, typically, when you're looking at
```

 1    things like required incremental school system

 2    capacity or wastewater capacity, they tend to be

 3    relatively, like, project and location specific.  On

 4    average, you could use a per capita cost level.

 5         Q.    Sorry.  You lost me there.  What does the

 6    school system cost have to do with this?

 7         A.    You know, often you would have some

 8    incremental population that might come to the area and

 9    have some incremental enrollment in local school

10    systems.

11         Q.    So kids who might accompany a parent

12    working on the pipeline?  Is that what you mean?

13         A.    Yeah.  Or sort of a long-term employee,

14    yeah.

15         Q.    That, to me, would seem to be secondary

16    with regard to some of the other concerns that are in

17    my mind.  I mean, there's some real hard costs here.

18               I mean, would you consider looking into

19    that and adding that to the model?

20         A.    It's certainly something we can consider.

21    Are there specific hard costs?

22         Q.    I would just ask every county what they

23    have spent to try to accommodate Summit's plan.  I

24    would ask the state to indicate what the IUB has spent

25    in terms of time.  I mean, this has got to be a huge

```
 1   burden on this agency.  And what about the other state

 2   agencies.

 3             I would think you'd want to ask those

 4   questions and factor that in.

 5        A.   We can certainly consider that.

 6        Q.   Okay.  Noted.

 7             So, regarding landowners, and particularly

 8   farmers along the route.  Again, based on the Dakota

 9   Access pipeline experience -- and I don't think that's

10   at all irrelevant, especially since you've got the

11   exact same legal counsel, and are following -- I mean,

12   at least one of the other pipelines is going to be

13   following the DAPL route.

14             Issues of compaction.  Issues of

15   mishandling topsoil.  Heat from the pipe affecting

16   crops.  You can look at charts showing where the

17   pipeline runs across land and how the crop yields are

18   significantly less.

19             Has that sort of impact been factored in?

20   I mean, not just for the year or two or three years

21   after the pipeline is laid, but the long-term impacts.

22   I mean, we're talking, for DAPL, this is already,

23   what, six, seven years after the pipeline was laid and

24   they're still seeing impacts.

25             Are you factoring those kind of economic
```

1    impacts into the model as well?

2         A.    No.  So we don't factor in payments to

3    landowners or any kind of costs that you're

4    describing.

5         Q.    Well, I'm not talking about payments to

6    landowners.  I'm talking about the loss of

7    productivity from impacts on their soil, on their

8    tile, compaction, that sort of thing.

9              Would that be factored in?

10        A.    Well, the reason I mentioned payments is

11   because I -- although it's not something that we

12   looked at in the report, I understand there may be

13   payments to landowners to compensate for some of those

14   items.

15        Q.    I guess, yeah, my point is that even

16   though, I mean, landowners and farmers along the DAPL

17   route were compensated, and in some cases for, I

18   think, two or three years, three years, I think, they

19   still saw impacts well after that.

20             I guess I'm wondering does your model

21   factor in the possibility or I would say probability

22   that there will be continued economic hardship to

23   landowners in the future?

24        A.    No.

25        Q.    Would you be willing to consider, again,

 1  modifying the model to accommodate that probability?

 2          A.    It's something I can consider.

 3          Q.    So, regarding construction jobs, you said

 4  that, what, 55 percent of the jobs will be from Iowa

 5  workers?

 6          A.    That's the assumption, yes.

 7          Q.    Something similar was said with the

 8  construction of the Dakota Access pipeline.  And I'd

 9  love to be able to obtain hard numbers, but those

10  don't seem to be available.

11          Anecdotally, I can recall at least 20

12  different times either myself or someone else

13  associated with our group or a landowner --

14          MR. DUBLINSKE:  Objection, Your Honor.

15          BOARD CHAIR HELLAND:  State your objection.

16          MR. DUBLINSKE:  Again, what Mr. Fallon

17  believes is an anecdote that he's heard or seen is not

18  evidence in this case and is not a proper predicate

19  for a question to the witness.

20          BOARD CHAIR HELLAND:  Thank you.

21          Do you have a response?

22          MR. FALLON:  Yes.  For lack of any

23  information from the company as to -- in this case the

24  company that, I think, sets the precedent for this,

25  from DAPL, as to how many workers are actually from

 1    Iowa, the best we have is anecdotal.

 2    BY MR. FALLON:

 3         Q.    And my question simply is this:  Are you

 4    willing to commit in hard numbers that you will see --

 5    you know, 55 percent of the workers on these

 6    construction sites will be from Iowa?

 7              MR. DUBLINSKE:  Objection.

 8              BOARD CHAIR HELLAND:  State your objection.

 9              MR. DUBLINSKE:  Clearly somebody that was

10    hired to run an economic impact study is not in any

11    position to control or make guarantees or bind the

12    company or what have you on areas outside of his

13    expertise.  This is just political grandstanding.

14              BOARD CHAIR HELLAND:  Respond to that and

15    then we'll rule on the objection, Mr. Fallon.

16              MR. FALLON:  Sure.  That's -- that's kind

17    of -- I feel bad for you right now.  Because I don't

18    know what else you're going to base your model on.

19              BOARD CHAIR HELLAND:  Mr. Fallon.

20              MR. FALLON:  Yeah.

21              BOARD CHAIR HELLAND:  We need you to

22    address the objection.

23              MR. FALLON:  The objection is that --

24    again, if I understood it correctly, that he's not

25    hired to respond to the question of how many people

```
 1   will be working on this site who are from Iowa.  Yet

 2   he said 55 percent.  So that's got to be based on

 3   something.

 4   BY MR. FALLON:

 5        Q.   I assume you didn't just pull that out of

 6   the air.  It's got to be based on something.

 7             BOARD CHAIR HELLAND:  Mr. Fallon.  We are

 8   sorting out this objection.

 9             MR. FALLON:  Sure.

10             BOARD CHAIR HELLAND:  And so you'll get a

11   chance to ask --

12             MR. FALLON:  Okay.

13             BOARD CHAIR HELLAND:  -- the witness a

14   question when we sort out the objection.

15             MR. FALLON:  So my objection to the

16   objection is that --

17             BOARD CHAIR HELLAND:  Your answer to the

18   objection.

19             MR. FALLON:  My answer to the objection is

20   his 55 percent has to be based on something he

21   received from the company.

22             BOARD CHAIR HELLAND:  Mr. Dublinske.

23             MR. DUBLINSKE:  And, Your Honor, I have no

24   objection to the question of on what did he base his

25   55 percent.  But that is far from the question he
```

 1   asked and he's misstating my objection.

 2                   What he asked was whether or not this

 3   witness could guarantee a particular composition of

 4   the workforce.  And my objection is simply this is

 5   clearly not the right witness for that question.

 6                   If he wants to ask the basis for the 55

 7   percent in this witness's report, I have no objection.

 8                   BOARD CHAIR HELLAND:  So, Mr. Fallon --

 9                   MR. FALLON:  Let's do that.

10                   BOARD CHAIR HELLAND:  Mr. Fallon.

11                   MR. FALLON:  Yes.

12                   BOARD CHAIR HELLAND:  We need you to ask

13   questions of the witness from the information the

14   witness has tendered, and he may or may not know the

15   answer to that, but we need to you pose your --

16   BY MR. FALLON:

17        Q.    So on what basis is the 55 percent -- on

18   what foundation is that based?

19        A.    My understanding is that the 55 percent,

20   which was provided by Summit, is based on their

21   discussions with their construction contractors and

22   sort of project specialists as to the share they might

23   expect in each state.  That percentage varies from

24   state to state.  And, for Iowa, it's 55 percent.

25        Q.    Do they have -- is that a commitment they

1    were willing to make in writing?

2         A.   We did not have any discussion about that.

3         Q.   Would you be willing to go back and talk

4    with them about whether that's something we could get

5    in writing?

6         A.   I'm not sure I'm the right person for that.

7         Q.   The only reason I brought it up again was

8    because our experience with DAPL was 10 percent were

9    actually from Iowa.

10             Another question.  Relevant to farming.

11   Climate change is hitting everywhere hard, and it's

12   going to be very likely, I think, that farming

13   patterns in Iowa will change.  That we may be probably

14   growing more food and less fuel.

15             And so I haven't thought this through, I

16   don't have a good answer myself, but I wonder if

17   you've thought through what the impact might be on

18   landowners and farmers affected by the pipeline if for

19   some reason the demands of the time, again given the

20   impacts of climate change in particular, they've got

21   to shift significantly how they farm, what they grow.

22   How might the pipeline affect, for example, turning a

23   cornfield into a potato field, beginning to grow other

24   food items for direct consumption.

25             Has that been considered at all as to how

1    it might be impacted?

2         A.    We did not look at climate change

3    scenarios.

4         Q.    And I get it.  That's a hard one.  It's

5    hard to know where it's going to go, but I think it's

6    a fair assumption to say that things will be changing.

7    There's certain parts of the world that might not be

8    as lucky as we are.  In terms of growing food.

9              One last question relevant to the

10   U.S. Constitution.  Article I, Section 8 states that

11   "The Congress shall have power to regulate commerce

12   with foreign nations and among the several states and

13   with the Indian tribes."

14             And you're probably aware that earlier this

15   year there was quite a battle over California's

16   Proposition 12 regarding how hogs are produced.  And

17   the U.S. Supreme Court ruled in favor of Prop 12

18   against Iowa's hog history.  It was a 5-4 vote.  Very

19   easy to imagine that could have gone a different

20   direction.

21             There have also been a couple -- and this

22   is more specific to this issue.  There have been a

23   couple lawsuits that I know of over the low-carbon

24   fuel standard, California's carb law, and those have

25   also ruled in favor of California.  Again, problematic

 1   for Iowa's ethanol producers.

 2              But, given the whole volatility of the

 3   interpretation of what the Constitution is trying to

 4   say about commerce and specifically about some

 5   agricultural products, what if that goes the other

 6   way?  Has that been something that has been considered

 7   in the economic model?  What happens if the courts

 8   start ruling differently on the commerce clause?

 9        A.   We did not evaluate alternative policy or

10   judicial scenarios.

11        Q.   Do you know if that's come up in

12   conversation at all?

13        A.   Not a conversation I've been part of.

14              MR. FALLON:  All right.  Thank you.

15              BOARD CHAIR HELLAND:  Thank you.  Okay.

16   That's the end of questions from the parties.

17              The Board has a few.

18              According to your direct testimony, you

19   used 2022 dollars; correct?

20              THE WITNESS:  That's right.

21              BOARD CHAIR HELLAND:  Comparing page 5,

22   line 20, of your direct testimony and page 3, line 18,

23   of your rebuttal testimony, is it accurate to say that

24   estimated cost for the pipeline in Iowa increased from

25   987 million to a total cost of 1.9 billion?

IN RE: SUMMIT CARBON SOLUTIONS
IUB HEARING  09/07/2023                                   Page 2416

 1                    THE WITNESS:  That's right.

 2                    BOARD CHAIR HELLAND:  Can you explain in

 3  more detail why the increase in Iowa was higher than

 4  in other states?

 5                    THE WITNESS:  Yeah.  So, at a high level,

 6  in Iowa the new financial model reflects several

 7  hundred million dollars of right-of-way payments that

 8  were not in the original model, interest, and

 9  significant project management costs that were not

10  part of the original model.

11                    BOARD CHAIR HELLAND:  Also, on page 5,

12  lines 20 through 22, you state EY reviewed the local

13  purchase percentages generated by the model and found

14  them to be reasonable, 62 percent on average.

15                    With such a high increase, would you say

16  that's still reasonable?

17                    THE WITNESS:  So that's not an increase.

18  That is a level.  Meaning when you look at all of the

19  goods and services and contracts for freight and

20  utilities and all of those expenditure categories,

21  62 percent of the dollars are spent with Iowa

22  businesses.  I think that's probably about the same as

23  it was in the prior analysis.

24                    BOARD CHAIR HELLAND:  So the percentage --

25  with the increased cost of the project estimate, the

 1    percent to be spent in Iowa remains the same.

 2              THE WITNESS:  Approximately.

 3              BOARD CHAIR HELLAND:  What other

 4    differences are shown from the updated economic impact

 5    analysis?

 6              THE WITNESS:  So, in terms of the model

 7    inputs, there were several categories of changes.  So,

 8    one, there is sort of a scope change for the project.

 9    More miles of pipeline for some of the reasons that we

10    heard about earlier today in terms of changes to the

11    pipeline route.  Some diameter increases for the

12    pipeline itself which generated some additional costs.

13              There's also incremental inflation that's

14    now built into these numbers.  We estimated that at

15    around 9 percent.  That's happened over the sort of

16    two-year period from the first round of budget data we

17    got to the most current round.

18              There's also some incremental cost that is

19    now incorporated in the Summit financial and project

20    model that reflects essentially kind of an evolved

21    understanding of what the cost may actually look like

22    as they have continued discussions with contractors.

23              BOARD CHAIR HELLAND:  How will the

24    potential addition of other capture facilities change

25    the analysis?

IN RE: SUMMIT CARBON SOLUTIONS
IUB HEARING  09/07/2023                                    Page 2418

```
 1                    THE WITNESS:  There were additions and

 2    deletions from the capture facilities.  I think, on

 3    net, it wasn't a very material change to the overall

 4    Iowa impact.

 5                    BOARD CHAIR HELLAND:  On page 7, lines 16

 6    through 18, of your direct testimony, you discuss

 7    jobs, labor income, gross economic output for Iowa in

 8    the first year of operations.  So post construction.

 9                    What's the confidence level of these

10    estimates as the model ages?

11                    THE WITNESS:  If the level of operation

12    stays the same, I would imagine those level of impacts

13    would also stay the same with inflation sort of

14    running out each year.

15                    But, you know, just like the first year of

16    operations, that operational profile was provided by

17    Summit.  And so our role in the process was to

18    essentially translate that into the indirect and

19    induced effects.

20                    BOARD CHAIR HELLAND:  And then one final

21    question.  There have been substantial changes to

22    Iowa's tax codes.  I think Mr. Jorde alluded to before

23    the report was published in April of 2022.  So I

24    assume the model was built months before that.

25                    Was the income tax estimate based on the
```

 1    antiquated Iowa Code then?

 2              THE WITNESS:  It would have been based on

 3    Iowa law -- it's actually based on aggregate tax

 4    collection information from 2021.

 5              BOARD CHAIR HELLAND:  So the income tax

 6    component is likely no longer fully accurate?

 7              Let me put it differently.

 8              The model would need to be updated with

 9    current income tax code.

10              THE WITNESS:  That's right.

11              BOARD CHAIR HELLAND:  Okay.  So, in regards

12    to the income tax, state income, that's a less

13    reliable number compared to the other numbers?

14              THE WITNESS:  That's correct.

15              BOARD CHAIR HELLAND:  So, for some of the

16    secondary and induced benefits, will that impact those

17    numbers as well?

18              THE WITNESS:  Just the income tax portion,

19    yeah.

20              BOARD CHAIR HELLAND:  If possible, I'm sure

21    we would love to see those.

22              THE WITNESS:  Okay.

23              BOARD CHAIR HELLAND:  Thank you.  I have no

24    further questions.

25              Mr. Dublinske do you have any?

```
 1              MR. DUBLINSKE:  I do, Your Honor, although

 2   it may be just one line.

 3                   REDIRECT EXAMINATION

 4   BY MR. DUBLINSKE:

 5        Q.   Mr. Phillips, Chair Helland asked a

 6   question about what impact would it have on the model

 7   if additional capture facilities were added.  And I

 8   believe your response was that some were removed, some

 9   were added, and that the net impact was basically

10   unchanged.

11              Was that your testimony?

12        A.   I believe so.  In terms of comparing the

13   prior round of results to the current round of

14   results, I don't recall a significant net impact from

15   changes in the capture facilities.

16        Q.   And I don't want to put words in the

17   Chair's mouth.  So let me just ask it as a different

18   question.  It may or may not have been what he

19   intended, but how I heard it, if, on a going-forward

20   basis, Summit were to obtain contracts with additional

21   facilities that resulted in additional investment in

22   capture and compression equipment, what impact would

23   you expect that to have directionally, magnitude,

24   whatever, on the results of the model?

25        A.   They would be positive.  And generally
```

 1    proportionate to what already is in the model.

 2              MR. DUBLINSKE:  Nothing further, Your

 3    Honor.

 4              BOARD CHAIR HELLAND:  Are there any

 5    questions on the redirect?

 6              (No response.)

 7              BOARD CHAIR HELLAND:  Thank you.  You may

 8    step down.

 9              THE WITNESS:  Thank you.

10              BOARD CHAIR HELLAND:  Mr. Dublinske, you

11    may call your next witness.

12              MR. LEONARD:  Thank you, Your Honor.

13              Summit would call Jeremy Ellingson.

14              BOARD CHAIR HELLAND:  Good afternoon.  Get

15    comfortable.  You can move the mic around anywhere you

16    like as long as you can speak clearly into it so we

17    can pick you up.

18              Ellingson; right?

19              MR. ELLINGSON:  Yes.

20              BOARD CHAIR HELLAND:  Go ahead and raise

21    your right hand.

22

23

24

25

```
 1                      JEREMY ELLINGSON,

 2   called as a witness by Summit Carbon Solutions, LLC,

 3   being first duly sworn by Board Chair Helland, was

 4   examined and testified as follows:

 5                BOARD CHAIR HELLAND:  Mr. Leonard.

 6                      DIRECT EXAMINATION

 7   BY MR. LEONARD:

 8        Q.   Mr. Ellingson, are you the same Jeremy

 9   Ellingson who caused to be filed rebuttal testimony in

10   this docket?

11        A.   Yes.

12        Q.   If I asked you those same questions today,

13   would your answers be substantially the same?

14        A.   Yes.

15        Q.   Do you have any corrections or

16   modifications to make at this time to that testimony?

17        A.   No.

18                MR. LEONARD:  Your Honor, I'd move

19   admission of Ellingson rebuttal testimony.  There are

20   no exhibits to it.

21                BOARD CHAIR HELLAND:  Are there any

22   objections?

23                MR. JORDE:  Well, just to be clear, my

24   standing objection -- well, I don't know if I got it,

25   and that might clear it up, but I'd like a standing
```

1   objection for every offer of rebuttal testimony prior

2   to the person he reports to rebut testifies.

3               BOARD CHAIR HELLAND:  Noted.  Thank you.

4               Mr. Ellingson's testimony will be admitted.

5               MR. LEONARD:  With that, Your Honor, we

6   tender the witness for cross.

7               BOARD CHAIR HELLAND:  Thank you.

8               Who is first.  Takers?  Going once?

9               Mr. Jorde.

10              MR. JORDE:  I guess so.  Why not.

11                    CROSS-EXAMINATION

12  BY MR. JORDE:

13       Q.   Sir, are you the same Mr. Ellingson that

14  testified for Summit at the North Dakota PSC

15  proceedings?

16       A.   Yes.

17       Q.   And you and I had a chance to talk up

18  there; correct?

19       A.   Yes.

20       Q.   Very good.  Did you do work, your company

21  do work, in Iowa in attempts to repair affected tile

22  on the DAPL project here?

23       A.   Yes.

24       Q.   And that didn't go very well for you, did

25  it?

```
 1          A.    It went fine.

 2          Q.    Did it?  Okay.  Would you be surprised if

 3   landowners were to come and testify after you to talk

 4   to the contrary and share opposite opinions of your

 5   work?

 6          A.    Possibly.

 7          Q.    How many miles a day has Summit told you in

 8   Iowa of pipe they plan to be laying if this project

 9   were to get approved?

10          A.    That's dependent on how many spreads, how

11   many contractors you're talking about working at one

12   time.

13          Q.    Well, how many employees, permanent and

14   full-time employees, does Ellingson have as we sit

15   here today?

16          A.    We have 400.

17          Q.    And do you have enough presently -- well,

18   let me start over.

19                Are you under contract to work for Summit

20   in North Dakota if the project is approved there?

21          A.    Yes.

22          Q.    And do you have an active contract, a

23   signed, executed contract, to work in Iowa if it's

24   approved here?

25          A.    Yes.
```

IN RE: SUMMIT CARBON SOLUTIONS
IUB HEARING  09/07/2023                                      Page 2425

```
 1          Q.    What about any other state?

 2          A.    Yes.

 3          Q.    Tell me all the states you're contracted

 4    for.

 5          A.    Minnesota, North Dakota, South Dakota,

 6    Iowa, and Nebraska.

 7          Q.    And what have they told you relative to the

 8    spreads?  Do they intend to go in a linear fashion, as

 9    far as you're aware, or do you believe that

10    construction work could be taking place in all states

11    or more than one state at a time?

12          A.    From what they've communicated to us,

13    they'll have construction work taking place in all

14    states possibly at the same time.

15          Q.    And the 400 people you employ, are they all

16    folks that are able to repair tile, operate heavy

17    equipment, and be a part of the actual crew that would

18    be out in the field?

19          A.    I would say half of them are.

20          Q.    And is that 200, or approximate amount,

21    sufficient to perform all of the work based on

22    Summit's potentially being in multiple states at the

23    same time?

24          A.    Yes.  Between us and subcontractors that we

25    will be using on the project, there will be more than
```

```
 1   enough to take care of the tile repairs.
 2        Q.    And that's what I was getting at.  So
 3   subcontractors.  About how many subcontractors and
 4   then their either employees or sub-subcontractors do
 5   you think you're going to need to do the job you're
 6   requested to do if this is approved?
 7        A.    It just depends on the timing of the
 8   project and the permitting process that they're
 9   currently going through and when the project kicks
10   off.
11             Right now we currently plan to use Jim
12   Blood with Iowa Drainage for sure on the project.  And
13   there'll probably be several other ones from Iowa.
14        Q.    Based on your work on the Dakota Access
15   pipeline, are you able at all to kind of ballpark how
16   many miles per day of pipe that might be laid in order
17   to better estimate the amount of workforce you're
18   going to actually need?
19        A.    We've done projects like this in the past.
20   And, like I said, it just depends on how many spreads
21   are going at once, what the condition is, the pipe
22   size, the method of trenching.  I mean, there's all
23   kinds of variables that go into that.
24        Q.    Are you aware, on a pattern tiled field, of
25   roughly the typical spacing that tiles are apart?
```

```
 1   Tile lines are apart?

 2        A.   Yes.

 3        Q.   And what is that?

 4        A.   Anywhere from 40 to 100.

 5        Q.   And let's just assume at about 50 foot

 6   apart.  Have you confronted fields that have as much

 7   as approximately 158 tile lines?  Or crossings, I

 8   should say.

 9        A.   Depends on the size of the farm, but yes.

10        Q.   How long would it take, or does it take,

11   your team to do work on a field like that that's

12   completely pattern tiled as an example?

13        A.   Again, it depends on the conditions, the

14   situation, the tile sizes that are being repaired.

15   Several things that go into that determination.

16        Q.   Well, what's the typical tile size that you

17   encountered on the DAPL work you did in Iowa?

18        A.   I would say between 4- and 6-inch was

19   probably the most prominent tile size.

20        Q.   So, if we assume that for purposes of my

21   question, and if we assume, say, ideal conditions, not

22   too wet or not too adverse weather-wise, can you give

23   me an idea of how many people, man or woman power, it

24   would require you to do the repair of a field with

25   approximately 158 tile crossings?
```

```
 1        A.    I'm not sure I can -- I mean, are you to do
 2   it in a certain amount of time?  Or what is your
 3   question exactly?
 4        Q.    Well, yeah, the first question is I'm
 5   trying to figure out generally how long, just in
 6   hours, would that take a team.  And then how many
 7   people do you typically deploy for that type of work.
 8        A.    It just depends on the concentration of
 9   drain tile in that area.  We've partnered with Summit
10   early on this project and have a good idea of where
11   they're going to be, which is different than a lot of
12   projects we've worked on, and we're preparing and
13   planning for that based on the information that we're
14   gathering today.
15        Q.    Are you familiar with the Prairie Pothole
16   Region?
17        A.    There's lots of Prairie Pothole Regions
18   along this project.
19        Q.    Okay.  And have you done work in the Iowa
20   areas that are affected by the Prairie Pothole Region?
21        A.    You'd have to clarify exactly the area
22   you're talking about.  We've worked in a lot of
23   different places in the state of Iowa.
24        Q.    And does that take longer generally, all
25   things being equal, to work in that type of an
```

```
 1   environment?

 2          A.   No.

 3          Q.   No more complicated, from your view, than

 4   an area without those characteristics?  Is that what

 5   you're saying?

 6          A.   Not when you're talking about repairing

 7   tile in a trench.

 8          Q.   Has your company worked on tile near CO2

 9   pipelines before?  Existing pipelines?

10          A.   We've worked on tile near pipelines for

11   years.

12          Q.   But not carbon dioxide pipelines?

13          A.   Not carbon dioxide pipelines, yes.

14          Q.   So, related to the Iowa One Call, that's a

15   three-day turnaround.

16               Are you able to come back to a site within

17   three days, if necessary?

18          A.   Yeah.

19          Q.   And, after this project or work would be

20   done by you, do you have people stationed in Iowa

21   ready to respond?  Or is your home base in Minnesota?

22   Or where are you from?

23          A.   We have offices in Minnesota and North

24   Dakota.  We also have small satellite offices in Iowa.

25   We have offices in different parts of the country
```

 1    also.

 2            But, yeah, we've stationed dispatch crews

 3    all over the Midwest.  We currently work in the

 4    five-state area.

 5            Q.    In terms of for locating tile, and I think

 6    we might have talked about this before, would you

 7    agree it's difficult to locate clay tile if you don't

 8    have maps or some guide assisting you of where it

 9    might be located?

10            A.    It's definitely always easier to locate

11    tile if you have a map, but we locate lots of tile

12    without maps.

13            Q.    Can you locate clay tile through the use of

14    LiDAR?

15            A.    No.

16            Q.    And what about in wet or swampy conditions.

17    Would you say that the ground-penetrating radar LiDAR

18    is not as effective, if effective?

19            A.    Typically, if the ground is wet with water

20    in marshy areas, there's probably not tile there.

21            Q.    If you were to get this work and this

22    project was approved, is it your job, Ellingson's job,

23    to go out and work with landowners, obtain tile maps,

24    set up that relationship?  Or who, if anyone, would do

25    that?

1          A.    Yeah, we've already been participating in

2     that with Summit.

3          Q.    So does that mean -- I mean, do you have,

4     like, a call center?  Or, when you say the word

5     "participating," are you going door to door?  What's

6     your efforts?

7          A.    We have a team of our in-house drainage

8     experts available to Summit's engineering project

9     management land team to help address any sort of

10    landowner drain tile issues that come up.

11              That's what's different on this project

12    than a lot of projects we've done, and I feel they've

13    went over and above in the way they're approaching it

14    on this project.

15         Q.    Would you agree that water can sometimes be

16    carried and coming from a field over a mile away from

17    where you might be working, and that if you disrupt

18    the tile on the field you're working on, it could

19    affect everything upstream from there?

20         A.    Potentially, yeah.

21         Q.    And does Ellingson offer a contract

22    directly with the landowner or is it simply working

23    through Summit?

24         A.    We're working for Summit.

25         Q.    And Ellingson doesn't provide a warranty of

 1    its work to any landowner or Iowa farmer, do they?

 2         A.    I would provide a warranty to Summit.

 3         Q.    Okay.  So the answer is you do not warranty

 4    the work directly to the landowner; correct?

 5         A.    It's directly with Summit.

 6         Q.    So you don't warranty anything directly to

 7    the landowner; correct?

 8         A.    Correct.

 9         Q.    Now, you say you won't cap tile.  That you

10    will not cap tile.

11               So how do you handle flowing water

12    understanding that every tile line you're working on

13    isn't going to be dry?

14         A.    Well, in order to keep the tile working,

15    you wouldn't cap them.  You connect them back

16    together.  I'm not sure I understand your question.

17         Q.    Well, but in the meantime while you're

18    doing the repair.  Do you have a solution while you're

19    doing the repair?

20         A.    I'm not sure I follow your question.

21         Q.    Okay.  Well, when you sever the tile and

22    the water is flowing, what happens to the area where

23    the tile is severed?

24         A.    There will be a temporary repair installed

25    if there's water flowing during construction.

```
 1          Q.   If you make initial repairs, how long is

 2   the contract with Summit?  Is it a lifetime?  Are you

 3   contracted or obligated to do repairs or follow-up for

 4   the lifetime of that repair or are there any

 5   limitations on your warranty to Summit?

 6          A.   I'd have to defer to the contract between

 7   Summit and the landowner.  I'm not sure exactly what

 8   that is, how that reads.

 9          Q.   And I appreciate that, but that's the

10   contract between Summit and the landowner.  I'm

11   wondering if you and Summit have agreed that your

12   company will be obligated to be the company that would

13   perform repairs if they are necessary in the future?

14          A.   Yes.

15          Q.   All right.  You believe that's part of your

16   contract?

17          A.   Yes.

18          Q.   And have you agreed to a lifetime

19   obligation, a lifetime warranty to Summit, that if the

20   landowner were to call Summit, Summit could say, "Hey,

21   Ellingson," in ten years, "get back out here"?

22          A.   As I said before, we have a warranty with

23   Summit, and it is not a lifetime warranty, but I do

24   not understand exactly what the agreements say between

25   Summit and the landowners.
```

1          Q.    And that's totally fine.  I'm trying to

2    figure out if it's not lifetime, is there a term.  For

3    instance, you know, "We stand by our work for a period

4    of five years" or "ten years" or fill in the blank.

5    What's the term that you've agreed to?

6          A.    Typically, our standard workmanship

7    warranty at Ellingson is five years.

8          Q.    And, if tile work is being done, is the

9    landowner able to be present and, "Oh, Mr. Ellingson,

10   we need to do this and this" or "I noticed that"?  Are

11   they allowed to be part of the process or kind of be a

12   watchdog, if you will?

13         A.    Yes.

14         Q.    And, if the landowner says, "Okay, this is

15   how I want you to do that," do you take direction from

16   the landowner or do you have to defer to Summit since

17   that's who you're contracted to?

18         A.    We work directly with the landowners.  Our

19   role in this project is to ensure that the landowner's

20   tile is put back to exactly the way it was or better

21   from when it was broken by the pipeline company.

22         Q.    Okay.  So do you believe, therefore, that

23   you have leeway to make modifications or changes,

24   repairs based on what the landowner in the field is

25   telling you without double-checking that it's okay

1    with Summit?

2         A.    Within the scope of the project, yes.

3         Q.    You'll have to help me a little bit.

4    "Within the scope of the project."  My example is --

5    you know, different landowners might have different

6    preferences.  I'm sure you've come across that.

7              So I'm trying to figure out how far does a

8    landowner's wishes or concerns, are they taken into

9    account by you in the field in the moment without

10   having to go back to Summit?

11        A.    As long as it has something directly to do

12   with the repair of their tile, we are there on

13   Summit's behalf to make sure that it gets repaired

14   correctly.  Anything outside of that that's over and

15   above obviously would be handled between the landowner

16   and Summit.

17        Q.    When you're doing repairs, do you cut the

18   ears off the connectors so that the trash coming

19   through the system doesn't catch and plug up?

20        A.    I'm not sure I understand the question.

21        Q.    Well, are you familiar with -- well, when

22   you connect two pieces of tile, what's your process

23   for doing that?

24        A.    Just connecting two standard pieces of tile

25   or repairing something on this project?

 1          Q.    Well, let's do the repairing on this

 2    project first.  And let me just ask it this way:  Have

 3    you ever come across issues with tile by the way

 4    they're connected that sometimes there can be parts of

 5    the tile that affect the flow and sometimes allow

 6    trash or other debris to build up thus affecting the

 7    tile's effectiveness?

 8          A.    No.

 9          Q.    How would you connect a 7-inch tile?  How

10    do you go about that?

11          A.    Basically, you take the tile and, depending

12    on the material type, we use the correct coupler to

13    couple the tile back together and repair it as per the

14    spec in the AIMP provided by Iowa.

15          Q.    Would you agree that clay tile is more

16    brittle and problematic and can chip or crush once

17    it's disturbed?

18          A.    Depends on how long it's been in the

19    ground.  I've dug up clay tile that's been several

20    years old that's as good as it was when it went in.

21                But, yeah, as clay tile ages, it's becomes

22    brittle.  On several projects we've done in the Iowa

23    area, we've ran into tile that has been replaced with

24    plastic tile.  And, unlike other projects with a drain

25    tile expert being involved, we're going to make sure

1    the landowner's clay tile is taken care.  And their

2    new tile.

3         Q.    So do you replace it as a routine basis?

4    Or, if you don't believe it was chipped or crushed,

5    you would leave that tile as is and replace as little

6    as possible?  Or do you have a general policy when

7    confronted with a clay tile?

8         A.    We replace whatever has been damaged.

9         Q.    With new tile.

10        A.    Yes.  Correct.  Yep.

11        Q.    And you talk about a 150-foot zone.  I

12   wasn't totally clear on that.  Just describe -- what

13   does that mean?  There's a 150-foot distance that you

14   operate in?  Or what was that distance?

15        A.    We operate within the pipeline easement

16   just the same as the rest of the contractors.

17        Q.    So, if the pipeline easement is 110 feet,

18   whatever that is, that's the area that you work

19   within.

20        A.    Correct.

21        Q.    And so, if damages are caused -- if there

22   are, like, upstream damages that are caused that occur

23   in an area outside of that zone, how do you deal with

24   that?  Are you allowed to go outside of the easement

25   zone to remedy issues that might have been caused

 1    within the easement area?

 2          A.    I'm not sure how that would happen, but I'm

 3    sure with communication with the landowner and Summit

 4    that we would be able to take care of any issue the

 5    landowner had.

 6          Q.    You talk about putting the tile inside a

 7    pipe.

 8                Do you use perforated pipe or solid pipe?

 9    How does that work?

10          A.    We replace it with the same as the material

11    that's there.  So perforated pipe or non-perf.  It

12    just depends on the area of the pipeline and the type

13    of pipe that's there.

14          Q.    Do you use channel irons to support tile in

15    certain instances?

16          A.    Not on this project.

17          Q.    Why is that?

18          A.    It's an outdated practice that doesn't work

19    very well.

20          Q.    So what's your methodology if you're not

21    using channel irons?

22          A.    We support it with a larger pipe with the

23    drain tile pipe inside of it.  And, depending on the

24    width of the trench, we utilize sandbags for support

25    if the span is too wide.

1          Q.   Does part of your contract also include the

2     responsibility for dewatering the trench or removing

3     water in the pits for boring?

4          A.   No.

5          Q.   Who does that work?

6          A.   The general contractor.

7          Q.   So whoever that is, they have to -- so when

8     you're in a particular area, then they would also need

9     to have a crew with you at the same time generally?

10         A.   I'm not sure I follow the question.

11         Q.   Well, if a general contractor does it,

12    wouldn't they have to do that pretty much in proximity

13    of the time that you got ready to do your work?  Would

14    they need to be there on-site at the same time or can

15    they do that work well in advance?

16         A.   They can do that work in advance.

17         Q.   But, if there's an event where it fills up

18    with water after they leave, you would have to call

19    them back?  I'm just trying to figure out the scope of

20    your responsibility.  You wouldn't get involved with

21    that dewatering?

22         A.   No.  Our responsibility is to handle all

23    the agricultural drain tile impacts on this project

24    for Summit.

25         Q.   If you're working and you see that the tile

1    is full of dirt, or half full of dirt, do you replace

2    the tile completely across the easement area or do you

3    just focus within the easement itself?

4           A.    It just depends on the situation.  And if

5    the tile is full of dirt because the line has been

6    abandoned and there's a new tile underneath it, then

7    it stays abandoned.  If there's something in question,

8    we will get ahold of the landowner and ask how they

9    would like it handled.

10          Q.    Do you have any leeway, when you are

11   repairing, to change the elevation in any way such

12   that the repaired tile would be above or below the

13   pipeline?  Or how are those decisions made?

14          A.    Tile is gravity flow.  So there's really

15   nothing you can change.

16          Q.    Okay.  And that's kind of my point.  So how

17   do you -- do you have leeway to determine whether or

18   not the gravity flow needs to become at a steeper

19   grade in order to make room for the 12-inch separation

20   for the pipe?  Or who is making those kind of

21   decisions on the fly as you're going, if necessary?

22          A.    On this project, because we're so involved

23   up front, we're analyzing and looking at it with

24   Summit's construction team early on in the project.

25   And I know that they've designed the pipeline deeper

```
 1   than most tile in a lot of areas.
 2           And, for the most part -- I mean, you can't
 3   change the grade, as I stated before, of the existing
 4   tile without going way off into the landowner's field
 5   and trying to deepen it up.
 6           So our goal is to make sure everything is
 7   put back on grade, our crews have laser and GPS
 8   technology to do that, and the pipeline should be
 9   sufficiently below that.
10       Q.   What are the financial terms of your
11   contract with Summit?
12       A.   I'm not sure I understand the question.
13       Q.   Well, are you paid on a state-by-state
14   basis?  Are you paid by the mile repaired?  Are you
15   paid on a per diem?  Per hour?  How is the
16   compensation structured?
17       A.   We're paid on the project.
18       Q.   And "the project" being the entire
19   footprint or each state is considered --
20       A.   The entire footprint.
21       Q.   So you've already negotiated a rate for the
22   entire footprint?
23       A.   Yes.
24       Q.   Okay.  What's that?
25       A.   That's between Summit and us.
```

 1          Q.   Well, the problem is you're here testifying

 2    and it goes to bias of you testifying in support of

 3    the project based on the financial incentives you have

 4    to do the project.

 5               MR. LEONARD:  Your Honor, I'm going to

 6    object to confidentiality with respect to what Summit

 7    is paying its contractors.

 8               BOARD CHAIR HELLAND:  Mr. Jorde.

 9               MR. JORDE:  Well, yeah, I'll bet he told

10    Ernst & Young to put it in the report as incidental

11    benefits.  And, also, it does go to bias.

12               BOARD CHAIR HELLAND:  The objection is

13    sustained.

14               Let's move on.

15    BY MR. JORDE:

16          Q.   So, given that you've already negotiated --

17    is that a set rate?  Like a project rate?  Like, for

18    instance, "I'll put a new roof on your house for

19    $10,000."  Is it a set number?

20          A.   Yes.

21          Q.   Okay.  So, therefore, because you've agreed

22    to a set number, your profit will be affected by how

23    long and how much subcontractor time and how much time

24    for equipment, rental, et cetera, housing, that you

25    would incur such that it would incentivize you to work

```
 1   faster so that your profit margin doesn't slip away;

 2   correct?

 3        A.   Not necessarily, no.  I mean, we want to

 4   perform the project as efficiently as possible and

 5   ensuring that the landowners are getting the, as

 6   stated before, replacement of their tile to or better

 7   than it was before Summit and their team was there.

 8        Q.   Well, sure, but given that you've already

 9   set in stone the total amount that you can make, you

10   don't have a lot of room to have delays because that's

11   going to affect your margins; correct?

12        A.   Delays always affect margins on

13   construction projects, yes.

14             MR. JORDE:  All right.  Thank you.  I don't

15   have anything further.

16             BOARD CHAIR HELLAND:  Mr. Meyers.

17                  CROSS-EXAMINATION

18   BY MR. MEYERS:

19        Q.   Mr. Ellingson -- to your right.  Back here.

20   My name is David Meyers.  I'm an attorney here on

21   behalf of the Iowa Farm Bureau, and I just have some

22   questions for you.  I kind of want to start off with

23   just a clarifying question.

24             If the permit is granted and construction

25   for the pipeline begins and there is damage to a
```

1    landowner's drain tile but that damage to the drain

2    tile is not observed, let's say, ten years into the

3    future, will Ellingson come onto that landowner's

4    property and fix the drain tile?

5         A.    Yeah, if there was a drain tile that was

6    missed, we will take care of it.

7         Q.    And, again, there's no time limit on that.

8         A.    As stated before, if there's a problem with

9    the tile, I know Summit will take care of the

10   landowners.

11        Q.    Perfect.  Thank you.  I just wanted to kind

12   of clarify that.

13              Have you read Summit's Agricultural Impact

14   Mitigation Plan?

15        A.    Yes.

16        Q.    And are you aware as kind of part of that

17   mitigation plan the requirement to televise the trench

18   on both sides?

19        A.    Yes.

20        Q.    And can you just explain to us how you plan

21   on going about televising the trench on both sides?

22        A.    Basically, as we go through and repair

23   tile, if there's any indication that there has been

24   rutting or issues with drain tile that could be

25   crushed, we typically either replace a bigger stretch

```
 1   across the right-of-way or we inspect them, as you're

 2   speaking of, to ensure that there's no issues.

 3        Q.   And will this video be recorded?

 4        A.   It's typically not recorded, no.  There's

 5   inspectors on-site and landowners.  And, if it's not

 6   working or there's an issue, there'll be a wet spot.

 7        Q.   And, if a landowner requested for you to

 8   record the video, would you be able to do that?

 9        A.   If, on a certain circumstance, they wanted

10   to see that, I'm sure we could arrange to have that

11   done.

12        Q.   As part of your rebuttal testimony on

13   page 7, at line 20 you mention you will take a photo

14   of each repair.

15             Is that still accurate?

16        A.   Yes.

17        Q.   And would you be willing to share the photo

18   of the repairs with the landowner?

19        A.   Yeah, we -- we've had to do that on a lot

20   of past projects.  It's a really handy tool to ensure

21   the landowner that their tile is getting repaired the

22   way they want it done.

23        Q.   And, just for clarification, that's a still

24   photo with a camera?

25        A.   It's a photo taken with our crews.  We have
```

1    field engineers on every site with every contractor

2    ensuring that the drain tile is getting documented,

3    GPS location shot in, station numbers identified, tile

4    size, tile type, and photos that we actually keep in a

5    live GIS database system for landowners to have access

6    to or see at any time they want.

7          Q.   And, if a landowner wanted to take their

8    own photo of before or after the repair, would you be

9    okay with that?

10         A.   Sure.

11         Q.   On page 8 of your testimony, the rebuttal

12   testimony, up at the very top, you were asked "In your

13   experience, is it common for Ellingson to get called

14   back after the work is completed to fix your repair

15   work."

16              And your answer is "No, it is not common."

17              And my question to you is but it's happened

18   before where Ellingson has had to come back out to fix

19   something?

20         A.   Obviously.  All companies have certain

21   warranty issues.  We like to take pride in doing good

22   work and hoping that that's not the issue and we can

23   do the best job the first time we're there.  We don't

24   make money coming back.

25         Q.   On page 7, lines 1 through 5, I'm kind of

 1   focused on the specific language that "the drain tile

 2   will work as good as or better after the pipeline is

 3   built as it did before the pipeline came along."

 4            We heard a lot of testimony in the past two

 5   weeks about landowners being concerned about drain

 6   tile.  Can you just provide some -- scratch that.

 7   Excuse me.

 8            How can landowners trust your work just

 9   beyond your word right now?

10        A.   I mean, they can look at our experience.  I

11   mean, we've been in the drain tile business for 53

12   years.  We've done projects across the Midwest.  As

13   you probably saw in my testimony, we install thirty to

14   forty million feet of tile in any given year, and

15   we've done this kind of repair on not only pipeline

16   projects but wind farms, solar farms all over the

17   state of Iowa.

18        Q.   And what will happen if the drain tile does

19   not work as good or better after the pipeline was

20   constructed?

21        A.   We will come back and meet with the

22   landowner and address any issues or concerns they have

23   until they're happy.  I mean, we're here for the

24   growers.

25        Q.   And, kind of along the same lines -- we've

1    heard some landowner testimony over the period of this

2    hearing.  One individual named Paul Wacker, I hope I'm

3    pronouncing his last name correctly, described his

4    experience where he had a pipeline construction on his

5    property and there was soil settling underneath the

6    tile causing the tile line to bow and thereby prevent

7    water from flowing through the tile.

8              Can you just describe what Ellingson would

9    do to prevent this situation?

10        A.   Well, we'd start by making sure that

11   there's no sags in the line.  As he described.  We're

12   supporting the trench with a pipe with the tile

13   inside, which gives it extra support, and we're also

14   using sandbag support to ensure that that doesn't

15   happen.

16        Q.   On page 6 at the bottom of your testimony

17   there you note "we work with drainage authorities in

18   various jurisdictions."

19              Other than talking to landowners, can you

20   just describe where you look to obtain tile maps?

21        A.   Typically, landowners, as we've discussed

22   already, but we talk with all the local NRCS or SCS

23   offices, local counties, and collect as many and

24   available drain tile maps or county main maps as we

25   can get.  Iowa actually has a pretty good record of

1   them.  So it makes it pretty easy.

2        Q.   And, when you mentioned the "counties," is

3   that like the county recorder's office?

4        A.   Yeah, whoever keep tracks of the county

5   mains.  Or if there's group main easements between

6   landowners.  And they have a GIS system, I think, in

7   some of the counties that track that.

8        Q.   Can you just explain to us the difference

9   between perforated tile and non-perforated tile?

10       A.   Perforated tile has small holes in it to

11  allow water to get into the tile for drainage, and

12  non-perforated tile is solid.  It's typically used in

13  areas where there's trees or wetlands or areas that we

14  don't want drainage.

15       Q.   And can you just describe the circumstance

16  when a larger pipe with perforated drain tile inside

17  would be used?

18       A.   Ask that question again.

19       Q.   Yes.  Can you describe the circumstance

20  when larger pipe with perforated drain tile inside

21  would be used?  Kind of what soil setting, what --

22       A.   I'm not sure I'm following your question.

23  Typically, we don't put tile inside of tile.  It's

24  just -- the repairs are encased in a pipe for support,

25  but, outside of that, it's just a tile line.

Filed with the Iowa Utilities Board on September 25, 2023, HLP-2021-0001

 1          Q.   Because I believe -- and I'm trying to get

 2     a better understanding.  It's a clarifying topic of

 3     when you were talking with Mr. Jorde a few minutes ago

 4     you mentioned something to that effect.  Especially

 5     with larger pipe.

 6               Is that correct or am I misremembering?

 7          A.   Yeah, I'm not sure I'm following your

 8     question.

 9          Q.   Can we go to page 8 of your rebuttal

10     testimony.  On line 14 -- so the question on line 14,

11     "In terms of designing a different solution, what does

12     that mean?"

13               And, as part of your response in line 18,

14     you note "rather than underneath it."

15               What did you mean by that phrase?

16          A.   In certain situations, if a landowner

17     requests it, we install header systems.  Basically, we

18     remove all of the crossings in the field, except for a

19     couple, and we connect all the pipes on the upside and

20     we cap all the pipes on the downside.  This gets most

21     of the tile out of the right-of-way.  Except for the

22     two main crossings.  But that's only on a landowner

23     basis.

24          Q.   Can you just explain how a tile system

25     would drain the soil for crop production if it's

```
 1   underneath the pipeline?  So the tile is below the

 2   pipeline.

 3        A.   It would really be no different than if it

 4   was on top.

 5        Q.   How deep does the drainage tile need to be

 6   for Summit to consider installing the pipeline above

 7   the drainage tile?

 8        A.   I'm not sure that's -- I guess I'd have to

 9   defer to the engineers on the depth of the pipeline to

10   see if they have that instance anywhere.

11        Q.   And then on page 9 of your testimony,

12   towards the bottom, you note that Summit will pay for

13   a new drainage system.

14             Can you just explain what you mean by the

15   "new drainage system"?

16        A.   Where is that?  Where does it say that?

17        Q.   We'll move on briefly.  Are you aware of

18   the requirement that Ellingson or Summit will have to

19   pay for increased costs for new drainage tile work

20   because of -- let me start over.  Excuse me.

21             Are you aware of the requirement that

22   Summit will have to pay for increased repair cost for

23   drainage tile repair?

24        A.   I'm not sure I follow the question.  Summit

25   is paying for all of the drain tile repair.  I'm not
```

 1    sure I follow the "increased" part.  Can you explain

 2    that a little more?

 3         Q.    I'll just move on to a different topic.

 4    Along the same lines, different question.

 5              Will Ellingson tell landowners they have

 6    the ability to hire their own contractor to repair any

 7    drainage tile caused by the pipeline?

 8         A.    Yeah, if a landowner would like to involve

 9    his own tile contractor, part of our responsibility in

10    the project is working with them to work through the

11    feasibility of that and making sure it gets done

12    correctly and right and they can meet all the

13    requirements that are needed to do that.

14         Q.    And then will Ellingson tell the landowner,

15    and the landowner's contractor, that Summit would be

16    responsible for the cost to repair the drain tile?

17         A.    Yes, Summit is responsible for the costs of

18    repairing all the drain tile within the right-of-way

19    that's damaged.

20         Q.    And I want to back up and circle back.  I

21    wrote down the wrong page number.  It is actually on

22    page 8 when we were talking about that new system.

23              So, as you'll see at the very bottom, you

24    were asked "Who pays for the work to install a new

25    system if the landowner chooses?"

1           And, as you repeated throughout your

2   testimony so far, "Summit pays for that work."

3           My question is what is meant by "new

4   system"?

5       A.   A repair of the pipe -- of the tile

6   crossing.  That's the way I interpreted it.

7       Q.   And is that limited to the easement area or

8   is that for the entire parcel?

9       A.   The easement area.

10      Q.   And then still staying on page 8, you were

11  asked in line 19 "Who makes the decision about whether

12  to go forward with the repairs of each pattern tile

13  line or install a new system?"

14          Again, can you just explain what you mean

15  by "new system" to that question.

16      A.   Again, I think I interpreted all the

17  questions to be related to repair work done within the

18  easement.

19          MR. MEYERS:  Thank you.  Those are all the

20  questions I have.

21          THE WITNESS:  Thank you.

22          BOARD CHAIR HELLAND:  Thank you.

23          Mr. Meyer.

24

25

 1                    CROSS-EXAMINATION

 2   BY MR. MEYER:

 3        Q.   Good afternoon, sir.  I'm over here.

 4   Darrell Meyer, Hardin County.

 5             I'm going to stay on some of these same

 6   pages around the same areas here.  I just want to get

 7   some clarification.

 8             Many of your answers referred to

 9   "landowners."  Page 8, line 16, "want to work with the

10   landowners."  Same page, line 22, "work with the

11   landowner," "the landowner decides," and then on

12   page 9, line 2, "the landowner" -- the question was

13   "Do landowners have to use your firm?"  And the answer

14   is "No, the landowner can choose who they want."

15             And I just wanted to make sure we get a

16   clear understanding of how broad or narrow the term

17   "landowner" is.  Particularly with respect to drainage

18   districts.

19             The tile in a drainage district is managed

20   by trustees.  They can be private trustees named by

21   all the landowners in that district or the default is

22   county supervisors.

23             So, in working with individuals on this

24   project, would you include the drainage district

25   trustees, whether they're supervisors or private

```
 1   trustees, since they are the agents of all of the

 2   operators, the landowners, in that district?

 3        A.   Yeah.  Sure.  If there were questions or

 4   issues that needed to be addressed by the district on

 5   behalf of the landowners, more than happy to work with

 6   whoever we need to work with to make sure the

 7   landowner is happy.

 8        Q.   With your previous experience with the

 9   Dakota line, did you work with any drainage districts

10   on that project?

11        A.   We were in a little different role on that

12   project.  So I'm sure we encountered drainage

13   districts throughout with questions and things, but --

14   I'm sure we repaired tile that were part of drainage

15   districts, but not directly like we have on this

16   project.

17        Q.   You've heard the phrase "strong fences make

18   good neighbors"?

19        A.   For sure.

20        Q.   Well, if you've ever sat in a drainage

21   district meeting where there's a dispute, good tile

22   makes good neighbors too.

23        A.   For sure.

24        Q.   And so I guess I'm hoping when you use the

25   word "landowner," it's broad enough to include those
```

```
 1   that are going to end up sharing the cost of any

 2   repair or new tile, that sort of thing.

 3              So can we operate under that assumption?

 4        A.    Yes.

 5              MR. MEYER:  Thank you.  No other questions.

 6              BOARD CHAIR HELLAND:  Mr. Fallon.

 7              MR. FALLON:  Thank you.

 8                   CROSS-EXAMINATION

 9   BY MR. FALLON:

10        Q.    My main goal here is to get through this

11   without having Mr. Dublinske object more than once.

12   We'll see how it goes.

13              Thank you, Mr. Ellingson.  So, first, a

14   little background again.

15              How long have you been doing this work?

16        A.    Our company has been in business for

17   53 years.

18        Q.    I think you said you lay between three and

19   four million miles of tile a year; is that correct?

20        A.    Thirty and forty million.

21        Q.    Thirty and forty.  I dropped a zero.

22   Sorry.  That's pretty impressive.

23              So do you know what percentage of the land

24   in Iowa that Summit has targeted for this pipeline,

25   what percentage of that land is tiled currently?
```

```
 1            A.   I would be speculating.  I would guess

 2    there's probably 50 to 70 percent of it.  At a

 3    minimum.  A lot.

 4            Q.   So a majority of it.

 5            A.   Yeah.

 6            Q.   And what percentage of that again -- I know

 7    this is just take your best guess.  What percentage of

 8    that tiled land would have the pipeline cut diagonally

 9    across it?

10            A.   I'm not sure -- I don't have an answer.

11            Q.   And maybe a better way to figure that out

12    is to look at those maps and see where it looks like

13    it's going northwest or southeast instead of straight

14    up and down.  But my guess is it's going to be a lot.

15    I know, with the Dakota Access pipeline, it was almost

16    always a diagonal cut.

17                 Does that diagonal cut represent a -- I

18    mean, if a pipeline went straight across like that, I

19    imagine that would be an easier fix than a diagonal

20    cut; correct?

21            A.   Not necessarily.

22            Q.   No?

23            A.   I think it depends on the design and the

24    lay of the farm.  You could have diagonal lines in the

25    farm that follow a pipeline route and it would make it
```

 1   better.

 2          Q.   So I'm trying to get an understanding, too,

 3   at what point you come into play here.  So the

 4   machinery comes in, digs the trench, and I presume

 5   they just cut through the tile.  Do they actually

 6   remove the tile with some care or is it just kind of

 7   sliced through at that time?

 8          A.   So, typically, the pipeline contractor

 9   excavates or trenches the trench open.  Our

10   representatives identify the tile as that's happening.

11   They come through and lay their pipe.  And, as they

12   begin to backfill in behind it, we come in and repair

13   the tile.

14          Q.   So will that tile be kind of cut in a

15   jagged sort of way or will there be a clean cut on it

16   where the trench has been dug?

17          A.   It's usually a pretty clean cut.  It just

18   depends on the angle of the tile and the way it's cut.

19          Q.   And the pipe -- I can't recall for sure,

20   with the Dakota Access pipeline, whether the pipe was

21   installed above or below the tile.  I'm pretty sure it

22   was below.  Will that be the case with the pipeline as

23   well?  The pipeline will be below the tile?

24          A.   Yes.

25          Q.   Almost exclusively?

 1        A.    Yes.

 2        Q.    So how easy is it to -- I mean, when you

 3   consider compaction and soil settling and issues of

 4   water affecting how the soil resettles into the

 5   trench, how frequently can you expect to see the need

 6   for you to come in and make repairs?

 7        A.    We repair every line that we find.  Or

 8   every line that the landowner has exposed.

 9        Q.    I'm trying to think of a comparable

10   situation.  And what keeps coming to my mind is DAPL.

11   I don't know if you or anybody knows how frequently

12   landowners who had their tile cut and then repaired on

13   the DAPL route had to have someone come in a second

14   time and fix it because of changes in soil conditions.

15             Do you have any ideas about that?

16        A.    No.

17        Q.    What's your experience about the frequency

18   of land shifting under construction?  I mean -- let me

19   back up.

20             With typical farming activities, yeah,

21   there's always going to be some action on the soil.

22   But this is a much bigger impact.  This is a

23   significant trench with huge equipment.

24             So I'm guessing that the frequency of

25   disrupting that tile, of having it need to be

Filed with the Iowa Utilities Board on September 25, 2023, HLP-2021-0001

IN RE: SUMMIT CARBON SOLUTIONS
IUB HEARING  09/07/2023                                        Page 2460

1  repaired, is probably going to be more often than in

2  any kind of normal repair job.

3            Would that be the case?

4       A.   The size of this project will impact a lot

5  of tile.  For sure.  There's no question.

6       Q.   But, I mean, it will impact it in ways that

7  are probably more significant than your usual type

8  repair work.

9       A.   I wouldn't say that.  We do a lot of

10  projects where -- whether it's cable or pipe or

11  irrigation lines or pipelines.  I mean, tile is cut

12  quite often on a lot of projects that we work on.

13       Q.   What else would cause a tile to be cut?

14       A.   Some tile installed shallow and maybe a

15  farmer ripping his field too deep may cause a tile to

16  be cut.

17       Q.   I can't imagine that happens too often.

18       A.   Not a ton, but it has.

19       Q.   Again, if you have any experience with

20  this, I'm curious about how often do you -- how many

21  years after the installation of the pipe would one

22  expect there to be shifts in soil conditions where

23  there might be a need to repair that tile.

24       A.   I mean, our goal is is there's no issues

25  with the tile.  When we leave the field, it's a good,

SUSAN FRYE COURT REPORTING | 515-284-1972
300 Walnut Street, #36, Des Moines, IA 50309-2224

 1   solid repair.  We take extra precautions to ensure

 2   that doesn't happen.

 3              As far as how soil moves, I'd have to defer

 4   to the soil scientist that is involved in the project

 5   to answer that question.

 6        Q.   Now, I know some land is flatter than

 7   others, and I think I saw what -- a farmer down in

 8   Keokuk County showed me his land where it was -- I

 9   think it was about a quarter mile across, a quarter

10   mile square, and it was so flat it drained, I think if

11   memory serves, only a couple inches from one side to

12   the other.

13              That seems like a really delicate operation

14   to install that tile in the first place.  Repairing

15   tile like that would be pretty challenging, I would

16   think.

17        A.   It's stuff we do all the time.

18        Q.   Even something that flat with that low of a

19   grade?

20        A.   Yep.  We work -- we have an office in North

21   Dakota, and the Red River Valley is one of the

22   flattest areas around that we work in.  And most of

23   the lines are installed on a tenth or a tenth and a

24   half grade, which is less than that.

25        Q.   Have you heard of any stories yourself of

1    landowners, farmers, along the Dakota Access pipeline

2    route who had complaints about how their tile was

3    repaired after construction?

4         A.    No.

5         Q.    And, if I should have such stories, it

6    would be okay to share them with you at some other

7    time?

8         A.    Sure.

9              MR. FALLON:  Thank you.

10              BOARD CHAIR HELLAND:  Thank you.

11              Mr. Taylor.

12                   CROSS-EXAMINATION

13    BY MR. TAYLOR:

14         Q.    Mr. Ellingson, I'm Wally Taylor.  I

15    represent the Sierra Club.  And I know very little

16    about drain tile, but fools rush in.  So I'm going to

17    try it.

18              You submitted rebuttal testimony.  Do you

19    know what intervenor testimony or evidence you're

20    rebutting?

21         A.    Say that again.

22         Q.    You submitted rebuttal testimony; correct?

23         A.    Yes.

24         Q.    Do you know what intervenor testimony or

25    evidence you're rebutting?

 1          A.    I'm assuming questions from landowners or

 2    land agents or the IUB or whoever.

 3          Q.    But, otherwise, you don't know.

 4          A.    I'm going to have to defer to my attorneys

 5    for that.

 6          Q.    Well, who drafted your rebuttal testimony?

 7          A.    Who drafted it?

 8          Q.    Yeah.

 9          A.    Myself and the Summit attorneys.

10          Q.    On page 6, line 14, of your rebuttal

11    testimony.  If we could get that up.  You said that

12    Summit engaged you early in the pre-permitting design

13    phase and that allowed you to collect substantial

14    amounts of information.

15                Can you give us a better idea of what you

16    did to get that information and what kind of

17    information you were looking for?

18          A.    We were gathering existing drain tile maps

19    not only from landowners but from counties, NRCS

20    offices, drainage districts, to make sure that we

21    understood the impact and made sure that the pipeline

22    was, you know, taking into consideration where the

23    drain tile was to have the least amount of impact as

24    possible.

25                And then being able to answer any landowner

```
 1   questions along the way, provide input at public

 2   hearings, any way we could support answering questions

 3   about agricultural drain tile on the project.

 4        Q.   Did you go out to any landowners' land and

 5   look to see what you could find?

 6        A.   We've had meetings with landowners.  I

 7   mean, it's really preliminary right now, as we're

 8   still in the permitting process.  But, yeah, we've

 9   engaged and answered lots of questions along the route

10   with land agents.

11        Q.   You mentioned drain tile maps.  It's my

12   understanding from hearing from landowners that there

13   are some drain tile that was installed years ago, like

14   in the 1920s or '30s, that there's no map for and

15   nobody knows exactly where it is.

16             Is that your understanding?

17        A.   Probably, yes.

18        Q.   So what would you do to try to locate or

19   determine where that kind of tile might be?

20        A.   Before the project starts, we use aerial

21   imagery.  We do different analysis of low spots, talk

22   to landowner about where he feels the tile may be.

23   During construction, we have field engineers on-site

24   that are spotting tile as the trench is opened up.

25        Q.   Do you think that's good enough to find
```

```
 1   that unmapped tile?

 2        A.   I think so.

 3        Q.   Can you help me understand how you work

 4   with the county inspectors in regard to trying to

 5   avoid or at least minimize damage to drain tile?

 6        A.   We address any concerns or issues they have

 7   in the county we're working in or areas they have

 8   questions on.  Work with them to ensure that anything

 9   that they see as a problem or a potential issue for

10   landowners is addressed correctly.

11        Q.   Is your agreement with Summit that you, or

12   your company at least, would be on-site as the

13   trenches for the pipeline are being dug and the pipe

14   is being put in the trench?

15        A.   Yes.

16        Q.   All the way along the route?

17        A.   Yes.

18        Q.   On page 8, line 11, of your rebuttal

19   testimony, I think you were talking about pattern tile

20   there; is that correct?

21        A.   Yeah.  I think the question was is, you

22   know, if there's a lot of repairs in a field that's

23   pattern tiled, how you handle that.

24        Q.   That goes back to the previous question, I

25   think, and that was a follow-up about pattern tile.
```

1              So give us a better idea of, first of all,

2    how you could avoid perhaps any problems with the

3    pattern tile.  And then, secondly, what challenges

4    there would be in trying to repair any damage.

5         A.   I guess I'd ask for a little bit more

6    clarity on your first question.

7         Q.   Okay.  What challenges are there in trying

8    to avoid or minimize the damage to the pattern tile?

9    That wouldn't be there in some other kind of tiling

10   situation.

11        A.   I guess I'm still not quite understanding

12   the question.  I mean, the tile are going to be

13   damaged, they are going to be dug through where the

14   pipeline goes there, and we're there to ensure that

15   they get replaced and fixed to the same condition or

16   better.

17        Q.   I guess what led me to the question was

18   that in that previous question it seems to infer that

19   there are particular issues or challenges with a

20   pattern tile that would not be present with other

21   kinds of tiling systems.

22             Is that a fair statement or am I misreading

23   that?

24        A.   I think you're misreading that.

25        Q.   Is it better to have the drain tile above

 1    or below the pipeline or does it make any difference?

 2          A.    It's definitely better to have it above.  I

 3    think there's very few incidents where the tile would

 4    be below.

 5          Q.    Okay.  So you want the tile above the

 6    pipeline.

 7          A.    Yeah.

 8          Q.    So you'd have to know how deep the tile is

 9    in any particular location; is that correct?

10          A.    Correct.

11          Q.    And how do you do that?

12          A.    Most tile systems are installed between

13    three and a half and four feet deep.  On average.

14    Pretty common practice in the industry.

15          Q.    Is it possible they might be deeper than

16    that and you wouldn't know it?

17          A.    There could be some that could be deeper.

18          Q.    And so is it possible or more likely that

19    that tile would be damaged by the installation of the

20    pipeline?

21          A.    Yeah, no different than the rest of the

22    tile.

23                MR. TAYLOR:  Can staff pull up 479B.31 of

24    the Iowa Code.  If you have access to that.

25                I knew they could do it.

 1    BY MR. TAYLOR:

 2         Q.    Can you read that, Mr. Ellingson?

 3         A.    Sure.

 4         Q.    Let me know when you're done reading it.

 5         A.    Okay.

 6         Q.    This is a section of the Iowa Code

 7    regarding hazardous liquid pipelines and indicates a

 8    procedure if the landowner installs new tile after the

 9    pipeline is installed.

10              Do you understand that?

11         A.    Yeah.

12         Q.    And that any additional costs for

13    installing that new tile system that would be caused

14    because of the presence of the existing pipeline shall

15    be paid for by the pipeline company.

16              Have you ever been involved as a consultant

17    or expert in a situation like that?

18         A.    No.

19              MR. TAYLOR:  Okay.  Thank you.  That's all

20    the questions I have.

21              THE WITNESS:  Sure.

22              BOARD CHAIR HELLAND:  Thank you.

23    Mr. Meyer, did you have a follow-up?

24              MR. MEYER:  Oh.  No.

25              BOARD CHAIR HELLAND:  Just double-checking.

 1                    MR. MEYER:  I'm bad at that.

 2                    BOARD CHAIR HELLAND:  I don't believe the

 3      Board has any questions.

 4                    Mr. Leonard.

 5                    MR. LEONARD:  Just a quick redirect, Your

 6      Honor.

 7                         REDIRECT EXAMINATION

 8      BY MR. LEONARD:

 9          Q.   Mr. Ellingson, there were a series of

10      questions related to page 8 of your testimony.  And I

11      just want to ask for a clarification.

12                    When you're talking about something like a

13      header system that you would put in ahead of time

14      prior to construction, is that something that Summit

15      would pay for?

16          A.   Yes.

17                    MR. LEONARD:  Thank you.

18                    BOARD CHAIR HELLAND:  Okay.  Any questions

19      on the redirect?

20                    (No response.)

21                    BOARD CHAIR HELLAND:  Okay.  Seeing none,

22      Mr. Ellingson, you are excused.

23                    THE WITNESS:  Thank you.

24                    BOARD CHAIR HELLAND:  We will go ahead and

25      take a 15-minute break and then move on to -- we'll

 1   find out.

 2           MR. DUBLINSKE:  As I suggested at the end

 3   of the day yesterday, unfortunately Mr. Ellingson is

 4   the last witness that we have available today.  We

 5   have several that will be here tonight that can be

 6   ready for tomorrow.  Aaron DeJoia who I think we need

 7   to get in and out.

 8           We are actually filing -- it should be

 9   coming into the Board's system now, the ordered

10   dispersion information.  And I would suggest that

11   Mr. Powell would be available if you want to put him

12   back on the stand tomorrow.  He will be unavailable at

13   the beginning of the next week because of the start of

14   the South Dakota proceeding.  And Micah Rorie will be

15   available tomorrow as well.

16           We were thinking we would run a little

17   later today, but the issue with Mr. Rorie is he

18   actually is participating late today in a mediation as

19   set up by the Board.

20           BOARD CHAIR HELLAND:  Mr. Jorde.

21           MR. JORDE:  Well -- yeah.  So, I mean, I've

22   got a real problem with this.  I mean, it's their

23   case, and they might have an order that they prefer,

24   but they're on the clock and they need to have

25   witnesses here.

1              So if they don't have a witness, I would

2     move that -- I'd request an order that their case in

3     chief be ordered closed, since they don't have a

4     witness and we're still here, and that their case

5     presentation be over and then we can move on to the

6     next party.

7              And, short of that, I want to discuss the

8     motion that I've filed on the scheduling.  Again, I

9     mean, we have enough time to get a whole 'nother

10    witness done, but they're not here.  Which puts

11    pressure on tomorrow which puts pressure on the rest

12    of the proceedings.

13             And it is no mystery, as it hasn't been for

14    six months, I have to be in South Dakota all next

15    week, Monday through Saturday, and I also need to

16    cross-examine all the Summit witnesses.

17             So I'm requesting that if we don't get done

18    with Summit witnesses tomorrow, Friday, that these

19    matters be stayed until such time as the South Dakota

20    proceedings conclude.  In which case -- the same

21    Summit witnesses and myself are going to be up there.

22             So that's my request.  None of this would

23    have been a problem if we would have stuck with what

24    was discussed and these matters would have been

25    scheduled in November or after.

 1              And so it's a serious problem that the

 2   Board, prior to the newly constituted Board, was aware

 3   of and has been aware of and has never been a secret.

 4              BOARD CHAIR HELLAND:  Do you have a

 5   statement?

 6              MR. DUBLINSKE:  Your Honor, we had

 7   requested dates that would have been well before the

 8   South Dakota hearing.  Mr. Jorde, knowing when the

 9   South Dakota hearing was scheduled, pushed for a

10   slower schedule in this proceeding.  And he did that

11   knowing the South Dakota hearing was out there and

12   took that risk.

13              Contrary to Mr. Jorde's motion to stay, as

14   I mentioned yesterday when he was not in the room, we

15   neither had any advance notice of the proposed

16   schedule nor are particularly the non-party witnesses

17   at our, quote, beck and call.

18              I think the Board is aware that we've been

19   scheduling with very short turnaround.  It was Labor

20   Day weekend and we couldn't necessarily get flights in

21   for some of these non-party witnesses.

22              We have tried to keep things moving despite

23   that as best as possible, but we don't have control

24   over how long each witness goes.  That is largely in

25   the control of the other attorneys in the room.

 1              We will have people in tomorrow.  I would

 2    note that Mr. Williams seems to have done a perfectly

 3    fine job here in Mr. Jorde's absence and that staying

 4    for the entire length of the South Dakota hearing is

 5    impractical and simply is not necessary.

 6              BOARD CHAIR HELLAND:  We are going to take

 7    a 15-minute break and we will come back and address

 8    these.

 9              I will say, before we the break, it is

10    somewhat frustrating that we can't continue and that

11    we're leaving some perfectly -- oh.  Mr. Long.  Did I

12    cut you off?

13              MR. LONG:  Thank you.  I would just suggest

14    that we all think on the 15-minute break about the

15    witnesses after Summit.  And we are willing to be

16    flexible if other parties have timing needs for their

17    witness.

18              BOARD CHAIR HELLAND:  Thank you.

19    Appreciate that.

20              Okay.  We'll take a quick 15 minutes and

21    discuss things with Board Member Martz and we will be

22    right back.

23              Mr. Long interrupted my complaint, but it

24    still stands.

25              So thank you.  Appreciate it.

 1              (Recess taken at 3:24 p.m.)

 2              (Hearing resumed at 3:45 p.m.)

 3              BOARD CHAIR HELLAND:  Sorry.  The break

 4     went a little longer.  We called Board Member Byrnes

 5     to make sure we could discuss this as a whole group.

 6              In regards to Mr. Jorde's motion, we have

 7     waived the usual response time in the interest of

 8     getting an order out quickly.  That order should be

 9     out tonight or tomorrow morning.

10              But, in the interest of scheduling and

11     making sure that we keep things moving, we will be

12     here tomorrow at 8:00.  We plan to work until 3.  We

13     will be here Tuesday at 8:00.  And we intend to work

14     and we intend to address Summit's witnesses, and

15     Summit will be responsible for making sure witnesses

16     are available.

17              Because we are planning to continue to

18     work, I want to emphasize how important it is that you

19     continue to look at the Weekly Digest and let us know

20     if witnesses will not be available the next week so

21     that we can plan appropriately.

22              Mr. Long.

23              MR. LONG:  I was just going to make an

24     offer and also ask for guidance.  We can have our

25     witness here, Mr. Bents, in the afternoon, and I see

 1    it looks like Summit has witnesses DeJoia and Rorie.

 2    If we think that would take the whole day, I'd kind of

 3    like to be told not to have Mr. Bents come here.

 4                BOARD CHAIR HELLAND:  So the parties

 5    control how long they're up there far more than we do.

 6    I don't want them to be here waiting if they're not

 7    going to be on the stand either.  But I appreciate

 8    that input.

 9                Ms. Kohles.  I believe you had a statement.

10    Did you have anything to say?

11                MS. KOHLES:  Well, it was related to the

12    stay.  Can I say something?  My opinion?

13                BOARD CHAIR HELLAND:  Sure.

14                MS. KOHLES:  Okay.  The scheduling for this

15    hearing has been very challenging to landowners.  You

16    moved it up and it conflicts with the harvest and has

17    made it impossible for many affected by the pipeline

18    to attend these hearings.

19                Your inability or cooperation in providing

20    an advance schedule for affected landowners and short

21    notice has also made it impossible for out-of-state

22    travel arrangements and adjusting work commitments to

23    name just two examples.

24                To plan to proceed without Summit

25    representatives and landowners' representatives next

 1   week is unacceptable.  I feel it is a glaring example

 2   of bias to Summit and not permitting landowners the

 3   proper respect they deserve.  We deserve to have all

 4   witnesses or testimony.

 5            I have put my life on hold and gone to

 6   great expense to attend this hearing.  Please stay

 7   this hearing until at the beginning of next Monday

 8   until the South Dakota hearing is concluded in all

 9   fairness.  It will also give landowners a chance to

10   participate more fully as is their right.

11            BOARD CHAIR HELLAND:  Thank you.

12            Mr. Jorde.

13            MR. JORDE:  Yes.  And related to the logic

14   of moving to August, it was communicated that that

15   would be for landowners so that they wouldn't be

16   impacted during harvest.

17            And we've taken the non-intervening

18   Exhibit H landowners, at least the ones who were

19   scheduled, that's done, we've accomplished that, and

20   now we should be done and start back up the last week

21   in October, November, whenever it is.

22            So we've accomplished that goal, those

23   non-intervening folks are done, I guess, other than

24   apparently a couple that rescheduled for some later

25   date.

1            But, other than that, the proceedings

2    should be stayed.  There's zero chance of them

3    concluding even if this goes on all month anyway.  So

4    there's really no point to do that.  And it's a

5    gigantic prejudice to 149 of our clients.

6            And as to, well, basically someone else can

7    do the work.  I mean, Mr. Dublinske and Mr. Leonard

8    are sitting there.  They each ask each witness three

9    questions.  I mean, they're not even doing anything.

10            I'm the one that's prepared all the

11    witnesses, done everything, and am ready to cross all

12    the Summit witnesses.  So that's just a completely

13    ridiculous statement that Mr. Dublinske made earlier.

14            My clients will be extremely prejudiced.

15    There's just nothing more to say than that.

16            BOARD CHAIR HELLAND:  Okay.  Thank you.

17    Appreciate it.

18            We will see everybody at 8:00 in the

19    morning.

20            Sorry.  Mr. Dublinske.

21            MR. DUBLINSKE:  Your Honor, just as we've

22    been doing each day and to try and make sure that we

23    do have enough people here -- I understand we're only

24    going till 3 and I understand we certainly can't do

25    enough to predict how long people will be here,

```
 1   apparently because we don't actually do any homework

 2   in our off-hours, but tomorrow we have DeJoia, we have

 3   Micah Rorie.  Again, we are offering Jimmy Powell to

 4   come back to the stand.  And we have Brad Dillon.

 5   Which I believe will get us far enough, although we

 6   would have no objection if OCA wants to have Mr. Bents

 7   available.

 8             MR. LONG:  If we think we have enough to

 9   occupy us, then I will not.  But, just to clarify, I'm

10   not planning to ask him to come here unless you tell

11   us to because he wasn't listed on the Weekly Digest.

12             BOARD CHAIR HELLAND:  Noted.  Thank you.

13             Mr. Taylor and then Mr. Whipple.

14             MR. TAYLOR:  Thank you.  I just want to

15   make sure if Mr. Powell is here tomorrow to testify --

16   I'm assuming, from what I heard Mr. Dublinske say

17   earlier, that would be in closed session regarding the

18   dispersion modeling.  So when do we get the dispersion

19   modeling results?

20             MR. DUBLINSKE:  Basically just as soon as

21   this hearing adjourns and we can send out an email.

22   It has been uploaded to the Board's system, I don't

23   know if it's showed up yet, but we will email that to

24   the folks that have signed the appropriate agreement

25   literally just as soon as we are done here.
```

```
 1              MR. TAYLOR:  Thank you.

 2              BOARD CHAIR HELLAND:  Thank you.

 3              Mr. Whipple.

 4              MR. WHIPPLE:  Your Honor, the one thing

 5   that the Counties object to that's been discussed so

 6   far here is that we would call Mr. Powell tomorrow.

 7   We're not going to be ready by tomorrow for dispersion

 8   modeling questioning.  We don't want to interfere with

 9   his schedule in South Dakota, but if we can recall him

10   after that, even if it's after intervening party

11   witnesses, we prefer that.

12              BOARD CHAIR HELLAND:  Tomorrow I think it

13   makes the most sense to have DeJoia --

14              (Brief pause.)

15              BOARD CHAIR HELLAND:  They don't trust me.

16   I think tomorrow it probably makes the most sense to

17   not have Powell and to go with the three; DeJoia,

18   Rorie, and Dillon.  That seems to be about the clip

19   we're working at.

20              Mr. Jorde, do you have anything more to

21   add?

22              Mr. Whipple, did you have any more?

23              MR. JORDE:  Yes, I do.  I'd like an

24   assurance on the record from Mr. Dublinske that none

25   of his witnesses are presently in Fort Dodge, Iowa.
```

1          MR. DUBLINSKE:  The only one that I know of

2    that might be in Fort Dodge, Iowa, is Mr. Rorie who

3    has a Board-requested mediation starting shortly.

4          MR. JORDE:  Okay.  And then I'd like to

5    know the order of witnesses they intend to call or

6    that will be available tomorrow.  Because, if they go

7    faster, I don't want to have another situation like

8    today with wasted hours.

9          MR. DUBLINSKE:  Your Honor, we've already

10   said which witnesses we will have tomorrow.  I believe

11   we are starting with DeJoia and then Micah Rorie and

12   then Rod Dillon.

13         BOARD CHAIR HELLAND:  I didn't know that we

14   established that as the order for sure, but I

15   appreciate that.  Sounds like the order tomorrow is

16   DeJoia, Rorie, Dillon.

17         MR. JORDE:  Well, okay, and then I guess I

18   would say anything on dispersion modeling, I would

19   request that that testimony, Mr. Louque or whomever is

20   going to be the witness on the dispersion modeling

21   analysis, that that not take place until the very end

22   of September.  Or whenever we're back in October or

23   November or December whenever we're going to finish

24   this.  That it not occur in the next three weeks.

25         MR. DUBLINSKE:  Your Honor, as we've said

1   several times, despite having one day notice before

2   Labor Day and the fact that I was out of town on a

3   family matter all of Labor Day, we got everyone here

4   as quickly as we could.

5             All of those non-Summit professionals are

6   traveling to Fort Dodge next week.  We will tender all

7   of them Tuesday, Wednesday, and Thursday.  And

8   particularly given the objections and the complaints

9   about what we apologize happened today, I think that

10  anybody who chooses not to have someone from their law

11  firm or their party here when those folks are tendered

12  just misses their chance to cross.

13            MR. JORDE:  All right.  Well, then I'll

14  call them back in our case.  I'm going to call all

15  those witnesses back in our case.  So just be on

16  notice of that.

17            MR. DUBLINSKE:  He hasn't submitted them on

18  the witness list timely or filed testimony.

19            MR. JORDE:  I don't have to.  I can call

20  any witness on the list.  It's not an individual list.

21  I can call any witness at any time.

22            BOARD CHAIR HELLAND:  Okay.  We'll we're

23  done for the day.  So we will see everybody at 8:00.

24            (Hearing recessed at 3:56 p.m.,

25  September 7, 2023.)

1                    C E R T I F I C A T E

2              I, the undersigned, a Certified Shorthand

3    Reporter of the State of Iowa, do hereby certify that

4    I acted as the official court reporter at the

5    proceedings in the above-entitled matter at the time

6    and place indicated; that I took in shorthand all of

7    the proceedings had at the said time and place and

8    that said shorthand notes were reduced to typewriting

9    under my direction and supervision, and that the

10   foregoing typewritten pages are a full and complete

11   transcript of the shorthand notes so taken.

12              Dated this 23rd day of September, 2023.

13

14

15

16              CERTIFIED SHORTHAND REPORTER
                Melissa A. Burns, Iowa CSR #527
17

18

19

20

21

22

23

24

25

**$**

**$10,000** 2442:19

**$100** 2378:14
2402:5

**$150** 2378:16

**$2,172,000**
2396:25

**$4** 2386:25

**$414** 2387:15

**$50** 2378:15,19

**$56** 2392:24

**$65** 2392:25

**$9** 2384:7

**1**

**1** 2214:3 2241:12
2335:12 2352:14
2353:23 2355:2
2371:19 2376:17
2378:5 2379:14
2383:20 2388:15
2391:9 2446:25

**1,500** 2221:3,9
2223:23 2224:1
2291:5 2338:3

**1,500-foot**
2221:15 2222:24
2224:21 2225:3

**1.9** 2415:25

**10** 2243:11 2290:4
2292:25 2330:9
2372:23 2390:24
2413:8

**100** 2260:17
2343:22 2427:4

**11** 2330:9 2334:1
2465:18

**110** 2260:9,17
2437:17

**112** 2225:15
2240:12

**12** 2214:3 2243:11
2260:8 2387:18

2414:16,17

**12-inch** 2260:20
2440:19

**12:00** 2366:19

**13** 2282:13

**130** 2225:16

**14** 2260:8 2450:10
2463:10

**140th** 2300:3

**149** 2477:5

**15** 2243:11
2266:15 2370:6
2372:23 2473:20

**15-minute**
2267:16 2469:25
2473:7,14

**150** 2227:13

**150-foot**
2437:11,13

**158** 2427:7,25

**16** 2243:1 2294:12
2418:5 2454:9

**16-inch** 2260:18

**160** 2238:23

**17** 2376:16,18
2377:8

**18** 2243:1 2244:18
2260:25 2285:1
2294:12 2378:5
2379:1,14
2388:15 2415:22
2418:6 2450:13

**19** 2226:9 2252:18
2254:21 2285:1
2453:11

**1920s** 2464:14

**1999** 2276:6

**1:00** 2366:17,18

**1:01** 2366:20,21

**2**

**2** 2248:18 2353:24
2393:12 2454:12

**2.58** 2389:14

**20** 2284:10,12
2292:25 2352:14
2372:24 2409:11
2415:22 2416:12
2445:13

**200** 2214:15
2220:14 2425:20

**2000** 2276:7

**2005** 2276:7

**2015** 2270:13

**2021** 2419:4

**2022** 2233:3
2235:6 2250:18
2282:13 2384:7
2398:15 2415:19
2418:23

**2023** 2210:3
2226:9 2481:25

**2024** 2285:3,13
2384:7

**2025** 2285:4,14
2387:15 2394:13
2396:20

**2027** 2396:22,23

**21** 2249:25 2265:4
2293:1

**22** 2233:6 2235:9
2252:13 2300:7
2309:9 2311:4
2313:12 2314:12
2315:11 2317:5
2318:24 2322:12
2323:22 2326:3,4,
23 2327:23
2328:7 2394:13
2395:8,21
2416:12 2454:10

**24** 2254:4,8
2255:11,16
2394:13

**24-inch** 2244:7

**24/7** 2337:9

**25** 2276:4

**250** 2220:14
2230:6 2233:24
2234:13

**26** 2383:19,20

**27** 2386:20
2387:13

**28** 2327:22 2394:8

**28-inch** 2242:25

**29** 2309:3

**292** 2331:17

**295** 2330:25
2331:14

**3**

**3** 2248:18 2260:8
2285:1 2294:12
2330:23 2333:18
2355:3 2364:1
2415:22 2474:12
2477:24

**3,000** 2328:21

**30** 2337:9 2391:9

**30.6** 2402:23

**300** 2351:8

**300-feet** 2227:13

**300-foot** 2227:12

**30s** 2464:14

**310** 2234:17

**35** 2391:20

**38** 2265:5,10
2287:18

**39** 2305:16

**3:24** 2474:1

**3:45** 2474:2

**3:56** 2481:24

**4**

**4** 2221:20
2226:13,19
2243:10 2257:3
2261:8 2312:19
2329:16 2331:19
2332:11,23
2334:1 2336:14
2365:11 2367:4,5,

**10** 2370:5

**4-** 2427:18

**4.3** 2386:20

**40** 2303:4 2305:16
2307:1 2320:13
2427:4

**400** 2223:3,5,12,
17 2224:9,24
2225:19,24
2226:9 2227:25
2228:2 2240:14
2287:6 2329:11
2337:14 2338:4,
11 2424:16
2425:15

**400-foot**
2222:15,25
2224:22 2225:11
2336:12

**41** 2297:3,13
2300:17 2304:23
2307:1 2309:5
2328:5

**414** 2388:14

**42** 2304:23 2328:6
2365:14

**43** 2298:15

**44** 2298:16 2300:1

**440** 2376:5

**450** 2338:4

**45Q** 2362:8
2387:14 2388:3
2402:22 2403:25
2404:13

**45qs** 2403:17

**45Z** 2362:8

**479B.31** 2467:23

**48-inch** 2243:5

**495** 2225:14

**5**

**5** 2214:3 2243:10
2249:21 2256:10,
14,16 2266:15
2312:19 2329:16

2337:9 2345:20
2359:18 2415:21
2416:11 2446:25

**5-4** 2414:18

**5.0** 2252:18

**5.1.5** 2391:11
2396:19

**5.67** 2394:25

**50** 2260:21
2261:25 2365:24
2427:5 2457:2

**50-foot** 2286:8

**500** 2313:9

**51** 2327:16

**52** 2327:16

**53** 2447:11
2456:17

**55** 2396:5 2409:4
2410:5 2411:2,20,
25 2412:6,17,19,
24

**56** 2392:19
2393:15,20
2394:14

**56,706,000**
2391:25

---

**6**

**6** 2210:18 2220:6
2249:23,25
2276:7 2290:4
2345:20 2371:18
2448:16 2463:10

**6-inch** 2244:5,6
2427:18

**60** 2260:21

**62** 2416:14,21

**64** 2289:17

**65** 2392:20

**680** 2224:14

---

**7**

**7** 2210:3,18

2246:12 2365:11
2418:5 2445:13
2446:25 2481:25

**7-inch** 2436:9

**70** 2230:4
2231:21,24
2232:1 2386:15
2457:2

**72** 2220:6

**75** 2260:13 2261:5

**77** 2345:20

**78** 2289:14

---

**8**

**8** 2210:18 2365:12
2414:10 2446:11
2450:9 2452:22
2453:10 2454:9
2465:18 2469:10

**80** 2231:2

**80-foot** 2302:22

**8:00** 2474:12,13
2477:18 2481:23

**8:01** 2210:3

---

**9**

**9** 2210:18 2257:2,
23 2259:1 2265:4
2337:9 2386:15,
16 2417:15
2451:11 2454:12

**90** 2302:4 2317:8

**90-degree**
2302:5,17 2304:7

**97** 2253:3 2345:21

**987** 2415:25

**99** 2253:3

**9:20** 2267:18

**9:35** 2267:17

**9:37** 2267:19,20

---

**A**

**a.m.** 2210:3
2267:18,19

**Aaron** 2258:6
2470:6

**abandoned**
2225:16 2364:21
2440:6,7

**abide** 2263:20

**ability** 2319:14
2385:17 2452:6

**able** 2212:2
2229:18 2259:16
2264:7,19
2268:10 2292:3
2296:12,18
2297:25 2320:22
2325:3 2349:10,
19 2399:22
2409:9 2425:16
2426:15 2429:16
2434:9 2438:4
2445:8 2463:25

**aboveground**
2320:23 2333:19,
20 2392:13

**absence** 2473:3

**abused** 2403:2

**acceptable**
2337:2 2338:19

**access** 2223:9
2247:9 2257:21
2258:2,23 2262:5
2265:5,10,12,15,
19 2270:25
2271:3 2279:16
2283:1 2287:23
2288:7,8 2289:15,
20,25 2291:17
2312:21 2313:5
2320:6 2341:24
2349:8 2357:18,
22 2358:14
2382:10 2407:9
2409:8 2426:14
2446:5 2457:15
2458:20 2462:1
2467:24

**accommodate**
2226:5 2229:7
2236:25 2241:24
2242:23 2286:10
2291:3,8,13
2299:1,18
2300:10 2301:2
2305:24 2308:8
2309:25 2312:14
2313:17 2314:14
2319:7 2327:2
2330:2 2332:5
2333:8 2335:16
2340:10 2343:3,
24 2344:20
2346:7,19
2348:14 2382:18,
21 2405:9,22
2406:23 2409:1

**accommodated**
2308:4 2309:18
2311:11 2312:7
2315:8 2321:18
2322:23 2323:1,3,
25 2329:23
2340:17 2341:11
2342:1 2382:23

**accommodating**
2312:5

**accommodation**
2303:11 2328:10

**accommodation
s** 2296:20 2339:19
2348:5

**accompany**
2406:11

**accomplished**
2476:19,22

**according**
2240:13 2254:12
2274:11 2415:18

**account** 2294:15
2401:13 2403:16
2435:9

**accountant**
2356:10

**accounting**
2356:7 2370:7
2374:7

**accumulation**

2381:21

**accuracy**
2355:22

**accurate** 2226:7
2361:6 2368:23
2370:9,13 2378:1
2380:12,14
2415:23 2419:6
2445:15

**accurately**
2380:15

**achieving**
2257:11

**acres** 2266:12,15

**across** 2230:11
2239:20 2240:8
2243:23 2265:15
2270:8,23
2287:24 2288:23
2295:15 2296:3
2298:11 2299:9
2304:25 2317:7
2322:9 2330:25
2340:3 2344:3
2407:17 2435:6
2436:3 2440:2
2445:1 2447:12
2457:9,18 2461:9

**act** 2354:12

**action** 2459:21

**actions** 2321:2

**active** 2424:22

**activities**
2227:17 2230:23
2233:10 2257:1
2258:19 2283:7,9
2321:8 2459:20

**activity** 2320:23
2358:24 2363:1,4
2370:11,25
2371:16 2372:5
2373:6 2393:2

**activity-type**
2399:17

**actual** 2216:6
2219:4,7 2298:3
2351:6,21
2372:16 2373:6
2390:23 2392:10

**altogether**
2330:18

**always** 2299:14
2430:10 2443:12
2457:16 2459:21

**amend** 2256:3
2344:19

**amendment**
2230:24 2233:1
2308:24 2324:2
2330:19 2333:11
2341:16 2344:11

**amendments**
2256:21

**America** 2343:2

**amount** 2260:14
2263:17 2276:24
2277:2 2302:14
2315:5 2362:14
2363:3 2384:15
2386:11 2388:23
2389:1 2390:12
2395:5 2396:25
2397:3 2399:1,2
2425:20 2426:17
2428:2 2443:9
2463:23

**amounts** 2392:7
2395:3 2463:14

**analyses**
2356:24

**analysis**
2215:15,16,17
2221:7 2223:13,
17 2224:8,11
2237:10 2240:3
2355:10 2356:3
2357:15 2360:4,6,
8,16,18 2362:12,
19 2364:16,23
2365:5 2368:7,8
2374:1 2379:15,
20 2380:17
2381:9 2382:5
2383:10 2396:3
2399:3,14
2416:23 2417:5,
25 2464:21
2480:21

**analyze** 2279:22
2355:6 2399:8

2401:24 2403:16
2419:1

**analyzed**
2223:21 2295:6

**analyzes**
2364:12

**analyzing**
2369:15 2440:23

**ancillary** 2359:22

**and/or** 2356:25

**Andrew** 2315:25
2352:17 2353:1,9

**anecdotal**
2410:1

**Anecdotally**
2409:11

**anecdote**
2409:17

**angle** 2296:14
2324:3 2458:18

**angles** 2325:15
2341:9

**animal** 2218:2,24
2219:2

**animals** 2361:16

**annual** 2365:13
2386:21

**answer** 2232:20
2245:2 2277:21,
22,24 2278:4
2411:17,19
2412:15 2413:16
2432:3 2446:16
2454:13 2457:10
2461:5 2463:25

**answered**
2345:19 2464:9

**answering**
2464:2

**answers** 2353:19
2422:13 2454:8

**anticipate**
2211:24

**anticipated**
2374:12

**antiquated**

**apologize**
2290:20 2301:8
2312:17 2324:15
2330:22 2345:18
2391:13 2481:9

**apparently**
2276:14 2476:24
2478:1

**appeared**
2317:15

**appears** 2359:5,
10

**applicant** 2269:3

**application**
2252:10 2375:12

**apply** 2354:11

**appreciate**
2217:22 2255:6
2256:24 2272:3
2336:6 2433:9
2473:19,25
2475:7 2477:17
2480:15

**approach**
2364:25 2390:7

**approaching**
2431:13

**appropriate**
2255:25 2276:21
2286:4 2478:24

**appropriately**
2474:21

**approval** 2282:7

**approved**
2214:12 2424:9,
20,24 2426:6
2430:22

**approving**
2213:25

**approximate**
2425:20

**approximately**
2230:4 2251:1
2376:5 2417:2
2427:7,25

**April** 2282:13
2283:4 2398:14,
15 2418:23

**arbitrarily** 2235:3
2345:16 2346:18

**arbitrary** 2303:25

**area** 2230:6
2232:10 2238:15
2239:15,19,20
2266:8,9 2280:13
2287:7,11
2292:12 2296:16
2298:3 2317:16
2319:10 2325:16
2330:11,14,18
2345:5,13,17
2349:18 2351:3,
15 2381:5 2406:8
2428:9,21 2429:4
2430:4 2432:22
2436:23 2437:18,
23 2438:1,12
2439:8 2440:2
2453:7,9

**areas** 2218:6,9,
11,12 2220:4,7
2228:6 2248:6
2254:14 2266:5
2273:23 2274:2,3,
5,8 2287:5
2295:11 2347:10
2410:12 2428:20
2430:20 2441:1
2449:13 2454:6
2461:22 2465:7

**argue** 2369:7

**argument** 2278:9

**Army** 2251:11
2253:7,21
2307:20

**Arndorfer**
2330:22

**arrange** 2445:10

**arrangements**
2266:23 2475:22

**arrowhead**
2352:3

**Article** 2414:10

**ask** 2238:14

2246:7 2249:16
2251:18 2262:14
2269:23 2272:2
2274:9,23
2276:16 2278:22
2314:13 2342:6
2348:9 2373:25
2393:8 2404:2
2406:22,24
2407:3 2411:11
2412:6,12
2420:17 2436:2
2440:8 2449:18
2466:5 2469:11
2474:24 2477:8
2478:10

**asked** 2222:7
2283:23 2323:6
2325:3 2339:3
2342:3 2346:5
2349:13 2353:18
2357:15 2412:1,2
2420:5 2422:12
2446:12 2452:24
2453:11

**asking** 2214:16
2245:21 2246:3
2277:12 2301:13
2305:22 2308:22
2311:5 2313:15
2314:24 2327:2
2328:14,21
2341:6,8

**aspect** 2298:9
2361:18 2362:7

**aspects** 2257:11

**assessed**
2215:21 2389:8,
18 2390:5,6
2397:12

**assessment**
2216:1 2221:9,11
2295:4 2390:7
2397:5,16

**assessor** 2397:2,
6,13

**assist** 2222:2

**assisting** 2430:8

**associated**
2262:3 2409:13

2332:11

**berms** 2311:7

**best** 2251:7
2258:17 2273:14
2284:21 2291:13
2293:19 2297:11
2303:3 2314:18
2378:3 2399:12
2410:1 2446:23
2457:7 2472:23

**bet** 2317:13
2442:9

**Betty** 2328:5

**Beyer** 2315:10

**bias** 2442:2,11
2476:2

**big** 2274:13,17,20
2276:6 2304:10
2312:1

**big-picture**
2312:4

**bigger** 2444:25
2459:22

**bill** 2270:2,4
2397:3,6

**billion** 2402:23
2415:25

**bills** 2270:5

**bind** 2410:11

**bio** 2252:24
2349:15 2351:24

**Biological**
2252:24

**biologists**
2253:20

**bisect** 2319:5
2323:11

**bisecting**
2239:10

**bit** 2217:17
2234:19 2235:17
2254:8,9 2257:1
2261:10 2266:5
2276:19 2281:22
2283:25 2284:9
2287:20 2311:19

2314:7 2340:16
2345:4 2364:2
2374:12 2376:15
2379:4 2394:4
2435:3 2466:5

**black** 2314:15,19

**blacktop** 2288:15

**blades** 2329:12

**blank** 2434:4

**block** 2289:21,22
2386:12,13

**Blood** 2426:12

**blue** 2315:15
2327:24

**board** 2210:2,4,
14 2211:16
2212:1,4,9,11,14
2226:14,17
2232:2 2256:12,
13 2257:23
2259:10,20
2262:25 2263:7
2267:14,15,20
2268:3,4,17,20
2269:16 2270:16
2271:9,14,20,23
2272:3 2276:11,
17,22 2277:8,21
2278:12,15,25
2280:1,3,6,18,22
2281:3,4,8,9,12,
19 2282:3,6,12,
14,19 2283:18,22
2284:5,13,21,24
2285:15,21,25
2287:2,9,16
2288:11 2289:14
2290:4,11 2292:9,
25 2293:22,25
2294:7 2295:19
2296:19,24
2298:15 2299:22
2300:1,17 2301:7,
25 2303:2 2304:3,
12,21 2305:1,14
2306:6,24
2307:12 2308:9
2309:2,15 2310:7,
8,10,21 2311:2,18
2312:16 2313:10
2314:6,17,22
2315:9,24 2316:8,

13,16 2317:2,12,
25 2318:13,23
2319:8,12,24
2320:12,20
2321:19 2322:10
2323:6,19
2324:13 2325:2,7
2326:1,21 2327:5,
15,21 2328:2,4,25
2329:4,15 2330:8,
21 2331:12
2332:10,21
2333:17,25
2334:8,14,19
2335:10,19
2336:5,9,11
2337:6,13 2338:9,
16,24 2339:24
2340:12,21
2341:3,12,21
2342:8,9,22
2343:1,9,15,20
2344:22,24
2345:18 2346:25
2347:24,25
2348:3,17,21,23
2349:23 2350:2,5,
10,13,16 2352:10,
18 2353:3,5,25
2354:4,13,18
2357:22 2364:15
2366:11,14,16,21
2367:1 2369:20
2377:2 2391:2,17
2398:7 2402:10
2403:8,22 2404:2
2409:15,20
2410:8,14,19,21
2411:7,10,13,17,
22 2412:8,10,12
2415:15,17,21
2416:2,11,24
2417:3,23 2418:5,
20 2419:5,11,15,
20,23 2421:4,7,
10,14,20 2422:3,
5,21 2423:3,7
2442:8,12
2443:16 2453:22
2456:6 2462:10
2468:22,25
2469:2,3,18,21,24
2470:19,20
2472:2,4,18
2473:6,18,21
2474:3,4 2475:4,

13 2476:11
2477:16 2478:12
2479:2,12,15
2480:13 2481:22

**Board's** 2349:5
2470:9 2478:22

**Board-
requested**
2480:3

**bodies** 2274:6

**bold** 2268:1,6
2367:11 2403:12

**bore** 2311:25
2329:17 2330:13
2334:15

**bores** 2340:6

**boring** 2298:23
2311:7 2329:21
2439:3

**borne** 2271:5

**bottom** 2254:9,22
2356:22 2367:17
2386:8 2448:16
2451:12 2452:23

**boundary**
2222:19 2238:25
2323:21 2328:16

**bow** 2448:6

**boxed** 2315:15

**Brad** 2478:4

**break** 2267:17
2366:13,17
2401:1 2469:25
2473:7,9,14
2474:3

**breakdown**
2225:13

**breaking**
2260:17

**briefly** 2245:15
2336:12 2451:17

**briefs** 2278:10

**bring** 2229:8
2366:24

**bringing** 2312:1

**brings** 2356:6

**brittle** 2436:16,22

**broad** 2454:16
2455:25

**broken** 2434:21

**brought** 2214:20
2286:12,17
2318:2 2319:2
2345:8 2413:7

**brush** 2274:16

**bucket** 2308:11

**budget** 2355:19,
25 2357:14
2358:23 2390:11
2417:16

**buffer** 2225:11

**build** 2228:16
2232:19,22
2277:20 2287:23
2290:14 2321:5
2341:4 2371:11
2377:22 2390:11
2393:18 2436:6

**building** 2216:9
2234:10,19
2235:19 2237:5,
19 2290:21
2298:10 2337:8
2340:23 2371:14
2403:13

**buildings**
2228:10 2232:12
2234:4,7,9 2286:2

**built** 2231:5
2232:12 2233:5,
20 2249:5 2265:6
2320:23 2340:14
2360:20 2374:8
2380:20,21
2383:8 2417:14
2418:24 2447:3

**bunch** 2269:21

**buoyancy**
2294:19,25

**burden** 2407:1

**Bureau** 2211:21
2212:21 2222:8
2283:22 2287:18

2336:14 2374:1 2379:20 2443:21

**buried**  2244:6

**burned**  2274:16, 17 2275:9

**bury**  2311:13 2321:9

**business**  2374:3 2395:18,19 2447:11 2456:16

**businesses** 2337:7 2372:18 2385:13 2393:4 2416:22

**buy**  2361:16

**Byrnes**  2280:2,3, 6 2281:3,8,12,19 2282:12,19 2283:18,22 2284:5,21,24 2285:15,21,25 2287:2,9,16 2288:11 2289:14 2290:4,11 2292:9, 25 2293:22,25 2294:7 2295:19 2296:19,24 2298:15 2299:22 2300:1,17 2301:7, 25 2303:2 2304:3, 12,21 2305:14 2306:6,24 2309:2, 15 2310:8 2311:2, 18 2312:16 2313:10 2314:6, 17,22 2315:9,24 2316:8,13,16 2317:2,12,25 2318:13,23 2319:8,12,24 2320:12,20 2321:19 2322:10 2323:19 2324:13 2325:2,7 2326:1, 21 2327:5,15,21 2328:2,4,25 2329:4,15 2330:8, 21 2331:12 2332:10,21 2333:17,25 2334:8,14,19 2335:10,19

2336:5 2344:24 2345:18 2346:25 2347:25 2348:3, 21 2474:4

---

**C**

**cable**  2460:10

**calculation** 2400:19

**calculations** 2294:19,24

**California** 2414:25

**California's** 2414:15,24

**call**  2213:19 2214:7 2252:24 2275:15 2313:3 2329:12 2342:19 2352:12 2356:23 2374:23 2404:19 2421:11,13 2429:14 2431:4 2433:20 2439:18 2472:17 2479:6 2480:5 2481:14, 19,21

**called**  2212:8 2217:7,19 2330:16 2353:2 2359:14 2368:8 2402:15 2422:2 2446:13 2474:4

**calls**  2277:7 2352:17

**camera**  2445:24

**Candace** 2332:22

**cap**  2432:9,10,15 2450:20

**capacity**  2406:2

**capita**  2406:4

**capital**  2356:1 2367:12 2370:24 2372:2 2374:9 2375:4 2386:17 2389:17 2391:24

2392:3,8 2394:9

**capitalized** 2389:22

**capture**  2290:3 2339:13 2355:9 2392:16,17 2417:24 2418:2 2420:7,15,22

**captured** 2273:12 2275:15

**carb**  2414:24

**carbon**  2212:8 2244:2 2248:10, 13 2269:11,12 2282:13 2285:2 2288:17 2289:16 2296:9 2297:17 2298:19 2305:19 2312:4 2316:2 2318:5 2329:17 2330:11,13 2332:14 2333:1, 20 2342:11 2345:23,24,25 2347:1,2 2352:17 2353:2 2355:5,8 2357:2 2364:6 2375:16,22 2388:5 2399:8,13 2422:2 2429:12, 13

**Carbon's** 2282:14 2300:6 2307:2 2316:1 2320:25 2330:24 2334:20

**care**  2263:19 2377:23 2426:1 2437:1 2438:4 2444:6,9 2458:6

**carried**  2431:16

**Carter**  2329:16

**case**  2211:7 2238:2 2244:8 2247:2 2249:2 2282:25 2288:23 2299:14 2304:19 2317:19 2321:4 2329:19 2340:4 2346:22 2359:23 2363:24 2387:19

2409:18,23 2458:22 2460:3 2470:23 2471:2,4, 20 2481:14,15

**cases**  2408:17

**catch**  2435:19

**categories** 2218:21 2376:6 2416:20 2417:7

**category** 2311:15

**caused**  2228:1 2353:10 2422:9 2437:21,22,25 2452:7 2468:13

**causing**  2319:5 2448:6

**cautious**  2358:17

**caveats**  2371:1

**cemeteries** 2279:10,12,17

**cemetery** 2216:15 2246:20

**center**  2225:12 2431:4

**Centlivre** 2304:23

**central**  2397:4

**centrally**  2397:16

**certain**  2226:5 2227:21 2228:17, 18 2255:23 2283:6 2293:7 2299:4 2306:2 2307:12,14 2311:13 2312:10 2315:5 2333:23 2337:23 2356:2, 24 2380:18 2414:7 2428:2 2438:15 2445:9 2446:20 2450:16

**certified**  2284:18

**cetera**  2213:22 2219:5 2221:14 2224:25 2225:16, 17 2228:11

2238:1 2273:15 2275:23 2294:23 2355:21 2393:6 2442:24

**CGE**  2373:24 2374:18,22 2375:7,11,16

**chain**  2374:4

**chain-related** 2363:1

**Chair**  2210:2,14 2211:16 2212:4,9, 11,14 2226:14,17 2232:2 2256:12 2267:14,20 2268:3,17,20 2269:16 2270:16 2271:9,14,20,23 2272:3 2276:11, 17,22 2277:8,21 2278:12,15,25 2280:1 2307:12 2308:9 2348:23 2349:23 2350:2,5, 10,13,16 2352:10, 18 2353:3,5,25 2354:4,13,18 2366:11,14,16,21 2367:1 2369:20 2391:2 2398:7 2402:10 2403:8, 22 2404:2 2409:15,20 2410:8,14,19,21 2411:7,10,13,17, 22 2412:8,10,12 2415:15,21 2416:2,11,24 2417:3,23 2418:5, 20 2419:5,11,15, 20,23 2420:5 2421:4,7,10,14,20 2422:3,5,21 2423:3,7 2442:8, 12 2443:16 2453:22 2456:6 2462:10 2468:22, 25 2469:2,18,21, 24 2470:20 2472:4 2473:6,18 2474:3 2475:4,13 2476:11 2477:16 2478:12 2479:2, 12,15 2480:13

2481:22

**Chair's** 2420:17

**challenges**
2348:11,13,20
2466:3,7,19

**challenging**
2461:15 2475:15

**chance** 2250:11
2411:11 2423:17
2476:9 2477:2
2481:12

**change** 2213:23
2217:2 2310:24
2317:23 2323:13,
17 2324:3,8,25
2326:20 2341:9
2346:11 2377:10,
20 2390:7
2413:11,13,20
2414:2 2417:8,24
2418:3 2440:11,
15 2441:3

**changed** 2226:6
2235:6 2268:10
2278:6 2282:8
2292:5 2295:12
2308:20 2310:25
2336:3 2338:2
2384:10

**changing**
2349:20 2414:6

**channel** 2438:14,
21

**Chapter** 2257:23

**characteristics**
2380:6 2429:4

**characterization**
2398:1

**characterized**
2374:20

**charge** 2261:17

**Charles** 2280:12,
22 2281:24
2282:3

**chart** 2210:23
2211:10,14,17
2225:8,9 2391:21
2394:12

**charts** 2407:16

**cheating** 2402:5

**check** 2250:24
2256:22 2356:3
2386:5,7 2393:23
2395:13 2396:24

**checking** 2213:7

**chief** 2471:3

**chip** 2436:16

**chipped** 2437:4

**choice** 2240:17

**choose** 2375:12
2387:8,9,11
2454:14

**chooses** 2452:25
2481:10

**choosing**
2249:14

**Chris** 2212:20
2343:21

**church** 2234:6

**circle** 2238:19
2452:20

**circled** 2315:14

**circumstance**
2445:9 2449:15,
19

**cities** 2376:8

**city** 2214:22
2280:13,22
2281:24 2282:3

**civil** 2349:16
2351:25

**claimable**
2387:18

**claimed** 2292:3

**claiming** 2210:22

**clarification**
2210:21 2217:21
2220:25 2267:25
2278:22,25
2286:3 2287:10
2445:23 2454:7
2469:11

**clarify** 2232:3
2254:18 2280:14
2310:7 2428:21
2444:12 2478:9

**clarifying**
2443:23 2450:2

**clarity** 2255:1
2466:6

**classification**
2211:18 2371:6

**classify** 2372:1,2

**clause** 2415:8

**clauses** 2263:15

**clay** 2430:7,13
2436:15,19,21
2437:1,7

**clean** 2458:15,17

**clear** 2261:11
2275:2 2344:7
2384:15 2422:23,
25 2437:12
2454:16

**cleared** 2274:23
2275:3

**clearing** 2274:8
2319:21 2335:5,7,
9

**Cletus** 2300:18
2301:15

**clients** 2310:6
2317:1 2324:12
2477:5,14

**climate** 2413:11,
20 2414:2

**clip** 2325:23
2335:22,25
2344:9,21
2479:18

**clipping** 2328:20

**clock** 2470:24

**close** 2226:7
2230:8 2231:19
2234:24 2239:3
2240:4 2248:19
2286:25 2316:1
2373:5 2398:25

**closed** 2471:3
2478:17

**closely** 2224:22

**closer** 2222:21
2224:5 2228:2
2233:15 2234:19
2236:10 2337:16

**Club** 2354:24
2462:15

**co-locate** 2240:2

**CO2** 2248:15
2429:8

**code** 2419:1,9
2467:24 2468:6

**codes** 2418:22

**collaborative**
2213:14

**collect** 2448:23
2463:13

**collected**
2215:18

**collection**
2419:4

**column** 2383:20
2384:5,23 2385:3,
9 2392:6 2394:21
2396:9

**columns** 2391:15

**comfortable**
2352:19 2421:15

**commence**
2285:3

**comments**
2288:12

**commerce**
2414:11 2415:4,8

**commissioned**
2355:6 2359:6

**Commissioner**
2346:5

**commit** 2410:4

**commitment**
2412:25

**commitments**

2475:22

**committed**
2244:9

**commodity**
2376:6

**common**
2319:25 2320:2
2402:16 2446:13,
16 2467:14

**communicated**
2425:12 2476:14

**communication**
2438:3

**communication
s** 2235:11,13

**communities**
2248:13,15

**community**
2247:15,17
2248:3

**compaction**
2259:8,12,24
2260:2 2407:14
2408:8 2459:3

**companies**
2446:20

**company** 2213:3
2217:4,5,6,8,9
2263:4 2269:8
2278:3 2305:18
2329:10 2409:23,
24 2410:12
2411:21 2423:20
2429:8 2433:12
2434:21 2456:16
2465:12 2468:15

**company's**
2278:5

**comparable**
2459:9

**comparative**
2302:22

**compare** 2373:9

**compared**
2369:16 2419:13

**comparing**
2371:7 2377:19

2415:21 2420:12

**compensate**
2408:13

**compensated**
2408:17

**compensating**
2292:2

**compensation**
2401:10 2441:16

**competing**
2239:12

**compile**  2213:4

**compiling**
2213:2,6

**complaint**
2473:23

**complaints**
2462:2 2481:8

**complete**
2301:21 2318:7
2335:9 2351:23

**completed**
2221:16 2233:2
2253:14 2337:15
2351:18 2446:14

**completely**
2325:5 2427:12
2440:2 2477:12

**compliance**
2382:16

**complicated**
2429:3

**component**
2318:14 2419:6

**composition**
2412:3

**compounds**
2302:24

**compression**
2420:22

**comprise**
2375:20

**computable**
2373:20 2374:14

**computation**

2389:1

**concentration**
2428:8

**concern**  2245:8
2269:24 2271:6
2295:11 2318:4
2319:8 2403:1

**concerned**
2234:23 2237:3,
10 2295:23
2447:5

**concerning**
2265:3

**concerns**
2229:6,7 2236:25
2243:21 2245:11
2270:9,24 2271:4
2279:6 2286:11
2288:12 2290:17
2295:1,7,8,13
2302:16 2309:23
2311:25 2316:25
2319:12 2332:23
2342:12 2406:16
2435:8 2447:22
2465:6

**conclude**
2471:20

**concluded**
2476:8

**concluding**
2477:3

**conclusion**
2277:7

**conclusive**
2360:17

**condemnations**
2264:22

**condemned**
2264:19

**condition**
2265:20,25
2284:9,14,16
2289:3 2318:7,10,
12 2426:21
2466:15

**conditions**
2259:14,22
2260:3 2284:22

2427:13,21
2430:16 2459:14
2460:22

**conduct**  2283:10
2358:22

**conducted**
2215:15 2252:24
2262:19 2284:1
2307:21

**conducting**
2263:4

**conference**
2329:12 2342:19

**confidence**
2272:15,17
2273:1 2275:11
2390:22 2418:9

**confident**
2390:14

**confidential**
2210:13,19,25
2211:5,9,14,18

**confidentiality**
2442:6

**confinement**
2233:15 2236:14

**conflict**  2236:5
2286:17 2321:12
2322:2

**conflicted**
2232:17

**conflicting**
2239:12 2252:2

**conflicts**  2214:10
2216:12,14
2475:16

**confronted**
2427:6 2437:7

**confusion**
2237:22

**Congress**
2403:4,5 2414:11

**conjunction**
2252:1

**connect**  2432:15
2435:22 2436:9
2450:19

**connected**
2436:4

**connecting**
2228:4 2435:24

**connectors**
2435:18

**Conrad**  2331:18

**Conrad's**
2331:23

**consecutive**
2308:13

**consensus**
2277:3

**consent**  2297:24

**Conservation**
2305:1 2343:1

**conservative**
2390:21 2402:24

**considerably**
2302:11

**consideration**
2243:9 2246:4
2338:13 2404:14
2463:22

**considerations**
2224:13 2229:12
2230:7 2258:1
2286:9

**considered**
2218:17 2221:6
2314:4 2319:23
2333:1 2338:15
2413:25 2415:6
2441:19

**considers**
2359:19

**consisted**
2221:12

**consistent**
2246:13 2255:18
2389:3,15

**consolidating**
2221:25

**constituted**
2472:2

**constitutes**

2393:14

**Constitution**
2414:10 2415:3

**constrain**
2228:19

**constraints**
2228:16 2337:22

**construct**  2231:3
2404:16

**constructability**
2215:1,14
2223:20 2224:15

**constructed**
2230:18 2248:23
2447:20

**constructible**
2216:9 2347:9

**constructing**
2243:23

**construction**
2213:21 2215:2
2221:14 2230:23
2232:23 2237:8
2243:19 2250:1,6,
14 2251:1,7,25
2252:17,21
2254:13 2257:14,
20 2259:14,17,23
2260:10,15,16
2263:22,25
2266:11 2267:8
2273:13,14,24
2274:1 2275:15,
18 2282:15
2283:2,4,6,9,19
2285:3,10,13
2288:9,13
2289:10 2290:15
2293:17 2294:16
2296:21 2298:9
2311:5 2312:3,4,
8,14,22 2318:7,11
2320:4,9 2324:23
2351:7 2355:7
2357:1 2359:25
2365:2,7 2368:18
2369:4 2372:3,17
2377:5,7,16,17
2393:2,5 2394:3,
15,18,24 2395:8
2396:5 2409:3,8

2410:6 2412:21 2418:8 2425:10, 13 2432:25 2440:24 2443:13, 24 2448:4 2459:18 2462:3 2464:23 2469:14

**consult**  2253:21 2318:20

**consultant** 2468:16

**consultants** 2377:6

**consulted** 2227:3 2239:3

**consumption** 2413:24

**contacted** 2332:2

**contemplated** 2283:16

**context**  2272:1 2379:11 2384:3

**continue** 2259:16 2283:20 2309:3 2325:20 2331:22 2473:10 2474:17,19

**continued** 2280:25 2408:22 2417:22

**continuously** 2281:25

**contract**  2255:23 2395:22 2424:19, 22,23 2431:21 2433:2,6,10,16 2439:1 2441:11

**contracted** 2217:12 2425:3 2433:3 2434:17

**contractor** 2216:24 2217:1, 11 2263:23 2266:10 2275:19, 21 2293:18 2321:16 2385:13 2439:6,11 2446:1 2452:6,9,15

2458:8

**contractors** 2261:18,20,22,23 2262:1,2,4 2273:5 2289:6 2293:10 2363:11 2372:3, 17 2385:10 2393:6,21 2395:13 2412:21 2417:22 2424:11 2437:16 2442:7

**contracts**  2256:4 2416:19 2420:20

**contrary**  2424:4 2472:13

**contrast**  2378:20

**contributed** 2384:6

**contributing** 2388:13

**contribution** 2365:16,22 2367:12 2385:7,9 2386:9,13

**contributions** 2355:7,11 2367:24 2368:2 2383:21 2384:24 2385:2,10,24 2386:2

**control**  2270:6 2318:5 2383:13 2410:11 2472:23, 25 2475:5

**conversation** 2219:20 2238:4 2284:9 2295:21 2329:5 2415:12, 13

**conversations** 2235:8 2264:21, 23 2280:15 2290:25 2292:14

**convey**  2361:8

**cooperation** 2475:19

**copy**  2250:13

**copying**  2342:15

**Corcoran** 2315:25

**corn**  2361:14,25

**corner**  2242:13 2322:19 2325:23 2328:20 2333:24 2335:20,22,24,25 2341:17 2344:9, 21

**cornfield** 2413:23

**corporate** 2384:18,20 2387:4

**corporation** 2280:13 2387:6

**Corps**  2251:11 2253:7,18,22 2307:20

**correct**  2210:18 2218:23 2222:10 2226:10 2228:23 2232:23 2235:7 2237:13 2239:5, 16 2246:25 2250:3,7,17,19 2252:11,23 2254:15,16 2259:19 2260:11 2261:7 2265:7 2266:7,25 2279:8 2282:18 2284:23 2287:8 2293:24 2304:4 2328:2 2334:16,17 2355:11,12,14,15, 19 2356:8 2357:4 2358:18 2359:12, 15,16,20 2362:13 2363:15,16 2364:13,14,17,18 2367:15 2384:16, 17,19,22 2385:16 2386:18,22 2387:1,9,10 2392:1 2396:25 2398:19 2400:12 2401:11 2415:19 2419:14 2423:18 2432:4,7,8 2436:12 2437:10, 20 2443:2,11

2450:6 2456:19 2457:20 2462:22 2465:20 2467:9, 10

**corrected**  2233:9 2310:4

**corrections** 2353:15 2422:15

**correctly** 2259:18 2298:17 2366:1,5 2410:24 2435:14 2448:3 2452:12 2465:10

**correctness** 2355:23

**correspondence** 2235:13 2281:1 2305:10 2343:6

**corridor**  2227:12, 15 2292:24 2300:13,14 2327:7,8 2345:11 2351:8,10,11 2380:19

**corridors** 2228:14 2325:14

**cost**  2357:1 2375:4 2377:6,7 2382:15 2390:8, 18 2392:10 2402:20,21 2406:4,6 2415:24, 25 2416:25 2417:18,21 2451:22 2452:16 2456:1

**cost-benefit** 2360:4,6

**costs**  2355:13 2382:6,8 2383:2 2389:20 2390:15 2404:23 2405:5, 10,11,14,15,17, 18,19 2406:17,21 2408:3 2416:9 2417:12 2451:19 2452:17 2468:12

**counsel**  2213:2 2271:3 2407:11

**count**  2378:8

**counted**  2381:20

**counteroffer** 2282:3 2291:25 2292:5

**counties**  2221:22 2222:7 2272:19 2288:22,24 2289:11 2297:21 2370:4 2376:8,10 2380:23,25 2381:10,11,14,24 2389:13 2390:2 2405:21 2448:23 2449:2,7 2463:19 2479:5

**counting**  2378:7, 13,19 2381:15 2382:2

**countless** 2299:12 2324:21 2332:5

**country**  2429:25

**county**  2241:7,8, 20,21,23 2242:11, 13,19,21 2252:16 2255:18 2264:1 2272:7,18 2273:4, 6 2275:20 2279:10,17 2287:25 2288:18 2292:11 2293:5,8 2294:1 2297:5,6, 15,16,17 2298:1, 20 2305:1,3 2318:3,17,21 2343:1 2345:3 2376:11 2381:1,4, 25 2389:11 2390:10 2391:8, 12,16,19 2392:5, 8,11,25 2393:4,9 2394:7,10 2395:9, 20,22 2396:7,24 2397:2,6,18 2404:22 2406:22 2448:24 2449:3,4 2454:4,22 2461:8 2465:4,7

**county's**  2381:16 2396:12

IN RE: SUMMIT CARBON SOLUTIONS
IUB HEARING  09/07/2023

Index: county-level..default

**county-level**
2380:21

**couple** 2216:11,
19 2220:21
2226:3 2228:21
2229:9 2243:24
2251:18 2262:14
2271:12 2274:9
2284:5 2288:20
2295:11 2338:24
2414:21,23
2436:13 2450:19
2461:11 2476:24

**coupler** 2436:12

**court** 2354:10
2414:17

**courts** 2415:7

**cover** 2243:12
2286:8 2356:21

**covered** 2399:7

**CPA** 2402:5

**Craig** 2305:18
2315:9

**create** 2348:10

**created** 2279:14

**creates** 2296:5

**creature** 2404:21

**credit** 2362:14,17
2403:2

**credits** 2362:8
2387:15,17
2388:3,14
2399:18 2402:15,
22 2403:6 2404:1,
13

**creek** 2317:17
2326:12

**creeks** 2295:6
2347:10

**crew** 2294:5
2425:17 2439:9

**crews** 2320:4
2349:15,16
2430:2 2441:7
2445:25

**criteria** 2336:12

**critical** 2223:20
2257:15,18

**crop** 2254:14
2267:7 2296:16
2365:3 2382:8
2383:15 2407:17
2450:25

**crops** 2407:16

**cross** 2228:17,18
2296:13 2325:14,
15,17 2336:20
2339:25 2341:6,
17 2423:6
2477:11 2481:12

**cross-
examination**
2212:17 2268:21
2269:17 2270:19
2276:15,23
2279:2 2354:17,
21 2370:1 2391:5
2398:9 2402:12
2423:11 2443:17
2454:1 2456:8
2462:12

**cross-examine**
2471:16

**crossing**
2296:14 2302:15
2324:3 2325:17,
25 2326:12
2335:7 2341:13
2342:10 2343:7,
16 2453:6

**crossings**
2427:7,25
2450:18,22

**CRP** 2255:25
2312:10

**crude** 2247:9

**crush** 2436:16

**crushed** 2258:19
2437:4 2444:25

**cultural** 2279:6
2349:16,17
2351:4,5,20,21,24
2352:1,4

**Cummins** 2330:9

**curiosity**
2331:13

**curious** 2238:6
2460:20

**current** 2225:19
2279:16 2283:2
2300:6 2309:8
2330:19 2384:8
2401:22 2417:17
2419:9 2420:13

**Curtis** 2305:15

**Curtis's** 2305:16

**customization**
2375:14

**customized**
2400:4

**cut** 2244:11
2274:13,20
2293:6,8,16
2319:19,21
2323:14 2324:4
2435:17 2457:8,
16,17,20 2458:5,
14,15,17,18
2459:12 2460:11,
13,16 2473:12

**cutting** 2244:11
2245:6,12

———————

**D**

———————

**dairy** 2290:20

**Dakota** 2223:9
2247:9,10
2257:21 2258:2,
23 2262:5
2270:25 2271:3
2282:25 2291:17
2367:13 2368:5
2407:8 2409:8
2423:14 2424:20
2425:5 2426:14
2429:24 2455:9
2457:15 2458:20
2461:21 2462:1
2470:14 2471:14,
19 2472:8,9,11
2473:4 2476:8
2479:9

**damage** 2257:7

2259:3,6 2382:8
2443:25 2444:1
2465:5 2466:4,8

**damaged**
2288:19 2437:8
2452:19 2466:13
2467:19

**damages**
2296:16 2437:21,
22

**DAPL** 2223:7
2274:10 2275:7
2407:13,22
2408:16 2409:25
2413:8 2423:22
2427:17 2459:10,
13

**Darrell** 2391:7
2454:4

**data** 2215:18
2218:10,13,14
2220:24 2221:21,
23 2222:3,6,7
2224:13 2225:23
2263:2 2279:21
2358:22 2369:15
2370:9 2373:6
2376:22 2377:1,3,
7 2379:19
2401:15 2417:16

**database**
2217:24 2446:5

**date** 2226:2
2252:13 2282:21
2285:13 2398:22
2476:25

**dated** 2250:18
2398:15

**dates** 2472:7

**dating** 2276:4

**David** 2290:21
2443:20

**Davis** 2320:15

**Davis's** 2340:21

**day** 2240:7
2265:1 2266:2
2294:4 2303:21
2424:7 2426:16
2470:3 2472:20

2475:2 2477:22
2481:1,2,3,23

**days** 2211:7
2294:4 2429:17

**de-compact**
2259:10

**deadline** 2403:13

**deal** 2437:23

**debate** 2276:6

**Debra** 2314:11

**debris** 2275:3
2436:6

**decades** 2276:14

**December**
2480:23

**decided** 2239:14

**decides** 2397:21
2454:11

**decision** 2220:2
2233:18 2356:16,
18 2358:16,18
2453:11

**decisions**
2219:24 2358:20
2440:13,21

**decreased**
2365:14,17

**dedicated**
2294:5

**deem** 2256:22

**deemed** 2295:15

**deep** 2243:10,11
2244:1,7,19,21
2311:12 2312:11
2321:11,15,17,25
2451:5 2460:15
2467:8,13

**deepen** 2441:5

**deeper** 2219:25
2244:12 2311:14
2321:9,10 2322:7
2440:25 2467:15,
17

**default** 2454:21

**defer** 2219:20 2235:11 2253:24 2258:6 2259:7,25 2260:4 2264:23 2267:9 2279:24 2284:3 2285:23 2287:12 2291:24 2296:22 2304:19 2309:19 2338:22 2343:19 2352:5,8 2433:6 2434:16 2451:9 2461:3 2463:4

**define** 2385:5 2392:21

**defined** 2287:14 2371:20

**definitely** 2430:10 2467:2

**definition** 2287:7,10,13 2378:10

**degree** 2317:8 2376:22

**degrees** 2302:4

**Dejoia** 2258:6 2259:7,25 2260:4 2262:13 2263:5 2267:10 2284:17,25 2470:6 2475:1 2478:2 2479:13,17 2480:11,16

**delays** 2443:10,12

**deletions** 2418:2

**delicate** 2461:13

**delineations** 2252:21 2253:1,4,14,17,22

**Della** 2305:15

**Delmar** 2300:2

**demands** 2413:19

**Democrats** 2270:4

**department** 2215:20 2251:12 2399:17

**department's** 2402:21

**dependent** 2283:5 2285:11 2424:10

**depending** 2436:11 2438:23

**depends** 2426:7,20 2427:9,13 2428:8 2436:18 2438:12 2440:4 2457:23 2458:18

**deploy** 2428:7

**deposition** 2210:11,18 2211:12 2217:18 2220:23 2266:4 2267:5

**depositions** 2210:12 2212:19 2216:20

**depreciate** 2390:5

**depreciation** 2389:24

**depth** 2243:8,12 2244:20,22 2246:4,5 2251:22 2263:16,24 2264:7 2275:22 2286:8 2329:24 2369:14 2451:9

**derived** 2278:22 2392:2 2396:12

**Des** 2334:2,4,15,22

**describe** 2225:9 2242:4 2262:22 2266:8 2294:13 2315:16 2368:22 2379:20 2392:24 2437:12 2448:8,20 2449:15,19

**described** 2293:1 2337:16 2448:3,11

**describes** 2334:2 2345:22

**describing** 2408:4

**description** 2368:20

**deserve** 2476:3

**design** 2214:25 2220:4,5,6 2241:24 2253:9,10 2295:17 2312:13 2321:17 2322:6 2457:23 2463:12

**designation** 2211:9

**designed** 2358:10 2359:1 2367:25 2440:25

**designing** 2450:11

**desktop** 2215:17

**destruction** 2274:21

**detail** 2213:16 2241:16 2334:8,24 2370:6 2416:3

**detailed** 2216:16 2219:20 2221:8 2223:16,22 2224:5,11,19 2237:10 2246:1 2251:8 2262:15

**details** 2263:6

**determination** 2303:13 2337:7 2427:15

**determine** 2393:7 2440:17 2464:19

**determined** 2221:7 2286:4 2336:16

**determining** 2220:13

**detriments** 2355:14

**develop** 2283:12 2376:3

**developed** 2248:6 2282:25 2389:2

**developers** 2373:17

**development** 2247:20 2249:7,9 2280:13 2291:2 2316:3 2341:19

**developments** 2214:23 2370:16

**deviation** 2300:3

**dewatering** 2439:2,21

**diagonal** 2242:14 2303:10 2315:18 2319:19 2322:19 2323:14 2457:16,17,19,24

**diagonally** 2317:7 2457:8

**diameter** 2243:12 2244:5,8 2247:18,22,24 2265:17 2417:11

**dictate** 2338:10

**diem** 2441:15

**difference** 2216:2 2217:17 2223:1 2245:3 2246:4 2249:14,18 2392:19,21 2449:8 2467:1

**differences** 2296:8 2417:4

**differently** 2338:15 2403:6 2415:8 2419:7

**difficult** 2301:6,8 2303:20 2307:22 2308:8 2341:8 2343:17 2369:12 2430:7

**Digest** 2474:19 2478:11

**digital** 2241:21

**digitized** 2241:18

**digs** 2458:4

**dilapidated** 2234:21 2338:14

**Dillon** 2300:2 2478:4 2479:18 2480:12,16

**diminish** 2368:18 2369:4

**dioxide** 2248:11,14 2429:12,13

**direct** 2214:4 2220:22 2222:23 2249:23 2250:16 2257:2 2260:8 2265:4 2284:10,12 2285:2,6 2290:5 2293:1 2294:11 2300:8 2304:23 2305:16 2307:1,24 2309:6,9 2311:3 2312:19 2329:16 2330:9,23 2331:19 2332:11,22 2333:18 2334:1 2345:22 2347:23,24 2353:7,10,23 2363:9 2370:5 2371:18 2372:15,20 2376:17 2378:11 2379:12,13,14 2382:3 2383:19,21,22 2384:6,25 2385:2,9 2386:9,12,24 2387:8 2388:12,15,16 2392:22 2413:24 2415:18,22 2418:6 2422:6

**direct-affect** 2220:7

**direct-effect** 2220:4

**directed** 2262:12

**direction** 2233:18 2235:4 2242:7 2282:9 2319:6 2326:17 2344:6 2414:20 2434:15

**directional** 2288:6 2319:14 2334:18 2335:1,8

**directionally** 2274:4 2420:23

**directions** 2274:11 2332:7

**directly** 2217:12 2219:3 2354:7 2368:22 2384:2 2404:17 2431:22 2432:4,5,6 2434:18 2435:11 2455:15

**director** 2342:15

**dirt** 2293:7 2352:7 2440:1,5

**disclaimer** 2356:23 2358:1, 19,25 2359:3,9,11

**discrepancy** 2289:18

**discuss** 2236:21 2269:23 2418:6 2471:7 2473:21 2474:5

**discussed** 2210:24 2219:13 2347:2 2354:6 2448:21 2471:24 2479:5

**discussing** 2256:19

**discussion** 2413:2

**discussions** 2216:21 2237:4 2412:21 2417:22

**dismiss** 2348:19

**dispatch** 2430:2

**dispersion** 2219:11,14 2220:12 2470:10 2478:18 2479:7 2480:18,20

**displaced** 2290:6,8,10

**dispute** 2211:3 2369:6 2455:21

**disrupt** 2334:3, 21 2431:17

**disrupting** 2459:25

**disruptive** 2283:9

**distance** 2219:5 2221:3 2222:18, 19,24,25 2223:23 2224:21,22 2225:4 2227:19 2235:24 2236:2 2238:22 2286:2,5 2329:6,9 2380:18 2437:13,14

**distances** 2220:22

**distinction** 2374:17 2378:21 2379:5 2384:24

**distinguish** 2363:12

**distribution** 2247:22 2248:4

**district** 2454:19, 21,24 2455:2,4,21

**districts** 2243:21 2454:18 2455:9, 13,15 2463:20

**disturb** 2279:18 2322:6

**disturbance** 2245:10

**disturbances** 2304:8 2307:9

**disturbed** 2436:17

**ditch** 2244:6,11, 13,20 2245:6,12 2272:23 2298:5,6

**divided** 2379:12

**division** 2399:16

**DNR** 2218:2

**docket** 2210:4

2422:10

**docs** 2263:16

**document** 2250:9,15,21 2251:9,15,19 2254:20 2255:4 2256:8 2264:12 2289:3,9,10 2318:10 2336:23

**documented** 2264:3 2446:2

**documents** 2230:15

**Dodge** 2479:25 2480:2 2481:6

**dollar** 2395:3

**dollars** 2390:3 2394:8 2395:8 2398:22 2415:19 2416:7,21

**domain** 2267:1 2270:1,3,10 2276:3,8,13 2277:3,20 2278:6

**domestic** 2379:3,7

**door** 2431:5

**double** 2378:6,8, 12,19 2381:15 2382:2

**double-checking** 2434:25 2468:25

**doubling** 2302:14

**Douglas** 2312:17

**downside** 2450:20

**draft** 2250:20 2295:10

**drafted** 2463:6,7

**drain** 2241:18 2245:24 2257:16, 17 2261:13 2375:19 2428:9 2431:10 2436:24 2438:23 2439:23

2444:1,4,5,24 2446:2 2447:1,5, 11,18 2448:24 2449:16,20 2450:25 2451:25 2452:16,18 2462:16 2463:18, 23 2464:3,11,13 2465:5 2466:25

**drainage** 2243:1, 21 2244:1 2245:16,22 2311:12 2312:11 2426:12 2431:7 2448:17 2449:11, 14 2451:5,7,13, 15,19,23 2452:7 2454:17,19,24 2455:9,12,14,20 2463:20

**drained** 2461:10

**drawing** 2395:13

**drill** 2243:7 2288:6,7 2293:10, 12,15,19,23 2319:14,24,25 2320:3,4 2329:25 2330:2 2334:18 2335:1,6,8,9 2344:3,4,6,17 2346:15 2391:10

**drilled** 2274:4

**drilling** 2292:18 2293:4,21 2319:22

**drills** 2295:11 2311:12 2312:9

**drive** 2269:21 2336:22

**driveway** 2312:2

**driving** 2245:9

**drop** 2337:3

**dropped** 2456:21

**dry** 2432:13

**Dublinske** 2210:6,11,16,22 2211:1,11,22,24 2254:17 2255:5 2278:8 2352:16

2353:5,6,8,22 2354:5,16 2403:7, 9 2409:14,16 2410:7,9 2411:22, 23 2419:25 2420:1,4 2421:2, 10 2456:11 2470:2 2472:6 2477:7,13,20,21 2478:16,20 2479:24 2480:1,9, 25 2481:17

**due** 2260:24 2268:9 2273:2 2288:19 2296:21 2365:12

**dug** 2436:19 2458:16 2465:13 2466:13

**duly** 2212:9 2353:3 2422:3

**dumping** 2298:6

**duration** 2394:17

**duty** 2358:13

**dwelling** 2236:13 2338:12

**dynamic** 2374:23,25 2375:2,6

---

**E**

**earlier** 2236:20 2246:19 2261:15 2314:18 2318:9 2329:5 2331:6 2338:17,25 2339:3 2340:13, 22 2341:22 2342:23 2346:5 2380:21 2414:14 2417:10 2477:13 2478:17

**early** 2428:10 2440:24 2463:12

**earned** 2395:9, 10,16

**ears** 2435:18

**Earth** 2337:2

**easement**
2230:15 2231:10
2239:1 2260:9,21,
23 2261:4
2263:16 2264:3,6,
10,11,18,21
2265:2 2273:24
2275:1,13,14
2282:7 2296:17
2298:20 2299:7
2303:24 2304:13,
15,19 2305:19
2306:1,7,18
2308:10,14,18,24
2310:12,25
2316:12 2317:22
2320:22 2321:1
2324:23 2328:19
2330:3,4,7 2339:6
2340:2 2342:4
2346:10,12
2347:5,15
2348:16 2437:15,
17,24 2438:1
2440:2,3 2453:7,
9,18

**easements**
2264:16 2273:12
2300:23 2301:4,
20 2303:14,17
2307:15,18
2310:22 2313:19
2324:10 2325:21
2449:5

**easier** 2224:16
2368:17 2369:3
2430:10 2457:19

**easily** 2323:25
2337:1

**east** 2232:6,10
2238:18 2242:4
2309:12 2315:23
2317:8,17 2324:5,
19 2330:18
2340:25 2344:5

**eastern** 2323:21
2324:4

**easy** 2341:23
2414:19 2449:1
2459:2

**Eco** 2263:5

**econometric**
2368:14 2383:10

**economic**
2355:7,11,13
2358:24 2359:19
2361:18 2362:15
2363:6 2364:8,17
2365:15 2367:12,
16,18,20,24
2368:2,3,7
2370:10,15,25
2373:21 2374:1,
16 2378:5,8,11,
17,21 2379:2,20
2381:20 2383:12
2385:20,24
2399:2 2400:17
2404:7,9,15,18,24
2405:13 2407:25
2408:22 2410:10
2415:7 2417:4
2418:7

**economically**
2362:7 2363:21

**economist**
2368:6

**Economists**
2357:6

**economy**
2361:18 2363:8,
21 2373:14
2374:3 2375:24,
25 2376:1
2383:14 2394:9

**ECP** 2256:3,19

**edge** 2298:24
2303:6,9 2320:15
2324:22

**edges** 2315:13

**edit** 2398:5

**effect** 2372:15
2373:12 2400:4
2450:4

**effective** 2430:18

**effectiveness**
2436:7

**effects** 2359:22
2370:15 2371:20,

25 2372:12,21
2374:19 2375:6
2378:12 2379:16,
17 2380:12
2383:5,11,22
2385:18 2392:23
2393:17 2418:19

**efficiently**
2443:4

**effort** 2213:14
2318:18

**efforts** 2400:22
2431:6

**Eight** 2244:21

**elasticities**
2374:8

**Elbert** 2300:18
2301:15

**elected** 2283:13

**electric** 2298:21

**element** 2404:18

**elevation**
2440:11

**Ellingson** 2246:7
2421:13,18,19
2422:1,8,9,19
2423:13 2424:14
2431:21,25
2433:21 2434:7,9
2443:19 2444:3
2446:13,18
2448:8 2451:18
2452:5,14
2456:13 2462:14
2468:2 2469:9,22
2470:3

**Ellingson's**
2423:4 2430:22

**email** 2342:15
2478:21,23

**emailed** 2221:19

**emails** 2342:16

**eminent** 2267:1
2270:1,3,9
2276:3,8,13
2277:3,19 2278:6

**emphasize**

2474:18

**employ** 2425:15

**employed**
2377:17,22

**employee**
2363:7,8 2406:13

**employees**
2337:9,10 2363:9,
10 2372:3,16,18
2383:24 2384:13,
16 2385:14
2387:2,3 2393:5
2395:19 2401:5,
17,20,22 2402:5
2424:13,14
2426:4

**employment**
2355:20 2358:24
2363:4,16
2367:19 2373:13
2377:9,11,12,19
2381:19 2383:11

**encased** 2449:24

**encountered**
2305:4 2427:17
2455:12

**encumbering**
2231:13

**encumbrance**
2304:11

**end** 2247:7
2266:15 2283:2
2300:19,20
2301:17,18
2303:21 2341:23
2360:2 2415:16
2456:1 2470:2
2480:21

**Energy** 2275:24
2339:11

**enforce** 2272:21

**engage** 2316:20

**engaged** 2463:12
2464:9

**engineer** 2302:6

**engineering**
2213:21 2221:14
2253:10 2342:15

2431:8

**engineers**
2251:12 2253:7,
22 2307:20
2377:5 2446:1
2451:9 2464:23

**enhance** 2364:7

**enhanced**
2258:9,24

**enough** 2231:3
2424:17 2426:1
2455:25 2464:25
2471:9 2477:23,
25 2478:5,8

**enrollment**
2406:9

**ensure** 2273:9
2294:19 2434:19
2445:2,20
2448:14 2461:1
2465:8 2466:14

**ensuring** 2443:5
2446:2

**entail** 2337:17

**enter** 2288:21
2404:17

**entered** 2278:23
2308:19

**entering** 2288:8

**entertained**
2308:20

**entire** 2215:16,21
2221:12 2239:20
2253:20 2292:18
2295:4 2296:3
2298:11 2302:13
2307:7 2319:22
2322:9 2329:21
2394:14 2441:18,
20,22 2453:8
2473:4

**entities** 2211:3
2269:4 2399:7,10

**entity** 2398:22
2403:19

**entry** 2300:23
2303:18 2304:16

**exiting** 2288:8

**exogenous** 2383:16

**expand** 2281:22 2283:24 2287:19

**expansion** 2379:24 2380:9

**expect** 2264:10 2294:1 2371:8 2390:3,12 2398:4 2412:23 2420:23 2459:5 2460:22

**expectation** 2264:14 2273:3

**expectations** 2394:6

**expected** 2243:13 2361:3,9 2386:25

**expenditure** 2356:1 2370:24 2392:3,8,20 2394:11 2416:20

**expenditures** 2367:13 2372:2 2386:18 2391:24 2394:9

**expense** 2476:6

**expensive** 2361:15

**experience** 2258:16 2265:21 2286:19 2407:9 2413:8 2446:13 2447:10 2448:4 2455:8 2459:17 2460:19

**expert** 2245:24 2259:7 2352:7 2436:25 2468:17

**expertise** 2221:13 2267:10 2278:4 2279:24 2410:13

**experts** 2216:5 2221:13 2431:8

**explain** 2216:11 2221:3 2223:1

2245:15 2255:3 2259:23 2260:14 2286:4 2338:21 2362:23 2370:6 2379:4 2383:21 2385:2 2392:21 2416:2 2444:20 2449:8 2450:24 2451:14 2452:1 2453:14

**explanation** 2396:11

**explicit** 2399:14

**explore** 2328:14, 24 2339:23 2341:20

**expose** 2326:17

**exposed** 2459:8

**express** 2269:11 2385:15

**expressed** 2271:4

**extended** 2227:15 2295:11 2330:2 2394:19

**extension** 2346:15

**extensive** 2307:8

**extent** 2277:6,19 2279:23 2296:17 2307:13,14 2334:9 2335:2 2363:1 2380:3

**extra** 2244:20 2306:16 2448:13 2461:1

**extremely** 2316:1 2477:14

**EY** 2359:10 2416:12

---

**F**

---

**facilities** 2392:24 2417:24 2418:2 2420:7,15,21

**facility** 2290:3

2339:14 2380:24 2392:8,9,12,17 2396:17

**fact** 2240:12 2244:16 2270:1 2325:21 2356:19 2372:4 2481:2

**factor** 2220:4,5,6 2243:3 2285:9 2365:4 2389:24 2407:4 2408:2,21

**factored** 2404:24 2407:19 2408:9

**factoring** 2362:12 2365:9 2405:14 2407:25

**factors** 2239:22

**facts** 2382:22

**failure** 2302:20

**fair** 2351:14 2355:10,16 2360:5,15 2387:23 2388:2 2390:2 2396:14 2398:1 2414:6 2466:22

**fairly** 2383:9 2405:23

**fairness** 2476:9

**Fallon** 2267:23, 25 2268:2,7,19 2269:16,18 2270:21 2271:15, 19,22,25 2272:5 2276:12,18,19 2277:1,9,10,14 2278:1,11,13 2402:10,11,13 2403:11,23,24 2404:4,5 2409:16, 22 2410:2,15,16, 19,20,23 2411:4, 7,9,12,15,19 2412:8,9,10,11,16 2415:14 2456:6,7, 9 2462:9

**familiar** 2238:9 2245:23 2251:20 2257:8 2262:8 2276:3,5 2294:10

2339:8 2340:7 2362:9 2368:9 2402:17 2403:20 2428:15 2435:21

**family** 2238:1 2268:9,24 2481:3

**farm** 2211:20 2212:20 2222:8 2268:15 2283:22 2287:18 2298:4 2313:3 2319:18 2336:14 2342:10 2413:21 2427:9 2443:21 2457:24, 25

**farmer** 2432:1 2460:15 2461:7

**farmers** 2407:8 2408:16 2413:18 2462:1

**farming** 2413:10, 12 2459:20

**farmland** 2365:3

**farms** 2268:24 2311:3 2324:14 2447:16

**farmstead** 2229:25

**farther** 2357:9

**fashion** 2231:16 2308:23 2323:2 2425:8

**faster** 2443:1 2480:7

**fault** 2350:19

**favor** 2278:3 2414:17,25

**favorable** 2233:14 2348:18

**feasibility** 2404:11 2452:11

**feasible** 2298:2 2301:24 2310:17 2362:17

**features** 2215:24 2216:6,17 2223:20,25

2224:5

**federal** 2220:1 2255:23 2256:1,4 2384:5,6,12 2386:15,16,25 2388:12 2399:22 2402:15

**federally** 2343:7

**Federation** 2212:21

**feed** 2361:16

**feedback** 2235:3

**feeding** 2218:3, 24 2219:2,4

**feedlot** 2219:4

**feel** 2262:15 2410:17 2431:12 2476:1

**feels** 2464:22

**fees** 2389:22 2399:5 2400:21

**feet** 2220:14 2221:3,9 2222:14, 17 2223:17 2224:24 2225:19, 24 2226:9 2227:25 2228:2 2230:6 2231:4 2233:22,24 2234:13,17 2236:3 2238:23 2240:15 2260:9, 13,15,18,25 2261:5 2286:15 2287:6 2313:9 2321:12 2322:2 2328:21 2329:11 2330:25 2337:14 2338:4,11 2341:18 2343:22 2437:17 2447:14 2467:13

**Fehr** 2229:18 2232:11

**fence** 2298:4 2324:16,17,18 2326:8,10,11

**fences** 2455:17

**Fetrow** 2317:3

**fewer** 2366:6

**fiber** 2286:21 2298:7

**field** 2216:1,3 2253:19 2267:10 2296:3,7 2298:24 2303:6,9 2307:21 2308:3 2312:2 2319:18 2341:24 2413:23 2425:18 2426:24 2427:11, 24 2431:16,18 2434:24 2435:9 2441:4 2446:1 2450:18 2460:15, 25 2464:23 2465:22

**fields** 2427:6

**figure** 2273:18 2364:22 2390:14 2428:5 2434:2 2435:7 2439:19 2457:11

**figures** 2377:9 2378:23

**file** 2211:19 2229:16 2230:24 2233:1 2264:6 2283:19

**filed** 2232:25 2264:5 2282:13 2316:17,18 2323:9 2330:20 2353:10 2422:9 2471:8 2481:18

**filing** 2470:8

**fill** 2434:4

**filled** 2294:21

**fills** 2439:17

**final** 2251:3,9 2256:23 2266:1 2282:7 2368:4 2418:20

**finalize** 2250:25

**finance** 2405:19

**financial** 2358:20 2389:5 2401:7

2404:11 2416:6 2417:19 2441:10 2442:3

**financially** 2362:16

**find** 2317:13 2459:7 2464:5,25 2470:1

**findings** 2356:24 2400:12

**finds** 2374:15

**fine** 2279:1 2352:9 2366:13 2424:1 2434:1 2473:3

**finish** 2212:1 2480:23

**fire** 2274:17

**firewood** 2274:15

**firm** 2356:8 2378:14,15 2454:13 2481:11

**first** 2212:2 2222:12 2252:20 2255:15,20 2270:11 2280:9 2297:7 2339:2 2353:3 2354:19 2355:5 2364:5 2368:21 2385:8 2386:12 2417:16 2418:8,15 2422:3 2423:8 2428:4 2436:2 2446:23 2456:13 2461:14 2466:1,6

**Fish** 2251:13

**fit** 2311:15

**fitting** 2302:17,18

**fittings** 2302:21 2307:9

**five** 2233:21 2280:24 2321:15 2341:18 2394:19 2434:4,7

**five-and-a-half-** 2395:2

**five-state** 2430:4

**fix** 2444:4 2446:14,18 2457:19 2459:14

**fixed** 2466:15

**fixing** 2244:14

**flagged** 2223:13

**flanged** 2262:24

**flat** 2461:10,18

**flatter** 2461:6

**flattest** 2461:22

**flexibility** 2299:5

**flexible** 2473:16

**flights** 2472:20

**flip** 2322:13 2386:20

**float** 2294:20

**flood** 2294:22

**flooding** 2294:13,14

**floor** 2270:2 2271:16

**flow** 2436:5 2440:14,18

**flowing** 2394:8 2432:11,22,25 2448:7

**fly** 2440:21

**flying** 2221:12 2224:14,16

**focus** 2440:3

**focused** 2447:1

**folks** 2391:16 2425:16 2476:23 2478:24 2481:11

**follow** 2228:13 2262:25 2272:20 2273:9,10,13 2276:1 2306:17 2329:13 2333:14 2432:20 2439:10 2451:24 2452:1 2457:25

**follow-up** 2221:22 2222:7 2243:24 2338:20 2433:3 2465:25 2468:23

**following** 2228:12 2269:19 2291:16,19 2326:25 2337:24 2385:8 2407:11, 13 2449:22 2450:7

**follows** 2212:10 2222:16 2353:4 2374:2 2422:4

**food** 2413:14,24 2414:8

**fools** 2462:16

**foot** 2223:3,5,12 2224:9 2227:13 2231:2 2243:10, 11 2244:9,12,17, 19,20,21 2260:21 2263:19 2321:11, 15,17,25 2322:5 2351:8,24 2352:2 2427:5

**footprint** 2219:8 2260:16 2261:2 2322:9 2364:7 2441:19,20,22

**forced** 2230:19 2231:6

**forcing** 2231:17

**foreign** 2325:13 2414:12

**forest** 2274:14 2334:21

**forested** 2273:22,23 2274:5,8

**forestland** 2273:17 2274:10

**fork** 2334:2,15

**form** 2251:4,9

**Fort** 2479:25 2480:2 2481:6

**forth** 2342:17

**forty** 2447:14 2456:20,21

**forward** 2453:12

**found** 2280:11 2338:5 2389:3,15 2416:13

**foundation** 2276:24 2277:2 2354:3 2373:23 2403:21 2404:7 2412:18

**four** 2222:13,17 2233:21 2244:9, 19 2280:24 2281:7 2304:6 2306:16 2321:11, 12,25 2322:2 2341:3 2456:19 2467:13

**frame** 2276:20

**framework** 2381:2

**free** 2262:15

**freight** 2393:17 2416:19

**frequency** 2459:17,24

**frequently** 2383:17 2459:5, 11

**Friday** 2471:18

**Frideres** 2342:23

**front** 2250:12 2290:23 2440:23

**fruit** 2330:10

**frustrating** 2473:10

**fuel** 2393:17 2413:14 2414:24

**full** 2296:16,17 2335:7 2440:1,5

**full-time** 2363:13,18,20 2424:14

**fully** 2262:24 2419:6 2476:10

**function** 2245:17,22

**functions** 2245:3

**future** 2291:9 2316:23 2321:8, 14 2341:19 2357:10 2387:21 2388:2 2390:9 2408:23 2433:13 2444:3

**G**

**gap** 2313:4

**garden** 2330:11

**Garrison** 2333:17 2334:1, 19

**gas** 2247:4,15,16, 19 2286:21

**gathering** 2428:14 2463:18

**gave** 2291:14 2355:23 2400:16

**Gayle** 2327:16

**GDP** 2363:4 2368:3

**general** 2222:20 2239:24 2276:8 2288:15 2290:7 2311:20 2349:6 2374:7,14 2437:6 2439:6,11

**generalize** 2311:19

**generally** 2213:5 2238:10 2287:24 2299:3,4 2302:21 2315:7 2340:9 2351:23 2370:13 2371:1,6 2379:10 2389:3,15 2397:11 2420:25 2428:5,24 2439:9

**generate** 2370:24 2398:16

2400:16

**generated** 2385:12 2390:13 2400:2 2405:3,7 2416:13 2417:12

**generation** 2403:5

**gentleman** 2342:16

**geographically** 2380:17

**geography** 2376:7

**geohazard** 2215:15

**geohazards** 2215:22

**Geologic** 2215:19

**George** 2330:9

**Geosyntec** 2295:5

**geotech** 2351:13, 18

**geotechnical** 2216:5

**get all** 2289:5

**gigantic** 2477:5

**GIS** 2218:2,5 2241:19 2336:18, 19 2446:5 2449:6

**give** 2214:11 2235:3 2263:6 2274:24 2278:5 2378:1 2401:2 2403:4 2427:22 2463:15 2466:1 2476:9

**glaring** 2476:1

**goal** 2441:6 2456:10 2460:24 2476:22

**going-forward** 2420:19

**good** 2210:2 2244:13 2267:4

2268:23,25 2269:19 2279:15 2308:18 2351:4 2352:18 2366:14, 16 2372:1 2373:9 2374:11 2391:7 2398:21 2413:16 2421:14 2423:20 2428:10 2436:20 2446:21 2447:2, 19 2448:25 2454:3 2455:18, 21,22 2460:25 2464:25

**goods** 2363:2 2378:15 2385:11 2416:19

**Google** 2336:23 2337:2

**Gordon** 2333:17, 25

**Gotcha** 2271:25

**governments** 2382:15 2404:22

**GPS** 2441:7 2446:3

**grade** 2440:19 2441:3,7 2461:19, 24

**grandstanding** 2410:13

**granted** 2268:18 2311:8 2321:20 2322:8 2330:7 2443:24

**grantor** 2239:2

**grants** 2399:23

**granular** 2376:3

**granularity** 2375:17

**gravel** 2265:12, 14,16 2288:14

**gravity** 2440:14, 18

**great** 2476:6

**greater** 2375:14

**greatly** 2286:7 2302:12

**green** 2232:5,6, 10 2234:1

**Gregory** 2345:21

**gross** 2367:16,20 2368:3 2377:11 2378:10,17,21 2379:1,2,6 2381:20 2389:17 2401:2,4 2418:7

**ground** 2245:10 2352:3 2430:19 2436:19

**ground-penetrating** 2430:17

**grounds** 2279:19

**group** 2280:16 2402:15,17 2409:13 2449:5 2474:5

**grow** 2413:21,23

**growers** 2447:24

**growing** 2413:14 2414:8

**Gruenhagen** 2212:15,16,18,20 2221:18 2222:1 2226:12,20,21 2229:15,17 2232:3,9 2233:25 2234:2 2235:16, 20,23 2236:1 2238:7,8,17,21 2240:24 2241:2, 11,13 2249:19,22 2254:7,11,21 2255:5,13 2256:7, 15,18 2267:11 2286:1,12 2331:5 2336:13

**guarantee** 2327:14 2333:13 2346:8 2412:3

**guarantees** 2410:11

**guess** 2223:25 2225:22 2238:14,

18 2242:12 2262:21 2269:9 2275:10 2277:15 2278:2 2290:13, 16,18 2294:13 2297:12 2303:14 2312:3 2325:9 2335:2 2383:21 2386:8 2403:3 2408:15,20 2423:10 2451:8 2455:24 2457:1,7, 14 2466:5,11,17 2476:23 2480:17

**guessing** 2323:23 2459:24

**guidance** 2251:10 2256:4 2474:24

**guide** 2335:6 2430:8

**guidelines** 2299:16

**Gunion** 2312:17 2313:11

**guy** 2251:23

**guys** 2288:16 2331:15

**H**

**H-2A** 2230:4 2231:21

**H-CK-014** 2340:23

**H-CR-009** 2325:4

**H-GR-003** 2312:20

**H-KO-060** 2342:23

**habitat** 2255:18, 24 2349:18

**habitats** 2223:21

**half** 2230:21 2300:4,5 2365:20 2366:3 2372:8,9 2393:24 2394:5, 19 2425:19

2440:1 2461:24 2467:13

**hand** 2221:19 2316:10 2335:5 2352:21 2421:21

**handing** 2249:24

**handle** 2263:10 2296:9 2432:11 2439:22 2465:23

**handled** 2435:15 2440:9

**hands** 2323:12

**handy** 2445:20

**happen** 2268:5 2272:12,13,14 2275:11 2293:17 2308:25 2348:7 2360:17 2381:23 2387:20 2395:5 2397:16 2438:2 2447:18 2448:15 2461:2

**happened** 2275:7 2276:13 2306:20 2338:21 2373:16 2383:11 2401:16 2417:15 2446:17 2481:9

**happening** 2240:7 2373:14 2393:2 2458:10

**happens** 2335:4 2373:9 2415:7 2432:22 2460:17

**happy** 2447:23 2455:5,7

**hard** 2282:21 2303:12 2317:18 2340:9 2390:24 2406:17,21 2409:9 2410:4 2413:11 2414:4,5

**Hardin** 2279:10, 17 2391:8,12,16, 18 2392:4 2393:9 2394:7,9 2395:9, 20 2396:12,23 2397:18 2454:4

**hardship** 2408:22

**Harris** 2249:2

**Harrison** 2298:20

**harvest** 2475:16 2476:16

**haul** 2274:22 2275:3 2289:5

**hazardly** 2347:9

**hazardous** 2307:3 2309:7 2315:12 2325:4 2330:12,24 2331:21 2333:2 2335:14 2468:7

**HCA** 2220:4,6

**head** 2339:12 2374:11 2395:24 2396:1

**headed** 2384:14

**header** 2385:4 2450:17 2469:13

**heads** 2242:6

**health** 2268:14

**hear** 2270:20 2287:2 2352:20

**heard** 2229:9 2271:1 2310:8 2338:18,25 2342:9 2345:8 2361:13 2362:6 2363:24 2364:19 2365:1 2409:17 2417:10 2420:19 2447:4 2448:1 2455:17 2461:25 2478:16

**hearing** 2221:20 2226:13,18 2229:2 2241:12 2249:19,21 2254:24 2256:10, 12,13 2267:19 2336:14 2339:1,3 2340:13,22 2341:22 2342:12, 23 2366:20 2368:5 2405:20

2448:2 2464:12 2472:8,9,11 2473:4 2474:2 2475:15 2476:6,7, 8 2478:21 2481:24

**hearings** 2404:21 2464:2 2475:18

**hearsay** 2354:2, 9,12

**Heat** 2407:15

**heating** 2247:15

**heavily** 2270:1

**heaviness** 2295:2

**heavy** 2259:23 2288:13,19 2351:22 2425:16

**Helland** 2210:2, 14 2211:16 2212:4,9,11,14 2226:14,17 2232:2 2256:12 2267:14,20 2268:3,17,20 2269:16 2270:16 2271:9,14,20,23 2272:3 2276:11, 17,22 2277:8,21 2278:12,15,25 2280:1 2307:12 2308:9 2348:23 2349:23 2350:2,5, 10,13,16 2352:10, 18 2353:3,5,25 2354:4,13,18 2366:11,14,16,21 2367:1 2369:20 2391:2 2398:7 2402:10 2403:8, 22 2404:2 2409:15,20 2410:8,14,19,21 2411:7,10,13,17, 22 2412:8,10,12 2415:15,21 2416:2,11,24 2417:3,23 2418:5, 20 2419:5,11,15, 20,23 2420:5 2421:4,7,10,14,20

2422:3,5,21 2423:3,7 2442:8, 12 2443:16 2453:22 2456:6 2462:10 2468:22, 25 2469:2,18,21, 24 2470:20 2472:4 2473:6,18 2474:3 2475:4,13 2476:11 2477:16 2478:12 2479:2, 12,15 2480:13 2481:22

**help** 2220:8 2347:22 2373:8 2391:16 2392:18 2431:9 2435:3 2465:3

**helped** 2213:3

**helpful** 2220:13 2349:7

**helps** 2215:13 2243:2

**hey** 2234:23 2263:18 2291:11 2309:22 2310:24 2321:14 2335:24 2349:14 2433:20

**high** 2253:3 2266:15 2293:14 2294:14 2416:5, 15

**high-consequence** 2218:5 2287:5,7, 11

**high-level** 2262:11,14

**high-population** 2218:8,11

**higher** 2214:2 2220:1 2224:17 2282:11 2380:13 2390:19 2394:4 2416:3

**highly** 2228:6

**hire** 2261:24 2452:6

**hired** 2358:21

2398:11,17 2401:17 2410:10, 25

**hiring** 2261:17

**historically** 2302:20

**history** 2414:18

**hitting** 2413:11

**HLP-2021-0001** 2210:5

**hog** 2232:12,19 2233:15 2235:18 2236:14 2237:19 2414:18

**hogs** 2414:16

**hold** 2364:20 2476:5

**holders** 2340:3

**hole** 2304:10

**holes** 2352:6 2449:10

**home** 2231:20 2239:4 2249:15 2287:6 2316:2,4, 7,9 2331:4,14 2332:25 2333:16 2395:14 2429:21

**homes** 2248:14, 16 2286:2 2290:5, 14

**homework** 2478:1

**honor** 2212:16 2226:12,16,20 2256:9,15 2270:15 2276:12 2278:8,21 2292:4 2352:16 2353:6, 22 2354:1,16 2369:22 2391:4 2403:7 2409:14 2411:23 2420:1 2421:3,12 2422:18 2423:5 2442:5 2469:6 2472:6 2477:21 2479:4 2480:9,25

**honored** 2282:4

**Hoover** 2344:13

**hope** 2448:2

**hoping** 2275:10
2446:22 2455:24

**horrible** 2301:13

**hour** 2441:15

**hours** 2363:17
2428:6 2480:8

**house** 2214:17
2238:20 2271:16
2291:12 2301:23
2330:25 2331:9
2333:3 2340:23
2341:4,10
2347:12 2442:18

**houses** 2225:15
2228:10 2239:7
2247:24 2286:16,
25

**housing** 2442:24

**However**
2211:21 2337:2
2351:20 2365:12

**Hs** 2212:24,25
2225:20 2230:24
2232:24 2233:2
2323:9 2327:11
2332:8 2336:2
2343:6 2344:18

**hug** 2236:9
2239:11 2302:13
2313:23 2333:13

**huge** 2406:25
2459:23

**hugged** 2230:10

**hugging** 2227:14
2231:11,14
2233:14 2237:23
2307:7

**hugs** 2319:4

**Huitink** 2290:19
2291:15

**hundred**
2222:13,17
2233:21 2240:14
2341:18 2416:7

**hundreds**
2224:12 2286:15
2291:6 2310:19
2322:8 2338:2

**Hunt** 2323:20

**hydraulic**
2302:10

**hydrotechnical**
2295:3 2326:16

**hypothetical**
2321:20

_____

**I**

_____

**idea** 2229:12
2279:15 2351:4
2427:23 2428:10
2463:15 2466:1

**ideal** 2240:6
2427:21

**ideas** 2459:15

**identifiable**
2337:1

**identification**
2279:9

**identified**
2215:23 2223:4,6
2225:13,15
2234:12 2239:22
2242:10,11
2249:12 2263:14,
17 2266:17,20
2337:5 2345:24
2446:3

**identify** 2224:16
2231:25 2234:4
2240:15 2243:19,
21 2248:24
2250:1 2279:7
2295:7 2458:10

**identifying**
2224:24 2249:4

**IFBF** 2221:20
2226:13,18
2249:20 2254:24
2256:10,13

**Illinois** 2247:10

**illness** 2268:10

**image** 2317:16

**imagery** 2316:22
2464:21

**imagine** 2253:25
2300:12 2386:5
2414:19 2418:12
2457:19 2460:17

**immediate**
2351:3

**immediately**
2215:9 2240:16
2274:5 2288:7
2292:17 2298:10
2306:14 2342:14

**impact** 2252:8
2296:9 2308:23
2314:25 2323:15
2332:6,15
2361:21,25
2362:1,15,17
2363:6,25
2364:12 2366:2
2367:18 2368:15,
17 2369:1,2
2371:17,24
2372:11 2373:12,
21 2379:11,12,13
2383:12 2385:25
2388:16,20,22
2390:23 2391:12
2393:10 2400:18
2404:15,25
2405:13 2407:19
2410:10 2413:17
2417:4 2418:4
2419:16 2420:6,9,
14,22 2444:13
2459:22 2460:4,6
2463:21,23

**impacted**
2289:12 2315:1,8
2336:2 2414:1
2476:16

**impactful**
2243:14

**impacts** 2214:9,
13 2236:19
2245:7 2250:5
2273:25 2286:13
2300:14 2302:10,

13 2304:7,11
2315:5 2325:24
2329:22 2359:19,
24 2360:10,11
2361:13,24
2364:17 2365:1,7
2368:18,19
2369:4,5,8 2372:2
2377:12 2381:1,
19 2407:21,24
2408:1,7,19
2413:20 2418:12
2439:23

**Implan** 2359:14,
18 2360:3 2369:7,
16,17 2370:6,14,
19 2373:1,4,17,24
2374:6,17,20
2375:12,13,17
2376:5 2379:18
2382:20,24
2400:6 2403:17

**IMPLAN's**
2385:17

**implement**
2323:17

**implemented**
2349:13

**implications**
2344:10

**important**
2257:5,10 2265:3
2277:18 2358:7
2361:18 2362:7
2474:18

**importantly**
2297:25

**impossible**
2475:17,21

**impractical**
2473:5

**impression**
2210:8

**impressive**
2456:22

**improved**
2265:23

**improvements**
2318:22

**in-house** 2431:7

**in-person**
2253:19

**in-service**
2285:13

**in-state** 2363:2,4

**inability** 2475:19

**incentives**
2399:23 2442:3

**incentivize**
2442:25

**inches** 2244:11,
18 2260:25
2265:17 2461:11

**incidental**
2442:10

**incidents** 2467:3

**include** 2218:2,8
2251:15 2256:4
2269:10 2279:9
2360:7 2378:18
2382:6 2392:16
2399:2 2400:20
2439:1 2454:24
2455:25

**included** 2218:6,
16 2224:1
2226:25 2263:15
2292:1 2362:14
2382:7 2383:20
2392:9

**includes** 2363:8
2378:6,12
2392:22

**including**
2275:22 2360:8
2378:11 2393:1

**income** 2363:7,8
2367:19,23
2368:3 2381:19
2383:25 2384:6,
12,18,20 2386:25
2387:4 2394:21
2418:7,25 2419:5,
9,12,18

**inconsistent**
2246:18

**inconveniences**
2348:6

**incorporate**
2251:14 2264:13
2265:2 2295:12,
17

**incorporated**
2253:9 2417:19

**increase** 2220:4
2302:12 2361:14
2416:3,15,17

**increased**
2260:18 2365:13
2415:24 2416:25
2451:19,22
2452:1

**increases**
2417:11

**incremental**
2385:12 2405:4,
11 2406:1,8,9
2417:13,18

**incur** 2404:23
2442:25

**independent**
2382:22 2389:7

**independently**
2356:3 2376:23
2388:19

**Indian** 2414:13

**indicate** 2264:7
2365:15 2384:5
2387:14 2406:24

**indicated**
2338:19 2384:24

**indicates**
2320:23 2403:1
2468:7

**indicating**
2402:19

**indication**
2444:23

**indirect** 2362:20,
24,25 2363:10,14
2371:19,25
2372:4,9 2378:12
2381:18 2382:3
2384:25 2385:18,

19 2386:2,3,4,6
2392:23 2399:4
2418:18

**individual**
2225:2 2227:22
2237:1 2247:23
2267:6 2275:16
2280:12 2284:22
2286:1,10
2289:22 2305:22
2306:6 2307:25
2311:21 2376:8
2383:24 2384:12
2448:2 2481:20

**individually**
2223:14 2336:18

**individuals**
2291:1 2317:13
2322:10 2454:23

**induced** 2362:20,
24 2363:6,14
2371:19 2372:12
2378:12 2382:3
2384:25 2385:18,
19 2386:4,6
2392:23 2393:17
2399:4 2418:19
2419:16

**industrial**
2370:15,20
2371:16

**industries**
2269:3 2364:9
2367:22

**industry** 2361:17
2363:18,25
2364:12,16
2371:5 2375:15
2379:22,24
2380:2,5,6,9
2467:14

**infer** 2466:18

**inflation** 2417:13
2418:13

**inform** 2219:16,
19

**information**
2241:17,21
2253:6 2279:16
2348:1 2355:17,

20,23,25 2356:2,5
2357:14 2358:23
2364:25 2374:6
2380:7 2401:21
2402:21 2409:23
2412:13 2419:4
2428:13 2463:14,
16,17 2470:10

**informational**
2227:8

**informing**
2219:18

**infrastructure**
2215:8 2223:7
2228:13 2239:24
2249:10 2325:16
2333:19

**inhabitable**
2231:13

**inhibits** 2320:8

**initial** 2220:20
2221:2,23
2222:18 2227:7
2368:18 2369:3
2433:1

**input** 2359:21
2371:11 2381:2,
22 2464:1 2475:8

**input-output**
2368:15 2373:25
2374:18

**inputs** 2355:17
2371:3 2373:5
2374:2 2375:18,
20 2378:19
2381:4 2417:7

**inquire** 2278:3

**inside** 2438:6,23
2448:13 2449:16,
20,23

**inspect** 2445:1

**inspectors**
2252:16 2264:1
2272:18 2273:4,7,
8,9 2275:19,20
2445:5 2465:4

**install** 2261:13
2313:3 2320:22
2447:13 2450:17

2452:24 2453:13
2461:14

**installation**
2460:21 2467:19

**installed** 2249:8
2257:22 2294:20
2302:19 2321:25
2432:24 2458:21
2460:14 2461:23
2464:13 2467:12
2468:9

**installing** 2215:7
2302:22 2451:6
2468:13

**installs** 2468:8

**instance** 2238:2,
24 2373:12
2375:3 2377:16
2434:3 2442:18
2451:10

**instances**
2236:7,23 2240:7
2264:2 2265:14
2272:21 2274:10
2438:15

**integrated**
2355:8

**integrity** 2302:7,
16

**intend** 2282:15
2289:6 2425:8
2474:13,14
2480:5

**intended**
2420:19

**intending**
2285:12 2312:25

**intends** 2285:2

**intensive**
2343:17 2351:16

**intent** 2265:18

**intentionally**
2248:18 2345:14

**interactions**
2369:11

**interest** 2216:9
2239:13 2383:14

2389:22 2416:8
2474:7,10

**interested**
2306:19 2346:12

**interesting**
2280:11 2285:16
2356:6

**interests**
2293:19

**interfere** 2479:8

**intermediate**
2381:22

**internal** 2213:18

**interpretation**
2376:16 2415:3

**interpreted**
2379:2 2453:6,16

**interpreting**
2304:4

**interrupt** 2366:12

**interrupted**
2473:23

**intersection**
2322:17

**intervening**
2221:22 2479:10

**intervenor**
2462:19,24

**introduce**
2326:15

**introductory**
2222:13 2387:13

**invested** 2399:10

**investigate**
2334:12 2336:4
2341:14

**investigated**
2336:18

**investigation**
2216:1 2337:12
2389:8 2402:6

**investigations**
2216:3

**investing**

2356:13

**investment** 2356:16,17 2358:11 2364:20 2389:17,19 2420:21

**investor** 2356:12,13

**involve** 2258:17 2452:8

**involved** 2213:1, 5,6,16 2250:8 2262:7,10 2263:5 2281:2 2345:15 2354:7 2390:17 2436:25 2439:20 2440:22 2461:4 2468:16

**involving** 2253:17

**Iowa** 2210:4 2212:20 2215:18 2218:2 2222:8 2240:5,7 2248:7 2253:4 2261:23 2266:20 2268:1,6 2270:14,23 2282:20 2283:17 2295:4,15 2325:14 2362:15 2363:9,25 2365:22 2367:14, 15 2375:24,25 2393:11,13 2396:6 2397:10 2403:12 2409:4 2410:1,6 2411:1 2412:24 2413:9, 13 2415:24 2416:3,6,21 2417:1 2418:4,7 2419:1,3 2423:21 2424:8,23 2425:6 2426:12,13 2427:17 2428:19, 23 2429:14,20,24 2432:1 2436:14, 22 2443:21 2447:17 2448:25 2456:24 2467:24 2468:6 2479:25 2480:2

**Iowa's** 2361:18 2414:18 2415:1 2418:22

**irons** 2438:14,21

**irrelevant** 2407:10

**irrigated** 2296:15,18

**irrigation** 2238:11,19 2239:10 2286:18 2295:20,24 2296:1,6,13 2460:11

**issue** 2241:4 2264:18 2414:22 2438:4 2445:6 2446:22 2465:9 2470:17

**issued** 2357:13

**issues** 2215:1 2224:16 2236:13 2239:19 2240:9 2259:11 2260:4 2268:14 2293:16, 17 2302:25 2312:23 2348:15 2360:14 2407:14 2431:10 2436:3 2437:25 2444:24 2445:2 2446:21 2447:22 2455:4 2459:3 2460:24 2465:6 2466:19

**item** 2285:16

**items** 2252:4 2257:15,18,24 2315:14 2408:14 2413:24

**IUB** 2229:8 2404:21 2405:20 2406:24 2463:2

---

**J**

---

**jagged** 2458:15

**James** 2317:3

**Jamie** 2294:11

**January** 2250:18

**Jean** 2268:23

**Jennifer** 2297:4, 13 2332:11

**Jeremy** 2281:15 2421:13 2422:1,8

**Jim** 2426:11

**Jimmy** 2478:3

**Jimmy's** 2214:2

**Joan** 2304:22

**job** 2273:4,5 2365:25 2377:18 2426:5 2430:22 2446:23 2460:2 2473:3

**jobs** 2261:25 2360:23 2362:20, 24,25 2363:13,14, 20,22 2365:13,16, 20,25 2366:9 2367:23 2368:3 2377:10,14,16,24 2378:1 2409:3,4 2418:7

**Jody** 2309:6

**jogs** 2325:8,10

**joints** 2302:23

**Jon** 2251:5 2253:24

**Jorde** 2210:6,21 2211:2 2219:14 2297:3,13 2298:16 2300:1, 17 2304:22 2305:9,12,15 2306:25 2309:5 2310:4 2312:17 2314:10 2315:9, 24 2317:3,25 2320:13,20 2323:19 2324:13 2326:1,21 2327:15 2328:4 2329:15 2330:8, 21 2331:11,18 2332:10,20,21 2350:7,11,15,18, 21 2352:9 2354:1 2398:7,8,10

2402:8 2418:22 2422:23 2423:9, 10,12 2442:8,9,15 2443:14 2450:3 2470:20,21 2472:8 2476:12, 13 2479:20,23 2480:4,17 2481:13,19

**Jorde's** 2310:6 2316:25 2324:12 2472:13 2473:3 2474:6

**Jorde-related** 2314:3

**Josh** 2310:7

**judicial** 2415:10

**jump** 2254:17 2396:9

**June** 2226:9

**jurisdictions** 2376:9 2448:18

---

**K**

---

**K-R-A-C-H-T-'-S** 2345:22

**karst** 2215:24 2216:5

**Kathleen** 2323:20

**Kathy** 2326:22 2329:15

**Kayla** 2315:25

**Ken** 2219:22

**Kennedy** 2328:5

**Keokuk** 2461:8

**kicks** 2426:9

**kids** 2406:11

**kind** 2213:15 2221:17 2223:19 2224:16 2234:20 2235:4 2258:25 2271:5 2290:25 2293:16 2294:22 2295:7,25

2303:10,13 2307:13 2316:24 2326:14 2336:22 2337:15 2340:16 2349:18 2368:7 2377:6 2391:10 2392:7 2396:9 2399:23 2405:4 2407:25 2408:3 2410:16 2417:20 2426:15 2434:11 2440:16,20 2443:22 2444:11, 16 2446:25 2447:15,25 2449:21 2458:6, 14 2460:2 2463:16 2464:19 2466:9 2475:2

**kinds** 2426:23 2466:21

**Kleckner** 2318:1

**Kleckners** 2318:24

**KMZ** 2229:16 2297:1 2301:11 2303:7 2316:9 2317:10 2319:2 2322:13 2326:7 2328:12 2347:4

**knew** 2334:10 2380:15 2467:25

**knowing** 2303:13 2472:8,11

**knowledge** 2248:21 2262:5 2399:12

**Koeppe's** 2303:4

**Kohles** 2267:22 2268:20,22,24 2269:14 2278:16 2475:9,11,14

**Kossuth** 2304:25 2343:1

**KPMG** 2388:24 2389:2,13

**Kracht's** 2345:21

**Kruthoff** 2324:14

**Kylie** 2281:14

---

**L**

---

**L3** 2285:22

**labeled** 2255:8 2384:23

**labor** 2365:22 2371:4 2374:9 2394:21 2395:22 2418:7 2472:19 2481:2,3

**lack** 2354:3 2389:20 2409:22

**lacks** 2403:21

**laid** 2304:16 2407:21,23 2426:16

**Lance** 2318:1

**land** 2214:10 2216:12,14,17 2224:15 2236:4 2246:14,17 2257:1,12 2273:20,22 2285:16 2312:11 2332:13 2343:16 2407:17 2431:9 2456:23,25 2457:8 2459:18 2461:6,8 2463:2 2464:4,10

**landowner** 2227:22 2230:15 2231:10 2236:17 2237:3,23 2239:9 2257:5 2262:21, 22 2263:18,21 2264:4,17 2265:22 2272:7, 13 2274:14 2275:3,8 2291:11 2294:9 2295:22 2297:4,13,24 2298:16 2299:7,9, 11,21 2300:2,18 2304:22 2305:15 2306:2,25 2307:15 2308:17 2309:6,22 2312:17 2313:24

2314:10,11,20 2315:8,9,24 2316:11 2317:3 2318:1 2320:13, 20 2321:1 2322:14 2323:18, 19 2324:1,9,14 2325:22 2326:1, 22 2327:16 2328:5,14 2329:15,21 2330:3,8,21 2331:18 2332:10, 21 2333:12 2338:8 2339:17, 18,21 2341:15 2343:23 2344:2,8 2345:21,23,24 2347:2,4,14 2349:13 2409:13 2431:10,22 2432:1,4,7 2433:7,10,20 2434:9,14,16,24 2435:15 2438:3,5 2440:8 2445:7,18, 21 2446:7 2447:22 2448:1 2450:16,22 2452:8,14,25 2454:11,12,14,17 2455:7,25 2459:8 2463:25 2464:22 2468:8

**landowner's** 2236:10 2241:6 2333:9 2341:17 2344:20 2434:19 2435:8 2437:1 2441:4 2444:1,3 2452:15

**landowners** 2214:16 2226:5 2228:22,25 2234:23 2235:2,9, 14 2236:8,19,22 2237:9 2243:5 2263:10,12 2264:15,16 2265:1 2272:19 2273:11 2274:12, 23 2286:12 2288:12 2290:13 2291:8 2295:20 2296:25 2299:13,

19 2300:15 2301:2,3 2303:22 2305:11,12 2306:21,23 2308:3 2310:20, 22,24 2311:20 2312:10,14 2314:25 2315:4 2316:20 2321:4,5, 13,21 2327:4,14 2328:18 2332:2,7 2338:17 2339:1 2342:2 2346:6,9, 20 2348:4,11,13, 18,20 2364:19 2365:9 2407:7 2408:3,6,13,16,23 2413:18 2424:3 2430:23 2433:25 2434:18 2435:5 2443:5 2444:10 2445:5 2446:5 2447:5,8 2448:19, 21 2449:6 2452:5 2454:9,10,13,21 2455:2,5 2459:12 2462:1 2463:1,19 2464:6,12 2465:10 2475:15, 20 2476:2,9,15,18

**landowners'** 2237:1 2286:10 2464:4 2475:25

**lane** 2245:9 2258:20

**Lange** 2281:14, 24

**language** 2222:6,12 2258:9 2259:20 2264:11, 21 2265:2 2304:13 2339:20 2342:3 2348:16 2359:5 2447:1

**large** 2223:6,18 2225:6 2230:17 2234:10 2241:7 2243:19 2247:18, 24 2261:1,2 2274:5 2292:22 2313:8 2370:15, 20,23 2371:5

**large-diameter** 2291:18

**largely** 2472:24

**larger** 2260:22 2396:12 2438:22 2449:16,20 2450:5

**largest** 2244:8 2257:25 2367:12 2389:13

**laser** 2441:7

**last** 2211:6 2213:25 2226:3 2228:21 2237:25 2252:12 2265:1 2268:8 2290:11 2291:15 2298:17 2303:4 2312:18 2317:16 2329:6 2330:23 2335:11 2348:3 2364:5 2368:25 2369:6 2379:6 2398:14 2414:9 2448:3 2470:4 2476:20

**late** 2283:3 2470:18

**lateral** 2242:13 2295:7

**laterals** 2241:8

**launcher/ receiver** 2289:23 2290:2

**laundry** 2298:8

**Lavalle** 2314:11

**law** 2270:1 2276:4,8,13 2278:6 2414:24 2419:3 2481:10

**lawsuits** 2414:23

**lay** 2277:12 2297:22,25 2298:5 2335:5 2456:18 2457:24 2458:11

**laydown** 2266:11

**layer** 2217:24 2218:2,5,10

2220:8,18

**layered** 2253:8

**layers** 2224:12 2368:14

**laying** 2245:13 2352:3 2424:8

**lead** 2213:11,13 2251:5

**learned** 2237:17, 20

**lease** 2266:23

**leased** 2266:19

**least** 2265:21 2339:25 2342:6 2354:11 2365:16 2372:8,9 2380:14 2387:24 2391:20 2407:12 2409:11 2463:23 2465:5, 12 2476:18

**leave** 2228:1,19 2230:8 2265:22 2318:11 2361:10 2437:5 2439:18 2460:25

**leaves** 2242:18 2268:16

**leaving** 2339:9 2473:11

**led** 2466:17

**leeway** 2434:23 2440:10,17

**left** 2211:20 2372:15

**legal** 2277:7,13, 16 2278:9 2407:11

**legislator** 2269:25 2270:2

**length** 2307:8 2346:17 2365:13 2398:16 2473:4

**lengthened** 2394:25

**lengthening** 2302:11 2312:9

2342:8,22 2343:9, 15,20 2344:22,24 2345:18 2346:25 2347:24,25 2348:3,21 2473:21 2474:4

**members** 2281:25

**memory** 2372:13,23 2461:11

**mention** 2341:25 2348:6 2445:13

**mentioned** 2211:22 2216:24 2221:2 2240:1 2246:19 2261:15 2270:12 2272:22 2291:4 2298:14 2300:16 2301:4 2312:6 2318:8 2346:5 2351:13 2361:24 2380:21 2408:10 2449:2 2450:4 2464:11 2472:14

**mentioning** 2379:6

**Merle** 2320:13 2339:2

**Merrill** 2214:21

**Mersch** 2311:3

**messed** 2330:22

**met** 2212:19 2270:23 2280:22

**method** 2311:5 2426:22

**methodology** 2438:20

**metrics** 2367:18 2383:12

**Meyer** 2278:20, 21 2279:3,25 2391:3,4,6,7 2398:6 2453:23 2454:2,4 2456:5 2468:23,24 2469:1

**Meyers** 2443:16, 18,20 2453:19

**mic** 2352:19 2421:15

**Micah** 2470:14 2478:3 2480:11

**Michael** 2332:22

**micro** 2226:4 2249:8

**microphone** 2353:13

**mid** 2285:14

**middle** 2239:10 2330:1 2347:11

**Midwest** 2269:11 2430:3 2447:12

**migrate** 2324:3 2326:17

**migration** 2295:7

**mild** 2282:21

**mile** 2300:4,5 2431:16 2441:14 2461:9,10

**mileage** 2392:11 2396:17,18

**miles** 2224:14 2391:20 2392:4 2417:9 2424:7 2426:16 2456:19

**million** 2384:7 2386:25 2387:15 2388:14 2390:3 2392:19,20,24,25 2393:15,20 2394:8,14 2395:8, 21 2402:5 2415:25 2416:7 2447:14 2456:19, 20

**millions** 2398:21

**mind** 2234:24 2290:18 2292:5 2406:17 2459:10

**minimal** 2245:7 2302:10 2335:5,8

**minimize** 2214:9

2465:5 2466:8

**minimized** 2214:13

**minimum** 2244:9,17,22 2286:5 2313:7 2457:3

**Minnesota** 2425:5 2429:21, 23

**minus** 2390:24

**minute** 2385:2

**minutes** 2271:13 2352:14 2385:25 2450:3 2473:20

**mishandling** 2407:15

**mislead** 2398:3

**misleading** 2402:6

**mispronounce** 2324:14

**mispronouncing** 2290:19 2312:18

**misreading** 2466:22,24

**misremembering** 2450:6

**missed** 2269:20, 21 2345:19 2444:6

**misses** 2481:12

**misspeak** 2343:18

**misstating** 2412:1

**mistaken** 2217:13

**mitigate** 2219:25 2236:12 2240:9 2250:5 2259:11 2260:1,3 2273:25 2274:8 2288:17 2315:4 2319:19, 21

**mitigated** 2215:3

**mitigation** 2252:8 2444:14, 17

**mitigations** 2220:9,18

**mix** 2256:1 2363:18

**mixes** 2255:14,17

**mixing** 2254:5

**model** 2359:14, 18 2368:17,22 2369:3,13,17 2370:7,19,23 2373:6,7,17,24 2374:7,14,18,21, 22 2375:1,7,13, 16,18 2376:3 2379:18 2380:1, 20 2381:7 2382:18,20 2389:5 2393:11, 25 2400:5,6,7,15 2403:17 2404:7, 18,25 2405:13 2406:19 2408:1, 20 2409:1 2410:18 2415:7 2416:6,8,10,13 2417:6,20 2418:10,24 2419:8 2420:6,24 2421:1

**modeled** 2371:11

**modeling** 2219:11,15 2220:12 2368:14, 15 2373:1,21 2375:21,22,23 2380:3 2478:18, 19 2479:8 2480:18,20

**models** 2368:15 2369:1 2373:24 2375:2 2377:25 2378:18 2379:18 2380:1,22 2381:12

**modification** 2298:23 2299:1 2300:10 2314:14

2335:16

**modifications** 2214:5 2422:16 2434:23

**modified** 2214:12 2394:23

**modifying** 2216:13 2409:1

**Moines** 2334:2,4, 15,22

**moment** 2435:9

**Monday** 2471:15 2476:7

**money** 2395:15 2399:10 2404:16 2446:24

**month** 2477:3

**months** 2216:19 2226:3 2281:7 2398:20 2418:24 2471:14

**morning** 2210:2 2268:23,25 2269:19,21 2352:18 2353:16 2403:10 2474:9 2477:19

**Moser** 2294:11

**Mosers'** 2294:10

**motion** 2268:4,5, 17 2471:8 2472:13 2474:6

**mouth** 2420:17

**move** 2214:17 2231:17 2235:4,9 2237:15 2240:23 2282:9 2299:10 2306:25 2307:23 2322:21,23 2323:1,7 2330:17 2331:2 2332:14 2333:9,10,15 2341:9,18 2344:4 2346:23 2349:11 2353:22 2421:15 2422:18 2442:14 2451:17 2452:3 2469:25 2471:2,5

**moved** 2231:19 2299:11,17 2303:8 2304:24 2310:13 2313:13 2475:16

**movement** 2302:7 2309:12

**moves** 2461:3

**moving** 2231:22 2255:4 2298:18 2303:5 2309:17 2339:4 2340:8,24 2343:21 2472:22 2474:11 2476:14

**Muhlbauer** 2219:22

**multi-region** 2381:2

**multiple** 2241:8 2280:15 2281:2 2332:7 2342:16 2425:22

**multiplier** 2379:9,10

**multipliers** 2379:15

**multiyear** 2343:12

**Murray** 2345:21 2347:20,21 2348:2

**mystery** 2471:13

**N**

**named** 2354:14 2448:2 2454:20

**names** 2303:4

**Nancy** 2326:1 2331:18

**Naomi** 2335:12,13

**narrative** 2270:18 2271:12

**narrow** 2224:4 2454:16

**nations** 2414:12

**natural** 2215:20 2247:4,15,16,19 2251:12 2291:17

**nature** 2216:15 2288:4 2371:3 2404:6

**Navigator** 2368:5,6

**Nebraska** 2425:6

**necessarily** 2220:15 2236:6,15 2237:2 2248:5 2377:10 2401:17 2443:3 2457:21 2472:20

**necessary** 2260:15 2289:15 2429:17 2433:13 2440:21 2473:5

**needed** 2217:21 2231:9 2244:12 2260:23 2345:19 2452:13 2455:4

**needing** 2339:12

**negative** 2359:21,23 2361:13,21 2362:1

**negotiate** 2330:5

**negotiated** 2441:21 2442:16

**negotiation** 2345:23

**negotiations** 2291:24

**neighbor** 2236:23 2305:23 2306:4 2308:18,21 2339:5 2344:12

**neighbor's** 2315:7 2328:8 2331:9 2339:5 2340:11 2347:12,17

**neighborhood** 2249:17

**neighbors** 2307:16 2315:22 2455:18,22

**neighbors'** 2236:25

**Nelva** 2290:18

**net** 2362:2 2377:10,13,15,24 2378:1 2418:3 2420:9,14

**newer** 2279:14

**newly** 2472:2

**nick** 2273:24

**nicked** 2253:11

**night** 2274:16

**Nolan** 2328:5

**non-intervening** 2228:22,25 2476:17,23

**non-maintained** 2318:15

**non-party** 2472:16,21

**non-perf** 2438:11

**non-perforated** 2244:25 2245:4,17 2246:6 2449:9,12

**non-pipeline** 2380:24 2381:11

**non-residents** 2395:16

**non-summit** 2481:5

**Nonetheless** 2359:9

**noon** 2352:14 2366:12

**normal** 2220:5 2460:2

**north** 2231:9 2233:20 2234:25 2238:13,18 2242:5,7 2247:10 2292:13 2297:5,

15 2300:4,6,20,24 2301:18 2303:17 2304:14 2305:17 2309:12,13,16 2313:20 2317:8 2323:12 2325:20,22 2328:14 2329:2 2339:12 2340:1,16 2341:13 2345:2 2367:13 2423:14 2424:20 2425:5 2429:23 2461:20

**northeast** 2309:8 2319:20

**northern** 2291:17 2324:9 2341:7

**northwest** 2242:12 2270:14 2309:15 2341:16 2343:22 2344:5 2457:13

**northwesterly** 2242:6

**note** 2365:8 2448:17 2450:14 2451:12 2473:2

**noted** 2361:19 2407:6 2423:3 2478:12

**notes** 2255:8 2327:22 2358:19

**nother** 2471:9

**notice** 2271:2 2292:24 2300:13 2327:7 2472:15 2475:21 2481:1,16

**noticed** 2434:10

**notification** 2227:7

**notified** 2227:5,6,9,16

**November** 2283:3 2471:25 2476:21 2480:23

**NRCS** 2253:23,25 2284:1 2448:22 2463:19

**number** 2222:17 2223:5,11 2225:6 2254:22,23,24 2265:7 2279:12 2289:17 2293:22 2294:17 2297:19 2310:17 2312:11 2346:14 2363:17,23 2367:5 2377:21 2384:11 2386:14 2392:2,4 2396:12 2401:2 2419:13 2442:19,22 2452:21

**numbered** 2356:20

**numbering** 2255:2,3 2376:19

**numbers** 2254:19 2255:7 2265:8 2363:16 2390:19,20 2392:6 2395:17 2396:2 2399:11 2400:1,2,11,14,16,18,20 2401:1,4,13,14 2409:9 2410:4 2417:14 2419:13,17 2446:3

**numerous** 2275:6 2280:23 2299:19 2306:21 2324:24 2332:2

**O**

**oath** 2212:12 2367:2

**object** 2211:8 2270:17 2271:11 2354:2 2442:6 2456:11 2479:5

**objecting** 2211:6

**objection** 2211:11,15,17 2226:16 2270:15,16 2271:8,9,10,17,18,21 2276:10,11 2277:6,9,11 2353:25 2354:8,14 2403:7,8,9

2409:14,15
2410:7,8,15,22,23
2411:8,14,15,16,
18,19,24 2412:1,
4,7 2422:24
2423:1 2442:12
2478:6

**objections**
2226:15,17
2256:11,13
2422:22 2481:8

**objective**
2284:13,15

**obligated**
2433:3,12

**obligation**
2357:10 2358:13
2433:19

**observed** 2444:2

**obtain** 2358:14
2399:22 2409:9
2420:20 2430:23
2448:20

**OCA** 2218:15
2284:9 2478:6

**occupancy**
2337:8

**occupied**
2248:19,20

**occupy** 2478:9

**occur** 2249:7,9
2252:21 2261:14
2272:16 2274:21
2367:13 2369:9
2437:22 2480:24

**occurred**
2252:22

**occurring**
2240:11 2394:12

**occurs** 2259:6

**October** 2476:21
2480:22

**odd** 2231:16

**off-hours** 2478:2

**off-the-shelf**
2375:16

**offenses** 2272:16

**offer** 2226:13
2256:9 2282:2,10
2338:19,20
2348:1 2423:1
2431:21 2474:24

**offered** 2292:1

**offering** 2478:3

**offers** 2376:25

**office** 2449:3
2461:20

**offices** 2429:23,
24,25 2448:23
2463:20

**officially** 2388:25

**offset** 2222:18
2366:3

**offtake** 2401:25

**oil** 2247:10

**older** 2279:13

**on-site** 2439:14
2445:5 2464:23
2465:12

**ongoing** 2368:19
2369:5

**online** 2269:20

**Oops** 2367:7

**open** 2210:24
2293:2,3,6,8,15,
23,25 2308:14
2312:4 2458:9

**opened** 2464:24

**operate** 2404:16
2425:16 2437:14,
15 2456:3

**operating** 2387:6

**operation** 2215:3
2219:3,4,7 2337:9
2355:8 2357:1
2360:1 2365:2,7
2388:17 2404:11
2418:11 2461:13

**operational**
2285:4 2418:16

**operations**
2218:3,24
2386:21,24
2387:24,25
2388:18 2418:8,
16

**operators** 2455:2

**opinion** 2220:12
2264:25 2270:8
2277:13,16,17
2376:25 2377:4
2475:12

**opinions**
2277:17 2424:4

**opportunities**
2229:6

**opportunity**
2283:14 2308:12
2399:18

**opposed**
2223:18 2377:20

**opposite** 2424:4

**option** 2259:15
2345:8,9

**options** 2307:14

**orchard** 2330:17

**order** 2210:13
2248:3 2261:6
2276:20 2278:22
2367:14 2399:21
2426:16 2432:14
2440:19 2470:23
2471:2 2474:8
2480:5,14,15

**ordered** 2402:4
2470:9 2471:3

**org** 2210:22
2211:14,17

**organization**
2268:13

**organizational**
2211:10

**original** 2230:10
2265:20,24
2322:16 2330:15
2346:1,23
2365:25 2416:8,
10

**originally**
2231:11 2268:8

**orphans** 2296:14

**out-of-state**
2475:21

**out-of-the-area**
2395:13

**out-of-town**
2395:12

**outcomes**
2267:7

**outdated**
2438:18

**outlines** 2213:15

**output** 2367:16,
20,21 2368:3
2378:6,9,11,17,21
2379:2,21,22,25
2380:4 2381:21
2392:20,21,22
2418:7

**outreach** 2284:1

**overlaid** 2241:19

**overlaying**
2342:18

**overruled**
2354:14

**overseeing**
2261:18

**overview**
2251:23

**owned** 2217:6,10
2238:13 2304:25
2305:18 2342:25
2343:7,23

**owner** 2217:3
2237:5 2238:13

**owners** 2227:2
2266:21,24

**ownership**
2269:2 2306:12
2332:1

**owns** 2237:18,19
2292:20 2306:13
2314:21 2341:1,3

---

**P**

---

**p.m.** 2366:19,20,
21 2474:1,2
2481:24

**PA-013** 2229:16

**package**
2375:20,23,25

**packages** 2376:4

**pad** 2244:13

**pages** 2249:21
2298:15 2305:16
2307:1 2312:19
2327:16 2328:5
2329:16 2330:9
2334:1 2454:6

**paid** 2383:24
2385:19 2398:23
2400:21 2404:20
2441:13,14,15,17
2468:15

**Palmquist**
2327:17

**paragraph**
2222:13 2225:8
2255:15 2364:6
2387:14

**parallel** 2286:20
2326:14

**parameters**
2222:20 2356:3

**paraphrase**
2229:24

**paraphrasing**
2259:18

**parcel** 2233:8
2234:1 2235:18
2237:18 2238:12,
18 2239:1
2240:19 2241:4
2242:4,7,12,18,19
2275:17,22
2292:10 2299:23
2301:12,15
2303:16 2305:5
2308:10 2311:10,
20 2312:20,21
2313:6,8,19,21

2426:16,21
2438:7,8,11,13,
22,23 2440:20
2448:12 2449:16,
20,24 2450:5
2453:5 2458:11,
19,20 2460:10,21
2465:13

**pipeline** 2214:4
2215:7,16
2216:10 2223:10,
17 2225:12
2226:4 2228:7,13,
17,19 2230:5
2234:14 2235:24
2236:9,18
2238:20 2239:3,
15,23 2240:4
2244:2 2246:18
2247:13,17
2248:3 2249:2
2251:16 2253:15
2257:21 2267:8
2270:25 2273:7,
16,19 2277:20
2285:3 2286:3,15
2287:23 2290:15,
23 2291:16,17
2294:16 2295:4,
23 2296:21
2297:5,15 2298:1,
24 2300:13,19
2301:16,17
2302:8,19 2303:5
2304:24 2305:17
2306:12,15
2307:3,19,22
2309:8,11,24
2315:12,17
2319:3,5 2320:24
2321:9,12,24
2322:21 2323:1,7
2325:4,13,16
2328:7 2330:12,
17,25 2331:3,14,
21 2332:4,15,24
2333:2,7 2334:3,
20 2335:14
2337:23,25
2339:4 2340:14
2341:9 2342:25
2346:23 2351:7
2357:2 2359:25
2360:1,19 2365:3
2368:5 2371:14
2375:16,23

2377:17,22
2380:18,23,24
2381:1,4,5,9
2383:8 2391:19,
20 2392:10,25
2393:19 2396:17,
18 2404:12,16
2406:12 2407:9,
17,21,23 2409:8
2413:18,22
2415:24 2417:9,
11,12 2426:15
2434:21 2437:15,
17 2438:12
2440:13,25
2441:8 2443:25
2447:2,3,15,19
2448:4 2451:1,2,
6,9 2452:7
2456:24 2457:8,
15,18,25 2458:8,
20,22,23 2462:1
2463:21 2465:13
2466:14 2467:1,6,
20 2468:9,14,15
2475:17

**pipelines** 2240:2
2246:13 2247:3,7,
24 2248:17,22
2249:1,6,7,12
2291:18 2302:21
2325:13 2407:12
2429:9,10,12,13
2460:11 2468:7

**pipes** 2450:19,20

**pit** 2311:25

**pits** 2439:3

**pivot** 2239:10
2286:18 2296:2,
13

**Pivvot** 2216:24
2217:3,5,8,13,14,
19,23 2218:1
2223:8

**placard** 2278:16

**place** 2230:23
2233:11 2253:13
2257:16 2274:2
2276:2 2283:7
2299:3,12
2331:19 2342:21
2425:10,13

2461:14 2480:21

**placement**
2309:24

**places** 2285:17
2428:23

**placing** 2260:2
2299:18

**plan** 2250:2,14
2251:1,25 2252:8,
18 2254:13
2273:14 2282:24
2283:12,19,24
2322:1 2352:13
2406:23 2424:8
2426:11 2444:14,
17,20 2474:12,21
2475:24

**planned** 2214:22
2227:19 2340:23
2341:25

**planning** 2272:2
2279:4 2283:10
2293:12 2428:13
2474:17 2478:10

**plans** 2283:2
2290:13 2291:2,9,
11 2316:23
2321:15 2364:20

**plant** 2228:7,9,11
2240:16,20
2314:8 2339:10,
13 2401:25

**plants** 2228:5
2337:22

**plastic** 2436:24

**plat** 2279:13

**platform** 2241:20
2336:19

**plats** 2279:14

**play** 2458:3

**plug** 2313:3,4
2341:23 2342:4,6
2435:19

**plugs** 2341:25

**Plymouth**
2339:11

**point** 2233:22
2251:4 2260:17
2264:6 2300:23,
24 2301:6
2302:15 2303:18,
19 2308:5
2322:17,19
2327:10 2336:4
2356:6 2379:6
2383:1 2388:19
2390:1 2408:15
2440:16 2458:3
2477:4

**points** 2220:5
2302:20 2304:16

**poles** 2298:7

**policy** 2375:3
2403:18 2415:9
2437:6

**political** 2270:8
2404:6 2410:13

**pollinator**
2255:24,25

**pops** 2345:5

**populated**
2218:11 2228:6

**population**
2230:9 2231:21
2368:16 2369:2
2406:8

**portion** 2296:14
2340:1 2368:21,
24 2372:1,5,6
2386:11 2396:13
2419:18

**pose** 2412:15

**position** 2410:11

**positive** 2359:19,
24 2360:2
2361:24 2420:25

**possibility**
2408:21

**possibly** 2306:4
2348:15 2424:6
2425:14

**post** 2289:10
2293:17 2373:11
2418:8

**post-hearing**
2278:10

**potato** 2413:23

**potential** 2257:7
2259:2 2348:14
2349:7 2361:25
2417:24 2465:9

**potentially**
2227:11 2265:13
2290:14 2333:3
2390:19 2405:7
2425:22 2431:20

**Pothole** 2428:15,
17,20

**Powell** 2219:13
2342:14 2470:11
2478:3,15 2479:6,
17

**power** 2215:9
2228:14 2239:25
2286:22 2349:17
2414:11 2427:23

**PP** 2389:4,19

**practical** 2243:22
2298:2 2310:17
2312:15 2343:5

**practically**
2346:19

**practice** 2274:22
2275:2 2319:25
2320:2 2438:18
2467:14

**practices** 2251:8
2258:17 2273:15
2274:1 2312:4,8,
14

**Prairie** 2428:15,
17,20

**pre-permitting**
2463:12

**precaution**
2274:18

**precautions**
2461:1

**precedent**
2409:24

**Precision**

2262:2,6

**preconstruction** 2289:2,9

**predicate** 2409:18

**predict** 2477:25

**predictable** 2405:15,19,23

**predicted** 2383:5

**prediction** 2360:16,19,25

**preface** 2222:5

**prefer** 2239:11 2470:23 2479:11

**preferable** 2323:14 2345:25

**Preferably** 2244:18

**preferences** 2311:22 2435:6

**preferred** 2221:10 2309:24 2311:4 2326:18

**prefiled** 2403:12

**prejudice** 2477:5

**prejudiced** 2477:14

**Preliminarily** 2266:18

**preliminary** 2213:17 2220:16 2221:8 2295:10 2388:18 2464:7

**prepare** 2355:17

**prepared** 2357:20,24 2477:10

**preparing** 2222:2 2401:25 2428:12

**presence** 2396:16 2468:14

**present** 2348:13 2367:18 2434:9 2466:20

**presentation** 2471:5

**presented** 2230:15 2253:6 2263:3 2282:2 2376:21 2377:9

**presently** 2424:17 2479:25

**president** 2403:1

**pressure** 2471:11

**presume** 2458:4

**pretty** 2270:7 2303:19 2337:1 2402:24 2404:1 2439:12 2448:25 2449:1 2456:22 2458:17,21 2461:15 2467:14

**prevent** 2272:21 2448:6,9

**previous** 2309:10 2455:8 2465:24 2466:18

**previously** 2212:9 2308:7 2354:15 2395:1

**price** 2361:14 2374:9

**prices** 2375:5 2383:15

**pride** 2446:21

**primarily** 2260:24 2286:16, 25

**primary** 2213:8 2261:3,20

**prime** 2331:7

**prior** 2254:20 2257:14 2258:2 2318:10 2377:18 2416:23 2420:13 2423:1 2469:14 2472:2

**priorities** 2239:12

**priority** 2293:22

**private** 2454:20, 25

**probability** 2408:21 2409:1

**problem** 2212:1 2223:3 2442:1 2444:8 2465:9 2470:22 2471:23 2472:1

**problematic** 2292:22 2414:25 2436:16

**problems** 2466:2

**procedure** 2468:8

**procedures** 2354:12

**proceed** 2268:20 2475:24

**proceeding** 2277:15 2375:9 2383:5 2470:14 2472:10

**proceedings** 2269:20 2423:15 2471:12,20 2477:1

**process** 2213:16, 19 2214:7,8 2217:2 2219:15 2227:7 2230:20, 21,22 2231:18 2243:19 2257:20 2262:21 2263:7 2307:20,23 2308:5 2309:21 2310:10 2343:12 2358:22 2394:3 2397:5,8,22 2418:17 2426:8 2434:11 2435:22 2464:8

**processes** 2276:1

**produce** 2378:23 2385:18

**produced** 2370:20 2379:23

2414:16

**producers** 2361:16,25 2362:1 2415:1

**produces** 2285:16

**product** 2302:7 2379:3,7

**production** 2254:14 2364:7 2375:4 2450:25

**productivity** 2257:6 2320:8 2348:7,10 2380:1 2408:7

**products** 2415:5

**professional** 2284:18

**professionals** 2481:5

**profile** 2371:17 2418:16

**profit** 2442:22 2443:1

**program** 2336:18 2356:1

**prohibit** 2348:10

**prohibited** 2321:1

**prohibitions** 2343:16

**prohibits** 2348:7

**project** 2257:4 2261:18,21 2262:5 2269:13 2280:20,21 2281:15 2290:6 2298:11 2316:5 2327:4 2348:10 2355:9 2357:2 2360:22 2361:14, 22 2362:7,16,21 2364:6,21 2365:13 2368:16 2369:2 2370:19 2371:8,25 2372:12 2373:13, 16 2377:20

2388:16 2390:4, 17,18 2394:15,16, 18 2398:4,23 2399:3,24 2400:23 2401:16 2405:3,9 2406:3 2412:22 2416:9, 25 2417:8,19 2423:22 2424:8, 20 2425:25 2426:8,9,12 2428:10,18 2429:19 2430:22 2431:8,11,14 2434:19 2435:2,4, 25 2436:2 2438:16 2439:23 2440:22,24 2441:17,18 2442:3,4,17 2443:4 2452:10 2454:24 2455:10, 12,16 2460:4 2461:4 2464:3,20

**projected** 2361:4

**projection** 2361:11

**projections** 2404:9

**projects** 2223:7 2258:16 2288:25 2370:21 2426:19 2428:12 2431:12 2436:22,24 2443:13 2445:20 2447:12,16 2460:10,12

**prominent** 2427:19

**promise** 2272:24

**promised** 2275:8 2329:17

**promoter** 2400:21

**promoting** 2398:23

**pronounce** 2291:15

**pronouncing** 2448:3

**Prop** 2414:17

**proper** 2361:2 2409:18 2476:3

**Properly** 2257:17

**properties** 2229:20 2237:1 2241:9 2266:22 2292:21 2306:13 2307:25 2308:13 2311:13 2315:21 2327:12 2332:8 2337:21

**property** 2227:14,15 2229:19 2230:11, 18,22 2231:12,14, 15,25 2233:15 2236:9,18 2237:23 2239:8, 11 2242:22 2264:20 2265:15 2267:6 2291:21 2292:13,18,20,21 2296:15,17 2299:8 2300:20, 25 2301:5,18,20 2302:14,15 2303:18 2304:2,8, 11,14,25 2305:3, 18,22 2306:14 2307:4,8,10 2308:19 2314:25 2315:5,6,13 2317:7,15,18 2319:6,13 2320:16 2321:2 2323:21 2324:3,4, 5,19,24 2325:23 2327:3 2328:1,8, 9,15,20,21 2329:18,21 2330:1 2331:20, 23,24 2332:4 2333:4,14,16,19, 21,24 2334:7 2335:14,18,25 2337:19 2339:9 2340:1,7,11,15 2341:17 2342:25 2343:7,22 2344:1, 8,17 2347:17 2349:8 2350:24 2388:16,23 2389:4,12,25

2390:13,23 2396:10,20 2397:10,13,23 2444:4 2448:5

**proportion** 2396:17

**proportionate** 2421:1

**proposal** 2327:6

**propose** 2315:10 2316:3 2322:11

**proposed** 2228:2 2279:18 2284:15 2289:15 2307:2,3 2309:7 2314:11, 16,19 2315:12 2316:1,4 2317:4 2318:25 2320:14, 25 2323:20 2325:3 2326:5 2328:6 2330:24 2331:20 2332:15, 24 2333:2 2334:20 2335:13 2472:15

**proposes** 2330:11

**proposing** 2333:20

**proposition** 2213:22 2414:16

**proprietary** 2400:15

**proprietor** 2400:20

**prorating** 2392:3

**prospective** 2401:15

**prospectively** 2380:16

**protect** 2259:2

**protecting** 2257:6,16

**protections** 2220:9

**protective** 2210:13

**provide** 2261:9, 12 2277:13 2334:24 2356:15 2360:22,23 2396:11 2401:6,9, 12 2404:20 2431:25 2432:2 2447:6 2464:1

**provided** 2218:15 2221:21 2242:1 2246:22, 23 2247:1 2248:9 2310:3 2342:22 2343:20 2361:23 2376:23 2377:1 2382:11 2383:2 2388:17,24 2397:5 2400:18 2401:14 2412:20 2418:16 2436:14

**provides** 2259:15

**providing** 2272:1 2342:17 2475:19

**proximity** 2248:19 2249:2 2316:4 2332:25 2439:12

**proxy** 2389:18

**prudent** 2283:11

**PSC** 2423:14

**public** 2211:3 2214:9,13,25 2219:17 2229:11 2270:8 2277:4,5, 17 2278:7 2357:18 2359:8 2390:11 2405:4, 10,11 2464:1

**publicly** 2211:19 2241:20

**published** 2373:4 2418:23

**pull** 2229:15 2235:16 2240:24 2241:6,11 2284:11 2294:11 2297:1,9 2339:7 2347:3 2411:5 2467:23

**pullback** 2344:16,17

**pulled** 2297:8 2317:10 2328:11

**pulling** 2327:21

**pulls** 2245:22

**pump** 2289:24 2290:2 2339:14, 15 2392:15

**purchase** 2374:2 2380:4 2381:4 2393:17 2416:13

**purchased** 2371:3 2378:19 2393:9,21

**purchases** 2363:2,3 2371:12 2375:18,23,25 2378:15 2381:2 2393:16

**purchasing** 2371:16 2393:3

**purpose** 2277:5 2278:7 2358:12 2359:2,8 2361:7

**purposes** 2277:4 2286:3 2358:6,11 2387:12 2427:20

**pursuant** 2358:3

**pushed** 2238:25 2472:9

**put** 2236:9 2244:23 2248:3 2251:24 2255:7 2264:8 2291:11 2302:17 2304:6 2305:23 2328:21 2342:3,6 2347:16 2352:19 2364:20 2367:22 2374:5 2397:13 2402:19 2419:7 2420:16 2434:20 2441:7 2442:10,18 2449:23 2465:14 2469:13 2470:11 2476:5

**puts** 2471:10,11

**putting** 2272:22 2306:19,22 2315:22 2404:14 2438:6

---

**Q**

---

**QA/QC-ING** 2213:2

**qualified** 2277:23

**qualifies** 2278:7

**quantify** 2372:7

**quantifying** 2405:2

**quantity** 2225:12 2280:23 2289:22 2302:25

**quarter** 2285:4 2394:1 2461:9

**quasi-legal** 2277:14

**question** 2211:21 2214:19 2236:17 2241:4 2246:8 2254:20 2270:19,20,22 2271:13,24 2272:4 2276:16, 20,24 2277:19,22, 24 2299:21 2305:2 2310:11 2313:15 2314:13, 20 2319:14 2323:11 2325:23 2327:6,12 2335:18 2345:19 2348:9,15 2350:8, 12,14 2373:5 2376:14 2403:3, 14 2404:3 2409:19 2410:3, 25 2411:14,24,25 2412:5 2413:10 2414:9 2418:21 2420:6,18 2427:21 2428:3,4 2432:16,20 2435:20 2439:10 2440:7 2441:12 2443:23 2446:17 2449:18,22

2450:8,10
2451:24 2452:4
2453:3,15
2454:12 2460:5
2461:5 2465:21,
24 2466:6,12,17,
18

**questioned**
2331:6

**questioning**
2211:6 2479:8

**questions**
2212:21 2243:24
2246:1 2251:19
2262:11,14
2264:24 2266:1
2267:11,15
2269:15 2272:2
2278:18 2279:25
2280:2,8 2282:14
2283:23 2284:6,
25 2336:8
2338:25 2348:22
2349:5 2353:18
2369:19 2391:13
2398:6 2402:14
2403:18 2407:4
2412:13 2415:16
2419:24 2421:5
2422:12 2443:22
2453:17,20
2455:3,13 2456:5
2463:1 2464:1,2,9
2465:8 2468:20
2469:3,10,18
2477:9

**quick** 2212:12
2232:2 2267:16
2350:13 2366:17
2367:1 2469:5
2473:20

**quickly** 2287:17
2294:4,6 2298:14
2474:8 2481:4

**quit** 2368:4

**quote** 2472:17

**quote-unquote**
2399:3

**quoted** 2221:24

---

**R**

---

**R-E-M-I** 2368:8

**radar** 2430:17

**railroad** 2228:18
2288:3 2292:17
2327:1 2344:4

**rain** 2294:22

**raise** 2352:21
2421:20

**raised** 2342:12

**ran** 2286:3
2436:23

**Randy** 2320:13

**range** 2260:16

**Rastetter**
2400:22

**rate** 2441:21
2442:17

**rates** 2383:14
2389:4,9,12,15

**ratio** 2379:25

**ratios** 2380:10

**Raymond**
2326:22

**re-spending**
2363:7

**reach** 2236:20
2237:8

**reaching** 2300:6

**read** 2222:5,12
2236:2 2238:22
2331:15 2386:14
2444:13 2468:2

**reader** 2361:10

**reading** 2358:8
2468:4

**reads** 2433:8

**ready** 2366:22
2429:21 2439:13
2470:6 2477:11
2479:7

**real** 2232:2
2275:11 2373:10
2377:23 2397:13
2406:17 2470:22

**realized** 2383:6

**reason** 2261:3
2306:10 2312:15
2316:14 2321:23
2322:25 2323:17
2325:10,11,19,20,
25 2347:18
2387:5 2388:8
2408:10 2413:7,
19

**reasonable**
2243:22 2405:8
2416:14,16

**reasonableness**
2356:4

**reasons** 2261:14,
15,16 2297:20
2298:8,12,14
2307:22 2310:18
2312:12 2320:10
2323:16 2343:5
2354:5 2417:9

**rebut** 2423:2

**rebuttal** 2246:12,
23 2248:10,18
2261:8 2353:11,
23 2359:17
2365:10 2396:4
2415:23 2422:9,
19 2423:1
2445:12 2446:11
2450:9 2462:18,
22 2463:6,10
2465:18

**rebutting**
2462:20,25

**REC** 2298:20

**recall** 2216:19,23
2237:1 2246:15,
24 2266:6
2279:11 2291:15
2292:14,16
2299:23 2305:11
2309:20 2310:2,5
2311:16 2314:2
2326:19 2329:4
2334:5 2339:21

2340:8 2347:6
2350:6 2371:22
2400:8 2409:11
2420:14 2458:19
2479:9

**receive** 2396:24

**received**
2338:18,20
2355:19 2357:14
2401:18 2411:21

**receiving**
2388:12

**recent** 2226:2
2250:20,23

**recess** 2267:18
2366:19 2474:1

**recessed**
2481:24

**recognize**
2235:21

**recollect** 2300:25

**recollection**
2292:19

**recommend**
2331:20

**recommendatio
n** 2326:2 2345:6

**recommendatio
ns** 2251:11
2284:19

**recommended**
2284:13 2300:19
2301:17 2303:5
2304:24 2305:17
2313:11 2324:15
2335:13 2340:24
2342:24 2343:21

**recommends**
2297:5,14
2298:18 2300:3

**record** 2210:4
2252:6 2254:18
2255:1 2256:23
2267:21 2283:15
2287:4,10
2315:17 2331:17
2362:23 2366:18,
22 2374:13

2445:8 2448:25
2479:24

**recorded**
2381:15 2445:3,4

**recorder's**
2449:3

**recreational**
2292:12

**RECROSS**
2350:20

**recurring**
2307:13

**red** 2230:1,16
2231:2 2235:18
2303:15 2314:21,
22 2316:15
2344:15 2461:21

**redesign** 2344:6

**redirect** 2348:25
2349:1 2350:8,14
2420:3 2421:5
2469:5,7,19

**reduce** 2220:9,18
2315:4 2325:24
2332:15 2364:6

**reduced** 2365:3

**reduces** 2263:16

**reducing**
2295:12

**redundant**
2391:14

**reference**
2284:12

**referenced**
2300:7 2301:16

**referencing**
2232:14 2250:16

**referred** 2254:21
2454:8

**referring** 2249:1
2384:11

**refined** 2221:10
2224:6,19

**reflect** 2374:9
2392:6

**reflected** 2330:19 2381:7

**reflects** 2385:7,8, 9 2416:6 2417:20

**refuge** 2345:12

**regard** 2212:24 2406:16 2465:4

**region** 2381:3,9 2428:16,20

**regional** 2376:1

**regions** 2381:6 2428:17

**regrade** 2318:5

**regulate** 2414:11

**regulation** 2255:19 2256:5

**regulations** 2256:1 2287:15

**regulatory** 2254:1

**reidentified** 2279:14

**reissued** 2295:13

**relate** 2362:25

**related** 2269:3 2284:22 2355:25 2363:6 2399:23 2429:14 2453:17 2469:10 2475:11 2476:13

**relates** 2298:25 2300:9 2313:16 2332:24 2335:15

**relating** 2338:25

**relations** 2257:5

**relationship** 2379:11 2430:24

**relative** 2375:5 2386:9 2425:7

**relevance** 2354:3

**relevant** 2277:19 2404:1 2413:10 2414:9

**reliable** 2419:13

**reliance** 2358:11 2359:1

**relied** 2356:1 2400:11

**relocate** 2307:2 2309:7

**rely** 2356:14,17 2359:12

**remaining** 2372:20

**remains** 2417:1

**remedy** 2437:25

**remember** 2281:3,4 2339:19

**REMI** 2368:8,14, 20 2369:1,10 2373:22,24 2375:15

**reminder** 2212:12 2350:14 2367:2

**remove** 2211:14 2259:15 2265:16 2450:18 2458:6

**removed** 2211:9, 18 2308:11 2420:8

**removing** 2439:2

**Renewables** 2342:9

**rental** 2442:24

**repair** 2423:21 2425:16 2427:24 2432:18,19,24 2433:4 2435:12 2436:13 2444:22 2445:14 2446:8, 14 2447:15 2451:22,23,25 2452:6,16 2453:5, 17 2456:2 2458:12 2459:7 2460:2,8,23 2461:1 2466:4

**repaired** 2258:14,15

2288:19 2289:13 2427:14 2435:13 2440:12 2441:14 2445:21 2455:14 2459:12 2460:1 2462:3

**repairing** 2257:17 2429:6 2435:25 2436:1 2440:11 2452:18 2461:14

**repairs** 2426:1 2433:1,3,13 2434:24 2435:17 2445:18 2449:24 2453:12 2459:6 2465:22

**repeated** 2453:1

**repeatedly** 2360:21

**replace** 2437:3,5, 8 2438:10 2440:1 2444:25

**replaced** 2436:23 2466:15

**replacement** 2443:6

**reply** 2271:18

**report** 2280:22 2295:10,14 2354:25 2355:18 2356:14,15,17,20, 24 2357:8,10,11, 13,16,19,21,25 2358:5,8,9,10,14, 17,18,21 2359:1, 12 2360:14,15,21 2361:8,12,20,22 2362:3,11,15 2363:12 2364:1, 11 2366:25 2367:11,19 2376:22 2377:9, 12,13 2378:2,6,8, 24 2382:23 2394:19 2398:15, 16 2402:1,19 2403:16 2405:16 2408:12 2412:7 2418:23 2442:10

**reported** 2378:6

**reports** 2359:6, 10 2423:2

**represent** 2225:21 2268:1,6 2354:24 2370:4 2457:17 2462:15

**representation** 2210:23 2358:4

**representatives** 2458:10 2475:25

**representing** 2212:20 2272:19

**represents** 2225:10

**reps** 2268:12

**Republicans** 2270:5

**request** 2211:8 2214:15 2218:13, 15 2221:23 2222:3,6,8 2225:23 2291:7,8 2298:25 2300:9 2310:19 2311:16 2313:16 2314:24 2318:21 2322:4, 23 2323:1,18 2324:12 2325:1 2330:2,6 2331:10 2332:6,19 2333:9, 10 2335:15 2339:22 2340:8, 10 2343:3 2358:3 2471:2,22 2480:19

**requested** 2231:9 2235:1 2236:8 2263:13 2265:24 2268:3 2299:1 2300:10 2305:9,11 2308:7 2313:25 2314:14 2317:21 2322:21 2326:20 2329:11 2335:16 2338:8 2350:23 2426:6 2445:7 2472:7

**requesting** 2311:7 2471:17

**requests** 2220:24 2237:15 2275:13 2286:10 2298:22 2305:8, 25 2307:24 2308:2 2311:11 2312:5,7 2316:25 2321:21 2324:7 2349:11 2450:17

**require** 2222:20, 22 2324:8 2383:9 2399:14 2427:24

**required** 2253:5, 12 2258:3,10,14, 15 2259:10 2261:24 2335:9 2337:23 2338:5 2406:1

**requirement** 2258:6,23 2444:17 2451:18, 21

**requirements** 2252:3 2258:25 2275:16 2286:7 2293:6 2299:15 2452:13

**requires** 2255:17,23

**reroute** 2292:23 2325:3 2349:14 2350:24

**reroutes** 2214:1 2226:4 2301:4 2305:12,22 2310:2 2323:4 2349:8

**rerouting** 2297:5, 14 2335:13

**rescheduled** 2476:24

**research** 2217:20 2351:15 2399:17,18

**reseeding** 2254:13

**resettles** 2459:4

**reside** 2395:20

**RPLS**  2213:4

**rule**  2271:21
2410:15

**ruled**  2271:11
2298:14 2414:17,
25

**rules**  2257:23
2259:10,20
2262:25 2263:7
2276:1 2348:17

**ruling**  2211:8
2415:8

**run**  2286:20,22
2315:12 2328:15
2381:1,12
2382:12 2410:10
2470:16

**running**  2259:23
2290:23 2315:17
2326:14 2392:4
2418:14

**runs**  2407:17

**rush**  2462:16

**rutting**  2444:24

———————

**S**

———————

**safe**  2216:10
2298:2

**safely**  2335:9

**safer**  2347:16

**safety**  2214:10,
13,24 2215:14
2216:9 2219:17
2220:13 2298:8

**sags**  2448:11

**sales**  2367:21
2393:1,4

**same**  2223:9
2237:18,24,25
2238:13 2242:12
2255:2 2264:15
2271:3,10
2272:24 2291:19
2296:19 2307:6
2313:15 2314:13
2315:22 2318:6

2320:18 2353:9
2363:23 2365:23
2368:6 2371:2,5,
16,17 2379:8
2381:25 2382:14
2385:1,23
2394:23 2395:4
2402:3,4 2403:9
2407:11 2416:22
2417:1 2418:12,
13 2422:8,12,13
2423:13 2425:14,
23 2437:16
2438:10 2439:9,
14 2447:25
2452:4 2454:5,6,
10 2466:15
2471:20

**sandbag**  2448:14

**sandbags**
2438:24

**Sandra**  2318:1

**sat**  2216:20
2455:20

**satellite**  2429:24

**satisfy**  2352:4

**saturated**
2259:22 2294:23
2298:5

**Saturday**
2471:15

**save**  2284:6,24

**saved**  2274:15

**scale**  2372:17

**scenario**  2244:9

**scenarios**
2309:1 2414:3
2415:10

**schedule**
2268:10 2472:10,
16 2475:20
2479:9

**scheduled**
2471:25 2472:9
2476:19

**scheduling**
2471:8 2472:19
2474:10 2475:14

**Schmidt**  2251:5
2253:24 2279:24
2284:4,7 2285:24
2343:13,19
2345:14 2352:5

**school**  2246:20
2406:1,6,9

**Schovanec**
2211:21,25
2212:2,7,11,19
2232:3 2268:23
2280:3,4,5,6
2349:3,24

**scientist**  2284:18
2461:4

**scoot**  2324:20

**scope**  2358:4,10,
25 2367:25
2394:14,17
2403:21 2417:8
2435:2,4 2439:19

**scour**  2295:7

**scratch**  2231:20
2447:6

**screen**  2221:3
2349:6 2366:25

**screening**
2222:18 2223:11

**scroll**  2254:7,8
2255:10,11
2326:6 2364:2

**SCS**  2255:10,15
2448:22

**SCS-SC**  2254:22

**second**  2225:7
2248:25 2254:18
2285:4 2297:10
2301:7 2344:25
2356:19 2368:24
2385:9 2459:13

**secondary**
2288:14 2360:22
2361:25 2369:11
2370:10 2406:15
2419:16

**secret**  2472:3

**section**  2230:16
2252:18 2319:4

2414:10 2468:6

**secured**  2266:19
2301:5,20
2304:15

**securing**
2307:18

**seed**  2254:5
2255:14,17,25

**seeding**  2283:23

**seek**  2333:11

**seeking**  2268:1

**segregated**
2296:21 2380:23

**select**  2240:10

**selected**  2221:10
2222:17

**sell**  2292:3

**selling**  2385:13
2393:5 2395:18

**sells**  2378:14

**semis**  2312:1

**send**  2397:2
2478:21

**sending**  2395:14

**Senn**  2335:12,13

**sense**  2211:13
2212:5 2247:14
2276:8 2303:24
2320:10 2322:25
2346:19 2390:20
2402:16 2479:13,
16

**sent**  2342:14
2397:7

**sentence**
2252:20 2255:20
2364:5 2368:25
2369:7

**separate**  2368:17
2369:3

**separated**
2258:3,11 2272:9

**separation**
2243:13 2244:17,

21 2257:13
2271:6 2321:16
2322:5 2440:19

**September**
2210:3 2233:3,6
2235:6,9 2480:22
2481:25

**sequestered**
2388:4

**sequestration**
2355:9

**series**  2224:6
2469:9

**serious**  2472:1

**serves**  2461:11

**service**  2294:2
2376:6 2405:4,10,
11

**services**  2363:3
2371:13 2385:11
2393:17 2394:3
2404:20 2416:19

**session**  2210:25
2478:17

**set**  2219:5
2232:25 2329:8
2370:9 2430:24
2442:17,19,22
2443:9 2470:19

**setback**  2219:5
2222:15 2223:4
2225:11

**sets**  2224:13
2279:21 2409:24

**setting**  2449:21

**settlement**
2293:16

**settling**  2448:5
2459:3

**seven**  2341:18
2370:4 2407:23

**seventy-plus**
2234:11

**sever**  2432:21

**several**  2215:10
2221:6 2263:12

2267:15 2274:10 2282:1 2291:5 2300:15 2338:18 2340:20 2354:10 2367:18 2383:7 2398:20 2414:12 2416:6 2417:7 2426:13 2427:15 2436:19,22 2470:5 2481:1

**severed**  2432:23

**shallow**  2352:6 2460:14

**shape**  2301:21

**share**  2262:20 2393:14 2412:22 2424:4 2445:17 2462:6

**shared**  2292:10

**sharing**  2262:22 2456:1

**Shay's**  2339:2

**shed**  2330:10 2338:14

**sheds**  2225:16

**sheets**  2401:10

**shift**  2337:19 2338:6 2390:8 2413:21

**shifted**  2338:7

**shifting**  2459:18

**shifts**  2338:8 2460:22

**shock**  2374:16

**short**  2471:7 2472:19 2475:20

**shortens** 2323:15

**shortly**  2480:3

**shot**  2446:3

**shovel**  2352:5

**show**  2241:5,14 2309:11 2347:22 2377:13 2378:17 2396:4 2398:2

**showed**  2234:6 2290:22 2461:8 2478:23

**showing**  2225:14 2407:16

**shown**  2233:1 2309:8 2313:12 2317:4 2326:23 2328:6 2344:15 2349:4 2377:12 2386:11,12 2417:4

**shows**  2241:15 2391:21

**SI-076**  2235:17

**sic**  2320:3 2347:9

**side**  2215:7 2227:13 2230:18 2231:12 2232:7, 10 2233:14,20 2239:7 2242:4,17 2288:1 2298:18 2300:24 2304:1 2307:3 2313:2,14 2315:23 2317:15, 17 2322:18 2323:12 2324:19 2333:3 2339:21 2342:24 2344:5 2374:18 2461:11

**sides**  2258:18 2301:5 2313:5 2336:24 2337:4 2444:18,21

**Sierra**  2354:24 2462:15

**sift**  2352:7

**sign**  2213:24 2303:24 2308:24 2310:11,25 2324:2 2330:4 2339:6 2341:15 2346:9,12,21 2347:5,15

**signed**  2231:10 2264:16 2299:7 2300:23 2305:18 2306:1,7,18 2307:15 2308:4, 17 2310:22

2311:1 2313:20 2316:11 2317:23 2324:10 2325:21 2328:19 2330:3,7 2344:11 2346:16 2424:23 2478:24

**significance** 2385:3

**significant** 2231:20 2372:5,6 2375:5 2380:8 2390:12 2400:11 2416:9 2420:14 2459:23 2460:7

**significantly** 2407:18 2413:21

**similar**  2239:19 2353:20 2370:23, 24 2371:8 2373:21 2386:21 2387:24 2388:3,6 2409:7

**simple**  2252:14 2269:1

**simpler**  2369:17

**simply**  2349:5 2360:16 2375:22 2410:3 2412:4 2431:22 2473:5

**single**  2213:22 2235:1 2275:13, 22 2291:10 2295:14 2313:8 2321:18 2324:11 2342:7

**sir**  2212:13 2232:8 2278:13 2391:7 2398:11 2402:11 2423:13 2454:3

**sit**  2424:14

**site**  2234:5,8 2243:16 2290:2 2349:17 2411:1 2429:16 2446:1

**sites**  2289:24 2410:6

**sits**  2372:5

**sitting**  2477:8

**situation** 2229:22 2275:8 2291:10 2292:7 2296:5 2303:25 2304:6 2308:12 2315:23 2320:18 2328:23 2333:8 2336:1 2427:14 2440:4 2448:9 2459:10 2466:10 2468:17 2480:7

**situations** 2237:7 2263:10 2265:22 2287:1 2291:1 2293:3 2296:10 2300:22 2315:2 2316:21 2319:17 2328:17 2335:23 2346:14, 16 2450:16

**six-year**  2395:2,3

**Sixty**  2236:3

**size**  2243:4 2266:14 2426:22 2427:9,16,19 2446:4 2460:4

**sizes**  2243:1 2427:14

**skirt**  2319:20

**slated**  2273:16

**sliced**  2458:7

**slight**  2351:20

**slightly**  2216:7 2226:1,6 2231:9 2309:17 2312:8 2379:25 2384:1,9

**slip**  2443:1

**sliver**  2231:2

**slopes**  2215:7

**slower**  2472:10

**small**  2247:22 2276:23 2277:2 2311:12 2338:14 2339:25 2371:7 2429:24 2449:10

**smaller**  2265:16

2274:15 2377:11, 21 2395:5

**Smith**  2306:13, 17,18 2345:5

**snapshot**  2249:8 2313:19 2395:1,3

**social**  2370:7 2374:6

**soft**  2389:20

**software**  2216:21 2217:4,5,9,19,23, 24 2218:1,6,16

**soil**  2244:10,13 2245:22 2257:6 2259:2,6 2263:4 2270:12 2284:18 2311:24 2321:25 2408:7 2448:5 2449:21 2450:25 2459:3,4,14,21 2460:22 2461:3,4

**soils**  2294:23 2351:14

**solar**  2447:16

**sold**  2217:7

**solely**  2291:7

**solid**  2438:8 2449:12 2461:1

**solution**  2243:23 2432:18 2450:11

**Solutions**  2212:8 2269:13 2353:2 2355:6 2357:2 2399:8,13 2422:2

**sons'**  2229:19

**sophisticated** 2383:10

**sorghum** 2285:17

**sort**  2251:10 2358:19 2359:22 2361:10 2367:21 2369:6,12 2371:2 2372:23 2374:4,8, 17 2375:13,20 2377:19 2380:5,8, 22 2381:2

2382:22 2383:12,
16 2385:5,11
2388:25 2392:23
2396:11 2406:13
2407:19 2408:8
2411:14 2412:22
2417:8,15
2418:13 2431:9
2456:2 2458:15

**sorting**  2411:8

**sound**  2257:8
2265:7

**sounded**
2344:12

**sounds**  2331:7
2480:15

**source**  2247:16

**sourced**  2394:2

**south**  2230:11,
12,18 2231:12
2233:14 2235:18
2239:7 2242:5,17
2300:19 2301:17,
22 2303:17
2304:14 2313:20,
25 2314:7
2322:17 2323:11
2324:1 2326:9
2331:3,23 2332:1,
15 2340:1,16,23
2341:23 2342:24
2367:13 2368:5
2425:5 2470:14
2471:14,19
2472:8,9,11
2473:4 2476:8
2479:9

**southeast**
2242:17 2270:14
2322:18 2344:16
2457:13

**southern**
2313:21 2324:9
2328:16 2333:11
2341:1

**southernmost**
2341:5

**southwest**
2333:24 2344:16

**spaced**  2299:16

**spacing**  2219:23
2299:6 2426:25

**span**  2438:25

**speak**  2239:21
2268:13 2275:24
2296:12 2305:13
2314:4 2334:10
2343:14 2345:14
2369:14 2421:16

**speaking**
2271:12 2370:13
2445:2

**spec**  2436:14

**specialists**
2412:22

**species**  2349:18

**specific**  2233:8
2239:22 2243:16,
17 2244:5 2249:6
2255:14 2262:11
2264:21 2274:25
2275:13,16
2287:13 2296:25
2299:15,22
2305:4 2306:10
2311:10,11,14,16,
19 2316:24
2329:9 2342:3,19
2351:21 2386:17
2387:25 2401:21
2406:3,21
2414:22 2447:1

**specifically**
2224:7,8 2225:1
2238:17 2285:19
2304:16 2313:25
2337:17 2362:11
2415:4

**specifics**  2254:1
2258:7 2260:5
2284:4 2294:9
2299:2,24
2300:12 2305:13
2345:15 2352:8

**specified**
2388:18

**spectrum**  2270:9

**speculating**

2457:1

**spend**  2392:24

**spending**  2365:6
2372:18 2395:14
2399:4 2404:15
2405:21

**spending-type**
2359:24

**spent**  2399:10
2405:8 2406:23,
24 2416:21
2417:1

**spoke**  2268:7

**spoken**  2340:19

**spot**  2232:5,6
2445:6

**spots**  2464:21

**spotting**  2464:24

**spreads**  2424:10
2425:8 2426:20

**spreadsheet**
2389:2

**square**  2315:15
2461:10

**stabilization**
2257:19 2258:5,9

**stabilized**  2258:4

**staff**  2229:8,15
2282:14 2301:13
2314:6 2323:6
2331:13 2467:23

**staging**  2266:5,8,
9

**stairstep**
2315:19

**stakeholder**
2213:8

**stakeholders**
2213:12,20,21

**stamped**  2213:4

**stand**  2233:9
2252:6 2310:4
2345:7 2353:19
2434:3 2470:12
2475:7 2478:4

**standard**  2220:1
2284:14,15
2342:4 2359:5,9
2414:24 2434:6
2435:24

**standing**
2422:24,25

**standpoint**
2215:14 2262:11
2299:6

**stands**  2473:24

**start**  2243:18
2283:3 2285:10,
13 2288:9 2294:8
2302:25 2341:9
2415:8 2424:18
2443:22 2448:10
2451:20 2470:13
2476:20

**started**  2224:3
2232:24 2352:13,
15 2373:25
2386:16

**starting**  2222:13
2249:24 2257:3,
15 2371:18
2480:3,11

**starts**  2326:16
2365:11,12
2396:15 2464:20

**state**  2214:4
2247:5 2249:10
2255:18 2257:3
2259:1 2261:23
2269:25 2270:16
2271:9,17
2276:11 2283:15
2285:2,8,11
2295:15 2299:3
2320:21 2321:23
2333:6 2345:10
2357:8 2363:7
2376:9 2380:22
2381:5,10,11
2386:15 2394:2
2399:22 2400:1
2403:8 2404:19,
25 2406:24
2407:1 2409:15
2410:8 2412:23,
24 2416:12
2419:12 2425:1,

11 2428:23
2441:19 2447:17

**state-by-state**
2441:13

**state-level**
2396:15

**stated**  2220:3
2222:16 2236:20
2246:12 2280:14
2290:5 2312:20
2314:17 2315:25
2316:17 2330:24
2331:4,14
2332:12,23
2333:18 2339:3
2340:13,22
2341:22 2441:3
2443:6 2444:8

**statement**
2282:17 2350:25
2354:10 2360:5
2364:11 2466:22
2472:5 2475:9
2477:13

**statements**
2360:17 2401:7,
13

**states**  2240:8
2282:15 2283:16
2285:9,11
2329:17 2330:10
2331:19 2343:2
2381:8 2414:10,
12 2416:4 2425:3,
10,14,22

**statewide**  2394:1

**static**  2374:17,21

**stating**  2295:14

**station**  2290:2
2339:14 2446:3

**stationed**
2429:20 2430:2

**stations**  2289:24
2339:16

**statute**  2260:12
2261:6

**stay**  2294:13
2306:15 2313:11
2318:23 2328:8

2344:24 2418:13 2454:5 2472:13 2475:12 2476:6

**stayed** 2234:7 2471:19 2477:2

**staying** 2342:24 2453:10 2473:3

**stays** 2346:8 2418:12 2440:7

**steel** 2375:18 2380:4,6,9

**steep** 2215:7

**steeper** 2440:18

**step** 2349:24 2350:5 2421:8

**steps** 2224:7

**stick** 2276:22 2359:4

**stochastic** 2373:3

**Stockdale** 2326:22

**stone** 2443:9

**stop** 2282:21 2320:5 2376:9

**stops** 2376:11

**storage** 2266:16

**store** 2261:6

**stories** 2461:25 2462:5

**straight** 2230:12 2305:17 2322:19 2331:22 2457:13, 18

**straighten** 2340:19

**straightened** 2340:15

**straighter** 2323:7

**stream** 2229:1 2326:13,16

**streams** 2295:6 2347:10

**street** 2299:9 2300:4 2336:23 2340:3

**stretch** 2444:25

**stringent** 2252:3

**strip** 2260:24 2263:13,19,25

**stripped** 2264:20 2313:1

**strong** 2270:8 2455:17

**structure** 2222:18 2223:12 2224:23 2225:2 2227:20 2231:13, 24 2232:21 2234:21 2241:4 2290:7 2307:7 2333:21 2336:15 2338:9,10 2404:14

**structured** 2441:16

**structures** 2217:23 2222:16, 21 2223:5,18,22 2224:1,9,19,20 2225:13,14,16,18, 23 2226:8,24 2227:2,25 2228:10 2229:4 2236:10 2240:3 2248:7,19,20,22 2249:5,11 2279:5 2286:15 2290:10, 14 2323:16 2336:25 2337:14

**stuck** 2471:23

**study** 2247:2 2249:2,13 2354:7 2410:10

**stuff** 2274:15 2461:17

**sub- subcontractors** 2426:4

**subcontractor** 2442:23

**subcontractors** 2425:24 2426:3

**subdivided** 2230:16,22 2231:15

**subject** 2210:12 2221:13 2358:9

**subjects** 2246:11

**submitted** 2210:9 2222:8,9 2230:24 2252:9 2403:12 2462:18, 22 2481:17

**submitting** 2213:7

**subsidiary** 2217:4,14

**subsoil** 2257:14 2258:3,11 2259:3, 5,8,12,22,24 2261:6

**substances** 2247:3

**substantial** 2418:21 2463:13

**substantially** 2282:11 2353:20 2387:24 2388:3 2422:13

**substitutes** 2361:4

**substitution** 2374:9

**successful** 2257:3,11

**sufficiency** 2358:5

**sufficient** 2425:21

**sufficiently** 2441:9

**suggest** 2347:20 2351:16 2470:10 2473:13

**suggested** 2256:22 2310:15 2317:6 2327:20,

25 2470:2

**suggestion** 2310:3,12

**suits** 2291:21

**sum** 2392:7

**summarize** 2382:1

**summarized** 2396:4

**summary** 2355:3

**summer** 2398:14

**Summit** 2211:18 2212:8,23 2213:9 2216:13 2222:16, 17 2237:4 2239:14 2242:1 2250:25 2251:15 2253:21,23 2254:13 2255:25 2256:3 2259:15 2261:9,12 2262:19 2263:9 2265:15 2269:3, 10,12 2273:7 2279:15 2281:12 2282:13,14 2284:1 2285:2 2288:16 2289:16 2290:16 2296:9 2297:17 2298:19 2300:6 2305:19 2307:2 2312:5,23 2315:25 2316:2 2318:5 2320:25 2325:3 2329:17 2330:11,13,24 2331:2 2332:14 2333:1,20 2334:20 2339:4 2342:11 2345:23, 24,25 2346:2,25 2347:2 2348:24 2349:7 2352:17 2353:2 2355:5,18, 23 2356:2,13,18 2357:1,15 2362:7, 20 2363:1,9 2372:16 2376:23 2377:1 2382:11 2383:24 2384:2,6, 12 2385:10,13 2387:6,11

2388:11,17,24 2389:5 2396:24 2398:12,22,23 2399:8,13,19,21 2400:2,4,6,10,15, 18 2401:1,6,20,21 2412:20 2417:19 2418:17 2420:20 2421:13 2422:2 2423:14 2424:7, 19 2428:9 2431:2, 23,24 2432:2,5 2433:2,5,7,10,11, 19,20,23,25 2434:16 2435:1, 10,16 2438:3 2439:24 2441:11, 25 2442:6 2443:7 2444:9 2451:6,12, 18,22,24 2452:15, 17 2453:2 2456:24 2463:9, 12 2465:11 2469:14 2471:16, 18,21 2473:15 2474:15 2475:1, 24 2476:2 2477:12

**Summit's** 2358:3 2367:12 2386:9 2387:14 2400:11, 14 2406:23 2425:22 2431:8 2435:13 2440:24 2444:13 2474:14

**Summit-related** 2399:9

**supervisor** 2390:10

**supervisors** 2281:17 2454:22, 25

**supplied** 2356:2 2393:13

**suppliers** 2355:21 2363:2, 11

**supplies** 2393:3

**supply** 2362:25 2374:4,18

**support** 2363:3

2372:18 2438:14,
22,24 2442:2
2448:13,14
2449:24 2464:2

**supporting**
2365:20 2448:12

**suppose**  2380:15

**Supreme**
2414:17

**surface**  2245:7
2329:22

**surprised**  2424:2

**survey**  2213:3
2215:19 2227:12,
15,16 2253:16
2262:20 2263:11,
14,20 2349:10,15,
20 2350:22
2351:6,7,10,24
2352:4

**surveyed**
2227:12 2253:2
2327:13 2351:3,8

**surveying**
2279:4,7

**surveys**  2252:23,
24,25 2253:19
2262:7 2307:21
2338:3,8 2349:8
2351:13,24,25
2352:1

**Susan**  2306:25

**sustained**
2442:13

**swampy**  2430:16

**swath**  2221:16
2274:13,20
2351:9

**switch**  2246:11
2256:25

**sworn**  2212:9
2352:13 2353:3
2422:3

**swung**  2346:18

**system**  2210:17,
20 2295:24
2296:1,6 2369:10

2374:15 2406:1,6
2435:19 2446:5
2449:6 2450:24
2451:13,15
2452:22,25
2453:4,13,15
2468:13 2469:13
2470:9 2478:22

**systems**  2238:12
2295:20 2296:4
2406:10 2450:17
2466:21 2467:12

---

**T**

**table**  2336:15
2386:17,20,21
2391:11 2394:22
2395:2 2396:19,
21 2398:2

**tables**  2246:22

**tag**  2350:17
2354:19

**Takers**  2423:8

**takes**  2261:1
2274:1 2393:18

**taking**  2233:11
2244:8 2274:19
2352:13 2392:2
2425:10,13
2463:22

**talented**  2317:13

**talk**  2222:25
2237:9 2251:21
2253:23,25
2254:3 2256:25
2260:6,9 2265:5
2287:17 2294:14
2370:7 2371:19
2376:15 2392:12
2413:3 2423:17
2424:3 2437:11
2438:6 2448:22
2464:21

**talked**  2211:4
2220:20,22
2261:10 2266:4
2270:12 2279:5
2280:10 2286:1
2287:4,18
2290:20,21

2295:20 2336:13
2345:1 2373:22
2378:18 2379:19
2400:3 2430:6

**talking**  2222:24
2225:2 2232:6
2253:17 2254:22
2301:10 2309:5
2348:4 2391:11
2407:22 2408:5,6
2424:11 2428:22
2429:6 2448:19
2450:3 2452:22
2465:19 2469:12

**talks**  2254:5
2255:14 2259:13
2260:12 2394:13
2396:20

**targeted**  2456:24

**targeting**
2350:24

**Tate**  2340:20

**Tate's**  2340:12

**tax**  2355:7
2360:23 2362:8
2384:2,9,12,18,20
2385:23 2386:25
2387:4 2388:12,
16,23 2389:3,12
2390:13,23
2396:10,20
2397:7,10,23,24
2398:3 2399:22
2402:15,22
2403:2,6,25
2404:13 2405:7,8
2418:22,25
2419:3,5,9,12,18

**taxation**  2387:8,
12

**taxes**  2383:23
2384:6 2385:12,
19 2386:1,10
2404:19 2405:3

**taxpayers**
2402:16 2404:22
2405:1

**Taylor**  2354:19,
20,22,23 2355:1,4
2364:2,4 2366:11,

13,15,23,24
2367:4,9 2369:18
2371:21 2373:22
2382:5 2400:3
2462:11,13,14
2467:23 2468:1,
19 2478:13,14
2479:1

**team**  2213:9,11,
13 2217:8
2219:10 2221:12
2227:24 2228:1
2229:13 2230:7
2235:12 2236:4
2237:8 2242:22
2280:19 2310:6
2336:19 2427:11
2428:6 2431:7,9
2440:24 2443:7

**technically**
2354:9 2383:18

**techniques**
2274:1 2368:14

**technology**
2441:8

**telephone**
2298:7

**telescope**
2258:17

**telescoping**
2258:22

**televise**  2444:17

**televising**
2444:21

**telling**  2434:25

**temporary**
2260:21 2261:4
2265:19 2287:19,
21,22 2324:23
2432:24

**ten**  2260:18
2433:21 2434:4
2444:2

**ten-year**
2402:20,21

**tend**  2394:4
2406:2

**tender**  2354:17

2423:6 2481:6

**tendered**
2412:14 2481:11

**tens**  2231:4
2240:3 2248:7

**tent**  2267:22

**tenth**  2461:23

**term**  2284:14
2389:20 2434:2,5
2454:16

**terms**  2266:21
2311:22 2312:3
2349:6 2365:16,
21 2367:16
2368:2 2369:8
2370:23 2371:2
2376:7 2383:11
2386:24 2390:22
2391:14 2399:7
2400:19 2401:19
2404:11,15
2406:25 2414:8
2417:6,10
2420:12 2430:5
2441:10 2450:11

**terrace**  2320:22

**terraces**  2321:5

**Terracon**
2216:25 2217:3,7,
9,10,11,14

**tertiary**  2360:23
2369:11 2370:10

**test**  2284:14,16

**testified**  2212:10
2214:14 2216:25
2217:18 2230:5
2232:11 2243:5
2265:11 2311:22
2342:14 2353:4
2401:20 2422:4
2423:14

**testifies**  2423:2

**testify**  2228:23
2245:14,25
2247:6 2251:6
2400:10 2403:11
2424:3 2478:15

**testifying**

2229:19 2258:7 2276:13 2284:19 2344:2 2442:1,2

**testimony** 2213:15 2214:4 2220:23 2221:5 2222:23 2229:2, 10,24 2230:3 2233:23 2234:9, 15 2237:20 2238:11 2241:3,7 2246:12 2249:23 2250:4,16 2257:2 2260:7,8 2261:9 2265:5 2267:5 2278:24 2284:10, 12 2285:2 2290:5 2293:1 2294:11 2297:4,14 2298:22 2300:3,8 2303:4,5 2304:24 2305:16 2307:2 2309:6,9 2311:3 2312:19 2329:16 2330:10,23 2331:19 2332:12, 22 2333:18 2334:1 2338:17, 25 2339:2 2340:13,22 2341:22 2342:8,9, 22 2343:20 2345:1,22 2347:23 2353:11, 16,19 2359:18 2361:13 2362:6 2363:24 2365:1, 10 2366:1 2368:13 2370:5 2371:18 2396:4 2403:12 2415:18, 22,23 2418:6 2420:11 2422:9, 16,19 2423:1,4 2445:12 2446:11, 12 2447:4,13 2448:1,16 2450:10 2451:11 2453:2 2462:18, 19,22,24 2463:6, 11 2465:19 2469:10 2476:4 2480:19 2481:18

**testing** 2283:8

**tests** 2352:6

**theme** 2307:14

**there'll** 2261:25 2329:22 2426:13 2445:6

**thickness** 2295:1

**thing** 2215:12 2251:4 2270:13 2280:9 2348:3 2365:8 2379:8 2385:1,23 2408:8 2456:2 2479:4

**things** 2215:1,10 2216:8,15 2218:16,19 2220:8 2223:21 2224:25 2229:4 2236:16 2260:1 2265:2 2271:2 2274:25 2275:14 2279:6 2283:8 2288:20 2294:18 2302:25 2309:18 2338:3 2340:6 2346:18 2348:15 2356:7 2360:17 2373:14 2374:10 2375:19 2379:20 2382:19 2389:23 2393:18 2406:1 2414:6 2427:15 2428:25 2455:13 2472:22 2473:21 2474:11

**thinking** 2470:16

**third** 2358:8,11, 14 2359:2 2367:15 2372:14

**third-party** 2272:18 2273:7

**thirty** 2447:13 2456:20,21

**thought** 2263:9 2281:20 2292:7 2413:15,17

**thousands** 2225:5 2240:3 2248:7 2322:8

**three** 2215:22,24 2249:1 2254:19

2260:25 2261:22 2262:2 2265:17 2281:6 2290:17 2306:16 2311:23 2321:11,17 2336:2 2366:10 2407:20 2408:18 2429:17 2456:18 2467:13 2477:8 2479:17 2480:24

**three-day** 2429:15

**three-year** 2394:22 2395:1

**threshold** 2244:3

**thrown** 2272:8,9

**Thursday** 2481:7

**tie** 2401:13

**tie-ins** 2304:9

**tied** 2302:19 2323:13

**tile** 2241:7,9,15, 18,21,23 2242:2, 18 2243:1,5,8,9, 11,13,15,17,20 2244:1,18,22,23, 24,25 2245:4,7, 10,12,16,17,20, 23,24 2246:5 2257:16,17 2258:13,17,19,23 2261:13 2298:6 2320:22 2321:6, 10,14,17,23 2322:1,6 2408:8 2423:21 2425:16 2426:1 2427:1,7, 14,16,19,25 2428:9 2429:7,8, 10 2430:5,7,11, 13,20,23 2431:10, 18 2432:9,10,12, 14,21,23 2434:8, 20 2435:12,22,24 2436:3,5,9,11,13, 15,19,21,23,24,25 2437:1,2,5,7,9 2438:6,14,23 2439:23,25 2440:2,5,6,12,14 2441:1,4 2443:6

2444:1,2,4,5,9,23, 24 2445:21 2446:2,3,4 2447:1,6,11,14,18 2448:6,7,12,20,24 2449:9,10,11,12, 16,20,23,25 2450:21,24 2451:1,5,7,19,23, 25 2452:7,9,16,18 2453:5,12 2454:19 2455:14, 21 2456:2,19 2458:5,6,10,13, 14,18,21,23 2459:12,25 2460:5,11,13,14, 15,23,25 2461:14, 15 2462:2,16 2463:18,23 2464:3,11,13,19, 22,24 2465:1,5, 19,25 2466:3,8, 12,20,25 2467:3, 5,8,12,19,22 2468:8,13

**tile's** 2436:7

**tiled** 2426:24 2427:12 2456:25 2457:8 2465:23

**tiles** 2375:19 2426:25

**tiling** 2321:8 2466:9,21

**till** 2366:18 2477:24

**Tim** 2370:3

**timber** 2274:20 2375:18

**time** 2216:23 2225:23 2229:4 2232:22 2233:12 2235:1 2251:14 2255:24 2264:9 2265:9 2270:18 2272:25 2276:14 2281:1 2285:6,12 2302:5,17 2304:9 2321:18 2323:5 2332:9 2336:6 2337:20 2343:17 2366:14 2368:16,

18 2369:2,4 2388:19 2390:1,4 2395:6,7 2406:25 2413:19 2422:16 2424:12 2425:11, 14,23 2428:2 2439:9,13,14 2442:23 2444:7 2446:6,23 2458:7 2459:14 2461:17 2462:7 2469:13 2471:9,19 2474:7 2481:21

**timeline** 2233:8 2285:5

**timely** 2481:18

**times** 2280:23,24 2291:5 2299:12, 19 2306:21 2322:9 2324:24 2332:3,5 2338:3 2340:20 2354:6 2409:12 2481:1

**timing** 2426:7 2473:16

**Timothy** 2298:16

**tips** 2329:11

**titled** 2256:16

**today** 2211:23 2212:22 2245:25 2258:8 2281:10 2285:7 2295:22 2349:4,21 2353:19 2417:10 2422:12 2424:15 2428:14 2470:4, 17,18 2480:8 2481:9

**told** 2227:18,22 2270:24 2272:13 2274:14 2292:4 2321:5 2323:5 2382:5 2424:7 2425:7 2442:9 2475:3

**Tom** 2306:25

**tomorrow** 2258:8 2470:6,12,15 2471:11,18 2473:1 2474:9,12

2478:2,15 2479:6,
7,12,16 2480:6,
10,15

**ton**  2460:18

**tonight**  2470:5
2474:9

**tool**  2219:16
2220:19 2368:8
2370:14 2373:1
2445:20

**tools**  2373:21
2382:12

**top**  2243:15
2244:2,10,16,23
2245:10,12
2254:4,24
2255:11 2261:8
2321:6,24,25
2322:4 2374:5
2385:3 2395:24
2396:1 2446:12
2451:4

**topic**  2240:23
2342:19 2368:4
2450:2 2452:3

**topics**  2256:25

**topography**
2215:5

**topsoil**  2257:14,
19 2258:2,9,10
2259:3,16
2260:24,25
2261:1,6 2262:7,
19 2263:11,13,14,
16,19,20,24
2264:7,20 2271:7
2272:8,22 2273:1
2275:22 2313:1,4
2407:15

**total**  2371:24
2372:11 2377:9
2378:10,16
2379:11,12
2382:8 2384:23
2385:7,24
2391:24 2392:3,
19,20,21,22
2393:1 2394:21
2396:5,16
2399:11 2415:25
2443:9

**totally**  2434:1
2437:12

**touches**  2252:4

**toward**  2324:4

**towards**  2266:21
2329:14 2342:20
2451:12

**town**  2268:9
2481:2

**township**
2287:25

**track**  2449:7

**tracks**  2449:4

**tracts**  2334:22

**traffic**  2351:24
2352:2

**trail**  2334:2,3,11

**transaction**
2378:16 2381:13

**transactions**
2381:6,22
2385:20

**Transfer**  2275:24

**transform**
2358:23

**transient**
2395:13

**translate**  2301:9
2418:18

**transmission**
2247:19 2248:2

**transparent**
2369:8,13
2375:13

**transport**
2245:17 2247:3
2248:10

**transportation**
2355:9

**transporting**
2247:9

**trash**  2435:18
2436:6

**travel**  2245:9
2258:20 2475:22

**traveled**  2259:16

**traveling**  2481:6

**traverse**  2287:24
2288:10

**traverses**  2242:3

**traversing**
2332:4

**TRC**  2217:7

**treasury**  2402:20

**treated**  2264:15
2273:2 2274:11

**treatment**
2211:14

**tree**  2319:21
2335:8

**trees**  2274:23,24
2275:4 2319:13,
15,19,20 2320:1,
3,4,7 2329:18
2330:10 2335:3
2344:7 2347:8
2449:13

**trench**  2272:8,10
2293:4,23 2294:1
2296:6 2313:3
2341:23,25
2342:6 2429:7
2438:24 2439:2
2444:17,21
2448:12 2458:4,9,
16 2459:5,23
2464:24 2465:14

**trenches**  2458:9
2465:13

**trenching**  2293:2
2426:22

**tribes**  2414:13

**Trotter**  2320:14

**true**  2282:17
2360:13 2372:10
2382:2 2387:17
2401:6

**trust**  2300:18
2335:12 2447:8
2479:15

**trustees**
2454:20,25
2455:1

**Tuesday**  2474:13
2481:7

**tune**  2248:7

**turbine**  2215:10
2329:10,11

**turbines**  2313:22
2329:1,7

**turn**  2391:9

**turnaround**
2429:15 2472:19

**turning**  2413:22

**twelve**  2240:14

**twice**  2323:4
2326:13 2365:21
2366:4

**two**  2211:6
2214:11 2215:25
2216:3 2221:24
2223:2 2231:17
2232:4,11,12
2241:5 2244:19
2252:2 2260:25
2266:1 2268:12
2275:8 2278:23
2280:21 2281:17
2290:11,17,22,23
2291:18 2292:2
2294:4 2302:1
2316:20 2323:4
2337:10 2340:5
2353:11 2359:23
2361:24 2362:2
2381:14,23
2386:4 2392:7,10
2407:20 2408:18
2435:22,24
2447:4 2450:22
2475:23

**two-year**  2417:16

**type**  2255:18
2296:1 2318:16
2336:15,16
2338:9 2392:16
2394:11 2400:15
2405:16 2428:7,
25 2436:12
2438:12 2446:4

2460:7

**types**  2216:8,12
2245:11 2264:2
2272:16 2275:9
2286:25 2302:21
2305:24 2307:10
2311:24 2374:10
2375:6 2389:22
2393:16

**typical**  2263:7
2274:22 2275:2
2288:24 2304:19
2373:2 2379:22
2426:25 2427:16
2459:20

**typically**  2244:10
2309:20 2321:11
2405:25 2428:7
2430:19 2434:6
2444:25 2445:4
2448:21 2449:12,
23 2458:8

---

**U**

**U-SHAPED**
2304:6 2307:7

**U.S.**  2215:19
2251:13 2374:1
2402:20 2403:5
2414:10,17

**Uh-huh**  2232:13
2238:16 2319:11

**ultimately**
2213:24 2233:17
2282:1 2325:22

**unable**  2312:21

**unacceptable**
2476:1

**unavailable**
2470:12

**unchanged**
2420:10

**uncommon**
2286:20

**underlying**
2257:6 2259:2

**underneath**

2244:3 2311:12 2319:15 2440:6 2448:5 2450:14 2451:1

**understand** 2217:16 2251:22 2277:10 2286:11 2316:21 2366:1,5 2373:8 2383:10 2388:24 2391:15, 17 2392:18 2408:12 2432:16 2433:24 2435:20 2441:12 2465:3 2468:10 2477:23, 24

**understanding** 2217:6,10 2222:11 2258:22 2263:2 2282:5,24 2291:25 2294:25 2296:13 2297:21 2303:8 2305:9 2316:8 2321:3 2327:9 2359:7 2371:12 2385:16 2412:19 2417:21 2432:12 2450:2 2454:16 2458:2 2464:12,16 2466:11

**understood** 2368:13 2410:24 2463:21

**unfortunately** 2470:3

**union** 2261:23 2262:1

**United** 2240:8 2343:1

**unlike** 2436:24

**unmapped** 2465:1

**unsafe** 2215:2

**unsold** 2290:22

**unsure** 2287:3

**unsurveyed** 2307:9

**untangle**

2373:12

**untrue** 2233:9

**update** 2357:10, 15 2396:21

**updated** 2279:20 2357:11,14,16,19, 20,24 2396:3 2398:2 2417:4 2419:8

**updates** 2285:5

**updating** 2252:15

**uploaded** 2210:17,20 2478:22

**upside** 2450:19

**upstream** 2431:19 2437:22

**usual** 2460:7 2474:7

**Utesch** 2237:13, 15,17,19

**utilities** 2210:4 2286:20,21 2298:7 2393:18 2416:20

**utility** 2397:24 2398:3

**utilize** 2438:24

**utilizing** 2262:1 2297:17

_____

**V**

_____

**validate** 2377:2 2388:22 2389:1

**validated** 2376:24 2388:20

**validating** 2377:6

**validity** 2376:25

**Valley** 2461:21

**valuable** 2274:21

**valuation** 2397:14

**value-added** 2378:20,22 2379:7 2381:19

**valve** 2219:23 2290:1 2298:18 2299:8 2392:15

**valves** 2289:21, 22,23 2299:4,12, 15,17

**vapor** 2219:11

**variables** 2383:16 2426:23

**variance** 2213:19 2214:7,8,12

**variations** 2214:6

**varies** 2412:23

**vary** 2266:14

**vast** 2246:13 2253:15 2273:19 2288:5 2293:9,11, 20 2386:3

**vegetation** 2255:24

**vendor** 2385:13 2393:13

**vendors** 2363:11 2385:11 2393:4,6, 9,21

**venture** 2225:22 2325:9 2335:1

**verbal** 2281:20 2282:6 2297:12 2338:18 2339:17

**verbatim** 2259:20

**verify** 2216:5 2219:23 2355:22 2383:5

**Verl** 2340:12

**versa** 2270:6

**versed** 2251:6

**version** 2250:23

**versus** 2233:15 2245:4 2249:15

2279:22 2293:4, 23 2342:18

**vertically** 2355:8

**viability** 2364:8

**vice** 2270:6 2402:25

**vicinities** 2240:4

**vicinity** 2228:11 2240:20 2247:13, 20,25 2249:11 2301:20 2313:24 2333:16 2336:21

**Vicki** 2303:3

**video** 2234:6 2336:23 2445:3,8

**videographers** 2289:2 2336:22

**videotape** 2289:3

**view** 2223:24 2236:4 2429:3

**views** 2336:23

**vision** 2301:13 2314:18

**visit** 2308:15

**visual** 2210:23 2253:18 2297:2 2316:5 2337:19

**visually** 2301:9 2337:4

**voice** 2310:8

**volatility** 2415:2

**volume** 2388:4,5, 8

**voluntary** 2298:19 2299:7 2304:15 2305:19 2306:7 2307:15, 18 2308:10 2310:12 2339:6

**vote** 2414:18

_____

**W**

_____

**W-2** 2384:15

**W-2S** 2401:12,18

**Wacker** 2448:2

**wage** 2401:21

**wages** 2400:19, 20 2401:3,4

**waiting** 2475:6

**waived** 2211:5 2474:7

**walk** 2352:2 2388:21

**walked** 2270:13

**walking** 2253:19

**wall** 2295:1

**Wally** 2354:23 2462:14

**Wanda** 2320:21

**wanted** 2311:23 2316:2 2322:3 2341:22 2374:11 2403:11 2444:11 2445:9 2446:7 2454:15

**wanting** 2282:9 2293:10 2299:13, 19 2324:20 2347:7

**warranty** 2431:25 2432:2,3, 6 2433:5,19,22,23 2434:7 2446:21

**washout** 2317:16 2347:10

**wasted** 2480:8

**wastewater** 2406:2

**watchdog** 2434:12

**water** 2223:20 2245:18,22 2274:5 2334:2,3, 11 2430:19 2431:15 2432:11, 22,25 2439:3,18 2448:7 2449:11 2459:4

**ways** 2274:7 2371:10 2460:6

**weather** 2283:5 2383:15

**weather-wise** 2427:22

**web** 2399:9

**Wednesday** 2481:7

**weed** 2283:23

**week** 2268:8 2329:6 2470:13 2471:15 2474:20 2476:1,20 2481:6

**weekend** 2472:20

**Weekly** 2474:19 2478:11

**weeks** 2228:22 2290:12 2447:5 2480:24

**weigh** 2306:8

**welds** 2302:23

**west** 2232:6 2234:1 2242:4 2292:13 2300:4,5 2304:1 2307:3 2309:16 2313:14 2315:23 2317:15 2330:3 2333:14 2334:2,4,15,22 2339:4,21 2340:8 2347:8

**western** 2320:15 2333:3

**wet** 2259:13,14, 21 2260:2 2284:8, 14,16,22 2427:22 2430:16,19 2445:6

**wetland** 2252:21, 25 2253:4,14,17, 22

**wetlands** 2223:20 2253:8 2449:13

**whatnot** 2312:1

**whatsoever** 2358:13

**wheelhouse** 2264:23

**Whipple** 2369:21,22 2370:2,3 2376:18, 20 2390:25 2478:13 2479:3,4, 22

**white** 2332:22 2349:6

**wholesale** 2315:6 2346:11

**whomever** 2480:19

**wide** 2221:9 2224:3 2227:12 2231:3 2260:9,21, 22 2351:8 2438:25

**wider** 2351:8

**width** 2260:23 2261:3 2438:24

**Wildin** 2290:21 2291:23 2344:14

**Wildin's** 2344:1

**wildlife** 2251:13 2345:5,12,13,17

**Williams** 2473:2

**Wilson's** 2309:6

**wind** 2215:9 2313:22 2329:1,7, 9 2342:10 2447:16

**window** 2394:22

**windshield** 2296:1

**winter** 2282:16, 21 2283:7,10,17, 19

**winterization** 2282:24 2283:12

**wiper** 2296:1

**wire** 2335:6

**wishes** 2264:7 2273:11 2275:3 2435:8

**withholding** 2384:16

**witness's** 2412:7

**witnesses** 2219:21 2287:13 2470:25 2471:16, 18,21 2472:16,21 2473:15 2474:14, 15,20 2475:1 2476:4 2477:11, 12 2479:11,25 2480:5,10 2481:15

**Wittkopf** 2343:21

**WO-041** 2238:7

**woman** 2427:23

**wonder** 2413:16

**wondered** 2334:20

**wondering** 2408:20 2433:11

**wood** 2275:9

**wooded** 2319:9

**word** 2214:6 2360:24 2361:2 2431:4 2447:9 2455:25

**words** 2301:8 2326:6 2420:16

**work** 2233:12 2235:2 2264:25 2288:17 2289:11 2291:22 2296:4 2305:3 2321:21 2324:1 2329:14 2346:13 2349:10 2358:2,4,5 2359:7 2366:4,7 2367:25 2398:12 2399:18 2402:3 2423:20, 21 2424:5,19,23 2425:10,13,21 2426:14 2427:11, 17 2428:7,19,25 2429:19 2430:3, 21,23 2432:1,4

2434:3,8,18 2437:18 2438:9, 18 2439:5,13,15, 16 2442:25 2446:14,15,22 2447:2,8,19 2448:17 2451:19 2452:10,24 2453:2,17 2454:9, 10 2455:5,6,9 2456:15 2460:8, 12 2461:20,22 2465:3,8 2474:12, 13,18 2475:22 2477:7

**worked** 2213:3 2270:1 2342:11 2363:17 2428:12, 22 2429:8,10

**worker** 2379:21, 22,25 2380:5

**workers** 2230:4 2231:21,22,25 2232:1 2365:24 2366:4,6 2377:16 2395:18 2409:5, 25 2410:5

**workforce** 2396:6 2412:4 2426:17

**working** 2213:1 2236:17 2243:20 2258:16 2266:21 2283:16 2321:13 2342:20 2387:10 2398:22 2399:17 2406:12 2411:1 2424:11 2431:17, 18,22,24 2432:12, 14 2439:25 2445:6 2452:10 2454:23 2465:7 2479:19

**workmanship** 2434:6

**works** 2264:22 2270:6 2309:21 2350:23 2360:3 2397:10

**workspace** 2253:11 2257:4

**world** 2373:10 2377:23 2414:7

**worst** 2244:8

**wow** 2211:2

**WR-002** 2240:24, 25

**WR-019** 2240:25 2241:1

**wrapped** 2268:14

**writing** 2268:4 2413:1,5

**written** 2338:20

**wrong** 2234:3 2254:5 2319:6 2385:16 2452:21

**wrote** 2265:9 2452:21

---

**X**

**x-ray** 2302:24

---

**Y**

**yard** 2266:10,11

**year** 2230:20,21 2357:13 2390:3 2395:4 2396:20 2398:14 2407:20 2414:15 2418:8, 14,15 2447:14 2456:19

**years** 2231:17 2276:4 2316:20 2366:4,10 2383:7 2387:18,21 2388:6 2390:9 2394:20,23,25 2407:20,23 2408:18 2429:11 2433:21 2434:4,7 2436:20 2444:2 2447:12 2456:17 2460:21 2464:13

**yesterday** 2211:20 2214:14, 21 2216:25 2217:18 2219:14