

**Ironbark**



**Zinc Limited**

**NOVEMBER**



# DISCLAIMER

## **FORWARD LOOKING STATEMENTS**

The following information is not intended to guide any investment decisions in Ironbark Zinc Limited.

This material contains certain forecasts and forward-looking information, including possible or assumed future performance, costs, production levels or rates, reserves and resources, prices and valuations and industry growth and other trends. Such forecasts and information are not a guarantee of future performance and involve many risks and uncertainties, as well as other factors. Actual results and developments may differ materially from those implied or expressed by these statements and are dependent on a variety of factors.

The Citronen zinc project is considered to be at an early development stage and will require further regulatory approvals and securing of finance and there is no certainty that these will occur. Nothing in this material should be construed as either an offer to seek a solicitation or as an offer to buy or sell Ironbark securities. Consideration of the technical and financial factors requires skilled analysis and understanding of their context.

## **JORC CODE COMPLIANCE AND COMPETENT PERSON STATEMENT & DISCLOSURE**

### **Competent Person Statement**

The information included in this report relates to Exploration Targets, Exploration Results & Mineral Resources based on information compiled or reviewed by Ms Elizabeth Clare Laursen (B. ESc (Hons.), MAIG, MSEG, GradDipAppFin), an employee of Ironbark Zinc Limited. Ms Laursen has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity which is being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Targets, Exploration Results, Mineral Resources. Ms Laursen consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

### **Competent Persons Disclosure**

Ms Laursen is an employee of Ironbark Zinc Limited and currently holds securities in the company.

### **Cautionary Statement**

Ironbark has concluded it has reasonable basis for providing the forward looking statements included in this presentation. The detailed reasons for that conclusion are outlined throughout this presentation. This announcement has been prepared in accordance with the JORC Code (2012) and the ASX Listing Rules.

The Company believes there is a reasonable basis for the production targets and the forecast financial information and income-based valuation derived from those production targets provided in this document based on the detailed reasons and material assumptions which are outlined throughout the ASX announcement dated 12 September 2017 titled Feasibility Study Update.

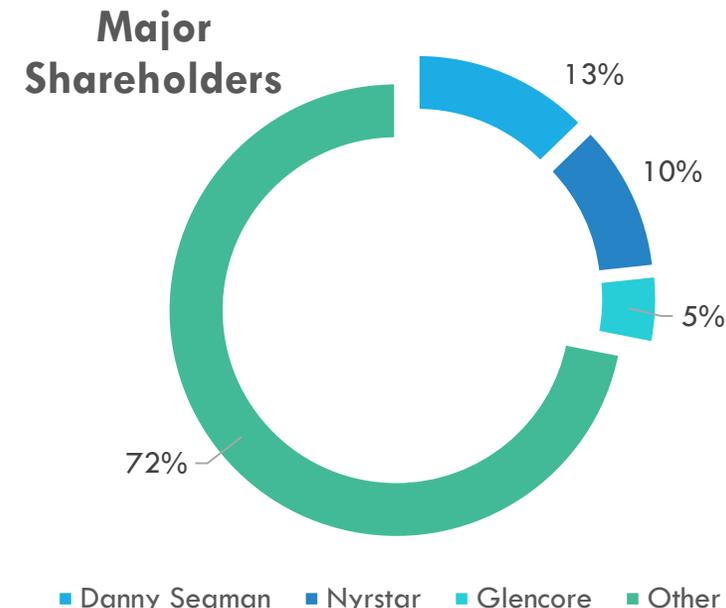
Ironbark is not aware of any new information or data that materially affects the information included in this ASX release, and Ironbark confirms that, to the best of its knowledge, all material assumptions and technical parameters underpinning the estimates in this release continue to apply and have not materially changed.

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**1. IBG:  
NEW TEAM  
\$80M SPENT  
ZN PURE PLAY**

Capital Structure	
# Sh on Issue	919,791,357
Sh price (11 Nov)	\$0.015
AUD Mkt Cap	\$13.8m
Cash (30 Sept 2019)	\$1.4m
Debt	Nil
EV	\$12.4m

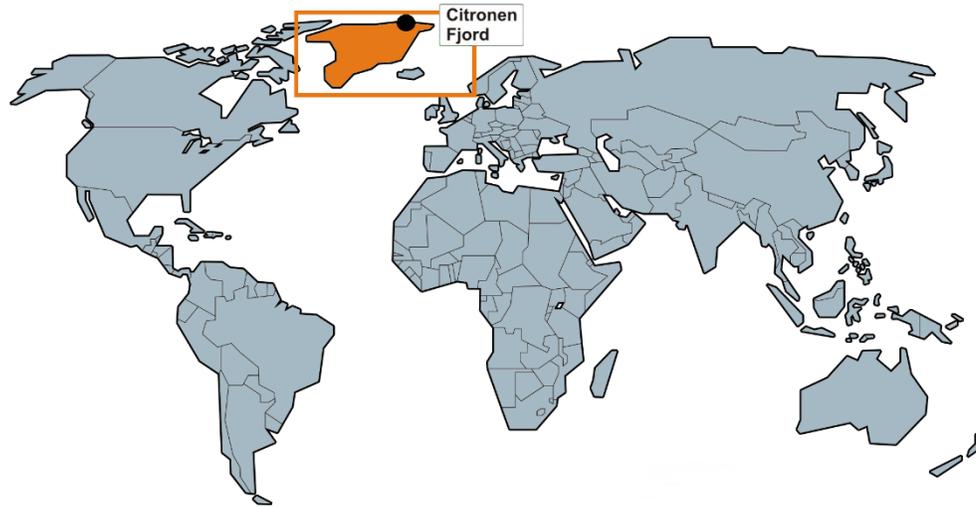


Board of Directors	
Dr. Fred Hess, Non-Executive Chairman <i>Ex MD PanAust, Metallurgist</i>	Michael Jardine, Managing Director <i>Corporate Finance Executive</i>
Jonathan Downes, Non-Executive Director <i>Founder, Geologist</i>	Gary Comb, Non-Executive Director <i>Mining Engineer</i>
Danny Segman, Non-Executive Director <i>Investment Executive</i>	Maciej Sciazko, Non-Executive Director <i>Nyrstar, Mining Engineer</i>

## 2. INVESTMENT RATIONALE

- ❑ Newly re-structured team, skill set focused on developing Citronen
- ❑ Multiple newsflow triggers next 6 months
- ❑ 100% owner of Citronen Project
  - offers rare scale and grade combination with long life
  - Greenland under appreciated as investment destination
- ❑ Zinc demand and price is on upwards trajectory
- ❑ One of few highly advanced Zn pure plays offering scale & grade on ASX, strong leverage to Zn price

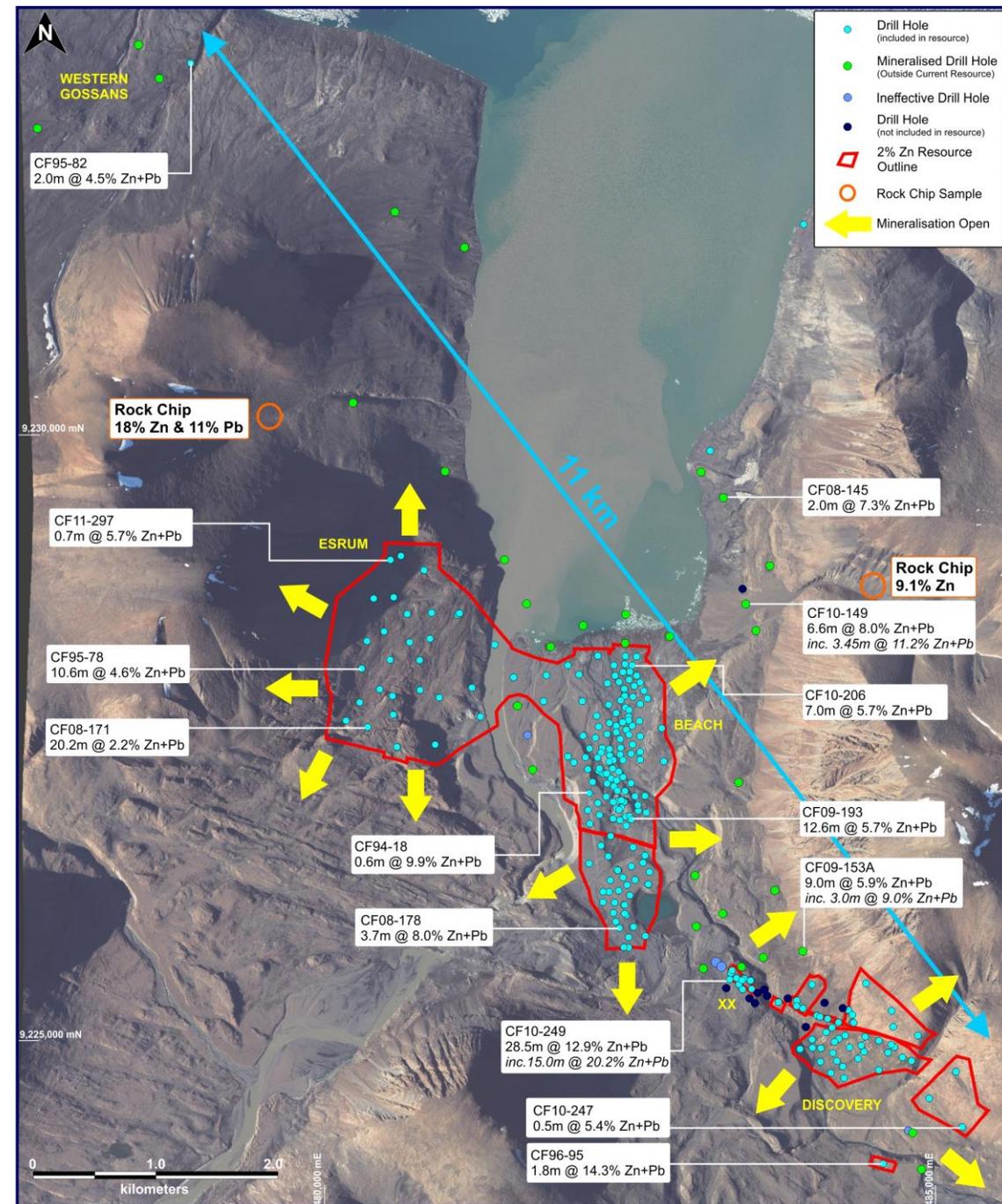
# CITRONEN PROJECT LOCATION



# CITRONEN: JEWEL IN THE CROWN

- ❑ Open in almost all directions; 67k metres of diamond drilling, 73% holes hit minimum 2m @ 3.5% Zn
- ❑ Shallow, simple mining (Sedex deposit)
- ❑ Standard processing, clean concentrate
- ❑ Of 18Mt @ 8.24% Zn&Pb %, 14Mt in Measured & Indicated
  - High grade zone inside significantly larger Resource (132Mt @ 4.5% Zn & Pb%), with potential for further regional exploration
- ❑ Strike length current resource 6.5 km, but system mineralised over 11km and still open
- ❑ Many geophysical, geochemical and structural targets remain untested

Refer to ASX announcement 25/11/2014



# PROJECT SIGNIFICANTLY DE-RISKED OVER LAST DECADE

- Long journey since acquisition of Citronen in 2007
- But - significant achievements to show for patience:
  - AUD \$6m acquisition cost (+shares), \$80m spent on Project
  - Comprehensive **feasibility study complete** (@USD1.38/lb. Zn)
  - 70Mt Mineral Resource @ 5.7% Zn & Pb% (using 3.5% Zn cut off)(1), including **18Mt @ 8.24% Zn & Pb%** (using 6.0% Zn cut off)
  - ~175ktpa high grade, clean Zn concentrate over minimum 14 year mine life (@3.3Mtpa)
  - Compelling investment economics – **LOM NPAT USD\$1.8bn**
  - **30-year Exploitation (Mining) Permit issued 2016**
  - Tier 1 Offtake partners in place
  - Excellent relationship with Greenland government

(1) for full details, refer to ASX announcement 25 November 2014, "Citronen Project Resource Update – JORC 2012 Compliant Resource"

(1) 70.8Mt @ 5.7% Zn & Pb %				
	Mt	Zn %	Pb %	Zn+Pb %
<b>Measured</b>	25.0	5.0	0.5	5.5
<b>Indicated</b>	26.5	5.5	0.5	6.0
<b>Inferred</b>	19.3	4.9	0.4	5.3

# CITRONEN: TOWARDS A FUNDING SOLUTION(S)

- ❑ IBG focused on presenting robust, pragmatic development plan to market
  - Including to current partners, Nyrstar (Trafigura) & Glencore
- ❑ Priority 1 – remove development hurdles
- ❑ Priority 2 – improve, and de-risk, economics
- ❑ Significant past interest from prospective Joint Venture candidates to be revisited, and new leads chased up
- ❑ Timing: kick off process ~mid 2020, target 12 months to FID

### 3. BUILDING VALUE: H1 2020 (“*NEWSFLOW*”)

- Citronen economics conducive to supporting minimum 50% Project finance (subject to bridging equity gap)
- Key milestones targeted in the next 6 months:
  - 3.3Mtpa Feasibility Optimisation – December 2019
  - Reporting Captains Flat HeliSAM survey – December 2019
  - Captains Flat Base Metals JV / Mestersvig – Exploration assessments – January 2020
  - Citronen 1Mtpa Scoping Study – Feb 2020
  - Completion of all pre-FID Approvals in Greenland – June Quarter 2020
  - Rationale: be “partner ready” by H2 2020

# CITRONEN: 1MTPA SCOPING STUDY RATIONALE

- ❑ Decrease initial capex to assist with funding hurdle (including ability to part finance capex off balance sheet)
- ❑ Improve economics further (capex payback, head grades up to 10.4% Zn & Pb %), IRR/NPV)
- ❑ Demonstrate project feasibility as foundation for further investment
  - further resource upgrades (existing mineral resource remains open in almost all directions!)
  - de-risk subsequent scale expansion to exploit entire resource and to further enhance economics

## 4. LAYING THE FOUNDATIONS

- ❑ Working capital refreshed Q419, supportive new shareholders on register
- ❑ Citronen environmental bond 100% accounted for
- ❑ Major reduction in Corporate costs (target ~\$700k pa vs \$1.3M prior year)
- ❑ Non-core Project divestments under consideration
- ❑ Shareholder roadshows priority Q419/Q120

# THE ROAD TO SUCCESS

- Secure the business (new people, new plan, preserve/refresh cash) – completed
- Get Citronen Project ready for FID
- Secure funding solution for Citronen Project
- Advance high potential / low expenditure exploration opportunities



# GREENLAND: HUNGRY FOR INVESTMENT

- ❑ Self governing territory within Kingdom of Denmark; member of the EU
- ❑ Population 57,000
- ❑ GDP USD2.7Bn, exports highly dependent on fishing
- ❑ Investor friendly jurisdiction (profits, ownership, import duties, FX controls, taxation)
- ❑ Number of historic Zn-Pb mines in country
- ❑ Government strongly pro development, Citronen total capex (approx. USD500M) nearly equal to annual subsidy from Denmark (USD600M – 50%+ govt Budget)



# CITRONEN: MORE UPSIDE TO BE HAD

- ❑ 2010 - Feasibility Study completed confirming a technically undemanding project with compelling economics
- ❑ 2017 - Feasibility Study updated with current Capex costs
- ❑ 2019 - Opportunities for further enhancements identified:
  - Further work to target higher grades earlier in the mining schedule
  - Pillar recovery using tailings backfill to lift mining inventory (including higher grades) by up to 30%
  - Improvements in equipment and technology (e.g. ore sorting, autonomous trucking, energy efficiency, communications technology)
  - Execution strategies to be reviewed (EPS, BOO(T), equipment leasing, contractors vs. owner operate)
- ❑ 2020 - Key economic assumptions and risks to be reviewed and updated

# 5. DEVELOPING CITRONEN: TOWARDS FID (*“THE DETAILS”*)

## □ H1 2020 Goals

- Obtain outstanding pre-FID development permits and approvals
- Evaluate the merits of a high grade Starter Project option
- Update project scope and economics to 2020 base
- Develop project funding plans

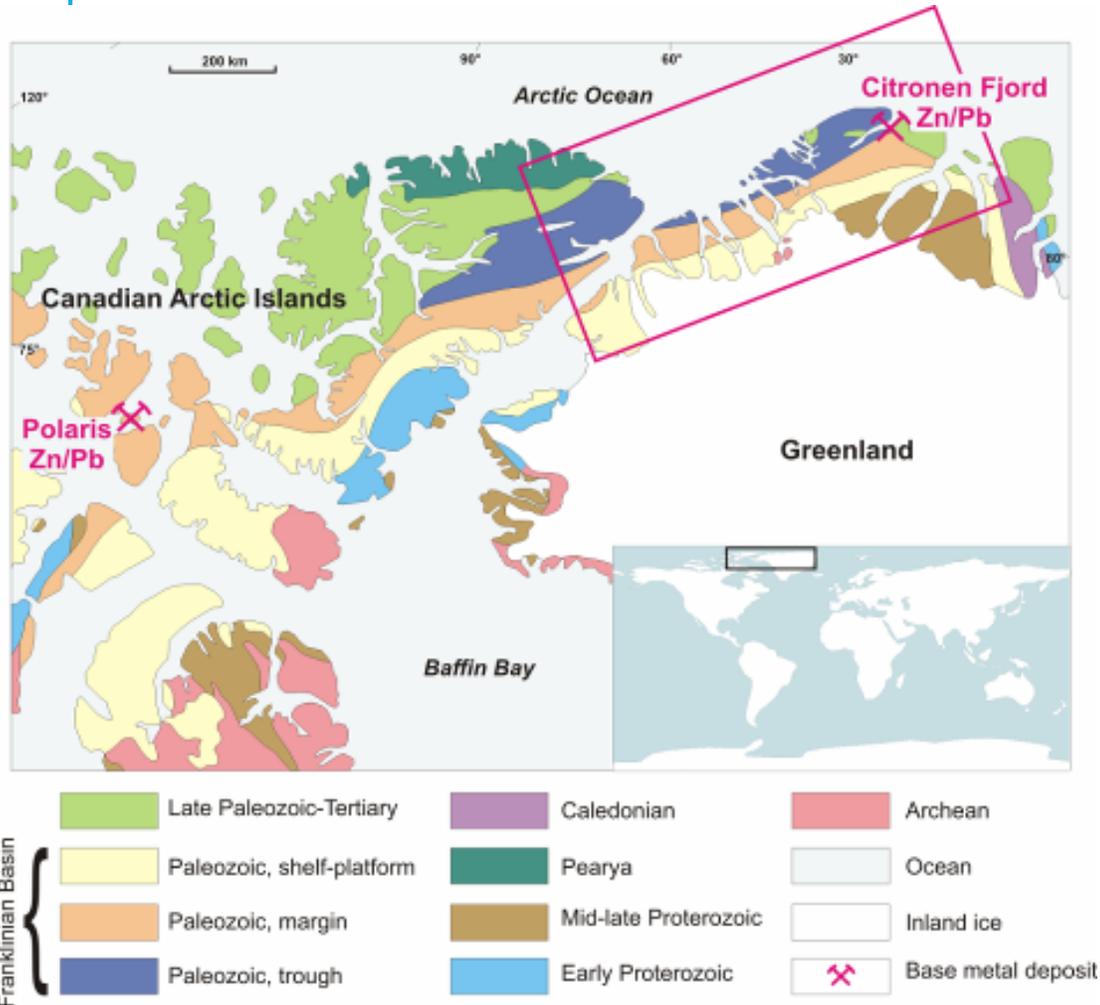
## □ H2 2020 Goals

- Complete equity funding plan
  - search for an appropriate JV partner(s)
  - explore alternative equity pathways
- Complete project debt funding plan
  - Commercial banks
  - ECAs
  - Suppliers

## □ 2021 Goals

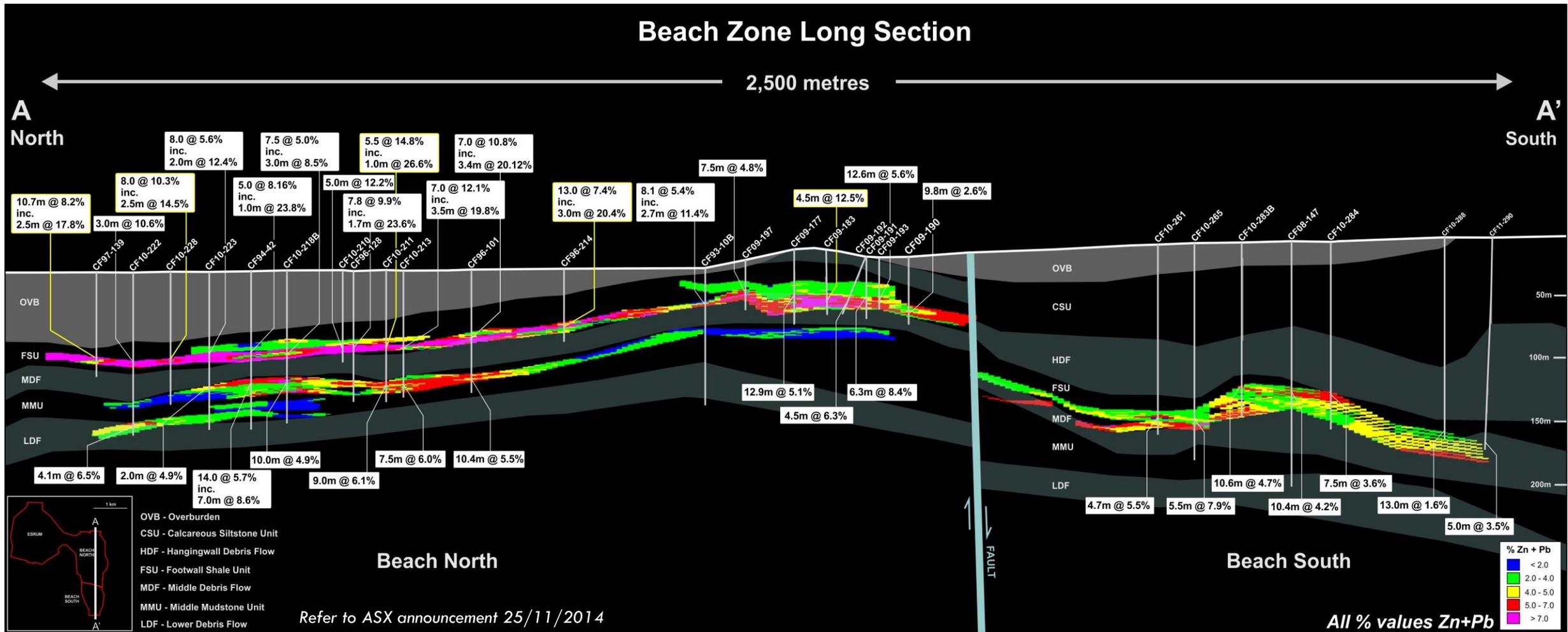
- Complete FID
- Commence development

# CITRONEN: REGIONAL GEOLOGY

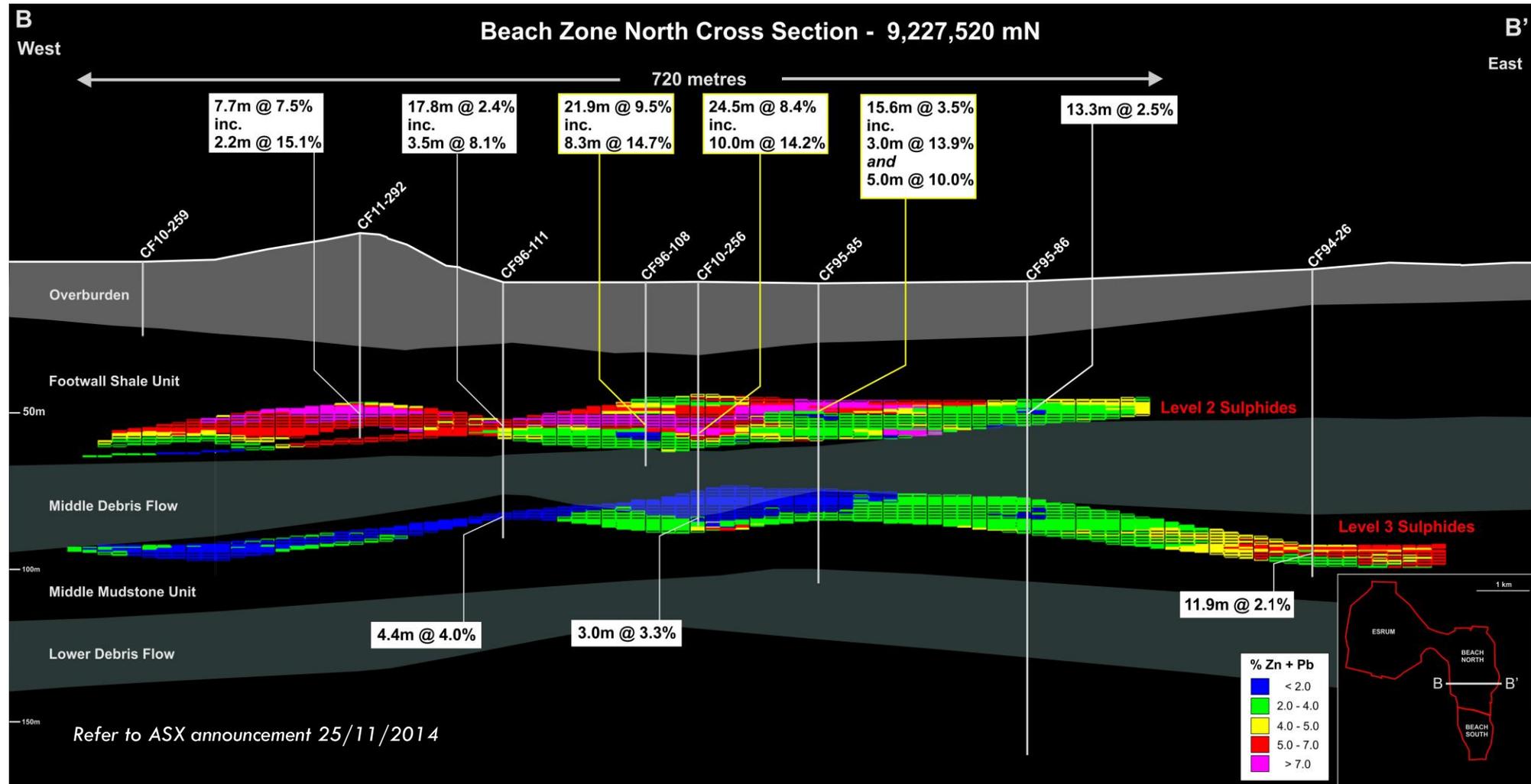


- ❑ Citronen lies within the Paleozoic Franklinian basin – a continental scale basin which extends over 2500km across northern Greenland into the Arctic Islands of Canada
- ❑ Potential to host multiple large zinc deposits
- ❑ Mineralisation identified in 10 areas across northern Greenland
- ❑ Also host to the Polaris Zn-Pb Mine & Ironbark’s Washington Land Project

# CITRONEN: WORLD CLASS ORE BODY

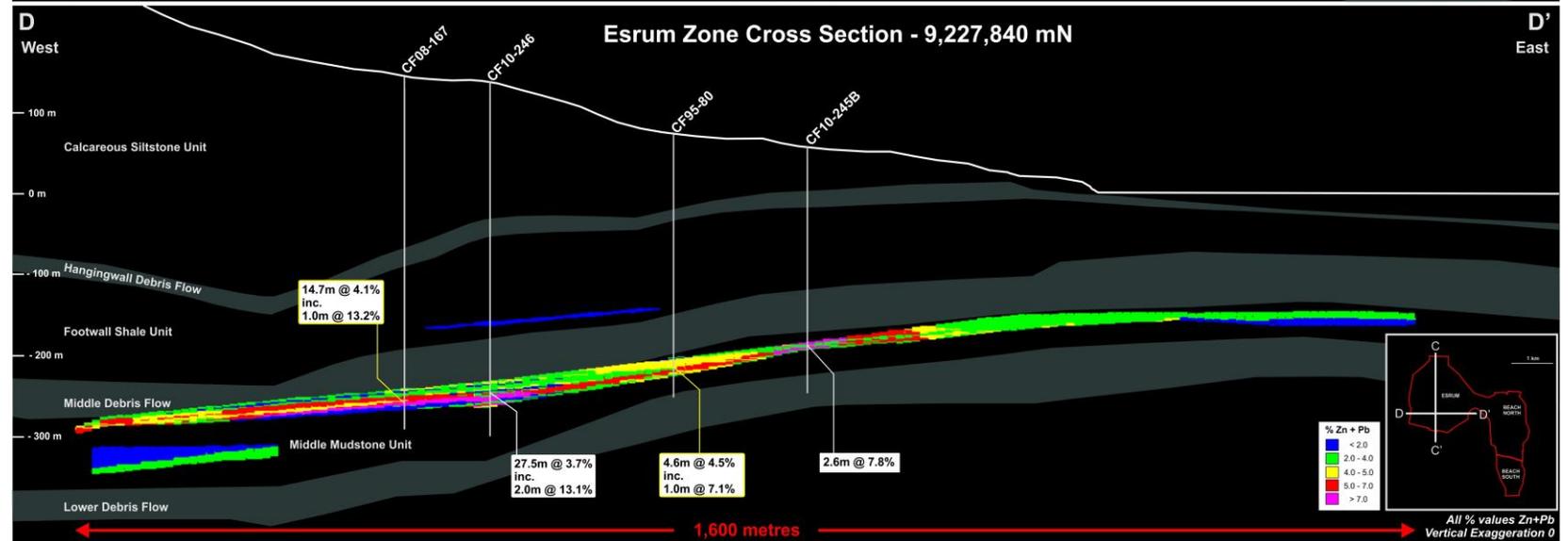
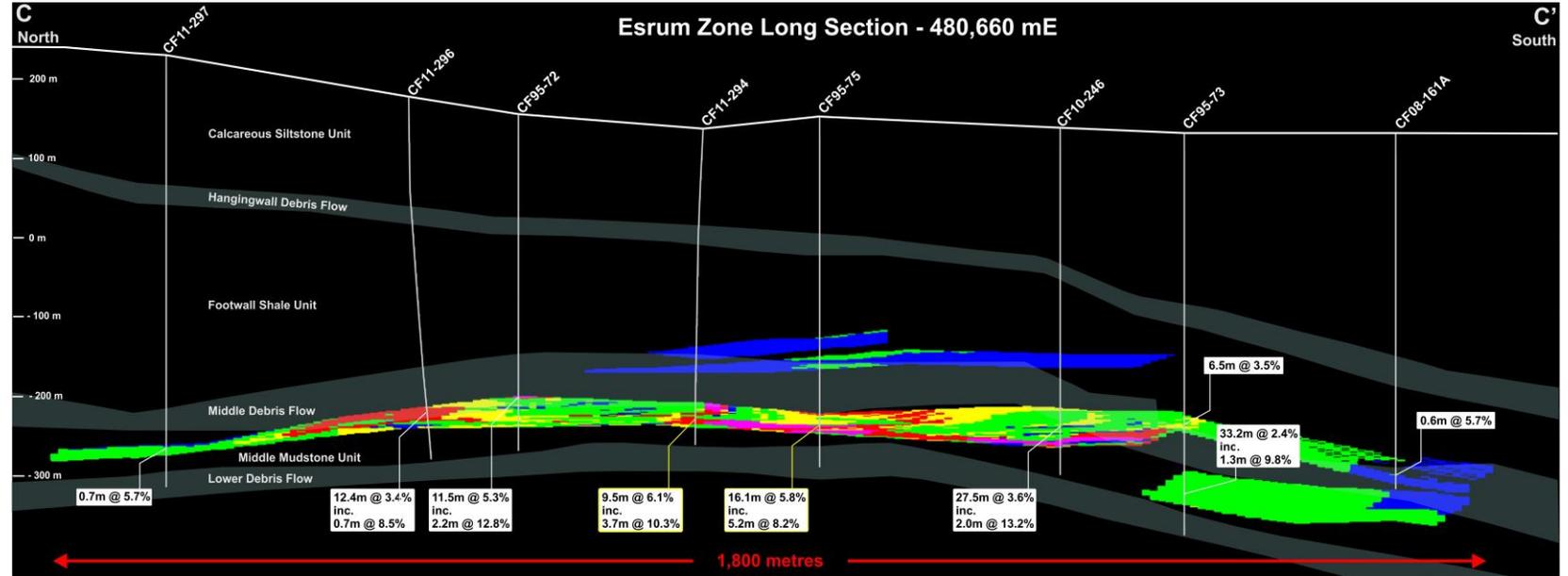


# CITRONEN: SHALLOW HIGH GRADE ZONES READY TO BE MINED



# CITRONEN: ESRUM ZONE

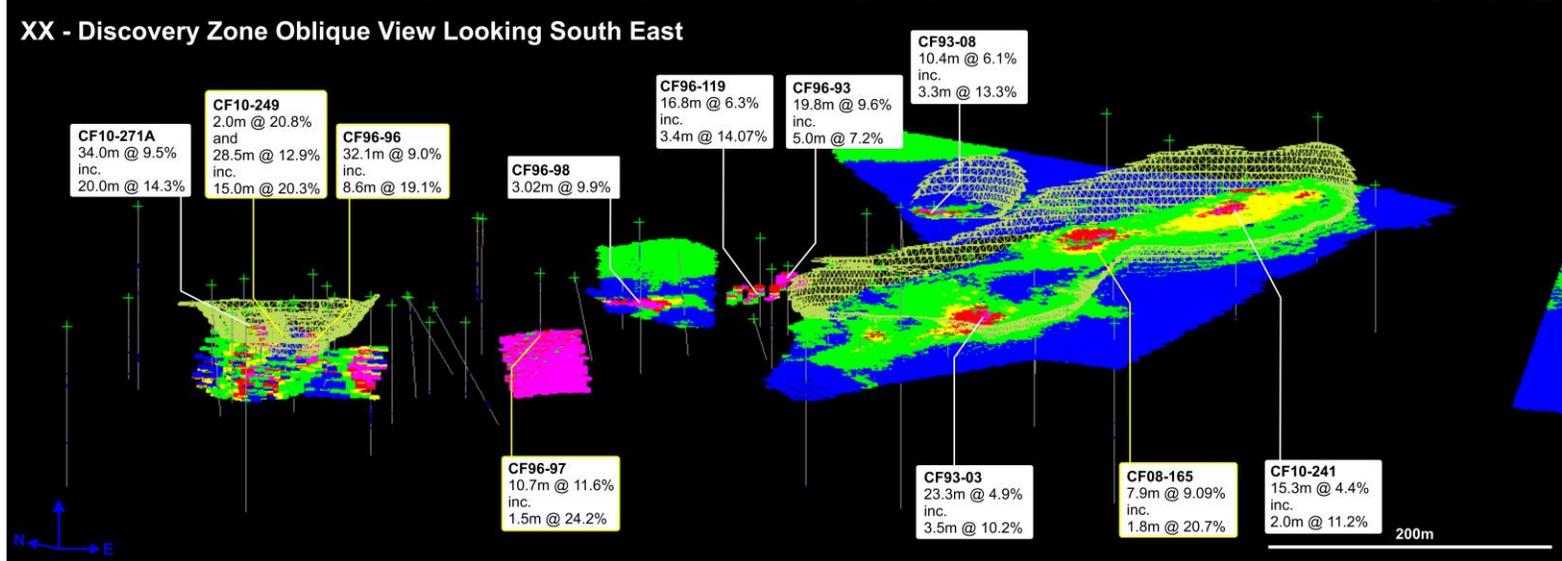
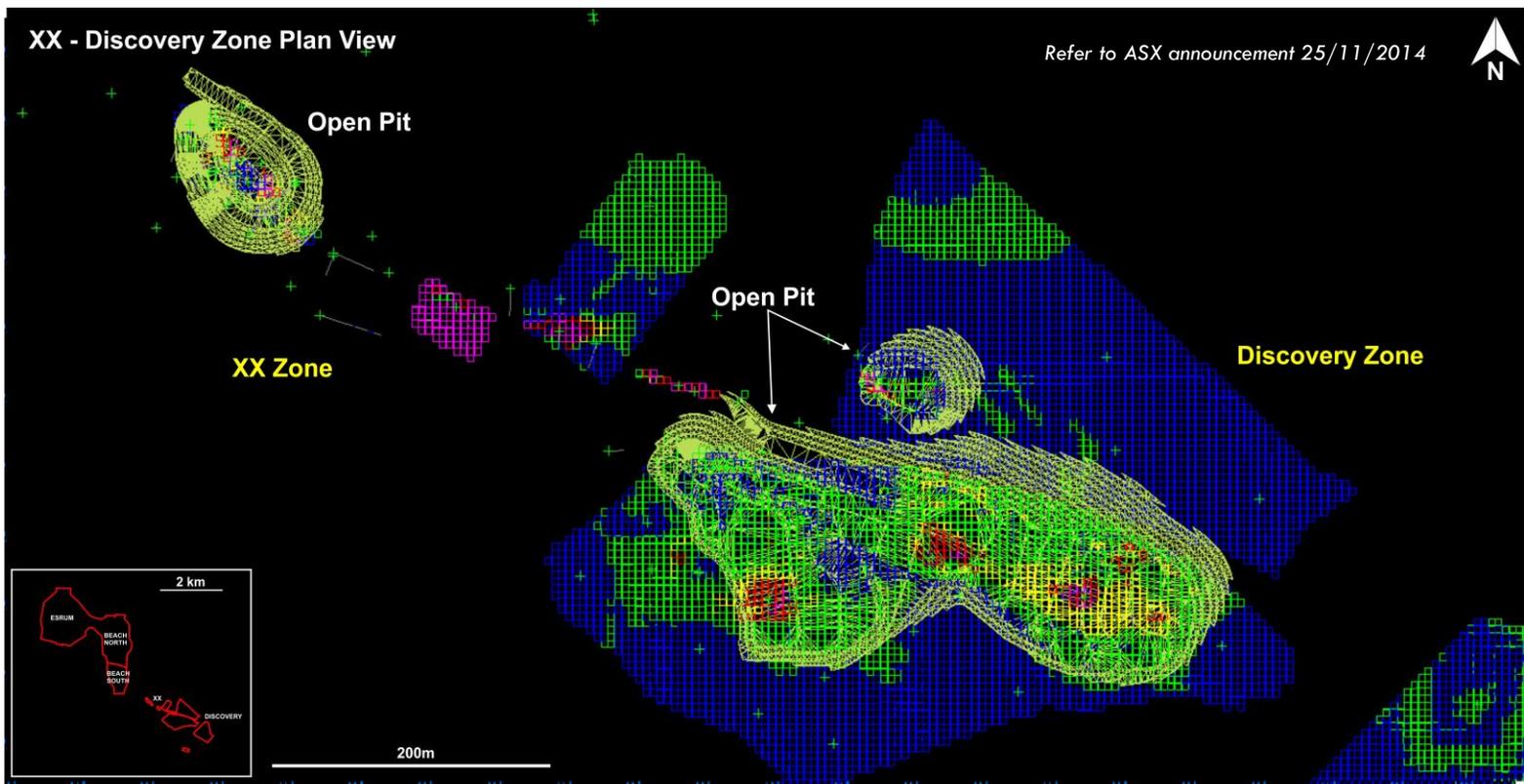
- ❑ Significant tonnes added to later development
- ❑ Broad, flat geometry
- ❑ Resource open to the north, west and south – currently only limited by drilling



Refer to ASX announcement 25/11/2014

# CITRONEN: DISCOVERY & XX

- Outcropping mineralisation at Discovery (see image below)
- Open pit/high grade tonnes available



# MAJOR INVESTORS AND OFFTAKERS

## □ Nyrstar

- 10.6% shareholding
- Legal right to Board seat provided remain above 10% holding (currently Maciej Sciazko)
- Trafigura controlled
- Rights to 35% of Zn & Pb concentrates for Life of Mine

## □ Glencore

- 4.8% shareholding
- Rights to 35% of Zn concentrate for first 10 years of production, and 35% of Pb concentrate for Life of Mine



# CITRONEN: APPROVALS STATUS

- ❑ 30 year Exploitation (Mining) Permit issued 2016 – multi year process, significant de-risking event
  - ❑ Environmental surveys complete and signed off under Mining Permit
  - ❑ Low risk base metals play – tails frozen and/or stored underground, TSF runoff issues minimal
- ❑ Subsequent Section 19-43 Permit application in progress and substantially completed (targeted issuance H1 2020)
  - *Section 19-43 Permit is issued subsequent to an Exploitation Permit, and also includes a Mine Closure Plan*
- ❑ Citronen Project expected to be shovel (FID) ready by H2 2020 or earlier

# CITRONEN: STANDARD ARCTIC LOGISTICS

- ❑ Red Dog (Teck), Polaris, Nanisivik – successful precedent Zn/Pb operations
- ❑ 2 year plant build using modular construction
- ❑ Shipping open July to Sept, provision in capex for year round airstrip on site (include heavy lift aircraft)
- ❑ July/Sept Year 1 – mobilise development infrastructure to site to enable subsequent 24/7 construction operations between seasons (~12 months)
  - This will include accommodation & service buildings, winterised outer buildings, heavy earthmoving equipment, crane(s), floating port, fuel storage
- ❑ July/Sept Year 2 – modular processing plant, concentrate storage sheds, mining fleet, first fill mobilised to site for 2<sup>nd</sup> phase construction (~12 months)

# RISKS ARE MUCH LOWER THAN PERCEIVED

## □ Undemanding technical dimensions

- Geologically uncomplicated environment – “frozen in time” (lacks significant deformation or faulting)
- Straightforward room and pillar mining of an essentially shallow, tabular orebody with excellent geotechnical characteristics
- Simple crush/grind/float processing flowsheet to produce high grade, low impurity concentrates that are readily saleable
- Minimal surface waste dumps and tailings storage due to underground backfill
- Planned mine site is adjacent to deep water port

## □ Highly favourable environmental dimensions

- No local communities to manage, environmental approvals already signed off
- Minimal local flora/fauna leading to simple environmental management
- “Arctic desert” climate – minimal annual snowfall (<1 metre)
- Sheltered operating terrain – tidal range < 30cm, mild annual average wind readings (<15 kmph)
- Stable rock conditions for mining and construction due to permafrost
- Sea ice (shipping) conditions trending favourably with excellent availability of arctic bulk carriers

## □ Well travelled execution pathway

- Arctic mine development antecedents well populated and understood (Red Dog, Polaris, Nanisivik)
- Underground mining favourably impacted by temperatures
- Modular offsite construction with barge delivery minimises site surface activities during construction
- Highly supportive government

# MITIGATION OF KEY RISKS IS WELL UNDERSTOOD

- Logistics
  - People
  - Inbound supplies
  - Outbound concentrates
- Working capital
  - product revenue
  - consumables
- Emergency situations
  - People
  - Equipment

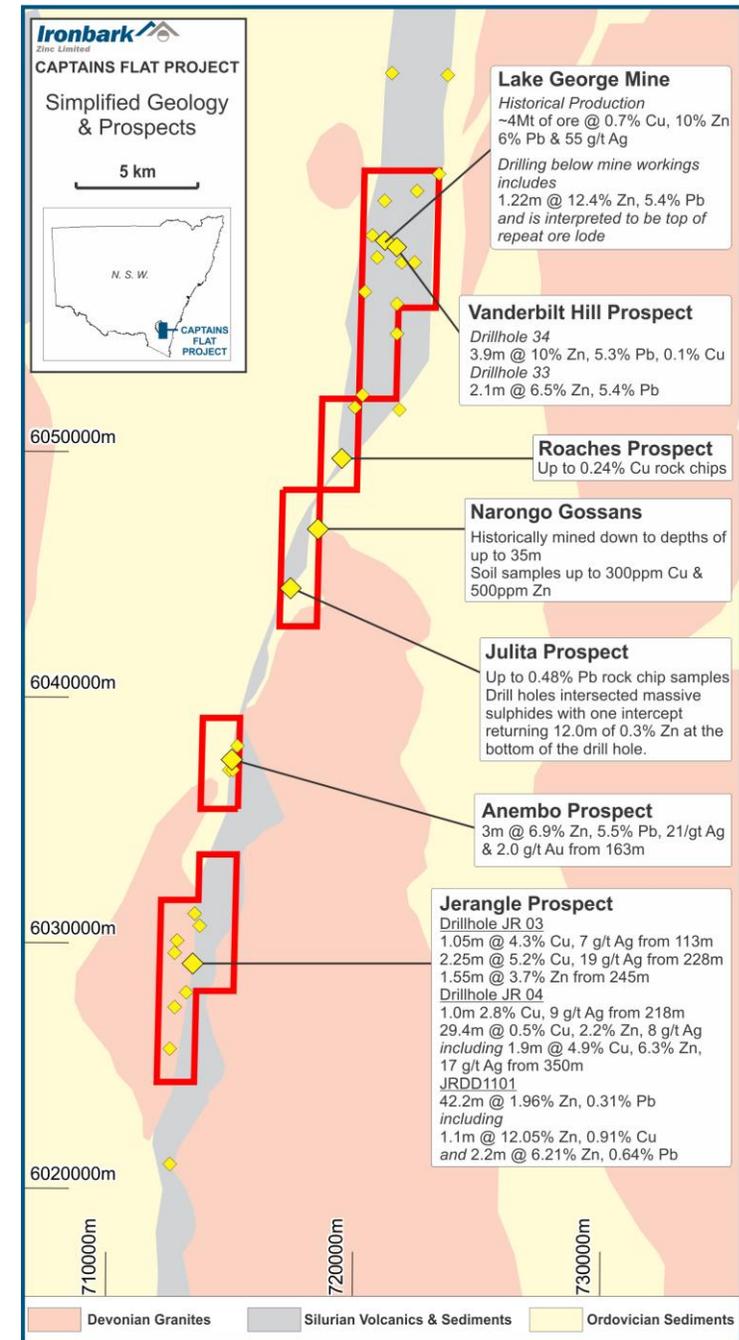


## 6. OTHER ASSETS

- Assessments underway:
  - Captains Flat (NSW) JV (Glencore, 50/50) – Cu, Zn, Pb
  - Mestersvig, Greenland – Zn, Pb
- Focus will be on:
  - Potential to delineate economic resources
  - Cost/timeline to deliver 2020 exploration program
- Board considering divestment of other assets
  - Washington Land, Greenland
  - Fiery Creek, NSW
  - Belara, NSW

# CAPTAINS FLAT: BASE METALS JV (GLENCORE)

- ❑ 50/50 JV with Glencore (managed by IBG)
- ❑ Located ~50km SE of Canberra and centred on the historic Lake George mine which produced 4Mt @ 10% Zn, 6% Pb, 0.7% Cu, 55 g/t Ag and 1.8 g/t Au
- ❑ Significant potential for delineating an economic base metals deposit (Cu, Zn, Pb)
- ❑ Geological assessment incorporating results of recent airborne geophysical survey currently underway
- ❑ Exploration program to be assessed for commencement in Q2 2020



# MESTERSVIG

- ❑ Two Narrow High grade Zn/Pb (+Cu) prospects, central Eastern Greenland
- ❑ Historic Blyklippen Pb-Zn Mine
  - Produced 545kt ore @ 9.3% Pb % 9.9% Zn, 1956-1962)
  - Potential for further offset orebodies
  - Ironbark drilling confirmed depth extension and returned grades up to 30.6%Zn+Pb
- ❑ Sortebjerg
  - Narrow, high-grade, outcropping vein with a strike extent > 1.5km
  - Drill results include 3.1m @ 21.0% Zn+Pb & 3.0% Cu; 1.6m @ 25.6% Zn+Pb & 0.8% Cu
  - Open ended mineralisation, tenure secured
- ❑ Year round access to site
- ❑ Potential direct shipping ore opportunity requiring minimal capital investment



## 7. ZN MARKET SUMMARY

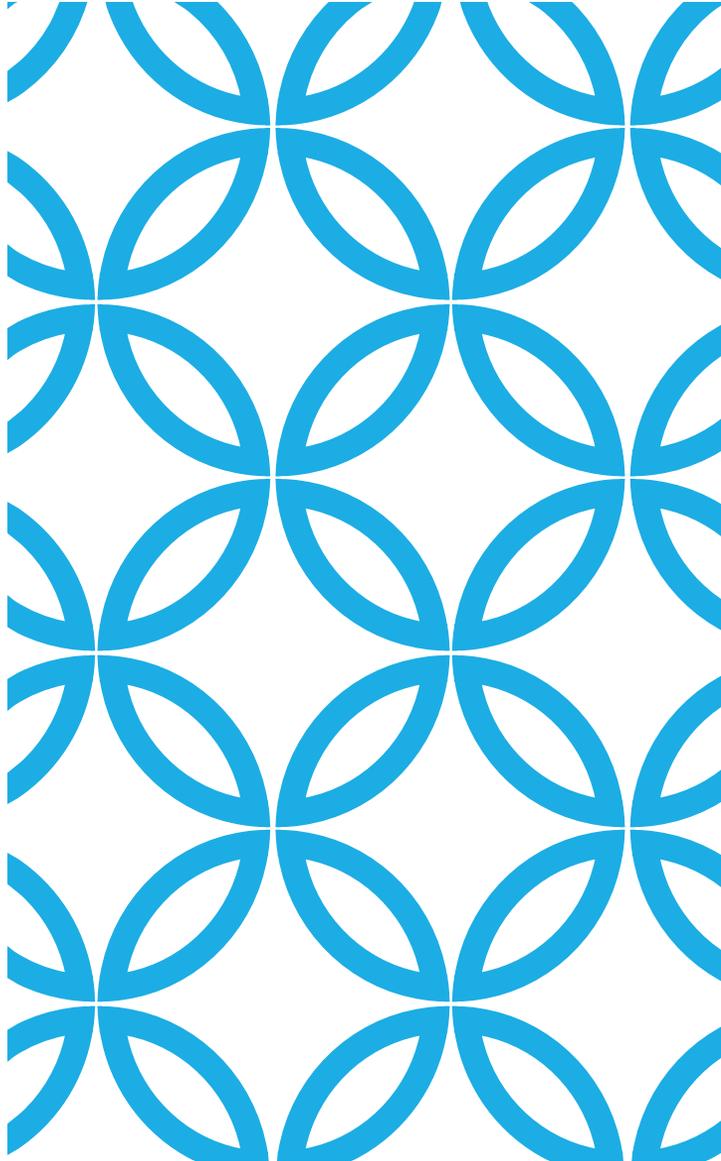
- ❑ Recent price action positive (\$2200-2500t since early Sep 2019)
- ❑ Zn demand, along with most metals ex Gold, closely tied to world trade
- ❑ Mixed signals: elevated TCs currently, low official stockpiles
- ❑ Long development pathway for new mines, Citronen materially advanced towards FID



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# APPENDIX A: 2017 FS HIGHLIGHTS

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# ECONOMICS

- ❑ NPV: USD1.03B (@ Zn USD 1.38/lb)
- ❑ LOM: Revenue USD6.4B, Opex USD3B, NPAT USD1.8B
- ❑ Highly leveraged to Zn price - compelling case for counter cyclical investment now
- ❑ Scale such that mine will be profitable through the cycle (~Spot NPV USD545M)
- ❑ Vendor Royalty: 2.5% NSR



# CITRONEN: PRODUCTION @ 3.3MTPA

		TOTAL	Yr-2	Yr-1	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11
Ore Tonnes	Mt	35.8		0.1	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.6
Zn Grade	%	5.85		4.94	7.81	7.02	6.00	5.42	5.98	5.53	5.62	5.46	5.01	5.04	5.45
Zn Metal	kt	2,094		3.6	257.7	232.8	198.8	179.9	197.4	184.3	186.2	180.3	165.7	167.2	140.3
Pb Grade	%	0.50		0.52	0.65	0.65	0.62	0.51	0.46	0.44	0.34	0.41	0.36	0.41	0.64
Pb Metal	kt	178.2		0.4	21.5	20.5	17.0	15.3	14.7	12.2	13.4	11.7	13.5	16.5	

Commissioning year ↑

- Subsequent to FS, +36kt Zn metal via 6% grade uplift first 4 years (ASX release 23/7/19)
- Under 1 Mtpa scenario, head grade 8.9% Zn & Pb first 4 years (ASX release 11/9/19)

# CAPEX – USD 514.2M @ 3.3MTPA

Direct Works USD\$M		Indirect Works USD\$M	
Mining - Surface Infrastructure	\$0.7	Construction	\$29.9
Mining - Open Pit Pre Production	\$8.9	Project	\$103.4
Mining – Underground Pre Production	\$54.9	Owners Costs	\$17.4
Crushing Plant & Fine Ore Feed	\$14.4	Contingencies	\$35.6
Process Plant	\$103.4	First Fill	\$TBC
Concentrate Storage / Reclaim	\$10.4	Capital Spares	\$TBC
TSF & Water Management	\$18.3	Operating Spares	\$TBC
Plant Site	\$24.6		
Site Power & Heating	\$42.7		
Port Facilities & Storage	\$18.9		
Infrastructure	\$12.5		
Site Services & Utilities	\$5.7		
Temporary Services	\$12.4		
<b>TOTAL DIRECT</b>	<b>\$327.8</b>	<b>TOTAL INDIRECT</b>	<b>\$186.3</b>

# OPERATING COSTS

☐ USD payable net of by product credits

- Site – 52c/lb
- Smelter fees – 14c/lb

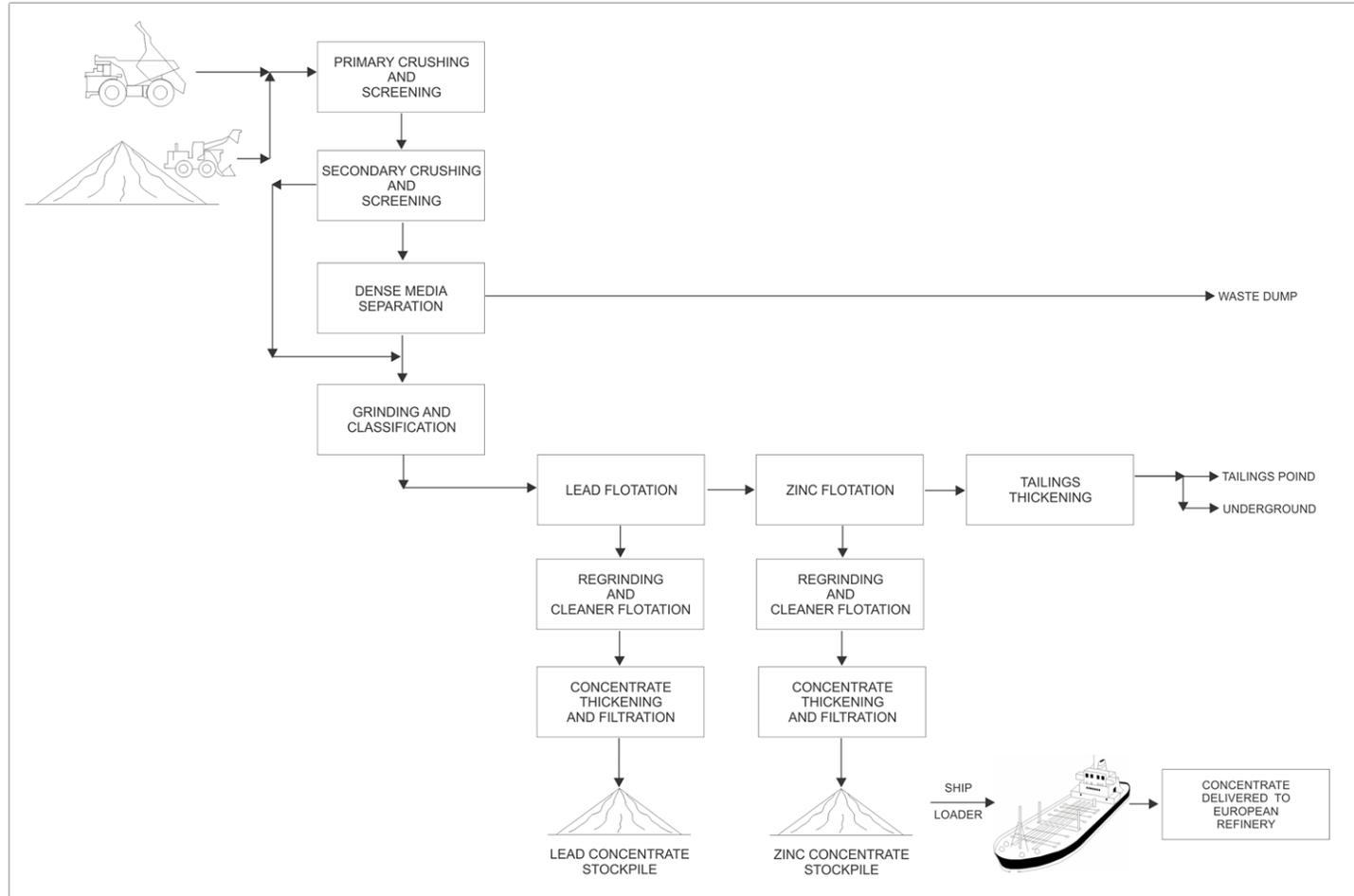
☐ TOTAL 66c/lb C1

Description	Annual Cost (USD x \$'000)	Unit Costs (USD t/ore)	Unit Costs (USD t/Zn conc)
Underground Mining	81,723	20.00	240.36
Open Pit Mining	14,834	1.32	15.87
Process	35,467	11.05	132.76
Shipping & Logistics	31,003	9.66	116.05
G&A	24,593	7.66	92.06
<b>TOTAL OPERATING COSTS</b>	<b>159,512</b>	<b>49.69</b>	<b>597.10</b>

# CITRONEN: PROPOSED SITE LAYOUT



# CITRONEN: SIMPLE FLOWSHEET, CLEAN CON



For full details, refer to ASX announcement 12 September 2017, "Feasibility Study Update"