



Expanding Production and Reducing Costs

**DENVER
GOLD
FORUM**
SEPT 24-27, 2017

Disclaimer

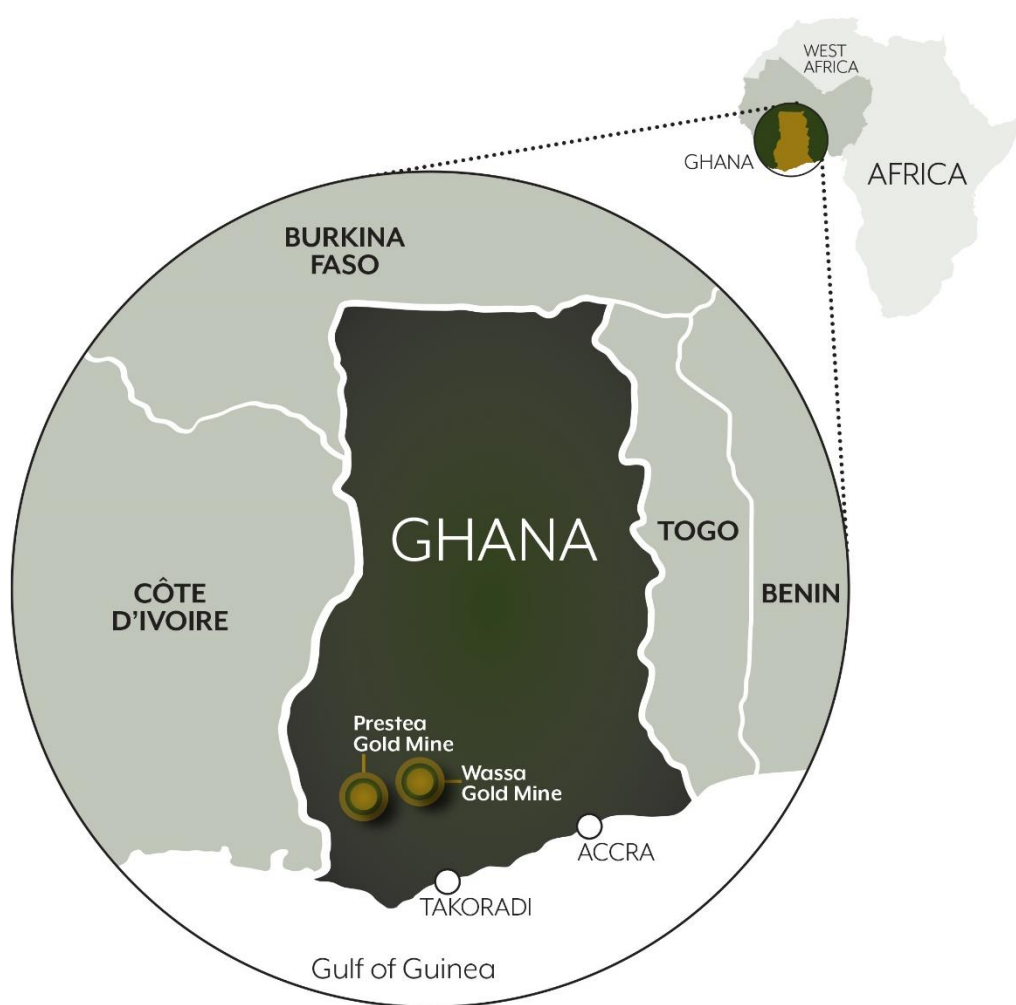
SAFE HARBOUR: Some statements contained in this presentation are forward-looking statements or forward-looking information (collectively, "forward-looking statements") within the meaning of the United States Private Securities Litigation Reform Act of 1995 and applicable Canadian securities laws. Investors are cautioned that forward-looking statements are inherently uncertain and involve risks and uncertainties that could cause actual results to differ materially. Such statements include comments regarding: production, cash operating cost, all-in sustaining cost and capital expenditure guidance for 2017; the potential expansion of production at Wassa Underground; the timing for the release of further drilling results from Wassa Underground; the targeted 2017 mining rate at Wassa Underground; the updated short term mine plan at Wassa Underground, including increased mineable tonnages and ounces of gold produced, additional ore delivered between 695 and 720 Level and efficiencies from less waste development; the ability to conduct additional drilling at Wassa Underground and the timing for completion thereof; the impact on grade as mining operations move further into B Shoot; the potential to add additional ounces to the short term mine plan at Prestea Underground and increase the production rate; the ability to increase Prestea Underground's annual production rate and extend its life of mine; the ability to increase drill production and exploration at Prestea Underground during 2017 and 2018; the potential drilling targets in 2017; the impact of Wassa Underground and Prestea Underground on the Company's production profile, cost profile, cash operating cost per ounce and AISC per ounce; the timing for commercial production at Prestea Underground; the ability to mine via longitudinal stoping and transverse stoping at B Shoot at Wassa Underground and the timing and impact thereof; the achievement of 2017 production; the timing for blasting of the first stope at Prestea Underground; the extension of production at the Prestea Open Pits until the end of 2017; the ability to expand Mineral Reserves and Mineral Resources and extend the life of mine at Prestea Underground and Wassa Underground through exploration; and the timing for incurring 2017 capital expenditures. Factors that could cause actual results to differ materially include timing of and unexpected events at the Prestea and/or the Wassa processing plants; variations in ore grade, tonnes mined, crushed or milled; delay or failure to receive board or government approvals and permits; construction delays; the availability and cost of electrical power; timing and availability of external financing on acceptable terms or at all; technical, permitting, mining or processing issues, including difficulties in establishing the infrastructure for Wassa Underground or Prestea Underground, inconsistent power supplies, plant and/or equipment failures and an inability to obtain supplies and materials on reasonable terms (including pricing) or at all; changes in U.S. and Canadian securities markets; heavy rainfall and flooding of underground mines; and fluctuations in gold price and input costs and general economic conditions. There can be no assurance that future developments affecting the Company will be those anticipated by management. Please refer to the discussion of these and other factors in our Annual Information Form for the year ended December 31, 2016 filed on SEDAR at www.sedar.com. The forecasts contained in this presentation constitute management's current estimates, as of the date of this presentation, with respect to the matters covered thereby. We expect that these estimates will change as new information is received and that actual results will vary from these estimates, possibly by material amounts. While we may elect to update these estimates at any time, we do not undertake to update any estimate at any particular time or in response to any particular event. Investors and others should not assume that any forecasts in this presentation represent management's estimate as of any date other than the date of this presentation.

NON-GAAP FINANCIAL MEASURES: In this presentation, we use the terms "cash operating cost per ounce", "All-In Sustaining Cost per ounce", "AISC per ounce", "Adjusted Net Income", "Adjusted Net Income/Share", "Cash operating margin per ounce" and "Cash Flow from operations before working capital changes". These terms should be considered as Non-GAAP Financial Measures as defined in applicable Canadian and United States securities laws and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with International Financial Reporting Standards ("IFRS"). "Cash operating cost per ounce" for a period is equal to the cost of sales excluding depreciation and amortization for the period less royalties, the cash component of metals inventory net realizable value adjustments and severance charges divided by the number of ounces of gold sold (excluding pre-commercial production ounces) during the period. "All-In Sustaining Costs per ounce" commences with cash operating costs and then adds sustaining capital expenditures, corporate general and administrative costs, mine site exploratory drilling and greenfield evaluation costs and environmental rehabilitation costs, divided by the number of ounces of gold sold (excluding pre-commercial production ounces) during the period. This measure seeks to represent the total costs of producing gold from operations. These measures are not representative of all cash expenditures as they do not include income tax payments or interest costs. In order to indicate to stakeholders the Company's earnings excluding the non-cash (gain)/loss on the fair value of debentures, non-cash impairment charges and severance charges, the Company calculates "Adjusted Net Income" and "Adjusted Net Income per share" to supplement the condensed interim consolidated financial statements. "Cash operating margin per ounce" is calculated as gold price minus cash operating cost per ounce. "Cash flow from operations before working capital changes" is calculated by subtracting the "Changes in working capital" from "Net cash provided by operating activities" as found in the statements of cash flows. These measures are not necessarily indicative of operating profit or cash flow from operations as would be determined under IFRS. Changes in numerous factors including, but not limited to, mining rates, milling rates, gold grade, gold recovery, and the costs of labor, consumables and mine site general and administrative activities can cause these measures to increase or decrease. We believe that these measures are the same or similar to the measures of other gold mining companies, but may not be comparable to similarly titled measures in every instance. Please see our "Management's Discussion and Analysis of Financial Condition and Results of Operations for the three and six months ended June 30, 2017" for a reconciliation of these Non-GAAP measures to the nearest IFRS measure.

INFORMATION: The information contained in this presentation has been obtained by Golden Star from its own records and from other sources deemed reliable, however no representation or warranty is made as to its accuracy or completeness. The technical information relating to Golden Star's material properties disclosed herein is based upon technical reports prepared and filed pursuant to National Instrument 43-101 - Standards of Disclosure for Mineral Projects ("NI 43-101") and other publicly available information regarding the Company, including the following: (i) "NI 43-101 Technical Report on a Feasibility Study of the Wassa Open Pit Mine and Underground Project in Ghana" effective December 31, 2014; (ii) "NI 43-101 Technical Report on Resources and Reserves, Golden Star Resources Ltd., Bogoso Prestea Gold Mine, Ghana" effective December 31, 2013, and (iii) "NI 43-101 Technical Report on a Feasibility Study of the Prestea Underground gold project in Ghana" effective November 3, 2015. Additional information is included in Golden Star's Annual Information Form for the year ended December 31, 2016 which is filed on SEDAR. Mineral Reserves were prepared under the supervision of Dr. Martin Raffield, Senior Vice President Technical Services for the Company. Dr. Raffield is a "Qualified Person" as defined by NI 43-101. The Qualified Person reviewing and validating the estimation of the Mineral Resources is S. Mitchel Wasel, Golden Star Resources Vice President of Exploration.

CURRENCY: All monetary amounts refer to United States dollars unless otherwise indicated.

Golden Star: Snapshot



2017 production guidance
255,000-280,000oz



2017 AISC¹ guidance
\$970-1,070/oz



Mineral Reserves & Resources²
1.9Moz / 4.4Moz



2017 capex budget
\$69.3m



Cash balance³
\$25.9m

Wassa Underground Extended Through Step Out Drilling

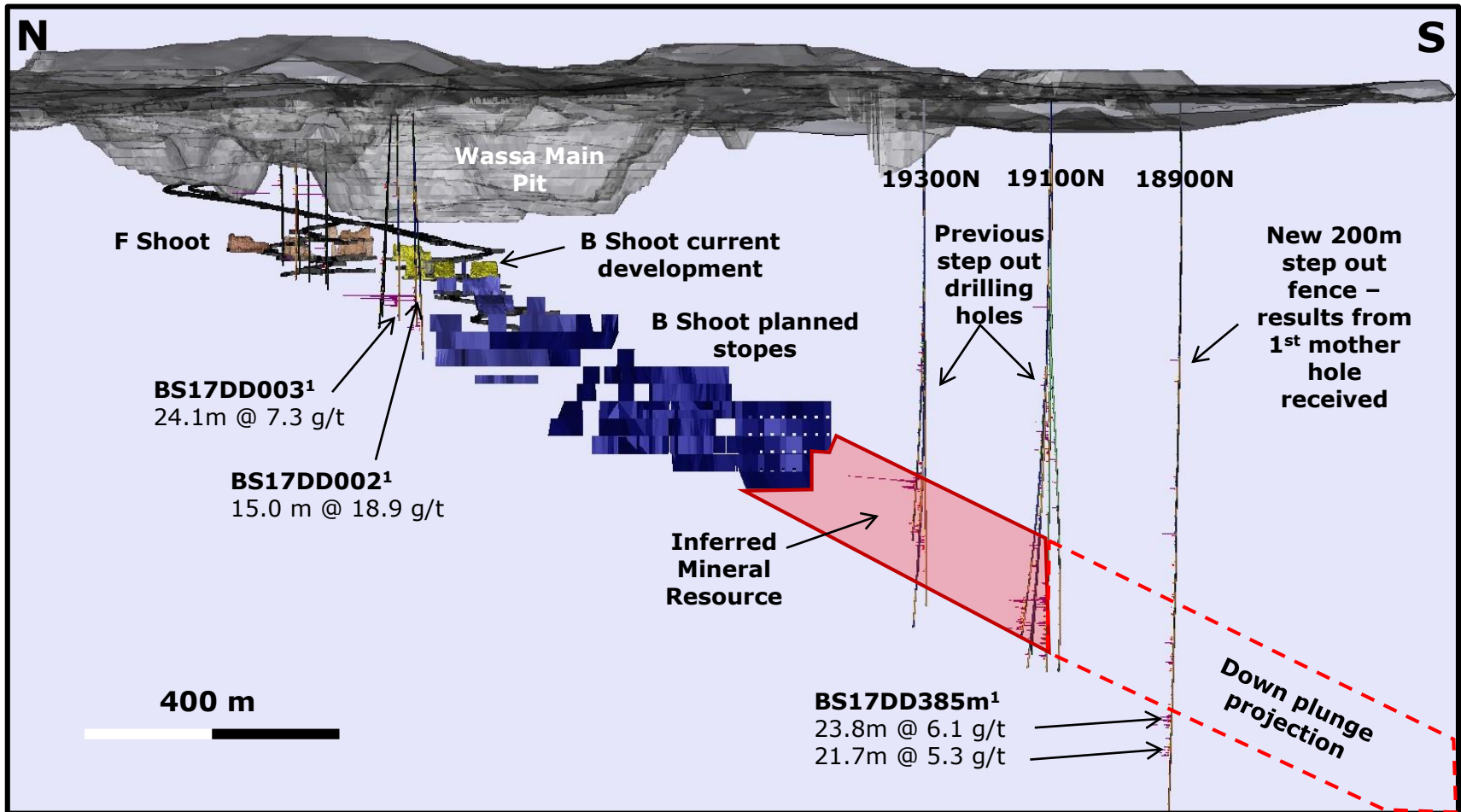
Latest drilling results confirm high grade B Shoot extends to the north and south and remains open in both directions

WASSA UNDERGROUND

HOLE ID	From (m)	To (m)	Drilled Width (m)	Grade Au (g/t)
B Shoot North¹				
BS17DD002	294.0	309.0	15.0	18.9
BS17DD002	300.0	302.0	2.0	91.8
BS17DD003	289.9	314.0	24.1	7.3
B Shoot South²				
BS17DD385M	1001.0	1024.8	23.8	6.1
BS17DD385M	1018.0	1020.0	2.0	20.2
BS17DD385M	1049.3	1071.0	21.7	5.3

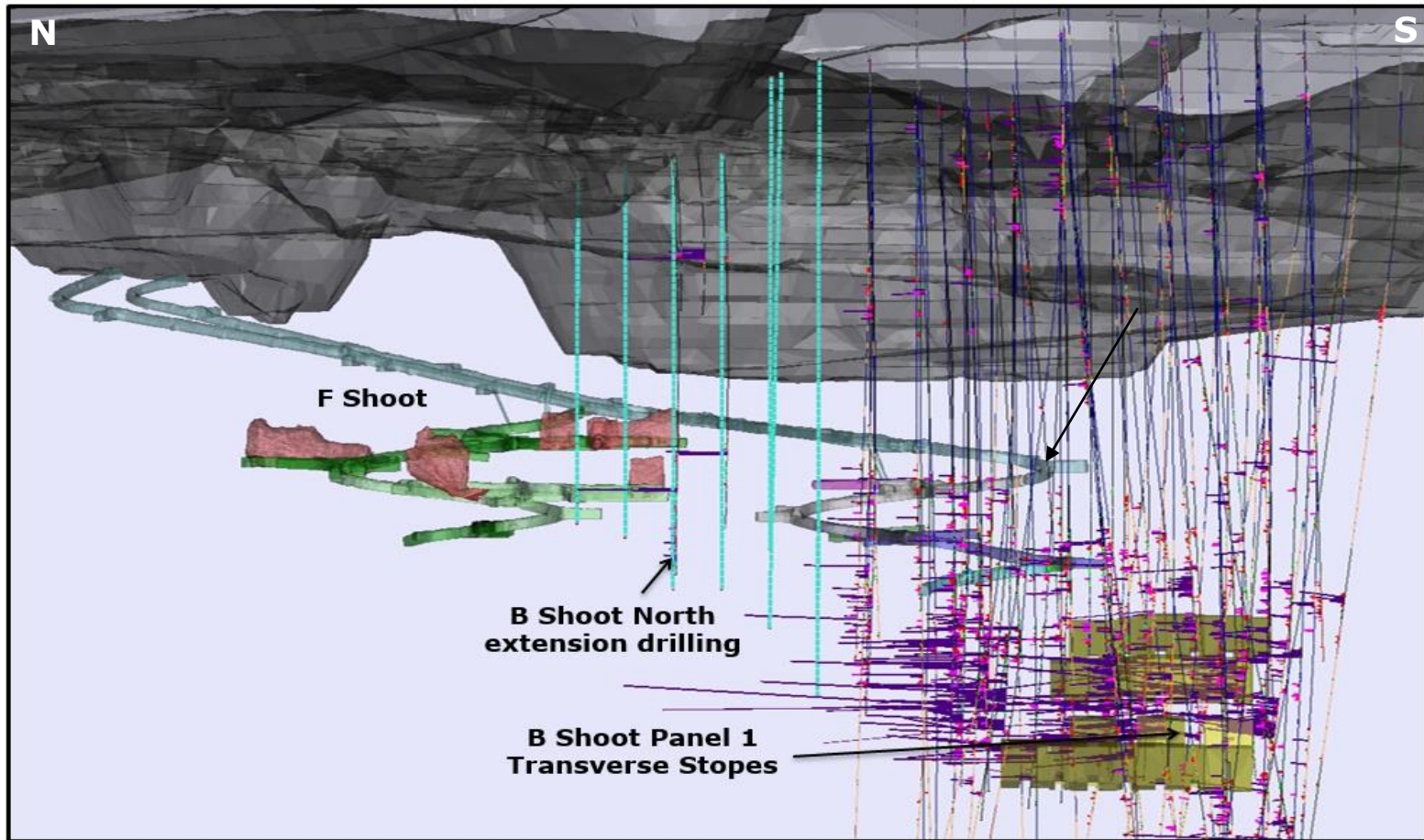
- Results confirm B Shoot extends approximately 50m to the north of current planned stoping area and 200m to the south of Wassa's Inferred Mineral Resources
- Indicates that Wassa is a larger deposit than previously estimated - potential to expand production in the short term and longer term
- B Shoot South drilling will comprise 7,000m in total and B Shoot North comprised 4,164m
- Further drilling results expected from Wassa Underground during Q4 2017
- First exploration program at Wassa Underground since 2014

B Shoot South: Ore Body Remains Open Down Plunge



- Encouraging results from first mother hole of B Shoot South step out hole; however further results needed to gain comprehensive understanding of the ore body's extension

B Shoot North: Potential To Increase Near-Term Production



- Promising results from 15 holes in B Shoot North – ore body is open to the north
- Represents the potential to add ounces to Wassa Underground's mine plan in the near term

Wassa Underground: Exceeding Planned Mining Rates



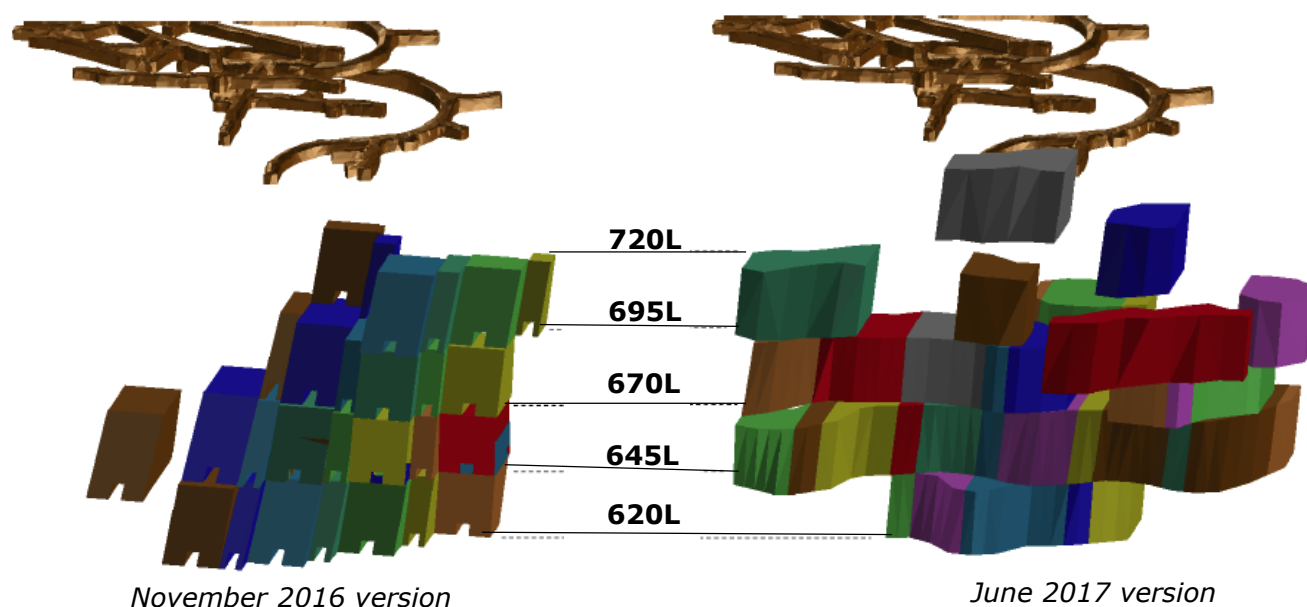
WASSA UNDERGROUND: Q2 HIGHLIGHTS

	Unit	Rate
Ore mined	Kt	144
Waste mined	Kt	29
Ore processed	Kt	145
Grade processed	g/t Au	3.02
Gold produced	oz	13,288

- Targeted 2017 mining rate of 1,400 tpd continues to be exceeded
- Average mining rate for H1 2017 of >1,600 tpd
- Primarily due to favourable ground conditions – mining team able to access larger stopes than planned
- 16% increase in production in Q2 2017 compared to Q1 2017 as higher grade B Shoot accessed at end of March 2017
- 22% increase in grade compared to Q1 2017 - majority of production from B Shoot in Q2 2017
- Grade expected to increase further as mining operations move further into B Shoot

Wassa Underground: Updated Short Term Mine Plan

- New plan reports 10% increase in mineable tonnages and 20% increase in ounces of gold, compared to previous plan
- Additional ore delivered from immediate horizons between 720 and 695 Level – expected to be mined via longitudinal stoping
- Efficiencies gained from less waste development and more ore development expected to allow for continued strong mining rates – 30m wide stopes mined via longitudinal stoping
- Due to addition of new ore targets, transverse stoping is expected to begin after all longitudinal stopes have been mined



Prestea Underground Extended to the North

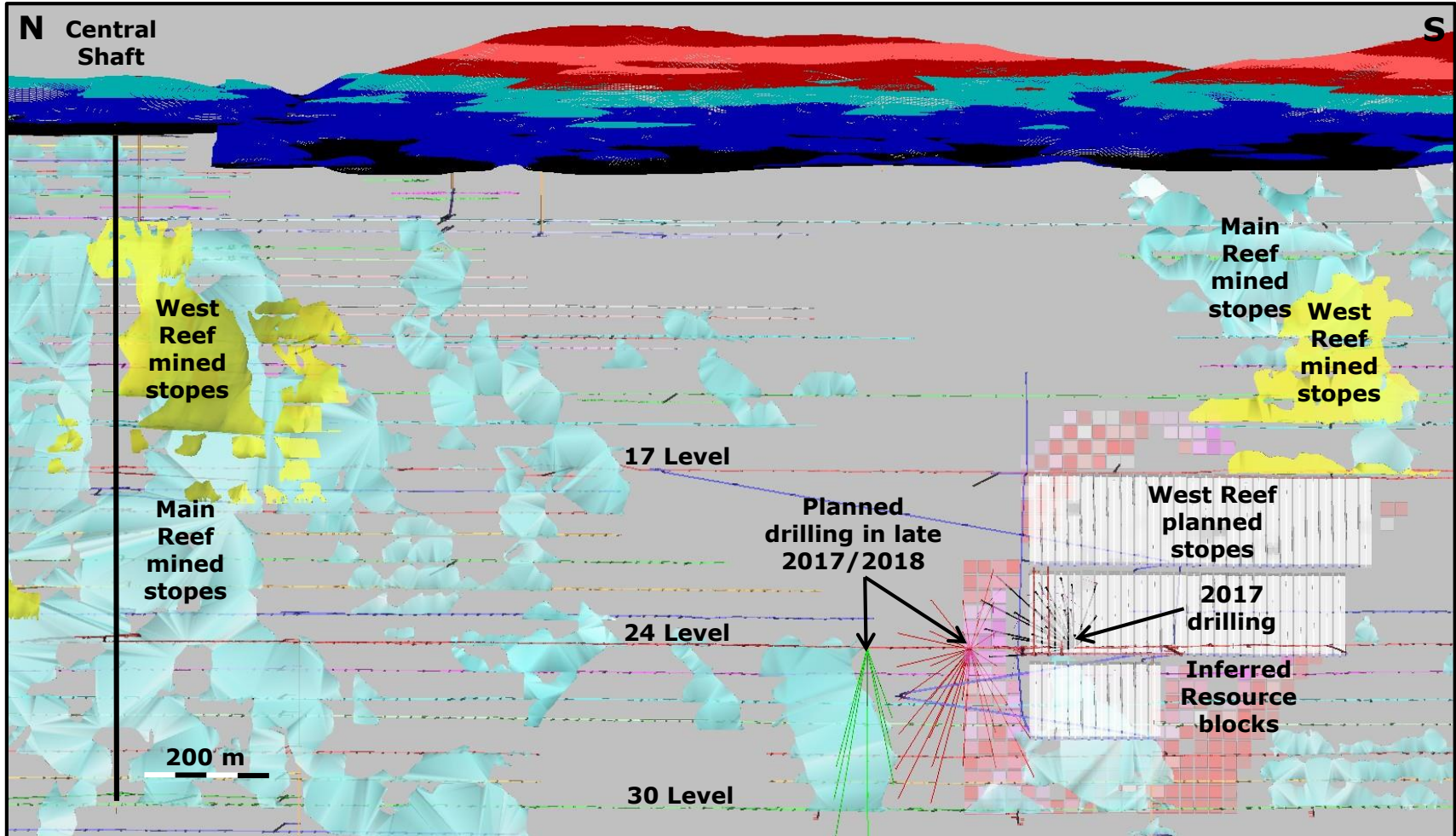
First results in West Reef extension drilling confirms ore body extends to the north

PRESTEA UNDERGROUND

Hole ID	From (m)	To (m)	~True width (m)	Grade g/t
Extension Drilling				
WR17-24-274S19	182.3	183.2	0.5	67.2
WR17-24-274S22	159.3	161.2	1.5	13.7
WR17-24-274S25	174.1	174.7	0.5	132.4
In-Fill Drilling				
WR17-24-274S16	141.1	141.6	0.5	87.6
WR17-24-274S17	144.2	145.7	1.5	64.5
WR17-24-274S18	152.7	153.9	1.1	23.7

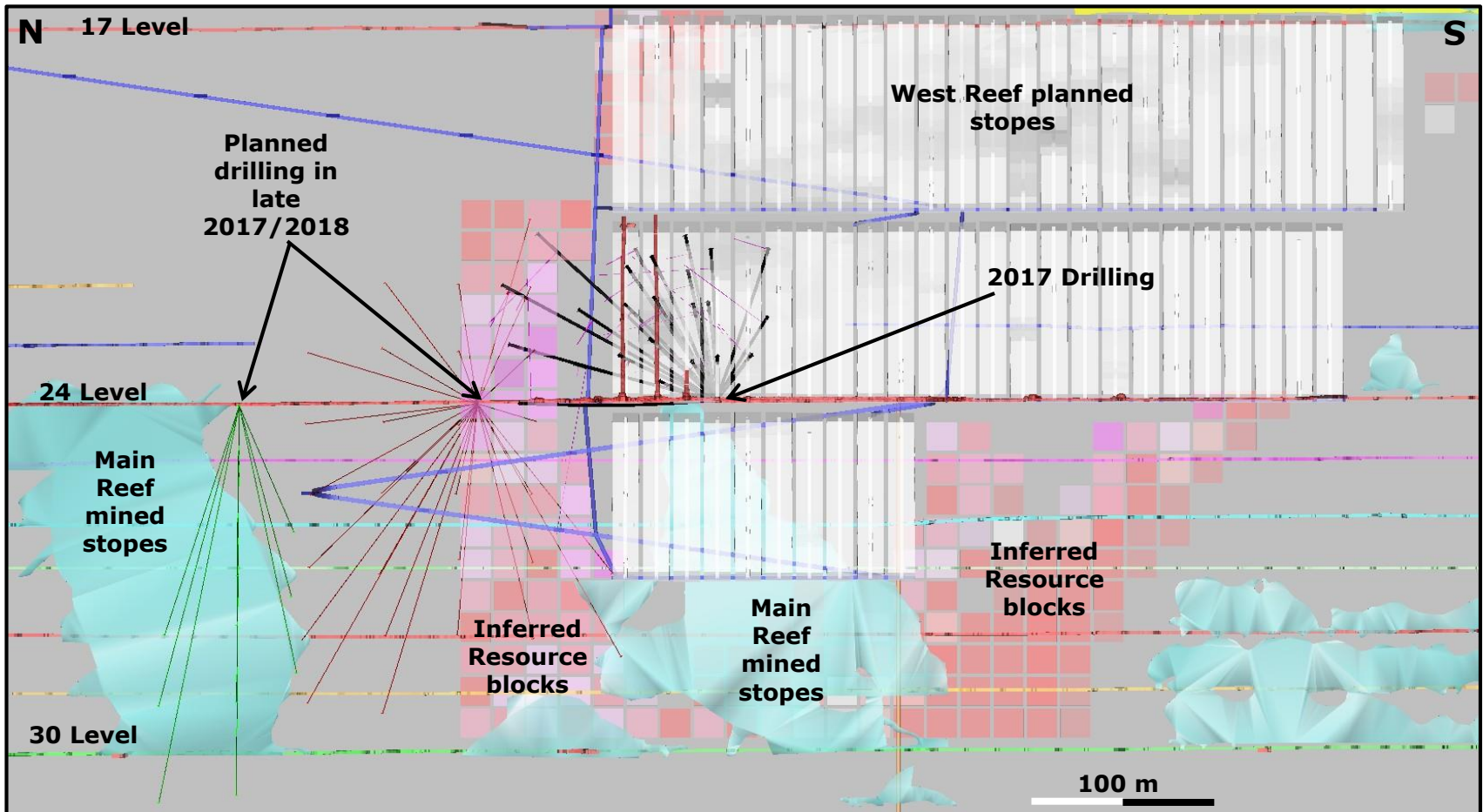
- Extension to West Reef represents potential to add additional ounces to the short term mine plan, increasing production rate
- Results for 7 DD holes in-fill drilling program also received
- Continue to confirm high grade nature, strong continuity of gold mineralization and thickness of West Reef (averaging 1.1 metres)
- Drill production is expected to increase during remainder of 2017 through mobilization of a second underground rig
- Exploration program is anticipated to ramp up further in 2018 to enable GSR to fully assess Prestea Underground's longer term potential

Prestea Underground: 2017 Drilling



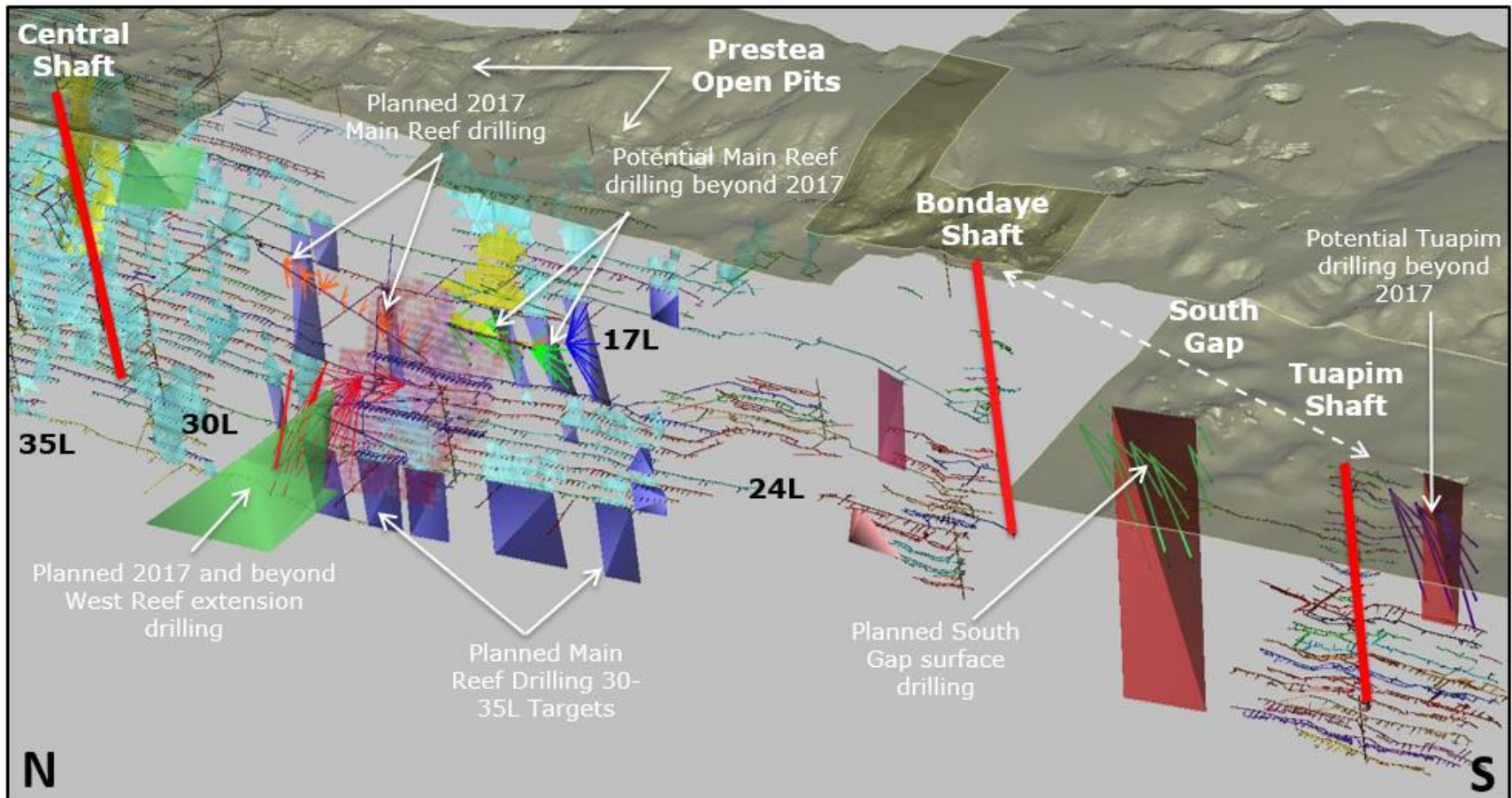
- Planned drilling in late 2017/2018 will access the larger, longer term exploration target - the projected down plunge extension of the high grade West Reef ore body

Prestea Underground: Close Up of 2017 Drilling



- If the planned drilling in late 2017/2018 is successful, it represents the opportunity to increase Prestea Underground's annual production rate and extend its life of mine

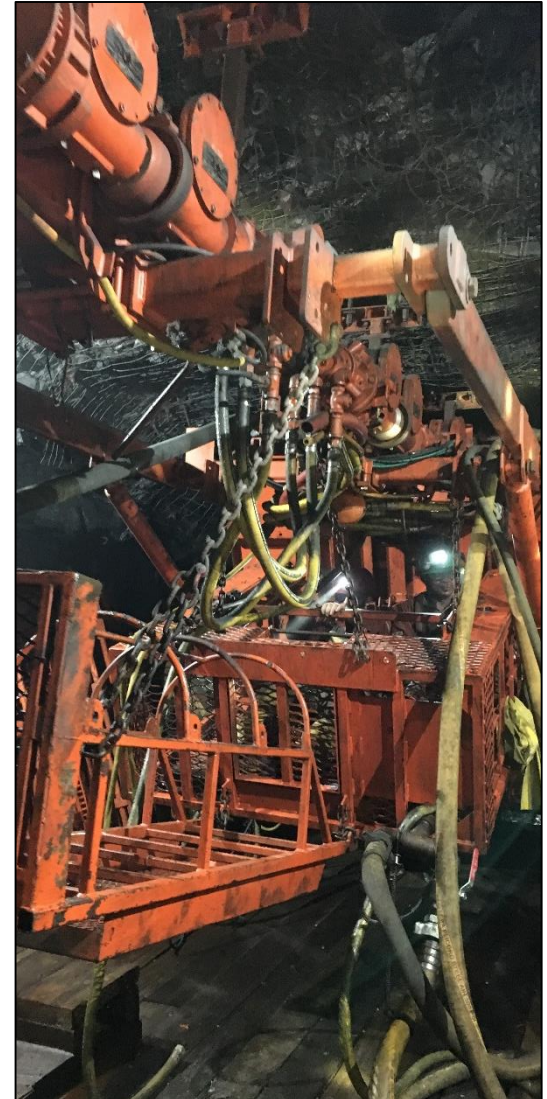
Prestea Underground: Wider Exploration Program



- 2017 exploration program is primarily focused on definition and extension of West Reef
- Other focuses include testing the Main Reef and the South Gap area with the potential to add ore into the mine plan in the medium to long term

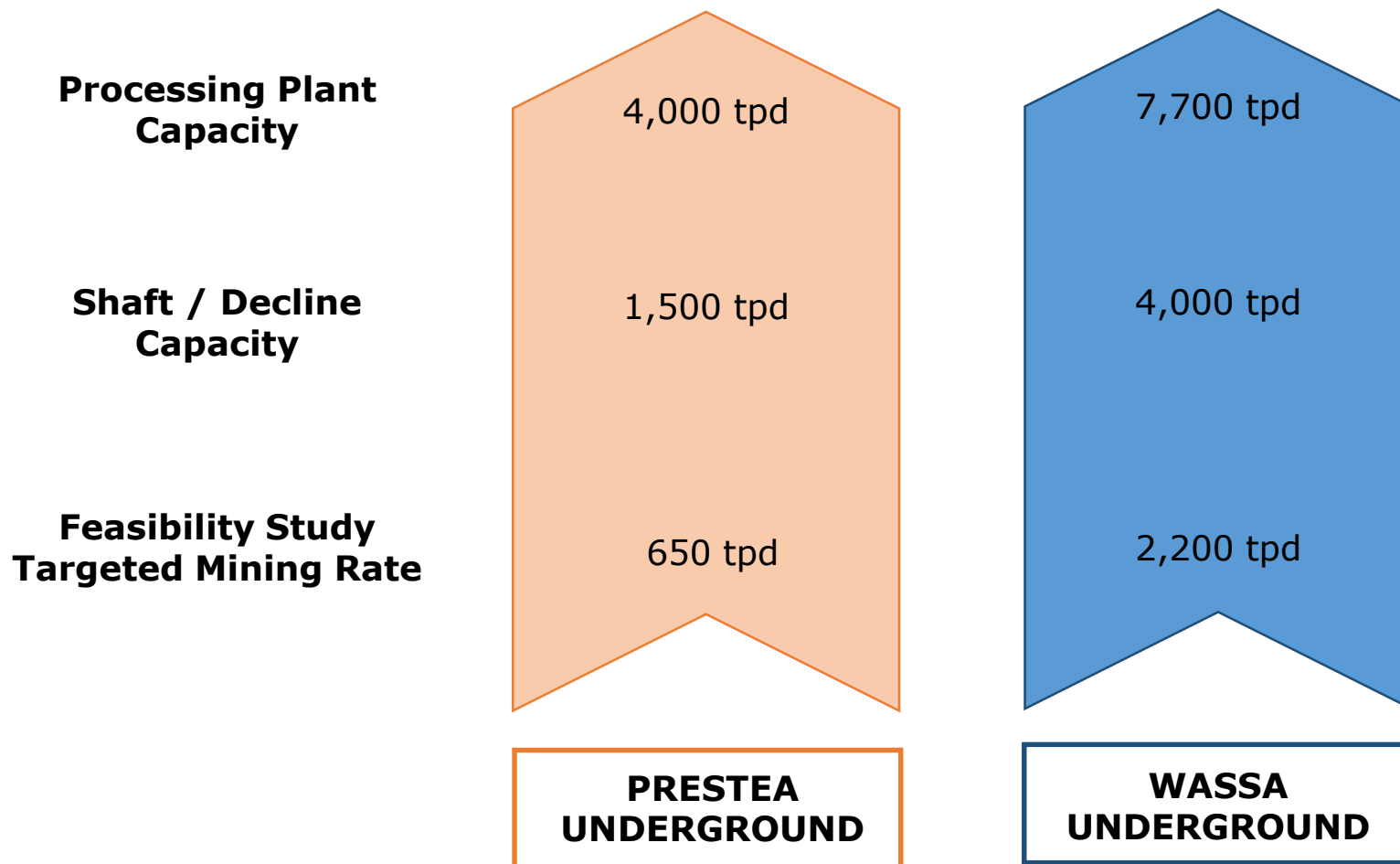
Development of Prestea Underground Continues to Progress

- 1st and 2nd raises complete, development of 3rd raise underway – advanced 26 metres
- Waste development on 24 Level accelerated – operations team are working to plan
- Successful breakthrough between the north and south side of the footwall drive achieved, enabling through ventilation
- Breakthrough also allows for ore and waste to be excavated separately – greater degree of flexibility
- Majority of capital expenditure is complete - \$22.8m incurred in H1 2017 with remaining \$13.3m expected in H2 2017
- Blasting of first stope expected in Q3 2017
- Production at Prestea Open Pits extended until end of 2017



Expansion Potential At Both Underground Operations

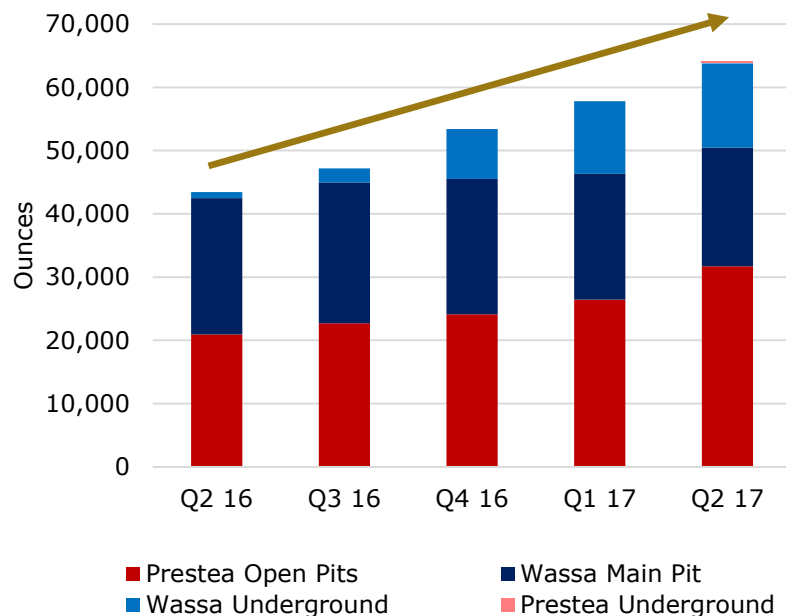
Exploration success would generate potential to significantly increase production using existing underutilized capacity



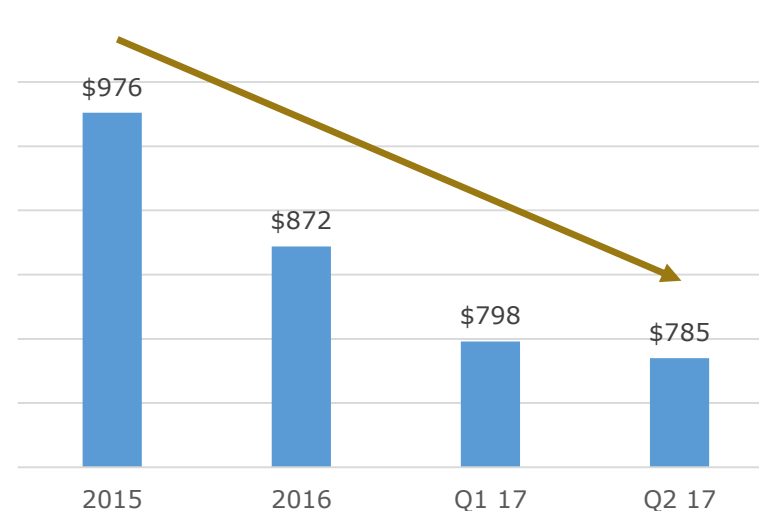
Q2 2017: Operational Snapshot

Multiple ore sources deliver significant reduction in risk profile

**Gold Production:
Q2 2016 to Q2 2017**



Cash Operating Cost Per Ounce¹



- On track to achieve FY2017 guidance of 255-280,000oz – approximately 40% increase in gold production compared to FY2016
- Lowest cash operating cost¹ and AISC¹ per ounce in 5 quarters – focused on margin

KEY MILESTONES IN 2017

- ✓ Achieve commercial production at Wassa Underground – January 1, 2017
- ✓ Commence longitudinal stoping of higher grade B Shoot zone of Wassa Underground – Q1 2017
- ✓ Commence mining of Mampon deposit – Q1 2017

Blasting of first stope at Prestea Underground – Q3 2017

2017 exploration program results – expected Q3/Q4 2017

Achieve commercial production at Prestea Underground – expected Q4 2017



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Appendices: Market Information

One Year Share Price Graph (GSS)^{1,2}



Analyst Coverage

- BMO Capital Markets
- CIBC Capital Markets
- Clarus Securities
- Credit Suisse
- National Bank Financial
- Scotia Bank

Key Institutional Shareholders

- Van Eck
- Franklin Templeton
- Oppenheimer Funds
- Sentry Investments
- Earth Resources
- Gold 2000
- AGF Management
- USAA Asset Management

Market Information¹

Markets	NYSE American / TSX / GSE
Tickers	NYSE: GSS TSX: GSC GSE: GSR
Shares in Issue ³	380,581,075
Options ³	16,756,712
Share Price	\$0.71
Market Capitalization	\$267m
Cash ⁴	\$25.9m
Debt ⁴	\$94.1m
Daily Volumes Traded (3 Month Average) ¹	1.5m shares

Experienced Management and Technical Leadership



Sam Coetzer, President & CEO

- Mining engineer with over 28 years' experience with Kinross, Xstrata Nickel, Xstrata Coal and Placer Dome
- Previously SVP South American Operations for Kinross



André van Niekerk, EVP & Chief Financial Officer

- Joined GSR in 2006 - 5 years in Ghana as GSR's Head of Finance and Business Operations
- Previously VP, Financial Controller
- Trained at KPMG



Daniel Owiredun, EVP & Chief Operating Officer

- 20 years' experience in West African mining, based in Ghana
- Previously Deputy COO for AngloGold - managed construction and operation of the Bibiani, Siguiri and Obuasi mines



Martin Raffield, SVP, Project Development & Technical Services

- Ph.D. geotechnical engineering & P. Engineering
- Previously worked for SRK, Placer Dome and Breakwater Resources
- Based at Prestea mine in Ghana



Mitch Wasel, VP Exploration

- Joined GSR in 1993
- Based in Ghana for GSR for past 17 years
- Previously spent 10 years in gold & base metal exploration in north western Canada

Q2 2017: Financial Snapshot

- 50% increase in revenue to \$77.3m in Q2 2017 compared to Q2 2016 due to higher gold production at Wassa and Prestea
- 204% increase in mine operating margin compared to Q2 2016 as a result of higher revenue
- \$18.3m of capex incurred in Q2 2017 - \$34.3m remaining for H2 2017
- Debt profile decreasing - remaining \$13.6m of 5% Convertible Debentures repaid in June 2017
- Fully funded to deliver capital program



Mine operating margin

\$13.3m



Net income

\$13.9m



Cash provided by operations

\$11.1m



Capex incurred

\$18.3m



Debt¹

\$94m



Cash balance¹

\$25.9m

Financial position gaining strength and flexibility

A Responsible Corporate Citizen

SUSTAINABLE
DEVELOPMENT
GOALS

#gsr17

99%

of workforce
is Ghanaian

51%

of workforce
hail from host
communities

>84%

of goods and services
value provided
by Ghanaian
companies

SUSTAINABLE
DEVELOPMENT
GOALS

#gsr17



\$47m in salaries in 2016



\$5.7m in sustainable
agribusiness to date



\$3.4m in development
fund projects to date

\$36.7m paid in Government payments in 2016

Mineral Reserves and Mineral Resources

Mineral Reserves ^{1,2,}	Tonnes ('000)	Grade (Au g/t)	Content (Koz)
Proven Mineral Reserves			
Wassa	695	0.96	21
Prestea	115	2.55	9
Total	810	1.18	31
Probable Mineral Reserves			
Wassa	16,741	2.43	1,307
Prestea	1,905	9.35	573
Total	18,646	3.13	1,879
Total Proven & Probable	19,456	3.05	1,910

Mineral Resources ^{1,2,}	Tonnes ('000)	Grade (Au g/t)	Content (Koz)
Measured & Indicated Mineral Resources			
Wassa	44,347	2.33	3,328
Prestea	5,394	6.08	1,055
Total	49,741	2.74	4,382
Inferred Mineral Resources			
Wassa	15,581	4.20	2,102
Prestea	3,723	7.79	933
Total	19,305	4.88	3,034

1. For the Mineral Reserves and Mineral Resources please refer to the Company's Annual Information Form ("AIF") for the year-ended December 31, 2016 and dated March 27, 2017. The AIF is available at www.gsr.com
2. All numbers exclude refractory ore.