YMEP23-038 FINAL REPORT

LIGHTNING/DUNCAN CREEK PROPERTY

By

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Geoplacer Exploration Ltd.

For

Duncan Creek Golddusters Ltd.

Location of property: 63°53'00"N; 135°21'07"W
NTS map sheet: 105M/14
Mining District: Mayo
Date: January 30, 2024

Table of Contents

Executive Summary 1
Introduction 2
Location and Access 2
Placer Tenure 4
Placer Permitting 9
Placer Exploration and Mining History 9
Local Bedrock Geology and Mineral Occurrences 12
Quaternary History and Surficial Geology 14
Placer Geology and Stratigraphic Setting 15
2022 Placer Exploration Program 18
- Overview 18
- Placer Lease Staking 18
- Resistivity Surveys 18
- Bulk Sampling 24
- Conclusions and Recommendations 26

Rationale for 2023 Exploration 27
2023 Placer Exploration Program 28
- Overview 28
- Placer Claim and Lease Staking 28
- Test Pitting 28
- Resistivity Surveys 30
- Drone Surveys 41

Conclusions and Recommendations 44
Statement of Qualifications 45
- William LeBarge 45

References 46
Appendix A – Test Pit Logs 48
Appendix B – High Resolution Drone Survey Maps 51

List of Figures

Figure 1 - General Location of Lightning/Duncan Creek Project, Yukon..... 3
Figure 2 – Location of Lightning/Duncan Creek placer claims and nearby Mayo region placer tenures. 8
Figure 3 - Bedrock Geology of Lightning/Duncan Creek, after Yukon Geological Survey (2022). 13
Figure 4 – Glacial limits and flow directions, Mayo Area, after Bond (1999). 16
Figure 5 - Surficial geology, Lightning/Duncan Creek, after Bond (1998) and Yukon Geological Survey, 2022. 17
Figure 6 – Resistivity profile RES22-NITE-01 was surveyed downstream of the confluence with Lightning Creek. The profile is interpreted to show 5 to 10 metres of dry and water saturated gravel, overlying a layer of sand and silt on top of a quartzite bedrock which may be faulted. Bedrock is interpreted to be 10 to 18 metres from surface. Five drill targets have been chosen on the profile. 20
Figure 7 – Resistivity line RES22-BRUCES1-01 was surveyed on Lightning Creek just upstream of its confluence with Duncan Creek. The profile is interpreted to show 5 to 10 metres of variably wet to dry gravel, sand and silt overlying a quartzite and graphitic schist bedrock. Bedrock is interpreted to be 10 to 12 metres from surface. The graphitic schist causes wide variations in conductivity which obscures the bedrock contact. Two drill targets are shown. 21
Figure 8 – View looking south at resistivity line RES22-UPPER DUNCAN-01 on Upper Duncan Creek. The profile is interpreted to show 5 to 10 metres of thawed, variably wet to dry gravel, sand and silt overlying a quartzite bedrock which is structurally disrupted by faulting. Bedrock lies 10 to 12 metres from surface. Two drill targets are shown. 22
Figure 9 – Satellite photo of Lightning Creek and Upper Duncan Creek showing the location of the 2022 resistivity surveys, bulk samples and drill targets. 23
Figure 10 - The surface gravels were tested with a CAT 330DL excavator at depths from 0 to 12 feet. The first five bulk samples (22-1 to 22-5) were from creek gravels located on the Bruces 1 claim. 25
Figure 11 – Bulk sample 22-6 (1791 cubic yards) was processed from near-surface gravels near the confluence of Lightning and Upper Duncan Creeks, using an oscillating screen deck and sluice runs. The gravels were stockpiled near the sluice plant and fed with a CAT 316 excavator..... 26
Figure 12 - Gravel samples were processed with a small portable trommel and long tom. 28
Figure 13 - Test Pits 2023-1, 2023-2 and 2023-3 encountered 7-18 feet of sandy pebble cobble gravel beneath a thin (2 ft), silty-sandy organic layer. The most significant contact was in 2023-2, which encountered a sticky, pebbly silty clay at 9 feet. 29
Figure 14 – Satellite image of Lightning/Duncan Creek claim area showing locations of resistivity surveys, drill targets and test pits in 2022 and 2023. Two interpreted potential paleochannels are also shown. .. 32
Figure 15 – Detail of Lightning/Duncan Creek main project area showing locations of resistivity surveys, drill targets and test pits in 2022 and 2023. Two interpreted potential paleochannels are also shown. .. 33
Figure 16 – Resistivity line RES23-WATERFALL-01 was surveyed across the left limit bench of Upper Duncan Creek, in an area mapped as McConnell age alluvial terrace (map unit AMt) just upstream of the canyon. Bedrock outcrops at surface near the start of the line. A partially thawed 2-4 metre thick layer of gravel overlies 5-8 metres of frozen gravel over bedrock, which varies from 2 to 12 metres in depth. A potential sulphide zone is expressed as a highly conductive anomaly about 40 metres from the start of

the line. This may correspond with a known sulphide occurrence which outcrops nearby, just across the Upper Duncan canyon. 34
Figure 17 – Resistivity line RES23-TIER 1-11-01 was surveyed across the left limit bench of Upper Duncan Creek at 90 degrees to line RES23-WATERFALL-01, which it intersected. The area is mapped as McConnell alluvial terrace (unit AMt) transitioning to colluvial veneer/Reid till blanket (map units Cv and TRb). This line is interpreted to have a thawed layer up to 3 metres thick overlying a frozen gravel 10-14 metres thick over a frozen bedrock. The bedrock profile (distinctly shown in the IP model given here) climbs to the southeast, where the line ends near a surface bedrock outcrop. 35
Figure 18 – Resistivity profile RES23-ELAINE4-02 was surveyed NW to SE (parallel to line RES23-TIER 1-11-01), across an area mapped as McConnell glaciofluvial terrace (map unit GMt) which transitions southeastward to a McConnell-age alluvial terrace (map unit AMt). This line is interpreted to have a 1-3 metre thawed gravel layer overlying 5-10 metres of frozen gravel, 5-10 metres of frozen clay and 10-15 metres of thawed clay over thawed bedrock. Bedrock may be up to 30 metres from surface. 36
Figure 19 - Resistivity profile RES23-ELAINE4-01 was surveyed NW to SE (parallel to line RES23-ELAINE4-02), across an area mapped as colluvial apron/McConnell glaciofluvial terrace (map unit Ca/GMt) which transitions southeastward to a McConnell glaciofluvial terrace (map unit GMt). This line is interpreted to have 3-8 metres of thawed gravel overlying 5-10 metres of frozen gravel, 5-10 metres of frozen clay and 5-20 metres of thawed clay. Bedrock appears to deepen to the southeast, beneath a thawed clay unit. Test pits 2023-1 to 2023-3 were excavated along this line. 37
Figure 20 – Resistivity profile RES23-IM0489-01 was surveyed in the Upper Duncan Creek valley, in an area mapped as Reid-age glacial till complex (map unit TRx). The area has been mined and the survey was conducted along a trail which was constructed from mine tailings. The profile is interpreted to have 3-5 metres of thawed sandy gravel and coarse gravel tailings overlying 3-5 metres of thawed fine-grained sandy-silty gravel, which may be the Reid glacial till. The southeast end of the profile consists of 3-5 metres of sandy-silty gravel (possibly in-situ till) overlying either bedrock or a buried coarse gravel unit. Bedrock varies between 8 and 10 metres below surface. 38
Figure 21 - Resistivity profile RES23-IM0490-01 was surveyed in the Upper Duncan Creek valley, in an area mapped as Reid-age glacial till complex (map unit TRx). No obvious mining has taken place in the survey area, although some test pits were noted. The profile is thawed and interpreted to have 3-8 metres of sandy gravel overlying up to 5 metres of coarse gravel. Bedrock varies between 6 and 12 metres below surface. 39
Figure 22 – Low resolution orthomosiac of the drone surveys which were conducted on Upper Duncan/Lightning Creek in 2023. 42
Figure 23 - Digital terrain model of the confluence of Upper Duncan and Duncan Creeks, showing the 2023 resistivity survey lines and the projected traces of potential paleochannels. McConnell age alluvial (AMt) and glaciofluvial (GMt, Ca/GMt) terraces are clearly evident. 43

List of Tables

Table 1 – Placer Claim Status, Lightning/Duncan Creek, January 14, 2024. 4
Table 2 - Placer gold production from reported gold royalties, 1978-2022, Mayo Mining District. Figures are in crude (raw) ounces**.** 11
Table 3 – 2022 resistivity survey line endpoint coordinates, grant number and length, Upper Duncan Creek Lease IM00482. 19
Table 4 - Drill Targets from 2022 Resistivity Surveys, Lightning/Duncan Creek. 24
Table 5 – Results of bulk samples, Lightning/Duncan Creek, 2022 25
Table 6 - Results of bulk samples, Lightning/Duncan Creek, 2023 29
Table 7 – 2023 resistivity survey line endpoint coordinates, grant numbers and lengths. 31
Table 8 - Drill Targets from 2023 Resistivity Surveys, Lightning/Duncan Creek. 31

Executive Summary

The following is the final report for project YMEP2023-038 on the Lightning/Duncan Creek property owned by Frank Taylor and Duncan Creek Golddusters Ltd.

Duncan Creek is a right limit tributary of the Mayo River, located in central Yukon approximately 42 km by road north of Mayo, Yukon. Access to the property is gained by the Silver Trail from the village of Mayo to the Duncan Creek Road south turnoff (17 km) and a further 34 km to the middle of the claim group at the confluence of Duncan Creek with Lightning Creek. The centre of the property is 63°53'00"N and 135°21'07"W, on NTS map sheet 105M/14, in the Mayo Mining District.

Historical exploration and mining activity has shown that most of the alluvial, glaciofluvial and glacial sediments in the Duncan/Lightning/Upper Duncan drainages are placer gold-bearing. Within the project area, evidence suggests that there are buried interglacial placer deposits, as well as placer gold-bearing glaciofluvial gravel and alpine till, which may have derived economic gold grades from both pre-existing alluvial deposits and local gold bearing bedrock sources.

The 2023 exploration program targeted areas on the left limit bench between Upper Duncan and Duncan Creeks, as well as portions of the valley of Upper Duncan Creek. The program consisted of placer claim and prospecting lease staking, resistivity geophysics, excavator test-pitting, bulk sampling, and drone aerial surveys.

The test pits were useful in characterizing the surface stratigraphy and lithologies in the terrace gravels, and facilitated some calibration of the shallow parts of the nearby resistivity surveys. Gold grades from the processed test samples were not high, however all samples returned at least some gold. Larger and deeper bulk samples, possibly at “false bedrock” contacts such as buried clay units, would most likely increase the gold values recovered in the terrace gravels.

The resistivity surveys transected a complex variety of alluvial, glaciofluvial and colluvial sediments, which ranged from completely thawed to completely frozen, often within the same profile. The depths of bedrock interpreted beneath the surveys varied from 0 to 17 metres on the highest parts of the bench, to a range of 2 to 30 metres beneath the alluvial, glaciofluvial and glacial sediments adjacent to the Duncan Creek valley.

Ten drill targets were identified on the resistivity surveys. These vary from 3.6 to 17 metres in depth. Many of the drill targets are directed towards more accessible “false bedrock” contacts which may be easier to mine, rather than deeply buried bedrock.

Based on the interpretation of the resistivity surveys, overall topography, surficial geology, and the digital terrain model, two likely pathways for a buried interglacial paleochannel remain possible. There is strong evidence from the resistivity surveys that the most northerly paleochannel is present, however, this can not be confirmed without several targeted drill holes to confirm lithologies, permafrost characteristics, and bedrock depths.

Further exploration on the project area should include larger scale bulk sampling and drilling using reverse circulation (R/C), rotary air blast (RAB) or sonic drilling methods. This will help to further delineate the gold potential of the valley and terrace gravels, as well as improve the understanding of the subsurface by aiding calibration of the resistivity survey data.

Introduction

The following is the final report for project YMEP2023-038 on the Lightning/Duncan Creek property owned by Frank Taylor and Duncan Creek Golddusters Ltd.

Location and Access

Duncan Creek is a right limit tributary of the Mayo River, located in central Yukon approximately 42 km by road north of Mayo, Yukon (Figure 1). Access to the property is gained by the Silver Trail from the village of Mayo to the Duncan Creek Road south turnoff (17 km) and a further 34 km to the middle of the claim group at the confluence of Duncan Creek with Lightning Creek.

The centre of the property is 63°53'00"N and 135°21'07"W, on NTS map sheet 105M/14, in the Mayo Mining District (Figure 2).

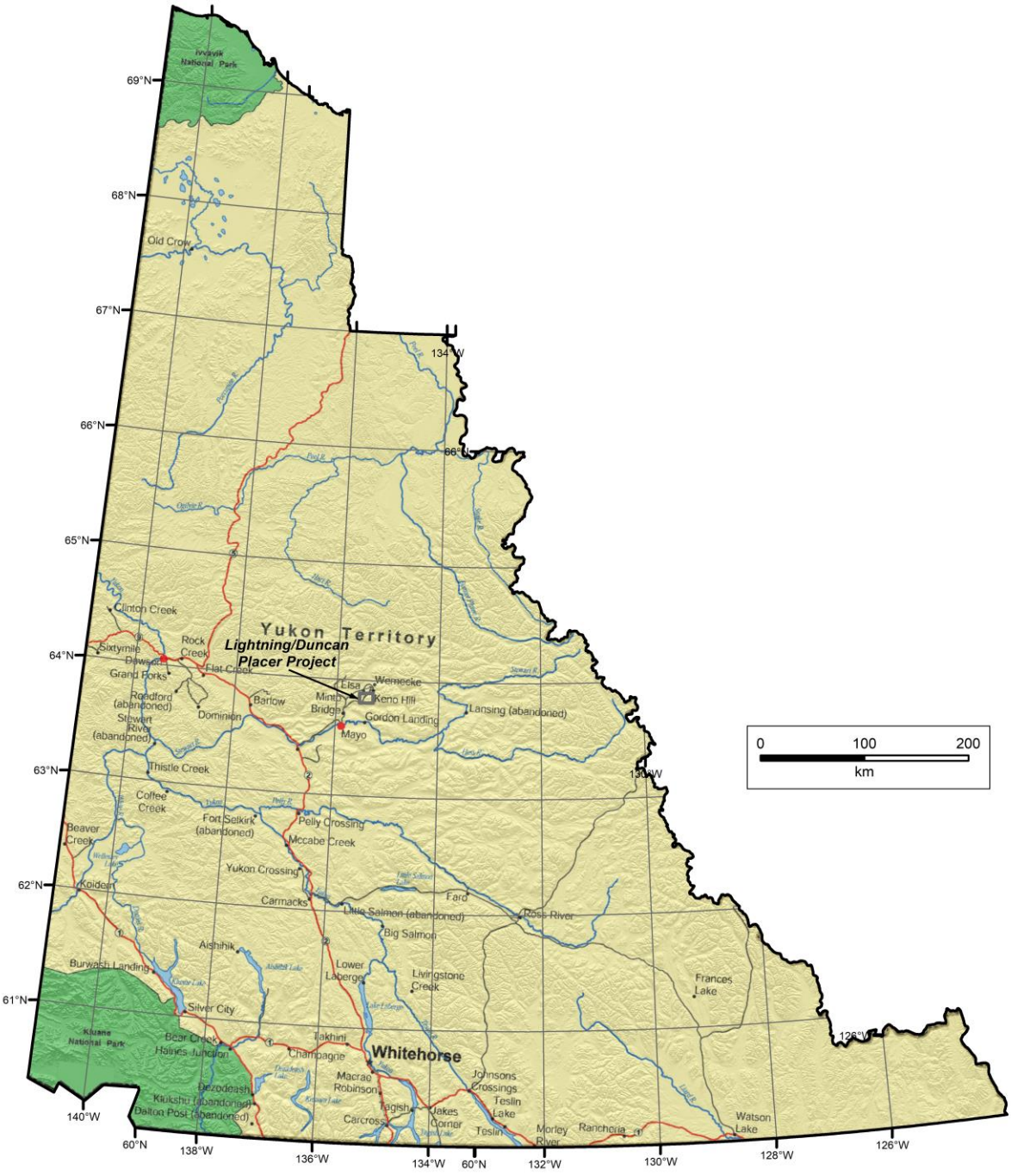

Figure 1 - General Location of Lightning/Duncan Creek Project, Yukon.

Placer Tenure

Table 1 shows the status for the 143 placer claims and two prospecting leases on the Lightning/Duncan Creek placer property as of January 14, 2024.

Table 1 – Placer Claim Status, Lightning/Duncan Creek, January 14, 2024.

STATUS	GRANT NUMBER	CLAIM NAME	OWNER NAME	STAKING DATE	RECORDED DATE	EXPIRY DATE
Pending	P 525997	Bell	Frank Taylor - 100%	2023-04-03	2023-04-04	2024-04-04
Pending	P 529479	Bill 1	Frank Taylor - 100%	2023-09-03	2023-09-05	2024-09-05
Pending	P 529480	Bill 2	Frank Taylor - 100%	2023-09-03	2023-09-05	2024-09-05
Pending	P 529481	Bill 3	Frank Taylor - 100%	2023-09-03	2023-09-05	2024-09-05
Pending	P 529482	Bill 4	Frank Taylor - 100%	2023-09-03	2023-09-05	2024-09-05
Active	P 42646	Bruces 1	Frank Taylor - 100%	1996-10-21	1996-10-25	2024-12-28
Active	P 42647	Bruces 2	Frank Taylor - 100%	1996-10-21	1996-10-25	2024-12-28
Active	P 42648	Bruces 3	Frank Taylor - 100%	1996-10-21	1996-10-25	2024-12-28
Active	P 42649	Bruces 4	Frank Taylor - 100%	1996-10-21	1996-10-25	2024-12-28
Active	P 42650	Bruces 5	Frank Taylor - 100%	1996-10-21	1996-10-25	2024-12-28
Active	P 42651	Bruces 6	Frank Taylor - 100%	1996-10-21	1996-10-25	2024-12-28
Active	P 42652	Bruces 7	Frank Taylor - 100%	1996-10-21	1996-10-25	2024-12-28
Active	P 42653	Bruces 8	Frank Taylor - 100%	1996-10-21	1996-10-25	2024-12-28
Active	P 42654	Bruces 9	Frank Taylor - 100%	1996-10-21	1996-10-25	2024-12-28
Active	P 42655	Bruces 10	Frank Taylor - 100%	1996-10-21	1996-10-25	2024-12-28
Active	P 42914	Colour	Frank Taylor - 100%	1998-10-22	1998-10-23	2024-12-28
Active	P 42575	Elaine 1	Frank Taylor - 100%	1996-10-09	1996-10-10	2024-12-28
Active	P 42576	Elaine 2	Frank Taylor - 100%	1996-10-09	1996-10-10	2024-12-28
Active	P 42577	Elaine 3	Frank Taylor - 100%	1996-10-09	1996-10-10	2024-12-28
Active	P 42578	Elaine 4	Frank Taylor - 100%	1996-10-09	1996-10-10	2024-12-28
Active	P 42579	Elaine 5	Frank Taylor - 100%	1996-10-09	1996-10-10	2024-12-28
Active	P 42580	Elaine 6	Frank Taylor - 100%	1996-10-09	1996-10-10	2024-12-28
Active	P 42470	Elaine	Frank Taylor - 100%	1995-10-01	1995-10-10	2024-12-28
Pending	P 529405	Frank	Frank Taylor - 100%	2023-07-13	2023-07-14	2024-07-14
Pending	P 529408	Fred	Frank Taylor - 100%	2023-07-13	2023-07-14	2024-07-14
Pending	P 529483	Goldeneye 1	Frank Taylor - 100%	2023-09-04	2023-09-05	2024-09-05
Pending	P 529484	Goldeneye 2	Frank Taylor - 100%	2023-09-04	2023-09-05	2024-09-05
Pending	P 529485	Goldeneye 3	Frank Taylor - 100%	2023-09-04	2023-09-05	2024-09-05
Pending	P 529486	Goldeneye 4	Frank Taylor - 100%	2023-09-04	2023-09-05	2024-09-05
Pending	P 529487	Goldeneye 5	Frank Taylor - 100%	2023-09-04	2023-09-05	2024-09-05
Pending	P 529488	Goldeneye 6	Frank Taylor - 100%	2023-09-04	2023-09-05	2024-09-05
Pending	P 529524	Goldeneye 7	Frank Taylor - 100%	2023-09-17	2023-09-18	2024-09-18
Pending	P 529525	Goldeneye 8	Frank Taylor - 100%	2023-09-17	2023-09-18	2024-09-18
Pending	P 529526	Goldeneye 9	Frank Taylor - 100%	2023-09-17	2023-09-18	2024-09-18
Pending	P 529527	Goldeneye 10	Frank Taylor - 100%	2023-09-17	2023-09-18	2024-09-18
Pending	P 529406	Grad23	Frank Taylor - 100%	2023-07-12	2023-07-14	2024-07-14

STATUS	GRANT NUMBER	CLAIM NAME	OWNER NAME	STAKING DATE	RECORDED DATE	EXPIRY DATE
Active	P 525319	Joan 1	Frank Taylor - 100%	2021-05-05	2021-05-10	2025-12-12
Active	P 525320	Joan 2	Frank Taylor - 100%	2021-05-05	2021-05-10	2025-12-28
Active	P 525321	Joan 3	Frank Taylor - 100%	2021-05-05	2021-05-10	2025-12-28
Active	P 525322	Joan 4	Frank Taylor - 100%	2021-05-05	2021-05-10	2025-12-28
Active	P 525323	Joan 5	Frank Taylor - 100%	2021-05-05	2021-05-10	2025-12-28
Pending	P 525998	Josh	Frank Taylor - 100%	2023-03-31	2023-04-06	2024-04-06
Pending	P 529413	Joyce 1	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529414	Joyce 2	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529415	Joyce 3	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529416	Joyce 4	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529417	Joyce 5	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529418	Joyce 6	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529419	Joyce 7	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529420	Joyce 8	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529421	Joyce 9	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529422	Joyce 10	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529423	Joyce 11	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529424	Joyce 12	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529425	Joyce 13	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529426	Joyce 14	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529427	Joyce 15	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529428	Joyce 16	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529429	Joyce 17	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529430	Joyce 18	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529431	Joyce 19	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529432	Joyce 20	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529433	Joyce 21	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529434	Joyce 22	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529435	Joyce 23	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529436	Joyce 24	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529437	Joyce 25	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529438	Joyce 26	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529439	Joyce 27	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529440	Joyce 28	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529441	Joyce 29	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529442	Joyce 30	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529443	Joyce 31	Frank Taylor - 100%	2023-08-04	2023-08-16	2024-08-16
Pending	P 529528	Lars	Frank Taylor - 100%	2023-09-23	2023-09-29	2024-09-29
Active	P 525313	Mai 1	Frank Taylor - 100%	2021-05-05	2021-05-10	2025-12-28
Active	P 525314	Mai 2	Frank Taylor - 100%	2021-05-05	2021-05-10	2025-12-28
Active	P 525315	Mai 3	Frank Taylor - 100%	2021-05-05	2021-05-10	2025-12-28

STATUS	GRANT NUMBER	CLAIM NAME	OWNER NAME	STAKING DATE	RECORDED DATE	EXPIRY DATE
Active	P 525316	Mai 4	Frank Taylor - 100%	2021-05-05	2021-05-10	2025-12-28
Active	P 525317	Mai 5	Frank Taylor - 100%	2021-05-05	2021-05-10	2025-12-28
Active	P 525318	Mai 6	Frank Taylor - 100%	2021-05-05	2021-05-10	2025-12-28
Active	P 42915	Nite	Frank Taylor - 100%	1998-10-22	1998-10-23	2024-12-28
Active	P 513803	Shopping 1	Frank Taylor - 100%	2017-05-11	2017-05-18	2026-12-28
Active	P 513804	Shopping 2	Frank Taylor - 100%	2017-05-11	2017-05-18	2026-12-28
Active	P 513805	Shopping 3	Frank Taylor - 100%	2017-05-11	2017-05-18	2026-12-28
Active	P 513809	Shopping 4	Frank Taylor - 100%	2017-05-23	2017-06-01	2025-12-28
Active	P 513810	Shopping 5	Frank Taylor - 100%	2017-05-23	2017-06-01	2025-12-28
Pending	P 529407	Skidoo	Frank Taylor - 100%	2023-07-12	2023-07-14	2024-07-14
Active	P 42637	Spirit 1	Frank Taylor - 100%	1996-10-20	1996-10-25	2024-12-28
Active	P 42638	Spirit 2	Frank Taylor - 100%	1996-10-20	1996-10-25	2024-12-28
Active	P 42639	Spirit 3	Frank Taylor - 100%	1996-10-20	1996-10-25	2024-12-28
Active	P 42640	Spirit 4	Frank Taylor - 100%	1996-10-20	1996-10-25	2024-12-28
Active	P 42641	Spirit 5	Frank Taylor - 100%	1996-10-20	1996-10-25	2024-12-28
Active	P 42642	Spirit 6	Frank Taylor - 100%	1996-10-20	1996-10-25	2024-12-28
Active	P 42643	Spirit 7	Frank Taylor - 100%	1996-10-20	1996-10-25	2024-12-28
Active	P 42644	Spirit 8	Frank Taylor - 100%	1996-10-20	1996-10-25	2024-12-28
Active	P 42645	Spirit 9	Frank Taylor - 100%	1996-10-20	1996-10-25	2024-12-28
Active	P 524398	T 1 1	Frank Taylor - 100%	2018-05-14	2018-05-18	2026-12-28
Active	P 524399	T 1 2	Frank Taylor - 100%	2018-05-14	2018-05-18	2026-12-28
Active	P 524400	T 1 3	Frank Taylor - 100%	2018-05-14	2018-05-18	2026-12-28
Active	P 524401	T 1 4	Frank Taylor - 100%	2018-05-14	2018-05-18	2026-12-28
Active	P 524402	T 1 5	Frank Taylor - 100%	2018-05-14	2018-05-18	2026-12-28
Active	P 524403	T 1 6	Frank Taylor - 100%	2018-05-14	2018-05-18	2026-12-28
Active	P 524404	T 1 7	Frank Taylor - 100%	2018-05-14	2018-05-18	2026-12-28
Active	P 524405	T 1 8	Frank Taylor - 100%	2018-05-14	2018-05-18	2026-12-28
Active	P 524406	T 1 9	Frank Taylor - 100%	2018-05-14	2018-05-18	2026-12-28
Active	P 524407	T 1 10	Frank Taylor - 100%	2018-05-14	2018-05-18	2026-12-28
Active	P 524408	T 1 11	Frank Taylor - 100%	2018-05-14	2018-05-18	2026-12-28
Active	P 524409	T 2 1	Frank Taylor - 100%	2018-05-15	2018-05-18	2025-12-28
Active	P 524410	T 2 2	Frank Taylor - 100%	2018-05-15	2018-05-18	2025-12-28
Active	P 524411	T 2 3	Frank Taylor - 100%	2018-05-15	2018-05-18	2025-12-28
Active	P 524412	T 2 4	Frank Taylor - 100%	2018-05-15	2018-05-18	2025-12-28
Active	P 524413	T 2 5	Frank Taylor - 100%	2018-05-15	2018-05-18	2025-12-28
Active	P 524414	T 2 6	Frank Taylor - 100%	2018-05-15	2018-05-18	2025-12-28
Active	P 524415	T 2 7	Frank Taylor - 100%	2018-05-15	2018-05-18	2025-12-28
Active	P 524416	T 2 8	Frank Taylor - 100%	2018-05-15	2018-05-18	2025-12-28
Active	P 524417	T 2 9	Frank Taylor - 100%	2018-05-15	2018-05-18	2025-12-28
Active	P 524418	T 2 10	Frank Taylor - 100%	2018-05-15	2018-05-18	2025-12-28
Active	P 524419	T 2 11	Frank Taylor - 100%	2018-05-15	2018-05-18	2025-12-28

STATUS	GRANT NUMBER	CLAIM NAME	OWNER NAME	STAKING DATE	RECORDED DATE	EXPIRY DATE
Active	P 524386	Tier 1 1	Frank Taylor - 100%	2018-05-11	2018-05-18	2025-12-28
Active	P 524387	Tier 1 2	Frank Taylor - 100%	2018-05-11	2018-05-18	2025-12-28
Active	P 524388	Tier 1 3	Frank Taylor - 100%	2018-05-11	2018-05-18	2025-12-28
Active	P 524389	Tier 1 4	Frank Taylor - 100%	2018-05-11	2018-05-18	2025-12-28
Active	P 524390	Tier 1 5	Frank Taylor - 100%	2018-05-11	2018-05-18	2025-12-28
Active	P 524391	Tier 1 6	Frank Taylor - 100%	2018-05-11	2018-05-18	2025-12-28
Active	P 524392	Tier 1 7	Frank Taylor - 100%	2018-05-11	2018-05-18	2025-12-28
Active	P 524393	Tier 1 8	Frank Taylor - 100%	2018-05-13	2018-05-18	2025-12-28
Active	P 524394	Tier 1 9	Frank Taylor - 100%	2018-05-13	2018-05-18	2025-12-28
Active	P 524395	Tier 1 10	Frank Taylor - 100%	2018-05-13	2018-05-18	2025-12-28
Active	P 524396	Tier 1 11	Frank Taylor - 100%	2018-05-13	2018-05-18	2025-12-28
Active	P 524397	Tier 1 12	Frank Taylor - 100%	2018-05-13	2018-05-18	2025-12-28
Active	P 525302	Todd 1	Frank Taylor - 100%	2021-05-06	2021-05-10	2026-12-28
Active	P 525303	Todd 2	Frank Taylor - 100%	2021-05-06	2021-05-10	2026-12-28
Active	P 525304	Todd 3	Frank Taylor - 100%	2021-05-06	2021-05-10	2026-12-28
Active	P 525305	Todd 4	Frank Taylor - 100%	2021-05-06	2021-05-10	2026-12-28
Active	P 525306	Todd 5	Frank Taylor - 100%	2021-05-06	2021-05-10	2026-12-28
Active	P 525307	Todd 6	Frank Taylor - 100%	2021-05-06	2021-05-10	2026-12-28
Active	P 525308	Todd 7	Frank Taylor - 100%	2021-05-06	2021-05-10	2026-12-28
Active	P 525309	Todd 8	Frank Taylor - 100%	2021-05-06	2021-05-10	2026-12-28
Active	P 525310	Todd 9	Frank Taylor - 100%	2021-05-06	2021-05-10	2026-12-28
Active	P 525311	Todd 10	Frank Taylor - 100%	2021-05-06	2021-05-10	2026-12-28
Active	P 525312	Todd 11	Frank Taylor - 100%	2021-05-06	2021-05-10	2026-12-28
Pending	P 529402	Tuks	Frank Taylor - 100%	2023-07-06	2023-07-07	2024-07-07
Pending	P 525996	Waterfall	Frank Taylor - 100%	2023-04-03	2023-04-04	2024-04-04
Active	IM00505	1 MILE	Frank Taylor - 100%	2023-09-20	2023-09-29	2024-11-20
Active	IM00506	1 MILE	Duncan Creek Golddusters Ltd. - 100%	2023-09-21	2023-09-29	2024-11-20

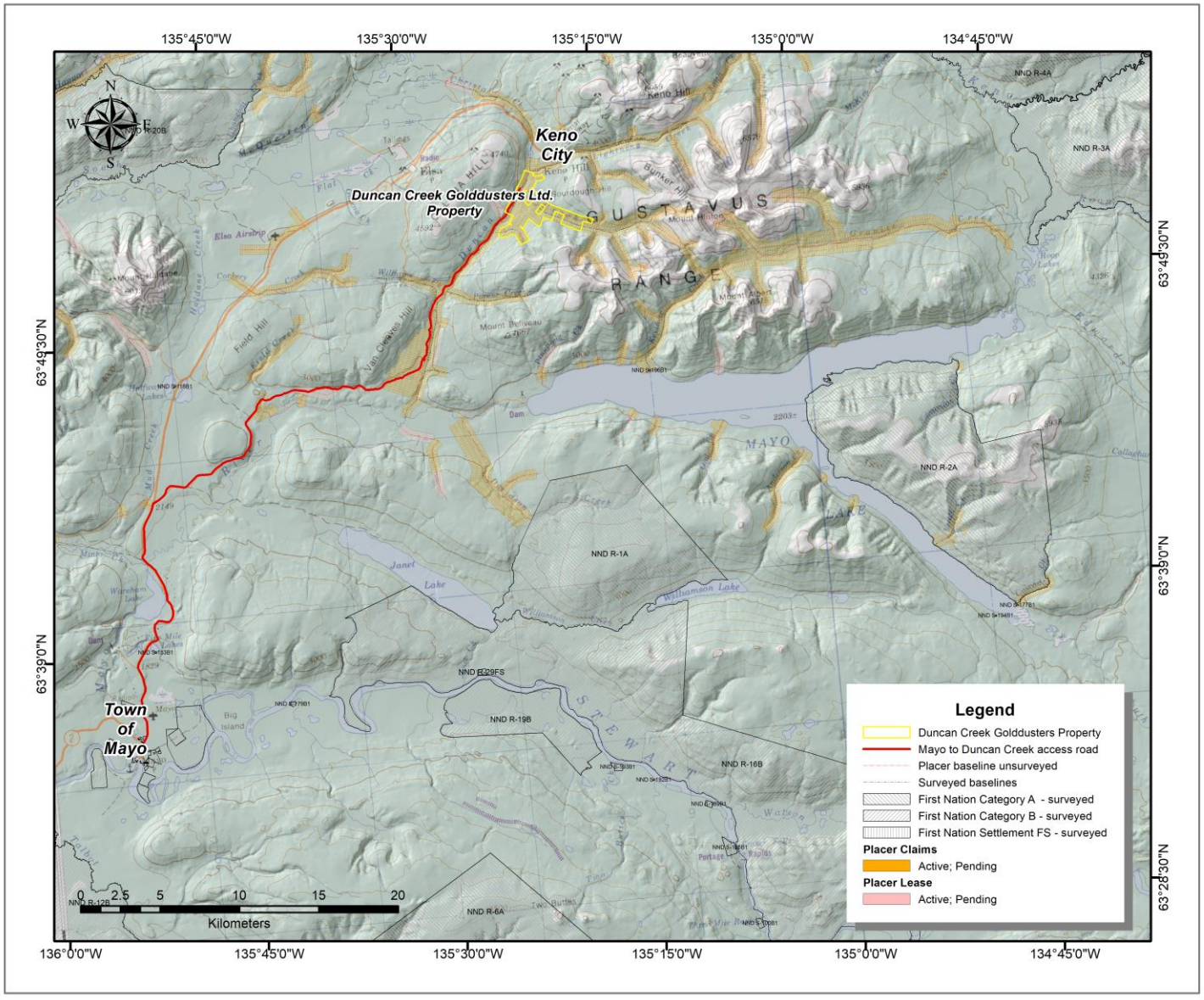

Figure 2 – Location of Lightning/Duncan Creek placer claims and nearby Mayo region placer tenures.

Placer Permitting

Many of the placer claims in the property fall within Water License PM18-058 and Placer Land Use Permit LP01291, which are both valid until January 9, 2029. A Water License application has been filed which will include the new claims which are not in PM18-058, and Class 1 permits are in place on Prospecting Leases IM00505 and IM00506.

Placer Exploration and Mining History

The discovery of placer gold in the Mayo district began on the Stewart River in 1883, when a party of prospectors worked from the mouth of the Stewart River to the McQuesten River (Mayo Historical Society, 1990). Between 1885 and 1886, it is estimated that up to 14,500 fine ounces (451 kg) was recovered by hand (Mayo Historical Society, 1990).

In 1892, Ray Stewart discovered gold on the McQuesten River, and in 1895 placer gold was noted on Haggart Creek. Discovery claims were recorded on Johnson and Haggart Creeks in 1898. In the same year, gold was discovered on Duncan Creek in the area just downstream of the canyon, where Upper Duncan Creek joins Duncan Creek. Most of the hand-mining in the early days took place at this location and farther upstream on Upper Duncan Creek (LeBarge, 2007).

The discovery of placer gold on Duncan Creek in 1898 is credited to Mr. Gustavus Gustavusen and his two sons (Mayo Historical Society, 1990). These three were very secretive, and to help conceal the location of their ground they decided not to stake or record claims over it. They began to arouse curiosity and one day a party of four prospectors - Colin Hamilton, Duncan Patterson, Allan McIntosh and Jacob Davidson went looking for their ground. After a long search, the Scotsmen found the Swedes' workings. On the 15th of September 1901, they located a Discovery Claim in the canyon on what was named Duncan Creek. This claim was staked during the absence of the Swedes and included the ground already worked by them. The Gustavusen's, finding their ground legally staked, soon left the country.

By the end of 1902 Duncan Creek was staked from the headwaters to the mouth. Numerous cabins were built and preparations were made to develop the ground. The government constructed a wagon road from the mouth of the Mayo River to Duncan Creek. Two town-sites were located: one at Mayo River and one at Gordon Landing on the bank of the Stewart River.

During 1902, at Claim #104 Below Discovery (approx. 4.3 miles (7 km) below the canyon) a shaft was sunk a depth of 138 ft. (42 metres) without hitting bedrock. Other attempts were made in the area and numerous shafts reached 108 ft. (33 metres) in depth without reaching bedrock, mostly due to flooding by ground water. During 1903, at Claim #53 Below Discovery, a shaft sunk on the left limit hit bedrock at 105 ft. (32 metres). Drifting towards the creek was started, but just as the drift began to hit good pay, the groundwater became more than the pump could handle and the drift was abandoned. Total clean-up for this operation was $1200.

The busiest year on Upper Duncan Creek was 1903, with $30,000 produced from the canyon claims. Much work was also done in 1904, with $15,000 being produced from the canyon. Lower Duncan Creek produced very little during the early years, mostly due to excessive ground water.

During the period 1913-1916, J. A. Walsh, W. L. Bramley and J. Adair did considerable developmental work as well as some mining on Lower Duncan Creek, and some prospecting was done on the benches. By 1915, nine men were working; five on Upper Duncan, one near the forks (canyon) and three on Lower Duncan. By 1932 only one operation existed, on Upper Duncan Creek.

In 1940-41 Mr. C.E. Fisher mined ground worth 50 cents per yard above the bridge, and Mr. Ellis Johnson worked Claim #54 Above Discovery reporting "good prospects" on bedrock at 92 feet (28 metres). The locations of these operations are undocumented, but they may be on Upper Duncan Creek.

By the end of the 1950's, interest was renewed on Duncan Creek. Fred Taylor began testing a one-mile lease on lower Duncan Creek, and several United Keno Hill Mine employees started small operations in the canyon.

During 1965-1966 Mr. and Mrs. Heinz prospected and test-mined two one-mile leases on Upper Duncan Creek, producing 50 ounces.

In the 1960's, drilling by United Keno Hill Mines showed gravels to be about 167 ft. (51 metres) thick one mile (1.6 km) below Lightning and about 98 ft. (30 metres) thick 2 miles (3 km) below the confluence of Lightning and Duncan creeks. Some gold values were reported.

Between 1975 and 1977, Frank Taylor and J. Brooks worked the left limit of lower Duncan Creek 1.5 miles (2.5 km) from the mouth.

Between 1978 and 1982, six operations were active at various locations along Duncan Creek and Upper Duncan Creek, including C. French and N. Bunka, D. Flick and G. Gervais, M. Alexander, Frank Taylor and Nugget Drilling. Nugget Drilling's activity in 1982 was on Upper Duncan Creek above the canyon, possibly in a pre-glacial channel south of the current Upper Duncan Creek.

Four operations were active between 1983 and 1984, including N. Bunka, C. Deeks and E. Jarvis; D. Flick and G. Gervais; and Frank Taylor. Between 1985 and 1990, Frank Taylor and his family mined on lower Duncan Creek.

From 1989 to 1990, Sasha Mining mined on lower Duncan Creek. In 1996, Bruce Rittel hand-trenched on a terrace along Duncan Creek near the confluence with Lightning Creek.

Bardusan Placers Ltd. mined a cut on Upper Duncan Creek just above the canyon between 1996 and 1997.

Mr. Zemenchik did a small exploratory mining cut on Upper Duncan Creek in the vicinity of a right limit alluvial fan between 1998 and 2000.

Between 2001 and 2002, some claims located immediately below the waterfalls were leased to Larry Arnevick and Ricker Anderson by Joe Raab. Two cuts were completed in 2001. The narrow channel and tight, steep canyon walls made these claims a challenge to mine.

Mr. Mel Zeiler conducted testing operations on lower Duncan Creek from 2003 to 2005 and in 2007 and 2008. In 2021, Mr. Zeiler's claims were sold to FTG Mining Ltd., and they mined cuts in 2022 and 2023.

Earth & Iron Inc. mined on Upper Duncan Creek in 2018 and 2019, and they optioned those claims to Rally! Mining ULC in 2019.

Duncan Creek Golddusters Ltd. began mining on lower Duncan Creek in 1977, and they were active on their own claims until 2018. Between 2019 and 2021 (van Loon and Bond, 2021) and again in 2023, Rally! Mining ULC mined the lower Duncan Creek claims under option from Duncan Creek Golddusters Ltd.

Duncan Creek is one of the most continuously mined creeks in the Mayo Mining District. Over 42,000 crude ounces have been documented from various sources including both historical records (LeBarge et. al., 2002) and Yukon Government Placer Gold Royalty Records. Recent production from royalty records are given in Table 2. This table shows that nearly 199,000 crude ounces have been recorded in the Mayo Mining District between 1978 and 2022.

Table 2 - Placer gold production from reported gold royalties, 1978-2022, Mayo Mining District. Figures are in crude (raw) ounces.

STREAM or RIVER	Tributary to	2018	2019	2020	2021	2022	1978-2022
15 Pup	Haggart	0	0	0	0	26.16	26.16
Anderson	Mayo Lake	0	0	0	51.42	30.64	1020.16
Bear (Van Bibber)	McQuesten	0	0	0	0	0	1447.81
Bennett	Minto	0	0	0	0	0	2.88
Carlson	Minto	0	0	0	0	0	105.00
Davidson	Mayo River	103.17	60.74	110.09	171.24	183.27	5385.25
Dawn	Mayo Lake	0	0	0	0	0	35.77
Dirksen	Mayo Lake	0	0	0	0	0	31.45
Dublin Gulch	Haggart	0	0	0	0	0	13098.50
Duncan	Mayo River	149.35	506.26	419.96	917.36	359.81	37858.08
Edmonton Creek	Mayo Lake	0	0	8.23	0	0	8.23
Empire	No Gold	0	0	0	0	0	1012.40
Fifteen	Haggart	0	0	0	0	0	1.10
Gem	Sprague	0	0	0	754.4	0	1182.40
Goodman	South McQuesten	0	0	0	0	0	36.90
Granite Creek	Mayo Lake	2554.36	3277.56	2870.72	3314.33	1071.4	17657.80
Haggart	McQuesten	18.88	0	0	0	0	24528.22
Highet	Minto	37	0	10.62	169.1	241.94	41190.69
Hope Gulch	Lightning	0	0	0	0	0	8.00
Jarvis	Minto	0	0	4.7	0	0	21.62
Johnson	McQuesten	208.98	289.36	150	820	540	7867.29
Keystone	Mayo Lake	0	0	0	0	308.05	308.05
Ledge	Mayo Lake	0	0	0	0	0	5814.57
Lightning	Duncan	0	0	0	2.67	0	11626.83
McQuesten	Stewart	0	0	0	0	0	113.54
Minto	Mayo River	474.65	753.46	847.43	291.37	568.51	5482.35
Morrison	Seattle	71.65	30.86	0	0	0	121.80
Murphy's Pup	South McQuesten	26.72	0	0	0	0	202.31
Owl	Mayo Lake	12.18	0	0	0	0	3654.12
Ross	South McQuesten	3.5	28.88	138.56	148.54	164.74	484.22
Russell	Macmillan	0	0	0	0	0	287.00
Seattle	McQuesten	0	22.22	0	0	0	667.66
Secret	Swede	45.79	72.69	15.84	9.99	0	862.20
Steep	Mayo Lake	0	0	0	0	0	708.56
Stewart	Yukon	0	0	0	0	0	871.81
Swede	Haggart	12.24	1.69	0	0	0	4389.01
Thunder	Lightning	332.84	333.26	281.52	423.78	81.12	7339.75
Upper Duncan	Duncan	0	107.88	0	0	0	322.32
Vancouver	McQuesten	0	124.07	240.5	47.89	2	1372.50
Various Mayo Creeks	N/A	0	0	0	0	37.3	1745.96
Total Mayo District		4051.31	5608.93	5098.17	7122.09	3614.94	198900.27

Local Bedrock Geology and Mineral Occurrences

The Roop Lakes batholith, which outcrops east of the project area, is a late Cretaceous granite, quartz monzonite and granodiorite intrusion of the Tombstone Suite. It is widely-held to be the probable heat source for epi- and meso-thermal veins of the Elsa-Keno Hill mining camp (Roots, 1997a, 1997b).

Most of the mineral occurrences in the Keno Hill mining camp are polymetallic veins, consisting of silver, lead and zinc with various amounts of accessory gold. The host rock is mainly the Carboniferous Keno Hill Quartzite, however some veins are hosted in carbonaceous phyllite, felsic meta-tuff and metaclastic rocks of the Devonian Earn Group. A few mineralized polymetallic veins are hosted in the metaclastic rocks of the Late Proterozoic to Cambrian Hyland Group.

Figure 3 shows the bedrock geology of the project area, after Roots (1997a, 1997b); and Yukon Geological Survey (2022). The northern area of the claims is mapped as CT1, CT2, and CT4 (Tsichu formation, aka Keno Hill quartzite), and this is separated by a thrust fault on the southern extent where unit PCH1 (Hyland Group sandstone, grit, psammite, conglomerate) outcrops.

Although there are numerous silver and gold deposits of the Keno Hill district in the hills surrounding the project area, the closest mineral occurrence is Minfile #105M 022 (Fisher Creek), which is a gold-silver vein hosted within the Keno Hill quartzite.

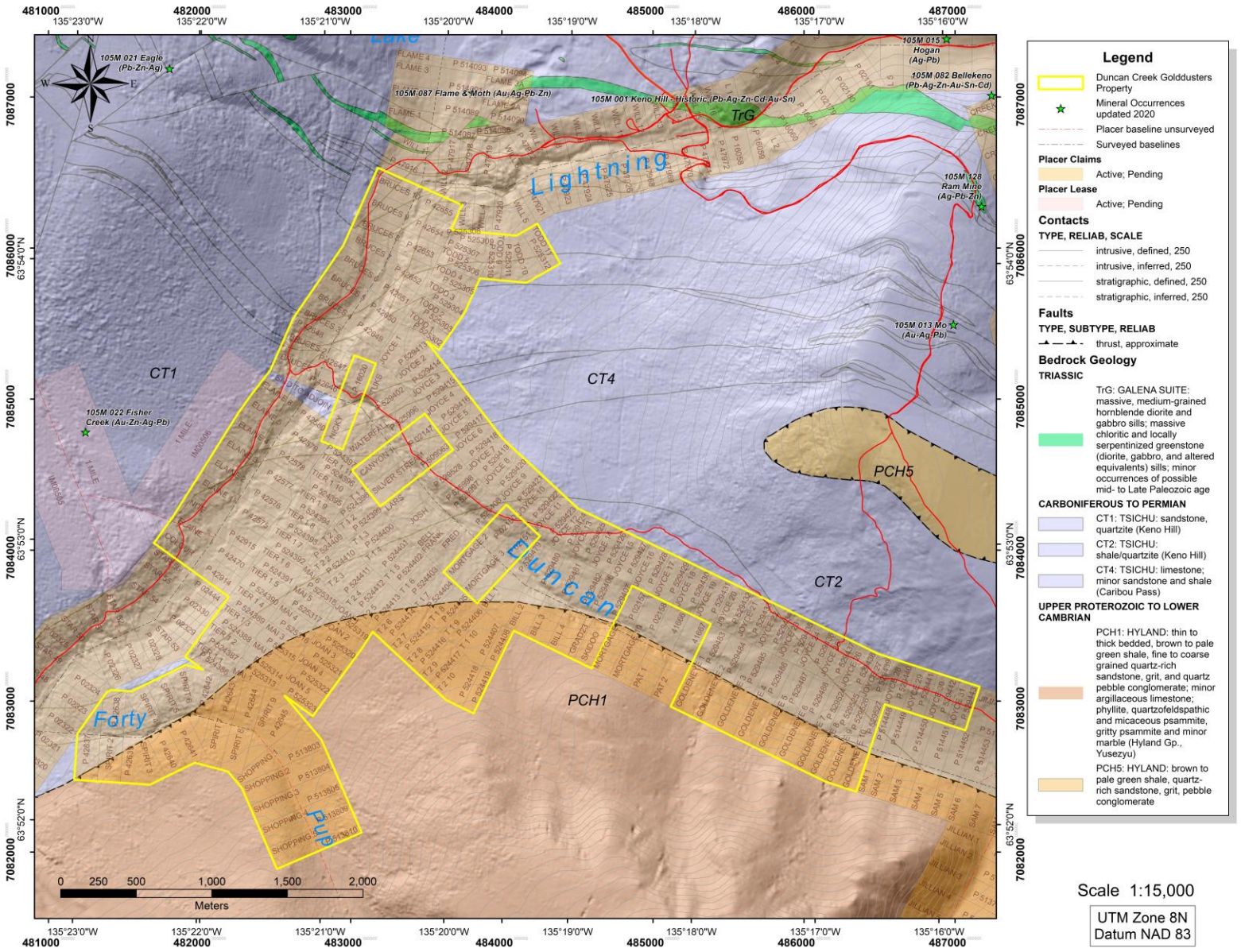

Figure 3 - Bedrock Geology of Lightning/Duncan Creek, after Yukon Geological Survey (2022).

Quaternary History and Surficial Geology

In the Mayo area, a minimum of four regional glaciations and two interglacial periods have influenced the deposition and erosion of sediments over the last 2.5 million years (Duk-Rodkin et. al., 2010; LeBarge et. al., 2002; Bond, 1999, 1997; Jackson et al., 2001). Glaciations include the pre-Reid (multiple early to mid-Pleistocene glaciations), Reid (130,000 years), and McConnell (14,000 -29,600 years). Warm, interglacial periods are indicated by relict paleosols such as the pre-Reid Wounded Moose paleosol (Tarnocai and Schweger, 1991) and the Reid Diversion Creek paleosol (Bond and Lipovsky, 2010).

During their maximum extent, pre-Reid ice sheets completely covered the Mayo/Keno Hill area. Undifferentiated pre-Reid surficial materials (moraine, glaciofluvial and glaciolacustrine deposits) are thick in the lowlands of Klondike Plateau and Tintina Trench, especially in areas proximal to the terminus of the pre-Reid glaciations. Evidence of the pre-Reid glaciations in the Mayo area has been overprinted by subsequent glaciations, and mainly consists of glacial erratics in the alpine areas above the limits of the subsequent Reid and McConnell glaciations (LeBarge, 2002).

During the Reid glaciation, glacial ice advanced from cirques formed in topographic highs such as Mount Hinton and Mt. Haldane, and coalesced with Cordilleran ice lobes which were advancing up-valley into the alpine areas. This resulted in a complex overlap assemblage comprised of both local alpine glacial sediments, and more regionally-derived glacial sediments.

During the most recent (McConnell) glaciation, ice sheets again advanced from cirques in mountainous centres, however their advance was much less extensive than during previous glaciations. In most cases, McConnell ice advanced only short distances down-valley from their origins in the valley heads, depositing terminal moraines in the upper reaches of many valleys.

Figure 4 shows the glacial limits and ice-flow directions for the Reid and McConnell glaciations in the Mayo area, after Bond (1999). This map shows that while the Reid glacial ice advanced down Duncan Creek and coalesced with the Reid regional ice advance heading up Duncan Creek, the McConnell glacier advanced only a short distance from the Mayo River upstream to the lower reaches of Duncan Creek, and an even lesser distance from the upper reaches of the Lightning Creek downstream along the main stem of Duncan Creek valley. This resulted in a gap along the main valley of Duncan Creek which would have been ice-free during the McConnell glaciation.

Figure 5 (after Bond, 1998) shows that the project area lies mostly outside of the McConnell ice sheet, except for the northernmost (upstream) few claims. However, glaciofluvial gravel was deposited downstream of the McConnell Ice sheet, shown as unit GMt. The entire property was glaciated during the Reid glaciation, and remnant moraine deposits (Unit TRb) and glaciofluvial deposits (Unit GRt) are present at higher elevations. Slopes are dominated by colluvial deposits (Units Ca and Cv) while the lowermost points of valleys are covered in alluvial plains (Unit Ap) with side-valley alluvial fans (Unit Af).

A periglacial alluvial fan of pre-McConnell age (Unit ApMf), is mapped between Forty Pup and the broad terrace south of the confluence of Duncan Creek and Upper Duncan Creek, as well as across the valley on the right limit of Duncan Creek.

Placer Geology and Stratigraphic Setting

Early exploration in the area upstream of the canyon shows that bedrock on the southern (left) limit is deeply buried, with some shafts sunk 80-102 feet to bedrock. However, some early workers reached bedrock within 30 feet (LeBarge, 2007).

In 1982, Nugget Drilling Ltd. was mining on Upper Duncan Creek, upstream of the canyon above the confluence with Lightning Creek. They exposed a section described as 3 to 6.5 feet of colluvium and organic detritus overlying 40 to 60 feet of frozen, laminated clay-like black muck, and 10 to 20 feet of partially decomposed, possibly pre-glacial gravel. The operators at the site believed the deposits were part of an old channel of upper Duncan Creek, which was situated south of the present creek (LeBarge, 2007).

Between 1995 and 1997, Hans and Claus Barchen mined an area on the left limit of Upper Duncan Creek above the canyon in the same vicinity. Their mining cut was described (LeBarge, 2007) as thawed, sandy gravel with some silt beds, with 60% of the gravel smaller than 2 inches and some large boulders near the bedrock contact.

Some mining sections in the same area that were described by Yukon Government research crews in 1996 and 1997 (LeBarge et. al., 2002) were interpreted to be periglacial (early or pre-McConnell) alluvial fan sediments overlying pre-McConnell interglacial fluvial gravels on bedrock. This was supported by radiocarbon dates in fine organic sediments of 31,580 to 33,190 years B.P. (before present). Other exposures were interpreted to be Reid-age glaciofluvial and glacial sediments (on bedrock) overlain by interglacial alluvial sediments, McConnell glaciolacustrine sediments and glacial till, and modern colluvium.

Recent work by Steinke et. al. (2022) has shown that some of the earlier alpine tills mapped in the area may be younger than previously thought, corresponding to the Gladstone glacial till (MIS 4 – 57,000 to 71,000 years B.P.) first described in southern Yukon by Cronmiller et. al. (2019). It is possible that several landforms mapped in the area by Bond (1998) as Reid till (MIS 6 – 130,000 to 191,000 years B.P.) are actually the younger Gladstone till.

Based on this previous work, the stratigraphy in the project area is a complex mixture consisting of one or more older alpine tills (Reid - MIS 6, and/or Gladstone - MIS 4), overlain and dissected by Reid and/or Gladstone glaciofluvial outwash, interglacial pre-McConnell fluvial gravels, periglacial early McConnell alluvial fan sediments, McConnell glaciofluvial outwash, recent fluvial-alluvial sediments and modern colluvium.

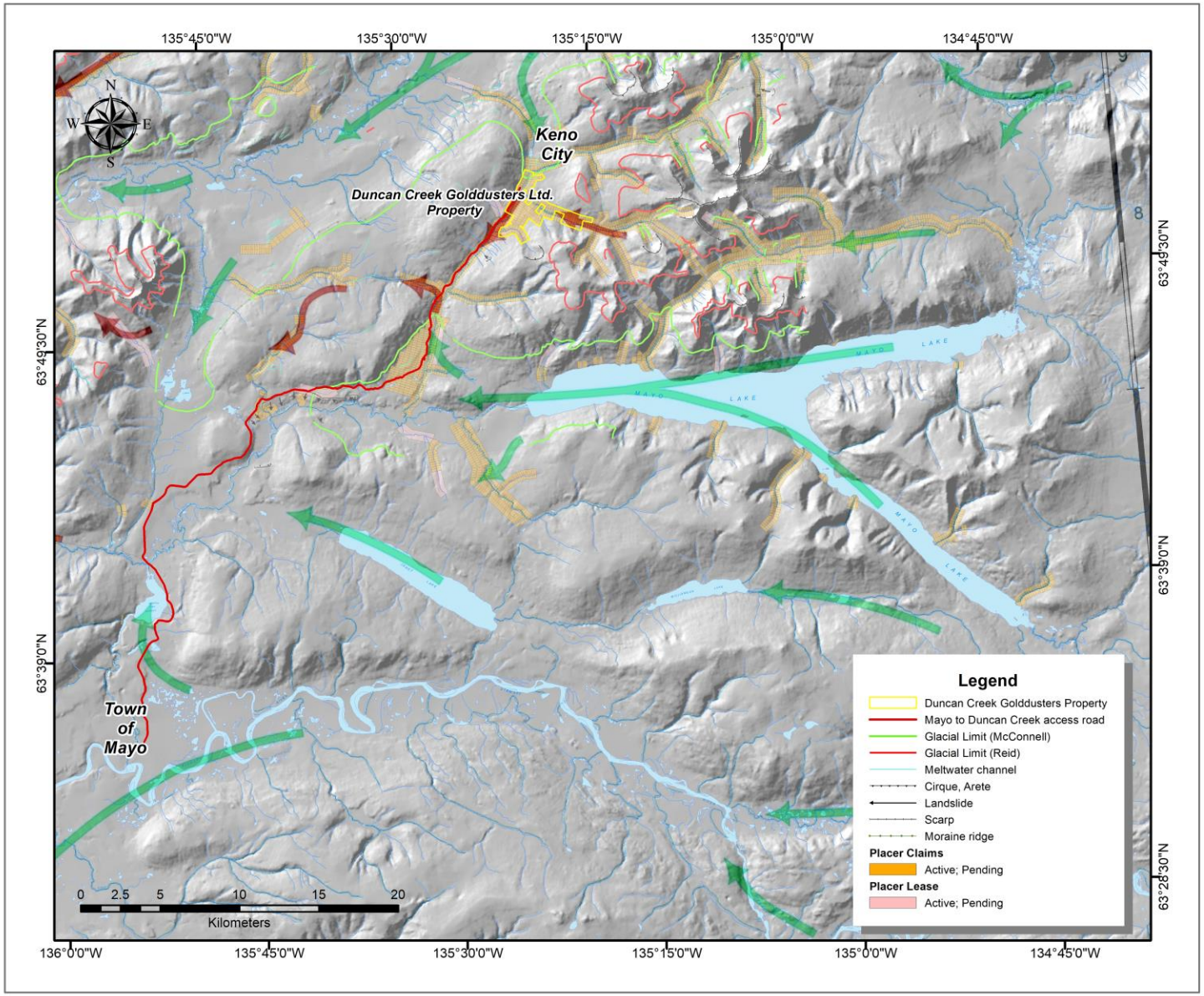

Figure 4 – Glacial limits and flow directions, Mayo Area, after Bond (1999).

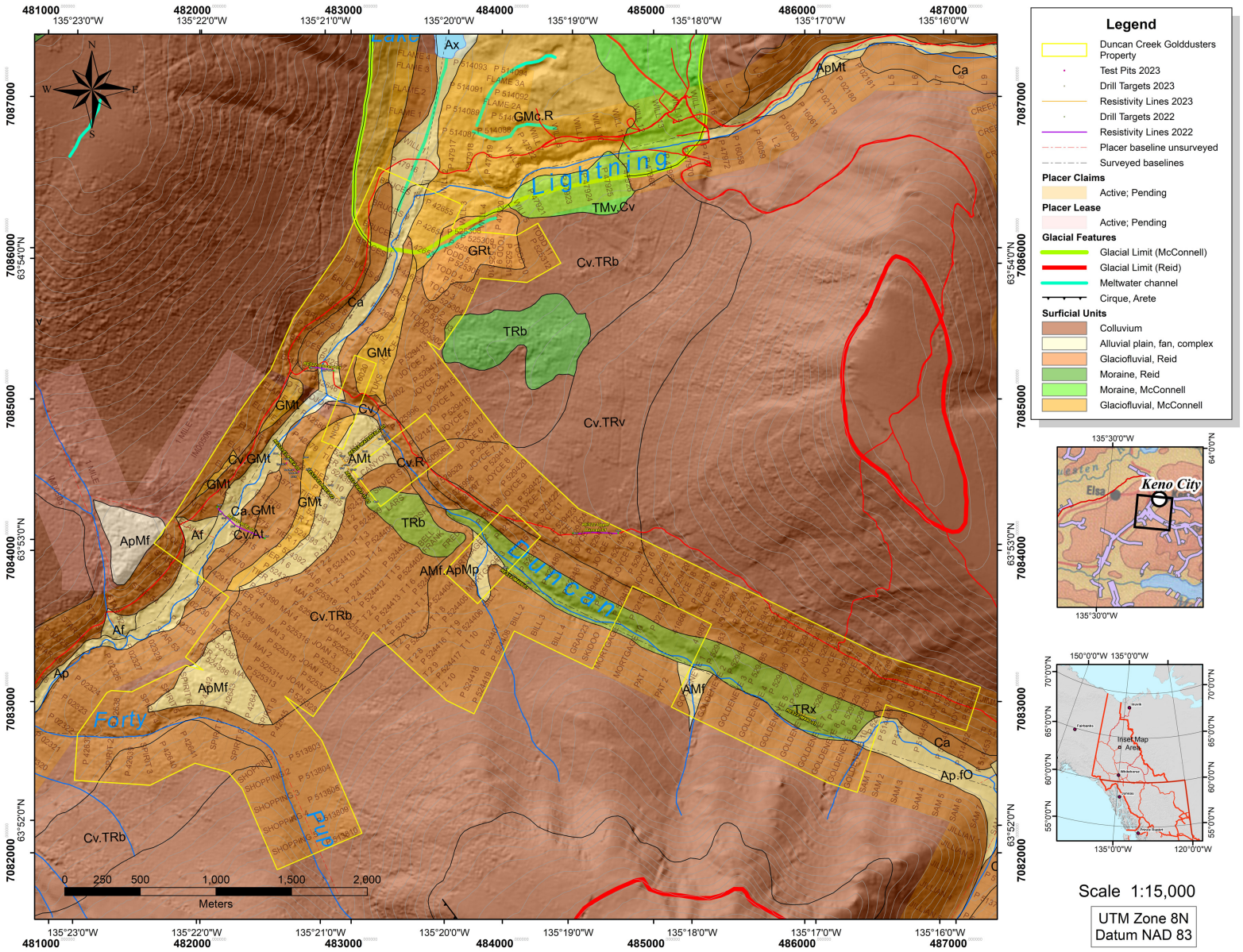

Figure 5 - Surficial geology, Lightning/Duncan Creek, after Bond (1998) and Yukon Geological Survey, 2022.

2022 Placer Exploration Program

Overview

The 2022 program consisted of prospecting lease staking (3 miles), 900 metres of resistivity geophysical surveys and 1792 cubic yards of bulk sampling.

Placer Lease Staking

One 3-Mile Prospecting Lease IM00482 was staked by Duncan Creek Golddusters Ltd. on the first tier, right-limit bench of Upper Duncan Creek, on August 8, 2022. This lease was staked to the Joyce 1-31 claims on August 4, 2023.

Resistivity Surveys

Introduction

Three resistivity lines totalling 900 line-metres were surveyed and interpreted by William LeBarge of Geoplacer Exploration Ltd. The surveys were conducted between May 5, 2022 and September 1, 2022. Field assistance was provided by Don Duncan and Troy Taylor.

Methodology

The Lippmann 4-Point Light Resistivity System was used to conduct the survey. The resistivity technique injects an electrical current into the subsurface through stainless steel spikes and then measures the remaining voltage at various distances away from the injection point. Ground materials have different resistances to the current, and give data points in a cross section of the subsurface. With the data points, a tomogram or pseudo section can be created representing changes of resistivity in the ground. Data was collected using Geotest software, while the inversion and data filtering was completed with RES2DINV software. Data points with poor contact resistance were exterminated and noisy data was filtered statistically with root mean squared data trimming. Two-dimensional tomograms were produced using least squares damped inversion parameters to display the resistivity properties and to display potential contacts.

The two-dimensional images were used for preliminary interpretations of bedrock structure. The images were interpreted by William LeBarge.

General principles and assumptions of electrical resistivity are:

1. Low resistivity can indicate thawed and water saturated areas, as well as fine-grained material.
2. Very high resistivity values can be due to ice rich material and frozen or highly disturbed ground.
3. Dry gravels, cobbles and boulders generally have high resistivity values.
4. The contrasts between values is more important in determining contacts than the absolute values found with resistivity data.

Limitations and Disclaimer

The interpreted sections provide an estimate of the conditions beneath the surface to the depths conducted and are within the accuracy of the system and methods. The data becomes more uncertain with depth and are more accurate toward the surface and is further complicated if there is permafrost present in the region. The materials are interpreted based upon local geology observed, as well as geologic knowledge of the area. Certain materials may be similar in composition and result in uncertain results. The accuracy of the information presented is not guaranteed and all mine development is the client's responsibility. William LeBarge of Geoplacer Exploration Ltd. accepts no liability for any use or application of these data by any and all authorized or unauthorized parties.

Results

The resistivity survey conducted at the beginning of May (RES22-NITE-01) encountered very poor ground conditions including snow, ice, running water from melting ice, and remnant winter frost. These highly variable surface conditions resulted in a high statistical error in the survey, which we were not able to completely remove through processing. However, the data is useable to some extent, although with an appropriate level of caution.

The two surveys completed later in the summer provided reasonable quality data. It must be noted, however, that in all the surveys, boundaries between low, moderate and high resistivity values may be partially a reflection of varying groundwater and frost conditions, rather than strictly lithological boundaries.

The geographic coordinates of the endpoints of the surveyed lines are shown in Table 3. The interpreted profiles are shown as Figures 6 to 8, and the lines are plotted on Figure 9.

Table 3 – 2022 resistivity survey line endpoint coordinates, grant number and length, Upper Duncan Creek Lease IM00482.

Survey Name	Grant Number	Start Point		End Point		Length (m)	Date Surveyed
		Latitude	Longitude	Latitude	Longitude		
RES22-NITE-01	P 42915	63.885324	-135.364195	63.883476	-135.357767	400	May 5, 2022
RES22-UPPER DUNCAN-01	IM00482	63.883906	-135.310185	63.883883	-135.316284	300	Aug 31, 2022
RES22-BRUCES1-01	P 42626	63.89344	-135.348592	63.893618	-135.351847	200	Sept 1, 2022

Resistivity profile RES22-NITE-01 was surveyed from west to east on Duncan Creek, downstream of the confluence with Lightning Creek. Figure 6 shows that the profile is interpreted as 5 to 10 metres of dry and water saturated gravel, overlying a layer of sand and silt on top of a quartzite bedrock which may be faulted. Bedrock is interpreted to be 10 to 18 metres from surface.

Resistivity line RES22-BRUCES1-01 was surveyed on Lightning Creek just upstream of its confluence with Duncan Creek. Figure 7 shows that the profile is interpreted to have 5 to 10 metres of variably wet to dry gravel, sand and silt overlying a quartzite and graphitic schist bedrock. Bedrock is interpreted to be 10 to 12 metres from surface. The graphitic schist causes wide variations in conductivity which obscures the bedrock contact.

Resistivity line RES22-UPPER DUNCAN-01 was surveyed on the north slope (right limit) of Upper Duncan Creek, from east to west. In the field, rounded boulders were noted at the surface along the survey line, along with fine sediments of silt and sand. Figure 8 shows that subsurface units are interpreted as 5 to 10 metres of variably wet to dry gravel, sand and silt overlying a quartzite bedrock which is structurally disrupted by faulting. Bedrock is interpreted as between 10 and 12 metres from surface.

A total of 9 drill targets were chosen on the 2022 resistivity survey lines. These are given in Table 4.

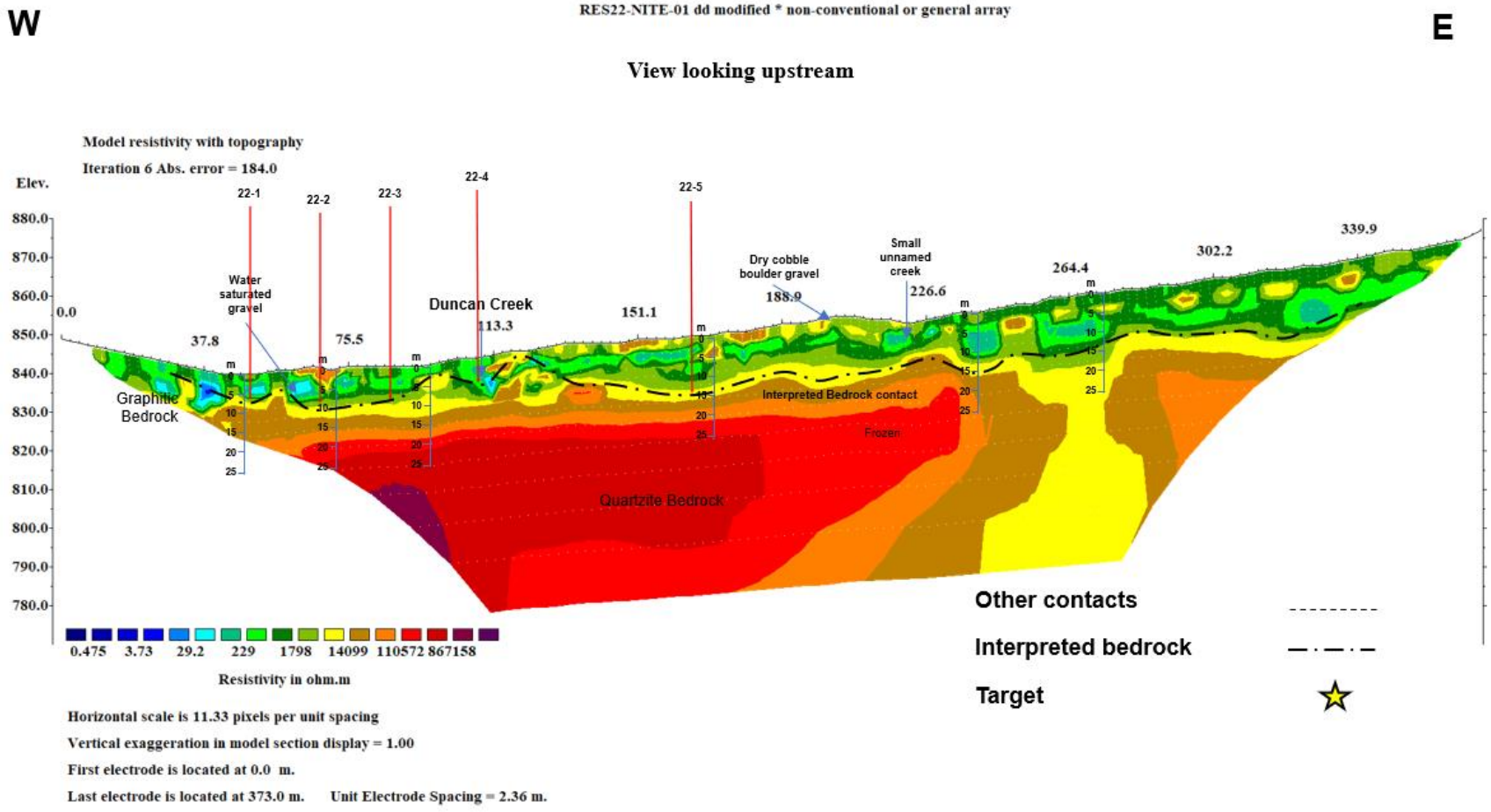

Figure 6 – Resistivity profile RES22-NITE-01 was surveyed downstream of the confluence with Lightning Creek. The profile is interpreted to show 5 to 10 metres of dry and water saturated gravel, overlying a layer of sand and silt on top of a quartzite bedrock which may be faulted. Bedrock is interpreted to be 10 to 18 metres from surface. Five drill targets have been chosen on the profile.

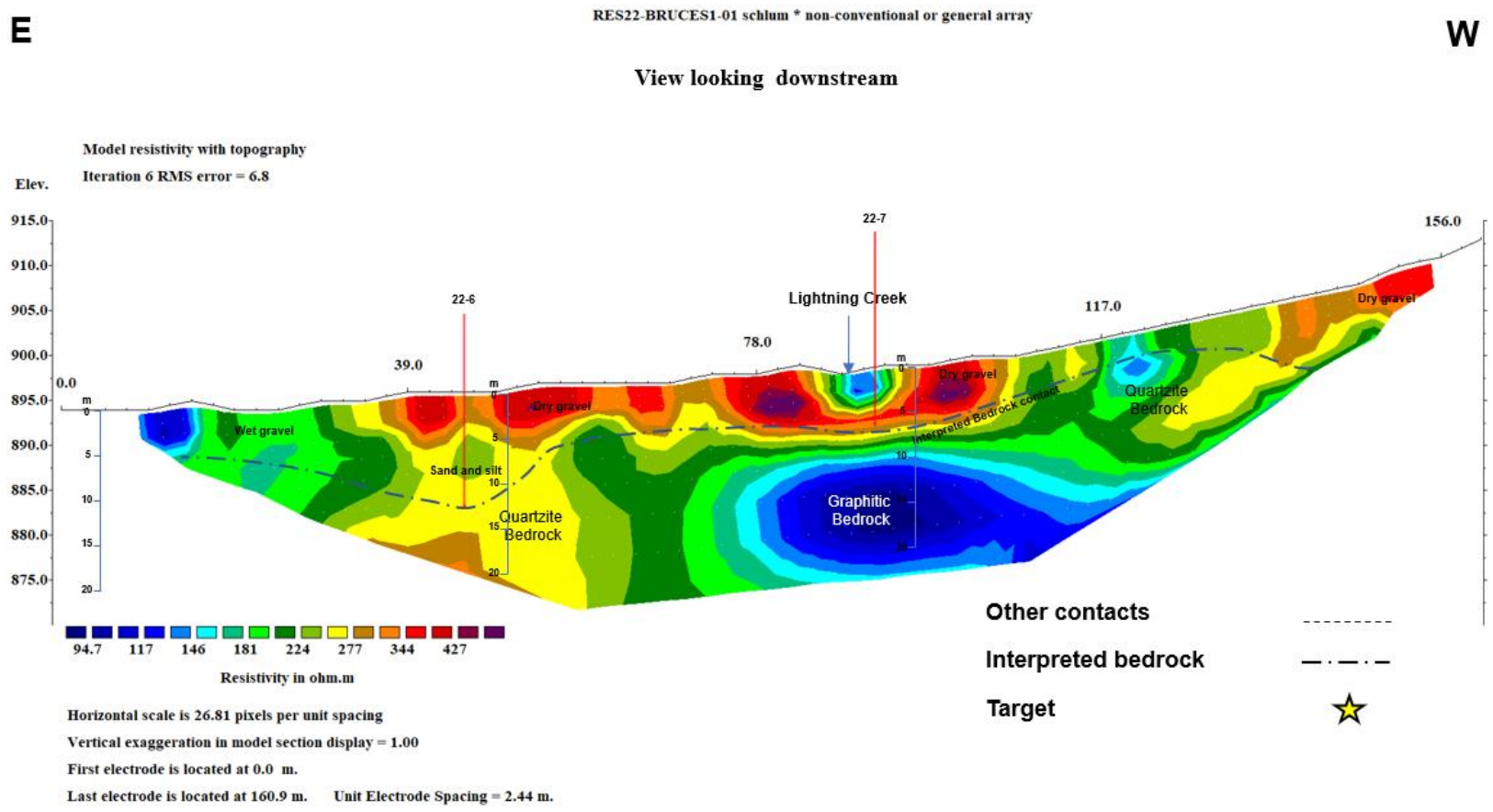

Figure 7 – Resistivity line RES22-BRUCES1-01 was surveyed on Lightning Creek just upstream of its confluence with Duncan Creek. The profile is interpreted to show 5 to 10 metres of variably wet to dry gravel, sand and silt overlying a quartzite and graphitic schist bedrock. Bedrock is interpreted to be 10 to 12 metres from surface. The graphitic schist causes wide variations in conductivity which obscures the bedrock contact. Two drill targets are shown.

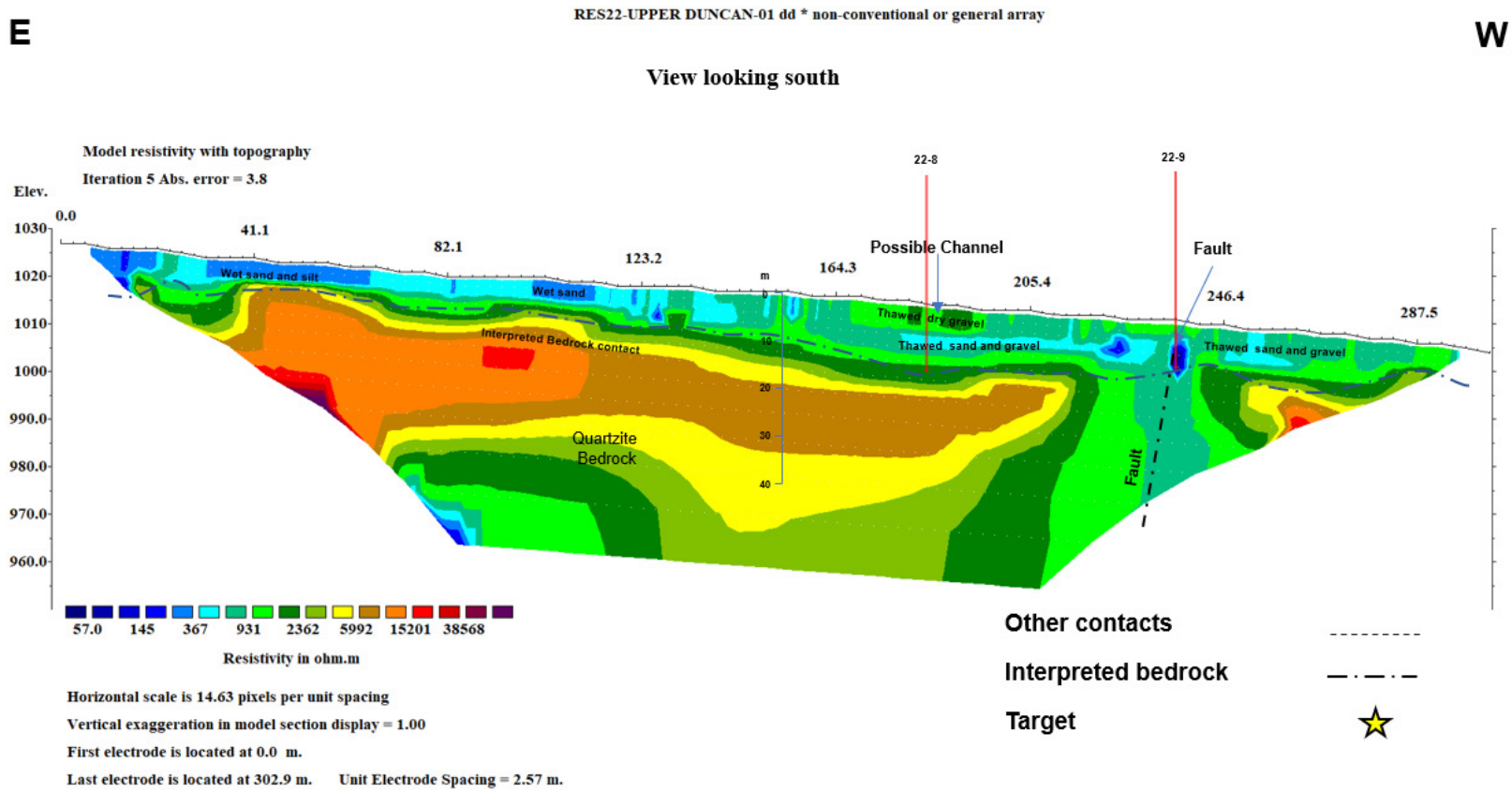

Figure 8 – View looking south at resistivity line RES22-UPPER DUNCAN-01 on Upper Duncan Creek. The profile is interpreted to show 5 to 10 metres of thawed, variably wet to dry gravel, sand and silt overlying a quartzite bedrock which is structurally disrupted by faulting. Bedrock lies 10 to 12 metres from surface. Two drill targets are shown.

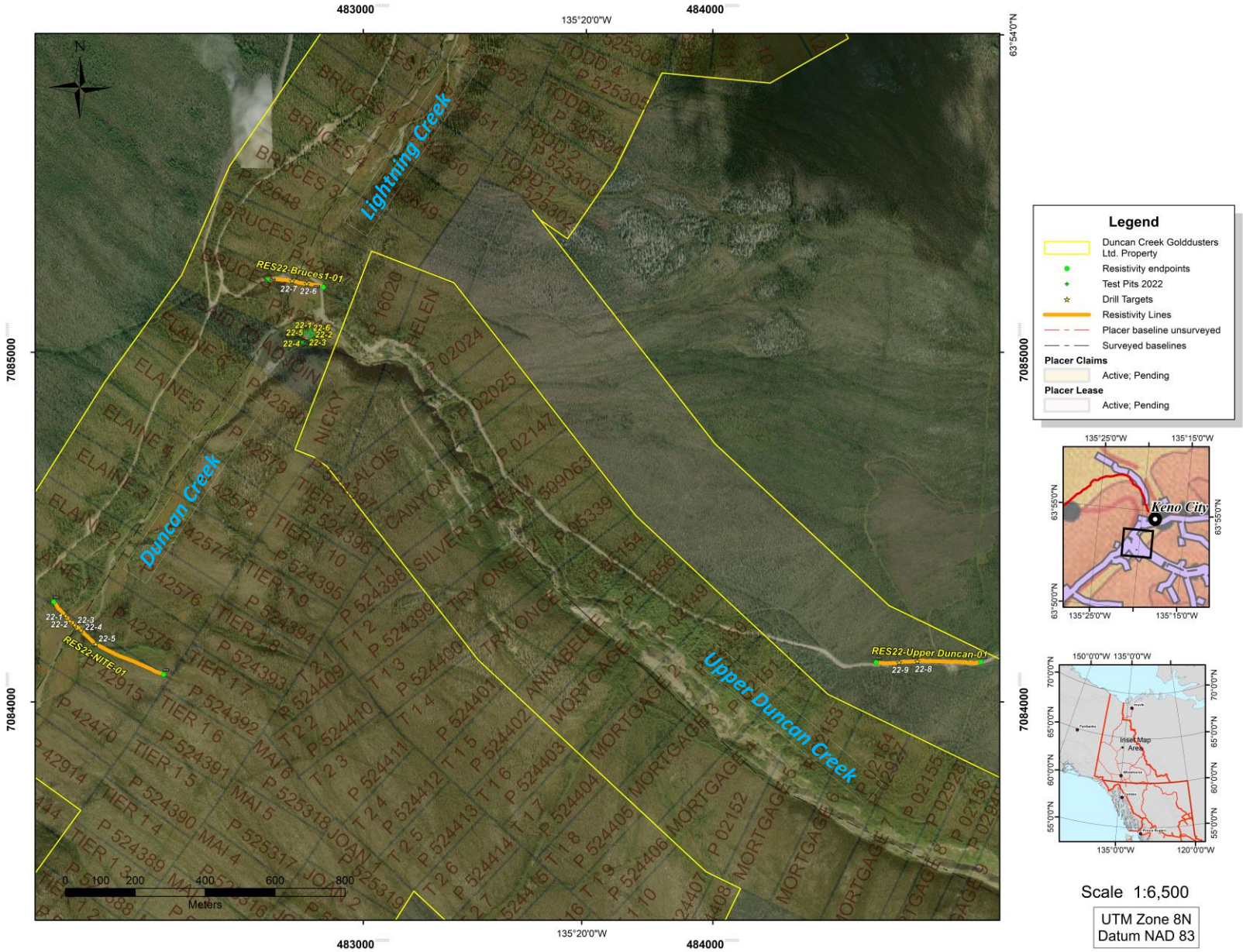

Figure 9 – Satellite photo of Lightning Creek and Upper Duncan Creek showing the location of the 2022 resistivity surveys, bulk samples and drill targets.

Table 4 - Drill Targets from 2022 Resistivity Surveys, Lightning/Duncan Creek.

Resistivity Line	Grant Number	Target Name	Latitude	Longitude	Depth of target (m)
RES22-NITE-01	P 42915	22-1	63.884967	-135.363473	7
RES22-NITE-01	P 42915	22-2	63.884834	-135.363225	7
RES22-NITE-01	P 42915	22-3	63.884729	-135.362935	10
RES22-NITE-01	P 42915	22-4	63.884596	-135.362569	7
RES22-NITE-01	P 42915	22-5	63.884244	-135.36171	15
RES22-BRUCES1-01	P 42646	22-6	63.893518	-135.34954	12
RES22-BRUCES1-01	P 42646	22-7	63.89359	-135.350392	7
RES22-UPPER DUNCAN-01	IM00482	22-8	63.883914	-135.313864	15
RES22-UPPER DUNCAN-01	IM00482	22-9	63.883885	-135.31492	10

Bulk Sampling

As a result of the favourable depths indicated by the initial resistivity surveys, a decision was made to carry out a bulk sampling program in the area of the confluence of Lightning Creek and Duncan Creek. These are shown on Figure 9.

The surface gravels were tested with a CAT 330DL excavator at depths from 0 to 12 feet (Figure 10). The first five bulk samples (22-1 to 22-5) were from creek gravels located on Bruces 1 claim. The gravels were water saturated when excavated, therefore, the wet gravel was stockpiled and allowed to drain. The gravel was identified with labels as to depth from surface and coarse gravel was stockpiled separately from fine grained material. The samples were collected from the stockpiles by hand with 20 litre buckets. The sample size was the same for each of the 5 samples and calculated by converting the volume in liters to cubic yards: 20 litres/764.6 = 0.0262 cubic yds/bucket x 5 buckets = 0.131 cubic yards per sample.

The buckets of sample were washed in a small trommel and long tom. A 2" Honda water pump supplied water to the trommel. Concentrates from the long tom were panned and the gold weight was recorded.

Due to the positive results of bulk samples (22-1 to 22-5), a much larger bulk sample (22-6) was excavated from the same area. The volume of this bulk sample is 1791 cubic yards and was calculated by measuring the dimensions of the test hole. Bulk sample 22-6 was processed using an oscillating screen deck and sluice runs. The gravels were stockpiled near the sluice plant and fed with a CAT 316 excavator (see Figure 11).

The placer gold values in the bulk sampling program ranged from 0.299 to 0.699 g/m3 (0.007 to 0.017 oz/yd3) in the small (0.100 m3) samples, to 0.320 g/m3 (0.008 oz/yd3) in the large (1369 m3) sample.

The bulk sample coordinates and details are given in Table 5.

Table 5 – Results of bulk samples, Lightning/Duncan Creek, 2022

Test Pit	Volume (m3)	Volume (yd3)	Gold weight (g)	Grade oz/yd3	Grade g/m3	Latitude	Longitude
22-1	0.100	0.131	0.03	0.0074	0.2995	63.892337	-135.349307
22-2	0.100	0.131	0.055	0.0135	0.5491	63.89223	-135.349122
22-3	0.100	0.131	0.05	0.0123	0.4992	63.892148	-135.349305
22-4	0.100	0.131	0.07	0.0172	0.6989	63.892022	-135.349771
22-5	0.100	0.131	0.06	0.0147	0.5991	63.892264	-135.349591
22-6	1369	1791	435	0.008	0.3180	63.892301	-135.349306



Figure 10 - The surface gravels were tested with a CAT 330DL excavator at depths from 0 to 12 feet. The first five bulk samples (22-1 to 22-5) were from creek gravels located on the Bruces 1 claim.



Figure 11 – Bulk sample 22-6 (1791 cubic yards) was processed from near-surface gravels near the confluence of Lightning and Upper Duncan Creeks, using an oscillating screen deck and sluice runs. The gravels were stockpiled near the sluice plant and fed with a CAT 316 excavator.

Conclusions and Recommendations

The 2022 resistivity surveys provided Duncan Creek Golddusters Ltd. with encouraging results regarding overall depth to bedrock and the presence of distinct channels in the bedrock profiles. Previously, it was believed the depth to bedrock in this area was up to 30 metres (100 feet). However, the resistivity surveys which transected the Lightning/Duncan Creek valley appear to indicate maximum bedrock depths of 15 to 18 metres (50-60 feet).

The bulk sample program produced economic placer gold values within the surface gravels in the valley, which ranged from 0.284 to 0.692 g/m3 (0.007 to 0.017 oz/yd3) in the small (0.100 m3) samples, to 0.325 g/m3 (0.008 oz/yd3) in the large (1369 m3) sample.

Further testing and larger bulk samples are recommended. The resistivity drill targets should be drilled using either a R/C (Reverse Circulation) or Sonic drill (6-inch or larger size), as auger drilling may be problematic in the boulder-rich and clay-rich terrain.

Rationale for 2023 Exploration

Historical exploration and mining activity has shown that most of the alluvial, glaciofluvial and glacial sediments in the Lightning/Duncan/Upper Duncan drainages are placer gold-bearing. Some of these deposits are economic for placer gold, and their gold grades are related to several factors including the amount of fluvial reworking, their proximity to original bedrock gold sources and the mechanisms of burial and preservation.

Pre-glacial and interglacial gravel deposits are often the richest placers in any glaciated area, although they may be variably buried and reworked by subsequent glacial processes. In these instances, the derived glacial and glaciofluvial sediments may become the main gold-bearing pay material of interest to explorers and miners.

Within the project area, evidence suggests that there are buried interglacial placer deposits, as well as placer gold-bearing alpine till, which may have derived economic gold grades from both pre-existing alluvial deposits and local gold bearing bedrock sources.

Placer exploration targets include:

1) Placer gold-bearing alpine till (McConnell, Reid and/or Gladstone),
2) Pre-McConnell interglacial alluvial deposits,
3) Pre- or early McConnell periglacial alluvial fan deposits,
4) McConnell or older (e.g. Reid) glaciofluvial gravel,
5) Modern alluvial valley deposits.

The 2022 exploration program confirmed the placer gold potential of the surface gravels, as well as demonstrating the utility of using resistivity surveys in conjunction with excavator test pitting. A number of drill targets were identified, which may confirm geophysical interpretations and further define placer gold values at depth within the main valley.

The 2023 placer exploration program is detailed in the section following.

2023 Placer Exploration Program

Overview

The 2023 exploration program targeted areas on the left limit bench between Upper Duncan and Duncan Creeks, as well as portions of the valley of Upper Duncan Creek. The program consisted of placer claim and prospecting lease staking, resistivity geophysics, excavator test-pitting, bulk sampling and drone surveys.

Placer Claim and Lease Staking

Several historic placer claims in the Upper Duncan Creek drainage lapsed in 2023, and these were subsequently staked by Duncan Creek Golddusters Ltd. as either individual placer claims or as placer prospecting leases which were later converted to claims. The new placer claims include Josh, Bell, Waterfall, Tuks, Grad23, Skidoo, Fred, Frank and Lars. Prospecting Lease IM00489 was staked and later converted to claims Bill 1 to Bill 4. Prospecting lease IM00490 was staked and later converted to placer claims Goldeneye 1 to Goldeneye 6. Placer claims Goldeneye 7 to Goldeneye 10 were added when the adjacent Duncan 1 to Duncan 3 claims lapsed in September. The Joyce 1-31 placer claims were staked from Prospecting Lease IM00482. Late in the season, two prospecting leases (IM00505 and IM00506) were staked on a tributary and the bench on the right limit of Duncan Creek downstream of the canyon.

Test Pitting

Three test pits were dug with a CAT 330DL excavator near and along resistivity survey line RES23-ELAINE 4-01. The test pits were between 12 and 20 feet deep each. Gravel samples were collected at progressively deeper depths in the pits and fed to the washplant with the excavator (Figure 12).



Figure 12 - Gravel samples were processed with a small portable trommel and long tom.

A 2” Honda water pump supplied water to the trommel. Concentrates from the long tom were panned and the gold weight was recorded.

Figure 13 shows photos of the test pits, and detailed test pit logs are included in Appendix A. The main sampling results are shown in Table 6.

Table 6 - Results of bulk samples, Lightning/Duncan Creek, 2023

Test Pit	Sample	Depth (ft)	Lithology	Volume (yd3)	Gold weight (grams)	Grade oz/yd3	Latitude	Longitude
2023-1	23-1	9-10	pbl-cbl gravel	0.9	0.045	0.0016	63.88794	-135.35490
	23-2	10-12	pbl-cbl gravel	3.6	0.065	0.0006		
2023-2	23-3	2-4	pbl-cbl gravel	3.6	0.1	0.0009	63.88754	-135.35389
	23-4	4-6	pbl-cbl gravel	3.6	0.06	0.0005		
	23-5	6-9	cbl gravel	3.6	0.03	0.0003		
2023-3	23-6	7-11	pbl-cbl gravel	3.6	0.04	0.0004	63.88743	-135.35328
	23-7	15-19	pbl gravel	3.6	0.03	0.0003		



Figure 13 - Test Pits 2023-1, 2023-2 and 2023-3 encountered 7-18 feet of sandy pebble cobble gravel beneath a thin (2 ft), silty-sandy organic layer. The most significant contact was in 2023-2, which encountered a sticky, pebbly silty clay at 9 feet.

Resistivity Surveys

Introduction

Six resistivity lines totalling 1950 line-metres were surveyed and interpreted by William LeBarge of Geoplacer Exploration Ltd. Figures 14 and 15 show the locations of the geophysical surveys and excavator test-pits, as well as drill targets which were chosen based on the interpretations of the resistivity geophysical surveys. The surveys were conducted between August 11, 2023 and August 26, 2023. Field assistance was provided by Don Duncan and Troy Taylor.

Methodology

The Lippmann 4-Point Light Resistivity System was used to conduct the surveys. The resistivity technique injects an electrical current into the subsurface through stainless steel spikes and then measures the remaining voltage at various distances away from the injection point. Ground materials have different resistances to the current, and give data points in a cross section of the subsurface. With the data points, a tomogram or pseudo section can be created representing changes of resistivity in the ground.

The surveys were conducted in all cases with three types of arrays: Dipole-dipole, Schlumberger, and IP (Induced Polarization). The data from these different arrays may have variable results depending on the subsurface structures and lithologies, and it is useful to compare and contrast these processed results during interpretation.

Data was collected using Geotest software, while the inversion and data filtering was completed with RES2DINV software. Data points with poor contact resistance were exterminated and noisy data was filtered statistically with root mean squared data trimming. Two-dimensional tomograms were produced using least squares damped inversion parameters to display the resistivity properties and to display potential contacts.

General principles and assumptions of electrical resistivity are:

1. Low resistivity can indicate thawed and water saturated areas, as well as fine-grained material.
2. Very high resistivity values can be due to ice rich material and frozen or highly disturbed ground.
3. Dry gravels, cobbles and boulders generally have high resistivity values.
4. The contrasts between values is more important in determining contacts than the absolute values found with resistivity data.

Limitations and Disclaimer

The interpreted sections provide an estimate of the conditions beneath the surface to the depths conducted and are within the accuracy of the system and methods. The data becomes more uncertain with depth and are more accurate toward the surface and is further complicated if there is permafrost present in the region. The materials are interpreted based upon local geology observed, as well as geologic knowledge of the area. Certain materials may be similar in composition and result in uncertain results. The accuracy of the information presented is not guaranteed and all mine development is the client's responsibility. William LeBarge of Geoplacer Exploration Ltd. accepts no liability for any use or application of these data by any and all authorized or unauthorized parties.

Results

All surveys encountered relatively low contact resistance and therefore provided reasonable quality data. However, as in all surveys of this type, contrasts between low, moderate and high resistivity values may be partially or entirely a reflection of varying groundwater and frost conditions, rather than strictly lithological boundaries.

The geographic coordinates of the endpoints of the surveyed lines are shown in Table 7. The lines are plotted on Figures 14 and 15, and the interpreted profiles are shown as Figures 16 to 21.

Table 7 – 2023 resistivity survey line endpoint coordinates, grant numbers and lengths.

Survey Name	Grant Number	Start Point		End Point		Length (m)	Date Surveyed
		Latitude	Longitude	Latitude	Longitude		
RES23-TIER1-11-01	P 524396	63.888381	-135.347726	63.885695	-135.343162	400	August 11, 2023
RES23-ELAINE4-01	P 42578	63.888449	-135.355939	63.885909	-135.350938	400	August 13, 2023
RES23-WATERFALL-01	P 525996	63.889755	-135.341889	63.88766	-135.347729	400	August 14, 2023
RES23-ELAINE4-02	P 42578	63.888224	-135.352702	63.88584	-135.347647	400	August 15, 2023
RES23-IM489-01	IM00489	63.881761	-135.324964	63.881012	-135.322543	150	August 25, 2023
RES23-IM490-01	IM00490	63.87295	-135.283348	63.873611	-135.286522	200	August 26, 2023

A total of 10 drill targets were chosen on the 2023 resistivity survey lines. These are plotted on the profiles and given in Table 8.

Table 8 - Drill Targets from 2023 Resistivity Surveys, Lightning/Duncan Creek.

Resistivity Line	Grant Number	Target Name	Latitude	Longitude	Depth of target (m)
RES23-WATERFALL-01	P 525996	23-01	63.889629	-135.342167	4.5
RES23-WATERFALL-01	P 525996	23-02	63.889469	-135.342606	3.6
RES23-WATERFALL-01	P 525996	23-03	63.888741	-135.344727	7.6
RES23-WATERFALL-01	P 525996	23-04	63.887852	-135.347197	10.6
RES23-TIER1-11-01	P 524396	23-05	63.887576	-135.34635	17
RES23-TIER1-11-01	P 524396	23-06	63.886962	-135.345328	15
RES23-ELAINE4-02	P 42578	23-07	63.887647	-135.351499	10
RES23-ELAINE4-02	P 42578	23-08	63.886642	-135.34936	15
RES23-ELAINE4-01	P 42578	23-09	63.888191	-135.355308	10
RES23-ELAINE4-01	P 42578	23-10	63.887206	-135.353462	8

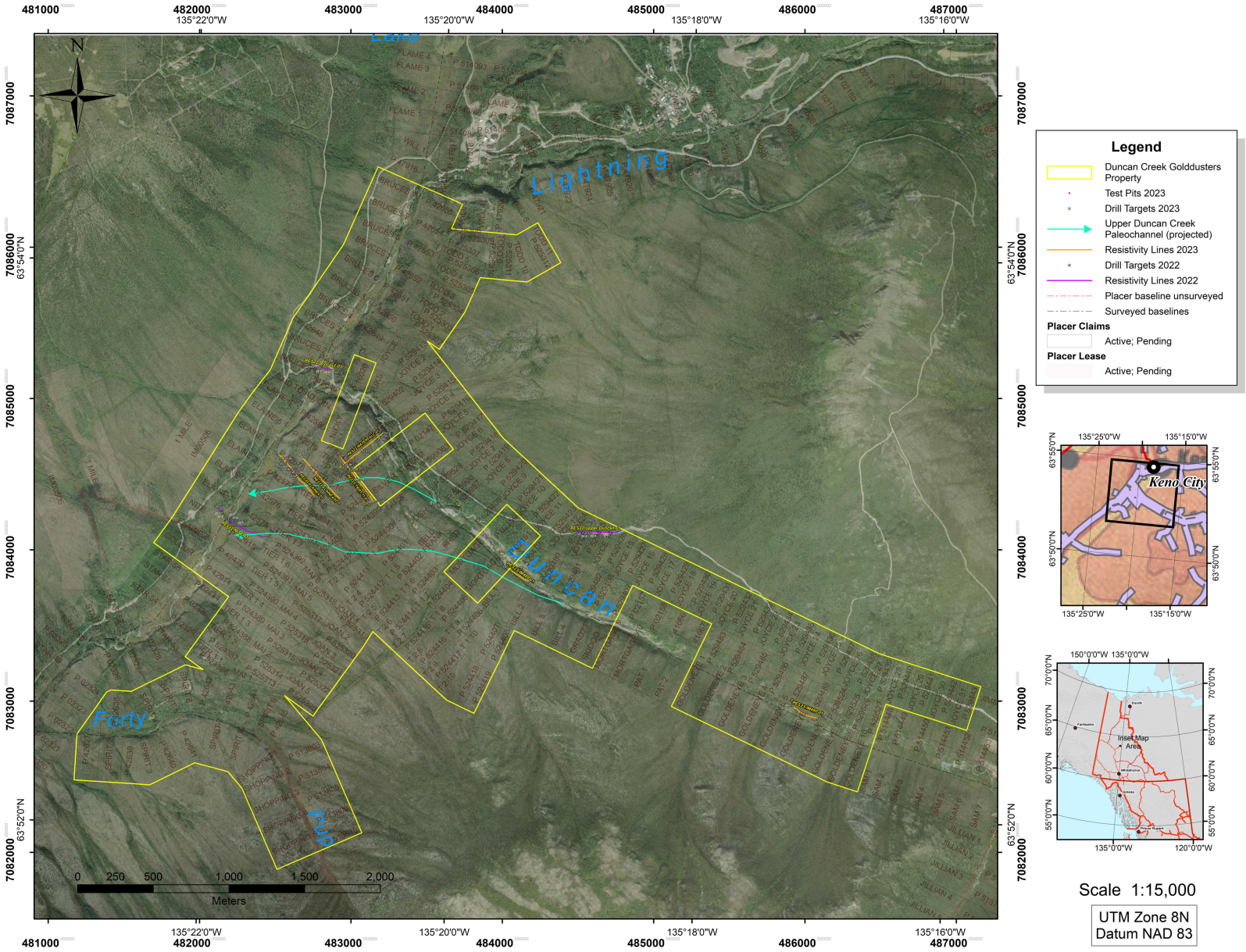

Figure 14 – Satellite image of Lightning/Duncan Creek claim area showing locations of resistivity surveys, drill targets and test pits in 2022 and 2023. Two interpreted potential paleochannels are also shown.

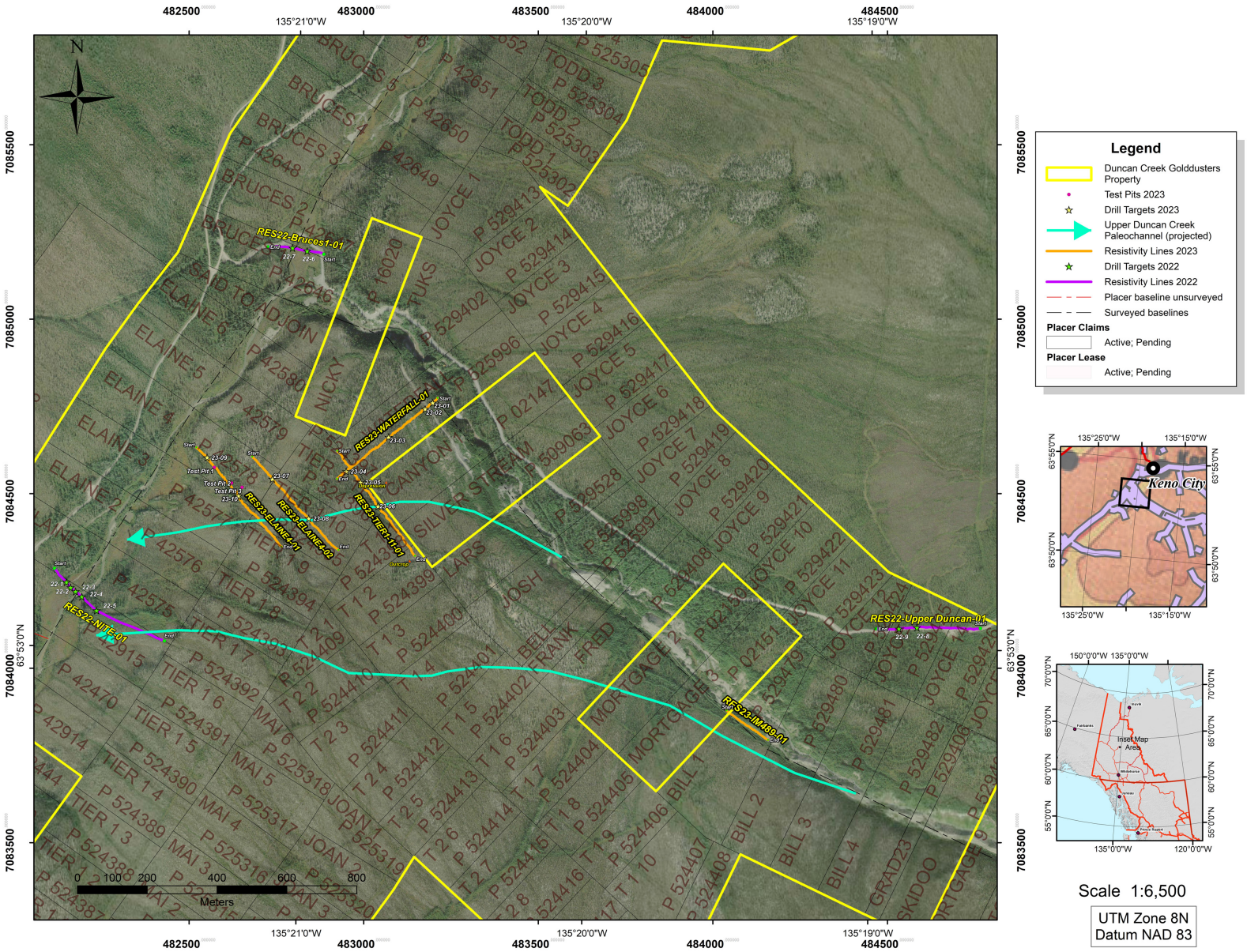

Figure 15 – Detail of Lightning/Duncan Creek main project area showing locations of resistivity surveys, drill targets and test pits in 2022 and 2023. Two interpreted potential paleochannels are also shown.

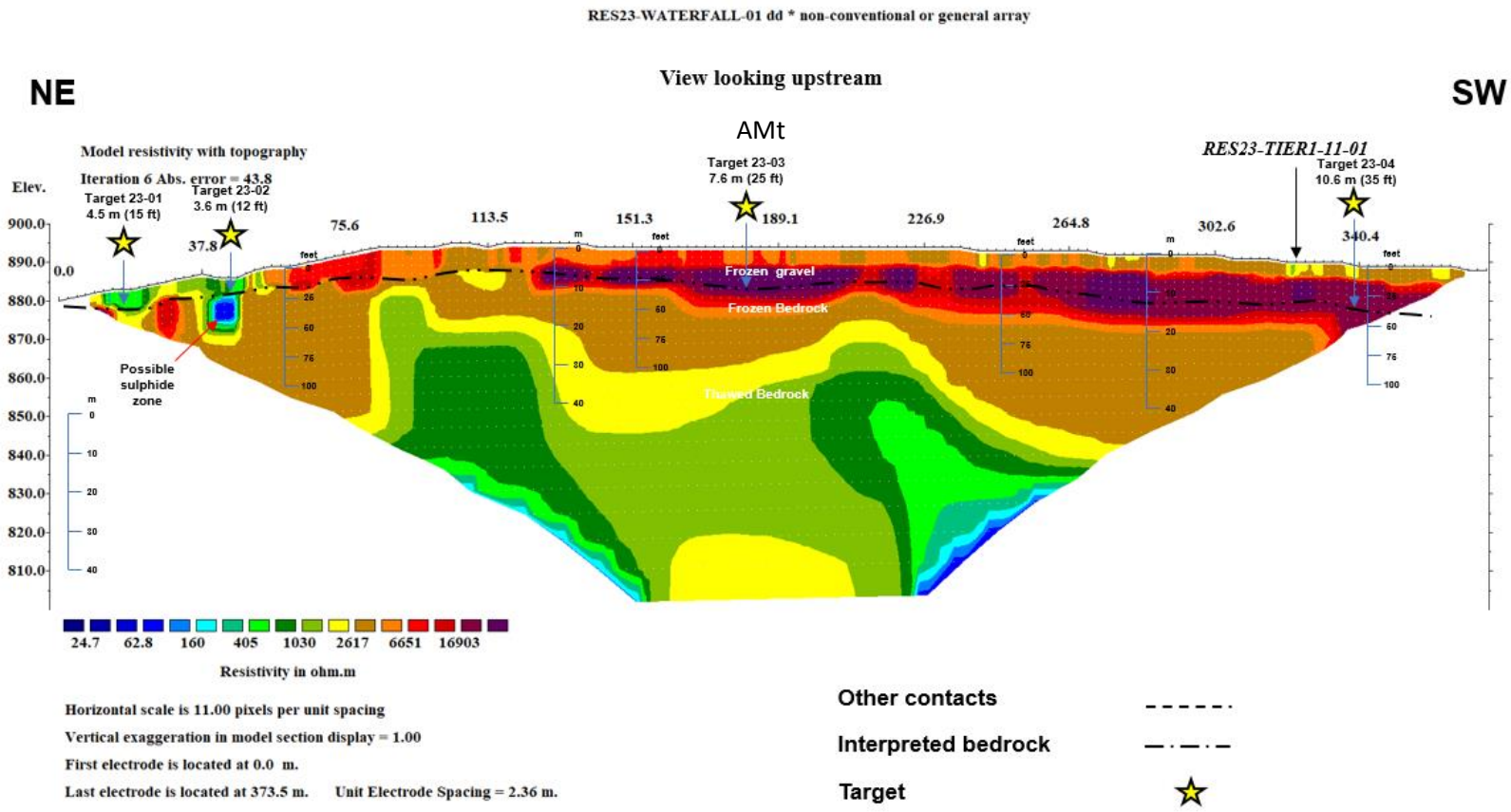

Figure 16 – Resistivity line RES23-WATERFALL-01 was surveyed across the left limit bench of Upper Duncan Creek, in an area mapped as McConnell age alluvial terrace (map unit AMt) just upstream of the canyon. Bedrock outcrops at surface near the start of the line. A partially thawed 2-4 metre thick layer of gravel overlies 5-8 metres of frozen gravel over bedrock, which varies from 2 to 12 metres in depth. A potential sulphide zone is expressed as a highly conductive anomaly about 40 metres from the start of the line. This may correspond with a known sulphide occurrence which outcrops nearby, just across the Upper Duncan canyon.

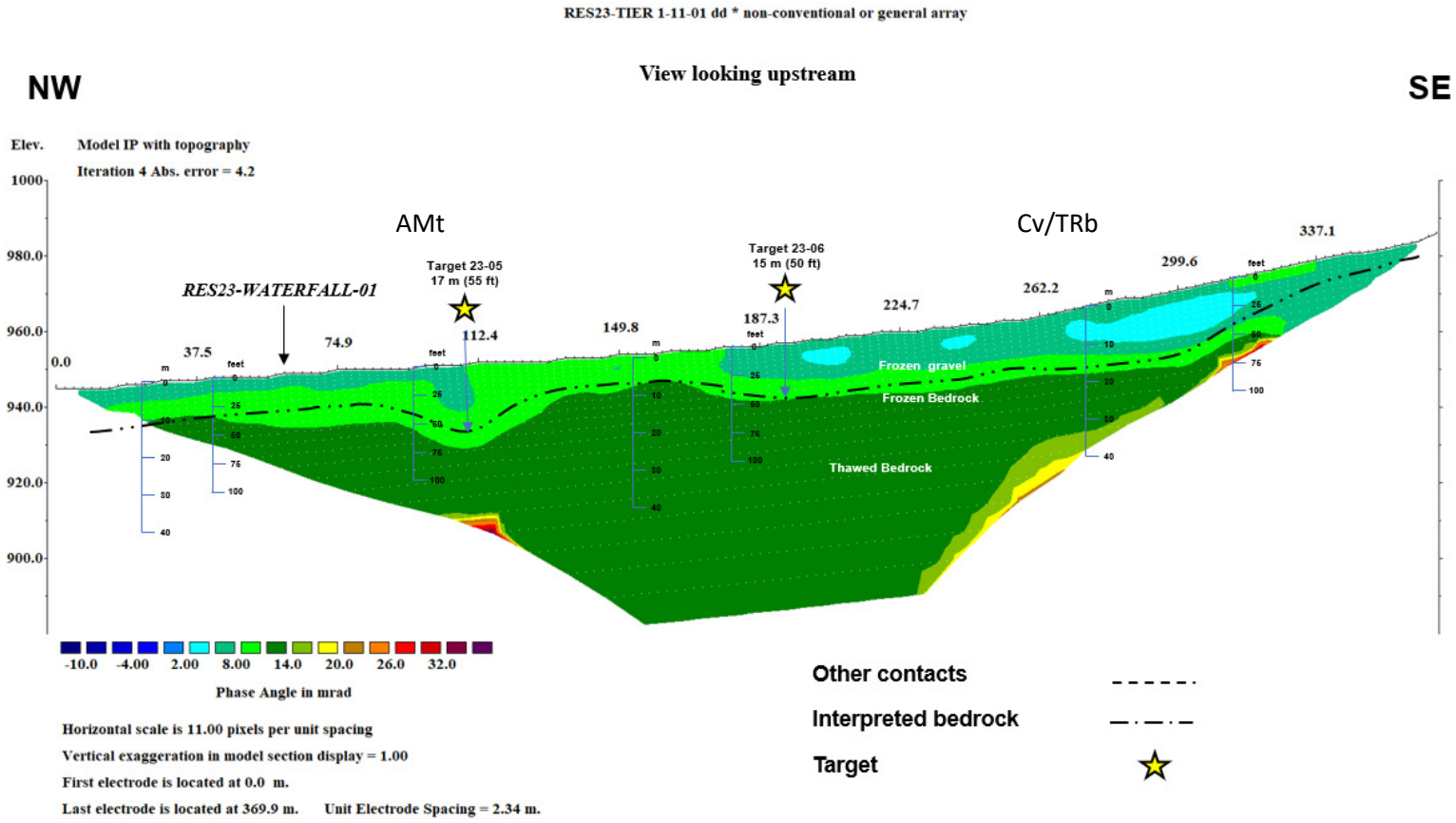

Figure 17 – Resistivity line RES23-TIER 1-11-01 was surveyed across the left limit bench of Upper Duncan Creek at 90 degrees to line RES23-WATERFALL-01, which it intersected. The area is mapped as McConnell alluvial terrace (unit AMt) transitioning to colluvial veneer/Reid till blanket (map units Cv and TRb). This line is interpreted to have a thawed layer up to 3 metres thick overlying a frozen gravel 10-14 metres thick over a frozen bedrock. The bedrock profile (distinctly shown in the IP model given here) climbs to the southeast, where the line ends near a surface bedrock outcrop.

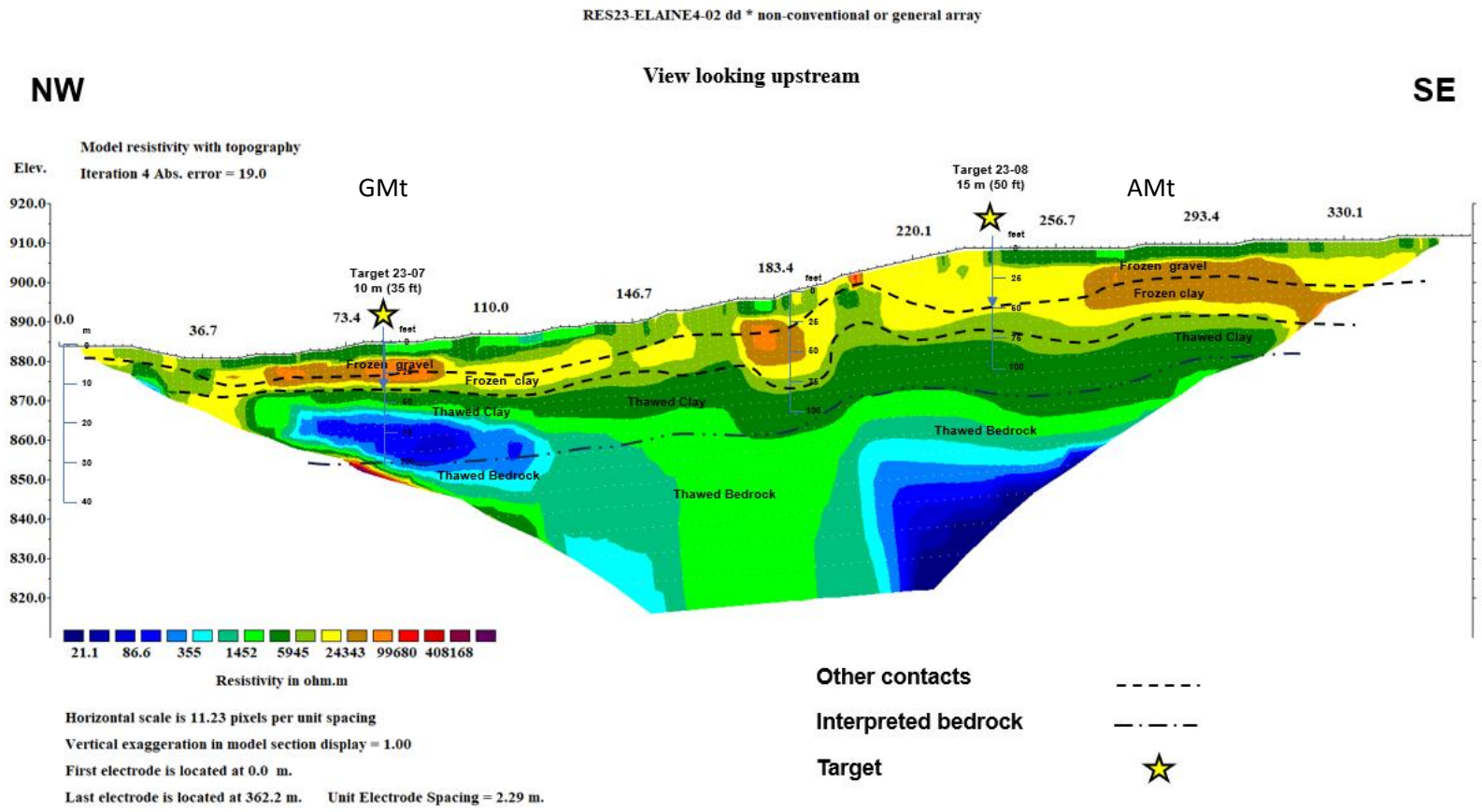

Figure 18 – Resistivity profile RES23-ELAINE4-02 was surveyed NW to SE (parallel to line RES23-TIER 1-11-01), across an area mapped as McConnell glaciofluvial terrace (map unit GMt) which transitions southeastward to a McConnell-age alluvial terrace (map unit AMt). This line is interpreted to have a 1-3 metre thawed gravel layer overlying 5-10 metres of frozen gravel, 5-10 metres of frozen clay and 10-15 metres of thawed clay over thawed bedrock. Bedrock may be up to 30 metres from surface.

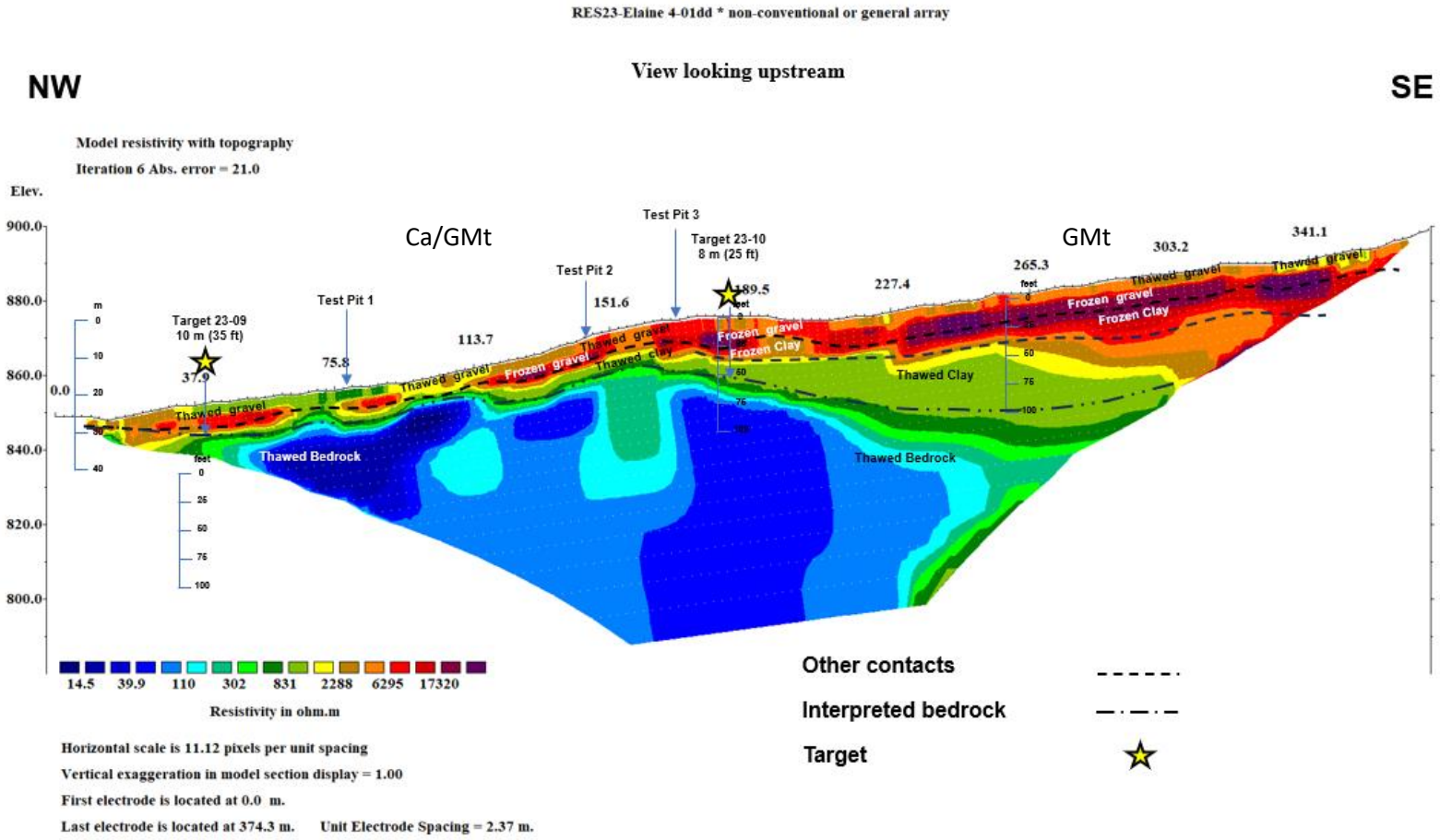

Figure 19 - Resistivity profile RES23-ELAINE4-01 was surveyed NW to SE (parallel to line RES23-ELAINE4-02), across an area mapped as colluvial apron/McConnell glaciofluvial terrace (map unit Ca/GMt) which transitions southeastward to a McConnell glaciofluvial terrace (map unit GMt). This line is interpreted to have 3-8 metres of thawed gravel overlying 5-10 metres of frozen gravel, 5-10 metres of frozen clay and 5-20 metres of thawed clay. Bedrock appears to deepen to the southeast, beneath a thawed clay unit. Test pits 2023-1 to 2023-3 were excavated along this line.

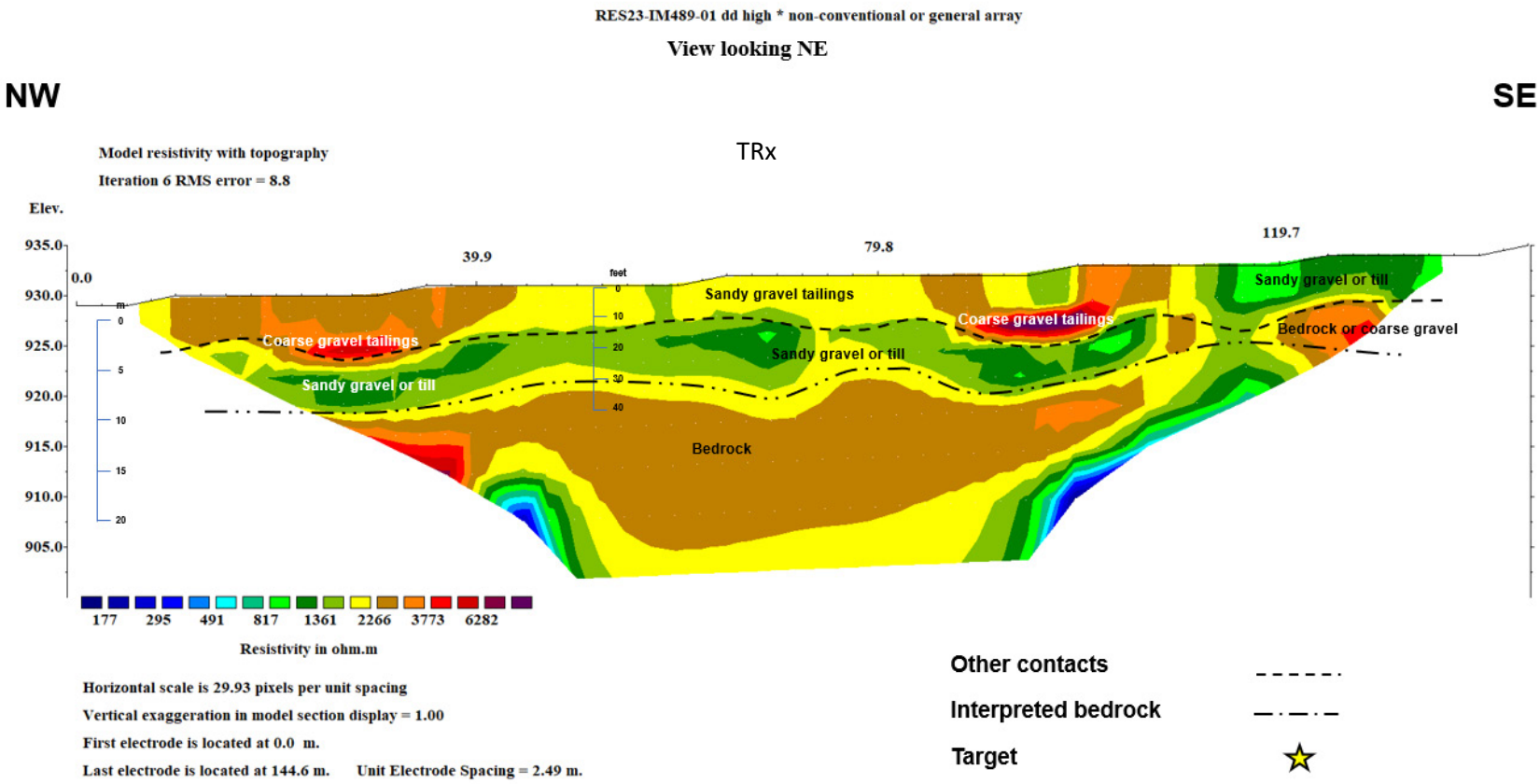

Figure 20 – Resistivity profile RES23-IM0489-01 was surveyed in the Upper Duncan Creek valley, in an area mapped as Reid-age glacial till complex (map unit TRx). The area has been mined and the survey was conducted along a trail which was constructed from mine tailings. The profile is interpreted to have 3-5 metres of thawed sandy gravel and coarse gravel tailings overlying 3-5 metres of thawed fine-grained sandy-silty gravel, which may be the Reid glacial till. The southeast end of the profile consists of 3-5 metres of sandy-silty gravel (possibly in-situ till) overlying either bedrock or a buried coarse gravel unit. Bedrock varies between 8 and 10 metres below surface.

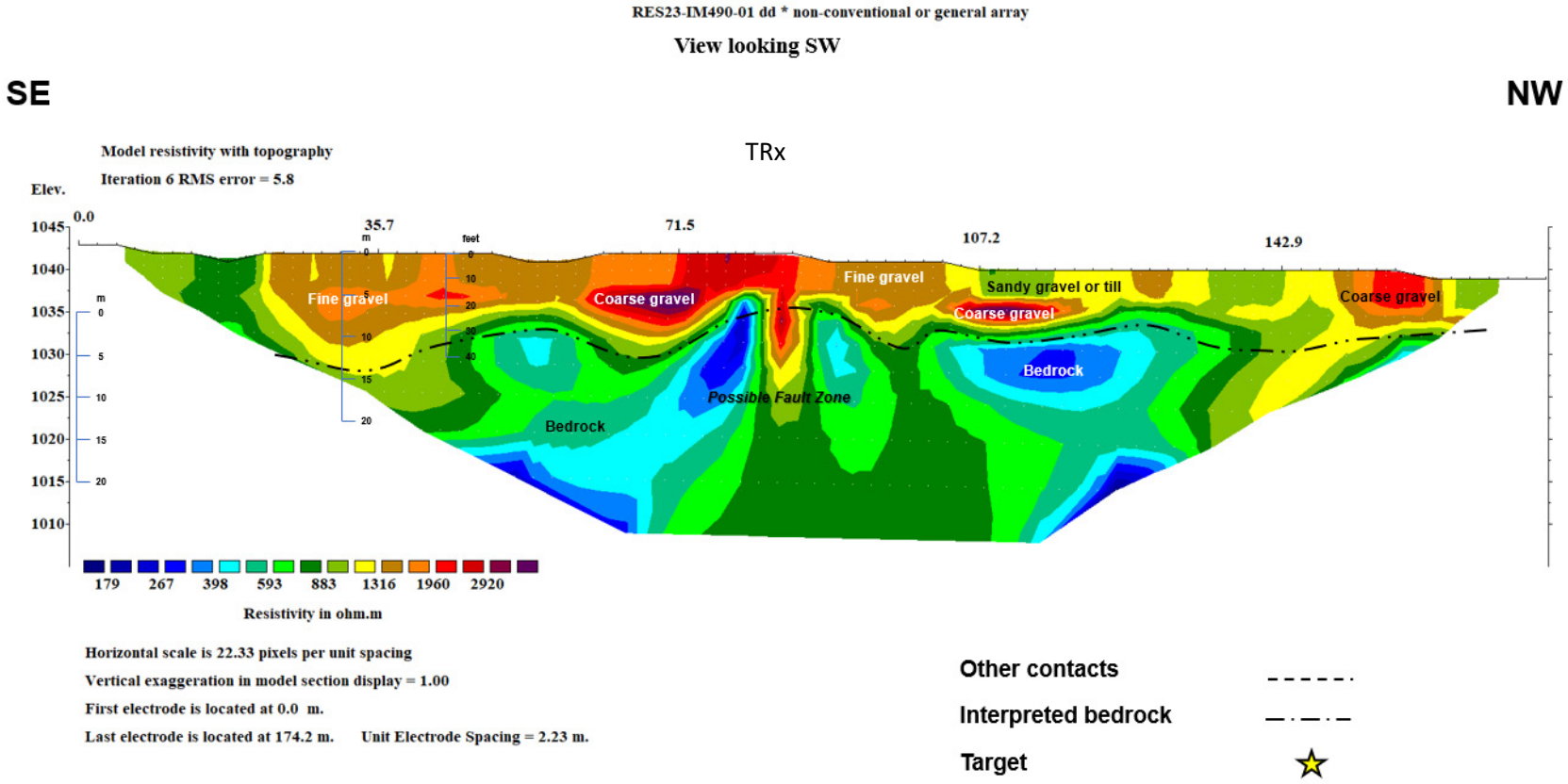

Figure 21 - Resistivity profile RES23-IM0490-01 was surveyed in the Upper Duncan Creek valley, in an area mapped as Reid-age glacial till complex (map unit TRx). No obvious mining has taken place in the survey area, although some test pits were noted. The profile is thawed and interpreted to have 3-8 metres of sandy gravel overlying up to 5 metres of coarse gravel. Bedrock varies between 6 and 12 metres below surface.

Discussion

The lack of any drill holes for calibration made interpretation of the profiles challenging, although the three test pits which were conducted along line RES23-ELAINE4-01 were useful. Nonetheless, the following interpretations and the descriptions given in the figure captions should be taken with an appropriate amount of caution.

As mapped by Bond (1998), the resistivity lines highest on the bench (RES23-WATERFALL-01 and RES23-TIER 1-11-01) transected map units AMt (alluvial terrace, McConnell) and Cv/TRb (colluvial veneer/Reid till blanket). They both exhibit a thin, thawed layer of gravel or colluvium at the surface which overlays a frozen zone of gravel and bedrock. At depth, bedrock is apparently thawed. RES23-TIER 1-11-01 shows a distinctive depression which may represent a buried paleochannel at 15-17 metres depth. A potential sulphide zone in RES23-WATERFALL-01 is expressed as a highly conductive anomaly which may be an extension of a known sulphide occurrence that outcrops nearby, just across the Upper Duncan canyon.

Two resistivity lines (RES23-ELAINE4-02 and RES23-ELAINE4-01) were surveyed parallel to each other, transecting a series of terraces rising from the Duncan Creek valley downstream of Lightning Creek. These terraces are mapped (Bond, 1998) as Ca/GMt (colluvial apron/glaciofluvial terrace, McConnell), GMt (glaciofluvial terrace, McConnell) and AMt (alluvial terrace, McConnell).

RES23-ELAINE4-01, farthest west and lowest in elevation, transected map units Ca/GMt and GMt. Parallel survey line RES23-ELAINE4-02 is higher in elevation and farther east, and it transected map units GMt and AMt. As with the two other lines highest on the bench, these profiles exhibit a thin, thawed layer of gravel or colluvium at the surface which overlays a frozen zone of gravel. The subsurface is more complex however, with a variable thickness of frozen and thawed clay (possibly till, or glaciolacustrine silt and clay) overlying a thawed bedrock. Bedrock throughout most of profile RES23-ELAINE4-02 is interpreted to be in the range of 30 metres from surface. In resistivity profile RES23-ELAINE4-01, bedrock is shallow (0-5 metres) at the start of the line near the valley, however it deepens significantly (up to 30 metres) to the southeast, where it lies beneath a thawed clay unit. Test pit 2023-2 (excavated along this line) encountered a shallow clay unit (at 3 metres) which may be the upper contact of this thick clay unit.

Two resistivity surveys (RES23-IM0489-01 and RES23-IM0490-01) were conducted in the Upper Duncan Creek valley. The area of both surveys is mapped (Bond, 1998) as Reid-age glacial till complex (map unit TRx). The area just north of RES23-IM0489-01 has been mined, and the survey was conducted along a trail which was constructed from mine tailings. The profile is interpreted to have 3-5 metres of thawed sandy gravel and coarse gravel tailings overlying 3-5 metres of thawed fine-grained sandy-silty gravel, which may be the Reid glacial till. The southeast end of the profile consists of 3-5 metres of sandy-silty gravel (possibly in-situ till) overlying either bedrock or a buried unmined coarse gravel unit. Bedrock varies between 8 and 10 metres below surface. No obvious mining has taken place in the RES23-IM0490-01 survey area, although some test pits were noted. The profile is thawed and interpreted to have 3-8 metres of sandy gravel overlying up to 5 metres of coarse gravel. Bedrock varies between 6 and 12 metres below surface.

Drone Surveys

Overview

High-resolution satellite imagery and recent airphoto coverage is not available for many parts of the Yukon. Much of the imagery available online is unusable due to its low resolution, the presence of cloud cover, or it is simply outdated and no longer representative of the current anthropomorphic features or geomorphology. Therefore, to aid in exploration and mine planning, a program of aerial imaging surveys was conducted on the Lightning/Upper Duncan property.

Personnel and Methodology

On August 26, 2023, Darryl Cann conducted two overlapping drone surveys of the area of the confluence of Upper Duncan Creek and Lightning Creek. The type of drone used was a DJI Mavic 3 with a Hasselblad 20 megapixel camera.

On September 20, 2023, William LeBarge of Geoplacer Exploration Ltd. conducted an additional drone survey of Upper Duncan Creek just upstream of the two previous drone surveys. The type of drone used was a DJI Mavic 2 Pro, with a 20 megapixel Hasselblad camera.

Results

Overall, the area encompassed by all three drone surveys was 6.88 km^2. The two drone surveys conducted on August 26 overlapped, which made it possible to produce a single orthomosiac. A separate orthophoto mosaic was produced from the September 20 survey. A 3D digital terrain model was then generated using Pix4D and Global Mapper software.

The map area covered by the drone surveys on Upper Duncan/Lightning Creek is shown as Figure 22. High resolution versions of the orthomosiacs are included in Appendix B.

A 3D digital terrain model is shown as Figure 23, which also shows the traces of the resistivity surveys, the locations of the test pits, and the potential projections of two paleochannels.

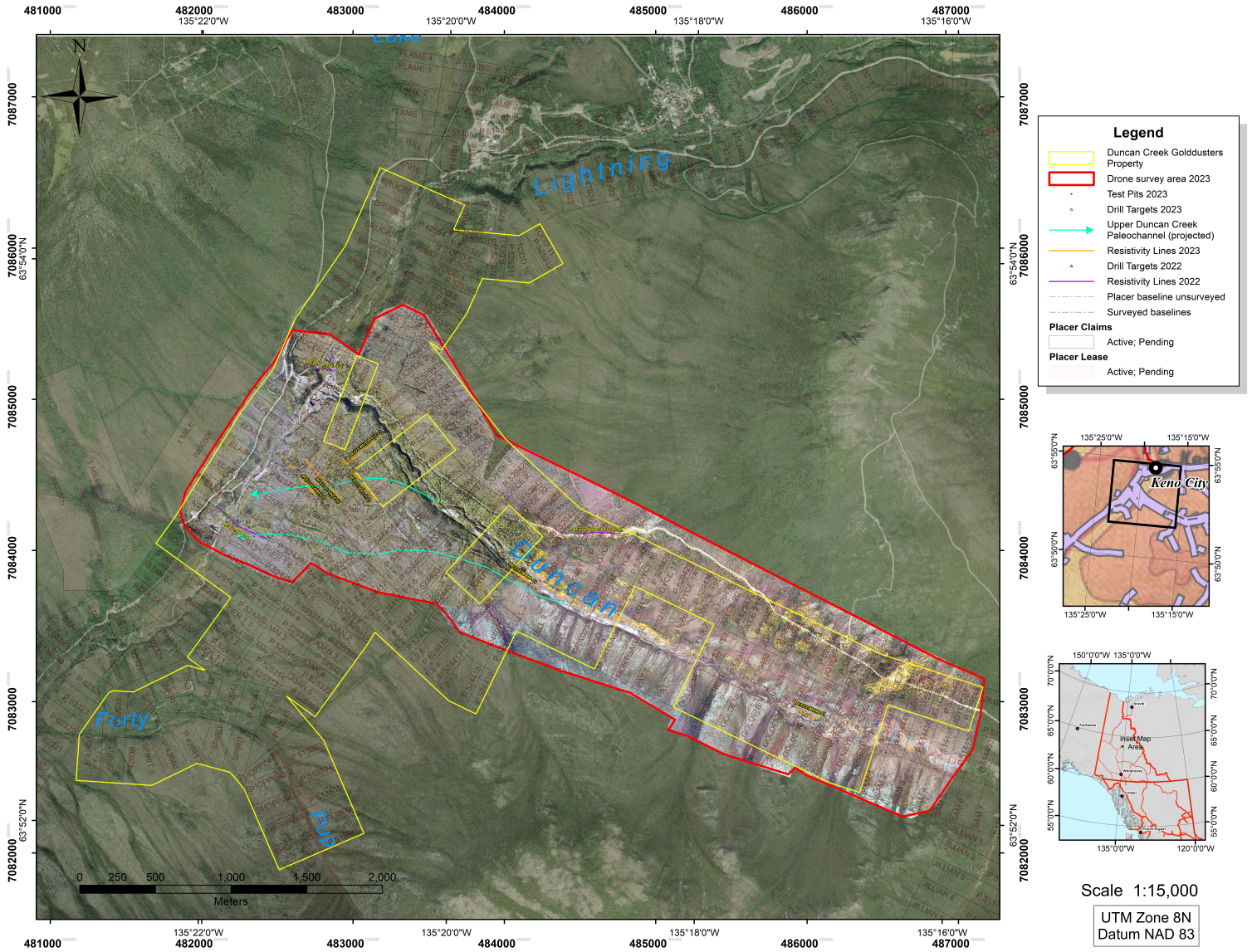

Figure 22 – Low resolution orthomosiac of the drone surveys which were conducted on Upper Duncan/Lightning Creek in 2023.

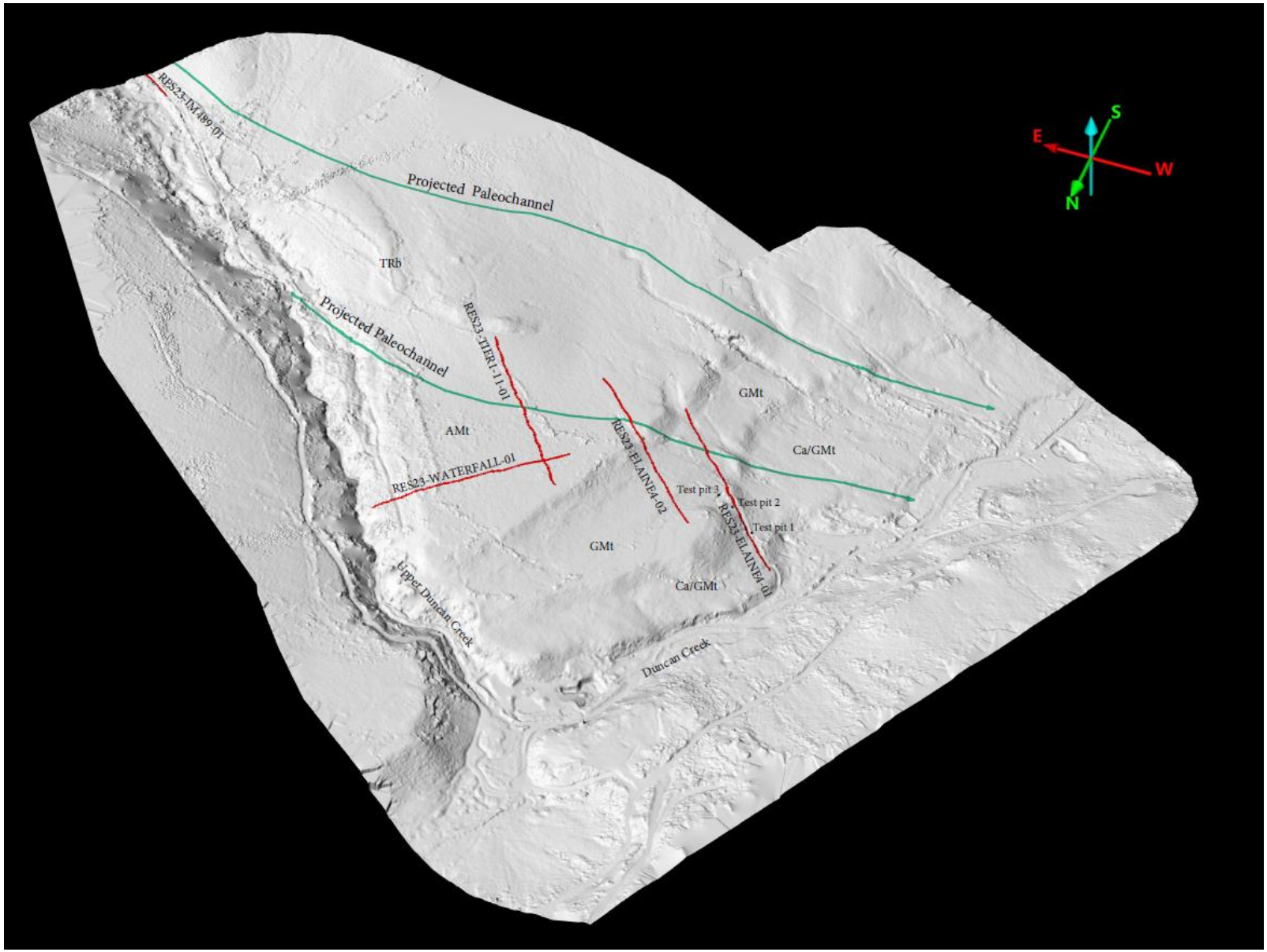

Figure 23 - Digital terrain model of the confluence of Upper Duncan and Duncan Creeks, showing the 2023 resistivity survey lines and the projected traces of potential paleochannels. McConnell age alluvial (AMt) and glaciofluvial (GMt, Ca/GMt) terraces are clearly evident.

Conclusions and Recommendations

The 2023 program of resistivity surveys, test pitting and drone aerial surveys was an essential starting point for the evaluation of the placer potential of the Upper Duncan/Lightning/Duncan Creek confluence.

The test pits were useful in characterizing the surface stratigraphy and lithologies in the terrace gravels, and facilitated some calibration of the shallow parts of the nearby resistivity surveys. Gold grades from the processed test samples were not high, however all samples returned at least some gold. Larger and deeper bulk samples, possibly at "false bedrock" contacts such as buried clay units, would most likely increase the gold values recovered in the terrace gravels.

Without any drill hole calibration, the interpretation of the subsurface beneath the resistivity surveys was challenging. The resistivity surveys transected a complex variety of alluvial, glaciofluvial and colluvial sediments, which ranged from completely thawed to completely frozen, often within the same profile. The depths of bedrock interpreted beneath the surveys varied from 0 to 17 metres on the highest parts of the bench, to a range of 2 to 30 metres beneath the alluvial, glaciofluvial and glacial sediments adjacent to the Duncan Creek valley.

Ten drill targets were identified on the resistivity surveys. These vary from 3.6 to 17 metres in depth. Many of the drill targets target more accessible "false bedrock" contacts which may be easier to mine, rather than deeply buried bedrock.

Based on the interpretation of the resistivity surveys, overall topography, surficial geology, and the digital terrain model, two likely pathways for a buried paleochannel remain possible. There is strong evidence from the resistivity surveys that the most northerly paleochannel is present, however, this can not be confirmed without several targeted drill holes to confirm lithologies, permafrost characteristics, and bedrock depths.

Further exploration on the project area should include larger scale bulk sampling and drilling using reverse circulation (R/C), rotary air blast (RAB) or sonic drilling methods. This will help to further delineate the gold potential of the valley and terrace gravels, as well as improve the understanding of the subsurface by aiding calibration of the resistivity survey data.

Statement of Qualifications

William LeBarge

I, William LeBarge, of 13 Tigereye Crescent, Whitehorse, Yukon, Canada, DO HEREBY CERTIFY THAT:

1. I am a Consulting Geologist with current address at 13 Tigereye Crescent, Whitehorse, Yukon, Canada, Y1A 6G6.
2. I am a graduate of the University of Alberta (B.Sc., 1985, Geology) and the University of Calgary (M.Sc., 1993, Geology – Sedimentology)
3. I am a Practicing Member in Good Standing (#37932) of the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC).
4. I have practiced my Profession as a Geologist continuously since 1985.
5. I am President and sole shareholder of Geoplacer Exploration Ltd., a Yukon Registered Company.

Dated this 30th day of January, 2024

William LeBarge, P. Geo.



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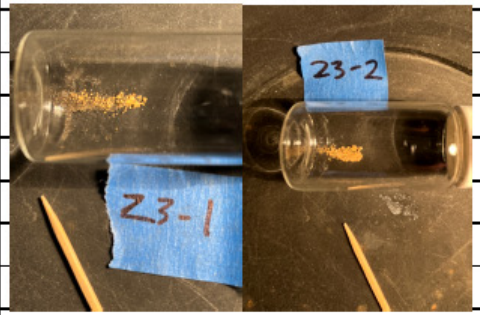
Appendix A – Test Pit Logs

Test Hole Log # 2023-1

Location: Duncan Left Limit Bench

Claim Name: Elaine 4
Sample #: 23-1, 23-2
Date: Oct. 3, 2023

NAD 1983 UTM Zone 8N
482573, 7084575
Date processed: Oct 5-6, 2023
Processed by: Sheldon Goudreau

From (ft)	To (ft)	Volume (cubic yards)	Gold (grams)	Grade (oz/yd)	Lithology Description
0	2				organics, silt
2	9				pebble-cobble size with coarse sand matrix, sub-rounded clasts up to 16", dark brown color
9	10	0.9	0.045	0.0016	pebble-cobble size with coarse sand matrix, sub-rounded clasts up to 16", dark brown color
					Sample #23-1, same lithology as 2-9 ft section
10	12	3.6	0.065	0.0006	pebble-cobble size gravel with coarse sand matrix, sub-rounded clasts up to 16", orange-brown color
					Sample # 23-2, abundance of heavies
					

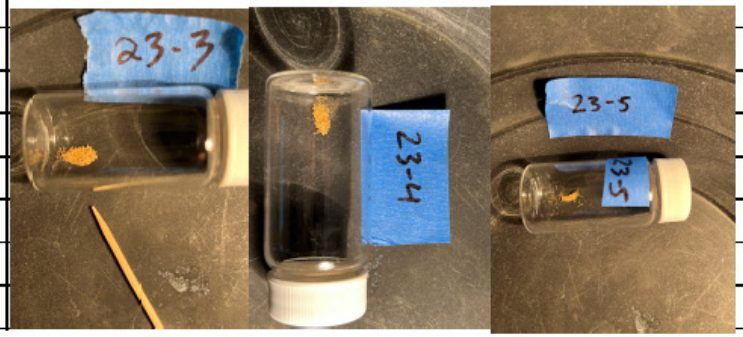
Test Hole Log # 2023-2

Location: Duncan Left Limit Bench

Claim Name: Elaine 4
Sample #: 23-3, 23-4, 23-5
Date: Oct. 3-4, 2023

NAD 1983 UTM Zone 8N
482622, 7084530
Date processed: Oct 5-9, 2023
Processed by: Sheldon Goudreau

From (ft)	To (ft)	Volume (cubic yards)	Gold (grams)	Grade oz/yd	Lithology Description
0	2				organics, silt-sand
2	4	3.6	0.1	0.0009	pebble-cobble size, fine sand matrix , sub-rounded clasts to 12", tan color
					Sample # 23-3
4	6	3.6	0.06	0.0005	pebble-cobble size, fine sand matrix, sub-rounded clasts to 12", tan color
					Sample # 23-4
6	9	3.6	0.03	0.0003	cobble size, sand matrix, clasts are sub-rounded up to 16", orange-tan color
					Sample # 23-5
9	12				silt-clay with pebbles in matrix, sticky, grey color

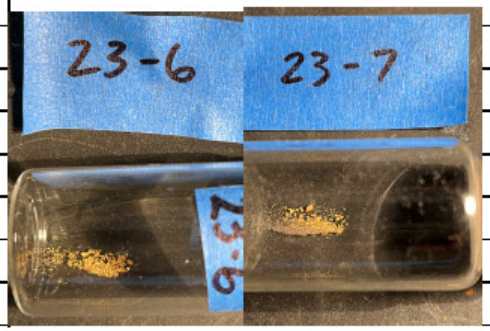


Test Hole Log # 2023-3

Location: Duncan Left Limit Bench

Claim Name: Elaine 4
Sample #: 23-6, 23-7
Date: Oct 6, 2023

NAD 1983 UTM Zone 8N
482652, 7084518
Date processed: Oct 7-9, 2023
Processed by: Sheldon Goudreau

From (ft)	To (ft)	Volume (cubic yards)	Gold (grams)	Grade oz/yd	Lithology Description
0	2				organics, silt
2	7				pebble-cobble size, fine sand matrix, 3"avg. cobble size, cobbles are rounded and up to 6", tan color
7	11	3.6	0.04	0.0004	pebble-cobble size, coarse sand matrix, avg. clast size 5", clasts are rounded up to 12", grey color
					Sample #23-6
11	15				pebble-cobble size, coarse sand matrix, avg. clast size 3", rounded clasts up to 6", grey color
15	19	3.6	0.03	0.0003	pebble size, silt-sand matrix, clasts are rounded and up to 4", grey color
					Sample # 23-7
19	20				pebble size, sand matrix, fining downwards, clasts are rounded and up to 4", grey color
					

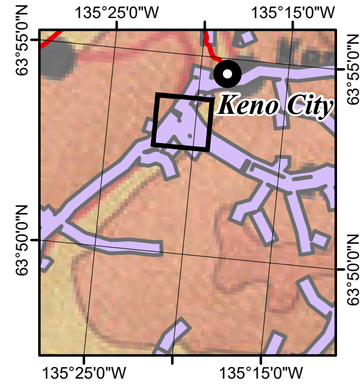
Appendix B – High Resolution Drone Survey Maps

482000 000000
135°22'0"W
482500 000000
483000 000000
483500 000000
135°20'0"W
484000 000000

7085500 000000
7085000 000000
7084500 000000
7084000 000000
7083500 000000

N

0 100 200 400 600 800
Meters

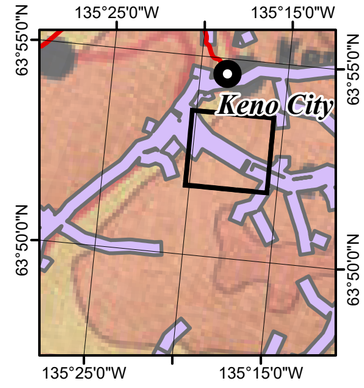




Scale 1:6,000

UTM Zone 8N
Datum NAD 83







Scale 1:9,000

UTM Zone 8N
Datum NAD 83