



Expanding Production and Reducing Costs

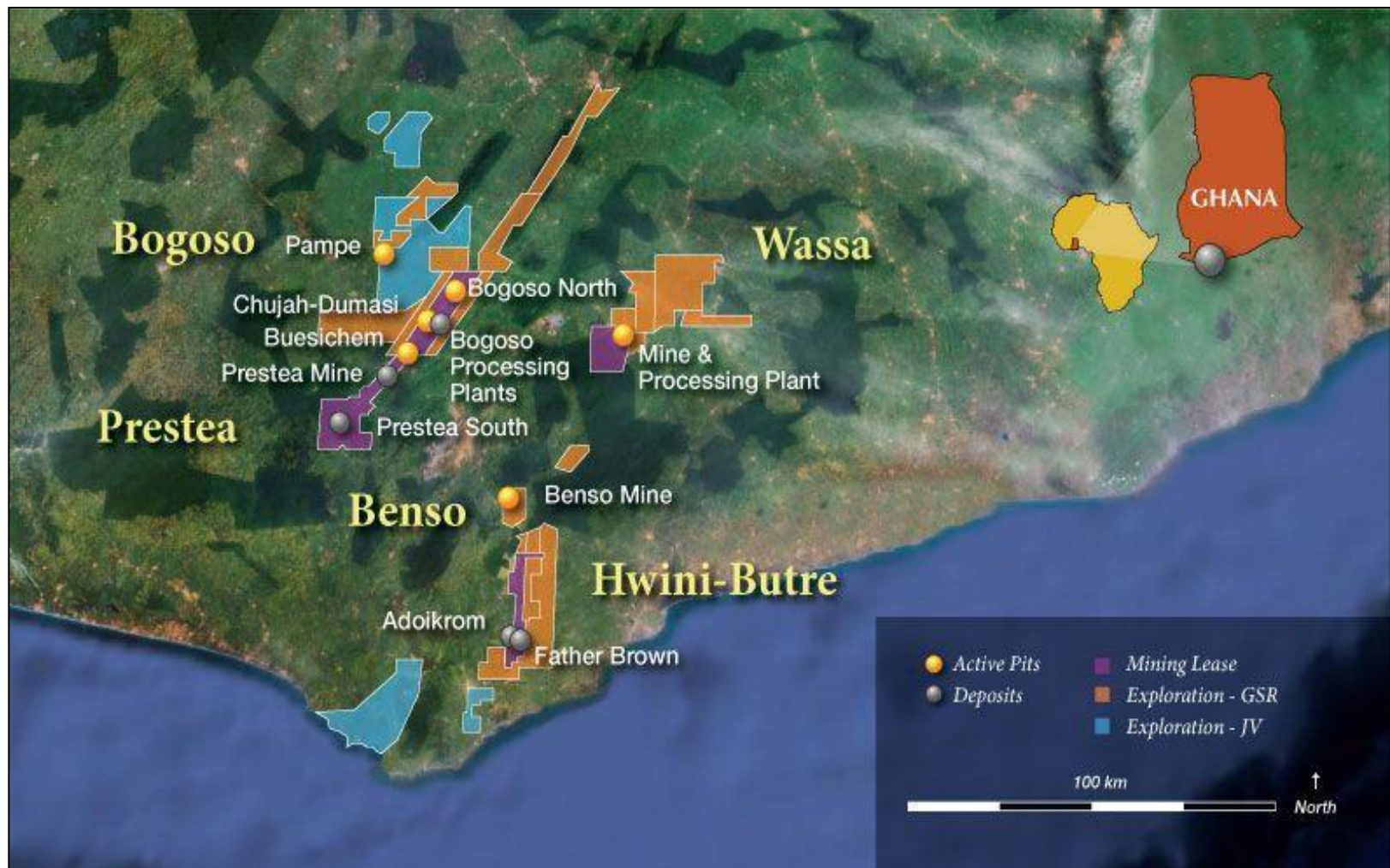
A photograph of an underground mine tunnel. A worker in a red suit and yellow hard hat is walking away from the camera on a set of wooden planks that serve as a walkway. To the left, there are large pipes and concrete structures. The tunnel walls are rough and rocky, and the lighting is dim, with a bright light source at the end of the tunnel.

**PRESTEA
UNDERGROUND
SITE VISIT
NOVEMBER 2016**

Jerry Agala, General Manager

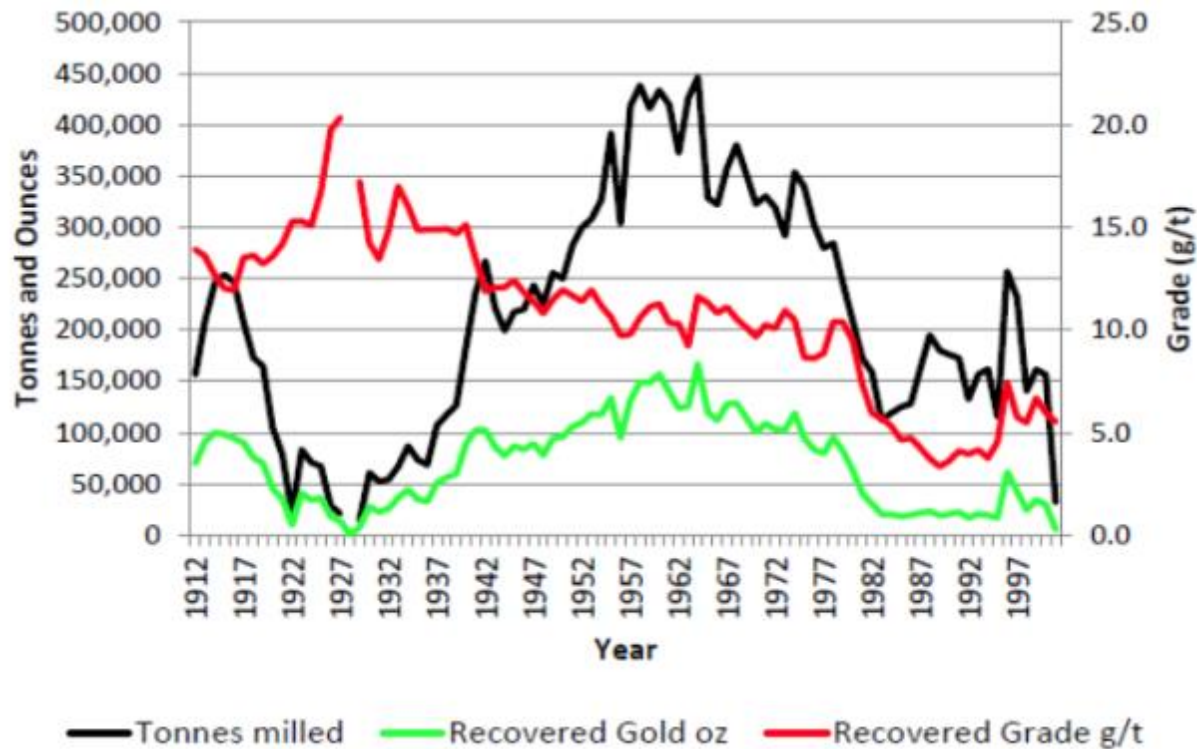
Welcome and Introduction

GSR Surface Concessions

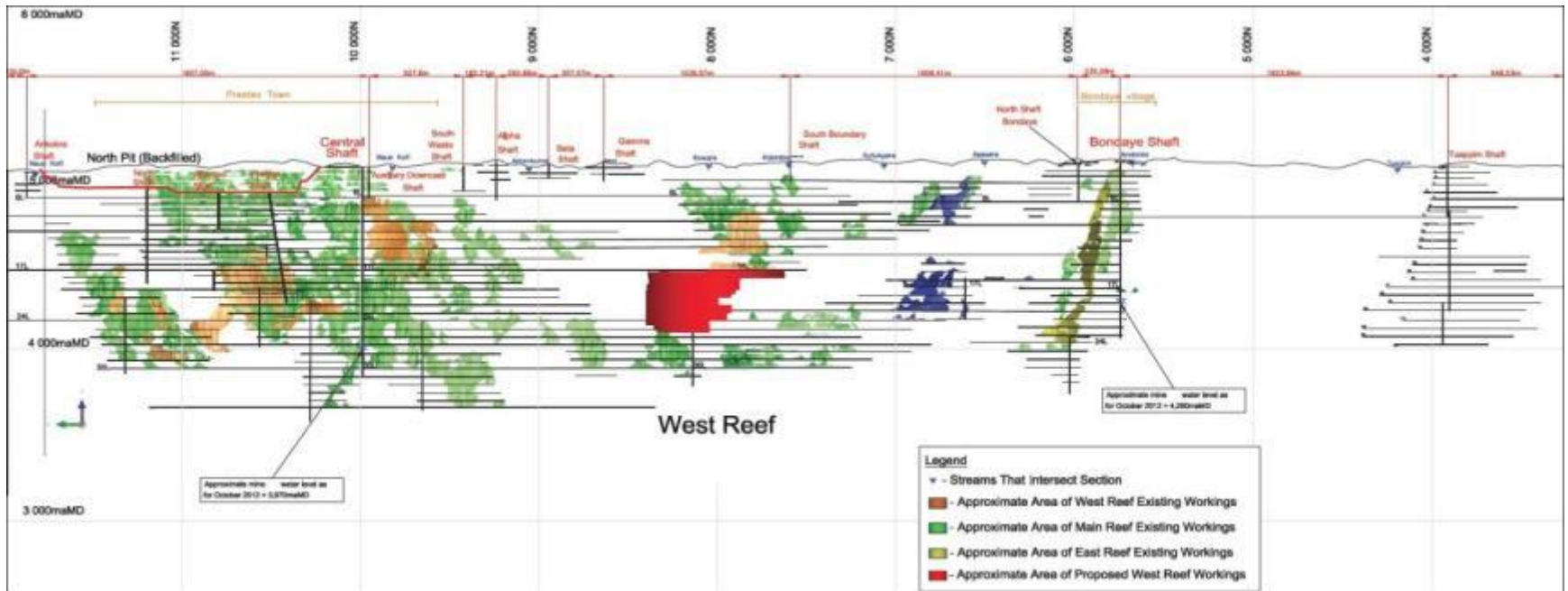


Prestea Underground: History

9 Moz gold produced since 1877 in the Prestea area, including 6 Moz from Prestea Underground



Prestea Underground: History



- North-south section of historical mine workings along 9km strike length
- 15 historic shafts and winzes and hundreds of kilometers of drives and raises
- Central and Bondaye shafts fully operational

Prestea Underground: History

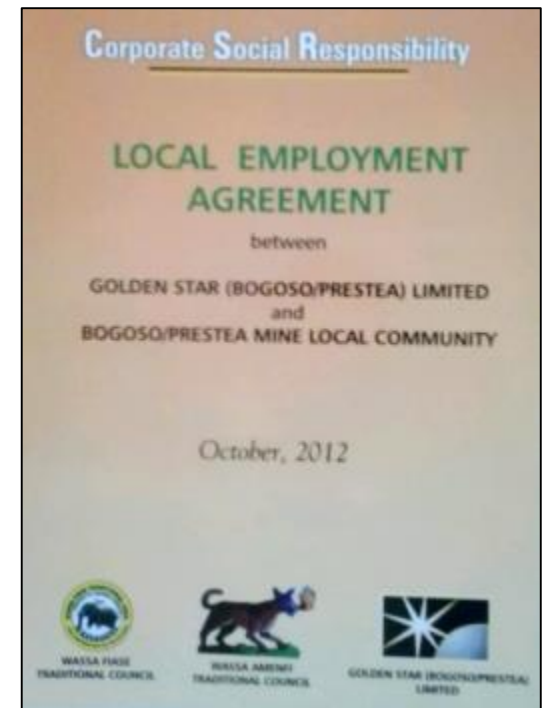
Mine Ownership

- Ariston Gold Mines (1929 - 1960)
- SGMC/PGL (1960 – 1994)
- Barnex / JCI (1994 – 1998)
- PGR (1998 – 2001)

Golden Star Resources' Involvement

- March 2002, New Century Mines (NCM) JV established between BGL (GSBPL), PGR and Ghana Government
- Primary Mandate of JV:
 - Care & maintenance
 - Conduct exploration & Feasibility Study to determine economic viability of re-opening U/G mine for commercial purposes

Community Relations and Social Responsibility



Community Relations and Social Responsibility



Chief Operating Officer Daniel Owiredu signs the new CSR agreements with the local communities in October 2012

Kent Shackel, Project Manager

Project Construction

Shaft Rehabilitation

Shaft

- Constructed around 1935
- Rectangular sett shaft 7.5m x 3m
- Collar to 30L – 1204m below collar
- Skip loading pockets at 20, 25 and 30L

Approach

- Engineering review

Rehabilitation status

- Steelwork and bearers
- 25L & 20L loading pocket

Outstanding

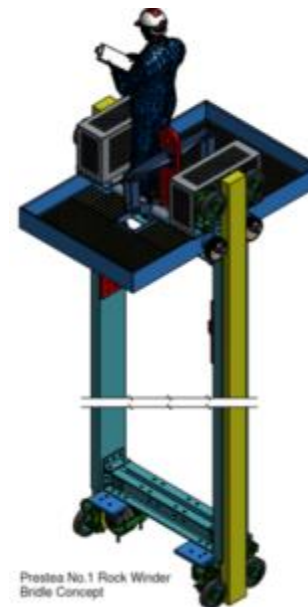
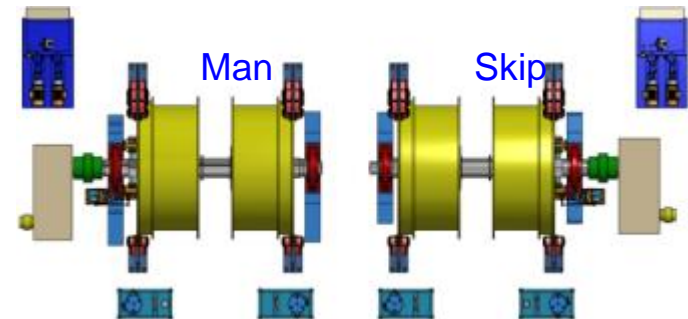
- Guide replacement
- Loading pocket chutes & mechanisms

		Alan Auld ENGINEERING																	Prestea Gold Mine - Central Shaft Inspection - Nov 2012.				
Station	Setts	A	B	C	D	E	F	G	1	2	3	4	5	6	7	8	9	10	N	W	S	E	
Station	Setts	A	B	C	D	E	F	G	1	2	3	4	5	6	7	8	9	10	N	W	S	E	
	12	G	G	G	R	G	G	G	G	G	G	G	G	G	G	G	G	G	N	N	N	N	
	13	G	G	G	R	G	R	R	G	G	G	G	G	G	G	G	G	G	N	N	N	N	
	14	G	G	G	R	R	R	R	G	G	G	G	G	G	G	G	G	G	N	N	N	N	
	15	G	R	G	R	R	R	R	G	G	G	G	G	G	G	G	G	G	N	N	N	N	
	16	G	G	G	R	R	R	R	G	G	G	G	G	R	G	G	G	G	N	N	N	N	
	17	G	G	G	R	R	R	R	G	G	G	G	G	G	G	G	G	G	N	N	N	N	
	18	G	G	G	R	R	R	R	G	G	G	G	G	G	G	G	G	G	N	N	N	N	
	19	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	N	N	N	N	
	20	G	G	G	R	R	R	R	G	G	G	G	G	G	G	G	G	G	N	N	N	N	
	21	G	G	G	R	R	R	R	G	G	G	G	G	G	G	G	G	G	N	N	N	N	
	22	G	G	G	R	G	R	G	G	G	G	G	G	G	G	G	G	G	N	N	N	N	
	23	G	G	G	R	G	R	G	G	G	G	G	G	G	G	G	G	G	LC	N	N	N	
	24	R	G	R	R	R	R	R	G	G	G	G	G	G	G	G	G	G	N	N	N	N	
	25	G	G	R	R	R	R	R	R	R	R	R	R	R	G	G	G	R	N	N	N	N	



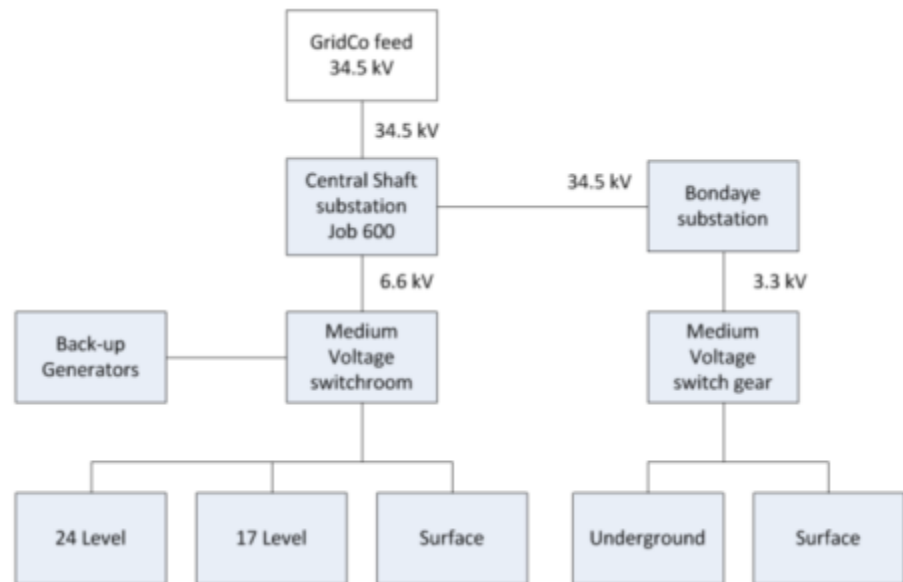
Winder Upgrade

- Winder Controls – South Africa
- Electrical scope
 - Speed control and reinstitute dynamic braking
 - PLC control for slowdown, fault annunciation & temperature monitoring
 - Spare motor - WEG
- Mechanical scope
 - Gearbox repairs
 - Brake upgrades, related hydraulics & linishing
 - Clutching actuator mechanism & related hydraulics
- Status
 - Equipment on site
 - Mobilization
- Conveyance upgrade
 - Skips & Cages complete with guide wheels, dogs, detachable hook & slack rope
 - Skips under manufacture, cage in design



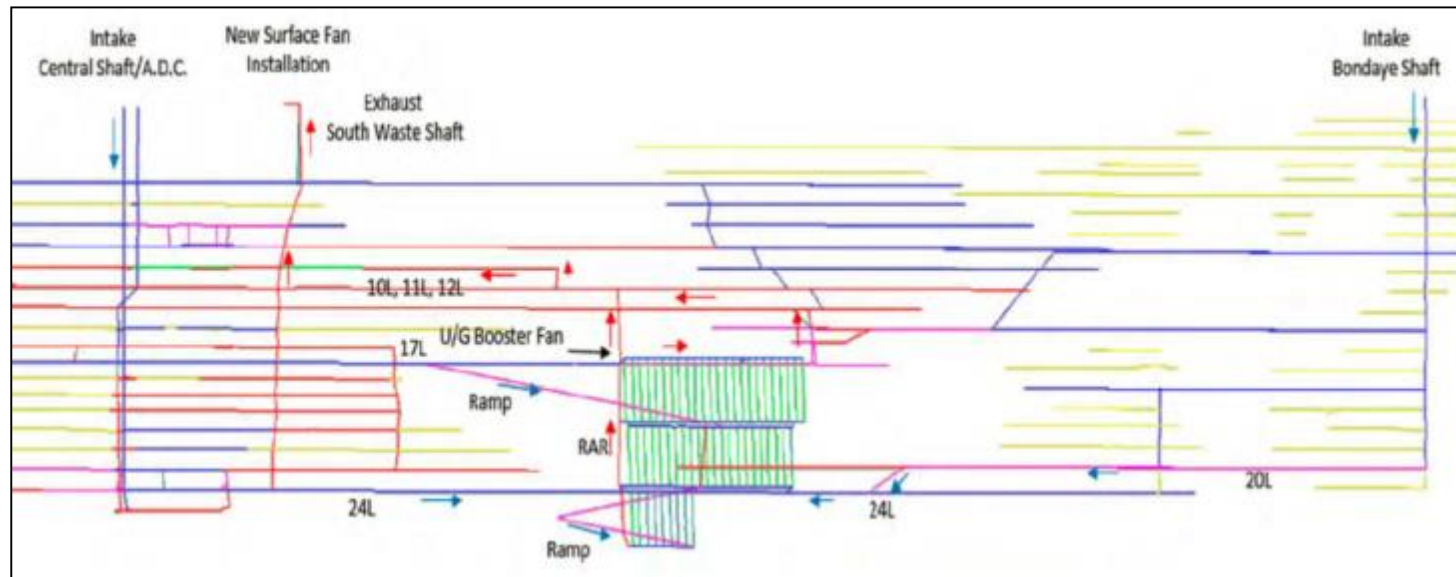
Electrical Upgrade

- Engineering contractor
 - PPE Technologies South Africa
- Electrical
 - Installation
 - Commissioning
- Leaky feeder
 - Equipment & installation
 - Commissioning complete
 - Extending to 24L West Reef



Ventilation Upgrade

- Mine Ventilation Services consulting
- Vent model – phased approach
- Ventilation installations
 - 23L fan complete - good correlation with model
 - SWS fan - required end of Q2, 2017
 - 17L fan - required end of Q1, 2018



Mining Equipment Procurement – 95% Complete

- Rail haulage
 - 8t Locomotives
 - Ore cars
 - Material cars
- Mine equipment
 - LHD – Sandvik LH203
 - 2 off onsite
 - 2 off in manufacture
 - Cavo 320
 - LM57
 - Long Tom
 - Jacklegs and stopers



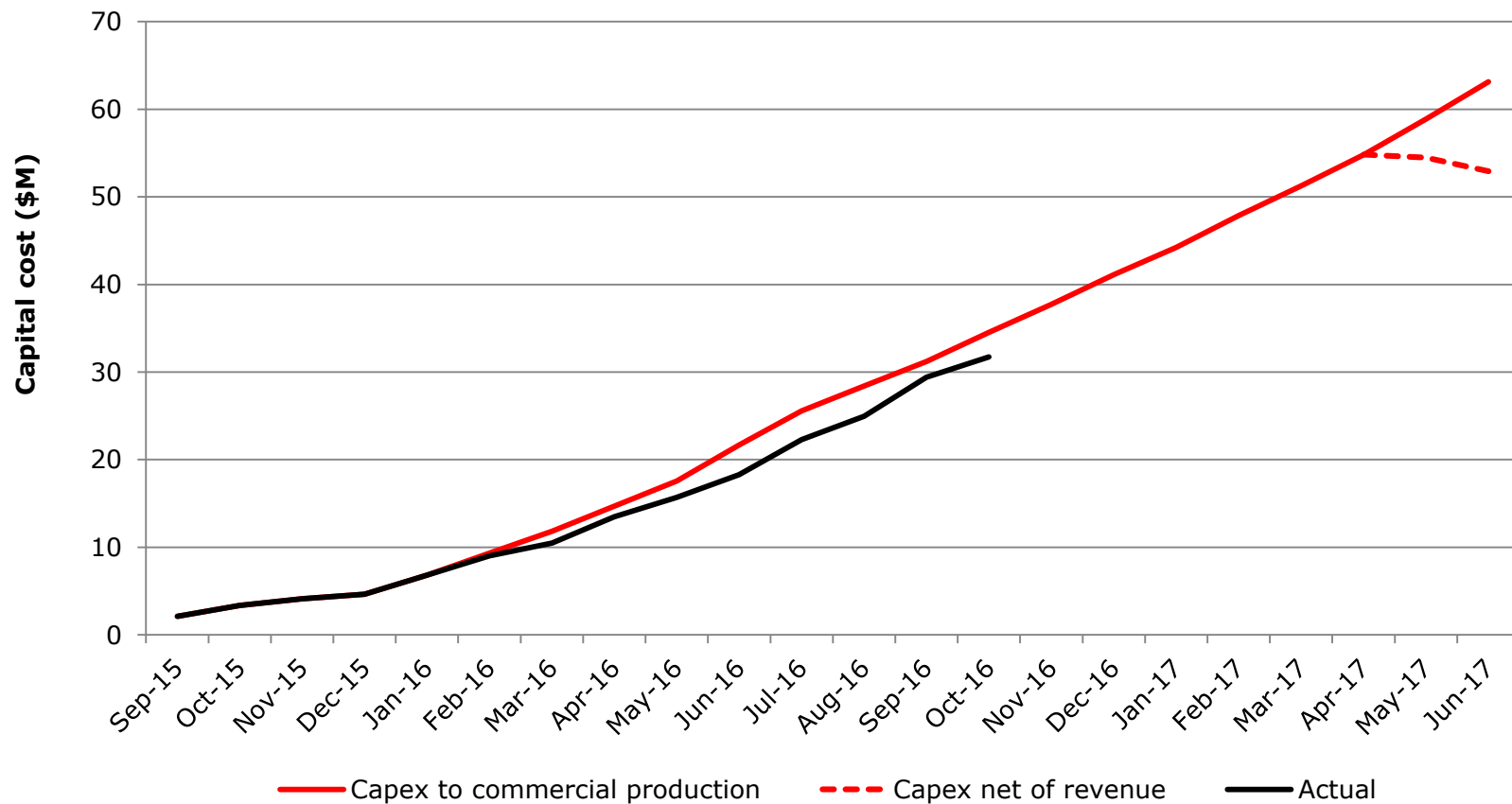
Alimak Mining Contract

- Tender process undertaken and Manroc Developments, Inc. appointed
- Limited notice to proceed
 - Equipment and pre-site establishment
 - Shipment status – 3 consignments
 - Pre-site establishment
- Contract in final stage



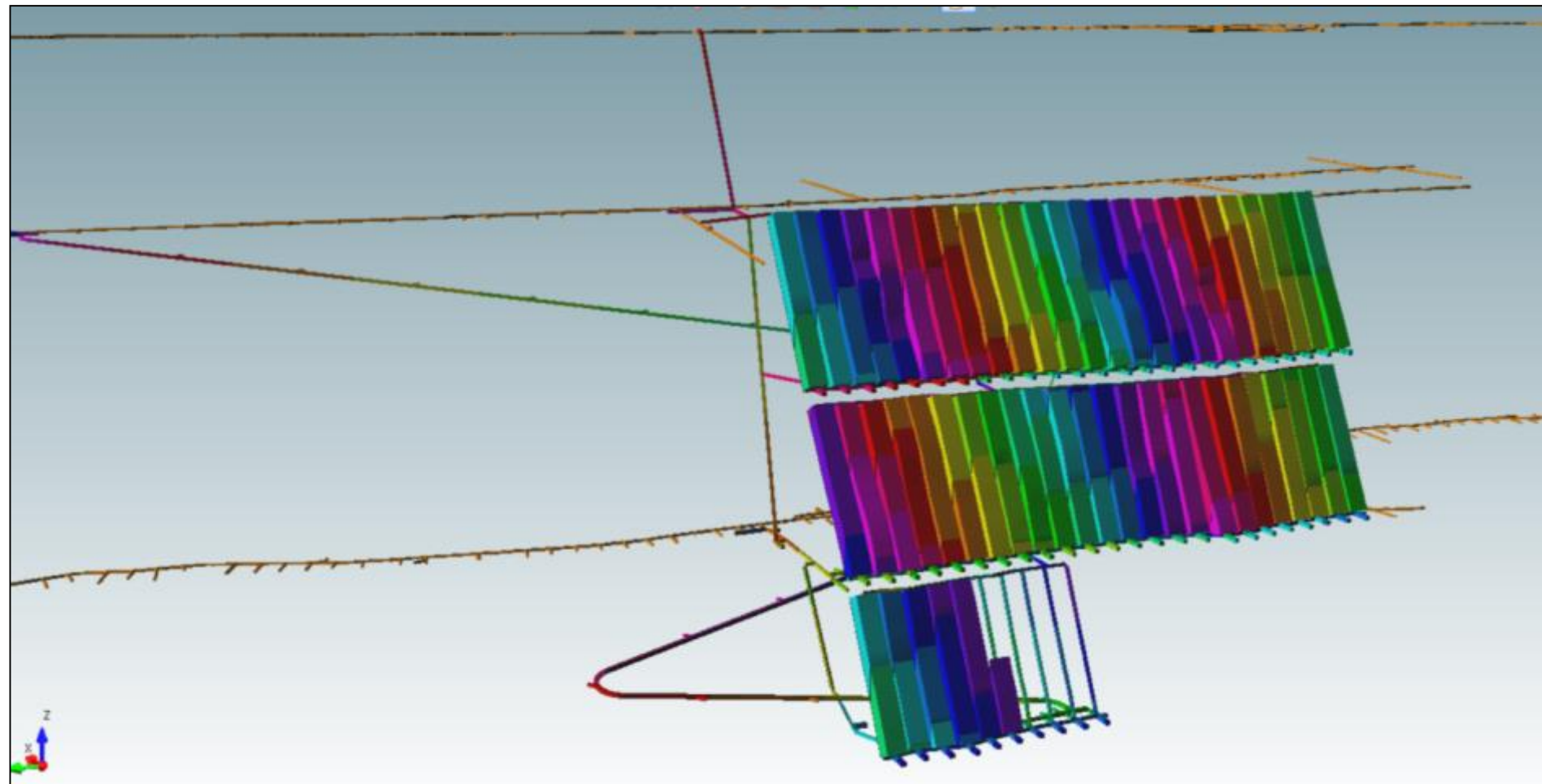
Capital Costs

Budgeted Capex vs Actual Spent to bring Prestea Underground to Commercial Production

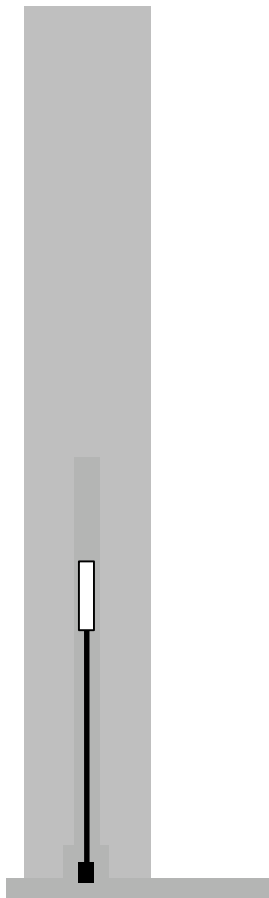


**Greg Scammell,
Underground Superintendent
Development Sequence and
Mining Method**

Development Sequence

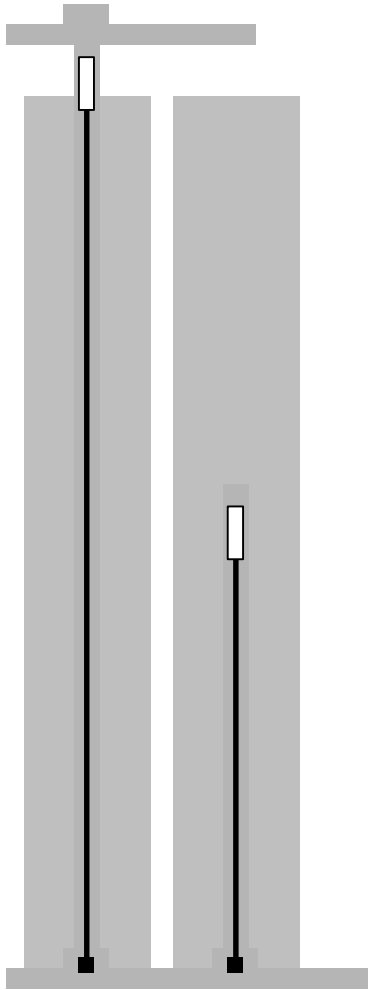


Alimak Mining



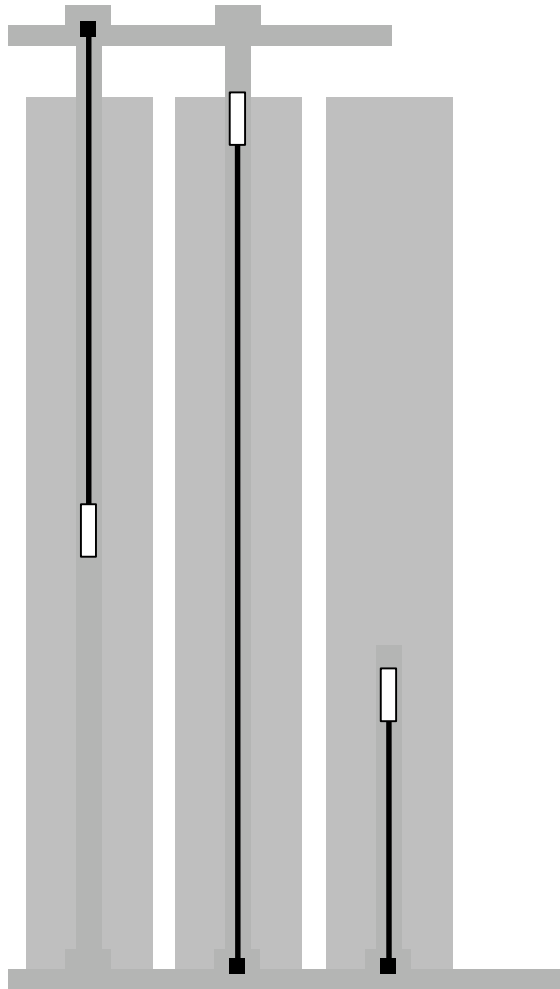
Alimak raise commences on first stope

Alimak Mining



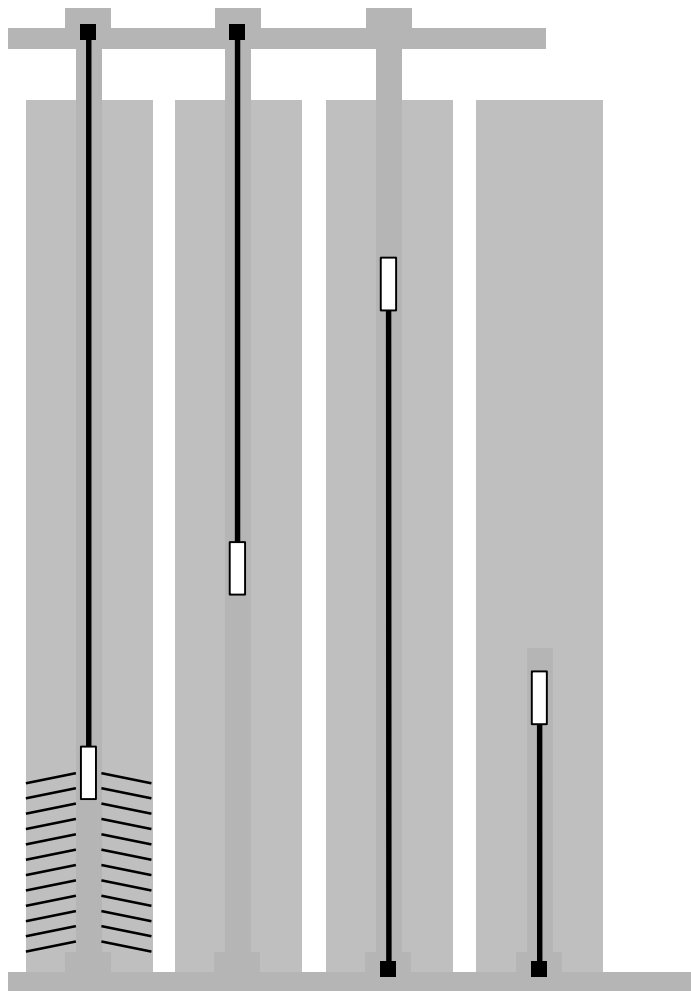
First raise completes, sub drift to second raise

Alimak Mining



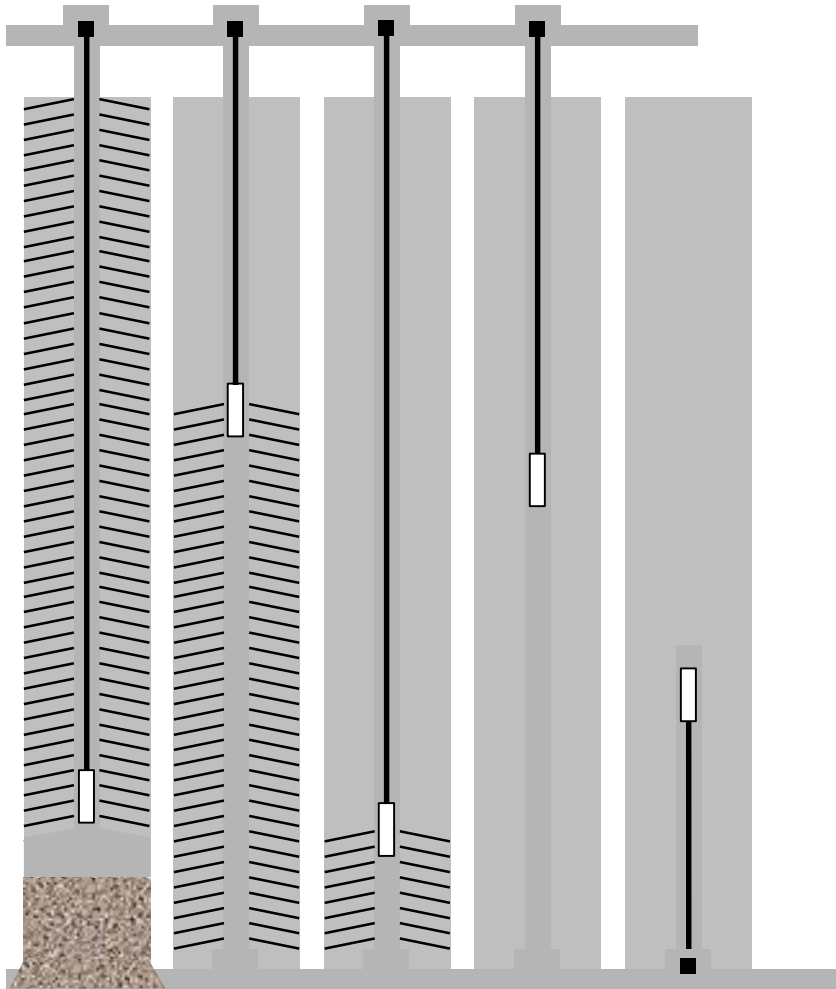
First Alimak relocates to top and install support

Alimak Mining

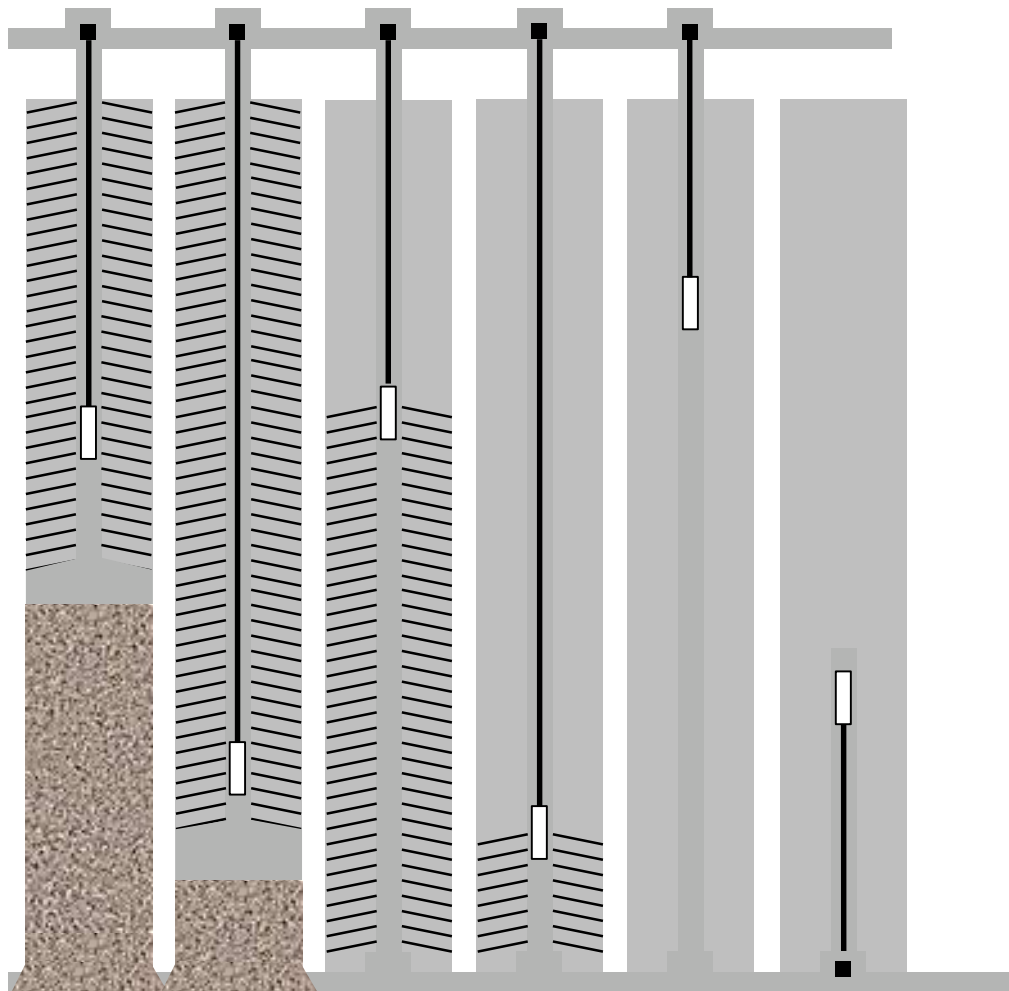


First Alimak longhole drilling

Alimak Mining

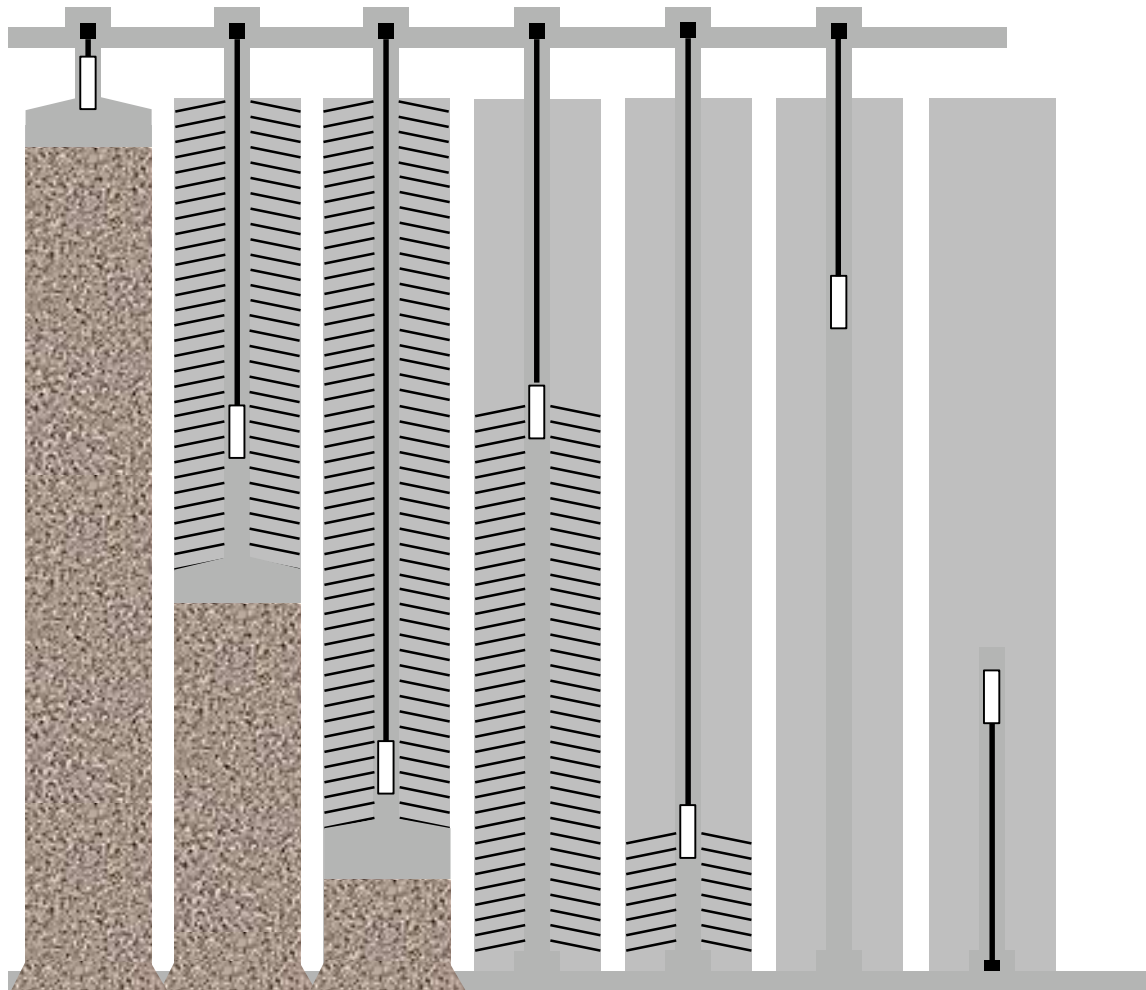


First stope commences blasting



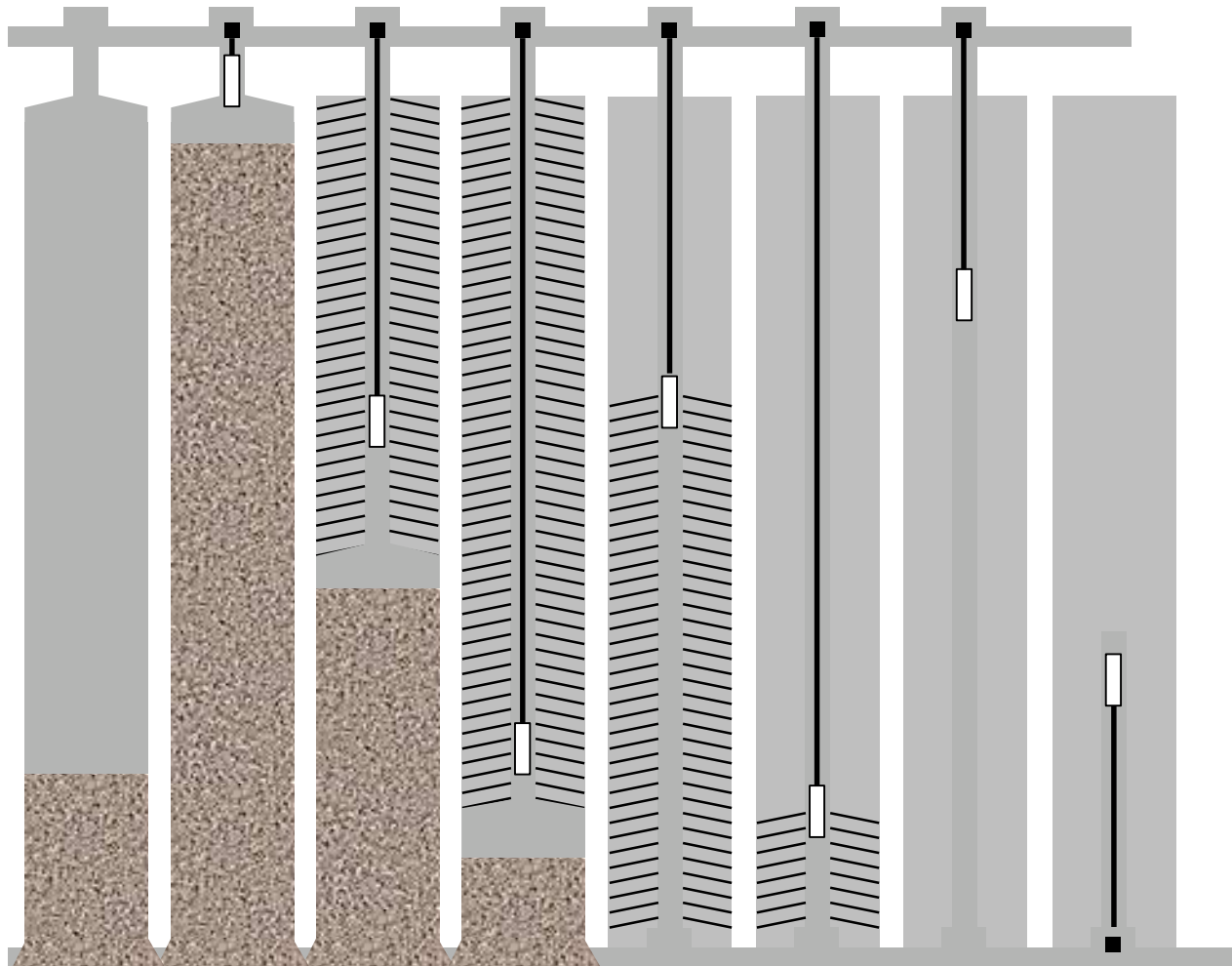
Sequence progresses

Alimak Mining



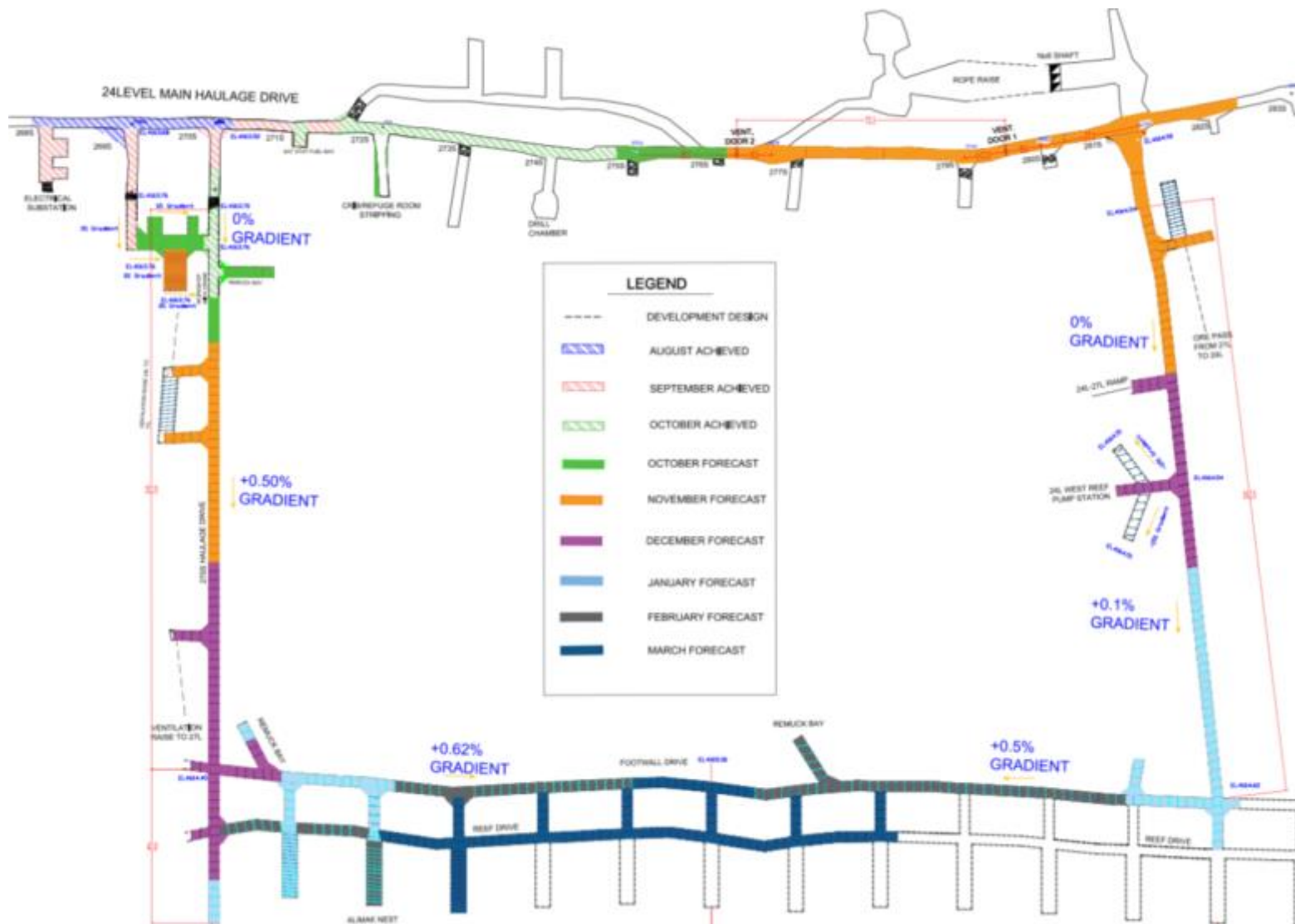
Sequence progresses

Alimak Mining



Sequence progresses

24L Development Schedule

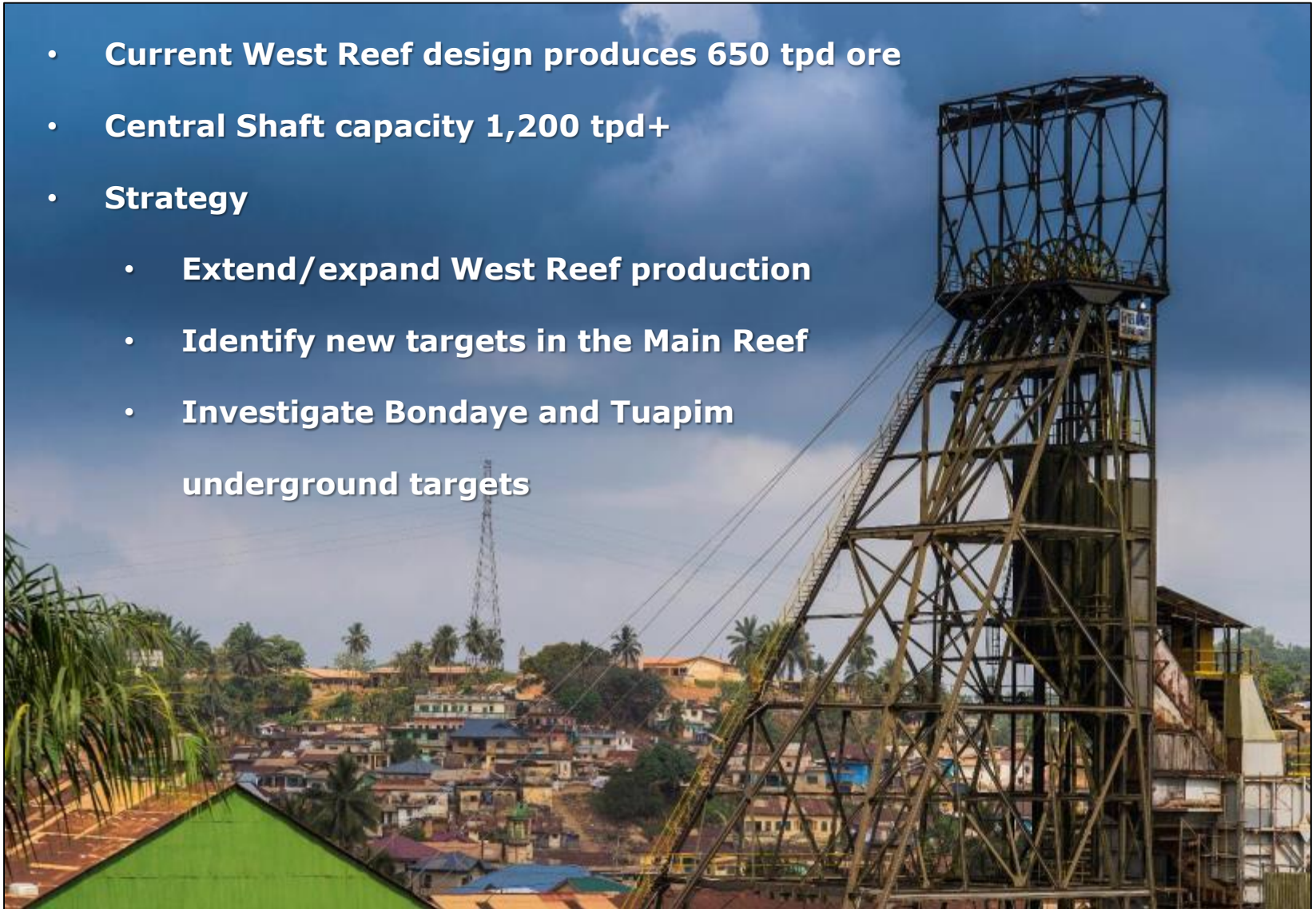


**Martin Raffield, SVP Project
Development & Technical Services**

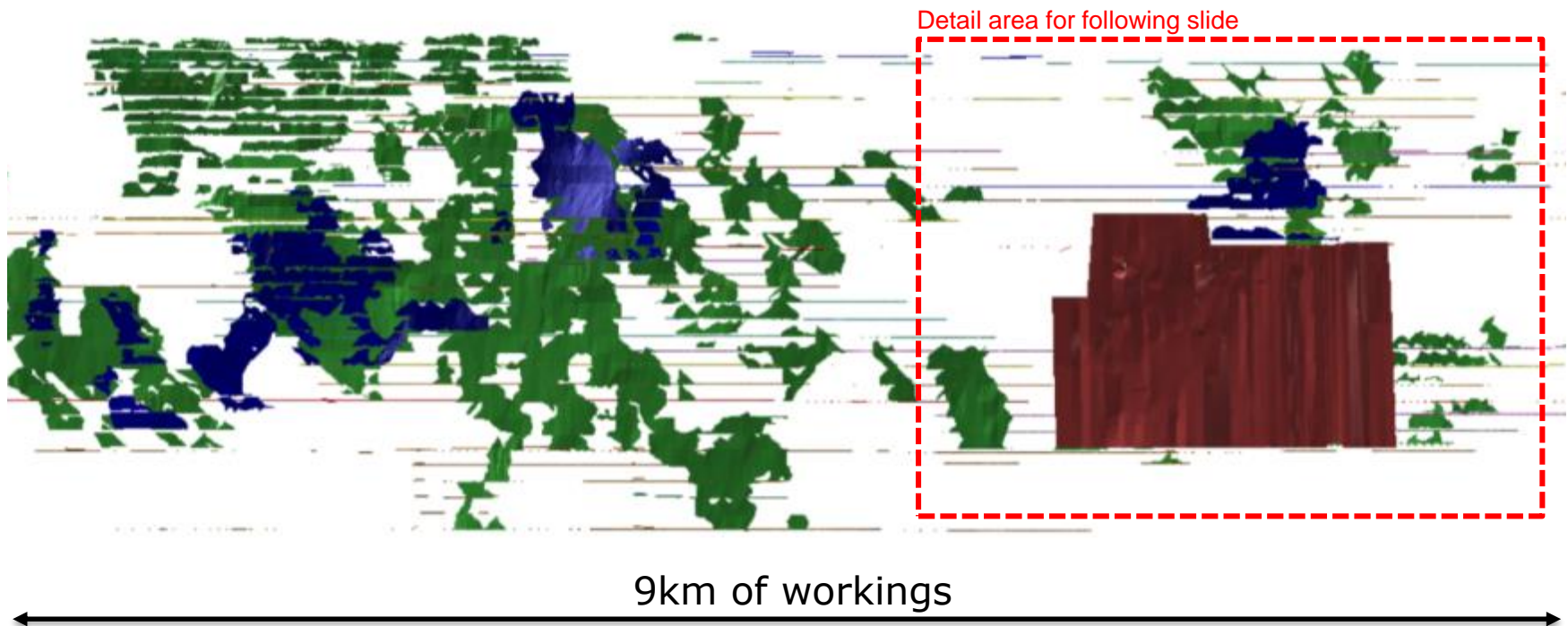
**The Future of Prestea
Underground**

Prestea Underground: Strategy

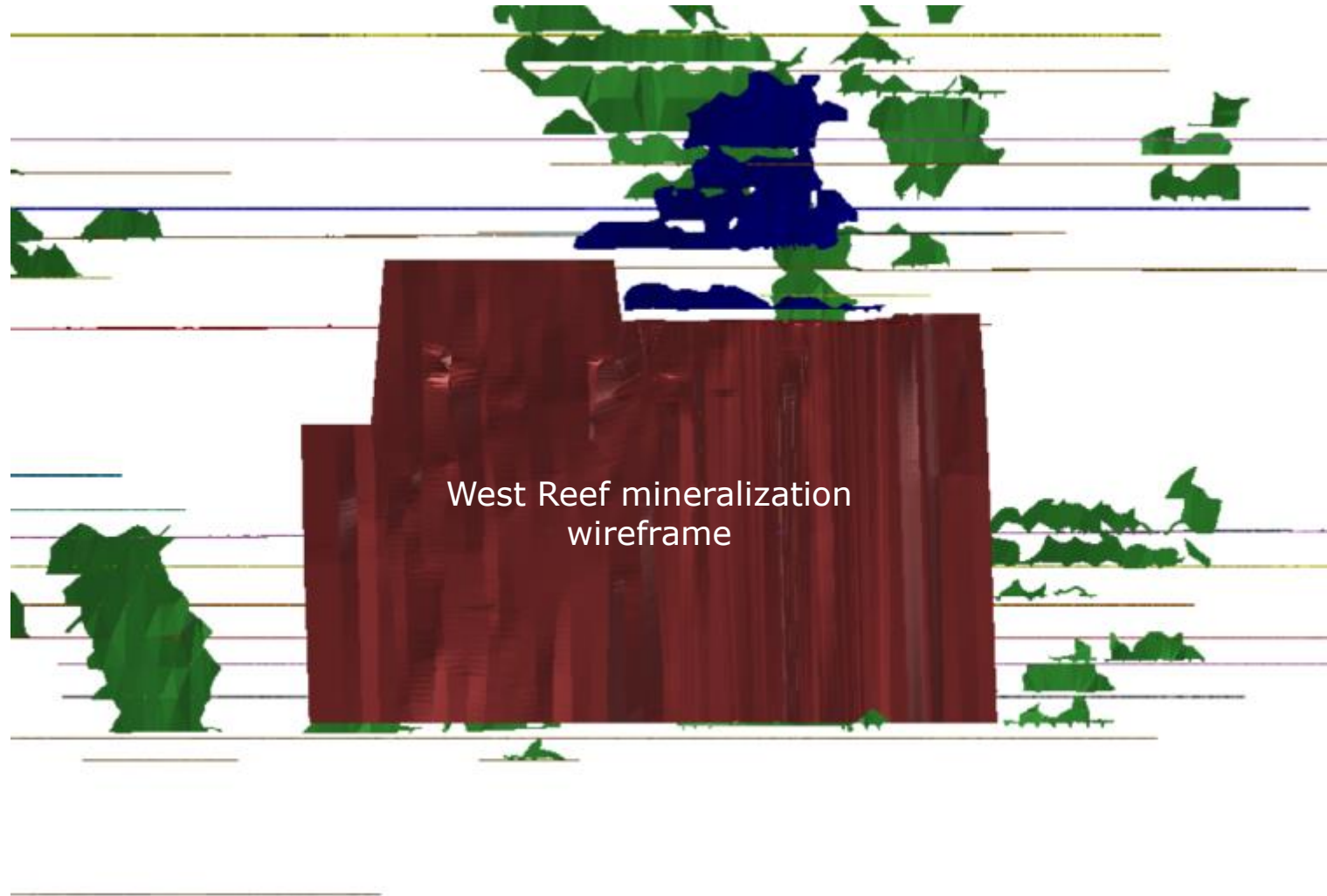
- **Current West Reef design produces 650 tpd ore**
- **Central Shaft capacity 1,200 tpd+**
- **Strategy**
 - **Extend/expand West Reef production**
 - **Identify new targets in the Main Reef**
 - **Investigate Bondaye and Tuapim underground targets**



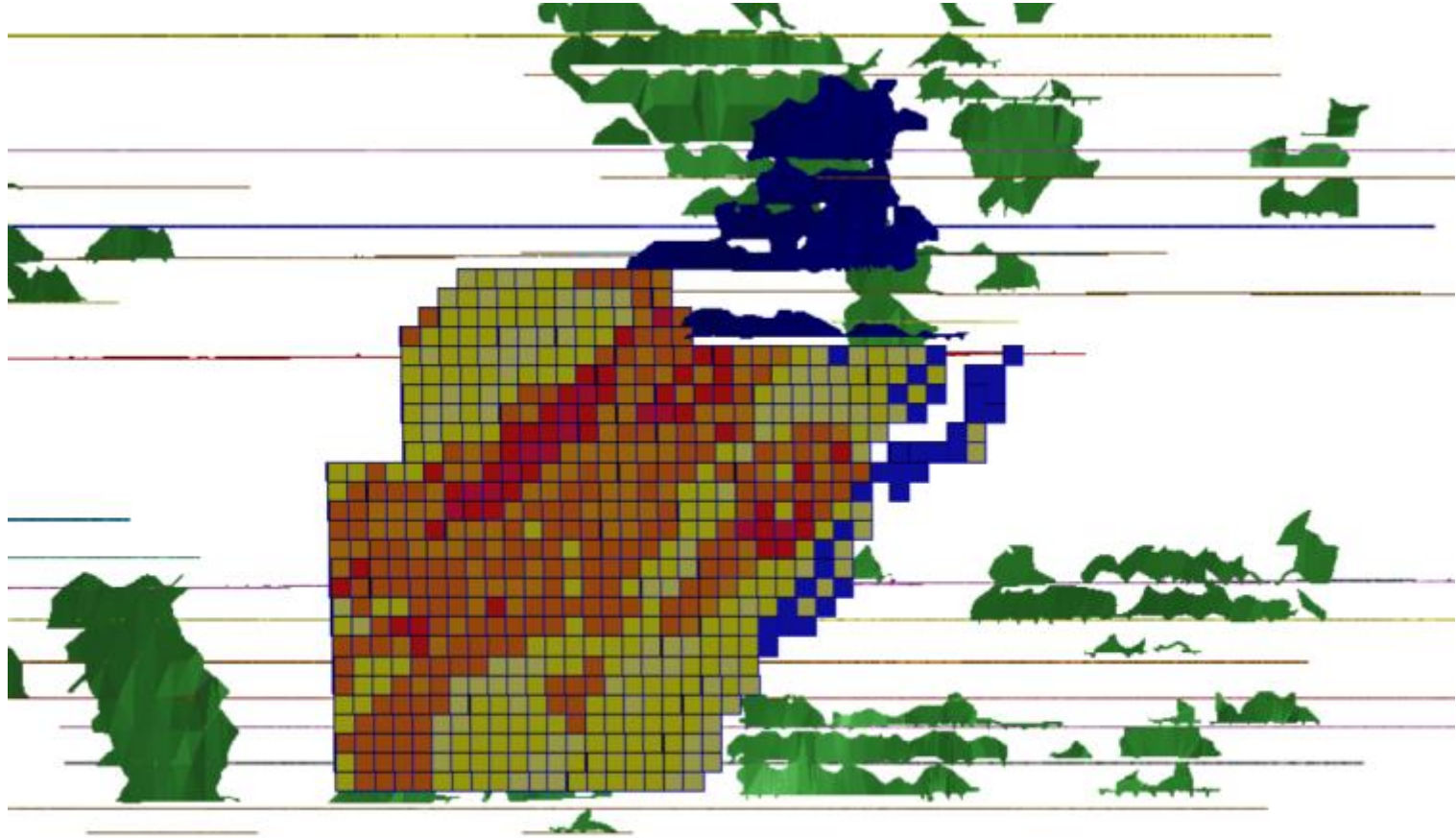
The Main Reef and the West Reef



West Reef Mineralization Target

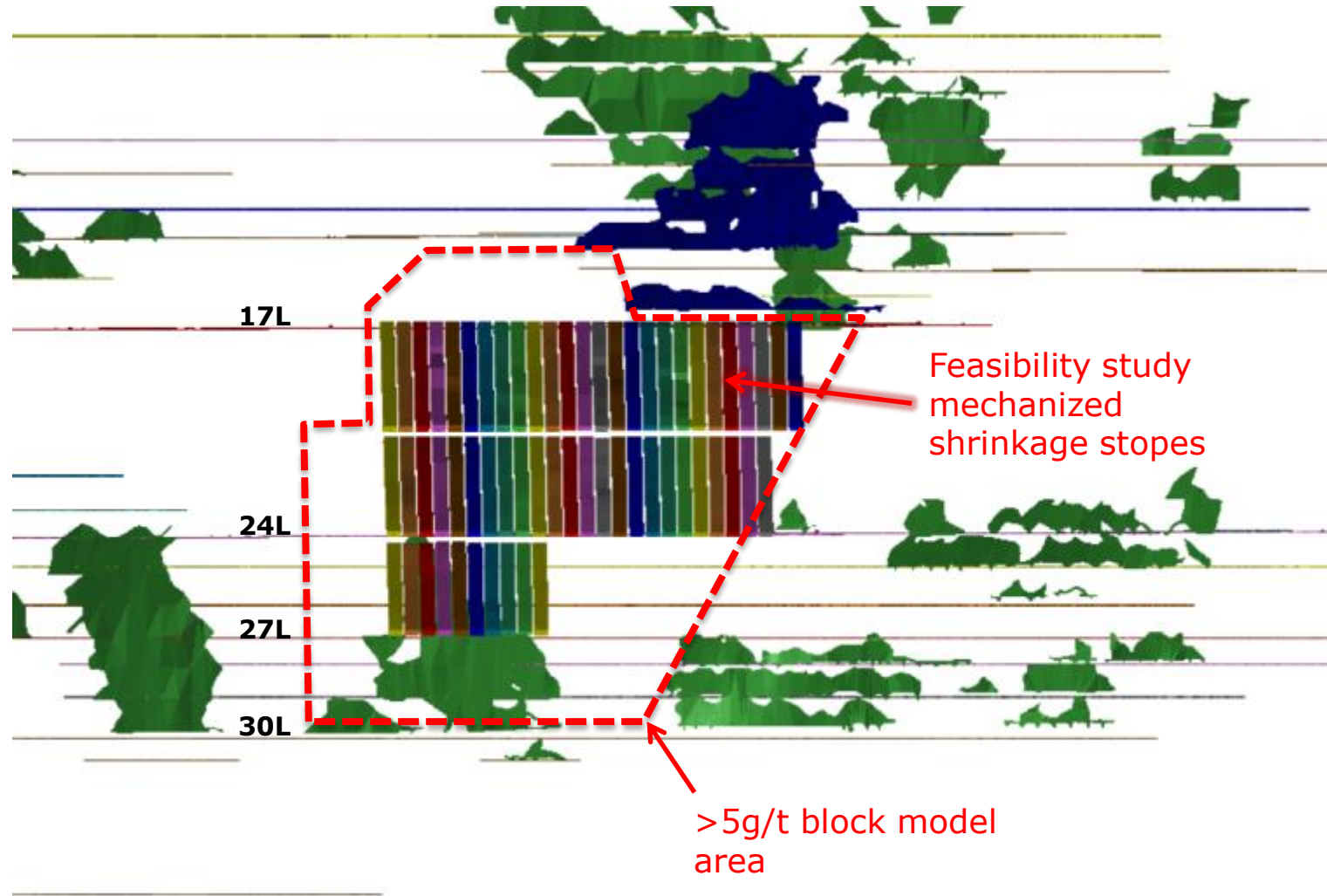


West Reef Block Model

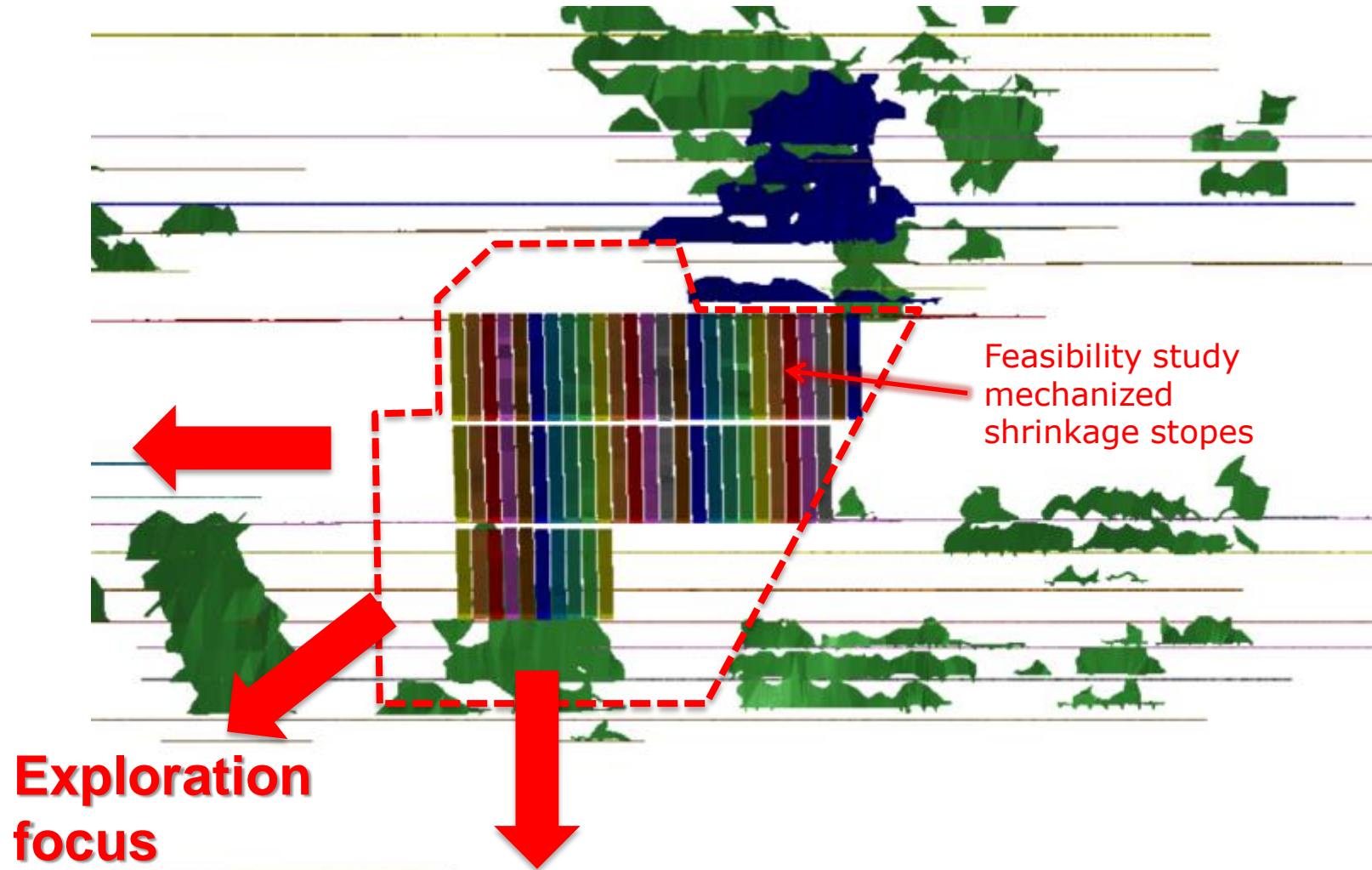


West Reef block model above 5g/t – warm colors indicate higher grades

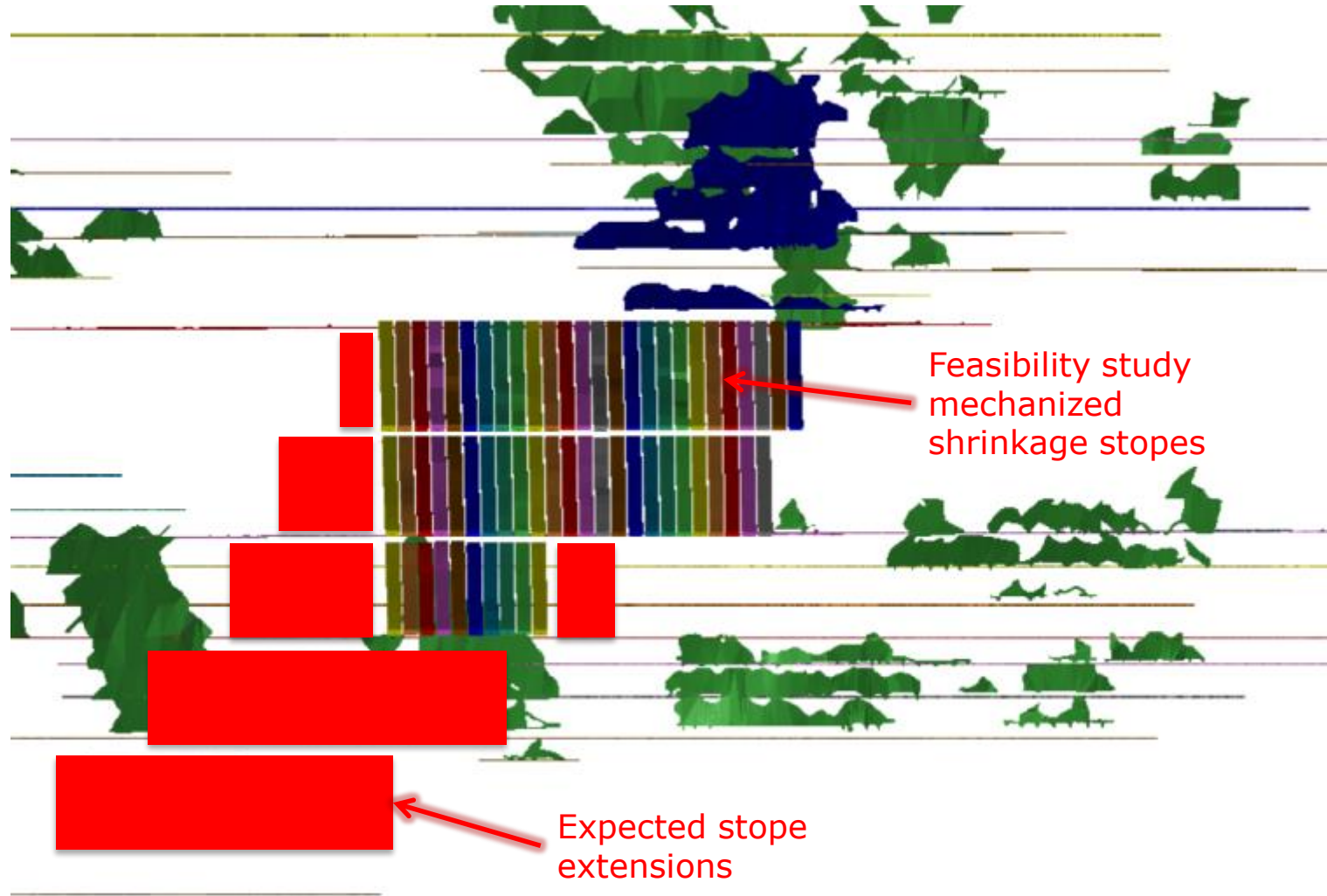
Stope designs 17L to 27L



West Reef Extension Potential

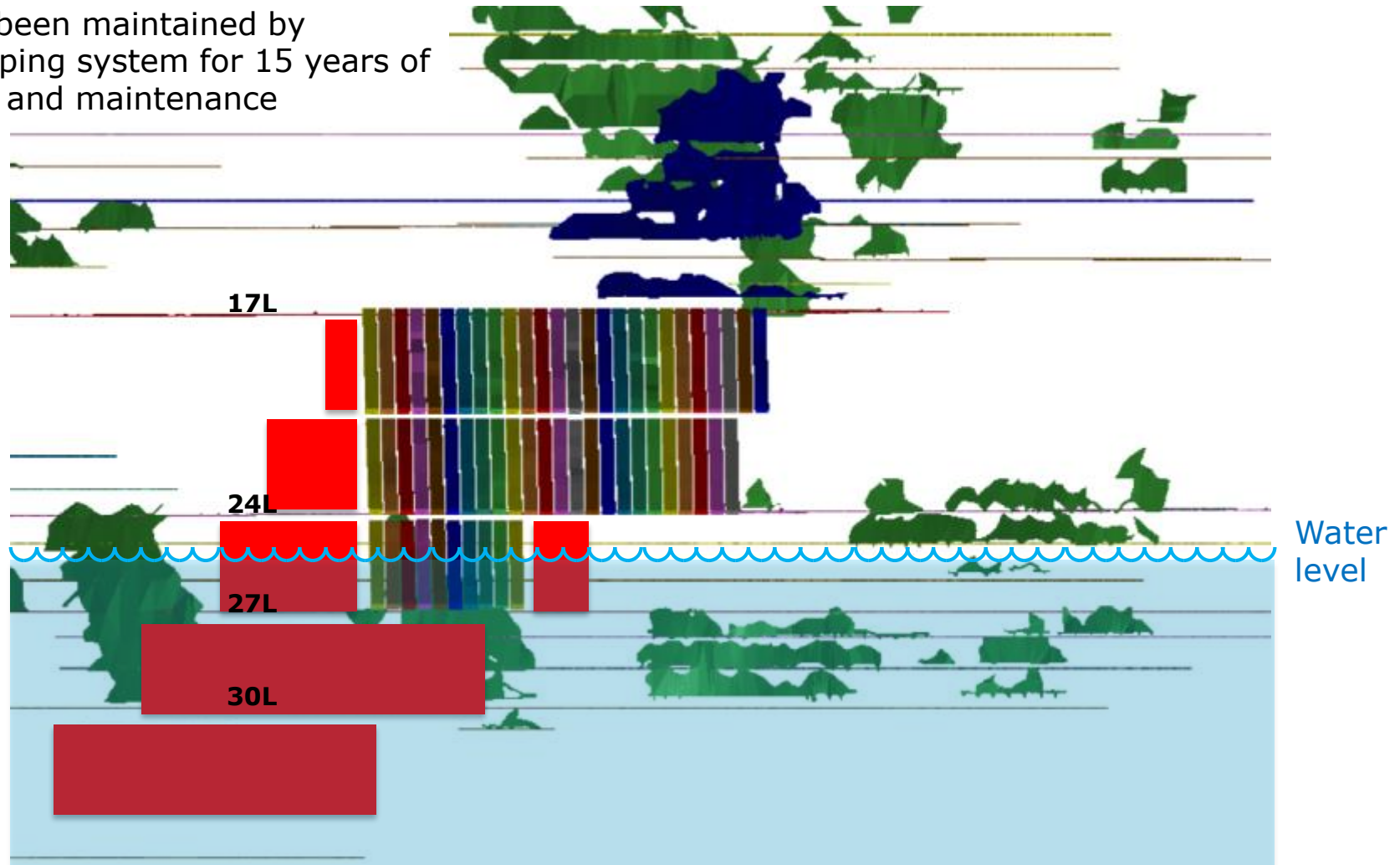


West Reef Extension Potential



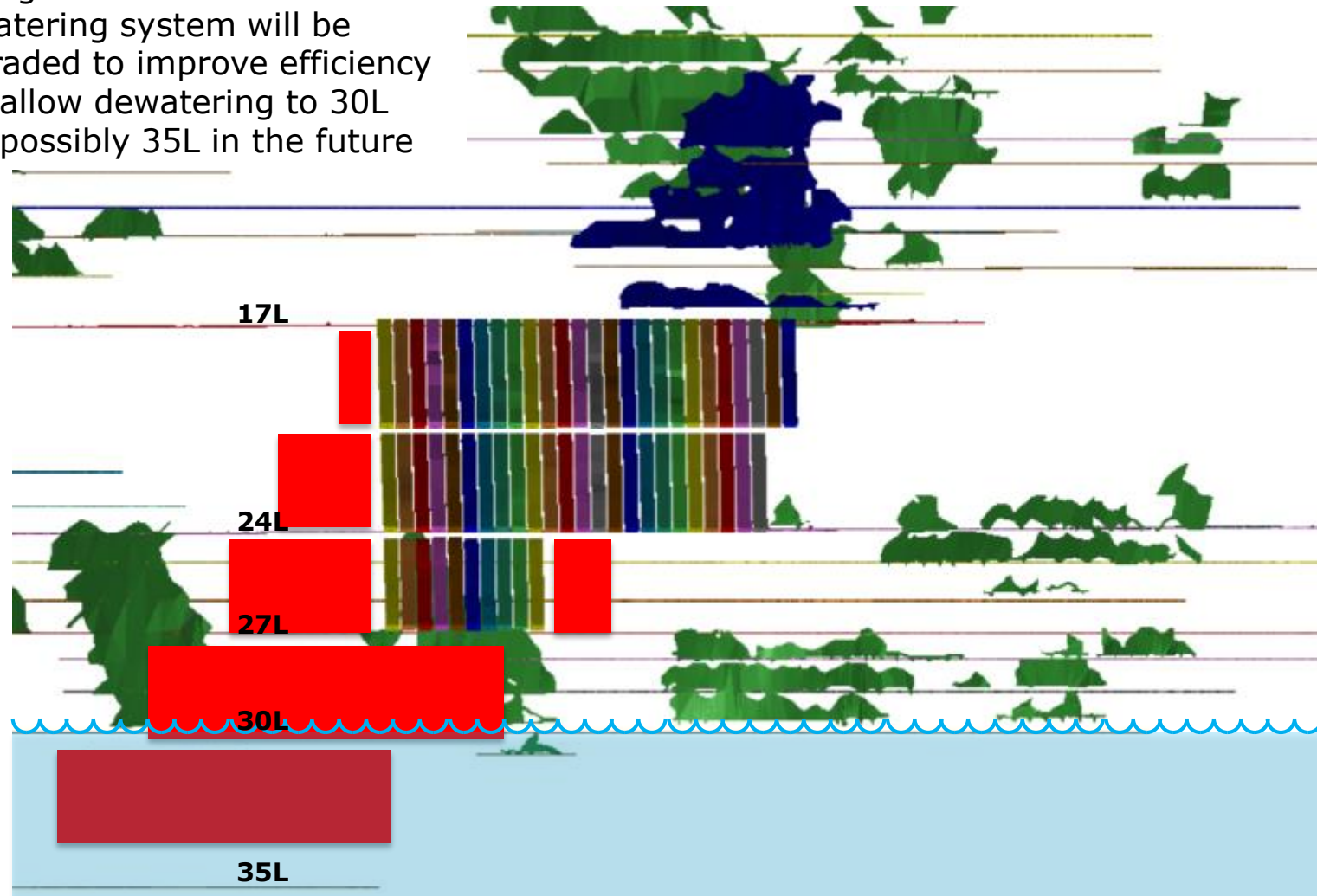
Current Water Level at 26L

Current mine water level at 26L has been maintained by pumping system for 15 years of care and maintenance



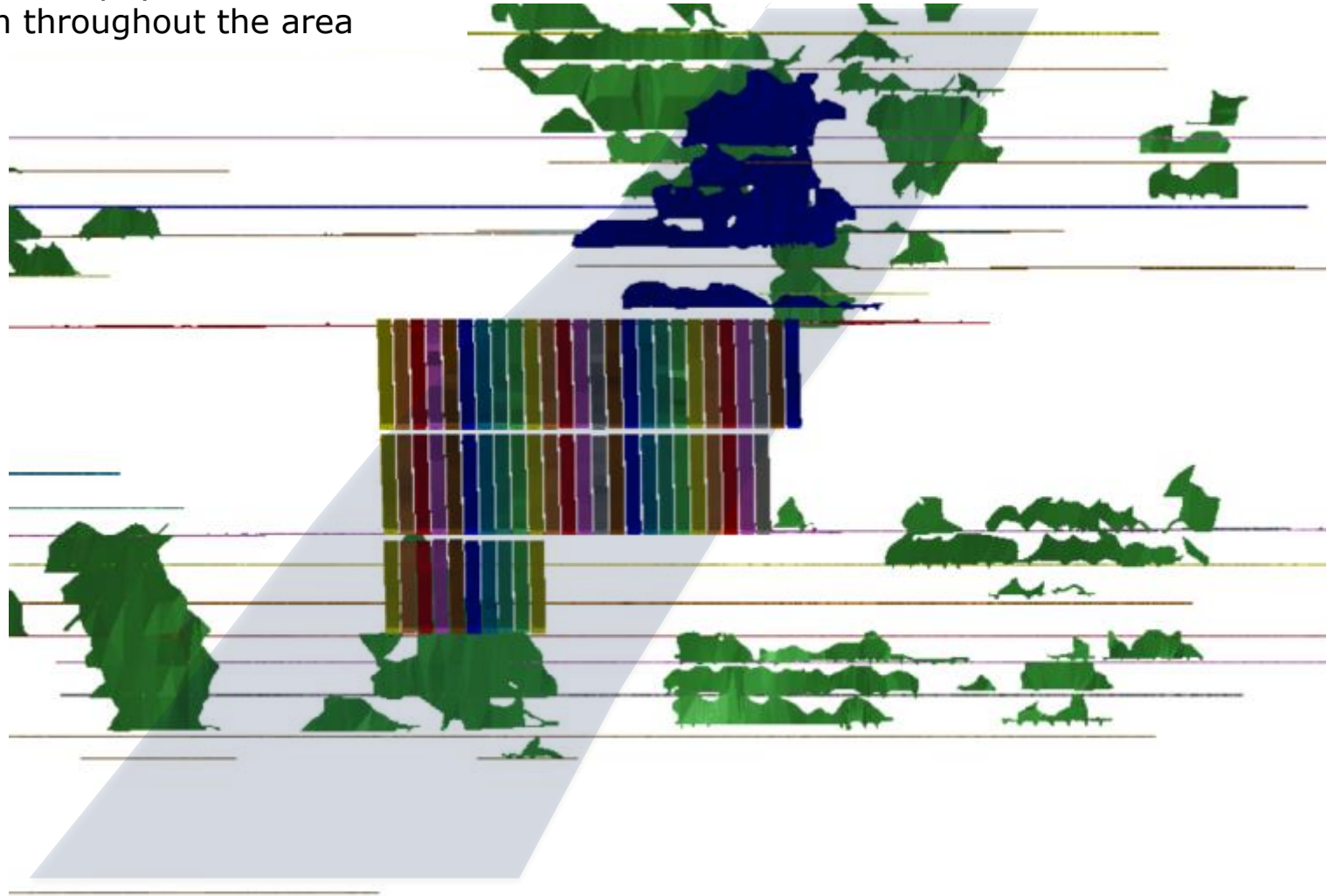
Planned Dewatering in 2017-2018

During 2017 the mine dewatering system will be upgraded to improve efficiency and allow dewatering to 30L and possibly 35L in the future



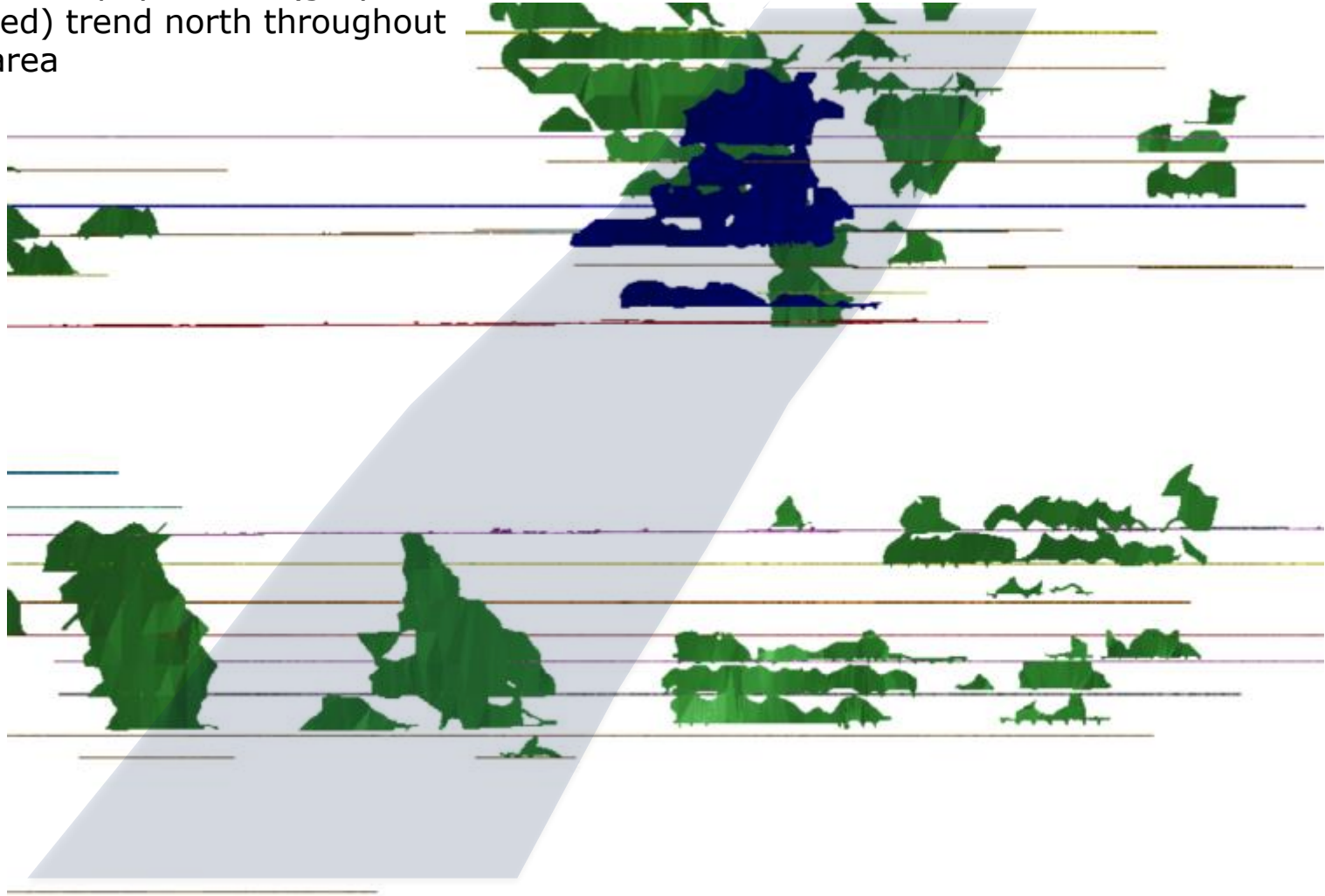
Main Reef targets 200m in footwall of West Reef

West Reef pay-shoots trend north throughout the area



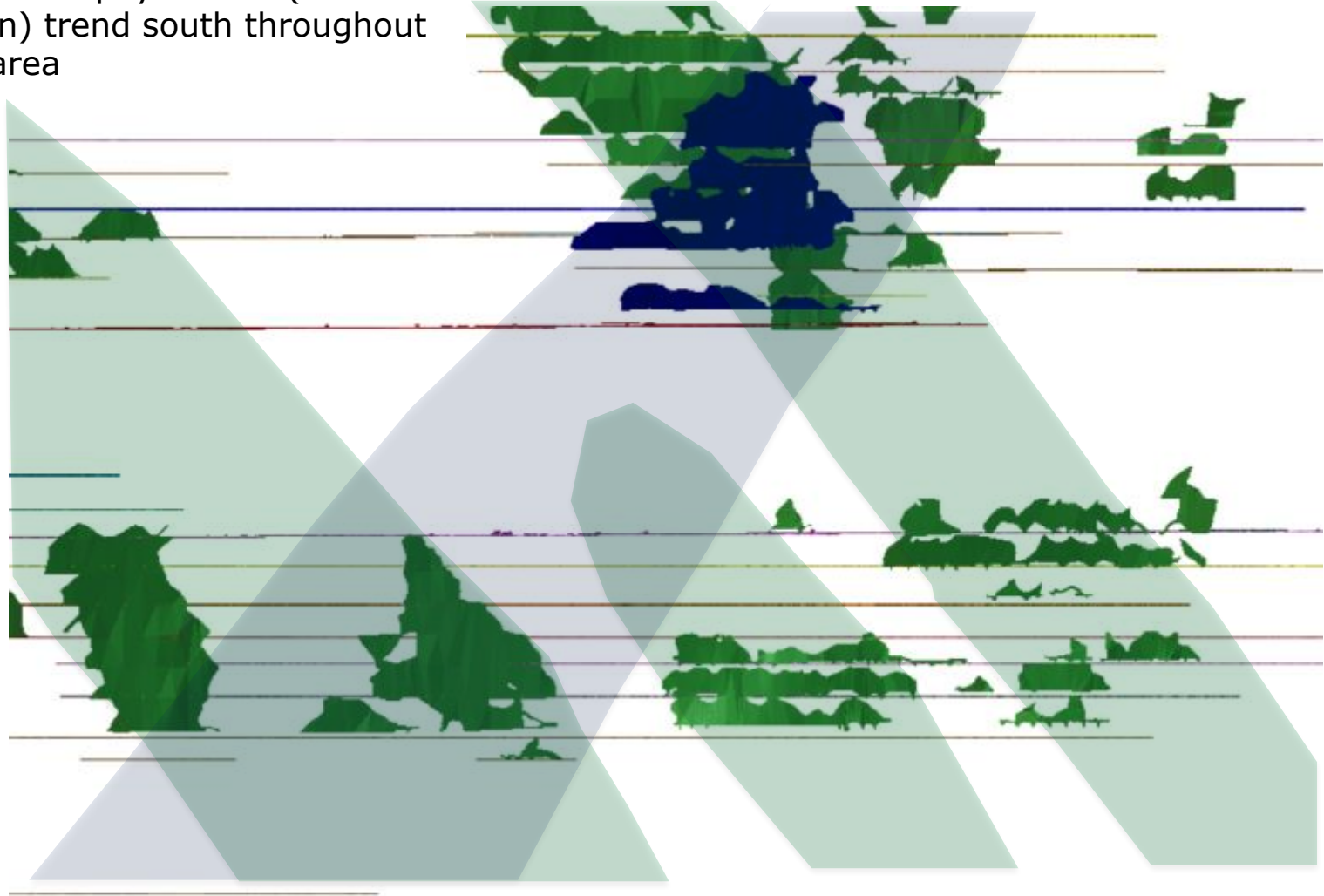
Main Reef targets 200m in footwall of West Reef

West Reef pay-shoots (grey shaded) trend north throughout the area



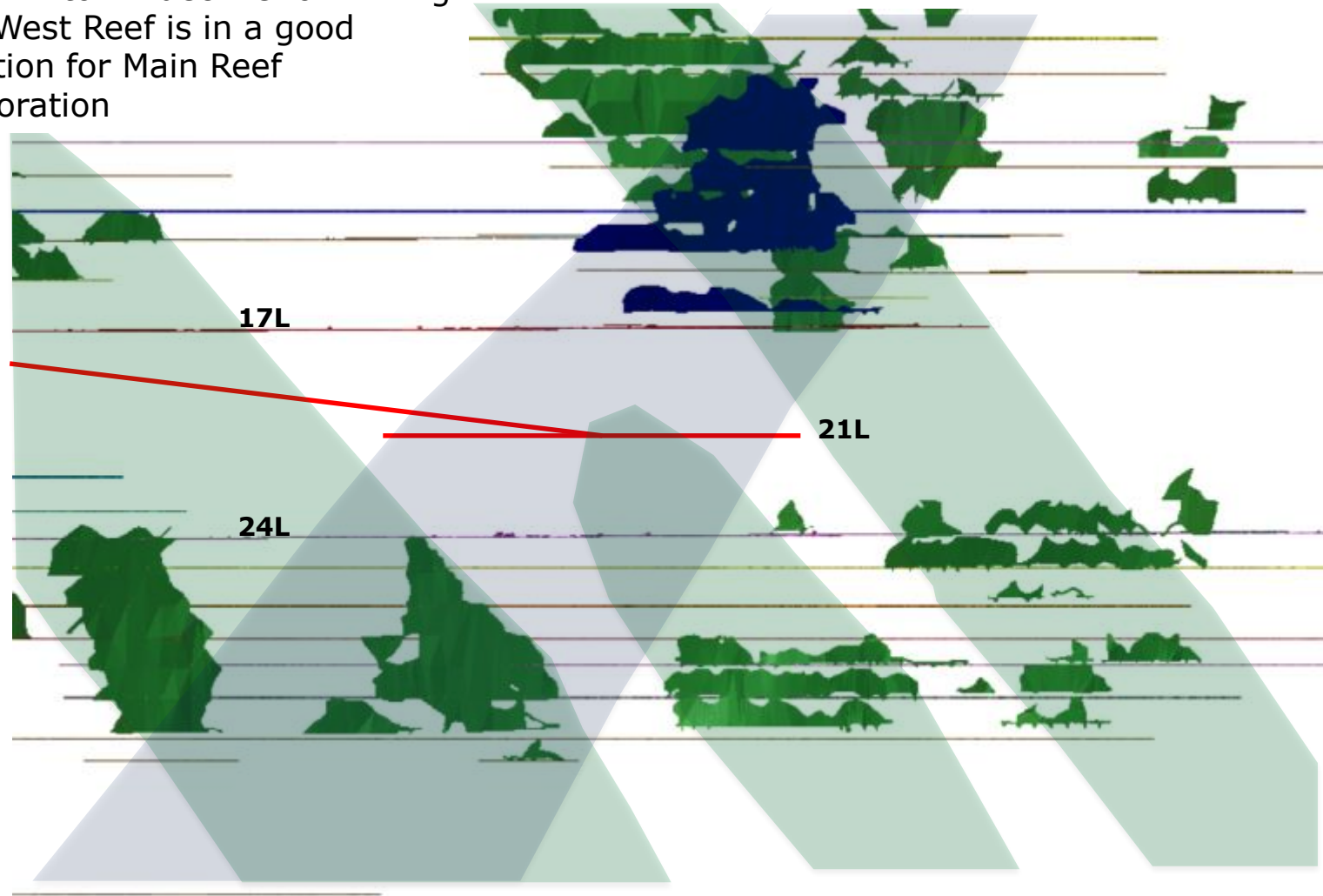
Main Reef targets 200m in footwall of West Reef

Main Reef pay-shoots (shaded green) trend south throughout the area



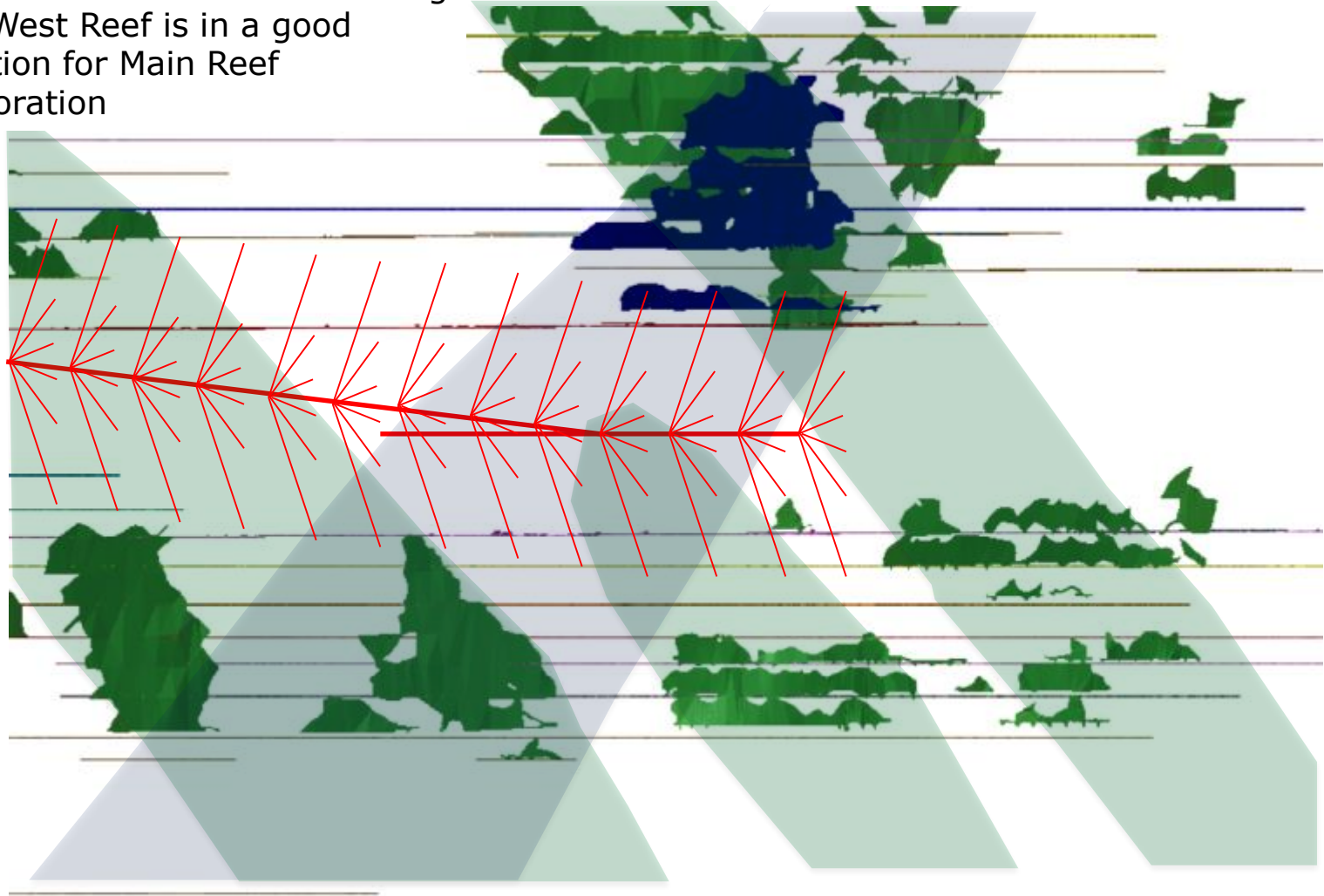
Main Reef targets 200m in footwall of West Reef

New 17 to 21 decline for mining the West Reef is in a good location for Main Reef exploration



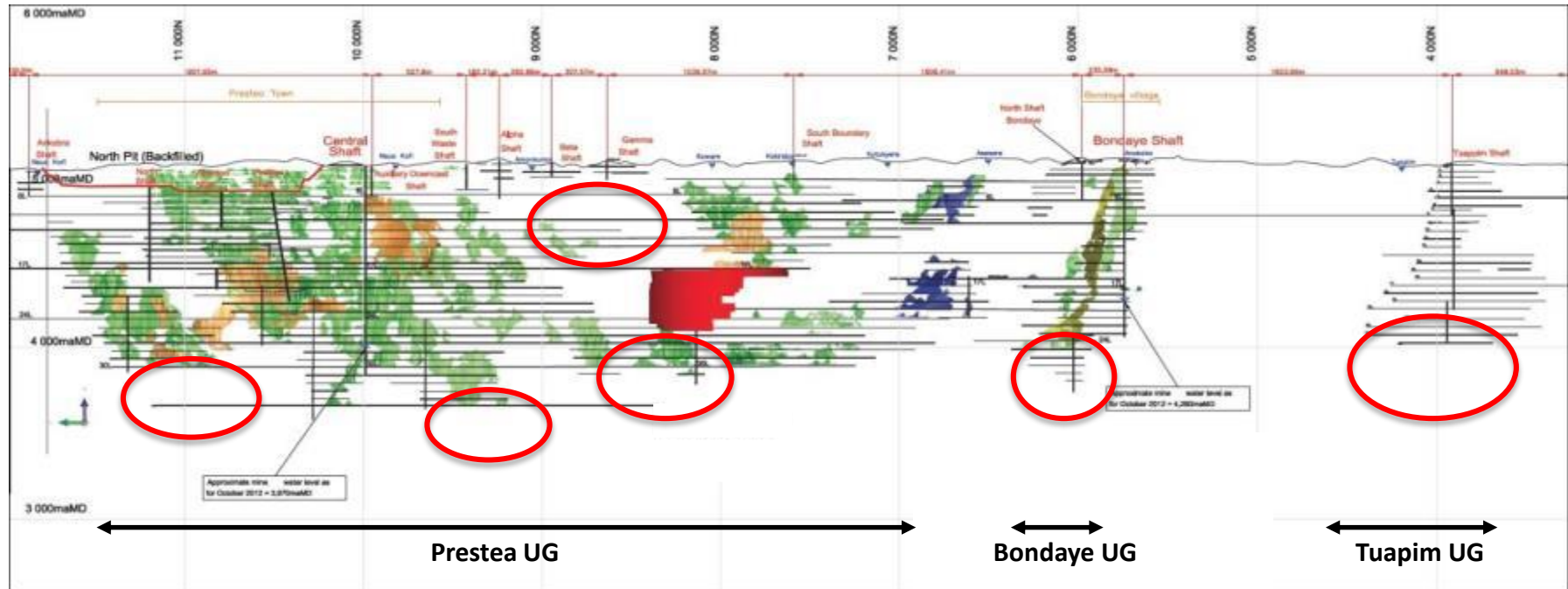
Main Reef Exploration Drilling From 17L Decline

New 17 to 21 decline for mining the West Reef is in a good location for Main Reef exploration



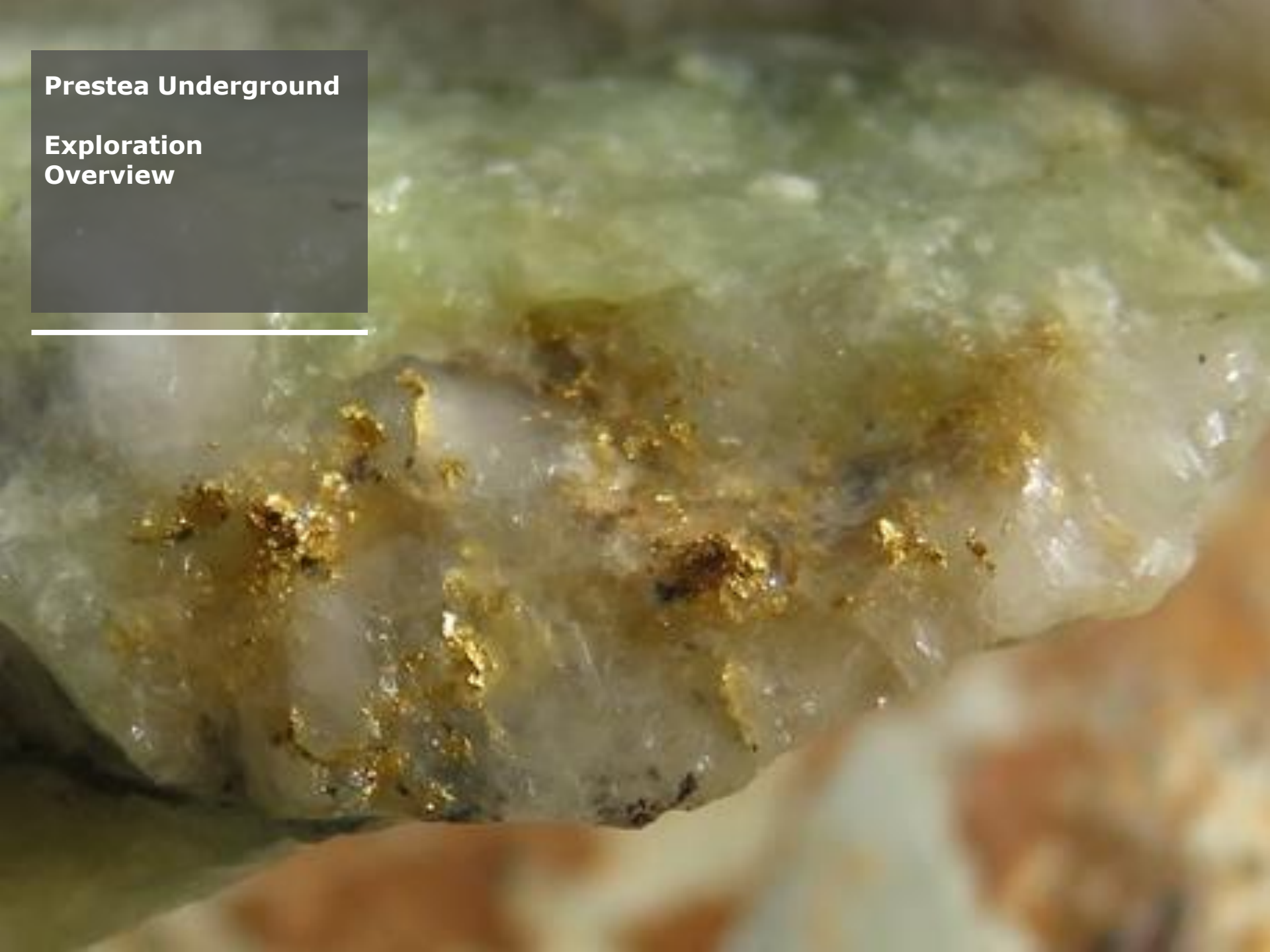
Historical Mining and Exploration

There are numerous exploration target areas across the 9km strike of the property. These will be prioritized and advanced as production ramps up in the West Reef.

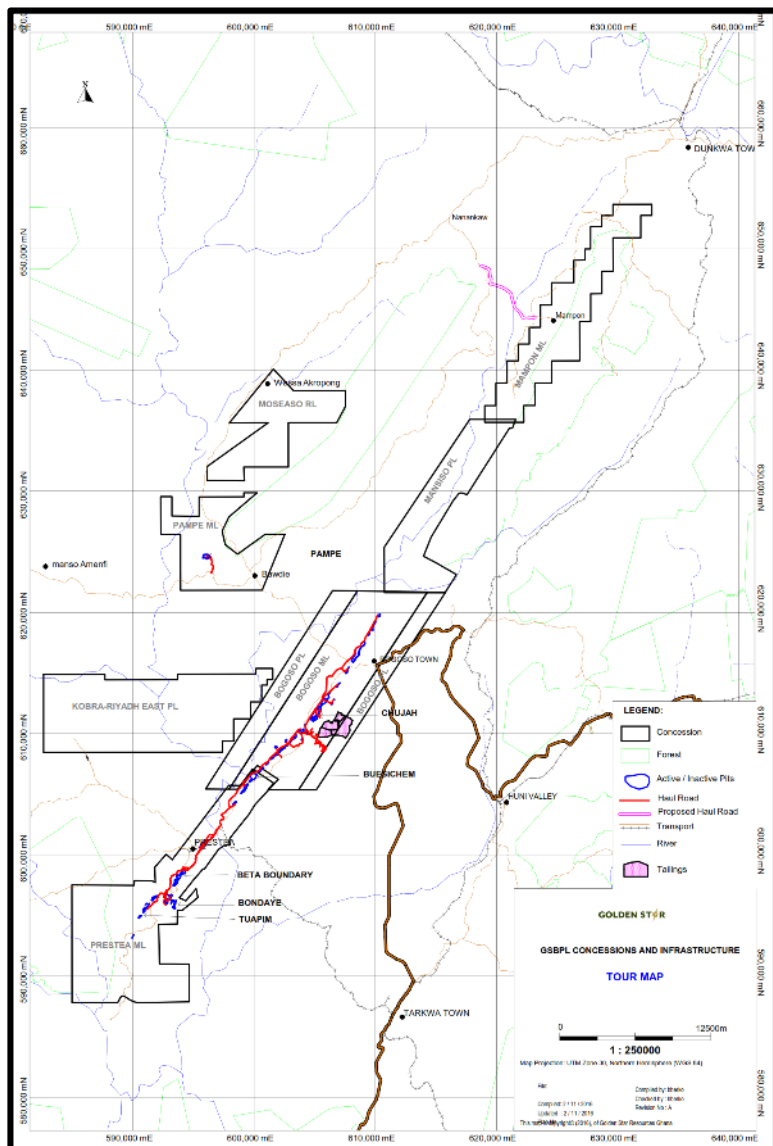


Prestea Underground

Exploration Overview



Prestea Underground: Location



- The Prestea deposit is located along the Ashanti Trend in the western region of Ghana
- This trend runs from Axim in the south to Konongo in the north, over a distance of 240km
- Prestea is located 35km north of Tarkwa with good access roads and an established infrastructure
- Prestea is 360km by road west of the capital, Accra, and 130km by road from the port of Takoradi on the Atlantic coast
- The Bogoso-Prestea concessions include 10 individual licenses which total $\sim 660\text{km}^2$
- GSR's gold production from the Bogoso-Prestea concessions totals 2.47Moz over 17 years
- Total gold produced from the area is over 12Moz

Prestea: Mineral Reserves and Resources¹

Mineral Reserves	Dec 31, 2015 Proven Mineral Reserve			Dec 31, 2015 Probable Mineral Reserve			Dec 31, 2015 Proven and Probable Mineral Reserve		
	tonnes (000)	grade g/t Au	ounces (000)	tonnes (000)	grade g/t Au	ounces (000)	tonnes (000)	grade g/t Au	ounces (000)
Mampon				304	4.6	45	304	4.6	45
Prestea South				1,892	2.3	140	1,892	2.3	140
Prestea Underground				1,041	14.0	469	1,041	14.0	469
Stockpiles	25	2.7	2				25	2.7	2
Total	25	2.7	2	3,237	6.3	654	3,261	6.3	656

Meas & Ind Mineral Resources	Dec 31, 2015 Measured Mineral Resource			Dec 31, 2015 Indicated Mineral Resource			Dec 31, 2015 Measured and Indicated Mineral Resources		
	tonnes (000)	grade g/t Au	ounces (000)	tonnes (000)	grade g/t Au	ounces (000)	tonnes (000)	grade g/t Au	ounces (000)
Mampon				396	4.3	54	396	4.3	54
Prestea South				2,568	2.1	175	2,568	2.1	175
Prestea Underground				1,597	15.5	797	1,597	15.5	797
Bogoso/Prestea Other				2,151	1.7	118	2,151	1.7	118
Non Ref Total				6,712	5.3	1,144	6,712	5.3	1,144
Bogoso/Prestea Refractory				14,740	3.0	1,420	14,740	3.0	1,420

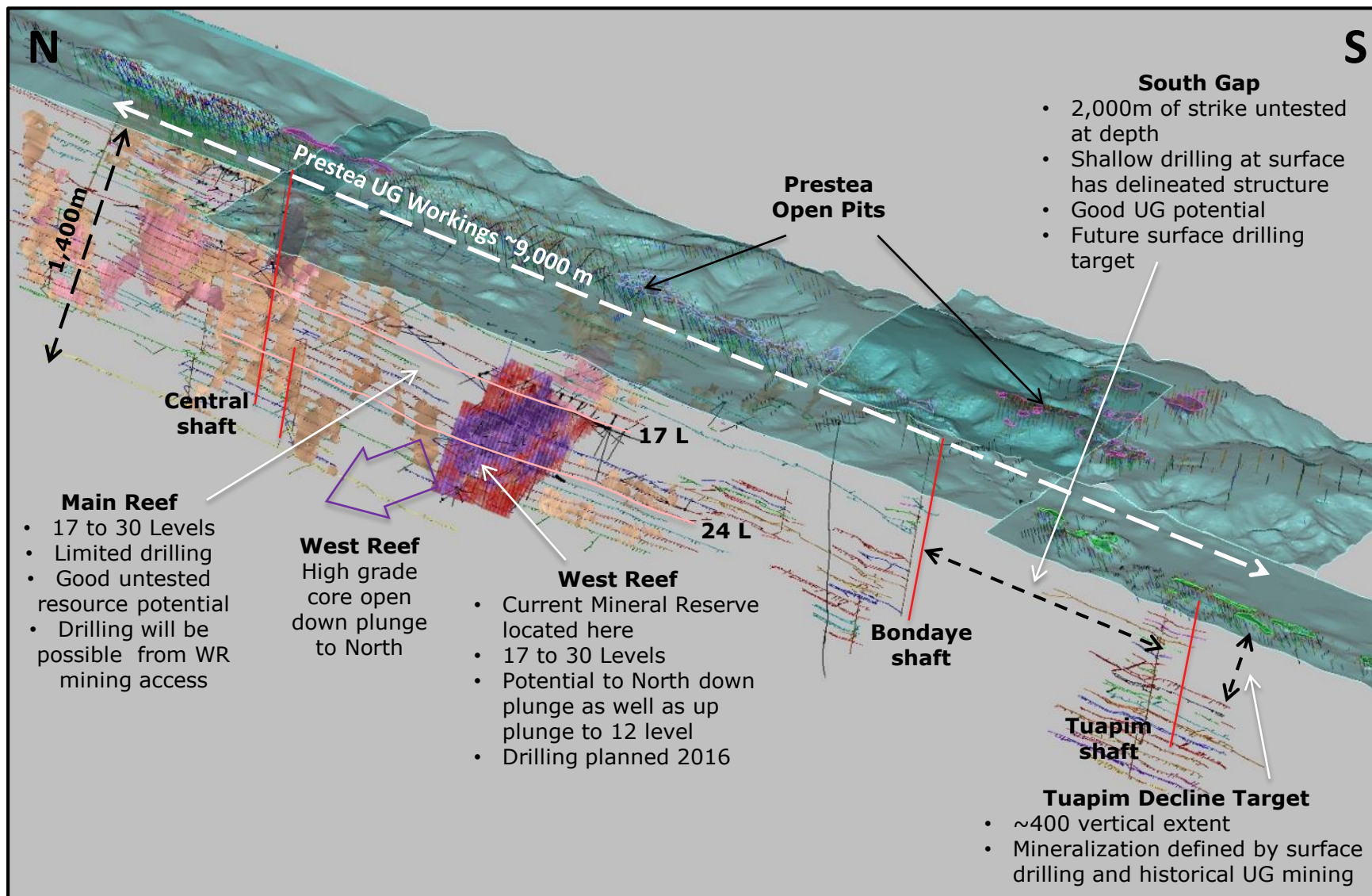
Inferred Mineral Resources	Dec 31, 2015 Inferred Mineral Resources		
	tonnes (000)	grade g/t Au	ounces (000)
Mampon	103	2.1	7
Prestea South	72	2.3	5
Prestea Underground	3,249	8.7	913
Bogoso/Prestea Others	389	1.5	19
Non Ref Total	3,813	7.7	944
Bogoso/Prestea Refractory	1,184	4.2	161

Prestea Underground: Geology

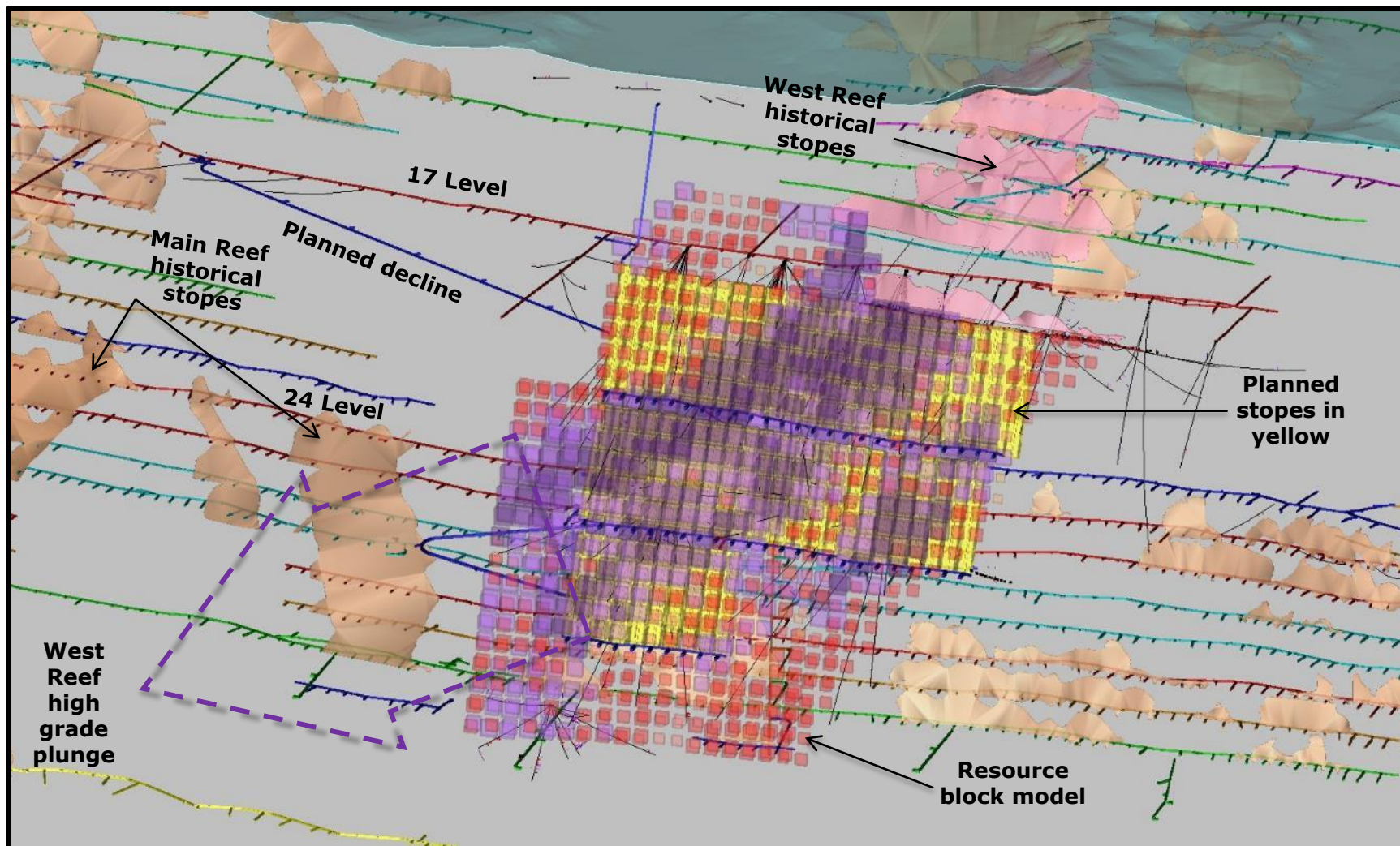


- Prestea Underground is hosted within Birimian Phyllites
- Gold mineralization is associated with the prolific fault zone referred to as the Ashanti Trend
- West Reef mineralization is hosted in a fault structure parallel to the Main Reef located ~250m in the hanging wall
- Gold occurs as free gold along carbonaceous partings within the quart veins or with pyrite and arsenopyrite

Prestea Underground: Exploration Targets



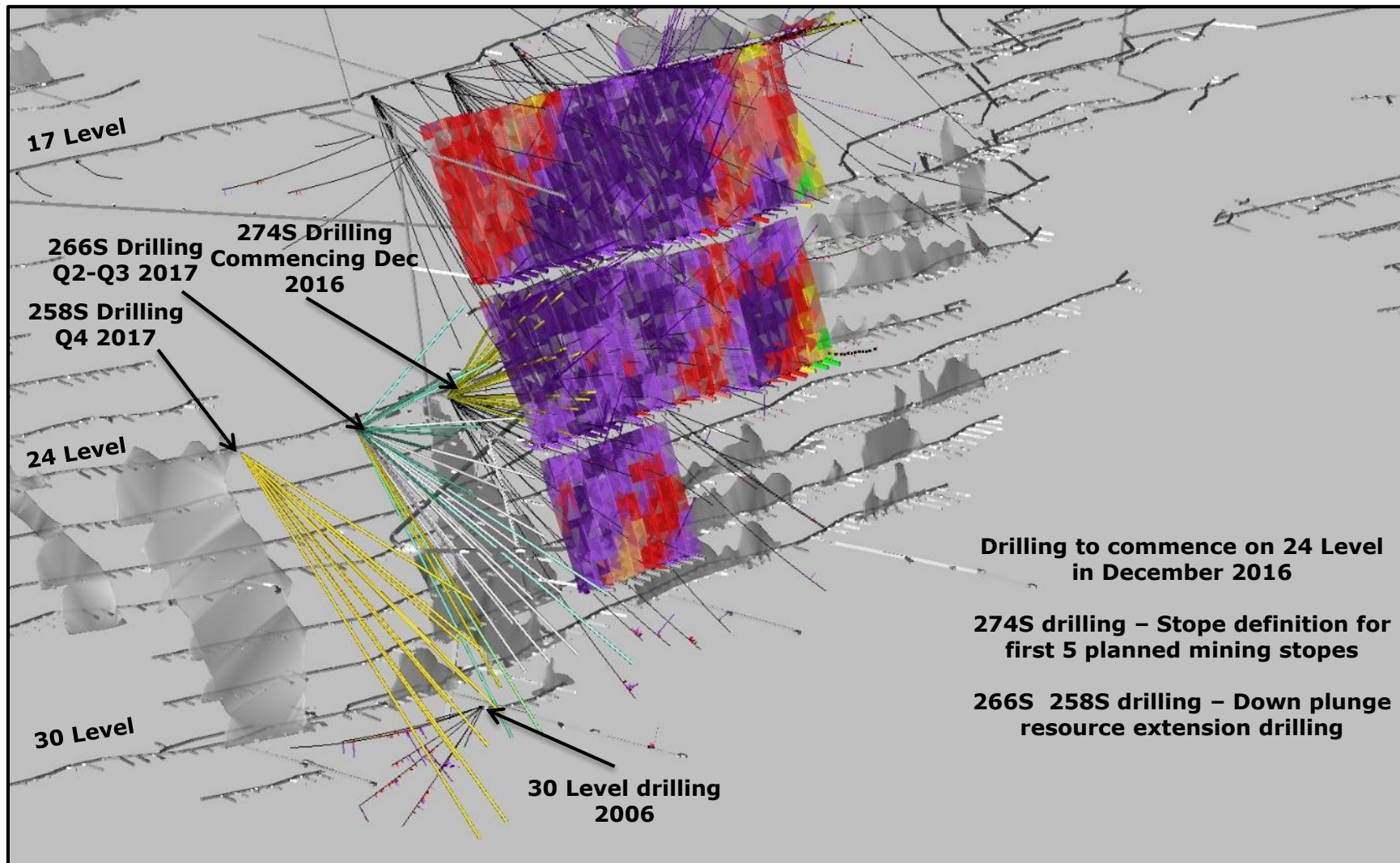
West Reef Target



Block Model Legend

Color	Grade Range (g/t)
Dark Purple	> 20g/t
Light Purple	15-20g/t
Red	10-15g/t
Pink	7.5-10g/t

West Reef Drilling 2016-2018





Contact Us

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TSX: GSC

Mineral Reserves and Resources

Mineral Reserves ^{1,2,3}	Tonnes ('000)	Grade (Au g/t)	Content (Koz)
Proven Reserves			
Wassa	1,046	1.09	37
Prestea	25	2.69	2
Total	1,071	1.12	39
Probable Reserves			
Wassa	19,319	2.33	1,450
Prestea	3,237	6.29	654
Total	22,556	2.90	2,104
Total Proven & Probable	23,626	2.82	2,143

Mineral Resources ^{1,2,3}	Tonnes ('000)	Grade (Au g/t)	Content (Koz)
Measured & Indicated Mineral Resources			
Wassa	54,647	2.02	3,556
Prestea	6,712	5.30	1,144
Total	61,360	2.38	4,700
Inferred Mineral Resources			
Wassa	16,462	4.15	2,200
Prestea	3,813	7.70	944
Total	20,305	4.82	3,144

1. For Wassa's Mineral Reserves and Resources please refer to 'NI 43-101 Technical Report on a Feasibility Study of the Wassa Open Pit and Underground Project in Ghana', dated December 31, 2014, which is filed on SEDAR and at www.gsr.com
2. For Prestea's Mineral Reserves and Resources please refer to 'NI 43-101 Technical Report on a Feasibility Study of the Prestea Underground Gold Project in Ghana', dated November 03, 2015, which is filed on SEDAR and at www.gsr.com
3. All numbers exclude refractory ore.