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I am an 18-year resident of Santa Cruz County with an engineering degree and then a business background in energy and transportation including roads and mining.

The following information includes impacts that have immediate effects on the environment and traffic that are compounded over time. One of the largest impacts from mining is on the scenic integrity of the landscape followed by remnants of the physical mine footprint with the disruption of the habitat, pollution, roadway hazards and safety. It also affects the socioeconomic structure and activity in the Forest as well as in the region. Mining activity is popular again fueled by the EV battery push and will be compounded as other mines in the region are placed and S32 expands.

1. The driver of mining is Critical Minerals (priorities are Zinc and Manganese) tied to IRA - so cost / benefit should be ongoing focus and shared with the public. Please study the size / constituents / impact of different dust particle sizes created hauling minerals from mine to onsite processing in mine trucks, transportation of equipment, materials, supplies, and personnel to and from the project area using existing Forest Roads, the primary access road, and temporary access roads. Also please assess direct effect of mined, crushed and trucked emissions on Federal Land including the effect on "downstream" air, water, flora, wildlife & personnel safety.

2. Also include transportation of filtered zinc and lead and silver concentrates off-site in sealed containers and crushed oxide ore in sealed containers to beneficiation facilities on private land distal from the project area. Mine Traffic is listed as on-highway trucks hauling Zinc and lead/silver concentrate and Oxide ore; on-highway fuel delivery trucks for natural gas and diesel; on-highway trucks with input materials (sand, gravel, aggregate) and other materials and supplies including potable water, cement, tires, and chemicals; trucks hauling explosives; and personal vehicles / buses for personnel. Please study the number of trips and miles operated currently on Harshaw Road and plans for future loads and routes. Also study inputs S32 provided to consultants for accuracy and plans for current and future planning address road designs, dust and other pollution.

3. S32 notes future automation and electric vehicles are planned for use on Forest Service Lands without any details on number of trucks, efficiency, trips, costs, energy / amount and type used, etc. Please study specifically what types of vehicles will be utilized over time as well as environmental cost-benefit.

4. Mined ore is to be trucked in "sealed" containers on trucks through Forest Service land. Their plan is an oversimplification of Hazardous Material responses lacks other issues of getting into waterways and addressing other spilled materials (e.g. fuels). Sealed containers are touted as a mitigating design to "eliminate" hazardous materials as it is being transported and in case of an accident. Attempts to get information on such from the manufacturer have failed to confirm this claim. Experience in transport indicates that accidents and leaks / spills will occur. Please study equipment design to ascertain failure rates and risk to NFS land and the recreation and traveling public. Also please study integrity of all equipment on roadways used to include fuel / oil and other fluid leakage, mineral carry-out and also when rollover or collisions with other vehicles occur.

5. Mined ore trucked product supposedly will not re-enter NFS land. Please study routes for both products supplied to the mine and ore shipped out and identify other public roads on other Federal, Tribal and private depending on traffic lanes to and from the mine.

6. Ore and other heavy truck and support traffic noise and lights up and down the mountain will be notable and affecting dark skies related issues. Please study the effect on wildlife, recreational users and landowners on all routes.

7. Electric trucks and other equipment are "planned" for operations through NFS land and on Public Roadways. The technology is arguably not retail ready in most applications where Battery Technology is utilized will not currently work. If planned, please study how it will be implemented to include vehicle ownership / operation (3rd Party), loss in productivity (heavier weights / added trips), fire risk (added responder equipment needs with higher capacity retardants, etc.) and the effect on wildfire promulgation.

8. Dry Stack Tailings at mine site and on public land have multiple issues including long-term onsite land contamination, mixing and reinserting in underground mine caverns. There are also underground and downstream air and water related issues. Please study amounts of tailings to remain over time, the impact of using tailing / cement mix in water quality within aquifers and reclamation plans.

9. Wet flotation process for zinc and lead is proposed to be used above ground at mine location. Please study the volumes and effects on both air and water, as well as the safety record in such processes along with the effect on the environment.

10. "Natural Forest Scenic Integrity Rules" conflict with above ground rock / tailing mineral sites. One option presented is to manage the mineral heaps "above ground" which means piles of overburden and potentially utilizing an acid leaching process to recover more minerals. Please study acid leaching operations against scenic mitigation rules.

11. Counter to Natural Forest Scenic Integrity rules, dozens of planned drilling pads away from the main mining operation will require generator set power and numerous support trucks, water trucks, material trucks, bulldozers and other equipment as noted. Please study disturbed forestland, roadway designs, traffic, noise, emissions and reparations / restoration for each site.

12. Also counter to Natural Forest Scenic Integrity rules, vehicle operations, powerline infrastructure and public use wildfire plans need to be reassessed. Those need to include fires ignited from vehicles and other support equipment sources as well as power lines. Also please study fire protection and response plans for all vehicle used in onsite operations and trucks traveling through Forest Service lands.

13. Planning for new "primary" 7.5 mile Level 2 Maintenance road down Flux Canyon to 82 on National Forest Land as a future primary route has steep grades, sharp turns, considerable land disturbance, subsidence, washout and maintenance issues appears to need to be of higher quality / durability. Per NFS stated recommendations, construction of roads across highly erodible soils and areas of high and very high scenic integrity should be avoided unless as needed to meet statutory requirements, such as mining law or laws to protect public health and safety. Please study the requirements versus the planned low quality road design, sustainability of products used, maintenance responsibilities and costs.

14. Road design and public use plan does not support safe high use heavy truck and mixed use traffic use. Roadway accident and personal injury accident / death liability will occur on mixed traffic. Please study expected public liability costs as noted mix of hikers, horses, cattle, bicycles, UTVs, ATVs, SUVs, mine support vehicles and large trucks. Also please study cost to taxpayers to include a deterrent to visitors and costs in following item 15.

15. We see a potential large "tax-payer" risk / liability involving heavy trucks doing hazardous materials on 2-lane Scenic State Highways, County and Forest roads. Forest Service land will include traveling on 2-lane mountainous roads. Please study hazardous material response plans for accidents for each hazmat material

including with ore trucks, fuel tanker trucks, explosive trucks, toxic chemical trucks and all other materials.

16. The Forest Service and the mine desires to be Green, but most Carbon emissions come from logistics and other equipment and supplies used at the mine - like cement (17). We don't know where the ore is going or where mining supplies are coming from or the inputs Carbon footprint. We ask to get a full-chain Carbon cost versus benefits analysis for traffic passing through Forest Service land - and as a logical model for the future.

17. Cement production is one of the largest sources of Carbon emissions emitted in the US (and globally). Please study the amount of emissions emitted with Cement and other materials along with options for alternative construction materials for both filling in shafts and building roadway structures.

18. Coronado National Forest Services Plan references the "Patagonia-Sonoita Scenic Road" in the Plan focused on recreational traffic to include to/from the CNF. It has been estimated that Hazardous Material Placarded large trucks will increase up to 800% of current Hazmat trucks on highway 82 (and much higher through NFS land). Please study added Hazard Material Truck traffic not only from Hermosa as planned today, but also other similar traffic from yet to be announced expanded Hermosa operations, Barksdale and Rosemont Mines.

19. When we get on AZ State Roads there are tourists driving slowly on/off roadways and school buses (with stops to pick-up and discharge students) added in, both also with potential destinations and linked to CNF and other National Forest Service lands. We also have cumulative impacts NOT addressed with growth yet to be announced S32 expansion in CNF Land. That means added traffic, minerals in dust, track-out, noise and more we ask to be included in study.

20. While ore and service trucks are noted in the S32 mine plan and permit applications, we need current and future traffic numbers, data from trucks, road design info, road maintenance plans, Haz-mat accident / fire response for the entire routes, etc. Please study plans but utilizing local, current and future data.

21. Upgraded and new disturbance roads for logistics to / from mine and exploration on Forest Service land needs to utilize sustainable practices and the latest environmentally friendly equipment and materials. Please study roadway planning, design, construction and maintenance of all roadways for use of best practices.

22. There will be subsidence issues with the interruption of underground water and mineral depletion. Also, while blasting is noted, the effect on soil and roadway stability as well as impacting fault lines and the underground movement of plates from the effect of dewatering and mining are not assessed. Please study roadway and right-of-way plans to address long-term roadway subsidence, stability issues and costs.

23. Counter to National Forest Scenic Integrity and other rules, please study replacing pristine National Forest Land hiking and horse trails with a heavy trafficked trucking road. Please study effect on what is currently used as pristine trails for recreation.

24. Utility right-of-ways and power poles also conflict with National Forest Scenic Integrity rules. Maintenance roads will need to be maintained, but will be accessed by recreational users. Please study power line as well as underground power line option. Also study road designs and how accidents will be responded to as well as liability for accidents on utility right-of-way trails.

25. For other exploration drilling, it is noted that there will be many additional roadway disruptions created in the mountains. Please study equipment and supplies used and advise on effects of road building, noise and effect on wild-life, flora and fauna.

26. Construction and maintenance of fencing and berms are noted as required for worker and public safety. This includes construction and maintenance of temporary roads. Please study effects on wildlife and recreational

users in NFS land.

27.Exploration roads and drilling sites have multiple issues including exploration- related emissions from all equipment used and transport supplies, to-from (water measurement, materials etc) similar to fracking, water usage, air quality, and habitat disruption, tree and vegetation removal / replacement numbers and roadway dust.. The Environmental Protection Agency (EPA) now requires more robust tracking at extraction sites across the country. On-site devices measure emissions leaks drilling and low-pressure sources like wastewater storage tanks, with penalties for exceeding emission thresholds. Please study these issues tied to operations.

28.Reclamation and closure activities will include ongoing management of dry-stack tailings storage facility including closure cap, passive treatment, abandonment of well, drill holes, stormwater management, monitoring and more. Please study long-term plans to include effects on traffic, recreational users, wildlife, streams, etc.

29.Contractors utilized in the design and construction of roadways for heavy duty truck traffic in mountains should have experience in working with public lands in environmentally pristine areas. Please study requirements for consultants to engage with all appropriate stakeholders for full analysis of planning.

30.Added detail in POO included "To provide connectivity between discontinuous South32 Hermosa private land parcels, two segments of existing FR5521 totaling approximately 880 feet would need to be upgraded to a level sufficient for heavy haul trucks and similar internal operational traffic.?These connecting roads would have 60-foot driving width, but based on estimates of necessary cut and fill, the acreage of disturbance width is estimated as 120 feet, for a total disturbance of 2.4 acres. Additionally, upgrade to a small portion of FR4687 would be 1-5 South32 Hermosa Critical Minerals Exploration and Mine Plan of Operations required; this upgrade would be about 200 feet in length, for a total disturbance of 0.6 acres. These connecting haul roads would be similar in construction to LT-TARs (see cross-section in Appendix A, Figure A15) but with a wider 60-foot driving lane.?Buried water pipelines would also fall within the disturbance areas, including for the movement of water between WTP2 and operational facilities. Internal powerlines may also cross within these corridors." S32 has met with some ranchers indicating this may not be the options pursued, but no other options have been formally presented. Please study implications for this option versus others - and clarifying options effects on traffic, safety, etc.

31.The sulfide ore mining process is designed to deliver an average of 4,300 kilotonnes<sup>11</sup> per year, with the beneficiation facilities designed to an approximate maximum capacity of 14.2 kilotonnes per day. The oxide ore mining process is designed to deliver an average of 600 kilotonnes per year. TSF1 has the capacity for less than 10 years of placement of waste rock and tailings. Mining of the (Zn) sulfide portion of the orebody is anticipated to take up to ~30 years. Mining of the (Mn) oxide portion of the orebody is expected to take up to ~70 years. Please study impacts on all these issues over time versus previous lower number of tons and years shared with the community.

32.While ore and service trucks are noted in the POO and permit applications, we do not see where there has been a Regional Impact Study completed and where projected pollution numbers are forecast. Other mines around the globe also have plans to address ongoing roadway maintenance required to address and mitigate such air pollution. Please study what other mines have addressed in planning as well as using newer methods and technologies

33.In the oil and gas industry on Public Land, full chain analysis are often required due to the perceived dirty production and supply chain aspects of the sector. We should include the same for mining, as it has many of the same issues. Additionally similar to the oil and gas industry, there are subsidence issues with the interruption of underground water and oil depletion. Please study requiring the same analysis for mining as the Oil & Gas Industry does on Federal Land.

34. There are questions surround the data used for calculations of emissions. While there is onsite weather information, the other data used from Yuma, Tucson and north of Phoenix doesn't create a representative baseline. Basic engineering says that mineral rich areas have a different emission profile than other areas. This mining is in a mineral rich area. Additionally, we don't know the mineral content of the airborne dust, as well as what the increases are with expanded operations. We would like to see site and area specific baseline information with an independent crosscheck. An in-depth review of corresponding air concentrations as estimated and submitted by S32 for the application of permit No. 96653 (Permit) to demonstrate adequate protection of public health and the environment, is warranted.

35. NFS and Department of Transportation(s) have mutual interests in safe roadways and vehicles. Please study the integration of the following Department of Transportation Principles in the Scoping process:

a. PRINCIPLE 1: Collaboration for Roadway Safety - Everyone has a stake in roadway safety. The collaboration of all stakeholders will yield cross-cutting opportunities to improve roadway safety with the promise of stronger outcomes. DOT will lead this collaboration within its operating administrations and through outreach to potential partners, starting with the development of a national roadway safety goal.

b. PRINCIPLE 2: Safer Behaviors - The greatest potential for reducing crashes lies in the difficult task of transforming public and personal attitudes toward roadway safety. Citizens should consider roadway deaths along with the attendant suffering and economic costs as unacceptable rather than inevitable. A shift in safety culture will bring us closer to making these changes. DOT can support the needed change by targeting at-risk operators and users through education and enforcement.

c. PRINCIPLE 3: Safer Vehicles - Safer and smarter vehicles will prevent crashes or mitigate their severity. DOT will continue to foster development of the engineering and technology critical to improved vehicle crash avoidance, crashworthiness, and communication. The public needs to understand and demand current and innovative vehicle technologies that save lives. Some of these innovations will enhance the safety of the user within the roadway environment through connectivity of the vehicle and the infrastructure.

d. PRINCIPLE 4: Safer Roadways - The Nation should have the safest roads in the world, not just for vehicles, but for all users. Safer roadways will result from expanding improved infrastructure, using technological innovations and countermeasures, and integrating safety into all phases of the roadway life cycle.

e. PRINCIPLE 5: Empower Communities - Local jurisdictions must be able to prioritize transportation objectives based on their own specific needs. By developing data-driven roadway safety plans, communities can meet the needs of all the road users in their locality. The Department will empower communities by enhancing State and local participation in safety planning processes, providing greater flexibility in their resources, and fostering linkages between safety and livability initiatives.

f. PRINCIPLE 6: Accountability and Managing for Results - The public expects its roadway investment to produce tangible program results. Program success is achieved through improved data, integrated planning, and measurable performance targets. Greater accountability and results-oriented management will provide the transparency necessary to maintain the commitment and support to significantly reduce roadway fatalities.

36. South 32 is putting out their water use statistics in marketing material touting that the Hermosa Mine will use 75% less water than other mines in the region. Recognizing that USGS does not include dewatering in amounts, this water is to be pumped to creeks / waterways. Please study overall amounts of water to be pulled from the mountain over time versus the nuanced water use claims. Also study amounts of water used in other planned mines (Rosemont, etc) to get accurate comparison information to the public.

37. There is a tradeoff of Natural Resources of water which is in short supply versus critical minerals of Zinc and Manganese where this mine will make less than 1% impact on the global market. In addition to the environmental and health risks, please study the tradeoff of water table reduction, erosion and subsidence impacts versus the value of minerals removed. Also please study land reclamation plans to include native soil, plants, trees, etc.

38. Harshaw Road (FR 49 & 58) is on National Forest land and used by the mine and open to the public. Please include these study items for all Harshaw and all roadways for environmental, dust and impact to traffic

over time on roadway and community. Also study traffic plans versus maintenance needed and responsibility for work (workers / equipment and funding)

39. There are planned transmission lines that may be in proximity to natural Gas lines per EIA mapping and tanks onsite at the mine. Please study impact of power lines / energy fields effect of corrosion and failure on metal tanks and pipelines and resultant environmental damage with failures / leakage with reparations. Also study Certificate of Environmental Compatibility adherence to standards.

40. The EIS is a snapshot of issues addressed, so please provide a schedule of future EIS updates with timetables e.g. 5-years, 10-years, etc

41. Emergency response is a critical item for injuries especially when in remote areas with limited 2-lane roads. Please study response plans for onsite medical care facility / personnel, Patagonia, Nogales, Forest Service or others. Also study plans for helopad / helicopter evacuations/

42. Fire avoidance / suppression are mitigation critical activities from several aspects. Please study building fire sprinkler systems, roof materials (ember adverse), fire hydrant locations, fire response (mine, Forest Service, Patagonia, Nogales and other)

43. There are an expected 50 different chemicals that will be transported and stored on the mining and exploration properties. Please study accident mitigation plans and precautions for those used by the mine for all sites.

44. Road construction designs and maintenance levels are set as Level 2 and Level 3 maintenance roadways. Please study the cost / benefit of these level roadways as well as responsibility for maintenance and public liability (result of accidents).