

# Cobalt resources set to grow with discovery of new, high-grade intersections of cobalt mineralisation at the Railway Prospect

Drilling at the Railway Cobalt Prospect near Broken Hill has intersected thick, highgrade zones of cobaltiferous pyrite. Drill intersections of more than 45 metres of 3.85 pounds per tonne cobalt is similar in thickness but more than double the cobalt grade than the nearby Pyrite and Big Hill Cobalt Deposits.

The wide-spaced drilling intersected near-surface cobaltiferous pyrite mineralisation within a zone which trends over 1.5 kilometres and is up to 300 metres wide. The mineralisation is open along trend and at depth.

Stand-out averaged intervals from recent drilling include:

- 14m of 2.42lb/t cobalt in BER009 (33-47m)
- 35m of 2.01lb/t cobalt in BER009 (57-92m)
- 18m of 5.08lb/t cobalt in BER011 (106-124m) including 11m of 6.71lb/t Co
- 15m of 2.92lb/t cobalt in BER011 (144-159m)
- 45m of 3.85lb/t cobalt in BER012 (27-72m) including 9m of 4.89lb/t Co

BPL is planning a scoping study to investigate a 7.5 million tonne per year open cut mine with annual production of pyrite concentrate containing about 7,000 tonnes of cobalt.

# **Summary**

BPL's first pass reverse circulation ('RC') exploration drill program at the Thackaringa cobalt project near Broken Hill in NSW (Figure 1) is close to completion.

The drill work was designed to test large geophysical anomalies (zones of strongly conductive and chargeable rocks) which extend for more than four kilometres north-east from the Big Hill Cobalt deposit (refer BPL's ASX announcement of 6 December 2011). Geology mapping and sampling has shown that surface mineralisation extends along this NE trend. The drilling is aimed to explore for new deposits of economic, near-surface cobalt mineralisation which could add to existing resources at the nearby Pyrite Hill and Big Hill Cobalt deposits which have combined Inferred Resources of 20.8 million tonnes of 1.87 pounds per tonne cobalt ('lb/t Co") and potential for 14-24 million tonnes of similar grade\*1. The mineralisation is close to surface and could be mined by open cut.

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<sup>\* 1</sup> This potential lies outside of the Inferred Resource because of the absence of nearby drilling. This target is conceptual in nature and more drilling is required to further define it. There is no certainty that this will result in a Mineral Resource.



Nineteen drill holes have been completed (BER001-19, Table 1) and assay results have been received for the first twelve (BER001-12). Mineralised intervals intersected by these drill holes are summarised in Table 2. Assay data for BER001-4 and summaries of drill holes BER001-12 were presented in the BPL quarterly report (27 April, 2012) which is available on BPL's website (<a href="https://www.bhpl.biz">www.bhpl.biz</a>).

### **Railway Cobalt Prospect**

Drill holes BER004-19 were completed at the Railway Cobalt Prospect to test a zone of albite—quartz-pyrite gneiss which corresponds to a large cobalt-in-soil anomaly (Figure 2) as well as rocks with high chargeability and conductivity (6 December ASX announcement of results of IP geophysics survey). Drilling was undertaken along lines about 250 metres apart so that the work would give an indication of the continuity of the mineralisation along the zone.

Drill results have been very encouraging. Drill holes BER004-6 and BER018 were drilled across the central part of the Railway Prospect in a fence of holes (Figure 3). Mineralised rocks extend over most of the 300 metre wide zone of steep-dipping mineralisation. Cobalt grades of over 2.5lb/t occur at both east and west margins of the mineralisation with thickest pyritic layering and higher cobalt grades close to the western contact zone (BER004, BER018) where anomalous zinc and silver occur in two mineralised intervals (Table 2). BER018, collared 24 metres west of BER004, shows that the mineralisation at the west end of this section dips steeply (approximately 80 degrees) towards the east. Outcrop data suggest either vertical or steep dips in most of the prospect.

BER007-10 are located in the southern part of the Railway Prospect (Figure 2). BER007 and BER009 both intersected wide zones of massive and disseminated pyrite with best cobalt grade in BER009 which returned high cobalt content (plus 2/lb/t Co) over 49 metres in the top part of the hole.

BER011 was drilled from a collar located about 30 metres to the west of the old Hunter Resources drill hole (T98C01) in the central part of the Railway Prospect and about 350 metres north of BER005. BER011 intersected massive and disseminated pyrite in gneissic rocks (Figure 4). Cobalt occurs in almost all samples beneath the weathered zone (26-193m at the end of the hole averages 1.63lb/t Co). Best cobalt grade intersections occur between 106-124m (18m of 5.08lb/t Co) and 144-159m (15m of 2.92lb/t Co). The hole finished in cobalt mineralisation at 193m. These results indicate that the mineralisation intersected by Hunter Resources in 1998 (T98C01) increases in thickness, pyrite content and cobalt grade with depth. Unmineralised amphibolite rocks are probably altered dyke rocks and were intersected in both BER011 and T98C02 (Figure 4). The amphibolite rocks have apparent dips towards the west and appear to cap several of the high-grade cobalt zones.

BER012 and BER013 are located about 220 metres north of BER011. Both drill holes intersected wide zones of massive pyrite. Assay data for the top part of BER012 has been returned and this confirms high cobalt contents throughout the interval 27-72m which averaged 3.85lb/t Co and included high grades between 48-57m (4.89lb/t Co). Assays data for samples below 72m in BER012 and for all samples from drill holes BER013-BER020 have yet to be completed.

BER014 and BER015 were drilled in the northern part of the Railway Prospect (Figure 3) and mineralisation occurs in both with highest pyrite content between 28-55m in BER014.

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BER016 was drilled midway between BER011 and BER012. BER016 intersected massive pyritic mineralisation between 25-88 metres down hole.

BER017 was drilled midway between BER011 and BER005 and intersected low grade pyrite between 49m and the bottom of the hole at 115m.

BER019 was drilled midway between BER004 and BER009. High pyrite grades occur between 34-71 metres down hole. Although only half of the assay results have been returned for the Railway prospect drilling BPL's work clearly shows that the Prospect contains a large deposit of cobaltiferous pyrite with prominent thickness and grade along the western margin of a wide zone of cobalt mineralisation which crops out for more than 1.5 kilometres.

# **Planned Work**

Completed assays of samples from drill holes BER012-19 are expected during the next several weeks and these will be reported when they are at hand. BPL are planning to undertake scoping work for a 7.5 million tonne per year open cut mine with an annual production of pyrite concentrate containing about 7,000 tonnes of cobalt. The study will focus on mining costs and mill to upgrading the pyrite through gravity and flotation processes to produce a pyrite concentrate with a grade of about 0.5% cobalt. Options to process the concentrate will be reviewed to determine optimal and cost effective recovery. Commercial and marketing studies for cobalt concentrate, cobalt metal as well as by-products such as ceramic grade feldspar, sulphuric acid and high iron residue are planned.

Between 20-23 May Broken Hill Prospecting will be in attendance at the Resources and Energy Symposium 2012 at Broken Hill (<a href="www.res2012.symposium.net.au">www.res2012.symposium.net.au</a>). BPL will have an information booth and present an update on our recent drill work and results.

# **Comment**

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Managing Director Dr Ian Pringle said:

"The new discovery of high cobalt grades and extensive thickness and strike extent of cobalt mineralisation confirm excellent continuity of the Railway Prospect for more than 1.5 kilometres. Many of BPL's holes have intersected high grades of cobaltiferous pyrite, particularly along the western margin of the prospect where thick intervals of cobalt mineralisation have average grades more than twice those of the nearby Pyrite Hill Resource. The mineralisation appears to be continuous and is still open along trend and at depth."

"The new drilling work has clearly defined a very large zone of near-surface cobalt mineralisation which, when fully evaluated, will considerably add to the size of the project."

"When completed results are available from the work, BPL will initiate scoping work to investigate a 7.5 million tonne per year open cut mine with annual production of pyrite concentrate containing about 7,000 tonnes of cobalt."

"Excellent road and rail access and proximity to Broken Hill, a well established mining town, will allow BPL to investigate several processing options for future mine development.

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"Cobalt is used for energy storage and for hardened steel and alloys. New technologies require increasing amounts of cobalt for batteries to power the next generation of transport and computers. Most of the world's cobalt production comes from Central Africa and insecurity of supply is an important issue. BPL is well placed to leverage growing concerns over future cobalt sources."

Yours faithfully,

lan J Pringle

(Managing Director)

## Competent Person Statement

The exploration activities and results contained in this report is based on information compiled by **Dr lan Pringle**, a Member of the Australasian Institute of Mining and Metallurgy. Dr Pringle is the Managing Director of Broken Hill Prospecting Ltd and also a Director of Ian J Pringle & Associates Pty Ltd, a consultancy company in minerals exploration. He has sufficient experience which is relevant to the style of mineralisation and types of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the December 2004 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code). Dr Pringle has consented to the inclusion in this report of the matters based on his information in the form and context in which it appears.

## About Broken Hill Prospecting Limited ("BPL")

BPL is seeking to explore, evaluate and develop cobalt deposits in the Broken Hill area. Within two mining leases (ML86 and ML87) BPL has cobalt mineral resources (Inferred Resources) which total 20.8 million tonnes at a combined average grade of 1.87lb/tonne cobalt (Pyrite Hill and Big Hill deposits) as well as potential mineralisation between 14-24Mt of similar grade at the Pyrite Hill Deposit (Hellman & Schofield resources study, November 2011). Exploration for additional cobalt mineralisation along-trend and at depth beneath these deposits is in progress. These are a unique type of cobalt deposit and BPL is in an excellent position to take advantage of an increasing demand for cobalt to meet growth in environmental and industrial uses such as rechargeable batteries in automobiles.

BPL is among the next generation of companies that is exploring for major new mineral deposits near the historic NSW mining centre of Broken Hill, where more than 200 million tonnes of high-grade base metal ore worth an estimated \$80 billion has been produced during the past 127 years. BPL has identified 13 Broken Hill-type base metal prospects in its exploration tenements.

BPL raised \$4.47 million in an initial public offering in February 2011and BPL securities are quoted on both the Australian and New Zealand stock exchanges.

#### **Cobalt Statistics**

- Cobalt price (LME): US\$31,000 per tonne (approximately \$15 per pound).
- 1 pound = 0.4536 kilograms
- Mines in Central Africa accounted for over 65% of cobalt production in 2011 and most came from the Democratic Republic of Congo.
- The USA accounted for 58% of cobalt consumption in 2010.

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- The USA, Japan, European Union and China have no producing cobalt mines.
- China imported ore from Africa and produced 43% of refined cobalt production in 2010.
- More than 95% of cobalt production is a by-product of copper or nickel mining.
- World production of refined cobalt during the first six months of 2011 was 40,749 tonnes (The Cobalt Institute, October 2011 Newsletter)
- Lithium-ion batteries contain 60% cobalt and will be widely used in the new generation of electric vehicles.
- Cobalt is used in a wide range of industries including production of; super alloys and hardened metals where high heat and wear tolerance is required (aircraft, turbines, windmills, military hardware), high-strength magnets, carbides and diamond tools, catalysts (petroleum production), colouring (cobalt blue), adhesive, soaps, driers and food supplements (vitamin B12).

### For further information contact;

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The Company has recently reformatted and updated its website which covers or links to recent news, metal prices, share price as well as project and Company information. Please visit our site at <a href="https://www.bhpl.biz">www.bhpl.biz</a>

Table 1. Drill hole collar information.

Hole*	Hole depth	Easting EMGA94	Northing NMGA94	Drill hole direction AzMag	Drill hole dip
BER001	157	521669	6449893	132.4	-57.1
BER002	132	525213	6449693	153.4	-60.9
BER003	151	521879	6450434	93.2	-60.5
BER004	145	522355	6451271	122.4	-60.2
BER005	145	522440	6451166	114.8	-60.8
BER006	169	522490	6451085	117.9	-59.8
BER007	115	522324	6450748	135.3	-61.6
BER008	193	522221	6450815	120.1	-59.7
BER009	140	522100	6450884	119.4	-60.6
BER010	151	521954	6450716	120.8	-61.1
BER011	193	522738	6451376	144.2	-60.6
BER012	111	522911	6451518	143.9	-60.9
BER013	205	522880	6451563	147.2	-59.3
BER014	151	523127	6451637	142.9	-61.0
BER015	109	523313	6451844	145.3	-61.0
BER016	115	523004	6451588	147.6	-60.3
BER017	115.5	522519	6451314	144.6	-61.1
BER018	157	522337	6451278	120.1	-61.6
BER019	tba	522241	6451070	tba	tba

<sup>\*</sup> All holes were completed by Macquarie Drilling using a 450 Schramm drill rig with a 900x350 air compressor and 1800cfm booster

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Table 2. Summary assay data for drill holes BER001-12

hole number	from	to	interval *	cobalt (average grade**)	cobalt (average grade)	Ni	S	Fe	pyrite (calc <sup>4</sup> *)	Co in pyrite (calc <sup>5</sup> *)
	metres	metres	metres	g/t	lb/t ***	g/t	%	%	%	%
BER001	115	137	22	804	1.77	122	7.5	7.7	14	0.55
including	119	124	5	1122	2.47	148	9.1	8.9	17	0.66
	128	133	5	1017	2.24	154	10.3	9.6	19	0.53
BER002	18	129	111	449	0.98	76	4.8	5.3	9	0.47
including	18	25	7	1061	2.34	140	10.3	9.3	19	0.55
	47	49	2	722	1.59	85	6.1	6.0	7	0.63
	51	55	4	584	1.29	88	5.6	5.5	10	0.56
	59	62	3	622	1.37	80	6.2	6.1	10	0.54
	87	89	2	779	1.72	84	6.5	7.3	8	0.63
	99	104	5	698	1.54	98	8.0	9.2	15	0.46
	113	123	10	906	2.00	134	8.5	8.6	16	0.56
BER003	no significant assays									
BER004	40	90	50	1191	2.63	241	11.0	12.7	21	0.56
including	53	60	7	1884	4.15	337	16.0	15.2	30	0.64
	63	69	6	1915	4.22	249	18.8	17.3	35	0.55
	108	111	3	591	1.30	119	6.4	11.2	1.3% Zn	, 15g/t Ag
	120	126	6	1093	2.41	225	8.6	10.7	3.51% Z	n, 6g/t Ag
	141	144	3	691	1.52	69	5.1	5.0	9.4	0.72
BER005	33	39	6	1109	2.44	304	7.9	9.2	14.8	0.75
	47	49	2	606	1.34	82	5.1	4.9	9.5	0.63
	55	58	3	866	1.91	109	6.5	6.2	12.1	0.71
	65	76	11	720	1.59	98	6.3	6.6	11.8	0.64
	84	87	3	668	1.47	94	5.9	6.9	11	0.61
BER006	29	31	2	1010	2.23	100	7.6	8.8	14.2	0.67
	95	102	7	612	1.35	152	9.5	10.1	17.8	0.34
	122	133	11	562	1.24	130	7.2	11.6	13.5	0.40
	138	143	5	763	1.68	136	6.5	9.8	12.2	0.62
	148	162	14	1517	3.34	193	13.6	18.1	25.4	0.57
including	159	162	3	2777	6.12	173	22.8	24.2	42.7	0.63
	162	169 EOH	7	510	1.12	133	6.1	11.2	11.3	0.44
BER007	6	9	3	466	1.03	60	5.3	7.9	10	0.46

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	18	21	3	436	0.96	74	5.0	4.6	9.3	0.47
	34	43	9	624	1.38	162	8.0	8.2	15	0.43
	<i>78</i>	82	4	487	1.07	114	6.0	6.9	11.3	0.45
BER008	140	142	2	1029	2.27	217	28.1	25.0	52.5	0.19
BER009	33	47	14	1096	2.42	189	10.9	11.5	20.3	0.54
	57	92	35	910	2.01	179	9.8	13.1	18.3	0.50
	103	107	4	901	1.99	162	9.0	9.0	16.9	0.54
BER010	no significant assays									
BER011	26	<b>193</b> ЕОН	167	741	1.63	149	8.0	11.0	14.9	0.45
	26	52	26	754	1.66	183	8.4	12.0	15.7	0.45
	56	62	6	759	1.67	126	9.2	11.7	17.2	0.44
	76	81	5	530	1.17	119	8.5	9.8	15.9	0.34
	86	94	8	551	1.21	144	7.4	9.9	13.8	0.4
	106	124	18	2302	5.08	225	16.0	16.5	30	0.74
including	108	119	11	3042	6.71	262	19.3	19.0	36.1	0.84
	134	139	5	486	1.07	320	7.2	9.4	13.5	0.36
	144	159	15	1326	2.92	228	14.9	18.0	27.9	0.46
	172	180	8	812	1.79	111	8.6	8.9	16	0.50
	183	193	10	813	1.79	124	6.6	9.3	12.4	0.65
BER012*6	27	72	45	1748	3.85	351	21.6	21.4	40.3	0.43
including	48	57	9	2217	4.89	310	26.9	25.2	50.3	0.44

Notes: Samples were collected for each metre using a cyclone splitter, control samples including blanks, duplicates and international standards were inserted for quality control.

- \* drilled interval, only approximate thickness
- \*\* average of assays (>500g/t Co) of one-metre sample intervals by ALS Chemex (method ME-ICP61). Intervals in italics have included some samples with <500g/t Co.
- \*\*\* 1 kilogram is equivalent to 2.20462 pounds
- <sup>4</sup>\* Calculated pyrite content of the sample assumes that all sulphur is contained in pyrite.
- <sup>5</sup>\* Calculated cobalt content of the pyrite assumes that all cobalt is contained in pyrite.
- <sup>6\*</sup> Assays for samples beneath 72m in BER012 have yet to be received.

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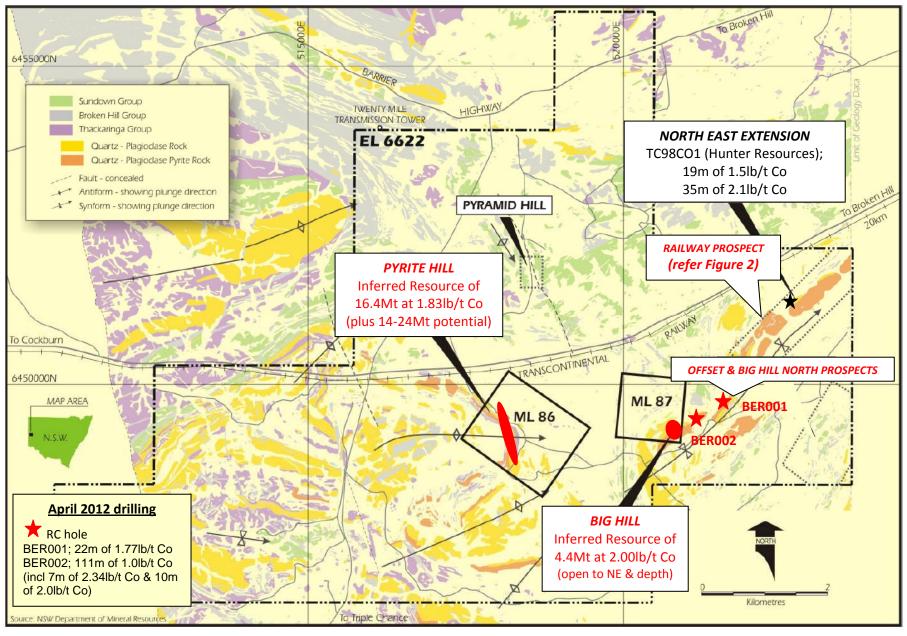


Figure 1. Geology map with cobalt resource locations and drill areas

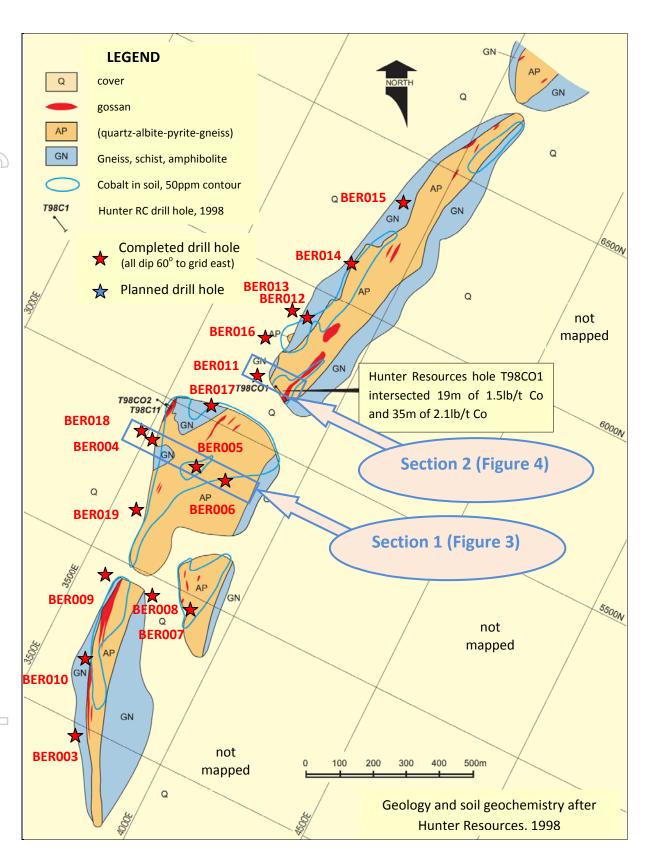


Figure 2. Geological map of the Railway Prospect with April/May 2012 RC drill holes and assay highlights (Tables 1 and 2).

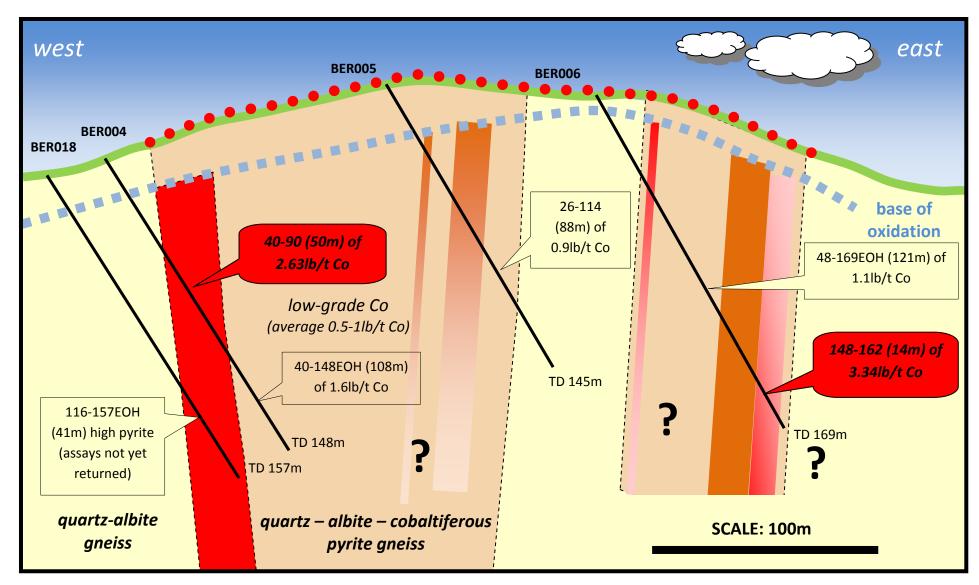


Figure 3. Schematic cross section through the central portion of the Railway Prospect showing drill hole traces and anomalous cobalt intersections in drill holes BER018 and BER004-6.

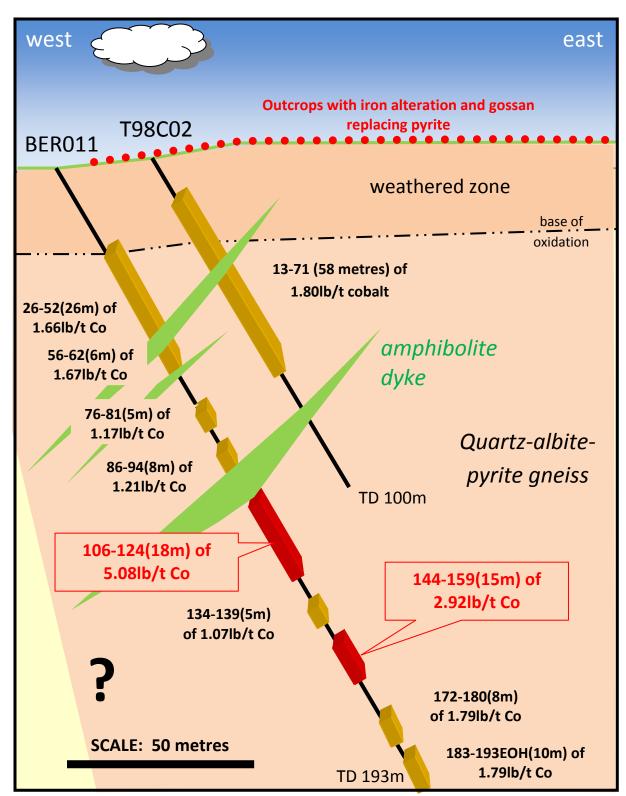


Figure 4. Schematic cross section through drill holes BER011 and Hunter Resources drillhole T98C02. Mineralised intervals are shown as solid bars on drill hole traces.