EXPERO GEOSPATIAL DESIGN CHALLENGE

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expero

OVERVIEW

CONSIDERATIONS

No Primary Research

User research is essential to my process. But because this challenge already came with user stories, I **delegated more time to the wireframes**.

Missing Information

This is a very dense domain space, and in a longer project I **would have more questions** to ensure that I'm not missing anything.

Large Scope

Even with what I did know, I realize I did not nearly cover everything. I attempted to display **the main workflow**, though there is still much to work out.

1.

RESEARCH

What did I learn to inform my design?

METHODS

Company Call (Lynn)

The majority of my learnings came from speaking to Lynn and asking about the industry information and user goals.

Secondary Research

In addition, I looked further into the industry and competitors to further understand the skills geologists utilize.

Exemplars

Once ideating, I looked at dozens of exemplars for map based experiences and filtering of complex information.

FEATURE ANALYSIS

I used this research to help analyze the main features or characteristics that users would need for their work.

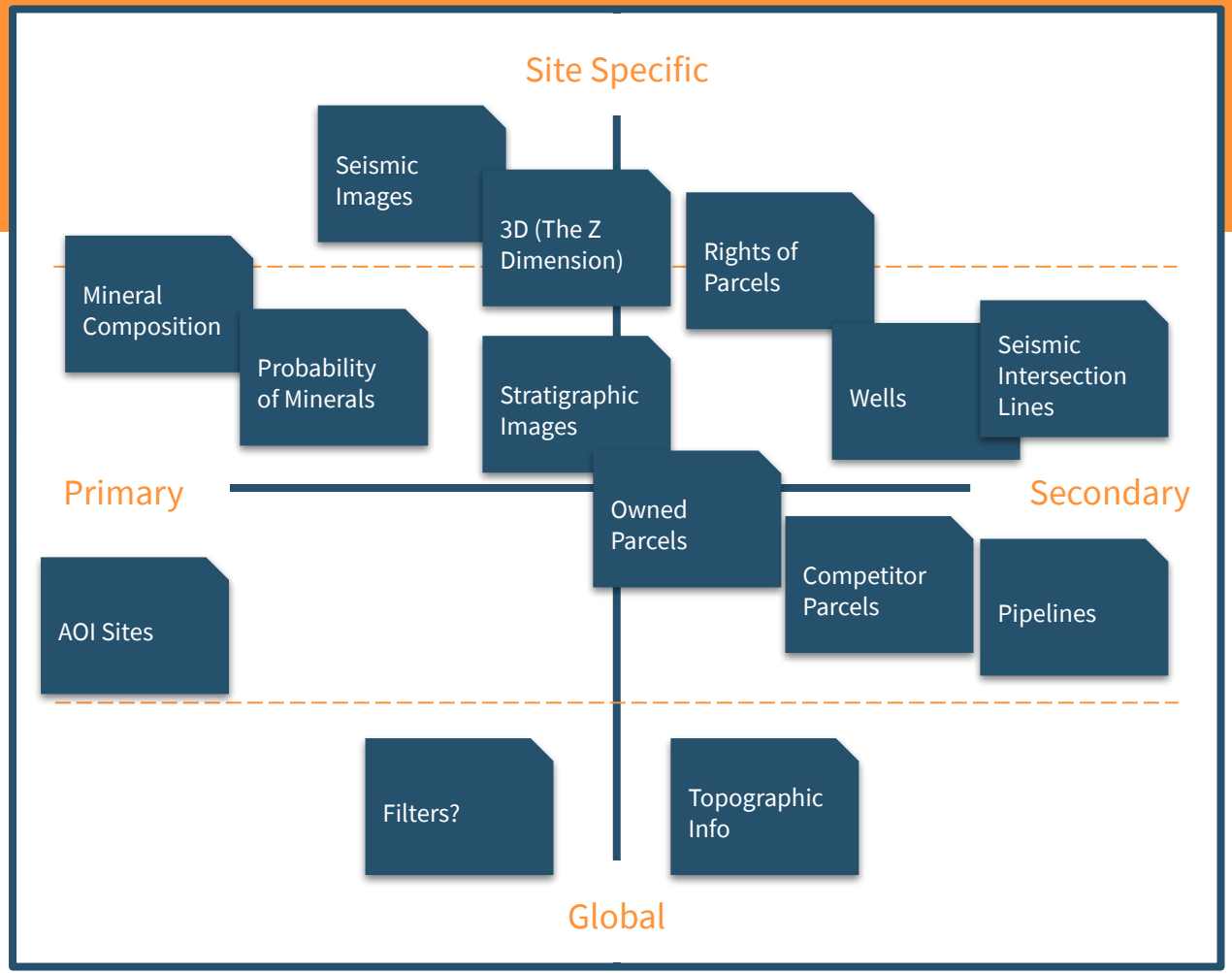
I plotted these features based on whether they were **site specific** or **global**, and if they were **primary** or **secondary**.

FEATURE USE

This helped identify **when** and **where** certain characteristics would be helpful to see.

Features on the **left would need to be easy to find**, and early on in the workflow, while those on the right could be a bit more hidden.

Features at the bottom only need to be viewed on the map, and those at **the top only on specific sites**. Those between the orange lines would probably need to be viewed at both levels.



INSIGHTS

Unequal Information

Not all information is useful in the same moments. Users need the right information that prompts them to dive deeper for more.

Multiple Access Points

Much of the needed information is site specific, but may also be used to identify AOI globally.

Customizable

Users may be looking for very different things at different times, and may want to frequently toggle these settings.

How might we make characteristics **accessible** and **customizable** to that users can see information **where** and **when** they need it?

2.

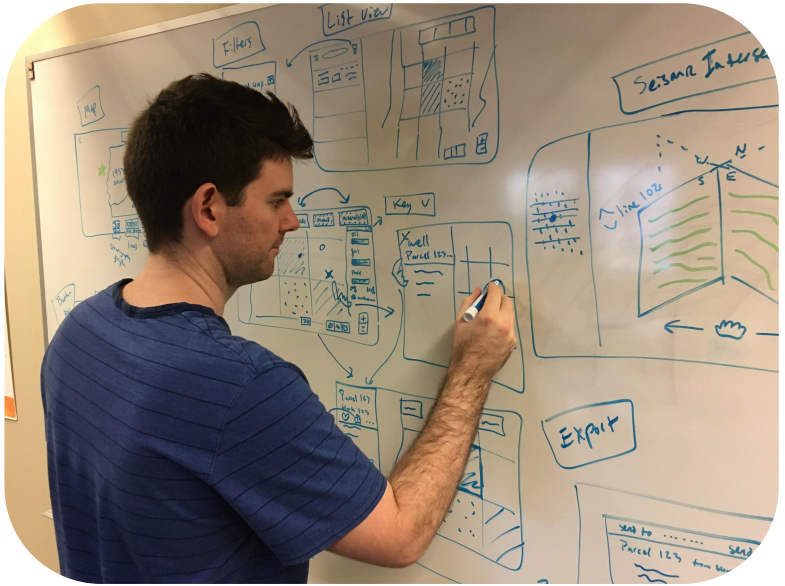
IDEATION

What concepts did I come up with?

WHITEBOARD SKETCHING

Once I had formed my insights and direction, I created about a dozen concepts on the whiteboard.

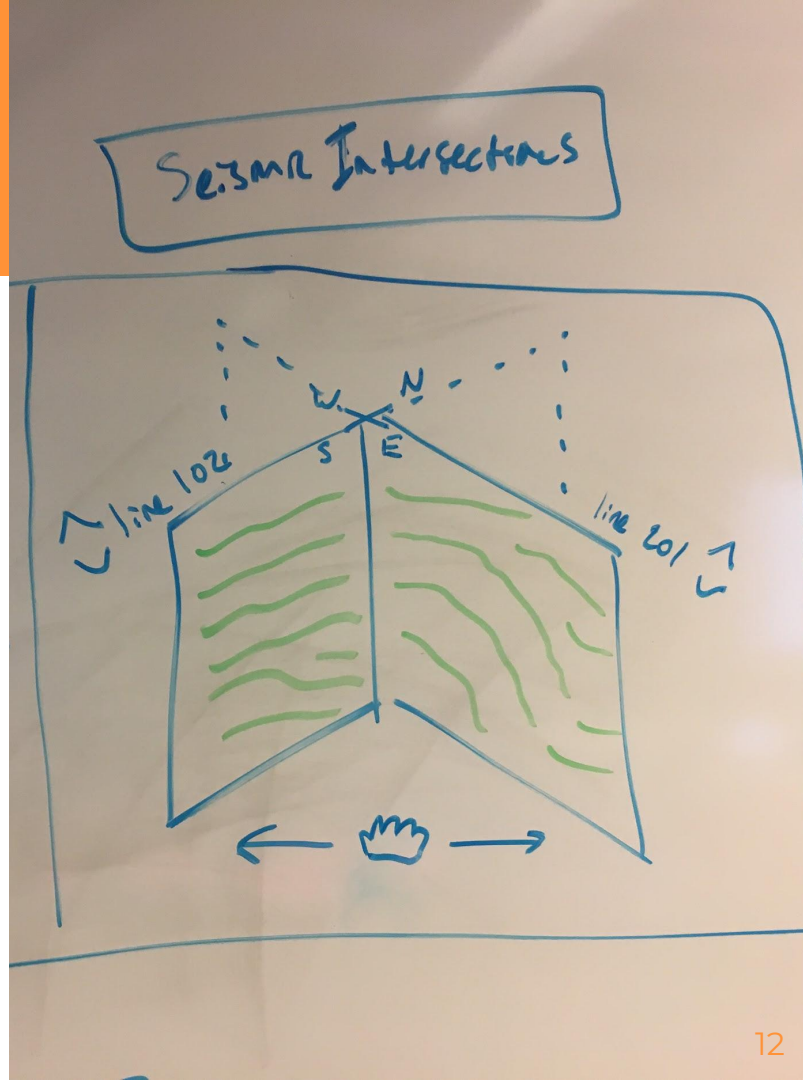
I further explored the **top 3 concepts:**



SEISMIC INTERSECTION

The idea I was most excited about was a way of using 2D seismic readings to help users understand the 3D area. This would be a digital version of the paper technique I learned from this video.

However, I did not use this in my design because it was a bit **too complex and didn't fit into an MVP**.



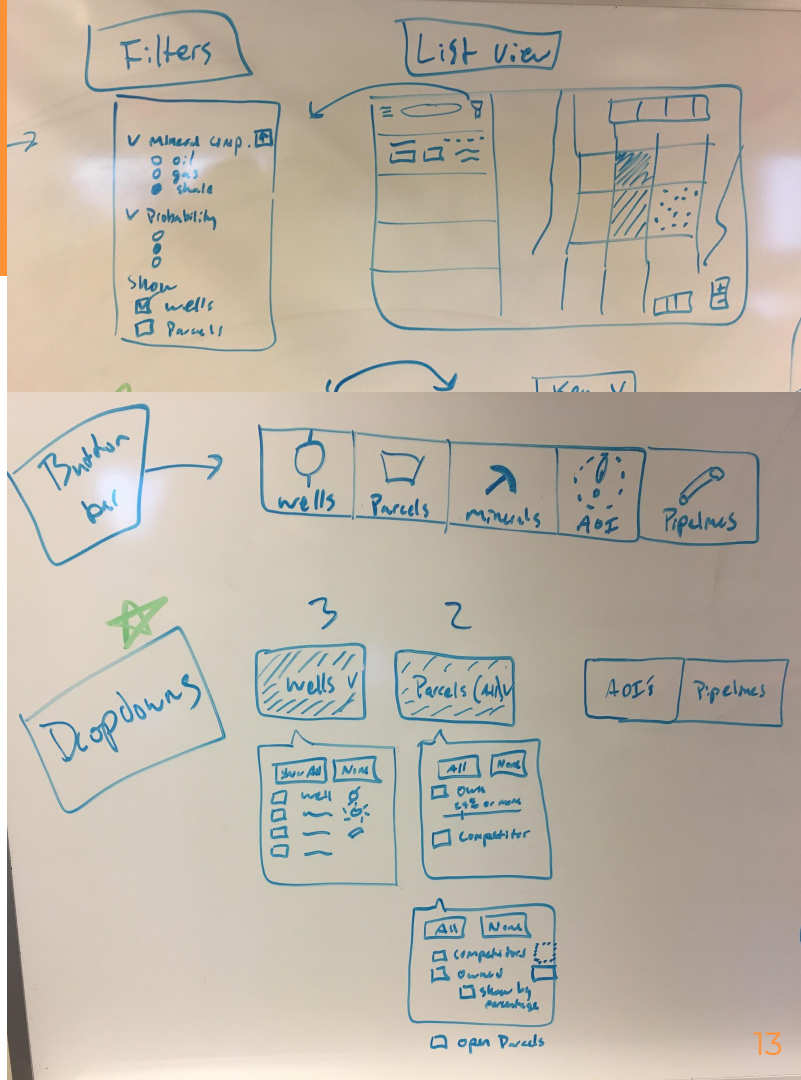
FILTERS

Because there were so many characteristics to be sorted through, I was immediately drawn to filters.

I moved away from all filters in one menu, because it would be overwhelming, and many **toggles might be hidden** below the fold.

The button bar was too simplistic and **couldn't account for all needs**.

I settled on multiple drop down filters, as this would make each category viewable, with manageable options in each.

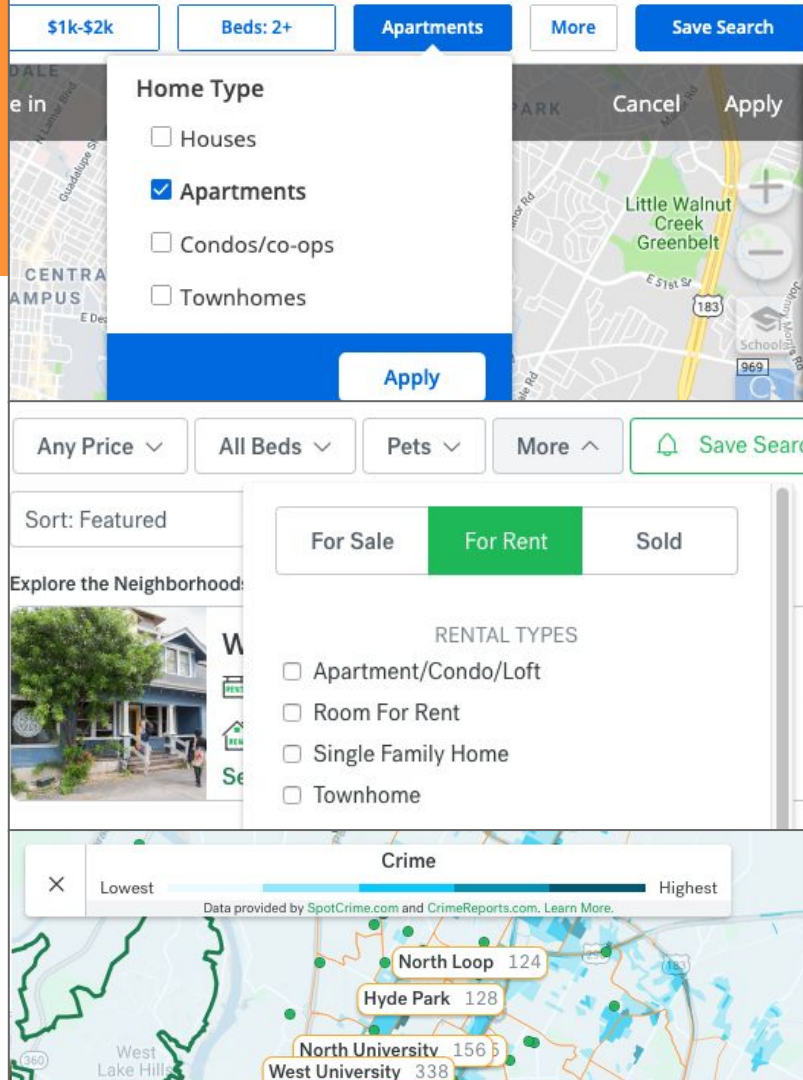


FILTER EXEMPLARS

When iterating these filter options, I was heavily influenced by home rental products like Zillow and Trulia.

They actually have a quite similar problem, as users are looking to find something on a map, and potentially want to **adjust and change multiple characteristics** along the way.

Some even had some interesting data **visualization with color gradients** that I drew from.

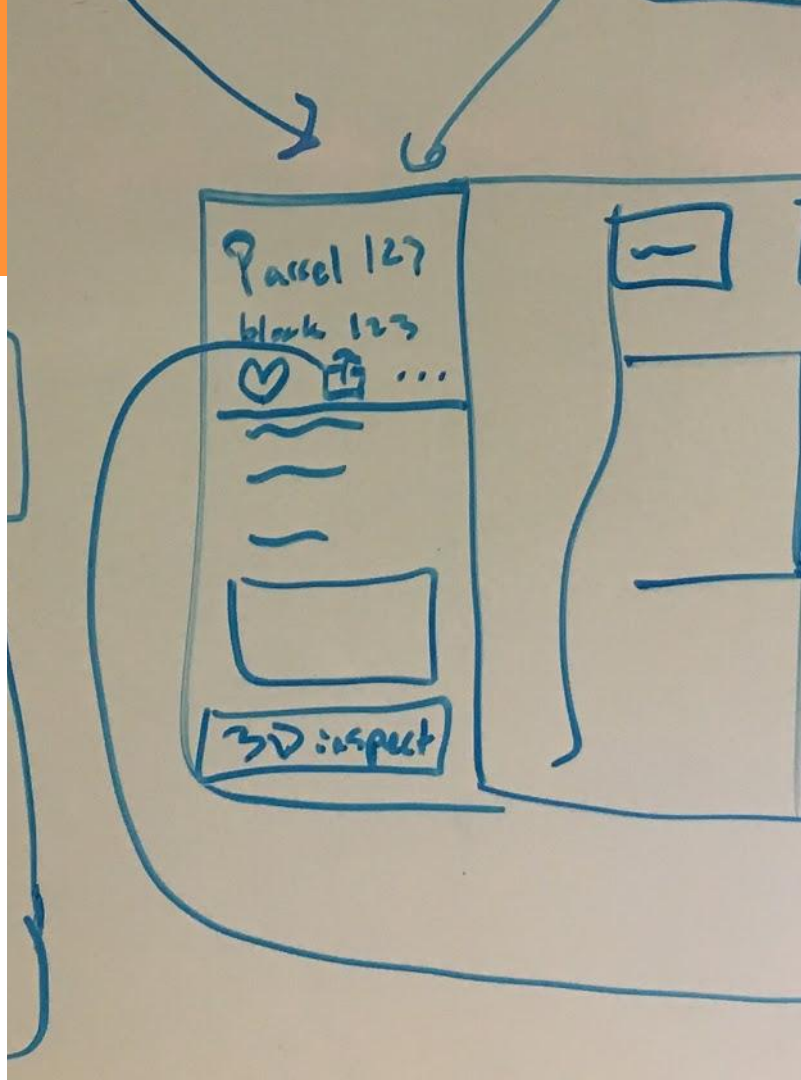


SIDE BAR

Once users have successfully located objects of interest, they would want to click in to see more information.

I drew on a very common design pattern of side bars over maps to show this information.

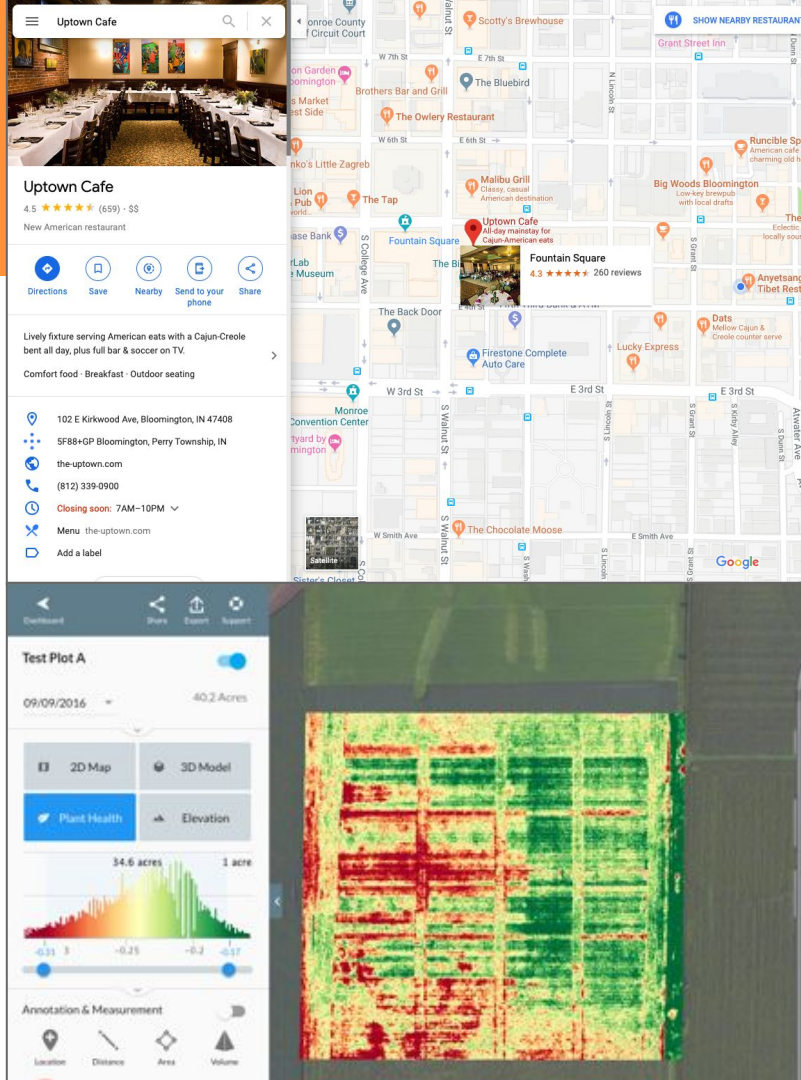
Where it differs is that any images and attachments are at the bottom instead of the top, as I identified that **attachment contents would be secondary** in the feature analysis.



SIDE BAR EXEMPLARS

Google Maps, drone applications like DroneDeploy, and all of the home rental applications I looked at utilized side bars over a map to show **detailed information about a specific site**.

While I did not dive deeper into this interaction, you can see on DroneDeploy that interactions with items on this sidebar could actually change the visuals of the selection on the map.



3.

DESIGN

What does the best concept look like?

OVERVIEW

My design contains 3 main parts:

Map

The map shows all of the parcels, wells, AOIs, and all other **content that a user might want to see** about a general area.

Filters

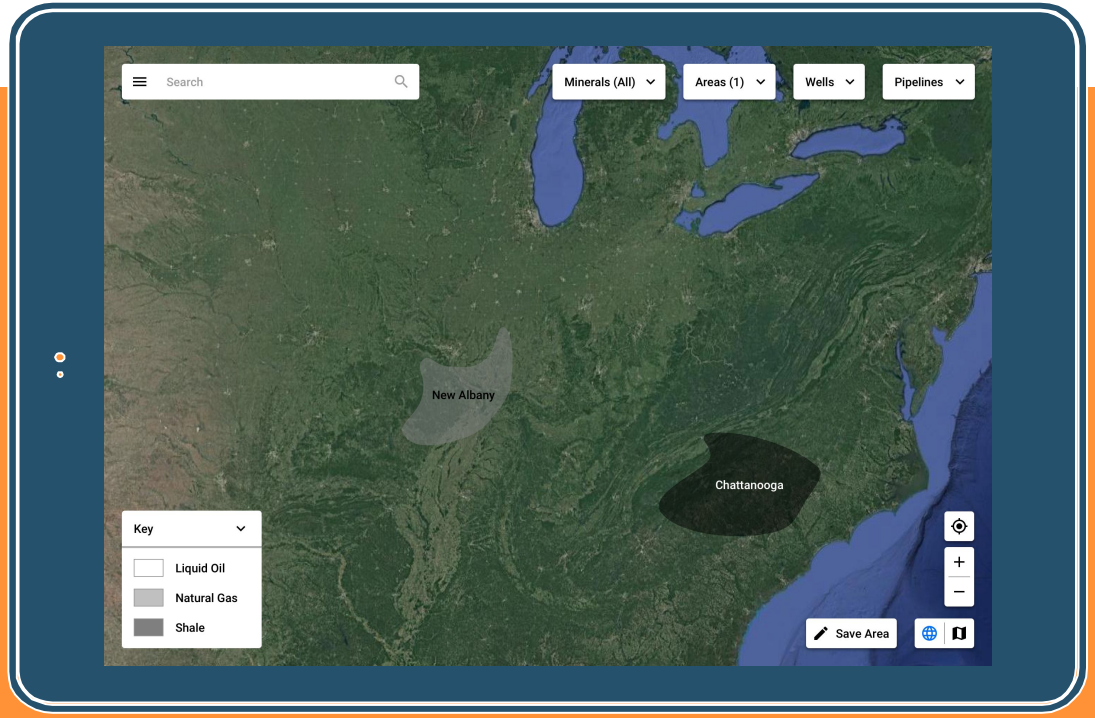
Multiple filters allow users to select which items are shown, and in what way. This helps them **identify areas to dive deeper**.

Sidebar

After clicking on an area or abject, the user can **see detailed information** here, and potentially save for later reference.

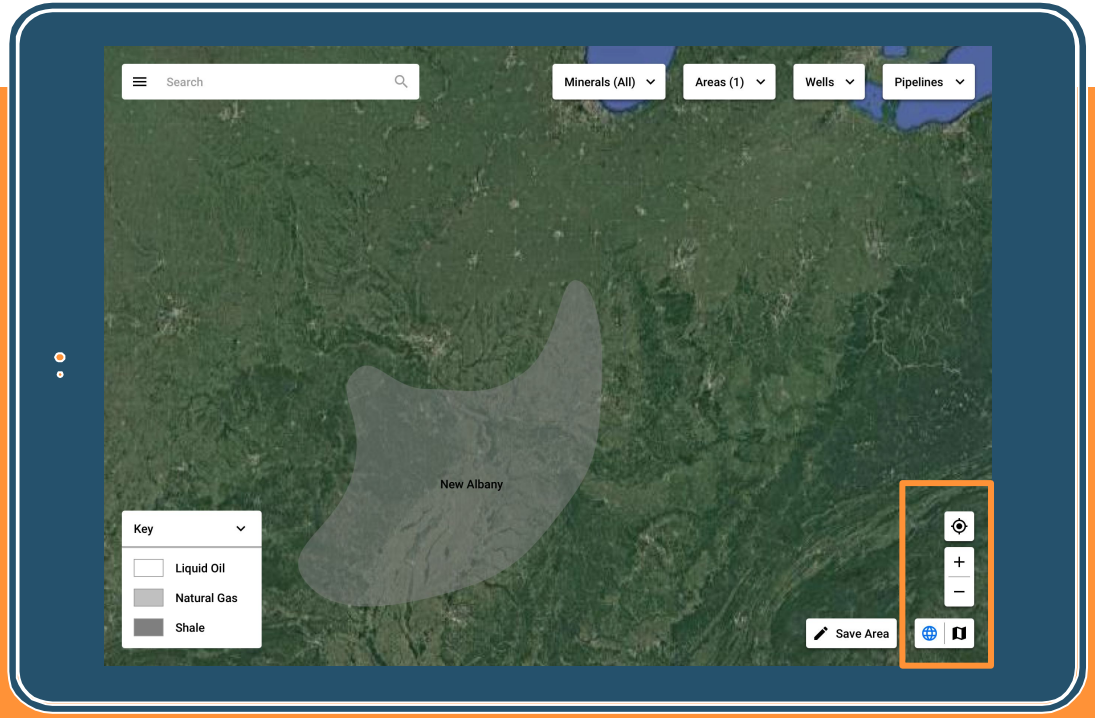
FIRST SCREEN

When opening the app, a geologist will see the map showing all geologic formations and the dominant mineral contained.



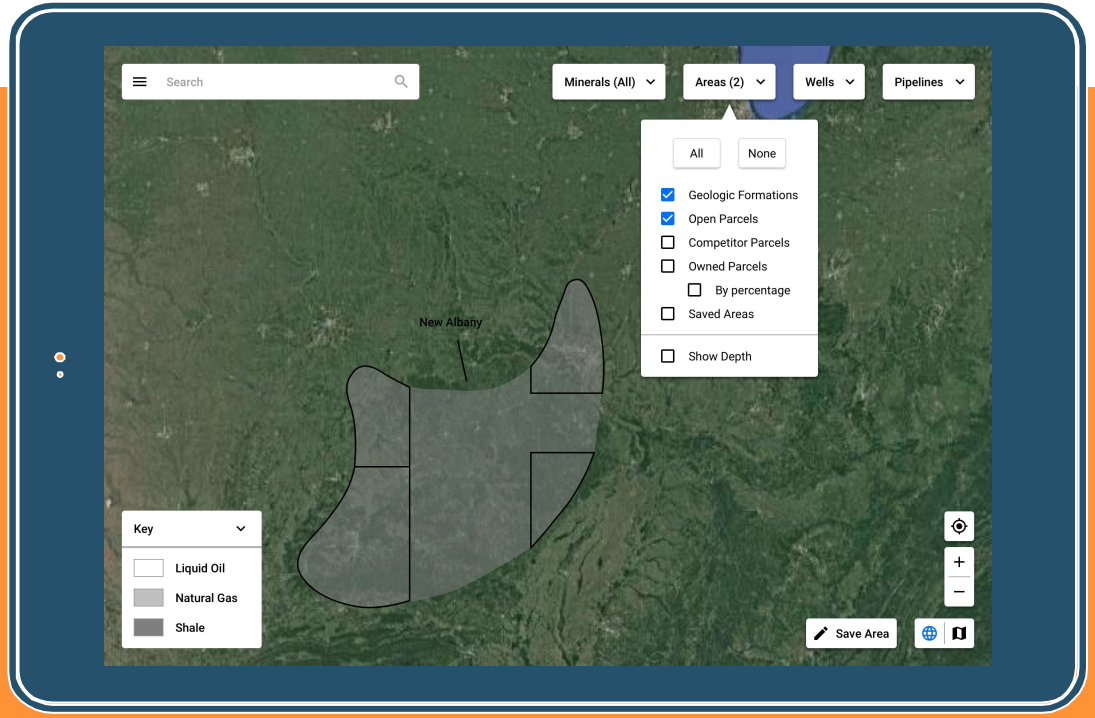
ZOOMING IN

The geologist decides to look closer at the New Albany formation. Users can also see political lines by switching to map mode with the bottom controls.



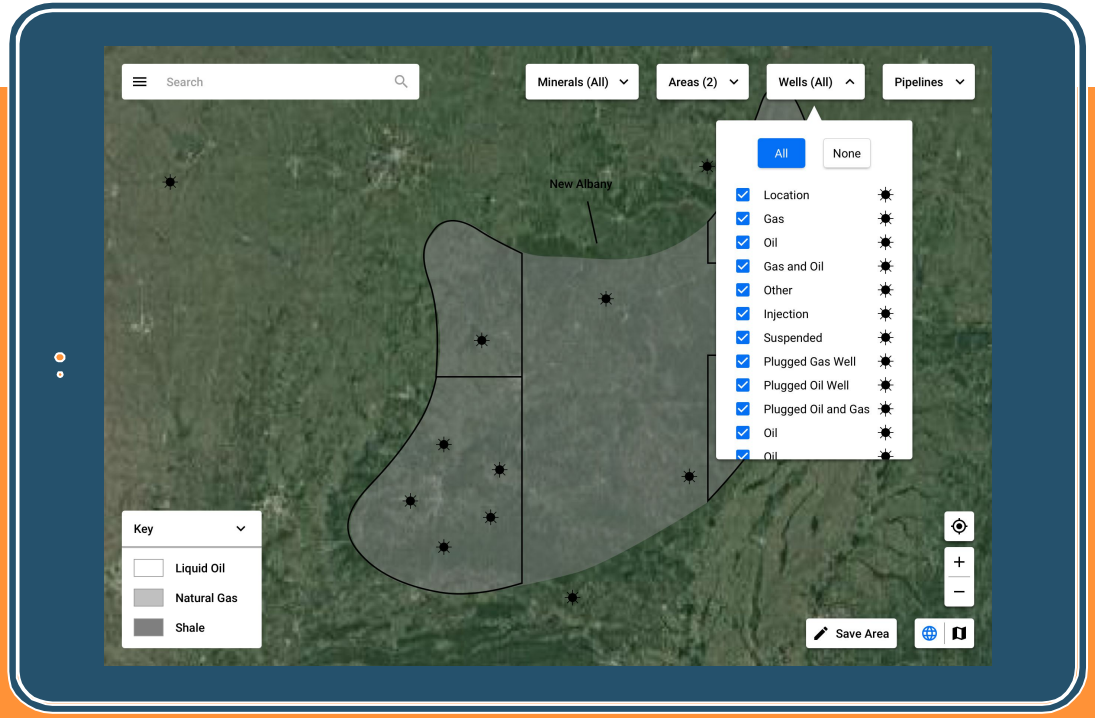
AREA DROPDOWN

To inspect further, the geologist clicks to see open parcels. In this dropdown they could also select competitor parcels, see the depth of areas by gradient, and more.



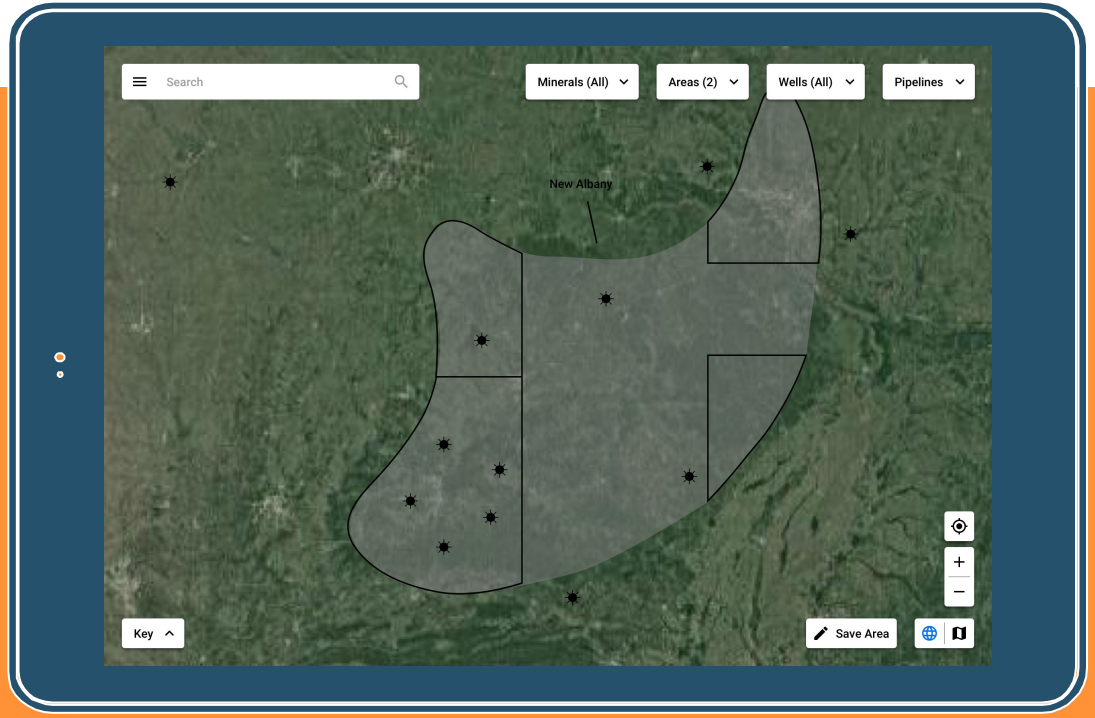
WELLS DROPDOWN

To inspect further, they want to see nearby structures. By selecting “all,” they will see each type of well represented by its icon on the map. This also serves as a key.



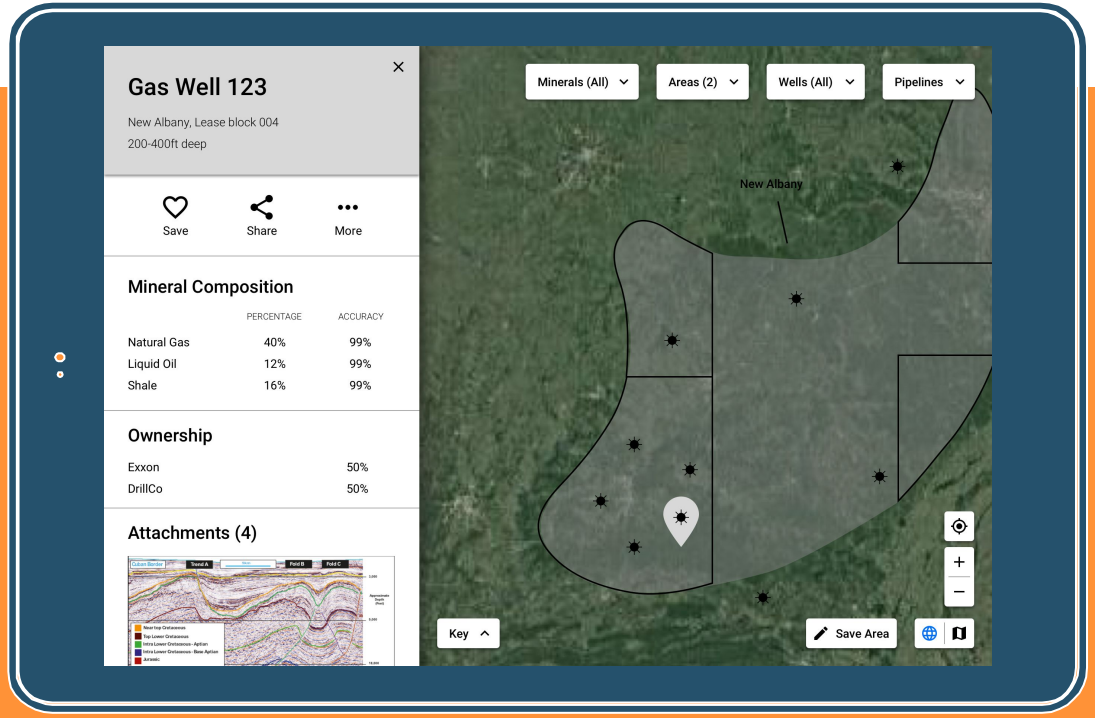
HIDE KEY

Now that the geologist is focusing in on a parcel, they decide they don't need to see the mineral key anymore, and hide it.



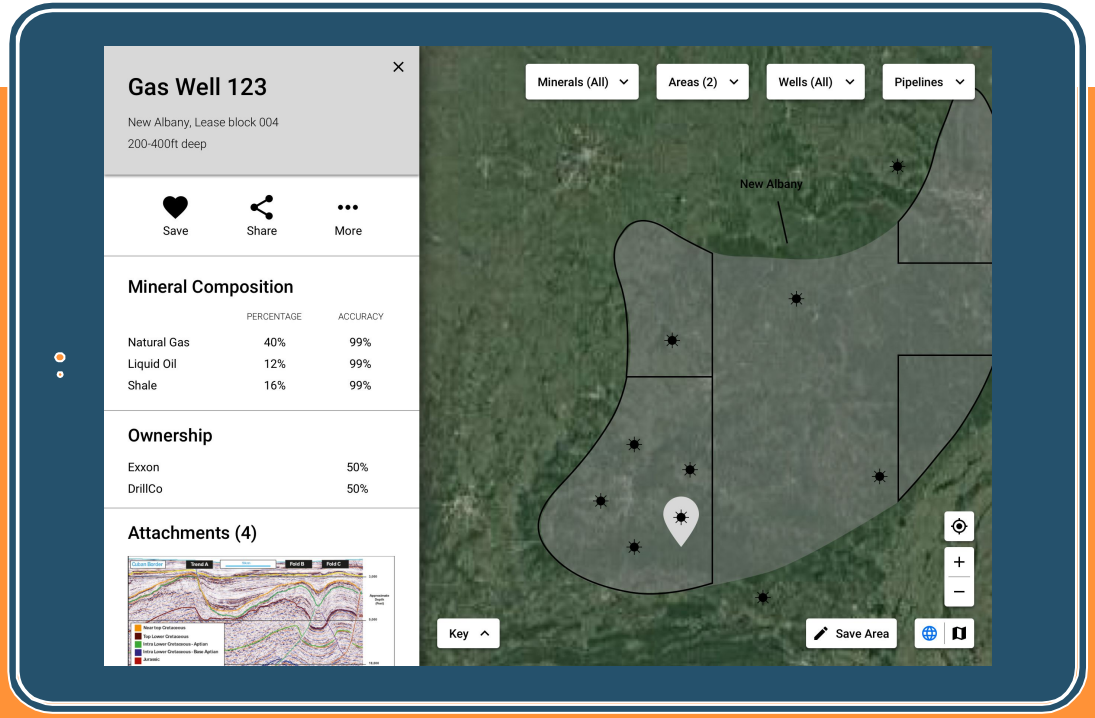
WELL INFORMATION

When clicking on a well icon, the user sees a side panel full of information. Clicking attachments will bring them to full screen. Clicking a parcel would show similar information.



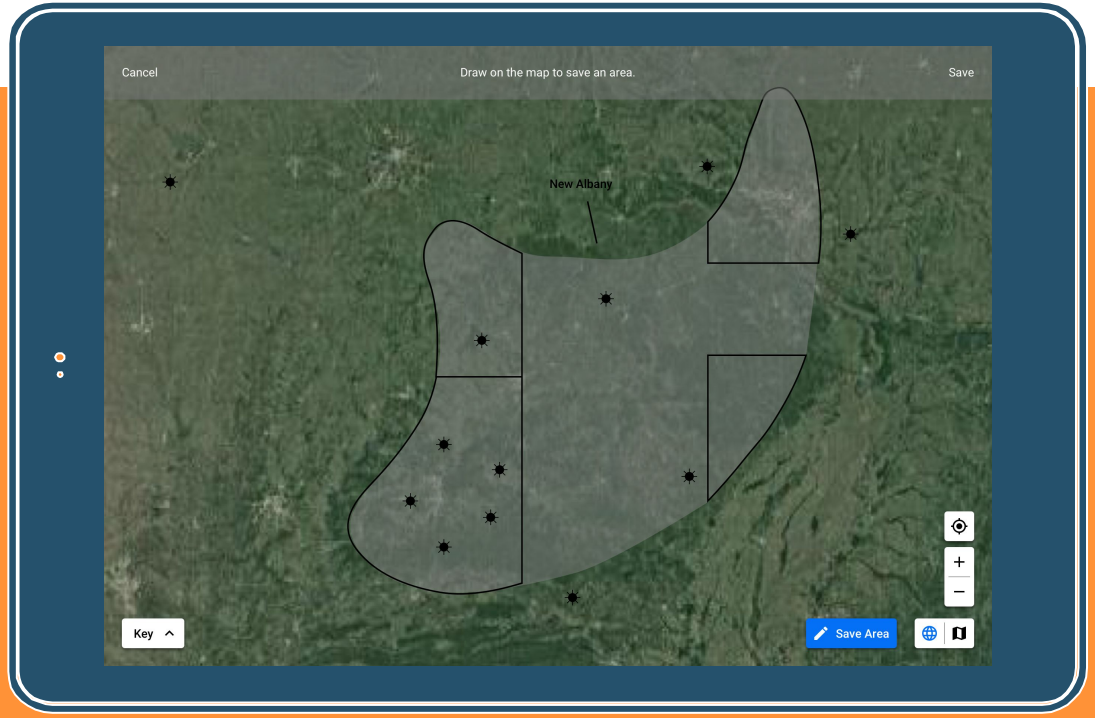
SAVE WELL

After inspecting this well and others, they decide that this area has high potential. They click the heart icon to save this for later reference.



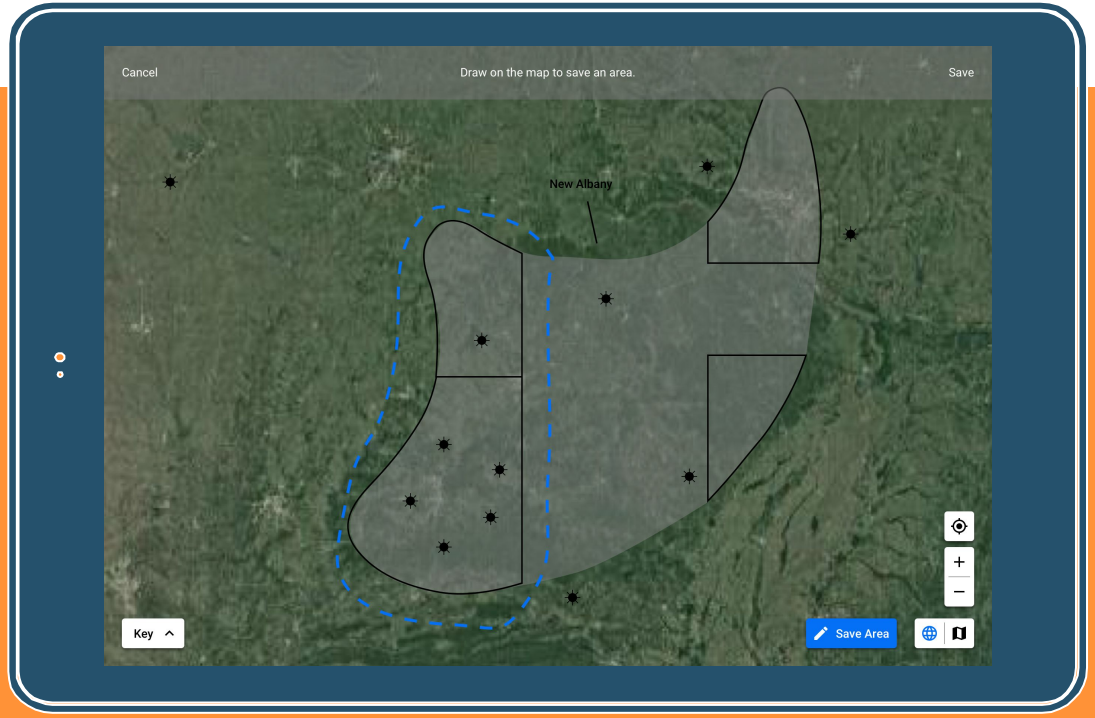
SAVE AREA

Next, the geologist clicks the “save area” button. The see a prompt to drag their finger on the map to create a custom area to save.



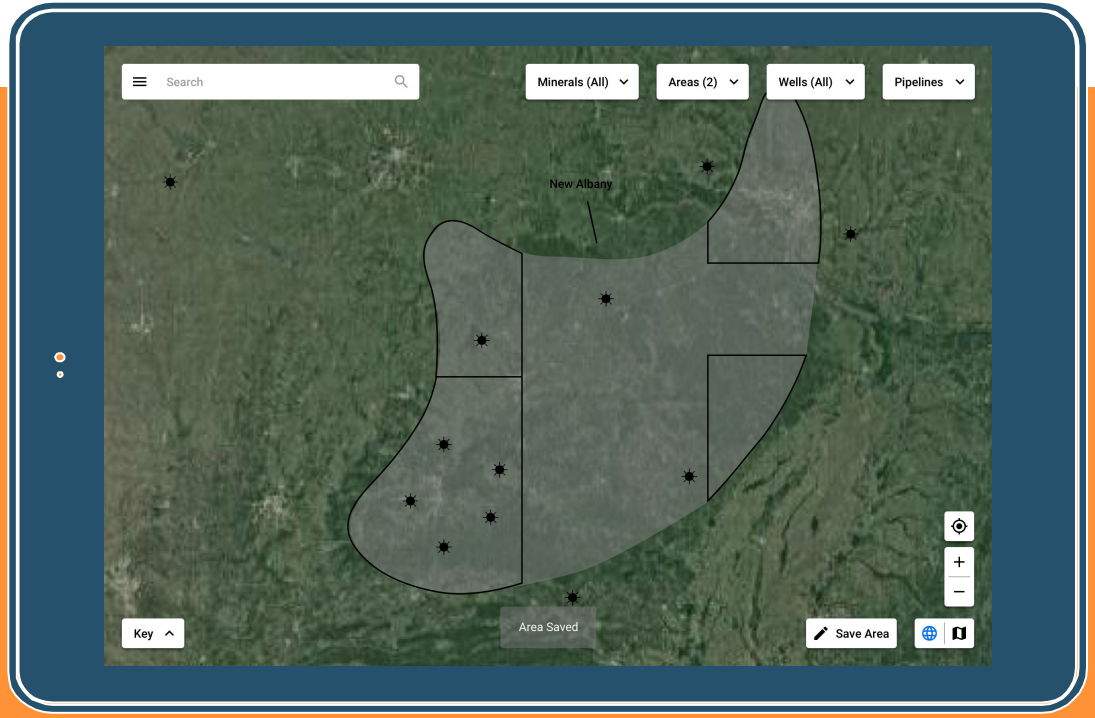
SAVE AREA LINE

After dragging around the area of interest, users can see the selected area with a dotted blue line. Satisfied, they click save.



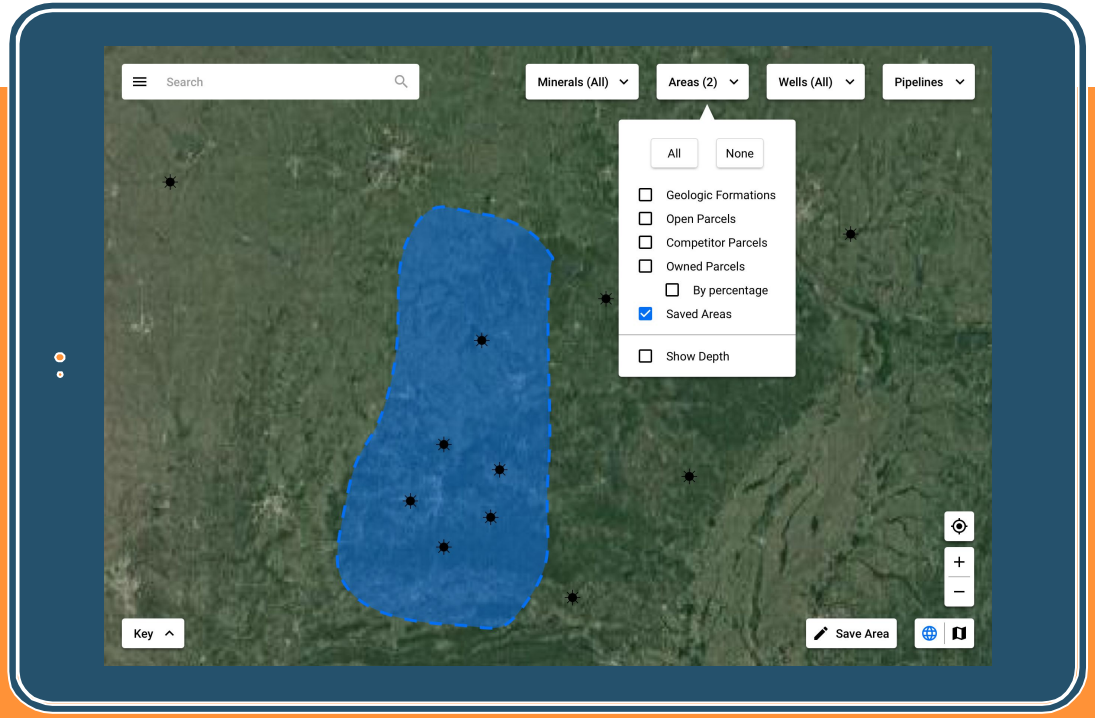
SAVED

After clicking save, the filters return, and the user sees a little notification at the bottom confirming that it has been saved.



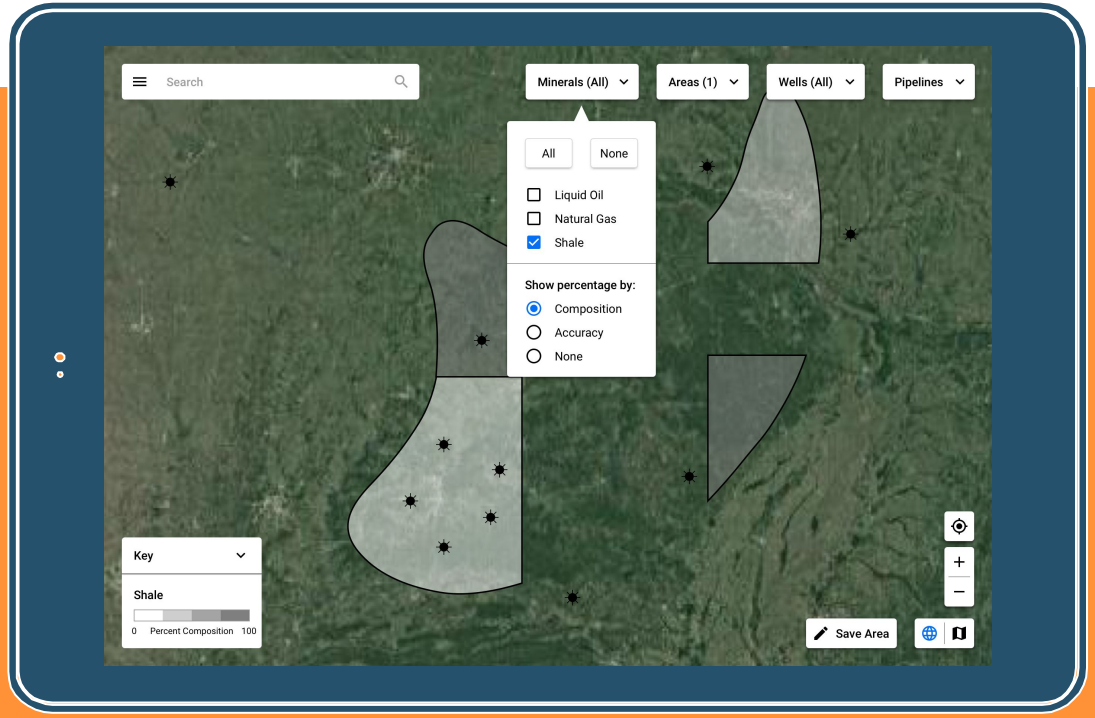
VIEW SAVED AREAS

To view previously saved areas, the user simply checks the box in the areas dropdown.



MINERALS DROPDOWN

Finally, the geologist is ready to move on and look for more AOI's. This time, they click into the dropdown for minerals and just want to see areas that are dense in shale.



NEXT STEPS

Usability Testing

I would generally want to do a quick usability test with my mockups before moving any further with this concept.

Color Palettes

Visualizations are important to this design, so time needs to be spent creating palettes/gradients that support the interactions.

Interactions

This is really just the main “happy path” workflow of a user. Many other interactions and features need to be explored.

Filter Relations

There is some overlap and connectedness between the “minerals” and “area” filters that need refined, based on user needs

Sidebar Information

The sidebars are currently quite empty, and I will need to dive deeper into user needs as they look at specific sites organize the side bar.

Percent Gradients

There is a high potential for use of gradients as visualization on the map. This complexity between filters, color, and interaction needs fully explored.

FUTURE FEATURES

During my ideation, I came up with some potential future features worth mentioning:

- Could users export sites, parcels, AOIs, or collections of all of the above into ready-for-presentation templates?
- Might users want to upload additional attachments or notes themselves?
- Could selecting multiple sites, parcels, or AOIs to compare at one time be beneficial?
- Would users value a digital way to do seismic intersection inspection?
- Might users want to group saved sites, parcels, or AOIs into folders?

4.

ITERATION

What changes did I make after feedback?

FEEDBACK

After presenting, the main feedback was regarding:

Explore 1 Filter

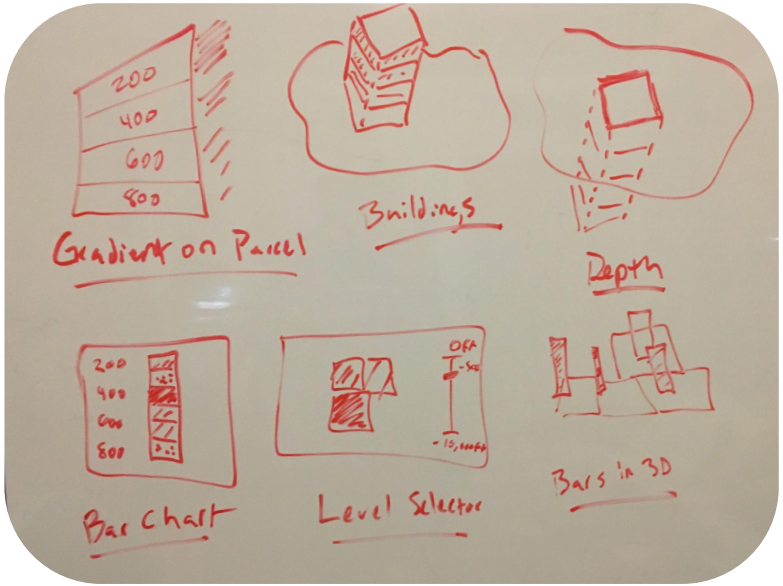
My design showed many options for filtering, but what would one of those options look like when fleshed out a little further?

Z - Index

While my design addressed seeing attachments of the z dimension, how might a user view areas on the map in 3 dimensions?

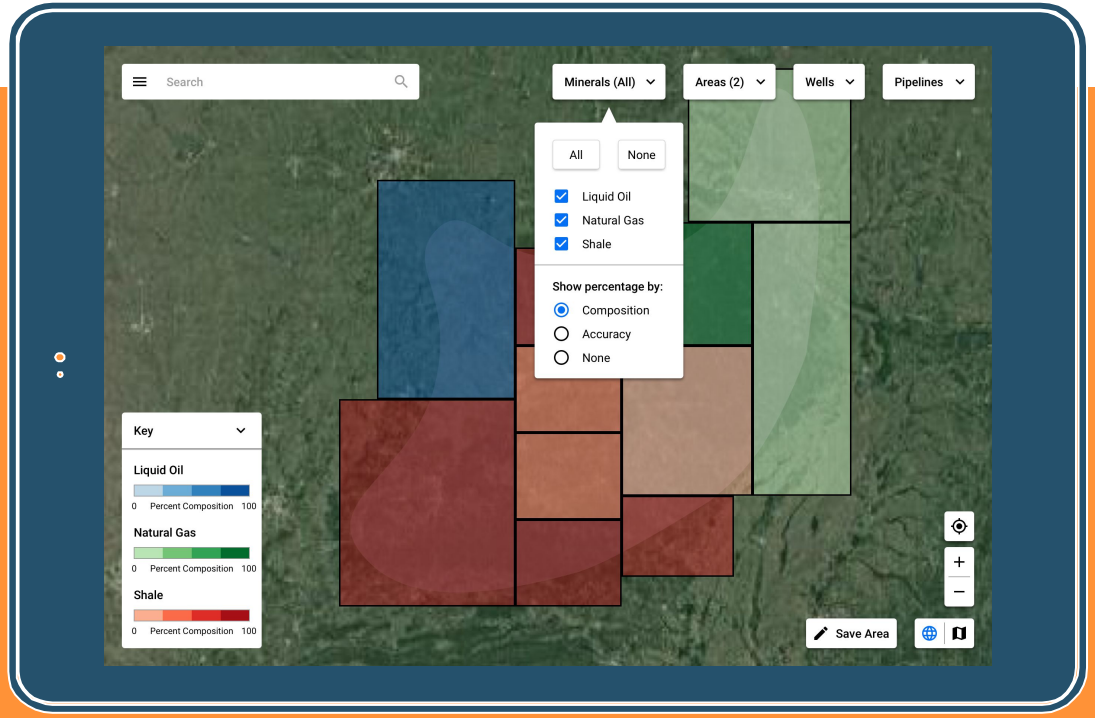
WHITEBOARD SKETCHING

As usual, I started off by ideating many different ways to address the identified problems.



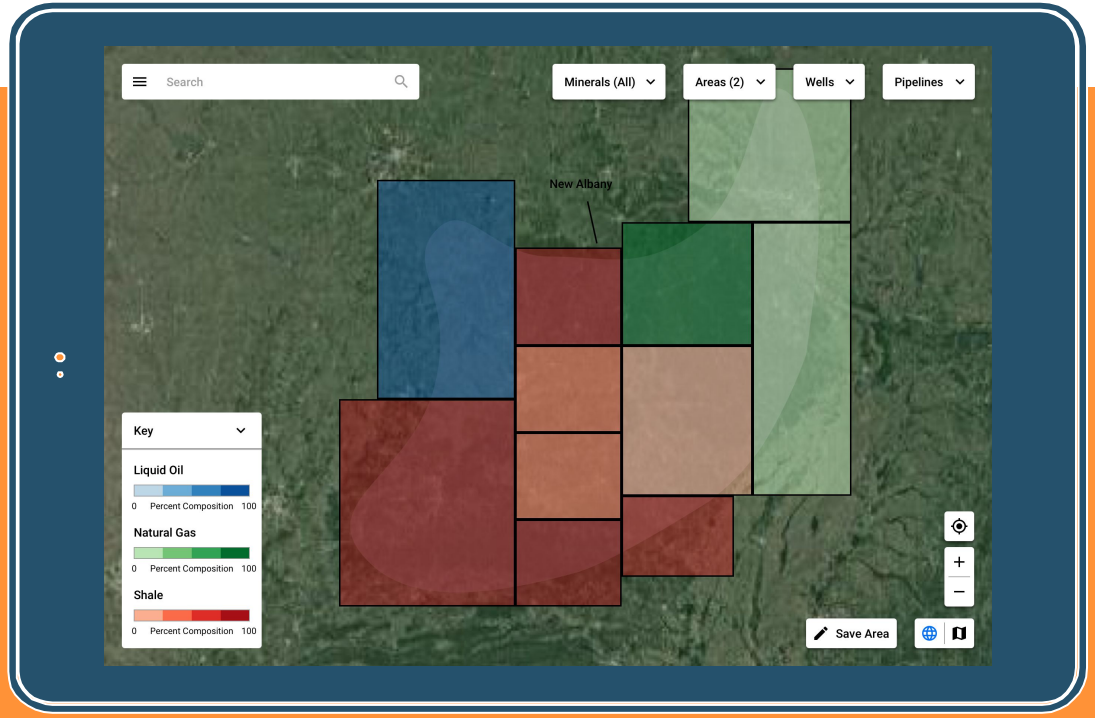
MINERALS FILTER GRADIENTS

If a user chooses to see all minerals by percentage, each mineral will be assigned a sequential color palette to represent the composition.



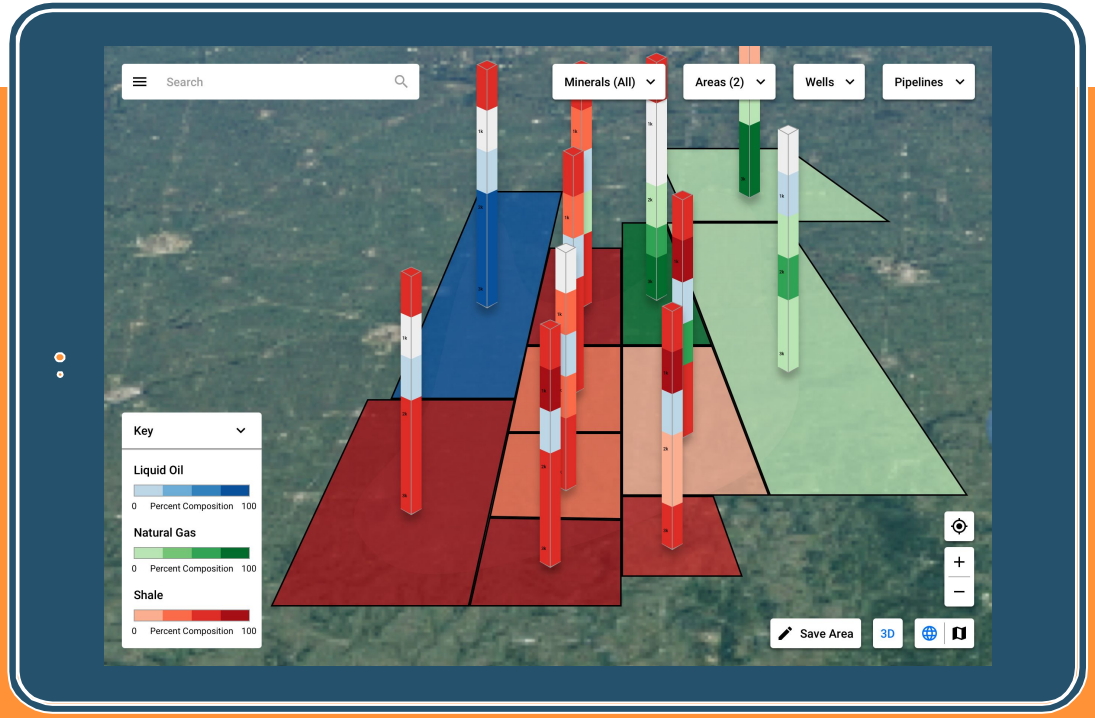
MINERALS FILTER GRADIENTS

Each parcel will then show the corresponding color for the average of the most prominent mineral at all depths.



Z - INDEX VISUALIZATION

To view depth details, users can click the “3D” button which shows the same sequential palettes with a bar representing mineral composition in the z dimension.



LIMITATIONS

Colors

While I did these mockups with color to illustrate how they would work, more detail is needed for the color choices.

Z - Index Concept

With a better understanding of how users actually explore the 3rd dimension, I might choose another direction.

Quantity

Right now, my design mostly addresses percentages, but users may be more interested in raw quantities.

THANKS!

Any questions?

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