YMIP Grant **15-007**

A Summary Technical Report on the **Reid Project**
A Focussed Regional Module, Hard Rock Type

A Geochemical/Geological Report

No claims staked under this grant**.**

Location
115P07,
Camp at 404,800, 7,018,290, Elev 1068 m
UTM NAD 83, Zone 8

Grant awarded to Jeff Mieras
Work performed by Gordon Richards & Jeff Mieras
Report written by Gordon Richards

September 20, 2015

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SUMMARY

Work described in this report was conducted under an YMEP Focussed Regional Grant, Hardrock Type. YMEP 15-007 awarded to Jeff Mieras.

The following is an historical account of events on this project:

June 18. Flew from Willow Project to Reid Project. Slung camp to site. Dropped off in northwest corner of area and sampled back to camp. Set up camp.

June 19 to 24. Collected MMI samples as shown.

June 25. Demobbed camp to Stewart Crossing. Drove to Mayo and picked up remainder of gear. Drove to Whitehorse.

June 26. Sorted gear, returned phones, dropped samples at Acme Labs, and shipped MMI samples to SGS Labs in Vancouver.

The target area occurs in the underexplored pre-Reid glaciated terrain west of Stewart Crossing within the Reid Lakes Batholith Complex. The project is located along the ridgeline of Willow Hills 16 km southwest of Stewart Crossing on NTS Map Sheet 115P07.

Richards and Mieras flew by helicopter from Richard's Willow Project Area into a campsite central to the area to be prospected. From this camp the two prospectors made daily traverses for seven days before flying out to Stewart and demobbing via Mayo to pick up gear back to Whitehorse.

The area was selected for VMS mineralization for the following reasons. Volcaniclastic rocks of the Reid Lakes Complex have been shown by U-Pb dating to be Early Mississippian age identical to the rocks enclosing the Wolverine deposit.

The volcaniclastics include rhyolite that appeared to form a linear pattern along Willow Hills on images from Google Earth. Rhyolite is a common rock type at Wolverine.

RGS geochemical responses from creeks draining the target area have numerous re-calculated threshold values of 90%, 95%, or 98% for each of Ag, Pb, Se, Hg, and Ba, with significant support from other elements in these same samples and from lower threshold values in other samples.

The Willow Area was glaciated by pre-Reid glaciations (500 to 700 ka J. Bond, personal communication) and lies largely above Glacial Lake Coldspring to the west and just west of the Reid glacial extent. Prospecting may eventually lead

into these more difficult to prospect terranes. Pre-Reid tills have probably been largely removed by weathering because of the age of pre-Reid glaciations and because this has been found to be partially the case on previous YMEP grant prospect areas further west. This partial removal of tills should make sampling more effective in evaluating and locating mineralization. A blanket of McConnell age loess 10 to 20 cm thick covers the area and has been removed on steeper slopes.

Aeromagnetic maps provide little encouragement other than dividing the volcaniclastics into low and high magnetic susceptibility domains. The separation is roughly parallel to schistosity shown on Geoscience Map 7 and thus may reflect distinct units.

The area has a low number of MinFile occurrences and quartz claims well removed from the area of interest. This low occurrence in the general area may reflect low prospectivity or simply underexplored terrain. Recent YGS/GSC bedrock and surficial geological mapping, government sponsored aeromagnetic surveys, and reanalyses of RGS data has helped provide encouragement for prospecting in the area.

All garbage was removed from camp and taken to Mayo for disposal.

GEOLOGY.

The Reid target area lies within the Reid Lakes Complex of the Yukon Tanana Terrane. The most detailed geology map is provided by Canadian Geoscience Map 7, *Geology Southwestern McQuesten and parts of Northern Carmacks* by J.J. Ryan, M. Colpron, and N. Hayward at a scale of 1:125,000. A page size copy of this map is provided as Figure 2 showing the location of the Reid Project Area within the Reid Lakes Complex. The Reid Lakes Complex is comprised of an Early Mississippian age batholith of monzogranite to granodiorite overlain by volcanic and volcaniclastic rocks. Ryan et al suggested a cogenetic relationship between the batholith and the volcanic rocks. The volcanic rocks have since been dated by E Knight in her MSc thesis as having identical ages to the batholith. As the dates are identical to dates from the Wolverine VMS deposit and restoration of strike-slip movement on the Tintina Fault juxtaposes the Willow Hills adjacent to the Finlayson Lake district rocks the volcanic rocks of the Reid Lakes Complex were considered to be an excellent target for discovery of VMS mineralization.

Field work in 2015 found numerous outcrops of massive rhyolite sandstone in the central and eastern portions of the area sampled and andesitic outcrops in the more southerly and western portions. From a fly over of the area prior to sampling numerous outcrops of andesite and no rhyolite were noted further north and west and for this reason the project area was adjusted slightly easterly to keep the sampling area within the rhyolite package of rocks as they were considered more prospective for VMS mineralization. High aeromagnetic response can be seen on Figure 6 to the west north and south of the area sampled. The limits of the sampled area in these areas found andesite, which is the likely cause of this higher magnetic response.

Bedding attitudes within the rhyolite exposures indicate a gentle to moderate southerly to southwesterly dip. Attitudes were typically measured in tuff beds with one three-metre wide limestone bed at camp all within the typically massive rhyolite outcrops. The rhyolite was a uniform textured sandstone with angular fragments up to 5 mm diameter of rhyolite of variable textures and colour with only minor more mafic fragments. Most outcrops displayed a bright orange-brown surface that could be caused by weathering of a Fe-Mg carbonate as no sulphide was seen in any of the outcrops examined. Outcrops common on all hilltops and on some slopes. They are more common than indicated on the figures as only those outcrops seen by Richards on R-labelled sample lines were noted.

The area was glaciated by pre-Reid Glaciations older than 200,000 years and possibly older than 500,000 years (personal communication J. Bond). Direction of last pre-Reid glaciations, taken from Google Earth, is toward the northwest. Reid Glaciation occurred immediately east of the project area in a northerly direction. Glacial Lake Coldspring formed in Lake Creek drainage west of the project area during pre-Reid glaciations by ice dams in lower Lake Creek and near present day Willow Lake. Glaciolacustrine sediment remains on the hillsides up to an elevation of 1100 m as shown on Figures 5 to 14. The area of interest straddles the ridgeline of Willow Hills and includes some terrane affected by Reid Glaciation in the east and some terrane covered by what remains of the glaciolacustrine sediment.

Because of their age, considerable erosion of pre-Reid aged tills has probably taken place since their deposition. Soil sampling over glaciolacustrine

and Reid aged glacial deposits is more problematic as they are probably thicker than pre-Reid glacial till described above.

Drying conditions of the last glacial period, McConnell Glaciation ca.22, 000 ka has deposited a 20 to 30 cm loess blanket across the countryside based on the past few years of work in the general area and descriptions by J. Bond and P. Lapinsky. In the Reid Project Area this loess is slightly thinner possibly due to erosion or higher elevation than previous project areas. On the Reid Project the loess was in general 10 to 20 cm thick and absent in some sample pits. Small angular rocks and grit were common in many loess samples having worked their way up from underlying colluvium.

SURVEY METHODS

General

Geochemical sampling used the selective leach MMI method because the area had been glaciated during one or more pre-Reid glacial periods. MMI sampling can, where effective, “see through” deep overburden including glacial till. Also MMI sampling involved collection of relatively shallow soils (10 to 20 cm deep) thereby improving success of collecting samples in this area of shallow permafrost with a slow thawing process is summer months. Based on previous work in the area, MMI sampling was known to be an effective method for identifying geochemically anomalous patterns for several elements.

There were **383 MMI** samples, **1 rock** sample, and **1 silt** sample collected on the Reid Project Area. Sample lines were placed across the area as shown on the maps in an attempt to sample areas underlain by rhyolite. Sample interval was 50 m. Although this sampling is fairly coarse for VMS style mineralization it was a first pass attempt to obtain some geochemical encouragement for further investigations.

MMI sample details such as rock-chip type, soil colour, texture, depth, dampness and site slope were described in notes. Their locations were recorded in a handheld Garmin GPSmap 60Cx unit. Some UTM co-ordinates were also recorded in notebooks as a backup in case of loss of the GPS unit or loss of data stored on the unit. No such loss occurred. Sampled material was placed into numbered zip-lock plastic bags as described below.

MMI Soil Samples.

MMI analysis uses a weak partial extraction to improve the conventional geochemical response over buried ore deposits. The process measures the mobile metal ions from mineralization, which have moved toward the surface and become loosely attached to the surfaces of soil particles. They concentrate within the 10 to 20 cm soil depth which on the Project Area is a mixture of loess, till and angular pebbles with loess by far the more common component. Its effectiveness has been documented in over 1000 case histories on six continents and includes numerous commercial successes. The anomalies are sharply bounded and in most cases directly overlie and define the extent of the surface projection of buried primary mineralized zones. The MMI process is a proprietary method developed by Wamtech of Australia. SGS Minerals Services in Toronto purchased all rights to the method and provides analyses in Vancouver and Toronto.

Watch and ring were removed prior to sampling. Pits were dug by shovel to a depth of 30 cm in order to expose the soil profile for sampling. The profile was scraped clean with a plastic scoop to remove any metal effect from the shovel. A continuous strip of soil was collected by plastic scoop over the interval of 10 to 20 cm below the top of true soil, placed in a pre-numbered ziplock baggie and placed in an 11 inch by 20 inch 2 mil plastic bag. Loess was present at nearly all sample sites and was the sample medium for the bulk of the 383 MMI soils collected. Samples were kept cool until they were shipped to SGS Minerals Services, 3260 Production Way, Burnaby, B.C., V5A 4W4.

In the SGS Lab, samples are not dried or prepared in any way. The MMI process includes analyses of an unscreened 50-g sample using multi-component extractants. Metal contents are determined for 53 elements by ICP-MS.

Response Ratios were calculated for 15 elements as shown on Table 2. The average value for results of the lower quartile was calculated for each element. One-half of detection limit was used for those samples with values reported as less than detection limit. Then each result was divided by the lower quartile average to obtain its response ratio. A response ratio of 10 or more is considered very significant for indicating underlying mineralization. Lesser values of 5 to 10 can also be important particularly where more than one element has such a

value. Response ratios can best be thought of as multiples of background in interpreting results.

Rock Sample.

One rock sample was collected from a bright red gossanous outcrop noted on mobilization into the Reid camp. The rock sample was a badly fractured chert with Mn stain and limonite and hematite fractures. Bedding was 098/25 N. The sample of rock chips was collected in a numbered kraft sample bag. It was sent to Bureau Veritas in Vancouver, B.C., where the sample was weighed, crushed, split and pulverized to 200 mesh, and 15 grams digested in 1:1:1 Aqua Regia and sent for ICP-MS analysis. This is Acme's 1DX method using a 15 g sample size.

Silt Sample.

One stream sediment sample was collected from the southwesterly flowing creek draining the camp area. The sample was collected by plastic scoop, placed into a numbered gusseted kraft sample bag and stored in an 11 by 20 cm plastic bag. This sample was collected to evaluate the upstream potential for VMS mineralization. The samples was sent to Bureau Veritas in Vancouver, B.C., where it was dried at 60*C, 100g sieved through an 80 mesh screen, digested in 1:1:1 Aqua Regia and then sent for Acme's Ultratrace MS-ICP analysis.

RESULTS

Results for all samples are provided in Appendices. Response ratios for selected elements of MMI soil samples are provided in Table 2 along with UTM NAD83 coordinates. Rock and stream sediment results for selected elements are provided in Table 3 along with UTM NAD83 coordinates.

Results of the single rock sample were all low.

The silt sample was collected from a southwesterly flowing creek a km southwest of camp as shown on the figures. Using the recalculated thresholds for RGS samples in the selected pre-Reid area of 115P, the silt sample is anomalous for Cu (70%tile), Pb (98 %tile), Zn (80 %tile), As (98 %tile), Sb (98%tile), Bi (80 %tile), and Ba (80 %tile). Some of these elements form anomalous patterns in MMI samples collected upstream of this silt sample.

Response ratios for 15 elements were calculated for all 383 MMI soil samples and are provided in Table 2 along with UTM coordinates. Anomalous results greater than selected threshold values for Pb, Zn, Cu, Ag, As, Sb, Bi, Ca, and

Mg are shown graphically on Figures 5 to 14. Anomalous values are plotted on Figures 5 to 8 for Pb, Zn, Cu, and Ag. Sample numbers are provided on Figure 13. A compilation of zones of anomalous metal values is provided on Figure 14 and can be referred to in the following discussion.

South of camp on a north facing slope is a zone of anomalous Zn occurring on two sample lines 400 m apart with RRs ranging from 10 to 73 across an apparent width of 300 m. RRs for Pb range from 11 to 41 on one of these lines across a similar width. These are strong responses. Support is provided by RRs for Ag and Cu along the north side of the described Zn anomaly.

One km south southwest of camp is another anomaly on strike with the above zone that could represent the same horizon if the general moderate southerly dip is considered. Both zones are interpreted to lie within rhyolite immediately beneath andesite. This second anomaly is an interrupted zone of anomalous Pb (RRs of 8 to 64), Zn (RRs of 10 to 49), and Ag (RRs up to 15) over a length (or width) of 400 m.

500 m north of camp are zones of overlapping and partially contiguous anomalous Zn (RRs of 13 to 34), Pb (RR up to 14), Cu (RRs up to 13), and As, Sb, and Bi. The anomalous Zn zone is shown to be 600 m by 800 m. The other anomalies are smaller.

At the northeast end of the sampled area are large coincident anomalous zones of As, Sb, and Bi over a two km length and 300 to 500 m width. Ag, Zn and Cu form somewhat discontinuous anomalous zones along the north edge of the As-Sb-Bi zone. The As-Sb-Bi anomalies occur over ground covered by pre-Reid glaciations whereas the Zn-Cu-Ag anomalies occur over ground covered by Reid glaciation. No outcrops were seen on any of the sample lines in these areas.

Two other zones of anomalous Zn with anomalous Pb on one and anomalous Ag on the other occur in the northwest portion of the survey area as shown on Fig 14.

CONCLUSIONS.

- Reid Lake Complex volcanics occur in numerous outcrops of that portion of Willow Hills covered by the Reid Project Area. Volcanics are massive rhyolite sandstones with interbeds of chert, tuffs, and limestone occurring beneath andesites all dated as Early Mississippian age identical to the Reid

Lakes Batholith on which they sit. Most of the rhyolite outcrops have a limonitic appearance although no sulphide was noted in any of the outcrops or float.

- The Wolverine VMS Deposit has a similar age and occurs in rhyolites within the Finlayson Lake District. With the approximate 560 km of post Eocene strike-slip movement along the Tintina Fault restored the Reid Project Area sits adjacent to the Finlayson Lake District.
- The project area is underlain by ground glaciated by pre-Reid Glaciation. Only minor Reid Glaciation occurs along the northern limit of sampling. A 10 to 20 cm blanket of McConnell age loess covers most hillsides and was the common sampling medium for MMI soil sampling. Sample lines were spaced as shown on the figures with sample interval of 50 m.
- MMI soil samples have identified several zones of anomalous metal values that could be indicative of underlying or nearby VMS mineralization. Three zones in particular have considerable size and strength. South of camp, two zones of anomalous Zn-Pb-Ag±Cu occur over a two km strike length with widths up to 300 m. 500 m north of camp a zone of anomalous Zn-Cu-As±Pb±Ag occurs over an area of 600m by 800 m. Further north, at the northeast end of the sampled area a zone of anomalous As with accompanying but lesser anomalous Sb and Bi occurs on four sample lines over a distance of about two km and width of up to 500 m. Along the north edge of this anomaly intermittent zones of anomalous Zn, Cu and Ag occur. Other anomalies also occur in the project area.
- There is no record or field evidence of any previous mineral exploration work ever having been conducted within the Reid Lakes Complex volcanics.
- One silt sample was collected from the southwesterly flowing creek about 600 m southwest of camp. Using the recalculated thresholds for RGS samples in the selected pre-Reid area of 115P, the silt sample is anomalous for Cu (70%tile), Pb (98 %tile), Zn (80 %tile), As (98 %tile), Sb (98%tile), Bi (80 %tile), and Ba (80 %tile). Some of these elements form anomalous patterns in MMI samples collected upstream of this silt sample.

RECOMMENDATIONS.

1. Additional MMI soil sampling is recommended across the three anomalous areas described to define the extent and strength of anomalous metal values.
2. Geophysical surveys should be considered either after the above recommended work is completed or in conjunction with it. Ground and airborne EM and magnetic surveys are recommended.
3. Additional reconnaissance exploration similar to that described in this report should be undertaken to the north and east of the present project area where rhyolite is probably extensive.

Respectfully submitted,

Gordon G Richards P.Eng.
For Jeff Mieras

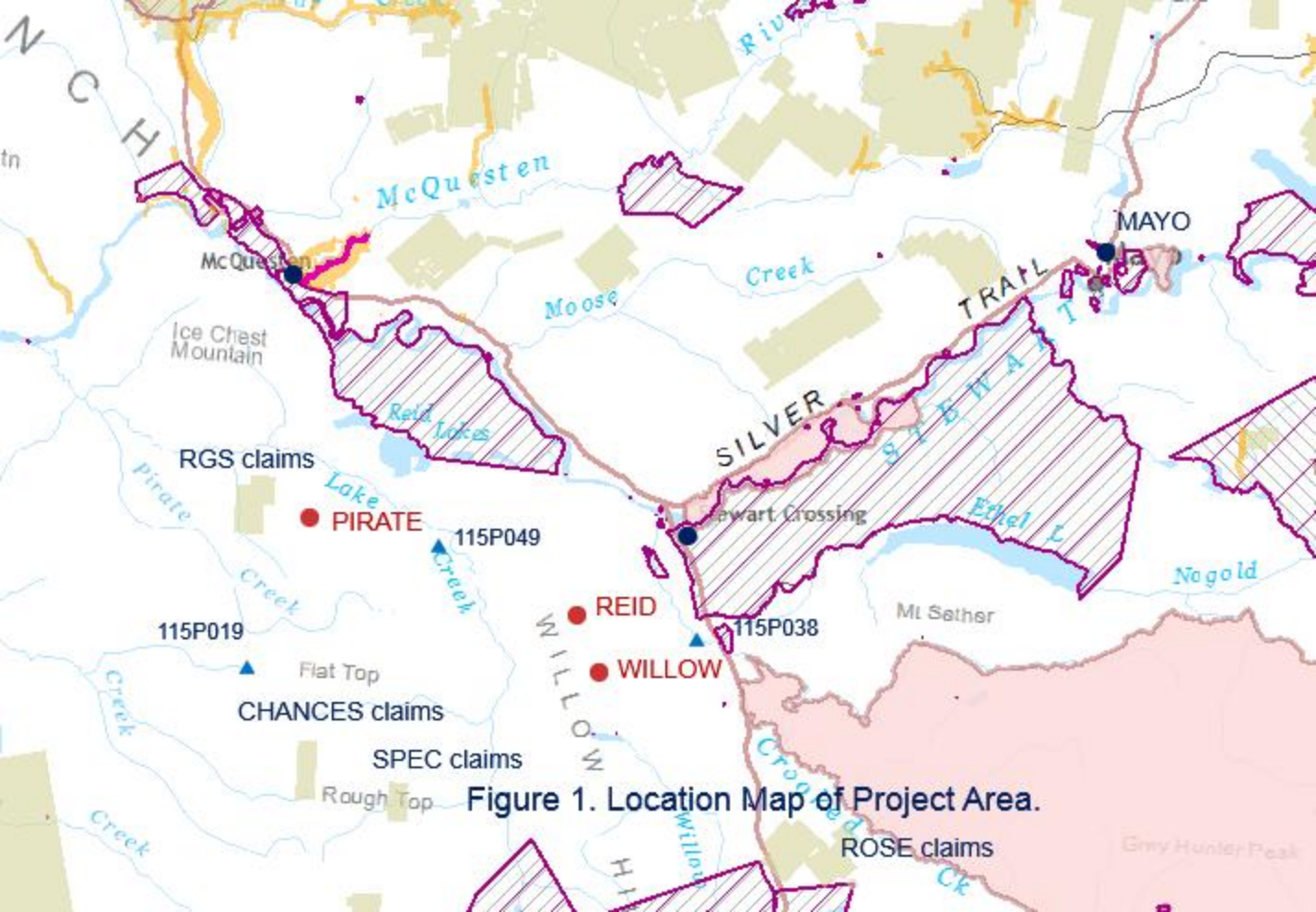

Figure 1. Location Map of Project Area.

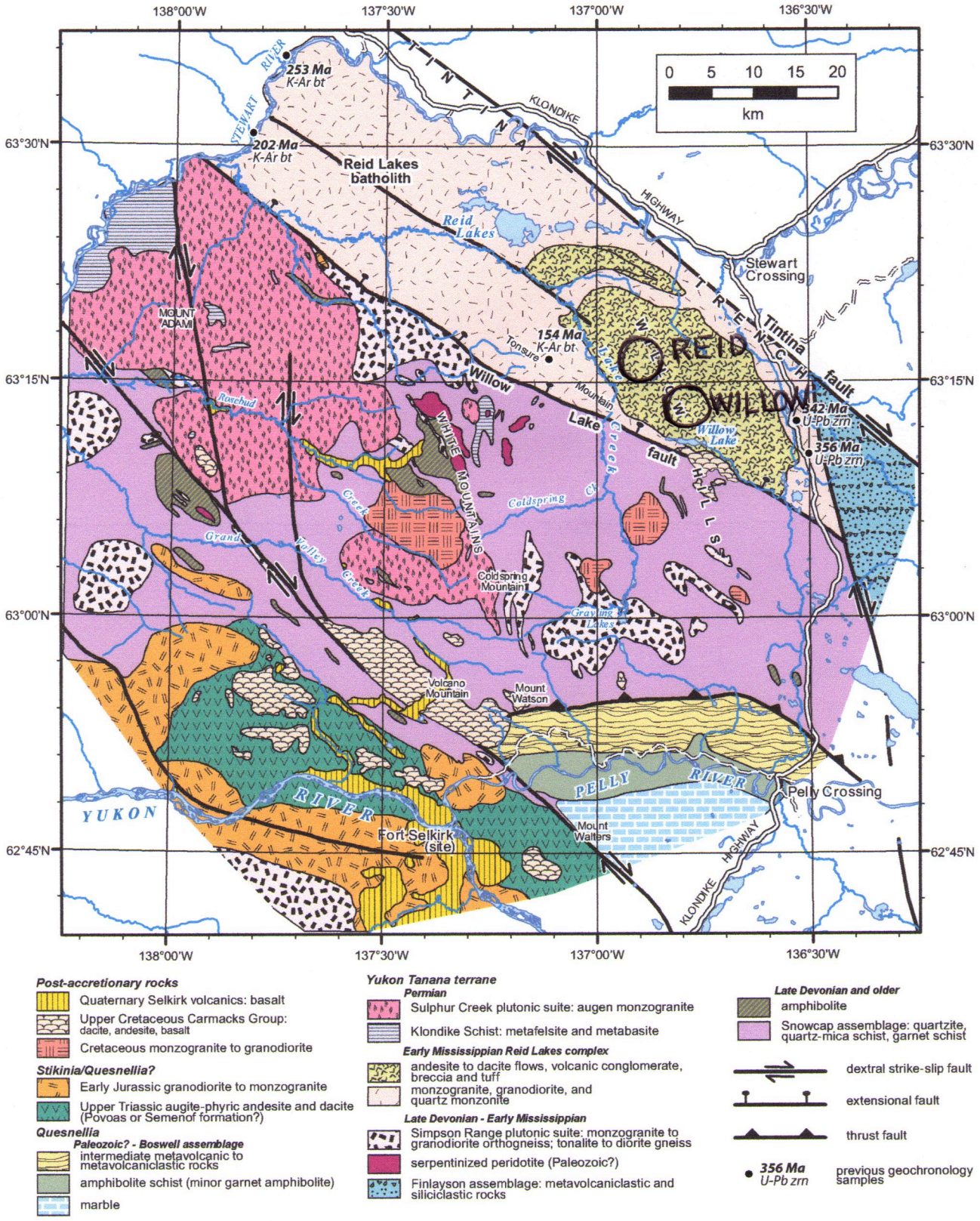

Figure 1. *Simplified geological map of southwest McQuesten-northern Carmacks area (after J.J. Ryan, M. Colpron and N. Hayward, in prep.).*

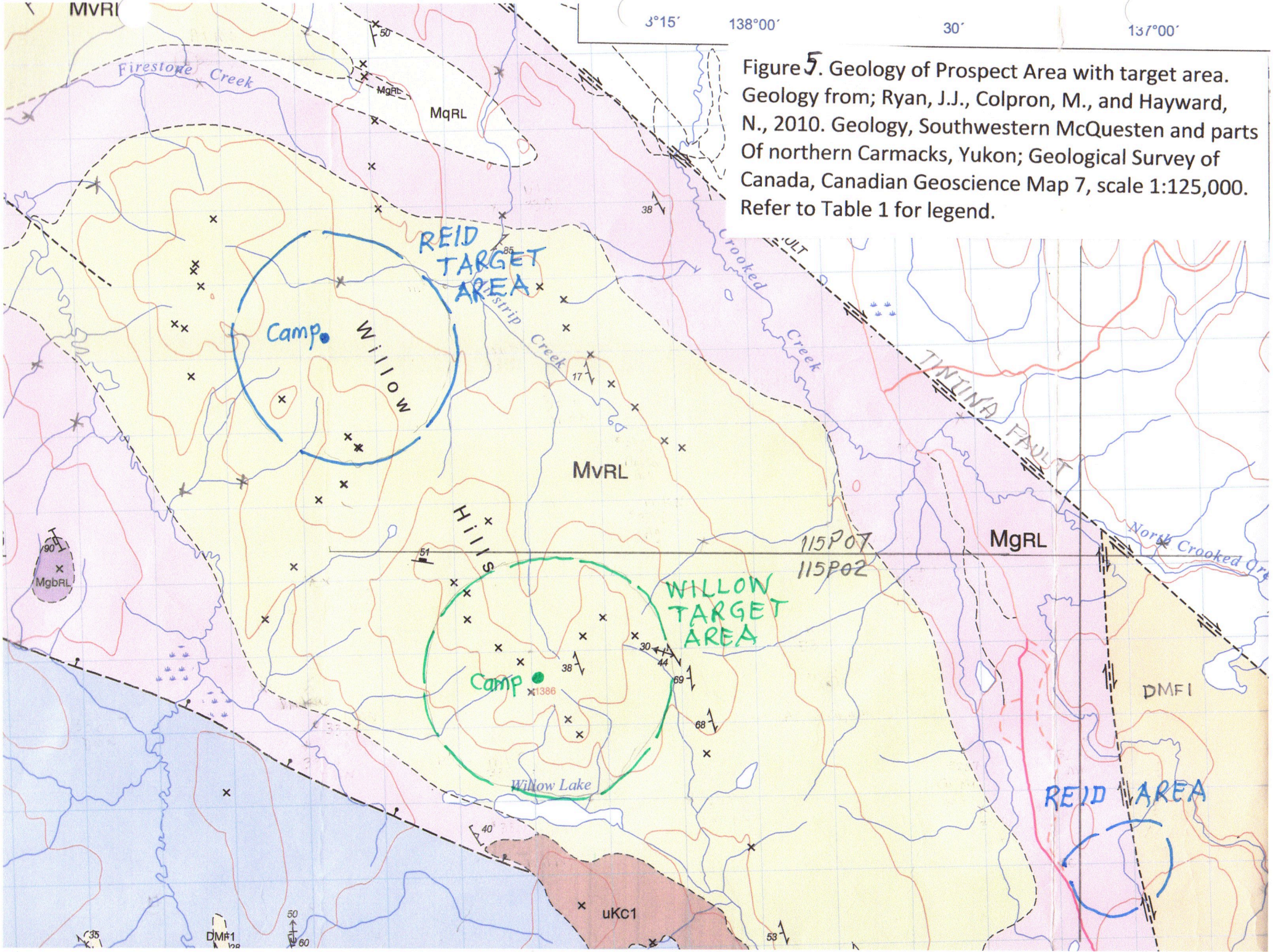

Figure 5. Geology of Prospect Area with target area. Geology from; Ryan, J.J., Colpron, M., and Hayward, N., 2010. Geology, Southwestern McQuesten and parts Of northern Carmacks, Yukon; Geological Survey of Canada, Canadian Geoscience Map 7, scale 1:125,000. Refer to Table 1 for legend.

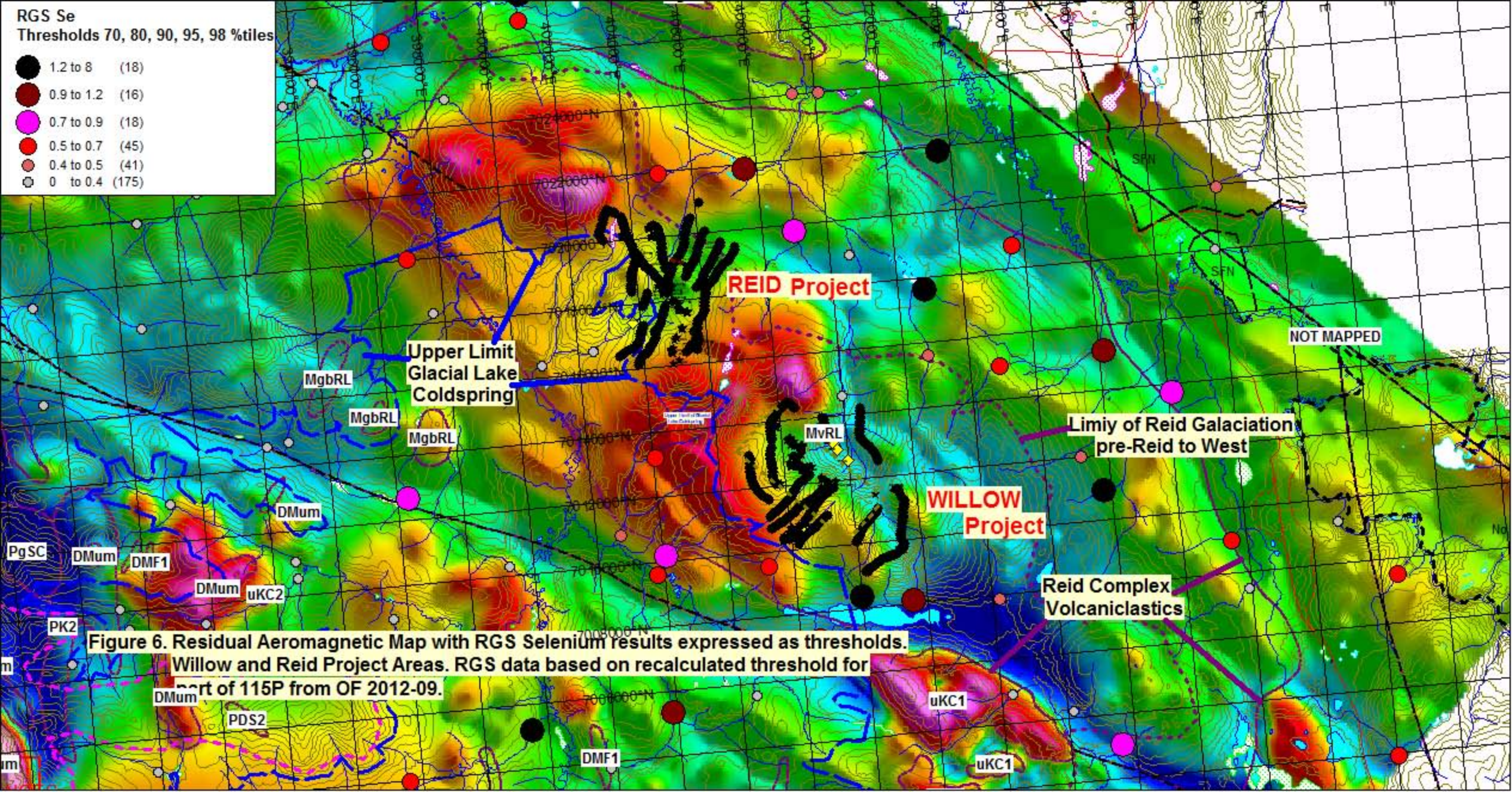

Figure 6. Residual Aeromagnetic Map with RGS Selenium results expressed as thresholds. Willow and Reid Project Areas. RGS data based on recalculated threshold for part of 115P from OF 2012-09.

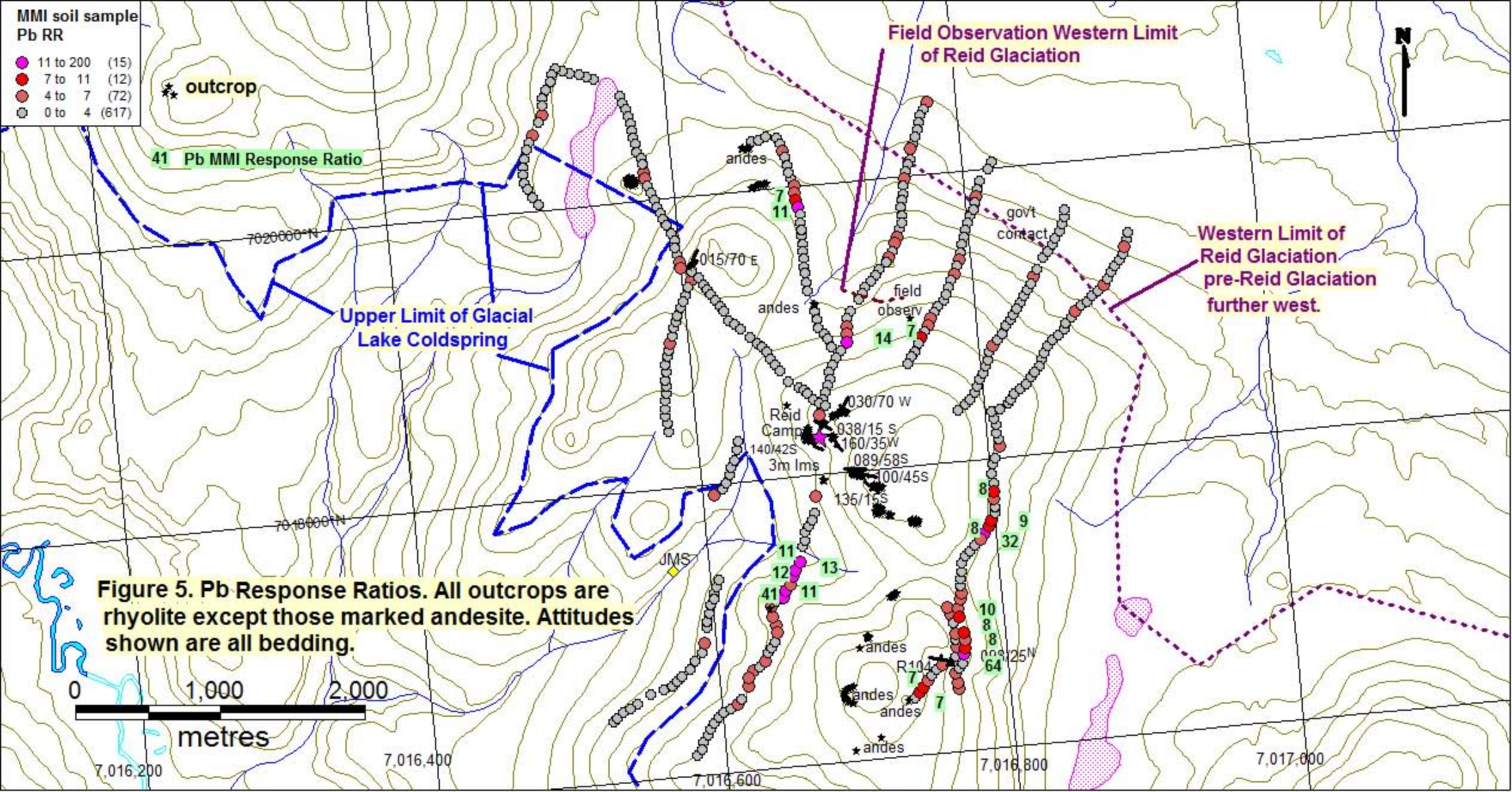

Figure 5. Pb Response Ratios. All outcrops are rhyolite except those marked andesite. Attitudes shown are all bedding.

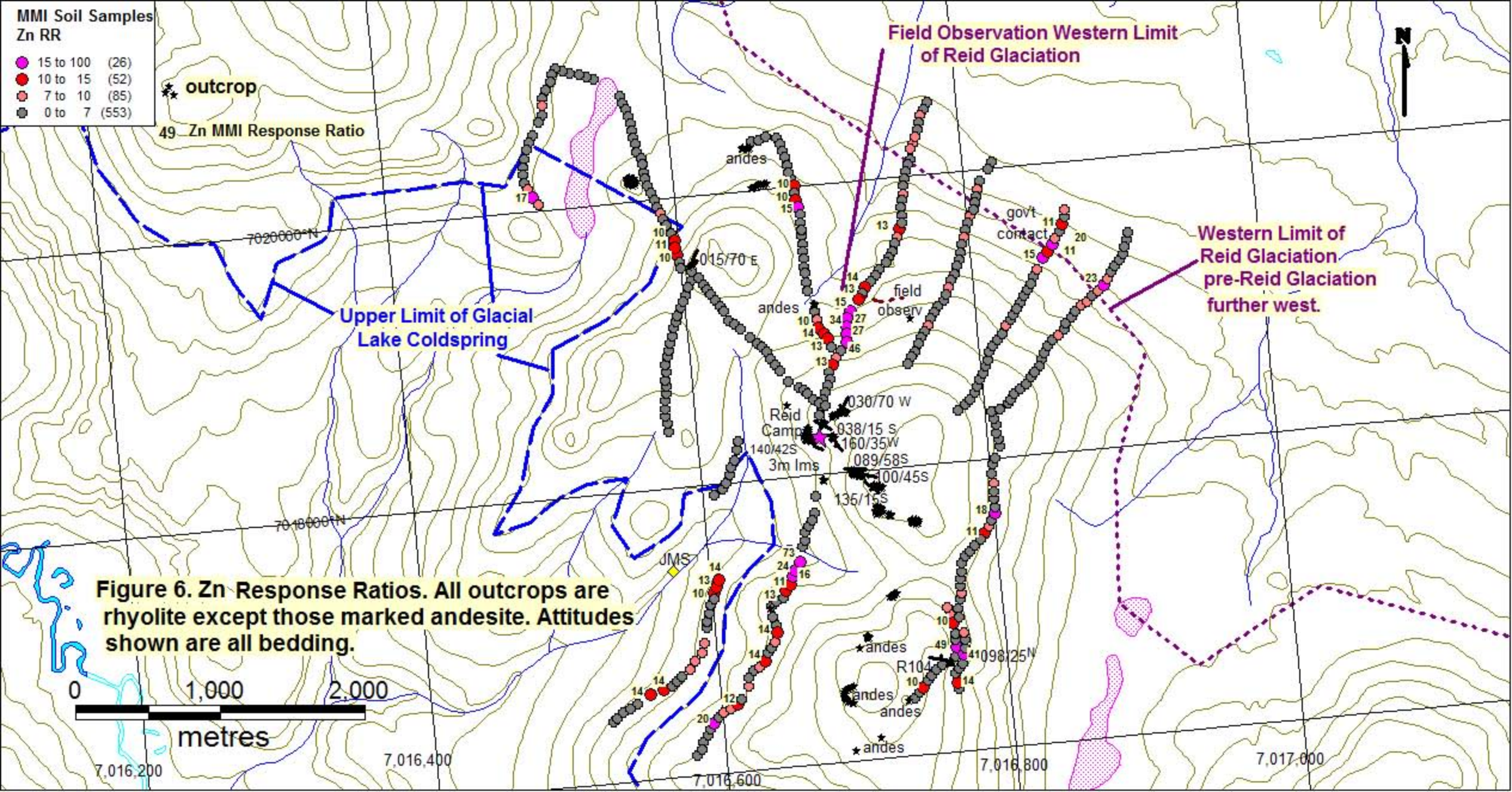

Figure 6. Zn Response Ratios. All outcrops are rhyolite except those marked andesite. Attitudes shown are all bedding.

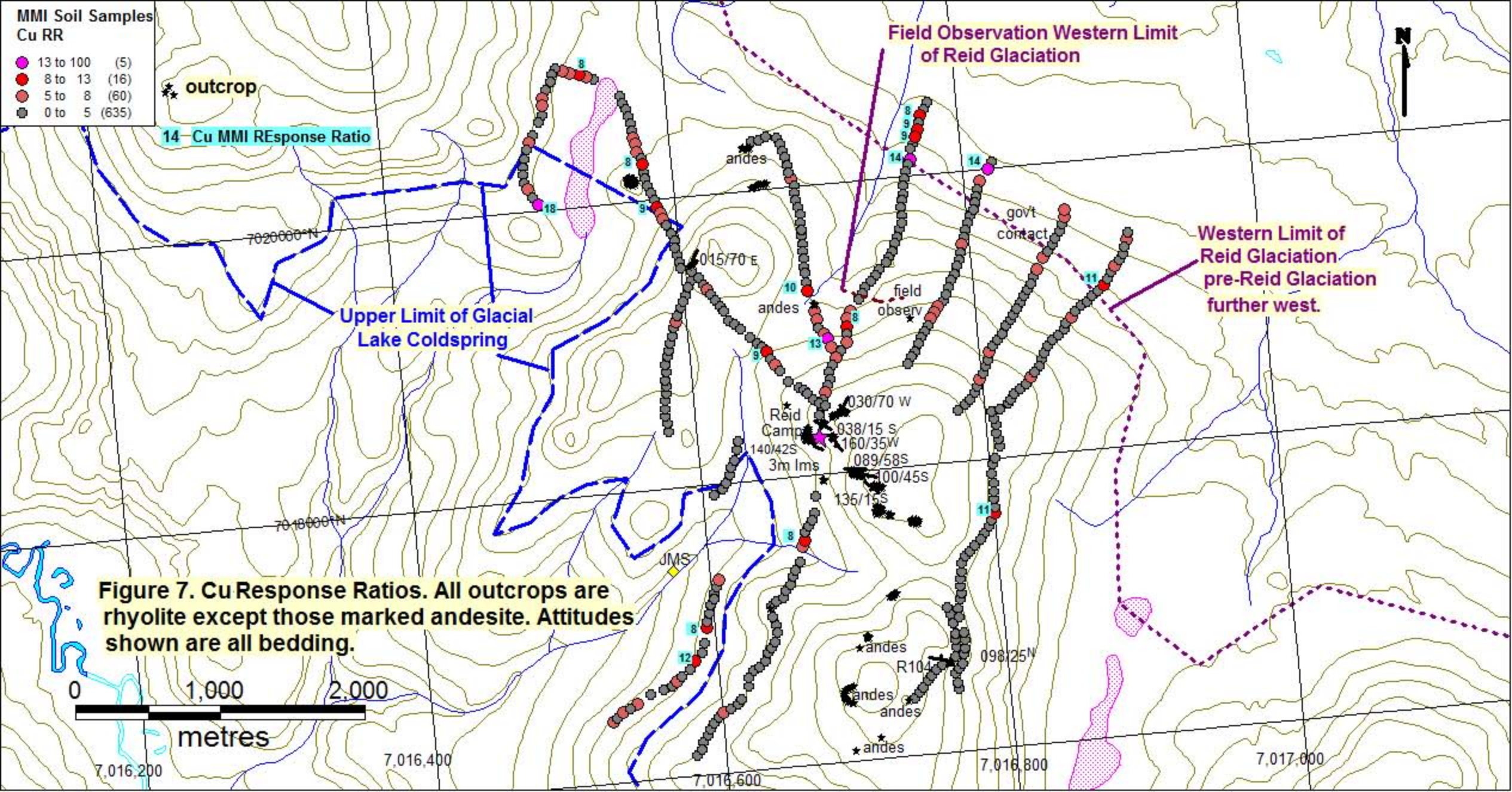

Figure 7. Cu Response Ratios. All outcrops are rhyolite except those marked andesite. Attitudes shown are all bedding.

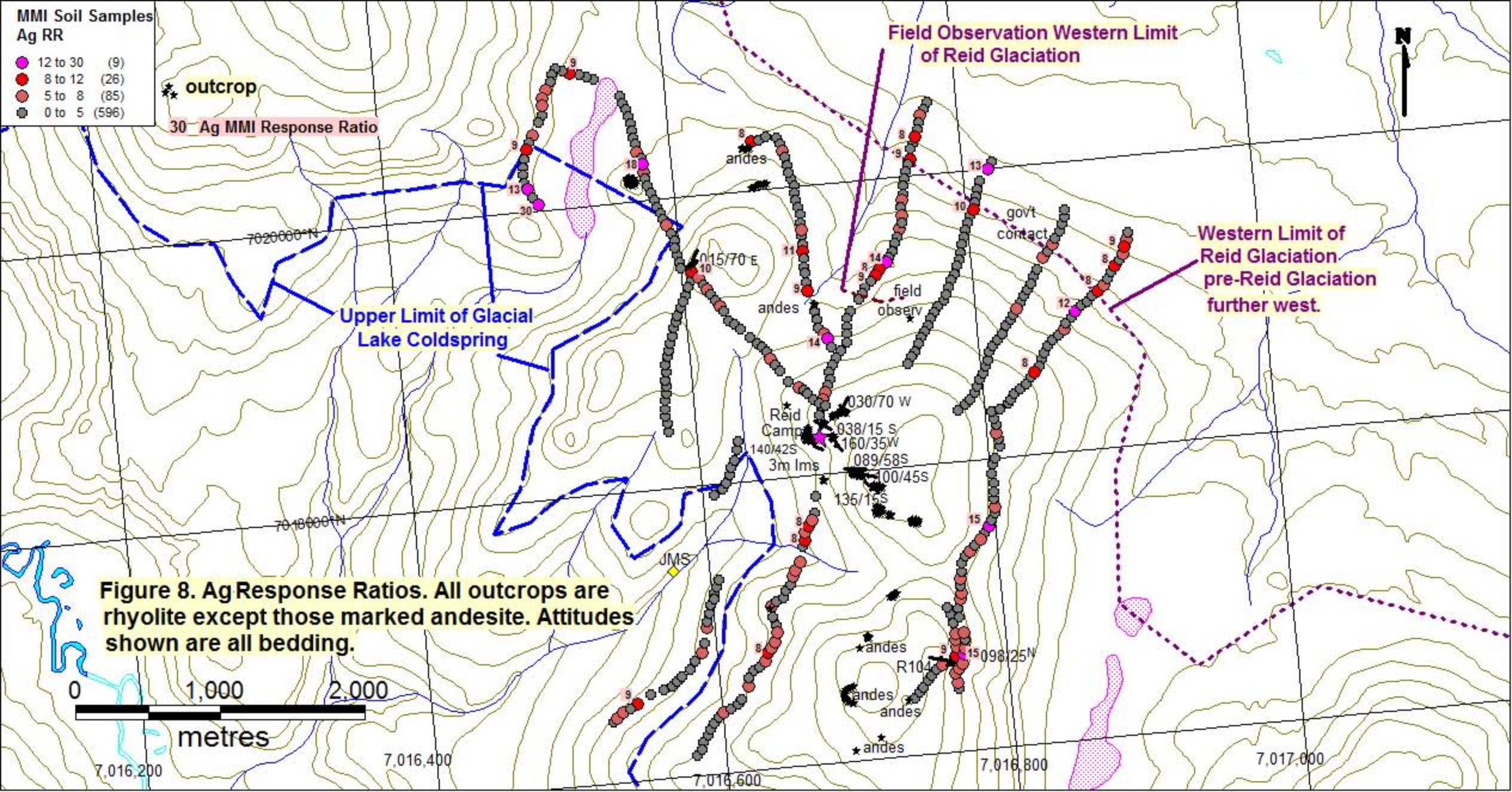

Figure 8. Ag Response Ratios. All outcrops are rhyolite except those marked andesite. Attitudes shown are all bedding.

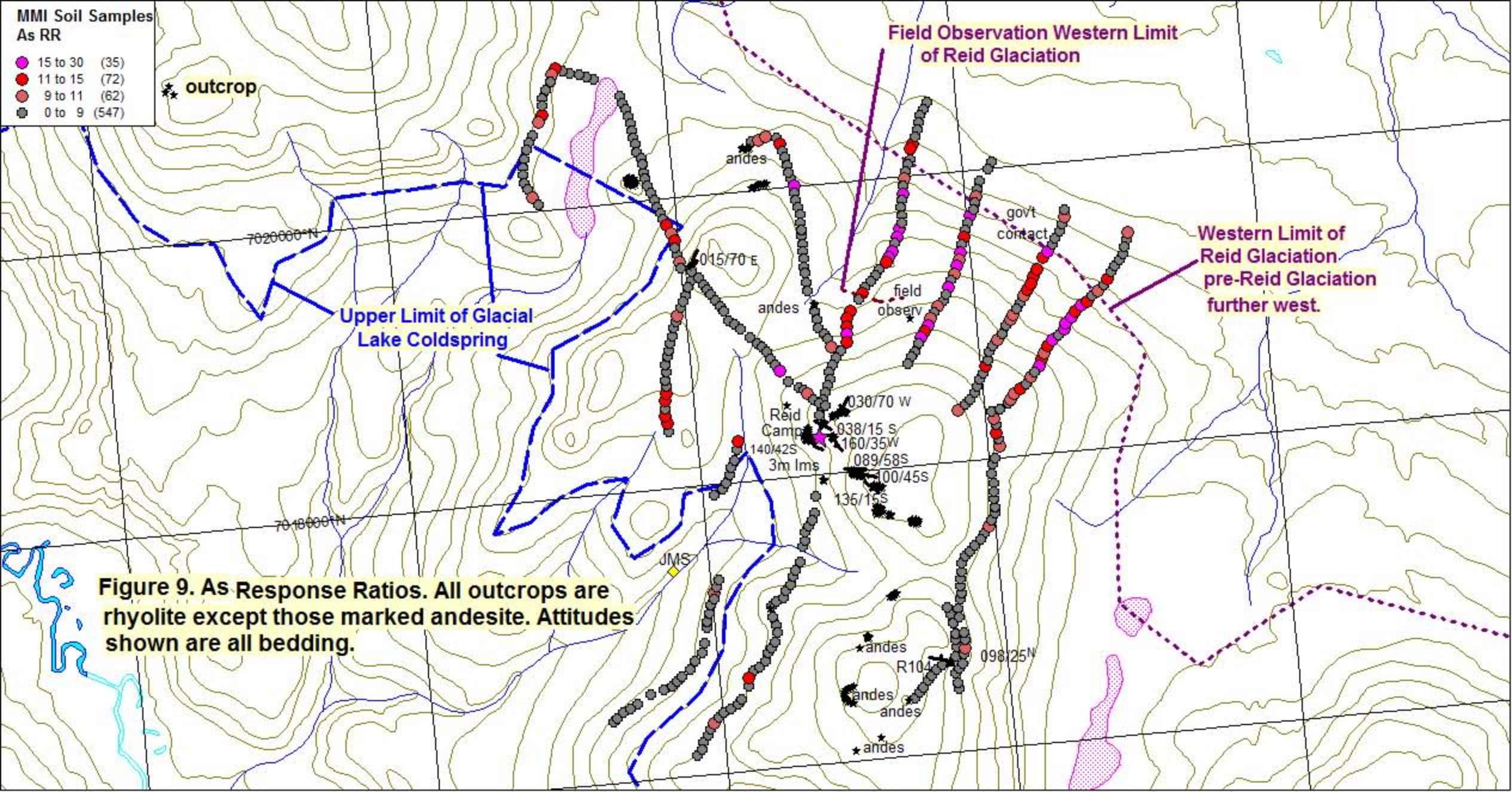

Figure 9. As Response Ratios. All outcrops are rhyolite except those marked andesite. Attitudes shown are all bedding.

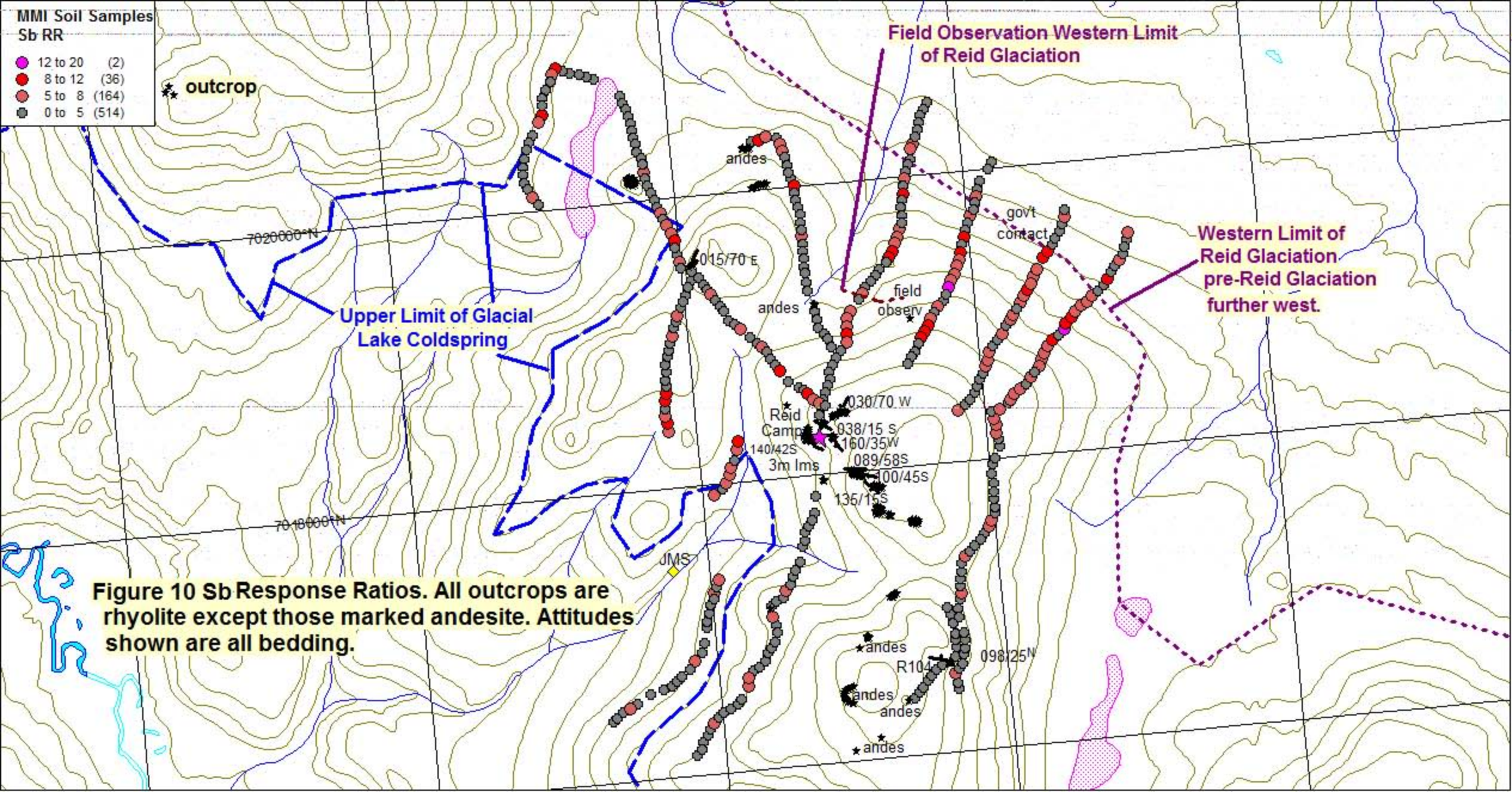

Figure 10 Sb Response Ratios. All outcrops are rhyolite except those marked andesite. Attitudes shown are all bedding.

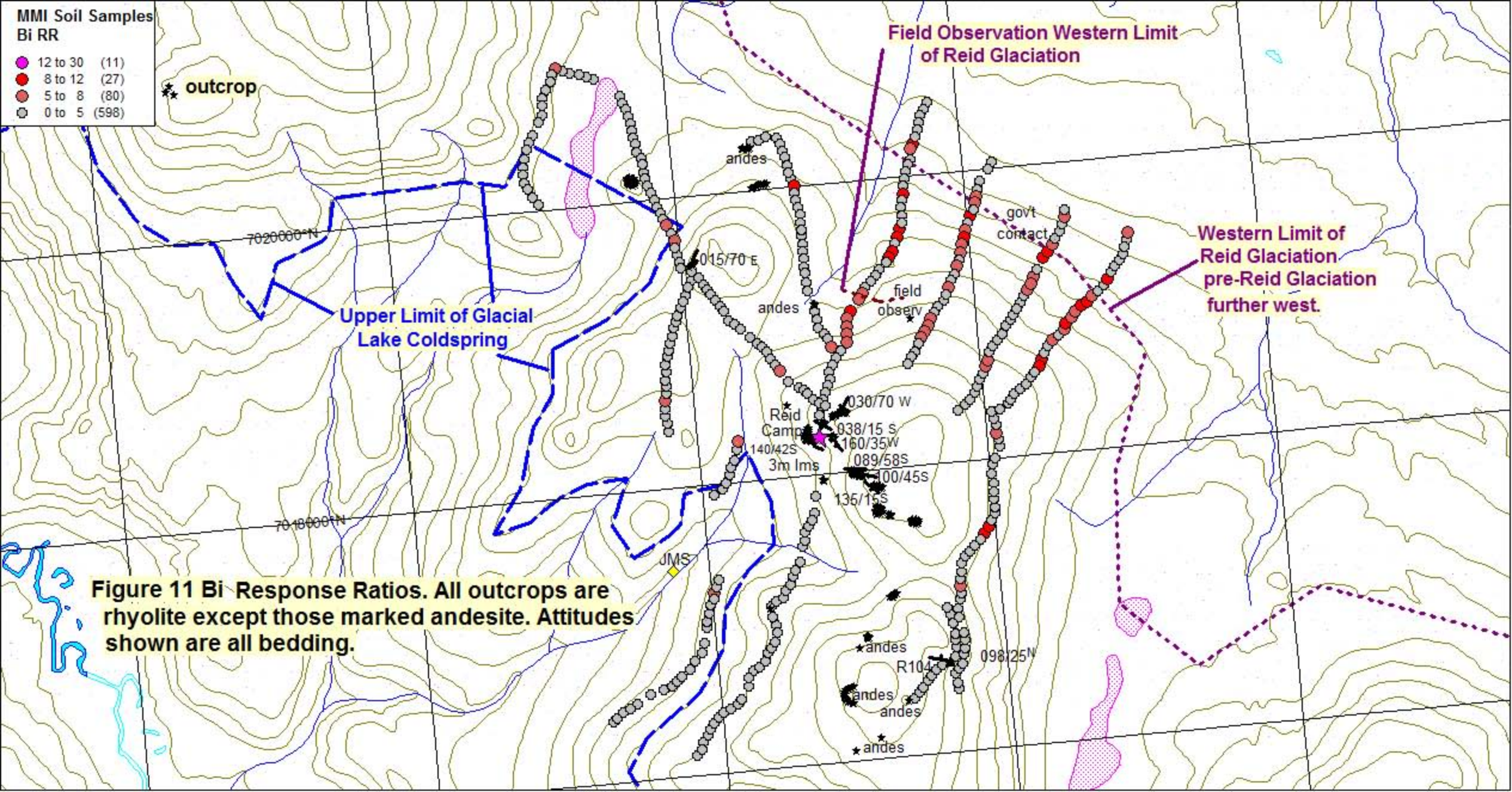

Figure 11 Bi Response Ratios. All outcrops are rhyolite except those marked andesite. Attitudes shown are all bedding.

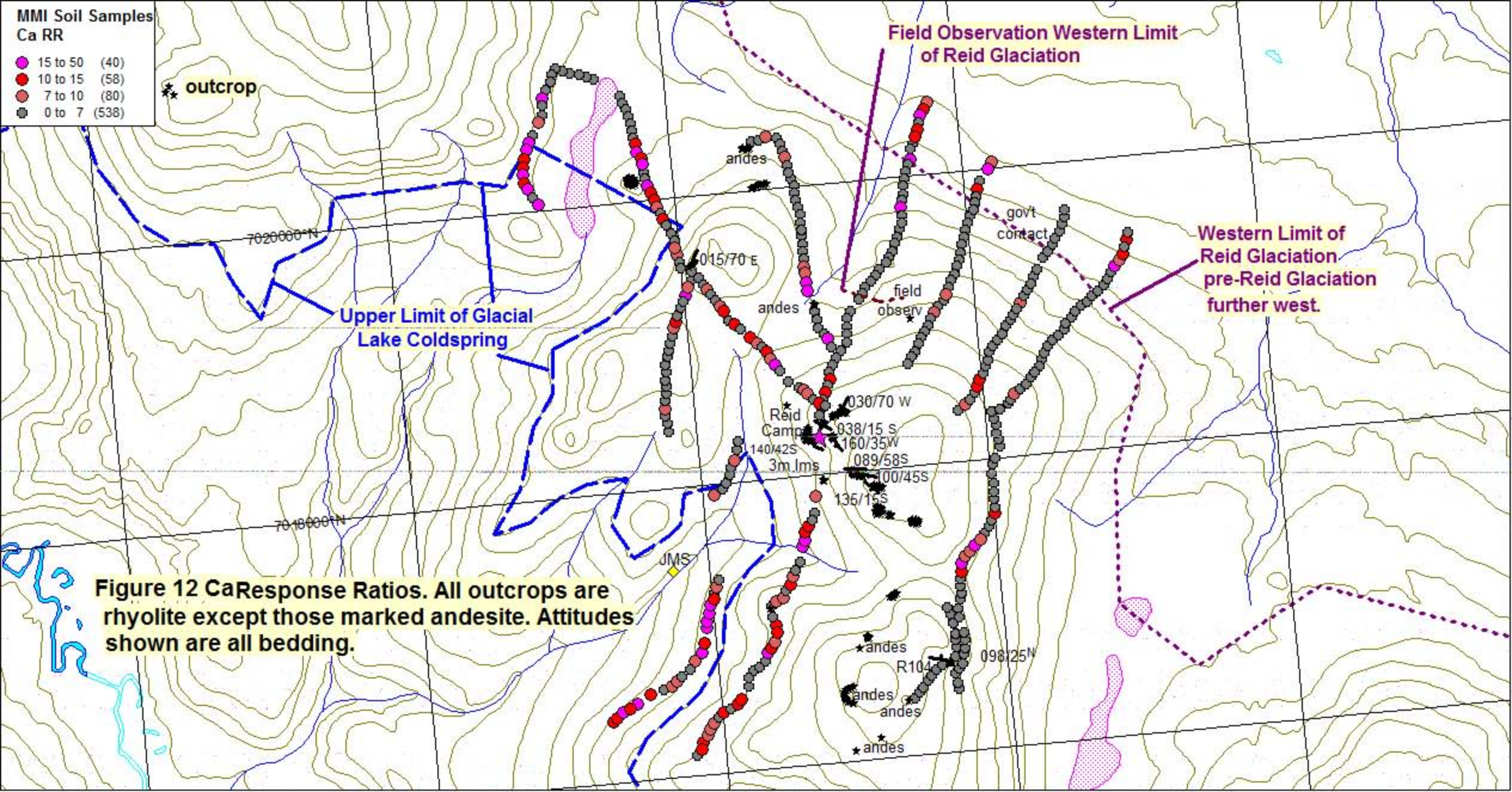

Figure 12 Ca Response Ratios. All outcrops are rhyolite except those marked andesite. Attitudes shown are all bedding.

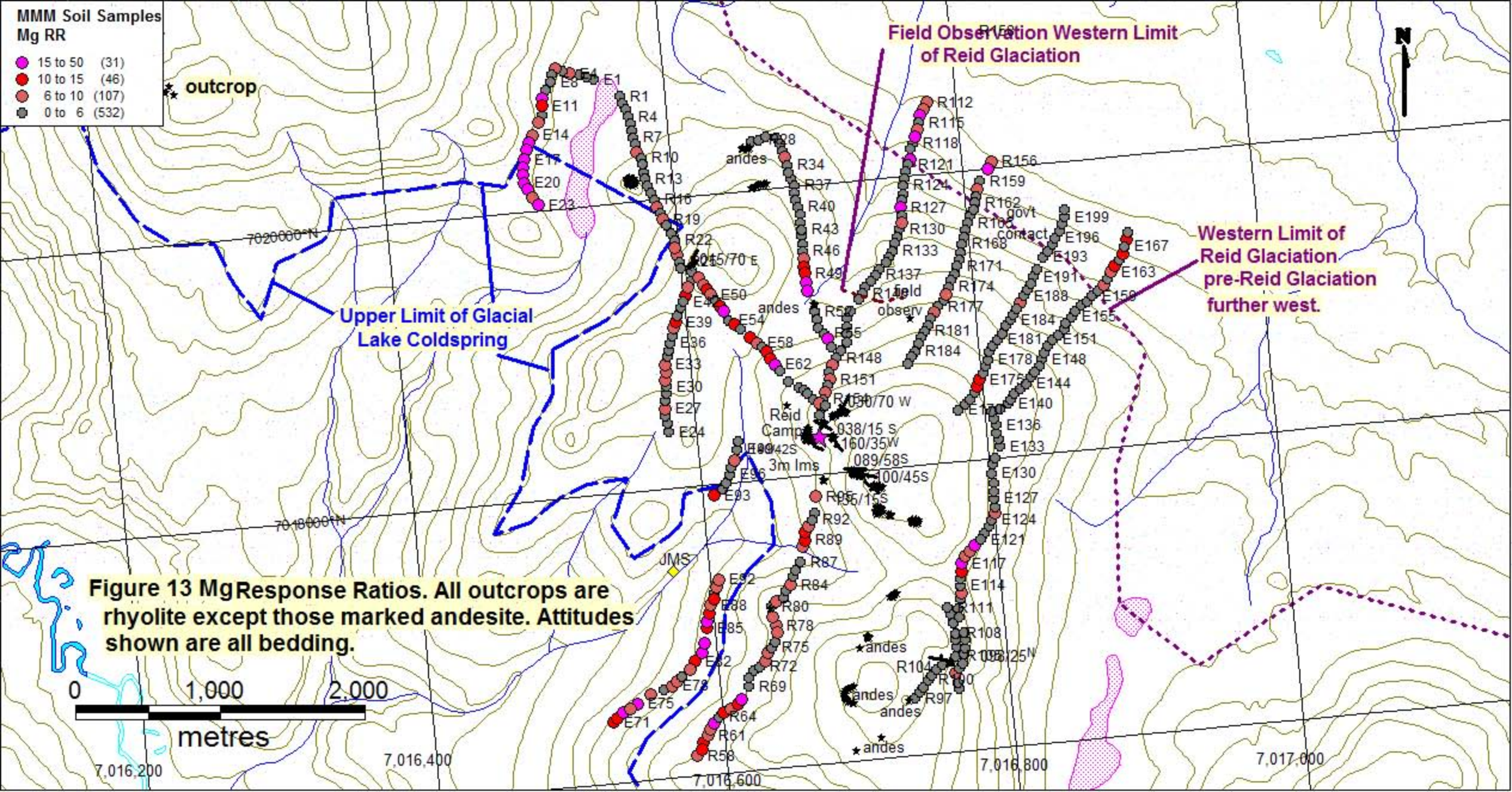

Figure 13 Mg Response Ratios. All outcrops are rhyolite except those marked andesite. Attitudes shown are all bedding.

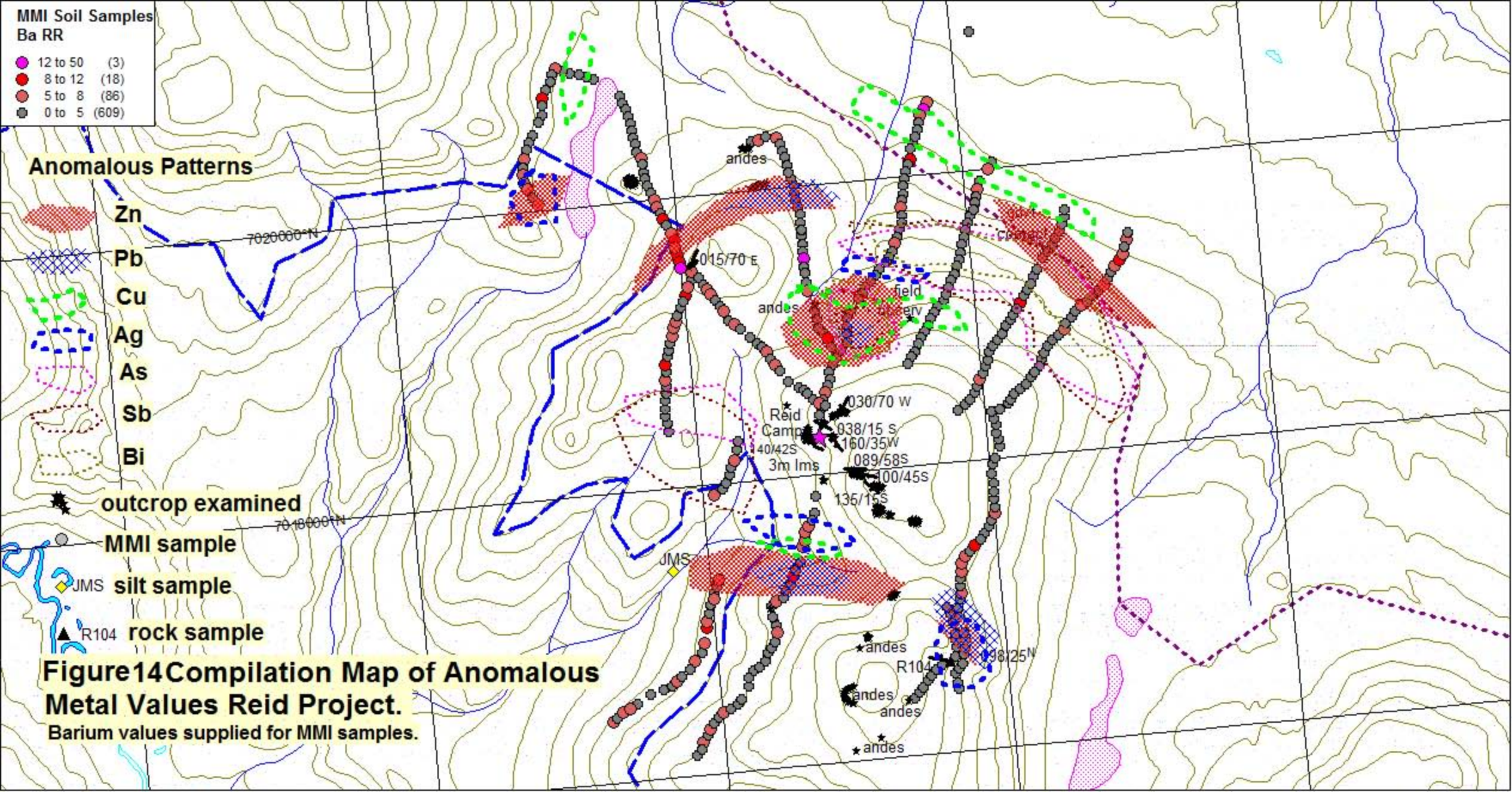

Figure14Compilation Map of Anomalous Metal Values Reid Project.

Barium values supplied for MMI samples.