Fremont County Highway 69 Quarry
Summary of Site Conditions Influencing Stormwater Management

Topography and Vegetation
- The water drainages appear to be ephemeral.
- There are approximately three drainages in the immediate area that could impact the project site in response to precipitation events.
- These drainages are being fed by approximately 14.6 acres of surface area.
- Immediately northeast of the project site is a major drainage/wash that appears to have a control dam already implemented. From the aerial photography, this dam was installed before 1962.
- The low spot where water accumulates is vegetated with upland vegetation and siltier than the surrounding area, indicating that standing water does not appear to be the norm at this location.

Geological Setting
- The Coaldale series is the soil classification in the project site and is a well-drained, moderately permeable soil.
- The rock type in the project site is classified as migmatitic gneiss which is described as layered gneisses.
- The project site is located adjacent to the Texas Creek Fault on the east. The fault trends north-south and part of the project site is within the fault's shear zone. There are multiple smaller faults surrounding the project site that trend east-west.
- Outcrops in the area are highly weathered and fractured, which allows for higher permeability rates if bedrock were to be exposed during mining operations.
- Nearby well log data was obtained from the State Engineer's Office, in order to ascertain a better understanding of the subsurface in the local area (Figure 1).
    - Data from Well 1 (Permit #216683) shows 0-32 feet of brown, decomposed granite.
    - Data from Well 2 (Permit #208600) shows brown dirt from 0-14 feet.
    - Data from Well 3 (Permit #280311) shows decomposed granite 0-18 feet.
    - Data from Well 4 (Permit #213594) shows decomposed granite 0-45 feet down.
- BLM attempted to get field measurements of strikes and dips of the bedrock outcrops at the project site. However, due weathered bedrock conditions, this was not feasible.

Precipitation
- Last year the Texas Creek area received a total of 12.87" of precipitation, with the 30 year average being 15.33.", with the wettest recorded month being April, with 4.05" of recorded precipitation.
- Texas Creek has recorded 9.51" of precipitation as of July 18, 2017
- Note: This data was retrieved from CoCoRaHS Station CO-FM-5 located east of the project site.

Project Proposal
- The majority of the extraction work will involve removal of the material above the drainages, which will not create a direct interference with the current stormwater flow/infiltration regime.
- The approved mine and reclamation plan states that the quarry floor will be dropped down 15 feet below current grade of the access road/railroad bed.
- Right now, the lowest point of the drainages are approximately 12 feet below this current referenced grade.

Summary
Based on the above conditions, it appears that there is adequate unconsolidated material that would easily facilitate vertical water migration in response to the typical precipitation event in this area. It is anticipated that there is a minimum of 3 feet of soil material underlain by a significant thickness of weathered granite.

Therefore, it is likely that onsite management of stormwater associated with this project will be sufficient to promote infiltration and not result in water retention exceeding 72 hours.

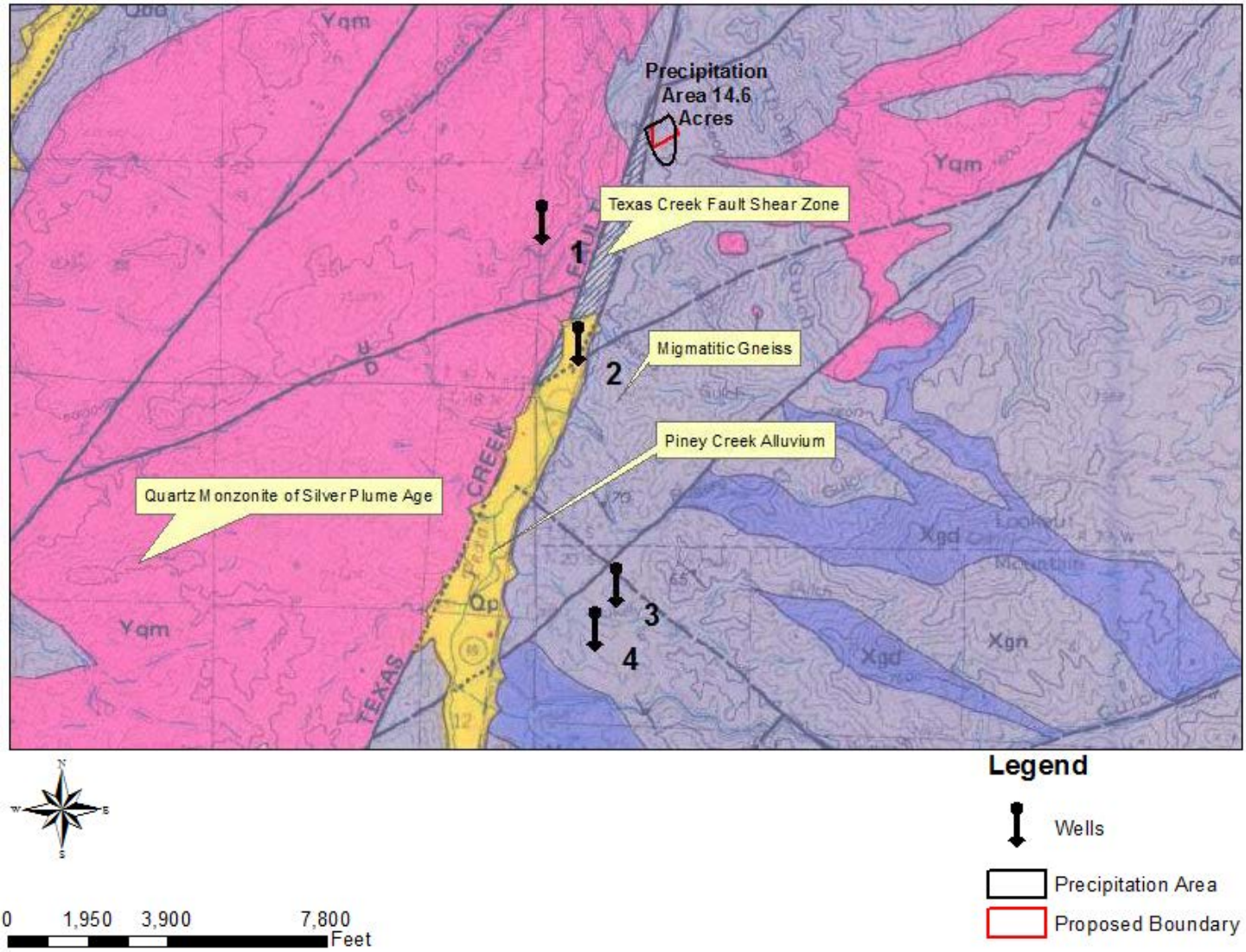

Figure 1 This map exhibits locations of the wells used to better understand the subsurface, as well as the project location as it relates to the Texas Creek Fault.

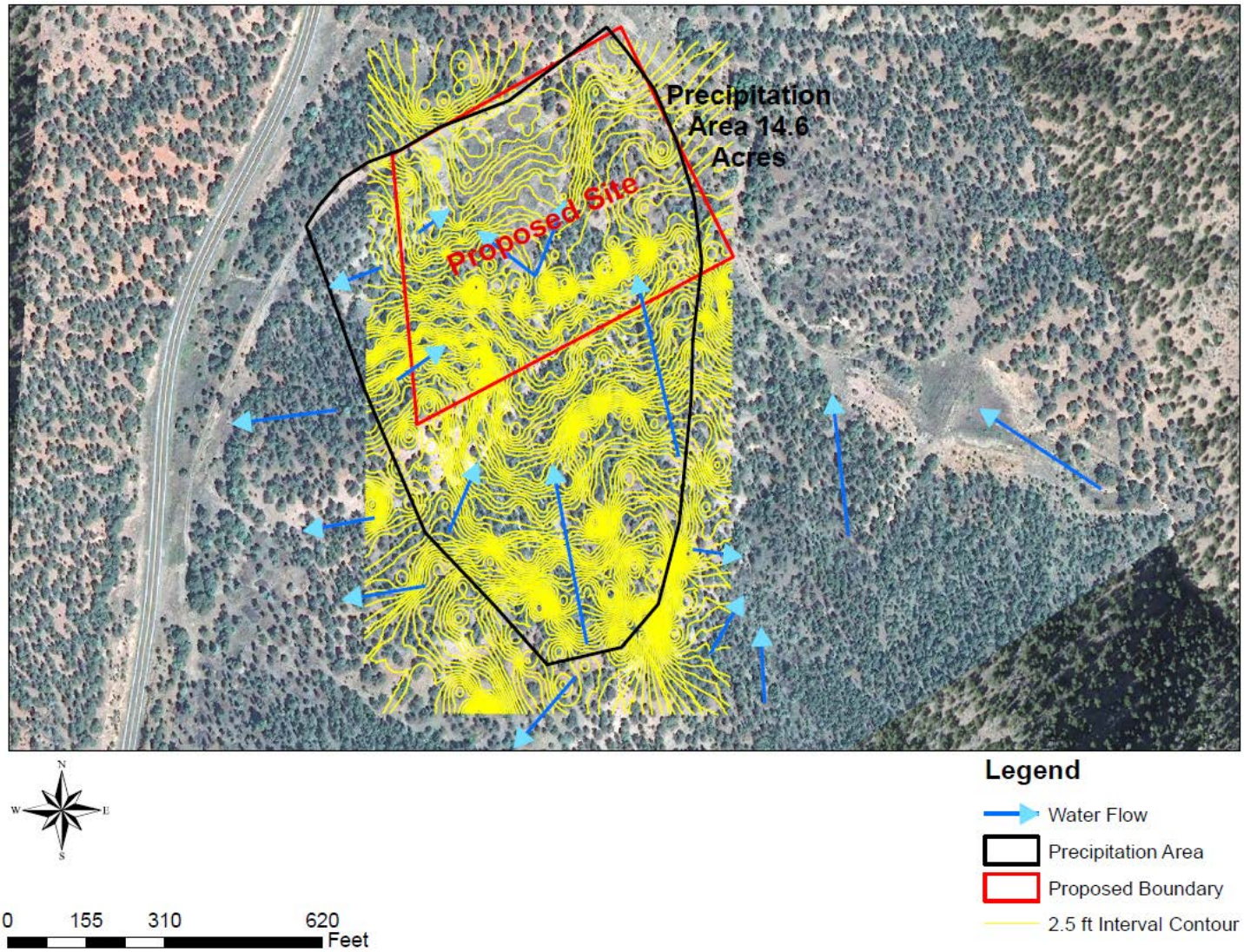

Figure 2 This map exhibits contour lines and water flow paths within the precipitation area. Imagery is from 2016.

STATE OF COLORADO

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Geology report

1 message

Annette Ortega <annette.ortega@fremontco.com> Thu, Apr 12, 2018 at 1:35 PM
To: "Cazier - DNR, Tim" <tim.cazier@state.co.us>
Cc: Tony Adamic <tony.adamic@fremontco.com>, Sterling Rife <sterling.rife@fremontco.com>

Tim,

Attached is the geologist report you mentioned in your voicemail. I will call you in a couple of minutes.

Thank you,

Annette Ortega

Phone: 719-276-7430

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Nothing leaves us more hollow than being full of ourselves. We have no greater burden than our own egos. ~Beth Moore

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