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# 2016 REPORT OF PHYSICAL WORK ON THE HAULTAIN PROJECT HAULTAIN, NICOL, VAN HISE AND MILNER TOWNSHIPS, ONTARIO

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February 7<sup>th</sup>, 2017

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## **1.0 INTRODUCTION**

This report has been prepared by Transition Metals to document trenching and sampling activities which occurred between November 2<sup>nd</sup> and November 11<sup>th</sup> 2016. Two trenches were excavated with one being abandoned due to deeper than expected overburden. Trench 11 uncovered a northwest trending shear zone with several zones of shear parallel quartz veining. A total of 19 grab samples were collected on the trench, using a channel saw, to get a preliminary assessment of the trench for hosting gold mineralization. The best assay returned 519pp Au from a quartz vein within a monzonite.

## **2.0 PROPERTY LOCATION, ACCESS, AND DESCRIPTION**

The Haultain Property consists of 35 staked mining claims located in the Townships of Haultain, Nicol, Milner and Van Hise of the Larder Lake Mining Division. Ownership of 34 mining claims comprising 216 claim units are currently registered at 100% interest to Transition Metals Corp. one additional claim (1227354) comprised of 4 claim units is presently registered at 100% to Sherry Swain but is subject to an agreement with Transition Metals. Table 1 presents a listing of mining claims forming the Haultain Project property and provides both status and ownership as of the effective date of this report. Figure 1 depicts the approximate location of the Property as recorded by the MNDM and Figure 2 shows individual claim locations on the property.

Table 1: Haultain claim details

Township / Area	Claim Number	Number of Units	Recording Date	Claim Due Date	Status	Percent Option	Owner	Work Required	Total Applied	Total Reserve	Claim Bank
HAULTAIN	1248799*	6	2004-Nov-17	2015-Mar-30	AS	100%	Transition	\$1,600	\$20,000	\$580,916	\$0
HAULTAIN	3000444*	12	2005-Nov-02	2015-Mar-15	AS	100%	Transition	\$4,800	\$33,600	\$43,494	\$0
HAULTAIN	4201494*	1	2006-Jul-24	2014-Dec-04	AS	100%	Transition	\$400	\$2,400	\$7,549	\$0
HAULTAIN	4202103*	2	2006-Nov-17	2017-Mar-30	AS	100%	Transition	\$800	\$6,400	\$3,622	\$0
HAULTAIN	4247250	2	2010-Jul-13	2017-Jul-13	A	100%	Transition	\$800	\$4,000	\$0	\$0
HAULTAIN	4259076	4	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$1,600	\$6,400	\$490	\$0
HAULTAIN	4259079	2	2010-Nov-15	2017-Nov-15	A	100%	Transition	\$800	\$4,000	\$2,822	\$0
HAULTAIN	4259080	6	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$2,400	\$9,600	\$3,497	\$0
HAULTAIN	4259081	4	2010-Nov-15	2015-Mar-28	AS	100%	Transition	\$1,600	\$3,200	\$7,540	\$0
HAULTAIN	4259082	1	2010-Nov-15	2019-Nov-15	A	100%	Transition	\$400	\$2,800	\$2,823	\$0
HAULTAIN	4259083	4	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$1,600	\$6,400	\$2,823	\$0
NICOL	3007395*	4	2007-Nov-15	2016-Nov-15	A	100%	Transition	\$1,600	\$11,200	\$7,549	\$0
NICOL	4201423*	6	2005-Nov-16	2016-Nov-16	A	100%	Transition	\$2,400	\$21,600	\$5,540	\$0
NICOL	4211968	3	2015-Feb-18	2017-Feb-18	A	100%	Transition	\$1,200	\$0	\$0	\$0
NICOL	4227300*	4	2007-Nov-15	2015-Mar-28	AS	100%	Transition	\$1,600	\$8,000	\$4,423	\$0
NICOL	4227301*	2	2007-Nov-15	2016-Nov-15	A	100%	Transition	\$800	\$5,600	\$3,623	\$0
NICOL	4247246	3	2010-Jul-13	2017-Jul-13	A	100%	Transition	\$1,200	\$6,000	\$0	\$0
NICOL	4247247	16	2010-Jul-13	2017-Jul-13	A	100%	Transition	\$6,400	\$32,000	\$0	\$0
NICOL	4247248	13	2010-Jul-13	2017-Jul-13	A	100%	Transition	\$5,200	\$26,000	\$0	\$0
NICOL	4247249	10	2010-Jul-13	2017-Jul-13	A	100%	Transition	\$4,000	\$20,000	\$0	\$0
NICOL	4259073	8	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$3,200	\$12,800	\$0	\$0
NICOL	4259074	2	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$800	\$3,200	\$0	\$0
NICOL	4259075	1	2010-Nov-15	2020-Nov-15	A	100%	Transition	\$400	\$3,200	\$461	\$0
NICOL	4259077	2	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$800	\$3,200	\$2,822	\$0
NICOL	4259078	1	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$400	\$1,600	\$3,158	\$0
NICOL	4259407	16	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$6,400	\$25,600	\$0	\$0
NICOL	4259408	8	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$3,200	\$12,800	\$0	\$0
NICOL	4259409	8	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$3,200	\$12,800	\$0	\$0
NICOL	4259410	8	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$3,200	\$12,800	\$0	\$0
NICOL	4259412	16	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$6,400	\$25,600	\$0	\$0
NICOL	4270528	1	2012-Jun-06	2017-Jun-06	A	100%	Transition	\$400	\$1,200	\$460	\$0
NICOL	4278373	16	2015-Nov-26	2017-Nov-26	A	100%	Transition	\$6,400	\$0	\$0	\$0
NICOL	4278374	16	2015-Nov-26	2017-Nov-26	A	100%	Transition	\$6,400	\$0	\$0	\$0
NICOL	1227354**	4	1999-Aug-11	2001-Aug-11	PP	100%	Swain	\$1,600	\$0	\$0	\$0
VAN HISE	4211967	8	2015-Feb-18	2017-Feb-18	A	100%	Transition	\$3,200	\$0	\$0	\$0

\* Subject to terms of Option Agreement between Transition Metals Corp and Sherry Swain, dated July 1, 2010

\*\* Pending Proceedings commenced December 21, 2000, Claim registered 100% in name of S. Swain, subject to terms of the July 1, 2010 Option Agreement with Transition Metals Corp

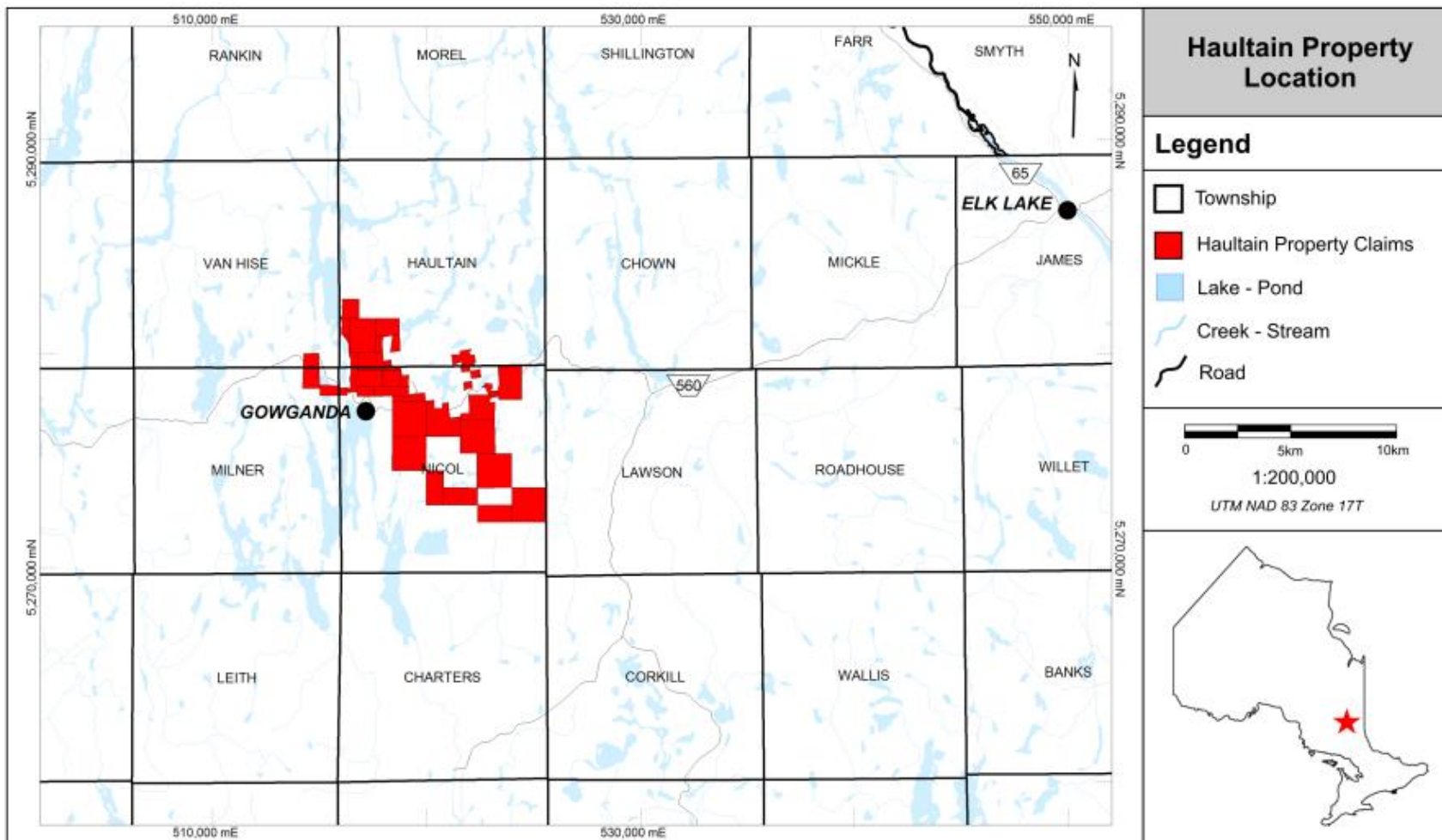


Figure 1: Location of the Haultain Property

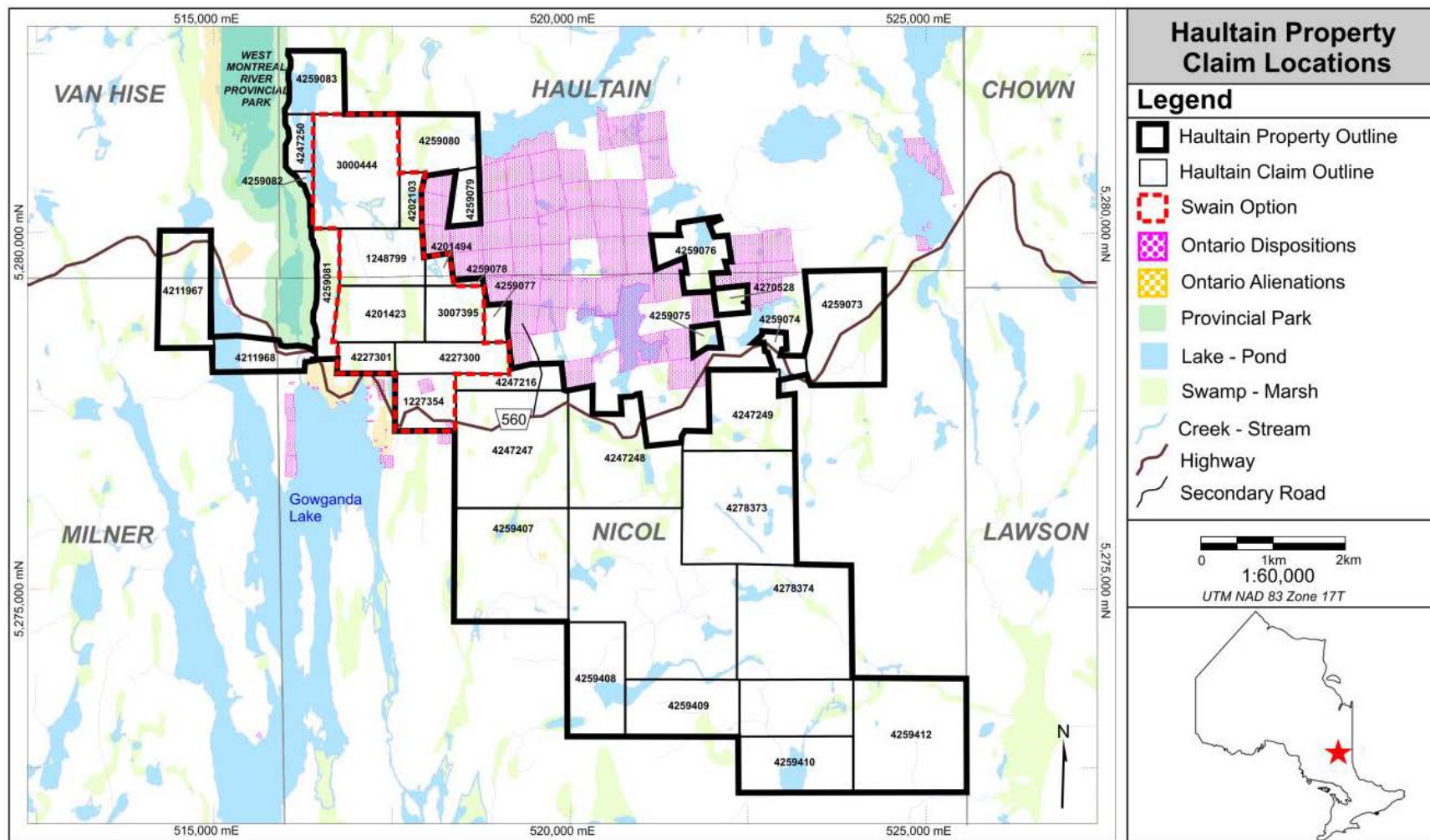


Figure 2: Claim location map of the Haultain Property

### 3.0 PREVIOUS WORK

The following table presents a summary of the previous work recorded with the Ministry of Northern Development and Mines (Table 2). There is also unrecorded work on these claims relating to the silver exploration conducted in the area in the 1920 to 1940 period when many of the claims were mining patents.

Table 2: Summary of previous work

Date	Description of Work
1920's	The claims were originally patents GG5061, 5110, 5111, 4910, MR12906, and MR19148; there is no record of the exploration completed on these patents
unrecorded	trenches testing two west-trending, 0.25 – 0.5 m wide granodiorite/monzonite dykes intruding the mafic volcanic rocks along the west side of the swamp in the southwest portion of claim 4259076.
1955	Ontario Geological Survey: Moore mapped Haultain and northern Nicol townships covering the area of the claims at a scale of 1:31,680. Map 1955-03; AR64 part 5.
1978	Ontario Geological Survey: McIlwaine mapped Haultain and Nicol Township at a scale of 1:31,680 from 1966-1968. Map 2349 and preliminary maps P0374 and P0518. <ul style="list-style-type: none"><li>• Grab sample taken at old Hylands-Gardiner-Johnson property indicated only traces of silver, cobalt, nickel, and copper.</li></ul>
1997	Ontario Geology Survey: Conducted a high density Lake sediment and water geochemical survey, focusing on the Gowganda area. 1336 lake water samples and 1172 lake sediments were taken. Anomalous metal values including Ag, As, Co, Cu, Pb and Zn.
1997	Lake Superior Resources: The claims were covered as part of a larger Terraquest airborne VLF-EM, radiometric, and magnetic survey was flown in 1997 with a 100 m line spacing at a 100 m altitude (Terraquest, 1997).
2011-2012	reconnaissance geological mapping and sampling of claim 4259075 by Transition Metals Corp.
2013	reconnaissance geological mapping and sampling of claim by Transition Metals Corp. contained in work report W1380.02743
2014	improved access due to logging activity allowed reconnaissance geological mapping and sampling of claim by Transition Metals Corp. and discovery of previously unidentified syenite dykes

## 4.0 GEOLOGY

### 4.1. Regional Geology

The following description of the Abitibi greenstone belt was summarized by Hart (2011), as extracted from Ayer et al. (2002, 2005) and Thurston et al. (2008) and the references found in those papers.

The Abitibi greenstone belt is composed of east-trending synclines of mainly volcanic rocks and intervening domes cored by synvolcanic and/or syntectonic plutonic rocks (gabbro-diorite, tonalite, and granite) alternating with east-trending bands of turbiditic wackes (Figure 4). Most of the volcanic and sedimentary rock dip vertically and are generally separated by east-trending faults with variable dips. Some of these faults, such as the Porcupine-Destor fault, display

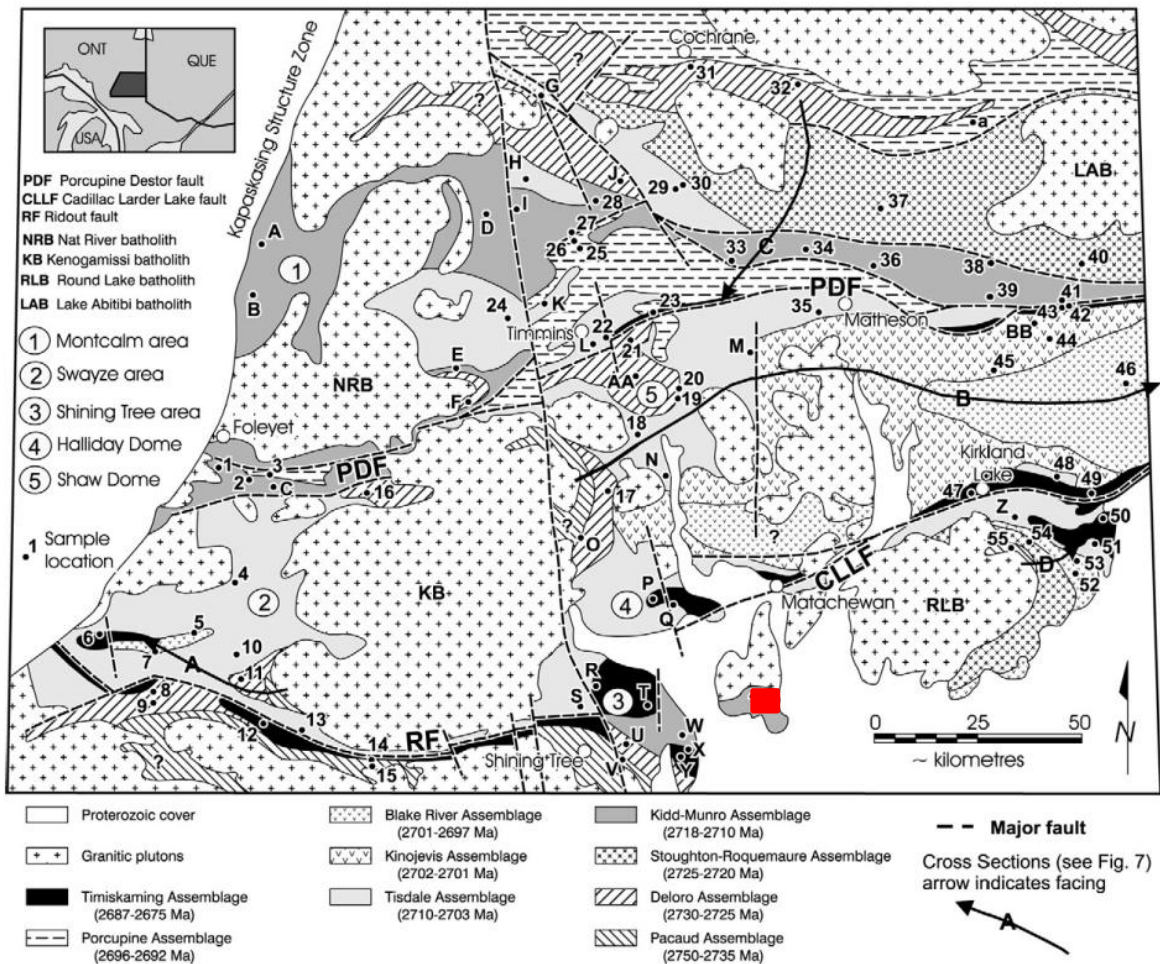


evidence for overprinting deformation events including early thrusting, later strike-slip and extension events. There are two ages of unconformable successor basins, early, widely distributed “Porcupine-style” basins of fine-grained clastic rocks, followed by later “Timiskaming-style” basins of coarser clastic and minor volcanic rocks which are largely proximal to major strike-slip faults (e.g. Porcupine-Destor, Larder-Cadillac). Numerous late-tectonic plutons from syenite and gabbro to granite with lesser dikes of lamprophyre and carbonatite cut the belt.

Metavolcanic and metasedimentary rocks of the Abitibi greenstone belt are subdivided into a series of assemblages. The 2723 to 2720 Ma Stoughton-Roquemaure assemblage, characterised by broad regions of tholeiitic basalts, komatiitic basalts, and komatiites with several relatively minor felsic volcanic centers, is located on the southeast flank of the Round Lake batholiths. Units of the Kidd-Munro assemblage are further divided into the 2719–2717 Ma lower part consisting of dominantly intermediate to felsic calc-alkaline volcanic rocks, and the 2717–2711 Ma upper part consisting of tholeiitic and komatiitic units with graphitic metasedimentary rocks and localized felsic volcanic centers. In the Shining Tree area, 2717 Ma rocks of this assemblage occur in Tyrrell Township.

The plutonic rocks of the Abitibi greenstone belt were subdivided by Ayer et al. (2005) into synvolcanic, syn-tectonic and post-tectonic intrusions. Syn-tectonic plutons may be related to the deformational events and can be subdivided into early and late series. Early 2695 to 2685 Ma tonalite, granodiorite, diorite and feldspar±quartz porphyries with adakitic geochemistry similar and coeval to the Porcupine assemblage volcanic rocks occur as stocks within the greenstone belt and as major portions of the surrounding batholithic complexes. Late 2680 to 2672 Ma syntectonic intrusions are broadly coeval with the Timiskaming assemblage, and are relatively small, occurring in close proximity to the main faults (e.g. Larder Lake - Cadillac deformation zone). These intrusions are typically alkalic, consisting of monzonite, syenite and albitite with the more mafic phases including diorite, gabbro, clinopyroxenite, hornblendite and lamprophyre.

A number of mafic dyke swarms cut the rocks of the Abitibi greenstone belt (Osmani 1991). The 2454 Ma Matachewan dykes are north-trending, vertical to sub-vertical and composed of quartz diabase and commonly contain plagioclase phenocrysts up to 20 cm in length. Occasional northeast-trending 2170 Ma quartz diabase Biscotasing dykes (Halls and Davis 2004) cross the map area and are reported by Moore (1955) to cut the Nipissing Gabbro in the area of the O’Brien Mine. West to northwest-trending, vertical dykes of the 1238 Ma Sudbury dyke swarm are generally medium to coarse-grained with ophitic to subophitic textures olivine tholeiites.



**Figure 3: Regional geology of the southern Abitibi greenstone belt (Ayer et al. 2002), red square is the approximate location of the claims**

The Archean rocks are unconformably overlain by Paleoproterozoic rocks of the Huronian Supergroup, which were deposited in a north-trending graben referred to as the Cobalt Embayment in the area overlying the Abitibi greenstone belt. Four formations, the Gowganda, Lorrain, Gordon Lake, and Bar River, were deposited in the Embayment and form the upper most sedimentary cycle of the Huronian Supergroup collectively referred to as the Cobalt Group (Bennett et al. 1991). The Gowganda Formation has been subdivided into the lower Coleman Member consisting of clast and matrix supported conglomerate, and the upper Firstbrook Member consisting of pebbly wacke, wacke, siltstone, mudstone, and arenite. The Coleman Member conglomerates have been interpreted to have been glacial or alternatively debris flows or turbidity currents. The finer sediments of the Firstbrook Member have been interpreted to have been deposited in a deltaic environment.

Gabbroic rocks of the Nipissing Intrusive event intrude all older rocks of the Cobalt Embayment

forming sills, dykes and undulating sheets up to a few hundred metres thick (Bennett et al. 1991). A two pyroxene gabbro is the most common lithology in the Nipissing but olivine gabbro, hornblende gabbro, feldspathic pyroxenite, leucogabbro, and granophyric gabbro and granophyres are also present. The 2219 Ma Nipissing gabbro may have originated from a radiating dike swarm related to the 2217-2210 Ma Ungava magmatic event located under the Labrador Trough fed via the 2216 Ma Senneterre dykes which form part of the radiating dike swarm (Ernst 2007). Locally, emplacement of the Nipissing appears to have been controlled by pre-existing structures in the Huronian and Archean basement rocks.

Supracrustal units in the Abitibi greenstone belt are dominated by east-west striking volcanic and sedimentary assemblages and east-trending Archean deformation zones and folds. Larger batholithic complexes external to the supracrustal rocks (e.g. Round Lake) represent centres of structural domes.

#### **4.2. Local Geology**

The claims are located in south Haultain and north Nicol townships underlain by Archean mafic to intermediate volcanic rocks intruded by mafic and felsic intrusive rocks unconformably overlain by Proterozoic Lorrain and Gowganda formation metasedimentary rocks. These rocks are intruded by north-trending Matachewan dykes and a northeast-trending Biscotasing dyke. The Archean rocks form an inlier / island within a sub-circular basin of Nipissing Gabbro referred to as the Miller Basin (McIlwaine 1978). The diabase sill has a saucer shape and underlies the Archean rocks at depth. The Archean rocks are interpreted to be the eastern continuation of the stratigraphy located on the main portion of the Haultain property located to the west of the past producing silver mines.

### **5.0 2016 WORK PROGRAM**

#### **Trench 7 Sampling Program**

The program consisted of collecting 30 chip samples along of a series of 5 shear veins at Trench 7, which was originally excavated in 2011 (Figure 4, trench locations). On November 2<sup>nd</sup>, Transition Metals project geologist Steven Flank and field geologist Jake Burden collected the samples using a rock hammer and chisel from vein material and wall rocks directly adjacent to veins. Sample locations are shown on Figures 5 and 6 with results are summarized on Table 3 and 4. Full analytical results are reported in Appendix A.

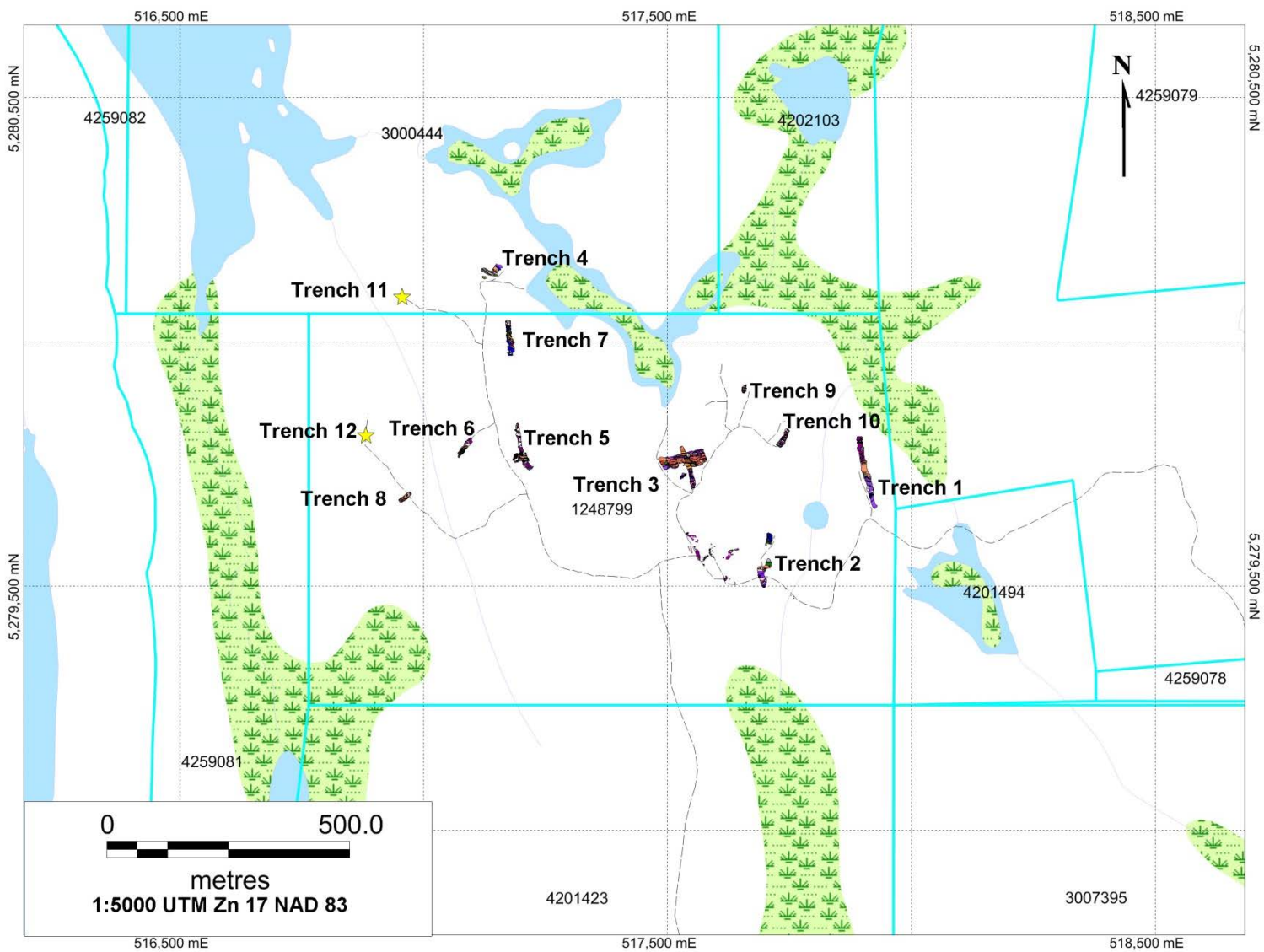


Figure 4: Trench location map showing historical trenches (1-10) and new trench locations (11 & 12). Claim boundaries shown in cyan.



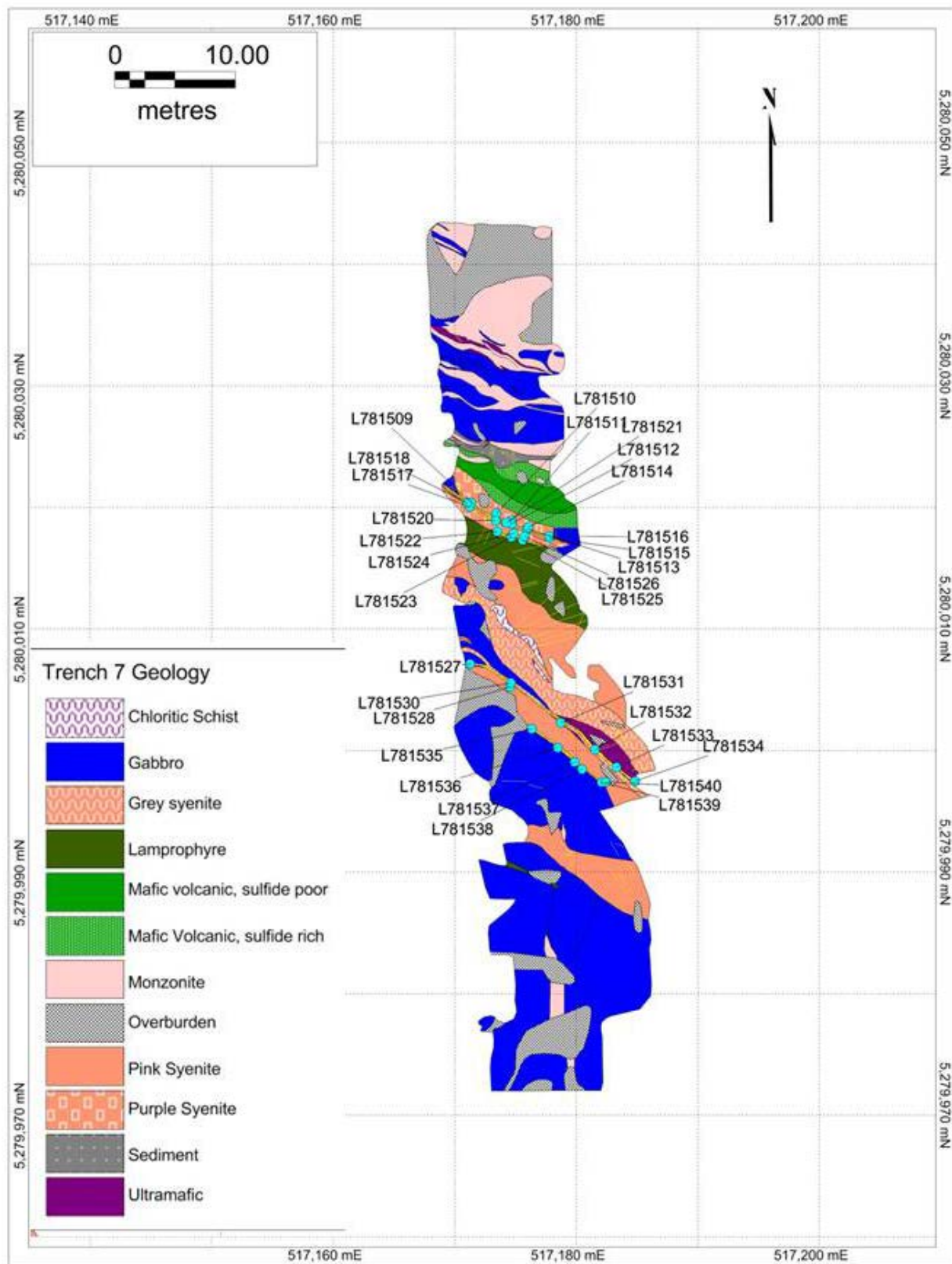


Figure 5: Trench 7 sample locations. 1:400 Scale. UTM ZN17T NAD83

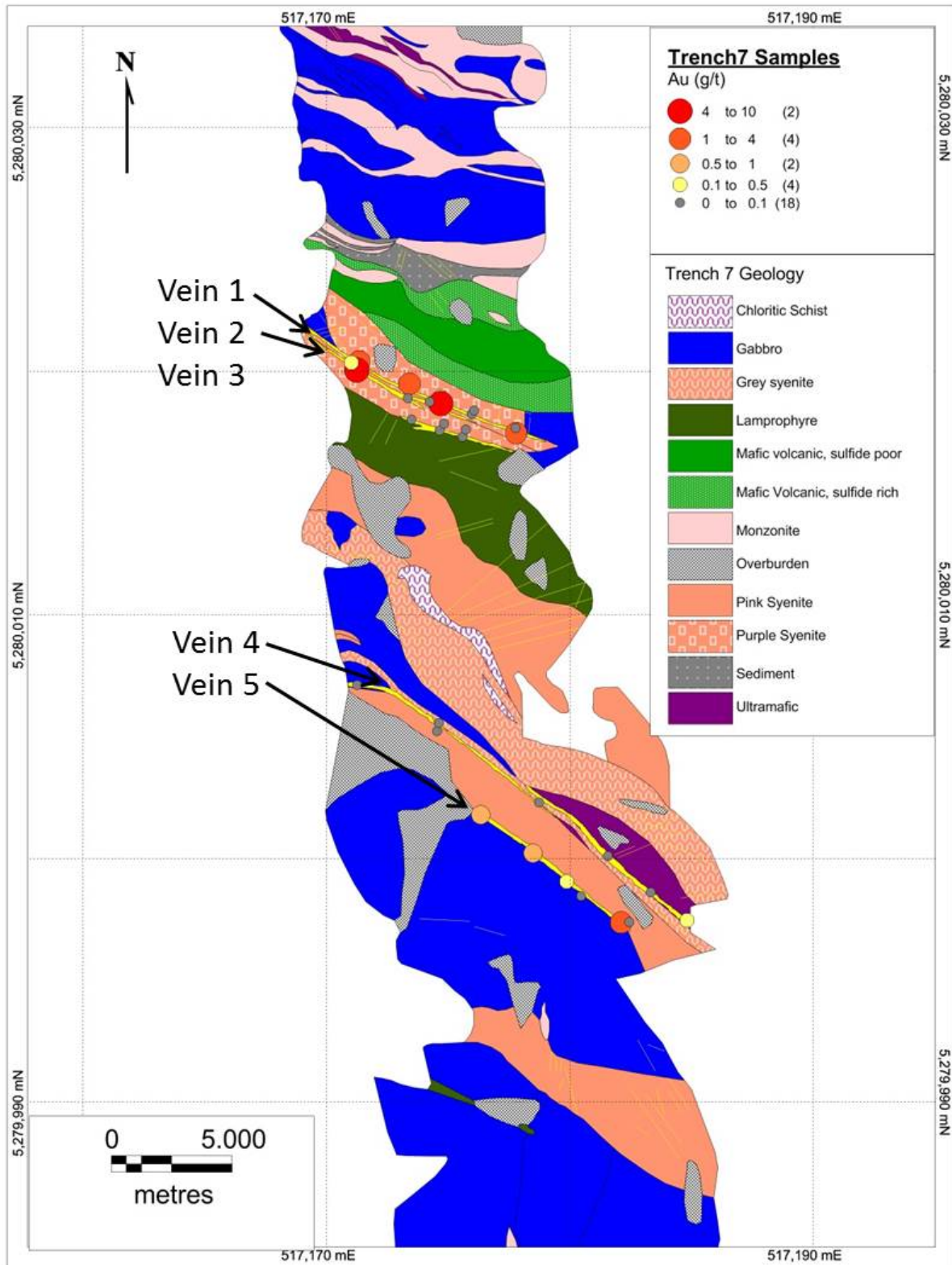


Figure 6: Trench 7 sample results. 1:200 Scale. UTM ZN17T NAD83

Table 3: Trench 7 sample locations (UTM ZN17T NAD 83)

Sample_ID	Rock_Type	EASTING	NORTHING
L781509	QUARTZ VEIN	517171	5280020
L781510	QUARTZ VEIN	517173	5280019
L781511	GREY SYENITE	517175	5280019
L781512	QUARTZ VEIN	517175	5280019
L781513	QUARTZ VEIN	517176	5280018
L781514	GREY SYENITE	517176	5280018
L781515	QUARTZ VEIN	517178	5280017
L781516	GABBRO	517178	5280018
L781517	QUARTZ VEIN	517171	5280020
L781518	GREY SYENITE	517171	5280020
L781520	QUARTZ VEIN	517173	5280019
L781521	QUARTZ VEIN	517174	5280019
L781522	QUARTZ VEIN	517173	5280018
L781523	QUARTZ VEIN	517175	5280018
L781524	GREY SYENITE	517175	5280018
L781525	QUARTZ VEIN	517176	5280017
L781526	GREY SYENITE	517176	5280018
L781527	QUARTZ VEIN	517171	5280007
L781528	GREY SYENITE	517175	5280005
L781530	QUARTZ VEIN	517175	5280006
L781531	QUARTZ VEIN	517179	5280002
L781532	QUARTZ VEIN	517182	5280000
L781533	QUARTZ VEIN	517183	5279999
L781534	QUARTZ VEIN	517185	5279997
L781535	QUARTZ VEIN	517176	5280002
L781536	QUARTZ VEIN	517178	5280000
L781537	QUARTZ VEIN	517180	5279999
L781538	GABBRO	517180	5279998
L781539	QUARTZ VEIN	517182	5279997
L781540	SYENITE	517182	5279997

Table 4: Summary of trench 7 sampling results

Vein ID	n	Range (Au g/t)	Mean (Au g/t)	Mean (Ag g/t)	Mean (As g/t)	Mean (Te g/t)
1	8	0.023-4.5	1.25	0.36	8.67	0.30
2	4	0.012-8.49	2.19	0.61	7.58	0.37
3	5	0.004–0.016	0.011	0.12	4.88	0.11
4	7	0.011–0.085	0.056	3.02	2.94	0.90
5	6	0.006–2.80	0.75	0.45	2.23	0.24
All	30	0.006–8.49	0.79	0.99	5.27	0.42

### 2016 Trenching Program

On November 2<sup>nd</sup>, 2016 an excavator, owned and operated by Elk Lake Enterprises in Elk Lake Ontario, was mobilized to the Haultain property to begin excavation of two sites, Trench 11 and Trench 12, shown on Figure 4. The target for the Trench 11 site was the interpreted extension of a prominent NW trending shear zone which returned samples of visible gold within historic trenches completed by Transition Metals. The target for the Trench 12 site was the inferred western extension of a syenite and gold bearing E-W trending structure which was the focus of exploration programs by Transition in 2010 and 2011.

### Trench 11

An area measuring approximately 20mx25m was excavated between November 3<sup>rd</sup>-6<sup>th</sup>. Remaining overburden was washed using a high pressure pump (Figure 7). The trench uncovered a series of NW trending shear zones cutting a range of lithologies but dominated by mafic-ultramafic volcanics, monzonite and lesser lamprophyre and syenite. Quartz-carbonate shear veins are located within shear zones and within a strongly foliated mafic volcanic unit. A total of 29 samples were extracted using a channel saw at point locations as shown on Figure 9. Results are summarized below:



Table 5: Trench 11 sampling summary. Full analytical results in Appendix A

Sample_ID	Rock_Type	Length (m)	Comments	Au_ppm Au-ICP21	Ag_ppm ME-MS61
L782551	Quartz Vein	0.5	2% Sulfide	0.015	0.07
L782552	Quartz Vein and Ultramafic	0.27	5% Sulfide	0.105	0.34
L782553	Quartz Vein	0.31	3-4% Sulfide	0.519	0.36
L782554	Quartz Vein	0.45		0.139	0.15
L782555	Quartz Vein	0.3		0.297	0.13
L782556	Intrusional Breccia	0.3	Or intrusional breccia?	0.019	0.06
L782557	Quartz Vein	0.37		0.005	0.39
L782558	Quartz Vein	0.23	4% Sulfide	0.015	1.11
L782559	Quartz Vein	0.24		0.018	0.03
L782561	Quartz Vein	0.29	Within sheared mafic volcanic	0.026	0.1
L782562	Quartz Vein	0.26	Veining along contact with red syenite dyke	0.108	0.15
L782563	Syenite	0.24	Syenite in contact with mafic volcanic	0.045	0.06
L782564	Quartz Vein	0.67		0.009	3.12
L782565	Quartz Vein	0.3		0.014	0.1
L782566	Quartz Vein	0.3	Along contact of syenite dyke and mafic shear	0.015	0.11
L782567	Quartz Vein	0.37	Within monzonite	0.027	1.68
L782568	Quartz Vein	0.36	Flat lying quartz vein	0.118	0.11
L782569	Quartz Vein	0.26	Flat lying quartz vein	0.089	0.06
L782571	Quartz Vein	0.25	Flat lying quartz vein	0.202	0.06

## Trench 12

Excavation at the trench 12 site took place between November 7<sup>th</sup>-10<sup>th</sup>. The work revealed the area was underlain by at least 5m of silty sand and therefore trenching to bedrock was not possible (Figure 8). After attempting 2 other similar pits in the same area it was decided to abandon the area for trenching. As a result the site was reclaimed, with the hole being filled in and the overburdened contoured back to the original topography.



Figure 7: Transition Metals geologist Steve Flank washing Trench 11.



Figure 8: Trench 12 site. Thick overburden prevented excavation to bedrock. Trenches were filled back in and restored to flat topography



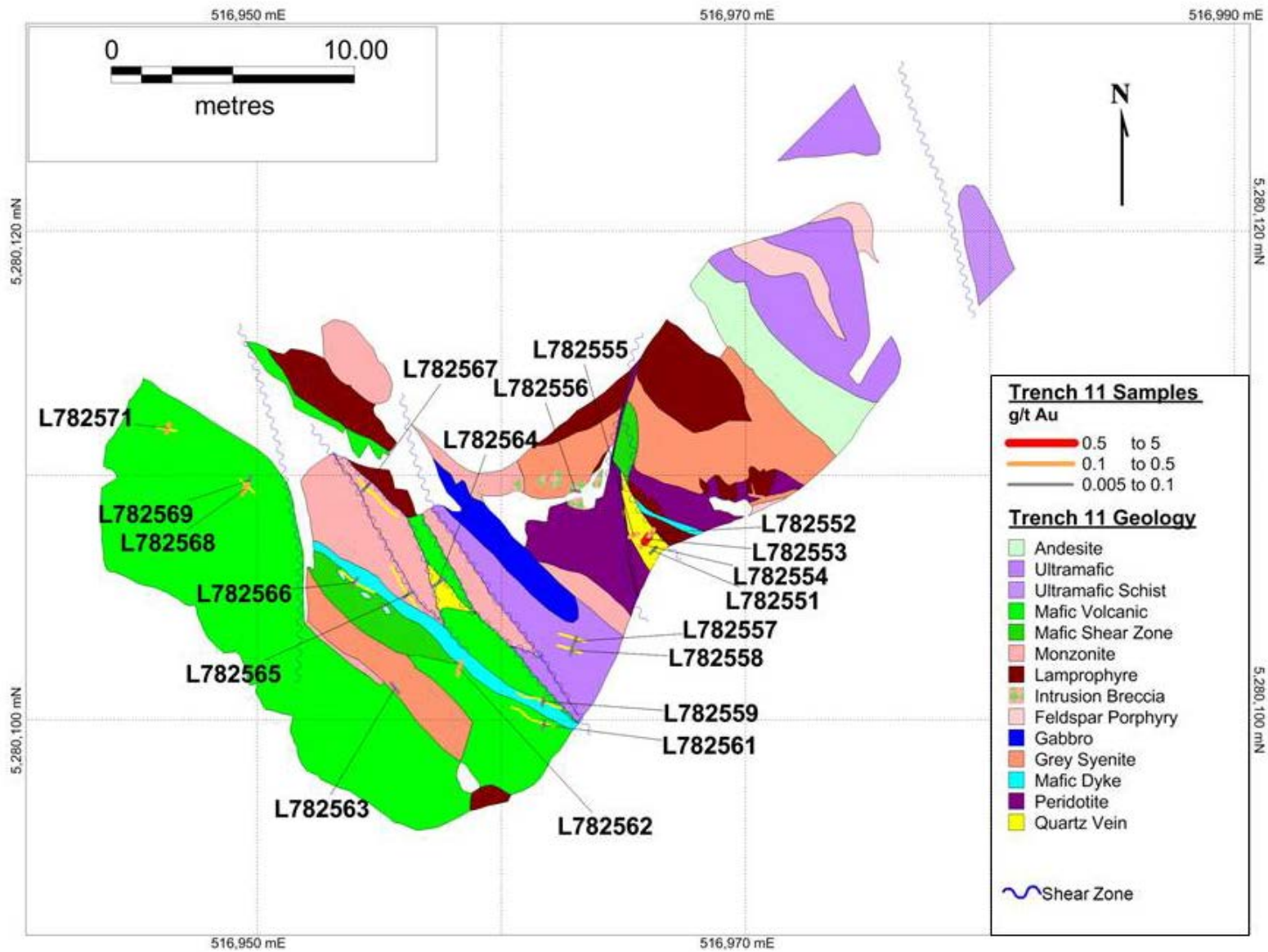


Figure 9: Geological interpretation of Trench 11 with sample locations.

## 6.0 STATEMENT OF EXPENDITURE

The total value of work done on the Haultain property is summarized in Table 5.

Table 6: Summary of expenditures

Category	Cost
Project Geologist (7 days @ \$500/day)	\$3500
Field Geologist (7 days @ \$300/day)	\$2100
Food & Accommodations (\$100/day)	\$700
Field supplies	\$500
Vehicle expenses (7 days @ \$50.00 /day)	\$350
Gas	\$200
Samples (49 @ \$52.00)	\$2548
Excavator Mob-Demob	\$1430
Excavator Hours (75.75hrs @ \$215/hr)	\$16286
Report Writing	\$500
Total	\$28,114

## 7.0 CONCLUSIONS

Sampling from Trench 7 has confirmed the nuggety distribution of gold bearing quartz veins as indicated by the wide range of Au values on individual vein sets. Overburden stripping at Trench 11 appears to have uncovered a similar shear structure to those observed to host gold further to the SE of the property. 6 Samples from quartz veins within the shear structures returned assays of >100ppb Au with the best single sample returning 519 ppb. Syenites dykes in trench 11 may be similar to those found to host Au mineralization elsewhere on the property and as such represent a valid exploration target. The area of Trench 12 will need to be investigated by diamond drilling due to the thick overburden.

## 8.0 RECOMMENDATIONS

- 1) Diamond drilling of the shear structures along strike of Trench 7 which have demonstrated to be Au bearing at surface
- 2) More extensive channel sampling across the mapped shear zones at Trench 11
- 3) Geochemical interpretation of syenite dykes at the trench to determine if they are compositionally similar to dykes elsewhere on the property
- 4) Development of diamond drill targets based on the above

## 8.0 REFERENCES

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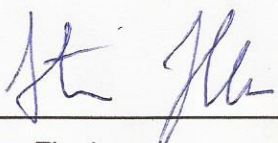
## 9.0 STATEMENT OF THE AUTHOR

Steven Flank  
124 Sherwood Drive  
Thunder Bay, ON  
P7B 6L1

I, Steven Flank, do hereby certify that:

1. I am employed as a Project Geologist for Transition Metals Corporation, a publically traded mineral exploration company.
2. I am a Geologist in Training in good standing of the Association of Professional Geoscientists of Ontario ( Member #10027)
3. I have been granted the degree of Honours Bachelor of Science in Geology from Lakehead University (2011).
4. I have worked as an exploration geologist in Canada for over five years.
5. I did personally conduct exploration activities on the Haultain property between November 2<sup>nd</sup> and November 11<sup>th</sup>, 2016

Dated the 9th day of February, 2017

  
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Steven Flank

## **APPENDIX A: SAMPLE CERTIFICATES**