

# Golden Heart Gold Project

## NI 43-101 Technical Report

Saskatchewan, Canada

Effective Date: February 1, 2021



Prepared for:

**Matrixset Investment Corporation**

Prepared By:

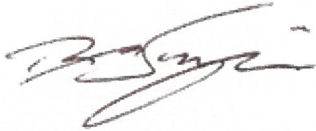
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**Report Date: February 1, 2021**

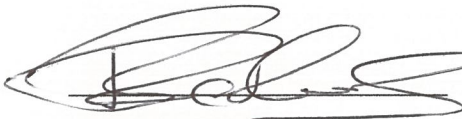
## DATE AND SIGNATURE PAGE

The effective date of this NI 43-101 Technical report, entitled "NI 43-101 Technical Report, Golden Heart Gold Project" is February 1, 2021.



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## **1.0 Summary**

### **1.1 Introduction**

Geosim Services Inc. ("Geosim") and CanMine Consultants ("CanMine") were retained by the Matrixset Investment Corporation ("Matrixset" or "the Company") to prepare a Technical Report on the Golden Heart Gold Project ("the Project") located in the La Ronge Mining District of Northern Saskatchewan. The claims are 100% owned by Golden Band Resources Inc. ("Golden Band").

Matrixset has signed a three-way Option Agreement with Procon and Golden Band back to 2018. Golden band as the company holds the Mineral Properties, the surface leases and the other Assets. Procon as the Optionor owns 100% of voting shares of the company. Matrixset as Optionee intends to receive the voting shares of the company on the terms set out in the Option Agreement by exploration.

Formerly known as the Weedy Lake Property, the Golden Heart Property is located in the La Ronge gold belt, approximately 180 kilometres (km) northeast of the community of La Ronge, in northern Saskatchewan. The Property, which contains the Golden Heart gold deposit, consists of four dispositions, which encompass an area of 2,338 hectares (ha).

### **1.2 History**

The Greater Waddy Lake area was first explored in the late 1930's by prospectors from Consolidated Mining and Smelting (now Teck Cominco Ltd.). After the World War II, other firms (Augustus Exploration) and individuals (Eric Partridge) also became active in the belt. Augustus Exploration first discovered gold mineralization at Tower Lake in 1959.

Golden Band began work in the area in 1996 and has carried out the bulk of the exploration work on the claims.

### **1.3 Geology and Mineralization**

The Project area is located in the northern portion of the Central Metavolcanic Belt of the La Ronge Domain, a granite-greenstone belt in the Saskatchewan segment of the ca. 1.9-1.8 billion years (Ga) Trans-Hudson Orogen (Lafrance and Heaman 2004).

## 1.4 Metallurgical Testwork

small bulk sample (approximately 100 kg) of drill core from 9 drill holes was sent to SGS Canada in 2006 for metallurgical testing. Initial tests using screened metallic analysis gave a calculated head grade of 4.21 g/t. The weighted average of the assay grades was 3.422 g/t.

## 1.5 Mineral Resource Estimations

The updated Indicated Mineral Resource estimate for the Golden Heart Gold deposit is 16,125,758 tonnes grading 1.05 g/t gold and the Inferred Mineral Resource is 5,566,302 tonnes grading 0.75 g/t gold. The effective date of this estimate is February 1, 2021,

CIM Definition Standards for a Mineral Resource as a "concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality that there are reasonable prospects for eventual economic extraction". In this case a 0.30 g/t cut-off grade was used to estimate the resource as that is the minimum grade necessary to cover estimated production costs as per the following criteria:

Au Price	\$1,550 / Troy Ounce Gold
Mining Cost/tonne	\$3.50
Processing Cost/tonne	\$9.50
Down Hole Composite Size	2 m
Process Recovery	90%
Grade Cap	30 g/t Gold for Indicated, 10 g/t Gold for Inferred

The resource estimate is based on information and sampling gathered through appropriate techniques from diamond drill core holes. The estimate was prepared using industry standard techniques and has been validated for bias and acceptable grade-tonnage characteristics.

Areas of uncertainty that may materially impact the Mineral Resource Estimate include:

- Estimated global bulk tonnage is based on a limited number of density determinations
- Commodity price assumptions
- Pit slope angles
- Metal recovery assumptions
- Mining and Process cost assumptions
- Assumptions that all required permits will be forthcoming

There are no other known factors or issues that materially affect the estimate other than normal risks faced by mining projects in the province of Saskatchewan in terms of environmental, permitting, taxation, socio-economic, marketing, and political factors. Geosim and Canmine are not aware of any known legal or title issues that would materially affect the Mineral Resource estimate.

## **1.6 Interpretation and Conclusions**

The updated Indicated Resource estimate for the Golden Heart Gold deposit is 16,125,758 tonnes grading 1.05 g/t gold and the Inferred Resource is 5,566,302 tonnes grading 0.75 g/t gold.

The authors cannot identify any significant risks and uncertainties that could reasonably be expected to affect the reliability or confidence in the mineral resource estimate other than if all of the survey information provided by the Company or if downhole survey information provided by the Company is inaccurate. Inaccurate downhole survey information would create potential inaccuracies in the location, size, shape, tonnage, grade and grade distribution of the resource estimate. This could then have a significant impact on any future economic studies and mine plans. However, the author (and QP) feels the survey information and downhole surveys is to acceptable standards based on data review.

Drilling conducted in 2020 did intersect significant mineralization and added to the historic Resource Estimate.

## **1.7 Recommendations**

The existing Resource Estimate is of such quality and quantity that it is reasonable to think that this deposit could potentially go back into production at some point based on the parameters listed in section 14.

The Golden Heart gold deposit can be viewed as a high-grade narrow vein ore body or as a higher tonnage but lower grade one, depending on what mining scenario is envisioned. The following are recommended:

1. Proposed drill holes for a Stage 1 would target potential extensions of gold mineralization in areas #1, #2 and #3 as shown in Figure 9-1.
2. Proposed drill holes for a Stage 2 would target deeper portions of any newly discovered gold zones from "Stage 1" above which could potentially increase the existing Inferred resource for this area as well as potentially adding Indicated resource.



3. A mine plan for the existing Resources should be designed and this could form part of a PEA Study that should be initiated.
4. A Pre-Feasibility Study could be initiated if the PEA Study proves positive.

## **2.0 Introduction**

Geosim Services Inc. ("Geosim") and CanMine Consultants ("CanMine") were retained by Matrixset Investment Corporation ("Matrixset" or "the Company") to prepare a Technical Report on the Golden Heart Gold Project ("the Project" or "the Property") located in the La Ronge Mining District of Northern Saskatchewan.

The claims are 100% owned by Golden Band Resources Inc. ("Golden Band"). In August 2016, Golden Band ceased to be a publicly traded company and became a wholly (100%) owned subsidiary of Procon Holdings Inc. ("Procon").

Matrixset has signed a three-way Option Agreement with Procon and Golden Band back to 2018. Golden band as the company holds the Mineral Properties, the surface leases and the other Assets. Procon as the Optionor owns 100% of voting shares of the company. Matrixset as Optionee intends to receive the voting shares of the company on the terms set out in the Option Agreement by exploration.

## **2.1 Terms of Reference**

Geosim and CanMine are independent of Matrixset and Golden Band and have no beneficial interest in the Golden Heart Gold Project. Fees for this Technical Report are not dependent in whole or in part on any prior or future engagement or understanding resulting from the conclusions of this report.

All measurement units used in this report are metric, and currency is expressed in United States dollars unless stated otherwise.

The geographic projection used for the project maps and surveys is UTM Zone 8, NAD 13.

## **2.2 Qualified Persons**

Ronald G. Simpson, P. Geo. Of Geosim Services Inc. and Frank Hrdy, P. Geo of CanMine Consultants served as the Qualified Persons (QPs) as defined in NI 43-101.

## **2.3 Site Visits and Scope of Personal Inspection**

Qualified Persons involved in the preparation of this technical report conducted the following site visits:

On July 27, 2005, R. Simpson visited the Golden Heart property

Frank Hrdy visited the Golden Heart Property numerous times over many years starting in 2006 but the last site visit was between September 19<sup>th</sup> and September 25<sup>th</sup>, 2020.

Details of the site visits are presented in Section 12.

## **2.4 Effective Dates**

The effective date of this Technical Report is February 1, 2021.

## **2.5 Information Sources and References**

Information used to support this Technical Report was derived from a previous Technical Reports by the co-authors (Simpson, 2006 and Wong & Hrdy, 2009). Other supplemental sources of information are cited in the text of this report and listed in Section 20 of this Report.

## **2.6 Previous Technical Reports**

Previous NI43-101 Technical Reports on the project area are listed below:

Simpson, R., 2006: Technical Report and Mineral Resource Estimate – Golden Heart Gold Deposit, Greater Waddy Lake Project. Effective date: March 23, 2006

Wong, J.H. & Hrdy, F.: Technical Report and Mineral Resource Estimate – Golden Heart Gold Deposit, Greater Waddy Lake Project. Effective date: December 18, 2009

These reports are filed on the SEDAR website ([www.sedar.com](http://www.sedar.com)). Background information and a portion of the technical data for this report was obtained from this reference. This technical report replaces and supersedes all prior technical reports on the Project.

### **3.0 Reliance on Other Experts**

The authors of this Report state that they are qualified persons for those areas as identified in the "Certificate of Qualified Person", as included in this Report. The authors have not conducted independent land status evaluations and have relied on, and believe there is a reasonable basis for this reliance, upon information from Matrixset, Golden Band, and the Mineral Administration Registry Saskatchewan ("MARS") regarding property status, and legal title for the Project (Section 4.2), which the authors believe to be accurate.

## 4.0 Property Description and Location

Formerly known as the Weedy Lake Property and Weedy Lake deposit, the Golden Heart Property (the "Property") is located in the La Ronge gold belt, approximately 180 kilometres (km) northeast of the community of La Ronge, in northern Saskatchewan (Figure 4-1). The Property is part of the Weedy Lake disposition and encompasses an area of 2,338 hectares (ha).

The Golden Heart property is part of Golden Band Resources Inc. "Greater Waddy Lake Project" area. The Greater Waddy Lake Project is located in the northern portion of the Central Metavolcanic Belt of the La Ronge Domain, a granite-greenstone belt in the Saskatchewan segment of the Trans-Hudson Orogen.

**Figure 4-1 General Location Map**





## 4.1 Project Ownership

Golden Band owns 100% of the Golden Heart property.

Golden Band acquired 50.1% of the Golden Heart property from Tyler Resources Inc. in August 2006 for a total of \$1,000,000 in cash and 500,000 common share purchase warrants. Golden Band acquired 49.9% of the Golden Heart property from CDG Investments (the former Golden Rule Resources Ltd.) and Cameco in April 2002 for a total of 1,422,269 shares and 355,558 options in Golden Band.

There are sufficient exploration credits to maintain this property in good standing for several years. Exploration, timber, and water use permits are applied for in years in which exploration takes place and are granted by Saskatchewan Environment and the Saskatchewan Watershed Authority.

## 4.2 Mineral Tenure

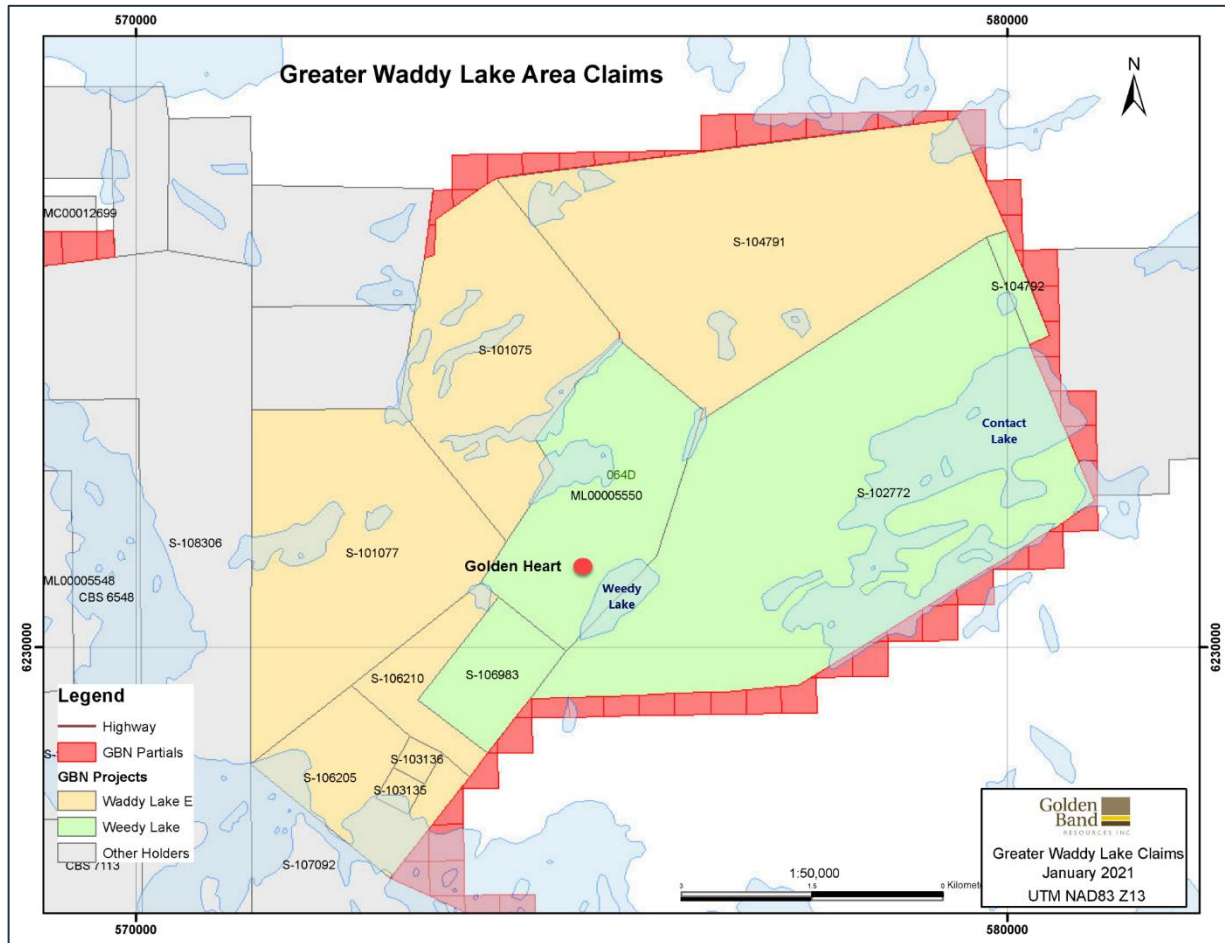
The Golden Heart is covered by the Weedy Lake disposition covering an area of 2,338 ha (Table 4-1). The Golden Heart deposit lies in disposition ML00005550.

**Table 4-1 Weedy Lake Disposition**

Disposition	Hectares	Annual Assessment	Excess Credit	Net Work Applied	MARS Expiry Date	Years Protected
ML00005550	473	\$11,837	\$135,972	16-Dec-20	17-Mar-28	7
S-102772	1,680	\$42,000	\$177,055	02-Feb-21	02-May-25	4
S-104792	35	\$875	\$4,375	24-Sep-20	23-Dec-25	5
S-106983	150	\$3,750	\$7,500	24-Mar-21	22-Jun-23	2
	<b>2,338</b>	<b>\$58,462</b>	<b>\$324,902</b>			

The disposition has had the Saskatchewan government assessment relief applied for the first year. The second-year credit is shown in the status as well, although officially, this won't be credited to the claims until 2021.

The claim extents are illustrated in Figure 4-2.

**Figure 4-2 Claim Location Map**

### 4.3 Surface Rights

Mineral claims in Saskatchewan do not give surface rights. In order to remove material from the site claims must be converted to leases. Mineral claims and leases in Saskatchewan are currently governed by the Mineral Tenure Registry Regulations which became effective December 1, 2012.

### 4.4 Royalties

No underlying royalties or encumbrances exist on the Property.

## **4.5 Permits**

Surface disturbance Permits are required for mineral exploration in Saskatchewan prior to any work starting. The permits that may be required are: Temporary Work Camp permit, Aquatic habitat Protection Permit, Forest Product permit, and Surface Exploration permit. Legislation includes the Provincial Lands Regulations, the Environmental Management & Protection Act, and the Forest Resources Management Act. Drilling programs normally require a Term right to Use Water licenses and a Notification Form may need to be submitted to the Department of Fisheries and Oceans Canada.

## **4.6 Social License**

All of Golden Band's activities in the La Ronge Gold Belt are within the traditional lands of the Lac La Ronge Indian Band ("LLRIB") and Golden Band has signed a Memorandum of Understanding with the LLRIB. The Memorandum of Understanding encompasses the Company's commitment to work with the LLRIB to establish a mutually beneficial business relationship. To ensure that business and employment opportunities are available to the LLRIB within Golden Band's exploration and development projects, Golden Band has also signed a General Services Agreement with Kitsaki Management Limited Partnership.

## **4.7 Environmental Considerations**

Canada North Environmental Services (CanNorth) completed environmental baseline studies in the Greater Waddy Lake area that includes the Oven Lake Property (Canada North, 2005). The Komis area was also studied in 1993 to 1995 in support of the Komis underground mine operation.

The environmental baseline studies consisted of a terrestrial and aquatic habitat evaluation including the following detailed studies:

### **Aquatic environment**

- Spring fish spawning
- Summer fish and plankton community structure, fish habitat assessment, water and fish chemistry survey, lake morphometry and stream crossing assessments
- Fall Spawning, sediment benthic invertebrate survey
- Desktop hydrology study including regional streamflow analysis, flood frequency and magnitude, low flow frequency and magnitude, flow durations, etc.

**Terrestrial environment**

- Winter wildlife tracking survey
- Spring raptor survey
- Spring ungulate pellet group/browse survey, habitat mapping and development of a caribou mitigation/protection plan
- Summer vegetation / rare plant survey
- Ungulate pellet group survey

This work adds to existing environmental baseline data which includes work initiated by the Terrestrial and Aquatic Environmental Managers (TAEM) now known as CanNorth. TAEM carried out environmental field work in 1988 which involved lake morphometry, fish community, and fish habitat assessments in Tower Lake, Island Lake, Bead Lake, Middle Lake and Unnamed Lake. TAEM also conducted a comprehensive study of the Komis project area in 1994 and 1995 that included aquatic and terrestrial assessments.

**4.8 Comments on Section 4**

Permits will be required for any future Project exploration or development. To the extent known, there are no other significant factors and risks that may affect access, title, or right or ability to perform work on the Project.

## **5.0 Accessibility, Climate, Local Resources, Infrastructure, and Physiography**

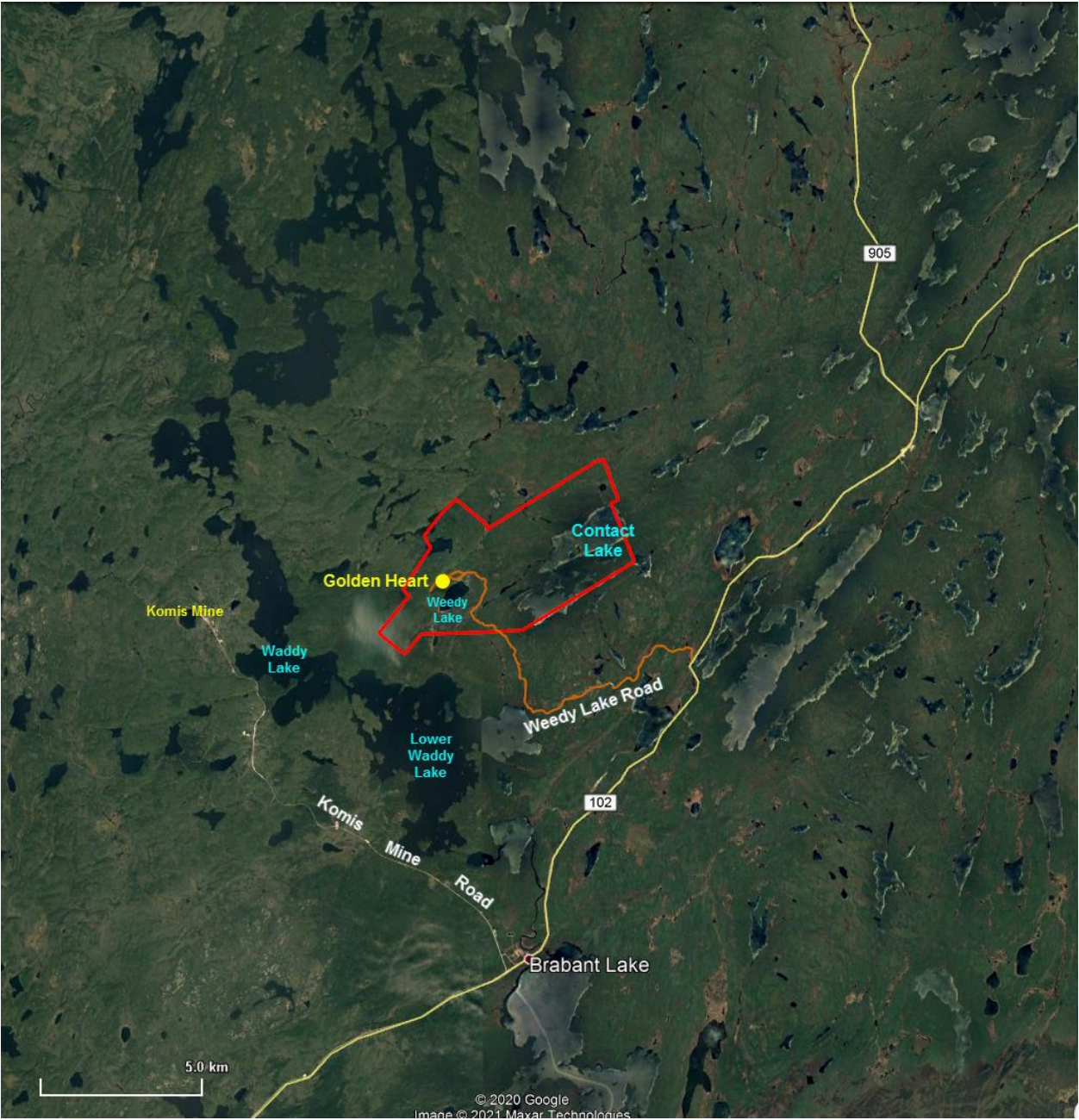
### **5.1 Accessibility**

The Golden Heart Deposit area is located 180 km northeast of La Ronge, SK and approximately 10 kilometres (km) north-northeast of the village of Brabant (Figure 5-1). Weedy Lake is located at 56°13'03" north latitude and 103°47'13" east longitude. The NTS reference is 64 D4.

The project area is accessible by Provincial Highway No. 102 from La Ronge. The Weedy Lake road, constructed in 2013, begins 10 km north of Brabant and extends approximately 14 km to the Property (Figure 5-1). The Golden Heart deposit is located four km northeast of the narrows between Upper and Lower Waddy Lakes, and immediately northwest of Weedy Lake.



Figure 5-1 Satellite Image of Project Area and Access



## **5.2 Climate**

The project area is within the boreal forest of the Canadian Shield, a district with cold winters and warm summers, and with annual temperatures ranging from  $-50^{\circ}\text{C}$  to  $+35^{\circ}\text{C}$ . The climate in the Tower Lake area is classified as cold temperate continental. Annual precipitation is from 40 to 60 centimetres (cm), falling mostly in the summers. Snow begins to accumulate during October and generally persists into April. Lakes in the region are generally frozen-over between December and April each year.

No weather statistics are available for the specifically for the Project area, but weather statistics are available for La Ronge, located 200 km to the southwest at the same approximate elevation. The average annual temperature is  $-0.1^{\circ}\text{C}$ , with an average daily maximum of  $23.0^{\circ}\text{C}$  in July and an average daily minimum of  $-25.8^{\circ}\text{C}$  in January. Average annual precipitation for La Ronge is 483.8 millimetres (mm), which is comprised of 348.8 mm of rainfall and 148.4 cm of snowfall.

Exploration work, specifically diamond drilling is best performed from mid-January to the end of March when ice conditions are suitable to allow diamond drilling on Tower Lake and the large swamp area to the east.

## **5.3 Local Resources and Infrastructure**

The nearest large town is La Ronge, a major service centre for northern Saskatchewan. It has a population of approximately 2,700 (June 2017 Statistics Canada census) with a further 3,000 in outlying communities. It has a paved 1524 m runway offering scheduled and charter air services.

Access to La Ronge is via Highway 2 from Prince Albert. North of La Ronge, Highway 102 is paved for 30 km past the town and then continues as an all-weather, maintained gravel road to the uranium mines in the northern part of the province.

A 25 kV hydro distribution line, belonging to SaskPower, extends northward along Highway 102 from La Ronge to Missinipe (94 km southwest of Brabant). At present, there is no available commercial load from this line. Another major power line, the 138 kV Island Falls to Points North transmission line, extends from the Island Falls hydroelectric generation plant through the general project area, crossing Highway 102 at Lindsey Lake 12 km southwest of Brabant. Commercial distribution is available from this line from SaskPower.

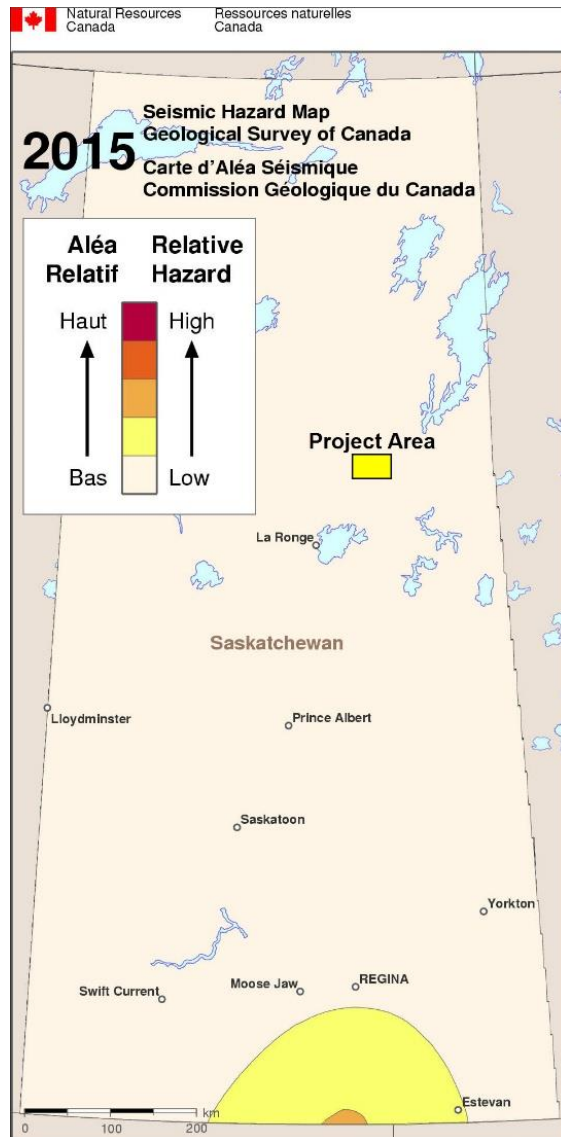
## **5.4 Physiography**

The Project lies in a glaciated terrain with topography typical of that found elsewhere in the Canadian Shield. It is characterized by low rolling hills interspersed with numerous lakes and muskegs. Drainage is south-westerly toward the Churchill River. Bedrock exposure, which varies from less than 1% to greater than 5%, is often masked by a thick cover of moss, muskegs, and/or glacial deposits. Elevations in the area range from 415 to 460 m above mean sea level with local relief on the order of a few tens of metres.

Vegetation in the Golden Heart area is typical of coniferous boreal forests elsewhere in northern Canada. Beyond this, GeoSim has little information concerning the native vegetation of the area.

## **5.5 Seismicity**

The project area is located in central Saskatchewan, one of the least seismically active areas in Canada (Figure 5-2).

**Figure 5-2 Seismic Hazard Map - Saskatchewan**

## 5.6 Comments on Section 5

The accessibility, climate, physiography and seismic situation of the Project area are sufficiently well understood to allow for exploration and preliminary study engineering and project design.

## 6.0 History

The first reported work in the area was carried out by J.J. Alcock in 1938. Subsequently, in 1948, A.R. Byers published a report and a 1 inch to 1 mile geological map of the Waddy Lake area. In 1986, C.T. Harper of Saskatchewan Energy and Mines completed geological mapping of the area at a scale of 1:20,000.

The Greater Waddy Lake area was first explored by prospectors from Consolidated Mining and Smelting (now Teck Cominco Ltd.) in the late 1930's. After mapping the Waddy Lake area by government geologists (A.R. Byers) in 1948, the area became the focus of exploration efforts by the industry. This early phase of exploration work uncovered a good number of showings, but most notable was the discovery of the Komis deposit by E. Partridge in 1958.

The most intensive period of gold exploration within the La Ronge gold belt took place in the 1980's, triggered by increased gold prices and a favourable tax regime (flow-through shares). During this period the ore deposits at Star Lake (produced 76,947 ounces at an average grade of 14.7 grams per metric tonne (g/t) gold), Jolu (produced 203,751 ounces at an average grade of 14.4 g/t gold), and Jasper (produced 82,697 ounces at an average grade of 18.8 g/t gold) were discovered and mined. Other showings that received significant exploration work were Wedge Lake, Twin Lake, Weedy Lake, Tower Lake, Komis, EP Zone, and Preview Lake, the latter being located on the southern extension of the belt. The most active companies were SMDC (predecessor to Cameco), Royex, and Golden Rule Ltd.

The last and probably most important discovery was the Contact Lake gold deposit in 1989, located 50 km north of La Ronge. The decision to put this deposit into production was made in April 1994 and it produced 188,210 ounces at an average grade of 8.0 g/t gold.

During the winter of 1993-4, the Komis deposit was evaluated by underground test mining. An EIS was submitted to the authorities in fall of 1995 and production commenced in 1996. Due to grade and reserve problems, production was suspended in spring of 1997, after the production of 26,885 ounces of gold.

From the mid-1990s onward, a few exploration companies have continued gold exploration in the belt, most notably Golden Band Resources Inc.



## 6.1 Property History

The Golden Heart Deposit area is the host to three areas of known gold mineralization: The Golden Heart deposit, the A Zone, and the D Zone. The Golden Heart deposit (known previously as the Weedy Lake B and C Zones) and the A Zone were first discovered in 1948 by Cominco prospectors. Since then, these zones have undergone several campaigns of exploration, most notably by Golden Rule Resources (now CDG Investments Inc.) between 1982 and 1997. Golden Band Resources entered into an option agreement in March 2002 with Tyler Resources Inc. to earn 50% of Tyler's interest (a 25.05% interest). Upon completion of the option terms, Tyler may convert its remaining 25.05% interest to a 0.5% NSR royalty (with the 25.05% interest being acquired by the Company) or continue to participate in the joint venture. Golden Band acquired 49.9% of the Golden Heart property from CDG Investments (the former Golden Rule Resources Ltd.) and Cameco in April 2002.

The result of this exploration culminated in the definition of the Golden Heart deposit, which was tested by 145 core holes. The exploration activities to date are summarized below:

1937: F.J. Alcock of the Geological Survey of Canada maps the Waddy Lake district at a scale of 1"=2 miles, published in 1938 at a scale of 1"= 4 miles as Map 528A.

1948-1955: In 1948, gold was discovered by prospectors Lozo and Bryenton in the employ of Cominco at Weedy Lake, and the Keewatin claims are staked. Surface work consisted of prospecting, trenching, and 9 drillholes which led to the definition of the A, B, and C zones. The results were not sufficiently encouraging to warrant further work and the claims were allowed to lapse.

1949: A.R. Byers completed preliminary geological investigations for the Saskatchewan Department of Mineral Resources in the area, with mapping completed at 1"=½ mile.

1961 Hydra Explorations Ltd. prospected the area.

1979: Staked by Golden Rule Resources Ltd. as CBS 6432.

1980: Golden Rule carried out 14.9 line-km of line cutting on 100 m centres; ground magnetometer and VLF-EM surveys at 25 m intervals; A, B and C zones relocated, stripped and re-sampled; soil and lithogeochemical sampling at 25 m intervals; reconnaissance geological mapping.

1981: Golden Rule completed 28 km of line cutting on 100 m-spaced lines; VLF-EM and magnetometer surveys; additional trenching, chip sampling and detailed mapping of A, B and C zones; soil and lithogeochemical sampling at 25 m intervals on grid; detailed prospecting in vicinity of B Zone.

1982: Golden Rule carried out Infill line cutting on 50 m gridlines in vicinity of A, B and C zones; 1:1,000-scale detailed geological mapping of A and B zones; 20 km of frequency domain IP over A, B, and C Zones; detailed geological mapping, trenching and stripping northeast of B Zone; additional hand trenching and detailed channel sampling of A, B and C zones; detailed soil geochemistry survey on previously detected anomalies; Wacker basal till sampling in selected areas; 13 diamond-drill holes (DDH) (W82-1 to 13) testing A, B and C zones.

1982-1984: Golden Rule completed 42 core holes totalling 4,688 m: 378 m on A Zone; 3,339 m on B Zone; 506 m on C Zone; 466 m drilled on additional targets.

1983: Golden Rule carried out in-fill Wacker basal till sampling; thin section report (29 rocks, Vancouver Petrographics); 17 core holes completed to delineate B Zone (W83-14 to 30); drilling confirmed the relationship of the gold mineralization with shear structures but the actual geometry of the controlling structures was not recognized due to post-mineralization structural disruption.

CBS 6432 was converted to ML 5332;

1984: Photogrammetry and preparation of a 1:2,500-scale contoured orthograph with 2 m contour intervals; 1:20,000-scale colour air photos, 1:1,000-scale base map of A, B and C zone mineralization; detailed soil geochemistry, trenching and re-mapping of A, B and C zones; thin section report (J. Casey, SMDC); precise survey control of DDH collars; 12 core holes (DH-31 to 42, 1,349 m) on A, B, C zones and Wacker till anomalies; report prepared: Preliminary Pit Design, Ore Reserves and Geological Reserve by Placer Development Limited.

1987: Tyler Resources Inc. optioned the property and commenced exploration: grid refurbishing and new baseline cut; precise survey of drillhole collars; prospecting, mapping and trenching in the A, B, and D zones; diamond drilling on the B and D zones (12 DDH: 2,000 m, W87-43 to 87-54); petrographic report on 50 core samples.

Three major drill campaigns by Golden Rule Resources and Tyler Resources totalled 46 core holes (10,844 metres).

1988: Evaluation of existing geophysical data with magnetic contours and IP/resistivity anomalies in Golden Heart Zone compiled at 1:1,000-scale; 19 DDH (W88-55 to 73: 4,530 m) explored for subsurface extensions of the A Zone (2 holes) and tested the B Zone (17 holes); drilling in the B Zone identified a northeast-plunging ore shoot referred to as the Golden Heart Zone; the deposit was outlined down-plunge to 300 m depth from surface.

1989: Golden Rule completed 15 core holes (W89-74 to 88: 4,314 m) tested the down-plunge extension of Golden Heart zone and conducted in-fill drilling at intermediate depths; the overall grade of intersections encountered by drilling were lower than those obtained by earlier drilling, although the zones appeared to maintain the same thickness and continuity.

1995-96: Two additional Golden Rule drilling campaigns, the first of 29 holes totalled 6,139.4 metres, and the second with 27 holes, for 6,019.4 metres. 56 DDH property-wide totalled 12,030.7 m; 29 DDH (W95-90 to 96-118: 6,139 m) tested Golden Heart deposit at depth, along strike and down-plunge to increase the confidence of previously estimated in-situ gold reserves.

Total metres drilled between 1882 and 1996 totaled 27,745.83 m in 145 holes Table 6-1. Total expenses on the property to May 1996 amounted to \$3,789,700.

**Table 6-1 Drilling Summary 1982-1996**

Year	Operator	Number of Holes	Total m	m Assayed	% Assayed
1982	Golden Rule	13	1,280.90	1,004.85	78.4%
1983	Golden Rule	18	2,309.70	2,040.60	88.3%
1984	Golden Rule	12	1,223.80	950.00	77.6%
1987	Tyler Resources	12	2,000.63	1,725.19	86.2%
1988	Tyler Resources	19	4,524.00	3,511.45	77.6%
1989	Golden Rule	15	4,314.40	2,060.00	47.7%
1995	Golden Rule	11	2,275.90	1,105.55	48.6%
1996	Golden Rule	47	9,816.50	4,113.45	41.9%
<b>Total</b>		<b>147</b>	<b>27,745.83</b>	<b>16,511.09</b>	<b>59.5%</b>

## 6.2 Production

In February 2012, Golden Band received Ministerial approval pursuant to the Environmental Assessment Act to develop the Golden Heart mine. The Ministerial approval was based on a National Instrument 43-101 measured and indicated resource of 492,800 tonnes grading 6.60 g/t gold, as well as, a related environmental impact

statement prepared and submitted by the Company. During 2013, Golden Band applied for the applicable construction permits and the road to Golden Heart was started in May of 2013 and completed in September the same year. The road is about 14 kilometres in length. Work on the property was started in August, production began in October, and ore shipments to the mill began in early November.

On December 9, 2013, Golden Band announced that it was suspending all mining operations, including Golden Heart due to high operating costs, declining gold prices and lower than anticipated ore grades.

Golden Band's MD&A report for the year ended April 30, 2014 stated that "Production from open pit operations at Golden Heart totalled just under 25,254 tonnes of material with a head grade of about 3.2 g/t gold".

## **7.0 Geological Setting and Mineralization**

### **7.1 Regional Geology**

The greater Waddy Lake area was geologically mapped by C.T. Harper from the Saskatchewan Geological Survey in 1984-85. (Saskatchewan Geological Survey Summary of Investigations, 1985, Miscellaneous Report 85-4).

During the late Wisconsin-era glaciation (25,000 to 10,000 years before present), northern Saskatchewan was subjected to several continental ice advances. The most recent ice movement through this region during Quaternary glaciation was generally from northeast to southwest. Glacial deposits commonly comprise a thin veneer of till, generally less than three metres thick. Glacial Lake Agassiz formerly covered wide parts of the La Ronge Belt and, as a result, low-lying areas below 430 m are now likely to be covered with lacustrine clays and silts. Both the till and the lacustrine sediments have been eroded to fresh bedrock in places by glaciofluvial or fluvial channels. The Quaternary geology of the Waddy Lake district was mapped by Janet Campbell (Saskatchewan Geological Survey Summary of Investigations, 1985), and by B.T. Schreiner (Saskatchewan Energy & Mines, Report 221, 1984).

Bedrock exposure in the area, which varies from less than 1% to greater than 5%, is often masked by a thick cover of moss.

The greater Waddy Lake project area, shown in Figure 7-1, is located in the northern portion of the Central Metavolcanic Belt of the La Ronge Domain, a granite-greenstone belt in the Saskatchewan segment of the ca. 1.9-1.8 billion years (Ga) Trans-Hudson Orogen (Lafrance and Heaman 2004). The Saskatchewan segment of the Trans-Hudson Orogen comprises:

- ca. 2.1-1.9 Ga continental margin sequence (Wollaston Domain),
- ca. 1.91-1.87 Ga marginal sedimentary basin and arc-root complex (Rottenstone Domain),
- ca. 1.91-1.87 Ga granite-greenstone arcs (La Ronge, Glennie, Flin Flon domains),
- ca. 1.85-1.84 Ga oceanic metasedimentary basin (Kisseynew Domain) (Hoffman, 1988; Lewry et al., 1990; Andsell et al., 1995; Corrigan et al., 1998).

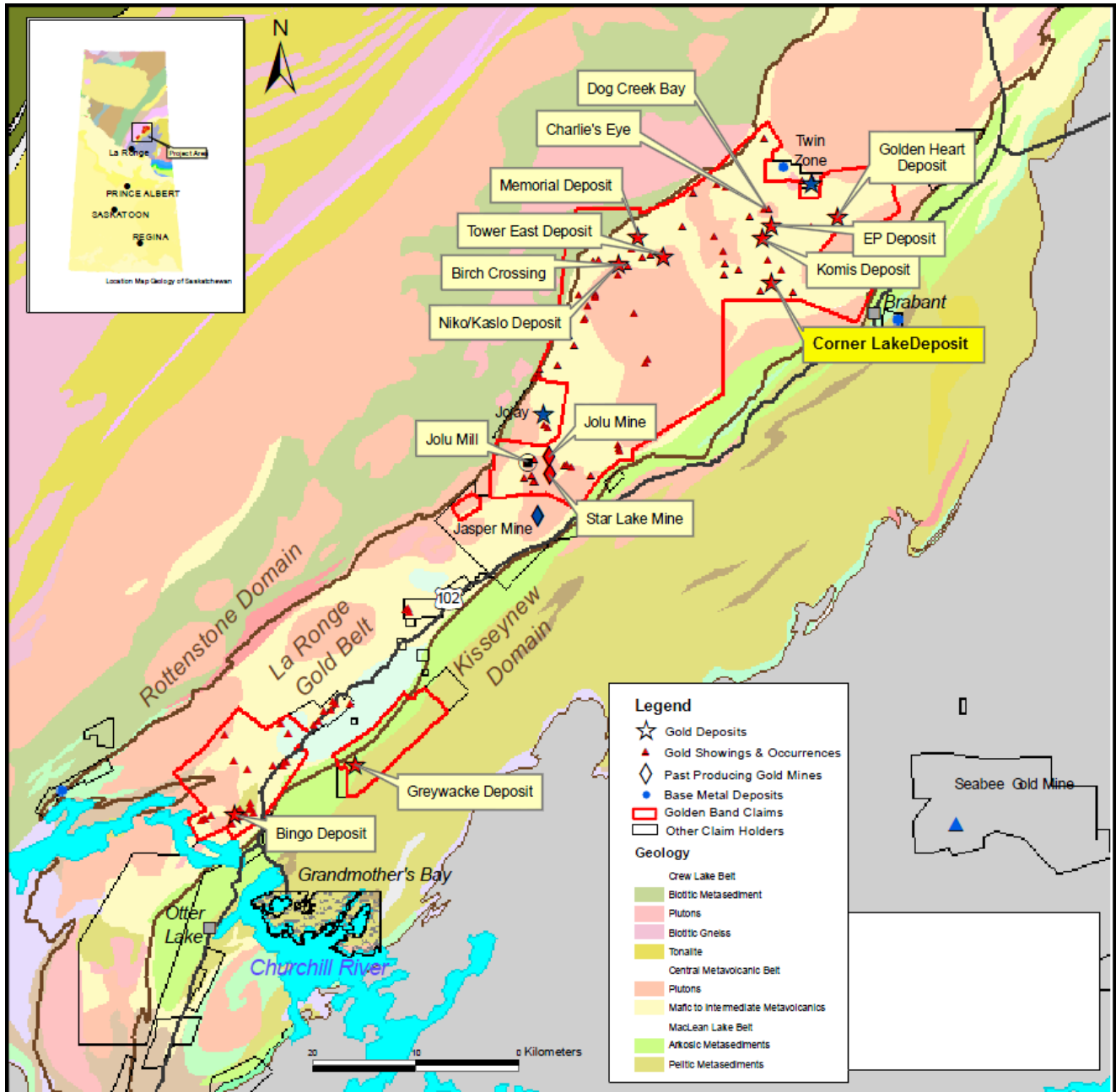
The La Ronge Domain consists of an older sequence of back-arc ultramafic and mafic volcanic rocks, the >1.88 Ga Lawrence Point Volcanic Assemblage (Maxeiner, 1997), and a younger sequence of juvenile arc volcanic rocks of intermediate to felsic composition, the ca. 1.882-1.876 Ga Reed Lake Volcanic Assemblage (Maxeiner, 1999; Maxeiner et al. 2001).

The younger Reed Lake Assemblage was deposited during intraoceanic subduction on the older Lawrence Point Assemblage substrate (Lafrance and Heaman 2004). Magmas generated above the subduction zone crystallized as ca. 1.87 Ga dioritic to granitic plutons in the root of the arc. Erosion of the arc began at approximately 1.87 Ga, supplying psammitic and pelitic sediments to the marginal basins flanking the arc-subduction zone to the north (Rottenstone Domain-Crew Lake Belt) and in the south to the Duck Lake Sedimentary Assemblage (Maxeiner, 1997, 1999; Maxeiner et al., 2001).

Subduction beneath the La Ronge arc ended by approximately 1.861 Ga and the arc was accreted to the Hearne Craton (Andsell et al., 1995). A new, west-dipping, subduction zone developed beneath the La Ronge-Hearne continental margin. This resulted in subduction-generated magmas that crystallized across the Rottenstone and Wathaman domain boundary, notably the 1.86-1.85 Ga Wathaman Batholith, and as cogenetic calc-alkaline dioritic to granitic plutons in the La Ronge Domain (e.g. Brindson Lake Pluton, Tower Lake property; Fumerton et al., 1984; Meyer et al., 1992; Corrigan et al., 2001).

Continental-arc magmatism ended approximately 1.85 Ga and the arc was subsequently eroded from approximately 1.85-1.84 Ga. During the ca. 1.83-1.80 Ga collisional phase of the Trans Hudson Orogeny (Bickford et al., 1990), the La Ronge-Hearne craton collided with the Archean Saskatchewan and Superior cratons. This was the last significant event that influenced the introduction of gold within the La Ronge Domain and specifically within the Greater Waddy Lake project area. All lithotectonic domains of the Trans-Hudson Orogen were penetratively deformed during this final collisional event (Lafrance and Heaman, 2004).

**Figure 7-1 Regional Geology**



## 7.2 Surficial Geology

The Quaternary geology of the Waddy Lake district has been well mapped and described in considerable detail by Janet Campbell (Sask. Geological Survey Summary of Investigations, 1985), and by B.T. Schreiner (Saskatchewan Energy & Mines, Report 221, 1984).

During the Wisconsin glaciation era, northern Saskatchewan was subject to several continental ice advances moving in a northeast-south-westerly direction. The lower till attributable to the last major ice advance is commonly found throughout the La Ronge Domain except where it has been eroded in glaciofluvial channels. In the Waddy Lake area, a thick blanket of lacustrine sediments is present below an elevation of approximately 425 m, which marks the upper limit of proglacial Lake Agassiz in the region. At several locations in the Golden Heart area, an ablation till is also present at the surface which is related to a minor re-advance (Cree Lake re-advance) during the final stages of glaciation which served to blanket, till covered topographic lows and strip topographic highs of till cover.

Since much of the Golden Heart area is blanketed by ablation till, effective drift prospecting in the area is hindered. The ablation till, which is difficult to differentiate from the 'lower till', was more influenced by local topography and now presents a complex environment in which to interpret gold-in-till geochemical anomalies. For the interpretation of gold-in-till anomalies, it is very important to differentiate between these two tills, since the latter may create a false head if no new gold was eroded from the source during the re-advance. The main effect of the upper till is a reshaping of the primary till fan. Backhoe sampling below this layer of outwash sand/ablation till, however, has found the lodgement till to be very patchy, but of local origin.

In 1982-83, Golden Rule carried out a program of basal till sampling using a Wacker Drill. In total, 472 samples were collected from 458 holes which totalled 2,491 m of drilling. Shortcomings of the Wacker overburden sampling technique are an inability to drill through boulders and the relatively small sample size. The results, however, were excellent and showed several clusters of anomalous gold (up to 968 parts per billion (ppb) gold, several of them unsourced. For example, on Line 8+50W between 180 and 210 m N, a cluster of three samples gives values of 40, 416, and 968 ppb gold from samples at a depth of <1 m. On Line 1800W, two samples give values of 904 and 36 ppb, the high value from a depth of 19.5 m. The success of this program in identifying anomalies in both shallow and in relatively deep overburden indicates that a basal till sampling program utilizing a small, mobile RC drill would be successful.



## **7.3 Property Geology**

The geology of the area consists of variably deformed mafic volcanics, debris flows, gabbros, and mafic schists, which have been intruded by two small diorite/granodiorite bodies (the 'A' zone stock and the >B= Zone stock; Lehnert-Thiel, et al., 2002).

The Property is situated within the Byers Mineral Belt, a tectonic zone delimited by a regional-scale structural break referred to as the Byers Tectonic Zone which extends in an east-west trend for 26 km across the northern part of the La Ronge Greenstone Belt. The 100 to 500+ metre-wide structural zone, which also hosts the Tower East, Kaslo, Komis, and Corner Lake gold deposits, forms a tectonic zone of polyphase deformation which appears to have influenced the regional emplacement of a number of gold-bearing porphyritic intrusive stocks and plugs along its trend.

### **7.3.1 Lithologies**

Northwest of the Byers Tectonic Zone, the property is underlain primarily by pillowed andesites that exhibit a gradational change to volcanoclastics closer to the "A" Zone intrusive. Southeast of the Byers Tectonic Zone, the volcanics are generally more felsic in composition and finer grained, more intercalated tuffaceous units are present, and one discontinuous band of coarse conglomerate was mapped. Depositional textures are not as well-preserved south of the Byers Fault due to the degree of metamorphism and because the intensity of shear-type deformation appears to increase toward Weedy Lake.

#### **Volcanic Rocks**

A northeast trending assemblage of primarily intermediate volcanic flows and pyroclastic rocks occupies the central portion of the Weedy Lake property east of the Byers fault. Flows are typically dark green, aphanitic to very fine-grained and predominantly massive. Locally, they may be finely laminated. A pervasive very weak to weak foliation occurs throughout these rocks. Pyroclastic rocks are grey to dark grey, and occasionally greenish-grey. They consist of finely laminated ash tuffs and crystal or lithic lapilli tuffs. Crystal tuffs are characterized by 1-3 millimetre long white plagioclase phenocrysts.

Mafic dykes of diabasic composition intrude the volcanic rocks. These dykes are grey to dark grey with an aphanitic to very fine-grained matrix. Phenocrysts of probable hornblende comprise 10-15% of the rock. These dykes are thought to be penecontemporaneous with volcanic activity.

## **Intrusive Rocks**

Intruding the volcanic assemblage are plutons of diorite and granodiorite composition. Diorite is greenish-grey to grey, occasionally dark grey, fine to medium-grained, equigranular to porphyritic and massive. In part the diorite is weakly foliated, especially at or near the contact with the volcanic rocks. Foliation tends to become stronger with an increase in the intensity of shearing. Alteration also increases in the vicinity of shear zones.

Granodiorite forms an oval shaped pluton on the westerly side of the volcanics. It is typically pinkish-grey to grey, medium to coarse-grained, equigranular and massive. Locally, it contains diorite and quartz diorite phases. Late stage feldspar-porphyry dykes cross-cut both dioritic and volcanic rocks. They generally are buff to very light grey and siliceous. Plagioclase phenocrysts, 2-4 millimetres in size, constitute approximately 20-25% of the rock. These dykes have a northerly trend that appears to be sub-parallel to the trend of gold mineralization.

### **7.3.2 Structural Geology**

The area is cross cut by three shear zones which have juxtaposed the various units and are all likely splays or parts of the Byers Tectonic Zone which in this area is near its north-eastern terminus. The southeast fault lies within Weedy Lake, trends NNE, dips steeply to the NW, and is represented by mafic schist. Well-developed slickensides within this unit plunge 58° to the north indicating normal movement and likely postdates the gold mineralization, at least the latest movement does.

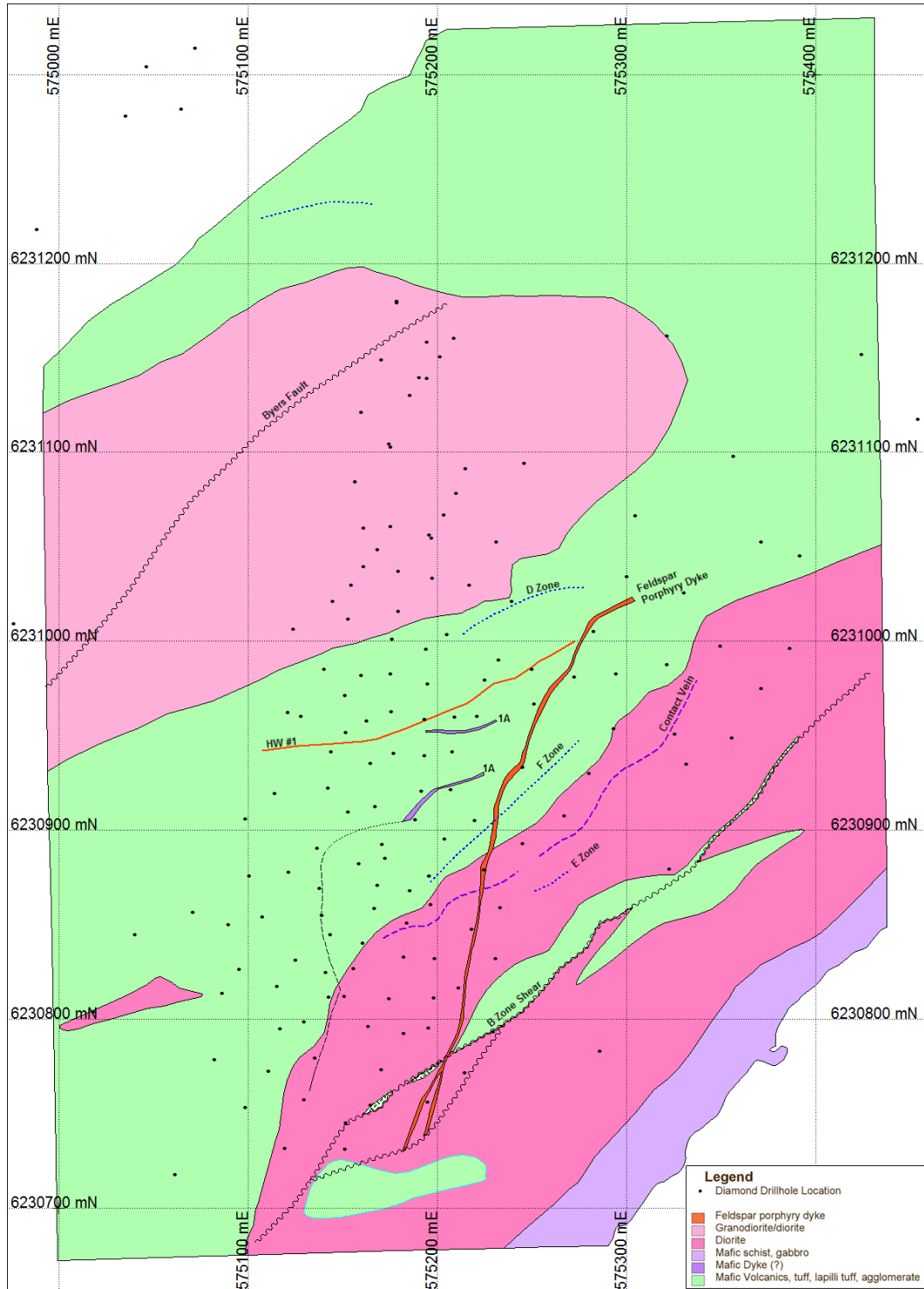
The second fault, the B Zone shear, is defined by a zone of brittle deformation, trending about northeast, with a steep north-westerly dip, entirely with the B Zone Stock. The shear zone is defined by a narrow, <5 m-wide zone of deformation. Along its southeast margin is a massive, milky white quartz vein (0.5 - 0.8 m wide) that can be traced on surface for over 140 m. The northwest margin of the shear zone is poorly defined but is manifested by a >25 m-wide zone of quartz veining and strongly potassically altered (biotite and potassic feldspar), silicified and rusty diorite/tonalite. The quartz veins generally trend about 050° and dip steeply to the northwest with orthogonal veins that commonly trend about 010° and 090°. In addition, there is a set of westerly trending shallow dipping (<30° N) quartz veins as part of this stockwork. This shear zone is host to the B Zone or Golden Heart deposit.

The third shear zone lies about 65 m to the NW of and parallel to the B Zone shear and defines the boundary between the B Zone Stock and mafic volcanics. The shear zone trends about 050° and dips near vertical to steeply west. It is defined by a 20 to 30 m zone of brittle-deformed diorite and mafic volcanics which are intruded by a stockwork of narrow (<0.5 m)

quartz veins. The wall rocks have undergone pervasive sulphidic and potassic (biotite and K feldspar) alteration. As in the >B= Zone shear, the veins trend to the NE (030° to 050°) and dip steeply (~55°) to the NW. There are also orthogonal veins which trend to the north and west as well as a series of westerly trending, shallowly dipping quartz veins. A well-developed mineral lineation plunges steeply to the NW and appears to indicate a reverse dextral movement. This zone, formerly known as the 'C' Zone, is now termed the Contact Zone and is part of the Golden Heart deposit.

Property geology in is illustrated in Figure 7-2.

**Figure 7-2 Local Geology**



### 7.3.3 Mineralization

The Golden Heart deposit is hosted by a sheared and altered diorite. Gold occurs as both free gold in quartz veins and as gold particles enclosed by pyrite and silicates. The mineralization is proximal to a prominent structural feature known as the B-Zone Shear that transects the property in a north-north-easterly direction.

The shear itself appears to be an imbricate and bifurcating series of shears that strike north-easterly with moderate to steep dips to the northwest. In general, there appears to be good correlation between intensity of alteration and intensity of shearing.

Alteration consists predominantly of silicification and pyritization. Chlorite, albite, carbonate, and hematite can also be present. Gold values tend to be higher in the more strongly altered zones. Other sulphide minerals occurring in trace to minor amounts include chalcopyrite, sphalerite, and galena.

The distribution of gold tends to be irregular and confined to silicified and pyritized diorite proximal to the B-Zone Shear. Originally, mineralization was described as occurring in two broad silicified envelope zones referred to as OZ-1 and OZ-2. These zones either occur individually or possibly coalesce into a single zone. The OZ-1 zone was described as being more distal from the B-Zone Shear. Here, the alteration is not as well developed. Pyrite content, although elevated to about 3-5%, is not as high as in OZ-2 where it can be present in amounts up to 15%. The OZ-2 zone is located adjacent to or within the Hanging Wall Shear (HWSH). Silicification tends to be more intense and there is an increase in the amount of quartz veining. Another mineralized zone occurring in the Footwall below the B-Zone Shear was referred to as the FW Zone.

Previous drilling programs identified three quartz vein systems in the hanging wall. Two of these (HW#1 and HW#2) occur within volcanic rocks. The HW#1 has a northeasterly strike with a steep dip to the northwest. Here, a quartz vein or veins associated with shearing generally contains abundant visible gold. A second vein system in the volcanics (HW#2) is less well defined but, on average, contains the highest gold values of all the mineralized zones. The third quartz vein system (Contact) occurs at the diorite-volcanic contact. Here, a set of quartz veins is associated with a minor shear zone, 0.5 to 3.0 metres wide. The grade of this zone is similar to the HW#1 Zone but has more tonnage potential.

Similar vein systems are present in the diorite more proximal to and within the B-zone shear. However, identification and correlation of these veins is more difficult as there are no unique features to distinguish one quartz vein from another (Butrenchuk, 1997).

The Golden Heart deposit has been well defined by drilling over a strike length of 300 metres, vertically to a depth of 250 metres (the deepest holes being 375 m), and down-plunge to an average of 350 m. The deposit exhibits a northeast plunge along a plane striking 050° and dipping 70° to 85° northwest.

The northeast end of the Main Zone (OZ-1 to OZ-4) remains open at depth and there is good potential for the discovery of additional tonnage. Most of the higher-grade, narrow shears and quartz veins remain open both on strike and to depth and warrant further investigation by drilling.

The sequence of events (after Fraser, 1997) of gold emplacement in the Byers Belt is interpreted as follows:

- Intrusion of a dioritic to gabbroic suite of rocks as part of the polyphase emplacement of the various plutons (such as the Nistoassini and Contact Batholiths) in the Byers Belt area.
- High-level felsic intrusive activity along the outer phase of the pluton; accompanied by brittle fracturing, albitization and hydrothermal alteration.
- Regional deformation (D<sub>1</sub>); local brittle fracturing; formation of Byers fault lineament along the outer margins of adjacent plutons.
- Emplacement of auriferous quartz/quartz-calcite veinlets, pyrite, biotite, interstitial carbonate (dolomite), muscovite, albite, chalcopryrite; accompanied by pyrite formation (pyrite after magnetite), silica-biotite-actinolite-magnesian chlorite flooding-dominated wall rock alteration (hydrothermal-sulphidic-potassic alteration) and introduction of gold.
- Regional deformation (D<sub>2</sub>); formation of foliation, local mylonitic fabric, shearing along the Byers Fault.
- Metamorphism (M<sub>1</sub>); lower amphibolite facies, static recrystallization of sulphides, gold, carbonates, and most silicates.
- Brittle deformation (D<sub>3</sub>); formation of the present open-spaced structural characteristics of the Byers Fault; accompanied by retrograde greenschist facies metamorphism (M<sub>2</sub>); formation of fracture controlled retrograde alteration assemblage (deep oxidation), including hematite, goethite, bornite, ferroan chlorite, and carbonate.

## **7.4 Comments on Section 7**

The regional and deposit-scale geology and controls on mineralization of the Golden Heart gold deposit are sufficiently well understood to permit the construction of geological models and estimation of Mineral Resources.

## **8.0 Deposit Types**

The Golden Heart Gold Deposit is generally classified as shear-hosted, mesothermal gold deposits.

The mineralization is related to late-stage, upper level or sub-volcanic intrusive events occurring near the margins of a larger multi-phase batholith of predominantly granodioritic composition that, in turn, is a late-stage event of the Hudsonian Orogeny. Gold-sulphide mineralization within these intrusives commonly occurs as moderately to steeply dipping, steeply plunging, discrete mineralized zones of disseminated 'free' gold intimately associated with increased levels of pyritization (3-10%), albitization, strong silicification, and quartz/quartz-carbonate veins or stockworks.

Although the gold-sulphide mineralization is spatially related to broad zones of polyphase deformation and possibly folding, the individual zones do not appear to be directly controlled by discrete faults or shears. The gold mineralization was emplaced early in the geological sequence of events and is related to the waning stages of the plutonic cycle and controlled by the associated pervasive brittle deformation and hydrothermal activity.

At least seven shear zones have been identified which have quartz veining and gold mineralization. These mineralized shears pre-date the last movement on the Byers Tectonic Zone and are sub-parallel to, and located on, both sides of the fault. They are considered to represent earlier movement along the same zone of crustal weakness.

## **8.1 Deposit Models**

Two groups of gold occurrences have been noted in the La Ronge Domain and specifically in the Greater Waddy Lake district (Lafrance and Heaman, 2004).

Group I gold occurrences include the Komis gold deposit and consist of single quartz veins or swarms of quartz veins having extensive biotite-pyrite-carbonate alteration haloes that are up to 15 times as wide as the widths of the single quartz veins. At the Komis gold deposit, single quartz veins and swarms of quartz veins cut through mafic volcanic rocks and the east-striking dykes. It has been interpreted that the dykes and the northwest-striking volcanic host rocks were in the strain shadow of the Round Lake stock during the development of regional ENE-striking S2 foliation. Tensile fractures opened in the volcanic rocks and dykes, hydrothermal fluids flowed into the fractures and quartz crystallized, sealing the fractures.

Group II gold occurrences are shear-hosted mineralization including the Golden Heart and Corner Lake gold deposits. Quartz veins within the shears at both gold deposits have been



classified as extensional veins that predate the shearing. Hence these veins are similar to the Group I veins discussed above but they have been overprinted by the shear zones.

Throughout the Greater Waddy Lake district, gold occurs in quartz veins and in pyritized wall rocks of the quartz veins. The similar mineralization style and upper greenschist to amphibolite grade metamorphism associated with the alteration of numerous gold occurrences throughout the Greater Waddy Lake district suggests gold was introduced during a regional, hypozonal, mineralizing event. Furthermore, the similarity of the Group I and Group II gold occurrences suggest they formed during the same deformation event, specifically the D2 fabrics that formed in the La Ronge Domain during the collision of the Rae-Hearne Craton with the Superior and Saskatchewan cratons (Lewry et al., 1990; Ansdell et al., 1995; Schwerdtner and Côté, 2001).

Lafrance and Heaman (2004) suggested during the collisional event, regional compression across the La Ronge Domain resulted in localized deformation producing reverse and dextral shear zones along lithological contacts between more competent and less competent rock units. Group I gold occurrences were deposited during the development during the regional D2 fabrics, which are locally overprinted by late D2 shear zones that host the Group II gold occurrences.

## **8.2 Comments on Section 8**

The authors consider that a shear-hosted, mesothermal deposit model is an appropriate model for exploration and mineral resource estimation.

## **9.0 Exploration**

In 2002, Golden Band constructed a 15 km access trail from a point 10.5 km north of Brabant to the Weedy Lake area. The trail is suitable for bulldozers and quads but 90% of it would be drivable by 4 wheel drive trucks.

An 11.5 km grid was established over the Golden Heart deposit area that utilized the 1982 tie lines and cross lines. It was found that the trenches and stripped areas reported in earlier work are now largely caved in or grown over. The area was remapped and some sections of the core re-examined. The drill core is stored at the former campsite on the northeast shore of Weedy Lake. Several of the core racks have collapsed rendering access very difficult in those cases. In addition, all of the mineralized intervals from the 1995 and 1996 drilling programs have been removed, presumably for metallurgical testing.

A total of 233 bulk till samples were taken from the Weedy Lake area, of which 38 were taken from the access trail between Weedy Lake and Highway 102. Several anomalous samples were identified; however they were difficult to evaluate due to the post glacial events overprinting the till. After the retreat of the ice, the Weedy Lake area was subject to flooding by Glacial Lake Agassiz. The critical elevation range is between 420 and 450 m ASL which marks the upper limit of the flooding during the main Lake Agassiz phase. In the Weedy Lake area, the till covered basement ridges in that elevation range were swept clean by wave action of Lake Agassiz, producing raised beaches and outcropping bedrock. Below that elevation, extensive lacustrine silt and clay deposits were created covering the local till deposits. These clay and silt deposits can exceed tens of metres in thickness in the valleys between the bedrock ridges. Almost all of the samples dug during the 2002 field season fall into this critical elevation range. The pits at the higher elevation range ended up in beach gravel and the lower ones in silt and clay deposits. The 3-metre reach of the back hoe was unable to penetrate through to underlying tills.

## **9.1 Geophysics**

A detailed airborne magnetic and VLF-EM survey totalling 700.3 km of flight lines was completed in June 2012 over the Upper Waddy Lake region for Golden Band Resources Inc. by Tundra Airborne Surveys (Chisholm & Jamieson, 2012). The survey was designed to furnish a high-resolution view of the project and to provide lithological and structural data in an area which has very good government geologic coverage as well as to provide context and guidance for future gold exploration.

Very high resolution orthophoto coloured imagery was sourced from the province of Saskatchewan and provides a strong complement to the magnetic data collected by the airborne survey while existing geologic data was examined for useful data to support the survey interpretation. The geological interpretation was completed by Taiga Consultants Ltd (Taiga) on the combined data set and the interpretation has been shown on an orthophoto base.

It was found that previous government and academic interpretations of the regional geology are for the most part quite accurate. The survey provided additional geological information in areas of limited outcrop. On the large scale, Taiga interprets the geology to be that of three related sub-domains of the Central Magmatic Belt separated by large strike-slip fault structures. These major structures likely represent paleo-physiographic breaks which likely would have been present during the formation of the Central Meta Volcanic Belt and during the deposition of the known gold mineralisation.

The survey accomplished the goals of the company by highlighting the large number of major fault structures which cut through the property cross-cutting the local stratigraphy and provides a basis for an understanding of the litho-structural setting of the known gold deposits and occurrences. The study gives direction as to which areas merit further exploration for new deposits. At the same time the interpretation of the magnetic and supporting data was used to identify the regional geologic context of the immediate property area.

Gold occurrences and deposits in the Waddy Lake gold camp have historically been known to have strong relationship to ENE faults of the Byers Fault and Byers Deformation Zone as well as to young, high level felsic "G3" stocks of the Round Lake Stock family. The E-W felsic dyke corridor which hosts much of the Komis Deposit resources likely is also related to the Byers Fault direction. During this study it was also found that deposits and occurrences have a strong locational relationship with N-S striking faults which cut both the volcanic and intrusive rocks in the area. This is a new conclusion but is based upon the observations of previous exploration workers. The importance of these structures is supported by the fact that the known Komis deposit mineralisation is present in N-S veining and where these veins intersect E-W structures containing felsic dykes.

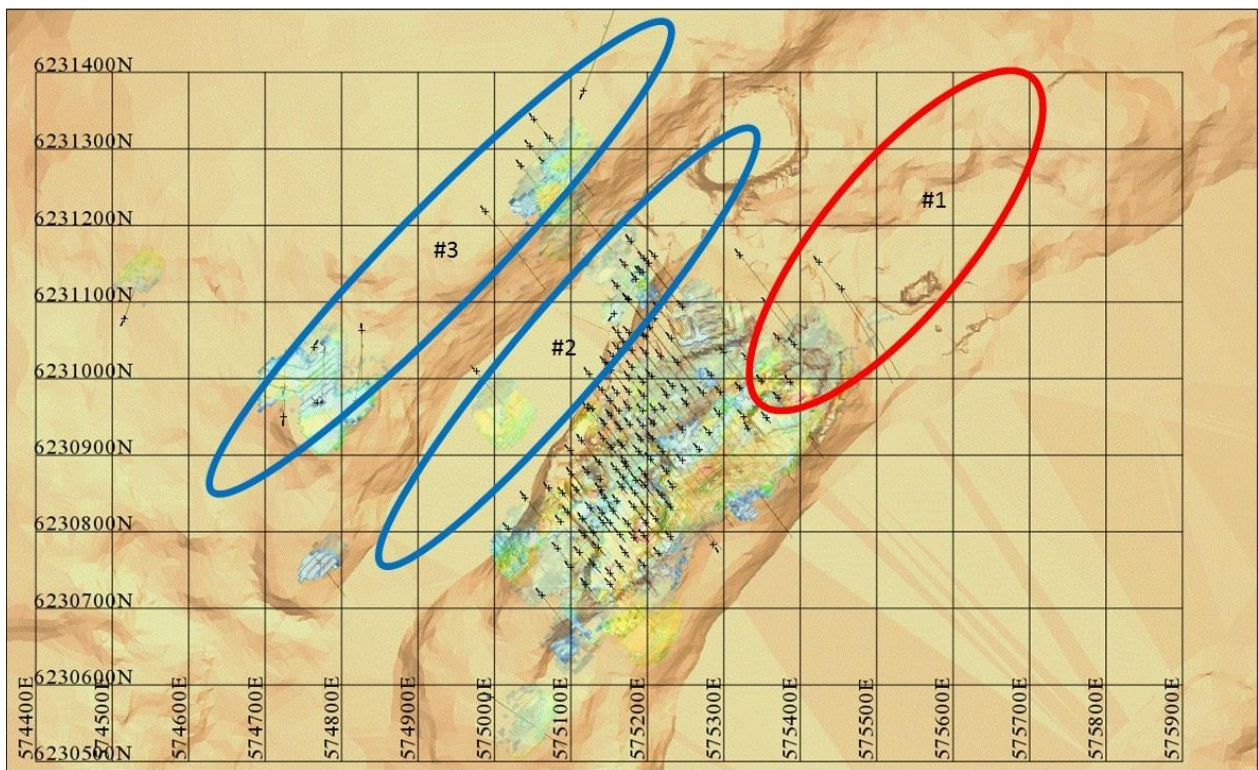
## **9.2 Petrographic Studies**

Three petrographic studies were carried out in 1988 on core samples from the deposit.

### 9.3 Exploration Potential

The area shown in Figure 9-1 below is a plan view of the deposit with topography, existing drill hole locations and existing gold mineralization (shown in coloured blocks) with a UTM grid overlaid. The areas labelled #1, #2 and #3 are areas that are considered to have significant potential for the discovery of additional gold mineralization.

**Figure 9-1 Exploration Drilling Targets**



### 9.4 Comments on Section 9

Interpretation of the exploration data including mapping, petrography, geochemical sampling and geophysics, is sufficiently detailed to support the definition of shear-hosted gold targets on the Property.

## 10.0 Drilling

Between 1982 and 1996, Golden Rule completed 145 core holes totaling 27,690.4 metres. This drilling is described in Section 6 and in previous Technical Reports (Simpson, 2006 and Wong & Hrdy, 2009).

In 2008 Golden Band Resources completed four diamond drill holes, totaling 804.06m, on the property to increase the level of confidence in the continuity of near surface higher-grade gold mineralization in the northeast portion of the deposit. The returned assay results indicate that all four drill-holes intersected gold mineralization with grades and widths that are consistent with the current geological model.

In 2011, Golden Band drilled 16 infill core holes in southwest portion of the deposit totaling 1152m. These drill holes tested the high-grade zones within the preliminary pit design limits to enable the Inferred Resource to be upgraded to the Measured and Indicated category.

In 2020, Matrixset completed 6 core holes were completed in the northeast portion of the deposit in 2020 totaling 1550m.

Locations of the 2008-2011 drill holes are listed in Table 10-1 and displayed in Figure 10-1.

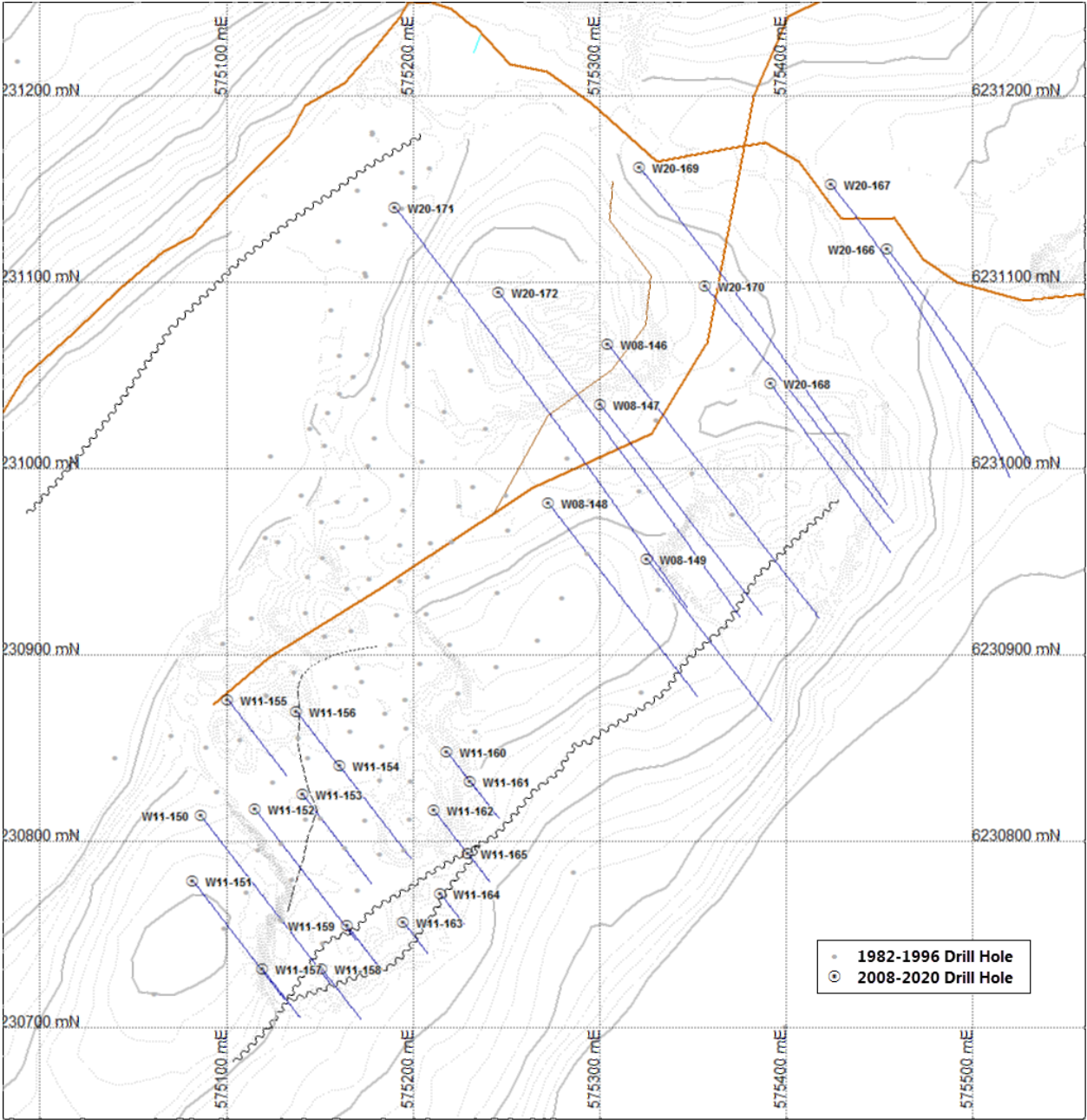
**Table 10-1 Drill Hole Collar Locations**

Hole-ID	East	North	Elev	Length	Col Az	Col Dip
W08-146	575304.88	6231066.27	419.88	252.07	142.38	-45.00
W08-147	575300.68	6231033.84	417.50	200.25	142.38	-45.00
W08-148	575272.80	6230981.07	421.04	200.25	142.38	-50.00
W08-149	575325.78	6230950.81	426.94	151.49	142.38	-45.00
W11-150	575086.47	6230813.29	430.18	175.91	142.38	-50.00
W11-151	575082.35	6230778.21	434.18	124.30	142.38	-50.00
W11-152	575115.36	6230817.00	428.18	137.90	142.38	-50.00
W11-153	575141.15	6230824.64	432.18	102.74	142.38	-55.00
W11-154	575160.75	6230840.11	423.18	96.30	142.38	-50.00
W11-155	575100.91	6230875.60	428.18	81.40	142.38	-50.00
W11-156	575137.84	6230869.12	423.18	60.60	142.38	-50.00
W11-157	575119.49	6230731.17	431.18	50.91	142.38	-50.00
W11-158	575151.47	6230730.97	428.18	50.91	142.38	-50.00
W11-159	575164.88	6230754.28	428.18	50.91	142.38	-50.00
W11-160	575218.52	6230847.54	425.68	44.82	142.38	-50.00
W11-161	575230.90	6230831.86	425.68	38.72	142.38	-50.00
W11-162	575211.30	6230816.39	425.68	41.77	142.38	-50.00
W11-163	575195.31	6230756.04	423.18	32.62	142.38	-50.00

Hole-ID	East	North	Elev	Length	Col Az	Col Dip
W11-164	575214.91	6230771.51	423.18	32.62	142.38	-50.00
W11-165	575229.87	6230792.87	425.68	29.57	142.38	-50.00
W20-166	575454.49	6231117.49	406.48	180.00	142.00	-44.64
W20-167	575424.67	6231151.79	407.51	225.00	142.00	-43.39
W20-168	575391.96	6231044.99	411.88	150.00	142.00	-44.39
W20-169	575321.59	6231161.35	413.68	300.00	142.00	-45.06
W20-170	575356.92	6231097.65	418.73	225.00	142.00	-46.01
W20-171	575190.78	6231139.31	413.17	350.00	142.00	-44.38
W20-172	575246.28	6231093.96	426.23	300.00	142.00	-45.01



Figure 10-1 Drill Hole Layout 2008-2020



## **10.1 Core Recovery**

Core recovery is excellent averaging 98% overall for the drill programs carried out between 2008 and 2020.

## **10.2 Drill Hole Location Surveys**

Tri-City Surveyors of Saskatoon, Saskatchewan have been contracted to survey drill collars upon completion of the various programs. Since 2008 the surveys were completed as a real time GPS survey using a Trimble model SP850 modular GPS receiver serving as a base station. The base station receives data through the L2C code and L5/GLONASS carrier signals and incorporates an integrated 450 MHz radio frequency transmitter and receiver to a Trimble Zephyr model 12 handheld controller/rover unit which captures and records the survey data. Measured accuracies for the survey work are reportedly on the order of  $\pm 1$  cm for x, y and z co-ordinates.

## **10.3 Downhole Surveys**

For historic drilling prior to 2008, downhole deviations were recorded by taking acid test readings at approximate 60m intervals. Tests were also carried out at the base of casing and at the end of the hole.

In 2008, downhole surveys were taken with a Tropari instrument. The spacing was inconsistent but normally a reading was taken below casing and one at the end of the hole. Average spacing below the top reading was about 140m.

In 2011, a Reflex EZ-Shot instrument was used. Most holes had only one or two downhole surveys, the first typically around 11m below the collar. Average spacing below the top measurement was 108m.

In 2022 a Reflex multi-shot instrument was used to take measurements at 3m intervals. Results from these tests showed that only 1 out of the 7 holes (W20-167) had significant deviation, flattening from 43 to 26.5° over 154m and veering slightly in azimuth from 142 to 154°.

## **10.4 Selected Drill hole Intersections**

Significant intercepts from the 2008-2020 drilling programs are presented in Table 10-2. True width is based on the orientation of the B-Zone shear which appears to be a controlling structure and strikes northeast with a dip of 74° to the northwest. With hole inclinations of 45 to 50°, true widths are typically 83 to 87% of the intercept length.



**Table 10-2 Significant Intervals 2008-2020 Drilling**

Hole_ID	From	To	Interval (m)	True Width	Au g/t
W08-146	120.25	129.50	9.25	8.09	1.123
W08-146	164.00	180.00	16.00	13.99	1.050
W08-147	83.50	95.20	11.70	10.23	1.316
W08-147	132.00	152.00	20.00	17.49	0.699
W08-147	164.00	171.50	7.50	6.56	1.132
W08-148	84.00	99.00	15.00	12.44	0.982
W08-148	123.35	137.00	13.65	11.32	0.844
W08-149	34.00	64.50	30.50	26.68	1.560
W11-150	0.00	8.76	8.76	7.26	0.933
W11-150	68.45	94.47	26.02	21.57	2.074
W11-152	68.54	92.38	23.84	19.76	0.702
W11-152	98.33	107.25	8.92	7.40	0.800
W11-153	31.79	40.20	8.41	6.97	1.282
W11-153	45.84	86.86	41.02	34.01	0.989
W11-154	23.57	82.32	58.75	48.71	1.441
W11-156	53.52	60.06	6.54	5.42	1.849
W11-159	12.11	26.47	14.36	11.90	1.166
W11-160	13.82	44.82	31.00	25.70	0.945
W11-161	16.56	38.72	22.16	18.37	0.810
W11-162	7.67	31.92	24.25	20.10	0.929
W20-168	96.50	103.50	7.00	6.16	4.765
W20-169	233.50	242.00	8.50	7.43	0.439
W20-171	7.50	15.00	7.50	6.60	3.370
W20-171	22.50	30.00	7.50	6.60	0.670
W20-171	288.50	313.00	24.50	21.56	0.693
W20-171	328.70	350.00	21.30	18.74	0.652
W20-172	162.50	168.70	6.20	5.42	8.825
W20-172	180.50	186.50	6.00	5.25	0.510
W20-172	201.50	218.00	16.50	14.43	0.899
W20-172	227.00	240.50	13.50	11.81	0.622

COG = 0.3 g/t Au; Minimum Interval = 5m; Maximum Internal Dilution=5m

## 10.5 Comments on Section 10

All of the historic work and reporting was conducted in a local grid system. Starting in 2008, drill programs used the UTM ZONE 13 NAD83 (CSRS) CGVD28 grid system and all historic drill collar coordinates were converted to the UTM system.

Drilling methods and drill hole design are suitable for construction of a Mineral Resource model for the Golden Heart Deposit.

## **11.0 Sample Preparation, Analyses, and Security**

### **11.1 Drill Core Sampling and Analysis**

#### **11.1.1 Historic Drill Programs**

Samples from were taken within visually mineralized or altered intervals of approximately 1 metre or less.

The geologist responsible for logging the drill hole marked the desired sample intervals on the drill core box with black marker and on the drill core with a china crayon indicating the start and end of an interval with a line perpendicular to the drill core and an arrow to define the from and to of each sample interval.

The geologist then assigned each marked sample interval a sample number, marked the sample number on the core and core box, and recorded the sample interval and sample number in a sample book and later in an Excel® spreadsheet. The practice prior to the 2008 drilling was to record each sample interval in an assay-sample log sheet.

The marked drill core was split in half by manual core splitters

#### **11.1.2 2008 Drilling**

The marked drill core was cut in half by rock saw with one half going into a sample bag (numbered with a marker, the corresponding sample tag inside), the bag was secured with a zip tie and then placed in a shipping pail. During the splitting of the drill core care was taken to ensure a representative split of the sample. The fines from each split sample were collected in bread pans below the splitter and included in the sample placed in the sample bag. The other half of the drill core was returned to the drill core box in its proper interval location.

Upon completion of sampling a drill hole, the entire hole was systematically placed in a core rack. Core boxes of split core are labelled with an aluminum tag indicating the drill hole number, box number and the measured from and to in metres of the core contained in each core box.

Samples were analyzed at ALS Chemex Laboratory located in Vancouver, British Columbia. ALS Chemex is an ISO/IEC guideline 17025 accredited facility. The assay results are based on the standard fire assay method utilizing a 1 kg sample derived from approximately 3 kg of split NQ drill core and utilization of a 50 g standard fire assay

charge. Standard fire assay results greater than 10 ppm were assayed using gravimetric finish. Two samples were re-run using the metallic screening method.

### **11.1.3 2011 Drilling**

Sample preparation during the 2011 drill program followed the same procedures as the 2008 program.

Standard fire assays were carried out by the Saskatchewan Research Council Geoanalytical Laboratories in accordance with ISO/IEC 17025:2005 (CAN-P-4E) standards. Standard fire assay results greater than 3 g/t gold were re-assayed using the metallic screening method.

### **11.1.4 2020 Drilling**

For the 2020 drill program, all the core produced in the year was transported to Jolu Mill, which is protected by a gate all year round. Two core shacks and several core racks were set at open space in Jolu for core logging and splitting. The contract drilling company take the responsibility to deliver the produced core to core shacks in everyday morning.

After the core was received, different core logger was in charged for different drillhole. Firstly, hole number, box number and from-to was marked on the beginning of each drill core box with black marker. Then geotechnical information, such as recovery rate, RQD and fracture number, was marked on the drill core box near each inserted wood block before any hammering. After that, the core logger marked different major, subsidiary lithology alteration and structure on the drill core with a white china crayon. The information was input into prepared Excel logging sheet. Meanwhile, significant mineralization zones were identified by the core logger and marked on the drill core with an orange china crayon. Finally, the core logger marked the wanted sample intervals on the drill core with a line and two arrow on each ending to define the interval. The sample number was assigned each marked sample interval and the number was copied to sample book and later in the Excel logging sheet.

The marked drill core was cut in half by rock saw operators. One half of it was collected into a sample bag, with sample number on bag and sample tag inside. The bag was sealed with a zip tie and twenty sample bags was sealed into a big rice bag for shipping. During drill core splitting, rock saw operators carefully cut and collected the drill core and ensured that no core sections were missed or mis-labeled. If any indeterminate or unclear sample marks appeared on the drill core, the operator doubled check the information with core logger before any cutting and collection.

The above logging and sampling process were always guided and overseen by on site senior geologist. Upon completion of sampling, each core box was moved to a pallet and cross stacked. Each drillhole was stack on one pallet with large core box number on top. Aluminium tag containing the drillhole number, box number and the measured from and to in metres was stapled on vertical short edge of each core box. After one drillhole was whole sampled, it was transfer to the nearby core yard.

In 2020, standard fire assays and metallic screening analyses were carried out by TSL Laboratories located in Saskatoon, Saskatchewan which is an ISO/IEC guideline 17025 accredited facility.

## **11.2 Assay Quality Assurance and Quality Control**

Prior to Golden Band Resources Inc. involvement in the Tower East project, there were no QA/QC practices in place; as was the industry standard for the drilling that took place from 1982-1990. However, from 1986 through 1996 the operator of the project, Golden Rule Resources Ltd. was rigorous in their check assaying, sending numerous samples from each drill program for follow up check assaying at various laboratories. Golden Rule also used various assay techniques during the check assaying procedure including fire assay, metallic assays, 1 assay ton fire assay, 4-assay ton fire assay, assaying of the heavy mineral separates, assaying of pulps and coarse rejects, as well as assaying a second split of the original core retained in the core box.

Golden Band Resources Inc., as operator of the Project, implemented a QA/QC program for the 2008 and 2011 drilling programs. Matrixset implemented a QA/QC program for the 2020 drill program

### **11.2.1 Reference Standards**

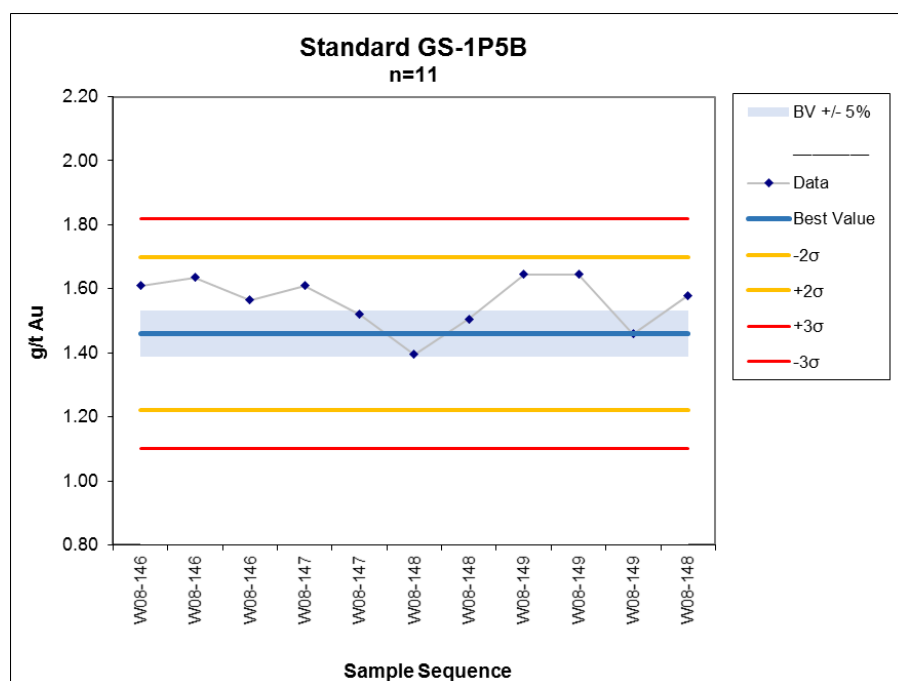
The quality assurance/quality control of the assay results is monitored by a series of sample standards and sample blanks which are routinely inserted into the sample sequences

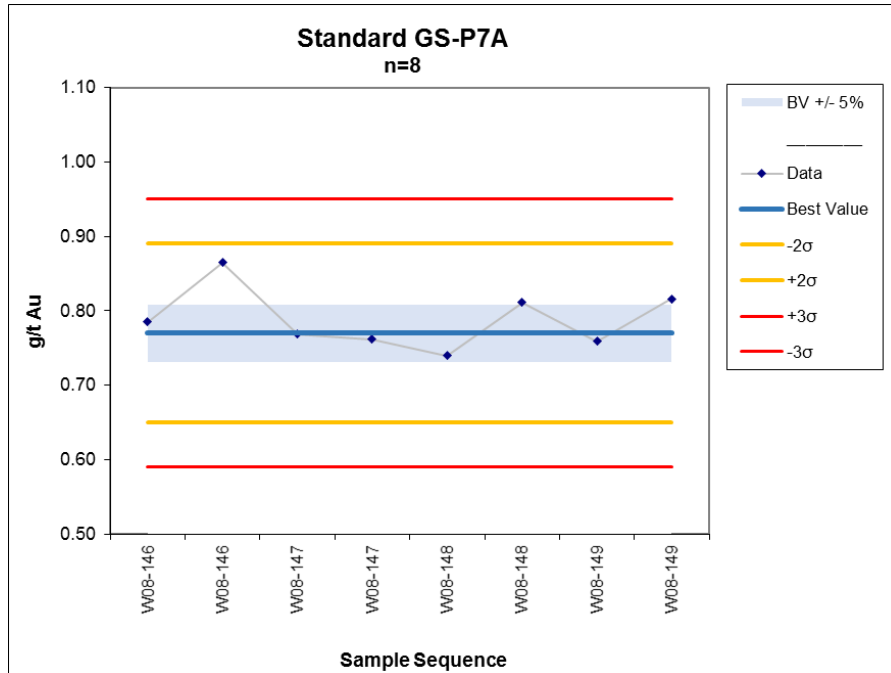
In 2008, 33 assay standards and 4 sample blanks prepared by Rocklabs Inc. and CDN Resources Laboratories were routinely inserted in the sample sequence at the rate of approximately one in every 14 samples to monitor the reproducibility of the assay lab's results. The results of fire assays on known sample standards are summarized in

**Table 11-1 Reproducibility of Assay Standards – 2008 Drill Program**

Assay Standard	Number of Samples Analyzed	Assay Standard (g/t Au)	Assay Standard		Assay Standard Mean	Assay Standard Median	Deviation From Std Dev	
			Max. Assay Value	Min. Assay Value			Max. value	Min. value
Blank	4	<0.005	0.008	<0.005	<0.005	<0.005		
CDN GS 2B	11	2.03	2.4	1.89	2.07	2.06	3.08	-1.21
CDN GS 10B	2	8.64	9.35	8.94	9.14	9.14	1.45	0.61
CDN GS P7A	8	0.77	0.86	0.74	0.79	0.78	1.58	-0.5
CDN GS 1P5B	11	1.46	1.64	1.4	1.56	1.58	1.54	-0.54
CDN GS 6P5	1	6.74	6.52	6.52	6.52	6.52	-0.98	-0.98

Standard performance charts for the standards with more than 2 analyses are presented in Figure 11-1 to Figure 11-3.

**Figure 11-1 CDN-GS-1P5B Standard Performance**

**Figure 11-2 CDN-GS-P7A Standard Performance**

In 2011, 25 standards from CDN Resources Laboratories and one blank were routinely inserted in the sample sequence at the rate of approximately one in every 14 samples. Standard performance charts for standards with more than 1 analysis are presented in Figure 11-3 and Figure 11-4. Results were deemed acceptable but Standard GS-5E did exhibit a minor low bias.

Figure 11-3 CDN-GS-2B Standard Performance

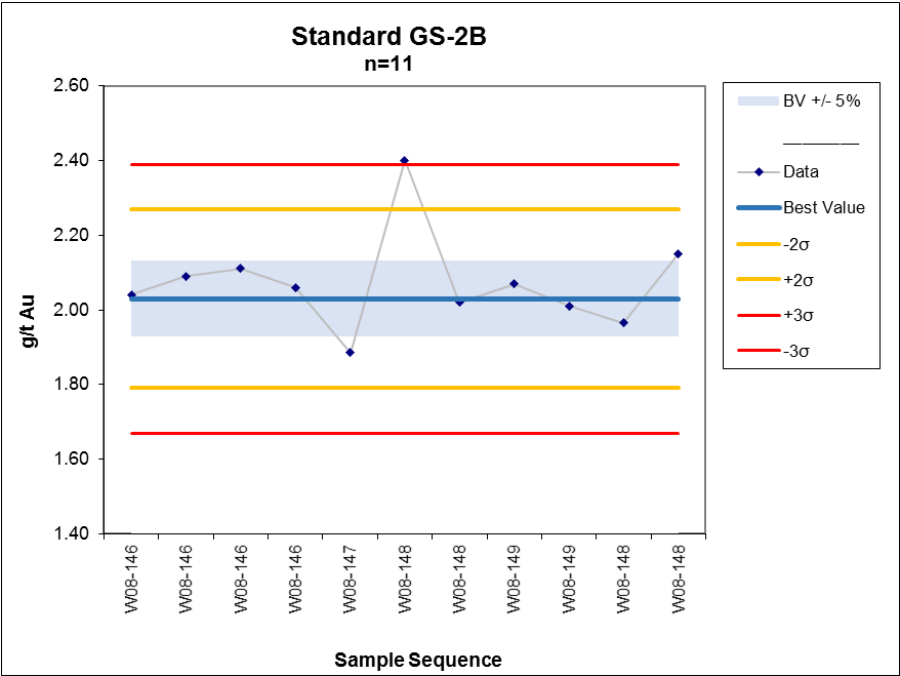
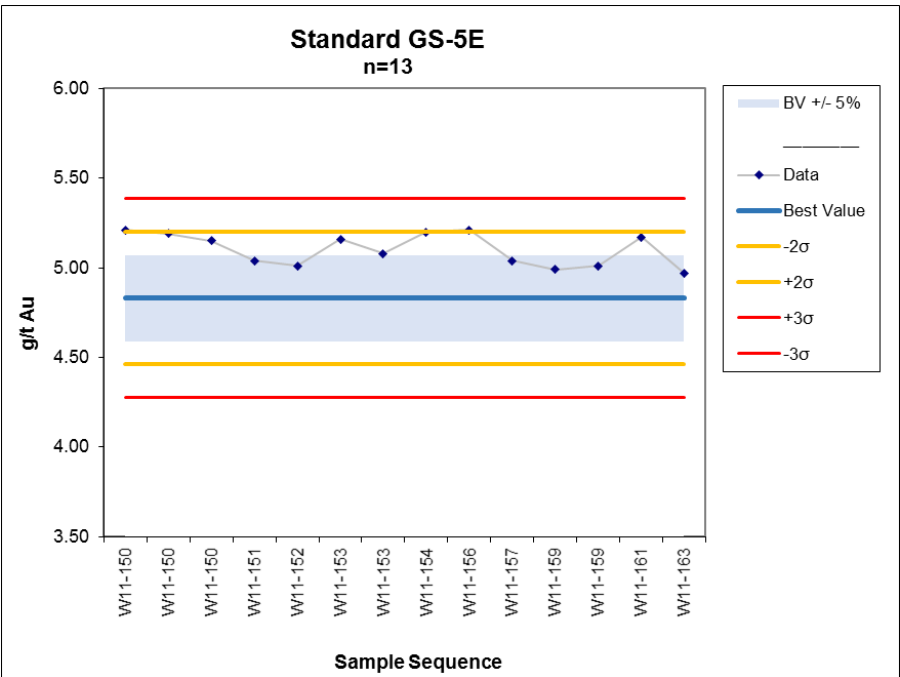


Figure 11-4 CDN-GS-5E Standard Performance



During the 2020 drill program, one of three standards along with a blank were inserted after every batch of 18 samples. A total of 51 standards were inserted along with 51 blanks. Results showed acceptable performance (Figure 11-5 to Figure 11-7).

**Figure 11-5 CDN-GS-4F Standard Performance**

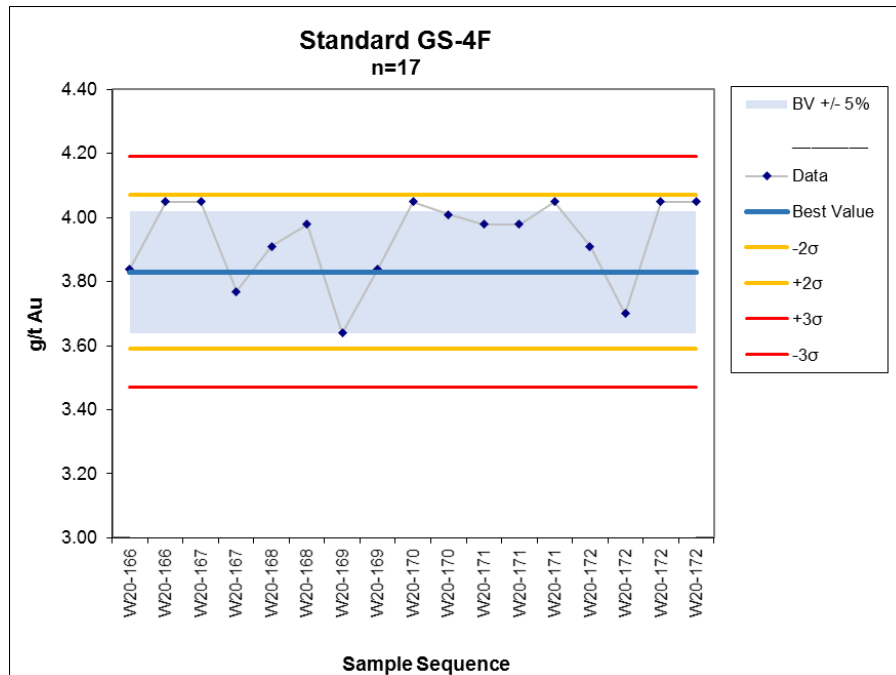




Figure 11-6 CDN-GS-7F Standard Performance

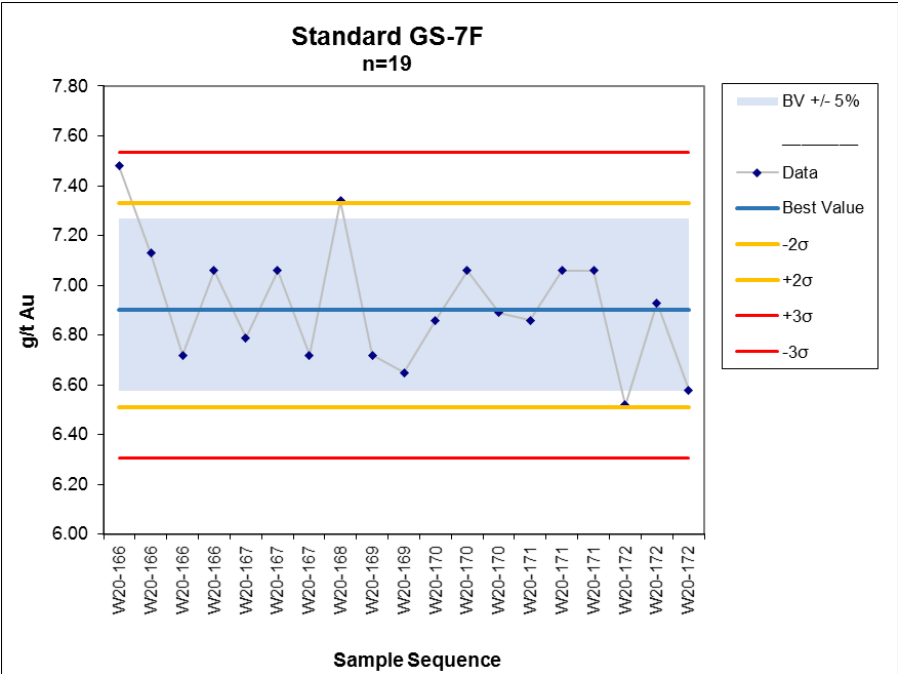
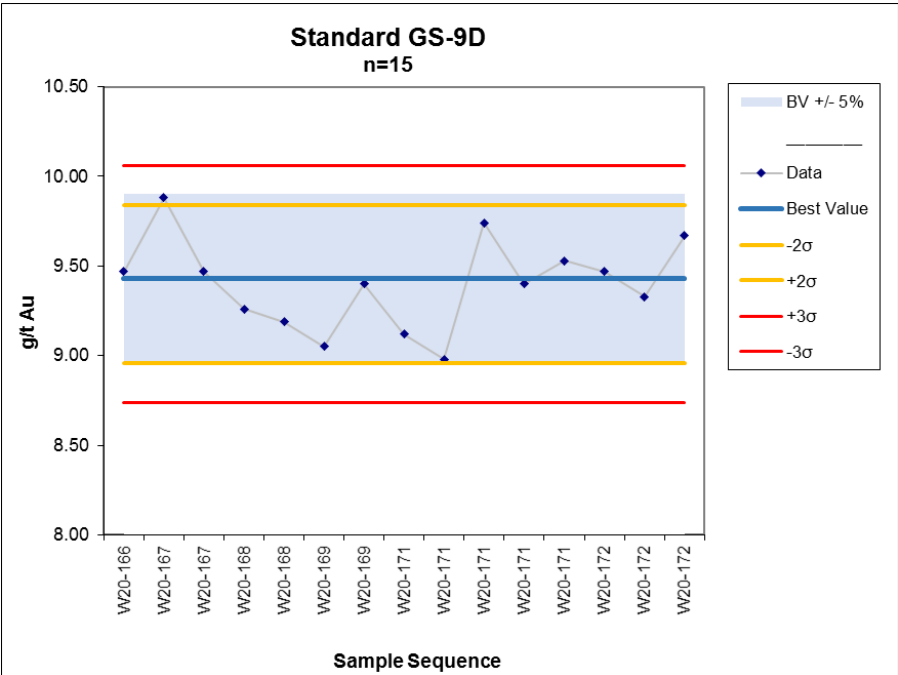


Figure 11-7 CDN-GS-9D Standard Performance



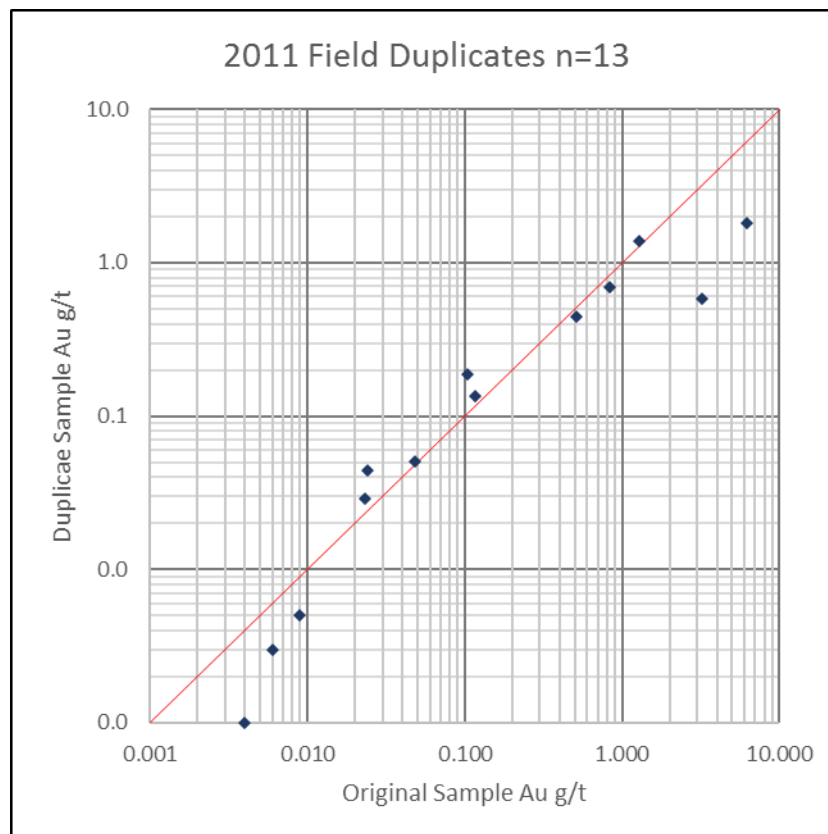
### 11.2.2 Blanks

During the 2008-2020 drill programs, 69 blanks were inserted. Results did not indicate any potential sample contamination during preparation.

### 11.2.3 Field Duplicates

Field duplicates were not taken in the 2008 or 2020 drill programs. During the 2011 drill program, 13 field duplicates were taken. Results showed considerable spread attributed to the nugget effect but no significant bias (Figure 11-8).

**Figure 11-8 2011 Field Duplicates**



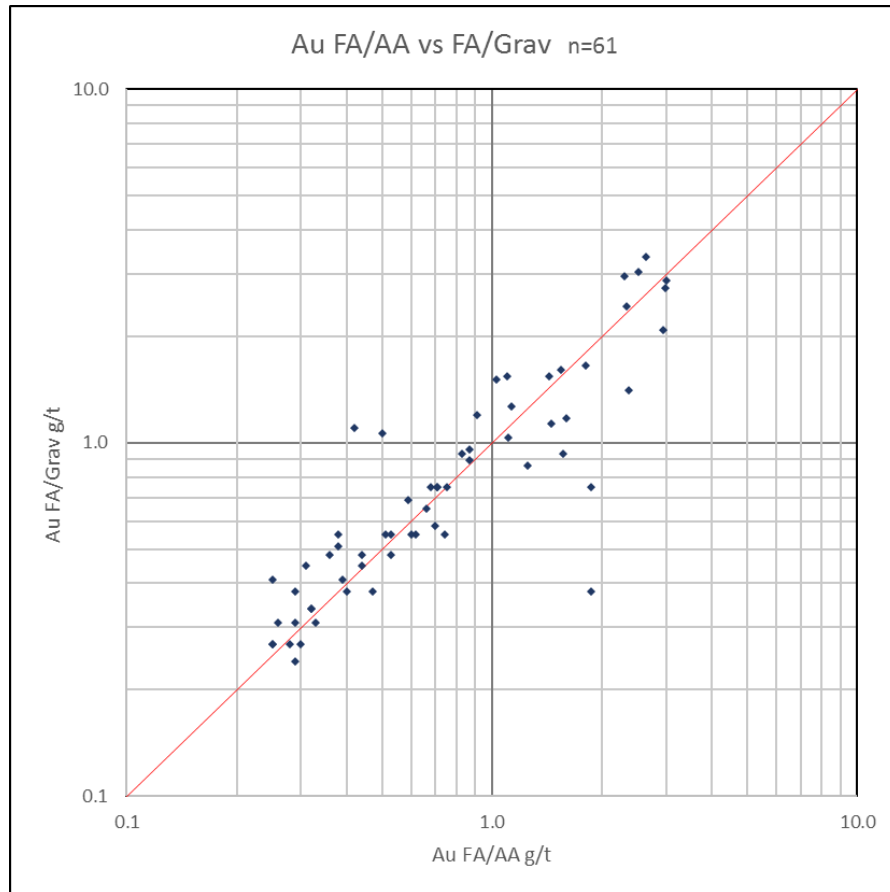
### 11.2.4 Check Assays

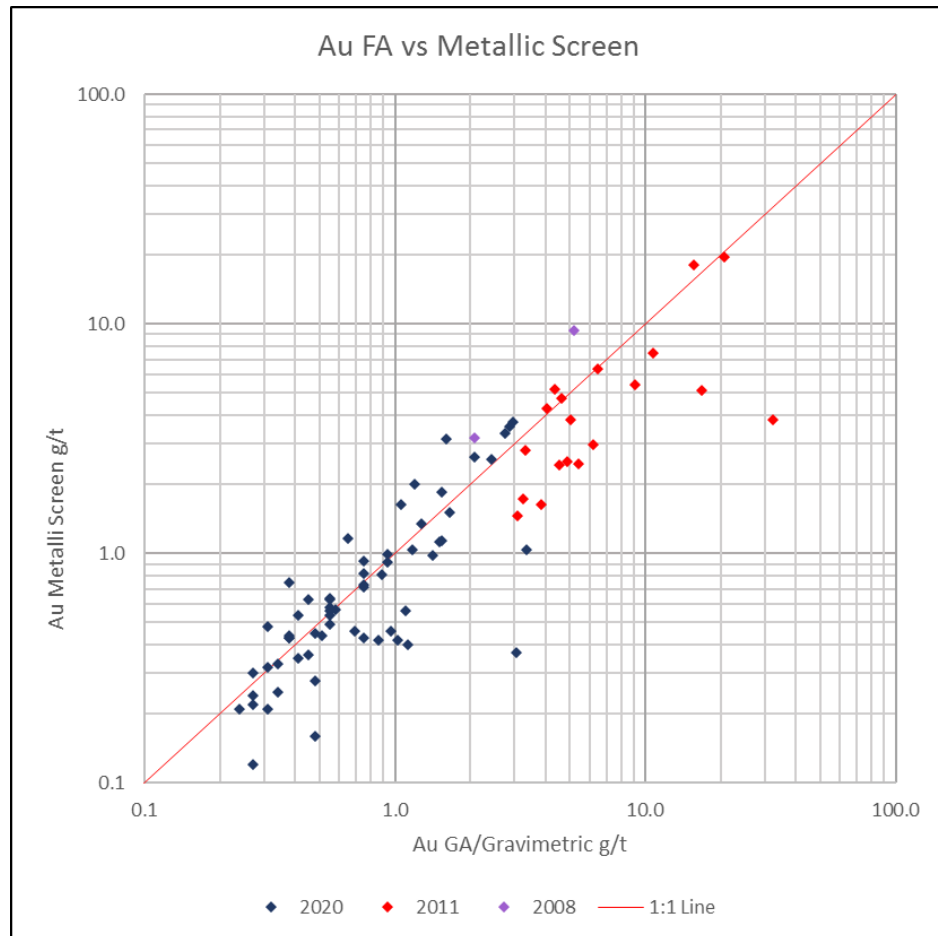
Comparison of fire assays using an AA finish with those using a Gravimetric finish show variation consistent with a nugget effect but no significant bias (Figure 11-9).

Comparisons of standard Fire Assay to Fire Assay using the metallic screening method are presented in Figure 11-10. The data from 2011 shows a minor low bias in the

gravimetric results compared to the metallic screen results but they also tended to be in a higher-grade population than the 2020 samples.

**Figure 11-9 Au FA with AA Finish vs Gravimetric Finish**



**Figure 11-10 Au FA vs Metallic Screen Assay**

### 11.3 Sample Security

Samples collected at the Project were placed in well-marked sample bags with the corresponding sample tag placed inside the bag, securely tied with a zip tie (staples were used 1982-1996 drill programs). A completed sample was then placed in a 20-litre sample pail. Once the pail was full, (approximately 7-10 samples per pail) the samples contained in each pail and the hole from which the samples were from, were recorded on a form.

Prior to shipping of sample consignments from the field the number of pails and contained samples were recorded. All pails were tightly secured with lids and reinforced with packing tape. A local expeditor from La Ronge was used to transport the samples from the site to La Ronge and then directly to a shipping outlet from where the samples

were trucked to Saskatoon for assaying. Upon arrival both labs instructed Golden Band head office of their arrival and samples received were cross-referenced with samples listed on the shipping form that accompanied the sample consignment.

## 11.4 Density Determinations

Twenty composite samples prepared from drill core within the Golden Heart deposit were measured for specific gravity by SGS Canada Inc. Results are presented in Table 11-2

**Table 11-2 Density Measurements**

Sample	Weight (g)			Volume (cm <sup>3</sup> )				Rock Density
No.	Dry Rock	Rock Coated with wax	Weight in Water	Water Disp.	Rock Coated with wax	Wax	Rock	Density (g/cm <sup>3</sup> )
1	170.4	175.8	108.5	67.3	67.4	6.1	61.3	2.78
2	230.1	235.2	146.9	88.3	88.4	5.7	82.7	2.78
3	238.9	246.7	153.3	93.4	93.5	8.8	84.8	2.82
4	168.4	172.9	106.9	66.0	66.1	5.0	61.0	2.76
5	159.8	165.9	101.8	64.1	64.2	6.8	57.3	2.79
6	113.9	118.4	72.6	45.8	45.9	5.0	40.8	2.79
7	169.9	177.1	107.9	69.2	69.3	8.1	61.2	2.78
8	101.9	105.2	64.3	40.9	41.0	3.7	37.2	2.74
9	147.7	152.0	93.3	58.7	58.8	4.8	53.9	2.74
10	150.0	156.5	96.3	60.2	60.3	7.3	53.0	2.83
11	158.6	163.9	101.1	62.8	62.9	5.9	56.9	2.79
12	155.5	159.2	99.5	59.7	59.8	4.2	55.6	2.80
13	135.5	141.4	86.7	54.7	54.8	6.6	48.1	2.81
14	145.9	151.2	92.7	58.5	58.6	5.9	52.6	2.77
15	153.9	157.6	98.3	59.3	59.4	4.2	55.2	2.79
16	221.0	226.4	142.3	84.1	84.2	6.1	78.1	2.83
17	233.9	240.2	150.3	89.9	90.0	7.1	82.9	2.82
18	175.0	180.7	110.9	69.8	69.9	6.4	63.5	2.76
19	121.4	126.3	77.2	49.1	49.2	5.5	43.7	2.78
20	152.2	156.9	98.0	58.9	59.0	5.3	53.7	2.83

A density value of 2.8 g/cm<sup>3</sup> is used for tonnage determination in this study.

## **11.5 Comments on Section 11**

The authors are of the opinion that the data have been gathered in a professional and ethical manner and conformed to standard acceptable within the industry at this time. This level of quality control is sufficient to support a mineral resource estimate.

## 12.0 Data Verification

Frank Hrdy visited the Golden Heart Property numerous times over many years starting in 2006 but the last site visit was between September 19<sup>th</sup> and September 25<sup>th</sup>, 2020.

### 12.1 Data Verification by the QPs

R. Simpson visited the site on July 27, 2005. The site visit included examination of drill core, drill sites and outcrops. Several samples of drill core were collected as part of the data verification process.

#### 12.1.1 Drill Hole Location

R. Simpson verified the location of several drill collars by handheld GPS.

#### 12.1.2 Database Validation

R. Simpson checked a total of 1114 historic sample intervals (approximately 6% of the database at that time) against assay certificates and found 2 data entry errors. The represents an average error of less than 0.2% and is within acceptable limits. Fifty repeat fire assays from hole W83-27 were located that were missing from the database and these were subsequently added.

The entire drill hole database was also audited in Surpac© for interval errors or inconsistencies and a number of corrections were made.

#### 12.1.3 Independent Samples

R. Simpson collected 3 samples of drill core in 2005 and these were submitted to ACME Laboratories of Vancouver for fire assay. The results (Table 12-1) confirmed the presence of gold mineralization in the core intervals sampled.

**Table 12-1 Drill Core Independent Sample Results - 2005**

GeoSim Sample	Hole	Depth (m)	Au (g/t)	Orig Sample	From	To	Au (g/t)	Cert #	Lab
GH01	W96114	218.0	0.04	37079	217.5	218.4	0.137	A504343	ACME
GH02	96-111	16.5	0.18	34647	16.0	17.0	0.171	A504343	ACME
GH03	W88071	240.5	0.75	63145	240.0	241.0	0.343	A504343	ACME

## 12.2 Comments on Section 12

The process of data verification indicates that the data collected by Golden Band and previous operators adequately reflect deposit dimensions, true widths of mineralization,

and the style of the deposits, and adequately support the geological interpretations for the purpose of Mineral Resource estimation. The QPs are of the opinion that the analytical and database quality are adequate for the purposes of the estimation of Mineral Resources.



## **13.0 Mineral Processing and Metallurgical Testing**

A small bulk sample (approximately 100 kg) of drill core from 9 drill holes was recently sent to SGS Canada for metallurgical testing. Initial tests using screened metallic analysis gave a calculated head grade of 4.21 g/t. The weighted average of the assay grades was 3.422 g/t.

## 14.0 Mineral Resource Estimates

The updated Indicated Mineral Resource estimate for the Golden Heart Gold deposit is 16,125,758 tonnes grading 1.05 g/t gold and the Inferred Mineral Resource is 5,566,302 tonnes grading 0.75 g/t gold (Table 14-1 and Figures 14-1, 14-2 and 14-3 represent both Indicated and Inferred grade distribution within an optimized open pit. Effective date of the estimate is February 1, 2021.

CIM Definition Standards for a Mineral Resource as a "concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality that there are reasonable prospects for eventual economic extraction". In this case a 0.30 g/t cut-off grade was used to estimate the resource as that is the minimum grade necessary to cover estimated production costs as per the following criteria:

Au Price	\$1,550 / Troy Ounce Gold
Mining Cost/tonne	\$3.50
Processing Cost/tonne	\$9.50
Down Hole Composite Size	2 m
Process Recovery	90%
Grade Cap	30 g/t Gold for Indicated, 10 g/t Gold for Inferred

**Table 14-1 – Mineral Resource Estimate for the Golden Heart Gold Deposit**

Cut-Off 0.30 g/t Au	Tonnes (t)	Grade g/t Au	Au Ounces
<b>Indicated</b>	16,125,758	1.05	544,378
<b>Inferred</b>	5,566,302	0.75	134,042

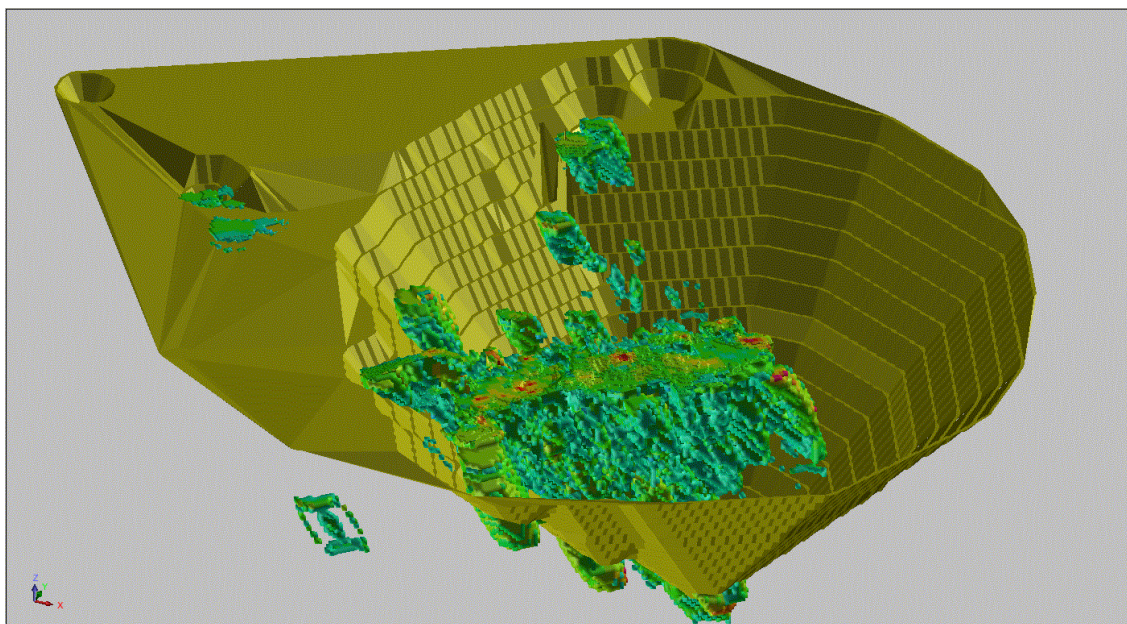
**Figure 14-1 - Colour Code Representing Grade (g/t Gold) for Block Model****Figure 14-2 - Oblique View of Grade Distribution of Ind. & Inf. Resource within Open Pit**



Figure 14-3 - Cross Section of Grade Distribution of Ind. & Inf. Resource within Open Pit

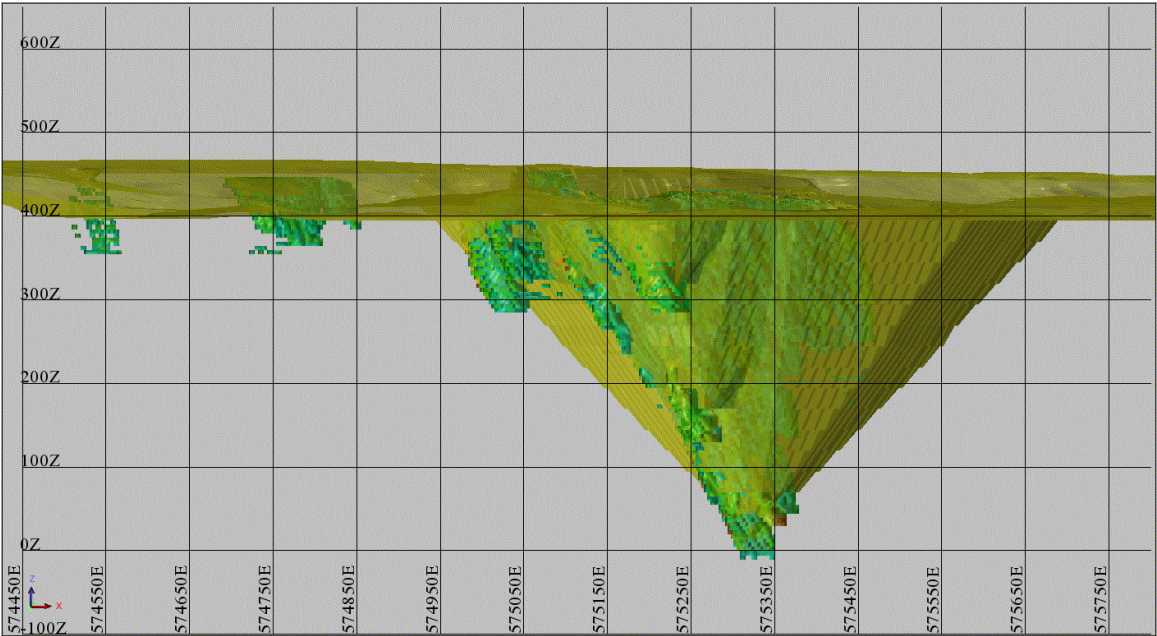
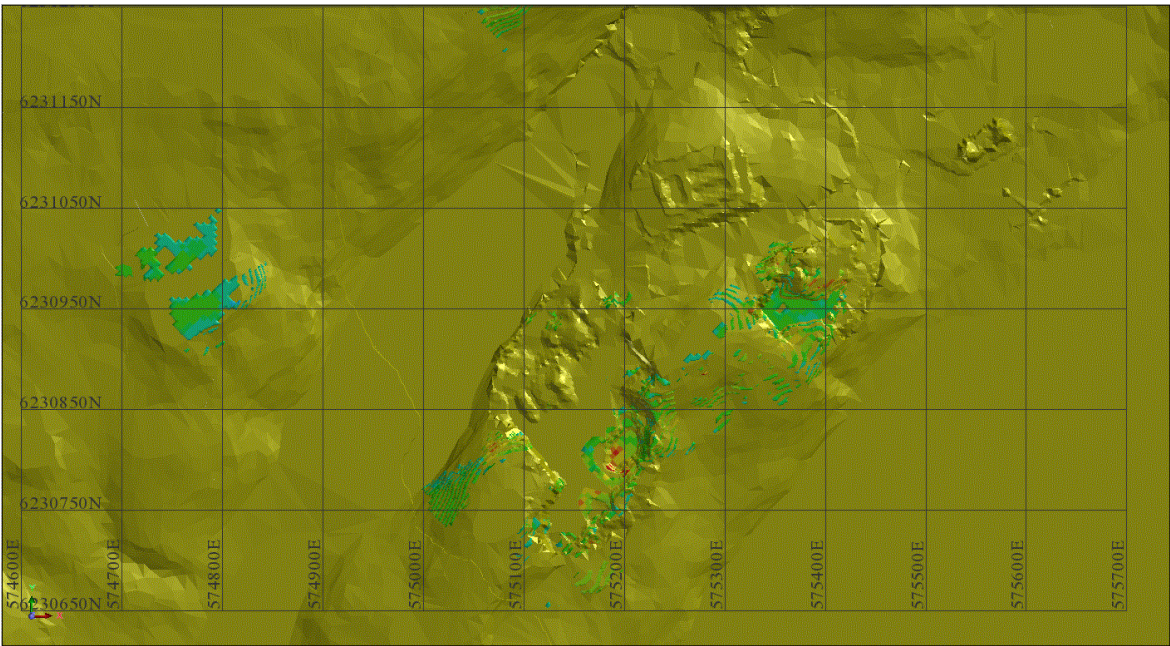
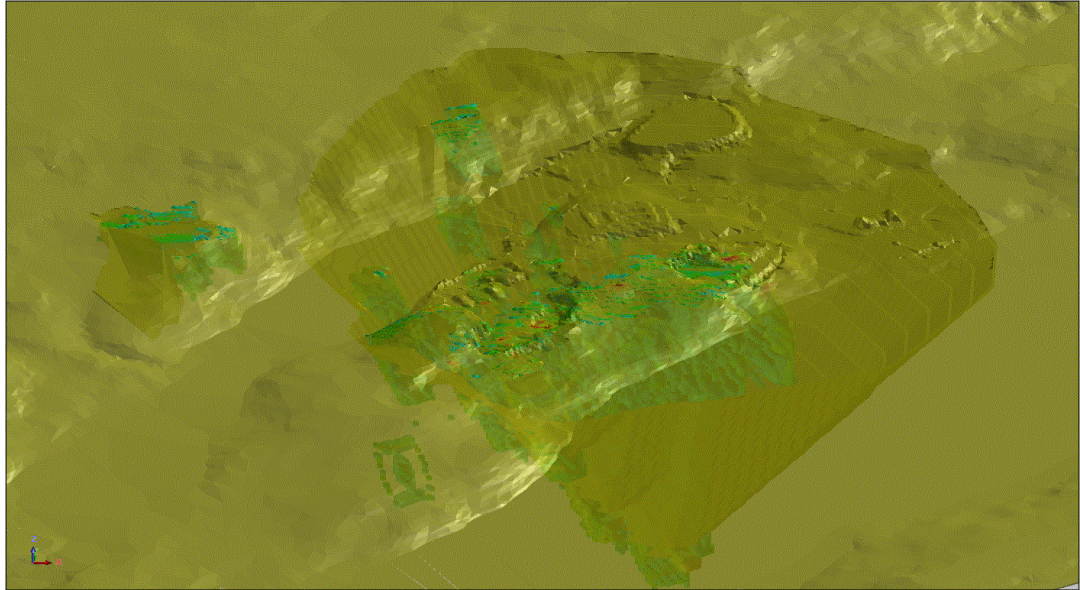


Figure 14-4 - Plan View of Topography (Coloured = Block Model at Surface)





**Figure 14-5 - Oblique View of Topo with Open Pit and Grade Distribution (below topo)**



**Figure 14-6 - Bing Maps Plan View of Golden Heart Deposit Area**



## **14.1 Key Assumptions and Basis of Estimate**

These are advanced mineral resource statements which utilized open pit optimization algorithms to further restrict the resource to that which adheres to the CSA-CIM Committee statement that requires “the use of mine planning tools, such as open pit design algorithms, to limit the extent of mineralization of “Advanced Mineral Resource” statements...” This all falls under NI 43-101 Section 3.4c which requires the assessment of ‘reasonable prospects for economic extraction’ as central to disclosing a mineral resource.

An open pit mining method with a stockpile for processing is used as the basis for these estimates. The following are considerations used to estimate the resource for the Golden Heart gold deposit.

## **14.2 Density**

For all rock types in the Golden Heart gold deposit estimate a density of 2.80 g/cm<sup>3</sup> weighted average was used. This is the weighted average of individual rock types that were tested for density to calculate the global value of specific gravity. This value was obtained from previous technical reports.

### **14.2.1 Cut-Off Grade**

In this case of a 0.30 g/t cut-off grade was used to estimate the Resource. These cut-off grades are considered to be minimum grades necessary to cover estimated production and processing costs as per the following criteria:

Au Price	\$1,550 / Troy Ounce Gold
Mining Cost/tonne	\$3.50
Processing Cost/tonne	\$9.50
Down Hole Composite Size	2 m
Process Recovery	90%

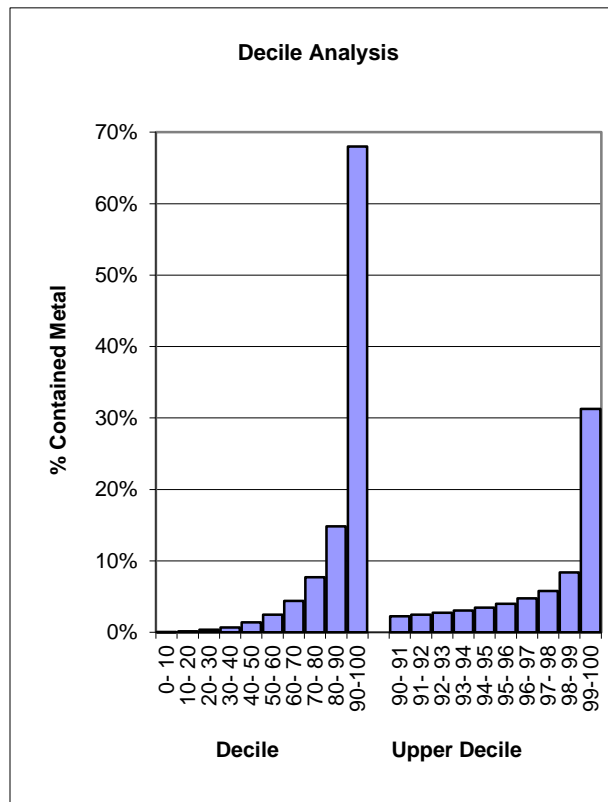
### **14.2.2 Grade Capping**

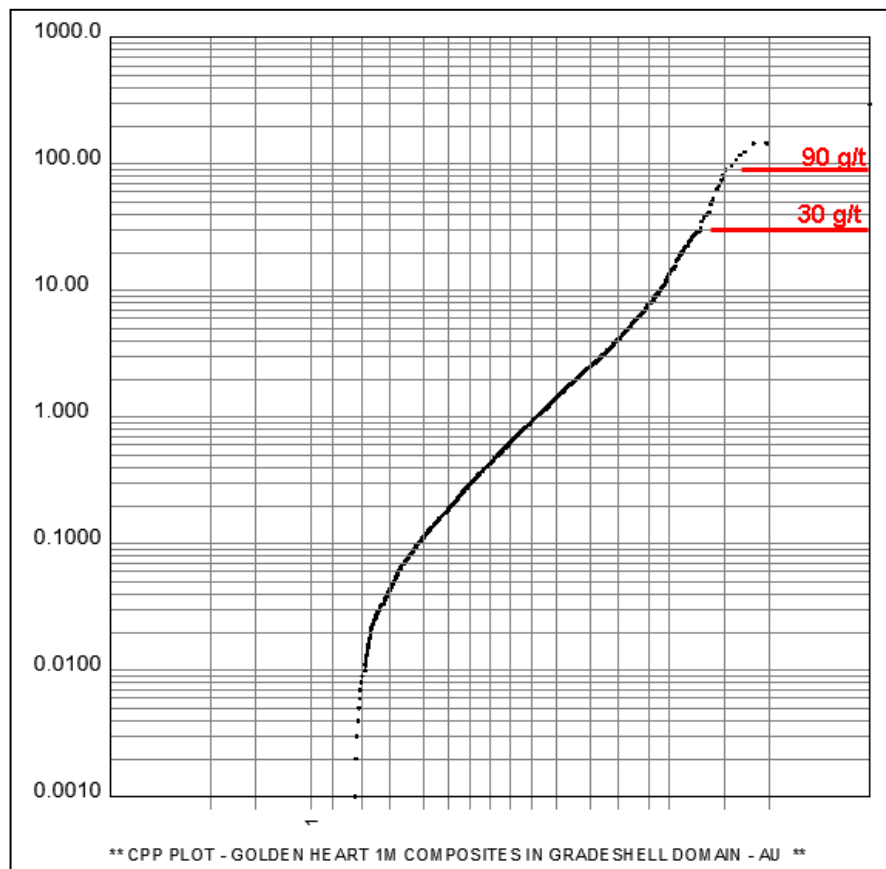
In order to evaluate whether cutting of the higher-grade samples was appropriate, a decile analysis was performed on the samples. This is a quick study of the metal distribution as related to the assay frequency distribution using raw assay data multiplied by sample length. Cutting of high assays should be seriously considered if the top decile has more than 40% of the metal.

R. Simpson, P.Geo., reviewed all of the assay results used for this resource update (Decile analysis and Probability plot of the data) and determined that the capping of high grade values is warranted and a cap grade of 30 g/t Au for the Indicated Resources and a cap grade of 10 g/t Au for the Inferred Resource is warranted. This differs from the 100 g/t cut-off grade used in previous Technical Reports because an open pit mining scenario is used in this case and the sample sized is much larger.

To determine a capping grade using the Decile method, the highest value of the top percentile containing less than 10% of the metal is often selected. An analysis of the log probability distribution is also used to determine a clear percentile break-point which can be used to determine the capping value.

**Figure 14-7 - Decile Plot**



**Figure 14-8 - Log Probability Plot**

### 14.2.3 Block Model Parameters

**Table 14-2 - Block Model Parameters for the Golden Heart Gold Deposit**

Block Model Geometry			
Min Coordinates	Y: 6230800	X: 2472250	Z: 6000
Max Coordinates	Y: 6232350	X: 2474500	Z: 7000
User block Size	Y: 5	X: 5	Z: 5
Min. block Size	Y: 1.25	X: 1.25	Z: 1.25
Rotation	Bearing: 45	Dip: 0	Plunge: 0



#### 14.2.4 Interpolation and Search Factors

All existing drill hole information was used to create 2 m downhole drill assay composites. Individual units were generally not defined, rather boundaries were defined by the search parameters. Also, any drill interval that was not assayed was given a "0" value.

Block model size was selected to best match mineralized zone continuity and the size of mining equipment that is expected to be used. Larger block size also reduces grade variability so that potentially more accurate grade estimating and control will occur during production. Care was also taken to remove any estimated resource from existing developed areas.

Geological Modelling and Resource Estimation Software Surpac Version 6.4.1 was used for this resource estimation.

**Interpolation Method** = Inverse Distance Cubed, Interpolation Block Size = 5 m x 5 m x 5 m, minimum, Cap Grade = 30 g/t Au for Indicated and 10 g/t Au for Inferred. A visual representation of the Search Ellipse was plotted and visualized to ensure that it logically followed strike, dip and plunge of the gold mineralization. The following are search parameters used for the interpolations.

##### Indicated Resource Estimate Search

Max Search Distance of Major Axis:	12.50 m
Max Vertical Search Distance:	34 m
Max Number of Informing Samples:	2
Min Number of Informing Samples:	15
Rotation Convention:	Surpac ZXY LRL
Angles of Rotation:	First Axis = 65.00
	Second Axis = 25.00
	Third Axis = 75.00
Anisotropy Factors:	Semi-Major axis 0.27
	Minor axis 1.00

##### Inferred Resource Estimate

Max Search Distance of Major Axis:	25.00 m
Max Vertical Search Distance:	50.00 m
Max Number of Informing Samples:	2
Min Number of Informing Samples:	15

Rotation Convention:

Angles of Rotation:

Anisotropy Factors:

Surpac ZXY LRL

First Axis = 65.00

Second Axis = 25.00

Third Axis = 75.00

Semi-Major axis 0.27

Minor axis 1.00

### Variography Study

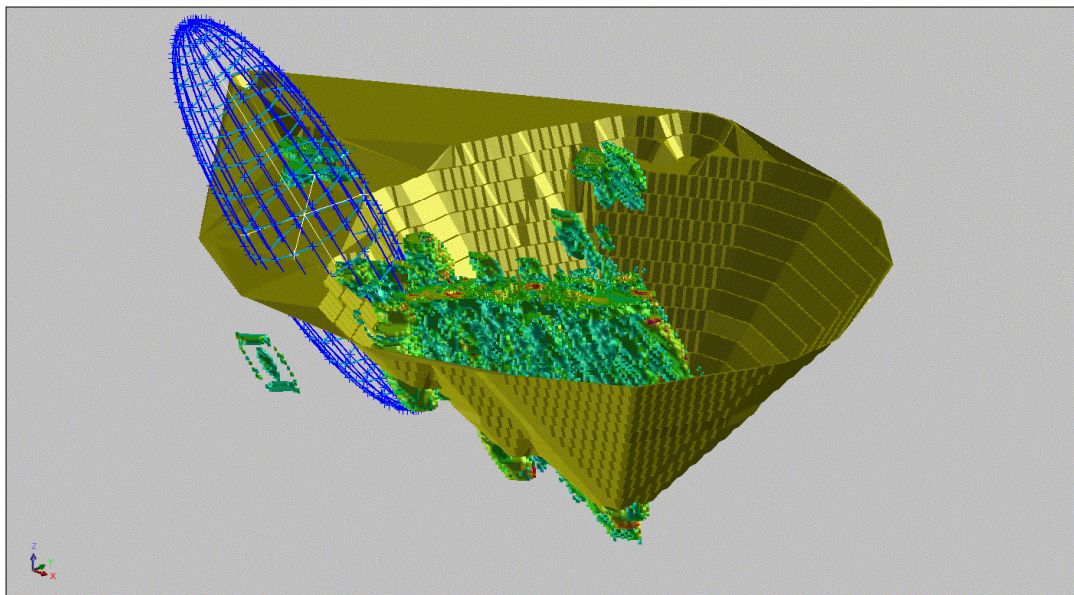
For this Resource Estimate a variography study was conducted as an open pit mining method was introduced allowing for a significantly lower cut-off grade which provides more samples for the study. The following are the results from this study:

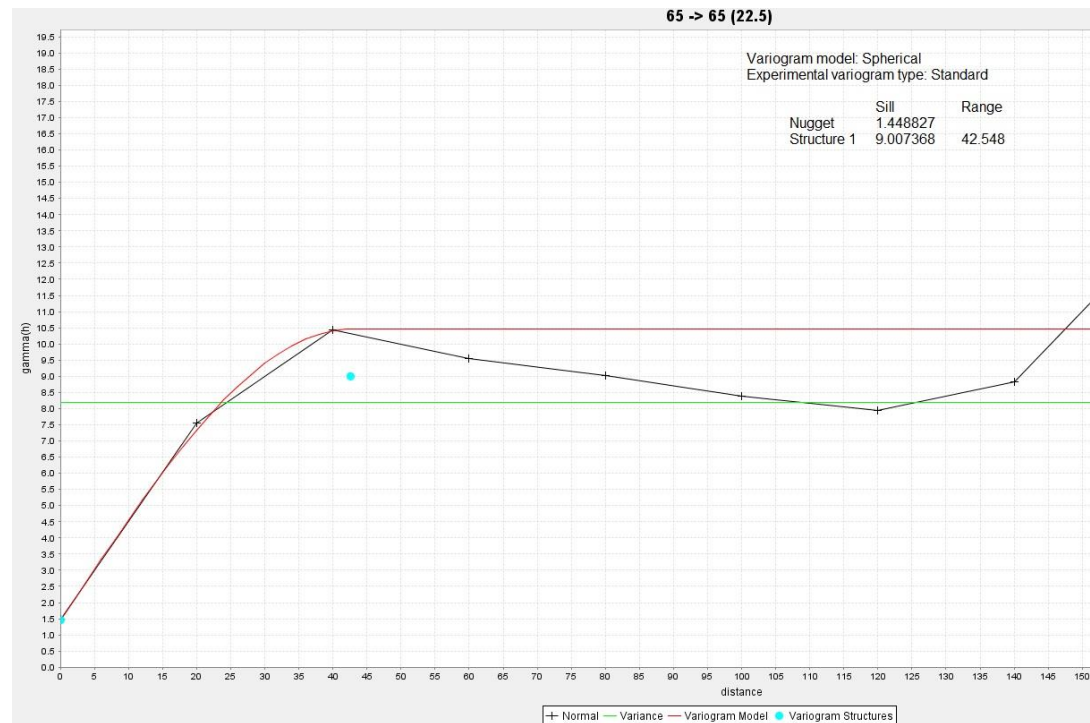
#### Search Ellipse Parameters

Experimental Variogram Parameters: Max Distance: 200 m, Azimuth: 065 degrees, Variogram Plunge: 65, Spread Angle: 22.5 degrees, Spread Limit: None, Statistics: 14,103 samples, Mean: 0.513481, Variance: 8.953493, Standard Deviation: 2.992239.

Variogram Results: Model Type: Spherical, Nugget Sill: 1.448827, Structure 1: Sill = 9.007368, **Range = 42.548 m** (Figure 14-9 and Figure 14-10).

**Figure 14-9 - Oblique View of the Search Ellipse Orientation**



**Figure 14-10 - Variogram Model**

### 14.3 Classification

Resource classifications used in this study conform to the following definition from National Instrument 43-101 as published on May 10, 2014:

#### Measured Mineral Resource

*"Mineralization or other natural material of economic interest may be classified as a Measured Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such that the tonnage and grade or quality of the mineralization can be estimated to within close limits and that variation from the estimate would not significantly affect potential economic viability of the deposit. This category requires a high level of confidence in, and understanding of, the geology and controls of the mineral deposit."*

**Indicated Mineral Resource**

*"Mineralization may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization. The Qualified Person must recognize the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource estimate is of sufficient quality to support a Pre-Feasibility Study which can serve as the basis for major development decisions"*

**Inferred Mineral Resource**

*"An Inferred Mineral Resource is based on limited information and sampling gathered through appropriate sampling techniques from locations such as outcrops, trenches, pits, workings and drill holes. Inferred Mineral Resources must not be included in the economic analysis, production schedules, or estimated mine life in publicly disclosed Pre-Feasibility or Feasibility Studies, or in the Life of Mine plans and cash flow models of developed mines. Inferred Mineral Resources can only be used in economic studies as provided under NI 43-101.*

*There may be circumstances, where appropriate sampling, testing, and other measurements are sufficient to demonstrate data integrity, geological and grade/quality continuity of a Measured or Indicated Mineral Resource, however, quality assurance and quality control, or other information may not meet all industry norms for the disclosure of an Indicated or Measured Mineral Resource. Under these circumstances, it may be reasonable for the Qualified Person to report an Inferred Mineral Resource if the Qualified Person has taken steps to verify the information meets the requirements of an Inferred Mineral Resource."*

Due to the high nugget-effect and lack of closely spaced sampling along strike, grade continuity has not been sufficiently established to assign any of this resource to a measured category.

The resource was classified based on the density of sample data and distance to the closest composites. Blocks estimated on the first pass using an anisotropic search ellipse with long axis slightly less (34 m was used relative to 42 m) to the variogram range were classified as indicated. All other estimated blocks were assigned to the inferred category.

#### **14.4 Factors That May Affect the Mineral Resource Estimate**

The resource estimate is based on information and sampling gathered through appropriate techniques from diamond drill core holes. The estimate was prepared using industry standard techniques and has been validated for bias and acceptable grade-tonnage characteristics.

Areas of uncertainty that may materially impact the Mineral Resource Estimate include:

- Estimated global bulk tonnage is based on a limited number of density determinations
- Commodity price assumptions
- Pit slope angles
- Metal recovery assumptions
- Mining and Process cost assumptions
- Assumptions that all required permits will be forthcoming

There are no other known factors or issues that materially affect the estimate other than normal risks faced by mining projects in the province of Saskatchewan in terms of environmental, permitting, taxation, socio-economic, marketing, and political factors. Geosim and Canmine are not aware of any known legal or title issues that would materially affect the Mineral Resource estimate.

#### **14.5 Comment on Section 14**

The QP has estimated and classified the Mineral Resources in a manner consistent with the 2014 CIM Definition Standards. The risks of the Mineral Resources are presented in Sections.

## **15.0 Mineral Reserves Statement**

This section is not relevant to this Report as no Mineral Reserves have been estimated.

## **16.0 Adjacent Properties**

This section is not relevant to this report.

## **17.0 Other Relevant Data and Information**

There are no other data or information relevant to the Project that have not been presented in this Report.



## **18.0 Interpretation and Conclusions**

### **18.1 Geology and Mineralization**

The Project area is located in the northern portion of the Central Metavolcanic Belt of the La Ronge Domain, a granite-greenstone belt in the Saskatchewan segment of the ca. 1.9-1.8 billion years (Ga) Trans-Hudson Orogen (Lafrance and Heaman 2004).

### **18.2 Metallurgical Testwork**

A small bulk sample (approximately 100 kg) of drill core from 9 drill holes was sent to SGS Canada in 2006 for metallurgical testing. Initial tests using screened metallic analysis gave a calculated head grade of 4.21 g/t. The weighted average of the assay grades was 3.422 g/t.

### **18.3 Mineral Resource Estimates**

The updated Indicated Resource estimate for the Golden Heart Gold deposit is 16,125,758 tonnes grading 1.05 g/t gold and the Inferred Resource is 5,566,302 tonnes grading 0.75 g/t gold.

CIM Definition Standards for a Mineral Resource as a "concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality that there are reasonable prospect for eventual economic extraction". In this case a 0.30 g/t cut-off grade was used to estimate the resource as that is the minimum grade necessary to cover estimated production costs as per the following criteria:

Au Price	\$1,550 / Troy Ounce Gold
Mining Cost/tonne	\$3.50
Processing Cost/tonne	\$9.50
Down Hole Composite Size	2 m
Process Recovery	90%
Grade Cap	30 g/t Gold for Indicated, 10 g/t Gold for Inferred

## 19.0 Recommendations

The existing Resource Estimate is of such quality and quantity that it is reasonable to think that this deposit could potentially go back into production at some point based on the parameters listed in section 14.

The Golden Heart gold deposit can be viewed as a high grade narrow vein ore body or as a higher tonnage but lower grade one, depending on what mining scenario is envisioned. The following are recommended:

1. Proposed drill holes for a Stage 1 would target potential extensions of gold mineralization in areas #1, #2 and #3 as shown in Figure 9-1.
2. Proposed drill holes for a Stage 2 would target deeper portions of any newly discovered gold zones from "Stage 1" above which could potentially increase the existing Inferred resource for this area as well as potentially adding Indicated resource.
3. A mine plan for the existing Resources should be designed and this could form part of a PEA Study that should be initiated.
4. A Pre-Feasibility Study could be initiated if the PEA Study proves positive.

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I, Ronald G. Simpson, P.Geo., am employed as a Professional Geoscientist with GeoSim Services Inc.

This certificate applies to the technical report titled "NI43-101 Technical Report, Golden Heart Gold Project, Saskatchewan, Canada" with an effective date of February 1, 2021, the "Technical Report").

I am a Professional Geoscientist (19513) with the Association of Professional Engineers and Geoscientists of British Columbia. I graduated with a Bachelor of Science in Geology from the University of British Columbia, May 1975.

I have practiced my profession continuously for 45 years. I have been directly involved in mineral exploration, mine geology and resource estimation with practical experience from feasibility studies.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101").

I visited the Golden Heart property on July 27, 2005.

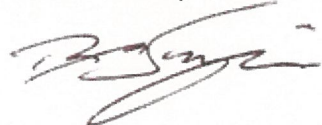
I am responsible for Section 2, Sections 4 to 11, and Section 13 of the technical report and contributed to Sections 1 to 3, Section 12 and Section 20 as a co-author.

I am independent of Matrixset Investment Corporation and Golden Band Resources Inc. as independence is described by Section 1.5 of NI 43-101.

I prepared Technical Reports on the Golden Heart Project in 2006. I also co-authored Preliminary Economic Assessments on the Waddy Lake Project in 2007 and 2008.

As of the effective date of the technical report, to the best of my knowledge, information and belief, the Technical Report contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading

Dated: February 1, 2021



Ronald G. Simpson, P.Geo.





## **CERTIFICATE OF QUALIFIED PERSON**

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I, Frank Hrdy, P.Ge., am employed as a Professional Geoscientist with Canmine Consultants.

This certificate applies to the technical report titled "NI43-101 Technical Report, Golden Heart Gold Project, Saskatchewan, Canada" with an effective date of February 1, 2021, the "Technical Report").

I am a Professional Geoscientist (10226) with the Association of Professional Engineers and Geoscientists of Saskatchewan. I graduated with a Bachelor of Science in Geology from the University of Saskatchewan, 1987 and Masters of Science in Geology (U of S) in 1994.

I have practiced my profession since 1984 with the exception of the years between 1998 and 2003 that were spent in business school and working as a manager in a heavy equipment and cyclotron manufacturing business. I have worked as a geologist (junior to senior, executive), in gold, silver and copper exploration, gold production and gold resource evaluation positions.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101").

I have visited the Golden Heart Property on numerous occasions over many years starting in 2006. The most recent site visit was between September 19th and September 25th, 2020.

I am responsible for Sections 14 to 19 of the technical report and contributed to Sections 1 to 3, Section 12 and Section 20 as a co-author.

I am independent of Matrixset Investment Corporation and Golden Band Resources Inc. as independence is described by Section 1.5 of NI 43-101.

I prepared a Resource Estimate Update and press release for the Tower Lake deposit on December 3, 2007. I also co-authored Preliminary Economic Assessments on the Waddy Lake Project in 2008 and 2009.

As of the effective date of the technical report, to the best of my knowledge, information and belief, the Technical Report contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading

Dated: February 1, 2021

Frank Hrdy, P.Ge.

