APPENDIX C

PICTURES

Appendix D.1. West - Looking SE towards the camp

Appendix D.2. East - Looking East bound on main road

Appendix D.3. West - Looking west towards Tuff from campsite

Appendix D.4. West - Manganese Baryte mine, end of West column at Black Hills Tuff/ Brick Red SS contact

Tadpole Tank

Appendix D.5. TT/ Unit BT - water in lowest point of basin throughout research. Bri for scale

Appendix D.6. TT/Unit BT - fault canyon conglomeratic wall ~ roughly 8 feet tall = 2.5 meters. Bri for scale

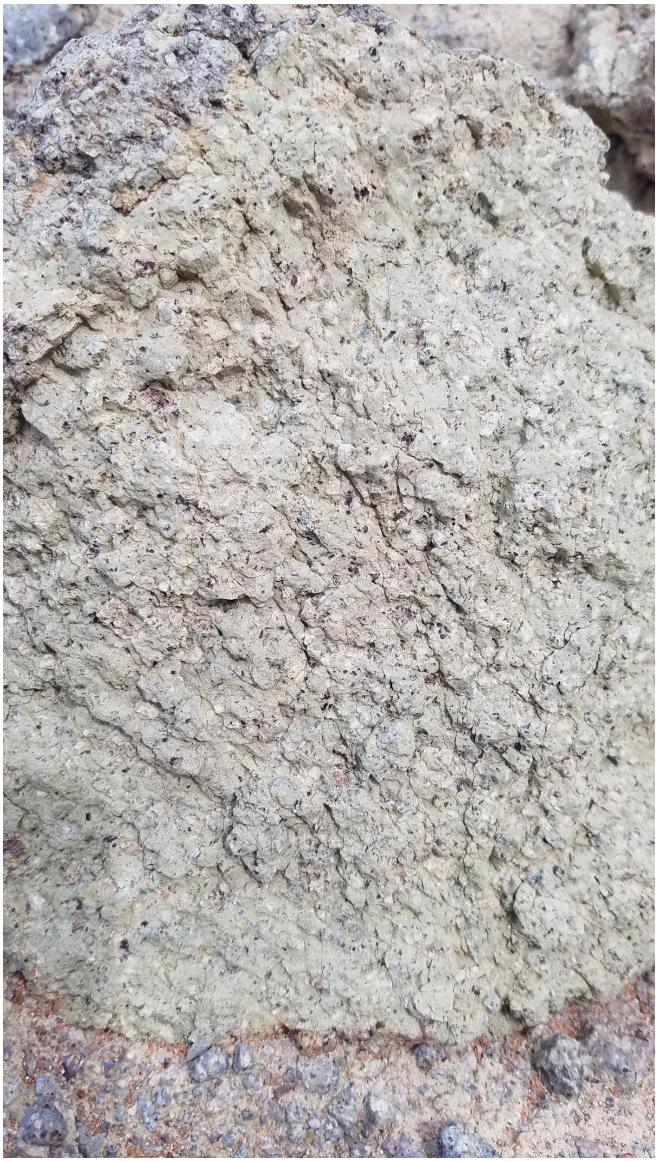
Appendix D.7. TT/ Unit BT - grain sizes visible with scale, clasts covered by hardened mud/sand. Arrow for scale

Appendix D.8. TT/ Unit BT - grain sizes visible with scale. Brunton for scale

Appendix D.9. TT/Unit BT - evidence of water

Appendix D.10. TT/ Unit BT - right lateral fault canyon entrance

Appendix D.11. TT/ Unit BT - right lateral fault slickenlines and grooves. Hand for scale



Appendix D.12. TT/Unit BT - Large boulder / green layer on rock - mafic lava flow area

Appendix D.13. TT/Unit BT - 3 parts of life - Previous cobble, engulfed during mafic andesite lava flow and solidified, moved during likely debris flow

Appendix D.14. TT/ Unit BT - matrix supported section / mud cracks visible. Sharpie for scale. West side

Appendix D.15. TT/ Unit BT - matrix supported section / close up of previous picture. Sharpie for scale. West side

Appendix D.16. TT/ Unit BT - matrix supported/ large conglomerate/cobbles - shows layers and erosional fallout clast sizes. East side of road

Appendix D.17. TT canyon - heading west from road - ORSS unit. Shows deposition layers, fine grains from suspended load deposited below, desert varnish on top, with evidence of a more recent mud layer after being filled with water during winter - shows depth of water in this area. Showcases layers of upward reverse graded bedding - signs of debris alluvial fluvial flows

Appendix D.18. TT canyon - heading west from road - ORSS unit. Shows cross bed structures, deposition layers, layers of no deposition → likely from the fine grains, like the ones from the suspended load deposited below (height visible with load covering part of wall), desert varnish on top, with evidence of a more recent mud layer after being filled with water during winter - shows depth of water in this area. Showcases layers of upward reverse graded bedding - signs of debris alluvial fluvial flows

Appendix D.19. TT canyon - heading west from road - ORSS unit. Shows dike intrusions, deposition layers, layers of no deposition → likely from the fine grains, like the ones from the suspended load deposited below (height visible with load covering part of wall), desert varnish on top, with evidence of a more recent mud layer after being filled with water during winter - shows depth of water in this area. Showcases layers of upward reverse graded bedding - signs of debris alluvial fluvial flows. Erosional features prominent.

Appendix D..20. TT canyon - heading west from road - ORSS unit. Shows wind blown structures in canyon, deposition layers, layers of no deposition → likely from the fine grains, like the ones from the suspended load deposited below (height visible with load covering part of wall), desert varnish on top, with evidence of a more recent mud layer after being filled with water during winter - shows depth of water in this area. Showcases layers of upward reverse graded bedding - signs of debris alluvial fluvial flows

Appendix D.21. TT canyon - Field mapping of Soledad Rojo formation in Unit BT of Tadpole Tank. At the location of a normal fault in basin.

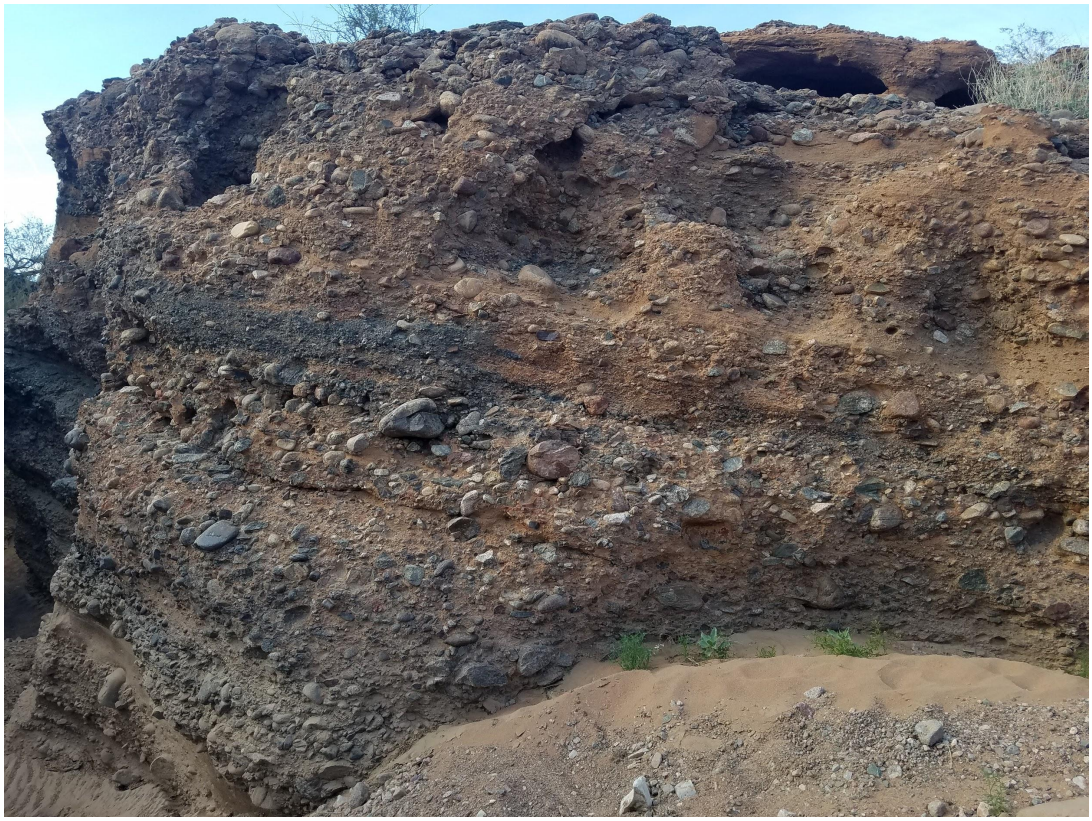
Appendix D.22. TT canyon - heading west from road - ORSS unit. Deposition layers, fine grains from suspended load deposited below, desert varnish on top, with evidence of a more recent mud layer after being filled with water during winter - shows depth of water in this area. Showcases layers of upward reverse graded bedding - signs of debris alluvial fluvial flows. Bottom layer shows imbrication directions well ~ looks to be oriented SE

Appendix D.23. TT canyon - Jeep on Milpitas wash heading south while conducting mapping of Soledad Rojo formation and basin.

Appendix D.24. TT canyon - Field work of Soledad Rojo formation in Unit R of western stratigraphic column (A-A').

Appendix D.25. TT canyon - heading west from road - ORSS unit. Shows cross bed structures, channel troughs, deposition layers. Looks to be coming from NE direction and SW direction - clast imbrications and structures. Shows different grain sizes and different grain roundness.

Appendix D.26. TT canyon - heading west from road - ORSS unit. Shows cross bed structures, deposition layers, layers of no deposition → likely from the fine grains, like the ones from the suspended load deposited below (height visible with load covering part of wall). Showcases layers of upward reverse graded bedding - signs of debris alluvial fluvial flows. Looks to be coming from NE direction - clast imbrications and structures. Shows different grain sizes and different grain roundness.



Appendix D.27. TT canyon - Heading west from road - ORSS unit. Full picture of conglomerate wall in TT canyon. Deposition layers, fine grains from suspended load deposited below (large hill in middle), desert varnish on top, with evidence of a more recent mud layer after being filled with water during winter - shows depth of water in this area. Shows dike intrusions. Showcases layers of upward reverse graded bedding - signs of debris alluvial fluvial flows

Appendix D.28. TT canyon - Construction of western stratigraphic column (A-A') using Jacob staff and brunton compass.

West-Column (A-A')

Appendix D.29. West - Fallen boulder outcrop showing graded bedding sequence - was not able to differentiate between top or bottom

Appendix D.30. West - Example of some of the large boulders and cobbles found in the units → large meaning its close to source / however it is also rounded - meaning it has traveled a distance. Second photo is closeup of large clast

Appendix D.31. West - closeup of large clast

Appendix D.32. West - In place outcrop part of Unit R - showing large mud cracks visible - or joints breaking. If mud cracks - indicate that water was accumulated with it being in a shallow basin and then dried

Appendix D.33. West - Dark red/purple sandstone - DRSS

Appendix D.34. West - CC7 Finer matrix only outcrop

Appendix D.35. West - Large cobble cracked in three sections. Likely due to heat expanding and cooling from the desert environment.

Appendix D.36. West - Unit R - chunk of another red layer in another red layer. - or showing depositional layers (Unit L on top/Unit R below). Foot for scale

Appendix D.37. West - Dark red/purple sandstone - during bloom. DRSS

Appendix D.38. TT region - looks near edge of entrance - ORSS

Appendix D.39. TT region - chisel for reference on clast size in this region - ORSS

Appendix D.40. West column - continuation on East side of road - part of west strat column - BRSS brick red sandstone.

Appendix D.41. West - matrix finer grain compared to conglomerates above. Indication of white calcite layer - looks to be a darker red sandstone layer - cemented. Hammer for scale

Appendix D.42. West - end of strat column just south of the mine - near contact of black hills tuff and Unit R - BRSS. possible andesite red lava flow spot - located few just like this → don't look like uplifted sed outcrops - looks more like erupted flows

Appendix D.43. West- near end of strat column heading East - Rocks show indication of desert varnish

Appendix D.44. West - near end of strat column heading East - Rocks show indication of uplift (near fault), desert varnish/ heat and cooling fracturing

Appendix D.45. West - Largest conglomerates found - Unit R west top most part of column NE where there was olivine.

Appendix D.46. West - Largest conglomerates found pt 1 Unit R west top most part of column NE where there is olivine.

Appendix D.47. West - Fault striations found on the NE side of the rock unit that is jaggedy.
Foliation: N5E 83 SE
Lineation: N15E 62’
Location: 33` 22’ 50.7” / 114` 56’ 34.3”

Appendix D.48. West - Unit L. Zoom in on an individual sedimentary conglomerate clast showing microfractures and variety of small grains within

Appendix D.49. West - Wall outcrop of Unit L. Showing different clast sizes and clast type varieties. Ranges from subangular to subrounded

Appendix D.50. West - Zoom in on the wall outcrop of Unit L. Showing different clast sizes, clast type and color varieties. Ranges from subangular to subrounded.

Appendix D.51. West - Inside valley of Unit L - gradational contact with Unit R and Unit L on right, just Unit L on left

Appendix D.52. West - Zoom in of clast layers inside the valley of Unit L - gradational contact with Unit R and Unit L on right side - grains are more angular - freshly transported into this valley.

Appendix D.53. West - zoom in - by roadside desert varnish - turning into desert pavement - and oxidation predominantly covering top layers. Sharpie for scale of clast sizes.

Appendix D.54. West - closest L unit by roadside - uplifted outcrop that is predominately cemented matrix with some subrounded clast visible. Has been oxidized.

Appendix D.55. West - in the middle of the strat column. desert varnish and oxidation predominantly covering top layers. Sharpie for scale of clast sizes.

Appendix D.56. West - in the middle of the strat column. desert varnish, oxidation and fine layer of mud predominantly covering top layers. pen for scale of clast sizes.

Appendix D.57. West - zoom in - in the middle of the strat column. desert varnish, oxidation and fine layer of mud predominantly covering top layers. pen for scale of clast sizes.

East-Column (B-B')

Appendix D.58. East - dip is shallower - Calcite cement layers with mud cracks in between Unit R red layers - tested with HCL to verify.

Appendix D.59. East - Heat and cooling fracturing shown in cemented dark red layers

Appendix D.60. East - PV Mnts BLM survey marker

Appendix D.61. East - Alluvial/Fluvial path draining NE - looking down showing depth of layer

Appendix D.62. East - zoom in on the first sample taken after ignimbrite - BRSS. Brunton for scale - shows variety in grain sizes - rounded to sub rounded grains

Appendix D.63. East - area of first sample taken after ignimbrite - shows variety in grain sizes - rounded to sub rounded grains

Appendix D.64. East - zoom in on the first sample taken after ignimbrite - BRSS. shows uplifted outcrops, variety in grain sizes - rounded to sub rounded grains

Appendix D.65. East - furthest red sample taken - closest to pv mountain and surrounded by Unit L predominantly. Crumbly top layer, middle layer is matrix with less clast

Appendix D.66. East - Water bottle to scale, shows limited outcrop visible for most of Unit L - most covered up by fall out that's been desert varnished

Appendix D.67. East - CC19 location - shows uplifted outcrop visible for most of Unit L/ contact with Unit R

Appendix D.68. East - Visual on clasts on Unit L on the wall. Shows channel trough layer. Very crumbly layer. Trending NE/SW

Appendix D.69. East - Unit L densely packed matrix layer outcrop. Showing erosional/temperature cracks.