

HERMOSA PROJECT OPEN HOUSE

PATAGONIA, ARIZONA | OCTOBER 20, 2020

What follows is information presented to the community on several themes related to future exploration work at the South32 Hermosa Project including:

Underground Exploration: Learn more about where, why, and how we are looking to drill underground and what this work has to do with the proposed groundwater pumping.

Hydrology and Dewatering: Learn about the nature of our water studies and groundwater modeling, including where groundwater levels are expected to rise or decline.

Water Treatment Plant and Discharges: Learn more about how we're looking to treat and then discharge water pumped during future exploration, including estimated water flows/volumes.

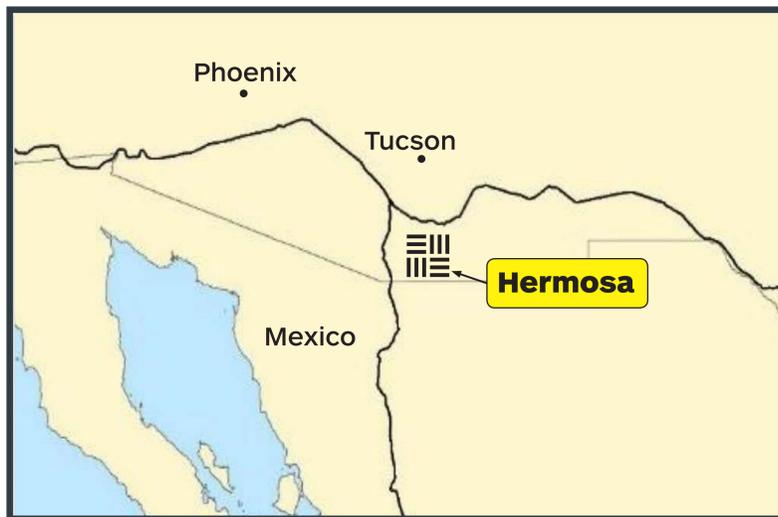
Resource Monitoring: Learn more about our ongoing resource monitoring and what our anticipated dewatering and discharges would mean for local seeps and springs and flora and fauna.

Well Monitoring and Creek Crossings: Learn more about our well monitoring program for neighbors, simulations/modeling of effects to Harshaw Creek, and recharge of the aquifer.

Roads: Learn more about our access route studies, including the provisionally named Cross Creek Connector, plus related topics like the timeframe, safety, and design elements.

WHO IS SOUTH32?

South32 is a global mining and metals company headquartered in Australia. We produce bauxite, alumina, aluminum, energy coal, metallurgical coal, manganese, nickel, silver, lead, and zinc in Australia, Southern Africa, and South America. We're also the owners of the Hermosa Project, one of the largest and most exciting undeveloped zinc resources in the world. Hermosa comprises two deposits: the zinc-lead-silver sulphide Taylor Deposit and the silver-zinc-manganese oxide Clark Deposit.



North America



Africa



Australia



South America



Alumina

Al

Aluminium

$Al(OH)_3$

Bauxite

Coal

Metallurgical coal

Pb

Lead

Ni

Nickel

Mn

Manganese

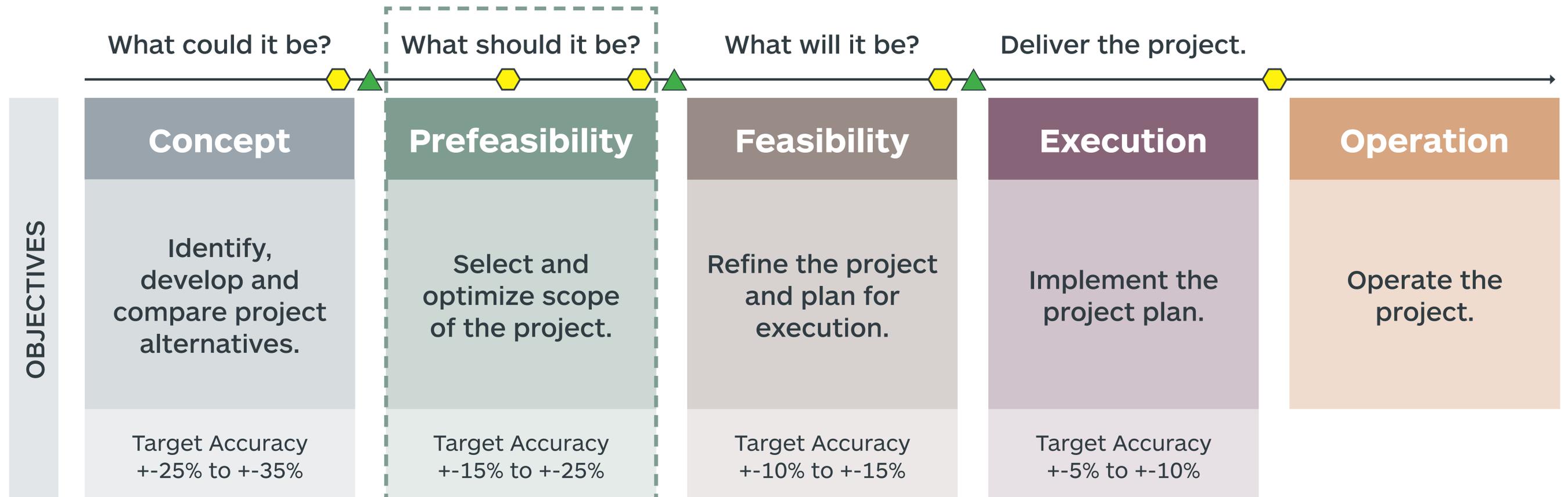
Ag

Silver

Zn

Zinc

WHERE ARE WE NOW?



 Independent Peer Review

 Decision to Proceed

PREFEASIBILITY STUDY VS. FEASIBILITY STUDY

During a PREFEASIBILITY STUDY we...

1. **Identify** all potentially viable development approaches.
2. **Analyze** each potential development approach and the attendant options and risks from every possible angle.
3. **Determine** which development approach is likely to deliver the best value and risk management proposition in line with our values and business objectives.

Then we...

1. **Recommend** to company leadership our preferred development approach, project plans, and schedule/cost estimates.

If the preferred development approach we identify is confirmed as the best development scenario and demonstrates a strong business case, then we will be given the green light to move into a feasibility study.

During a FEASIBILITY STUDY we...

1. No longer look at alternative development approaches and instead focus only on the approach recommended during prefeasibility.
2. Optimize and increase definition and engineering of the recommended development approach from the prefeasibility study, including mine and infrastructure designs, schedules, cost estimates, execution/construction plans and strategies, operational readiness planning, social and environmental aspects, and more.

Then we...

1. Seek authorization from the South32 Board to proceed to execution of the project (detailed engineering and construction) with the associated required capital expenditure based on this work.

UNDERGROUND EXPLORATION

Why do you have to remove water?

- The top of the mineral resource is about 1,000 ft below the surface. Groundwater exists about 100 ft below the surface. Water needs to be pumped out to allow for safe passage of South32 personnel and equipment.

Are you mining?

- No, we are not an active mine yet. The proposed pumping is to continue exploration at Hermosa.

When will you start mining/producing?

- A date has not yet been determined and hinges on the outcomes of our studies.

Why do you have to do exploration drilling underground?

- We will be drilling underground into the ore body to better understand the mineral resource. This data will be analyzed to further assess project economics and viability.



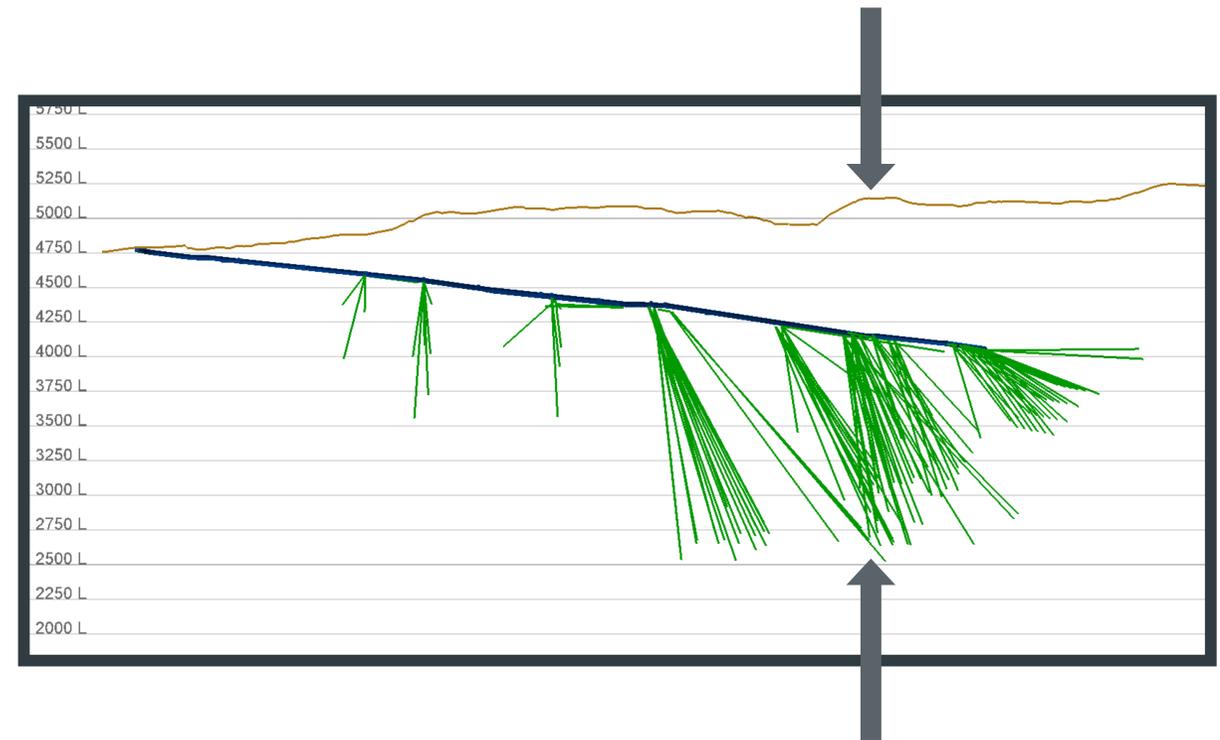
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UNDERGROUND EXPLORATION



Hermosa project site

The exploration decline will be below the surface and below the groundwater table



We would be drilling from the decline into the ore body

HYDROLOGY & DEWATERING

How much water will you consume?

- Small amounts of water may be used on site for things like dust suppression, but most of the pumped water will be treated and discharged into Harshaw Creek.

Can you reinject the water as opposed to discharging it to the surface?

- There are challenges with piping and land position, but this is something that we are willing to explore and collaborate with others on in the future.
 - We anticipate the majority of the water discharged to Harshaw Creek will recharge the aquifer.

Will you be doing a comprehensive water study?

- We are doing various studies that are pieces of a puzzle that can be eventually combined into a comprehensive study that we will continue to evaluate over time.
- We are also working with the town on a third-party review of some of our water reports.

Can you share your water model?

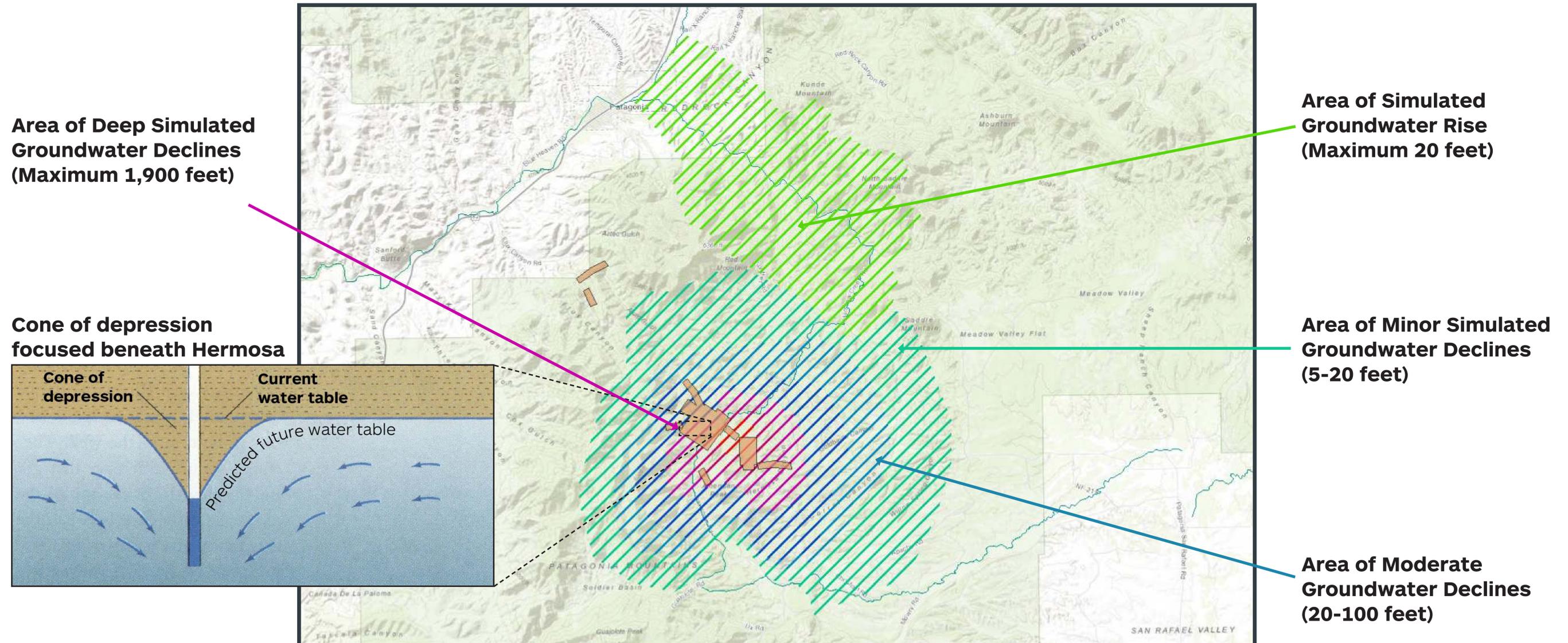
- We cannot share the water model as it contains commercially sensitive information that we wouldn't want our competitors to have. However, we are sharing the data that we used to develop the model.
- We have shared water quality data and meteorological data with the Town of Patagonia and are working on an online library to share this information broadly.



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HYDROLOGY & DEWATERING

PRELIMINARY IMPACT SIMULATION FOR ADVANCED DEWATERING



WATER TREATMENT PLANT & DISCHARGE

How much water will you be discharging into Harshaw Creek?

- Water will be discharged at an estimated peak of 9 cubic feet per second (cfs). Runoff from typical storm events range from 100s to 1000s of cfs.

Will the increased flow reach the Town of Patagonia?

- South32 models indicate that most of the water discharged into Harshaw Creek will be recharged into the aquifer before it reaches the Town of Patagonia.
 - The water will soak back into the ground, some may be used by vegetation and some will evaporate, but the majority will go back into the aquifer.

How will this impact Harshaw Creek?

- We do not anticipate adverse impacts.
- The discharge point into Harshaw Creek has been designed and engineered to prevent erosion.
- We do not anticipate sediment transport that could significantly alter Harshaw Creek.

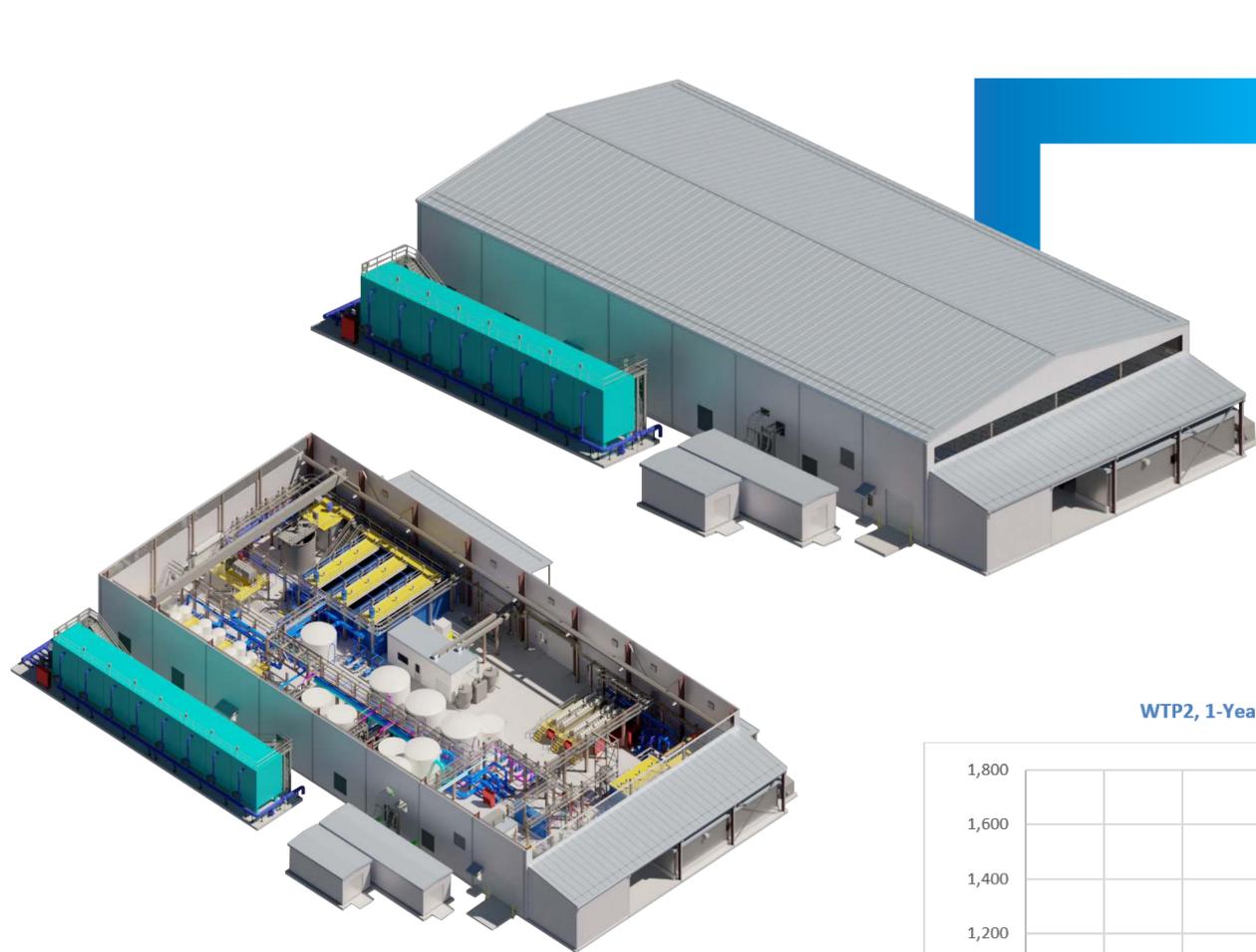
What permits are required?

- We submitted two permit applications to the Arizona Department of Environmental Quality (ADEQ).
 - Aquifer Protection Permit (APP) and Arizona Pollutant Discharge Elimination System (AZPDES) Permit.
 - These applications take up to a year to process and will include public hearings and opportunities for public comment.



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WATER TREATMENT PLANT & DISCHARGE



State of the art treatment technology to meet stringent water quality standards.

Water will be safe for people and wildlife.

Water will be discharged at an estimated peak of 9 cubic feet per second (cfs).

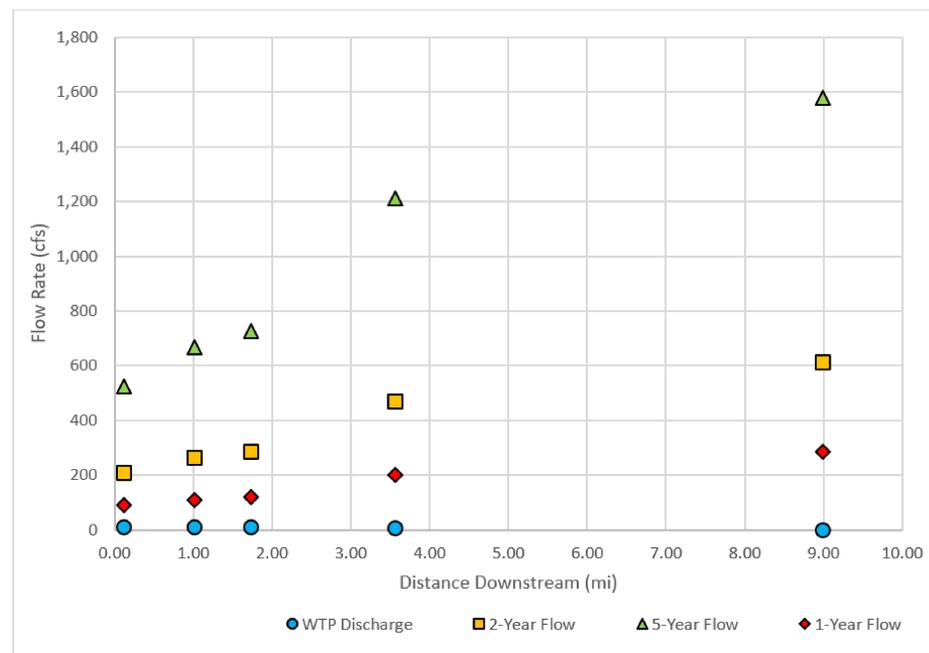


Discharge into Harshaw Creek will be less than most monsoon storm events.

A recent storm event on August 20th, 2020 was similar to a 5 year event (green triangle on graph)

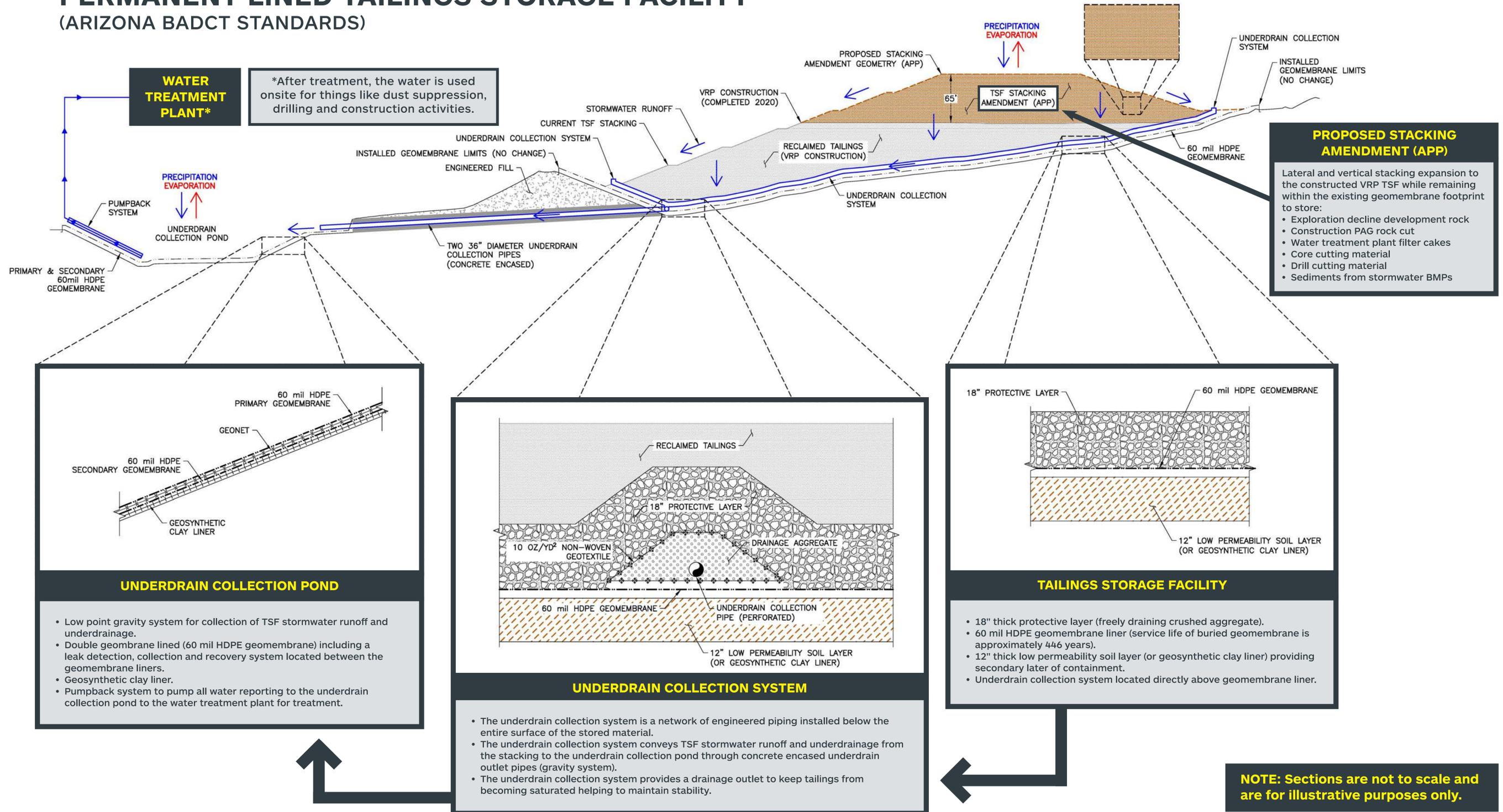
Hardshell Weather Station (near Hermosa site) recorded 1.64" of rain in 1hr 10 minutes

WTP2, 1-Year, 2-Year, and 5-Year Discharges in Harshaw Creek



TAILINGS STORAGE FACILITY AND WATER TREATMENT

PERMANENT LINED TAILINGS STORAGE FACILITY (ARIZONA BADCT STANDARDS)



RESOURCE MONITORING

What impacts do you expect from dewatering?

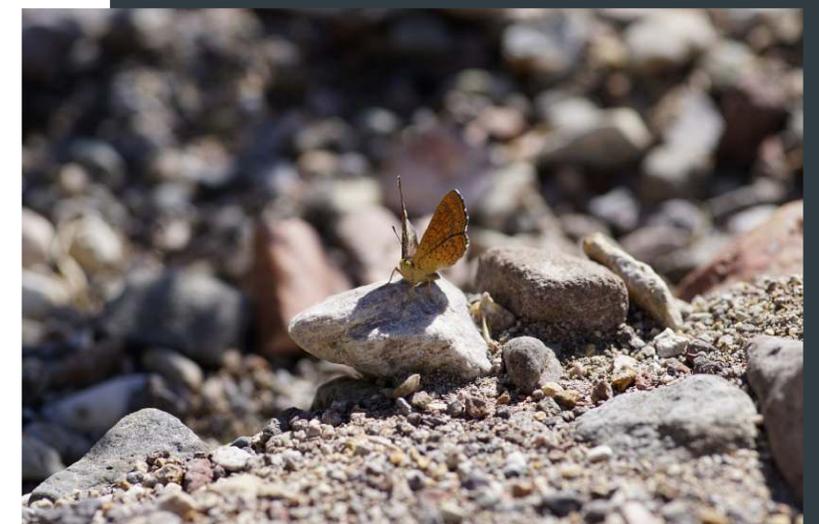
- We anticipate modest flow reduction to seeps and springs in the immediate area, which are primarily acidic because of historic mining activities.
 - The dewatering will not impact wildlife.

Will discharge impact wildlife?

- No adverse impacts on flora or fauna are expected.
- In some cases, our discharge may create additional prey as there is more water available on the surface, but even this positive impact will be negligible.



Red-spotted Purple (*Limenitis arthemis*)



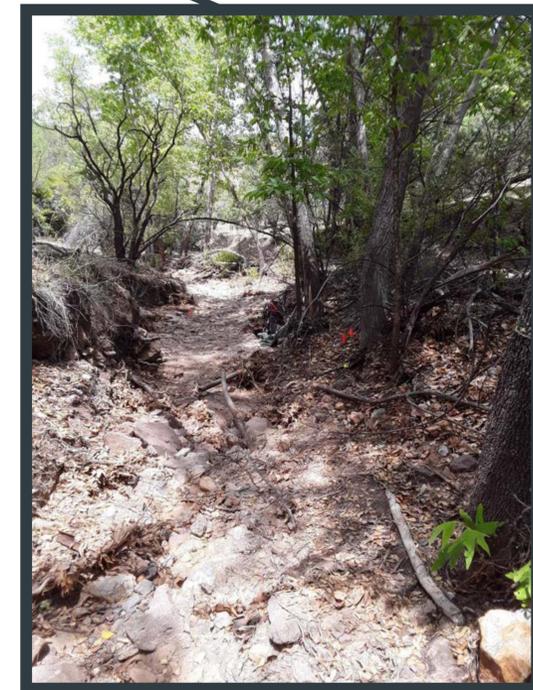
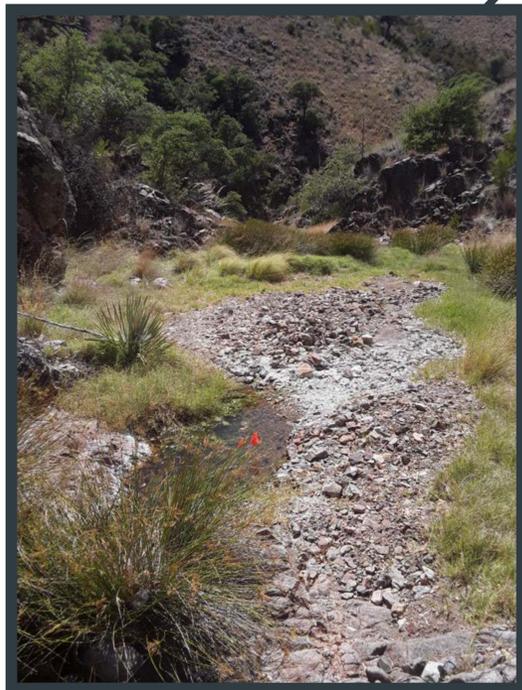
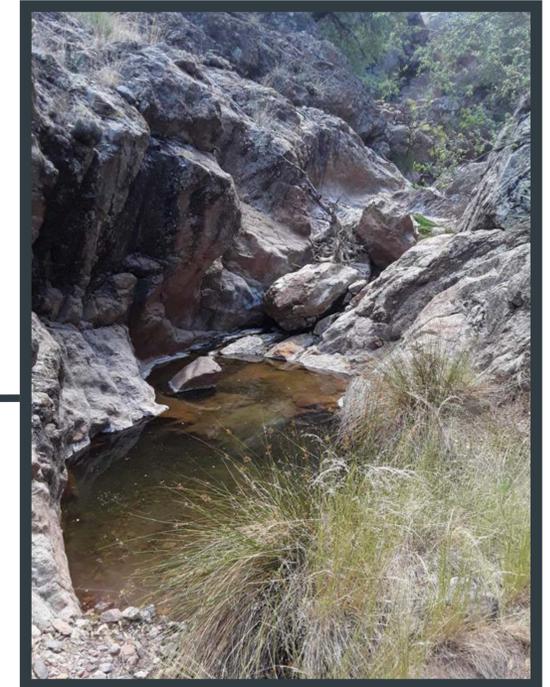
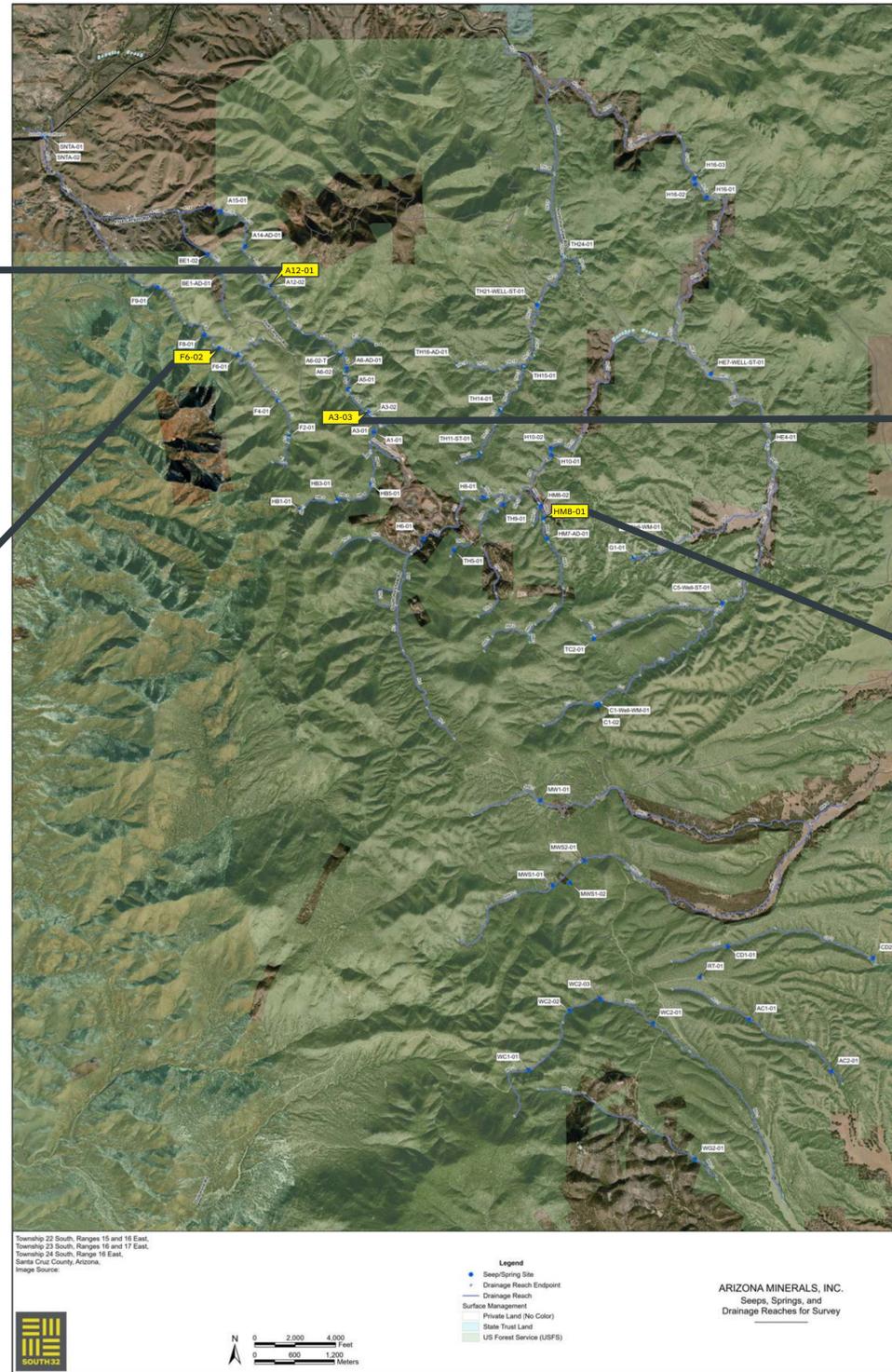
Arizona metalmark (*Calephelis arizonensis*)

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RESOURCE MONITORING

Map Of Seeps, Springs, and Drainages

We anticipate minor changes in seasonal flows at neighboring seeps and springs, many of which have acidic water due to historic mining by other companies.



SCAN TO VIEW
OUR SEEPS
AND SPRINGS
CATALOG

RESOURCE MONITORING

No adverse impacts on flora or fauna are expected, including protected species and their suitable habitat.

BIOLOGICAL SPECIES OF INTEREST



Northern Goshawk – successful reproduction (2019 and 2020)



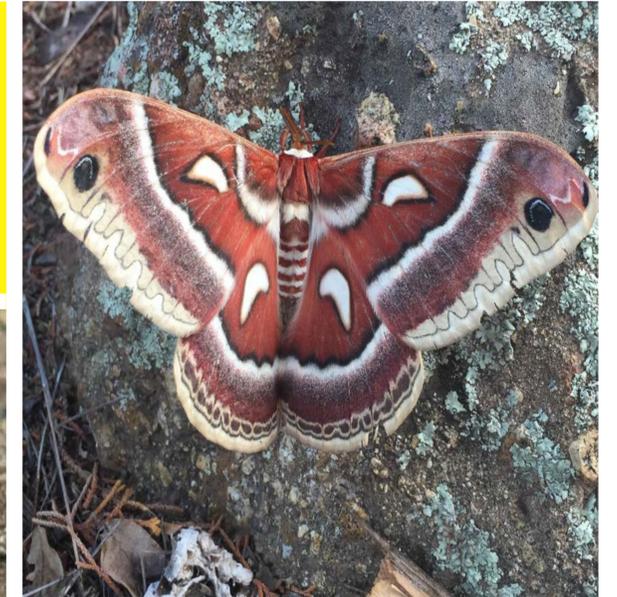
Yellow-billed Cuckoo (2020)



Mexican Spotted Owl Fledgling (2020)
Approx. 1 mile from Hermosa.

FOCUS OF CONTINUED BIOLOGICAL MONITORING EFFORT

- Mexican Spotted Owl
- Yellow-billed Cuckoo
- Northern Goshawk
- Invasive and Noxious Plants
- Sensitive Plants
- Aquatic and Riparian Resources
- Specific Moths and Butterflies
- Bats



WELL MONITORING & CREEK SIMULATIONS

I'm on a well and have concerns about pumping.

- We do not anticipate negative impacts to surrounding well owners, but as a precaution are implementing a well-monitoring program with our immediate neighbors.
 - Well monitoring will allow us to gather baseline information and measure any potential water level fluctuation

Will the discharge cause flooding or access issues?

- We have conducted an analysis indicating creek crossings are safe. (please see the map poster).
- Road crossings in town are designed for much higher flows and 50-year events. We do not anticipate any impacts to crossings in town and are engaging in third-party verification with the Town of Patagonia.



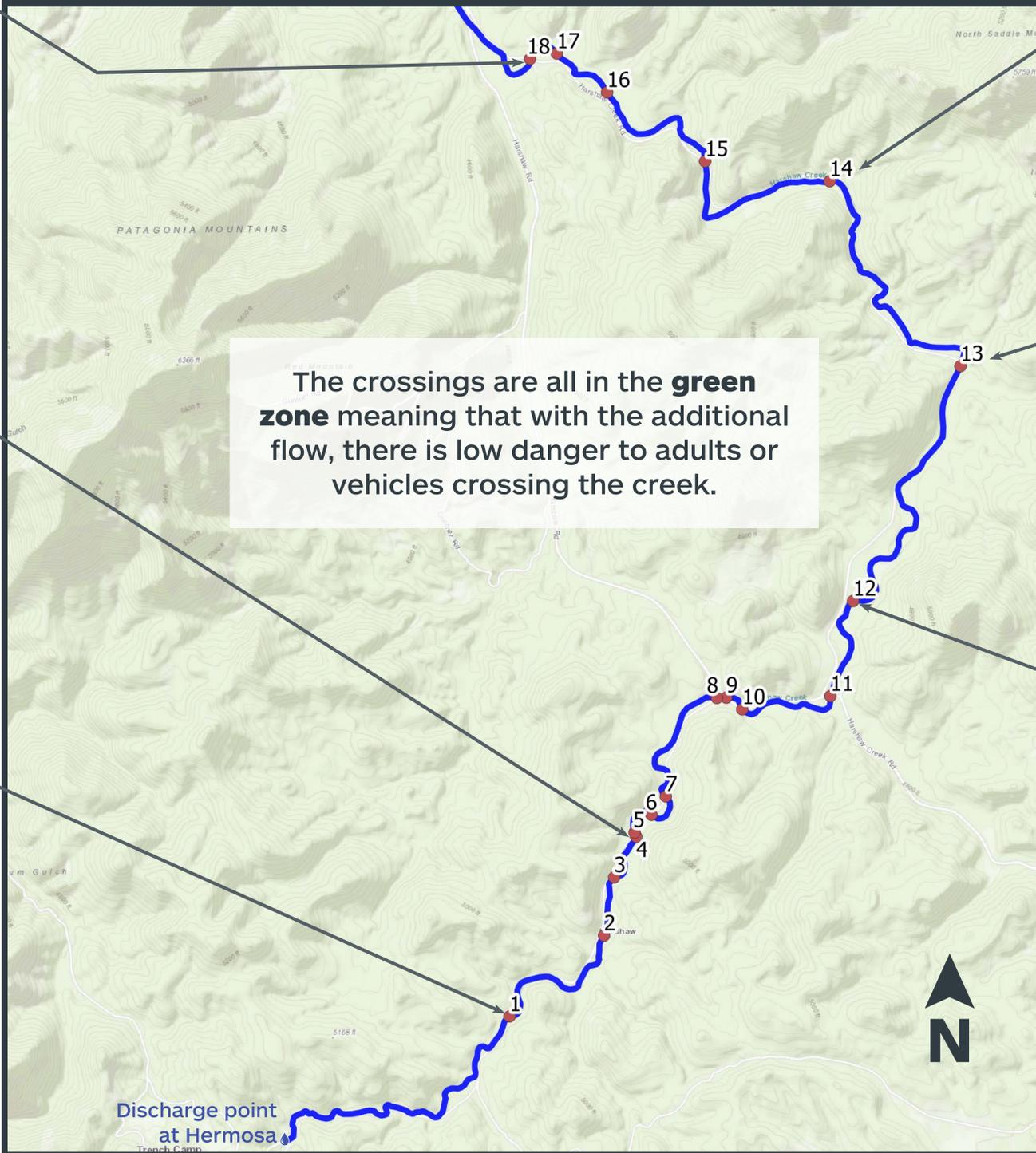
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WELL MONITORING & CREEK SIMULATIONS

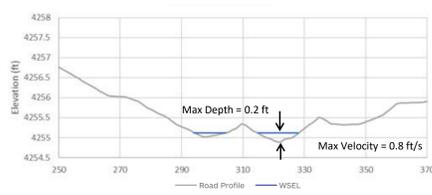
KEY: DEPTH-VELOCITY FLOOD DANGER LEVEL RELATIONSHIP FOR ADULTS*



*Hazard classifications per Bureau of Reclamation, et al. *Downstream Hazard Classification Guidelines, 1988. ACER Technical Memorandum No. 11.*



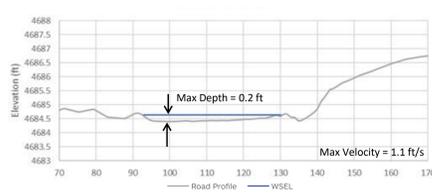
ROAD CROSSING 18



Flow (cfs)	Stage (ft)	Velocity (ft/s)
0.17	0.10	0.51
1.21	0.20	0.74
2.30	0.23	0.84
4.33	0.30	1.04
10.0	0.40	1.32
17.6	0.50	1.41
31.3	0.60	1.68
50.0	0.70	1.95
74.0	0.80	2.23
102	0.90	2.49
127	1.00	2.57

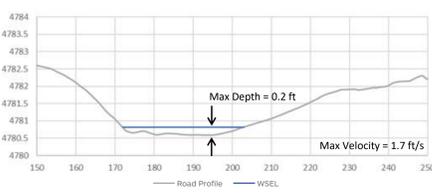
Dark green highlight indicates max velocity

ROAD CROSSING 4



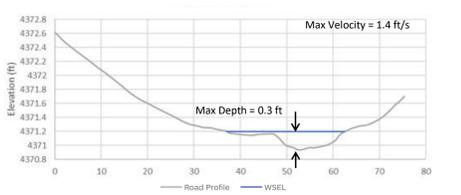
Flow (cfs)	Stage (ft)	Velocity (ft/s)
1.23	0.10	0.62
5.93	0.20	0.99
8.10	0.22	1.07
15.0	0.30	1.32
28.2	0.40	1.63

ROAD CROSSING 1



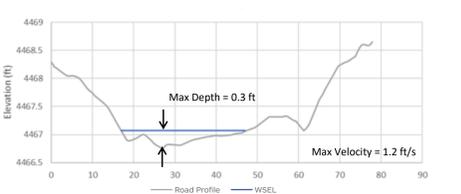
Flow (cfs)	Stage (ft)	Velocity (ft/s)
1.40	0.10	0.91
6.79	0.20	1.56
9.19	0.23	1.74
15.7	0.30	2.09
27.8	0.40	2.51
43.3	0.50	2.89
62.4	0.60	3.24
85.1	0.70	3.57
112	0.80	3.89
142	0.90	4.19
176	1.00	4.48
214	1.10	4.75
254	1.20	4.99
297	1.30	5.18
323	1.40	4.99
381	1.50	5.25
435	1.60	5.37
496	1.70	5.52

ROAD CROSSING 14



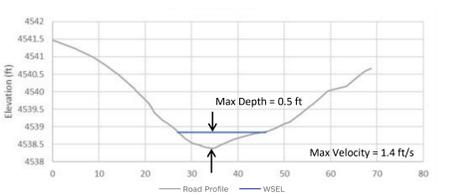
Flow (cfs)	Stage (ft)	Velocity (ft/s)
0.46	0.10	0.79
2.44	0.20	1.36
4.53	0.26	1.41
5.78	0.30	1.44
12.9	0.40	1.73
25.1	0.50	2.15
41.4	0.60	2.52
61.5	0.70	2.85

ROAD CROSSING 13



Flow (cfs)	Stage (ft)	Velocity (ft/s)
0.21	0.10	0.54
1.35	0.20	0.83
4.66	0.30	1.10
5.57	0.31	1.13
10.8	0.40	1.44
19.7	0.50	1.74
30.5	0.60	1.92
47.1	0.70	2.27
66.3	0.80	2.56
87.9	0.90	2.82
113	1.00	3.06
140	1.10	3.29
170	1.20	3.52
199	1.30	3.64
234	1.40	3.82
271	1.50	3.99

ROAD CROSSING 12



Flow (cfs)	Stage (ft)	Velocity (ft/s)	Flow (cfs)	Stage (ft)	Velocity (ft/s)
0.15	0.10	0.53	70.2	1.20	2.84
0.80	0.20	0.83	85.1	1.30	3.01
2.12	0.30	1.07	101	1.40	3.17
4.25	0.40	1.28	119	1.50	3.32
6.18	0.46	1.37	138	1.60	3.47
7.23	0.50	1.42	156	1.70	3.55
11.9	0.60	1.65	175	1.80	3.61
17.8	0.70	1.86	200	1.90	3.75
24.9	0.80	2.04	226	2.00	3.88
34.0	0.90	2.25	254	2.10	4.01
44.4	1.00	2.45	283	2.20	4.13
56.6	1.10	2.65			

Information for other points on the map available upon request. Please email hermosacommunity@south32.net.

HERMOSA ACCESS ROUTES

What is the timeline for this decision?

- Our prefeasibility study has been extended to allow time for deeper analysis of development options and will now be completed in the first half of 2021. This has given us additional time to reevaluate our access route study, review possible alternative routes, and engage more with the community.

Why is this route currently favored?

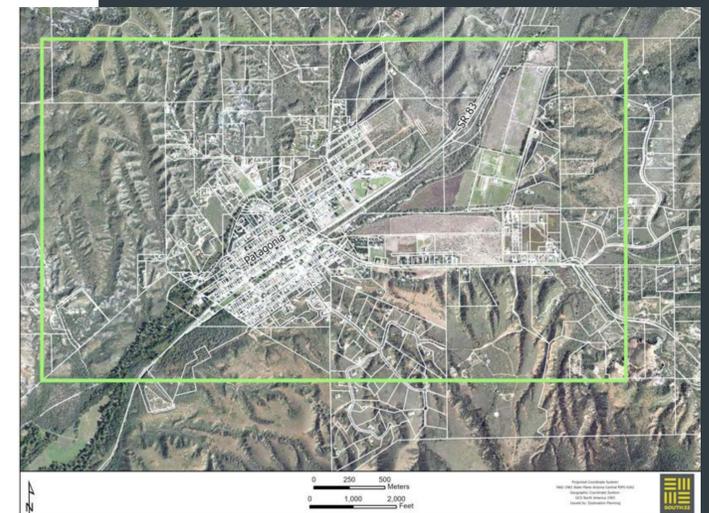
- The Cross Creek Connector option would honor the community's preference to keep traffic outside the Town of Patagonia limits, and avoids school traffic and pedestrian risks in Patagonia.

How has the public been involved?

- South32 public engagement on this topic began over a year ago. South32 presented the access route options publicly in September/October 2019 at a Santa Cruz County Board of Supervisors meeting, a Town Council meeting, and a public open house. We also met with neighbors along all proposed routes and conducted community perception surveys and interviews.

What other infrastructure would be located along the proposed Cross Creek Connector?

- None – South32 has committed to a community zone and would keep all industrial infrastructure outside of the green rectangle to the right.



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SOUTH32 HERMOSA COMMUNITY FUND

The South32 Hermosa Community Fund supports nonprofit organizations based in Santa Cruz County, Arizona. The fund is held at the Community Foundation for Southern Arizona and its geographic affiliate, the Santa Cruz Community Foundation.

\$237,700

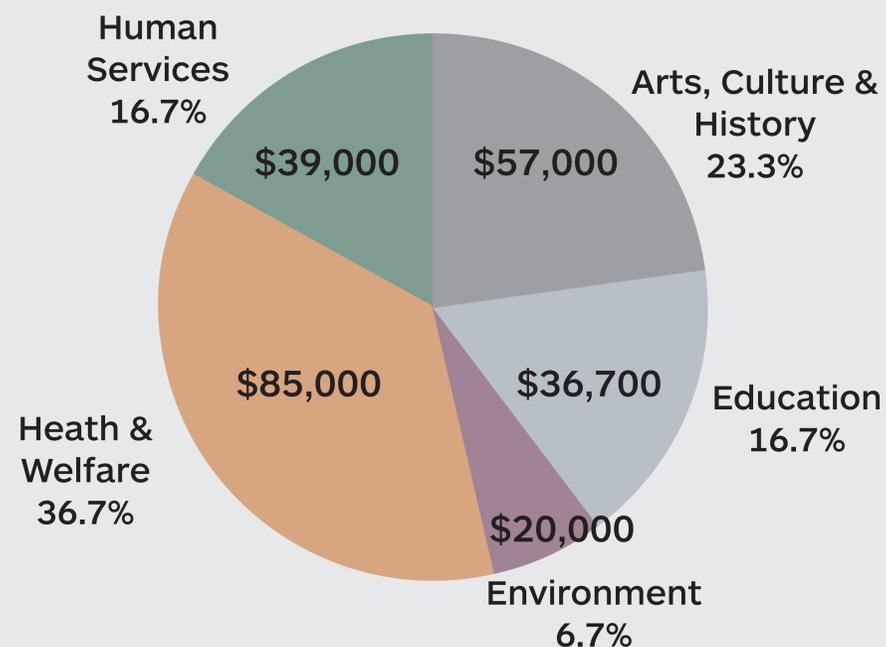
Four grant cycles provided organizations based in Santa Cruz County a grand total of \$237,700 in support.

30

30 projects from 8 ZIP codes in Santa Cruz County and Southern Arizona were supported.

Between May 2019 and May 2020

Projects by Focus Area



Grant cycles are open twice a year.

January 4 – January 29, 2021

June 7 – June 30, 2021

Apply online: cfsaz.org/grants/south32-grants

“These grants have been especially valuable during this critical time when the Coronavirus threatens the health and even the lives of so many people - especially elderly and disabled people who are our foremost clients.”

- Senior Citizens of Patagonia, Inc.