YMEP Grant #21-007 Placer
Final Report and Technical Report
1618816 Alberta Ltd.
November 12, 2021

Work Dates: June 10, 2021 to September 22, 2021 (21 days total worked on program)
Participants: Davies Employees, GEM Steel, Earth & Iron
Reporting: Darrell Mathison

A drilling program was proposed for the 2021 season to explore several areas of Upper Granite Creek and its unnamed tributaries to assess mineral values and mining potential. The work performed this season was a portion of the large scope of work that was planned. The goal was to acquire a directional drill to augment the exploration activities completed in previous seasons. The goal was to further identify the location of suspected channels clarifying the short term and long-term economic mining potential in the area. There were many challenges encountered during the 2021 mining season which first delayed, and then reduced the size of the drilling program. Challenges were addressed by revising the program and performing valuable work that will assist in more focused and economic mining in the immediate future.

The 2021 mining year was not like what was planned. Entering the season, we were aware that there would be continued negative impact from COVID-19. The cost of 14 days of isolation was budgeted for but was an expense that occurred at the beginning of the season before cash flow was generated. We were then shocked by the early road bans and then those bans extended for about double the normal duration. The road bans delayed delivery of our new equipment by 6 weeks and set us back another few weeks before cash flow started.

Two 450 John Deere Excavators and One A30 Terex were added to our fleet after a deliver delay

Our challenges also included COVID-19 related issues which eliminated some our experienced staff from working this season for a second consecutive year. We found it very difficult to convince regular crew members to travel to Yukon and endure a 14-day isolation on each shift, so most did not agree to come at all. The result was an effort to hire equipment operators almost exclusively from Yukon. Unfortunately, almost none of the Yukon employees were able to perform their duties within our safety, drug and alcohol policies and we had 100% turnover.

The largest challenge we had was with our drilling program. While we had arranged for a directional drill to be upgraded and delivered by the end of June, the vendor encountered several mechanical and electric problems and was unable to deliver the drill before the end of the season. Our response was to push ahead with the drilling program by using the resources that were available to us. There were professional drilling companies that could have performed the drilling however, they were fully booked for the season by the time we identified our deal on the drill was not going to happen. Drilling that was performed resulted in locations identified for cuts that underperformed the projections. A summary of the drilling program follows with more details later in this report.

Drilling 1 – The first attempt involved the use of a sonic drill. The operators found the ground at Granite Creek exceptionally difficult to work in and had significant problems with equipment breakdowns. They completed one drill hole that provided complete data out of 3 attempts, with partial data available from the others.

Drilling 2 – The second attempt involved the use of a reverse circulation drill. Two drill holes were completed with one showing marginal gold bearing layers and the second that showed exceptional results. This location was selected for a cut location based on this result and was a major disappointment as there was almost no gold recovery.

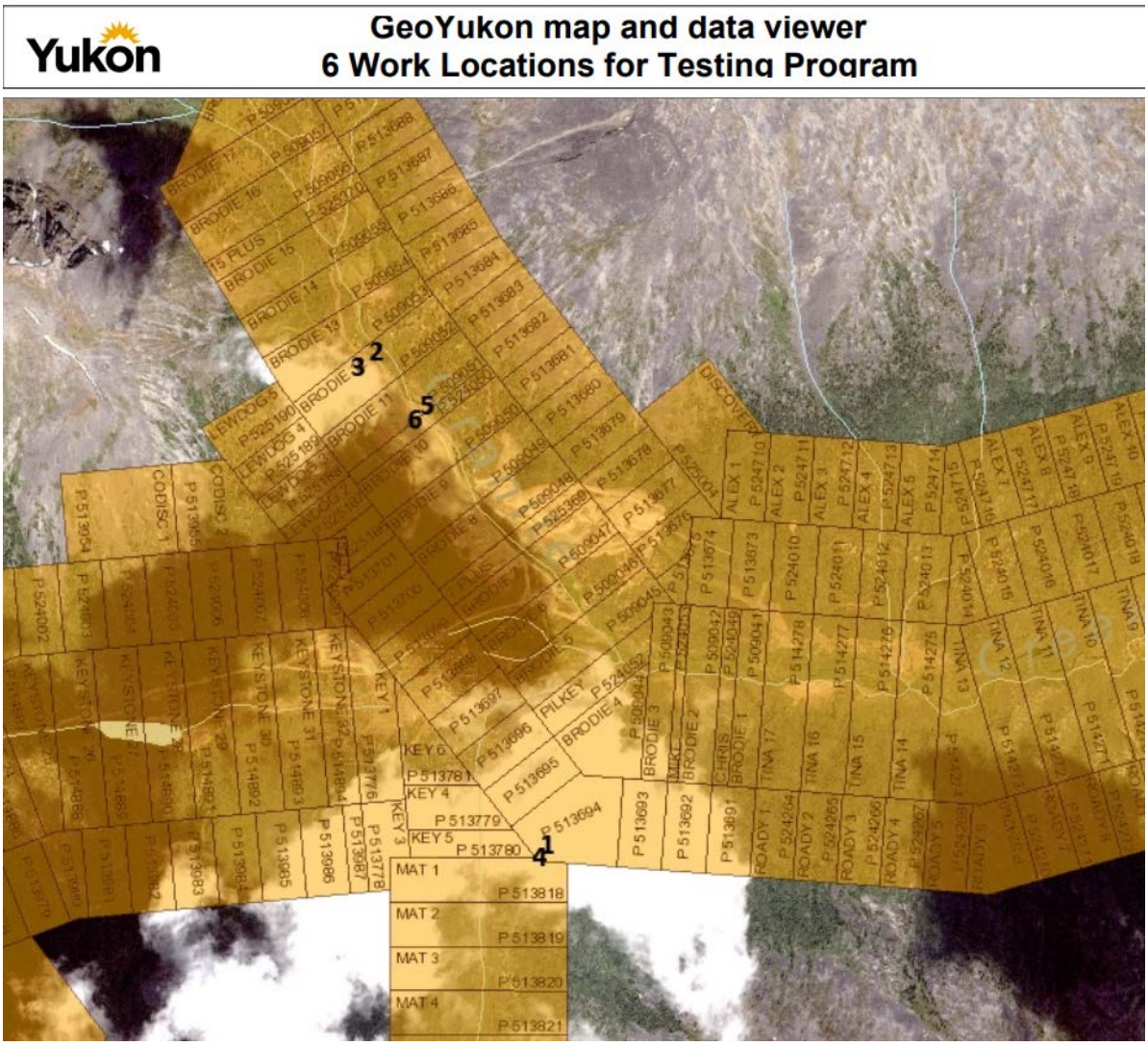
Drilling 3 – The third attempt involved the use of the same reverse circulation drill. Two drill holes were completed with one showing marginal results and the second showing economic results. The second hole location was selected for a cut and while not as disappointing as the Drilling 2 result, this location was also not as projected by the drill results.

Cut Determined by Drilling 2

Cut Determined by Drilling 3 With Clear Layers

Our response to the challenges this season was we never give up, we adapt. There were serious consequences to not having the equipment on time, a stable crew and accurate drill results. Most of the cuts we completed this season were negatively impacted by these challenges.

Compensating work was performed to augment the drilling results.



Work Completed in Chronological Order

Work 1 – Drilling 1 location – At the southernmost portion of the Brodie Claims, two drill holes were completed, one with complete information. Discovered there was a layer of economic gold bearing material. A test pit 15 meters east of the drill hole was completed by other company which did not intersect the gold bearing layer.

Work 2 – Drilling 2 location – One drill result was below average and the other was described as one of the best results the drills have ever encountered in this area. Completed a cut based on the results of the drill holes. The cut was located directly over the superior drill hole and resulted in almost no gold recovered, layers that did not match the drill report and encountered bedrock at 14 meters, which is 5 meters above the drill results. Dousing and flagging resistivity locations were performed that suggested the gold channel may be further up hill.

Work 3 – Drilling 3 location - Completed 2 more drill holes at the Drilling 3 location resulting in one with economic gold and the orange gravel that has produced good gold in the past. Completed a test pit beside the cut described in Work 2 at the location of the better of the two drill holes. Results were better, but most of the gold bearing material was recovered from the south-west portion of the test pit. From this result, we completed a cut immediately adjacent to the test pit resulting in below average results. What we did learn was that the channel travels from the west at this location and there is little impact from the expected channel entering this location from the north. Unlike the Drilling 1 results, the layers and bedrock depth were exactly as described in the drilling report.

Work 4 – Returned to the Work 1 location to complete a second test pit 35 meters northwest of the Work 1 drill holes. Encountered minimal gold bearing material, only along the southern wall of the pit. Performed dousing and compared to the test pits/drilling activity. Identified an expansion of the test pit would be completed to the southwest. This expansion encountered gold bearing material only at the southeast corner. These results were correlated with the drill holes and mining operation occurring 300 meters south on the Mat 2 claim which produced economic gold material at the depth indicated by the drill results. The data from Work 1 and Work 4 resulted in a determination that the channel is under the road that is located between the Work 1 and Work 4 locations and travels in a southwest to northeast direction as it progresses down the Mat claims into the Brodie claims.

Work 5 – Compared a third resistivity location and compared it to the location of cuts completed several years ago that were on the gold channel. We identified where the channel may have turned.

Work 6 – Test pit completed to identify the channel turn. Gold bearing material was encountered in the northeast corner of the pit, which was expanded, showing the continuation of the channel up hill in a northwestern direction. The test of the material extracted from this pit was sluiced for 4 days with the first 3 days resulting in little god. The final day resulted in about 1 oz/hr from the corner that contains the orange gravel of the channel. Unfortunately, the next day we received continuous snow which ended our season abruptly.

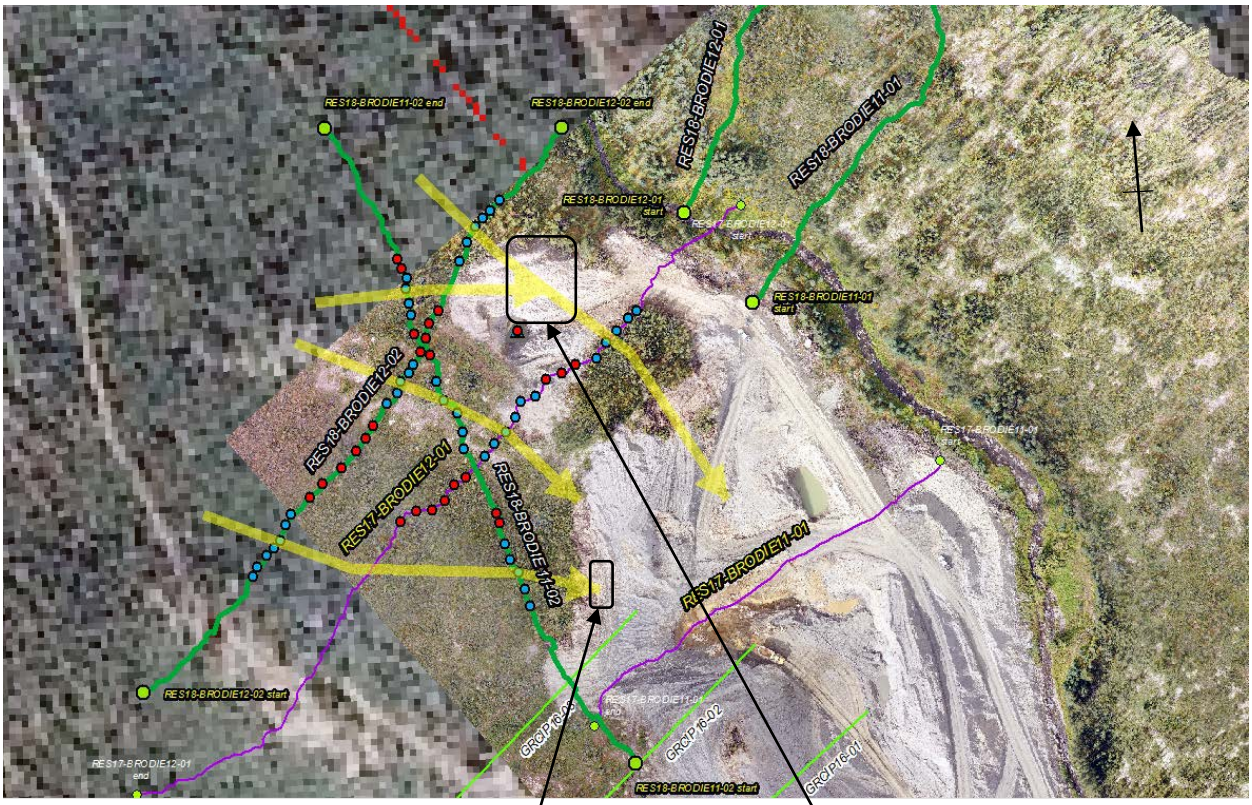
Test Pit – Work 6

Correlating with Resistivity Reports

In previous years, resistivity reports indicated 3 potential channels on the right limit of the Brodie claims 10-12. Much of the work completed this season was focused on correlating the results of these reports with drill results and test pits. The blue dots indicate locations where resistivity encountered deep ground to bedrock, with red locations being shallower.

The Work 2/3 location was selected as it was closer to the previous work near the creek and was the shallowest. It also was framed upstream and downstream by blue resistivity readings. We hoped this location would also benefit from the juncture of the 2 yellow arrows. The results showed the arrow coming from the west did contain gold bearing material but not at economic values and the arrow from the northwest did not produce the expected results.

The Work at 5/6 location was selected as it was adjacent to where work ended in 2017 when the channel that produced significant gold ran out. The resistivity arrow from the west indicated that within about 30 meters of where mining stopped, the channel would be encountered with contribution of the middle yellow arrow on the map below contributing the location. By locating the channel at about 1 oz/hr on the northeast corner of the test pit, it appears the channel is coming from a northwestern direction shown as the middle arrow.



Conclusion:

There were three conclusions drawn from the work completed during the 2021 season.

1 - The area where Work 2/3 was performed was the focus of our mining activity this season. From the variety of testing we completed, including drilling, test pits, resistivity and dousing, there is some gold in this location but the volume of gold cannot be economically mined at gold price of US$1800. In addition, the further uphill to the west we follow the channel, the deeper it becomes, further increasing stripping costs. This area should be left until the value of gold increases.

2 – The area where Work 1/4 was performed is in a different environment than most of the Brodie Claims. This area is on the bench claims at the far south end of the property, which received its material from the other valley travelling south to north from Mount Albert rather than north to south from Mount Hinton. This location is far shallower, averaging 40-50 feet to bedrock compared with 60-90 feet in the Granite Creek Valley. There is an operation on the Mat Claims, mining approximately 300 meters south (upstream) of this test area. Drill results and preliminary mining on the lower Mat Claims indicate gold bearing materials are available at a depth of as little as 8 meters and contain up to 4 meters of pay gravel. The 2021 testing work completed in this area identified both sides of the channel. The channel is located under the current road in place to access the Mat Claims, so mining was not started here this season. In the near future, the road will be moved, and the Brodie bench claim will be mined upstream towards the other operation.

3 – The area where Work 5/6 was completed has potential, but the channels lay in a northwest to southeast direction. As work continues to the west, the ground gets deeper. This will negatively impact the profitability of mining this ground at current gold process. The data gathered this season and last season provide evidence that the significant channel that was mined until 2017 and located south of this location has a good chance of being connected to the Work 5/6 channels. This test area is separated from the previously mined areas by a moraine. It is most likely that the channel exists to the west of the previously mined area, continuing in a southeastern direction as it crosses the creek. This will be the focus of future exploration.

Early End to Season September 23, 2021
Picture shows the northeast corner of the test pit that contains evidence of the channel

EARTH & IRON INC.
Mayo Mining District, YT Canada
T: (780) 900 2306

Signature _____

Date _____

DRILL SAMPLE PROCESSING LOG

CLAIM NAME _____ **DRILL HOLE NAME** JD#1

DATE DRILLED _____ **TOTAL DEPTH REACHED** _____ **DATE PROCESSED** _____

DRILLER Mark Bayne **INSIDE DIAMETER OF DRILL** 115mm **COMPLETED BY** _____

HELPER Allan Dutchak **TYPE OF DRILL** RC **METHOD** _____

DEPTH (m)	SAMPLE SIZE	LITHOLOGY DESCRIPTION	FINAL CONCENTRATE DESCRIPTION / GOLD DESCRIPTION	COMMENTS	SAMPLE ON FILE (Y/N)
0-2	13	Top Soils and organics.			
2-3	16	Grey and brown Sand mixed with gravels.			
3-4	14	↓			
4-5	23	↓			
5-6	30	Grey with Brown sand mixed.			
6-7	24	Grey silty sand w/ mixed gravels.		NA	
7-8	30	" "		↓	
8-9	28	" "		↓	

DEPTH (m)	SAMPLE SIZE	LITHOLOGY DESCRIPTION	FINAL CONCENTRATE DESCRIPTION / GOLD DESCRIPTION	COMMENTS	SAMPLE ON FILE (Y/N)
~~19-20~~ 9-10	25L	Grey Sand silty with mixed gravels.		NG.	
~~20-21~~ 10-11	~~35~~ 35L	Grey Sand with mixed gravels.		NG.	
~~21-22~~ 11-12	28L			NG	
~~22-23~~ 12-13	19L			NG	
~~23-24~~ 13-14	35L			IFC	
~~24-25~~ 14-15	22L	Wet Sand mixed with grey sands. mixed gravels.		ILC / 25L	
~~25-26~~ 15-16	20L	Tan and Brown Sand.		NG	
~~26-27~~ 16-17	~~G~~26L	Brown and tan Sand with mixed gravels.		NG.	
~~27-28~~ 17-18	22L	Red gravel sand with Boulder		3LC 4M Consentrated Fines.	
~~28-29~~ 18-19	22L	Red Sand with mixed gravels/Quarts.		10-15 Fines	
~~29-30~~ 19-20	18L	Bedrock contact		Large Colors 4 Fine Colors	

10' pay

Depth	Sample Size	Lithology Description	Grain
0-2	20	Top soils and organics.	NG.
2-3	22L		NG
3-4	28L		NG
4-5	25L		1L 1ML 4FL
5-6	28L	Grey sand and gravel	1L 2F
-7	28L		3LC
7-8	30L	Grey Sand, silty with dyrite and quartz.	1LC 3F
8-9	35L	Grey ant tan sands, silty with mixed gravels	1LC 2FC
9-10	20L	light tan sand with mixed gravels.	1LC 3FC
10-11	38L	Brown sand with mixed gravels.	3FC
11-12	35L		1FC
12-13	40L	Tan, light in color, sticky and full of gravel.	NG
13-14	40L	" "	2FC
14-15	40L	tan Sand, little gravel.	8FC
15-16	40L	tan sand with gravels. Boulders.	2LC
16-17	35L	Brown and tan sand w/ mixed gravels	3LC
17-18	28L	Bright orange and brown sand	8LC/Con Fines
18-19	30L	Brown sand with small trace of red sand	2SC
19-20	30L	Black silty material, with gravels	NG.
20-21	25L	Bedrock chips Quartzite	NG.
21-22	5L	Pure bedrock powder and chips.	NG

EARTH & IRON INC.
Mayo Mining District, YT Canada
T: (780) 900 2306

Signature _____

Date _____

DRILL SAMPLE PROCESSING LOG

CLAIM NAME			**DRILL HOLE NAME**	**DAVIES21-03**	
DATE DRILLED	Aug 9,2021	**TOTAL DEPTH REACHED**	18m	**DATE PROCESSED**	09-Aug-21
DRILLER	Mark Bayne	**INSIDE DIAMETER OF DRILL**	115mm	**COMPLETED BY**	Selena/Shaye
HELPER	Allan Dutchak	**TYPE OF DRILL**	RC	**METHOD**	Letrap/pan

DEPTH (m)	SAMPLE SIZE	LITHOLOGY DESCRIPTION	FINAL CONCENTRATE DESCRIPTION / GOLD DESCRIPTION	COMMENTS	SAMPLE ON FILE (Y/N)
0-2	19	grey-brown mixed gravel	1CC, 6MC, many fines		
2-3	15	grey-brown mixed gravel with silt	1CC, 2MC, many fines		
3-4	30	grey silt with gravel	pyrite 2MC, many fines		
4-5	18	grey silt with gravel	pyrite 6FC, many very fines		
5-6	17	grey silt with gravel	1MC, 2FC, 26VFC		
6-7	35	tan gravel with silt	11FC, 12VFC		
7-8	28	tan gravel with silt, very silty	1CC, 3FC		
8-9	17	tan gravel with silt	1MC, 4FC		
9-10	36	grey-tan gravel and silt	1MC, 26FC	boulder	
10-11	16	grey-tan gravel and silt	3FC		
11-12	20	orange-tan silt with gravel	8FC	very little gravel	
12-13	35	orange-tan silt with gravel	1 small flake, 3MC, 10FC, few VFC	11mg Au	

13-14	10	reddish brown-tan silt and gravel	1MC, 2FC	boulder, wiry gold	
14-15	30	grey -beige gravel	2FC	boulder	
15-16	6	tan silty gravel	1MC, 3FC, 3VFC		
16-17	2	grey silt, schist gravel	no gold		
17-18	2	brown silt, quartzite chips	no gold	bedrock	

EARTH & IRON INC.
Mayo Mining District, YT Canada
T: (780) 900 2306

Signature _____

Date _____

DRILL SAMPLE PROCESSING LOG

CLAIM NAME	BRODIE 12		**DRILL HOLE NAME**	**DAVIES21-04**	
UTM (zone 8)	0496649, 7080756				
DATE DRILLED	Aug 10,2021	**TOTAL DEPTH REACHED**	17m	**DATE PROCESSED**	10-Aug-21
DRILLER	Mark Bayne	**INSIDE DIAMETER OF DRILL**	115mm	**COMPLETED BY**	Selena
HELPER	Allan Dutchak	**TYPE OF DRILL**	RC	**METHOD**	Letrap/pan

DEPTH (m)	SAMPLE SIZE	LITHOLOGY DESCRIPTION	FINAL CONCENTRATE DESCRIPTION / GOLD DESCRIPTION	COMMENTS	SAMPLE ON FILE (Y/N)
0-5	Not sampled - Matt's request				
5-6	15	tan gravel, silt	1MC, 6FC	wiry gold	Y
6-7	26	contact between tan gravel and grey gravel	7FC		Y
7-8	28	grey gravel	1MC, 7FC		Y
8-9	22	black, graphitic gravel	3MC, 3FC		Y
9-10	34	grey gravel	5FC		Y
10-11	40	dusty yellow-tan silt with little gravel	3FC		Y
11-12	20	dusty yellow-tan silt with little gravel	pyrite 1FC		Y
12-13	25	dusty yellow-tan silt with little gravel	pyrite no gold		N
13-14	24	orange tan gravel with silt	1CC, 3MC, 3FC		Y
14-15	12	bright orange clay	pyrite no gold		N
15-16	10	bright orange clay to tan silt	no gold		N
16-17	28	tan silt	no gold	bedrock chips	N

Claim Status Report

28 October 2020

	Claim Name and Nbr.	Grant No.	Expiry Date	Registered Owner	% Owned	Excess	NTS #'s	Grouping	Permit	Settlement Land
	Bench Claim LL 1 - 18	P 513673 - P 513690	2021/11/01	James (Jim) Davies	100.00	13	105M14	GM00322	LP00847	
	Bench Claim LL 19	P 513702	2021/11/01	James (Jim) Davies	100.00	13	105M14	GM00322	LP00847	
	Bench Claim RL 1 - 11	P 513691 - P 513701	2021/11/01	James (Jim) Davies	100.00	13	105M14	GM00322	LP00847	
R	BRODIE 1 - 6	P 509041 - P 509046	2023/11/01	James (Jim) Davies	50.00	18	105M14	GM00322	LP00847	
				Earth & Iron Mines Inc.	50.00					
R	BRODIE 7 - 8	P 509047 - P 509048	2022/11/01	James (Jim) Davies	50.00	18	105M14	GM00322	LP00847	
				Earth & Iron Mines Inc.	50.00					
	BRODIE 9 - 18	P 509049 - P 509058	2021/11/01	James (Jim) Davies	100.00	15	105M14	GM00322	LP00847	
	Brodie 10 1/2	P 524050	2021/11/01	James (Jim) Davies	100.00	9	105M14	GM00322	LP00847	
R	Chris	P 524049	2021/11/01	James (Jim) Davies	50.00	12	105M14	GM00322	LP00847	
				Earth & Iron Mines Inc.	50.00					
R	Mike	P 524053	2021/11/01	James (Jim) Davies	50.00	12	105M14	GM00322	LP00847	
				Earth & Iron Mines Inc.	50.00					
	Peter	P 524051	2021/11/01	James (Jim) Davies	100.00	9	105M14	GM00322	LP00847	
R	Pilkey	P 524052	2021/11/01	James (Jim) Davies	50.00	12	105M14	GM00322	LP00847	
				Earth & Iron Mines Inc.	50.00					

Criteria(s) used for search:

CLAIM DISTRICT: MAYO CLAIM NAME: PILKEY CLAIM STATUS: ACTIVE & PENDING REGULATION TYPE: PLACER

Total claims selected : 53

Left column indicator legend:

R - Indicates the claim is on one or more pending renewal(s).

P - Indicates the claim is pending.

Right column indicator legend:

L - Indicates the Quartz Lease.

F - Indicates Full Quartz fraction (25+ acres)

P - Indicates Partial Quartz fraction (<25 acres)

D - Indicates Placer Discovery

C - Indicates Placer Codiscovery

B - Indicates Placer Fraction

Ticket # 22434

Box 5395
Drayton Valley, Alberta T7A 1R5
Phone: 780.542.5622
Fax: 780.542.3751

Surface Loc: 2021 Drilling
Down Hole Loc:
Date: 2021/05/25
P.O. / A.F.E.:
Cost Code:
Job ID: 2824
Page: 1

To: Davie's Contracting
,
Attention:

GST# 866595945 WCB# 408825-8

Equipment or Material	Hours	Rate	Description	Amount
Materials	20.00	250.00	Hole 1	$5,000.00
Materials	22.00	250.00	Hole 2	$5,500.00
Materials	2.00	500.00	Mobilization and Demobe	$1,000.00
Materials	2.00	500.00	Compressor	$1,000.00
Materials	1.00	200.00	Consumables	$200.00

Sub Total: $12,700.00
GST: $635.00
Total: $13,335.00

Customer _____

Foreman _____

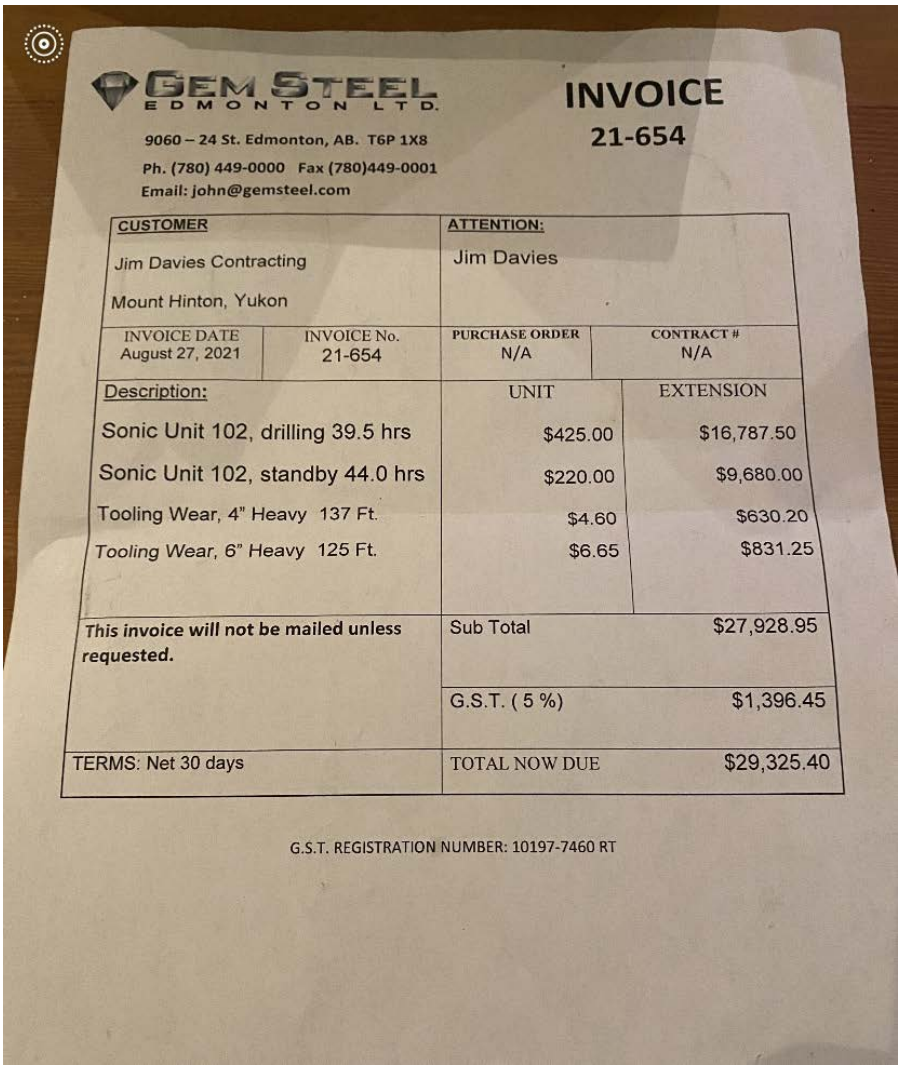
Earth & Iron Inc.
Box 5395
Drayton Valley, AB
T7A 1R5

August 30, 2021

To:
Davie's Contracting

Equipment or Material	Hours	Rate	Descrition	Amount
Drilling	18	$ 250.00	August 9 Drilling 18 Meters	$ 4,500.00
Mobe & Demobe	2	$ 500.00	August 9 Drilling	$ 1,000.00
Compressor	1	$ 500.00	August 9 Drilling	$ 500.00
Consumables	1	$ 200.00	August 9 Drilling	$ 200.00
Replacement Shoe	1	$ 600.00	August 9 Drilling	$ 600.00
				$ 6,800.00
Drilling	17	$ 250.00	August 10 Drilling 17 Meters	$ 4,250.00
Mobe & Demobe	2	$ 500.00	August 10 Drilling	$ 1,000.00
Compressor	1	$ 500.00	August 10 Drilling	$ 500.00
Consumables	1	$ 200.00	August 10 Drilling	$ 200.00
				$ 5,950.00
			Total Drilling for August	$ 12,750.00
			GST	$ 637.50
			Total	$ 13,387.50

GST # 866595945



GEM STEEL
EDMONTON LTD.

INVOICE
21-654

9060 – 24 St. Edmonton, AB. T6P 1X8
Ph. (780) 449-0000 Fax (780)449-0001
Email: john@gemsteel.com

CUSTOMER	ATTENTION:
Jim Davies Contracting Mount Hinton, Yukon	Jim Davies

INVOICE DATE	INVOICE No.	PURCHASE ORDER	CONTRACT #
August 27, 2021	21-654	N/A	N/A

Description:	UNIT	EXTENSION
Sonic Unit 102, drilling 39.5 hrs	$425.00	$16,787.50
Sonic Unit 102, standby 44.0 hrs	$220.00	$9,680.00
Tooling Wear, 4" Heavy 137 Ft.	$4.60	$630.20
Tooling Wear, 6" Heavy 125 Ft.	$6.65	$831.25

This invoice will not be mailed unless requested.	Sub Total	$27,928.95
	G.S.T. (5 %)	$1,396.45
TERMS: Net 30 days	TOTAL NOW DUE	$29,325.40

G.S.T. REGISTRATION NUMBER: 10197-7460 RT

YUKON WATER BOARD

Pursuant to the *Waters Act* and *Waters Regulation*, the Yukon Water Board hereby grants a Type B water licence for a placer mining undertaking to:

LICENSEE:	Jim Davies
CONTACT INFORMATION:	Box 2410 Ladysmith, BC V9J 1B8 E-mail: daviescontracting@hotmail.ca
APPLICATION:	PM12-012-4
LICENCE NUMBER:	PM12-012 **APPROVAL NUMBER:** AP12012
AMENDMENT:	This licence shall be deemed to be amendment 3 of licence number PM12-012.
LICENCE TYPE:	B **UNDERTAKING:** Placer Mining
WATERSHED:	Mayo River
WATER MANAGEMENT AREA:	02 Yukon
HABITAT CLASSIFICATION:	Moderate-Moderate
LOCATION:	Latitude: 63° 51' N Longitude: 135° 03' W
WATER SOURCE:	Granite Creek, a tributary of Roop Lakes
MAXIMUM QUANTITY:	5,000 cubic metres of water per day
ORIGINAL LICENCE EFFECTIVE DATE:	July 6, 2012
AMENDMENT EFFECTIVE DATE:	The effective date of this amendment shall be the date on which the signature of the Chairperson of the Yukon Water Board is affixed.
EXPIRY DATE:	July 1, 2022

This licence shall be subject to the restrictions and conditions contained herein, and to the restrictions and conditions contained in the *Waters Act* and the *Waters Regulation* made thereunder.

Dated this 11th day of
April, 2019

Approved by:

Witness

Chairperson
Yukon Water Board

PART A DEFINITIONS

"Act" means *Waters Act* and any amendments thereto.

"Application" means application for water use licence PM12-012, PM12-012-2 , PM12-012-3, PM12-012-4 and any subsequent information presented to the Yukon Water Board up to the date of the Board's decision.

"Board" means the Yukon Water Board.

"Compliance Level" means a maximum end-of-pipe effluent concentration that shall never be exceeded.

"Inspector" means any person designated as an Inspector under the Act.

"In-stream Reservoir" means any water impoundment structure, where water is collected and retained for use, which is constructed in a natural channel or in a diversion, and through which the entire creek flow may be directed at any time.

"Natural Boundary" means the visible high water mark of any lake, river, stream or other body of water where the presence and action of the water is so common and usual, and so long continued, as to mark upon the soil of the bed of the lake, stream or other body of water, a character distinct from that of the banks thereof, both in respect to vegetation and in respect to the nature of the soil itself. In addition, the best estimates of the edge of dormant or old side channels and marsh areas are considered to be natural boundaries.

"Permanent Diversion" means the relocation of a surface Watercourse channel into a constructed channel that will be in place for over five years.

"Regulation" means the *Waters Regulation.*

"Riparian Zone" means a portion of the stream bank, either vegetated or not, immediately adjacent to the stream channel and is measured from the high water mark on each bank of the watercourse and follows the shape of the channel.

"Spill Contingency Plan" means the *Jim Davies Fuel Spill Contingency Plan* that was submitted as part of the Application and included in water use register PM12-012-3 as exhibit 1.3, and any subsequent revisions.

"Spring Freshet" means the sudden increase in flow carried by a stream as snowmelt occurs at higher elevations in the watershed.

"Temporary Diversion" means the relocation of a surface Watercourse channel into a constructed channel that will be in place for a maximum of five years.

"Waste" means any substance as defined in the Act.

"Watercourse" means any stream, lake, pond, river, creek, spring, ravine or swamp, whether ordinarily containing the water or not.

"Wetted Perimeter" means the horizontal extent of the present water level while the work is taking place.

"Work Areas" means any area disturbed or altered by mining activities, excluding any stable diversion channel.

PART B DESCRIPTION OF WATER USE AND DEPOSIT OF WASTE

1. The Licensee is hereby authorized to:

   a) obtain water from Granite Creek at a maximum quantity of 5,000 cubic metres per day; and

   b) use this water for a placer mining undertaking on the grant numbers shown in Appendix A, attached; and

   c) store water in out-of-stream reservoirs and out-of-stream settling facilities;

   d) return a flow of water to Granite Creek, and to deposit Waste in the form of sediment into Granite Creek;

   e) construct, use, maintain and decommission Temporary Diversions of Granite Creek;

   f) construct, use, and maintain Permanent Diversions of Granite Creek;

   g) construct, use, maintain, and decommission In-stream Reservoirs (dug outs) in Granite Creek;

   h) use, maintain and decommission existing ford crossings of Granite Creek;

   i) construct, use, maintain, and decommission new ford crossings of Granite Creek;

   as described in the Application and subject to the conditions of this licence. Where there is a discrepancy between the Application and the conditions of this licence, then the conditions of this licence shall prevail.

2. All works associated with the storage or conveyance of water shall be constructed to withstand flood events and maintained in good repair.

3. The Licensee shall comply with the Riparian Zone requirements for Moderate-Moderate habitat suitability for Mayo River Watershed for all original (un-modified) channels, previously reclaimed channels, and Permanent Diversion channels.

4. Except as authorized by this licence, no Waste shall enter any Watercourse as a result of any activity carried out by the Licensee.

Effluent Quality Standards

5. The Licensee shall comply with Moderate-Moderate habitat suitability effluent discharge standards for any grab sample taken at the point in the effluent flow immediately before it enters the natural stream flow.

6. The Compliance Level for effluent discharge shall be 200 mg/L Total Suspended Solids.

7. All effluent discharge levels included in this licence are identified in excess of natural background concentrations in the Watercourse at the time of sampling.

PART C MINING ACTIVITIES AND OPERATING CONDITIONS

Water Storage, Settling Facilities, and Conveyance Structures

8. Settling facilities shall be provided for all mining wastewater.

9. All water storage and settling facilities, and associated spillways, drains and water supply ditches located outside the Watercourse channel shall be of adequate capacity and construction.

10. All water storage structures and settling facilities shall be constructed and maintained in a condition that prevents wildlife entrapment and does not impede the movement of wildlife.

Water Acquisition

11. All water intakes shall be screened to prevent the entrainment and/or impingement of fish, consistent with the requirements outlined in the most recent version of the Yukon Placer Secretariat *Guidebook of Mitigation Measures for Placer Mining in the Yukon.*

12. The Licensee shall provide barriers consisting of fish guards, screens, coverings or nets on all water intakes as follows:

    a) The barriers must be monitored and maintained to ensure that they function effectively at all times when water is being withdrawn;

    b) The barriers must be designed and installed in such a manner that the screen is submerged and a uniform flow is maintained through the total screen area; and

    c) Water must not be withdrawn when the barrier is removed for renewal, repair or inspection.

13. The Licensee shall cease pumping or decanting and take remedial action if there is alteration to the Riparian Zone or the bed or banks of the Watercourse resulting from any activity related to the pumping or decanting.

Progressive Reclamation

14. Overburden shall be stockpiled and located where it will not adversely affect water quality in any Watercourse.

15. Reclamation shall be progressive over the life of this licence.

Watercourse Crossings – Fords

16. The Licensee may modify the bed or banks of streams to allow fording of the Watercourse as per the most recent version of the *Fish Habitat Design, Operation and Reclamation Workbook and Worksheets for Placer Mining in the Yukon Territory.*

17. When constructing new fords, the distance between fords shall be limited to every 2,000 metres, or shall not exceed more than 2 fords every 4,000 metres.

18. The Licensee shall adhere to the following conditions when constructing, using, and maintaining new fords, and using and maintaining existing fords:

a) The width of the approach to the ford shall be a maximum of 7 metres;

b) All crossings shall be at a right angle to the Watercourse;

c) Removal of vegetation adjacent to the crossings shall be minimized;

d) Non-erodible materials shall be placed up the bank on both sides of the crossing to stabilize the banks;

e) The Watercourse crossing approaches shall be low and stable enough to support the vehicles and equipment;

f) The Watercourse shall be crossed on either a firm rock bottom or a coarse gravel bottom;

g) Equipment crossing the Watercourse shall be mechanically sound and free of leaks; and

h) The blade or bucket on equipment shall be raised above the Wetted Perimeter while crossing any Watercourse.

Diversion Construction and Restoration

19. The Licensee shall adhere to the channel design and restoration requirements of the most recent edition of the *Fish Habitat Design, Operation and Reclamation Workbook and Worksheets for Placer Mining in the Yukon Territory* for the construction of all diversions, redirection of the Watercourse, and restoration activities.

20. The bed and banks of any Diversion channel shall be stable to prevent erosion.

21. A protective berm shall be constructed and maintained along any Watercourse channel diversion, if space allows or as determined by an Inspector.

22. Armouring shall be installed at both the upstream and downstream ends of any diversion.

23. When constructing a diversion, a plug shall be left in place at the upstream end and the downstream end until the diversion is completed.

24. Prior to the opening of any diversion channel, a sump shall be constructed at the downstream end of the diversion for dewatering purposes.

25. The Licensee shall construct all diversion channels so as to avoid the stranding of fish.

26. Upon completion of the construction of any diversion, the Licensee shall first remove the plug at the downstream end of the diversion and then gradually remove the plug at the upstream end of the diversion.

27. The bed and banks of any tributary of Granite Creek shall be left in a stable condition and shall be left in such a manner so that erosion is controlled and revegetation is possible.

PART D SEASONAL CLOSURE

28. The Licensee shall contact an Inspector not less than 2 weeks prior to seasonal closure.

29. All mined or otherwise disturbed ground surfaces, including cut banks, fill slopes and tailings piles shall be stabilized annually to prevent erosion and surface runoff from carrying sediment into any Watercourse.

30. To prevent flood damage of out-of-stream structures during freshet, the Licensee shall provide freeboard on all out-of-stream water reservoirs and settling facilities prior to seasonal closure.

PART E DECOMMISSIONING

31. Prior to final decommissioning or expiry of this licence, the Licensee shall:

    a) contact an Inspector not less than 2 weeks prior to final decommissioning;

    b) ensure that the final creek channel approximates its pre-licence condition in length, gradient and stability, except as may otherwise be required in this licence;

PART F GENERAL CONDITIONS

Other Laws

32. No condition of this water licence limits the applicability of any statutory authority.

33. All work authorized by this licence shall occur on the property that the Licensee has the right to enter upon and use for that purpose.

34. Where there is a discrepancy between this licence and the Mayo River Watershed Authorization, as attached as Appendix B, then the conditions of the Watershed Authorization shall prevail.

Correspondence

35. Where any direction, notice, order or report under this licence is required to be in writing, it shall be given:

a) To the Licensee, if delivered, e-mailed, or mailed by registered mail, to the address identified on page 1 of this licence, and shall be deemed to have been given to the Licensee on the day it was delivered, or e-mailed, or 7 days after the day it was mailed, as the case may be; or

b) To the Board, if delivered, faxed, e-mailed or mailed by registered mail, to the following address:

Yukon Water Board
Suite 106, 419 Range Road
Whitehorse, YT Y1A 3V1

Fax#: (867) 456-3890
E-mail: ywb@yukonwaterboard.ca

and shall be deemed to have been given to the Board on the day it was delivered or faxed, or 7 days after the day it was mailed, as the case may be.

c) The Board or the Licensee may, by notice in writing, change its address for delivery.

Camps

36. Sewage, including all human excreta and wastewater associated with daily camp operations, shall be deposited of in accordance with the *Public Health and Safety Act* of the Yukon.

37. The location of subsurface grey water pits or privies shall be not less than 30 metres from the Natural Boundary of any Watercourse, and at least 1.2 metres above bedrock or the water table.

38. If very permeable soils are encountered, the pit privy or grey water pit shall be lined with 0.6 metres of sand or silt.

Storage and Transfer of Fuel, Lubricants, Hydraulic Fluids and Coolants

39. Fuel, lubricants, hydraulic fluids, coolants and similar substances, with the exception of liquids associated with any water pump engine, shall be stored and transferred a minimum of 30 metres from the Natural Boundary of any Watercourse, in such a way that said substances are not deposited in or allowed to be deposited in waters.

Spills and Unauthorized Discharges

40. Where a spill or an unauthorized discharge occurs, that is of a reportable quantity under the Yukon *Spills Regulations,* the Licensee shall immediately contact the 24-hour Yukon Spill Report number, (867) 667-7244 and implement the Spill Contingency Plan. A detailed written report on any such event including, but not limited to, dates, quantities, parameters, causes and other relevant details and explanations, shall be submitted to the Board not later than 10 days after the occurrence.

41. The Licensee shall apply the relevant procedures in the Spill Contingency Plan. The Licensee shall review the Spill Contingency Plan annually and shall provide a summary of that review, including any revisions to the plan, as a component of the annual report.

42. The Licensee shall maintain a log book of all spill or unauthorized discharge occurrences, including spills that are less than the reportable quantities under the Yukon *Spills Regulations.* The log book shall be made available at the request of an Inspector. The log book shall include, but not necessarily be limited to the:

a) date and time of the spill;

b) substance spilt or discharged;

c) approximate amount spilt or discharged;

d) location of the spill;

e) distance between the spill or discharge and the nearest Watercourse; and

f) remedial measures taken to contain and clean-up the spill area or to cease the unauthorized discharge.

43. All personnel shall be trained in procedures to be followed and the equipment to be used in the containment of a spill.

44. The Spill Contingency Plan shall be posted on site for the duration of the works.

Non-Compliance

45. In the event that the Licensee fails to comply with any provision or condition of this licence, the Board may, subject to the Act, cancel the licence.

Minor Modifications

46. Where site conditions require modifications to any drawings for water use or Waste related structures previously submitted to the Board, the Licensee shall submit to the Board a minimum of 10 days prior to the commencement of the construction schedule:

a) written details of the modifications proposed to be made to the specifications and quality assurance/quality control procedures previously submitted to the Board as part of the Application,

b) a written detailed construction schedule and the name and contact number(s) of the operator; and

c) an explanation for the change, including an assessment of the potential impact on the performance of the works.

Sampling

47. Where there is a surface discharge from the settling facilities, the Licensee shall take weekly samples at a point upstream of the water supply and intake and at a point in the effluent flow immediately before it enters the natural stream flow, and shall analyze these samples for suspended solids using laboratory analysis, as applicable.

48. Where no discharge from the settling facility to a Watercourse occurs, whether by surface discharge or seepage, no sampling is required.

Reporting

49. The Licensee shall submit annual reports to the Board by December 1 of each year.

50. Annual reports for the year reported shall include the information required by this licence and by the Regulation including, but not necessarily limited to:

a) the quantity of water used under this licence;

b) the quantity, concentration and type of any Waste deposited under this licence;

c) a description of the reclamation that has taken place;

d) a list of grant numbers of claims where any reclamation has taken place;

e) details pertaining to the Spill Contingency Plan review and any updating information, as per the requirements of this licence; and

f) a summary of any spills or unauthorized discharges that occurred during the year reported.

APPENDIX A

Grant Number	Grant Number	Grant Number	Grant Number	Grant Number
P 513673	P 513674	P 513675	P 513676	P 513677
P 513678	P 513679	P 513680	P 513681	P 513682
P 513683	P 513684	P 513685	P 513686	P 513687
P 513688	P 513689	P 513690	P 513702	P 513691
P 513692	P 513693	P 513694	P 513695	P 513696
P 513697	P 513698	P 513699	P 513700	P 513701
P 509041	P 509042	P 509043	P 509044	P 509045
P 509046	P 509047	P 509048	P 509049	P 509050
P 509051	P 509052	P 509053	P 509054	P 509055
P 509056	P 509057	P 509058	P 524049	P 524050
P 524051	P 524052	P 524053		

Fisheries and Oceans Canada | Pêches et Océans Canada

MAYO RIVER WATERSHED

AUTHORIZATION FOR WORKS OR UNDERTAKINGS AFFECTING FISH HABITAT FOR SPECIFIED STREAMS IN THE YUKON TERRITORY

Pursuant to Section 35(2) of the Federal *Fisheries Act*;

The Minister of Fisheries and Oceans Canada (the "Minister") hereby revokes the conditions of the Yukon Placer Authorization (June 1993) and subsequent amendments pertaining to placer mining works or undertakings and sediment discharge standards in the Mayo River watershed.

The Minister hereby authorizes the "*harmful alteration, disruption or destruction of fish habitat*" resulting from placer mining works or undertakings and discharge of sediment at concentrations specified in this authorization, uncontaminated by deleterious substances, within certain streams or portions of streams in the Mayo River watershed as identified on the ***Yukon Placer Fish Habitat Suitability Map – Mayo River Watershed*** (Schedule 1).

Authorization issued to:

Individuals or companies conducting placer mining in certain streams or portion of streams within the Mayo River watershed, Yukon Territory that hold a valid Water Use License pursuant to the *Waters Act* (Yukon) for placer mining activities.

Location of Project

The works and undertakings are located within the drainage basin of the Mayo River watershed, in the Yukon Territory. This authorization applies to certain streams or portions of streams classified on the ***Yukon Placer Fish Habitat Suitability Map - Mayo River Watershed*** (Schedule 1). Larger-scale maps may be available from the Yukon Placer Secretariat or Fisheries and Oceans Canada.

Valid Authorization Period

The valid authorization period for the harmful alteration, disruption and destruction of fish habitat resulting from placer mining works or undertakings is from November 1, 2010 until such time as this authorization is revoked, rescinded, amended or replaced by the Minister.

Amendments or revisions to the terms and conditions identified in this authorization may be required if placer mining activities result in an unforeseen risk to fish or fish habitat resources as demonstrated through monitoring of management parameters (water quality, aquatic health, and physical habitat compensation or rehabilitation). An annual and 5-year review will be conducted to review results of monitoring activities and should amendments be recommended, the process will be guided by the ***Adaptive Management Framework for Yukon Placer Mining***, available from the Yukon Placer Secretariat or Fisheries and Oceans Canada.

Description of Works or Undertakings

This authorization permits the harmful alteration, disruption or destruction of fish habitat, in certain streams or portions of streams in the Mayo River watershed resulting from placer mining works or undertakings: Those undertakings covered by this authorization are limited to:

- The construction of diversion channels,
- In-stream works,
- Water acquisition, and;
- Discharge of sediment from settling facilities.

Works or undertakings are completed in accordance with methods identified in the ***Fish Habitat Design, Operation and Reclamation Workbook*** available from the Yukon Placer Secretariat and Fisheries and Oceans Canada.

Conditions of Authorization

1. The general watershed conditions of this authorization notwithstanding, should any specific works, undertakings, or activities authorized by this authorization, due to weather conditions, different soil, local topography, updated fisheries information or other natural conditions, appear in the opinion of the Fisheries and Oceans Canada, likely to cause greater adverse environmental effect than was contemplated by this watershed authorization, then Fisheries and Oceans Canada may direct the specific Placer Mining operation to suspend or alter works and activities to avoid or mitigate adverse effects with respect to fisheries resources. In circumstances where DFO holds the view that greater adverse environmental effects will occur at a specific site than were contemplated by this watershed authorization Fisheries and Oceans Canada may also modify the application of this authorization to that specific site. Should Fisheries and Oceans Canada propose such modification Fisheries and Oceans Canada will give the Placer Mining operation the opportunity to discuss and respond to the proposed modification.

2. All works or undertakings will be conducted in accordance with:

   2.1. The measures identified in the ***Fish Habitat Design, Operation and Reclamation Workbook*** as per the fish habitat suitability classification of streams or portions of streams identified on the ***Yukon Placer Fish Habitat Suitability Map - Mayo River Watershed*** (Schedule 1).

   2.2. Discharge standards for placer mine effluent identified in the ***Sediment Discharge Standards for Placer Mine Effluent – Mayo River Watershed*** (Schedule 2).

      2.2.1. Sediment discharge standards will be phased in as identified in Schedule 2.

3. Prior to proceeding with placer mining works or undertakings that are likely to result in the harmful alteration, disruption or destruction of fish habitat, the proponent will complete the applicable ***Fish Habitat Design, Operation and Reclamation Worksheets*** (all required appendices of the ***Fish Habitat Design, Operation and Reclamation Workbook***) and include these worksheets as a component of their submission for project review to the Yukon Environmental and Socio-economic Assessment Board and the Yukon Water Board.

4. Fish habitat reclamation measures will be identified in the ***Fish Habitat Design, Operation and***

Reclamation Worksheets in accordance with the measures identified in ***Fish Habitat Design, Operation and Reclamation Workbook***. These worksheets are to be included in the submission for project review to the Yukon Environmental and Socio-economic Assessment Board and the Yukon Water Board.

5. The proponent must ensure that all plans developed pursuant to this authorization have been duly prepared and acknowledges sole responsibility for all design, safety and workmanship aspects of all the works associated with this authorization.
6. In the event that any of the forgoing conditions cannot be met, the provisions of this authorization do not apply and the proponent will apply to Fisheries and Oceans Canada for review prior to proceeding.

The holder of this authorization is hereby authorized under the authority of section 35(2) of the Federal *Fisheries Act*. R.S.C., 1985, c.F. 14, to carry out the work or undertaking described herein. This authorization is valid only with respect to fish habitat and for no other purposes. It does not purport to release the applicant from any obligation to obtain permission from or to comply with the requirements of any other regulatory agencies. Failure to comply with any condition of this authorization may result in charges being laid under the Federal *Fisheries Act*.

Authorization #:	08-HPAC-PA5-00050-2
Date of Issuance:	November 1, 2010
Approved by:	Briar Young
Title:	Manager, Oceans Habitat and Enhancement Branch Yukon / Transboundary Rivers Area Fisheries and Oceans Canada

Yukon Placer Fish Habitat Suitability Map - Mayo Lake Watershed (Category B)

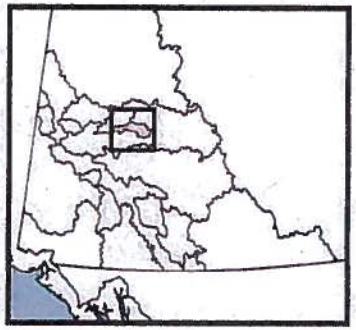
Watercourse Classification, Habitat Suitability Types

- Water Quality
- Low Suitability
- Moderate-Low Suitability
- Moderate-Moderate Suitability
- Moderate-High Suitability
- High Suitability
- Areas of Special Consideration - Ecological
- Areas of Special Consideration - Cultural

Development

- Current
- Historical
- Extensive

- Lakes



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Map Compiled: September, 2010

Fisheries and Oceans Canada / Pêches et Océans Canada

Appendix B

Fisheries and Oceans Canada | Pêches et Océans Canada

Schedule 2

Sediment Discharge Standards for Placer Mine Effluent – Mayo River Watershed (Category B)

Habitat Suitability	Water Quality Objective[1]	Sediment Discharge Standard for Mine Discharge
High	<25 mg/L[1]	Compliance Level: 0 mg/L
Moderate High	<25 mg/L[1]	<200 mg/L
Moderate Moderate (Tributary to Small Lakes)	<50 mg/L[1]	Compliance Level: <200 mg/L
Moderate Low (Tributary to Large Lakes)	<80 mg/L[1]	Design Target: 0.2 ml/L Action Level: 0.8 ml/L Compliance Level: 1.2 ml/L
Low[2] (Tributary to Lake Trout Lakes)	<200 mg/ L[1]	Design Target: 0.2 ml/L Action Level: 1.0 ml/L Compliance Level: 1.5 ml/L
Low[3] (Not contributing to Lake Trout Lakes)	<300 mg/L[1]	Design Target: 0.2 ml/L Action Level: 1.0 ml/L Compliance Level: 2.0 ml/L
Water Quality Zones Duncan Creek – Upstream of waterfalls at 2900 ft contour Unnamed Tributary of Mayo Lake (63°45'37" N, 135°11'55" W) – Upstream of 2250 ft contour	Downstream WQO mg/L[1]	Design Target: 0.2 ml/L Action Level: 1.0 ml/L Compliance Level: 2.0 ml/L Compliance Level: 2.5 ml/L Compliance Level: 200 mg/L
Areas of Special Consideration	To be determined	To be determined by Fisheries and Oceans Canada if locations are identified

[1] The water quality objective is established for management and effectiveness monitoring purposes. The placer mine operator is not required to monitor or report on this objective for compliance purposes.
[2] Occurs only where a Previous Development Designation applies to a tributary to a Lake Trout Lake and results in a Low Habitat Suitability Classification
[3] Stream classification for those streams not contributing to Lake Trout Lakes

General Notes Regarding Sediment Discharge Standards

- The point at which the above-listed Sediment Discharge Standards for Mine discharge will be measured will be a point in the effluent flow immediately before it enters the natural stream flow.
- Sediment Discharge Standards for Mine discharge include all releases of effluent (both point and non-point sources) into the natural stream flow of a watercourse.
- All effluent discharge levels are identified in excess of natural background concentrations at the time of sampling.
- When the sediment discharge standard is a settleable solids standard (ml/l), measurement will either involve laboratory analysis, or utilizing an Imhoff cone.
- When the sediment discharge standard is a suspended solids standard (mg/l), measurement will either involve laboratory analysis, or utilizing a portable digital turbidity/suspended solids correlation meter.
- Samples collected for the purpose of determining compliance with the above-listed Sediment Discharge Standards for Mine discharge will be analysed via laboratory analysis.

Phase-In Schedule for Sediment Discharge Standards for Yukon Placer Mining

The Yukon placer mining industry's strong overall compliance record has been achieved through effective dialogue with inspectors from Energy Mines and Resources Yukon, which bases its activities on the principles of Education, Encouragement and Enforcement.

The phase-in schedule proposed below will allow inspectors and the Yukon Placer Secretariat enough time to ensure that each operator fully understands what is required to comply with the requirements of this Authorization and the new management system for Yukon placer mining.

The phase-in of new sediment discharge standards will adhere to the following requirements.

2010 – Licensed placer miners will be informed about the operating practices required to comply with the new system for managing placer mining activity under the *Fisheries Act*. Inspectors and the Yukon Placer Secretariat will ensure that each operator is aware of the specific changes required at his or her site. All licensed placer miners must be oriented to the Design Target and Action Level, and must comply with a Sediment Discharge Standard for Mine discharge of no greater than 2.5 ml/L, or the standard stipulated in their existing water use license, whichever is more stringent.

2011 – All operations must be oriented to operate within the Design Target and Action Level, and must not exceed the Compliance Level stipulated in the table of ***Sediment Discharge Standards for Placer Mine Effluent*** for the habitat suitability classification and the watershed in which the mine is located.