Slope Stability Investigation Report

Amended Reclamation Plan for CalPortland Baxter Mine (CA Mine ID 91-36-0036)
Mojave Desert Region, San Bernardino County, California

May 3, 2021

Terracon Project No. CB215002

Prepared for:

Lilburn Corporation
San Bernardino, California

Prepared by:

Terracon Consultants, Inc.
Colton, California

May 3, 2021

Lilburn Corporation
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Attn: Mr. Marty Derus – President
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Re: Slope Stability Investigation Report
Reclamation Plan for CalPortland Baxter Mine (CA Mine ID 91-36-0036)
Mojave Desert Region, San Bernardino County, California
Terracon Project No. CB215002

Dear Mr. Derus:

We have completed the Slope Stability Investigation services for the above referenced project. This study was performed in general accordance with Terracon Proposal No. PCB215002 dated January 26, 2021. This report presents the findings of the data review, geologic mapping, field testing, and structural evaluation, and provides recommendations concerning suitable slope angles and heights for reclamation consistent with Surface Mining and Reclamation Act (SMARA) requirements.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

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Note: This report was originally delivered in a web-based format. **Orange Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the ***GeoReport*** logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

SITE LOCATION MAP
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REPORT SUMMARY

Topic [1]	Overview Statement [2]
Project Description	The Baxter Mine site currently includes the West Deposit Pit (CA Mine ID 91-36-0036) and overburden area that consists of approximately 45 acres. It is proposed to expand the mine area by adding two pits in the eastern portion of the property. These are the Lillian Belle Deposit and East Deposit. The amended reclamation plan would encompass the West Deposit, Lillian Belle Deposit and East Deposit as three separate pits and utilize the existing overburden area. Total proposed area of disturbance is approximately 118 acres. We were provided with the boundary of the project and a concept of the amended reclamation area dated December 1, 2020 prepared by CalPortland. Amended reclamation plan summary based on discussions with Lilburn Corporation: ■ Bottom quarry elevations could be in the range of: 1150 feet West Deposit, 1050 feet Lillian Belle, and 1150 feet East Deposit. ■ The East Deposit quarry could have reclaimed rock slopes with a maximum height of approximately 275 feet cut below 160 feet existing native. The Lillian Belle pit could have slope in rock up to 200 feet and slopes with approximately 35 feet of alluvium near ground surface. The West Deposit pit is proposed for deepening to elevation 1150 feet resulting in benches rock slopes up to 275 feet. ■ The overall slope angle would be 45 degrees, using 25-foot high interbench faces with 25-foot wide catch benches accommodating approximately 70- to 80-degree faces. The south slope of the proposed East Deposit quarry is planned at an overall angle of 55 degrees. ■ The overburden stockpile is located in the southwest portion of the site, south of the West Deposit pit. The reclaimed overburden slope angles and heights have not been specified. Plans indicate overburden expansion to the south and east.
Existing Mine	The amended reclamation area includes the existing pit, overburden stockpile and hillside and alluvial terrain to the east. The expansion areas include alluvial aprons and bedrock hillsides with localized areas of prior quarrying along unimproved roads. Highest elevations are approximately 1,400 feet along the south side of the East Deposit, descending to approximately 1,190 feet at the central area. The existing West Deposit pit is mined as an open pit about 0.3 mile in length and 0.15 mile in width. It exhibits a benched geometry formed by drilling, blasting and hauling. The pit exposes metamorphic rock/breccias and locally Tertiary sands and colluvium. The East Deposit footprint include carbonate units in metamorphic rock. The closest significant fault is the Pisgah-Bullion fault, approximately 31 kilometers to the northeast. Seismic potential is relatively low compared with sites located farther south and/or west.

	Natural bedrock slopes are variable, generally as steep as 1.5(H) to 1(V) with cliff areas. Existing mine slopes include rock cuts at approximately 25 to 40 feet high at a typical 70-degree angle in the existing pit. These slopes are benched have overall inclinations of about 1(H):1(V) of flatter. Talus and debris are present on most benches. Stockpiles/tailings slopes are located south of the existing pit and appear to be at/near their angle of repose (slightly flatter than 1.5H to 1V).
Geologic Characterization	The ore-bearing rocks include metamorphic schists, hornfels, granitics and carbonate units with ore occurring as replacement of limestone associated with porphyry dikes.
Geologic Structure	Geologic structure is dominated by brecciated fabric and associated shear zones. The origin of this condition is interpreted as related to ancient gravity sliding. Lesser jointing, foliation, and cleavage fabrics influence the bench-scale kinematic structure of the rock mass.
Groundwater	The site is outside of the Mojave River groundwater basin and Mojave River drainage basin (USGS, 2017). Based on lack of evidence for springs or seeps within the reclamation footprint, the arid site conditions and site geology, we consider it unlikely that a static water table exists at or above the elevation of the existing pit at the site.
Kinematic Results	For the project reclamation area, the kinematic evaluation suggests generally favorable orientation of highwalls relative to planar features. Development of topple prone structure is generally lacking due to brecciated fabric. Wedge potential is the greatest of the three potential failure modes and is developed by planar intersections.
Global Stability Results	The global stability results yielded static factors of safety (FS) in excess of 1.5 and seismic factors of safety at or greater than 1.1, which are in conformance with Division of Mine Reclamation (DMR) criteria, for the range of scenario rock slopes.
Stockpile Slopes	Stockpile slopes are planned at a ratio of 2(h) to 1(v) or flatter. This configuration is considered stable by inspection/practice. In addition, the presence of large angular clasts in stockpile fill materials improves the stability of these slopes.
Findings and Conclusions	Overall highwall slopes formed in the rock units are stable by calculation at angles between 45 and 55 degrees (specific to rock unit) utilizing 275-foot-tall slopes. Consideration of local structural conditions in reclamation may include modification of geometry to achieve suitable face performance (preservation of sufficient bench width) and overall slope angles in the various rock materials. The mine may have reclaimed rock slopes with a maximum height of approximately 275 feet based on comparison of the project boundary elevations with the proposed pit bottom elevations. The overall slope angles would be on the order of 45 degrees, using a 25-foot high, 25-foot wide face to bench ratio. The south wall of the East Deposit area is planned at 55 degrees which can be achieved using 25-foot faces and 18-foot wide benches.
General Comments	This section contains important information about the limitations of this slope stability report.

1. If the reader is reviewing this report as a pdf, the topics above can be used to access the appropriate section of the report by simply clicking on the topic itself.
2. This summary is for convenience only. It should be used in conjunction with the entire report for design purposes.

Slope Stability Investigation Report

Amended Reclamation Plan for CalPortland Baxter Mine (CA Mine ID 91-36-0036)
Quarry Road Area
Mojave Desert Region, San Bernardino County, California
Terracon Project No. CB215002
May 3, 2021

INTRODUCTION

This report presents the results of our slope stability investigation performed for the Baxter Iron Mine located in the Mojave Desert Region, San Bernardino County, California. The mine area is an existing permitted mine that is proposed to be enlarged by deepening the existing pit and mining adjacent areas. An amended concept reclamation plan (Baxter Mine Expansion) was provided by Lilburn Corporation (Lilburn) to guide our investigation. Additional information made available to us included prior exploration data, geologic mapping and reserve reports. The mine includes Precambrian and Paleozoic schists and carbonates (limestone), metasediments, and intrusive dikes. The chief quarry product is iron ore.

Our services included geologic mapping and data collection, collection of rock samples, field penetrometer testing of alluvial units, and evaluation of kinematic and global slope stability for proposed rock slopes as outlined in our proposal dated January 26, 2021. The purpose of our evaluation was to characterize the anticipated stability conditions of proposed reclamation cut slopes of the future mining areas. Information from prior investigators and documents provided were also utilized for this evaluation.

The approximate location of the project area is shown on the attached **Site Location Map**. The proposed amended reclamation areas are shown on the attached **Reclamation Plan Map**. The results of our evaluation, together with our conclusions and recommendations, are presented in this report.

SCOPE OF SERVICES

We performed a slope stability investigation to address the proposed reclaimed slope configurations to be formed in the various rock units within the existing and proposed pits/reclamation boundary and to provide recommendations for feasible stable slopes according to the Surface Mining and Reclamation Act (SMARA). Approximate slope configurations were discussed with Lilburn Corporation and CalPortland prior to our investigation. We reviewed prior published and unpublished geologic maps of the project area. Aerial photographs were also examined. We utilized pertinent data from site geologic reports as appropriate.

We established the strength characteristics of rock materials based on our database of UCS tests, slope stability application-based utilities, and our general knowledge of rock strengths. We

performed two field penetrometer tests in alluvial materials to determine strength of near-surface sediments at future pit margins.

We performed kinematic evaluation of characteristic geologic structure using stereonet plots and screening criteria to identify potential for various failure modes.

We performed whole-slope global stability analyses of the tallest rock slope configurations (representative) for each pit/quarry area for both static and seismic conditions in the site geologic units. We modeled representative rock unit types for each pit area and analyzed a typical slope configuration to establish a feasible reclamation slope geometry.

The results of mapping and analysis, our findings of suitability of the feasible slope configurations, and recommendations for modifications of slope geometry, where warranted by analytical results, are presented in this report.

PRIOR INVESTIGATIONS

The site is included within the area of several geologic mapping investigations. Site data was also provided by CalPortland for our use. These include the following:

- Dibblee, T.W., and Minch, J.A., 2008, Geologic map of the Alvord Mountain & Cave Mountain 15-minute quadrangles, San Bernardino County, California, Dibblee Foundation Map DF-398.
- Kupfer, D.H., and Bassett, A.M., 1962, Geologic reconnaissance map of part of the southeastern Mojave Desert, California, U.S. Geological Survey Mineral Investigations Field Studies Map MF-205.
- Vertical Magnetic Intensity Survey Report, Baxter Iron Mine Property - includes survey data tables, various maps with interpretations of ore potential, a reconnaissance geologic map.
- Drill Hole Data – includes a map of drill hole locations and tables/logs of data.

Dibblee (2008) included the project area on a map of the Alvord Mountain & Cave Mountain 15-minute quadrangles. Dibblee included a very generalized bedrock classification for metamorphic rocks that include schist, marble and gneiss, all of which are found within the project area but are not differentiated on the Dibblee map. The Kupfer and Bassett (1962) map is also very generalized.

The site report mapping conducted dated 1969 includes differentiation of several geologic units including diorite & gabbro, granite, quartzite, hornfels, metasediments, limestone and alluvial units. Drill hole locations and interpretation ore bearing zones is also included on this map.

The nomenclature of geologic units for this investigation is based on our interpretations. Included in the ore-bearing rock units exposed in the West Deposit pit are extensive brecciated rocks. Breccias of this type are common in Paleozoic and older rocks of the Mojave Desert region and are associated with ancient gravity-sliding consistent with a model described by Davis and Friedmann (2005). A **Geologic Map Index** showing the areas of five geologic detail maps prepared for this study is attached. The maps include geologic structural data locations, geologic contacts and site features noted during field mapping.

Active mining is ongoing in the West Deposit pit area (Appendix D – photo 5). Two areas of proposed mining are located in the Expansion area at the east end of the project. These are shown on the **Reclamation Plan Map**. Processed ore is stored east of the active pit area within the proposed reclamation boundary. Overburden stockpiles are located south of the active pit.

The reclamation plan document, dated June 1990, describes benched rock slopes at 20-feet high and 1(h) to 1(v) overall ratio (45-degree angle) and stockpile slopes at a 2(h) to 1(v) ratio. The bench height is now planned at 25-feet with 25-foot-wide benches.

SITE DESCRIPTION

The Baxter Mine is located in San Bernardino County, northwest of the Mojave River where it emerges from the Afton Canyon area. The site is accessed via Interstate 15 along Basin Road. The Mojave Desert is dominated by broad alluviated basins that receive sediments from adjacent uplands that bury the older topography. Playa lakes (internally drained) are a common feature of the region. The site is located in the southern foothills terrain of Cave Mountain, an area of moderate to steep slopes and moderate relief formed in Paleozoic and Mesozoic granitic and metasedimentary rocks. An alluviated plain extends east from the site area and is dominated by eolian and alluvial sands of the Mojave River floodplain. A description of geologic units in the project area is provided in a later section of this report. The project area includes the areas of three pits labeled on the **Reclamation Plan Map** for reference, and adjacent undisturbed terrain.

Aerial Photograph Review

Aerial imagery dated 1983 shows the West Deposit area with a pit and stockpiles. Google Earth imagery dating from 1995 also indicates mining and stockpiles in the West Deposit area. Mining in the Baxter Mine area is reported as early as 1938.

The eastern portion of the project appears relatively undisturbed with generally subdued topography, localized rugged outcrops, and primarily soil and light vegetation cover (Appendix D - photo 1). Several small adits and associated exploration cuts and fills were noted along the base of a hillside locally.

AMENDED RECLAMATION PLAN SUMMARY

The Baxter Mine site currently includes the West Deposit pit (CA Mine ID 91-36-0036) and associated overburden area that consists of approximately 45 acres. It is proposed to expand the mine area by adding a pit and quarry in the eastern portion (expansion area) of the property. The expansion area encompasses the Lillian Belle Deposit and East Deposit. The amended reclamation plan would encompass the West Deposit, Lillian Belle Deposit and East Deposit as three separate pits and utilize the existing overburden area. Total proposed area of disturbance is approximately 118 acres. We were provided with the boundary of the project and a concept of the amended reclamation area dated December 1, 2020 prepared by CalPortland. The proposed amended reclamation area is shown on the attached **Reclamation Plan Map**.

Highlights of the amended reclamation based on discussions with Lilburn Corporation include:

Bottom quarry elevations could be in the range of:1,150 feet West Deposit, 1,050 feet Lillian Belle, and 1,150 feet East Deposit.

The East Deposit quarry could have reclaimed rock slopes with a maximum height of approximately 275 feet cut below 160 feet native. The Lillian Belle pit could have slope in rock up to 200 feet and slopes with approximately 35 feet of alluvium near ground surface. The West Deposit pit is proposed for deepening to elevation 1150 feet resulting in benches rock slopes up to 275 feet.

The overall slope angle would be 45 degrees, using 25-foot high interbench faces with 25-foot wide catch benches accommodating approximately 70- to 80-degree faces. The south slope of the proposed East Deposit quarry is planned at an overall angle of 55 degrees.

The overburden stockpile is located in the southwest portion of the site, south of the West Deposit pit. The reclaimed overburden slope angles are planned at 2(h) to 1(v). Plans indicate overburden expansion to the south and east.

FIELD INVESTIGATION

Field Mapping

A Certified Engineering Geologist mapped geologic features as exposed in the various pits and quarries and in native outcrops in the project boundary and adjacent areas during March 2021. Our data are limited to areas accessible on foot or visible from adjacent areas. We did not access mine benches as these were bermed or otherwise inaccessible for direct mapping. We utilized electronic mapping to locate, measure, and record geologic structure orientations and site imagery as a field base. This included measuring the orientation of geologic contacts and structures including faults/shears, bedding, and joint orientations using smart phone-based

geologic data application. Data were recorded using the electronic media. Our focus was on continuous features that can affect kinematic stability of quarry slope faces and wall-scale faults and contacts. The field data are included in tabular and graphic formats in Appendix B. The graphical data is shown on the **Geologic Detail Maps** (**Appendix A**) using the site geologic maps as a base. An index of geologic detail areas is shown on the **Geologic Map Index**.

SITE GEOLOGY

Geologic units within the amended reclamation area include stockpile fill, alluvium, recent wash deposits, talus, sand deposits of two ages, younger and older alluvial fan deposits, granitic bedrock, mixed metamorphic rocks including carbonates, and metamorphic breccia. The units summarized below form the primary geologic materials in the project area and adjacent areas. The rock unit designations are based on our field mapping. Field relations show intrusive bodies of felsic (feldspar-rich) and mafic types within the metamorphic unit. Breccia derived from the metamorphic units that appear to overlie ore bodies is exposed in the West Deposit pit. The expansion area includes primarily alluvial cover within the Lillian Belle pit footprint and carbonate rocks within the East Deposit quarry footprint.

Geologic Units

Quarry fills **(f)** and cut slopes are present throughout the disturbed area. Fills encompass areas of stockpiles and creation of access roads. These include safety berms, mine fills, overburden stockpiles and debris. These areas were not observed in detail during the mapping. Fills and disturbed ground are visible in aerial imagery.

Recent wash deposits **(Qw)** associated with an active channel that drains eastward along the West Deposit pit north boundary, then along the Basin Road alignment to emerge between the proposed Lillian Belle and East Deposit areas, consists of sand, silt and gravel size material. The Mojave River channel located along the east side of the East Deposit area also contains recent wash sediments.

A mantle of talus **(Qt)** and rock debris forms an apron along the two of the East Deposit footprint slope area. This material is derived from gravity creep and rockfall from carbonate units exposed in outcrops in the East Deposit slope. This area may include a rock fall/slide area suggested by an apparent downslope offset of an ore body.

Younger alluvium **(Qya)** is present in drainage areas and is derived from local highland sources. Fan surface colors attest to bedrock sources with a distinct gray-colored fan present in the Lillian Belle footprint. Younger alluvial deposits/wash sediments are present within the future footprint of the Lillian Belle pit and suggest a need for mitigation of surface flows in this area. Alluvium derived from gray-colored source rocks (Qya_g) were noted in the Lillian Belle footprint.

Sand deposits **(Qe)** are located in hillocks northwest of the existing pit. These are armored with gray-colored angular clasts and appear to have remnants of sheet sands that are dissected. Extensive sheet sands are present in the Cave Mountains area northwest of the project.

Very old alluvial fan deposits **(Qvoa)** are interpreted in a small hillock near the north margin of the Lillian Belle footprint. These consist of a mixed assemblage of weathered metamorphic clast types that include few granitic-type clasts. The topographic position within the younger fan sediments and degree of clast weathering attests to a relatively older age.

Very old colluvial deposits **(QTvoc)** are exposed along the West Deposit pit haul road (southeast pit area) as a sequence of beds overlying old sand deposits. These are dark gray angular materials in a fine-grained matrix, vary from matrix to clast supported, appear indurated, and stand in cuts at steep angles. Interpreted to be Tertiary age based on academic articles.

Very old sand deposits **(QTvoe)** are exposed in the southeast highwall of the West Deposit pit. These are gray-colored, moderately cemented, friable, exhibit well-developed jointing, and contain abundant secondary carbonate as joint infill and stringers. This unit is in shear contact with overlying breccia of mixed metamorphic rocks **(MS_b)**, primarily schist (Appendix D - photo 8). Raveling of these sands is evident as undercut of the haul road berm and accumulation of sand along the toe of the highwall slope. Interpreted to be Tertiary age based on academic articles.

Intrusive bedrock mapped as granite and quartz monzonite **(gqm)** by Dibblee (2008) form hilly terrain west-northwest of the Lillian Belle footprint. These are described as light gray, massive, and medium- to coarse-grained. These rock types were encountered in several drill holes within the Lillian Belle footprint; therefore, a contact between the **gqm** unit and **MS** unit may be exposed in the future Lillian Belle pit.

Mixed metamorphic rocks **(MS)**, including schist, carbonate (**Carb** - light-colored & **Carbg** - gray, thin-bedded units) and light-colored hornfels are exposed extensively in outcrop and excavations throughout the project area. Landslide breccia (**MS_b**) derived from MS, locally with abundant shearing and layering, and generally south-dipping structural fabric is exposed in the existing West Deposit pit. The origin of the MSb unit is discussed in the report section on **Geologic Structure**. The metamorphic units contain the **ore deposits** as pods and steeply-included lenticular masses. The ore is developed as replacement of carbonate (limestone) with diorite porphyry dikes often associated.

The mapped extents and descriptions of these units are provided on the geologic maps in **Appendix A**.

Geologic Structure

Geological structural features evident in the existing **West Deposit pit** include:

- Pervasive shear fabric with anastomosing (interwoven) south-dipping slide planes in brecciated metamorphic rock units.
- Crude bedding/strata defined by color contacts and shear planes
- Slope-angle-controlling breccia fabrics (whole pit) and face-forming slide planes (north highwall)
- Very old sand units with well-developed jointing, arid carbonate soils development, and moderate cementation; subject to erosion and raveling within adjacent strong rock cuts
- General north to south directed orientation of slide-induced shear fabrics (bedding and faulting) in existing pit
- Localized secondary shear zones/faults – moderately to steeply west-dipping and randomly distributed
- Ore zones of very dark gray iron-bearing materials

Geological structural features observed in the **expansion areas** include:

- Carbonate rock units in contact with intrusive and metamorphic rocks
- Well-developed cleavage, jointing, and less-defined folding and bedding in carbonate rocks (Appendix D – photo 2)
- Shallowly west and east dipping faults
- Shallowly dipping northeast and northwest and moderately- to steeply south dipping bedding
- Moderately west dipping to steeply east dipping conjugate joint sets in metamorphic units
- Localized breccia fabrics in metamorphic and carbonate rock units (Appendix D – photo 3)
- Ore zones associated with dike intrusion adjacent to carbonate contacts and dikes (Appendix D – photo 4)

The presence of breccias in the ore-bearing units of the project area are the characteristic geologic structure. Breccias and associated shear/slide planes are extensively exposed in the existing pit and exhibit south-directed shearing (Appendix C – photo 6). Additional shear planes place a sand unit in contact with bedrock breccia in the West Deposit pit (Appendix D – photo 8). The origin of the breccias in the ore-bearing units for this project is interpreted from academic articles for similar breccias found throughout the Mojave Desert region in similar age rocks. Davis and Friedmann (2005) describe a mix of rock-avalanche and gravity-driven slide sheets in the Shadow Valley Basin. They describe internally intact slide sheets of Paleozoic age carbonate and Proterozoic gneiss rocks interbedded with various sedimentary units that include Tertiary age units. These ages are consistent with the geologic units of the mine area. Based on the descriptions of Davis and Friedmann (2005) we interpret the ore-bearing breccias to be formed

as gravity slide blocks overlain locally with avalanche-type breccia layers. The age of the sand units underlying or intercalated within the breccias of the existing pit is interpreted to be Tertiary - younger than the overlying breccias derived from older source rocks.

As the breccias and slide/shear planes are ancient, landslide features are lacking in the modern landscape and the omission of these deposits from prior mapping is understandable, given the lack of exposure; however, outcrops north of the pit did exhibit brecciated fabrics. In the large-scale relief of the Cave Mountain hills, the strongly linear northeast trend of the bedrock ridge and adjacent topographic low that encompasses the project area suggests a possible buried slide plane associated with gravity-slide emplacement in ancient time. This feature lies outside of the mine area and is not anticipated to affect the project.

Cross Section A was constructed across the West Deposit pit to illustrate the relationship of known shear planes to the reclamation highwalls. Based on examination of Cross Section A, it appears that documented shear planes lie above the final pit bottom; therefore, these known features are not anticipated to affect the north highwall. The west highwall is generally oriented neutral to the dip of these features. The potential effect of shear/fault features in reclamation slopes should be assessed during future inspections of the mine to provide additional assessment of shear/slope structural interactions.

An analysis of the dominant geologic structures is presented the **Kinematic Analysis** section of this report. It should be noted that a potential data bias toward structure in the previously-mined, better-exposed geologic units should be considered in use of structural data presented herein for planning of future mine slopes and benches. Less-exposed units may exhibit different slope forming characteristics.

SEISMIC CONSIDERATIONS

The ground-shaking hazard at the site was evaluated from a deterministic standpoint for use as a guide to formulate an appropriate seismic coefficient for use in slope stability analysis. The deterministic calculation of peak ground acceleration (PGA) was made using attenuation relations of Abrahamson and others (2014), Boore and others (2014), Campbell and Bozorgnia (2014) and Chiou and Youngs (2014). The following table summarizes PGA for seismic sources in the site region.

Table 1: Summary of Seismic Sources			
Fault ID	**Distance (km)**	**Magnitude**	**PGA g (Avg. / 84th% value)**
Red Pass	8.4	6.6	0.27 / 0.48
Pisgah-Bullion	31.4	7.3	0.12 / 0.22
Calico-Hidalgo	41.8	7.4	0.10/ 0.18
Landers	56.1	7.4	0.09 / 0.16
Death Valley	61.0	7.9	0.10 / 0.18

The site is located northeast and south of fault seismic sources. The Red Pass Fault is a relatively short fault and is mapped as concealed beneath younger alluvium by Dibblee (2008) indicating a pre-Holocene age of activity. This fault is short relative to other Mojave Desert fault zones and is considered inactive for planning purposes; however, it is included in this study due to its location relative to the site. The Pisgah-Bullion Fault (Lavic Lake segment) ruptured in the 7.1-magnitude Hector Mine earthquake. A contour map of PGA generated by this event indicates ground acceleration on the order of 0.2g at the site (USGS Earthquake Hazards Program, 2021).

The simplified procedure of Bray and Travasarou (2009) for selection of critical acceleration (Kh) as one-half PGA is commonly used for slope stability calculations for habitable structures. Their method is not typically required or applicable for quarry slope design. Given the project location in an area of moderate seismic potential, we used Kh = 0.15, consistent with Bray and Travasarou (2007), to approximate one-half the value of PGA from the deterministic calculation for the closest fault and considering the end use of the site.

GROUNDWATER AND SURFACE FLOW

The site is outside of the Mojave River groundwater basin and Mojave River drainage basin (USGS, 2017). Based on lack of evidence for springs or seeps within the reclamation footprint the arid site conditions and site geology, we consider it unlikely that a static water table exists at or above the elevation of the existing pit at the site.

Based on the current site condition, it appears that surface drainage near the existing pit is limited to a small area along the north side of the pit. This flow path is separated from the pit by a bedrock ridge and berms that direct flow to Basin Road and a natural drainage course east of the existing pit. The potential for surface flows into the existing pit appear limited.

The proposed East Deposit pit area occupies hillside and colluvial apron terrain that is elevated above the Basin Road drainage path. The bedrock area upslope from the proposed pit margin is limited in area. A small portion of the future pit margin at the eastern end of the East Deposit pit is approximately 250 feet from an historic channel margin of the Mojave River. A braided stream

terrace of this channel lies near the toe of existing slope and future pit margin. There is a low potential for infrequent Mojave River flooding to occupy this area near the future pit.

The area of the proposed Lillian Belle (LB) Deposit pit occupies a convergence of alluvial aprons emanating from bedrock terrain to the west. A well-defined gray-colored alluvial fan merges with alluvium derived from the Basin Road drainage and a larger drainage sourced in light-colored sandy materials within the future pit area. The convergence of these fans forms a small drainage channel along the midline of the future pit footprint. An active alluvial fan channel associated with a larger alluvial fan complex and drainage area is located approximately 500 feet north the LB pit margin. The LB pit footprint occupies an area that is subject to surface flows during infrequent but potentially intense rainfall events.

Evidence of seeps or springs such as surface flow or concentrated vegetation was not observed within the site. Groundwater conditions at completion of mining (reclamation stage) may include water seepage after periods of precipitation and ponding in pits of limited extent. However, groundwater is not anticipated to significantly affect the stability of the proposed reclamation slopes. Our evaluation considered dry conditions in the slope stability calculations.

SLOPE STABILITY

Slope stability calculations for feasibility of reclamation rock slope configurations and kinematic analysis of potential failure geometries in rock benches were performed for the expansion area pits and deepening of the existing West Deposit pit. The kinematic data include the measured geologic structures and pertinent data from site mapping. Global slope stability was evaluated along model sections representing the tallest and steepest proposed slopes with consideration of the major geologic units and structures as they potentially affect the wall-scale stability. A discussion and summary of these analyses are presented below. The slope stability data and calculations are attached.

Existing Highwall Conditions

Existing highwalls in the active West Deposit pit consist primarily of benched slopes that typically have faces between 70 and 80 degrees. The bench/face ratio is approximately 1:1 yielding overall highwalls near 45 degrees. Inactive highwalls locally exhibit areas of debris accumulation on benches. The majority of older rock slopes appear grossly stable with respect to global stability. Locally, a moderately cemented sand unit is exposed in benched cuts and exhibits well-developed jointing. The sand unit is subject to raveling and erosion causing loss of bench width. The active pit utilizes a benched configuration consistent with modern mine working slopes and future reclamation. Reclamation slopes were not reported within the project boundary.

Geological structural features evident in the existing West Deposit pit include:

- Pervasive shear fabric with anastomosing south-dipping slide planes in brecciated metamorphic rock units.
- Crude bedding/strata defined by color contacts and shear planes
- Slope-angle controlling breccia fabrics (whole pit) and face-forming slide planes (north highwall)
- Very old sand units with well-developed jointing, arid carbonate soils development, and moderate cementation; subject to erosion and raveling within adjacent strong rock cuts
- General north to south directed orientation of slide-induced shear fabrics (bedding and faulting) in existing pit
- Localized secondary shear zones/faults – moderately to steeply west-dipping and randomly distributed
- Ore zones of very dark gray iron-bearing materials

Geological structural features observed in the expansion areas include:

- Carbonate rock units in contact with intrusive and metamorphic rocks
- Well-developed cleavage, jointing, and less-defined folding and bedding in carbonate rocks
- Shallowly west and east dipping faults
- Shallowly dipping northeast and northwest and moderately- to steeply south dipping bedding
- Moderately west dipping to steeply east dipping conjugate joint sets in metamorphic units
- Localized breccia fabrics in metamorphic and carbonate rock units
- Ore zones associated with dike intrusion adjacent to carbonate contacts and dikes

The pervasive shear fabric of the West Deposit pit rock mass controls the steepness of bench faces as they now exist at estimated angles near approximately 70 degrees. The presence of south-dipping shear/slide planes in the pit suggests potential for wall-scale failures on the future north highwall if such planes daylight in the north slope face. This potential is evaluated herein using Cross Section A. The features described above are instructive as to the types and sizes of discontinuities that could be present in final highwall cuts. The potential hazard of slope failure associated with these features is expected to be greatly reduced and mitigated under the proposed reclamation/benching program.

Kinematic Analysis

Kinematic analysis involves the evaluation of rock slope stability based on the presence of structural discontinuities including bedding planes, joints, and shear planes/faults. Kinematic analysis addresses only the potential failure mode(s) and does not consider mass, force, shear strength, or cohesion along surfaces as in a limit-equilibrium analysis. Structurally controlled kinematic failure modes include planar, wedge, and topple failures. Circular and composite circular/block failure of fractured rock masses are also potential failure modes and are considered

in the analysis of global stability.

Stereonet analysis was performed using the proprietary DIPS software (Rocscience, 2018a) for representative slope/bench aspects utilizing the data compiled from mapping and measurement of geologic structures. A bench face angle (70 degrees) was evaluated for various slope facing directions (azimuth) for reclamation considerations. Flatter bench face angles may be utilized; however, the evaluation of kinematics at 70 degrees presents a more conservative scenario. Reclaimed slope orientations will vary within the future slopes to accommodate the boundary orientation. The use of a sensitivity analysis that plots slope azimuth (facing direction) versus failure mode allows study of the entire suite of slope azimuths for each failure mode. Stereonet diagrams are presented for the more critical azimuths for each failure mode and structural data set.

Planar analysis considers dip vectors of measured planar features. Planar sliding requires a releasing surface—a joint, tension crack or daylighted plane—to allow sliding to occur. Kinematic analysis does not consider the geometry of releasing surfaces or the presence of bonded contacts along the sliding plane; therefore, actual conditions are typically more stable than suggested by kinematic results. The potential for planar sliding or wedge failure suggested by stereonet analysis should be considered a conservative estimate of probability subject to mitigation by mining practices such as scaling and adjustment of slope face angles to the structural geometry and conditions encountered during mining. Wedge analysis generates dip vectors for the intersections of all planes; therefore, wedge analysis generates a large number of vectors to evaluate. Topple analysis identifies the potential for columns to form along steeply dipping joint systems or contacts to tilt out of the excavated face along separation surfaces. The potential for topple failure in columnar features is limited in the Baxter area due to the random jointing orientations and pervasive shear fabric of the rock mass. Several data sets were generated from the global structural data (136 data points – pit area; 158 points expansion area) grouped by geologic unit, project area and/or structure type. The stereonet data table and plots are included in **Appendix B**.

The following tables summarize the kinematic results from stereonet plots for the project. The data sets are derived from the global structural data set compiled for this investigation.

Table 1.1: Summary of Kinematic Evaluation – Expansion Area			
Azimuth	**Percentage Critical Points – 70-Degree Face**		
(degrees)	**Planar**	**Wedge**	**Topple**
000	9	17	18
010			18
090	0	16	7
180	9	16	11.3
270	11.3	20	0
040		24	
060	11.4		
170	11.4		
190			20.5
280	11.4		
340		22.4	
350	11.4		18

Table 1.2: Summary of Kinematic Evaluation – West Deposit Pit			
Azimuth	**Percentage Critical Points – 70-Degree Face**		
(degrees)	**Planar**	**Wedge**	**Topple**
000	3.5	17.7	7.5
090	9.8	25	3.6
180	7.4	22.5	1.2
270	4.8	12	10
070		25	
120		28.3	
170	13.4		
180		23.5	

Sensitivity analysis charts of slope dip direction versus percentage critical points are provided for each failure mode. Stereonet diagrams are also provided. The tables above include values for four cardinal directions and for slope directions with highest relative kinematic failure potential for each failure mode.

The stereonet evaluation provides results as a percentage of points in a data set with a geometrically-feasible orientation to undergo a particular failure mode. In general, the percentage

value relates to probability of a particular failure mode. Probabilities below 9 percent suggest low failure potential, 9 percent to 25 percent a low to moderate potential (green shading in the table above), and values above 25 percent (orange shading in the table above) a moderate or higher potential.

Kinematic Summary – Expansion Areas

For the Expansion area, the kinematic evaluation suggests relatively low potential for planar failure with no dominant directions. Wedge potential is the greatest in northwest- and northeast-facing slopes in the moderate range. Topple potential appears highest in south facing slopes. Due to lack of existing cut exposures, evaluation of slope stability relative to slope materials for the Expansion area should be performed during period inspections by a geologist to confirm these findings. The existing active mine slopes attest to the ability to mitigate kinematic features by benching in the schist unit. Managed blasting and scaling techniques applied during creation of final reclamation slopes can improve the overall quality and performance of reclamation slopes.

Kinematic Summary – West Deposit Pit

For the West Deposit pit area, the kinematic evaluation suggests relatively low to moderate potential for planar failure with no dominant directions. Observations suggest a potential for south-directed sliding of north highwall rocks on existing planar discontinuities developed on slide planes similar to those visible in the south highwall. Wedge potential is the greatest of the three kinematic failure modes in south- and east-facing slopes in the moderate to high potential range. Topple potential appears relatively low based on kinematics and site observations. Topple failure requires columnar-type structure which is generally lacking in the existing pit due to pervasive shear fabric. The existing active mine slopes attest to the ability to mitigate kinematic features by benching. Managed blasting and scaling techniques applied during creation of final reclamation slopes can improve the overall quality and performance of reclamation slopes.

Slide/shear planes observed within the project area are moderately south-dipping as exposed in the south and west walls of the existing pit. These planes may exert control on slope configuration of the north highwall during deepening of the pit and excavation of final reclaimed benches. A cross section (Cross Section A) illustrates the relationship of these slide planes to the anticipated pit geometry. It appears that documented shear planes lie above the final pit bottom; therefore, these known features are not anticipated to affect the north highwall. The west highwall is generally oriented neutral to the dip of these features. The potential affect of shear/fault features in reclamation slopes should be assessed during future inspections of the mine to provide additional assessment of shear/slope structural interactions.

Based on mining practices that minimize the occurrence of hanging blocks by scaling and removal of potentially unstable localized features and cutting faces to conform to controlling structural angles, the proposed final slope configuration is expected to produce a suitably configured slope geometry that mitigates rock fall for slopes in the reclaimed mine areas. Slope benching and

configuration according to scenarios presented in the **Findings and Conclusions** section of this report are considered feasible with regard to the kinematic performance of the proposed rock faces.

Global Stability Calculations

The global stability of proposed reclamation slopes, as depicted on the amended reclamation plan, was analyzed using Spencer's method under both static and seismic conditions for rotational and composite failure surfaces using the SLIDE computer program, version 8.029 (Rocscience, 2019). Selection of the slope configurations for the analysis, which includes the tallest anticipated slope, is, in our opinion, a most-conservative approach.

Bottom quarry elevations may be in the range of 1,050 (Lillian Belle) to 1,150 feet (East and West deposits). The mine may have reclaimed rock slopes with a maximum height of approximately 275 feet based on comparison of the project boundary elevations with the proposed pit bottom elevations. The overall slope angles would be on the order of 45 degrees, using a 25-foot high, 25-foot wide face to bench ratio. The south wall of the East Deposit area is planned at 55 degrees which can be achieved using 25-foot faces and 18-foot wide benches. We evaluated the slope models using vertical bench faces in global calculations. Typical face angles are between 65 degrees and 80 degrees in rock slopes; therefore, the modeled global configuration is based on a more conservative geometry.

Slope stability calculations were performed for three representative rock types on slopes modeled as summarized in the following table:

Table 2: Summary of Global Slope Stability Models

Mine Area	Overall Height (ft.)	Face Height (ft.)	Face Angle[1]	Bench Width (ft.)	Geologic Unit	Overall Slope Angle
Lillian Belle West slope	200	25	90°	25	MS schist	45
Lillian Belle Southeast slope	150 (35 alluvium 115 rock)	25	90°	25	Alluvium MS schist	35 alluvium 45 rock
East Deposit South slope	275 cut in rock 160 native in rock	25	90°	18	Carbonate	55 in cut 33 in native
West Deposit	275	25	90	25	MS breccia	45

1 as modeled for this evaluation. Bench face angles at ~70 degrees are anticipated post reclamation. Consideration of the steeper face angle (90 degrees) is a more conservative condition for slope stability calculations

The whole rock strength of the geologic units was determined in part by reference to our database of unconfined compressive strength (UCS) tests, and reference to a database of Generalized Hoek-Brown rock strength parameters included in the SLIDE software application (Hoek and Karzulovic, 2000 and Hoek, Carranza-Torres & Corkum, 2002). The strength parameter values are summarized in the following tables.

Table 3.1: Carbonate unit – Strength Parameters

	Value	Source
Unit Weight (pcf*)	163	Lab test database
Intact UCS[1] (psf**)	1.5×10^6	Lab test database
Geological Strength Index	48	Rocscience tables
Intact Rock Constant (mi***)	10	Rocscience tables
Disturbance Factor	1	Controlled blasting/Mechanical excavation

* pcf = pounds per cubic foot
** psf = pounds per square foot
*** mi = unitless constant

Table 3.2: MS Schist unit – Strength Parameters

	Value	Source
Unit Weight (pcf*)	160	Lab test database
Intact UCS[1] (psf**)	6.62×10^5	Lab test database
Geological Strength Index	45	Rocscience tables
Intact Rock Constant (mi***)	12	Rocscience tables
Disturbance Factor	1	Controlled blasting/Mechanical excavation

* pcf = pounds per cubic foot
** psf = pounds per square foot
*** mi = unitless constant

Table 3.3: MS Breccia unit – Strength Parameters

	Value	Source
Unit Weight (pcf*)	160	Lab test database
Intact UCS[1] (psf**)	1.50×10^5	Lab test database
Geological Strength Index	46	Rocscience tables
Intact Rock Constant (mi***)	19	Rocscience tables

Disturbance Factor	1	Controlled blasting/Mechanical excavation

* pcf = pounds per cubic foot
** psf = pounds per square foot
*** mi = unitless constant

Table 3.4: Alluvium unit – Strength Parameters

	Value	Source
Unit Weight (pcf*)	125	Lab test database
Cohesion (psf**)	100	Lab test database
Phi	35	Lab test database

* pcf = pounds per cubic foot
** psf = pounds per square foot

The results of global slope stability analyses are summarized below. Details of stability calculations including material type boundaries, strength parameters, and the minimum factor of safety and critical slip surface are attached in **Appendix C**.

Table 4: Summary of Global Stability Results

Mine Area	Materials	Slope Configuration	Static Factor of Safety	Seismic Factor of Safety (with Kh=0.15)
Lillian Belle West slope	MS schist	200H @ 45 degrees	1.68	1.34
Lillian Belle Southeast slope	Alluvium MS schist	150H @ 35 to 45 degrees	1.85	1.35
East Deposit South slope	Carbonate	275H @ 45 degrees in rock cut 160H @ 33 degrees in native rock	2.17	1.75
West Deposit	MS breccia	275H @ 45 degrees	1.63	1.30

Sufficient static factors of safety (FS) in excess of 1.5 and seismic factors of safety at or greater than 1.1, which are in conformance with Division of Mine Reclamation (DMR) criteria, were indicated for the modeled scenario rock slopes configurations. Slopes utilizing overall slope angles lower than 51 degrees have higher factors of safety by inference and are not calculated for this evaluation.

The global stability calculations do not account for localized weak materials resulting from near-surface weathering or slide-sheared clay gouge zones. These features may be identified and mitigated during mining where encountered.

Overburden Stockpile Slopes

Stockpile slopes are planned at a ratio of 2(h) to 1(v) or flatter. This configuration is considered stable by inspection/practice. In addition, the presence of large angular clasts in stockpile fill materials improves the stability of these slopes.

FINDINGS AND CONCLUSIONS

Based on our geologic field observations and results of our slope stability analysis, it is the opinion of this firm that slope configuration analyzed for this investigation are feasible with respect to slope stability from a geotechnical standpoint. Overall highwall slopes formed in the rock units are stable by calculation at angles between 45 and 55 degrees (specific to rock unit) utilizing 275-foot-tall slopes. Consideration of local structural conditions in reclamation may include modification of geometry to achieve suitable face performance (preservation of sufficient bench width) and overall slope angles in the various rock materials.

The mine may have reclaimed rock slopes with a maximum height of approximately 275 feet based on comparison of the project boundary elevations with the proposed pit bottom elevations. The overall slope angles would be on the order of 45 degrees, using a 25-foot high, 25-foot wide face to bench ratio. The south wall of the East Deposit area is planned at 55 degrees which can be achieved using 25-foot faces and 18-foot wide benches. We evaluated the slope models using vertical bench faces in global calculations. Typical face angles are between 65 degrees and 80 degrees in rock slopes; therefore, the modeled global configuration is based on a more conservative geometry.

Based on the arid site conditions and site geology, we consider it unlikely that a static water table exists at or above elevation 1,150 (proposed maximum depth of reclaimed pit bottom elevation). Groundwater conditions during mining and at completion of mining (reclamation stage) may include water seepage and ponding of limited extent. Groundwater is not anticipated to significantly affect the stability of the proposed reclamation slopes.

Moderate seismic shaking of the site can be expected to occur during the lifetime of the proposed mining and reclamation. This potential has been considered in our analyses and evaluation of slope stability.

Based on the results of our stability analyses, the range of scenario rock slope configurations are considered stable under static and seismic conditions as reclaimed slopes. Inclusion of horizontal safety benches and haul roads in the final slope design will flatten the overall slope angle, is an

effective protection from rockfall, can reduce tensional forces in surface rock, and will reduce surface erosion rates (Highland and Brabowsky, 2008). Slopes may be protected with berms as necessary to prevent slope erosion in areas where overland flow is directed toward slopes.

The configuration of wall height, wall angle and bench width is controlled primarily by the type of mining equipment used and the geologic structure and bench face angles that can be achieved (Ryan and Pryor, 2000). Typical wall heights in hard rock mines range from 35 to 50 feet, which is above the expected range for the proposed quarry reclamation.

The rock mass within the pit area is generally competent and capable of forming stable slopes at the proposed slope angles for reclamation. The rock structure includes brecciated fabric and lesser joint systems that have been characterized by analysis to yield suitably stable rock slopes. Localized structures at the bench scale may form zones that require scaling and/or excavation to flatten or steepen face angles to achieve suitable reclamation conditions. At such time and locations as reclamation slopes are excavated, a qualified professional from Terracon should examine the slope conditions to determine conformance with the reclamation plan.

Slow raveling processes during and after quarry operation, may, with time, result in deposition of talus on benches. Talus left on the benches can facilitate revegetation and lend a more natural appearance to the reclaimed slopes. It is anticipated that rock fragments will be angular and relatively resistant to rolling. Therefore, rockfall hazard is not anticipated for properly excavated and scaled reclamation rock slopes.

Based on anticipated reclamation slope conditions, use of netting or other engineered installations to mitigate toppling or rockfall is not considered necessary; however, these measures, as well as a berm at the toe of the final quarry slopes, may be considered if warranted by future conditions. As is typical for any surface mining location, we recommend periodic observation of mine benches for indications of potential instability above working areas during mine operations.

Visual inspection of rock excavations and reclamation slopes/benches should be performed to address the potential for unknown or newly exposed discontinuities/geologic conditions. If significant raveling or instability is evident due to features in the geologic structure, the bench width may be increased to provide a suitable buffer to daylighted or unstable features and a sufficient area to mitigate rockfall.

Production blasting and/or mechanical excavation are suitable methods for developing mine slopes. However, when reclaimed slope faces are reached, blasting should be planned and controlled so that final catch benches are constructed in accordance with the approved reclamation plan and to avoid excess disturbance to finished surfaces. Degradation or clogging of catch benches can allow rockfall to reach lower mine levels.

This report is intended to address the proposed reclamation and is not applicable to working mine (interim) slopes which may be steeper and/or of different configuration than the reclamation plan.

Periodic or annual inspections of quarry wall stability with respect to planar, toppling, wedge failures and rockfall hazards should be conducted as mining progresses. The intent of these inspections is to provide recommendations to prevent or remediate potentially hazardous conditions that may be revealed during mining. The kinematic condition associated with the interaction of shear planes and individual walls, if exposed in reclamation slopes, should be examined during annual inspections.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Engineering Geologist, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

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Aerial Imagery Examined

Google Earth, 2021, web-based software application, aerial imagery dated December 30, 1985; September 28, 1995; July 9, 2003; December 31, 2004; May 24, 2009; October 8, 2009; March 22, 2013; April 27, 2013; August 29, 2014; July 2, 2016.

ATTACHMENTS

SITE LOCATION MAP

Slope Stability Investigation Report

Baxter Mine ■ Mojave Desert Region, San Bernardino County, California

May 3, 2021 ■ Terracon Project No. CB215002

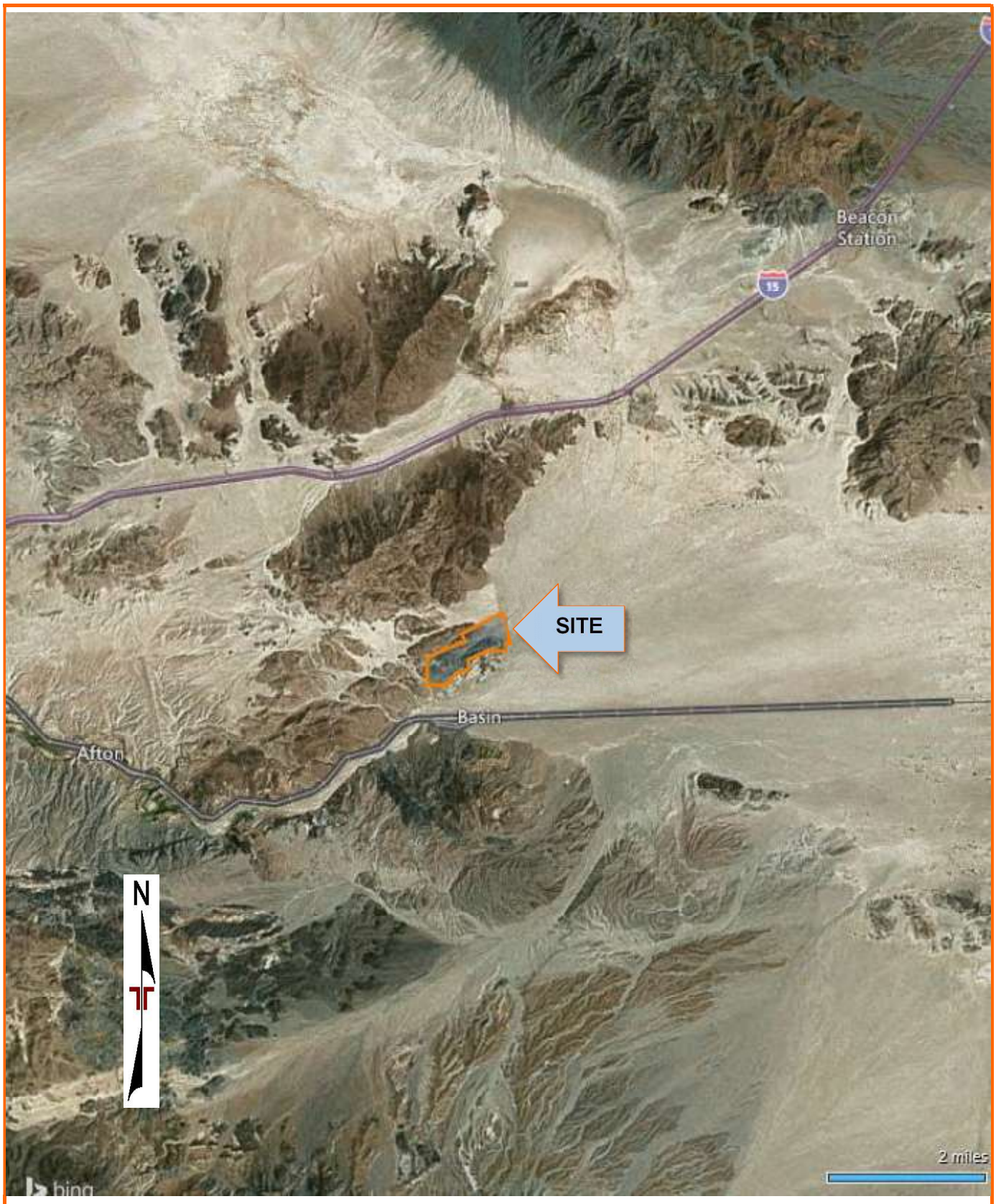
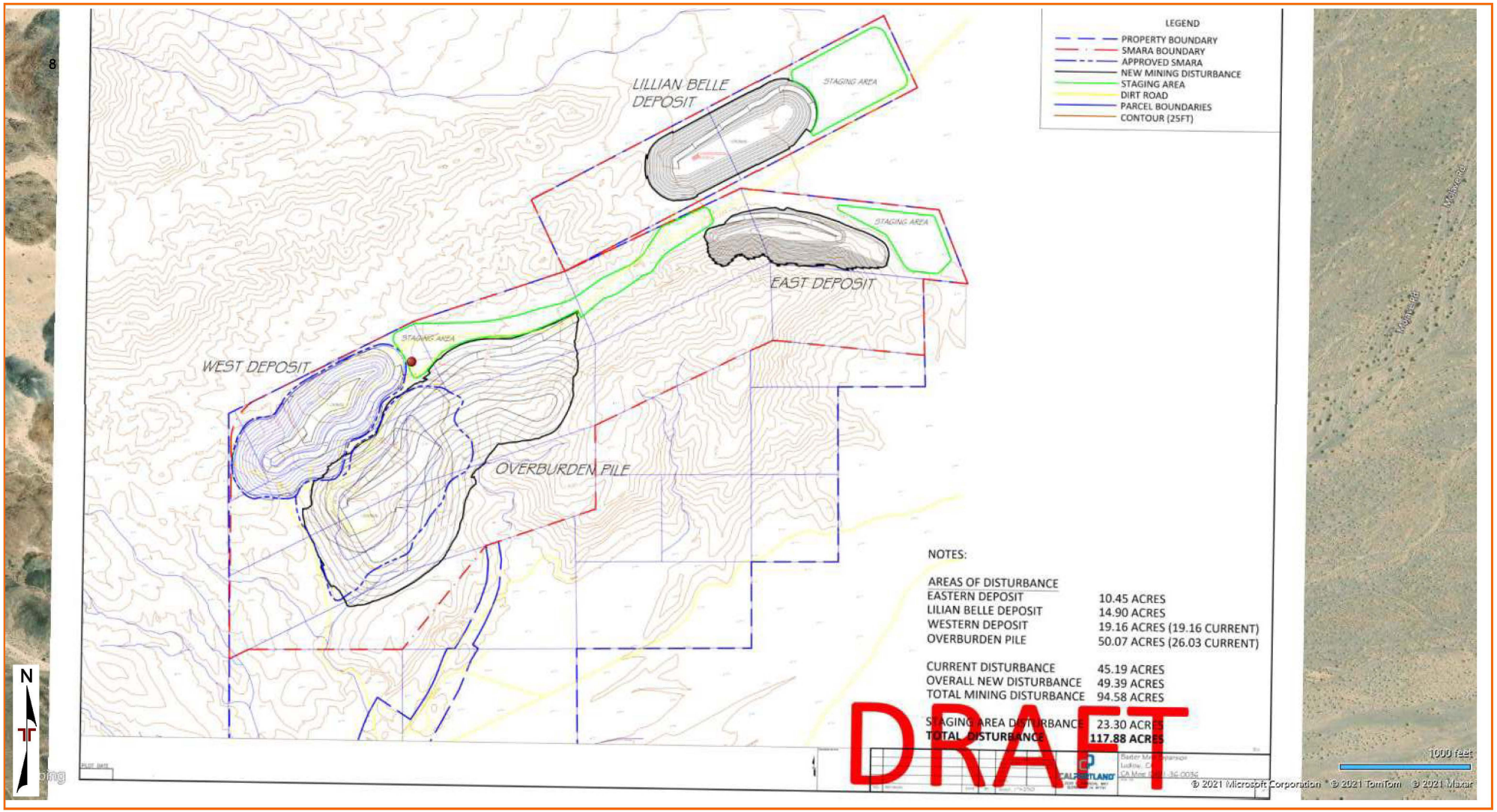


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

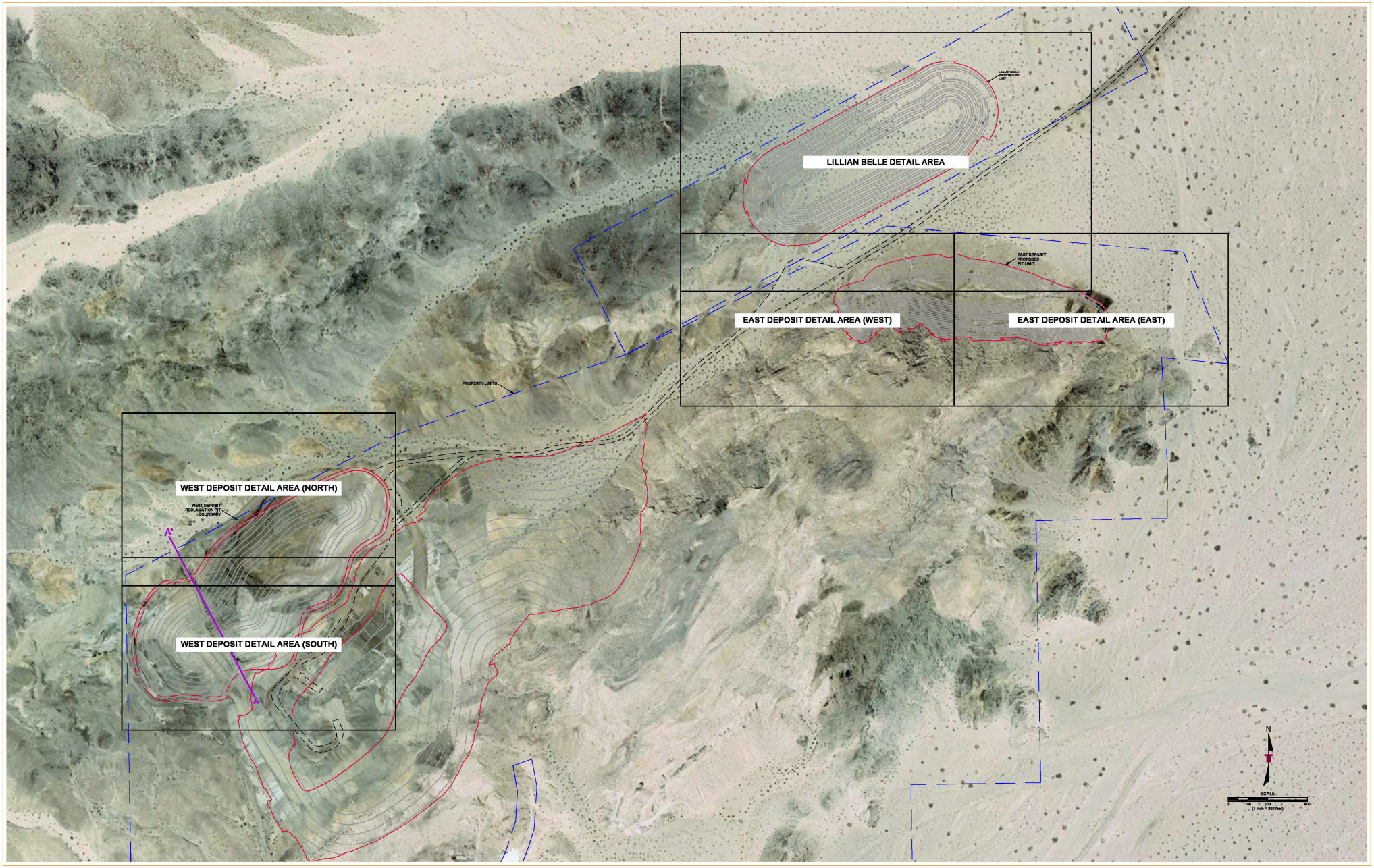

LILLIAN BELLE DEPOSIT
STAGING AREA
EAST DEPOSIT
STAGING AREA
WEST DEPOSIT
STAGING AREA
OVERBURDEN PILE
LEGEND
PROPERTY BOUNDARY
SMARA BOUNDARY
APPROVED SMARA
NEW MINING DISTURBANCE
STAGING AREA
DIRT ROAD
PARCEL BOUNDARIES
CONTOUR (25FT)
NOTES:
AREAS OF DISTURBANCE
EASTERN DEPOSIT 10.45 ACRES
LILIAN BELLE DEPOSIT 14.90 ACRES
WESTERN DEPOSIT 19.16 ACRES (19.16 CURRENT)
OVERBURDEN PILE 50.07 ACRES (26.03 CURRENT)
CURRENT DISTURBANCE 45.19 ACRES
OVERALL NEW DISTURBANCE 49.39 ACRES
TOTAL MINING DISTURBANCE 94.58 ACRES
STAGING AREA DISTURBANCE 23.30 ACRES
TOTAL DISTURBANCE 117.88 ACRES
DRAFT
N
1000 feet
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GEOLOGIC MAP INDEX

Baxter Mine ■ Baker, San Bernardino County, California

May 3, 2021 ■ Terracon Project No. CB215002

Terracon GeoReport

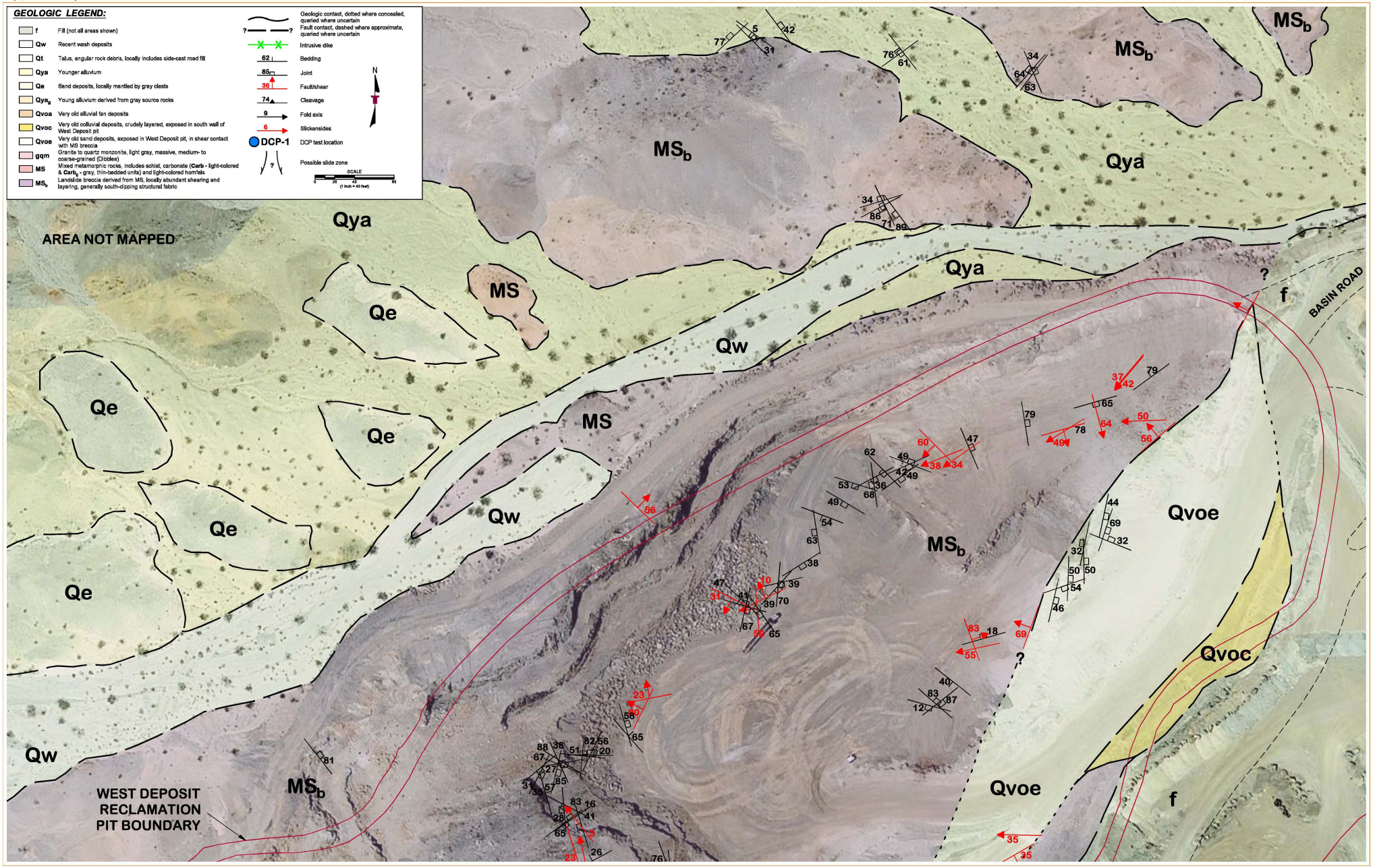


GEOLOGIC MAP - DETAIL WEST DEPOSIT (NORTH PORTION)

Baxter Mine ■ Baker, San Bernardino County, California

May 3, 2021 ■ Terracon Project No. CB215002

Terracon GeoReport

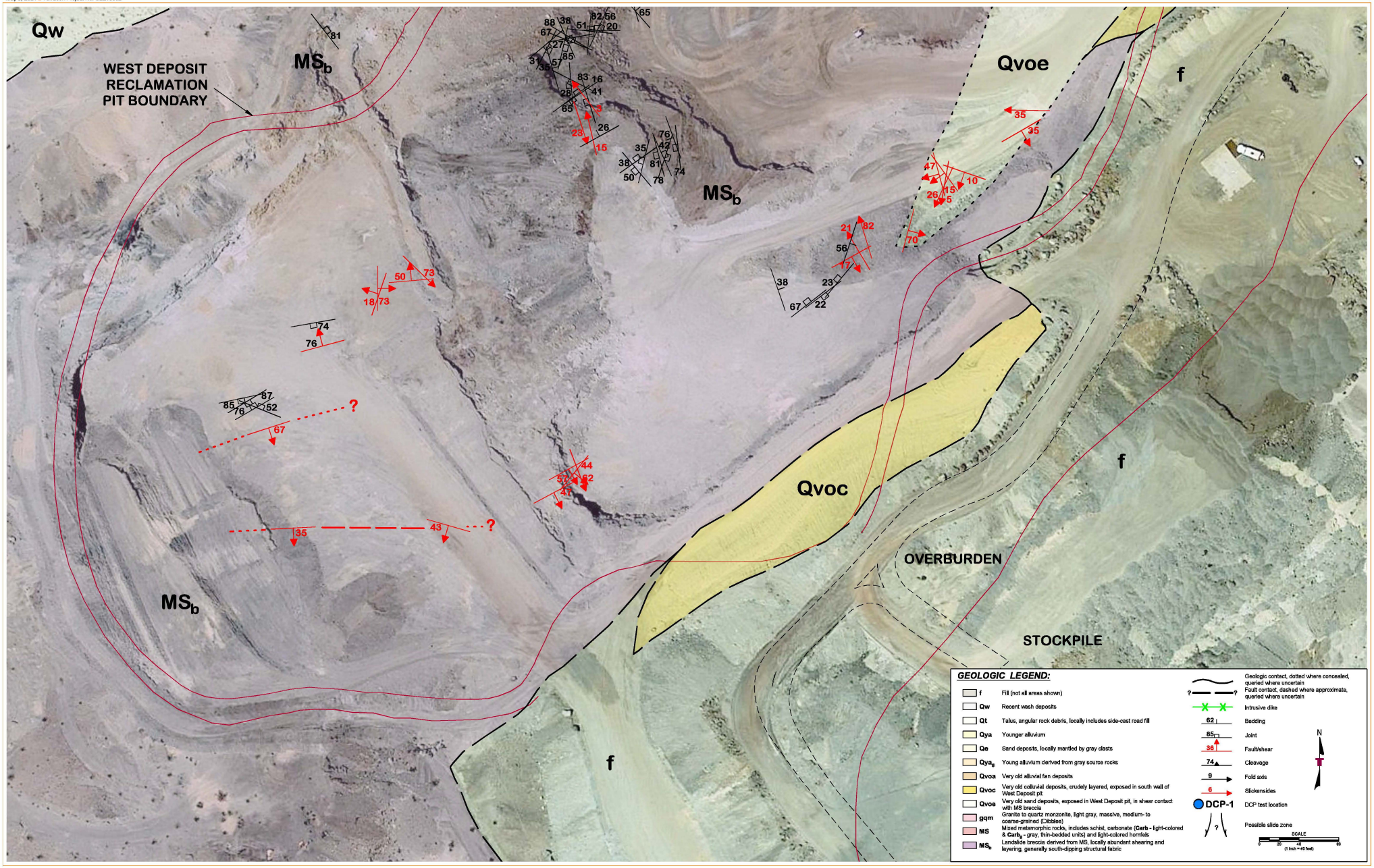


GEOLOGIC MAP - DETAIL WEST DEPOSIT (SOUTH PORTION)

Baxter Mine ■ Baker, San Bernardino County, California

May 3, 2021 ■ Terracon Project No. CB215002

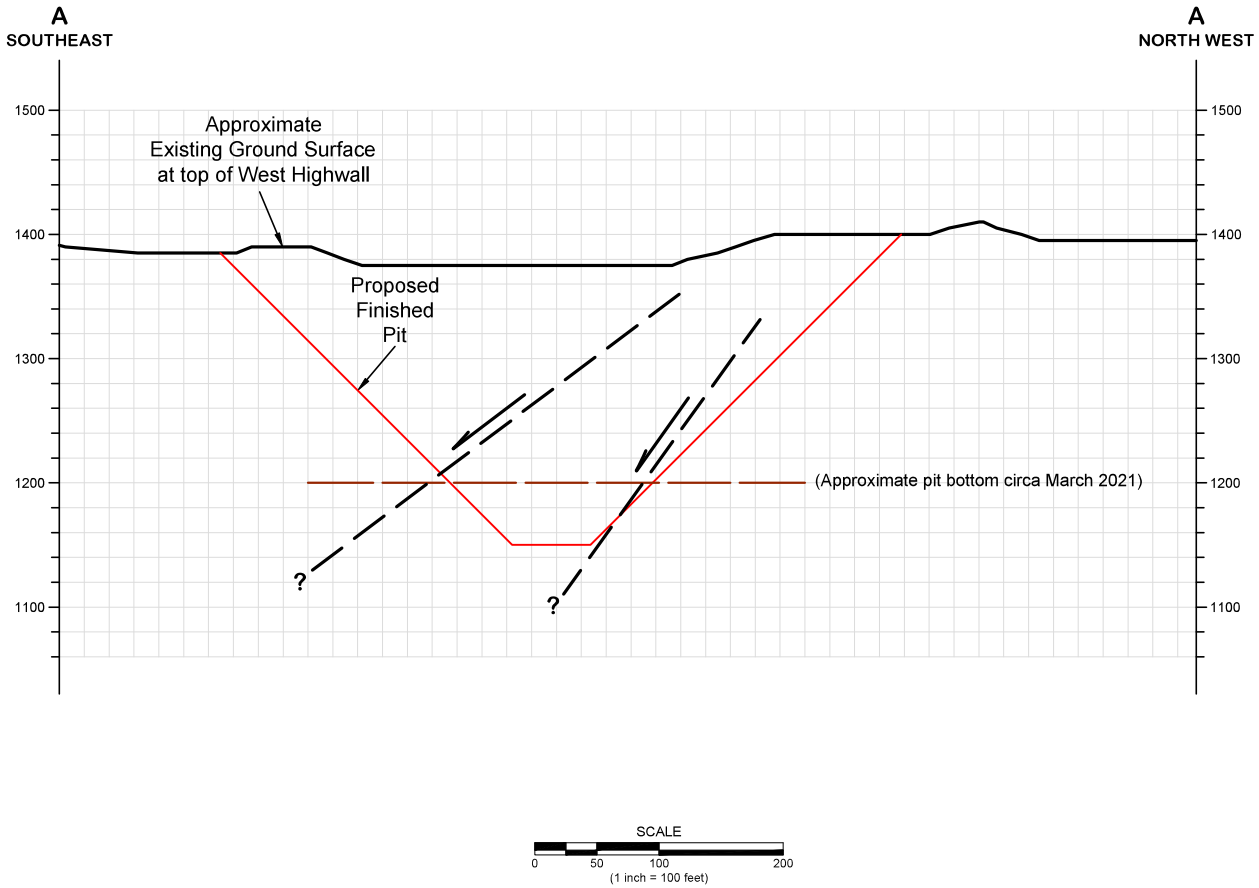
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GEOLOGIC CROSS-SECTION A-A' WEST DEPOSIT

Baxter Mine ■ Baker, San Bernardino County, California

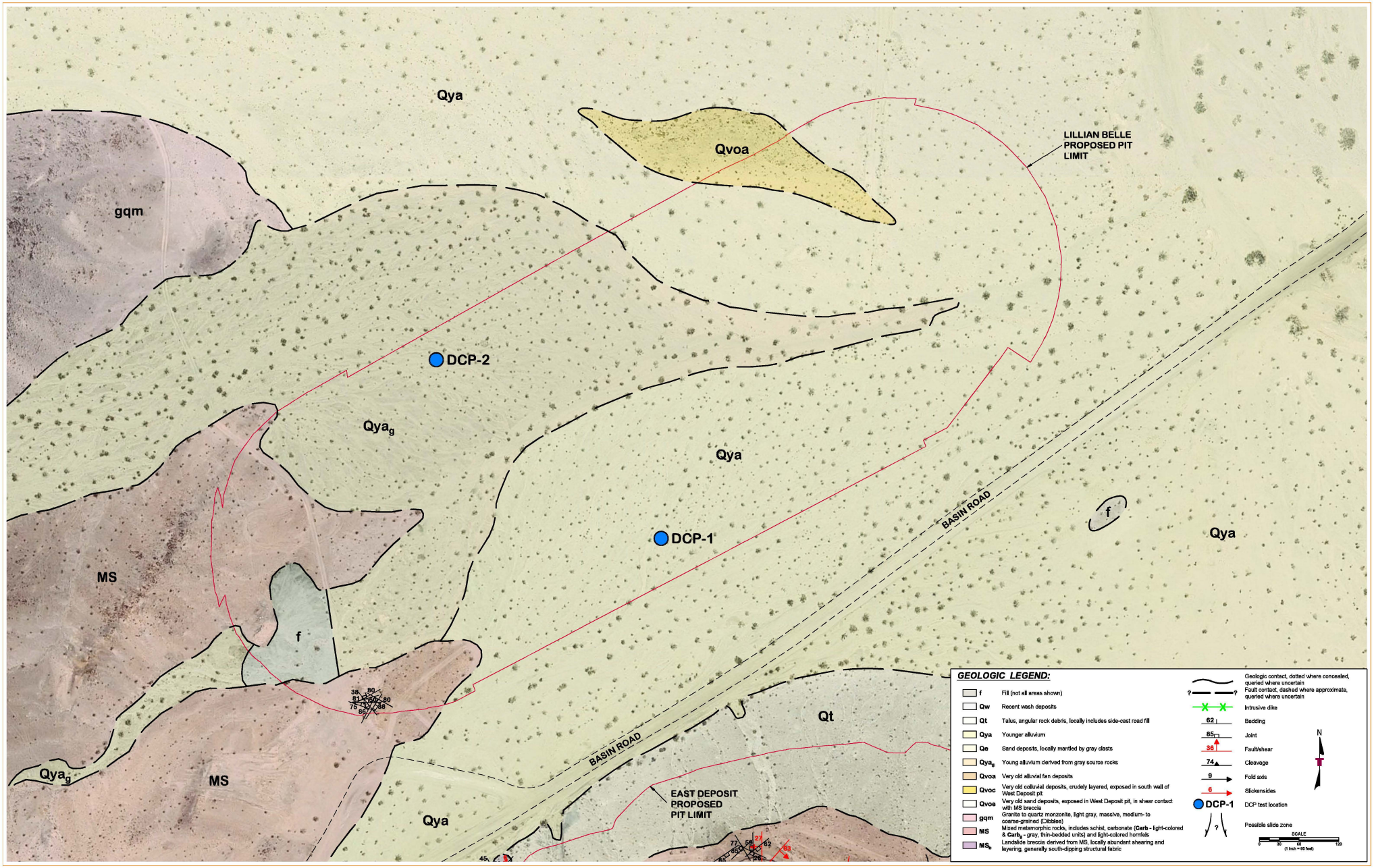
May 3, 2021 ■ Terracon Project No. CB215002



Note: Existing ground surface based on topo circa 2014

GEOLOGIC MAP - DETAIL LILLIAN BELLE DEPOSIT
Baxter Mine ■ Baker, San Bernardino County, California
May 3, 2021 ■ Terracon Project No. CB215002

Terracon GeoReport

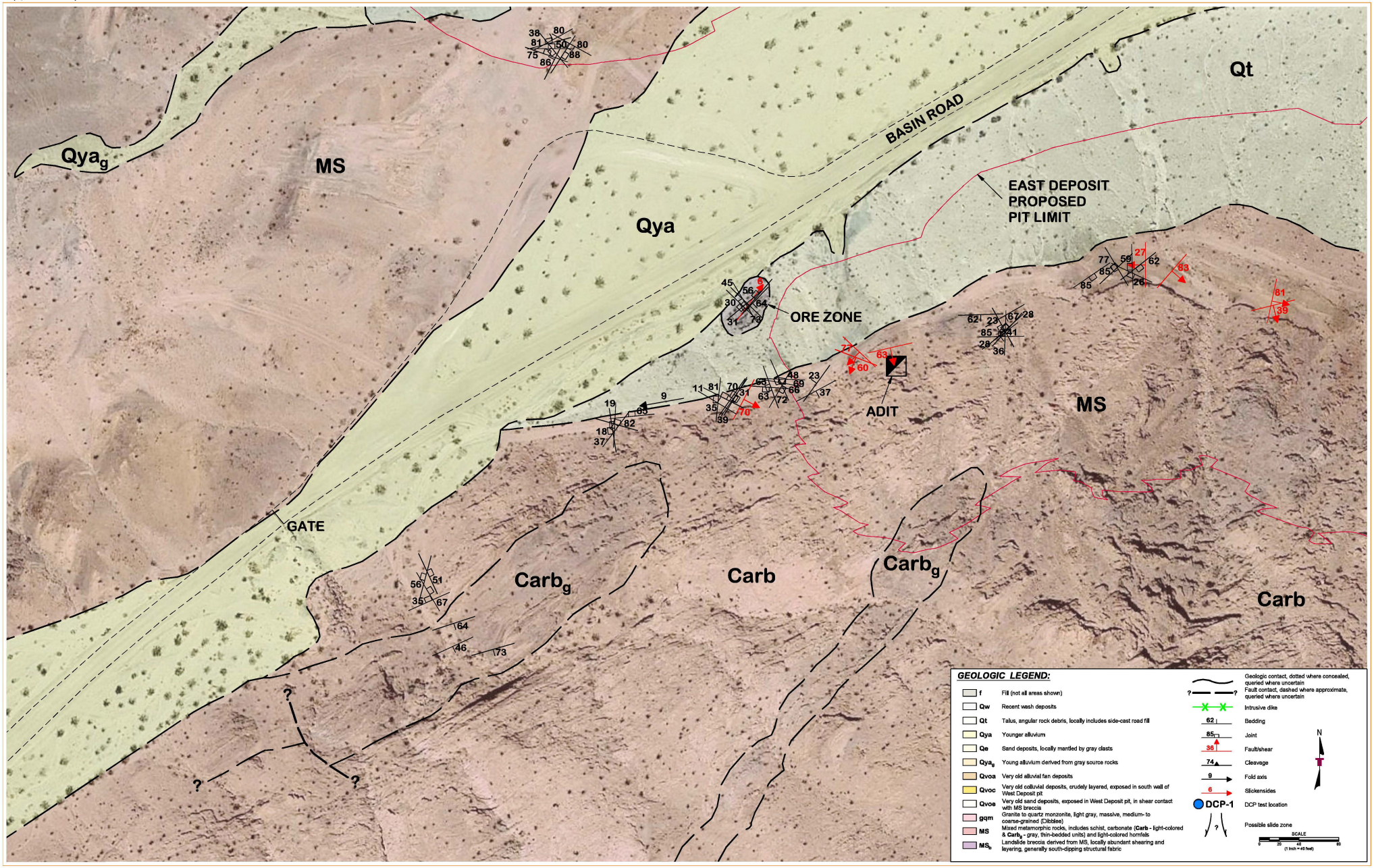


GEOLOGIC MAP - DETAIL EAST DEPOSIT (WEST PORTION)

Baxter Mine ■ Baker, San Bernardino County, California

May 3, 2021 ■ Terracon Project No. CB215002

Terracon GeoReport

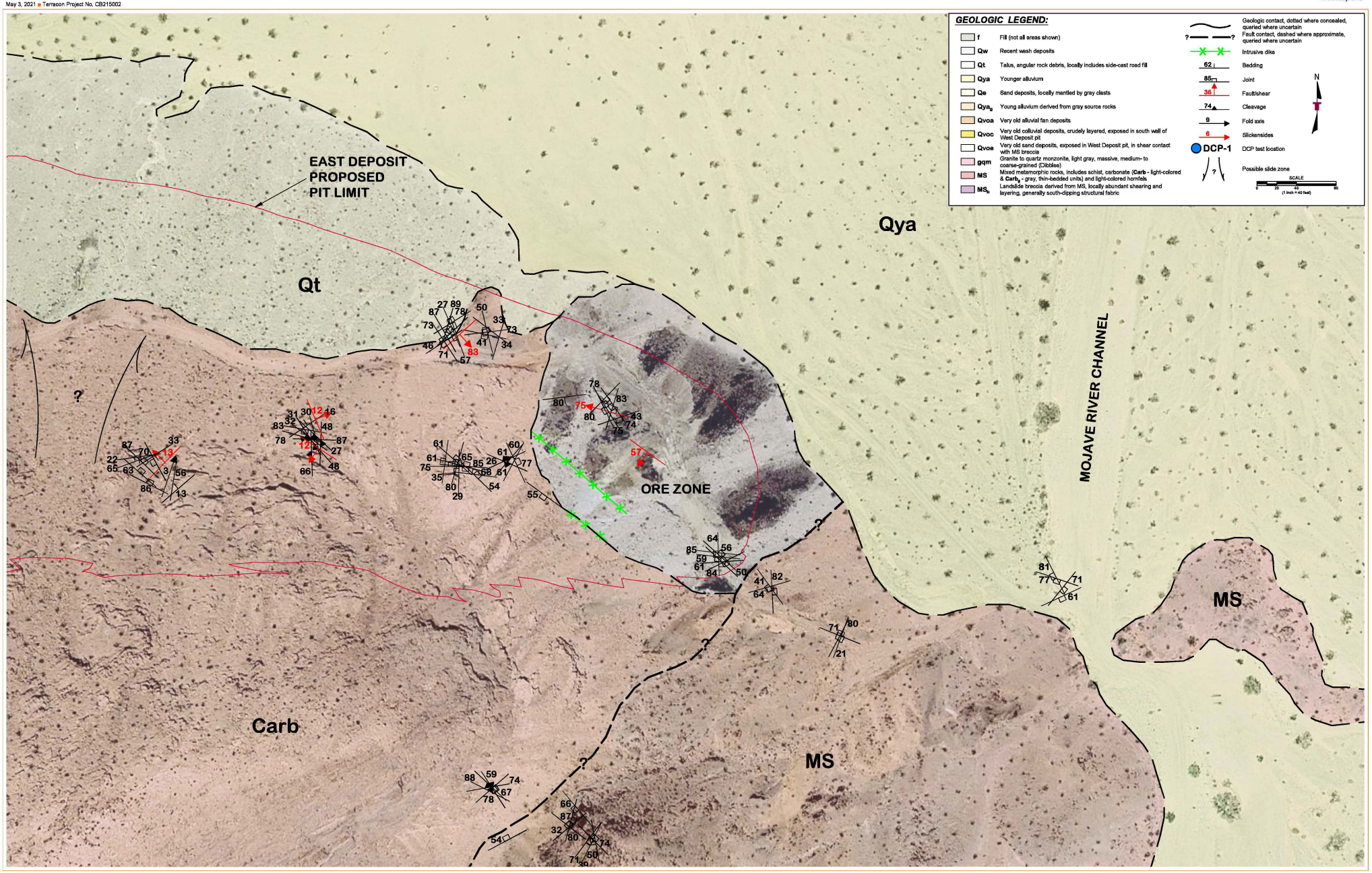


GEOLOGIC MAP - DETAIL EAST DEPOSIT (EAST PORTION)

Baxter Mine ■ Baker, San Bernardino County, California

May 3, 2021 ■ Terracon Project No. CB215002

Terracon GeoReport

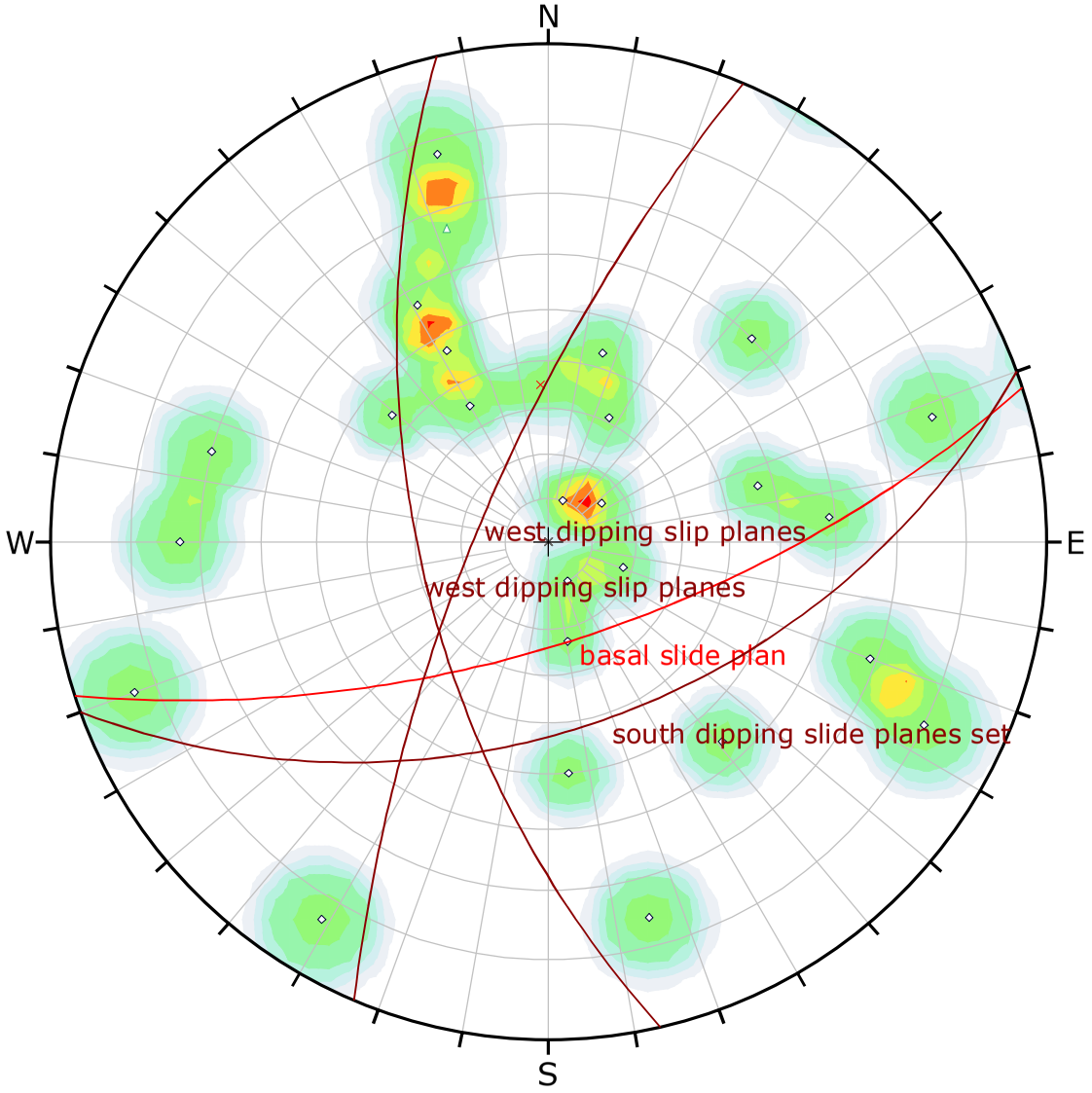


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1	78	252	Fault ls shear	Felsic ls fabric		
2	83	31	Fault ls shear	Felsic ls fabric		
3	81	52	Joint	ms schist		
4	56	44	Fault	Ore body		
5	89	233	Joint	Felsic ls fabric		
6	71	244	Joint	Felsic ls fabric		
7	34	343	Joint	Felsic ls fabric		
8	86	152	Joint	Felsic ls fabric		
9	76	324	Joint	ms schist		
10	61	232	Joint	ms schist		
11	42	53	Joint	ms schist		
12	31	45	Joint	ms schist		
13	5	216	Joint	ms schist		
14	77	317	Joint	ms schist		
15	64	311	Joint	Felsic ls fabric		
16	34	67	Joint	Felsic ls fabric		
17	63	307	Joint	Felsic ls fabric		
18	79	81	Joint	ms schist		
19	78	164	Fault ls shear	ms schist		
20	65	164	Joint	ms schist		
21	79	324	Bedding	Dike		
22	56	319	Fault ls shear	Eolian sand		
23	32	22	Joint	Eolian sand		
24	44	102	Joint	Eolian sand		
25	69	108	Joint	Eolian sand		
26	32	282	Joint	Eolian sand		
27	50	89	Joint	Eolian sand		
28	50	92	Joint	Eolian sand		
29	54	161	Joint	Eolian sand		
30	46	103	Joint	Eolian sand		
31	50	355	Fault ls shear	Ore body		
32	18	289	Fault ls shear	Ore body		
33	73	90	Fault ls shear	Ore body		
34	76	345	Fault ls shear	Ore body		
35	74	170	Joint	Ore body	5	
36	85	168	Joint	Ore body		

ID	Dip	Dip Direction	TYPE	UNIT	CONTINUITY	NOTES
37	76	149	Joint	Ore body		
38	87	330	Joint	Ore body		
39	52	22	Joint	Ore body		
40	67	162	slide plane basal	Ore body		Dune below breccia on rock
41	35	177	slide plane	Landslide breccia		Ls plane internal near basal
42	43	196	Fault ls shear	Landslide breccia		
43	44	129	Fault ls shear	Landslide breccia		
44	57	151	Fault ls shear	Landslide breccia		
45	47	152	Fault ls shear	ms schist		
46	38	71	Bedding	Landslide breccia		
47	70	105	Fault ls shear	Landslide breccia		
48	10	199	Fault ls shear	Landslide breccia		
49	47	255	Fault ls shear	Landslide breccia		
50	15	234	Fault ls shear	Landslide breccia		
51	35	150	Fault ls shear	Eolian sand		contact: sand below tan carb breccia
52	67	322	Joint	White weak bed		Face
53	22	143	Joint	White weak bed	4	
54	23	310	Joint	White weak bed	4	
55	17	151	Fault	White weak bed		
56	56	108	Foliation	White weak bed		Foliation
57	30	161	Foliation	Ore body		Foliation
58	83	41	Joint	Ore body		
59	87	142	Joint	Ore body		
60	12	195	Joint	Ore body	4	
61	40	218	Foliation	Ore body		Foliation
62	18	344	Joint	ms schist		
63	83	70	Fault ls shear	ms schist		Contact w ore
64	69	290	Fault ls shear	ms schist		Ms versus sand sheet?
65	47	67	Joint	ms schist		
66	60	225	Fault ls shear	ms schist		
67	49	21	Joint	Ore body		
68	42	156	Joint	Ore body	4	
69	49	144	Joint	Ore body	4	
70	68	262	Joint	ms schist		
71	36	152	Joint	ms schist		
72	62	225	Joint	ms schist	4	

ID	Dip	Dip Direction	TYPE	UNIT	CONTINUITY	NOTES
73	53	198	Joint	ms schist	4	
74	49	211	Joint	ms schist	4	
75	54	201	Foliation	ms schist		Foliation
76	63	261	Joint	ms schist	4	
77	38	148	Joint	ms schist	4	
78	39	132	Joint	ms schist		
79	70	95	Joint	ms schist		
80	39	167	Joint	ms schist		
81	59	265	Fault ls shear	ms schist		
82	10	334	Fault ls shear	ms schist		
83	65	235	Joint	ms schist		
84	67	103	Joint	ms schist		
85	41	16	Joint	ms schist		
86	31	206	Fault ls shear	ms schist		
87	47	223	Foliation	ms schist		Foliation
88	23	349	Fault ls shear	ms schist		
89	80	296	Fault ls shear	ms schist		
90	58	74	Joint	ms schist	4	
91	65	49	Foliation	ms schist		Foliation
92	57	74	Foliation	ms schist		Foliation
93	76	250	Bedding	Ore body		
94	82	95	Joint	ms schist		
95	20	1	Joint	ms schist		
96	56	115	Joint	ms schist		
97	51	6	Joint	ms schist	3	
98	88	211	Joint	ms schist		
99	38	66	Foliation	ms schist		Foliation
100	31	140	Joint	ms schist	3	
101	35	117	Joint	ms schist	3	
102	85	103	Joint	ms schist	3	
103	27	170	Joint	ms schist	3	
104	67	22	Joint	ms schist	3	
105	41	207	Joint	ms schist		
106	28	265	Joint	ms schist		
107	65	143	Joint	ms schist	4	
108	16	326	Joint	ms schist	3	

ID	Dip	Dip Direction	TYPE	UNIT	CONTINUITY	NOTES
109	83	253	Joint	ms schist	3	
110	26	331	Foliation	ms schist	Foliation	Foliation
111	50	230	Joint	ms schist	4	
112	38	325	Joint	ms schist	4	
113	35	284	Joint	ms schist		
114	81	255	Joint	ms schist	4	
115	78	108	Joint	ms schist		
116	42	66	Joint	ms schist	3	
117	74	263	Joint	ms schist	4	
118	29	152	Slickenside	Felsic ls fabric		plunge and plunge azimuth given as dip and dip direction
119	49	238	Slickenside	ms schist		plunge and plunge azimuth given as dip and dip direction
120	64	165	Slickenside	ms schist		plunge and plunge azimuth given as dip and dip direction
121	42	220	Slickenside	ms schist		plunge and plunge azimuth given as dip and dip direction
122	37	220	ls direction	ms schist		plunge and plunge azimuth given as dip and dip direction
123	50	268	Slickenside	Eolian sand		plunge and plunge azimuth given as dip and dip direction
124	73	134	Slickenside	Ore body		plunge and plunge azimuth given as dip and dip direction
125	62	159	Slickenside	Landslide breccia		plunge and plunge azimuth given as dip and dip direction
126	21	329	Slickenside	Landslide breccia		plunge and plunge azimuth given as dip and dip direction
127	82	343	Slickenside	Landslide breccia		plunge and plunge azimuth given as dip and dip direction
128	26	205	Slickenside	Landslide breccia		plunge and plunge azimuth given as dip and dip direction
129	5	190	Slickenside	Landslide breccia		plunge and plunge azimuth given as dip and dip direction
130	35	271	Slickenside	Eolian sand		plunge and plunge azimuth given as dip and dip direction
131	55	258	Slickenside	ms schist		plunge and plunge azimuth given as dip and dip direction
132	34	235	Slickenside	ms schist		plunge and plunge azimuth given as dip and dip direction
133	38	248	Slickenside	ms schist		plunge and plunge azimuth given as dip and dip direction
134	3	322	Slickenside	ms schist		plunge and plunge azimuth given as dip and dip direction
135	23	162	Slickenside	ms schist		plunge and plunge azimuth given as dip and dip direction
136	15	347	Slickenside	ms schist		plunge and plunge azimuth given as dip and dip direction



Symbol	TYPE	Quantity
◇	Fault Is shear	25
×	slide plane	1
△	slide plane basal	1

Color	Density Concentrations
	0.00 - 0.70
	0.70 - 1.40
	1.40 - 2.10
	2.10 - 2.80
	2.80 - 3.50
	3.50 - 4.20
	4.20 - 4.90
	4.90 - 5.60
	5.60 - 6.30
	6.30 - 7.00

Contour Data	Pole Vectors
Maximum Density	6.63%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	27 (27 Entries)
Hemisphere	Lower
Projection	Equal Angle

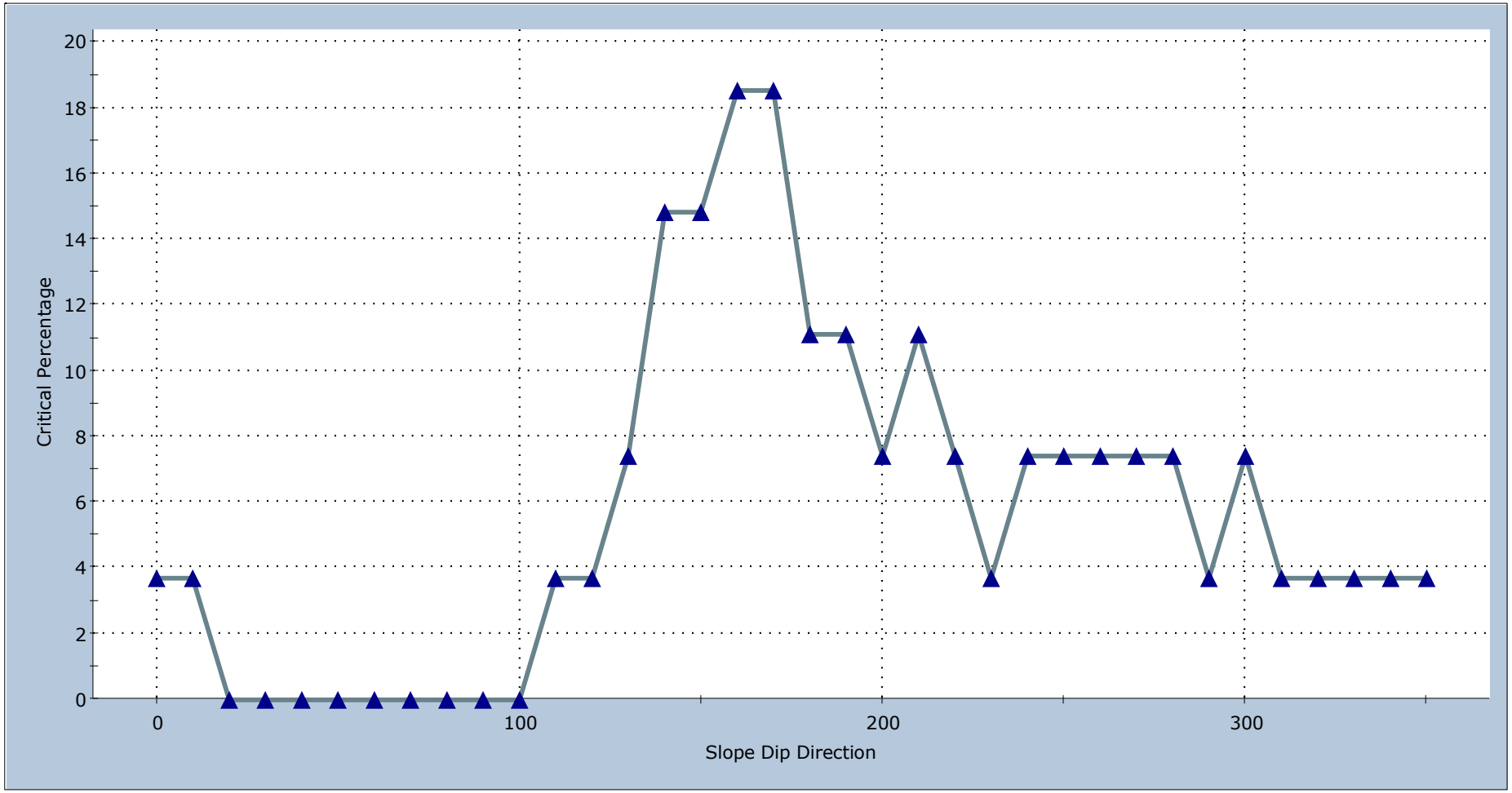
West Deposit Pit - slide planes

Terracon

DIPS 7.014

Project	Baxter Mine		
Analysis Description	Kinematic		
Drawn By	Terracon	*Author*	JMc
File Name	West Deposit Pit slide planes.dips7	*Date*	4/14/2021

Planar Sliding: Critical Percentage vs. Slope Dip Direction



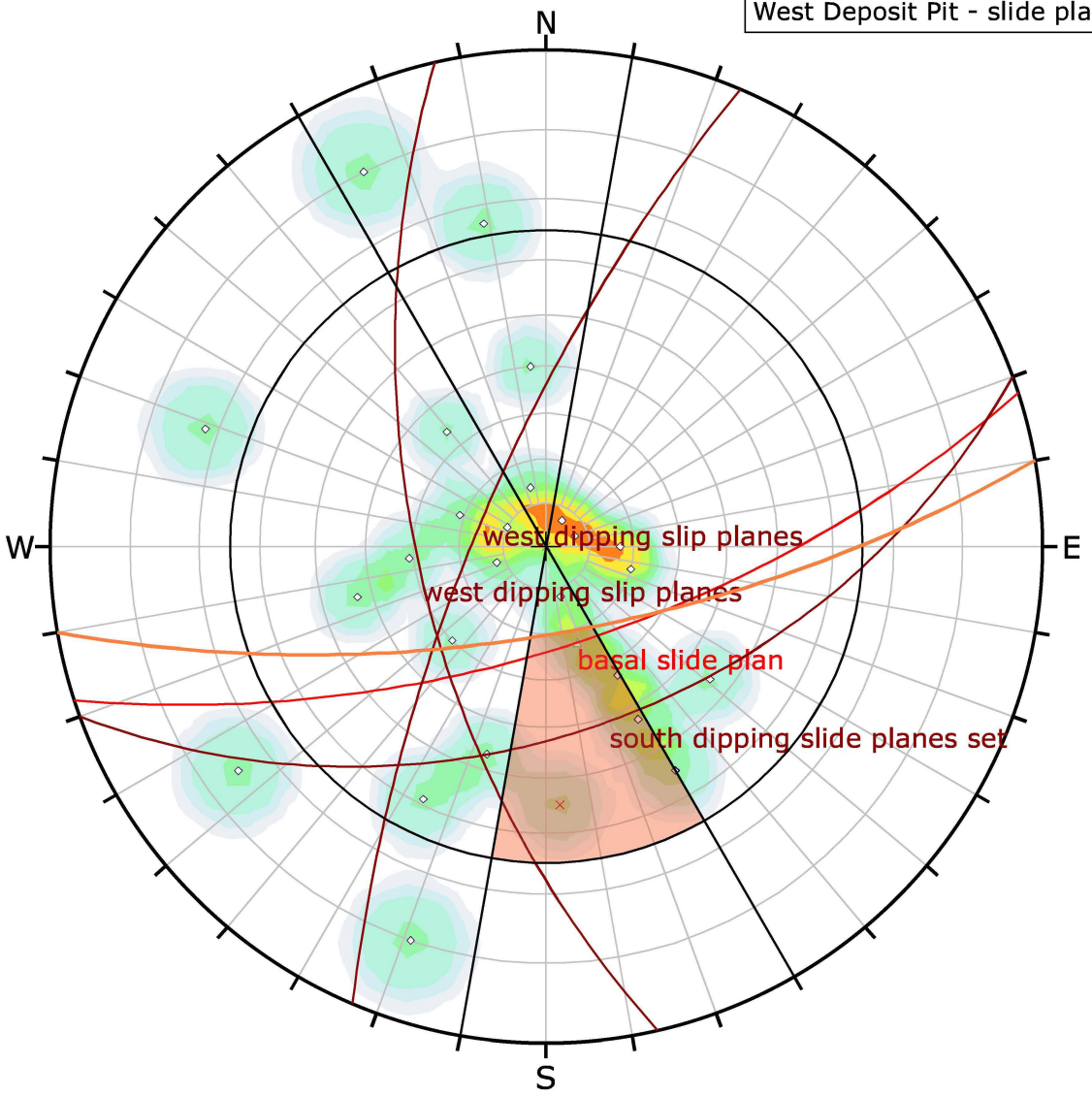
Mean Values

Slope Dip = 70 **Slope Dip Direction = 0** **Friction Angle = 25** **Lateral Limit = 20**

Terracon	*Project*	Baxter Mine	
	Analysis Description	West Deposit Pit - Slide Planes	
	Drawn By	Terracon	*Author* JMc
	File Name	West Deposit Pit slide planes.dips7	*Date* 4/15/2021

DIPS 7.014

West Deposit Pit - slide planes



Symbol	TYPE	Quantity
◇	Fault Is shear	25
×	slide plane	1
△	slide plane basal	1

Color	Density Concentrations
	0.00 - 0.90
	0.90 - 1.80
	1.80 - 2.70
	2.70 - 3.60
	3.60 - 4.50
	4.50 - 5.40
	5.40 - 6.30
	6.30 - 7.20
	7.20 - 8.10
	8.10 - 9.00

Contour Data	Dip Vectors
Maximum Density	8.16%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	70
Slope Dip Direction	170
Friction Angle	25°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	5	27	18.52%
(Set 1: south dipping slide planes set)	5	8	62.50%

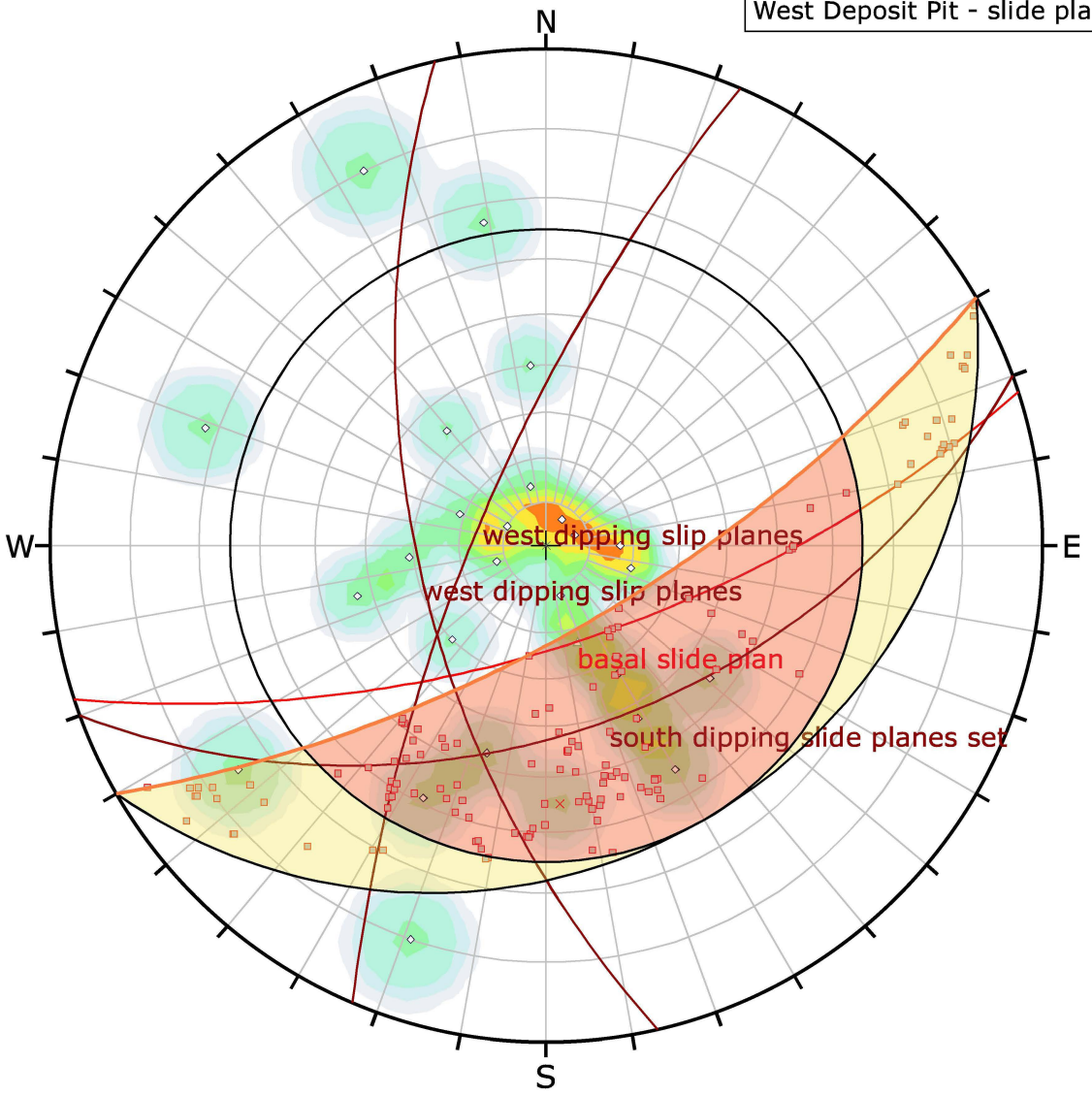
Plot Mode	Dip Vectors
Vector Count	27 (27 Entries)
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter Mine		
Analysis Description	West Deposit Pit - Slide Planes		
Drawn By	Terracon	*Author*	JMc
File Name	West Deposit Pit slide planes.dips7	*Date*	4/15/2021

West Deposit Pit - slide planes



Symbol	TYPE	Quantity
◇	Fault Is shear	25
×	slide plane	1
△	slide plane basal	1
Symbol	**Feature**	
▫	Critical Intersection	

Color	Density Concentrations
	0.00 - 0.90
	0.90 - 1.80
	1.80 - 2.70
	2.70 - 3.60
	3.60 - 4.50
	4.50 - 5.40
	5.40 - 6.30
	6.30 - 7.20
	7.20 - 8.10
	8.10 - 9.00

Contour Data	Dip Vectors
Maximum Density	8.16%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	70
Slope Dip Direction	150
Friction Angle	25°

	Critical	Total	%
Wedge Sliding	133	351	37.89%

Plot Mode	Dip Vectors
Vector Count	27 (27 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	351
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter Mine		
Analysis Description	West Deposit Pit - Slide Planes		
Drawn By	Terracon	*Author*	JMc
File Name	wedge West Deposit Pit slide planes.dips7	*Date*	4/15/2021

Wedge Sliding: Critical Percentage vs. Slope Dip Direction

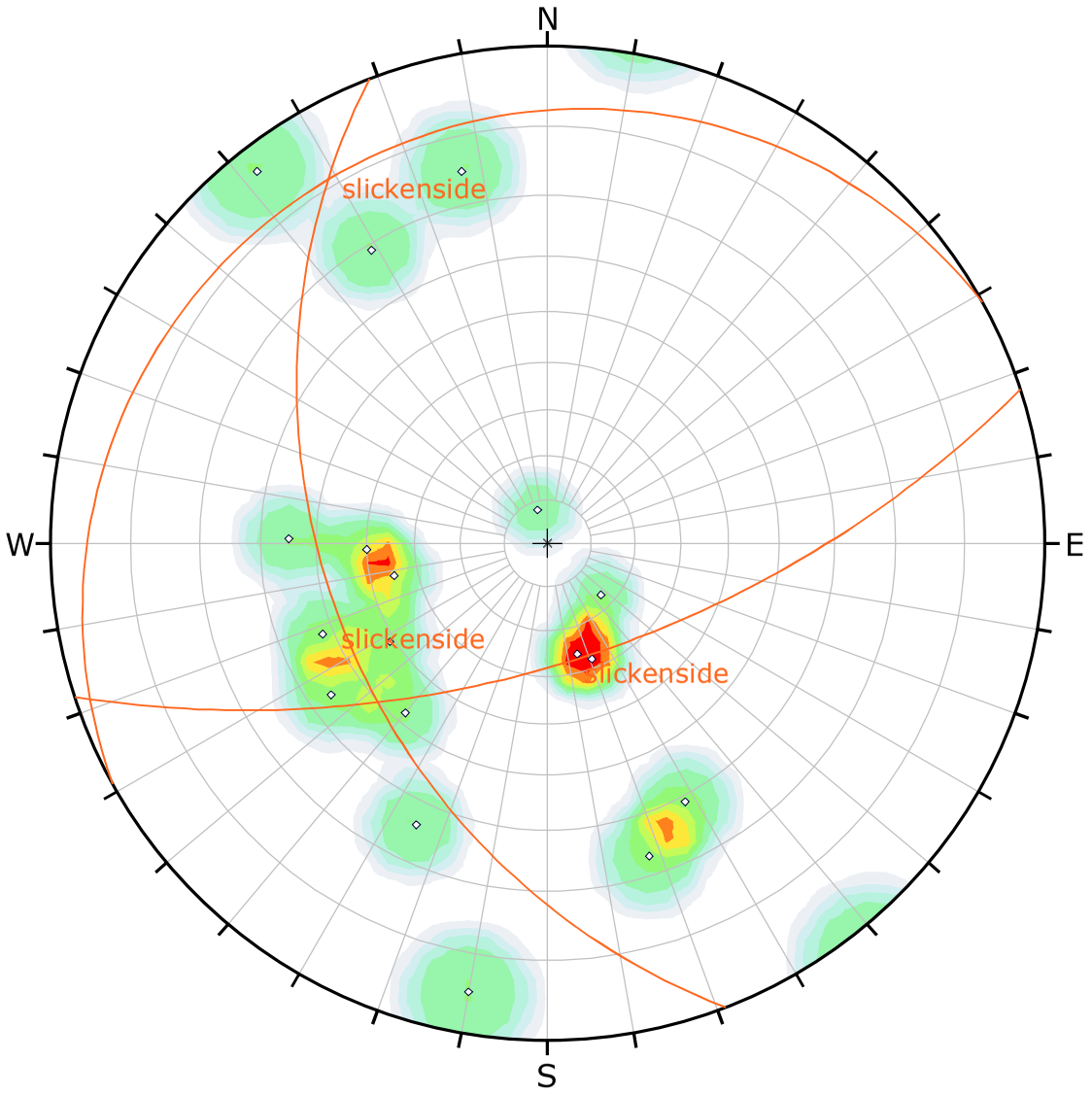


Mean Values

Slope Dip = 70 **Slope Dip Direction = 0** **Friction Angle = 25** **Lateral Limit = 20**

Terracon	*Project*	Baxter Mine	
	Analysis Description	West Deposit Pit - Slide Planes	
	Drawn By	Terracon	*Author* JMc
	File Name	wedge West Deposit Pit slide planes.dips7	*Date* 4/15/2021

DIPS 7.014



Symbol	TYPE	Quantity
◇	Slickenside	18

Color	Density Concentrations
	0.00 - 1.10
	1.10 - 2.20
	2.20 - 3.30
	3.30 - 4.40
	4.40 - 5.50
	5.50 - 6.60
	6.60 - 7.70
	7.70 - 8.80
	8.80 - 9.90
	9.90 - 11.00

Contour Data	Dip Vectors
Maximum Density	10.96%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Dip Vectors
Vector Count	18 (18 Entries)
Hemisphere	Lower
Projection	Equal Angle

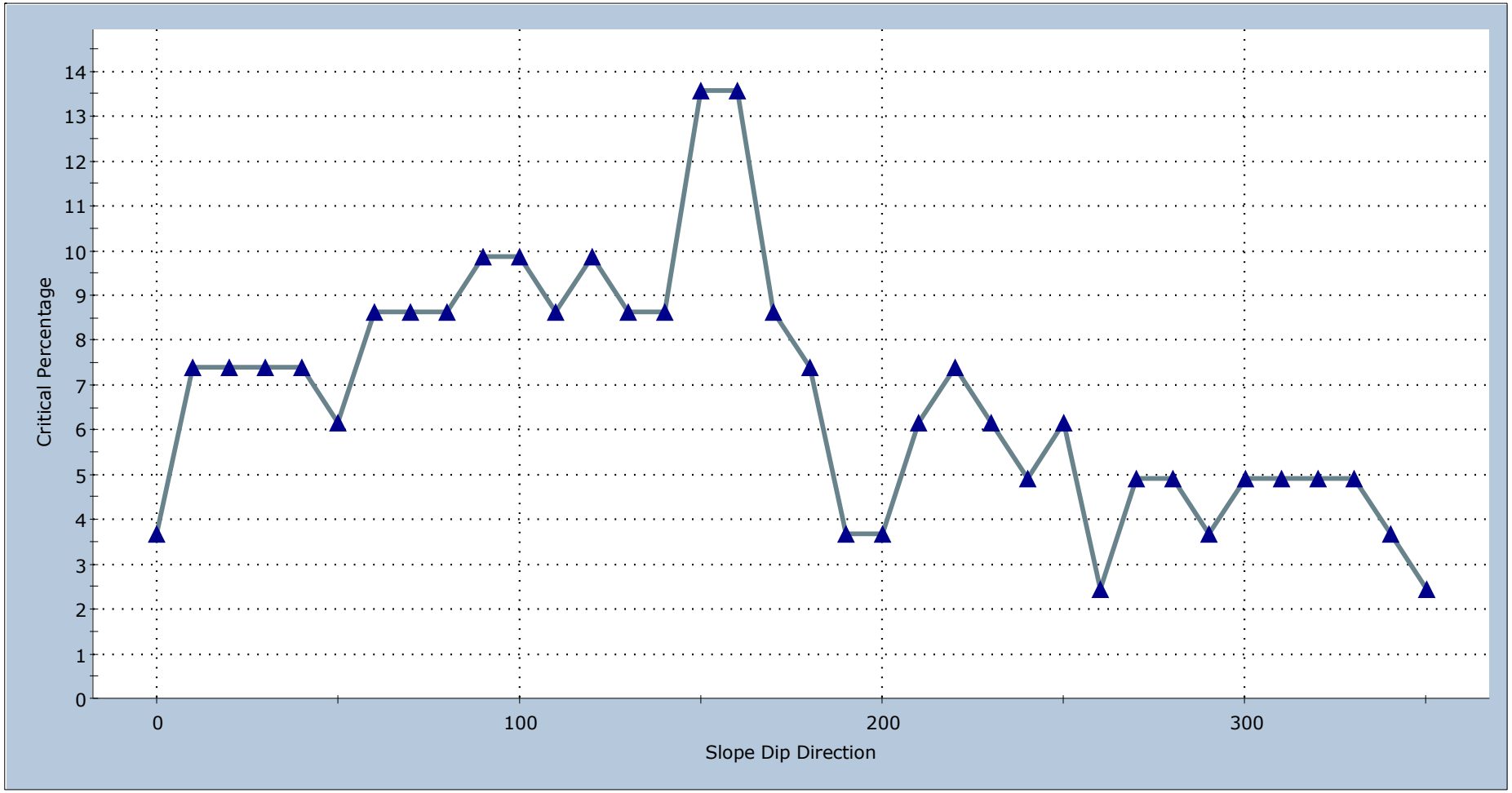
Pit Area slickenside trends - vectors

Terracon

DIPS 7.014

Project	Baxter Mine		
Analysis Description	Kinematic		
Drawn By	Terracon	*Author*	JMc
File Name	Slicks.dips7	*Date*	4/14/2021

Planar Sliding: Critical Percentage vs. Slope Dip Direction



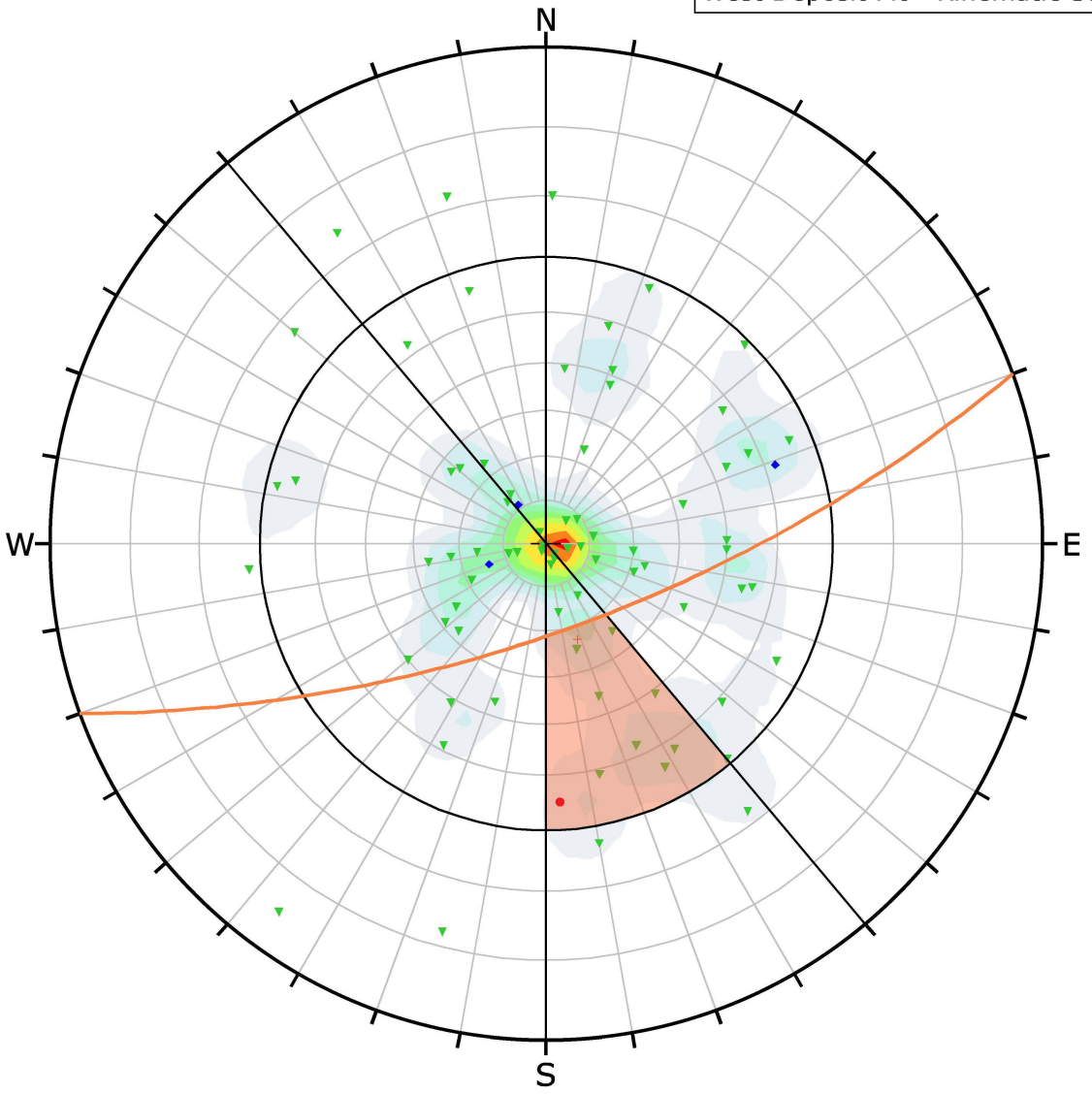
Mean Values

Slope Dip = 70 **Slope Dip Direction = 0** **Friction Angle = 30** **Lateral Limit = 20**

Terracon	*Project*	
	Analysis Description	West Deposit Pit
	Drawn By	*Author*
	File Name planar West Deposit Pit joint beds slides kin analysis.dips7	*Date* 4/15/2021

DIPS 7.014

West Deposit Pit - Kinematic Structures



Symbol	TYPE	Quantity
◆	Bedding	3
▼	Joint	76
●	slide plane	1
+	slide plane basal	1

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10
	9.10 - 10.40
	10.40 - 11.70
	11.70 - 13.00

Contour Data	Dip Vectors
Maximum Density	12.50%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	70
Slope Dip Direction	160
Friction Angle	30°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	11	81	13.58%

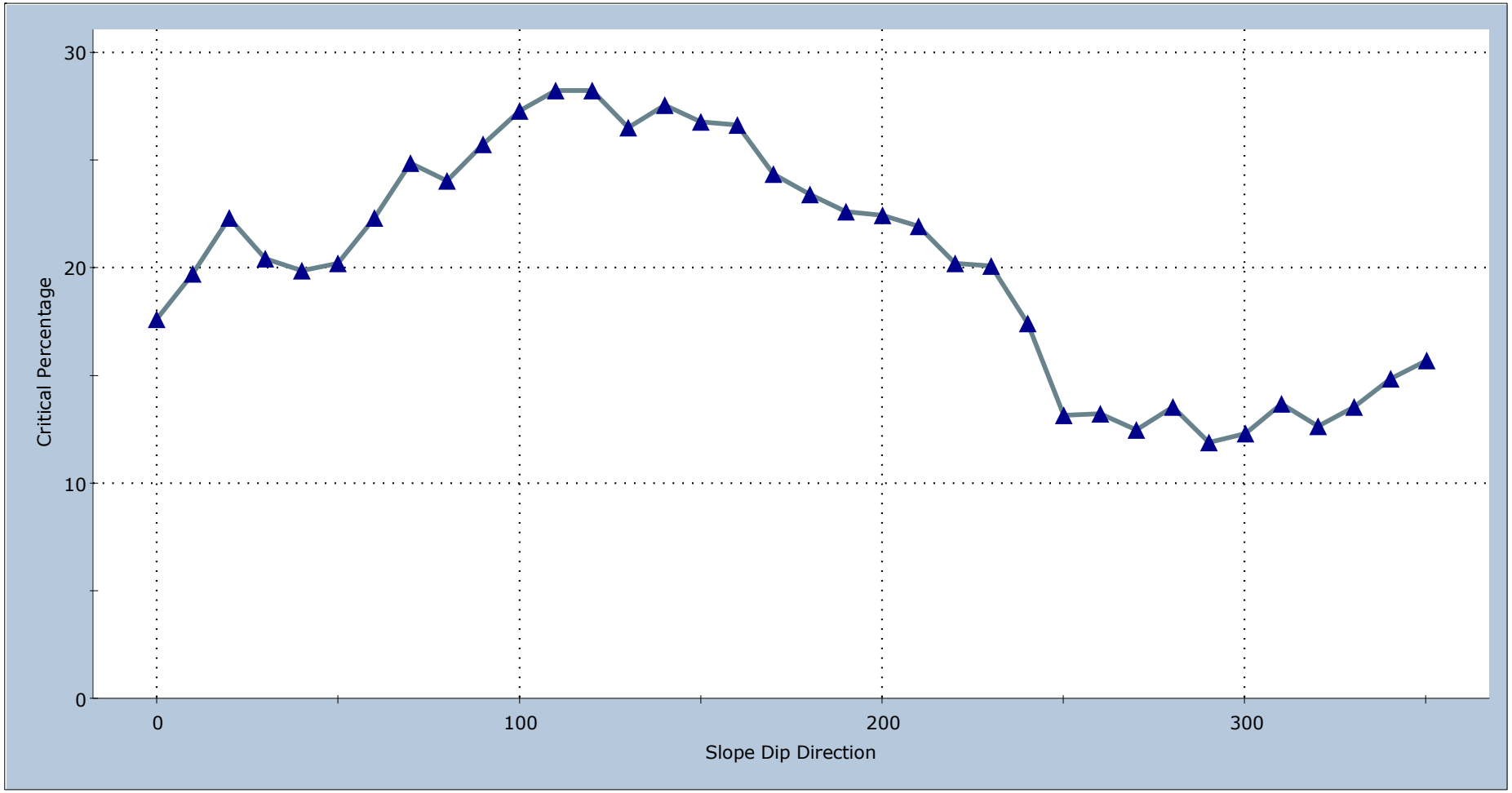
Plot Mode	Dip Vectors
Vector Count	81 (81 Entries)
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	
Analysis Description	West Deposit Pit
Drawn By	*Author*
File Name planar West Deposit Pit joint beds slides kin analysis.dips7	*Date* 4/15/2021

Wedge Sliding: Critical Percentage vs. Slope Dip Direction



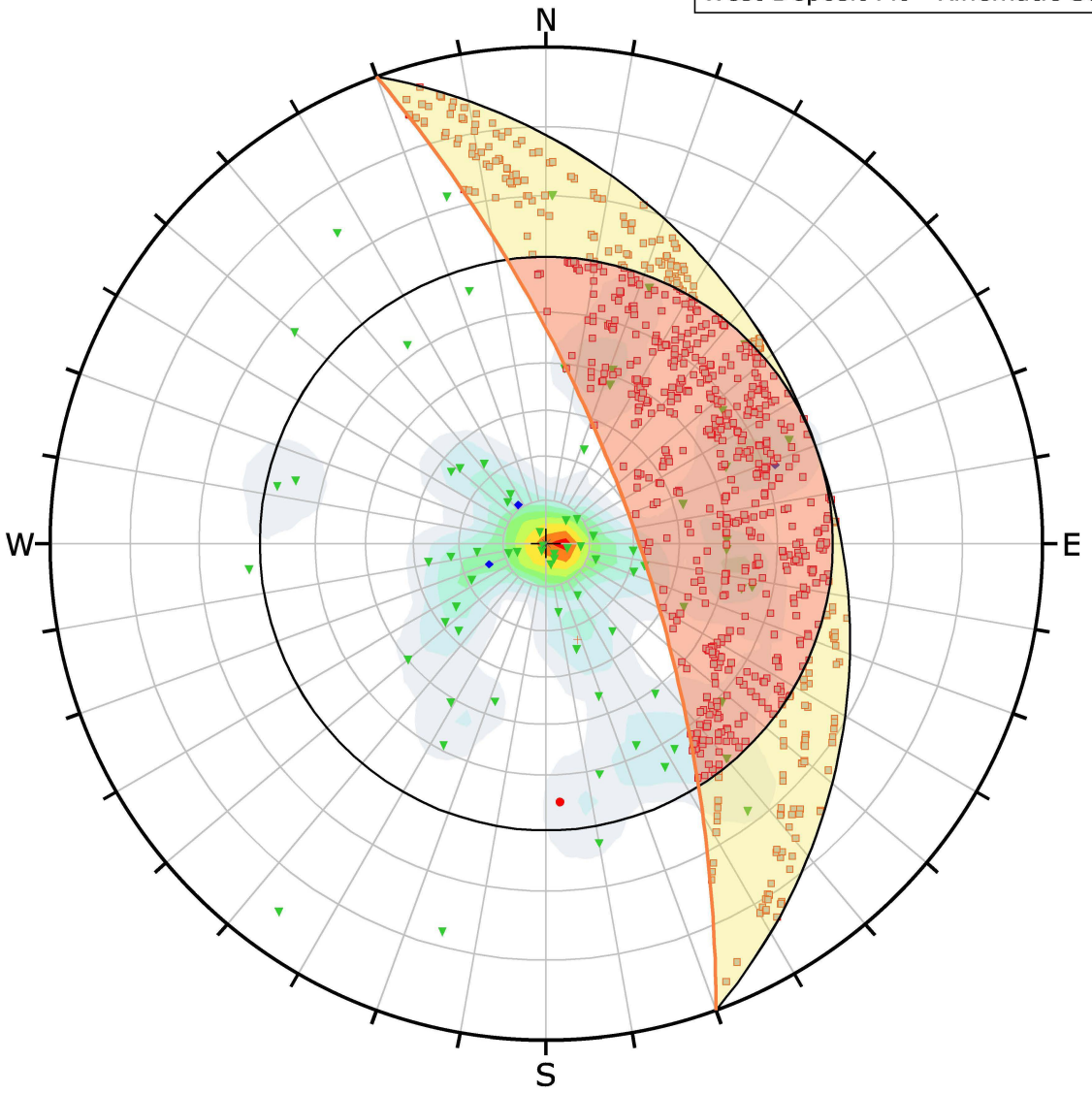
Mean Values

Slope Dip = 70 **Slope Dip Direction = 0** **Friction Angle = 30** **Lateral Limit = 20**

Terracon	*Project*	
	Analysis Description	West Deposit Pit
	Drawn By	*Author*
	File Name wedge West Deposit Pit joint beds slides kin analysis.dips7	*Date* 4/15/2021

DIPS 7.014

West Deposit Pit - Kinematic Structures



Symbol	TYPE	Quantity
◆	Bedding	3
▼	Joint	76
●	slide plane	1
+	slide plane basal	1
Symbol	**Feature**	
▫	Critical Intersection	

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10
	9.10 - 10.40
	10.40 - 11.70
	11.70 - 13.00

Contour Data	Dip Vectors
Maximum Density	12.50%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	70
Slope Dip Direction	70
Friction Angle	30°

	Critical	Total	%
Wedge Sliding	807	3240	24.91%

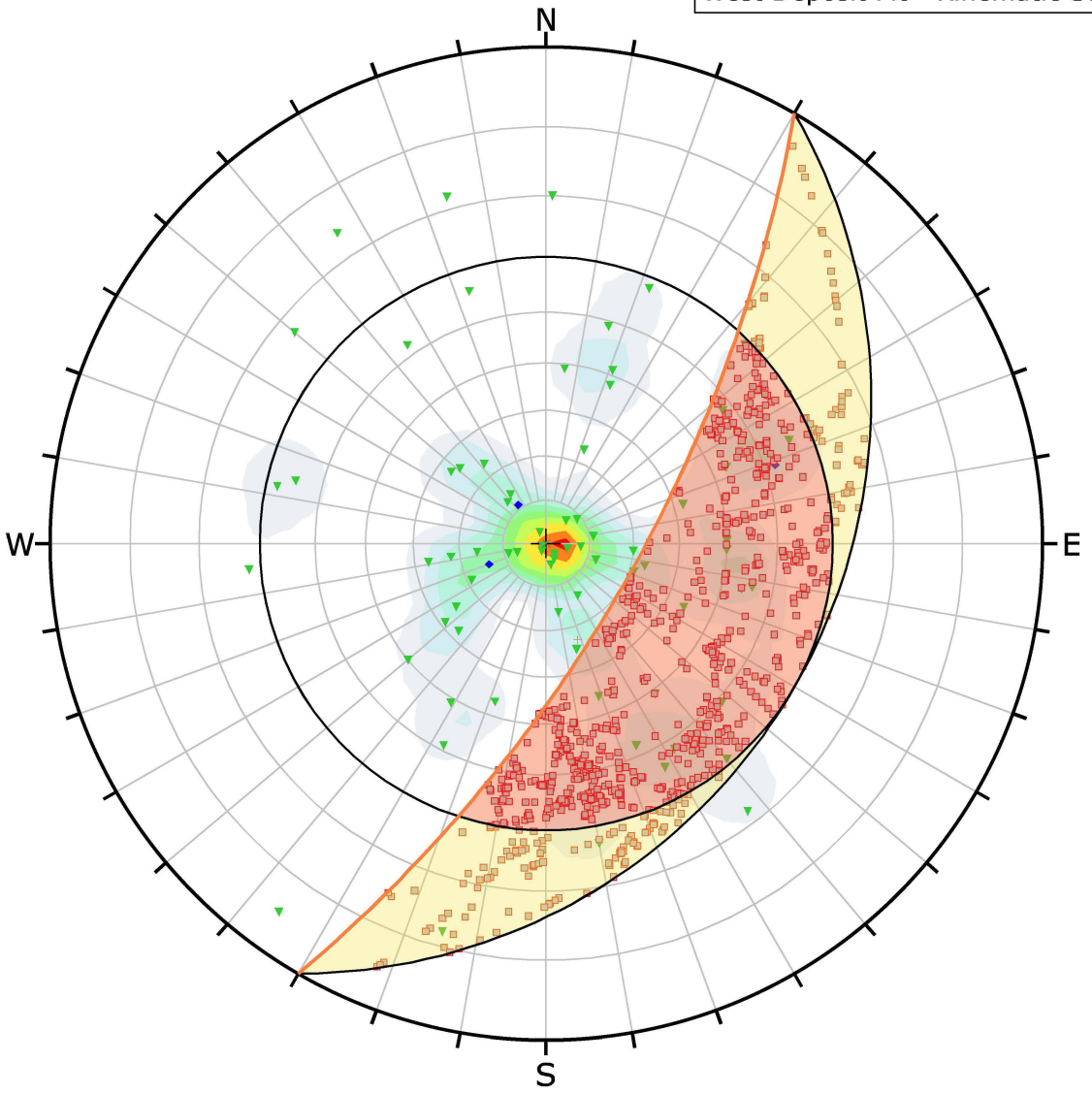
Plot Mode	Dip Vectors
Vector Count	81 (81 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	3240
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	
Analysis Description	West Deposit Pit
Drawn By	*Author*
File Name wedge West Deposit Pit joint beds slides kin analysis.dips7	*Date* 4/15/2021

West Deposit Pit - Kinematic Structures



Symbol	TYPE	Quantity
◆	Bedding	3
▼	Joint	76
●	slide plane	1
+	slide plane basal	1
Symbol	**Feature**	
▫	Critical Intersection	

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10
	9.10 - 10.40
	10.40 - 11.70
	11.70 - 13.00

Contour Data	Dip Vectors
Maximum Density	12.50%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	70
Slope Dip Direction	120
Friction Angle	30°

	Critical	Total	%
Wedge Sliding	916	3240	28.27%

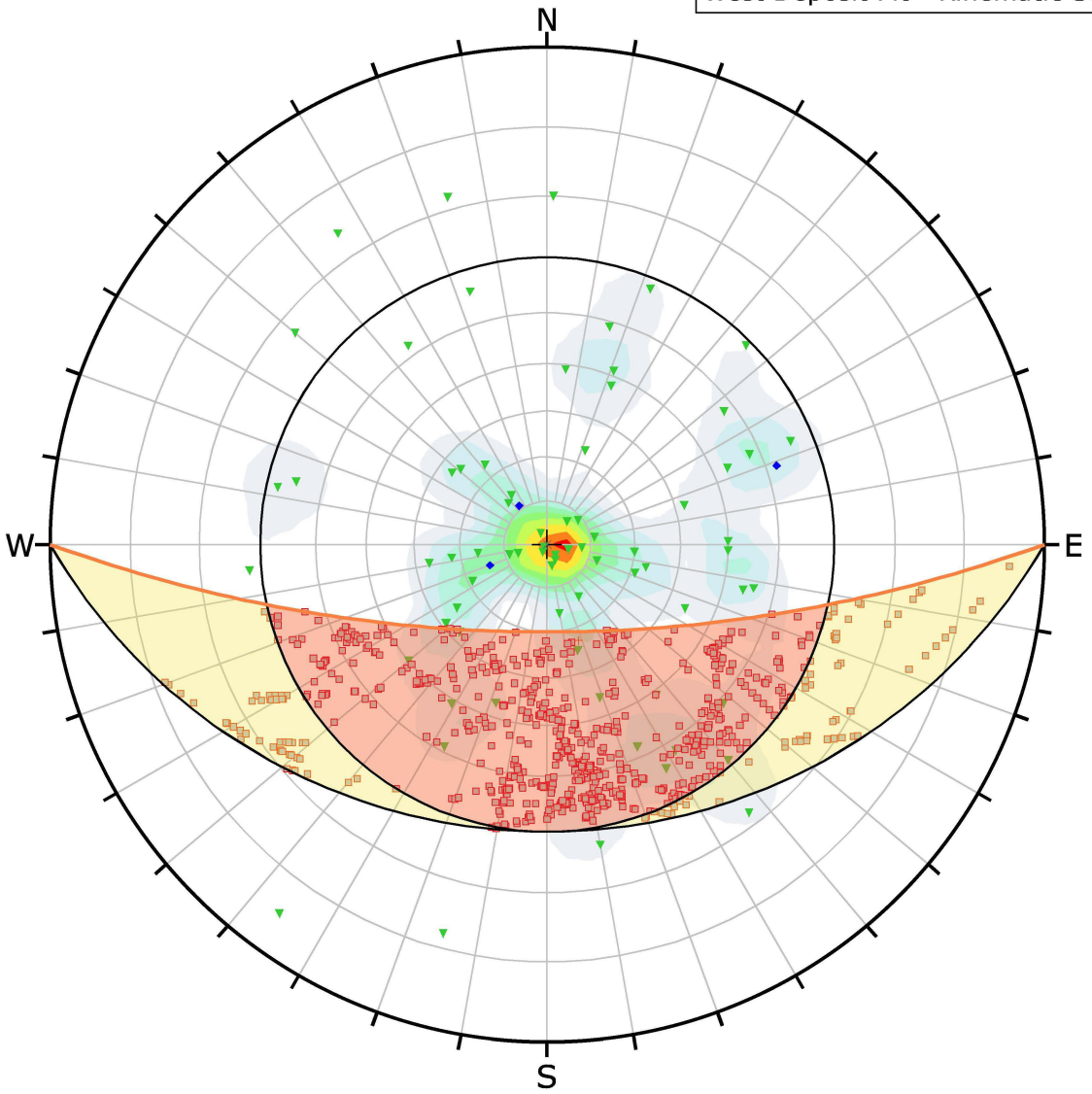
Plot Mode	Dip Vectors
Vector Count	81 (81 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	3240
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	
Analysis Description	West Deposit Pit
Drawn By	*Author*
File Name wedge West Deposit Pit joint beds slides kin analysis.dips7	*Date* 4/15/2021

West Deposit Pit - Kinematic Structures



Symbol	TYPE	Quantity
◆	Bedding	3
▼	Joint	76
●	slide plane	1
+	slide plane basal	1
Symbol	**Feature**	
▫	Critical Intersection	

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10
	9.10 - 10.40
	10.40 - 11.70
	11.70 - 13.00

Contour Data	Dip Vectors
Maximum Density	12.50%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding		
Slope Dip	70		
Slope Dip Direction	180		
Friction Angle	30°		
	Critical	**Total**	**%**
Wedge Sliding	760	3240	23.46%

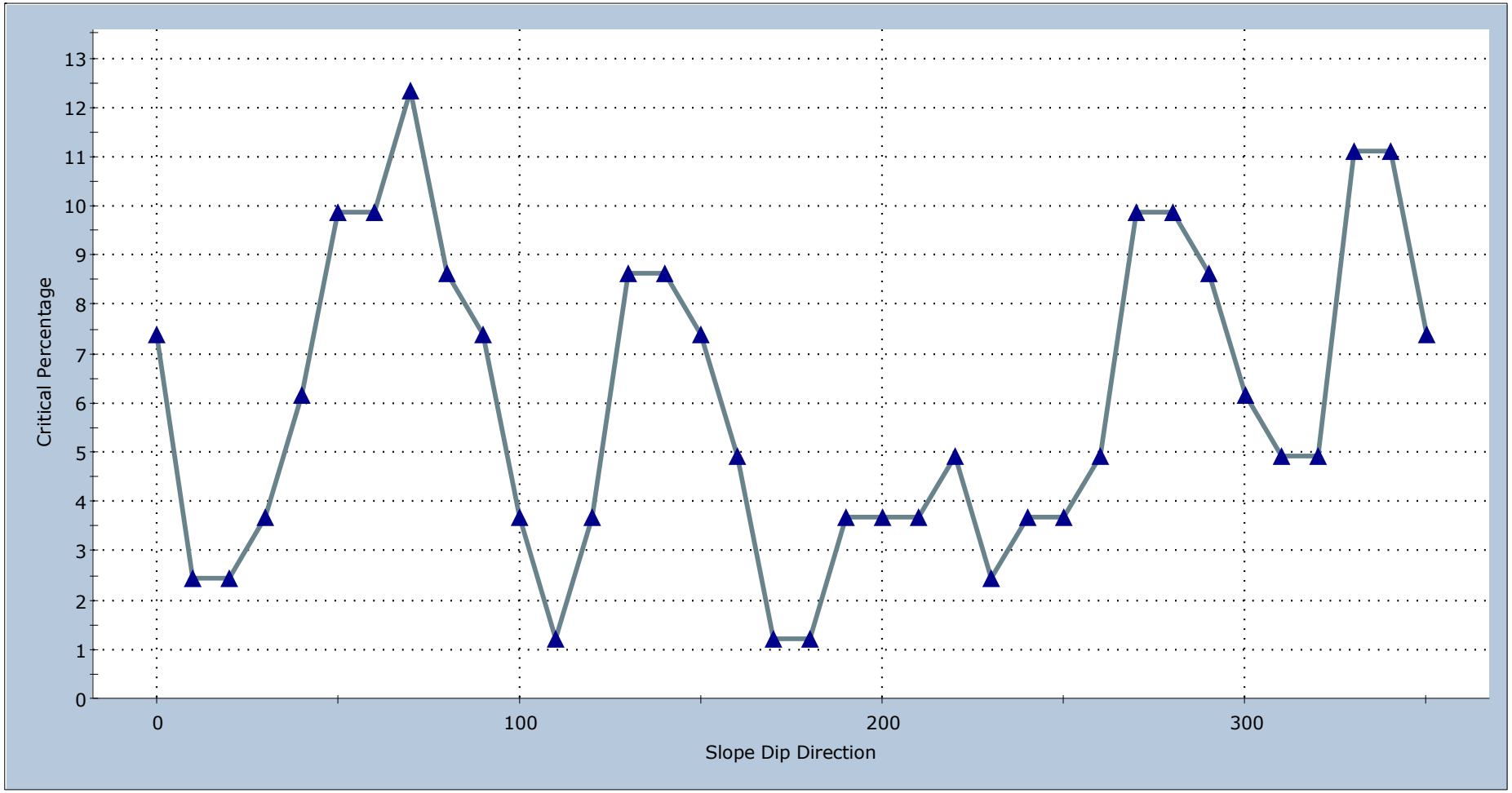
Plot Mode	Dip Vectors
Vector Count	81 (81 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	3240
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project		
Analysis Description	West Deposit Pit	
Drawn By		*Author*
File Name	wedge West Deposit Pit joint beds slides kin analysis.dips7	*Date* 4/15/2021

Flexural Toppling: Critical Percentage vs. Slope Dip Direction



Mean Values

Slope Dip = 70 **Slope Dip Direction = 0** **Friction Angle = 30** **Lateral Limit = 20**

Terracon	*Project*	
	Analysis Description	West Deposit Pit
	Drawn By	*Author*
	File Name wedge West Deposit Pit joint beds slides kin analysis.dips7	*Date* 4/15/2021

DIPS 7.014

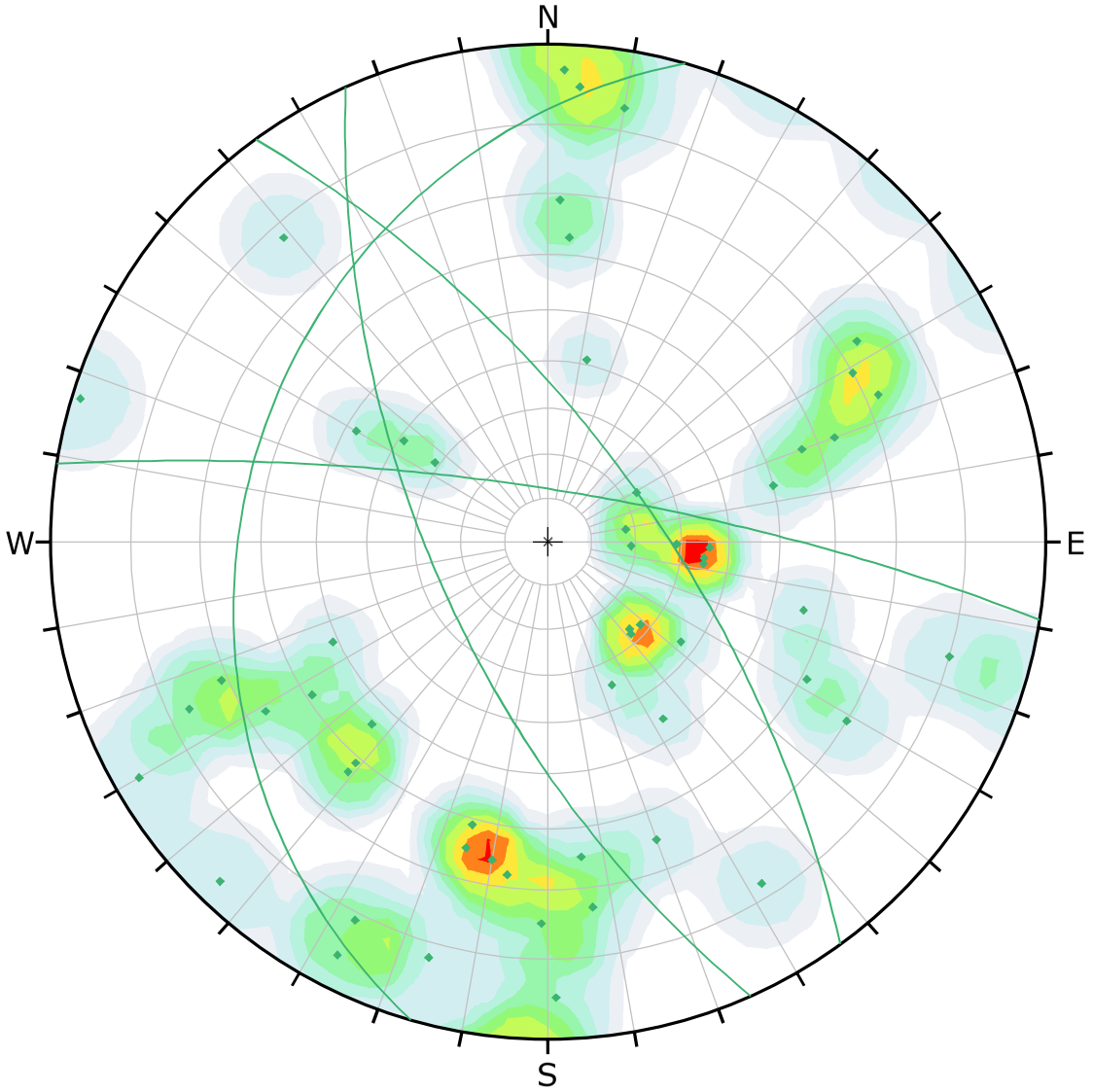
ID	Dip	Dip Direction	TYPE	UNIT	CONTINUITY	NOTES
1	88	027	Cleavage	Carbonate		
2	74	350	Cleavage	Carbonate		
3	67	043	Cleavage	Carbonate		
4	59	057	Joint	Carbonate		
5	78	139	Joint	Carbonate		
6	54	332	Joint	Dike	5	
7	32	320	Joint	Ugranitic of s side		
8	87	038	Joint	Ugranitic of s side		
9	80	105	Joint	Ugranitic of s side		
10	66	230	Joint	Ugranitic of s side		
11	74	045	Joint	Ugranitic of s side		
12	50	259	Joint	Ugranitic of s side		
13	39	296	Joint	Ugranitic of s side		
14	71	127	Joint	Ugranitic of s side		
15	61	155	Joint	Felsic intru		
16	71	129	Joint	Felsic intru	3	
17	77	199	Joint	Felsic intru		
18	81	243	Joint	Felsic intru	4	
19	21	290	Joint	Felsic intru		
20	80	118	Joint	Felsic intru	3	
21	71	022	Joint	Felsic intru	4	
22	64	164	Joint	Felsic intru		
23	41	234	Joint	Felsic intru		
24	82	087	Joint	Felsic intru		
25	50	043	Joint	Dike	4	
26	84	153	Joint	Dike	2	
27	61	176	Joint	Dike	3	
28	85	186	Joint	Dike	4	
29	64	268	Joint	Dike	4	
30	59	186	Joint	Dike	2	
31	56	042	Joint	Dike	4	
32	57	216	Fault	Dike		
33	55	216	Joint	Dike		
34	80	286	Joint	Carbonate	4	
35	61	015	Joint	Carbonate		
36	75	001	Joint	Carbonate	5	dominant

ID	Dip	Dip Direction	TYPE	UNIT	CONTINUITY	NOTES
37	85	184	Joint	Carbonate	3	
38	61	041	Joint	Carbonate	3	
39	35	278	Joint	Carbonate	5	
40	54	044	Joint	Carbonate		
41	68	007	Joint	Carbonate	5	
42	29	271	Joint	Carbonate	5	
43	65	015	Joint	Carbonate	5	dominant
44	61	298	Joint	Carbonate		
45	60	311	Cleavage	Carbonate		
46	61	335	Cleavage	Carbonate		
47	26	203	Cleavage	Carbonate		
48	77	065	Joint	Carbonate	5	
49	43	161	Joint	Ore body		
50	74	235	Joint	Ore body		
51	83	107	Joint	Ore body		
52	75	238	Joint	Ore body		
53	80	134	Joint	Ore body		
54	78	064	Joint	Ore body		
55	80	173	foliation	Ore body		
56	33	287	Bedding	Ore body		
57	34	217	Bedding	Carbonate		
58	50	256	Joint	Carbonate		
59	41	192	Joint	Carbonate		
60	73	353	Joint	Carbonate		
61	83	138	Fault	Gray carb		
62	57	250	Joint	Gray carb		
63	27	317	Joint	Gray carb		
64	78	328	Joint	Gray carb		
65	71	067	Joint	Gray carb		
66	89	107	Joint	Gray carb		
67	87	060	Joint	Gray carb		
68	46	327	Joint	Gray carb		
69	73	237	Joint	Gray carb		
70	83	190	Joint	Carbonate	5	dominant
71	66	268	Cleavage	Carbonate		
72	31	237	Cleavage	Carbonate		

ID	Dip	Dip Direction	TYPE	UNIT	CONTINUITY	NOTES
73	78	196	Cleavage	Carbonate		
74	32	217	Cleavage	Carbonate		
75	16	326	Bedding	Carbonate		
76	48	092	Cleavage	Carbonate		
77	48	229	Cleavage	Carbonate		
78	30	255	Cleavage	Carbonate		
79	27	223	Cleavage	Carbonate		
80	87	182	Joint	Carbonate	4	
81	12	213	Fault	Carbonate		
82	12	067	Fault	Carbonate		
83	86	027	Joint	Carbonate		
84	13	314	Fault	Carbonate		
85	56	099	Bedding	Carbonate		
86	13	319	Bedding	Carbonate		
87	33	147	Bedding	Carbonate		
88	70	241	Joint	Carbonate		
89	87	044	Joint	Carbonate		
90	65	340	Joint	Carbonate		
91	63	041	Joint	Carbonate		
92	22	172	Bedding	Carbonate		
93	39	166	Fault	Ore body		
94	81	102	Fault	Ore body		
95	83	131	Fault	Ore body		
96	27	270	Fault	Ore body		
97	62	142	Joint	Ore body		
98	59	268	Joint	Ore body		
99	26	205	Joint	Ore body		
100	85	146	Joint	Ore body		
101	85	317	Joint	Ore body		
102	77	239	Joint	Ore body		
103	28	318	Joint	Carbonate		
104	28	312	Joint	Carbonate		
105	36	272	Joint	Carbonate	3	
106	23	241	Joint	Carbonate	3	
107	85	359	Joint	Carbonate	4	
108	41	143	Bedding	Carbonate		

ID	Dip	Dip Direction	TYPE	UNIT	CONTINUITY	NOTES
109	67	150	Bedding	Ore body		
110	62	178	Dike	porphyry dike	4	
111	63	167	Fault	Ore body		Adit exposing ore v green dike contact Ore as dipping breccia redbrown w orange brwn oxid.
112	60	201	Fault	Ore body		
113	77	223	Fault	Ore body		
114	23	306	Dike	Dike		Green gray Crypto-xstal pervasive shear along foliation
115	37	152	Dike	Dike	5	
116	69	182	Joint	Carbonate	3	
117	72	246	Joint	Carbonate	3	
118	66	010	Joint	Carbonate	3	
119	48	120	Joint	Carbonate	3	
120	63	250	Joint	Carbonate	2	
121	63	184	Joint	Carbonate	5	
122	70	118	Fault	Carbonate	5	
123	39	125	Joint	Carbonate	2	
124	31	125	Joint	Carbonate	2	
125	70	301	Joint	Carbonate	2	
126	81	027	Joint	Carbonate	3	
127	35	276	Joint	Carbonate	3	
128	11	031	Bedding	Carbonate		
129	65	354	Joint	Carbonate	4	exfoliation to slope face
130	18	261	Joint	Carbonate	3	
131	37	307	Joint	Carbonate	3	
132	19	273	Joint	Carbonate	4	
133	82	016	Joint	Carbonate	4	
134	64	134	foliation	Ore body		
135	73	224	Joint	Ore body		
136	31	140	Joint	Ore body		
137	30	224	Joint	Ore body		
138	45	239	Joint	Ore body		
139	56	311	Joint	Ore body		
140	88	123	Joint	schist ms		
141	80	209	Joint	schist ms		Fabric jts Ortho sets 3-4" spcg Sample 4
142	75	019	Joint	schist ms		
143	80	331	foliation	schist ms		
144	81	345	Joint	schist ms		

ID	Dip	Dip Direction	TYPE	UNIT	CONTINUITY	NOTES
145	38	231	Joint	schist ms		
146	50	360	Joint	schist ms		
147	86	297	foliation	schist ms		
148	73	164	Bedding	Gray carb		
149	64	162	Bedding	Gray carb		
150	46	155	Bedding	Carbonate		
151	35	336	Joint	Carbonate	5	
152	51	065	Joint	Carbonate	3	
153	56	285	Joint	Carbonate	4	
154	67	059	Joint	Carbonate	4	
155	75	285	Slickenside	Ore body		plunge/plunge axis given as dip/dip direction
156	03	019	Fold Axis	Carbonate		plunge/plunge axis given as dip/dip direction
157	09	260	Fold Axis	Carbonate	4	plunge/plunge axis given as dip/dip direction
158	06	036	Lineation	Ore body		plunge/plunge axis given as dip/dip direction



Symbol	TYPE	Quantity
◆	Joint	57

Color	Density Concentrations
	0.00 - 0.70
	0.70 - 1.40
	1.40 - 2.10
	2.10 - 2.80
	2.80 - 3.50
	3.50 - 4.20
	4.20 - 4.90
	4.90 - 5.60
	5.60 - 6.30
	6.30 - 7.00

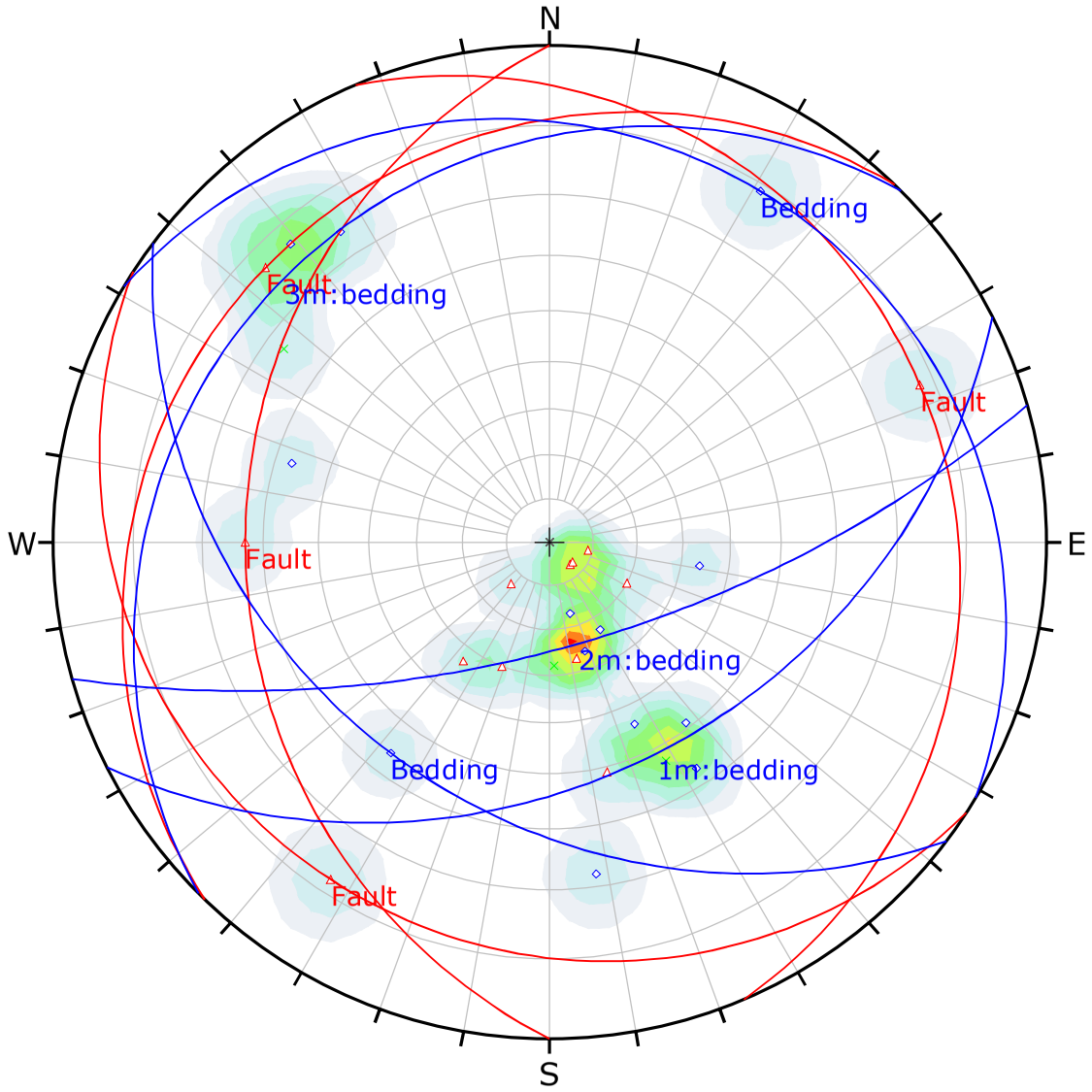
Contour Data	Pole Vectors
Maximum Density	6.47%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	57 (57 Entries)
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter		
Analysis Description	Kinematic		
Drawn By	Terracon	*Author*	JMc
File Name	expansion carb joint.dips7	*Date*	4/7/2021



Symbol	TYPE	Quantity
◇	Bedding	13
×	Dike	3
△	Fault	13

Color	Density Concentrations
	0.00 - 1.50
	1.50 - 3.00
	3.00 - 4.50
	4.50 - 6.00
	6.00 - 7.50
	7.50 - 9.00
	9.00 - 10.50
	10.50 - 12.00
	12.00 - 13.50
	13.50 - 15.00

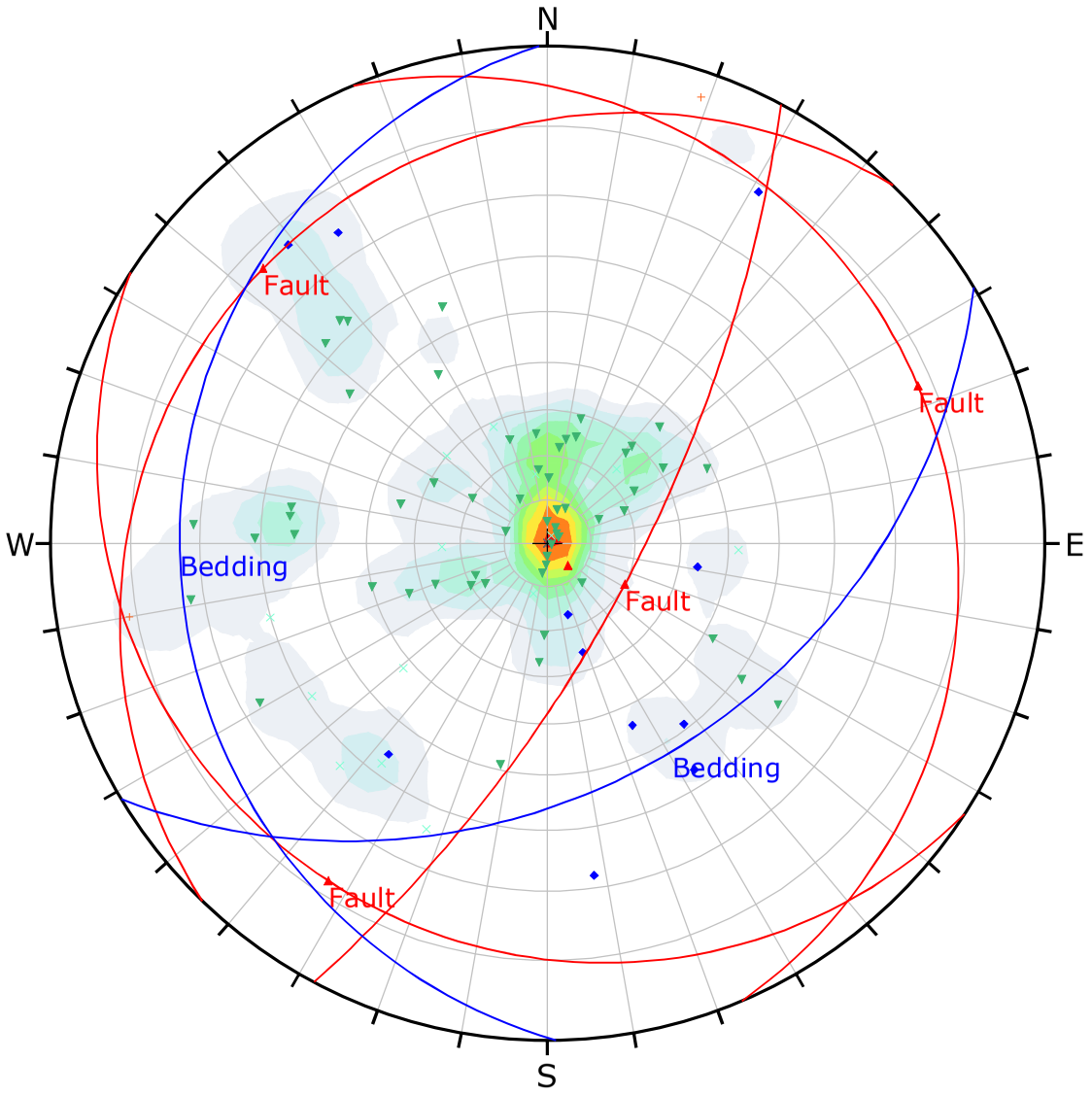
Contour Data	Dip Vectors
Maximum Density	14.05%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Dip Vectors
Vector Count	29 (29 Entries)
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter Expansion		
Analysis Description	Kinematic		
Drawn By	Terracon	*Author*	JMc
File Name	expansion_bedding dike fault.dips7	*Date*	4/7/2021



Symbol	TYPE	Quantity
◆	Bedding	11
×	Cleavage	14
▲	Fault	5
+	Fold Axis	2
▼	Joint	57

Color	Density Concentrations
	0.00 - 1.20
	1.20 - 2.40
	2.40 - 3.60
	3.60 - 4.80
	4.80 - 6.00
	6.00 - 7.20
	7.20 - 8.40
	8.40 - 9.60
	9.60 - 10.80
	10.80 - 12.00

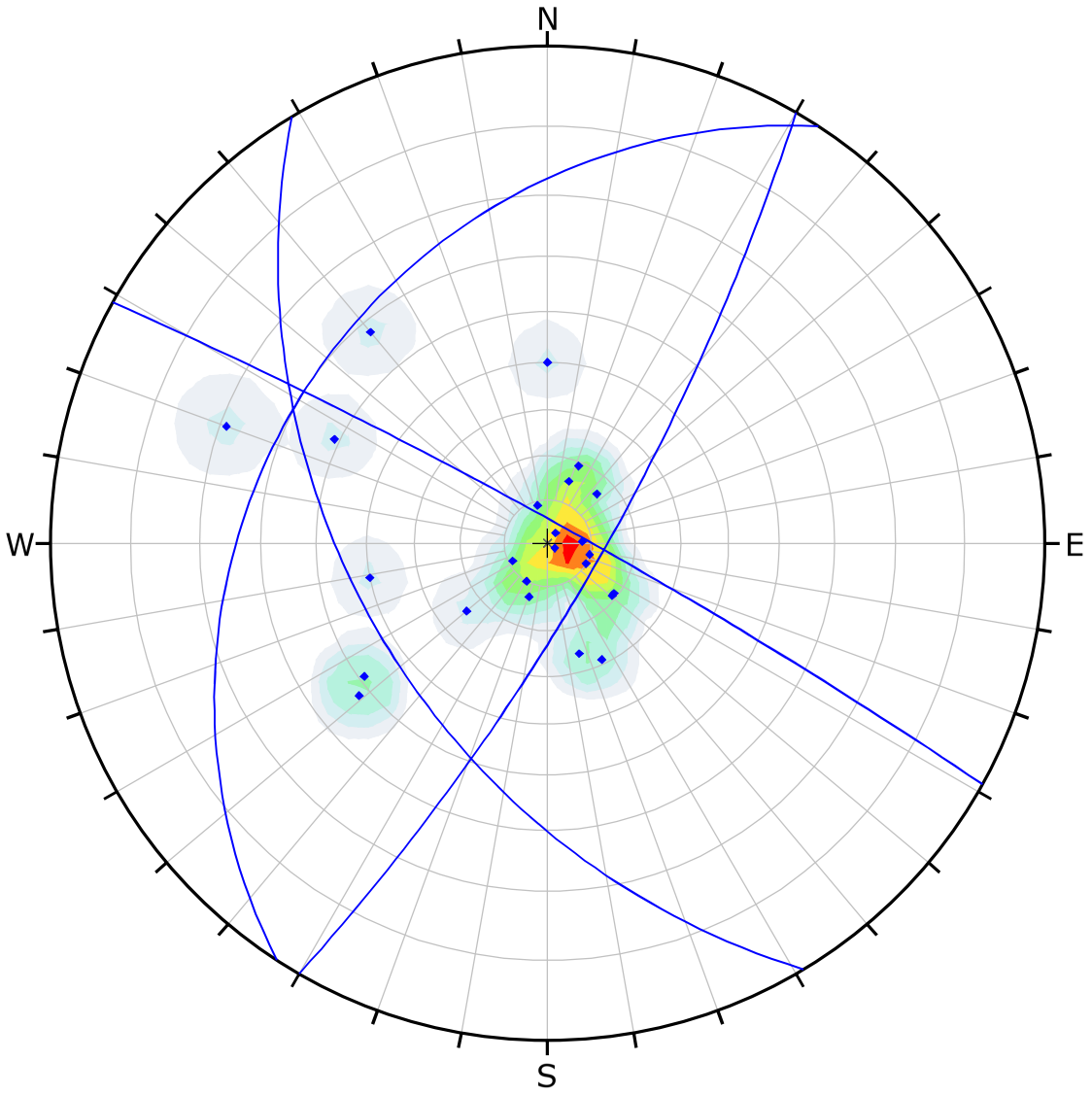
Contour Data	Dip Vectors
Maximum Density	11.20%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Dip Vectors
Vector Count	89 (89 Entries)
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter		
Analysis Description	Kinematic		
Drawn By	Terracon	*Author*	JMc
File Name	carbonate units.dips7	*Date*	4/7/2021



Symbol	TYPE	Quantity
◆	Joint	24

Color	Density Concentrations
	0.00 - 2.00
	2.00 - 4.00
	4.00 - 6.00
	6.00 - 8.00
	8.00 - 10.00
	10.00 - 12.00
	12.00 - 14.00
	14.00 - 16.00
	16.00 - 18.00
	18.00 - 20.00

Contour Data	Dip Vectors
Maximum Density	19.20%
Contour Distribution	Fisher
Counting Circle Size	1.0%

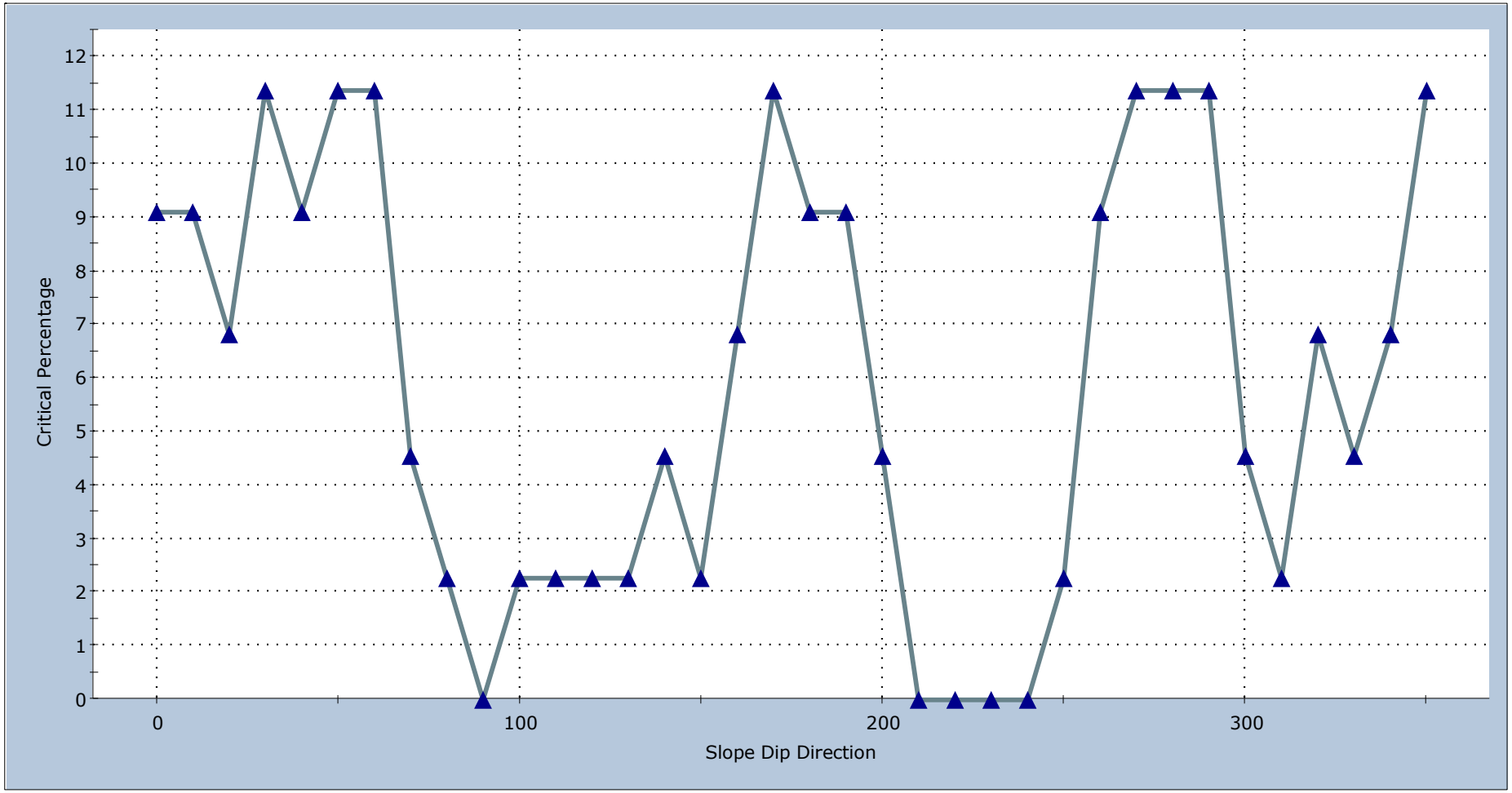
Plot Mode	Dip Vectors
Vector Count	24 (24 Entries)
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter		
Analysis Description	Kinematic		
Drawn By	Terracon	*Author*	JMc
File Name	expansion joints in ms intrus granitic.dips7	*Date*	4/7/2021

Planar Sliding: Critical Percentage vs. Slope Dip Direction

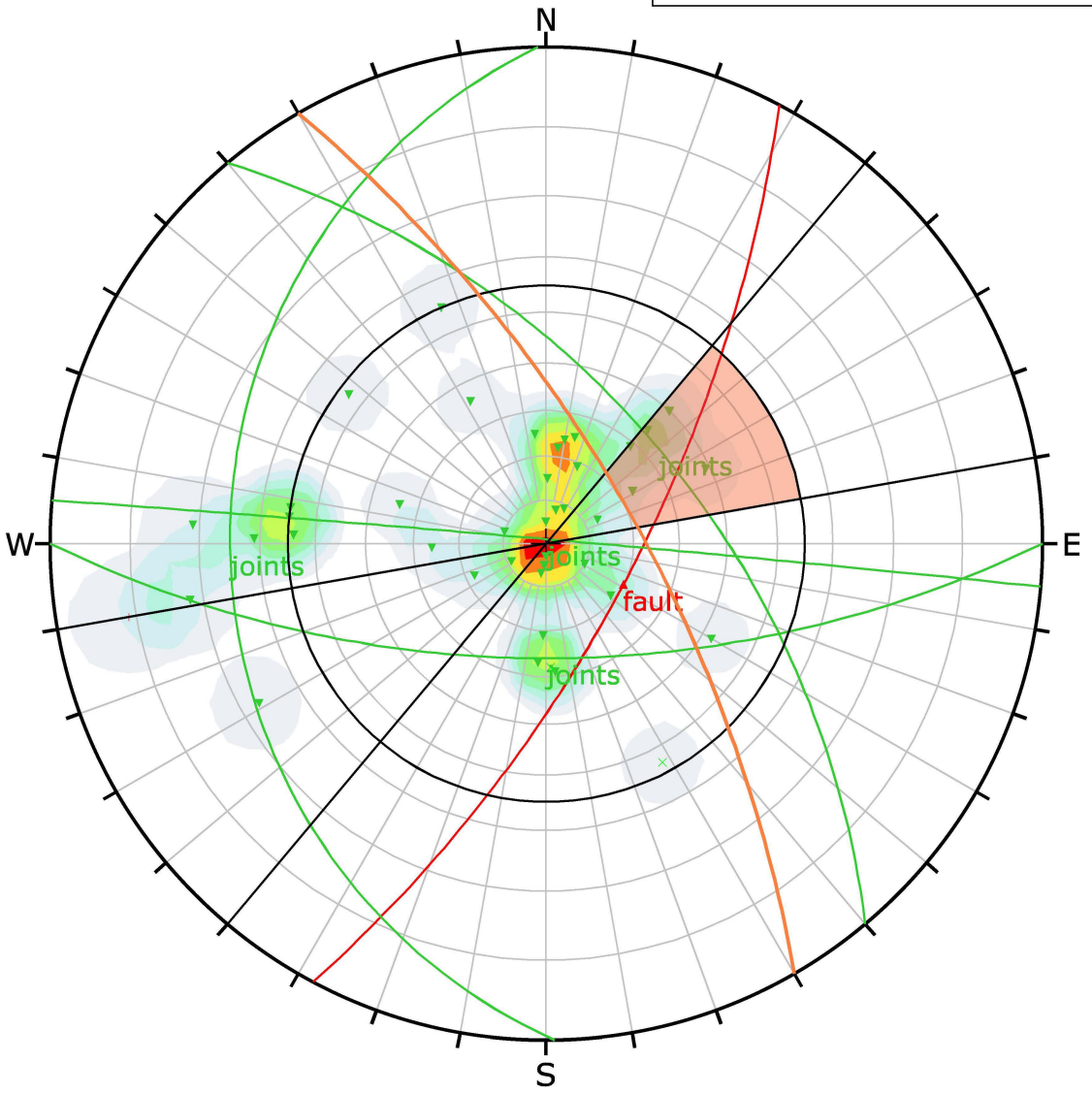


Mean Values

Slope Dip = 70 **Slope Dip Direction = 0** **Friction Angle = 35** **Lateral Limit = 20**

Terracon	*Project*	Baxter Mine	
	Analysis Description	Kinematic Expansion Areas	
	Drawn By	Terracon	*Author* JMc
DIPS 7.014	*File Name*	planar continuous structures expansion areas.dips7	*Date* 4/15/2021

Expansion Areas - Continuous Structures



Symbol	TYPE	Quantity
×	Dike	2
▲	Fault	1
+	Fold Axis	1
▼	Joint	40

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10
	9.10 - 10.40
	10.40 - 11.70
	11.70 - 13.00

Contour Data	Dip Vectors
Maximum Density	12.70%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	70
Slope Dip Direction	60
Friction Angle	35°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	5	44	11.36%
Planar Sliding (Set 4: joints)	5	5	100.00%

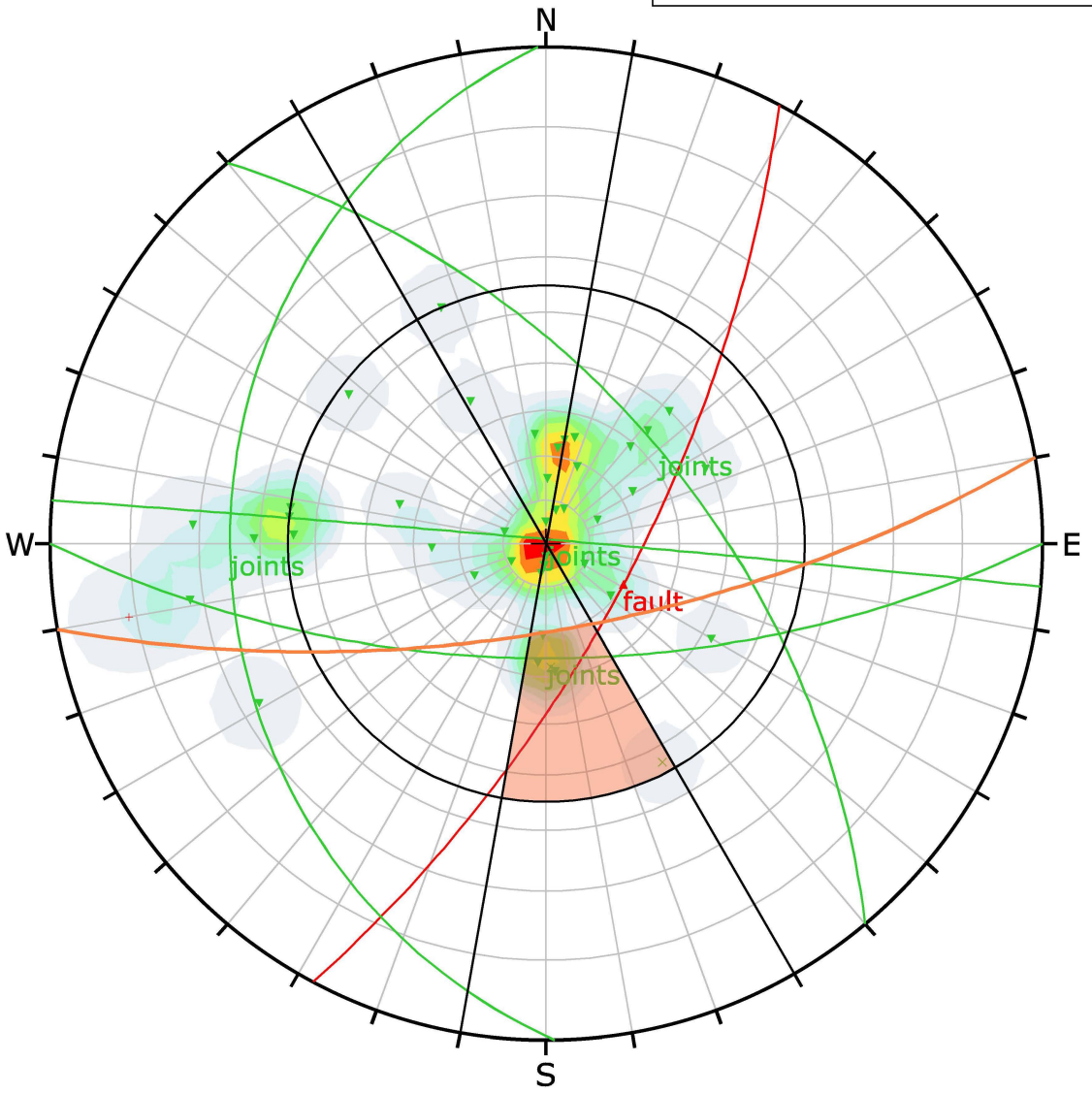
Plot Mode	Dip Vectors
Vector Count	44 (44 Entries)
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter Mine		
Analysis Description	Kinematic Expansion Areas		
Drawn By	Terracon	*Author*	JMc
File Name	planar continuous structures expansion areas.dips7	*Date*	4/15/2021

Expansion Areas - Continuous Structures



Symbol	TYPE	Quantity
×	Dike	2
▲	Fault	1
+	Fold Axis	1
▼	Joint	40

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10
	9.10 - 10.40
	10.40 - 11.70
	11.70 - 13.00

Contour Data	Dip Vectors
Maximum Density	12.70%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	70
Slope Dip Direction	170
Friction Angle	35°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	5	44	11.36%
Planar Sliding (Set 2: joints)	4	4	100.00%

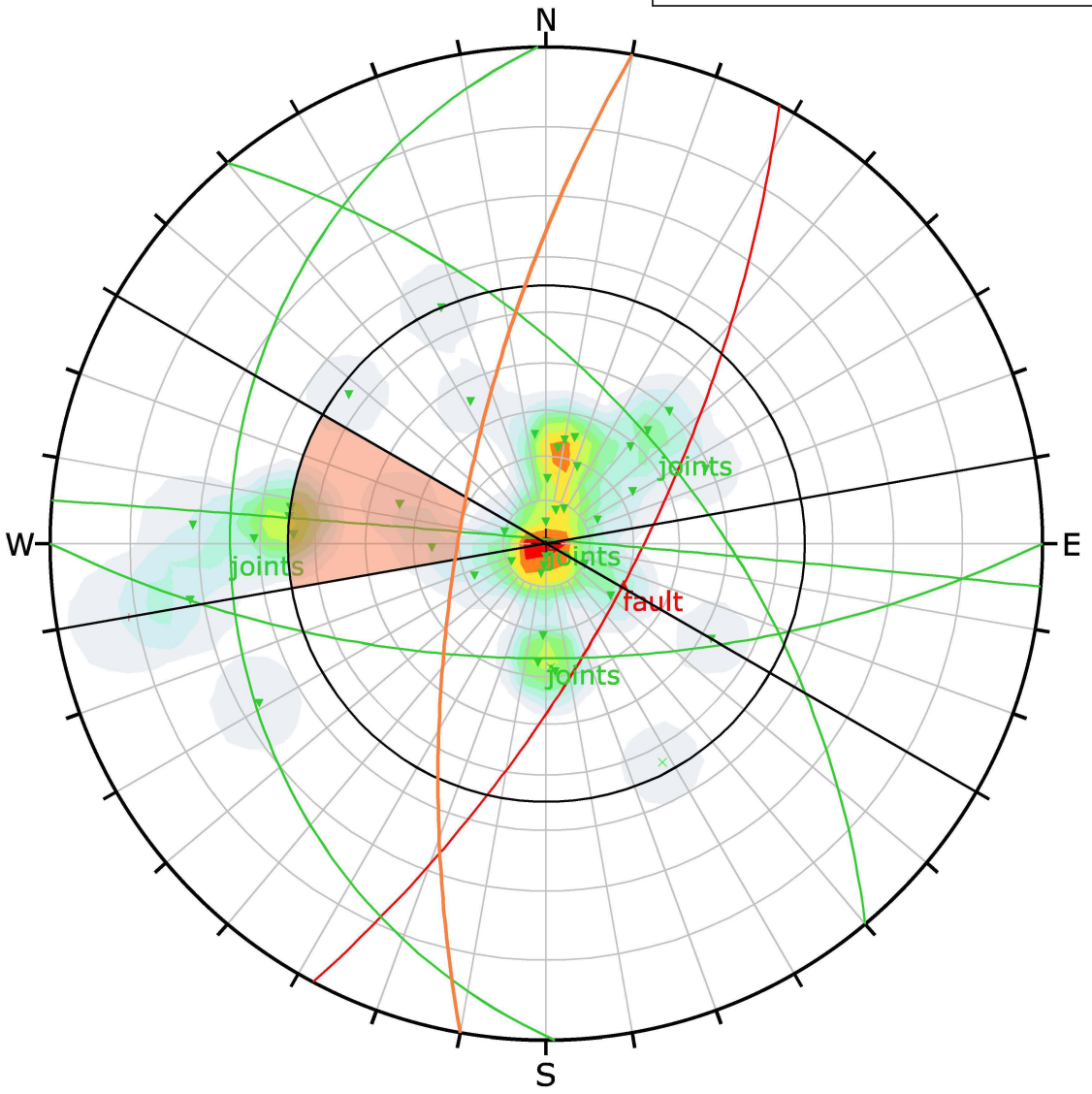
Plot Mode	Dip Vectors
Vector Count	44 (44 Entries)
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter Mine		
Analysis Description	Kinematic Expansion Areas		
Drawn By	Terracon	*Author*	JMc
File Name	planar continuous structures expansion areas.dips7	*Date*	4/15/2021

Expansion Areas - Continuous Structures



Symbol	TYPE	Quantity
×	Dike	2
▲	Fault	1
+	Fold Axis	1
▼	Joint	40

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10
	9.10 - 10.40
	10.40 - 11.70
	11.70 - 13.00

Contour Data	Dip Vectors
Maximum Density	12.70%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	70
Slope Dip Direction	280
Friction Angle	35°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	5	44	11.36%
Planar Sliding (Set 3: joints)	3	8	37.50%

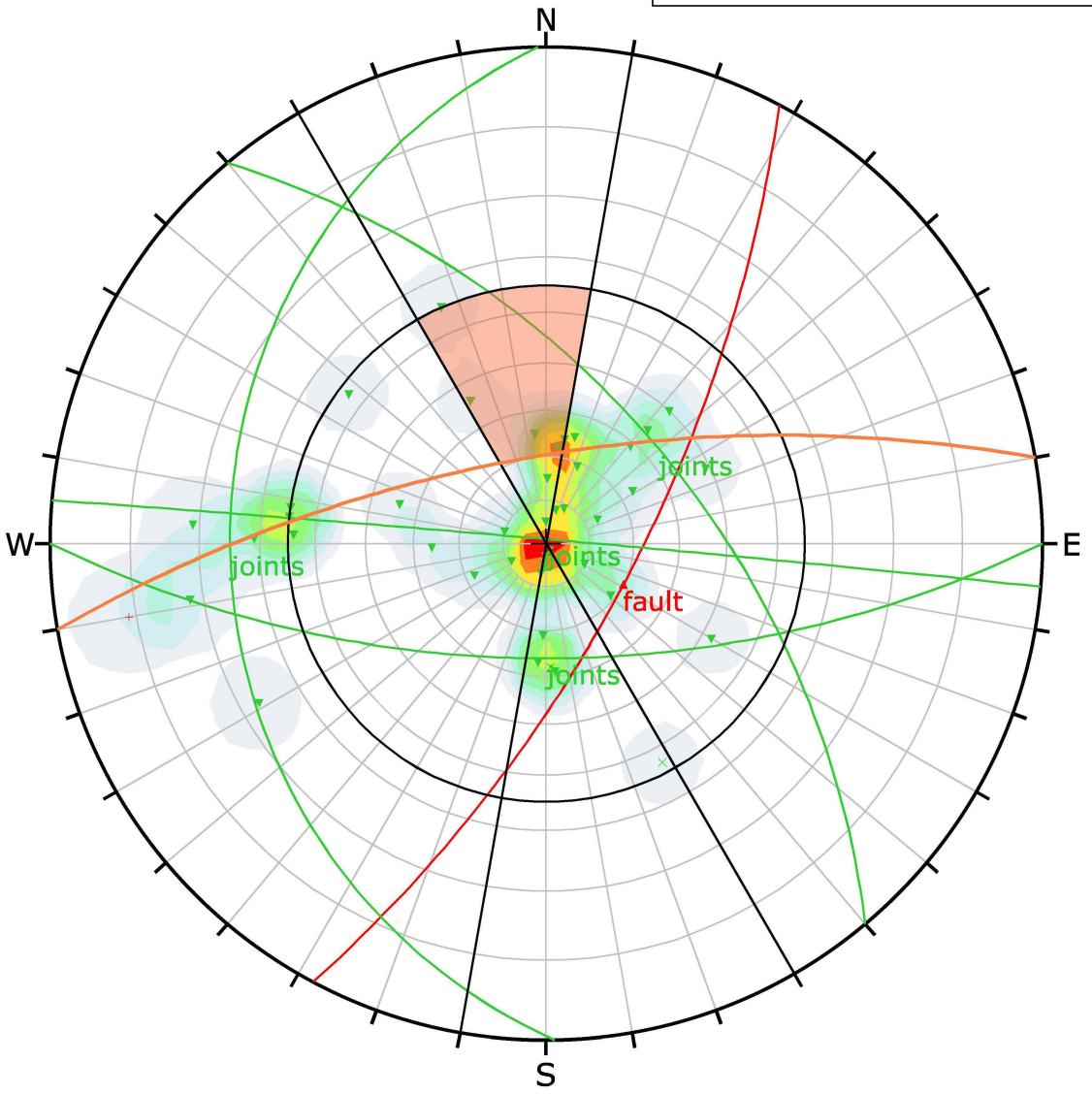
Plot Mode	Dip Vectors
Vector Count	44 (44 Entries)
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter Mine		
Analysis Description	Kinematic Expansion Areas		
Drawn By	Terracon	*Author*	JMc
File Name	planar continuous structures expansion areas.dips7	*Date*	4/15/2021

Expansion Areas - Continuous Structures



Symbol	TYPE	Quantity
×	Dike	2
▲	Fault	1
+	Fold Axis	1
▼	Joint	40

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10
	9.10 - 10.40
	10.40 - 11.70
	11.70 - 13.00

Contour Data	Dip Vectors
Maximum Density	12.70%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	70
Slope Dip Direction	350
Friction Angle	35°
Lateral Limits	20°

	Critical	Total	%
Planar Sliding (All)	5	44	11.36%

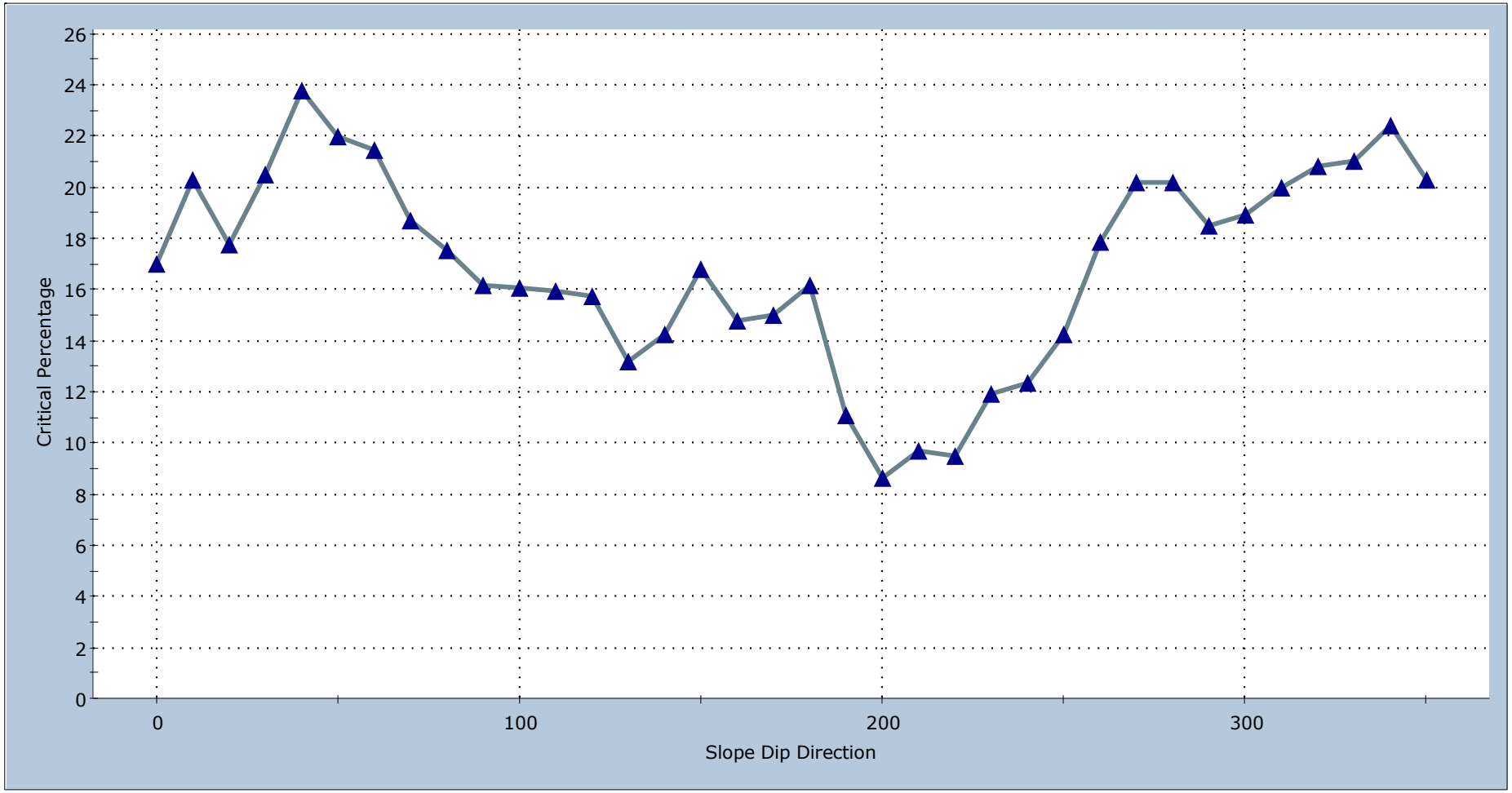
Plot Mode	Dip Vectors
Vector Count	44 (44 Entries)
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter Mine		
Analysis Description	Kinematic Expansion Areas		
Drawn By	Terracon	*Author*	JMc
File Name	planar continuous structures expansion areas.dips7	*Date*	4/15/2021

Wedge Sliding: Critical Percentage vs. Slope Dip Direction

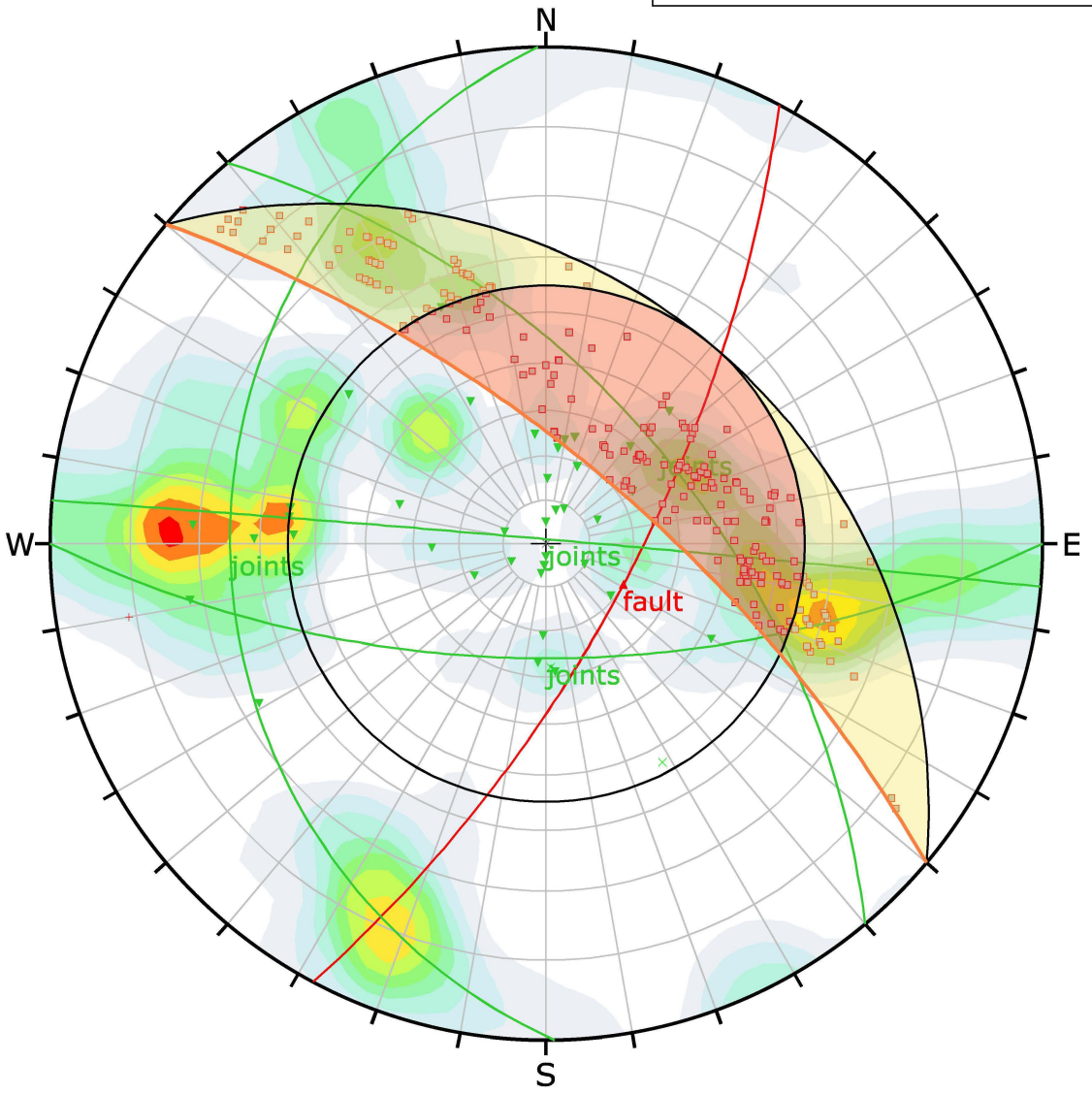


Mean Values

Slope Dip = 70 **Slope Dip Direction = 0** **Friction Angle = 35** **Lateral Limit = 20**

Terracon	*Project*	Baxter Mine	
	Analysis Description	Kinematic Expansion Areas	
	Drawn By	Terracon	*Author* JMc
DIPS 7.014	*File Name*	wedge continuous structures expansion areas.dips7	*Date* 4/15/2021

Expansion Areas - Continuous Structures



Symbol	TYPE	Quantity
×	Dike	2
▲	Fault	1
+	Fold Axis	1
▼	Joint	40
Symbol	**Feature**	
▫	Critical Intersection	

Color	Density Concentrations
	0.00 - 0.55
	0.55 - 1.10
	1.10 - 1.65
	1.65 - 2.20
	2.20 - 2.75
	2.75 - 3.30
	3.30 - 3.85
	3.85 - 4.40
	4.40 - 4.95
	4.95 - 5.50

Contour Data	Intersections
Maximum Density	5.13%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	70
Slope Dip Direction	40
Friction Angle	35°

	Critical	Total	%
Wedge Sliding	225	946	23.78%

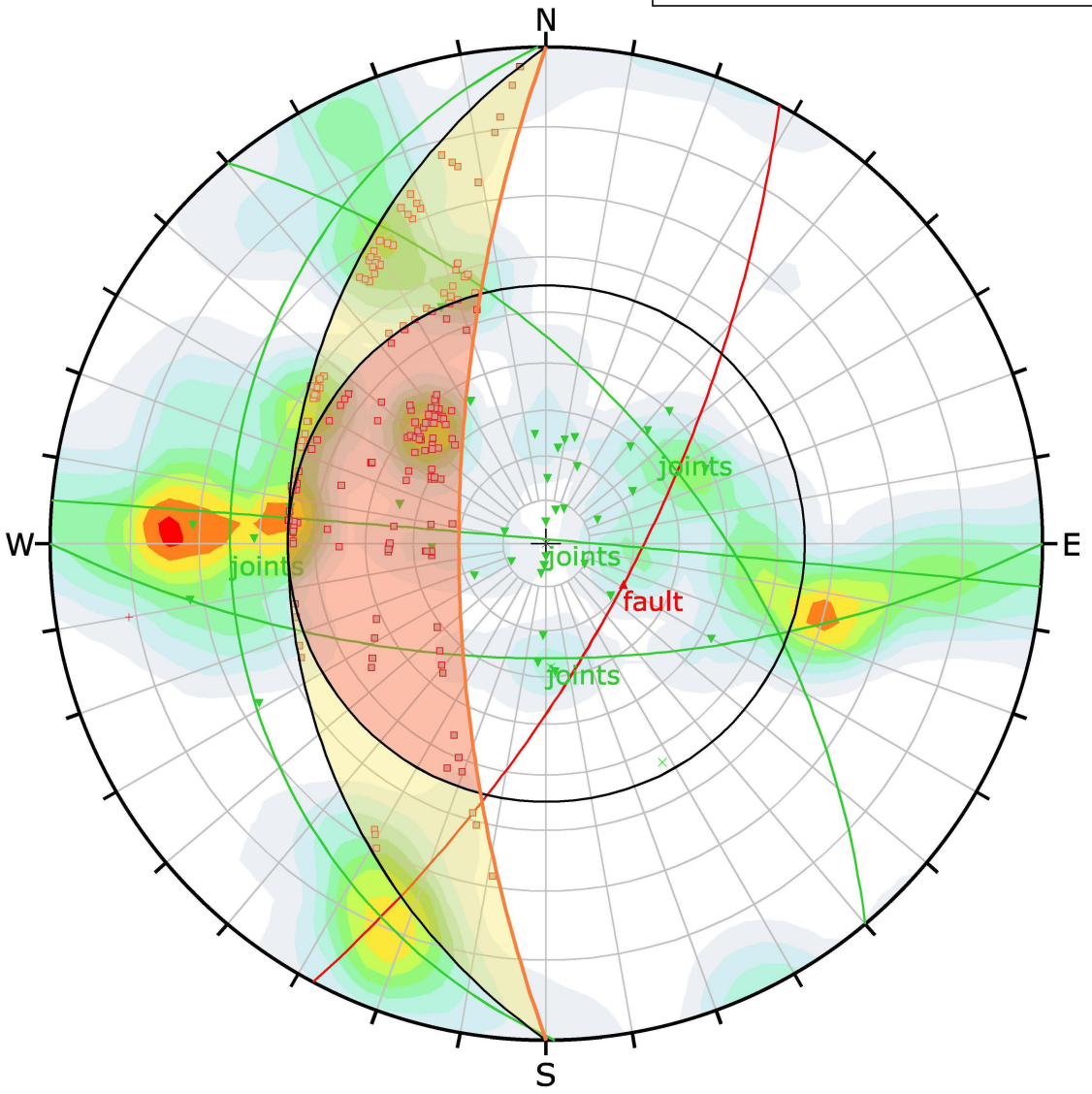
Plot Mode	Dip Vectors
Vector Count	44 (44 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	946
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter Mine		
Analysis Description	Kinematic Expansion Areas		
Drawn By	Terracon	*Author*	JMc
File Name	wedge continuous structures expansion areas.dips7	*Date*	4/15/2021

Expansion Areas - Continuous Structures



Symbol	TYPE	Quantity
×	Dike	2
▲	Fault	1
+	Fold Axis	1
▼	Joint	40
Symbol	**Feature**	
▫	Critical Intersection	

Color	Density Concentrations
	0.00 - 0.55
	0.55 - 1.10
	1.10 - 1.65
	1.65 - 2.20
	2.20 - 2.75
	2.75 - 3.30
	3.30 - 3.85
	3.85 - 4.40
	4.40 - 4.95
	4.95 - 5.50

Contour Data	Intersections
Maximum Density	5.13%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	70
Slope Dip Direction	270
Friction Angle	35°

	Critical	Total	%
Wedge Sliding	191	946	20.19%

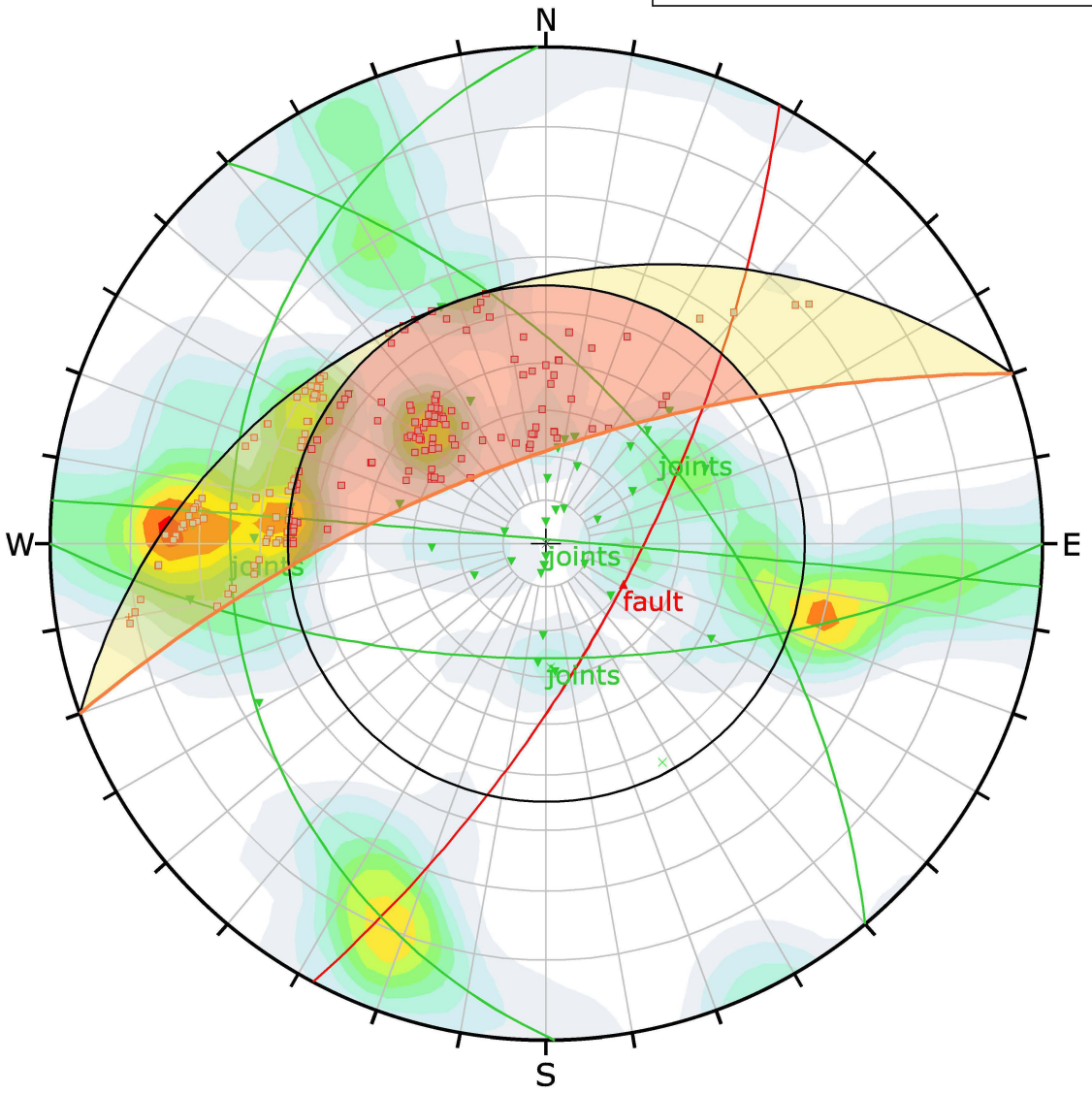
Plot Mode	Dip Vectors
Vector Count	44 (44 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	946
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter Mine		
Analysis Description	Kinematic Expansion Areas		
Drawn By	Terracon	*Author*	JMc
File Name	wedge continuous structures expansion areas.dips7	*Date*	4/15/2021

Expansion Areas - Continuous Structures



Symbol	TYPE	Quantity
×	Dike	2
▲	Fault	1
+	Fold Axis	1
▼	Joint	40
Symbol	**Feature**	
▫	Critical Intersection	

Color	Density Concentrations
	0.00 - 0.55
	0.55 - 1.10
	1.10 - 1.65
	1.65 - 2.20
	2.20 - 2.75
	2.75 - 3.30
	3.30 - 3.85
	3.85 - 4.40
	4.40 - 4.95
	4.95 - 5.50

Contour Data	Intersections
Maximum Density	5.13%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	70
Slope Dip Direction	340
Friction Angle	35°

	Critical	Total	%
Wedge Sliding	212	946	22.41%

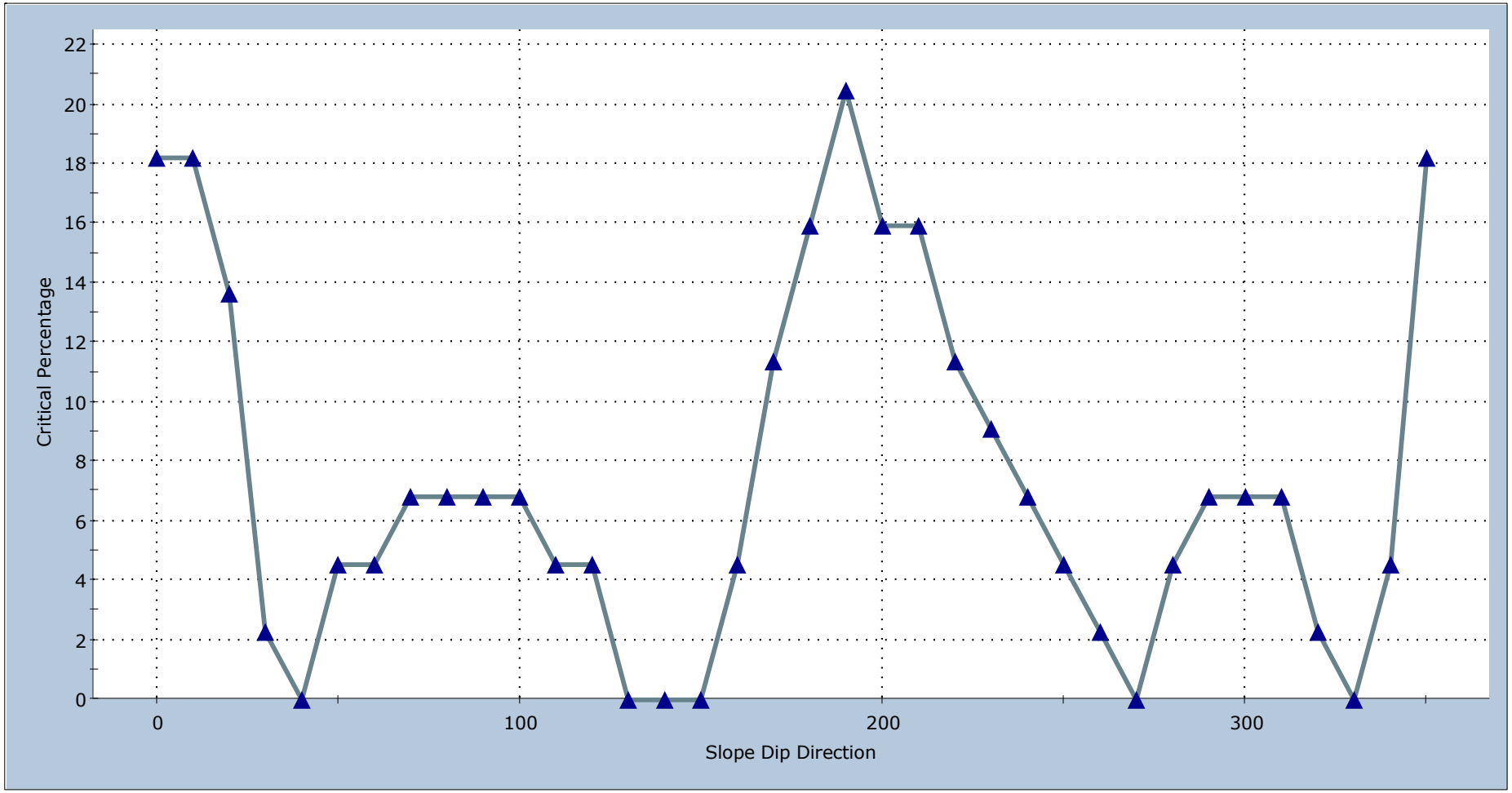
Plot Mode	Dip Vectors
Vector Count	44 (44 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	946
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter Mine		
Analysis Description	Kinematic Expansion Areas		
Drawn By	Terracon	*Author*	JMc
File Name	wedge continuous structures expansion areas.dips7	*Date*	4/15/2021

Flexural Toppling: Critical Percentage vs. Slope Dip Direction



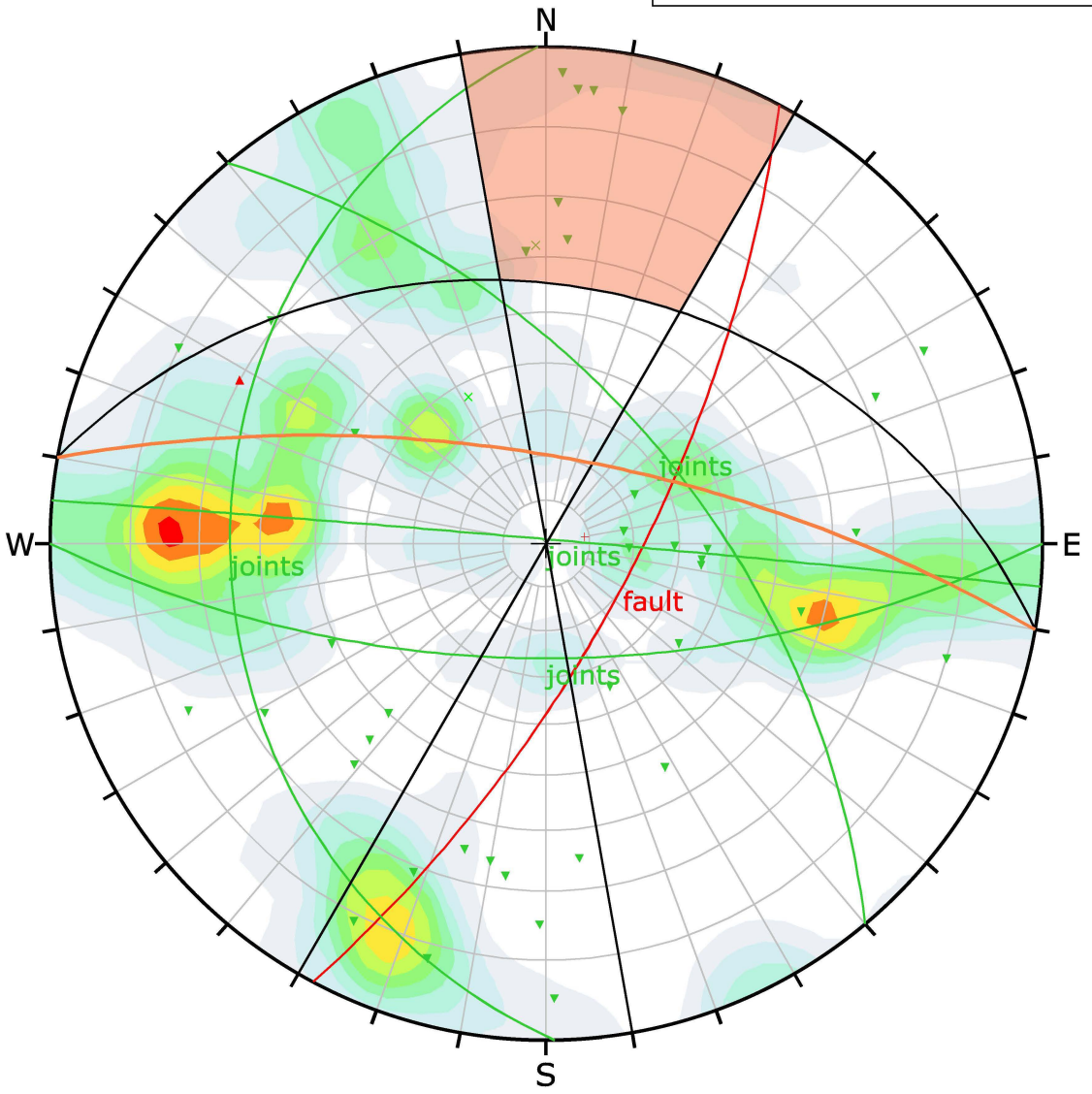
Mean Values

Slope Dip = 70 **Slope Dip Direction = 0** **Friction Angle = 35** **Lateral Limit = 20**

Terracon	*Project*	Baxter Mine	
	Analysis Description	Kinematic Expansion Areas	
	Drawn By	Terracon	*Author* JMc
	File Name	topple continuous structures expansion areas.dips7	*Date* 4/15/2021

DIPS 7.014

Expansion Areas - Continuous Structures



Symbol	TYPE	Quantity
×	Dike	2
▲	Fault	1
+	Fold Axis	1
▼	Joint	40

Color	Density Concentrations
	0.00 - 0.55
	0.55 - 1.10
	1.10 - 1.65
	1.65 - 2.20
	2.20 - 2.75
	2.75 - 3.30
	3.30 - 3.85
	3.85 - 4.40
	4.40 - 4.95
	4.95 - 5.50

Contour Data	Intersections
Maximum Density	5.13%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling
Slope Dip	70
Slope Dip Direction	10
Friction Angle	35°
Lateral Limits	20°

	Critical	Total	%
Flexural Toppling (All)	8	44	18.18%
Flexural Toppling (Set 1: joints)	4	7	57.14%
Flexural Toppling (Set 2: joints)	4	4	100.00%

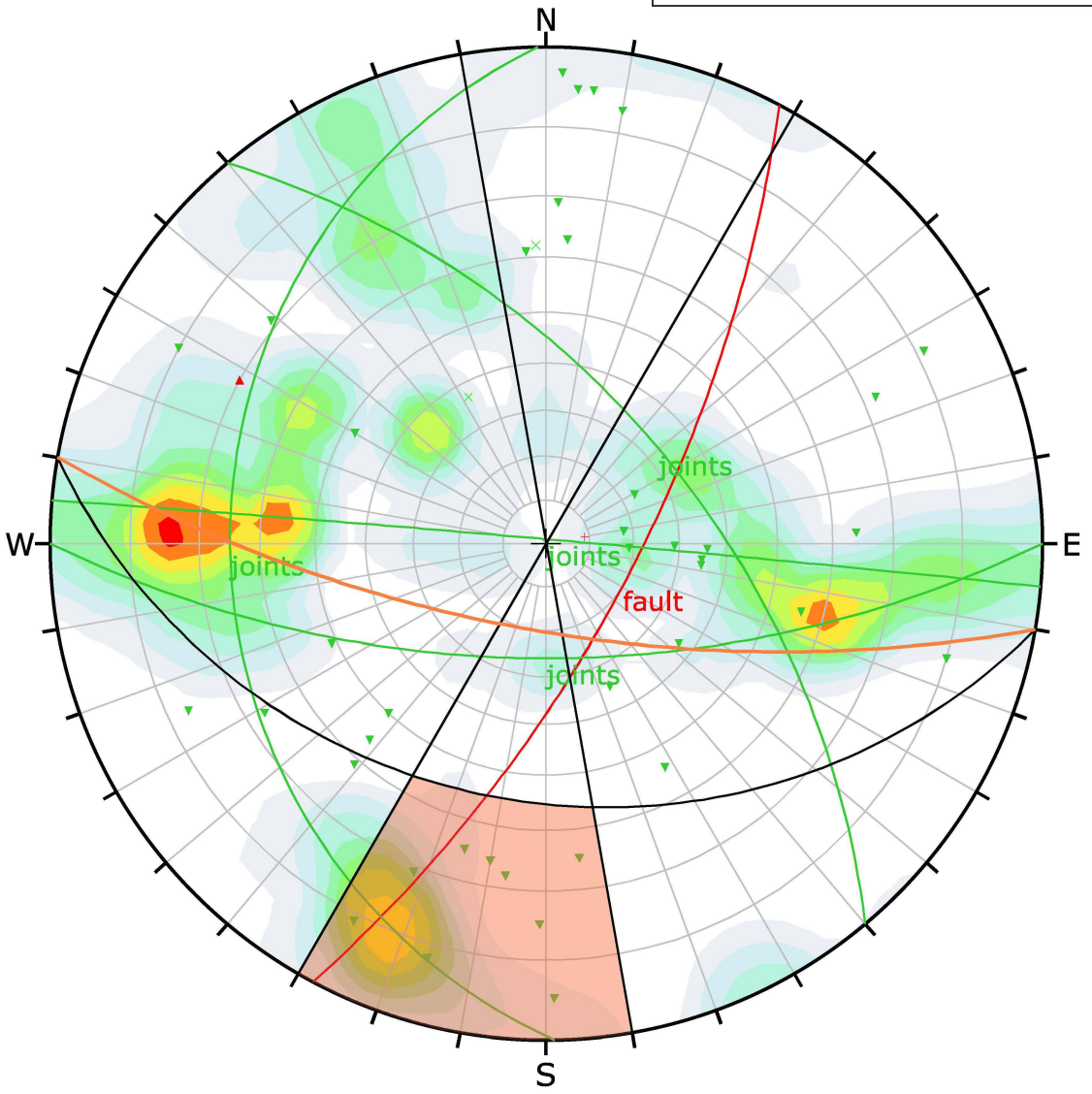
Plot Mode	Pole Vectors
Vector Count	44 (44 Entries)
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter Mine		
Analysis Description	Kinematic Expansion Areas		
Drawn By	Terracon	*Author*	JMc
File Name	topple continuous structures expansion areas.dips7	*Date*	4/15/2021

Expansion Areas - Continuous Structures



Symbol	TYPE	Quantity
×	Dike	2
▲	Fault	1
+	Fold Axis	1
▼	Joint	40

Color	Density Concentrations
	0.00 - 0.55
	0.55 - 1.10
	1.10 - 1.65
	1.65 - 2.20
	2.20 - 2.75
	2.75 - 3.30
	3.30 - 3.85
	3.85 - 4.40
	4.40 - 4.95
	4.95 - 5.50

Contour Data	Intersections
Maximum Density	5.13%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling
Slope Dip	70
Slope Dip Direction	190
Friction Angle	35°
Lateral Limits	20°

	Critical	Total	%
Flexural Toppling (All)	9	44	20.45%
Flexural Toppling (Set 1: joints)	3	7	42.86%

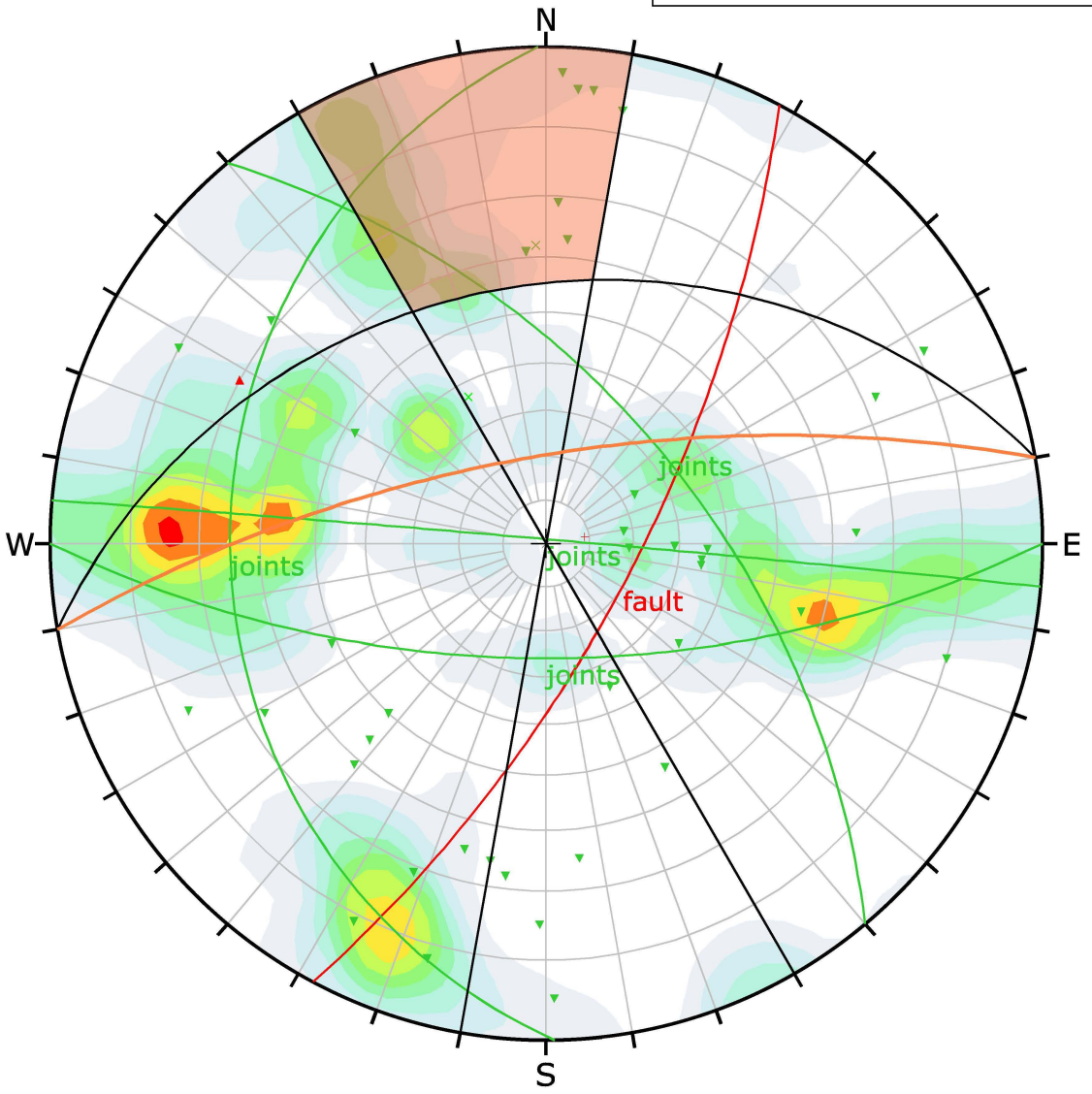
Plot Mode	Pole Vectors
Vector Count	44 (44 Entries)
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter Mine		
Analysis Description	Kinematic Expansion Areas		
Drawn By	Terracon	*Author*	JMc
File Name	topple continuous structures expansion areas.dips7	*Date*	4/15/2021

Expansion Areas - Continuous Structures



Symbol	TYPE	Quantity
×	Dike	2
▲	Fault	1
+	Fold Axis	1
▼	Joint	40

Color	Density Concentrations
	0.00 - 0.55
	0.55 - 1.10
	1.10 - 1.65
	1.65 - 2.20
	2.20 - 2.75
	2.75 - 3.30
	3.30 - 3.85
	3.85 - 4.40
	4.40 - 4.95
	4.95 - 5.50

Contour Data	Intersections
Maximum Density	5.13%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling
Slope Dip	70
Slope Dip Direction	350
Friction Angle	35°
Lateral Limits	20°

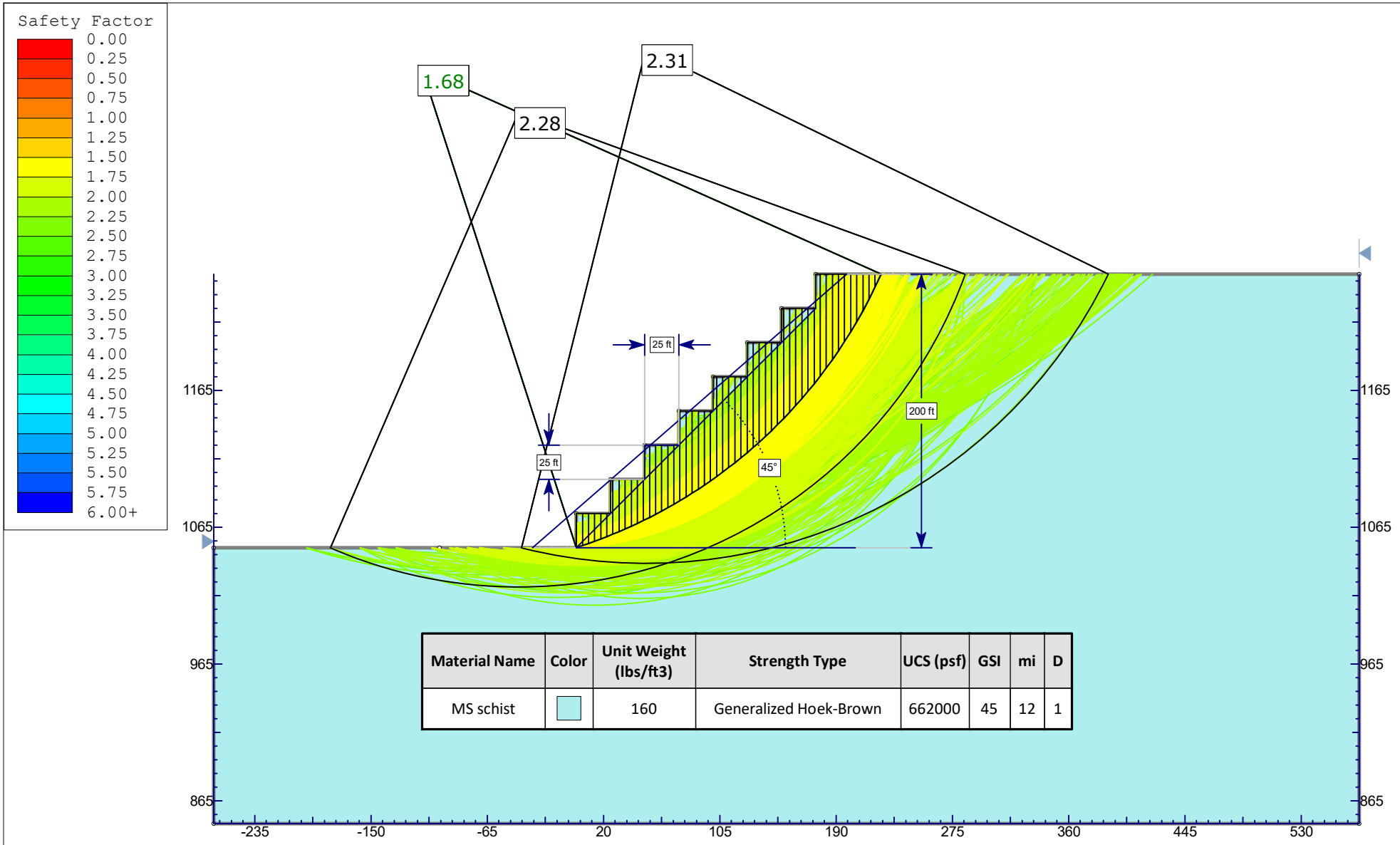
	Critical	Total	%
Flexural Toppling (All)	8	44	18.18%
Flexural Toppling (Set 1: joints)	4	7	57.14%
Flexural Toppling (Set 2: joints)	4	4	100.00%

Plot Mode	Pole Vectors
Vector Count	44 (44 Entries)
Hemisphere	Lower
Projection	Equal Angle

Terracon

DIPS 7.014

Project	Baxter Mine		
Analysis Description	Kinematic Expansion Areas		
Drawn By	Terracon	*Author*	JMc
File Name	topple continuous structures expansion areas.dips7	*Date*	4/15/2021

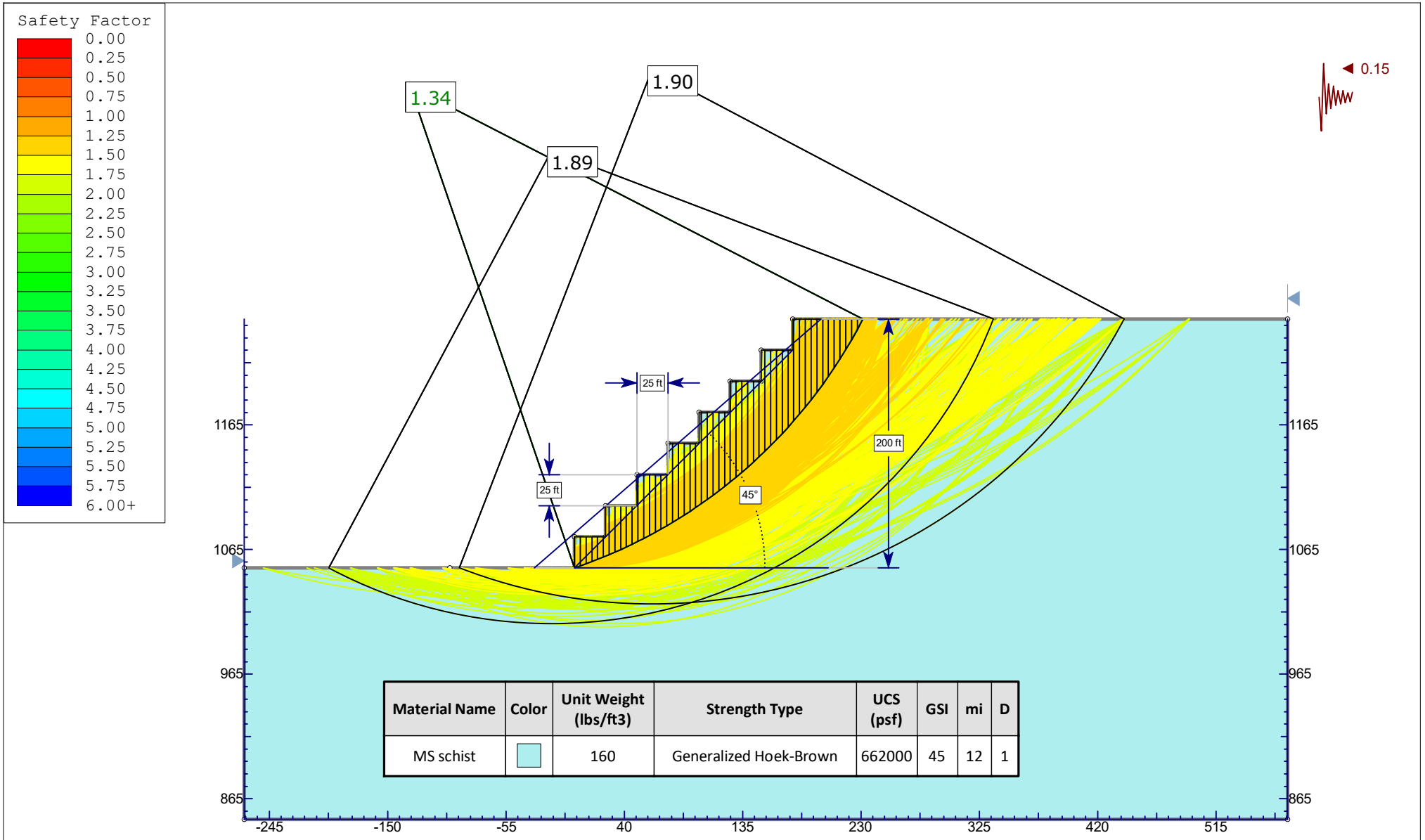


Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	UCS (psf)	GSI	mi	D
MS schist		160	Generalized Hoek-Brown	662000	45	12	1

Terracon

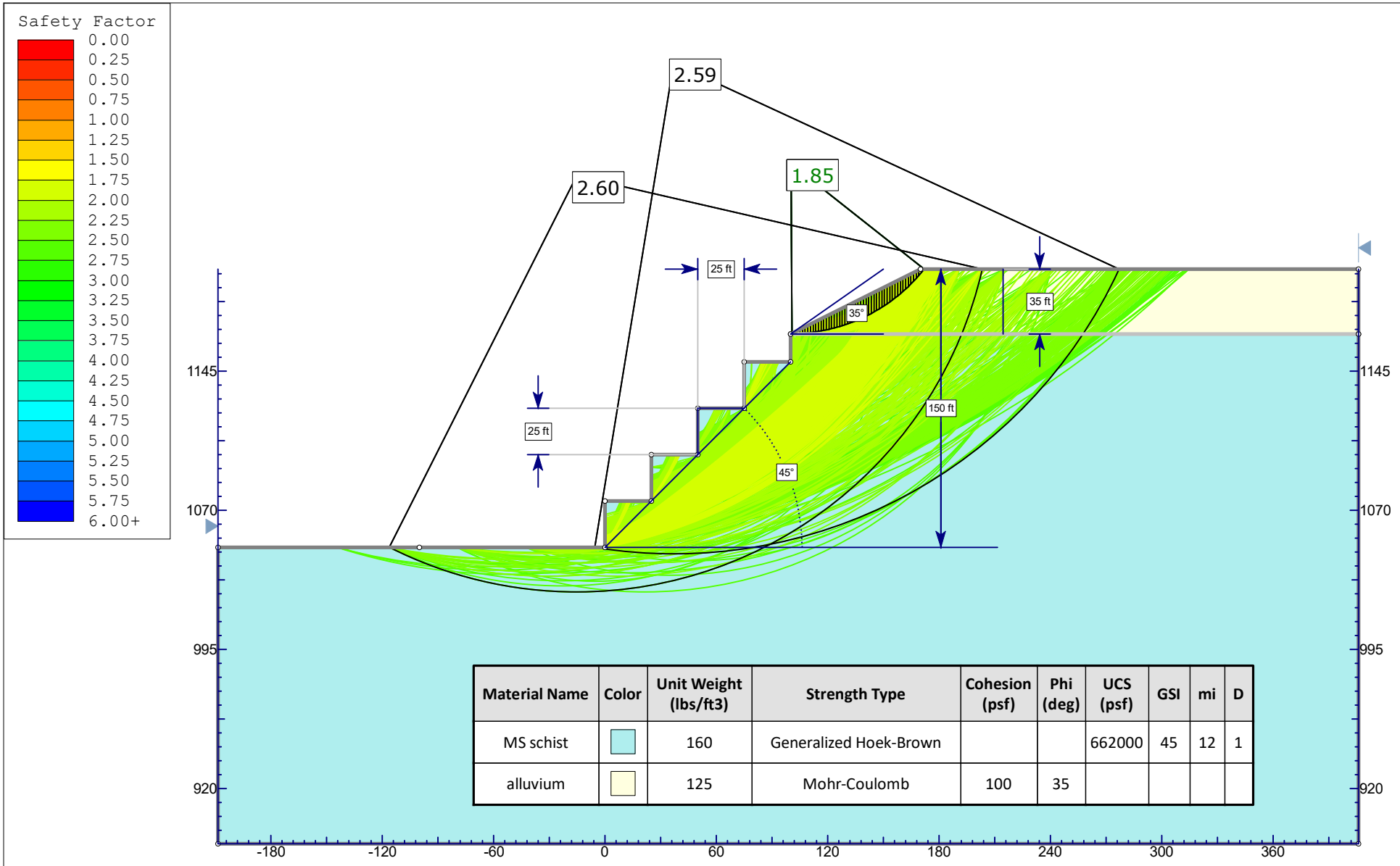
SLIDEINTERPRET 8.029

Project	Baxter Mine		
Analysis Description	Lillian Belle Deposit - west slope		
Drawn By	JMc	Company	Terracon
Date	APR 2021	File Name	LB west.slmd



Terracon	Project	Baxter Mine	
	Analysis Description	Lillian Belle Deposit - west slope	
	Drawn By	JMc	Company: Terracon
	Date	APR 2021	File Name: LB west.slmd

SLIDEINTERPRET 8.029

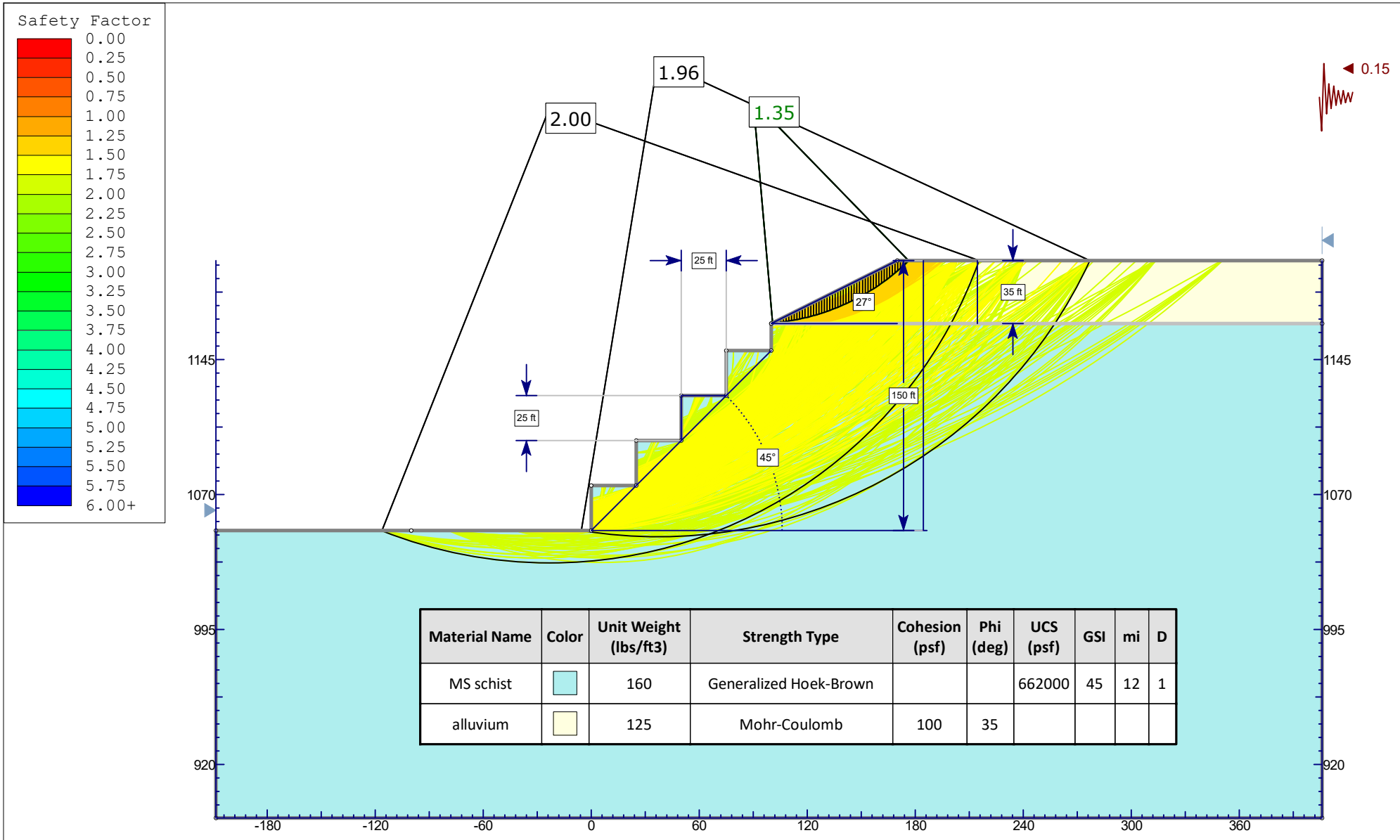


Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	UCS (psf)	GSI	mi	D
MS schist		160	Generalized Hoek-Brown			662000	45	12	1
alluvium		125	Mohr-Coulomb	100	35				

Terracon

SLIDEINTERPRET 8.029

Project	Baxter Mine		
Analysis Description	Lillian Belle Deposit - southeast slope		
Drawn By	JMc	*Company*	Terracon
Date	APR 2021	*File Name*	LB southeast.slmd

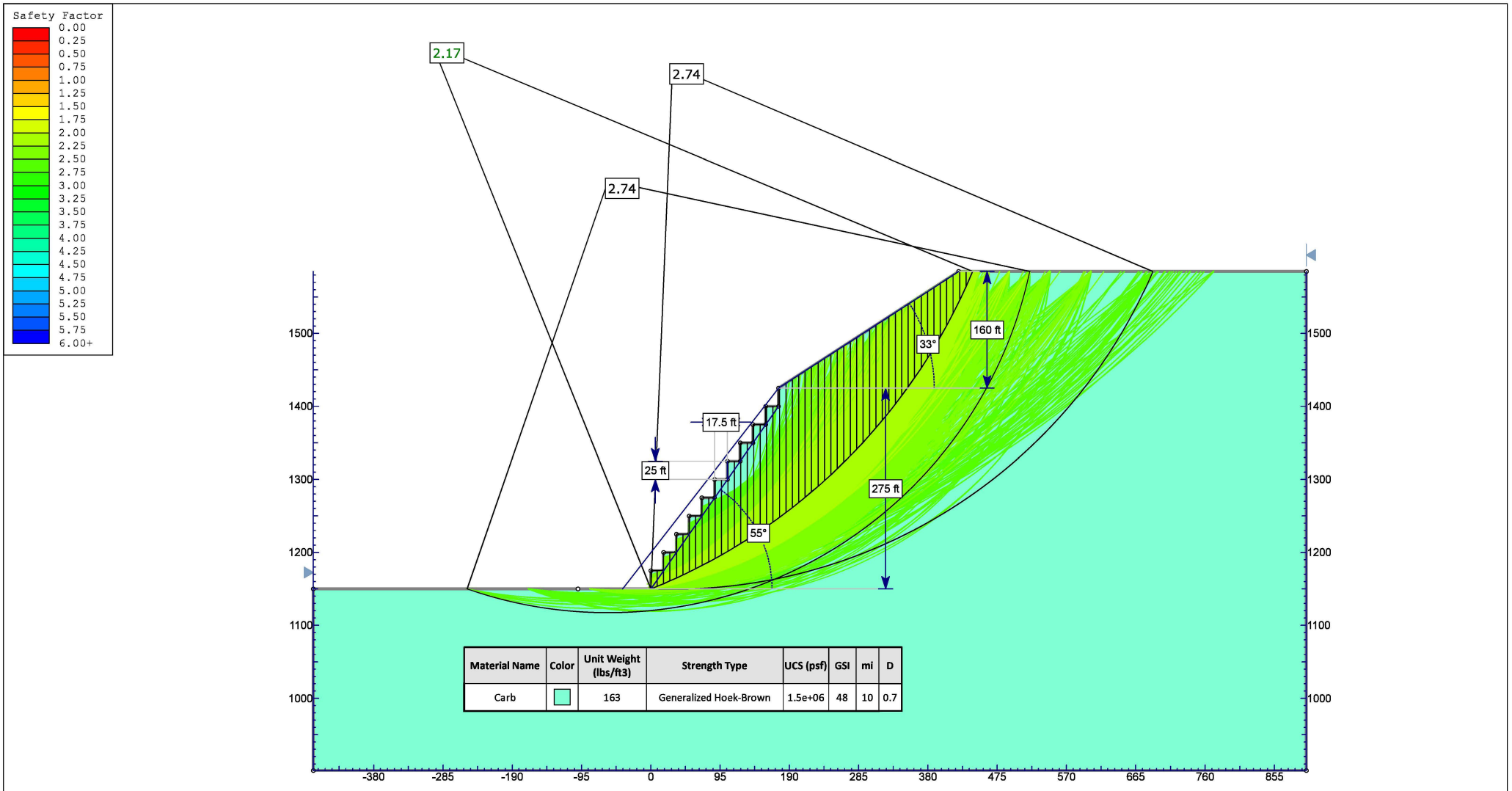


Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	UCS (psf)	GSI	mi	D
MS schist		160	Generalized Hoek-Brown			662000	45	12	1
alluvium		125	Mohr-Coulomb	100	35				

Terracon

SLIDEINTERPRET 8.029

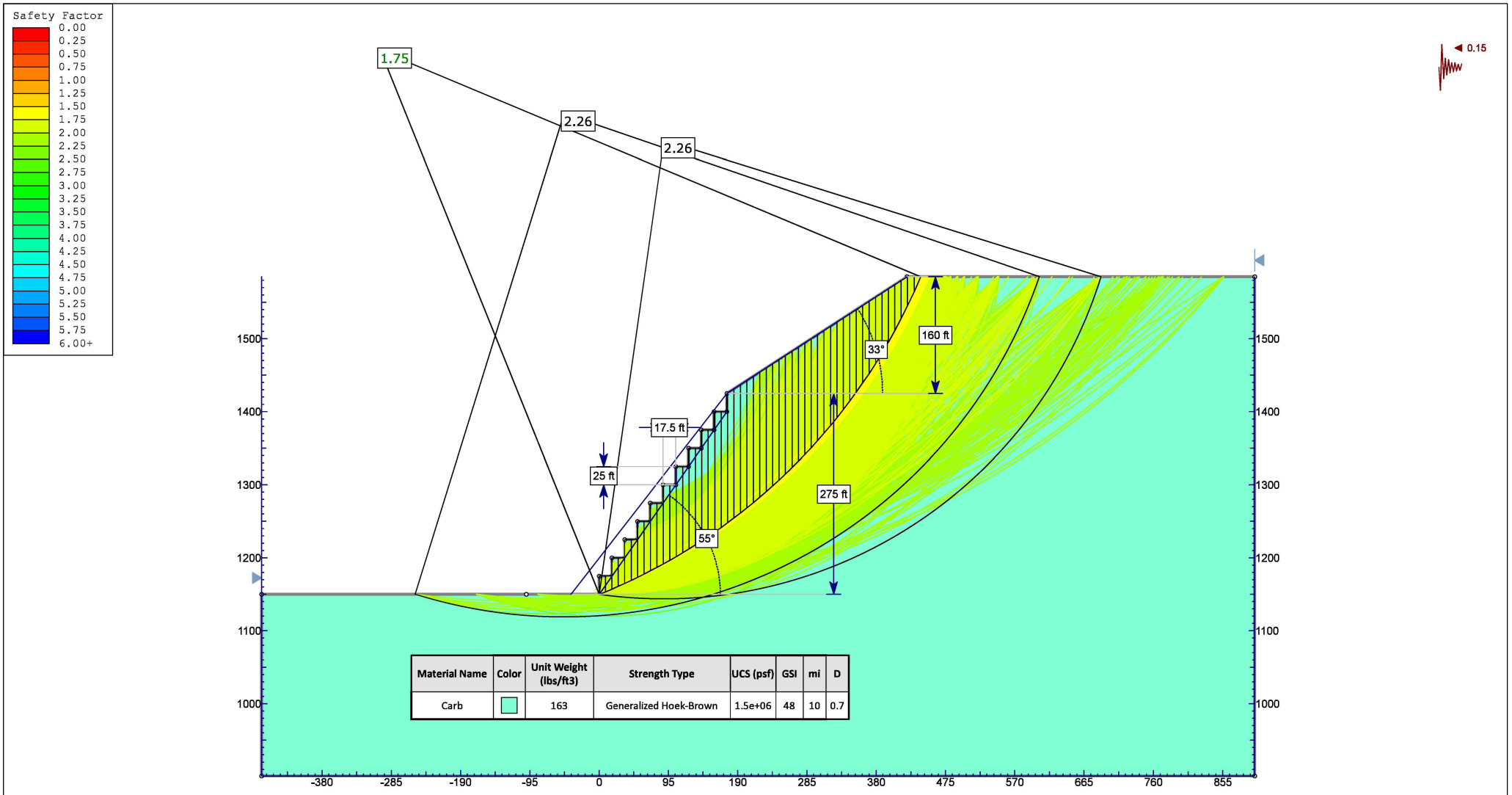
Project	Baxter Mine		
Analysis Description	Lillian Belle Deposit - southeast slope		
Drawn By	JMc	Company	Terracon
Date	APR 2021	File Name	LB southeast.slmd



Terracon

SLIDEINTERPRET 8.029

Project	Baxter Mine		
Analysis Description	East Deposit		
Drawn By	JMc	Company	Terracon
Date	APR 2021	File Name	East Deposit model.slmd

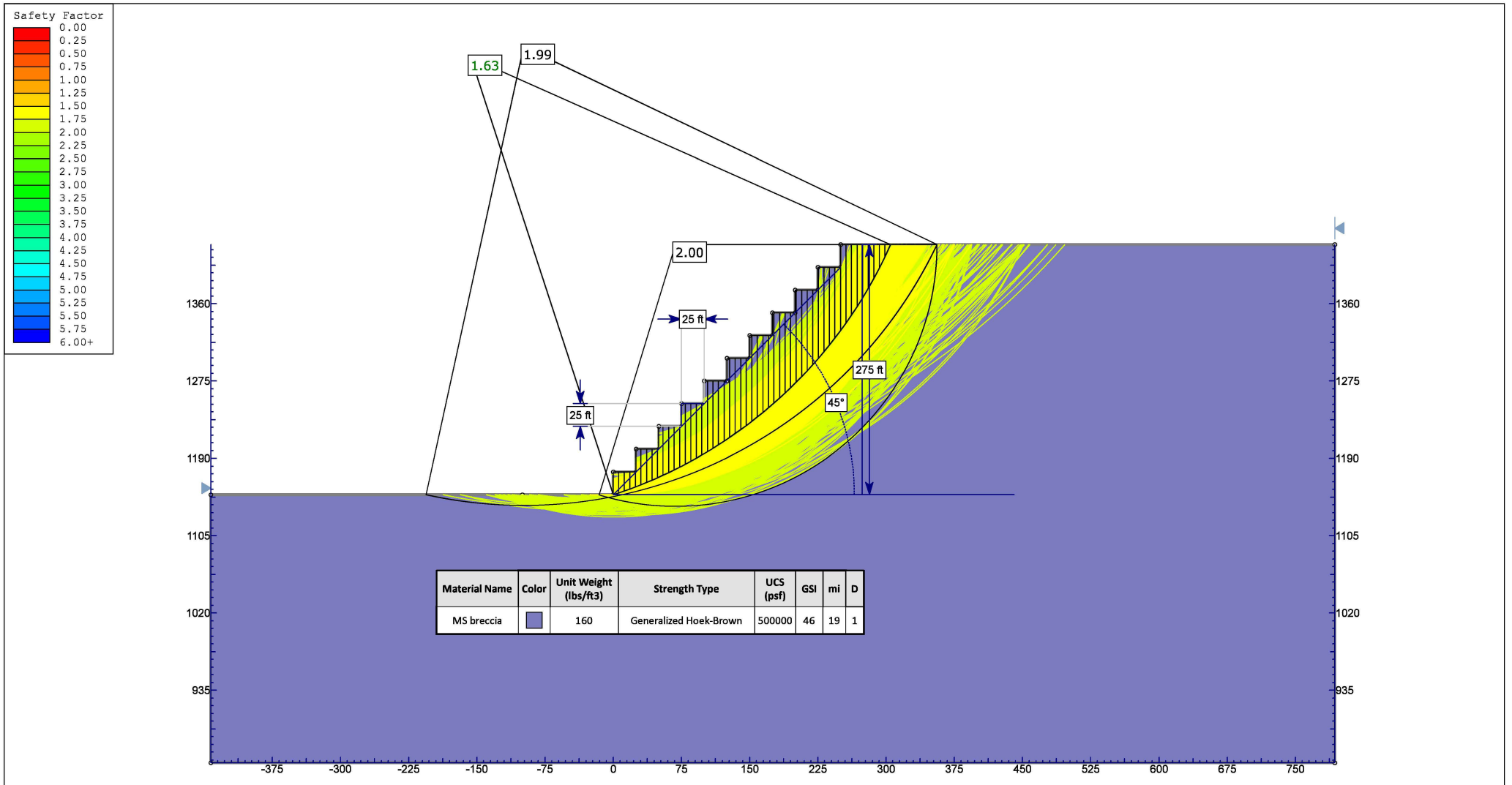


Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	UCS (psf)	GSI	mi	D
Carb		163	Generalized Hoek-Brown	1.5e+06	48	10	0.7

Terracon

SLIDEINTERPRET 8.029

Project	Baxter Mine		
Analysis Description	East Deposit		
Drawn By	JMc	Company	Terracon
Date	APR 2021	File Name	East Deposit model.slmd

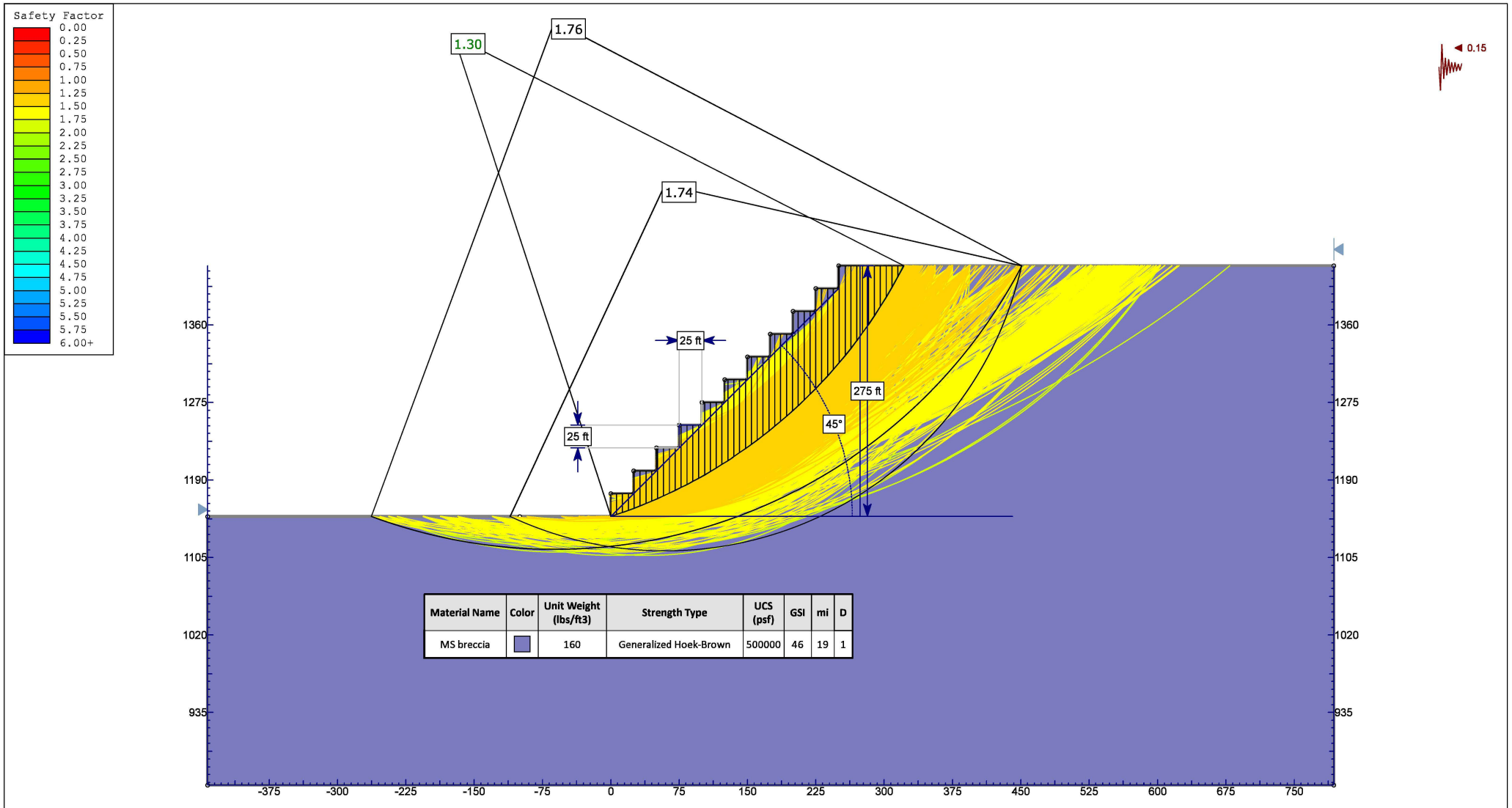


Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	UCS (psf)	GSI	mi	D
MS breccia		160	Generalized Hoek-Brown	500000	46	19	1

Terracon

SLIDEINTERPRET 8.029

Project	Baxter Mine		
Analysis Description	West Deposit - west slope		
Drawn By	JMc	Company	Terracon
Date	APR 2021	File Name	West Deposit Model.slmd



Terracon	Project	Baxter Mine	
SLIDEINTERPRET 8.029	Analysis Description	West Deposit - west slope	
	Drawn By	JMc	Company: Terracon
	Date	APR 2021	File Name: West Deposit Model.slmd



Photo 1 overview of Expansion Area. East Deposit slope right of frame. View east-southeast.



Photo 2 strong cleavage fabric in carbonate rocks. Note exfoliation-type jointing.



Photo 3 breccia fabric in carbonate rocks



Photo 4 overview of East Deposit area. Note sidehill cut along ore zones from prior exploration work.



Photo 5 West Pit overview looking west



Photo 6 West Pit – west wall exposing stacked shear planes and ore body (right)



Photo 7 Sand with overlying older colluvium on south wall below OB stockpile



Photo 8 Sand in shear contact with MS breccia



Photo 9 Undercut in sand unit. Note road berm is overhanging bench face.