6.0 SELECTED PHOTOGRAPHS

Figure 6.1 East Elevation showing gas stoves to the left. No.1 furnace "button visible in the foreground.

Figure 6.2 View looking south of gas stove exhaust flue.

Figure 6.3 View of gas stove north elevation and east wall façade of cast house floor with upper level gas venting and dust extraction piping.

Figure 6.4 West Elevation

Figure 6.5 Number 4 blast furnace looking east.
Shows wall façade to cast house floor, material feed skip system and upper level piping.

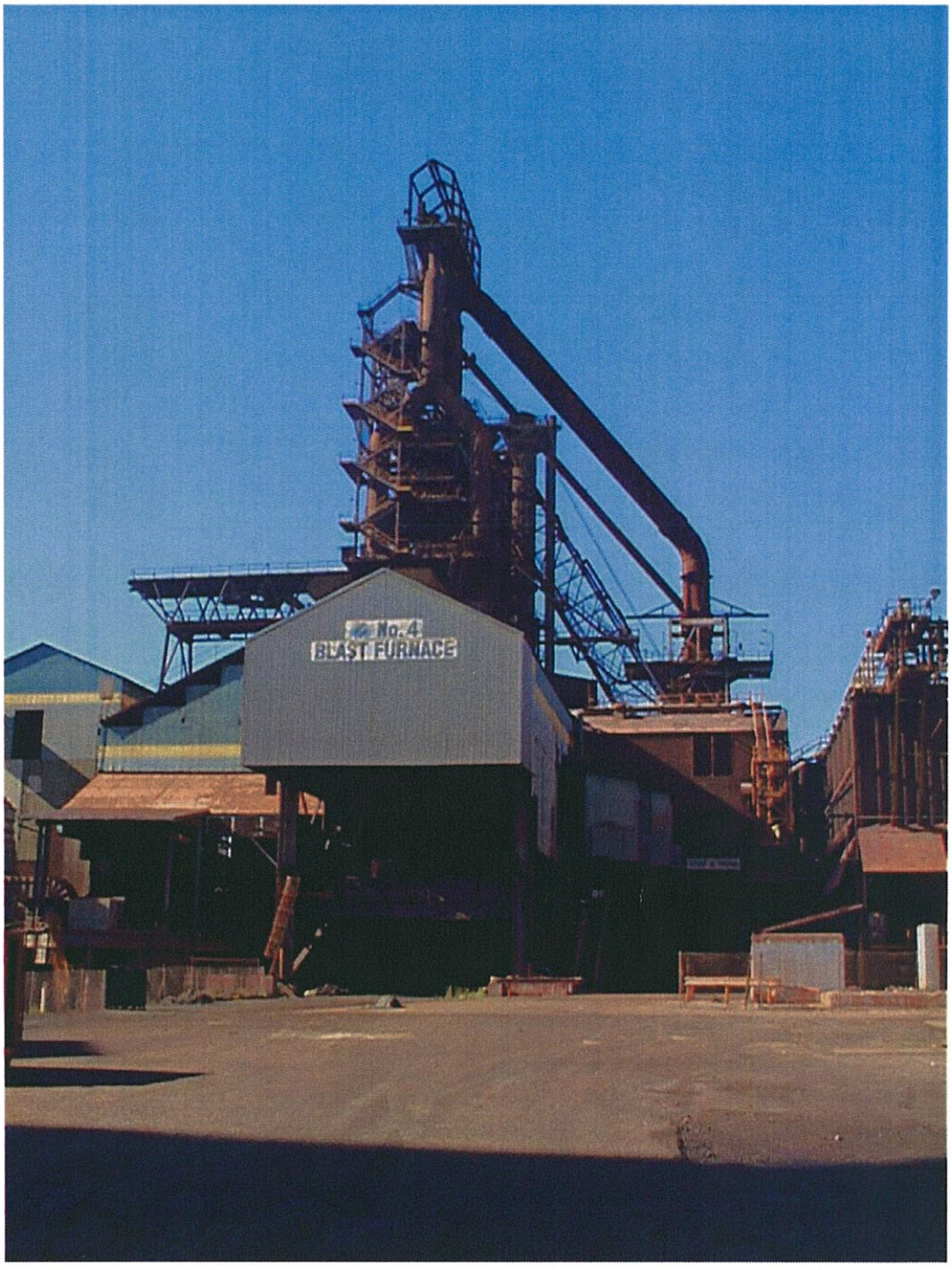


Figure 6.6 Number 4 blast furnace looking north – west.
Shows upper level materials feeding system and exhaust gas and dust extraction piping.

Figure 6.7 Number 4 blast furnace from the cast house floor, looking east at No.2 tapping hole and heat shields

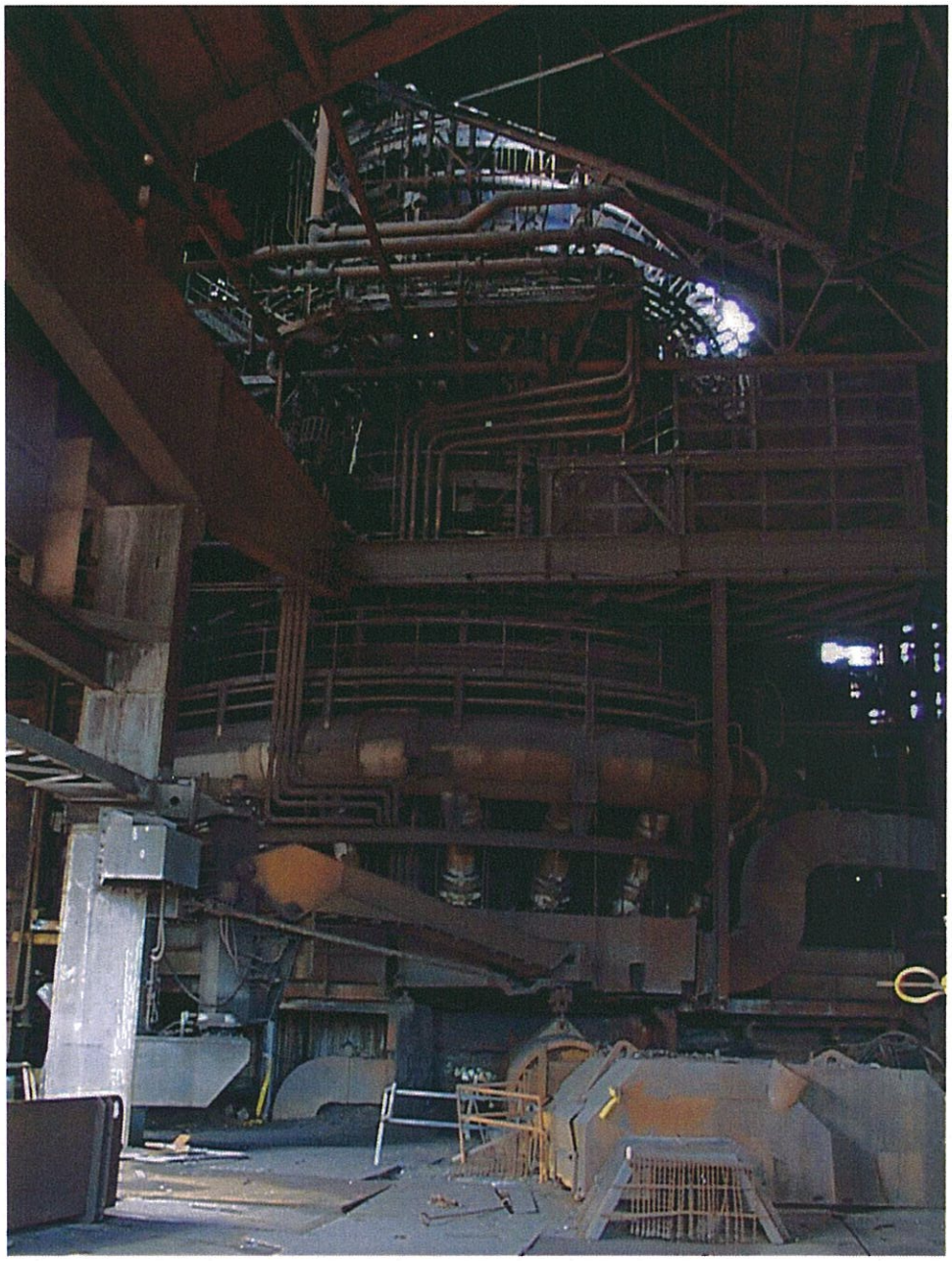


Figure 6.8 Number 4 blast furnace cast house floor at No.2 tapping hole. Shows mud gun and heat shields 'disassembled'.

Figure 6.9 Number 4 blast furnace cast house floor. No.1 tapping hole & hot air blast piping.

Figure 6.10 Number 4 blast furnace from the cast house floor, looking south at the No.1 tapping hole.

Figure 6.11 Number 4 blast furnace from walkway level above the cast house floor looking south – west. Shows hot air " blast feed pipe" and tuyeres with penetrations into the furnace " bosch".

Figure 6.12 Number 4 blast furnace from the cast house floor looking north. Shows slag run off ways.

7.0 NEGATIVE REFERENCE LIST

The following information relates to the complete set of negatives taken for the recording of this building. Under each Roll Number is a table containing the negative numbers and a description of each frame taken of that roll. The roll and negative numbers, position and direction of frame taken are referenced in the plan in section 8.0 – photographic reference plan. The numbers in the column titled "Figure No." relate to the selected photographs in section 6.0 of this report. Items marked with a dash in this column have prints located in the appendix along with the complete set of negatives.

Manual camera photographs

ROLL 9601 – 09/03/2000

Camera: Nikon FE. F 1:3.5
Film: Soulcolor coloured film ASA 100

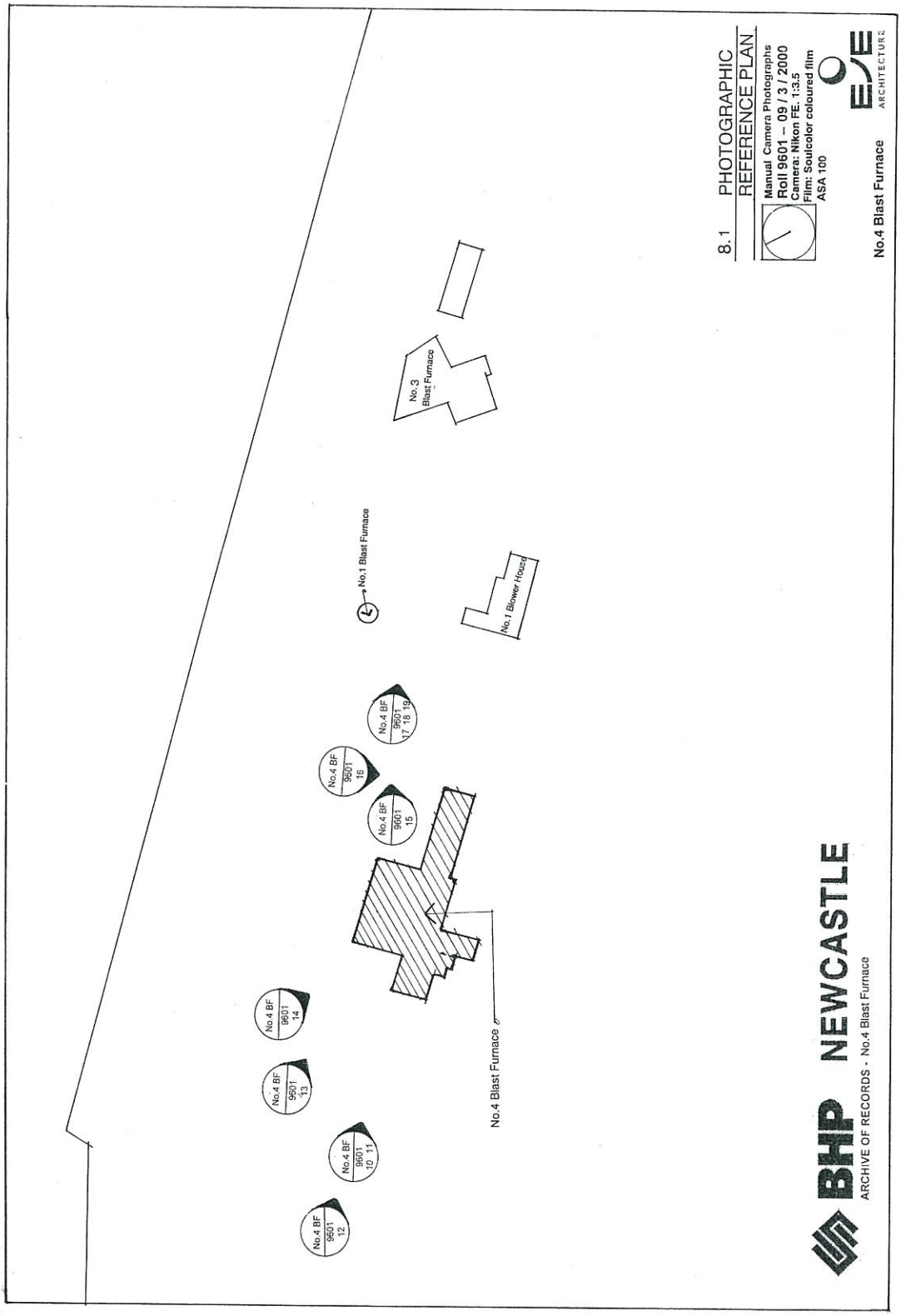
Neg No.	Figure No.	Description
10	-	Number 4 blast furnace from West.
11	-	Number 4 blast furnace from West.
12	-	Number 4 blast furnace from West.
13	6.4	Number 4 blast furnace from West.
14	-	Number 4 blast furnace from North West.
15		Salamander of number 1 blast furnace with shrubbery. Looking East from location of number 4 blast furnace ore unloaders in background. Note: Number 1 blast furnace coke bins painted blue at left.
16	6.2	View looking south of gas stove exhaust flue, located to the east of the stoves.
17	-	Number 3 blast furnace looking East from number 4 blast furnace stoves.
18	-	Number 3 blast furnace looking East from number 4 blast furnace stoves.
19	-	Number 3 blast furnace looking East from number 4 blast furnace stoves Note: Salamander of number 1 blast furnace in shrubbery at centre of photograph.

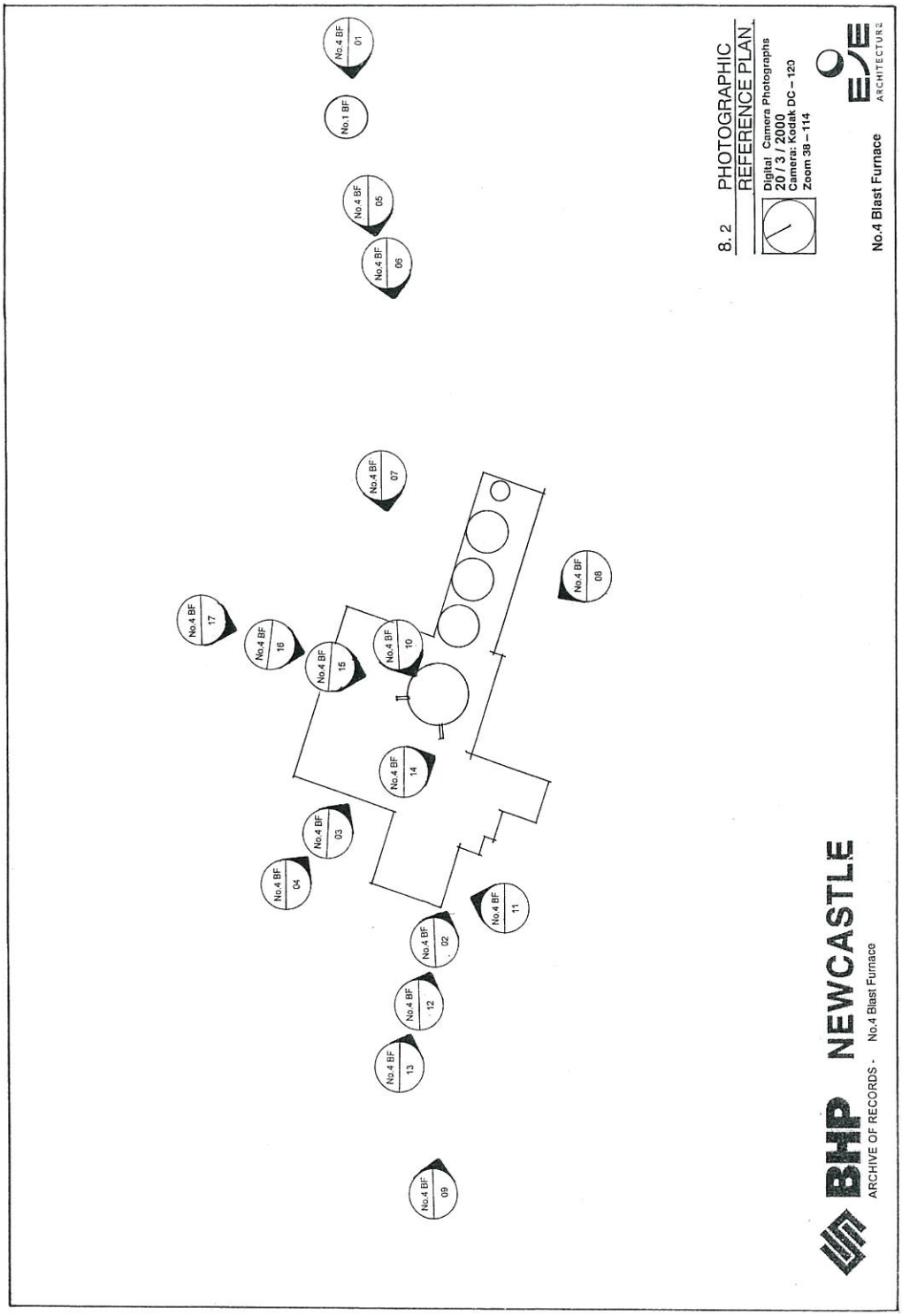
Digital photographs

20/03/00
Camera: Kodak DC-120 Zoom 38 – 114

Photo No.	Figure No.	Description
BF-4-01	6.1	Number 4 blast furnace looking west with gas stoves & flue to the left. Number 1 blast furnace "button" visible in the foreground.
BF-4-02	6.7	Number 4 blast furnace from the cast house floor, looking east at No.2 tapping hole and heat shields
BF-4-03	-	Number 4 blast furnace from the cast house floor looking south at No.1 tapping hole.
BF-4-04	-	Number 4 blast furnace from the cast house floor looking south. Shows upper level cooling water pipes.
BF-4 05	-	Number4 blast furnace looking west, showing gas stoves and materials conveyors to feed bins.
BF-4-06	-	Number 4 blast furnace looking west, showing stoves and feeder conveyors.
BF-4-07	6.3	Number 4 blast furnace looking south - west. Shows west façade of cast house floor and upper level gas venting and dust extraction piping.
BF-4-08	6.6	Number 4 blast furnace looking north – west. Shows upper level materials feeding system and exhaust gas and dust extraction piping.
BF-4-09	6.5	Number 4 blast furnace looking east. Shows wall façade to cast house floor, material feed skip system and upper level piping.
BF-4-10	6.11	Number 4 blast furnace from walkway level above the cast house floor looking south – west. Shows hot air " blast feed pipe" and tuyeres with penetrations into the furnace " bosch".
BF-4-11	6.12	Number 4 blast furnace from the cast house floor looking north. Shows slag run off ways.
BF-4-12	-	Number 4 blast furnace cast house floor looking east. Shows No.2 tapping hole and "mud gun".
BF-4-13	-	Number 4 blast furnace looking east. Shows close – up of "hot air blast" piping & tuyere with water-cooling piping to upper level.
BF-4-14	6.8	Number 4 blast furnace cast house floor at No.2 tapping hole. Shows mud gun and heat shields 'disassembled'.
BF-4-15	6.10	Number 4 blast furnace from the cast house floor, looking south at the No.1 tapping hole.
BF-4-16	6.9	Number 4 blast furnace cast house floor. No.1 tapping hole & hot air blast piping.
BF-4-17	-	Number 4 blast furnace cast house floor. Elevated view above No.1 tapping hole. Shows hot air blast and cooling water piping.

8.0 PHOTOGRAPHIC REFERENCE PLAN




No.4 BF 01
No.1 BF
No.4 BF 05
No.4 BF 06
No.4 BF 07
No.4 BF 08
No.4 BF 09
No.4 BF 10
No.4 BF 11
No.4 BF 12
No.4 BF 13
No.4 BF 14
No.4 BF 15
No.4 BF 16
No.4 BF 17
No.4 BF 04
No.4 BF 03
No.4 BF 02
8. 2 PHOTOGRAPHIC REFERENCE PLAN
Digital Camera Photographs
20 / 3 / 2000
Camera: Kodak DC – 120
Zoom 38 – 114
No.4 Blast Furnace
EJE ARCHITECTURE
BHP NEWCASTLE
ARCHIVE OF RECORDS - No.4 Blast Furnace

9.0 DIAGRAMMATIC RECORD & DRAWINGS

Figure 9.1 No4 Blast Furnace Overall Arrangement
Sectional elevation
Source BHP drawing Ref – 195640

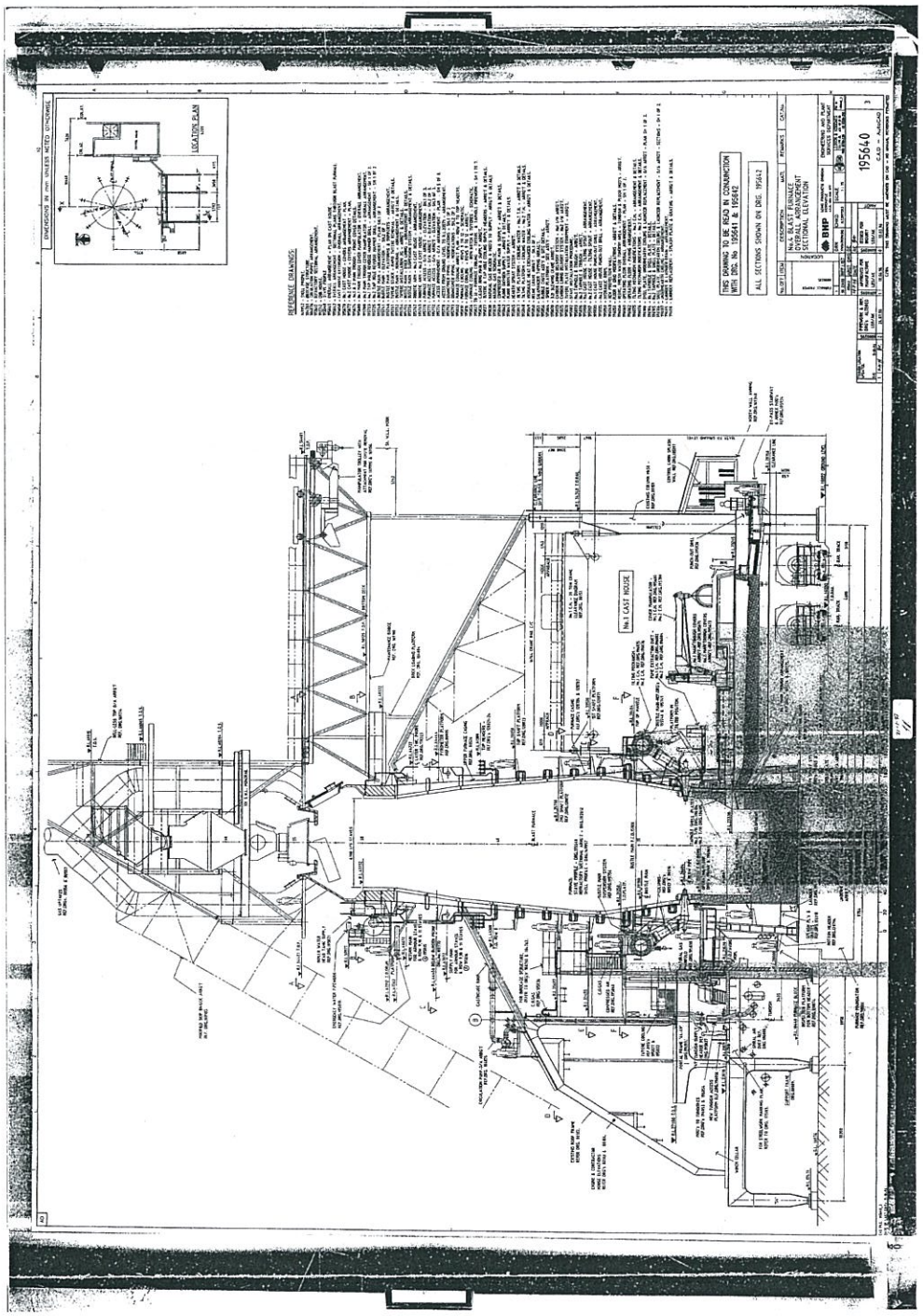


Figure 9.2 No4 Blast Furnace Bell – less top Overall Arrangement Elevations
Source: BHP drawing Ref – 169714

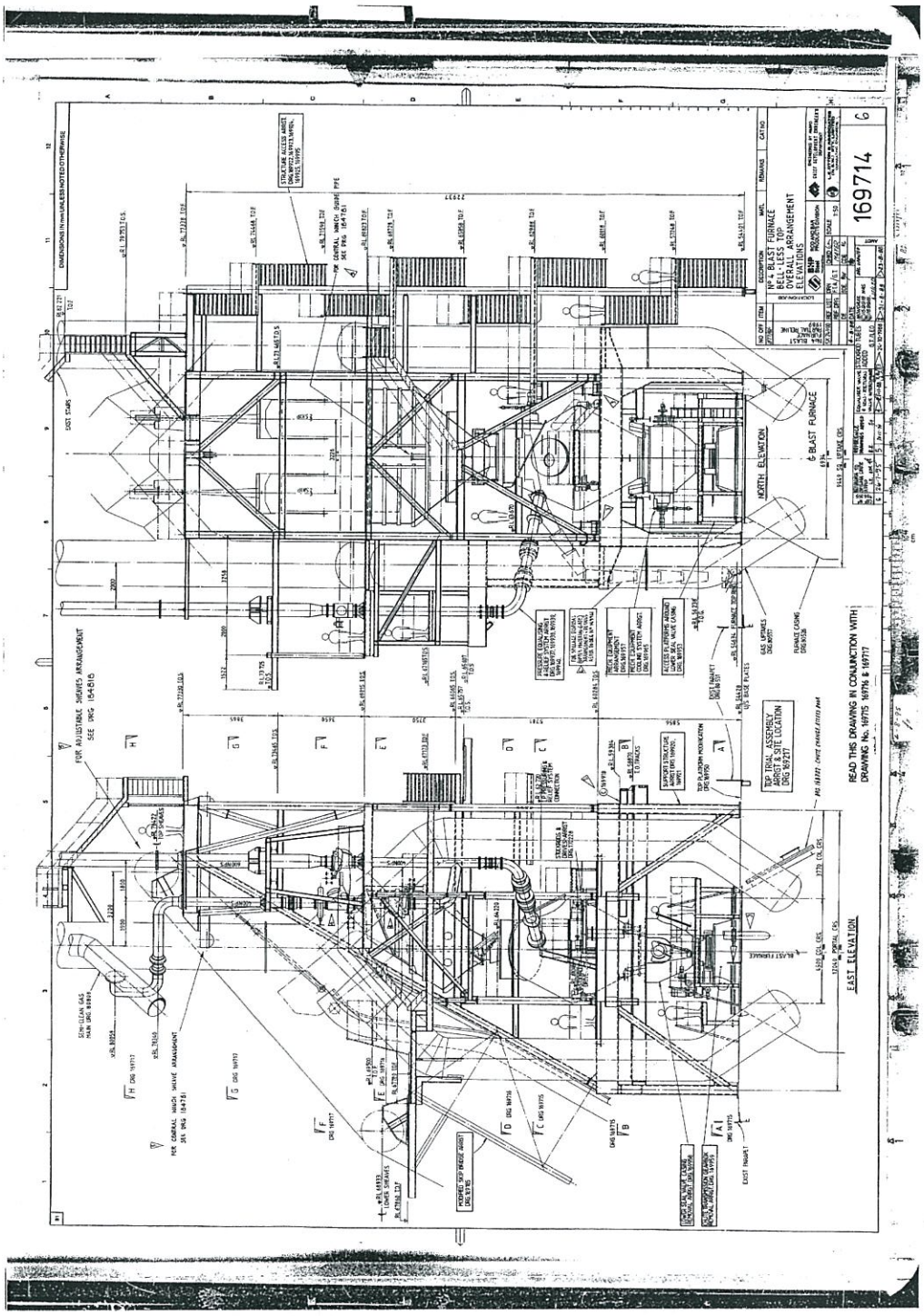


Figure 9.3 No4 Blast Furnace – reline 1973
Sectional arrangement through furnace
Source BHP drawing Ref – 120200

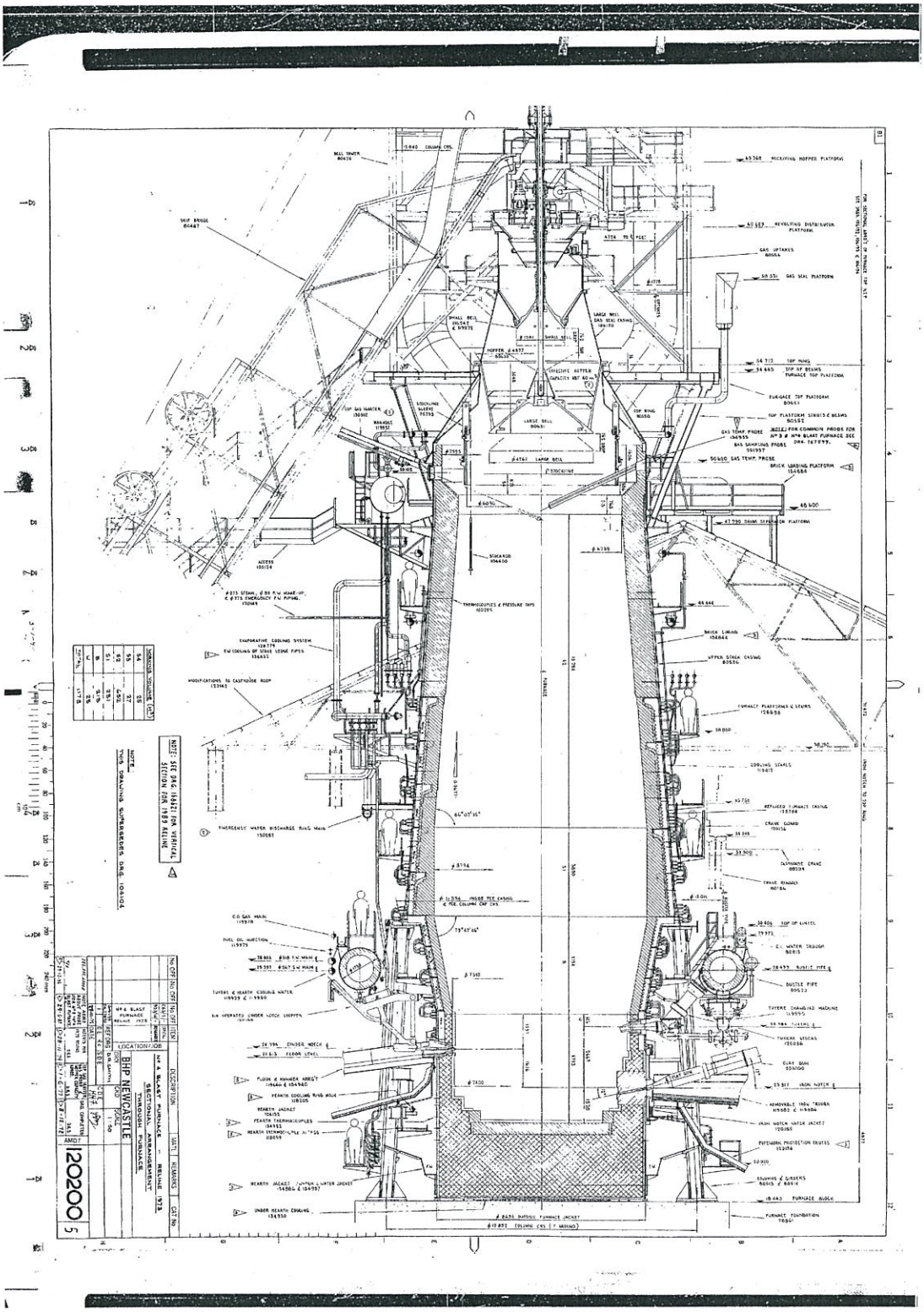


Figure 9.4 No4 Blast Furnace – reline 1989
Sectional arrangement through furnace
Source BHP drawing Ref – 168621

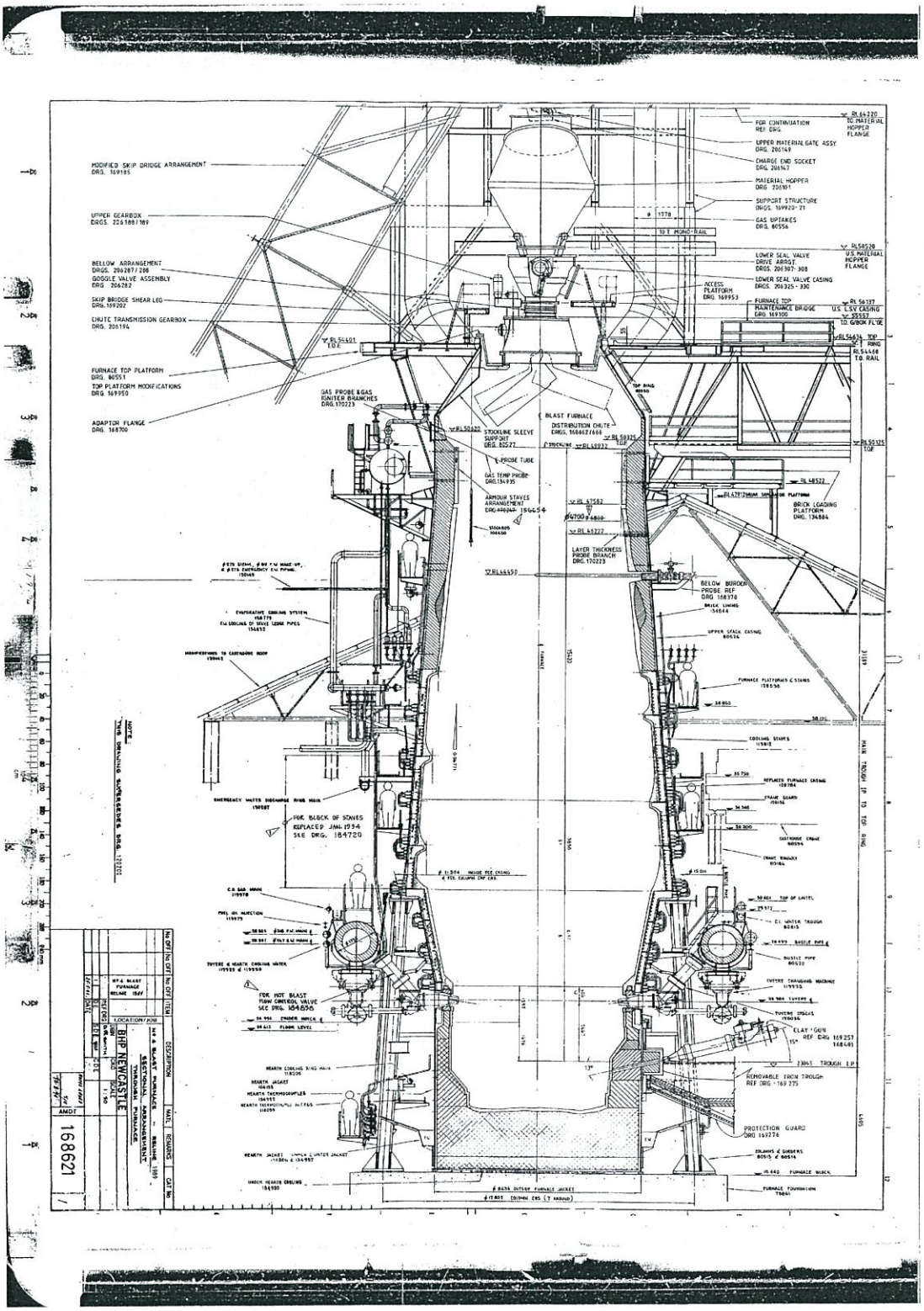


Figure 9.5 No4 Blast Furnace
General arrangement of plant plan view
Source BHP drawing ref: 81293. BHP Archives. W005/053/1214

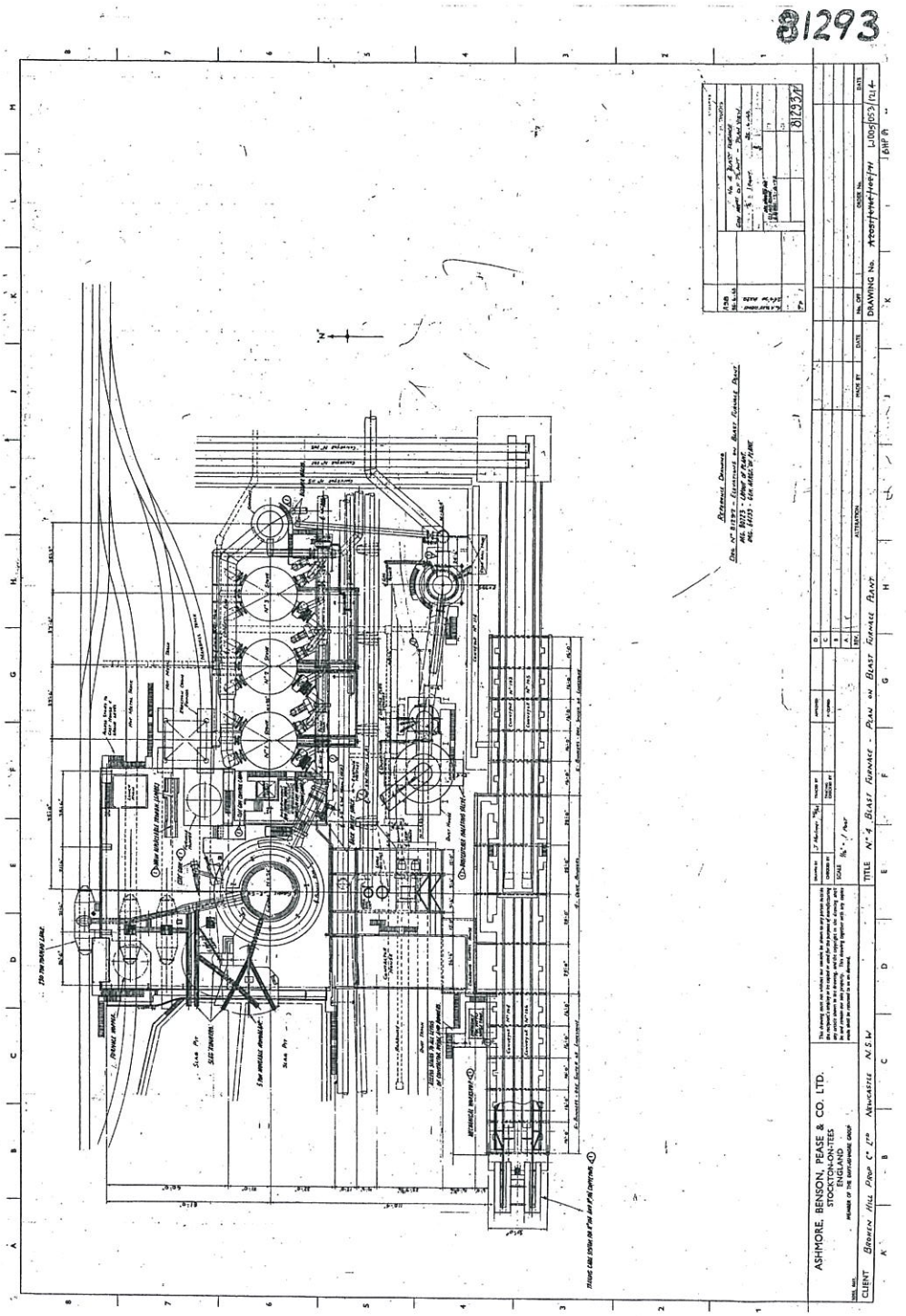


Figure 9.6 No4 Blast Furnace - Furnace Top H.T.P
Sectional arrangement through furnace top – looking west
Source BHP drawing ref: 106193. BHP Archives. W005/053/1583

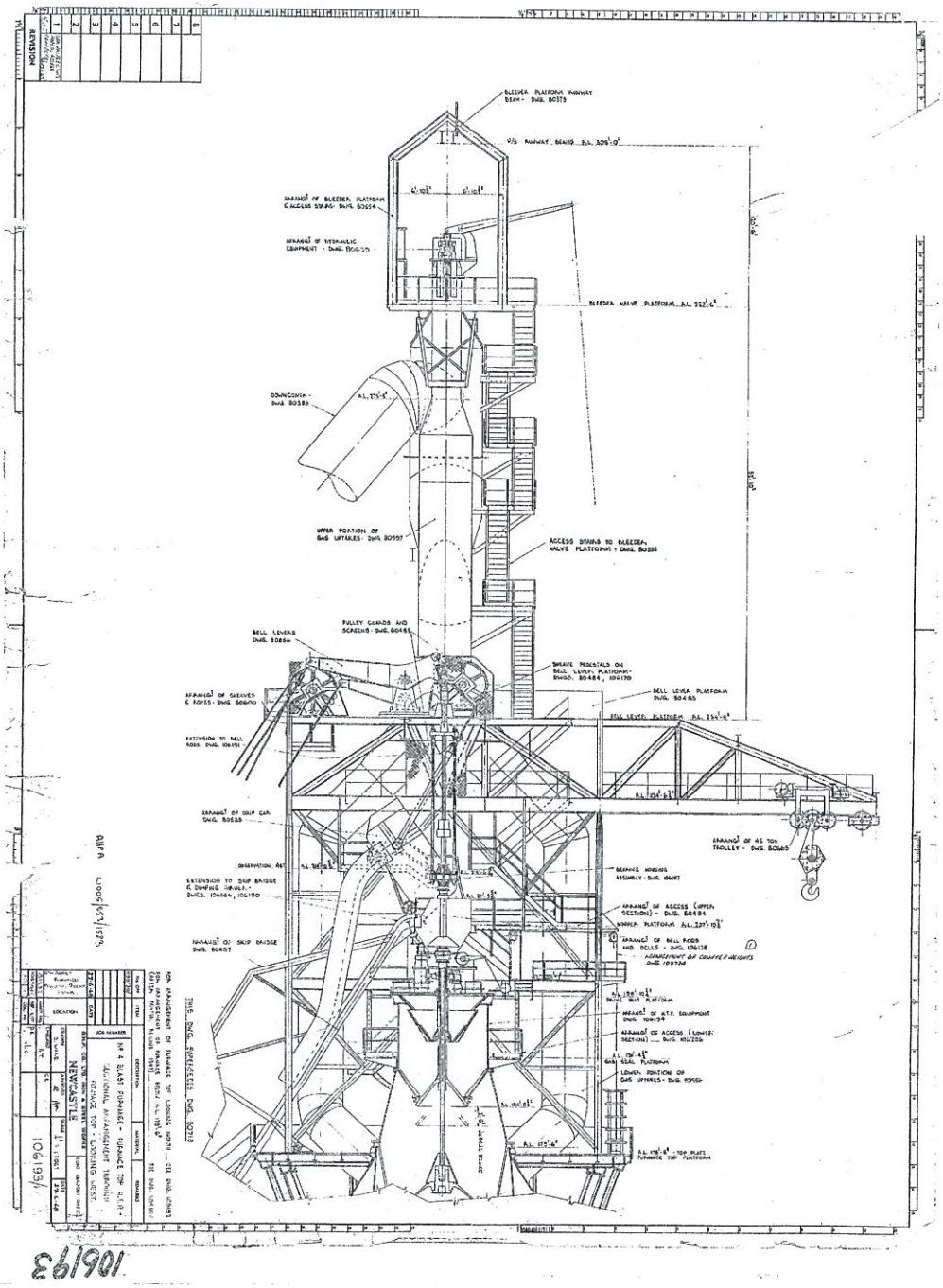
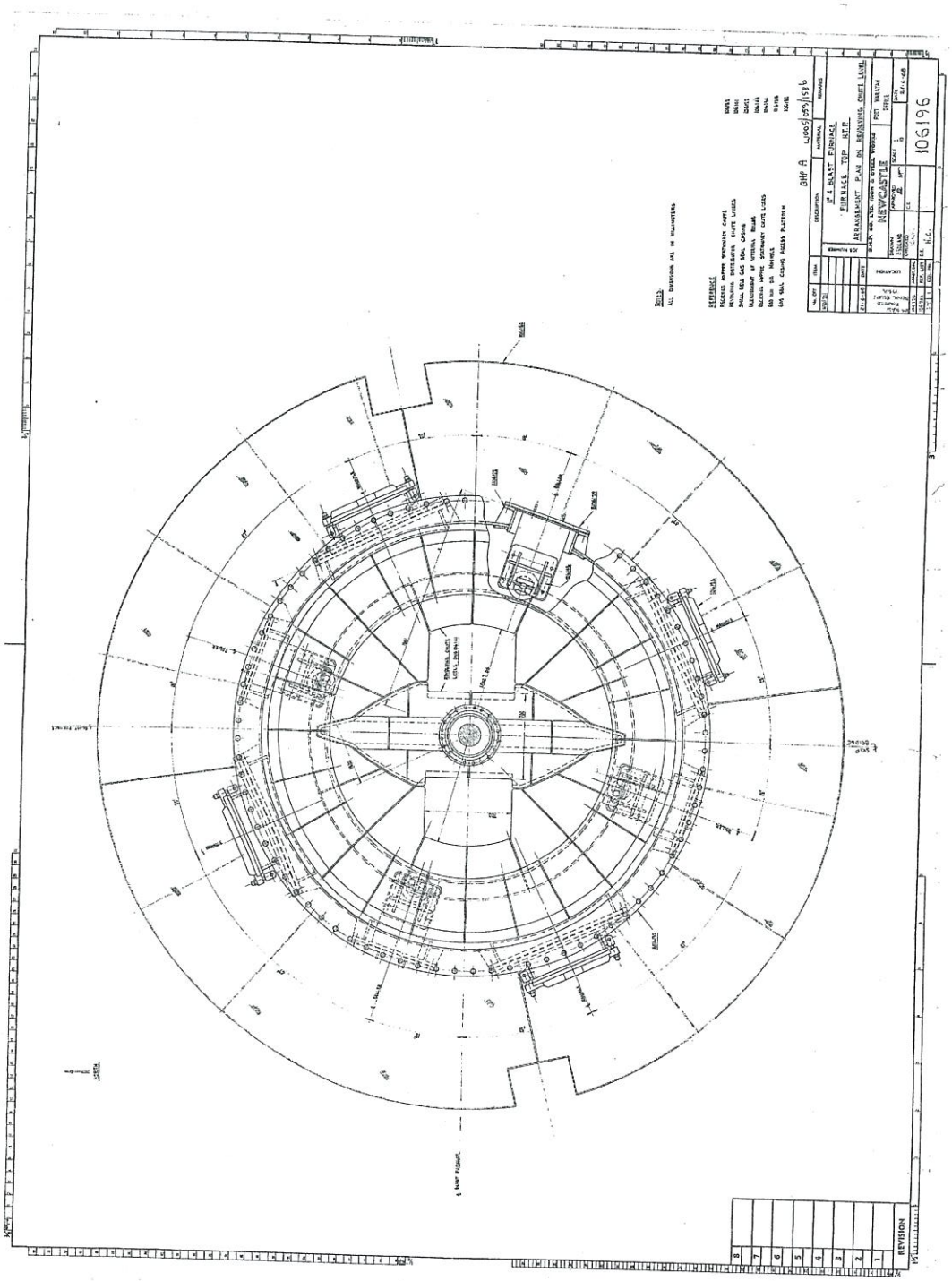
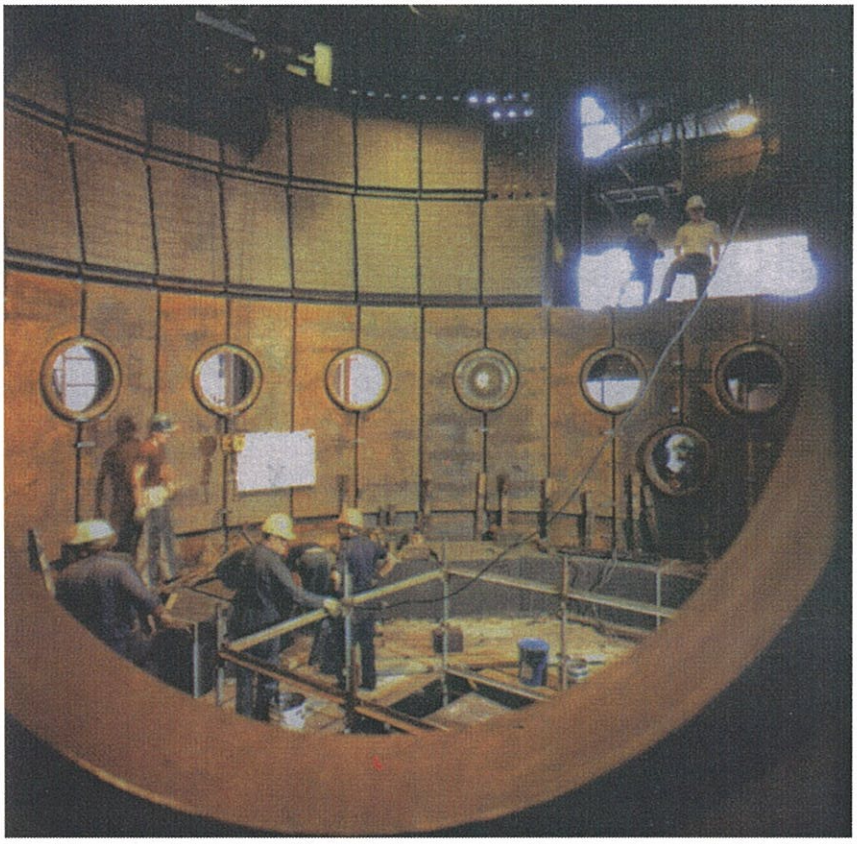


Figure 9.7 No4 Blast Furnace - Furnace Top H.T.P arrangement plan on revolving chute level
Source: BHP drawing ref: 106196. BHP Archives. W005/053/1586



10.0 HISTORIC PHOTOGRAPHIC RECORD

Figure 10.1: Relining of no4 Blast Furnace
Source: Sansom (1999: 27)



11.0 FULL FORMAT PHOTOGRAPHIC RECORD

All photos in this section by Albert Erzetich
Camera: Linhoff 5"x4" negative format view (wide angle and telephoto lenses)
Film: Kodak T-Max 100 or 400 ASA

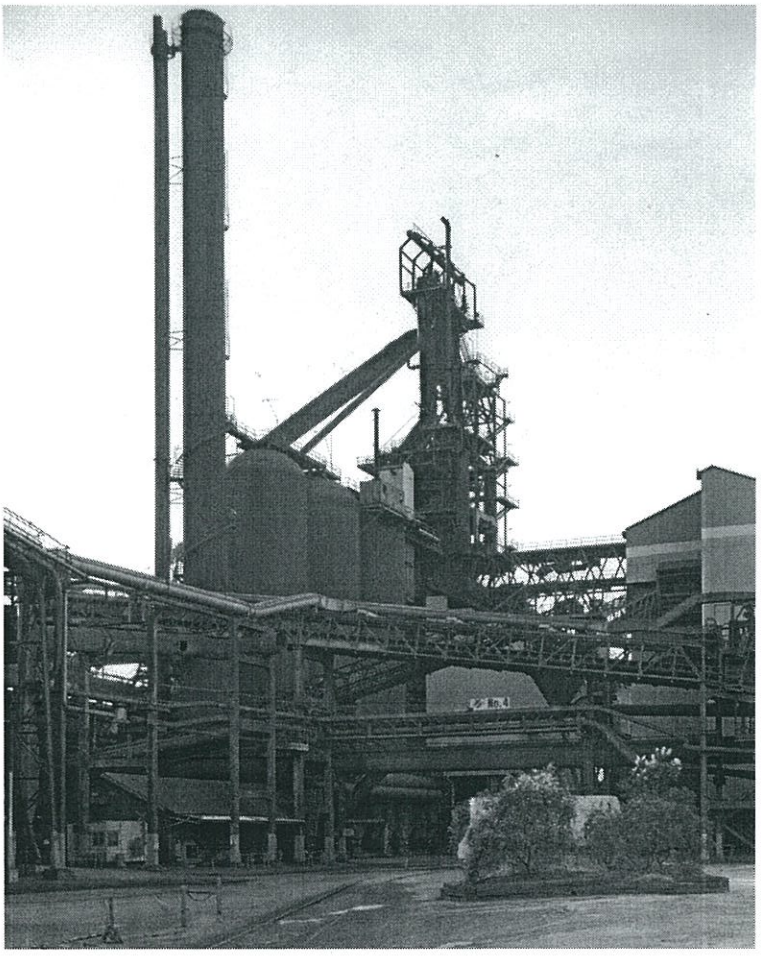


Figure 11.1: No4 Blast furnace with No1 iron button in foreground.
Source: Erzetich, no 016, ref no B06/06

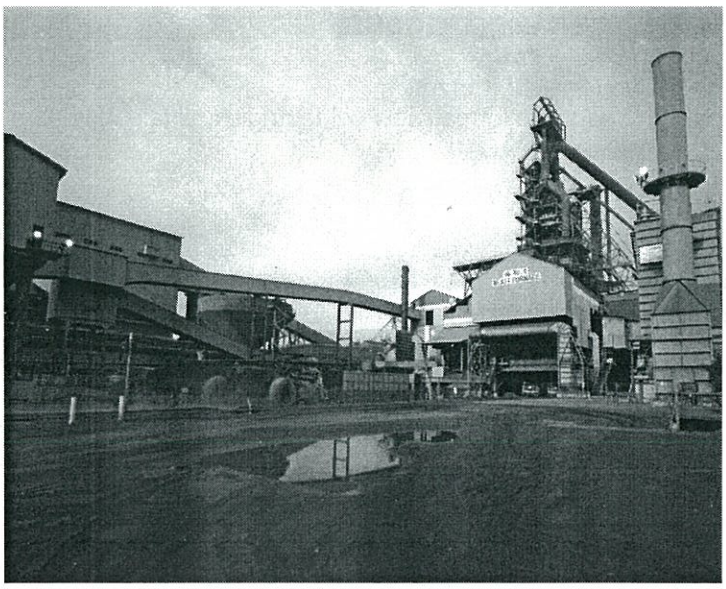


Figure 11.2: Kress car removing slag pot from No4 Blast Furnace
Source: Erzetich, no 024, ref no B20/02

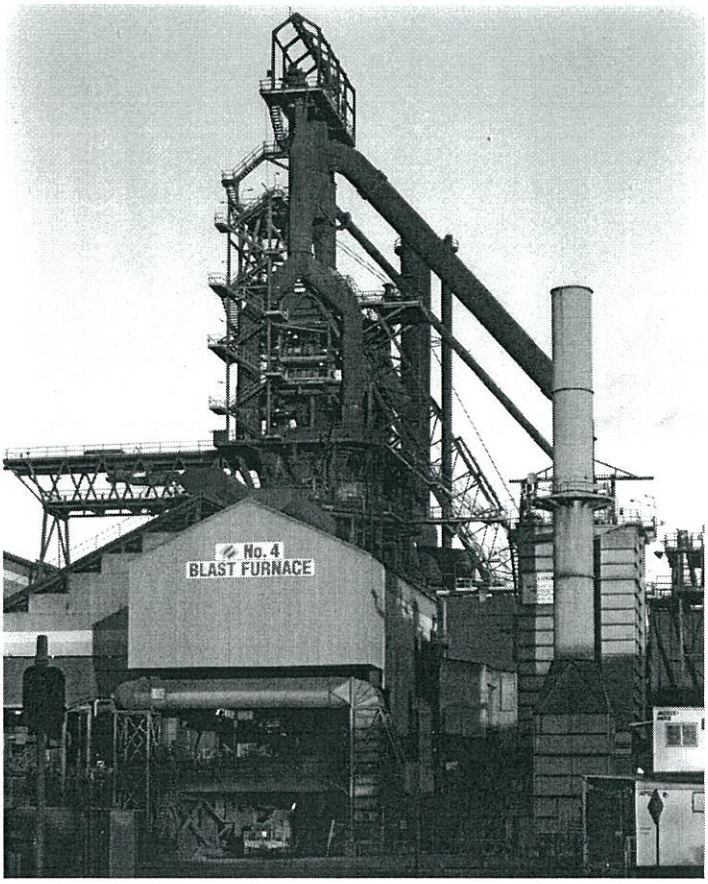


Figure 11.3: No 4 Blast Furnace, Western Façade
Source: Erzetich, no 025, ref no B01/02

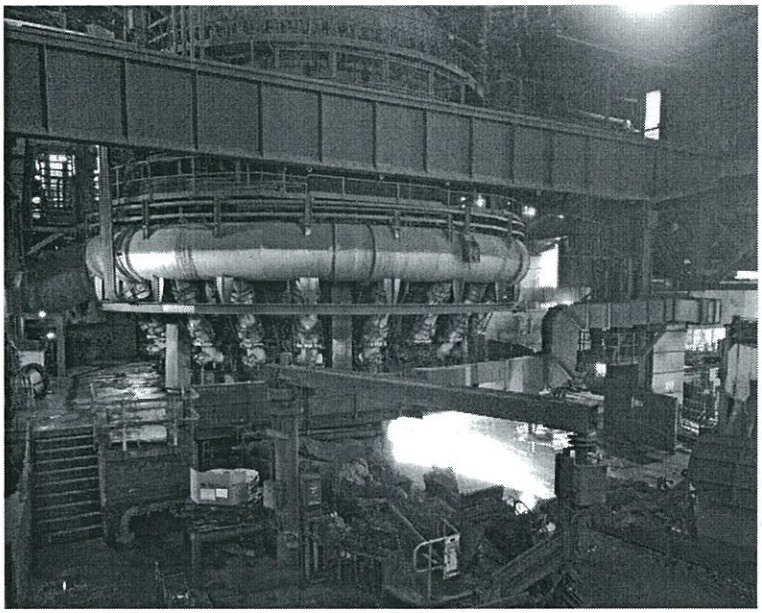


Figure 11.4. Tapping of No4 Blast Furnace
Source: Erzetich, no 027, ref no B20/28

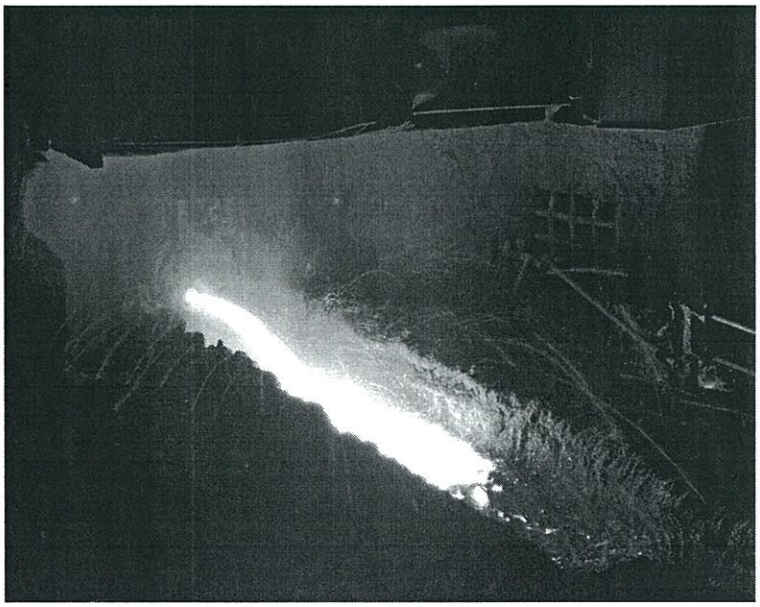


Figure 11.5: Tapping of No4 Blast Furnace
Source: Erzetich, no 028, ref no B20/25

12.0 INVENTORY OF EQUIPMENT FITMETS AND FINISHES

ITEM	DESCRIPTION
Blast Furnace Hearth	Steel framing to concrete footing with brick & cooling block (stave) lining. Also lined with armour plated steel. Fitted with salt water cooling system pipes. (c.1963)
Tap Holes	Openings from which molten iron and slag ore drained from the hearth.
Mud Gun & Tapping Drill	Machinery to block and unblock tap holes.
Cast House Floor	Main platform at which furnace tap holes are opened to drain molten iron and slag. Molten iron is channelled away from this level to the separation pits.
Torpedo Ladle	Long, slender "torpedo"- like vessel made of welded plate steel, for the moving of the molten iron along rail tracks to the steel making departments.
Cowper Regenerative Air Heating Stoves	Three (3) large cylindrical metal plated ovens lined internally with "checkers" (2.5 inches diameter refractory bricks) in which air was pre-heated to 1050 degrees C. This hot air was then blown into the furnace.
Bustle Main	Large steel pipe, which ran around the circumference of the furnace at cast house floor level feeding the hot air from the Cowper stoves to the tuyeres.
Tuyeres	An injecting pipe off the bustle main, which directly fed the hot air blasts into the furnace.
Gas Cleaning Facility	The original facility installed possibly in c.1967 was probably replaced c.1970 with a "Bischoff" scrubber, at the time No.3 Blast Furnace was upgraded.
Coke Conveyor and Raw Materials Bin	Automatic transfer of the raw materials from the steel bins located to the south of the blast furnace.
Skip Bridge & Skip Cars	The skip bridge is a large steel framed structure which runs from the ground and up diagonally to the top of the furnace. The bridge supports a pulley system of two containers (skip cars), which were loaded with the raw materials from the automatic conveying belts The skip cars then rose up the bridge to deposit the material into the furnace.
Revolving Distributor	A revolving "drum" like container into which the raw materials from the skip cars were loaded. The drum which basically sealed the top of the furnace created an "air – lock" effect while the materials were deposited into the top of the furnace, stopping dust from being emitted uncontrollably.
Dust Catcher	A large cylindrical drum fed dust emissions from the top of the blast furnace via uptakes and downcomer pipes. The "Ross" dust catcher consists of a funnel, which allowed the sediment dust to drop into a retention bay. The retention bay's entry is covered by a heavy fabric screen, which prevented dust from escaping into the adjacent thoroughfares. The dust was removed from the retention bay. The catcher was possibly fitted with dust reduction equipment (pug mill and replaced discharge valve) in 1992, when the No.3 blast furnace was upgraded.
Paul Wurth Top	Cap to the blast furnace, which improved the distribution of furnaces charges.

13.0 APPENDICES

Appendix A: Manual camera negatives and photos

Appendix B: Digital images Proof Page and disk

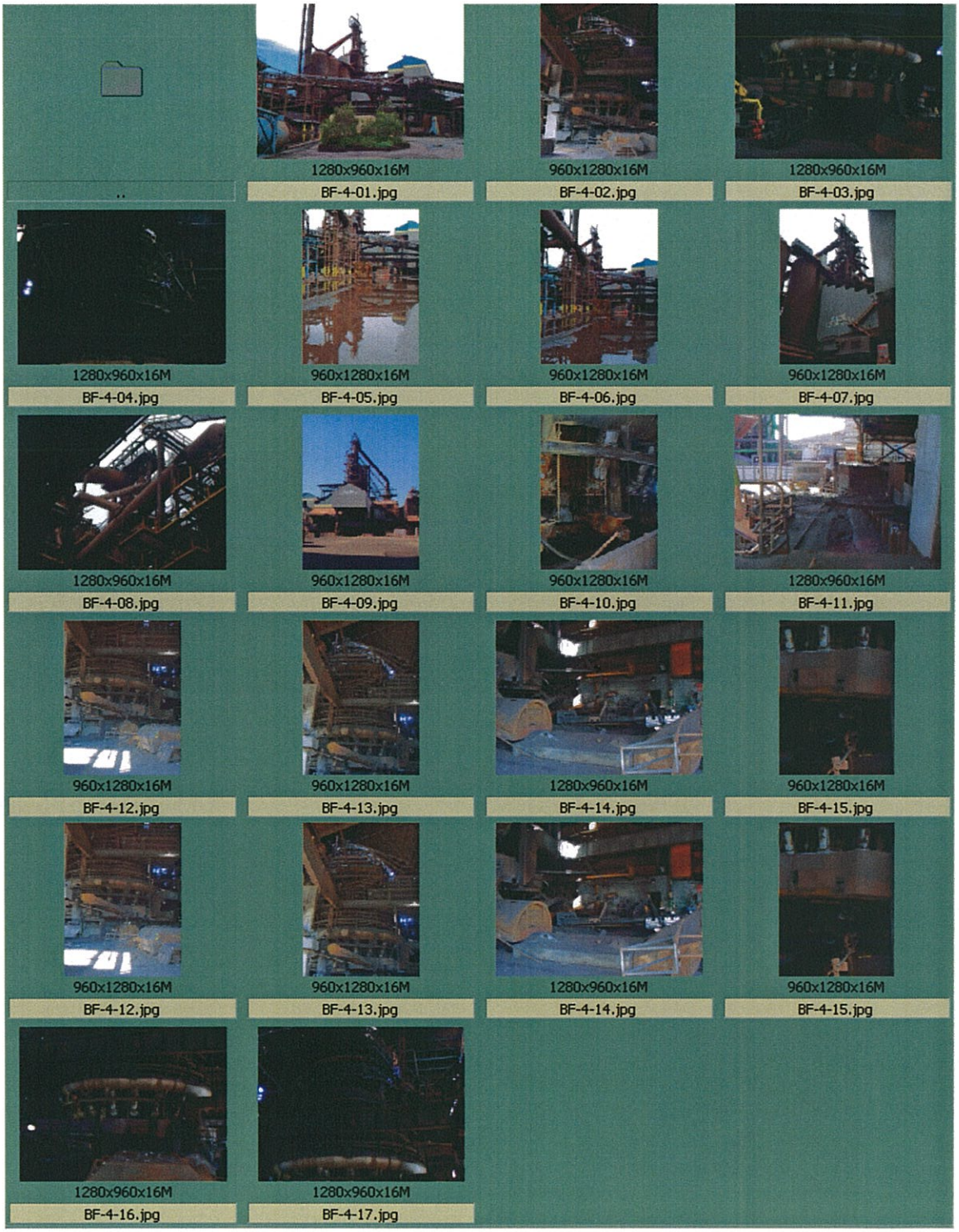
Appendix C: Archive drawing register disk

13.1 Appendix A: Manual camera negatives and photos

Refer to the final Archive Report master copy, to be submitted to the NSW Heritage Office, for negatives and additional mounted manual photographs.

13.2 Appendix B: Digital images Proof Page and disk

Refer to the final Archive Report master copy, to be submitted to the NSW Heritage Office, for the digital images disc.



13.3 Appendix C: Archive drawing register disk

Refer to the final Archive Report master copy, to be submitted to the NSW Heritage Office, for the drawing register disk. Also accompanying the master copy shall be full size prints of the drawings as included in Section 9.0 -"Diagrammatic Records & Drawings".