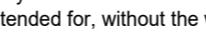
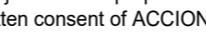


# CONTROL DIAGRAMS

# Main Steam, Extractions Auxiliary Steam & By-Pass System

|               |             |  |  |   |   |   |          |  |      |                  |  |          |
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|               |             |  |  | PROPRIETARY INFORMATION   |   |   |          |  |      |                  |  |          |
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|               |             |  |  | CLIENT  | CONTRACTOR  | ISSUER  | FORMAT   |  | [QR] | PROJECT          | NORTH LONDON HEAT AND POWER PROJECT                  |          |
|               |             |  |  |    |  |  | A3       |  |      | DRAWING TITLE    | Main Steam, Extract Aux Steam & By-Pass System Cover |          |
| REV.          | DESCRIPTION |  |  | DATE  | DRAWN   | CHECKED   | APPROVED |  |      | NLWA CODE:       |  | SHEET OF |
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1

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E

## Control Diagram

## Main Steam, Extract Aux Steam & By-Pass System

Index

| Sheet<br>No. | KKS | TITLE | ISSUE |  |  |  |
|--------------|-----|-------|-------|--|--|--|
|              |     |       |       |  |  |  |
| 1            |     |       |       |  |  |  |
| 2            |     |       |       |  |  |  |
| 3            |     |       |       |  |  |  |
| 4            |     |       |       |  |  |  |

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JECT

## NORTH LONDON HEAT AND POWER PROJECT

 PRESARIOS AGRUPADOS

**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**Index**

NLWA CODE:  
CONTRACTOR CODE: NI-HP-41XX-IE-DI-FAI-7604

SHEET1 CONT  
REV. P01

1

1

1

1

E

## Control Diagram

## Main Steam, Extract Aux Steam & By-Pass System

## Index

Index

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ISSUE DATE: 10/01/2017

PROJECT

# NORTH LONDON HEAT AND POWER PROJECT



RESARIOS AGRUPADOS

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**Index**

NLWA CODE:

CONTRACTOR CODE

SHEET 1.A CONT

Page 101

A

B

C

D

E

A

B

C

D

E

Control DiagramMain Steam, Extract Aux Steam & By-Pass SystemIndex

| Sheet No. | KKS | TITLE | ISSUE |  |  |  |
|-----------|-----|-------|-------|--|--|--|
|           |     |       |       |  |  |  |
| 1         |     |       |       |  |  |  |
| 2         |     |       |       |  |  |  |
| 3         |     |       |       |  |  |  |
| 4         |     |       |       |  |  |  |
| 5         |     |       |       |  |  |  |
| 6         |     |       |       |  |  |  |
| 7         |     |       |       |  |  |  |
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| 9         |     |       |       |  |  |  |
| 10        |     |       |       |  |  |  |
| 11        |     |       |       |  |  |  |
| 12        |     |       |       |  |  |  |
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| 14        |     |       |       |  |  |  |
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| MODIFICATIONS |             |      |       |
|---------------|-------------|------|-------|
| REV.          | DESCRIPTION | DATE | DRAWN |
|               |             |      |       |

| Sheet No. | KKS | TITLE | ISSUE |  |  |  |
|-----------|-----|-------|-------|--|--|--|
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| 83        |     |       |       |  |  |  |

A

B

C

D

E

## Control Diagram

### Main Steam, Extract Aux Steam & By-Pass System Symbology

| SYMBOL | DEFINITION  |
|--------|---|
| ○      | Hardwired input/output to/from control system.  |
| □      | Input/output on video display.  |
| △      | Alarm on display.   |
| ○-○    | Data link input/output.   |
| —      | Analogue signal.  |
| ···    | Digital signal.   |
| Ann    | It identifies on control drawings an internal signal that is used for command stations. |
| NOT    | Digital signal inverter. Output status is the opposite of the input.                    |

## MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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|      |             |      |       |         |          |

| SYMBOL      | DEFINITION   | TRUTH TABLE  |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-------------|--|--|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AND         | <u>AND GATE</u><br>The output remains in logic status "1" if all the inputs are in logic status "1"  | <table border="1"> <thead> <tr> <th>I1</th> <th>I2</th> <th>0</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table>  | I1 | I2 | 0  | 0  | 0  | 0  | 0  | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| I1          | I2   | 0  |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0           | 0  | 0  |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0           | 1  | 0  |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1           | 0  | 0  |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
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| OR          | <u>OR GATE</u><br>The output remains in logic status "1" if any of the inputs is in logic status "1"   | <table border="1"> <thead> <tr> <th>I1</th> <th>I2</th> <th>0</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table>  | I1 | I2 | 0  | 0  | 0  | 0  | 0  | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
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| 0           | 1  | 1  |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
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| NAND        | <u>NAND GATE</u><br>The output remains in logic status "1" if all the inputs are in logic status "0"   | <table border="1"> <thead> <tr> <th>I1</th> <th>I2</th> <th>0</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> </tr> </tbody> </table>  | I1 | I2 | 0  | 0  | 0  | 1  | 0  | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
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| 0           | 1  | 0  |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1           | 0  | 0  |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
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| NOR         | <u>NOR GATE</u><br>The output remains in logic status "1" if any of the inputs is in logic status "0"  | <table border="1"> <thead> <tr> <th>I1</th> <th>I2</th> <th>0</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> </tr> </tbody> </table>  | I1 | I2 | 0  | 0  | 0  | 1  | 0  | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| I1          | I2   | 0  |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
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| 1           | 0  | 1  |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1           | 1  | 0  |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| $\geq n$    | <u>QUALIFIED OR GATE GREATER OR EQUAL TO 'n'</u><br>The output remains in logic status "1" if number of true inputs is greater than or equal to 'n'. Truth table is for n=2                            | <table border="1"> <thead> <tr> <th>I1</th> <th>I2</th> <th>I2</th> <th>0</th> <th>I1</th> <th>I2</th> <th>I2</th> <th>0</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table> | I1 | I2 | I2 | 0  | I1 | I2 | I2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| I1          | I2   | I2   | 0  | I1 | I2 | I2 | 0  |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0           | 0  | 0  | 0  | 1  | 0  | 0  | 0  |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0           | 0  | 1  | 0  | 1  | 0  | 1  | 1  |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0           | 1  | 0  | 0  | 1  | 1  | 0  | 1  |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0           | 1  | 1  | 1  | 1  | 1  | 1  | 1  |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| $t_{DT}$    | <u>DELAY OFF TIMER</u><br>The output changes from "1" to "0" after a time delay of t   | <p>INPUT</p> <p>OUTPUT</p>   |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| $t_{GT}$    | <u>DELAY ON TIMER</u><br>The output changes from "0" to "1" after a time delay of t  | <p>INPUT</p> <p>OUTPUT</p>   |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| $t_{DT GT}$ | <u>DELAY OFF, DELAY ON TIMER</u><br>The output changes from "0" to "1" after a time delay of t1 and the output changes from "1" to "0" after a time delay of t2  | <p>INPUT</p> <p>OUTPUT</p>   |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| $t_{PD}$    | <u>PULSE DURATION - FIXED</u><br>The output changes from "0" to "1" when the input changes to status "1". The output maintains status "1" for a time t; after this time, the output goes to status "0" | <p>INPUT</p> <p>OUTPUT</p>   |    |    |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

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[QR]



PROJECT

## NORTH LONDON HEAT AND POWER PROJECT

ISSUER



FORMAT



SCALE



## DRAWING TITLE

### Main Steam, Extract Aux Steam & By-Pass System Symbology

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 2 CONT

REV. P01

A

B

C

D

E

A

B

C

D

E

Control Diagram

## Main Steam, Extract Aux Steam &amp; By-Pass System

## Symbology

| MODIFICATIONS |             |        |          |
|---------------|-------------|--------|----------|
| REV.          | DESCRIPTION | DATE   | DRAWN    |
|               |             | CHEKED | APPROVED |

1

| SYMBOL | DEFINITION   | TRUTH TABLE   |                   |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------|--|---|-------------------|---|---|-----------|---|---|-------------|-------------------|---|---|---|---|---|---|---|---|---|---|---|---|
|        | <u>PULSE DURATION - VARIABLE</u><br>The output changes from "0" to "1" when the input changes to status "1". The output changes from "1" to "0" when the input has been equal to "1" for duration t or the input changes from "1" to "0".  | <b>INPUT</b> 1<br>0<br><b>OUTPUT</b> 1<br>0<br><br>$t$  |                   |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
|        | <u>RS FLIP-FLOP</u><br><br><b>SETTING</b> A momentary "1" signal in S input puts a fixed "1" on Q output and fixed "0" on $\bar{Q}$<br><br><b>RESETTING</b> A momentary "1" signal in S input puts a fixed "1" on $\bar{Q}$ output and fixed "0" on Q<br><br>There is no action on the outputs when any of the inputs returns to status "0". | <br><table border="1"> <tr> <th>S</th> <th>R</th> <th>Q</th> <th><math>\bar{Q}</math></th> </tr> <tr> <td>0</td> <td>0</td> <td><math>Q_{(i-1)}</math></td> <td><math>\bar{Q}_{(i-1)}</math></td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> <td>0</td> </tr> </table> | S                 | R | Q | $\bar{Q}$ | 0 | 0 | $Q_{(i-1)}$ | $\bar{Q}_{(i-1)}$ | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| S      | R  | Q   | $\bar{Q}$         |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0      | 0  | $Q_{(i-1)}$   | $\bar{Q}_{(i-1)}$ |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0      | 1  | 0   | 1                 |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1      | 0  | 1   | 0                 |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1      | 1  | 0   | 0                 |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
|        | <u>RS FLIP-FLOP WITH PREFERENTIAL STATUS</u><br>Setting and resetting like previous case. The marked output assume status "1" when the power is on for the first time.   | <br><table border="1"> <tr> <th>S</th> <th>R</th> <th>Q</th> <th><math>\bar{Q}</math></th> </tr> <tr> <td>0</td> <td>0</td> <td><math>Q_{(i-1)}</math></td> <td><math>\bar{Q}_{(i-1)}</math></td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> </table>  | S                 | R | Q | $\bar{Q}$ | 0 | 0 | $Q_{(i-1)}$ | $\bar{Q}_{(i-1)}$ | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 |   |   |   |   |
| S      | R  | Q   | $\bar{Q}$         |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0      | 0  | $Q_{(i-1)}$   | $\bar{Q}_{(i-1)}$ |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0      | 1  | 0   | 1                 |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1      | 0  | 1   | 0                 |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
|        | <u>RS FLIP-FLOP WITH R MASTER SIGNAL</u><br>Setting and resetting like previous case. When there is a signal "1" simultaneously in both inputs, Q = "1" and $\bar{Q}$ = "0". The output Q = "1" does not change to "0" until remove R = "1" and set S = "1"  | <br><table border="1"> <tr> <th>S</th> <th>R</th> <th>Q</th> <th><math>\bar{Q}</math></th> </tr> <tr> <td>0</td> <td>0</td> <td><math>Q_{(i-1)}</math></td> <td><math>\bar{Q}_{(i-1)}</math></td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> <td>1</td> </tr> </table> | S                 | R | Q | $\bar{Q}$ | 0 | 0 | $Q_{(i-1)}$ | $\bar{Q}_{(i-1)}$ | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| S      | R  | Q   | $\bar{Q}$         |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0      | 0  | $Q_{(i-1)}$   | $\bar{Q}_{(i-1)}$ |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0      | 1  | 0   | 1                 |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1      | 0  | 1   | 0                 |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1      | 1  | 0   | 1                 |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
|        | <u>RS FLIP-FLOP WITH S MASTER SIGNAL</u><br>Setting and resetting like previous case. When there is a signal "1" simultaneously in both inputs, Q = "1" and $\bar{Q}$ = "0". The output Q = "1" does not change to "0" until remove S = "1" and set R = "1"  | <br><table border="1"> <tr> <th>S</th> <th>R</th> <th>Q</th> <th><math>\bar{Q}</math></th> </tr> <tr> <td>0</td> <td>0</td> <td><math>Q_{(i-1)}</math></td> <td><math>\bar{Q}_{(i-1)}</math></td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> <td>0</td> </tr> </table> | S                 | R | Q | $\bar{Q}$ | 0 | 0 | $Q_{(i-1)}$ | $\bar{Q}_{(i-1)}$ | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 |
| S      | R  | Q   | $\bar{Q}$         |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0      | 0  | $Q_{(i-1)}$   | $\bar{Q}_{(i-1)}$ |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 0      | 1  | 0   | 1                 |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1      | 0  | 1   | 0                 |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1      | 1  | 1   | 0                 |   |   |           |   |   |             |                   |   |   |   |   |   |   |   |   |   |   |   |   |

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PROJECT

NORTH LONDON HEAT  
AND POWER PROJECTDRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
Symbology
ISSUER  
  
EMPRESARIOS AGRUPADOS
FORMAT  
A3SCALE  

NLWA CODE:  
CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604SHEET2.A CONT  
REV. P01  
INTERNAL CODE:

A

B

C

D

E

A

B

C

D

E

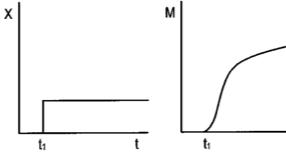
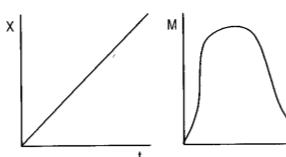
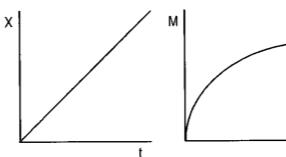
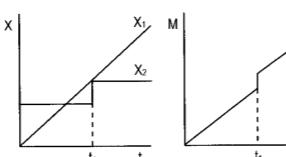
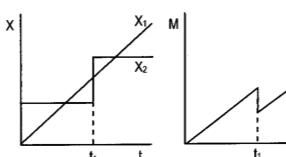
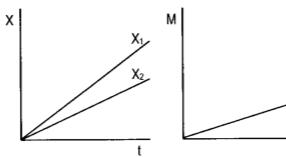
## Control Diagram

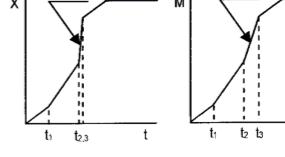
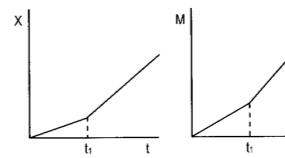
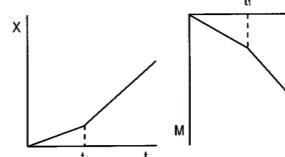
### Main Steam, Extract Aux Steam & By-Pass System Symbology

#### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

1

| FUNCTION AND SYMBOL                | MATH EQUATION         | GRAPHIC REPRESENTATION   | DEFINITION   |
|------------------------------------|-----------------------|--|--|
| TIME FUNCTION<br>$f(t)$            | $M = X \cdot f(t)$    |    | The output equals the input multiplied by some function of time or equals some function of time alone. |
| UNSPECIFIED FUNCTION<br>$f(x)$     | $M = f(x)$            |    | Output is a nonlinear or unspecified function of the input. Function defined in note or other text.    |
| ROOT EXTRACTION<br>$\sqrt[n]{X}$   | $M = \sqrt[n]{X}$     |    | The output equals the nth root of the input. If 'n' omitted, square root is assumed.                   |
| MULTIPLICATION<br>$x$              | $M = X_1 \cdot X_2$   |  | The output equals the product of the two inputs.   |
| DIVISION<br>$X_1 \div X_2 = A/B$   | $M = \frac{X_1}{X_2}$ |  | The output equals the quotient of the two inputs.  |
| DIFFERENCE<br>$X_1 - X_2 = \Delta$ | $M = X_1 - X_2$       |  | The output equals the algebraic difference of the two inputs.  |

| FUNCTION AND SYMBOL        | MATH EQUATION  | GRAPHIC REPRESENTATION   | DEFINITION  |
|----------------------------|--|--|---|
| VELOCITY LIMITER<br>$V$    | $dM/dt = dX/dt \text{ for } dX/dt \leq H, M=X$<br>$dM/dt = H \text{ for } dX/dt \geq H, M=X$ |   | The output equals the input as long as the rate of change of the input does not exceed a limit value. The output will change at the rate established by this limit until the output again equals the input. |
| PROPORTION<br>$K$          | $M = k \cdot X$  |   | The output is directly proportional to the input.   |
| REVERSE PROPORTION<br>$-K$ | $M = -k \cdot X$   |  | The output is reversely proportional to the input.  |

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PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

ISSUER  
  
EMPRESARIOS AGRUPADOS

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
Symbology

|                  |                          |
|------------------|--------------------------|
| NLWA CODE:       | SHEET2.B CONT            |
| CONTRACTOR CODE: | NLHP-41XX-IE-DI-EAI-7604 |
| INTERNAL CODE:   | REV. P01                 |

A

B

C

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E

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B

C

D

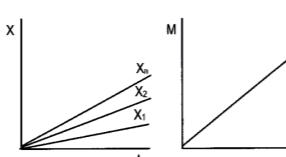
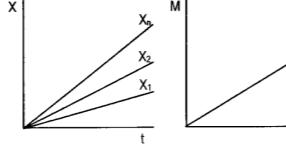
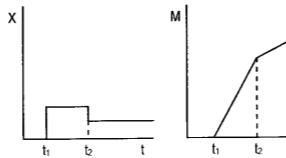
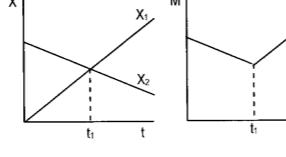
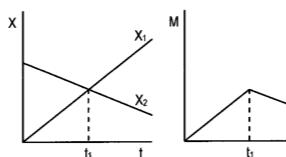
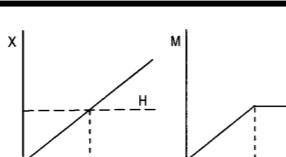
E

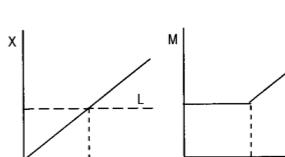
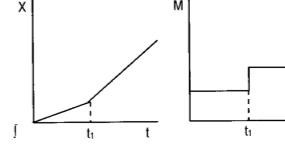
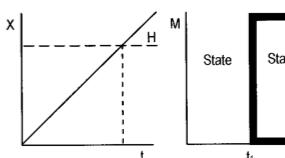
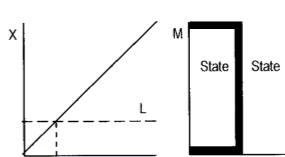
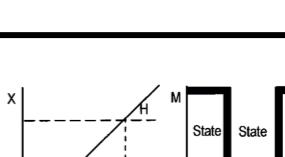
## Control Diagram

Main Steam, Extract Aux Steam & By-Pass System  
Symbology

## MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| FUNCTION AND SYMBOL            | MATH EQUATION   | GRAPHIC REPRESENTATION   | DEFINITION   |
|--------------------------------|---|--|--|
| SUMMATION<br>$\Sigma$          | $M = X_1 + X_2 + \dots + X_n$   |    | The output equals the algebraic sum of the inputs.   |
| AVERAGE<br>$\Sigma/n$          | $M = (X_1 + X_2 + \dots + X_n)/n$                                       |    | The output equals the algebraic sum of the inputs divided by the number of inputs.                                 |
| INTEGRAL<br>$\int$             | $M = (1/T) \int X dt$   |    | The output varies with magnitude and time duration of the input. Output is proportional to time integral of input. |
| HIGH SIGNAL SELECT<br>$>$      | $M = X_1 \text{ for } X_1 > X_2$<br>$M = X_2 \text{ for } X_1 \leq X_2$ |  | The output equals the greater of 2 or more inputs.   |
| LOW SIGNAL SELECT<br>$<$       | $M = X_1 \text{ for } X_1 < X_2$<br>$M = X_2 \text{ for } X_1 \geq X_2$ |  | The output equals the lesser of 2 or more inputs.  |
| HIGH LIMIT<br>$\triangleright$ | $M = H \text{ for } X \geq H$<br>$M = X \text{ for } X < H$             |  | The output equals the lower of the input or high limit values.   |

| FUNCTION AND SYMBOL               | MATH EQUATION  | GRAPHIC REPRESENTATION  | DEFINITION   |
|-----------------------------------|--|---|--|
| LOW LIMIT<br>$\triangleleft$      | $M = X \text{ for } X > L$<br>$M = L \text{ for } X \leq L$  |    | The output equals the higher of the input or low limit values.   |
| DERIVATIVE<br>$d/dt$              | $M = T_d (dx/dt)$  |    | The output is proportional to the time rate of change of input.<br>$T_d$ time constant   |
| HIGH SIGNAL MONITOR<br>$H$        | (State 1)<br>$M = 0 @ X < H$<br>(State 2)<br>$M = 1 @ X \geq H$  |    | The output state is dependent on value of input.<br>Output changes state when input is equal to or higher than an arbitrary high limit.  |
| LOW SIGNAL MONITOR<br>$L$         | (State 1)<br>$M = 1 @ X \leq L$<br>(State 2)<br>$M = 0 @ X > L$  |  | The output state is dependent on value of input.<br>Output changes state when input is equal to or lower than an arbitrary low limit.  |
| HIGH / LOW SIGNAL MONITOR<br>$HL$ | (State 1)<br>$M = 1 @ X \leq L$<br>(State 2)<br>$M = 0 @ L < X < H$<br>(State 3)<br>$M = 1 @ X \geq H$ |  | The output states are dependent on value of input.<br>Output changes state when input is equal to or lower than an arbitrary low limit or equal to or higher than an arbitrary high limit. |

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[QR]



PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

ISSUER



FORMAT



SCALE

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
Symbology

NLWA CODE:  
CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

SHEET2.C CONT

INTERNAL CODE:

REV. P01

A

B

C

D

E

A

B

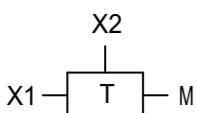
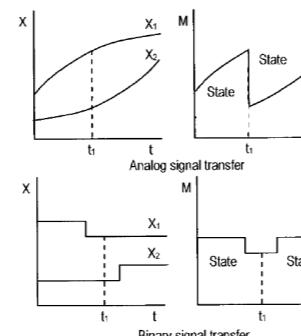
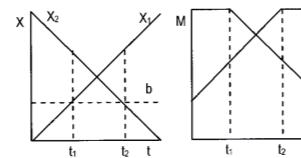
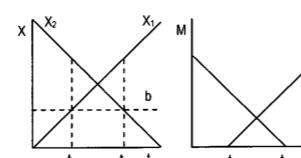
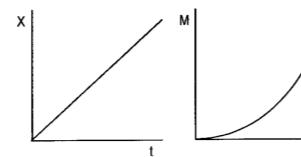
C

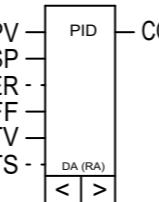
D

E

**Control Diagram****Main Steam, Extract Aux Steam & By-Pass System**  
**Symbology**

| MODIFICATIONS |             |      |                  |
|---------------|-------------|------|------------------|
| REV.          | DESCRIPTION | DATE | DRAWN            |
|               |             |      | CHECKED APPROVED |

| FUNCTION AND SYMBOL  | MATH EQUATION                              | GRAPHIC REPRESENTATION   | DEFINITION   |
|--|--|--|--|
| SIGNAL TRANSFER<br>         | (State 1)<br>M = X1<br>(State 2)<br>M = X2 |    | The output equals the input that is selected by transfer. Transfer actuated by external signal.  |
| ANALOG SIGNAL GENERATOR<br> | N / A                                      | N / A  | The output equals a variable analog signal that is generated:<br>a. Automatically and is not adjustable by operator.<br>b. Manually and is adjustable by operator. |
| POSITIVE BIAS<br>         | M = X1 + b<br>M = -X2 + b                  |  | The output equal to input plus an arbitrary value.   |
| NEGATIVE BIAS<br>         | M = X1 - b<br>M = -X2 - b                  |  | The output equals to input minus an arbitrary value  |
| EXPONENTIAL<br>           | M = X <sup>n</sup>                         |  | The output equals the nth power of input.  |

| FUNCTION AND SYMBOL  | MATH EQUATION | GRAPHIC REPRESENTATION | DEFINITION  |
|--|---------------|------------------------|---|
| TEST QUALITY<br>    | N / A         | N / A                  | The output adopts the logic value "1" when the input has bad quality, this is, it is out of range.  |
| ABSOLUTE VALUE<br>  | N / A         | N / A                  | The output adopts the absolute value of the input.  |
| PID CONTROLLER<br> | N / A         | N / A                  | P - Proportional action<br>I - Integral (reset) action<br>D - Derivative action<br>DA (RA) - Direct (Reverse) action<br>PV - Process Variable input<br>SP - Setpoint input<br>ER - External Reset input<br>FF - Feedforward input<br>TV - Tracking Variable<br>TS - Tracking Switch input<br>CO - Control Output<br>> - Output High Limiter<br>< - Output Low Limiter |

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NORTH LONDON WASTE AUTHORITY

CONTRACTOR  
  
EMPRESARIOS AGRUPADOS

PROJECT

NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**Symbology**

|                  |                          |  |
|------------------|--------------------------|--|
| NLWA CODE:       | SHEET2.D CONT            |  |
| CONTRACTOR CODE: | NLHP-41XX-IE-DI-EAI-7604 |  |
| INTERNAL CODE:   | REV. P01                 |  |

A

B

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Control Diagram

Main Steam, Extract Aux Steam &amp; By-Pass System

Symbology

## MODIFICATIONS

REV.

DESCRIPTION

DATE DRAWN CHECKED APPROVED

1



POP BLOCK IS DEFINED IN THE FOLLOWING WAY:

A function generation (linear interpolation) with 6 pairs of points (x,y). All points may be adapted by maintenance personnel and they are specified in the corresponding table, as follows:

| x (%) | y (%) |
|-------|-------|
| 10    | 10    |
| 20    | 20    |
| 40    | 40    |
| 60    | 60    |
| 80    | 80    |
| 100   | 100   |

2

1

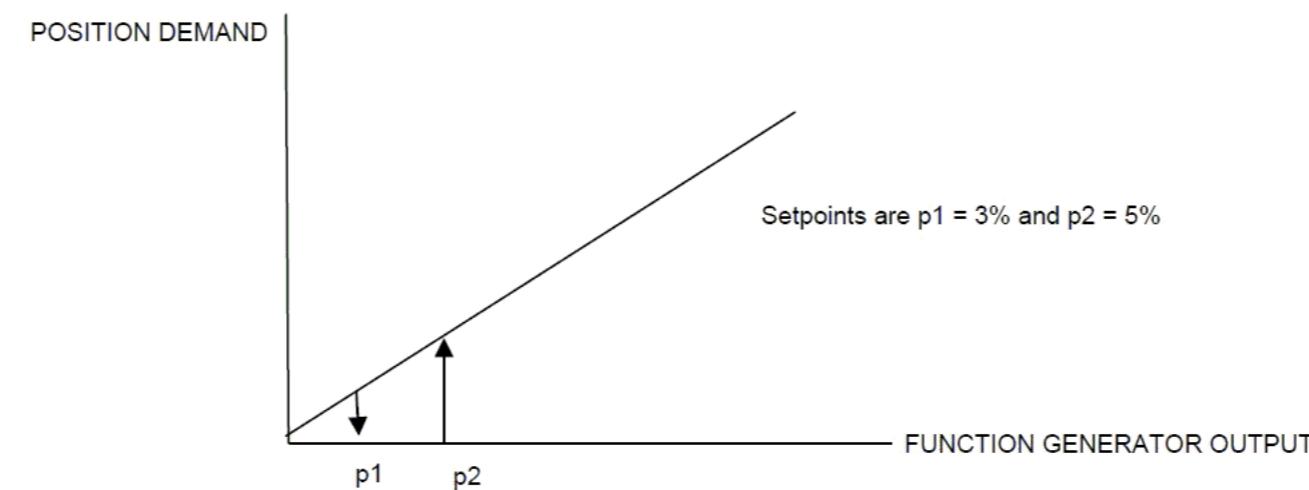
Generator output is limited in order to avoid a bad quality response around 0% open.

Two adjustable parameters p1 and p2 are defined in order to obtain the following response:

- If output signal increases, the position demand to the valve is maintained in "0" value until signal value is bigger than p2 %, then the position demand to the valve is the function generator output.
- If output signal decreases, the position demand to the valve is function generator output until signal value is lower than p1%, then the position demand to the valve is 0%

3

2



3

4

4

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PROJECT

NORTH LONDON HEAT AND POWER PROJECT

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
Symbology

NLWA CODE:  
CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

SHEET2.E CONT  
REV. P01

FORMAT  
A3  
SCALE

INTERNAL CODE:

A

B

C

D

E

A

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Control Diagram

## Main Steam, Extract Aux Steam &amp; By-Pass System

## Symbology

## MODIFICATIONS

REV.

DESCRIPTION

DATE DRAWN CHECKED APPROVED

| FUNCTION AND SYMBOL                                  | DEFINITION   | FUNCTION AND SYMBOL                               | DEFINITION  |
|--|--|---|---|
| WATER ENTHALPY<br>$T \rightarrow H_w(x)$             | Water enthalpy (kJ/kg) at Temperature (°K)<br><br>Hw(x): Water Enthalpy (kJ/kg)<br><br>$H_w(x) = 0.0029321 \cdot x^2 + 3.409 \cdot x + 52.82$  | SATURATION PRESSURE<br>$T \rightarrow P_{sat}(x)$ | Saturation pressure (bara) at Temperature (°C)<br><br>Psat_1(x): Saturation Pressure (bara) (valid from 274°K to 600°K)<br><br>$P_{sat}=10 \cdot e^{(9,487 - \frac{3892,7}{T-42,68})}$<br><br>Psat_2(x): Saturation Pressure (bara) (valid from 600°K to 647°K)<br><br>$P_{sat}=10 \cdot e^{(15,2578 - \frac{12587,5}{T-387,592})}$ |
| WATER DENSITY<br>$T \rightarrow R_{ww}(x)$           | Water density (kg/m³) at Temperature (°C)<br><br>Rw(x): Calculated Water Density (kg/m³) at T (°C) (valid from 20°C to 220°C)<br><br>$Rw(x) = 10038 - (0,1642 \cdot T) - \left[ 317 \times \left( \frac{T}{100} \right)^2 \right] + \left[ 3,12 \times \left( \frac{T}{100} \right)^3 \right]$<br><br>Rw: Calculated water density at T (°C) (kg/m³)<br>T: Temperature (°C)  |   |   |
| STEAM DENSITY<br>$P \rightarrow R_{ws}(x)$           | Steam density (kg/m³) at Pressure (MPa), Temperature (°K), and Tsat (°K)<br><br>Rw(x): Calculated Steam Density (kg/m³) (valid from 1 to 200 bara and from 75 to 750 °C)<br><br>$Rw = \frac{1}{4,61610^{-4} \times \frac{T}{P} - 5,27910^{-2} \times e^{-3,759 \cdot 10^3 \cdot T} + \frac{1}{10P} (0,022 - e^{-3,741 - 0,00478 \frac{T}{P}} + 1,59 \cdot 10^{-5} \cdot T_s^2) e^{\frac{T_s - T}{40}}}$  |   |   |
| STEAM ENTHALPY<br>$P \rightarrow H_s(x)$             | Steam enthalpy<br><br><b>H(x): Steam Enthalpy (kJ/kg)</b><br><br>$H(x) = 2041,2 - 40,4 \cdot P - 0,481 \cdot P^2 + (1,611 + 0,0547 \cdot P + 7,518 \cdot 10^{-4} \cdot P^2) \cdot T + (3,383 \cdot 10^{-4} - 1,976 \cdot 10^{-5} \cdot P - 2,874 \cdot 10^{-7} \cdot P^2) \cdot T^2 - (1707,82 - 16,994 \cdot T_s + 0,06275 \cdot T_s^2 - 1,028 \cdot 10^{-4} \cdot T_s^3 + 6,456 \cdot 10^{-8} \cdot T_s^4) e^{\frac{T_s - T}{45}}$<br><br>H: Steam Enthalpy (kJ/kg)<br>P: Steam Pressure (MPascal)<br>T: Steam Temperature (K)<br>Ts: Steam Saturation Temperature (K) |   |   |
| SATURATION TEMPERATURE<br>$P \rightarrow T_{sat}(x)$ | Saturation temperature (°K) at Pressure (bara)<br><br>Tsat_1(x): Saturation Temperature (K) (valid from 1 to 123 bara)<br>Tsat_2(x): Saturation Temperature (K) (valid from 123 bara to 221 bara)<br><br>$T_{sat}=42,68 + \frac{3892,7}{9,487 - \ln(\frac{P}{10})}$<br><br>$T_{sat} = -387,592 + \frac{12587,5}{15,2578 - \ln(\frac{P}{10})}$  |   |   |

## NOTE:

Use the DCS thermodynamic functions if they exist. Otherwise use the functions depicted in this page.

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[QR]



PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

ISSUER

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
Symbology

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET2.F CONT

REV. P01

A

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Control Diagram

Main Steam, Extract Aux Steam &amp; By-Pass System

References, Notes, Prel &amp; Pend Data

| MODIFICATIONS |             |      |       |         |          |
|---------------|-------------|------|-------|---------|----------|
| REV.          | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|               |             |      |       |         |          |

1

| REFERENCES  | Doc. No.                       | By  |
|---|--------------------------------|-----|
| Logic Diagram Legend  | NPE7-HZI-41XX-XXX-PP-XA-000002 | HZI |
| P&ID Main Steam, Extractions Auxiliary Steam & By-Pass System                   | NPE7-EAI-41XX-XXX-PD-XA-000002 | EAI |
| Main Steam, Extractions Auxiliary Steam & By-Pass System Functional Description | NPE7-EAI-41XX-XXX-RP-XA-000063 | EAI |
|   |                                |     |

## NOTES

2

1. For binary signals, description of the signal in the "DESCRIPTION" column corresponds always to the logic state 1
2. Identification of each signal shall be made with the loop identification (first line in the CODE column or if it shows a symbol "«»", the LOOP box in the upper side of the sheet shall be used) plus the signal type code (second line in CODE column)
3. References between sheets shall be made showing the sheet and line where the signal goes or comes from in the following way: "Sheet/Line". If references are between sheets of different drawings, drawing identification number will also be added. Otherwise the symbol "«»" will be added.
4. Unless otherwise indicated it shall not be allowed to change the PID controller setpoints from the operator HMI. It shall only be permitted from the engineering HMI

3

## PRELIMINARY DATA

4

## PENDING DATA

1. Signal cross references with the APSS (Automatic Plant Start-up and Shutdown Sequence)
2. Signal cross references with Boiler
3. Signal cross references with Steam Turbine
4. Signal cross references with ACC

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PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

ISSUER



FORMAT

A3

SCALE

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**References, Notes, Prel & Pend Data**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET3 CONT

REV. P01

A

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Control Diagram

Main Steam, Extract Aux Steam &amp; By-Pass System

Hierarchical Control Structure

## MODIFICATIONS

REV.

DESCRIPTION

DATE DRAWN CHECKED APPROVED

## HIERARCHICAL CONTROL STRUCTURE

1

Steam and Bypass FG  
(B0LBA10EA001)

2

Main Steam FSG  
(B0LBA10EA002)

Main Steam and Extractions FSG  
(B0LBA10EA003)

MP Steam/Auxiliary Steam FSG  
(B0LBG10EA001)

Boiler 1 Air and Flue Gas Exchangers FSG  
(B1LBG31EA001)

Note 2  
Boiler 2 Air and Flue Gas Heat Exchangers FSG  
(B2LBG31EA001)

3

Boiler 1 Bypass FSG  
(B1MAN10EA001)

Note 2  
Boiler 2 Bypass FSG  
(B2MAN10EA001)

Ejectors Attemperation FSG  
(B0LBA50EA001)

4

## Notes:

1. Redundant equipment, not depicted in logic control diagrams. Should be replicated.
2. Boiler line 2 equipment, not depicted in logic control diagrams. Should be replicated.

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PROJECT

NORTH LONDON HEAT AND POWER PROJECT

ISSUER



DRAWING TITLE

Main Steam, Extract Aux Steam & By-Pass System  
Hierarchical Control Structure

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 4 CONT

REV. P01

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**Control Diagram****Main Steam, Extract Aux Steam & By-Pass System****Hierarchical Control Structure****MODIFICATIONS**

REV.

DESCRIPTION

DATE DRAWN CHECKED APPROVED

**HIERARCHICAL CONTROL STRUCTURE**

1

**Main Steam FSG**  
(B0LBA10EA002)

2

**Boiler #2 Main  
Steam isolation MOV**  
(B2LBA10AA301)

**Boiler #2 Main Steam to  
Auxiliary Steam isolation MOV**  
(B0LBA30AA302)

**B2LBA10 Pot  
Drain valve**  
(B2LBA10AA302)

3

**Boiler #1 Main  
Steam isolation MOV**  
(B1LBA10AA301)

**Boiler #1 Main Steam to  
Auxiliary Steam isolation MOV**  
(B0LBA30AA301)

**B1LBA10 Pot  
Drain valve**  
(B1LBA10AA302)

4

**Notes:**

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PROJECT

**NORTH LONDON HEAT  
AND POWER PROJECT**

ISSUER



DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
Hierarchical Control Structure**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET4.A CONT

REV. P01

A

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**Control Diagram****Main Steam, Extract Aux Steam & By-Pass System****Hierarchical Control Structure****MODIFICATIONS**

REV.

DESCRIPTION

DATE DRAWN CHECKED APPROVED

**HIERARCHICAL CONTROL STRUCTURE**

1

Main Steam and  
Extractions FSG  
(B0LBA10EA003)

2

Main Steam Vent MOV  
(B0LBA10AA301)

B0LBD10 Pot Drain valve  
(B0LBD10AA303)

B0LBS10 Pot Drain valve  
(B0LBS10AA303)

B0LBA10 Pot Drain valve  
(B0LBA10AA302)

B0LBW10 Pot Drain valve  
(B0LBW10AA301)

B0LBD20 Pot Drain valve  
(B0LBD20AA303)

B0LBS20 Pot Drain valve  
(B0LBS20AA303)

3

4

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**PROJECT****NORTH LONDON HEAT AND POWER PROJECT****ISSUER****FORMAT****A3****SCALE**

**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**Hierarchical Control Structure**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET4.B CONT

REV. P01

A

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**Control Diagram****Main Steam, Extract Aux Steam & By-Pass System****Hierarchical Control Structure****MODIFICATIONS**

REV.

DESCRIPTION

DATE DRAWN CHECKED APPROVED

**HIERARCHICAL CONTROL STRUCTURE**

1

**MP Steam/Auxiliary  
Steam FSG  
(B0LBG10EA001)**

2

**Main Steam to  
Auxiliary Steam  
Attemperation CV  
(B0LBA30AA401)**

**B0LBA30 Pot #2  
Drain valve  
(B0LBA30AA304)**

**B0LBA31 Pot #1  
Drain valve  
(B0LBA31AA302)**

**B0LBD10 Pot #2  
Drain valve  
(B0LBD10AA304)**

**B0LBG20 Pot  
Drain Valve  
(B0LBG20AA302)**

**Auxiliary Steam to Boiler  
1 Air Preheaters CV  
Drain valve  
(B1LBG30AA302)**

**Note 2**  
**Auxiliary Steam to Boiler  
2 Air Preheaters CV  
(B2LBG30AA401)**

3

**Main Steam to Auxiliary  
Steam Attemperation  
Water Isolation Valve  
(B0LAF33AA301)**

**Main Steam to District  
Heating Header  
Attemperation Water CV  
(B0LAF32AA401)**

**ST IV Extraction to  
Auxiliary Steam  
Conditioning CV  
(B0LBD10AA401)**

**B0LBG10 Pot  
Drain valve  
(B0LBG10AA301)**

**Auxiliary Steam to Bioler  
1 Air Preheaters CV  
(B1LBG30AA401)**

**Note 2**  
**Auxiliary Steam to Boiler  
2 Air Preheaters CV  
bypass MOV  
(B2LBG30AA301)**

4

**B0LBA30 Pot #1  
Drain valve  
(B0LBA30AA303)**

**Main Steam to District  
Heating Header  
Attemperation Water  
Isolation Valve  
(B0LAF32AA301)**

**ST IV Extraction to  
Auxiliary Steam  
Conditioning Water CV  
(B0LAF34AA401)**

**Auxiliary Steam to  
Degaerator CV  
(B0LBG20AA401)**

**Auxiliary Steam to Boiler  
1 Air Preheaters CV  
bypass MOV  
(B1LBG30AA301)**

**Note 2**  
**Auxiliary Steam to Boiler  
2 Air Preheaters Pot  
Drain valve  
(B2LBG30AA302)**

**Notes:**

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2. Boiler line 2 equipment, not depicted in logic control diagrams. Should be replicated.

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[QR]

**CLIENT**  
  
**NORTH LONDON  
WASTE  
AUTHORITY**

**CONTRACTOR**  
  
**EMPRESARIOS AGRUPADOS**

**PROJECT****NORTH LONDON HEAT  
AND POWER PROJECT****DRAWING TITLE****Main Steam, Extract Aux Steam & By-Pass System  
Hierarchical Control Structure**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 4.C CONT

REV. P01

A

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**Control Diagram****Main Steam, Extract Aux Steam & By-Pass System****Hierarchical Control Structure****MODIFICATIONS**

REV.

DESCRIPTION

DATE

DRAWN

CHECKED

APPROVED

**HIERARCHICAL CONTROL STRUCTURE**

1

Boiler 1 Air and Flue  
Gas Exchangers FSG  
(B1LBG31EA001)

2

Boiler 1 Primary Air  
Preheaters  
Temperature CV  
(B1LBG31AA401)

Boiler 1 Secondary Air  
Preheaters Temperature CV  
Bypass MOV  
(B1LBG32AA301)

Boiler 1 Sealing Air  
Preheater Auxiliary Steam  
Isolation Valve  
(B1LBG33AA301)

Boiler 1 Drum Steam to  
Preheater Auxiliary Steam  
Temperature CV  
(B1HAD50AA401)

3

Boiler 1 Primary Air  
Preheaters Auxiliary Steam  
Header Pot Drain Valve  
(B1LBG31AA302)

Boiler 1 Secondary Air  
Preheaters Auxiliary Steam  
Header Pot Drain Valve  
(B1LBG32AA302)

Boiler 1 Sealing Air  
Preheater Temperature CV  
Bypass MOV  
(B1LBG33AA302)

Boiler 1 Drum Steam to  
Flue Gas Heat Exchangers  
Isolation Valve  
(B1HAD50AA301)

4

Boiler 1 Secondary Air  
Preheaters  
Temperature CV  
(B1LBG32AA401)

Boiler 1 Sealing Air  
Preheater  
Temperature CV  
(B1LBG33AA401)

Boiler 1 Sealing Air  
Preheater Auxiliary Steam  
Header Pot Drain Valve  
(B1LBG33AA303)

Boiler 1 Drum Steam to  
Flue Gas Heat Exchangers  
Pot Drain Valve  
(B1HAD50AA302)

**Notes:**

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2. Boiler line 2 equipment, not depicted in logic control diagrams. Should be replicated.

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[QR]

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NORTH LONDON  
WASTE  
AUTHORITY

CONTRACTOR  
  
Acciona

PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

ISSUER

  
EMPRESARIOS AGRUPADOS

DRAWING TITLE

Main Steam, Extract Aux Steam & By-Pass System  
Hierarchical Control Structure

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 4.D CONT

REV. P01

A

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**Control Diagram****Main Steam, Extract Aux Steam & By-Pass System****Hierarchical Control Structure****MODIFICATIONS**

REV.

DESCRIPTION

DATE

DRAWN

CHECKED

APPROVED

**HIERARCHICAL CONTROL STRUCTURE**

Note 2

**Boiler 2 Air and Flue  
Gas Exchangers FSG  
(B2LBG31EA001)**

Note 2

**Boiler 2 Primary Air  
Preheaters  
Temperature CV  
(B2LBG31AA401)**

Note 2

**Boiler 2 Primary Air  
Preheaters Temperature CV  
Bypass MOV  
(B2LBG31AA301)**

Note 2

**Boiler 2 Primary Air  
Preheaters Auxiliary Steam  
Header Pot Drain Valve  
(B2LBG31AA302)**

Note 2

**Boiler 2 Secondary Air  
Preheaters  
Temperature CV  
(B2LBG32AA401)**

Note 2

**Boiler 2 Secondary Air  
Preheaters Temperature CV  
Bypass MOV  
(B2LBG32AA301)**

Note 2

**Boiler 2 Secondary Air  
Preheaters Auxiliary Steam  
Header Pot Drain Valve  
(B2LBG32AA302)**

Note 2

**Boiler 2 Sealing Air  
Preheater  
Temperature CV  
(B2LBG33AA401)**

Note 2

**Boiler 2 Sealing Air  
Preheater Auxiliary Steam  
Isolation Valve  
(B2LBG33AA301)**

Note 2

**Boiler 2 Sealing Air  
Preheater Temperature CV  
Bypass MOV  
(B2LBG33AA302)**

Note 2

**Boiler 2 Sealing Air  
Preheater Auxiliary Steam  
Header Pot Drain Valve  
(B2LBG33AA303)**

Note 2

**Boiler 2 Drum Steam to  
Preheater Auxiliary Steam  
Temperature CV  
(B2HAD50AA401)**

Note 2

**Boiler 2 Drum Steam to  
Flue Gas Heat Exchangers  
Isolation Valve  
(B2HAD50AA301)**

Note 2

**Boiler 2 Drum Steam to  
Flue Gas Heat Exchangers  
Pot Drain Valve  
(B2HAD50AA302)**

**Notes:**

1. Redundant equipment, not depicted in logic control diagrams. Should be replicated.
2. Boiler line 2 equipment, not depicted in logic control diagrams. Should be replicated.

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[QR]



PROJECT

**NORTH LONDON HEAT  
AND POWER PROJECT**

ISSUER



DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System  
Hierarchical Control Structure**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET4.E CONT

REV. P01

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**Control Diagram****Main Steam, Extract Aux Steam & By-Pass System****Hierarchical Control Structure****MODIFICATIONS**

REV.

DESCRIPTION

DATE DRAWN CHECKED APPROVED

**HIERARCHICAL CONTROL STRUCTURE**

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**Boiler 1 Bypass FSG  
(B1MAN10EA001)**

**Boiler 1 Main Steam  
Bypass CV  
(B1MAN10AA401)**

**Boiler 1 Bypass CV  
Attemperation Water  
Isolation Valve  
(B1LAF31AA301)**

**Boiler 1 Main Steam Pot  
Inl Bypass CV Drain Valve  
(B1MAN10AA301)**

**Main Steam Boiler 1  
Bypass Attemperation CV  
(B1LAF31AA401)**

**Boiler 1 Main Steam  
Pot Before Bypass CV  
Drain Valve  
(B1LBA20AA301)**

**Notes:**

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**CONTRACTOR**  
  
acciona

**PROJECT**

**NORTH LONDON HEAT  
AND POWER PROJECT**

**DRAWING TITLE**

**Main Steam, Extract Aux Steam & By-Pass System  
Hierarchical Control Structure**

**ISSUER**


EMPRESARIOS AGRUPADOS

**FORMAT**

A3

**SCALE****NLWA CODE:**

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

**INTERNAL CODE:****SHEET4.F CONT****REV. P01**

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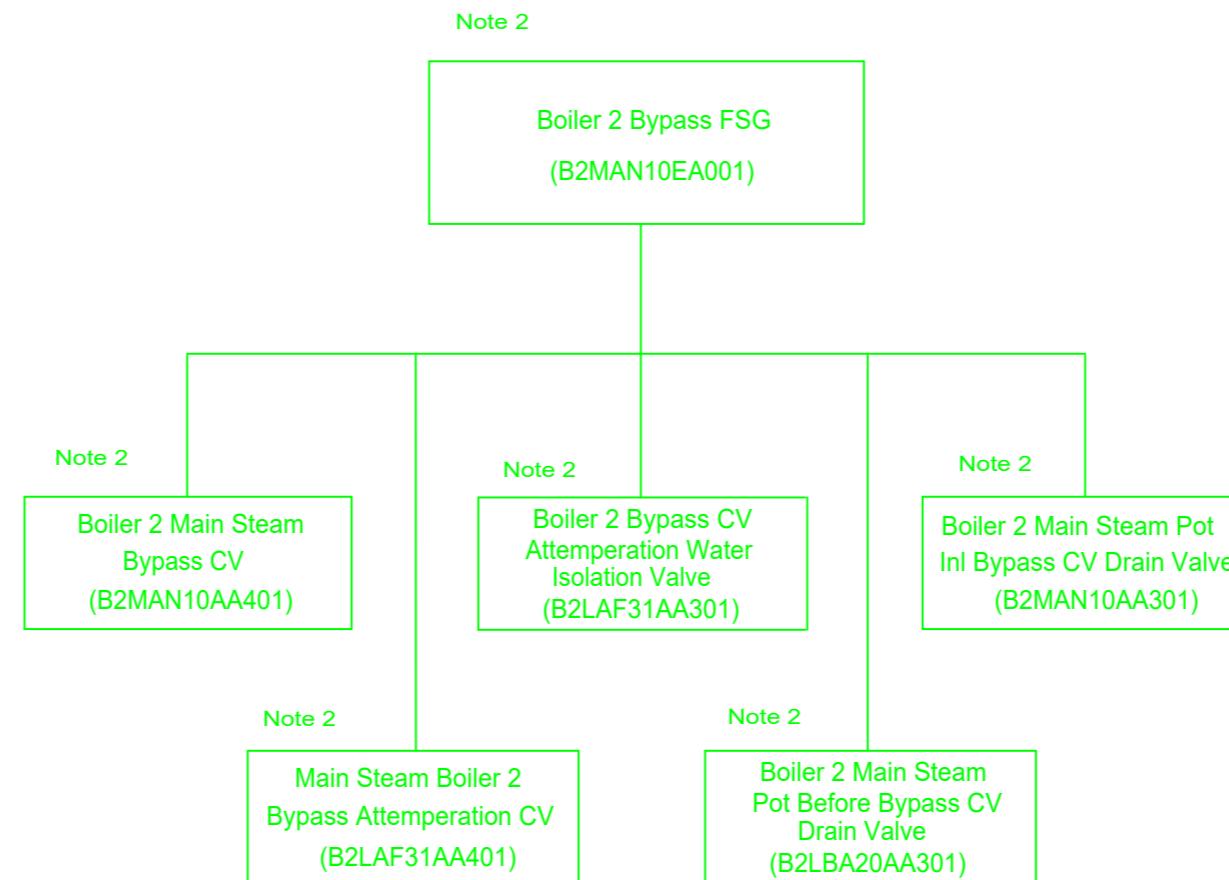
E

**Control Diagram****Main Steam, Extract Aux Steam & By-Pass System****Hierarchical Control Structure****MODIFICATIONS**

REV.

DESCRIPTION

DATE DRAWN CHECKED APPROVED

**HIERARCHICAL CONTROL STRUCTURE****Notes:**

1. Redundant equipment, not depicted in logic control diagrams. Should be replicated.
2. Boiler line 2 equipment, not depicted in logic control diagrams. Should be replicated.

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**PROJECT****NORTH LONDON HEAT AND POWER PROJECT****DRAWING TITLE****Main Steam, Extract Aux Steam & By-Pass System Hierarchical Control Structure****ISSUER****FORMAT****A3****SCALE****NLWA CODE:****CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604****INTERNAL CODE:****SHEET4.G CONT****REV. P01**

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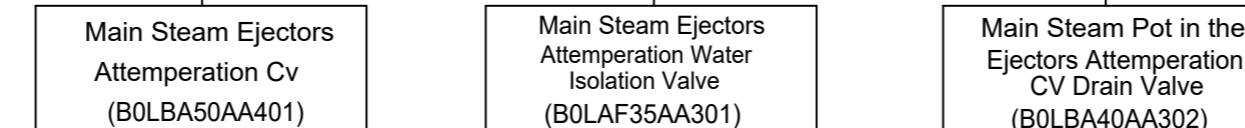
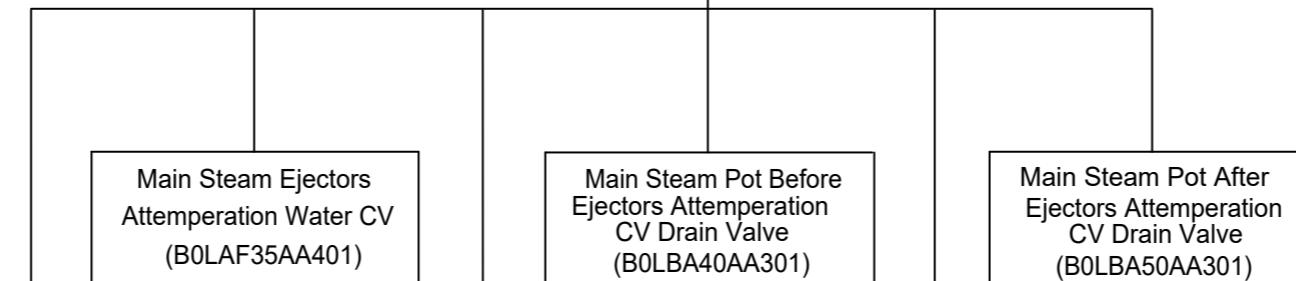
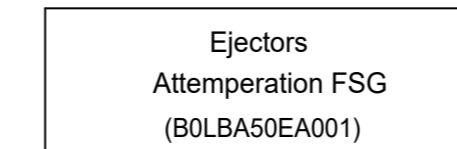
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**Control Diagram****Main Steam, Extract Aux Steam & By-Pass System****Hierarchical Control Structure****MODIFICATIONS**

REV.

DESCRIPTION

DATE DRAWN CHECKED APPROVED

**HIERARCHICAL CONTROL STRUCTURE****Notes:**

1. Redundant equipment, not depicted in logic control diagrams. Should be replicated.
2. Boiler line 2 equipment, not depicted in logic control diagrams. Should be replicated.

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**PROJECT****NORTH LONDON HEAT AND POWER PROJECT****DRAWING TITLE****Main Steam, Extract Aux Steam & By-Pass System  
Hierarchical Control Structure****ISSUER****FORMAT****A3****SCALE**

|                  |                          |
|------------------|--------------------------|
| NLWA CODE:       | SHEET4.H CONT            |
| CONTRACTOR CODE: | NLHP-41XX-IE-DI-EAI-7604 |
| INTERNAL CODE:   | REV. P01                 |

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**Control Diagram**

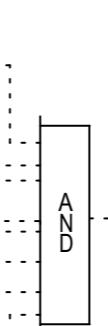
Main Steam, Extract Aux Steam & By-Pass System  
Steam and Bypass FG

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA10EA001 |
| LOOP SHEET: |              |

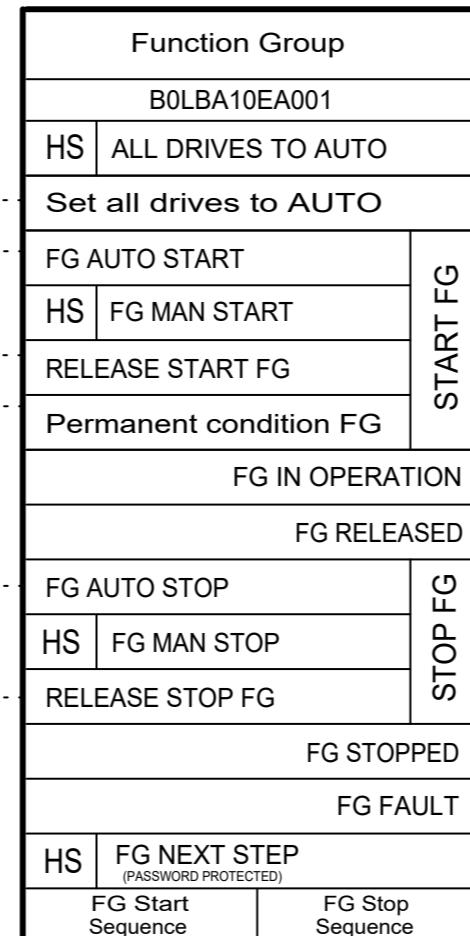
**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| FROM              | DESCRIPTION                    | CODE                            |
|-------------------|--------------------------------|---------------------------------|
| 1 <>>             | Main Steam FSG                 | FG Released B0LBA10EA002        |
| 50 - 48           |                                | ZB25                            |
| 2 <>>             | Main Steam and Extractions FSG | FG Released B0LBA10EA003        |
| 100 - 48          |                                | ZB25                            |
| 3 <>>             | MP Steam/Auxiliary Steam FSG   | FG Released B0LBG10EA001        |
| 150 - 48          |                                | ZB25                            |
| 4 <>>             | B1: Bypass FSG                 | FG Released B1MAN10EA001        |
| 300 - 48          |                                | ZB25                            |
| 5 <>>             | B2: Bypass FSG                 | FG Released B2MAN10EA001        |
|                   |                                | ZB25                            |
| 6 <>>             | B1: Air & Flue Gas Exchrs FSG  | FG Released B1LBG31EA001        |
| 400 - 48          |                                | ZB25                            |
| 7                 | B2: Air & Flue Gas Exchrs FSG  | FG Released B2LBG31EA001        |
|                   |                                | ZB25                            |
| 8 <>>             | Ejectors Attemperation FSG     | FG Released B0LBA50EA001        |
| 500 - 48          |                                | ZB25                            |
| 9                 |                                |                                 |
| 10                |                                |                                 |
| 11                |                                |                                 |
| 12 APSS (Pending) | Steam and Bypass FG            | Set all dr to Auto B0LBA10EA001 |
|                   |                                | ZB03                            |
| 13 APSS (Pending) | Steam and Bypass FG            | FG Auto start B0LBA10EA001      |
|                   |                                | ZB01                            |
| 14                |                                |                                 |
| 15 <>>            | Steam and Bypass FG            | Release start FG B0LBA10EA001   |
| - 31              |                                | ZB45                            |
| 16                |                                |                                 |
| 17                |                                |                                 |
| 18                |                                |                                 |
| 19                |                                |                                 |
| 20 APSS (Pending) | Steam and Bypass FG            | FG Auto stop B0LBA10EA001       |
|                   |                                | ZB02                            |
| 21                |                                |                                 |
| 22                |                                |                                 |
| 23                |                                |                                 |
| 24                |                                |                                 |
| 25                |                                |                                 |
| 26                |                                |                                 |
| 27                |                                |                                 |
| 28                |                                |                                 |
| 29                |                                |                                 |
| 30                |                                |                                 |



Note 2  
Note 2



START FG

STOP FG

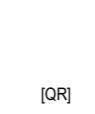
Notes:

1. Auto Order cross reference to Equipment 2, not depicted in logic control diagrams.
2. Feedback cross reference from Equipment 2, not depicted in logic control diagrams.  
To be replicated when programming

| CODE         | DESCRIPTION           | TO        |
|--------------|-----------------------|-----------|
| B0LBA10EA001 | Steam and Bypass FG   | <>> 31    |
| ZB45         | start FG              | - 15      |
| B0LBA10EA001 | All drives            | <>> 32    |
| ZB13         | to Auto               | 50 - 12   |
| B0LBA10EA001 | All drives            | <>> 33    |
| ZB13         | to Auto               | 100 - 12  |
| B0LBA10EA001 | All drives            | <>> 34    |
| ZB13         | to Auto               | 150 - 12  |
| B0LBA10EA001 | All drives            | <>> 35    |
| ZB13         | to Auto               | 300 - 12  |
| B0LBA10EA001 | All drives            | <>> 36    |
| ZB13         | to Auto               | 400 - 12  |
| B0LBA10EA001 | All drives            | <>> 37    |
| ZB13         | to Auto               | 500 - 12  |
| B0LBA10EA001 | Steam and Bypass FG   | <>> 39    |
| ZB13         | to Auto               | 500 - 13  |
| B0LBA10EA001 | FG <>>                | 40        |
| ZB21         | in operation          | 50 - 13   |
| B0LBA10EA001 | FG <>>                | 41        |
| ZB21         | in operation          | 100 - 13  |
| B0LBA10EA001 | FG <>>                | 42        |
| ZB21         | in operation          | 150 - 13  |
| B0LBA10EA001 | FG <>>                | 43        |
| ZB21         | in operation          | 300 - 13  |
| B0LBA10EA001 | FG <>>                | 44        |
| ZB21         | in operation          | 400 - 13  |
| B0LBA10EA001 | FG <>>                | 45        |
| ZB21         | in operation          | 500 - 13  |
| B0LBA10EA001 | FG <>>                | 46        |
| ZB21         | in operation          | 500 - 13  |
| B0LBA10EA001 | FG <>>                | 47        |
| ZB21         | in operation          | 400 - 13  |
| B0LBA10EA001 | FG <>>                | 48        |
| ZB21         | in operation          | (Pending) |
| B0LBA10EA001 | FG Released APSS      | 49        |
| ZB25         | FG Released (Pending) | 50        |
| B0LBA10EA001 | FG Stopped <>>        | 50        |
| ZB22         | FG Stopped <>>        | 51        |
| B0LBA10EA001 | FG Stopped <>>        | 100 - 20  |
| ZB22         | FG Stopped <>>        | 150 - 20  |
| B0LBA10EA001 | FG Stopped <>>        | 300 - 20  |
| ZB22         | FG Fault              | 54        |
| B0LBA10EA001 | FG Fault              | 55        |
| XM35         |                       |           |
| B0LBA10EA001 | FG Stopped            | 56        |
| ZB22         | FG Stopped <>>        | 57        |
| B0LBA10EA001 | FG Stopped <>>        | 400 - 20  |
| ZB22         | FG Stopped            | 58        |
| B0LBA10EA001 | FG Stopped <>>        | 500 - 20  |
| ZB22         |                       | 60        |

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PROJECT  
**NORTH LONDON HEAT AND POWER PROJECT**  
ISSUER  
**NLWA**  
FORMAT  
**A3**  
SCALE

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**Steam and Bypass FG**

NLWA CODE:  
CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 10 CONT  
REV. P01

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**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

Main Steam FSG

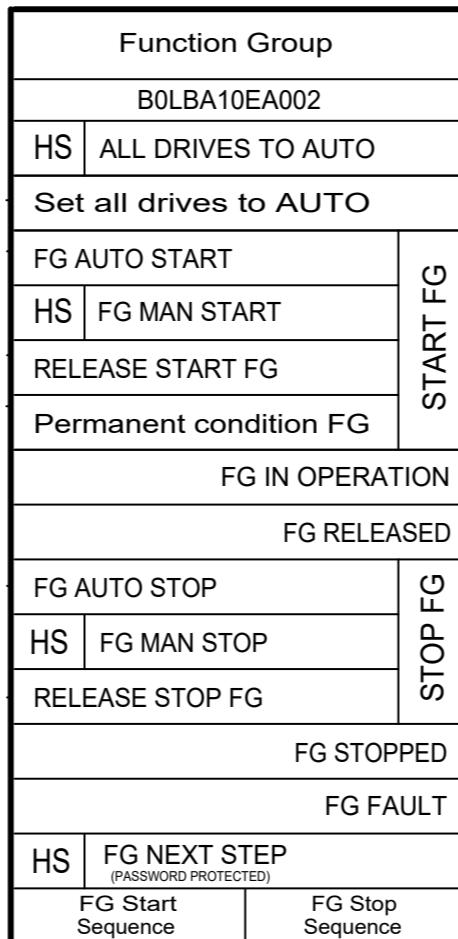
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| LOOP:       | B0LBA10EA002 |
| LOOP SHEET: |              |

## MODIFICATIONS

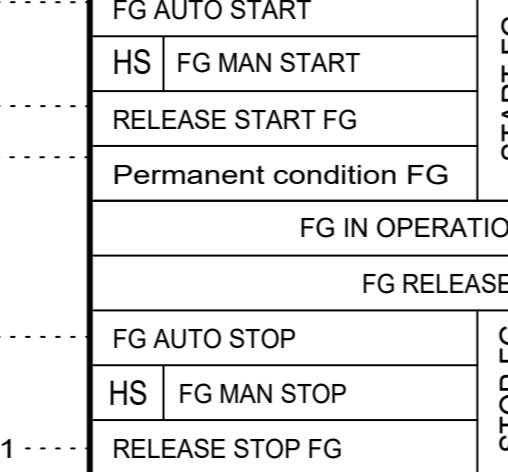
| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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|      |             |      |       |         |          |

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| FROM | DESCRIPTION                          | CODE  |
|------|--------------------------------------|---|
| 1    |                                      |   |
| 2    |                                      |   |
| 3    |                                      |   |
| 4    |                                      |   |
| 5    |                                      |   |
| 6    |                                      |   |
| 7    |                                      |   |
| 8    |                                      |   |
| 9    |                                      |   |
| 10   |                                      |   |
| 11   |                                      |   |
| 12   | <><br>10 - 32<br>Steam and Bypass FG | All drives<br>to Auto<br>B0LBA10EA001<br>ZB13     |
| 13   | <><br>10 - 40<br>Steam and Bypass FG | FG<br>B0LBA10EA001<br>in operation<br>ZB21        |
| 14   |                                      |   |
| 15   | <><br>50.A - 35<br>Main Steam FSG    | Release<br>start FG<br>B0LBA10EA002<br>ZB45       |
| 16   | <><br>50.A - 53<br>Main Steam FSG    | Permanent<br>Condition FG<br>B0LBA10EA002<br>ZB50 |
| 17   |                                      |   |
| 18   |                                      |   |
| 19   |                                      |   |
| 20   | <><br>10 - 50<br>Steam and Bypass FG | FG Stopped<br>B0LBA10EA001<br>ZB22                |
| 21   |                                      |   |
| 22   |                                      |   |
| 23   |                                      |   |
| 24   |                                      |   |
| 25   |                                      |   |
| 26   |                                      |   |
| 27   |                                      |   |
| 28   |                                      |   |
| 29   |                                      |   |
| 30   |                                      |   |



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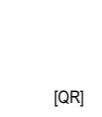
## Notes:

1. Order cross references to Equipment 2, not depicted in logic control diagrams.
2. Feedback cross reference from Equipment 2, not depicted in logic control diagrams.  
To be replicated when programming

| CODE         | DESCRIPTION    | TO                               |
|--------------|----------------|----------------------------------|
|              |                | 31                               |
|              |                | 32                               |
|              |                | 33                               |
|              |                | 34                               |
|              |                | 35                               |
| B0LBA10EA002 | Main Steam FSG | All drives <><br>to Auto 52 - 05 |
| ZB13         | Main Steam FSG | All drives to Auto               |
| B0LBA10EA002 | Main Steam FSG | All drives <><br>to Auto 56 - 07 |
| ZB13         | Main Steam FSG | All drives to Auto               |
| B0LBA10EA002 | Main Steam FSG | All drives <><br>to Auto 54 - 05 |
| ZB13         | Main Steam FSG | All drives to Auto               |
|              |                | 41                               |
|              |                | 42                               |
|              |                | 43                               |
|              |                | 44                               |
| B0LBA10EA002 | Main Steam FSG | FG in operation                  |
| ZB21         | Main Steam FSG | FG <><br>in operation 56.A - 19  |
| B0LBA10EA002 | Main Steam FSG | FG <><br>in operation 50.A - 29  |
| ZB21         | Main Steam FSG | FG Released 10 - 01              |
| B0LBA10EA002 | Main Steam FSG | FG Fault                         |
| XM35         | Main Steam FSG |                                  |
|              |                | 51                               |
|              |                | 52                               |
|              |                | 53                               |
|              |                | 54                               |
|              |                | 55                               |
|              |                | 56                               |
|              |                | 57                               |
|              |                | 58                               |
|              |                | 59                               |
|              |                | 60                               |

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PROJECT  
**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
  
EMPRESARIOS AGRUPADOS

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**Main Steam FSG**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 50 CONT  
REV. P01

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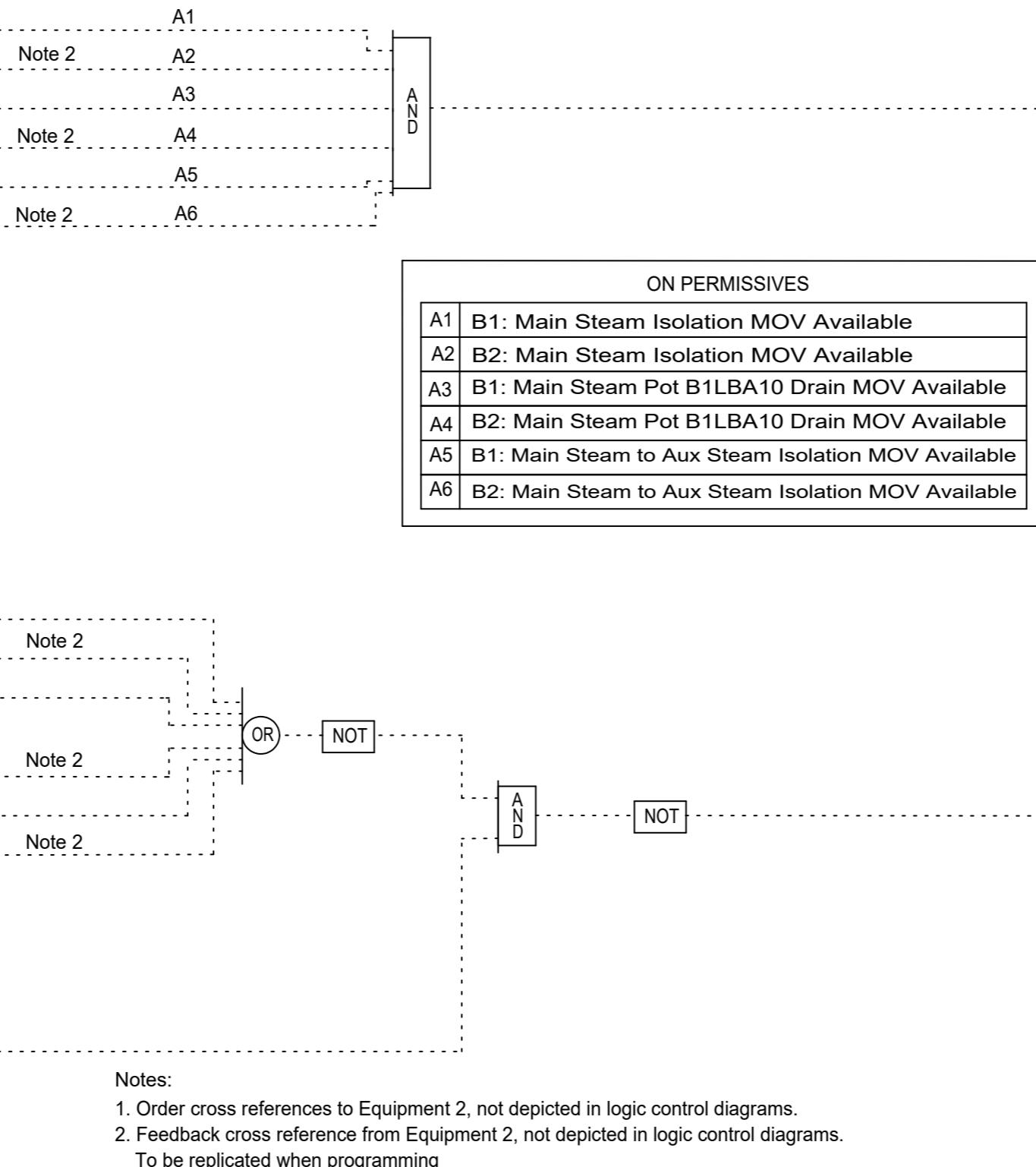
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### Control Diagram

Main Steam, Extract Aux Steam & By-Pass System  
Main Steam FSG

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA10EA002 |
| LOOP SHEET: |              |

| FROM | DESCRIPTION   | CODE   |
|------|---------------|--|
| 1    |               |  |
| 2    |               |  |
| 3    | <><br>52 - 37 | B1: MS Isol MOV<br>Drive Ready ZB50                    |
| 4    |               | B2: MS Isol MOV<br>Drive Ready ZB50                    |
| 5    | <><br>56 - 39 | B1: MS Pot B1LBA10 Drn MOV<br>Drive Ready ZB50         |
| 6    |               | B2: MS Pot B2LBA10 Drn MOV<br>Drive Ready ZB50         |
| 7    | <><br>54 - 37 | B1: MS to AuxStm Isol MOV<br>Drive Ready ZB50          |
| 8    |               | B2: MS to AuxStm Isol MOV<br>Drive Ready ZB50          |
| 9    |               |  |
| 10   |               |  |
| 11   |               |  |
| 12   |               |  |
| 13   |               |  |
| 14   |               |  |
| 15   |               |  |
| 16   |               |  |
| 17   |               |  |
| 18   | <><br>52 - 38 | B1: MS Isol MOV<br>Drive Ready & Auto ZB51             |
| 19   |               | B2: MS Isol MOV<br>Drive Ready & Auto ZB51             |
| 20   | <><br>56 - 40 | B1: MS Pot B1LBA10 Drn MOV<br>Drive Ready & Auto ZB51  |
| 21   |               |  |
| 22   |               | B2: MS Pot B2LBA10 Drn MOV<br>Drive Ready & Auto ZB51  |
| 23   | <><br>54 - 38 | B1: MS to AuxStm Isol MOV<br>Drive Ready & Auto ZB51   |
| 24   |               | B2: MS to AuxStm Isol MOV<br>Drive Ready & Auto ZB51   |
| 25   |               |  |
| 26   |               |  |
| 27   |               |  |
| 28   |               |  |
| 29   | <><br>50 - 46 | Main Steam FSG<br>FG B0LBA10EA002<br>in operation ZB21 |
| 30   |               |  |

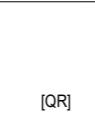


| MODIFICATIONS |             |      |       |
|---------------|-------------|------|-------|
| REV.          | DESCRIPTION | DATE | DRAWN |
|               |             |      |       |

| CODE         | DESCRIPTION    | TO                                   |
|--------------|----------------|--------------------------------------|
|              |                | 31                                   |
|              |                | 32                                   |
|              |                | 33                                   |
|              |                | 34                                   |
| B0LBA10EA002 | Main Steam FSG | Release <><br>start FG 50 - 15       |
| ZB45         |                | 35                                   |
|              |                | 36                                   |
|              |                | 37                                   |
|              |                | 38                                   |
|              |                | 39                                   |
|              |                | 40                                   |
|              |                | 41                                   |
|              |                | 42                                   |
|              |                | 43                                   |
|              |                | 44                                   |
|              |                | 45                                   |
|              |                | 46                                   |
|              |                | 47                                   |
|              |                | 48                                   |
|              |                | 49                                   |
|              |                | 50                                   |
|              |                | 51                                   |
|              |                | 52                                   |
| B0LBA10EA002 | Main Steam FSG | Permanent <><br>Condition FG 50 - 16 |
| ZB50         |                | 53                                   |
|              |                | 54                                   |
|              |                | 55                                   |
|              |                | 56                                   |
|              |                | 57                                   |
|              |                | 58                                   |
|              |                | 59                                   |
|              |                | 60                                   |

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PROJECT

**NORTH LONDON HEAT  
AND POWER PROJECT**

ISSUER

**EMPRESARIOS AGRUPADOS**

FORMAT

**A3**

SCALE



DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
Main Steam FSG**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 50.A CONT

REV. P01

A

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A

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### Control Diagram

Main Steam, Extract Aux Steam & By-Pass System  
B1: MS Isol MOV

|             |              |
|-------------|--------------|
| LOOP:       | B1LBA10AA301 |
| LOOP SHEET: |              |

|    | FROM            | DESCRIPTION                             | CODE                 |
|----|-----------------|---|----------------------|
| 1  |                 |   |                      |
| 2  |                 |   |                      |
| 3  |                 |   |                      |
| 4  |                 |   |                      |
| 5  | <><br>50 - 36   | Main Steam FSG<br>All drives<br>to Auto | B0LBA10EA002<br>ZB13 |
| 6  |                 |   |                      |
| 7  | B1: MS Isol MOV | Actuator<br>Local Mode                  | B1LBA10AA301<br>XB23 |
| 8  |                 |   |                      |
| 9  |                 |   |                      |
| 10 |                 |   |                      |
| 11 |                 |   |                      |
| 12 |                 |   |                      |
| 13 |                 |   |                      |
| 14 | B1: MS Isol MOV | FullyOp                                 | B1LBA10AA301<br>XB01 |
| 15 |                 |   |                      |
| 16 |                 |   |                      |
| 17 |                 |   |                      |
| 18 | B1: MS Isol MOV | FullyCl                                 | B1LBA10AA301<br>XB02 |
| 19 |                 |   |                      |
| 20 |                 |   |                      |
| 21 |                 |   |                      |
| 22 |                 |   |                      |
| 23 |                 |   |                      |
| 24 |                 |   |                      |
| 25 | B1: MS Isol MOV | Actuator<br>Fault                       | B1LBA10AA301<br>XB07 |
| 26 |                 |   |                      |
| 27 |                 |   |                      |
| 28 |                 |   |                      |
| 29 |                 |   |                      |
| 30 |                 |   |                      |

Notes:

- The logic depicted in this page should be replicated for equipment in Boiler line 2.

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CONTRACTOR  
**Acciona**

PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER

**EMPRESARIOS AGRUPADOS**

MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| CODE         | DESCRIPTION     | TO                |
|--------------|-----------------|-------------------|
|              |                 | 31                |
|              |                 | 32                |
|              |                 | 33                |
|              |                 | 34                |
|              |                 | 35                |
|              |                 | 36                |
| B1LBA10AA301 | B1: MS Isol MOV | Drive <>          |
| ZB50         |                 | Ready 50.A - 03   |
| B1LBA10AA301 | B1: MS Isol MOV | Drive Ready <>    |
| ZB51         |                 | & Auto 50.A - 18  |
|              |                 | 39                |
|              |                 | 40                |
|              |                 | 41                |
| B1LBA10AA301 | B1: MS Isol MOV | Op Cmd            |
| YB01         |                 | 42                |
|              |                 | 43                |
|              |                 | 44                |
|              |                 | 45                |
| B1LBA10AA301 | B1: MS Isol MOV | Cl Cmd            |
| YB02         |                 | 46                |
|              |                 | 47                |
|              |                 | 48                |
| B1LBA10AA301 | B1: MS Isol MOV | Force Close       |
| XM17         |                 | 49                |
| B1LBA10AA301 | B1: MS Isol MOV | Force Open        |
| XM19         |                 | 50                |
|              |                 | 51                |
| B1LBA10AA301 | B1: MS Isol MOV | Cmd Open Failure  |
| XM41         |                 | 52                |
| B1LBA10AA301 | B1: MS Isol MOV | Cmd Close Failure |
| XM42         |                 | 53                |
| B1LBA10AA301 | B1: MS Isol MOV | Feedback Anomaly  |
| XM13         |                 | 54                |
| B1LBA10AA301 | B1: MS Isol MOV | Actuator n Avail  |
| XM07         |                 | 55                |
|              |                 | 56                |
|              |                 | 57                |
|              |                 | 58                |
|              |                 | 59                |
|              |                 | 60                |

|   |               |
|---|---------------|
| NLWA CODE:                                | SHEET 52 CONT |
| CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604 |               |
| INTERNAL CODE:                            | REV. P01      |

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**Control Diagram****Main Steam, Extract Aux Steam & By-Pass System****B1: MS to AuxStm Isol MOV**

| 1  | FROM           | DESCRIPTION   | CODE                 |
|----|----------------|---|----------------------|
| 2  |                |   |                      |
| 3  |                |   |                      |
| 4  |                |   |                      |
| 5  | <>><br>50 - 40 | Main Steam FSG<br>All drives<br>to Auto             | B0LBA10EA002<br>ZB13 |
| 6  |                |   |                      |
| 7  |                | B1: MS to AuxStm Isol MOV<br>Actuator<br>Local Mode | B0LBA30AA301<br>XB23 |
| 8  |                |   |                      |
| 9  |                |   |                      |
| 10 |                |   |                      |
| 11 |                |   |                      |
| 12 |                |   |                      |
| 13 |                |   |                      |
| 14 |                | B1: MS to AuxStm Isol MOV<br>FullyOp                | B0LBA30AA301<br>XB01 |
| 15 |                |   |                      |
| 16 |                |   |                      |
| 17 |                |   |                      |
| 18 |                | B1: MS to AuxStm Isol MOV<br>FullyCl                | B0LBA30AA301<br>XB02 |
| 19 |                |   |                      |
| 20 |                |   |                      |
| 21 |                |   |                      |
| 22 |                |   |                      |
| 23 |                |   |                      |
| 24 |                |   |                      |
| 25 |                | B1: MS to AuxStm Isol MOV<br>Actuator<br>Fault      | B0LBA30AA301<br>XB07 |
| 26 |                |   |                      |
| 27 |                |   |                      |
| 28 |                |   |                      |
| 29 |                |   |                      |
| 30 |                |   |                      |

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA30AA301 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| CODE                 | DESCRIPTION                                    | TO                |
|----------------------|--|-------------------|
|                      |  | 31                |
|                      |  | 32                |
|                      |  | 33                |
|                      |  | 34                |
|                      |  | 35                |
|                      |  | 36                |
| B0LBA30AA301<br>ZB50 | B1: MS to AuxStm Isol MOV<br>Drive Ready       | <>><br>50.A - 07  |
| B0LBA30AA301<br>ZB51 | B1: MS to AuxStm Isol MOV<br>& Auto            | <>><br>50.A - 23  |
|                      |  | 39                |
|                      |  | 40                |
|                      |  | 41                |
| B0LBA30AA301<br>YB01 | B1: MS to AuxStm Isol MOV<br>Op Cmd            | 42                |
|                      |  | 43                |
|                      |  | 44                |
|                      |  | 45                |
| B0LBA30AA301<br>YB02 | B1: MS to AuxStm Isol MOV<br>Cl Cmd            | 46                |
|                      |  | 47                |
| B0LBA30AA301<br>XB02 | B1: MS to AuxStm Isol MOV<br>FullyCl           | <>><br>158.B - 08 |
| B0LBA30AA301<br>XM17 | B1: MS to AuxStm Isol MOV<br>Force Close       | 49                |
| B0LBA30AA301<br>XM19 | B1: MS to AuxStm Isol MOV<br>Force Open        | 50                |
|                      |  | 51                |
| B0LBA30AA301<br>XM41 | B1: MS to AuxStm Isol MOV<br>Cmd Open Failure  | 52                |
| B0LBA30AA301<br>XM42 | B1: MS to AuxStm Isol MOV<br>Cmd Close Failure | 53                |
| B0LBA30AA301<br>XM13 | B1: MS to AuxStm Isol MOV<br>Feedback Anomaly  | 54                |
| B0LBA30AA301<br>XM07 | B1: MS to AuxStm Isol MOV<br>Actuator n Avail  | 55                |
|                      |  | 56                |
|                      |  | 57                |
|                      |  | 58                |
|                      |  | 59                |
|                      |  | 60                |

**Notes:**

1. The logic depicted in this page should be replicated for equipment in Boiler line 2.

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**B1: MS to AuxStm Isol MOV**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 54 CONT

INTERNAL CODE:

REV. P01

A

B

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### Control Diagram

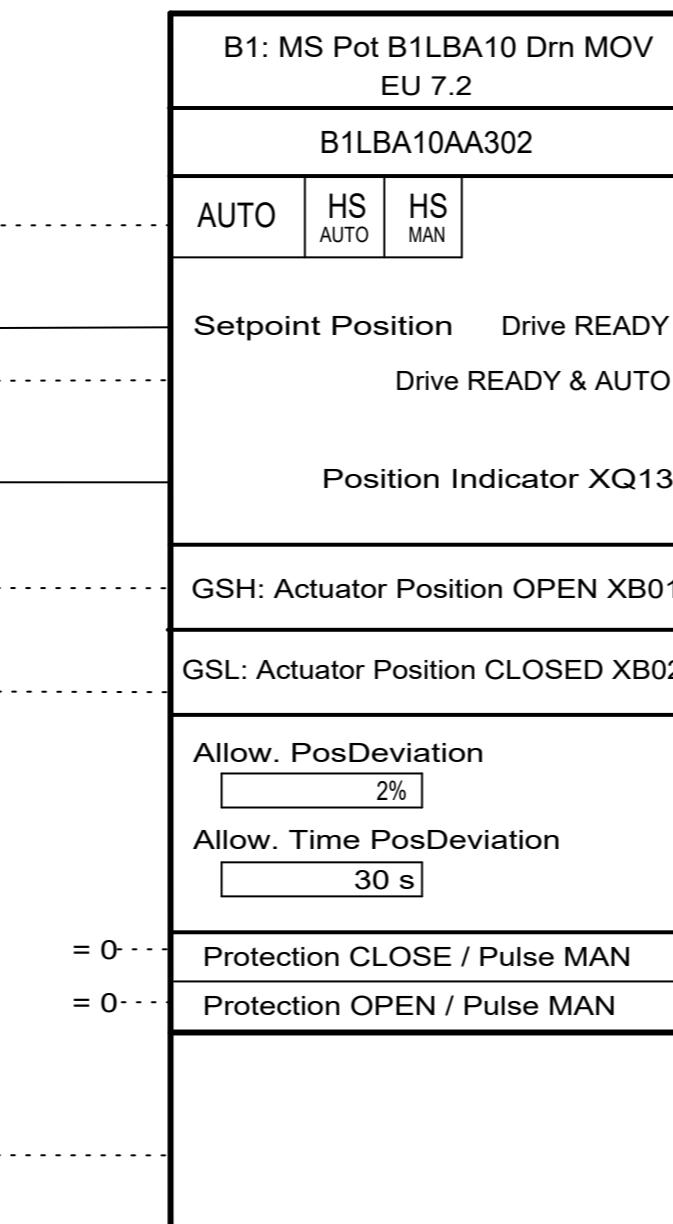
Main Steam, Extract Aux Steam & By-Pass System  
B1: MS Pot B1LBA10 Drn MOV

|             |              |
|-------------|--------------|
| LOOP:       | B1LBA10AA302 |
| LOOP SHEET: |              |

### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM             | DESCRIPTION                | CODE                 |
|----|------------------|----------------------------|----------------------|
| 1  |                  |                            |                      |
| 2  |                  |                            |                      |
| 3  |                  |                            |                      |
| 4  |                  |                            |                      |
| 5  |                  |                            |                      |
| 6  |                  |                            |                      |
| 7  | <>><br>50 - 38   | Main Steam FSG             | All drives to Auto   |
|    |                  |                            | B0LBA10EA002<br>ZB13 |
| 8  |                  |                            |                      |
| 9  | <>><br>56.A - 35 | B1: MS Pot B1LBA10 Drn MOV | Setpoint Position    |
|    |                  |                            | B1LBA10AA302<br>ZC01 |
| 10 |                  | B1: MS Pot B1LBA10 Drn MOV | Actuator Local Mode  |
|    |                  |                            | B1LBA10AA302<br>XB23 |
| 11 |                  |                            |                      |
| 12 |                  | B1: MS Pot B1LBA10 Drn MOV | Valve Position       |
|    |                  |                            | B1LBA10AA302<br>XQ13 |
| 13 |                  |                            |                      |
| 14 |                  | B1: MS Pot B1LBA10 Drn MOV | FullyOp              |
|    |                  |                            | B1LBA10AA302<br>XB01 |
| 15 |                  |                            |                      |
| 16 |                  | B1: MS Pot B1LBA10 Drn MOV | FullyCl              |
|    |                  |                            | B1LBA10AA302<br>XB02 |
| 17 |                  |                            |                      |
| 18 |                  |                            |                      |
| 19 |                  |                            |                      |
| 20 |                  |                            |                      |
| 21 |                  |                            |                      |
| 22 |                  |                            |                      |
| 23 |                  |                            |                      |
| 24 |                  |                            |                      |
| 25 |                  | B1: MS Pot B1LBA10 Drn MOV | Actuator Fault       |
|    |                  |                            | B1LBA10AA302<br>XB07 |
| 26 |                  |                            |                      |
| 27 |                  |                            |                      |
| 28 |                  |                            |                      |
| 29 |                  |                            |                      |
| 30 |                  |                            |                      |



#### Notes:

- The logic depicted in this page should be replicated for equipment in Boiler line 2.
- For Drain Pots controlled by temperature see sheet 900

| CODE         | DESCRIPTION                                   | TO |
|--------------|---|----|
|              |   | 31 |
|              |   | 32 |
|              |   | 33 |
|              |   | 34 |
|              |   | 35 |
|              |   | 36 |
| B1LBA10AA302 | B1: MS Pot B1LBA10 Drn MOV Position Demand    | 37 |
| YQ01         |   | 38 |
| B1LBA10AA302 | B1: MS Pot B1LBA10 Drn MOV Drive Ready        | 39 |
| ZB50         | Ready 50.A - 05                               |    |
| B1LBA10AA302 | B1: MS Pot B1LBA10 Drn MOV Drive Ready & Auto | 40 |
| ZB51         | 50.A - 20                                     |    |
|              |   | 41 |
|              |   | 42 |
|              |   | 43 |
|              |   | 44 |
|              |   | 45 |
| B1LBA10AA302 | B1: MS Pot B1LBA10 Drn MOV FullyCl <>>        | 46 |
| XB02         | 56.A - 17                                     |    |
|              |   | 47 |
|              |   | 48 |
|              |   | 49 |
|              |   | 50 |
|              |   | 51 |
|              |   | 52 |
|              |   | 53 |
| B1LBA10AA302 | B1: MS Pot B1LBA10 Drn MOV Feedback Anomaly   | 54 |
| XM13         |   |    |
| B1LBA10AA302 | B1: MS Pot B1LBA10 Drn MOV Actuator Fault     | 55 |
| XM07         |   |    |
|              |   | 56 |
|              |   | 57 |
|              |   | 58 |
| B1LBA10AA302 | B1: MS Pot B1LBA10 Drn MOV Valve Position <>> | 59 |
| XQ13         | 56.A - 23                                     |    |
|              |   | 60 |

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**

**B1: MS Pot B1LBA10 Drn MOV**

NLWA CODE:

CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 56 CONT

REV. P01

A

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## Control Diagram

Main Steam, Extract Aux Steam & By-Pass System  
B1: MS Pot B1LBA10 Drn MOV

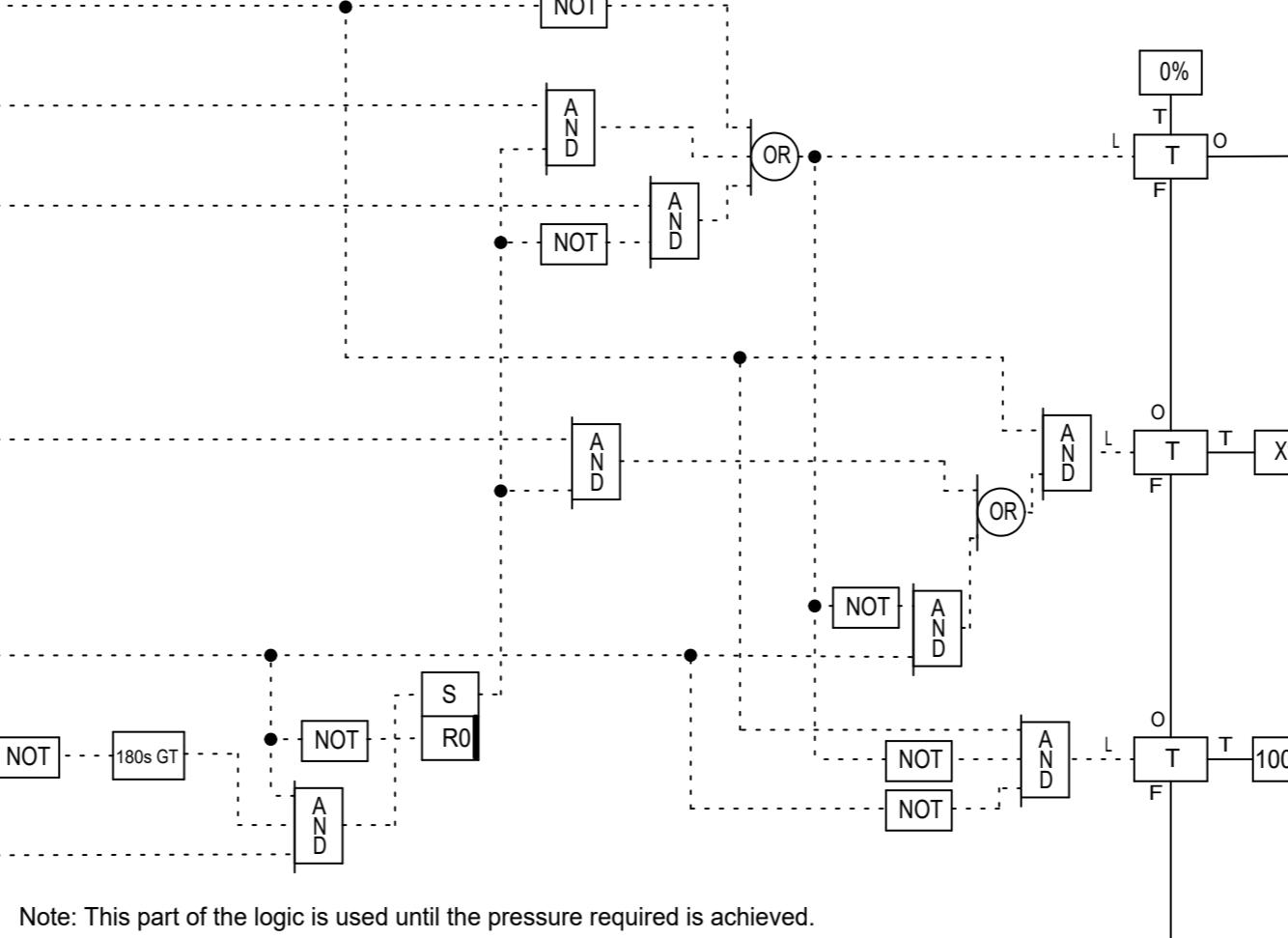
|             |              |
|-------------|--------------|
| LOOP:       | B1LBA10AA302 |
| LOOP SHEET: |              |

### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

|    | FROM          | DESCRIPTION                | CODE                                 |
|----|---------------|----------------------------|--------------------------------------|
| 1  |               |                            |                                      |
| 2  |               |                            |                                      |
| 3  |               |                            |                                      |
| 4  | <><br>60 - 32 | B1: MS Pot B1LBA10 Temp    | H B1LBA10CT001<br>ZB01               |
| 5  |               |                            |                                      |
| 6  | <><br>62 - 54 | B1: MS from Boiler Press   | L B1LBA10CP901<br>ZB52               |
| 7  |               |                            |                                      |
| 8  |               |                            |                                      |
| 9  |               |                            |                                      |
| 10 |               |                            |                                      |
| 11 | <><br>60 - 35 | B1: MS Pot B1LBA10 Temp    | L B1LBA10CT001<br>ZB52               |
| 12 |               |                            |                                      |
| 13 |               |                            |                                      |
| 14 |               |                            |                                      |
| 15 | <><br>62 - 42 | B1: MS from Boiler Press   | H B1LBA10CP901<br>ZB01               |
| 16 |               |                            |                                      |
| 17 | <><br>56 - 46 | B1: MS Pot B1LBA10 Drn MOV | FullyCl B1LBA10AA302<br>XB02         |
| 18 |               |                            |                                      |
| 19 | <><br>50 - 45 | Main Steam FSG             | FG B0LBA10EA002<br>in operation ZB21 |
| 20 |               |                            |                                      |
| 21 |               |                            |                                      |
| 22 |               |                            |                                      |
| 23 | <><br>56 - 59 | B1: MS Pot B1LBA10 Drn MOV | Valve Position B1LBA10AA302<br>XQ13  |
| 24 |               |                            |                                      |
| 25 |               |                            |                                      |
| 26 |               |                            |                                      |
| 27 |               |                            |                                      |
| 28 |               |                            |                                      |
| 29 |               |                            |                                      |
| 30 |               |                            |                                      |

Note 2 B1 In service



| CODE         | DESCRIPTION                                  | TO      |
|--------------|--|---------|
|              |  | 31      |
|              |  | 32      |
|              |  | 33      |
|              |  | 34      |
| B1LBA10AA302 | B1: MS Pot B1LBA10 Drn MOV Setpoint Position | <> 35   |
| ZC01         |  | 56 - 09 |
|              |  | 36      |
|              |  | 37      |
|              |  | 38      |
|              |  | 39      |
|              |  | 40      |
|              |  | 41      |
|              |  | 42      |
|              |  | 43      |
|              |  | 44      |
|              |  | 45      |
|              |  | 46      |
|              |  | 47      |
|              |  | 48      |
|              |  | 49      |
|              |  | 50      |
|              |  | 51      |
|              |  | 52      |
|              |  | 53      |
|              |  | 54      |
|              |  | 55      |
|              |  | 56      |
|              |  | 57      |
|              |  | 58      |
|              |  | 59      |
|              |  | 60      |

### Notes:

1. The logic depicted in this page should be replicated for equipment in Boiler line 2.
2. For equipment in Boiler line 2, B2 in service signal must be used. For drain pots B0, B1 OR B2 line in service must be used.
3. For Drain Pots controlled by temperature see sheet 900

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CONTRACTOR  
**Acciona**

PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System**  
**B1: MS Pot B1LBA10 Drn MOV**

ISSUER  
**EMPRESARIOS AGRUPADOS**

FORMAT  
**A3**

SCALE

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 56.A CONT  
REV. P01

A

B

C

D

E

A

B

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E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

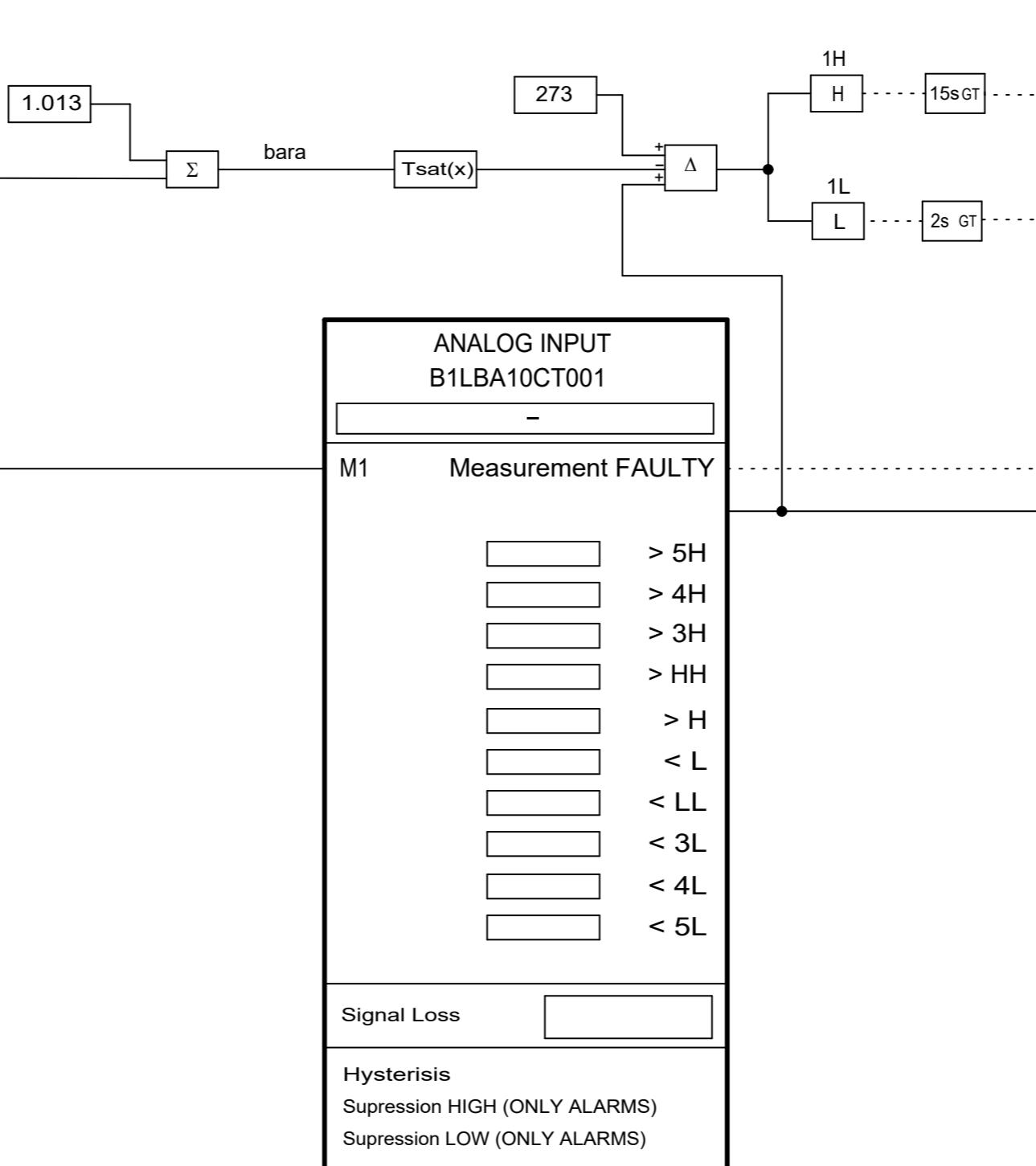
B1: MS Pot B1LBA10 Temp

|             |              |
|-------------|--------------|
| LOOP:       | B1LBA10CT001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                    | DESCRIPTION                                      | CODE |
|----|-------------------------|--|------|
| 1  |                         |  |      |
| 2  |                         |  |      |
| 3  |                         |  |      |
| 4  | <>><br>62 - 35          | B1: MS from Boiler Press<br>xtmr<br>B1LBA10CP901 | XQ01 |
| 5  |                         |  |      |
| 6  |                         |  |      |
| 7  |                         |  |      |
| 8  |                         |  |      |
| 9  |                         |  |      |
| 10 |                         |  |      |
| 11 | B1: MS Pot B1LBA10 Temp | xtmr<br>B1LBA10CT001                             | XQ01 |
| 12 |                         |  |      |
| 13 |                         |  |      |
| 14 |                         |  |      |
| 15 |                         |  |      |
| 16 |                         |  |      |
| 17 |                         |  |      |
| 18 |                         |  |      |
| 19 |                         |  |      |
| 20 |                         |  |      |
| 21 |                         |  |      |
| 22 |                         |  |      |
| 23 |                         |  |      |
| 24 |                         |  |      |
| 25 |                         |  |      |
| 26 |                         |  |      |
| 27 |                         |  |      |
| 28 |                         |  |      |
| 29 |                         |  |      |
| 30 |                         |  |      |



Notes:

1. The logic depicted in this page should be replicated for equipment in Boiler line 2.

| CODE         | DESCRIPTION             | TO                    |
|--------------|-------------------------|-----------------------|
|              |                         | 31                    |
| B1LBA10CT001 | B1: MS Pot B1LBA10 Temp | H <>><br>56.A - 04    |
| ZB01         |                         | 32                    |
|              |                         | 33                    |
|              |                         | 34                    |
| B1LBA10CT001 | B1: MS Pot B1LBA10 Temp | L <>><br>56.A - 11    |
| ZB52         |                         | 35                    |
|              |                         | 36                    |
|              |                         | 37                    |
|              |                         | 38                    |
|              |                         | 39                    |
|              |                         | 40                    |
| B1LBA10CT001 | B1: MS Pot B1LBA10 Temp | Measurement<br>FAULTY |
| XM35         |                         | 41                    |
| B1LBA10CT001 | B1: MS Pot B1LBA10 Temp | xtmr                  |
| XQ01         |                         | 42                    |
|              |                         | 43                    |
|              |                         | 44                    |
|              |                         | 45                    |
|              |                         | 46                    |
|              |                         | 47                    |
|              |                         | 48                    |
|              |                         | 49                    |
|              |                         | 50                    |
|              |                         | 51                    |
|              |                         | 52                    |
|              |                         | 53                    |
|              |                         | 54                    |
|              |                         | 55                    |
|              |                         | 56                    |
|              |                         | 57                    |
|              |                         | 58                    |
|              |                         | 59                    |
|              |                         | 60                    |

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PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**B1: MS Pot B1LBA10 Temp**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 60 CONT

INTERNAL CODE:

REV. P01

A

B

C

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E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

B1: MS from Boiler Press

|             |              |
|-------------|--------------|
| LOOP:       | B1LBA10CP901 |
| LOOP SHEET: |              |

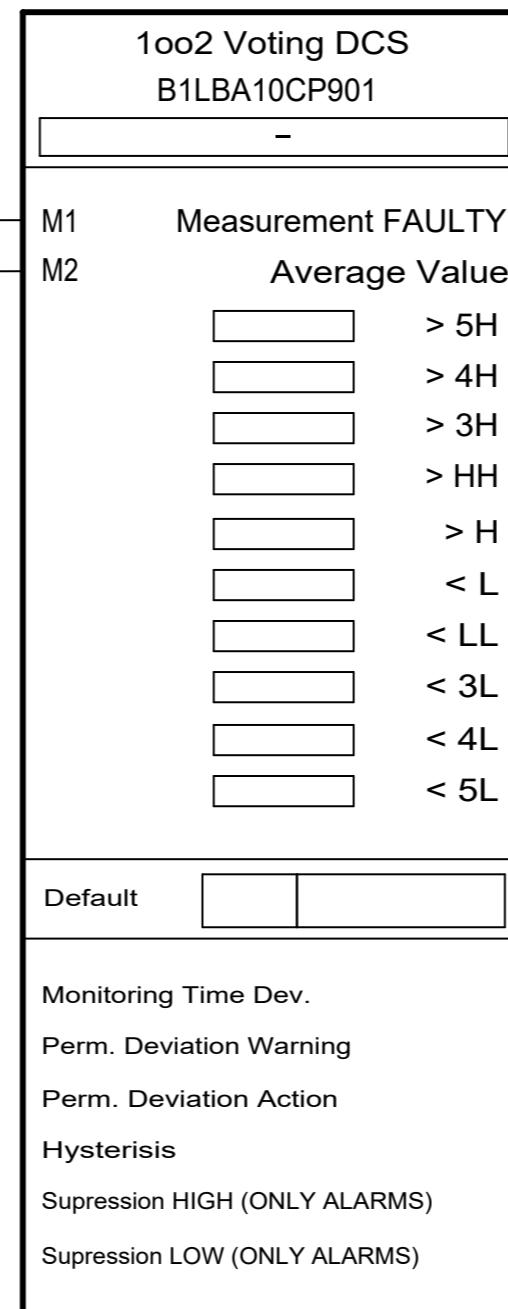
## MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

## Notes:

- If "Measurement FAULTY" (XM35) alarm appears with the output selected during 60 seconds (adjustable time) the Max / Min value will be selected.
- The logic depicted in this page should be replicated for equipment in Boiler line 2.
- Feedback and orders from B0LBA30 Pot #2 Drain MOV (B0LBA30AA304), B0LBA31 Pot #1 Drain MOV (B0LBA31AA302), and B0LBA31 Pot #2 Drain MOV (B0LBA31AA303), equivalent to those for B0LBA30 Pot #1 Drain MOV (B0LBA30AA303). See sheet 900.

| FROM | DESCRIPTION                | CODE                        |
|------|----------------------------|-----------------------------|
| 1    |                            |                             |
| 2    |                            |                             |
| 3    |                            |                             |
| 4    |                            |                             |
| 5    |                            |                             |
| 6    |                            |                             |
| 7    |                            |                             |
| 8    |                            |                             |
| 9    | B1: MS from Boiler Press 1 | xtrmr B1LBA10CP001A<br>XQ01 |
| 10   | B1: MS from Boiler Press 2 | xtrmr B1LBA10CP001B<br>XQ01 |
| 11   |                            |                             |
| 12   |                            |                             |
| 13   |                            |                             |
| 14   |                            |                             |
| 15   |                            |                             |
| 16   |                            |                             |
| 17   |                            |                             |
| 18   |                            |                             |
| 19   |                            |                             |
| 20   |                            |                             |
| 21   |                            |                             |
| 22   |                            |                             |
| 23   |                            |                             |
| 24   |                            |                             |
| 25   |                            |                             |
| 26   |                            |                             |
| 27   |                            |                             |
| 28   |                            |                             |
| 29   |                            |                             |
| 30   |                            |                             |



| CODE         | DESCRIPTION              | TO                    |
|--------------|--------------------------|-----------------------|
|              |                          | 31                    |
|              |                          | 32                    |
| B1LBA10CP901 | B1: MS from Boiler Press | xtrmr <> 302.C - 15   |
| XQ01         |                          | <> 306.B - 08         |
| B1LBA10CP901 | B1: MS from Boiler Press | xtrmr <> 60 - 04      |
| XQ01         |                          | <> 158.B - 06         |
| B1LBA10CP901 | B1: MS from Boiler Press | xtrmr 37              |
| XQ01         |                          | 38                    |
| B1LBA10CP901 | B1: MS from Boiler Press | Measurement FAULTY 39 |
| XM35         |                          | xtrmr 40              |
| B1LBA10CP901 | B1: MS from Boiler Press | H <> 56.A - 15        |
| ZB01         |                          | H 42                  |
| B1LBA10CP901 | B1: MS from Boiler Press | H 43                  |
| ZB01         |                          | 44                    |
| B1LBA10CP901 | B1: MS from Boiler Press | H 45                  |
| XM01         |                          | L 46                  |
| B1LBA10CP901 | B1: MS from Boiler Press | L 47                  |
| XM52         |                          | 48                    |
| B1LBA10CP901 | B1: MS from Boiler Press | L 49                  |
| ZB52         |                          | 50                    |
| B1LBA10CP901 | B1: MS from Boiler Press | L 51                  |
| ZB52         |                          | 52                    |
| B1LBA10CP901 | B1: MS from Boiler Press | L 53                  |
| ZB52         |                          | <> 56.A - 06          |
| B1LBA10CP901 | B1: MS from Boiler Press | 54                    |
| ZB52         |                          | 55                    |
| B1LBA10CP901 | B1: MS from Boiler Press | 56                    |
| ZB52         |                          | 57                    |
| B1LBA10CP901 | B1: MS from Boiler Press | 58                    |
| ZB52         |                          | 59                    |
| B1LBA10CP901 | B1: MS from Boiler Press | 60                    |

- Feedback and orders from B1LBA20 Pot Drain MOV (B1LBA20AA301), and B1MAN10 Pot Drain MOV (B1MAN10AA301), equivalent to those for B0LBG20 Pot Drain MOV (B0LBG20AA302). See sheet 900.A.

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## CLIENT



## CONTRACTOR



## PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

## ISSUER



## FORMAT

A3

## SCALE

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
B1: MS from Boiler Press

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 62 CONT

REV. P01

A

B

C

D

E

A

B

C

D

E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

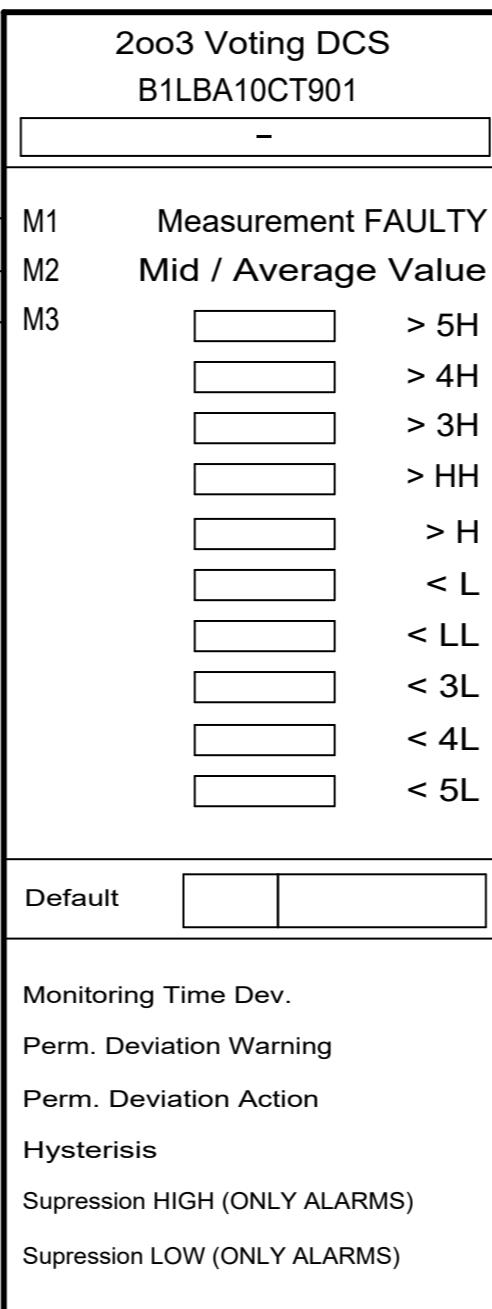
B1: MS from Boiler Temp

|             |              |
|-------------|--------------|
| LOOP:       | B1LBA10CT901 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                      | DESCRIPTION | CODE                  |
|----|---------------------------|-------------|-----------------------|
| 1  |                           |             |                       |
| 2  |                           |             |                       |
| 3  |                           |             |                       |
| 4  |                           |             |                       |
| 5  |                           |             |                       |
| 6  |                           |             |                       |
| 7  |                           |             |                       |
| 8  |                           |             |                       |
| 9  | B1: MS from Boiler Temp 1 | xtrmr       | B1LBA10CT001A<br>XQ01 |
| 10 | B1: MS from Boiler Temp 2 | xtrmr       | B1LBA10CT001B<br>XQ01 |
| 11 | B1: MS from Boiler Temp 3 | xtrmr       | B1LBA10CT001C<br>XQ01 |
| 12 |                           |             |                       |
| 13 |                           |             |                       |
| 14 |                           |             |                       |
| 15 |                           |             |                       |
| 16 |                           |             |                       |
| 17 |                           |             |                       |
| 18 |                           |             |                       |
| 19 |                           |             |                       |
| 20 |                           |             |                       |
| 21 |                           |             |                       |
| 22 |                           |             |                       |
| 23 |                           |             |                       |
| 24 |                           |             |                       |
| 25 |                           |             |                       |
| 26 |                           |             |                       |
| 27 |                           |             |                       |
| 28 |                           |             |                       |
| 29 |                           |             |                       |
| 30 |                           |             |                       |



4

- If "Measurement FAULTY" (XM35) alarm appears with the output selected during 60 seconds (adjustable time) the Max / Min value will be selected.
- The logic depicted in this page should be replicated for equipment in Boiler line 2.

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**B1: MS from Boiler Temp**

FORMAT  
A3

SCALE

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 64 CONT  
REV. P01

A

B

C

D

E

A

B

C

D

E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

Main Steam and Extractions FSG

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA10EA003 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

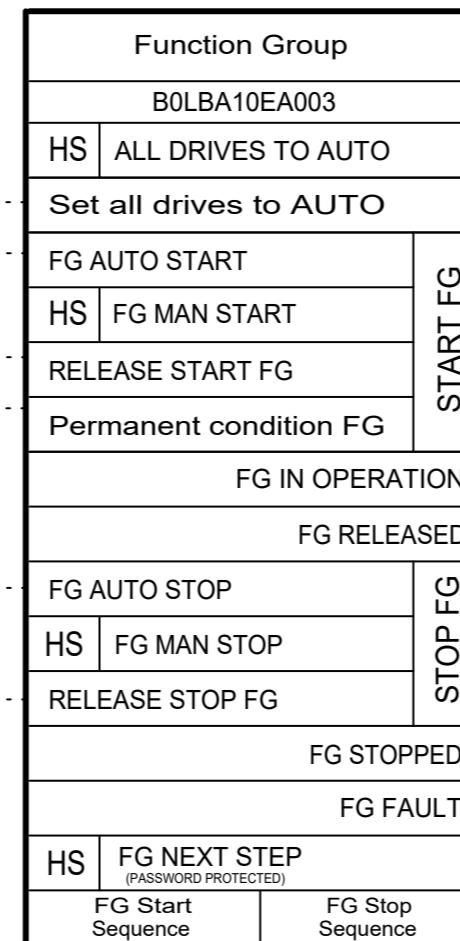
1

| FROM | DESCRIPTION                    | CODE   |
|------|--------------------------------|--|
| 1    |                                |  |
| 2    |                                |  |
| 3    |                                |  |
| 4    |                                |  |
| 5    |                                |  |
| 6    |                                |  |
| 7    |                                |  |
| 8    |                                |  |
| 9    |                                |  |
| 10   |                                |  |
| 11   |                                |  |
| 12   | Steam and Bypass FG            | All drives to Auto<br>B0LBA10EA001<br>ZB13     |
| 13   | Steam and Bypass FG            | FG in operation<br>B0LBA10EA001<br>ZB21        |
| 14   |                                |  |
| 15   | Main Steam and Extractions FSG | Release start FG<br>B0LBA10EA003<br>ZB45       |
| 16   | Main Steam and Extractions FSG | Permanent Condition FG<br>B0LBA10EA003<br>ZB50 |
| 17   |                                |  |
| 18   |                                |  |
| 19   |                                |  |
| 20   | Steam and Bypass FG            | FG Stopped<br>B0LBA10EA001<br>ZB22             |
| 21   |                                |  |
| 22   |                                |  |
| 23   |                                |  |
| 24   |                                |  |
| 25   |                                |  |
| 26   |                                |  |
| 27   |                                |  |
| 28   |                                |  |
| 29   |                                |  |
| 30   |                                |  |

2

3

4



= 1 - - -

START FG

STOP FG

| CODE         | DESCRIPTION                                     | TO         |
|--------------|---|------------|
| B0LBA10EA003 | Main Steam and Extractions FSG to Auto          | 31         |
| ZB13         |   | 32         |
| B0LBA10EA003 | Main Steam and Extractions FSG to Auto <>>      | 33         |
| ZB13         |   | 104 - 07   |
| B0LBA10EA003 | Main Steam and Extractions FSG to Auto          | 34         |
| ZB13         |   | 35         |
| B0LBA10EA003 | Main Steam and Extractions FSG to Auto <>>      | 36         |
| ZB13         |   | 108 - 07   |
| B0LBA10EA003 | Main Steam and Extractions FSG to Auto          | 37         |
| ZB13         |   | 112 - 07   |
| B0LBA10EA003 | Main Steam and Extractions FSG to Auto          | 38         |
| ZB13         |   | 39         |
| B0LBA10EA003 | FG in operation                                 | 40         |
| ZB21         |   | 41         |
| B0LBA10EA003 | Main Steam and Extractions FSG in operation     | 42         |
| ZB21         |   | 108.A - 19 |
| B0LBA10EA003 | Main Steam and Extractions FSG in operation     | 43         |
| ZB21         |   | 44         |
| B0LBA10EA003 | Main Steam and Extractions FSG in operation <>> | 45         |
| ZB21         |   | 46         |
| B0LBA10EA003 | Main Steam and Extractions FSG in operation     | 100.A - 26 |
| ZB21         |   | 47         |
| B0LBA10EA003 | FG Released                                     | <>>        |
| ZB25         |   | 10 - 02    |
| B0LBA10EA003 |   | 48         |
|              |   | 49         |
| B0LBA10EA003 |   | 50         |
|              |   | 51         |
| B0LBA10EA003 |   | 52         |
|              |   | 53         |
| B0LBA10EA003 | FG Fault  | 54         |
| XM35         |   | 55         |
|              |   | 56         |
|              |   | 57         |
|              |   | 58         |
|              |   | 59         |
|              |   | 60         |

**Notes:**

- Feedback and orders from B0LBA10 Pot Drain MOV (B0LBA10AA302) and B0LBW10 Pot Drain MOV (B0LBW10AA301), equivalent to those for B1LBA10 Pot Drain MOV (B0LBA10AA302). See sheet 900.
- Feedback and orders from B0LBD20 Pot Drain MOV (B0LBD20AA303), equivalent to those for B0LBD10 Pot Drain MOV (B0LBD10AA303). See sheet 900.
- Feedback and orders from B0LBS20 Pot Drain Valve (B0LBS20AA303), equivalent to those for B0LBS10 Pot Drain Valve (B0LBS10AA303). See sheet 900.A.

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CONTRACTOR  
**Acciona**  
EMPRESARIOS AGRUPADOS

PROJECT  
**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**Main Steam and Extractions FSG**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 100 CONT  
REV. P01

A

B

C

D

E

A

B

C

D

E

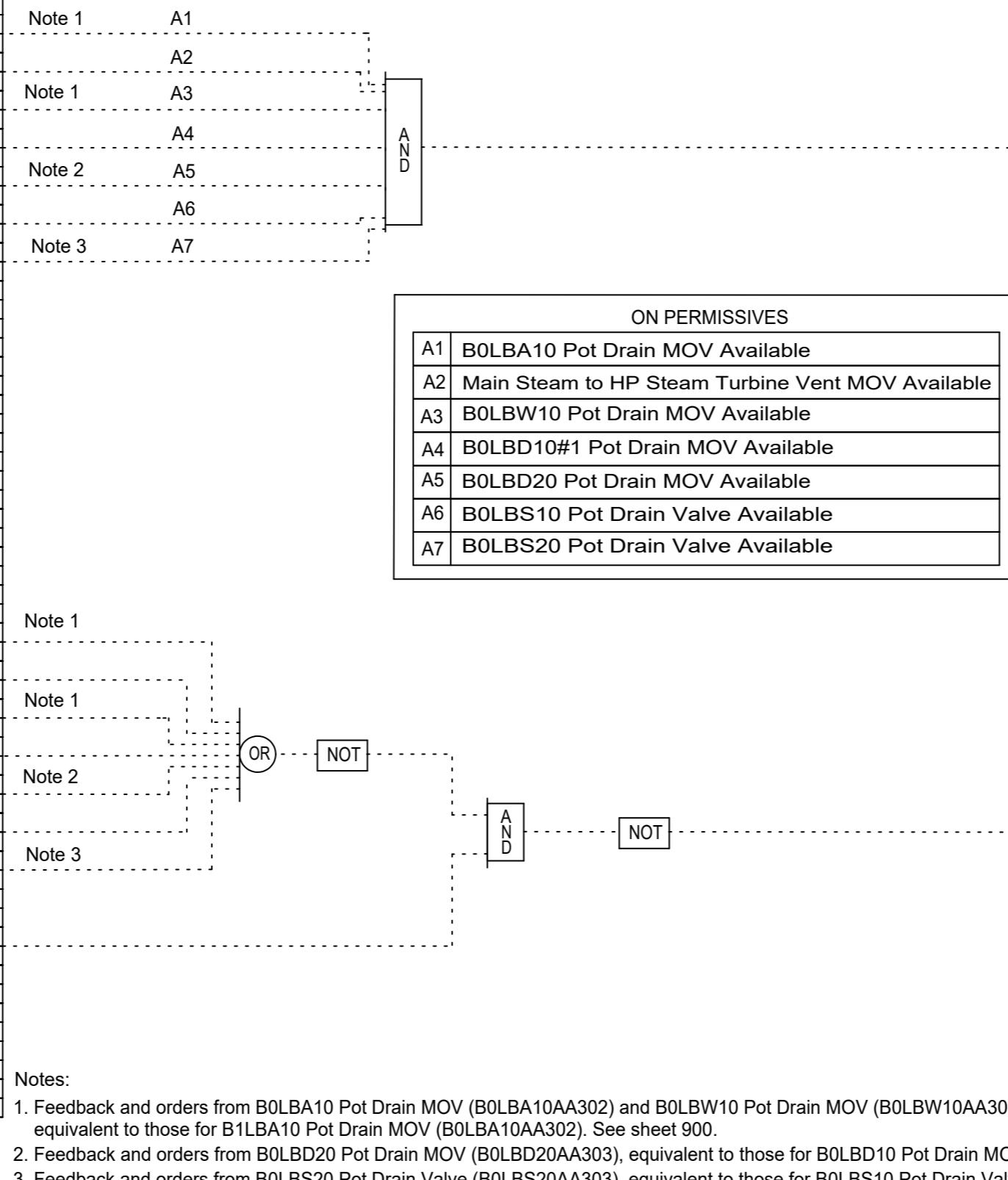
## Control Diagram

### Main Steam, Extract Aux Steam & By-Pass System Main Steam and Extractions FSG

| FROM | DESCRIPTION  | CODE         |
|------|--|--------------|
| 1    |  |              |
| 2    | MS to ST Pot B0LBA10 Drn MOV<br>Drive Ready ZB50                           | B0LBA10AA302 |
| 3    | <><br>104 - 39 MS to HP ST Vent MOV<br>Drive Ready ZB50                    | B0LBW10AA301 |
| 4    | MS to ST SI Pot B0LBW10 Drn MOV<br>Drive Ready ZB50                        | B0LBW10AA301 |
| 5    | <><br>108 - 39 MP Extn IV Pot B0LBD10#1 Drn MOV<br>Drive Ready ZB50        | B0LBD10AA303 |
| 6    | MP Extn III Pot B0LBD20 Drn MOV<br>Drive Ready ZB50                        | B0LBD20AA303 |
| 7    | <><br>112 - 39 LP Extn II Pot B0LBS10 Drn Vlv<br>Drive Ready ZB50          | B0LBS10AA303 |
| 8    | LP Extn I Pot B0LBS20 Drn Vlv<br>Drive Ready ZB50                          | B0LBS20AA303 |
| 9    |  |              |
| 10   |  |              |
| 11   |  |              |
| 12   |  |              |
| 13   |  |              |
| 14   |  |              |
| 15   |  |              |
| 16   |  |              |
| 17   |  |              |
| 18   | MS to ST Pot B0LBA10 Drn MOV<br>Drive Ready & Auto ZB51                    | B0LBA10AA302 |
| 19   | <><br>104 - 40 MS to HP ST Vent MOV<br>Drive Ready & Auto ZB51             | B0LBW10AA301 |
| 20   | MS to ST SI Pot B0LBW10 Drn MOV<br>Drive Ready & Auto ZB51                 | B0LBW10AA301 |
| 21   | <><br>108 - 40 MP Extn IV Pot B0LBD10#1 Drn MOV<br>Drive Ready & Auto ZB51 | B0LBD10AA303 |
| 22   | MP Extn III Pot B0LBD20 Drn MOV<br>Drive Ready & Auto ZB51                 | B0LBD20AA303 |
| 23   | <><br>112 - 40 LP Extn II Pot B0LBS10 Drn Vlv<br>Drive Ready & Auto ZB51   | B0LBS10AA303 |
| 24   | LP Extn I Pot B0LBS20 Drn Vlv<br>Drive Ready & Auto ZB51                   | B0LBS20AA303 |
| 25   |  |              |
| 26   | <><br>100 - 46 Main Steam and Extractions FSG<br>in operation ZB21         | B0LBA10EA003 |
| 27   |  |              |
| 28   |  |              |
| 29   |  |              |
| 30   |  |              |

LOOP: B0LBA10EA003  
LOOP SHEET:

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |



| CODE         | DESCRIPTION                    | TO                                 |
|--------------|--------------------------------|------------------------------------|
|              |                                | 31                                 |
|              |                                | 32                                 |
|              |                                | 33                                 |
|              |                                | 34                                 |
| B0LBA10EA003 | Main Steam and Extractions FSG | Release start FG <> 100 - 15       |
| ZB45         |                                | 35                                 |
|              |                                | 36                                 |
|              |                                | 37                                 |
|              |                                | 38                                 |
|              |                                | 39                                 |
|              |                                | 40                                 |
|              |                                | 41                                 |
|              |                                | 42                                 |
|              |                                | 43                                 |
|              |                                | 44                                 |
|              |                                | 45                                 |
|              |                                | 46                                 |
|              |                                | 47                                 |
|              |                                | 48                                 |
|              |                                | 49                                 |
|              |                                | 50                                 |
|              |                                | 51                                 |
|              |                                | 52                                 |
| B0LBA10EA003 | Main Steam and Extractions FSG | Permanent Condition FG <> 100 - 16 |
| ZB50         |                                | 53                                 |
|              |                                | 54                                 |
|              |                                | 55                                 |
|              |                                | 56                                 |
|              |                                | 57                                 |
|              |                                | 58                                 |
|              |                                | 59                                 |
|              |                                | 60                                 |

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CONTRACTOR  
**Acciona**

PROJECT

NORTH LONDON HEAT  
AND POWER PROJECTDRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
Main Steam and Extractions FSG**

ISSUER  
**EMPRESARIOS AGRUPADOS**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:  
SHEET 100.ACNT  
REV. P01

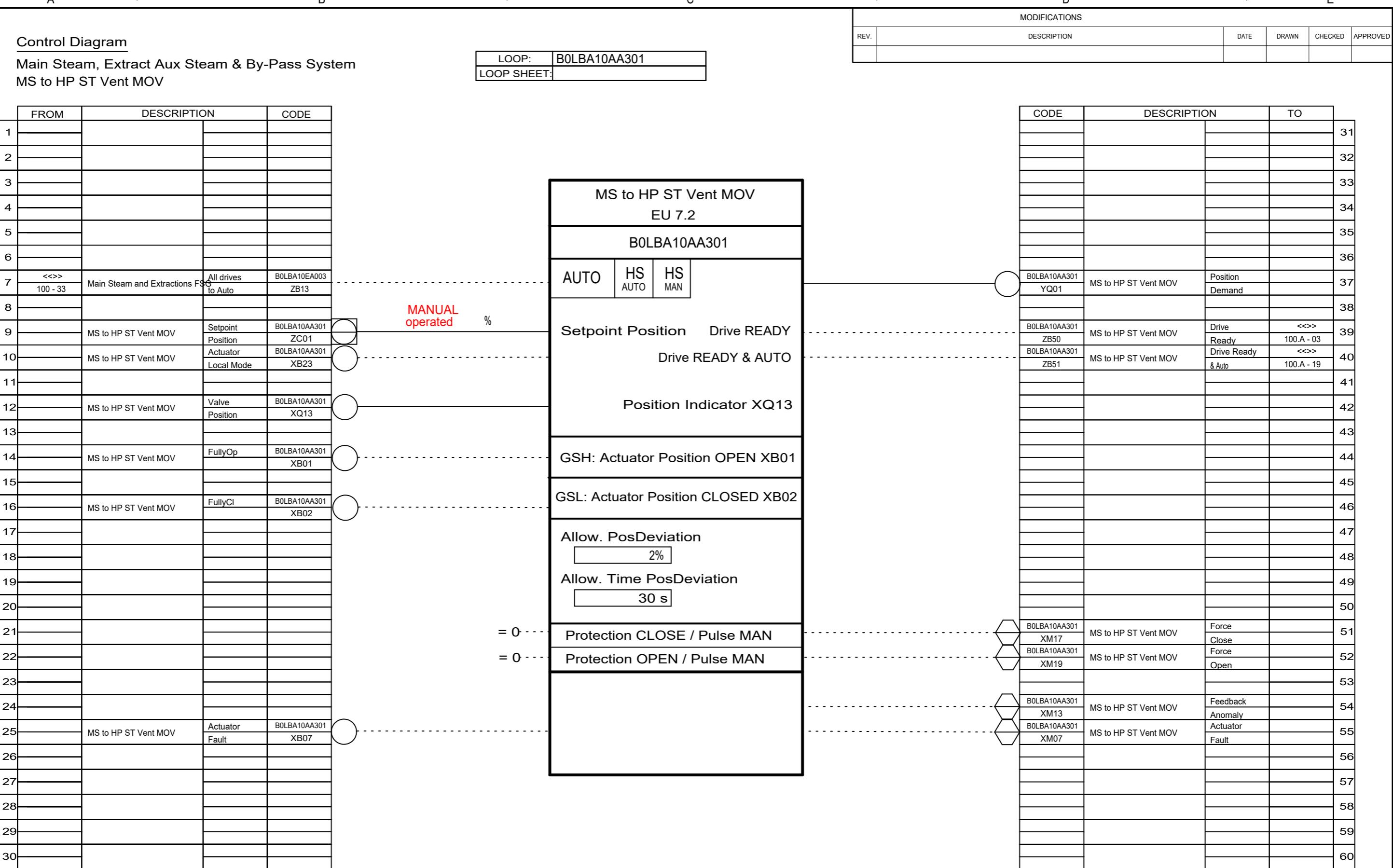
A

B

C

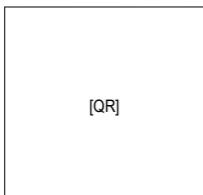
D

E



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PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
MS to HP ST Vent MOV

NLWA CODE:

CONTRACTOR CODE-NI HR 41XX IF DLEAI 7604

INTERNAL CODE

Table 1. Summary of the results

---

SHEET 104 CONT

REV B01

A

B

C

D

E

### Control Diagram

Main Steam, Extract Aux Steam & By-Pass System  
MP Extn IV Pot B0LBD10#1 Drn MOV

|             |              |
|-------------|--------------|
| LOOP:       | B0LBD10AA303 |
| LOOP SHEET: |              |

### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

|    | FROM              | DESCRIPTION  | CODE                 |
|----|-------------------|--|----------------------|
| 1  |                   |  |                      |
| 2  |                   |  |                      |
| 3  |                   |  |                      |
| 4  |                   |  |                      |
| 5  |                   |  |                      |
| 6  |                   |  |                      |
| 7  | <>><br>100 - 35   | Main Steam and Extractions FSG<br>All drives to Auto | B0LBD10EA003<br>ZB13 |
| 8  |                   |  |                      |
| 9  | <>><br>108.A - 35 | MP Extn IV Pot B0LBD10#1 Drn MOV Position            | B0LBD10AA303<br>ZC01 |
| 10 |                   | MP Extn IV Pot B0LBD10#1 Drn MOV Actuator Local Mode | B0LBD10AA303<br>XB23 |
| 11 |                   |  |                      |
| 12 |                   | MP Extn IV Pot B0LBD10#1 Drn MOV Valve Position      | B0LBD10AA303<br>XQ13 |
| 13 |                   |  |                      |
| 14 |                   | MP Extn IV Pot B0LBD10#1 Drn MOV FullyOp             | B0LBD10AA303<br>XB01 |
| 15 |                   |  |                      |
| 16 |                   | MP Extn IV Pot B0LBD10#1 Drn MOV FullyCl             | B0LBD10AA303<br>XB02 |
| 17 |                   |  |                      |
| 18 |                   |  |                      |
| 19 |                   |  |                      |
| 20 |                   |  |                      |
| 21 |                   |  |                      |
| 22 |                   |  |                      |
| 23 |                   |  |                      |
| 24 |                   |  |                      |
| 25 |                   | MP Extn IV Pot B0LBD10#1 Drn MOV Actuator Fault      | B0LBD10AA303<br>XB07 |
| 26 |                   |  |                      |
| 27 |                   |  |                      |
| 28 |                   |  |                      |
| 29 |                   |  |                      |
| 30 |                   |  |                      |

### MP Extn IV Pot B0LBD10#1 Drn MOV EU 7.2

B0LBD10AA303  
AUTO HS HS

Setpoint Position Drive READY  
Drive READY & AUTO

Position Indicator XQ13

GSH: Actuator Position OPEN XB01

GSL: Actuator Position CLOSED XB02

Allow. PosDeviation

2%

Allow. Time PosDeviation

30 s

= 0 Protection CLOSE / Pulse MAN

= 0 Protection OPEN / Pulse MAN

Notes:

- For Drain Pots controlled by temperature see sheet 900

| CODE                 | DESCRIPTION                               | TO         |
|----------------------|---|------------|
|                      |   | 31         |
|                      |   | 32         |
|                      |   | 33         |
|                      |   | 34         |
|                      |   | 35         |
|                      |   | 36         |
| B0LBD10AA303<br>YQ01 | MP Extn IV Pot B0LBD10#1 Drn MOV Demand   | 37         |
|                      |   | 38         |
| B0LBD10AA303<br>ZB50 | MP Extn IV Pot B0LBD10#1 Drn MOV Ready    | 39         |
| B0LBD10AA303<br>ZB51 | MP Extn IV Pot B0LBD10#1 Drn MOV & Auto   | 40         |
|                      |   | 41         |
|                      |   | 42         |
|                      |   | 43         |
|                      |   | 44         |
|                      |   | 45         |
| B0LBD10AA303<br>XB02 | MP Extn IV Pot B0LBD10#1 Drn MOV FullyCI  | 46         |
|                      |   | 108.A - 17 |
|                      |   | 47         |
|                      |   | 48         |
|                      |   | 49         |
|                      |   | 50         |
|                      |   | 51         |
|                      |   | 52         |
|                      |   | 53         |
| B0LBD10AA303<br>XM13 | MP Extn IV Pot B0LBD10#1 Drn MOV Anomaly  | 54         |
| B0LBD10AA303<br>XM07 | MP Extn IV Pot B0LBD10#1 Drn MOV Fault    | 55         |
|                      |   | 56         |
|                      |   | 57         |
|                      |   | 58         |
| B0LBD10AA303<br>XQ13 | MP Extn IV Pot B0LBD10#1 Drn MOV Position | 59         |
|                      |   | 108.A - 23 |
|                      |   | 60         |

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



**EMPRESARIOS AGRUPADOS**

FORMAT  
A3



SCALE

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
MP Extn IV Pot B0LBD10#1 Drn MOV**

NLWA CODE:

CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 108 CONT

REV. P01

A

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### Control Diagram

Main Steam, Extract Aux Steam & By-Pass System  
MP Extn IV Pot B0LBD10#1 Drn MOV

LOOP: B0LBD10AA303  
LOOP SHEET:

### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM            | DESCRIPTION                                   | CODE                                |
|----|-----------------|---|-------------------------------------|
| 1  |                 |   |                                     |
| 2  |                 |   |                                     |
| 3  |                 |   |                                     |
| 4  | <>><br>120 - 32 | MP Extn IV Pot B0LBD10#1 Temp                 | H B0LBD10CT002<br>ZB01              |
| 5  |                 |   |                                     |
| 6  | <>><br>124 - 54 | MP Extn IV Press                              | L B0LBD10CP001<br>ZB52              |
| 7  |                 |   |                                     |
| 8  |                 |   |                                     |
| 9  |                 |   |                                     |
| 10 |                 |   |                                     |
| 11 | <>><br>120 - 35 | MP Extn IV Pot B0LBD10#1 Temp                 | L B0LBD10CT002<br>ZB52              |
| 12 |                 |   |                                     |
| 13 |                 |   |                                     |
| 14 |                 |   |                                     |
| 15 | <>><br>124 - 44 | MP Extn IV Press                              | H B0LBD10CP001<br>ZB01              |
| 16 |                 |   |                                     |
| 17 | <>><br>108 - 46 | MP Extn IV Pot B0LBD10#1 Drn MOV              | FullyCI B0LBD10AA303<br>XB02        |
| 18 |                 |   |                                     |
| 19 | <>><br>100 - 42 | Main Steam and Extractions FG<br>in operation | FG B0LBA10EA003<br>ZB21             |
| 20 |                 |   |                                     |
| 21 |                 |   |                                     |
| 22 |                 |   |                                     |
| 23 | <>><br>108 - 59 | MP Extn IV Pot B0LBD10#1 Drn MOV              | Valve Position B0LBD10AA303<br>XQ13 |
| 24 |                 |   |                                     |
| 25 |                 |   |                                     |
| 26 |                 |   |                                     |
| 27 |                 |   |                                     |
| 28 |                 |   |                                     |
| 29 |                 |   |                                     |
| 30 |                 |   |                                     |

ST In service

Note: This part of the logic is used until the pressure required is achieved.  
Once the pressure is achieved it will be working controlled by the temperature transmitter

Notes:

- For Drain Pots controlled by temperature see sheet 900



PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

ISSUER  
**EMPRESARIOS AGRUPADOS**

| CODE                 | DESCRIPTION   | TO              |
|----------------------|---|-----------------|
|                      |   | 31              |
|                      |   | 32              |
|                      |   | 33              |
|                      |   | 34              |
| B0LBD10AA303<br>ZC01 | MP Extn IV Pot B0LBD10#1 Drn MOV<br>Setpoint Position | <>><br>108 - 09 |
|                      |   | 35              |
|                      |   | 36              |
|                      |   | 37              |
|                      |   | 38              |
|                      |   | 39              |
|                      |   | 40              |
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|                      |   | 59              |
|                      |   | 60              |

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| DRAWING TITLE  |                |          |
|--|----------------|----------|
| Main Steam, Extract Aux Steam & By-Pass System<br>MP Extn IV Pot B0LBD10#1 Drn MOV |                |          |
| NLWA CODE:   | SHEET 108.ACNT |          |
| CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604   |                |          |
| INTERNAL CODE:   |                | REV. P01 |

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**Control Diagram**

Main Steam, Extract Aux Steam & By-Pass System  
LP Extn II Pot B0LBS10 Drn Vlv

|             |              |
|-------------|--------------|
| LOOP:       | B0LBS10AA303 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                           | DESCRIPTION  | CODE                 |
|----|--------------------------------|--|----------------------|
| 1  |                                |  |                      |
| 2  |                                |  |                      |
| 3  |                                |  |                      |
| 4  |                                |  |                      |
| 5  |                                |  |                      |
| 6  |                                |  |                      |
| 7  | <><br>100 - 37                 | Main Steam and Extractions FSG<br>All drives to Auto | B0LBA10EA003<br>ZB13 |
| 8  |                                |  |                      |
| 9  |                                |  |                      |
| 10 |                                |  |                      |
| 11 |                                |  |                      |
| 12 | <><br>112.A - 49               | LP Extn II Pot B0LBS10 Drn Vlv<br>Auto Open          | B0LBS10AA303<br>ZB01 |
| 13 |                                |  |                      |
| 14 |                                |  |                      |
| 15 |                                |  |                      |
| 16 | LP Extn II Pot B0LBS10 Drn Vlv | Actuator Pos Open                                    | B0LBS10AA303<br>XB01 |
| 17 | <><br>112.A - 38               | LP Extn II Pot B0LBS10 Drn Vlv<br>Auto Close         | B0LBS10AA303<br>ZB02 |
| 18 |                                |  |                      |
| 19 |                                |  |                      |
| 20 |                                |  |                      |
| 21 | LP Extn II Pot B0LBS10 Drn Vlv | Actuator Pos Close                                   | B0LBS10AA303<br>XB02 |
| 22 |                                |  |                      |
| 23 |                                |  |                      |
| 24 |                                |  |                      |
| 25 |                                |  |                      |
| 26 |                                |  |                      |
| 27 |                                |  |                      |
| 28 |                                |  |                      |
| 29 |                                |  |                      |
| 30 |                                |  |                      |

Notes:

1. For Drain Pots controlled by level see sheet 900.A

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[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**LP Extn II Pot B0LBS10 Drn Vlv**

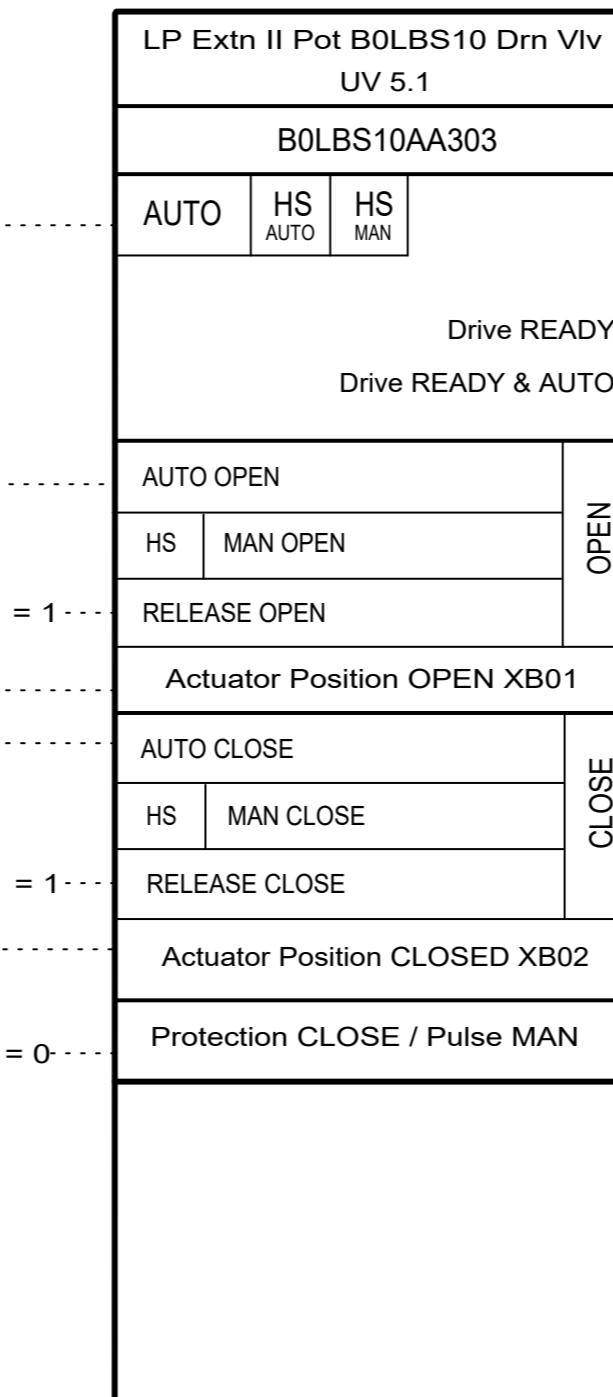
NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 112 CONT

REV. P01



| CODE         | DESCRIPTION                    | TO             |
|--------------|--------------------------------|----------------|
|              |                                | 31             |
|              |                                | 32             |
|              |                                | 33             |
|              |                                | 34             |
|              |                                | 35             |
|              |                                | 36             |
|              |                                | 37             |
|              |                                | 38             |
| B0LBS10AA303 | LP Extn II Pot B0LBS10 Drn Vlv | Drive <>       |
| ZB50         | Ready                          | 100.A - 07     |
| B0LBS10AA303 | LP Extn II Pot B0LBS10 Drn Vlv | Drive Ready <> |
| ZB51         | & Auto                         | 100.A - 23     |
|              |                                | 41             |
| B0LBS10AA303 | LP Extn II Pot B0LBS10 Drn Vlv | Op Cmd         |
| YB01         |                                | 43             |
|              |                                | 44             |
|              |                                | 45             |
| B0LBS10AA303 | LP Extn II Pot B0LBS10 Drn Vlv | Actuator <>    |
| XB01         | Pos Open                       | 112.A - 22     |
|              |                                | 47             |
|              |                                | 48             |
|              |                                | 49             |
|              |                                | 50             |
|              |                                | 51             |
|              |                                | 52             |
| B0LBS10AA303 | LP Extn II Pot B0LBS10 Drn Vlv | Prot Close     |
| XM17         | Pulse Man                      | 53             |
|              |                                | 54             |
| B0LBS10AA303 | LP Extn II Pot B0LBS10 Drn Vlv | Cmd Op         |
| XM15         | Failure                        | 55             |
| B0LBS10AA303 | LP Extn II Pot B0LBS10 Drn Vlv | Cmd Cl         |
| XM16         | Failure                        | 56             |
| B0LBS10AA303 | LP Extn II Pot B0LBS10 Drn Vlv | Air Loss       |
| XM69         | Acted                          | 57             |
| B0LBS10AA303 | LP Extn II Pot B0LBS10 Drn Vlv | Feedback       |
| XM33         | Anomaly                        | 58             |
|              |                                | 59             |
|              |                                | 60             |

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### Control Diagram

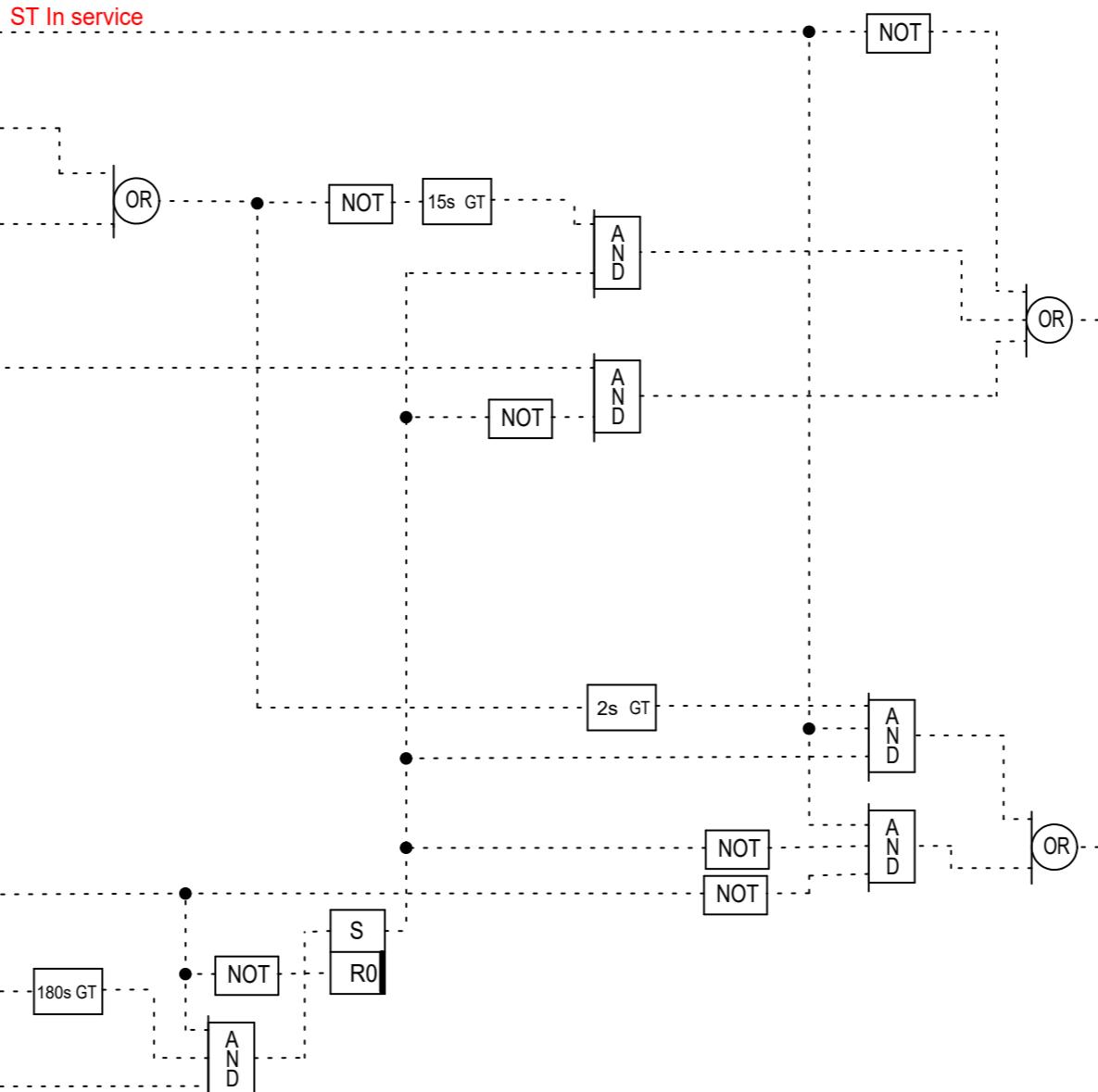
Main Steam, Extract Aux Steam & By-Pass System  
LP Extn II Pot B0LBS10 Drn Vlv

|    | FROM            | DESCRIPTION   | CODE                    |
|----|-----------------|---|-------------------------|
| 1  |                 |   |                         |
| 2  |                 |   |                         |
| 3  |                 |   |                         |
| 4  | <>><br>138 - 36 | LP Extn II Pot B0LBS10 Lvl Sw                       | B0LBS10CL301<br>HH ZG03 |
| 5  |                 |   |                         |
| 6  | <>><br>140 - 36 | LP Extn II Pot B0LBS10 Lvl Sw                       | B0LBS10CL302<br>H ZG01  |
| 7  |                 |   |                         |
| 8  |                 |   |                         |
| 9  | <>><br>132 - 52 | LP Extn II Press                                    | L B0LBS10CP001<br>ZB52  |
| 10 |                 |   |                         |
| 11 |                 |   |                         |
| 12 |                 |   |                         |
| 13 |                 |   |                         |
| 14 |                 |   |                         |
| 15 |                 |   |                         |
| 16 |                 |   |                         |
| 17 |                 |   |                         |
| 18 |                 |   |                         |
| 19 |                 |   |                         |
| 20 | <>><br>132 - 44 | LP Extn II Press                                    | H B0LBS10CP001<br>ZB01  |
| 21 |                 |   |                         |
| 22 | <>><br>112 - 46 | LP Extn II Pot B0LBS10 Drn Vlv<br>Actuator Pos Open | B0LBS10AA303<br>XB01    |
| 23 |                 |   |                         |
| 24 | <>><br>100 - 44 | Main Steam and Extractions FG<br>in operation       | B0LBA10EA003<br>ZB21    |
| 25 |                 |   |                         |
| 26 |                 |   |                         |
| 27 |                 |   |                         |
| 28 |                 |   |                         |
| 29 |                 |   |                         |
| 30 |                 |   |                         |

|             |              |
|-------------|--------------|
| LOOP:       | B0LBS10AA303 |
| LOOP SHEET: |              |

| MODIFICATIONS |             |      |       |
|---------------|-------------|------|-------|
| REV.          | DESCRIPTION | DATE | DRAWN |
|               |             |      |       |

ST In service



Note: This part of the logic is used until the pressure required is achieved.  
Once the pressure is achieved it will be working controlled by the level switches

Notes:

- For Drain Pots controlled by level see sheet 900.A

| CODE                 | DESCRIPTION                                  | TO              |
|----------------------|--|-----------------|
|                      |  | 31              |
|                      |  | 32              |
|                      |  | 33              |
|                      |  | 34              |
|                      |  | 35              |
|                      |  | 36              |
|                      |  | 37              |
| B0LBS10AA303<br>ZB02 | LP Extn II Pot B0LBS10 Drn Vlv<br>Auto Close | <>><br>112 - 17 |
|                      |  | 38              |
|                      |  | 39              |
|                      |  | 40              |
|                      |  | 41              |
|                      |  | 42              |
|                      |  | 43              |
|                      |  | 44              |
|                      |  | 45              |
|                      |  | 46              |
|                      |  | 47              |
| B0LBS10AA303<br>ZB01 | LP Extn II Pot B0LBS10 Drn Vlv<br>Auto Open  | <>><br>112 - 12 |
|                      |  | 49              |
|                      |  | 50              |
|                      |  | 51              |
|                      |  | 52              |
|                      |  | 53              |
|                      |  | 54              |
|                      |  | 55              |
|                      |  | 56              |
|                      |  | 57              |
|                      |  | 58              |
|                      |  | 59              |
|                      |  | 60              |

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PROJECT

**NORTH LONDON HEAT  
AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
LP Extn II Pot B0LBS10 Drn Vlv**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 112.ACNT

INTERNAL CODE:

REV. P01

A

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C

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D

E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

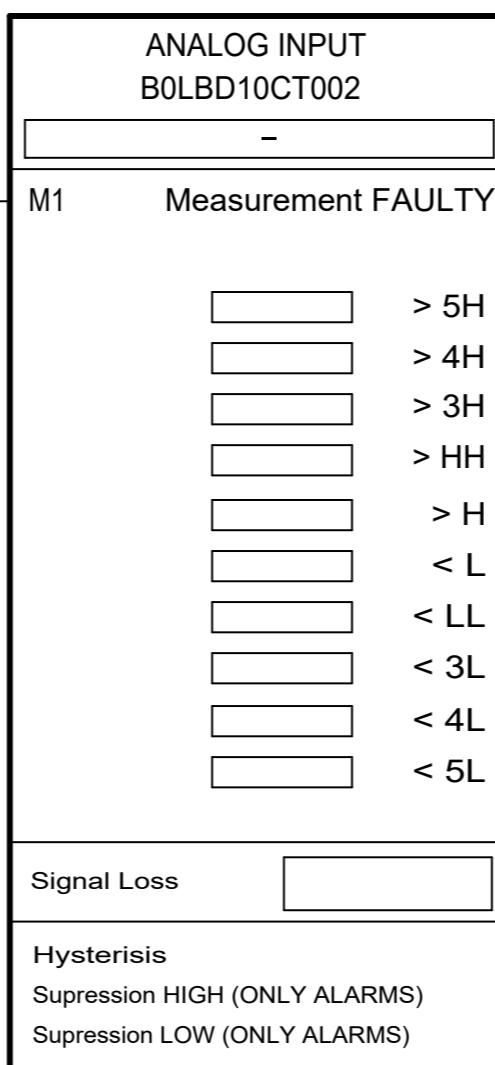
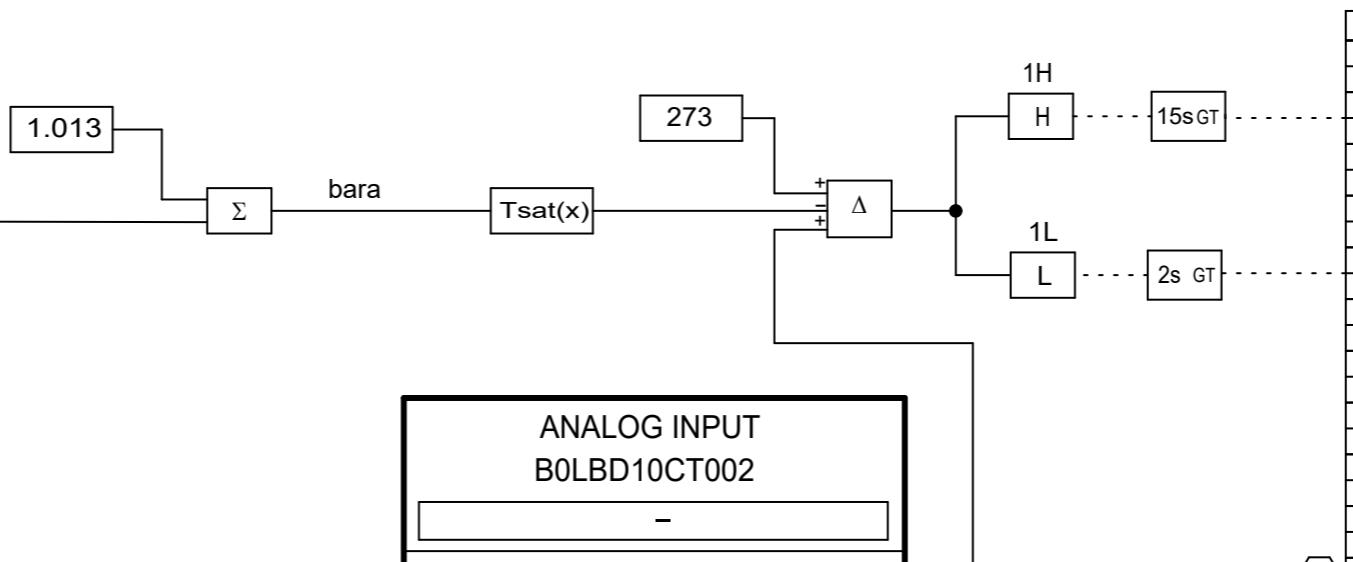
MP Extn IV Pot B0LBD10#1 Temp

|             |              |
|-------------|--------------|
| LOOP:       | B0LBD10CT002 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                          | DESCRIPTION                              | CODE |
|----|-------------------------------|--|------|
| 1  |                               |  |      |
| 2  |                               |  |      |
| 3  |                               |  |      |
| 4  | <>><br>124 - 35               | MP Extn IV Press<br>xtmr<br>B0LBD10CP001 | XQ01 |
| 5  |                               |  |      |
| 6  |                               |  |      |
| 7  |                               |  |      |
| 8  |                               |  |      |
| 9  |                               |  |      |
| 10 |                               |  |      |
| 11 | MP Extn IV Pot B0LBD10#1 Temp | xtmr<br>B0LBD10CT002                     | XQ01 |
| 12 |                               |  |      |
| 13 |                               |  |      |
| 14 |                               |  |      |
| 15 |                               |  |      |
| 16 |                               |  |      |
| 17 |                               |  |      |
| 18 |                               |  |      |
| 19 |                               |  |      |
| 20 |                               |  |      |
| 21 |                               |  |      |
| 22 |                               |  |      |
| 23 |                               |  |      |
| 24 |                               |  |      |
| 25 |                               |  |      |
| 26 |                               |  |      |
| 27 |                               |  |      |
| 28 |                               |  |      |
| 29 |                               |  |      |
| 30 |                               |  |      |



| CODE         | DESCRIPTION                   | TO                    |
|--------------|-------------------------------|-----------------------|
| B0LBD10CT002 | MP Extn IV Pot B0LBD10#1 Temp | H <>><br>108.A - 04   |
| ZB01         |                               | 32                    |
|              |                               | 33                    |
| B0LBD10CT002 | MP Extn IV Pot B0LBD10#1 Temp | L <>><br>108.A - 11   |
| ZB52         |                               | 35                    |
|              |                               | 36                    |
|              |                               | 37                    |
|              |                               | 38                    |
|              |                               | 39                    |
|              |                               | 40                    |
| B0LBD10CT002 | MP Extn IV Pot B0LBD10#1 Temp | Measurement<br>FAULTY |
| XM35         | xtmr                          | 41                    |
| B0LBD10CT002 | MP Extn IV Pot B0LBD10#1 Temp | xtrmr                 |
| XQ01         |                               | 42                    |
|              |                               | 43                    |
|              |                               | 44                    |
|              |                               | 45                    |
|              |                               | 46                    |
|              |                               | 47                    |
|              |                               | 48                    |
|              |                               | 49                    |
|              |                               | 50                    |
|              |                               | 51                    |
|              |                               | 52                    |
|              |                               | 53                    |
|              |                               | 54                    |
|              |                               | 55                    |
|              |                               | 56                    |
|              |                               | 57                    |
|              |                               | 58                    |
|              |                               | 59                    |
|              |                               | 60                    |

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
MP Extn IV Pot B0LBD10#1 Temp**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 120 CONT

INTERNAL CODE:

REV. P01

A

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A

B

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D

E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

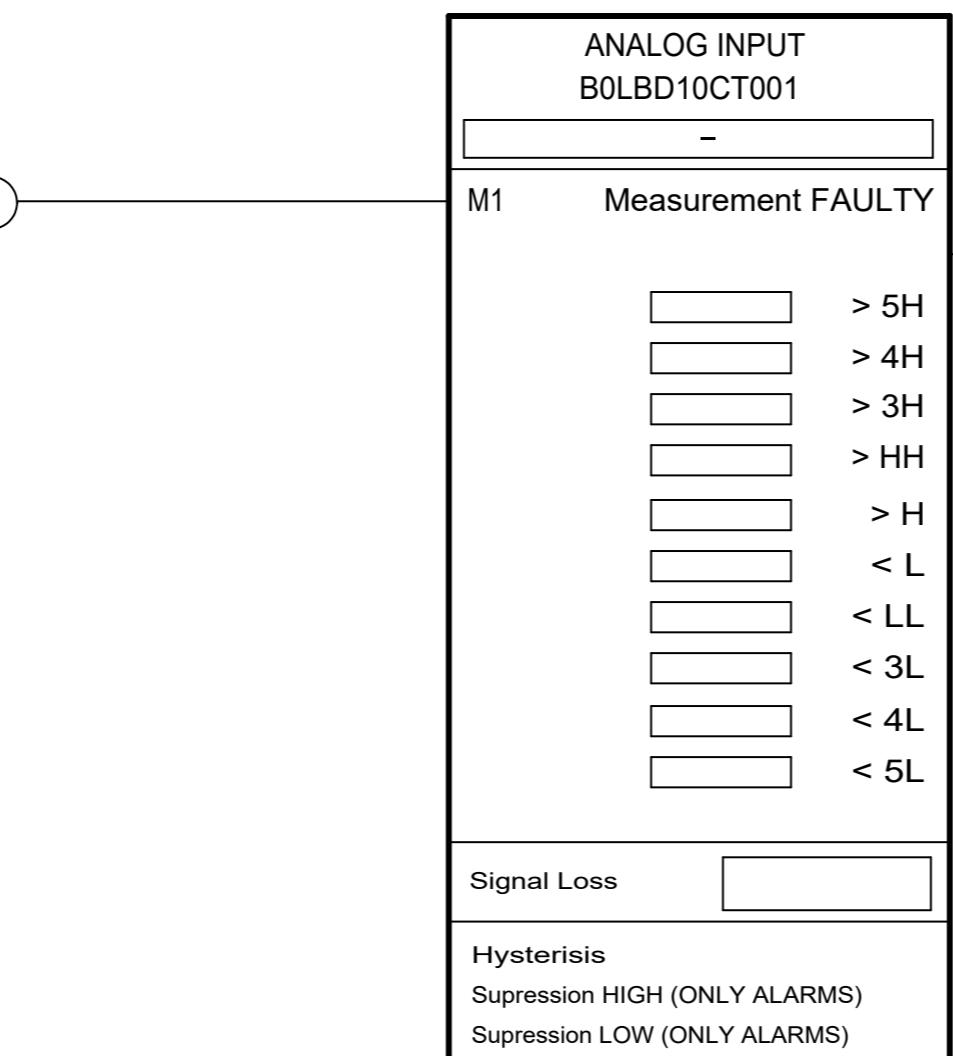
MP Extn IV Temp

|             |              |
|-------------|--------------|
| LOOP:       | B0LBD10CT001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM            | DESCRIPTION | CODE         |
|----|-----------------|-------------|--------------|
| 1  |                 |             |              |
| 2  |                 |             |              |
| 3  |                 |             |              |
| 4  |                 |             |              |
| 5  |                 |             |              |
| 6  |                 |             |              |
| 7  |                 |             |              |
| 8  |                 |             |              |
| 9  |                 |             |              |
| 10 |                 |             |              |
| 11 | MP Extn IV Temp | xtrmr       | B0LBD10CT001 |
|    |                 |             | XQ01         |
| 12 |                 |             |              |
| 13 |                 |             |              |
| 14 |                 |             |              |
| 15 |                 |             |              |
| 16 |                 |             |              |
| 17 |                 |             |              |
| 18 |                 |             |              |
| 19 |                 |             |              |
| 20 |                 |             |              |
| 21 |                 |             |              |
| 22 |                 |             |              |
| 23 |                 |             |              |
| 24 |                 |             |              |
| 25 |                 |             |              |
| 26 |                 |             |              |
| 27 |                 |             |              |
| 28 |                 |             |              |
| 29 |                 |             |              |
| 30 |                 |             |              |



| CODE         | DESCRIPTION     | TO          |
|--------------|-----------------|-------------|
|              |                 | 31          |
|              |                 | 32          |
|              |                 | 33          |
|              |                 | 34          |
|              |                 | 35          |
|              |                 | 36          |
|              |                 | 37          |
|              |                 | 38          |
|              |                 | 39          |
|              |                 | 40          |
| B0LBD10CT001 | MP Extn IV Temp | Measurement |
| XM35         |                 | FAULTY      |
| B0LBD10CT001 | MP Extn IV Temp | xtrmr       |
| XQ01         |                 |             |
|              |                 | 41          |
|              |                 | 42          |
|              |                 | 43          |
|              |                 | 44          |
|              |                 | 45          |
|              |                 | 46          |
|              |                 | 47          |
|              |                 | 48          |
|              |                 | 49          |
|              |                 | 50          |
|              |                 | 51          |
|              |                 | 52          |
|              |                 | 53          |
|              |                 | 54          |
|              |                 | 55          |
|              |                 | 56          |
|              |                 | 57          |
|              |                 | 58          |
|              |                 | 59          |
|              |                 | 60          |

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PROJECT

NORTH LONDON HEAT AND POWER PROJECT

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**MP Extn IV Temp**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 122 CONT

INTERNAL CODE:

REV. P01

A

B

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E

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**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

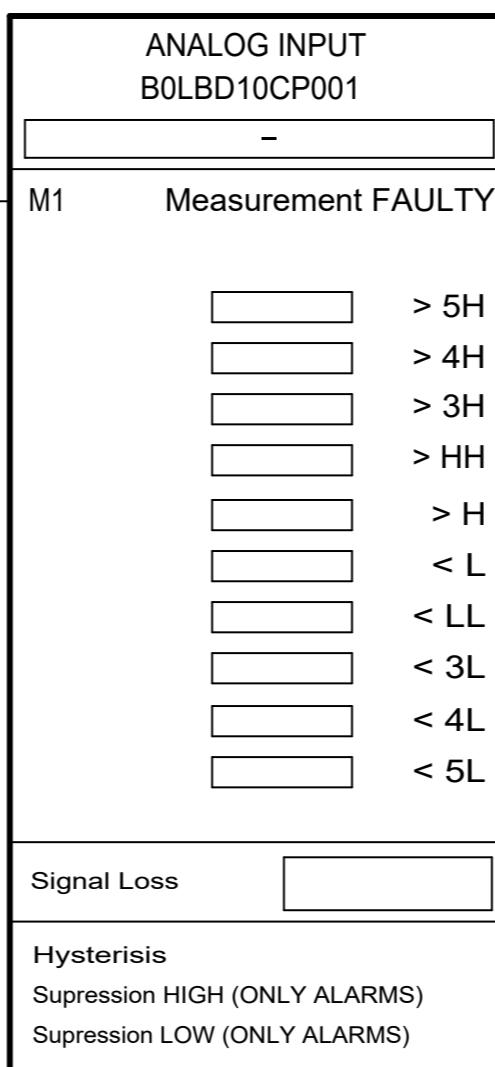
MP Extn IV Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LBD10CP001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| FROM | DESCRIPTION      | CODE                          |
|------|------------------|-------------------------------|
| 1    |                  |                               |
| 2    |                  |                               |
| 3    |                  |                               |
| 4    |                  |                               |
| 5    |                  |                               |
| 6    |                  |                               |
| 7    |                  |                               |
| 8    |                  |                               |
| 9    |                  |                               |
| 10   |                  |                               |
| 11   | MP Extn IV Press | xtrmr<br>B0LBD10CP001<br>XQ01 |
| 12   |                  |                               |
| 13   |                  |                               |
| 14   |                  |                               |
| 15   |                  |                               |
| 16   |                  |                               |
| 17   |                  |                               |
| 18   |                  |                               |
| 19   |                  |                               |
| 20   |                  |                               |
| 21   |                  |                               |
| 22   |                  |                               |
| 23   |                  |                               |
| 24   |                  |                               |
| 25   |                  |                               |
| 26   |                  |                               |
| 27   |                  |                               |
| 28   |                  |                               |
| 29   |                  |                               |
| 30   |                  |                               |



| CODE         | DESCRIPTION      | TO                    |
|--------------|------------------|-----------------------|
|              |                  | 31                    |
|              |                  | 32                    |
|              |                  | 33                    |
|              |                  | 34                    |
| B0LBD10CP001 | MP Extn IV Press | xtrmr <>><br>120 - 04 |
| XQ01         |                  | 35                    |
|              |                  | 36                    |
|              |                  | 37                    |
|              |                  | 38                    |
|              |                  | 39                    |
|              |                  | 40                    |
| B0LBD10CP001 | MP Extn IV Press | Measurement<br>FAULTY |
| XM35         |                  | 41                    |
| B0LBD10CP001 | MP Extn IV Press | xtrmr                 |
| XQ01         |                  | 42                    |
|              |                  | 43                    |
| B0LBD10CP001 | MP Extn IV Press | H <>><br>108.A - 15   |
| ZB01         |                  | 44                    |
|              |                  | 45                    |
| B0LBD10CP001 | MP Extn IV Press | H                     |
| XM01         |                  | 47                    |
| B0LBD10CP001 | MP Extn IV Press | L                     |
| XM52         |                  | 48                    |
|              |                  | 49                    |
| B0LBD10CP001 | MP Extn IV Press | L <>><br>108.A - 06   |
| ZB52         |                  | 54                    |
|              |                  | 55                    |
|              |                  | 56                    |
|              |                  | 57                    |
|              |                  | 58                    |
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|              |                  | 60                    |

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[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
MP Extn IV Press**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 124 CONT

INTERNAL CODE:

REV. P01

A

B

C

D

E

A

B

C

D

E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

MP Extn III Temp

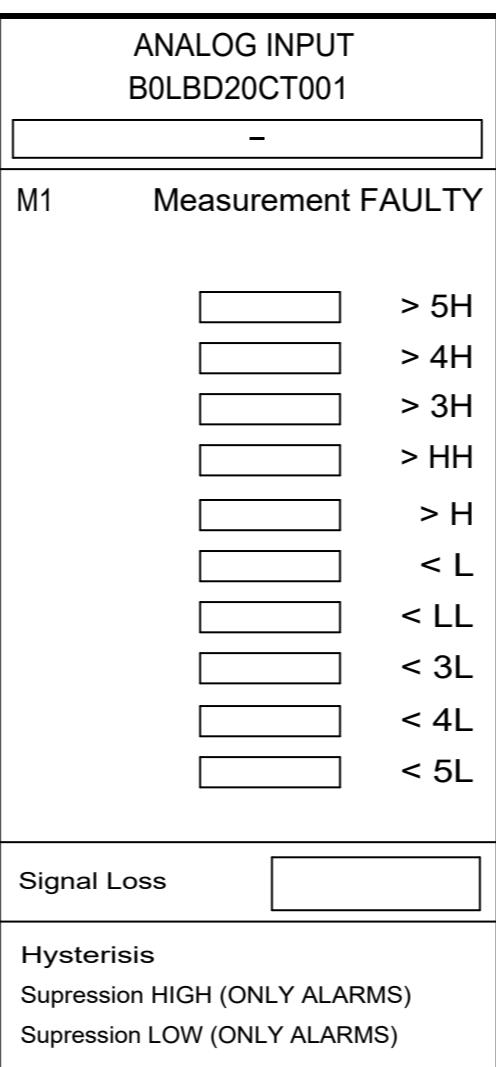
| FROM | DESCRIPTION      | CODE                          |
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| 10   |                  |                               |
| 11   | MP Extn III Temp | xtrmr<br>B0LBD20CT001<br>XQ01 |
| 12   |                  |                               |
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| LOOP:       | B0LBD20CT001 |
| LOOP SHEET: |              |

## MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| CODE         | DESCRIPTION      | TO          |
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|              |                  | 38          |
|              |                  | 39          |
|              |                  | 40          |
| B0LBD20CT001 | MP Extn III Temp | Measurement |
| XM35         |                  | FAULTY      |
| B0LBD20CT001 | MP Extn III Temp | xtrmr       |
| XQ01         |                  |             |
|              |                  | 41          |
|              |                  | 42          |
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PROJECT

NORTH LONDON HEAT AND POWER PROJECT

ISSUER



FORMAT

A3

SCALE

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
MP Extn III Temp

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 126 CONT

REV. P01

A

B

C

D

E

A

B

C

D

E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

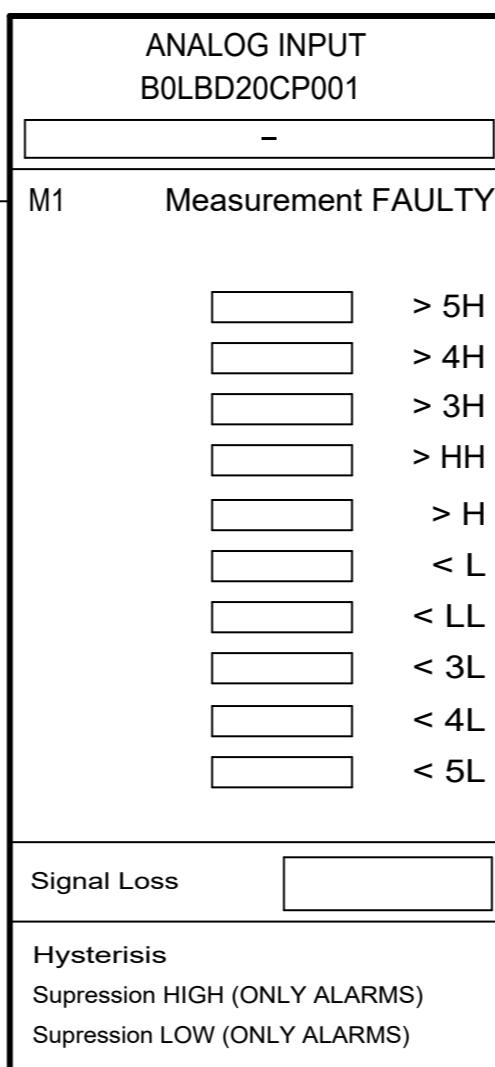
MP Extn III Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LBD20CP001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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| 10 |                   |             |              |
| 11 | MP Extn III Press | xtrmr       | B0LBD20CP001 |
|    |                   |             | XQ01         |
| 12 |                   |             |              |
| 13 |                   |             |              |
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| CODE         | DESCRIPTION       | TO          |
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|              |                   | 31          |
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|              |                   | 33          |
|              |                   | 34          |
| B0LBD20CP001 | MP Extn III Press | xtrmr       |
| XQ01         |                   |             |
|              |                   | 35          |
|              |                   | 36          |
|              |                   | 37          |
|              |                   | 38          |
|              |                   | 39          |
|              |                   | 40          |
| B0LBD20CP001 | MP Extn III Press | Measurement |
| XM35         |                   | FAULTY      |
| B0LBD20CP001 | MP Extn III Press | xtrmr       |
| XQ01         |                   |             |
|              |                   | 41          |
|              |                   | 42          |
|              |                   | 43          |
| B0LBD20CP001 | MP Extn III Press | H           |
| ZB01         |                   |             |
|              |                   | 44          |
|              |                   | 45          |
| B0LBD20CP001 | MP Extn III Press | H           |
| XM01         |                   |             |
| B0LBD20CP001 | MP Extn III Press | L           |
| XM52         |                   |             |
|              |                   | 47          |
|              |                   | 48          |
| B0LBD20CP001 | MP Extn III Press | L           |
| ZB52         |                   |             |
|              |                   | 54          |
|              |                   | 55          |
|              |                   | 56          |
|              |                   | 57          |
|              |                   | 58          |
|              |                   | 59          |
|              |                   | 60          |

**Notes:**

1. Feedback and orders from B0LBD20 Pot Drain MOV (B0LBD20AA303), equivalent to those for B0LBD10 #1 Drain MOV (B0LBD10AA303). See sheet 900

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CONTRACTOR



PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

DRAWING TITLE

Main Steam, Extract Aux Steam & By-Pass System  
MP Extn III Press

ISSUER  
  
EMPRESARIOS AGRUPADOS

FORMAT

A3

SCALE



NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 128 CONT

REV. P01

A

B

C

D

E

A

B

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D

E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

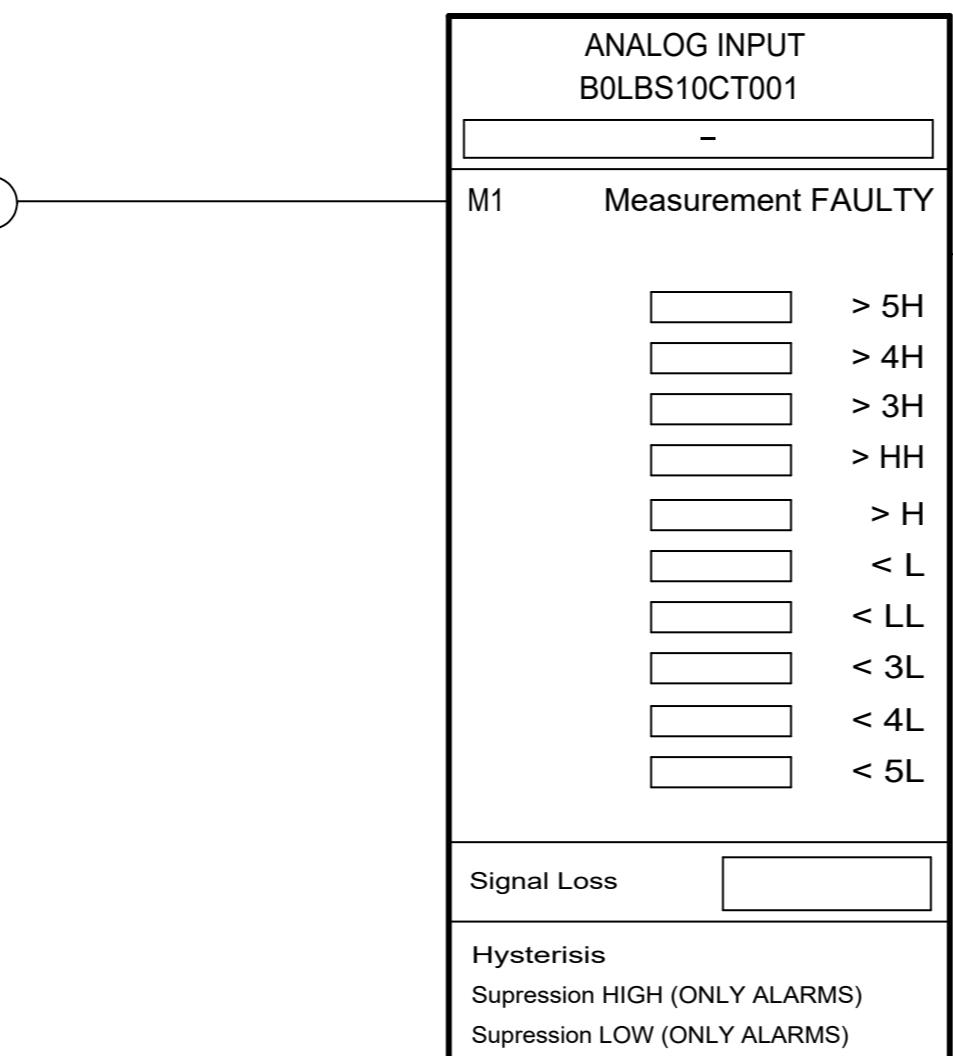
LP Extn II Temp

|             |              |
|-------------|--------------|
| LOOP:       | B0LBS10CT001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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| 10   |                 |                               |
| 11   | LP Extn II Temp | xtrmr<br>B0LBS10CT001<br>XQ01 |
| 12   |                 |                               |
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| CODE         | DESCRIPTION     | TO          |
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|              |                 | 39          |
|              |                 | 40          |
| B0LBS10CT001 | LP Extn II Temp | Measurement |
| XM35         |                 | FAULTY      |
| B0LBS10CT001 | LP Extn II Temp | xtrmr       |
| XQ01         |                 |             |
|              |                 | 41          |
|              |                 | 42          |
|              |                 | 43          |
|              |                 | 44          |
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PROJECT

NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
LP Extn II Temp

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 130 CONT  
REV. P01

ISSUER  
**EMPRESARIOS AGRUPADOS**

FORMAT  
A3SCALE  

INTERNAL CODE:

A

B

C

D

E

A

B

C

D

E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

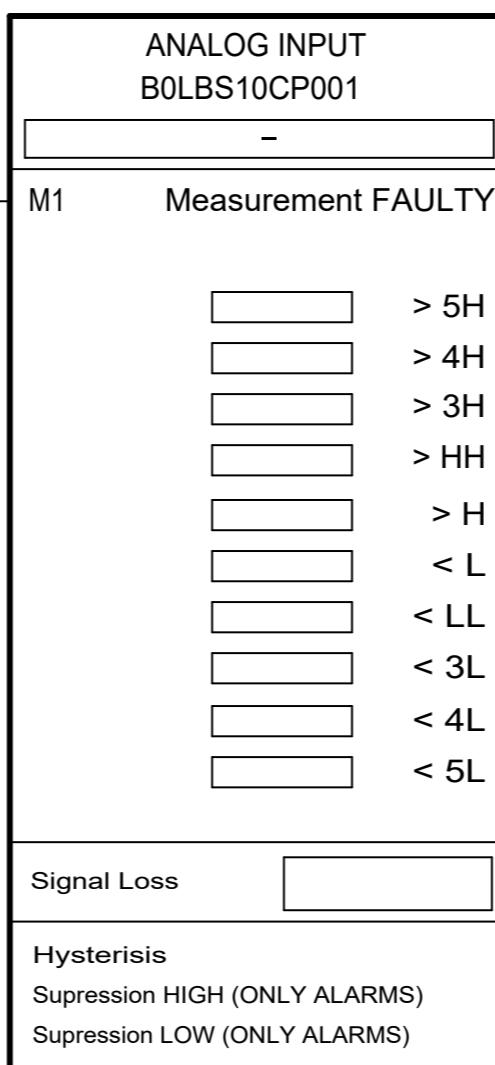
LP Extn II Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LBS10CP001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
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| 1  | FROM             | DESCRIPTION | CODE         |
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| 9  |                  |             |              |
| 10 |                  |             |              |
| 11 | LP Extn II Press | xtrmr       | B0LBS10CP001 |
|    |                  |             | XQ01         |
| 12 |                  |             |              |
| 13 |                  |             |              |
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| CODE         | DESCRIPTION      | TO          |
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|              |                  | 37          |
|              |                  | 38          |
|              |                  | 39          |
|              |                  | 40          |
| B0LBS10CP001 | LP Extn II Press | Measurement |
| XM35         |                  | FAULTY      |
| B0LBS10CP001 | LP Extn II Press | xtrmr       |
| XQ01         |                  |             |
|              |                  | 41          |
|              |                  | 42          |
|              |                  | 43          |
| B0LBS10CP001 | LP Extn II Press | H           |
| ZB01         |                  | <>>         |
|              |                  | 112.A - 20  |
|              |                  | 44          |
|              |                  | 45          |
|              |                  | 46          |
| B0LBS10CP001 | LP Extn II Press | H           |
| XM01         |                  |             |
| B0LBS10CP001 | LP Extn II Press | L           |
| XM52         |                  |             |
|              |                  | 47          |
|              |                  | 48          |
|              |                  | 49          |
| B0LBS10CP001 | LP Extn II Press | L           |
| ZB52         |                  | <>>         |
|              |                  | 112.A - 09  |
|              |                  | 52          |
|              |                  | 53          |
|              |                  | 54          |
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CONTRACTOR  
  
**Acciona**

PROJECT

NORTH LONDON HEAT AND POWER PROJECT

ISSUER  
  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**LP Extn II Press**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 132 CONT  
REV. P01

INTERNAL CODE:

A

B

C

D

E

A

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D

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**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

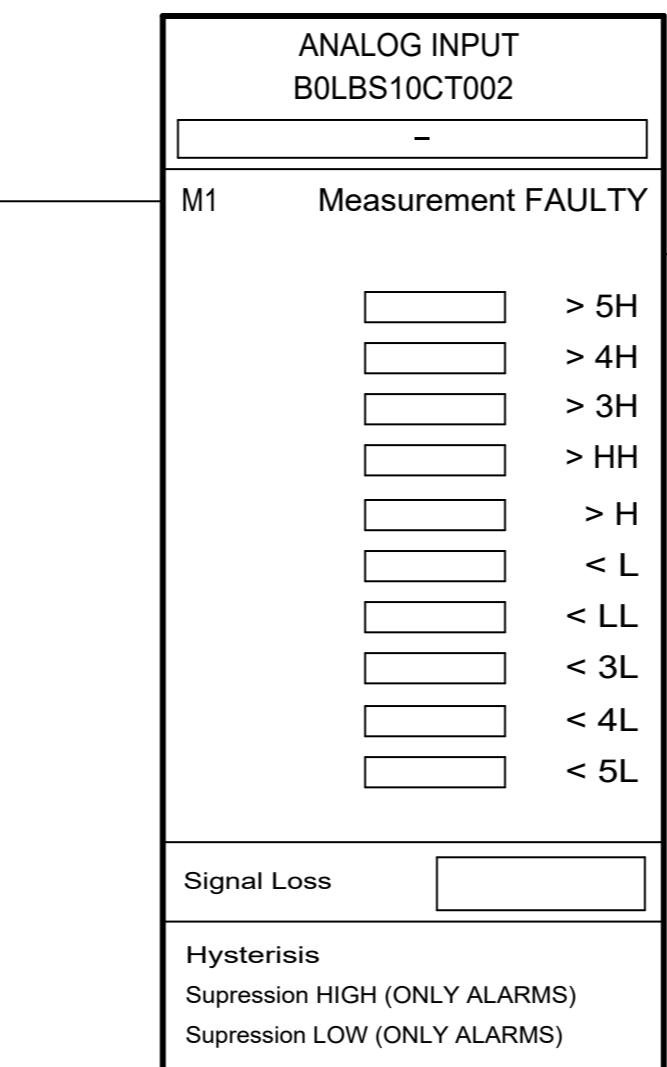
LP Extn II Hdr Temp

|             |              |
|-------------|--------------|
| LOOP:       | B0LBS10CT002 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
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| 10 |                     |             |              |
| 11 | LP Extn II Hdr Temp | xtrmr       | B0LBS10CT002 |
|    |                     |             | XQ01         |
| 12 |                     |             |              |
| 13 |                     |             |              |
| 14 |                     |             |              |
| 15 |                     |             |              |
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|              |                     | 38          |
|              |                     | 39          |
|              |                     | 40          |
| B0LBS10CT002 | LP Extn II Hdr Temp | Measurement |
| XM35         |                     | FAULTY      |
| B0LBS10CT002 | LP Extn II Hdr Temp | xtrmr       |
| XQ01         |                     |             |
|              |                     | 41          |
|              |                     | 42          |
|              |                     | 43          |
|              |                     | 44          |
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PROJECT

NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
LP Extn II Hdr Temp

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 134 CONT  
REV. P01

ISSUER  
**EMPRESARIOS AGRUPADOS**

FORMAT

A3

SCALE



INTERNAL CODE:

A

B

C

D

E

A

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**Control Diagram**

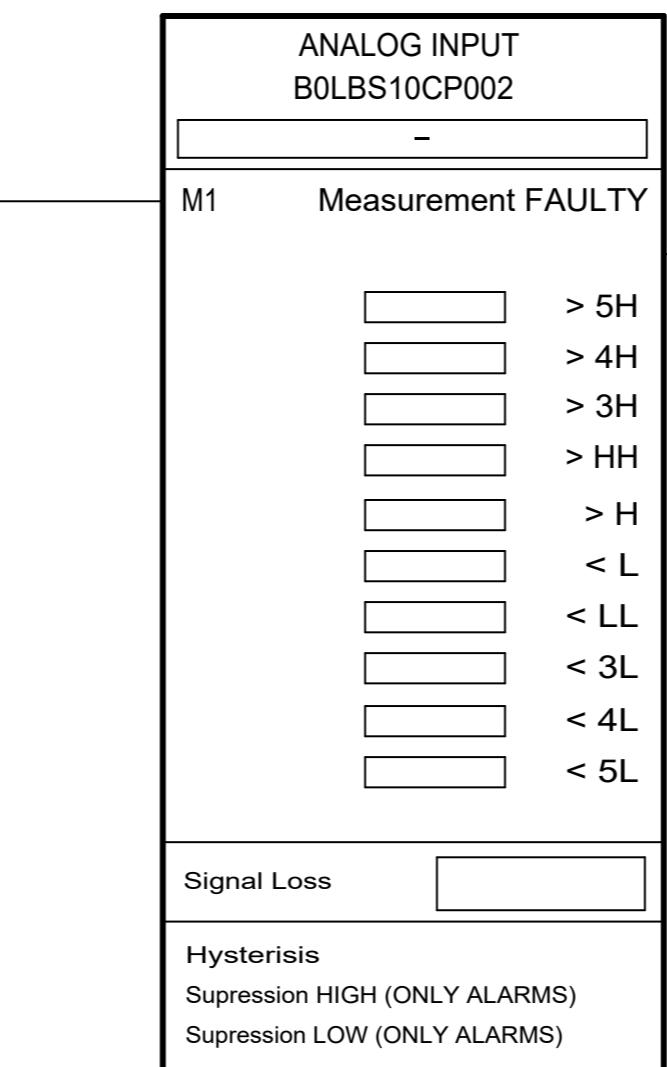
Main Steam, Extract Aux Steam & By-Pass System  
LP Extn II Hdr Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LBS10CP002 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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| 10 |                      |             |              |
| 11 | LP Extn II Hdr Press | xtrmr       | B0LBS10CP002 |
|    |                      |             | XQ01         |
| 12 |                      |             |              |
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| CODE         | DESCRIPTION          | TO          |
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|              |                      | 37          |
|              |                      | 38          |
|              |                      | 39          |
|              |                      | 40          |
| B0LBS10CP002 | LP Extn II Hdr Press | Measurement |
| XM35         |                      | FAULTY      |
| B0LBS10CP002 | LP Extn II Hdr Press | xtrmr       |
| XQ01         |                      |             |
|              |                      | 41          |
|              |                      | 42          |
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CONTRACTOR  


PROJECT

NORTH LONDON HEAT AND POWER PROJECT

ISSUER  
  
EMPRESARIOS AGRUPADOS

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
LP Extn II Hdr Press

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 136 CONT  
REV. P01

INTERNAL CODE:

A

B

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E

A

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**Control Diagram**

Main Steam, Extract Aux Steam & By-Pass System  
LP Extn II Pot B0LBS10 Lvl Sw

|             |              |
|-------------|--------------|
| LOOP:       | B0LBS10CL301 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                          | DESCRIPTION  | CODE |
|----|-------------------------------|--------------|------|
| 1  |                               |              |      |
| 2  |                               |              |      |
| 3  |                               |              |      |
| 4  | LP Extn II Pot B0LBS10 Lvl Sw | B0LBS10CL301 |      |
|    | n HH                          | XG13         |      |
| 5  |                               |              |      |
| 6  |                               |              |      |
| 7  |                               |              |      |
| 8  |                               |              |      |
| 9  |                               |              |      |
| 10 |                               |              |      |
| 11 |                               |              |      |
| 2  | 12                            |              |      |
| 13 |                               |              |      |
| 14 |                               |              |      |
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| 3  | 21                            |              |      |
| 22 |                               |              |      |
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| 29 |                               |              |      |
| 4  | 30                            |              |      |

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| CODE         | DESCRIPTION                   | TO         |
|--------------|-------------------------------|------------|
|              |                               | 31         |
|              |                               | 32         |
|              |                               | 33         |
| B0LBS10CL301 | LP Extn II Pot B0LBS10 Lvl Sw |            |
| XM03         | HH                            | 34         |
|              |                               | 35         |
| B0LBS10CL301 | LP Extn II Pot B0LBS10 Lvl Sw | <>>        |
| ZG03         | HH                            | 112.A - 04 |
|              |                               | 36         |
|              |                               | 37         |
|              |                               | 38         |
|              |                               | 39         |
|              |                               | 40         |
|              |                               | 41         |
|              |                               | 42         |
|              |                               | 43         |
|              |                               | 44         |
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|              |                               | 60         |

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PROJECT

NORTH LONDON HEAT AND POWER PROJECT

ISSUER



FORMAT

A3

SCALE

**DRAWING TITLE**

Main Steam, Extract Aux Steam & By-Pass System  
LP Extn II Pot B0LBS10 Lvl Sw

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 138 CONT

REV. P01

A

B

C

D

E

A

B

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E

**Control Diagram**

Main Steam, Extract Aux Steam & By-Pass System  
LP Extn II Pot B0LBS10 Lvl Sw

|             |              |
|-------------|--------------|
| LOOP:       | B0LBS10CL302 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                          | DESCRIPTION  | CODE |
|----|-------------------------------|--------------|------|
| 1  |                               |              |      |
| 2  |                               |              |      |
| 3  |                               |              |      |
| 4  | LP Extn II Pot B0LBS10 Lvl Sw | B0LBS10CL302 |      |
|    | n H                           | XG11         |      |
| 5  |                               |              |      |
| 6  |                               |              |      |
| 7  |                               |              |      |
| 8  |                               |              |      |
| 9  |                               |              |      |
| 10 |                               |              |      |
| 11 |                               |              |      |
| 2  | 12                            |              |      |
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| 14 |                               |              |      |
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| 20 |                               |              |      |
| 3  | 21                            |              |      |
| 22 |                               |              |      |
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| 27 |                               |              |      |
| 28 |                               |              |      |
| 29 |                               |              |      |
| 4  | 30                            |              |      |

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| CODE         | DESCRIPTION                   | TO         |
|--------------|-------------------------------|------------|
|              |                               | 31         |
|              |                               | 32         |
|              |                               | 33         |
| B0LBS10CL302 | LP Extn II Pot B0LBS10 Lvl Sw |            |
| XM01         | H                             | 34         |
|              |                               | 35         |
| B0LBS10CL302 | LP Extn II Pot B0LBS10 Lvl Sw | <>>        |
| ZG01         | H                             | 112.A - 06 |
|              |                               | 36         |
|              |                               | 37         |
|              |                               | 38         |
|              |                               | 39         |
|              |                               | 40         |
|              |                               | 41         |
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|              |                               | 60         |

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT

A3

SCALE

DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System  
LP Extn II Pot B0LBS10 Lvl Sw**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 140 CONT

REV. P01

A

B

C

D

E

A

B

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D

E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

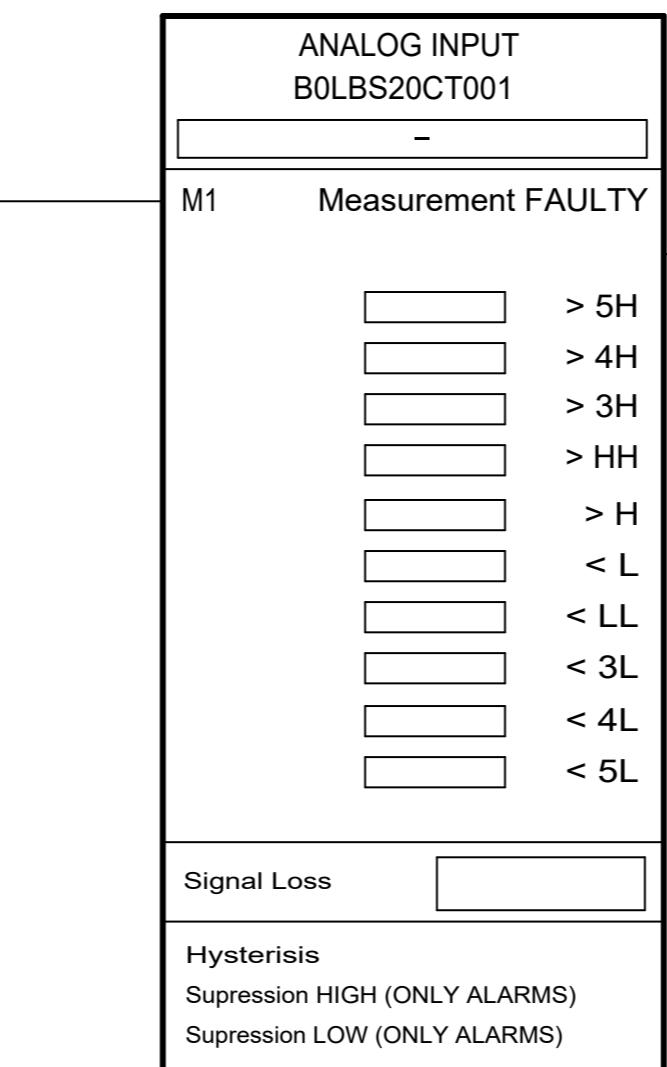
LP Extn I Temp

|             |              |
|-------------|--------------|
| LOOP:       | B0LBS20CT001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM           | DESCRIPTION | CODE         |
|----|----------------|-------------|--------------|
| 1  |                |             |              |
| 2  |                |             |              |
| 3  |                |             |              |
| 4  |                |             |              |
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| 8  |                |             |              |
| 9  |                |             |              |
| 10 |                |             |              |
| 11 | LP Extn I Temp | xtrmr       | B0LBS20CT001 |
|    |                |             | XQ01         |
| 12 |                |             |              |
| 13 |                |             |              |
| 14 |                |             |              |
| 15 |                |             |              |
| 16 |                |             |              |
| 17 |                |             |              |
| 18 |                |             |              |
| 19 |                |             |              |
| 20 |                |             |              |
| 21 |                |             |              |
| 22 |                |             |              |
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| 28 |                |             |              |
| 29 |                |             |              |
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| CODE         | DESCRIPTION    | TO          |
|--------------|----------------|-------------|
|              |                | 31          |
|              |                | 32          |
|              |                | 33          |
|              |                | 34          |
|              |                | 35          |
|              |                | 36          |
|              |                | 37          |
|              |                | 38          |
|              |                | 39          |
|              |                | 40          |
| B0LBS20CT001 | LP Extn I Temp | Measurement |
| XM35         |                | FAULTY      |
| B0LBS20CT001 | LP Extn I Temp | xtrmr       |
| XQ01         |                |             |
|              |                | 41          |
|              |                | 42          |
|              |                | 43          |
|              |                | 44          |
|              |                | 45          |
|              |                | 46          |
|              |                | 47          |
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PROJECT

NORTH LONDON HEAT AND POWER PROJECT

ISSUER



FORMAT

A3

SCALE

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
LP Extn I Temp

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 142 CONT  
REV. P01

INTERNAL CODE:

A

B

C

D

E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

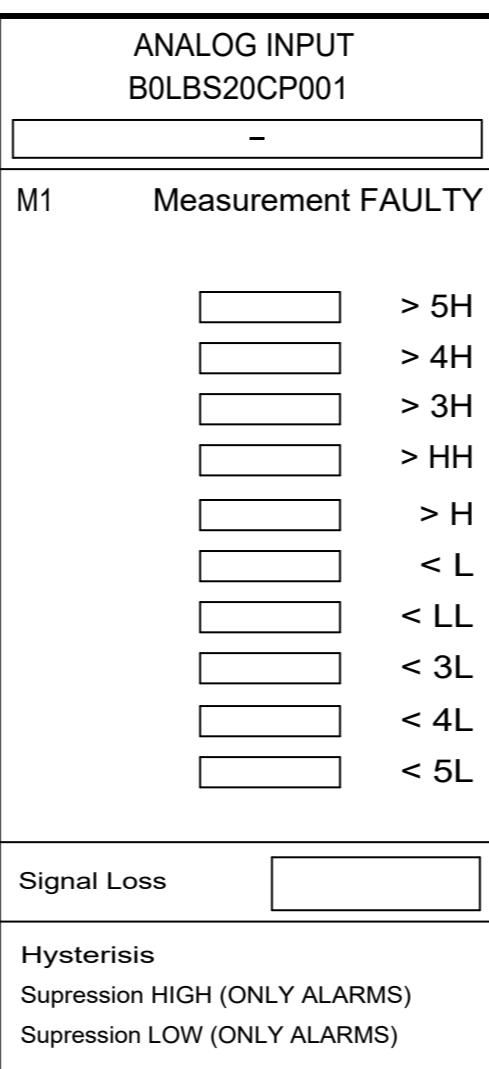
LP Extn I Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LBS20CP001 |
| LOOP SHEET: |              |

## MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| FROM | DESCRIPTION     | CODE          |
|------|-----------------|---------------|
| 1    |                 |               |
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| 9    |                 |               |
| 10   |                 |               |
| 11   | LP Extn I Press | xtrmr<br>XQ01 |
| 12   |                 |               |
| 13   |                 |               |
| 14   |                 |               |
| 15   |                 |               |
| 16   |                 |               |
| 17   |                 |               |
| 18   |                 |               |
| 19   |                 |               |
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| 30   |                 |               |



| CODE         | DESCRIPTION     | TO          |
|--------------|-----------------|-------------|
|              |                 | 31          |
|              |                 | 32          |
|              |                 | 33          |
|              |                 | 34          |
|              |                 | 35          |
|              |                 | 36          |
|              |                 | 37          |
|              |                 | 38          |
|              |                 | 39          |
|              |                 | 40          |
| B0LBS20CP001 | LP Extn I Press | Measurement |
| XM35         |                 | FAULTY      |
| B0LBS20CP001 | LP Extn I Press | xtrmr       |
| XQ01         |                 |             |
|              |                 | 41          |
|              |                 | 42          |
|              |                 | 43          |
|              |                 | 44          |
|              |                 | 45          |
|              |                 | 46          |
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|              |                 | 60          |

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PROJECT

NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**LP Extn I Press**



FORMAT

A3

SCALE



NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 144 CONT  
REV. P01

A

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**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

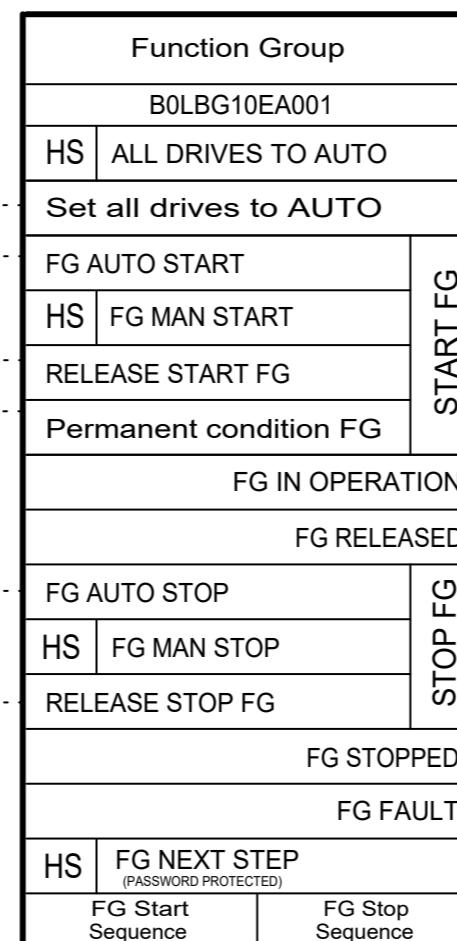
MP Steam/Auxiliary Steam FSG

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG10EA001 |
| LOOP SHEET: |              |

## MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM              | DESCRIPTION  | CODE                 |
|----|-------------------|--|----------------------|
| 1  |                   |  |                      |
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| 8  |                   |  |                      |
| 9  |                   |  |                      |
| 10 |                   |  |                      |
| 11 |                   |  |                      |
| 12 | <>><br>10 - 34    | Steam and Bypass FG<br>All drives to Auto              | B0LBA10EA001<br>ZB13 |
| 13 | <>><br>10 - 42    | Steam and Bypass FG<br>in operation                    | B0LBA10EA001<br>ZB21 |
| 14 |                   |  |                      |
| 15 | <>><br>150.B - 36 | MP Steam/Auxiliary Steam FSG<br>Release start FG       | B0LBG10EA001<br>ZB45 |
| 16 | <>><br>150.C - 49 | MP Steam/Auxiliary Steam FSG<br>Permanent Condition FG | B0LBG10EA001<br>ZB50 |
| 17 |                   |  |                      |
| 18 |                   |  |                      |
| 19 |                   |  |                      |
| 20 | <>><br>10 - 52    | Steam and Bypass FG<br>FG Stopped                      | B0LBA10EA001<br>ZB22 |
| 21 |                   |  |                      |
| 22 |                   |  |                      |
| 23 |                   |  |                      |
| 24 |                   |  |                      |
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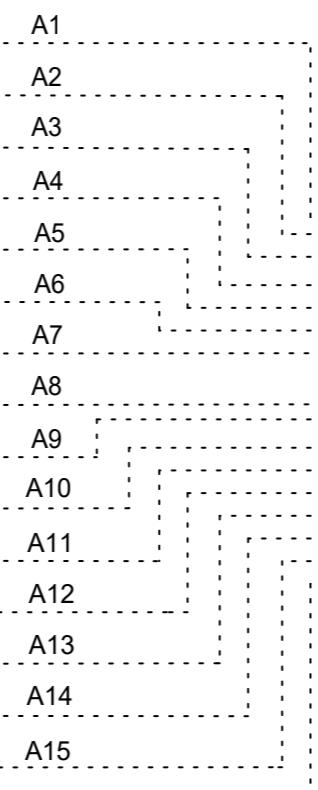
## Control Diagram

Main Steam, Extract Aux Steam & By-Pass System  
MP Steam/Auxiliary Steam FSG

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG10EA001 |
| LOOP SHEET: |              |

| MODIFICATIONS |             |      |       |
|---------------|-------------|------|-------|
| REV.          | DESCRIPTION | DATE | DRAWN |
|               |             |      |       |

|    | FROM     | DESCRIPTION                          | CODE               |
|----|----------|--------------------------------------|--------------------|
| 1  | <>>      | Main Steam Attemperation CV          | Drive B0LBA30AA401 |
|    | 152 - 39 | Ready                                | ZB50               |
| 2  | <>>      | MS Attemp CV Water CV                | Drive B0LAF33AA401 |
|    | 154 - 39 | Ready                                | ZB50               |
| 3  | <>>      | MS Attemp CV Water IV                | Drive B0LAF33AA301 |
|    | 156 - 39 | Ready                                | ZB50               |
| 4  | <>>      | District Heating Attemp CV           | Drive B0LBA31AA401 |
|    | 162 - 39 | Ready                                | ZB50               |
| 5  | <>>      | Dist Heat Attemp CV Water CV         | Drive B0LAF32AA401 |
|    | 164 - 39 | Ready                                | ZB50               |
| 6  | <>>      | Dist Heat Attemp CV Water IV         | Drive B0LAF32AA301 |
|    | 166 - 39 | Ready                                | ZB50               |
| 7  | <>>      | IV Extraction Conditioning CV        | Drive B0LBD10AA401 |
|    | 172 - 39 | Ready                                | ZB50               |
| 8  | <>>      | IV Extn Condng CV Water CV           | Drive B0LAF34AA401 |
|    | 174 - 39 | Ready                                | ZB50               |
| 9  | <>>      | IV Extn Condng CV Water IV           | Drive B0LAF34AA301 |
|    | 176 - 39 | Ready                                | ZB50               |
| 10 | <>>      | AuxStm to Dearer CV                  | Drive B0LBG20AA401 |
|    | 184 - 39 | Ready                                | ZB50               |
| 11 | <>>      | AuxStm to Dearer Byp MOV             | Drive B0LBG20AA301 |
|    | 186 - 39 | Ready                                | ZB50               |
| 12 | <>>      | B1: AuxStm to AirPrehtr CV           | Drive B1LBG30AA401 |
|    | 192 - 39 | Ready                                | ZB50               |
| 13 |          | B2: AuxStm to AirPrehtr CV           | Drive B2LBG30AA401 |
|    |          | Ready                                | ZB50               |
| 14 | <>>      | B1: AuxStm to AirPrehtr Byp MOV      | Drive B1LBG30AA301 |
|    | 194 - 39 | Ready                                | ZB50               |
| 15 |          | B2: AuxStm to AirPrehtr Byp MOV      | Drive B2LBG30AA301 |
|    |          | Ready                                | ZB50               |
| 16 | <>>      | MS Attemp CV Pot B0LBA30#1 Drn MOV   | Drive B0LBA30AA303 |
|    | 158 - 39 | Ready                                | ZB50               |
| 17 |          | MS Attemp CV Pot B0LBA30#2 Drn MOV   | Drive B0LBA30AA304 |
|    |          | Ready                                | ZB50               |
| 18 |          | Dist Heat Pot B0LBA31#1 Drn MOV      | Drive B0LBA31AA302 |
|    |          | Ready                                | ZB50               |
| 19 |          | Dist Heat Pot B0LBA31#2 Drn MOV      | Drive B0LBA31AA303 |
|    |          | Ready                                | ZB50               |
| 20 |          | IV Extn Pot B0LBD10#2 Drn CV         | Drive B0LBD10AA304 |
|    |          | Ready                                | ZB50               |
| 21 |          | IV Extn Pot B0LBD10#3 Drn CV         | Drive B0LBD10AA305 |
|    |          | Ready                                | ZB50               |
| 22 |          | AuxStm Hdr Pot B0LBG10 Drn MOV       | Drive B0LBG10AA301 |
|    |          | Ready                                | ZB50               |
| 23 | <>>      | AuxStm to Dearer Pot B0LBG20 Drn MOV | Drive B0LBG20AA302 |
|    | 188 - 39 | Ready                                | ZB50               |
| 24 |          | AuxStm to AirPrehtr Pot Drn MOV      | Drive B0LBG30AA301 |
|    |          | Ready                                | ZB50               |
| 25 |          | B1: AuxStm to AirPrehtr Pot Drn MOV  | Drive B1LBG30AA302 |
|    |          | Ready                                | ZB50               |
| 26 |          | B2: AuxStm to AirPrehtr Pot Drn MOV  | Drive B2LBG30AA302 |
|    |          | Ready                                | ZB50               |
| 27 |          |                                      |                    |
| 28 |          |                                      |                    |
| 29 |          |                                      |                    |
| 30 |          |                                      |                    |



| ON PERMISSIVES |  |
|----------------|--|
| A1             | Main Steam Attemperation CV Available              |
| A2             | Main Steam Attemperation Cv Water Cv Available     |
| A3             | Main Steam Attemperation CV Water IV Available     |
| A4             | District Heating Attemperation CV Available        |
| A5             | District Heating Attemp CV Water CV Available      |
| A6             | District Heating Attemp CV Water IV Available      |
| A7             | IV Extraction Conditioning CV Available            |
| A8             | IV Extraction Conditioning CV Water CV Available   |
| A9             | IV Extraction Conditioning CV Water IV Available   |
| A10            | Aux Steam to Dearer CV Available                   |
| A11            | Aux Steam to Dearer Bypass MOV Available           |
| A12            | Aux Steam to B1 Air Preheaters CV Available        |
| A13            | Aux Steam to B2 Air Preheaters CV Available        |
| A14            | Aux Steam to B1 Air Prehtr CV Bypass MOV Available |
| A15            | Aux Steam to B2 Air Prehtr CV Bypass MOV Available |
| A16            | All Pot Drain MOVs Available                       |

### Notes:

- Feedback and orders from B0LBA30 Pot #2 Drain MOV (B0LBA30AA304), B0LBA31 Pot #1 Drain MOV (B0LBA31AA302), and B0LBA31 Pot #2 Drain MOV (B0LBA31AA303), equivalent to those for B0LBA30 Pot #1 Drain MOV (B0LBA30AA303). See sheet 900.
- Feedback and orders from B0LBD10 Pot #2 Drain MOV (B0LBD10AA304), B0LBD10 Pot #3 Drain MOV (B0LBD10AA305) B0LBG10 Pot Drain MOV (B0LBG10AA301), equivalent to those for B0LBD10 Pot Drain MOV (B0LBD10AA303). See sheet 900.
- Feedback and orders from B0LBG30 Pot Drain MOV (B0LBG30AA301), B1LBG30 Pot Drain MOV (B1LBG30AA302), and B2LBG30 Pot Drain MOV (B2LBG30AA302), equivalent to those for B0LBG20 Pot Drain MOV (B0LBG20AA302). See sheet 900.A.
- Feedback and orders should be replicated for equipment in Boiler line 2.

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[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System MP Steam/Auxiliary Steam FSG**

ISSUER  
**EMPRESARIOS AGRUPADOS**

FORMAT  
**A3**

SCALE

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 150.BCONT  
REV. P01

| CODE         | DESCRIPTION                  | TO             |
|--------------|------------------------------|----------------|
|              |                              | 31             |
|              |                              | 32             |
|              |                              | 33             |
|              |                              | 34             |
|              |                              | 35             |
| B0LBG10EA001 | MP Steam/Auxiliary Steam FSG | Release <>> 36 |
| ZB45         | start FG                     | 150 - 15 37    |
|              |                              | 38             |
|              |                              | 39             |
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### Control Diagram

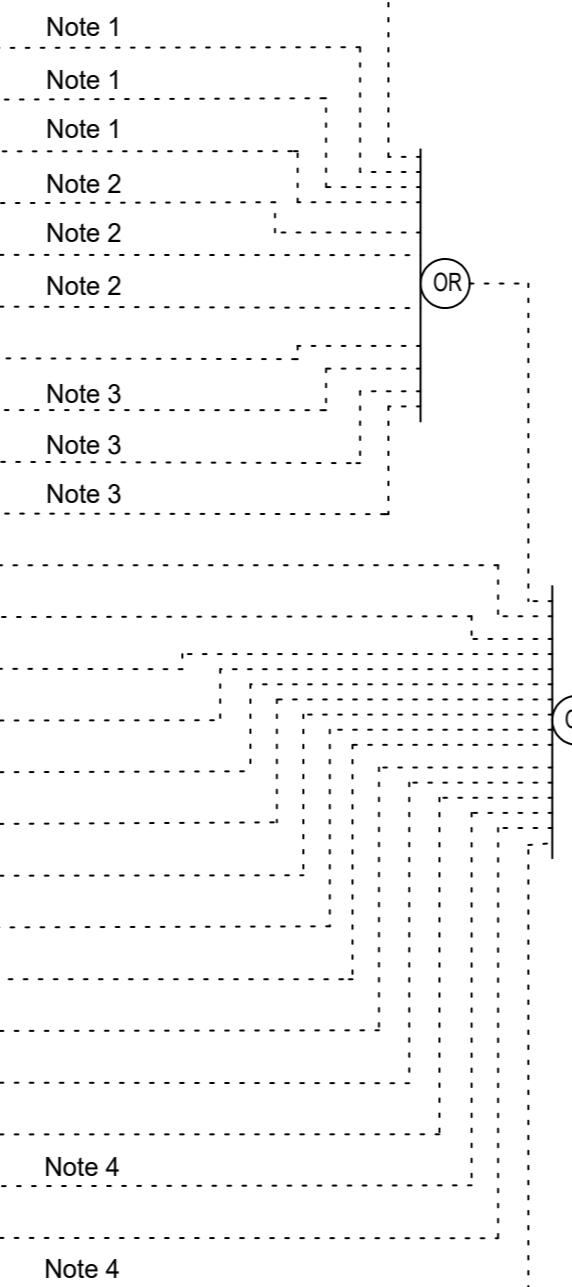
Main Steam, Extract Aux Steam & By-Pass System  
MP Steam/Auxiliary Steam FSG

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG10EA001 |
| LOOP SHEET: |              |

### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

|    | FROM            | DESCRIPTION                                | CODE  |
|----|-----------------|--|---|
| 1  | <>><br>158 - 40 | MS Attemp CV Pot B0LBA30#1 Dnn MOV & Auto  | B0LBA30AA303<br>ZB51                          |
| 2  |                 | MS Attemp CV Pot B0LBA30#2 Dnn MOV & Auto  | B0LBA30AA304<br>ZB51                          |
| 3  |                 | Dist Heat Pot B0LBA31#1 Dnn MOV & Auto     | B0LBA31AA302<br>ZB51                          |
| 4  |                 | Dist Heat Pot B0LBA31#2 Dnn MOV & Auto     | B0LBA31AA303<br>ZB51                          |
| 5  |                 | IV Extn Pot B0LBD10#2 Dnn CV               | B0LBD10AA304<br>& Auto<br>ZB51                |
| 6  |                 | IV Extn Pot B0LBD10#3 Dnn CV               | B0LBD10AA305<br>& Auto<br>ZB51                |
| 7  |                 | AuxStm Hdr Pot B0LBG10 Dnn MOV & Auto      | B0LBG10AA301<br>ZB51                          |
| 8  | <>><br>188 - 40 | AuxStm to Deaer Pot B0LBG20 Dnn MOV & Auto | B0LBG20AA302<br>ZB51                          |
| 9  |                 | AuxStm to AirPrehrt Pot Dnn MOV & Auto     | B0LBG30AA301<br>ZB51                          |
| 10 |                 | B1: AuxStm to AirPrehrt Pot Dnn MOV & Auto | B1LBG30AA302<br>ZB51                          |
| 11 |                 | B2: AuxStm to AirPrehrt Pot Dnn MOV & Auto | B2LBG30AA302<br>ZB51                          |
| 12 | <>><br>152 - 40 | Main Steam Attemperation CV                | B0LBA30AA401<br>Drive<br>Ready & Auto<br>ZB51 |
| 13 | <>><br>154 - 40 | MS Attemp CV Water CV                      | B0LAF33AA401<br>Drive<br>Ready & Auto<br>ZB51 |
| 14 | <>><br>156 - 40 | MS Attemp CV Water IV                      | B0LAF33AA401<br>& Auto<br>ZB51                |
| 15 | <>><br>162 - 40 | District Heating Attemp CV                 | B0LBA31AA401<br>Drive<br>Ready & Auto<br>ZB51 |
| 16 | <>><br>164 - 40 | Dist Heat Attemp CV Water CV               | B0LAF32AA401<br>Ready & Auto<br>ZB51          |
| 17 | <>><br>166 - 40 | Dist Heat Attemp CV Water IV               | B0LAF32AA401<br>& Auto<br>ZB51                |
| 18 | <>><br>172 - 40 | IV Extraction Conditioning CV              | B0LBD10AA401<br>Drive<br>Ready & Auto<br>ZB51 |
| 19 | <>><br>174 - 40 | IV Extn Condng CV Water CV                 | B0LAF34AA401<br>Drive<br>Ready & Auto<br>ZB51 |
| 20 | <>><br>176 - 40 | IV Extn Condng CV Water IV                 | B0LAF34AA401<br>& Auto<br>ZB51                |
| 21 | <>><br>184 - 40 | AuxStm to Deaer CV                         | B0LBG20AA401<br>Drive<br>Ready & Auto<br>ZB51 |
| 22 | <>><br>186 - 40 | AuxStm to Deaer Byp MOV                    | B0LBG20AA301<br>& Auto<br>ZB51                |
| 23 | <>><br>192 - 40 | B1: AuxStm to AirPrehrt CV                 | B1LBG30AA401<br>Drive<br>Ready & Auto<br>ZB51 |
| 24 |                 | B2: AuxStm to AirPrehrt CV                 | B2LBG30AA401<br>Ready & Auto<br>ZB51          |
| 25 | <>><br>194 - 40 | B1: AuxStm to AirPrehrt Byp MOV            | B1LBG30AA301<br>& Auto<br>ZB51                |
| 26 |                 | B2: AuxStm to AirPrehrt Byp MOV            | B2LBG30AA301<br>& Auto<br>ZB51                |
| 27 |                 |  |   |
| 28 | <>><br>150 - 47 | MP Steam/Auxiliary Steam FSG               | FG<br>in operation<br>B0LBG10EA001<br>ZB21    |
| 29 |                 |  |   |
| 30 |                 |  |   |



| CODE         | DESCRIPTION                  | TO            |
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|              |                              | 46            |
|              |                              | 47            |
|              |                              | 48            |
| B0LBG10EA001 | MP Steam/Auxiliary Steam FSG | Permanent <>> |
| ZB50         | Condition FG                 | 150 - 16      |
|              |                              | 50            |
|              |                              | 51            |
|              |                              | 52            |
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|              |                              | 60            |

#### Notes:

- Feedback and orders from B0LBA30 Pot #2 Drain MOV (B0LBA30AA304), B0LBA31 Pot #1 Drain MOV (B0LBA31AA302), and B0LBA31 Pot #2 Drain MOV (B0LBA31AA303), equivalent to those for B0LBA30 Pot #1 Drain MOV (B0LBA30AA303). See sheet 900.
- Feedback and orders from B0LBD10 Pot #2 Drain MOV (B0LBD10AA304), B0LBD10 Pot #3 Drain MOV (B0LBD10AA305) B0LBG10 Pot Drain MOV (B0LBG10AA301), equivalent to those for B0LBD10 Pot Drain MOV (B0LBD10AA303). See sheet 900.
- Feedback and orders from B0LBG30 Pot Drain MOV (B0LBG30AA301), B1LBG30 Pot Drain MOV (B1LBG30AA302), and B2LBG30 Pot Drain MOV (B2LBG30AA302), equivalent to those for B0LBG20 Pot Drain MOV (B0LBG20AA302). See sheet 900.A.
- Feedback and orders should be replicated for equipment in Boiler line 2.

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
MP Steam/Auxiliary Steam FSG**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 150.CCONT  
REV. P01

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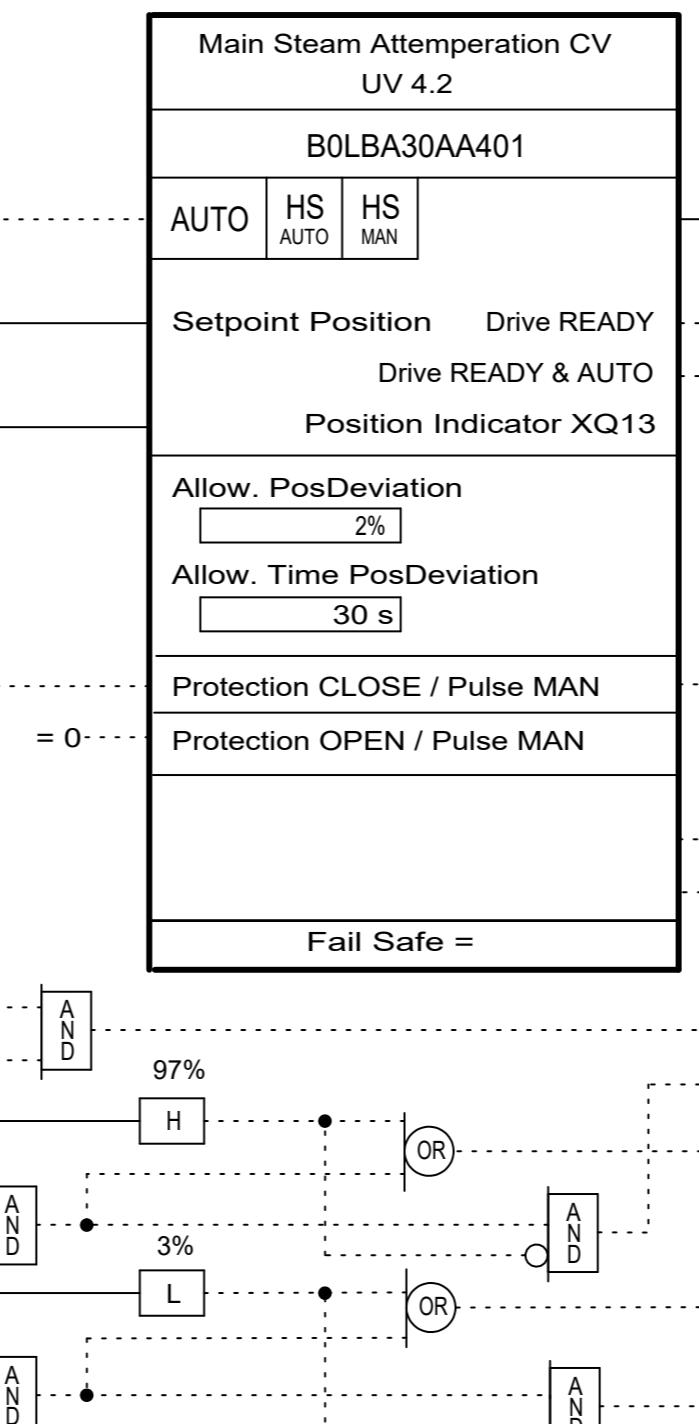
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**Control Diagram**

Main Steam, Extract Aux Steam & By-Pass System  
Main Steam Attemperation CV

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA30AA401 |
| LOOP SHEET: |              |

|    | FROM             | DESCRIPTION  | CODE                      |
|----|------------------|--|---------------------------|
| 1  |                  |  |                           |
| 2  |                  |  |                           |
| 3  |                  |  |                           |
| 4  |                  |  |                           |
| 5  |                  |  |                           |
| 6  |                  |  |                           |
| 7  | <><br>150.A - 32 | MP Steam/Auxiliary Steam FSG<br>All drives to Auto | B0LBG10EA001<br>ZB13      |
| 8  |                  |  |                           |
| 9  | <><br>152.A - 38 | Main Steam Attemperation CV<br>Setpoint Position   | B0LBA30AA401<br>ZC01      |
| 10 |                  |  |                           |
| 11 | <><br>152.B - 42 | Main Steam Attemperation CV<br>Valve Position      | B0LBA30AA401<br>XQ13      |
| 12 |                  |  |                           |
| 13 |                  |  |                           |
| 14 |                  |  |                           |
| 15 |                  |  |                           |
| 16 | <><br>212 - 42   | MS Attemp CV Outl Temp                             | H<br>B0LBG12CT901<br>ZB01 |
| 17 | <><br>210 - 43   | MS Attemp CV Outl Press                            | H<br>B0LBG12CP901<br>ZB01 |
| 18 |                  |  |                           |
| 19 |                  |  |                           |
| 20 |                  |  |                           |
| 21 |                  |  |                           |
| 22 |                  |  |                           |
| 23 |                  |  |                           |
| 24 |                  |  |                           |
| 25 |                  |  |                           |
| 26 |                  | Main Steam Attemperation CV<br>FullyOp             | B0LBA30AA401<br>XB01      |
| 27 |                  |  |                           |
| 28 |                  |  |                           |
| 29 |                  |  |                           |
| 30 |                  | Main Steam Attemperation CV<br>FullyCl             | B0LBA30AA401<br>XB02      |



| MODIFICATIONS |             |      |       |
|---------------|-------------|------|-------|
| REV.          | DESCRIPTION | DATE | DRAWN |
|               |             |      |       |

| CODE         | DESCRIPTION                              | TO         |
|--------------|--|------------|
|              |  | 31         |
|              |  | 32         |
|              |  | 33         |
|              |  | 34         |
|              |  | 35         |
| B0LBA30AA401 | Main Steam Attemperation CV Position     | <>         |
| YQ01         | Main Steam Attemperation CV Demand       | 152.A - 12 |
| B0LBA30AA401 | Main Steam Attemperation CV Position     | 37         |
| YQ01         | Main Steam Attemperation CV Demand       |            |
| B0LBA30AA401 | Main Steam Attemperation CV Drive        | <>         |
| ZB50         | Main Steam Attemperation CV Ready        | 152.A - 23 |
| B0LBA30AA401 | Main Steam Attemperation CV Drive        | <>         |
| ZB50         | Main Steam Attemperation CV Ready        | 150.B - 01 |
| B0LBA30AA401 | Main Steam Attemperation CV Ready & Auto | 150.C - 12 |
| ZB51         | Main Steam Attemperation CV Drive        | <>         |
| B0LBA30AA401 | Main Steam Attemperation CV Ready & Auto | 152.A - 24 |
| ZB51         |  |            |
|              |  | 42         |
|              |  | 43         |
|              |  | 44         |
|              |  | 45         |
| B0LBA30AA401 | Main Steam Attemperation CV Protection   | <>         |
| ZB17         | Main Steam Attemperation CV CLOSE        | 152.A - 19 |
|              |  | 47         |
| B0LBA30AA401 | Main Steam Attemperation CV Feedback     |            |
| XM13         | Main Steam Attemperation CV Anomaly      |            |
| B0LBA30AA401 | Main Steam Attemperation CV Discrp       |            |
| XM70         | Main Steam Attemperation CV Pos          |            |
| B0LBA30AA401 | Main Steam Attemperation CV Pos xtrm     |            |
| XM30         | Main Steam Attemperation CV BQ           |            |
|              |  | 51         |
|              |  | 52         |
|              |  | 53         |
|              |  | 54         |
| B0LBA30AA401 | Main Steam Attemperation CV Open         |            |
| ZB01         |  | 55         |
| B0LBA30AA401 | Main Steam Attemperation CV <>           |            |
| ZB02         | Main Steam Attemperation CV Closed       | 154 - 16   |
| B0LBA30AA401 | Main Steam Attemperation CV Closed       |            |
| ZB02         |  | 58         |
|              |  | 59         |
|              |  | 60         |

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PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

ISSUER



FORMAT



SCALE

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
Main Steam Attemperation CV**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 152 CONT

REV. P01

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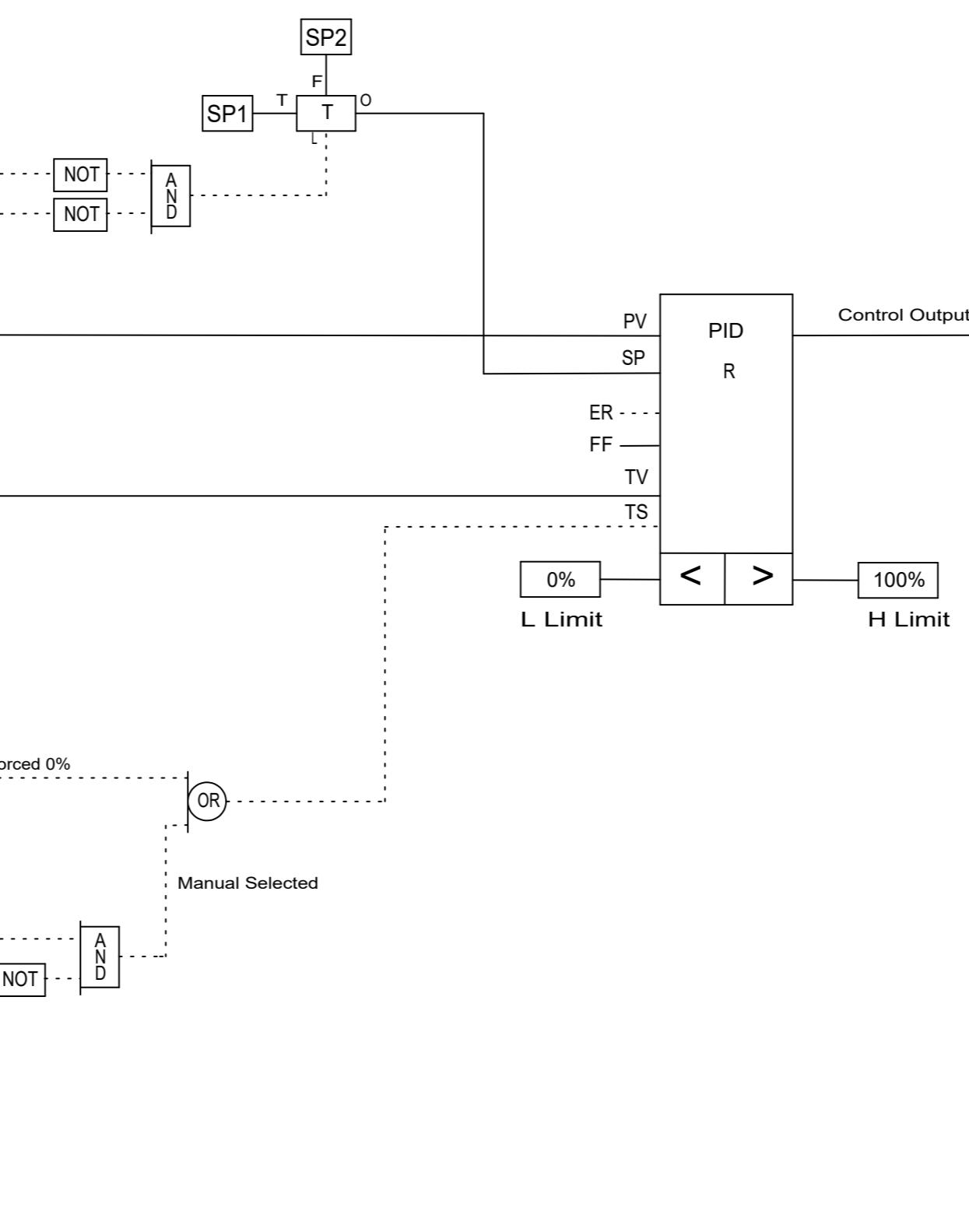
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### Control Diagram

Main Steam, Extract Aux Steam & By-Pass System  
Main Steam Attemperation CV

|    | FROM            | DESCRIPTION                                | CODE                 |
|----|-----------------|--|----------------------|
| 1  |                 |  |                      |
| 2  |                 |  |                      |
| 3  |                 |  |                      |
| 4  | <>><br>702 - 34 | VII Extn to MP Cond CV Isol MOV<br>FullyOp | B0LBD10AA302<br>XB01 |
| 5  | <>><br>702 - 31 | III Extn to MP Hdr Isol MOV<br>FullyOp     | B0LBD20AA302<br>XB01 |
| 6  |                 |  |                      |
| 7  |                 |  |                      |
| 8  | <>><br>244 - 36 | AuxStm Hdr Press<br>xtrmr                  | B0LBG10CP901<br>XQ01 |
| 9  |                 |  |                      |
| 10 |                 |  |                      |
| 11 |                 |  |                      |
| 12 | <>><br>152 - 36 | Main Steam Attemperation CV<br>Position    | B0LBA30AA401         |
| 13 |                 |  |                      |
| 14 |                 |  |                      |
| 15 |                 |  |                      |
| 16 |                 |  |                      |
| 17 |                 |  |                      |
| 18 |                 |  |                      |
| 19 | <>><br>152 - 46 | Main Steam Attemperation CV<br>Protection  | B0LBA30AA401         |
| 20 |                 |  |                      |
| 21 |                 |  |                      |
| 22 |                 |  |                      |
| 23 | <>><br>152 - 38 | Main Steam Attemperation CV<br>Drive       | B0LBA30AA401         |
| 24 | <>><br>152 - 41 | Main Steam Attemperation CV<br>Ready       | B0LBA30AA401         |
| 25 |                 |  |                      |
| 26 |                 |  |                      |
| 27 |                 |  |                      |
| 28 |                 |  |                      |
| 29 |                 |  |                      |
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LOOP: B0LBA30AA401  
LOOP SHEET:



### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| CODE         | DESCRIPTION                 | TO           |
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|              |                             | 34           |
|              |                             | 35           |
|              |                             | 36           |
|              |                             | 37           |
| B0LBA30AA401 | Main Steam Attemperation CV | Setpoint <>> |
| ZC01         | Position                    | 152 - 09     |
|              |                             | 38           |
|              |                             | 39           |
|              |                             | 40           |
|              |                             | 41           |
|              |                             | 42           |
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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT

A3

SCALE



DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System**  
**Main Steam Attemperation CV**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 152.ACNT

REV. P01

A

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**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

Main Steam Attemperation CV

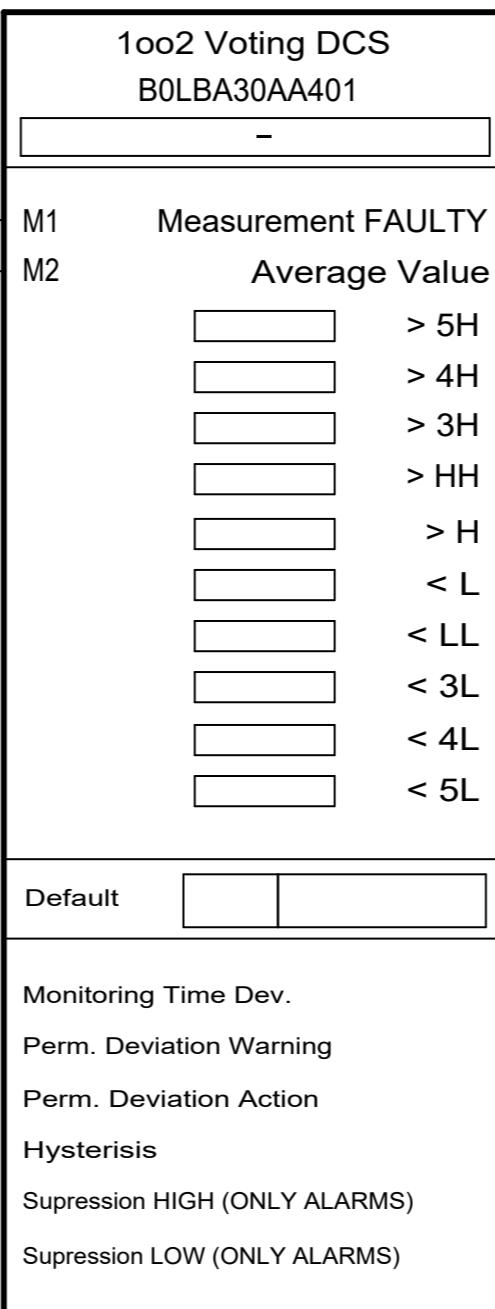
| FROM | DESCRIPTION                 | CODE                              |
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| 7    |                             |                                   |
| 8    |                             |                                   |
| 9    | Main Steam Attemperation CV | Position1<br>B0LBA30AA401<br>XQ01 |
| 10   | Main Steam Attemperation CV | Position2<br>B0LBA30AA401<br>XQ02 |
| 11   |                             |                                   |
| 12   |                             |                                   |
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|             |              |
|-------------|--------------|
| LOOP:       | B0LBA30AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| CODE         | DESCRIPTION                 | TO         |
|--------------|-----------------------------|------------|
|              |                             | 31         |
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|              |                             | 35         |
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|              |                             | 37         |
|              |                             | 38         |
| B0LBA30AA401 | Main Steam Attemperation CV | Vlv Discrp |
| XM80         |                             | Pos        |
| B0LBA30AA401 | Main Steam Attemperation CV | Valve      |
| XQ13         |                             | Position   |
|              |                             | 41         |
| B0LBA30AA401 | Main Steam Attemperation CV | Valve      |
| XQ13         |                             | <>>        |
|              |                             | Position   |
|              |                             | 152 - 11   |
|              |                             | 42         |
|              |                             | 43         |
|              |                             | 44         |
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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System  
Main Steam Attemperation CV**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 152.BCONT

REV. P01

A

B

C

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A

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E

**Control Diagram**

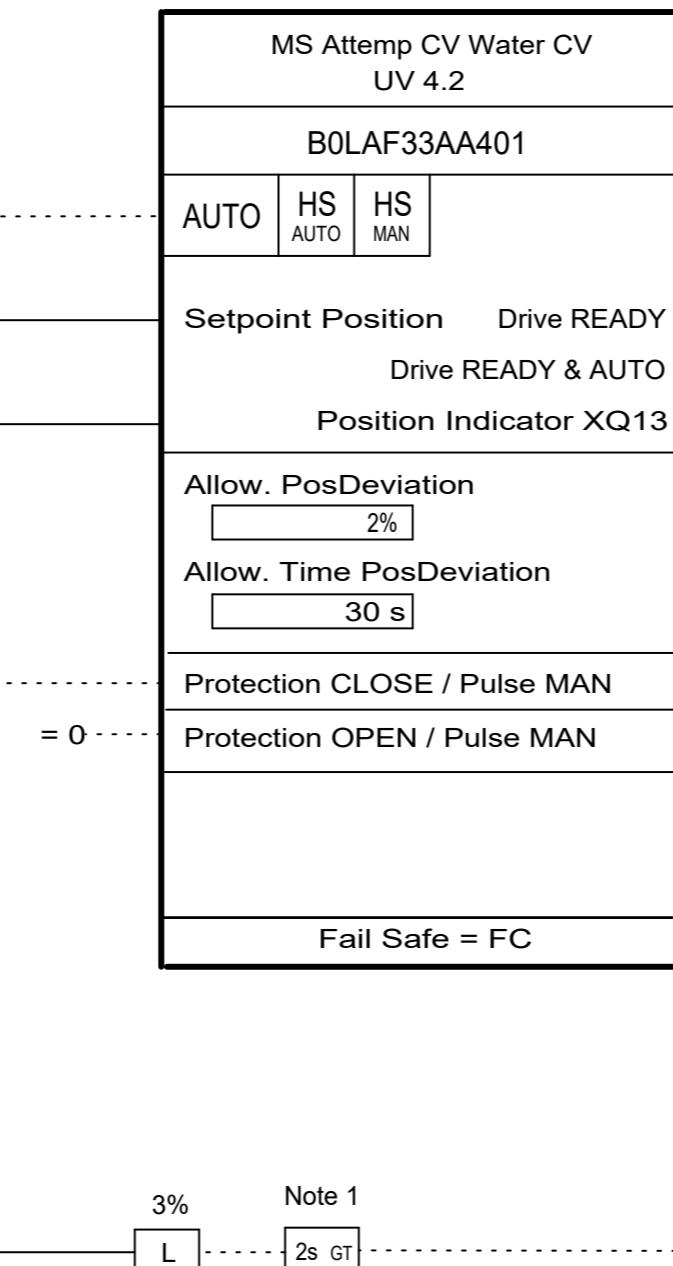
Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Water CV

|             |              |
|-------------|--------------|
| LOOP:       | B0LAF33AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM             | DESCRIPTION  | CODE                      |
|----|------------------|--|---------------------------|
| 1  |                  |  |                           |
| 2  |                  |  |                           |
| 3  |                  |  |                           |
| 4  |                  |  |                           |
| 5  |                  |  |                           |
| 6  |                  |  |                           |
| 7  | <><br>150.A - 33 | MP Steam/Auxiliary Steam FSG<br>All drives to Auto | B0LBG10EA001<br>ZB13      |
| 8  |                  |  |                           |
| 9  | <><br>154.A - 38 | MS Attemp CV Water CV<br>Setpoint Position         | B0LAF33AA401<br>ZC01      |
| 10 |                  |  |                           |
| 11 |                  | MS Attemp CV Water CV<br>Position Ind              | B0LAF33AA401<br>XQ13      |
| 12 |                  |  |                           |
| 13 |                  |  |                           |
| 14 |                  |  |                           |
| 15 |                  |  |                           |
| 16 | <><br>152 - 57   | Main Steam Attemperation CV<br>Closed              | B0LBA30AA401<br>ZB02      |
| 17 | <><br>212 - 48   | MS Attemp CV Outl Temp                             | B0LBG12CT901<br>L<br>ZB52 |
| 18 |                  |  |                           |
| 19 |                  |  |                           |
| 20 |                  |  |                           |
| 21 |                  |  |                           |
| 22 |                  |  |                           |
| 23 |                  |  |                           |
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| 25 |                  |  |                           |
| 26 |                  |  |                           |
| 27 |                  |  |                           |
| 28 |                  |  |                           |
| 29 |                  |  |                           |
| 30 |                  |  |                           |

**Notes:**

1. To be adjusted during commissioning.

| CODE         | DESCRIPTION                            | TO         |
|--------------|--|------------|
|              |  | 31         |
|              |  | 32         |
|              |  | 33         |
|              |  | 34         |
|              |  | 35         |
| B0LBA30AA401 | Main Steam Attemperation CV Position   | <> 36      |
| YQ01         | Main Steam AttempCV Water CV Demand    | 154.A - 12 |
| B0LAF33AA401 | MS Attemp CV Water CV Position         | 37         |
| YQ01         | MS Attemp CV Water CV Demand           |            |
| B0LAF33AA401 | MS Attemp CV Water CV Drive            | <> 38      |
| ZB50         | MS Attemp CV Water CV Ready            | 154.A - 23 |
| B0LAF33AA401 | MS Attemp CV Water CV Drive            | <> 39      |
| ZB50         | MS Attemp CV Water CV Ready            | 150.B - 02 |
| B0LAF33AA401 | MS Attemp CV Water CV Ready & Auto     | 150.C - 13 |
| ZB51         | MS Attemp CV Water CV Drive            | <> 40      |
| B0LAF33AA401 | MS Attemp CV Water CV Ready & Auto     | 154.A - 24 |
| ZB51         |  | 41         |
|              |  | 42         |
|              |  | 43         |
|              |  | 44         |
|              |  | 45         |
| B0LBA30AA401 | Main Steam Attemperation CV Protection | <> 46      |
| ZB17         | Main Steam Attemperation CV CLOSE      | 154.A - 19 |
|              |  | 47         |
| B0LAF33AA401 | MS Attemp CV Water CV Feedback         | 48         |
| XM13         | MS Attemp CV Water CV Anomaly          |            |
| B0LAF33AA401 | MS Attemp CV Water CV Discrp           | 49         |
| XM70         | MS Attemp CV Water CV Pos              |            |
| B0LAF33AA401 | MS Attemp CV Water CV Pos xtmr         | 50         |
| XM30         | MS Attemp CV Water CV BQ               |            |
|              |  | 51         |
|              |  | 52         |
|              |  | 53         |
|              |  | 54         |
|              |  | 55         |
|              |  | 56         |
| B0LAF33AA401 | MS Attemp CV Water CV <>               | 57         |
| ZB02         | MS Attemp CV Water CV Closed           | 156 - 20   |
|              |  | 58         |
|              |  | 59         |
|              |  | 60         |

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[QR]



DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Water CV**

|   |                |
|---|----------------|
| NLWA CODE:                                | SHEET 154 CONT |
| CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604 |                |
| INTERNAL CODE:                            | REV. P01       |

A

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**Control Diagram**

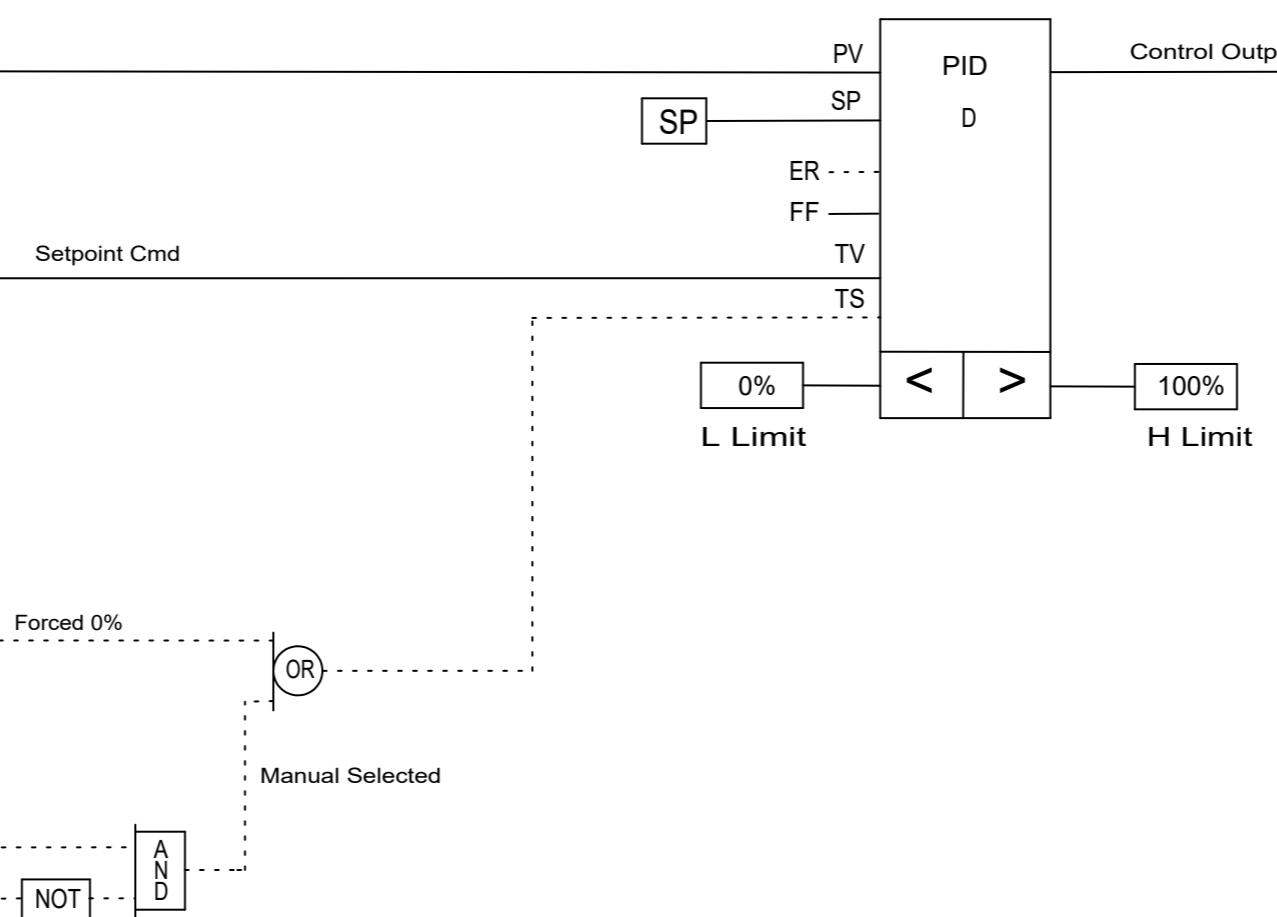
Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Water CV

|             |              |
|-------------|--------------|
| LOOP:       | B0LAF33AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM            | DESCRIPTION                 | CODE                                    |
|----|-----------------|-----------------------------|---|
| 1  |                 |                             |   |
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| 5  |                 |                             |   |
| 6  |                 |                             |   |
| 7  |                 |                             |   |
| 8  | <>><br>212 - 35 | MS Attemp CV Outl Temp      | xtrm B0LBG12CT901<br>XQ01               |
| 9  |                 |                             |   |
| 10 |                 |                             |   |
| 11 |                 |                             |   |
| 12 | <>><br>154 - 36 | Main Steam Attemperation CV | Position B0LBA30AA401<br>Demand YQ01    |
| 13 |                 |                             |   |
| 14 |                 |                             |   |
| 15 |                 |                             |   |
| 16 |                 |                             |   |
| 17 |                 |                             |   |
| 18 |                 |                             |   |
| 19 | <>><br>154 - 46 | Main Steam Attemperation CV | Protection B0LBA30AA401<br>CLOSE ZB17   |
| 20 |                 |                             |   |
| 21 |                 |                             |   |
| 22 |                 |                             |   |
| 23 | <>><br>154 - 38 | MS Attemp CV Water CV       | Drive B0LAF33AA401<br>Ready ZB50        |
| 24 | <>><br>154 - 41 | MS Attemp CV Water CV       | Drive B0LAF33AA401<br>Ready & Auto ZB51 |
| 25 |                 |                             |   |
| 26 |                 |                             |   |
| 27 |                 |                             |   |
| 28 |                 |                             |   |
| 29 |                 |                             |   |
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| 1  | CODE         | DESCRIPTION           | TO                                |
|----|--------------|-----------------------|-----------------------------------|
| 31 |              |                       |                                   |
| 32 |              |                       |                                   |
| 33 |              |                       |                                   |
| 34 |              |                       |                                   |
| 35 |              |                       |                                   |
| 36 |              |                       |                                   |
| 37 |              |                       |                                   |
| 38 | B0LAF33AA401 | MS Attemp CV Water CV | Setpoint <>><br>Position 154 - 09 |
| 39 | ZC01         |                       |                                   |
| 40 |              |                       |                                   |
| 41 |              |                       |                                   |
| 42 |              |                       |                                   |
| 43 |              |                       |                                   |
| 44 |              |                       |                                   |
| 45 |              |                       |                                   |
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| 53 |              |                       |                                   |
| 54 |              |                       |                                   |
| 55 |              |                       |                                   |
| 56 |              |                       |                                   |
| 57 |              |                       |                                   |
| 58 |              |                       |                                   |
| 59 |              |                       |                                   |
| 60 |              |                       |                                   |

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PROJECT

**NORTH LONDON HEAT  
AND POWER PROJECT**

ISSUER



FORMAT

A3

SCALE



DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Water CV**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 154.ACNT

REV. P01

A

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**Control Diagram**

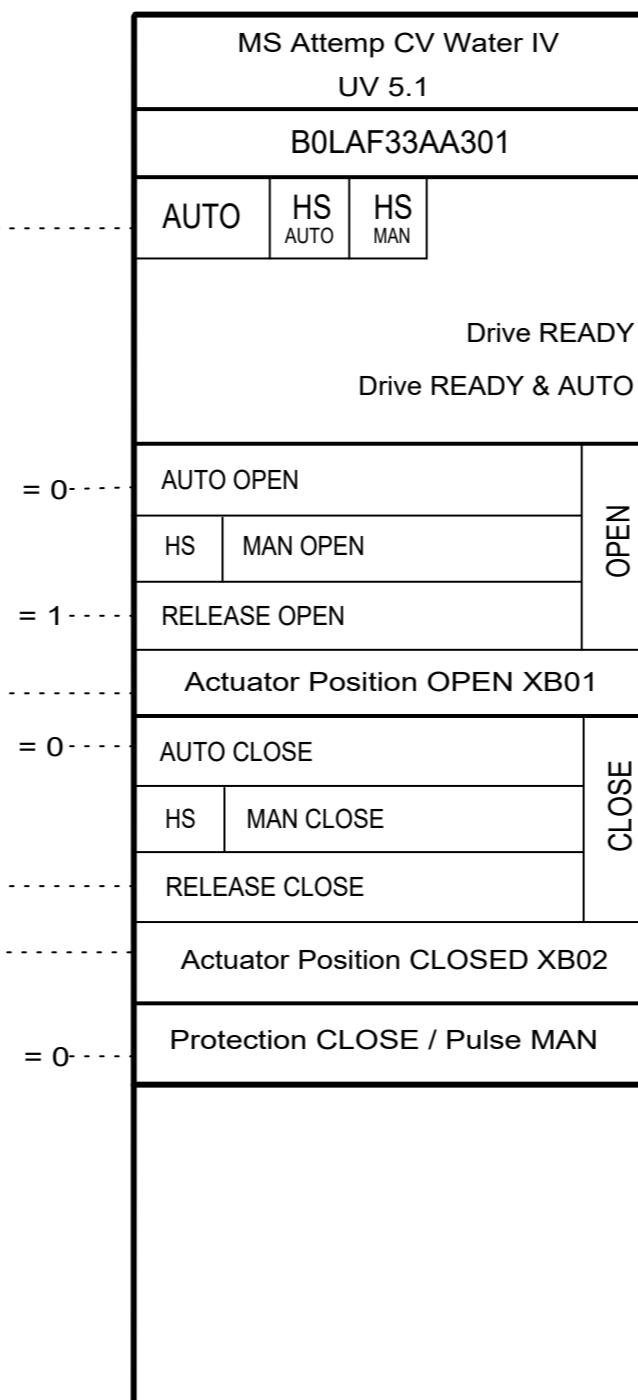
Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Water IV

|             |              |
|-------------|--------------|
| LOOP:       | BOLAF33AA301 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                  | DESCRIPTION  | CODE                 |
|----|-----------------------|--|----------------------|
| 1  |                       |  |                      |
| 2  |                       |  |                      |
| 3  |                       |  |                      |
| 4  |                       |  |                      |
| 5  |                       |  |                      |
| 6  |                       |  |                      |
| 7  | <><br>150.A - 34      | MP Steam/Auxiliary Steam FSG<br>All drives to Auto | BOLBG10EA001<br>ZB13 |
| 8  |                       |  |                      |
| 9  |                       |  |                      |
| 10 |                       |  |                      |
| 11 |                       |  |                      |
| 12 |                       |  |                      |
| 13 |                       |  |                      |
| 14 |                       |  |                      |
| 15 |                       |  |                      |
| 16 | MS Attemp CV Water IV | Actuator<br>Pos Open                               | BOLAF33AA301<br>XB01 |
| 17 |                       |  |                      |
| 18 |                       |  |                      |
| 19 |                       |  |                      |
| 20 | <><br>154 - 57        | MS Attemp CV Water CV<br>Closed                    | BOLAF33AA401<br>ZB02 |
| 21 | MS Attemp CV Water IV | Actuator<br>Pos Close                              | BOLAF33AA301<br>XB02 |
| 22 |                       |  |                      |
| 23 |                       |  |                      |
| 24 |                       |  |                      |
| 25 |                       |  |                      |
| 26 |                       |  |                      |
| 27 |                       |  |                      |
| 28 |                       |  |                      |
| 29 |                       |  |                      |
| 30 |                       |  |                      |



| CODE         | DESCRIPTION           | TO                |
|--------------|-----------------------|-------------------|
|              |                       | 31                |
|              |                       | 32                |
|              |                       | 33                |
|              |                       | 34                |
|              |                       | 35                |
|              |                       | 36                |
|              |                       | 37                |
|              |                       | 38                |
| BOLAF33AA301 | MS Attemp CV Water IV | Drive <>          |
| ZB50         |                       | Ready 150.B - 03  |
| BOLAF33AA301 | MS Attemp CV Water IV | Drive Ready <>    |
| ZB51         |                       | & Auto 150.C - 14 |
|              |                       | 40                |
|              |                       | 41                |
| BOLAF33AA301 | MS Attemp CV Water IV | Op Cmd            |
| YB01         |                       | 43                |
|              |                       | 44                |
|              |                       | 45                |
|              |                       | 46                |
|              |                       | 47                |
|              |                       | 48                |
|              |                       | 49                |
|              |                       | 50                |
|              |                       | 51                |
|              |                       | 52                |
| BOLAF33AA301 | MS Attemp CV Water IV | Prot Close        |
| XM17         |                       | Pulse Man         |
|              |                       | 54                |
| BOLAF33AA301 | MS Attemp CV Water IV | Cmd Op            |
| XM15         |                       | Failure           |
| BOLAF33AA301 | MS Attemp CV Water IV | Cmd Cl            |
| XM16         |                       | Failure           |
| BOLAF33AA301 | MS Attemp CV Water IV | Air Loss          |
| XM69         |                       | Acted             |
| BOLAF33AA301 | MS Attemp CV Water IV | Feedback          |
| XM33         |                       | Anomaly           |
|              |                       | 59                |
|              |                       | 60                |

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CONTRACTOR  
**Acciona**

PROJECT

NORTH LONDON HEAT AND POWER PROJECT

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Water IV**

|   |                |
|---|----------------|
| NLWA CODE:                                | SHEET 156 CONT |
| CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604 |                |
| INTERNAL CODE:                            | REV. P01       |

A

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**Control Diagram**

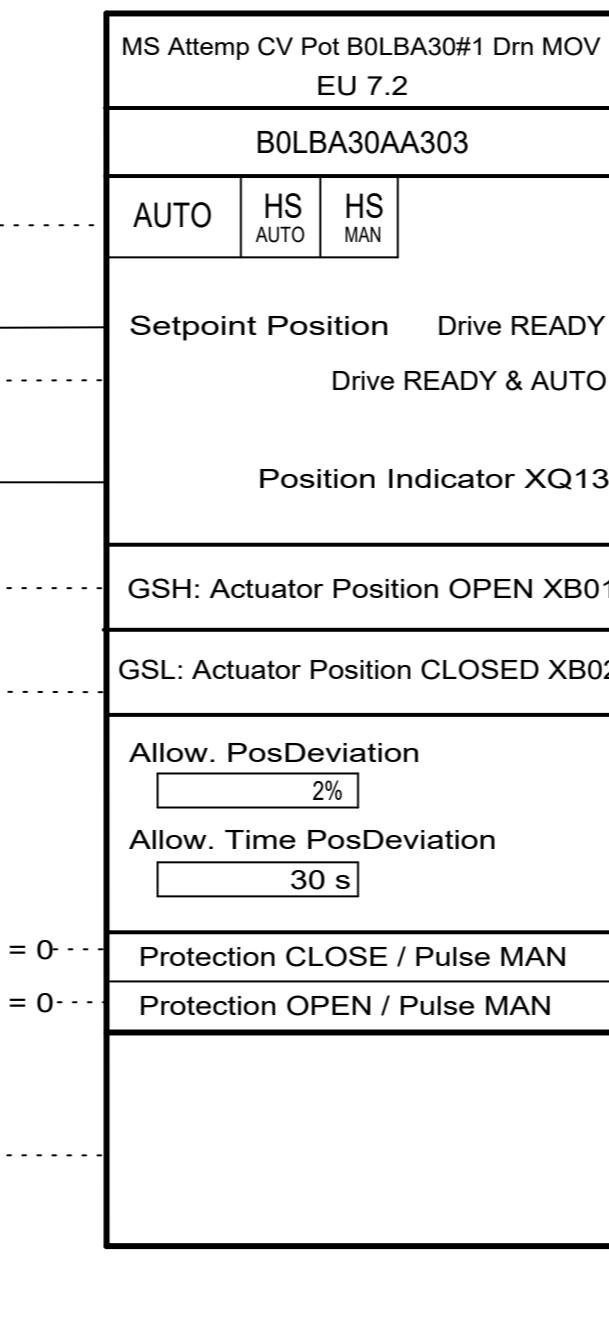
Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Pot B0LBA30#1 Drn MOV

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA30AA303 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM              | DESCRIPTION                                 | CODE                 |
|----|-------------------|---|----------------------|
| 1  |                   |   |                      |
| 2  |                   |   |                      |
| 3  |                   |   |                      |
| 4  |                   |   |                      |
| 5  |                   |   |                      |
| 6  |                   |   |                      |
| 7  | <>><br>150.A - 35 | MP Steam/Auxiliary Steam FSG                | All drives to Auto   |
|    |                   |   | B0LBG10EA001<br>ZB13 |
| 8  |                   |   |                      |
| 9  | <>><br>158.A - 35 | MS Attemp CV Pot B0LBA30#1 Drn MOV Position | Setpoint Position    |
|    |                   |   | B0LBA30AA303<br>ZC01 |
| 10 |                   | MS Attemp CV Pot B0LBA30#1 Drn MOV          | Actuator Local Mode  |
|    |                   |   | B0LBA30AA303<br>XB23 |
| 11 |                   |   |                      |
| 12 |                   | MS Attemp CV Pot B0LBA30#1 Drn MOV          | Valve Position       |
|    |                   |   | B0LBA30AA303<br>XQ13 |
| 13 |                   |   |                      |
| 14 |                   | MS Attemp CV Pot B0LBA30#1 Drn MOV          | FullyOn              |
|    |                   |   | B0LBA30AA303<br>XB01 |
| 15 |                   |   |                      |
| 16 |                   | MS Attemp CV Pot B0LBA30#1 Drn MOV          | FullyCl              |
|    |                   |   | B0LBA30AA303<br>XB02 |
| 17 |                   |   |                      |
| 18 |                   |   |                      |
| 19 |                   |   |                      |
| 20 |                   |   |                      |
| 21 |                   |   |                      |
| 22 |                   |   |                      |
| 23 |                   |   |                      |
| 24 |                   |   |                      |
| 25 |                   | MS Attemp CV Pot B0LBA30#1 Drn MOV          | Actuator Fault       |
|    |                   |   | B0LBA30AA303<br>XB07 |
| 26 |                   |   |                      |
| 27 |                   |   |                      |
| 28 |                   |   |                      |
| 29 |                   |   |                      |
| 30 |                   |   |                      |



| CODE                 | DESCRIPTION                                 | TO |
|----------------------|---|----|
|                      |   | 31 |
|                      |   | 32 |
|                      |   | 33 |
|                      |   | 34 |
|                      |   | 35 |
|                      |   | 36 |
| B0LBA30AA303<br>YQ01 | MS Attemp CV Pot B0LBA30#1 Drn MOV Demand   | 37 |
|                      |   | 38 |
| B0LBA30AA303<br>ZB50 | MS Attemp CV Pot B0LBA30#1 Drn MOV Ready    | 39 |
| B0LBA30AA303<br>ZB51 | MS Attemp CV Pot B0LBA30#1 Drn MOV & Auto   | 40 |
|                      |   | 41 |
|                      |   | 42 |
|                      |   | 43 |
|                      |   | 44 |
|                      |   | 45 |
| B0LBA30AA303<br>XB02 | MS Attemp CV Pot B0LBA30#1 Drn MOV          | 46 |
|                      |   | 47 |
|                      |   | 48 |
|                      |   | 49 |
|                      |   | 50 |
|                      |   | 51 |
|                      |   | 52 |
|                      |   | 53 |
| B0LBA30AA303<br>XM13 | MS Attemp CV Pot B0LBA30#1 Drn MOV Anomaly  | 54 |
| B0LBA30AA303<br>XM07 | MS Attemp CV Pot B0LBA30#1 Drn MOV Fault    | 55 |
|                      |   | 56 |
|                      |   | 57 |
|                      |   | 58 |
| B0LBA30AA303<br>XQ13 | MS Attemp CV Pot B0LBA30#1 Drn MOV Position | 59 |
|                      |   | 60 |

**Notes:**

- For Drain Pots controlled by temperature see sheet 900

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[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT



SCALE

**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**MS Attemp CV Pot B0LBA30#1 Drn MOV**

NLWA CODE:

CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 158 CONT

REV. P01

A

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C

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### Control Diagram

Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Pot B0LBA30#1 Drn MOV

LOOP: B0LBA30AA303  
LOOP SHEET:

### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| FROM | DESCRIPTION      | CODE  |
|------|------------------|---|
| 1    |                  |   |
| 2    |                  |   |
| 3    |                  |   |
| 4    | <><br>158.B - 38 | MS Attemp CV Pot B0LBA30#1 Temp<br>H B0LBA30CT004<br>ZB01               |
| 5    |                  |   |
| 6    | <><br>158.B - 55 | MS from Boiler Press Avg<br>L B0LBA10CP901<br>ZB52                      |
| 7    |                  |   |
| 8    |                  |   |
| 9    |                  |   |
| 10   |                  |   |
| 11   | <><br>158.B - 41 | MS Attemp CV Pot B0LBA30#1 Temp<br>L B0LBA30CT004<br>ZB52               |
| 12   |                  |   |
| 13   |                  |   |
| 14   |                  |   |
| 15   | <><br>158.B - 52 | MS from Boiler Press Avg<br>H B0LBA10CP901<br>ZB01                      |
| 16   |                  |   |
| 17   | <><br>158 - 46   | MS Attemp CV Pot B0LBA30#1 FullyCl<br>Drn MOV<br>XB02                   |
| 18   |                  |   |
| 19   | <><br>150 - 44   | MP Steam/Auxiliary Steam FSG<br>in operation<br>FG B0LBG10EA001<br>ZB21 |
| 20   |                  |   |
| 21   |                  |   |
| 22   |                  |   |
| 23   | <><br>158 - 59   | MS Attemp CV Pot B0LBA30#1 Valve<br>Drn MOV Position<br>XB02            |
| 24   |                  |   |
| 25   |                  |   |
| 26   |                  |   |
| 27   |                  |   |
| 28   |                  |   |
| 29   |                  |   |
| 30   |                  |   |

B1 In service

B2 In service

Note: This part of the logic is used until the pressure required is achieved.

Once the pressure is achieved it will be working controlled by the temperature transmitter

Notes:

1. For Drain Pots controlled by temperature see sheet 900

[QR]

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CONTRACTOR  
**Acciona**

PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Pot B0LBA30#1 Drn MOV**

ISSUER  
**EMPRESARIOS AGRUPADOS**

FORMAT  
**A3**

SCALE

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 158.ACNT  
REV. P01

A

B

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D

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### Control Diagram

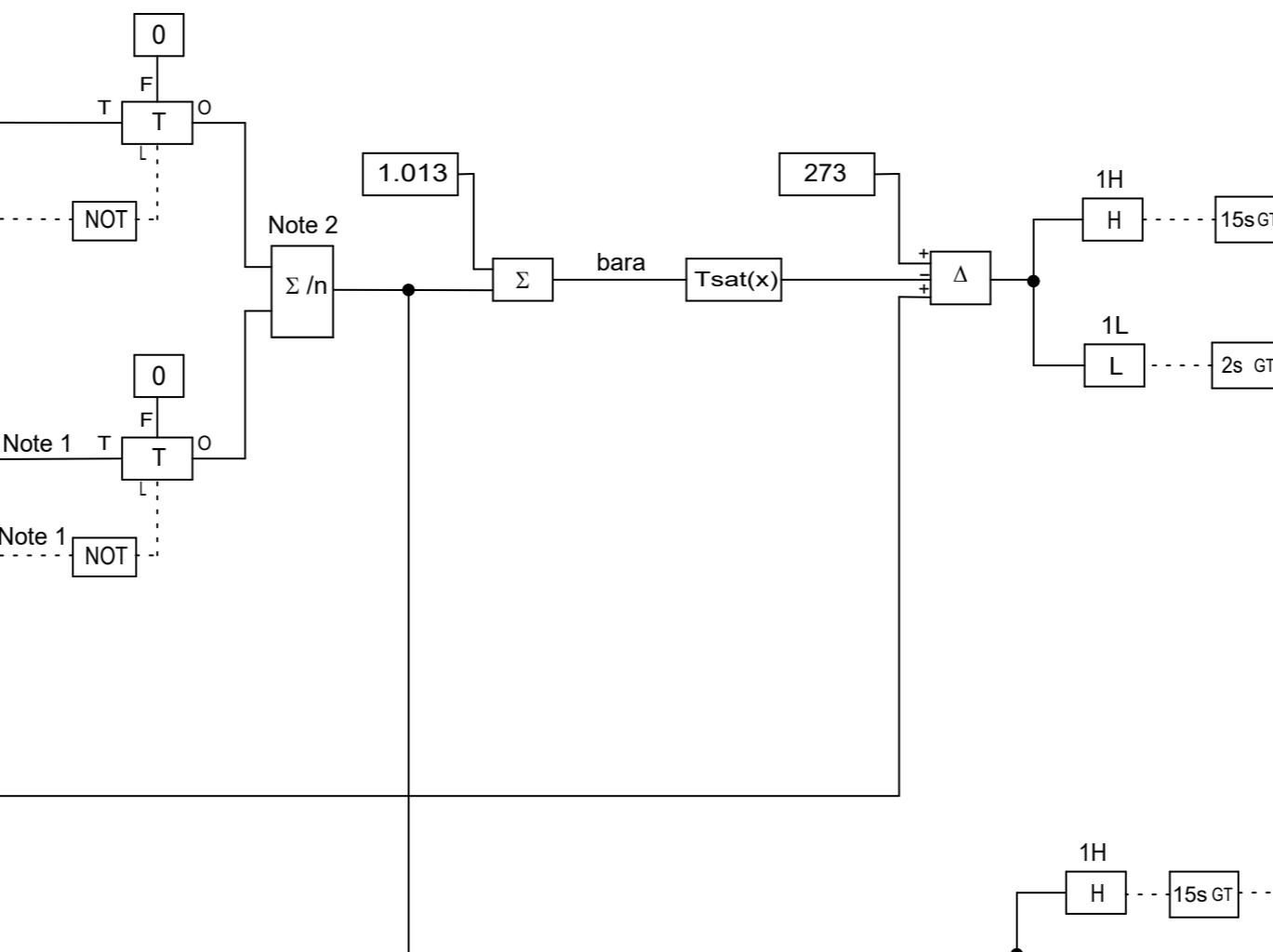
Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Pot B0LBA30#1 Drn MOV

LOOP: B0LBA30AA303  
LOOP SHEET:

### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                      | DESCRIPTION                     | CODE                                  |
|----|---------------------------|---------------------------------|---------------------------------------|
| 1  |                           |                                 |                                       |
| 2  |                           |                                 |                                       |
| 3  |                           |                                 |                                       |
| 4  |                           |                                 |                                       |
| 5  |                           |                                 |                                       |
| 6  | <><br>62 - 36             | B1: MS from Boiler Press        | xtrmr<br>B1LBA10CP901<br>XQ01         |
| 7  |                           |                                 |                                       |
| 8  | <><br>54 - 48             | B1: MS to AuxStm Isol MOV       | FullyCl<br>B0LBA30AA301<br>XB02       |
| 9  |                           |                                 |                                       |
| 10 |                           |                                 |                                       |
| 11 |                           |                                 |                                       |
| 12 |                           |                                 |                                       |
| 13 | B2: MS from Boiler Press  | xtrmr<br>B2LBA10CP901<br>XQ01   |                                       |
| 14 |                           |                                 |                                       |
| 15 | B2: MS to AuxStm Isol MOV | FullyCl<br>B0LBA30AA302<br>XB02 |                                       |
| 16 |                           |                                 |                                       |
| 17 |                           |                                 |                                       |
| 18 |                           |                                 |                                       |
| 19 |                           |                                 |                                       |
| 20 | <><br>218 - 44            | MS Attemp CV Pot B0LBA30#1      | xtrmr<br>B0LBA30CT004<br>Temp<br>XQ01 |
| 21 |                           |                                 |                                       |
| 22 |                           |                                 |                                       |
| 23 |                           |                                 |                                       |
| 24 |                           |                                 |                                       |
| 25 |                           |                                 |                                       |
| 26 |                           |                                 |                                       |
| 27 |                           |                                 |                                       |
| 28 |                           |                                 |                                       |
| 29 |                           |                                 |                                       |
| 30 |                           |                                 |                                       |



#### Notes:

1. Orders and feedbacks cross references from Equipment 2, should be replicated.
2. n=2 if both inputs are different from 0, if not n=1.

| CODE | DESCRIPTION | TO |
|------|-------------|----|
|      |             | 31 |
|      |             | 32 |
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[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Pot B0LBA30#1 Drn MOV**

|  |                 |
|--|-----------------|
| NLWA CODE:                               | SHEET 158.BCONT |
| CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604 |                 |
| INTERNAL CODE:                           | REV. P01        |

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**Control Diagram**

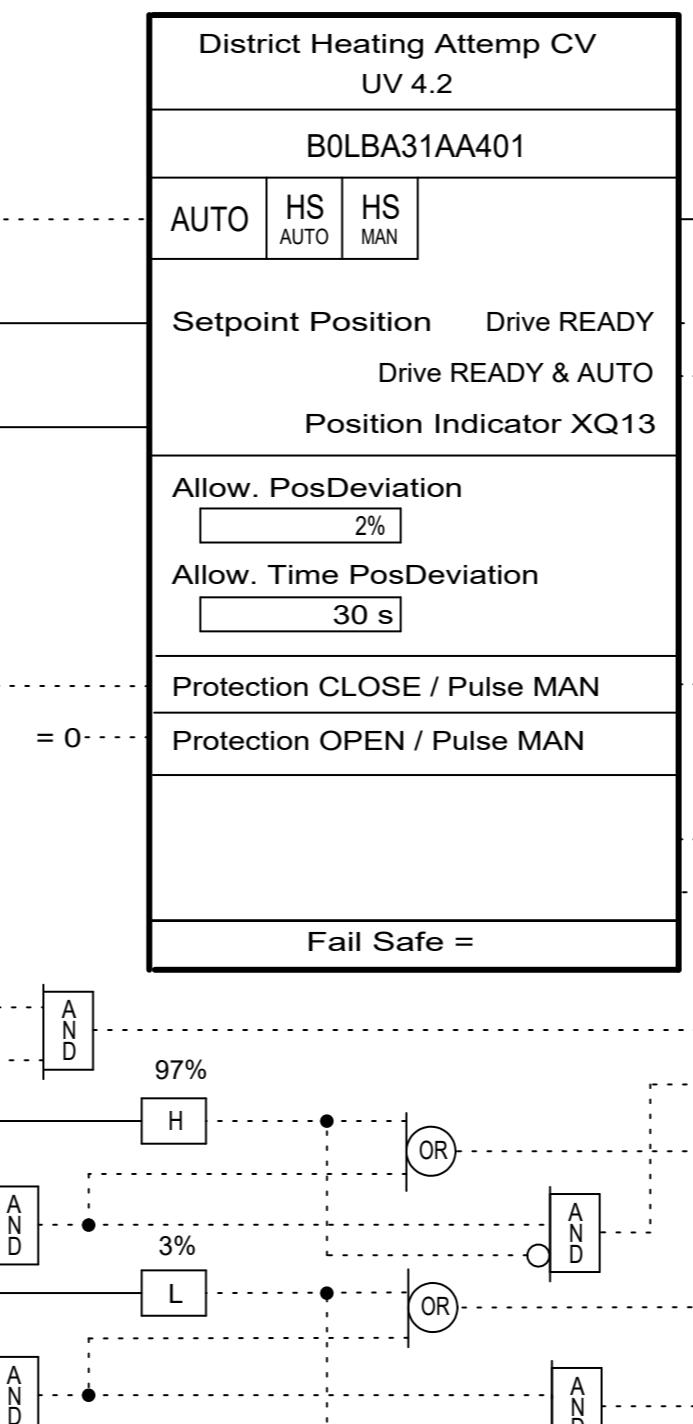
Main Steam, Extract Aux Steam & By-Pass System  
District Heating Attemp CV

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA31AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
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| 1  | FROM             | DESCRIPTION  | CODE                 |
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| 6  |                  |  |                      |
| 7  | <><br>150.A - 37 | MP Steam/Auxiliary Steam FSG<br>All drives to Auto | B0LBG10EA001<br>ZB13 |
| 8  |                  |  |                      |
| 9  | <><br>162.A - 38 | District Heating Attemp CV<br>Setpoint Position    | B0LBA31AA401<br>ZC01 |
| 10 |                  |  |                      |
| 11 | <><br>162.B - 42 | District Heating Attemp CV<br>Valve Position       | B0LBA31AA401<br>XQ13 |
| 12 |                  |  |                      |
| 13 |                  |  |                      |
| 14 |                  |  |                      |
| 15 |                  |  |                      |
| 16 | <><br>222 - 42   | Dist Heat Attemp CV Out Temp H                     | B0LBG40CT901<br>ZB01 |
| 17 |                  |  |                      |
| 18 |                  |  |                      |
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| 25 |                  |  |                      |
| 26 |                  | District Heating Attemp CV<br>FullyOp              | B0LBA31AA401<br>XB01 |
| 27 |                  |  |                      |
| 28 |                  |  |                      |
| 29 |                  |  |                      |
| 30 |                  | District Heating Attemp CV<br>FullyCl              | B0LBA31AA401<br>XB02 |



| CODE         | DESCRIPTION                                 | TO         |
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|              |   | 31         |
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|              |   | 35         |
| B0LBA31AA401 | District Heating Attemp CV Position         | <>         |
| YQ01         | District Heating Attemp CV Demand           | 162.A - 12 |
| B0LBA31AA401 | District Heating Attemp CV Position         | 37         |
| YQ01         | District Heating Attemp CV Demand           |            |
| B0LBA31AA401 | District Heating Attemp CV Drive            | <>         |
| ZB50         | District Heating Attemp CV Ready            | 162.A - 23 |
| B0LBA31AA401 | District Heating Attemp CV Drive            | <>         |
| ZB50         | District Heating Attemp CV Ready            | 150.B - 04 |
| B0LBA31AA401 | District Heating Attemp CV Ready & Auto     | 150.C - 15 |
| ZB51         | District Heating Attemp CV Drive            | <>         |
| B0LBA31AA401 | District Heating Attemp CV Ready & Auto     | 162.A - 24 |
| ZB51         |   |            |
| B0LBA31AA401 | District Heating Attemp CV Protection CLOSE | <>         |
| ZB17         | District Heating Attemp CV Protection CLOSE | 162.A - 19 |
| B0LBA31AA401 | District Heating Attemp CV Feedback         |            |
| XM13         | District Heating Attemp CV Anomaly          |            |
| B0LBA31AA401 | District Heating Attemp CV Discrp           |            |
| XM70         | District Heating Attemp CV Pos              |            |
| B0LBA31AA401 | District Heating Attemp CV Pos xtmr         |            |
| XM30         | District Heating Attemp CV BQ               |            |
| B0LBA31AA401 | District Heating Attemp CV Open             |            |
| ZB01         | District Heating Attemp CV Closed           | <>         |
| B0LBA31AA401 | District Heating Attemp CV Closed           | 164 - 16   |
| ZB02         | District Heating Attemp CV Closed           |            |
| ZB02         | District Heating Attemp CV Closed           |            |

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PROJECT

**NORTH LONDON HEAT  
AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

FORMAT  
**A3**

SCALE

**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**District Heating Attemp CV**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 162 CONT  
REV. P01

INTERNAL CODE:

A

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### Control Diagram

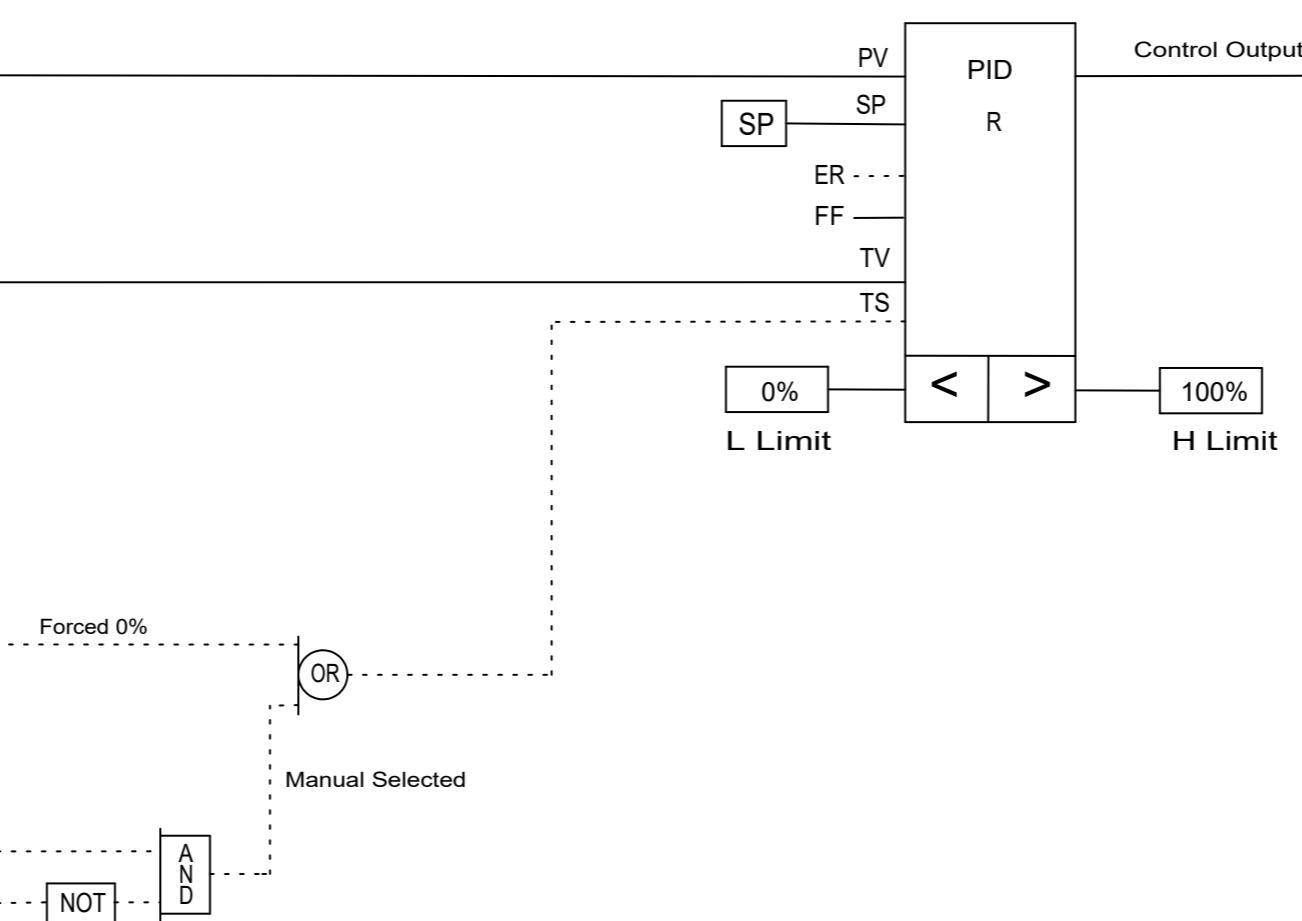
Main Steam, Extract Aux Steam & By-Pass System  
District Heating Attemp CV

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| LOOP:       | B0LBA31AA401 |
| LOOP SHEET: |              |

### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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| 7  |                 |                                |   |
| 8  | <>><br>220 - 35 | Dist Heat Attemp CV Outl Press | xtrmr<br>B0LBG40CP901<br>XQ01                 |
| 9  |                 |                                |   |
| 10 |                 |                                |   |
| 11 |                 |                                |   |
| 12 | <>><br>162 - 36 | District Heating Attemp CV     | Position<br>Demand<br>B0LBA31AA401<br>YQ01    |
| 13 |                 |                                |   |
| 14 |                 |                                |   |
| 15 |                 |                                |   |
| 16 |                 |                                |   |
| 17 |                 |                                |   |
| 18 |                 |                                |   |
| 19 | <>><br>162 - 46 | District Heating Attemp CV     | Protection<br>CLOSE<br>B0LBA31AA401<br>ZB17   |
| 20 |                 |                                |   |
| 21 |                 |                                |   |
| 22 |                 |                                |   |
| 23 | <>><br>162 - 38 | District Heating Attemp CV     | Drive<br>Ready<br>B0LBA31AA401<br>ZB50        |
| 24 | <>><br>162 - 41 | District Heating Attemp CV     | Drive<br>Ready & Auto<br>B0LBA31AA401<br>ZB51 |
| 25 |                 |                                |   |
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|              |                             | 36           |
|              |                             | 37           |
| B0LBA30AA401 | Main Steam Attemperation CV | Setpoint <>> |
| ZC01         | Position                    | 162 - 09     |
|              |                             | 38           |
|              |                             | 39           |
|              |                             | 40           |
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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT

A3

SCALE



**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**District Heating Attemp CV**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 162.ACNT

REV. P01

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**Control Diagram**

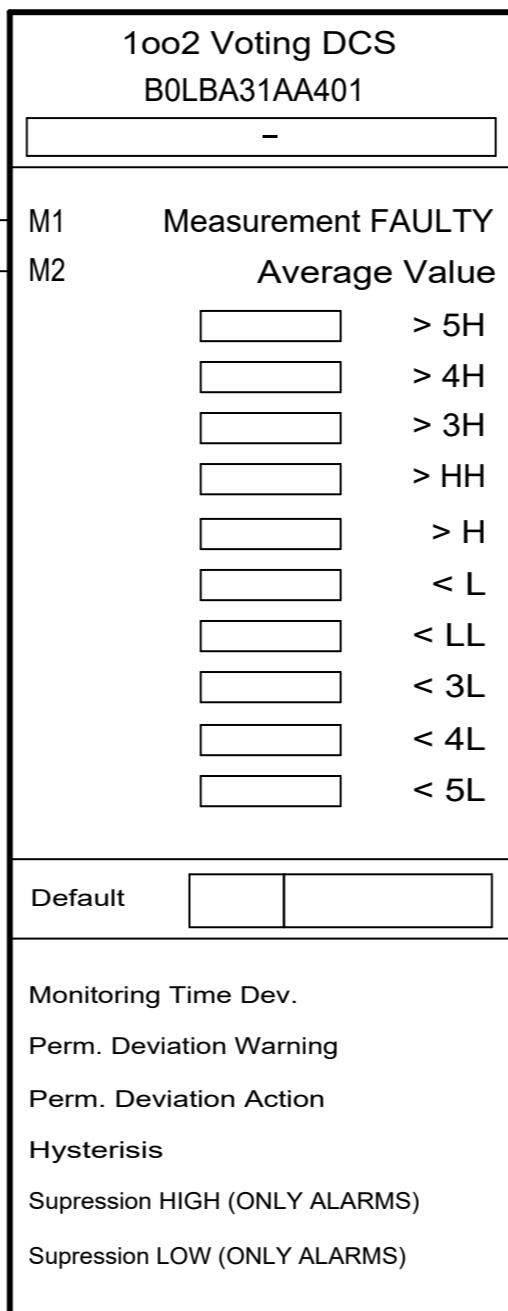
Main Steam, Extract Aux Steam & By-Pass System  
District Heating Attemp CV

|             |              |
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| LOOP:       | B0LBA31AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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| 8  |                            |             |              |
| 9  | District Heating Attemp CV | Position1   | B0LBA31AA401 |
|    |                            |             | XQ01         |
| 10 | District Heating Attemp CV | Position2   | B0LBA31AA401 |
|    |                            |             | XQ02         |
| 11 |                            |             |              |
| 12 |                            |             |              |
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|              |                            | 37                |
|              |                            | 38                |
| B0LBA31AA401 | District Heating Attemp CV | Vlv Discrp        |
| XM80         |                            | Pos               |
| B0LBA31AA401 | District Heating Attemp CV | Valve             |
| XQ13         |                            | Position          |
|              |                            | 41                |
| B0LBA31AA401 | District Heating Attemp CV | Valve             |
| XQ13         |                            | <>>               |
|              |                            | Position 162 - 11 |
|              |                            | 42                |
|              |                            | 43                |
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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT



SCALE



DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System  
District Heating Attemp CV**

NLWA CODE:

CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 162.BCONT

REV. P01

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**Control Diagram**

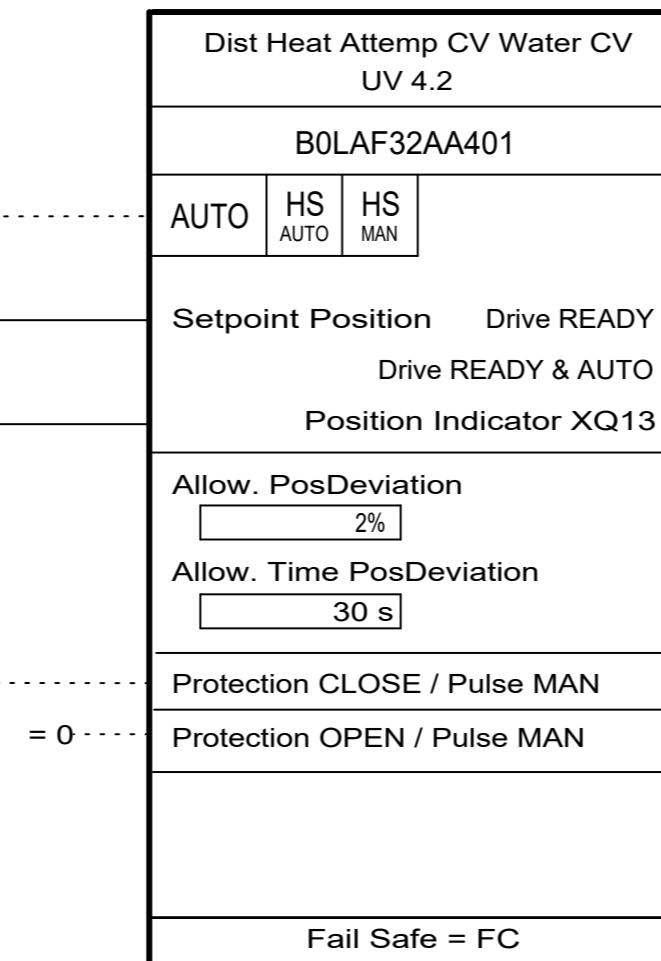
Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Water CV

|             |              |
|-------------|--------------|
| LOOP:       | BOLAF32AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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| 6  |                   |  |                      |
| 7  | <>><br>150.A - 38 | MP Steam/Auxiliary Steam FSG<br>All drives to Auto | BOLBG10EA001<br>ZB13 |
| 8  |                   |  |                      |
| 9  | <>><br>164.A - 38 | Dist Heat Attemp CV Water CV<br>Setpoint Position  | BOLAF32AA401<br>ZC01 |
| 10 |                   |  |                      |
| 11 |                   | Dist Heat Attemp CV Water CV<br>Position Ind       | BOLAF32AA401<br>XQ13 |
| 12 |                   |  |                      |
| 13 |                   |  |                      |
| 14 |                   |  |                      |
| 15 |                   |  |                      |
| 16 | <>><br>162 - 57   | District Heating Attemp CV<br>Closed               | BOLBA31AA401<br>ZB02 |
| 17 |                   |  |                      |
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| CODE         | DESCRIPTION                               | TO         |
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| BOLAF32AA401 | Dist Heat Attemp CV Water CV Position     | <>> 36     |
| YQ01         | Dist Heat Attemp CV Water CV Demand       | 164.A - 12 |
| BOLAF32AA401 | Dist Heat Attemp CV Water CV Position     | 37         |
| YQ01         | Dist Heat Attemp CV Water CV Demand       |            |
| BOLAF32AA401 | Dist Heat Attemp CV Water CV Drive        | <>> 38     |
| ZB50         | Dist Heat Attemp CV Water CV Ready        | 164.A - 23 |
| BOLAF32AA401 | Dist Heat Attemp CV Water CV Drive        | <>> 39     |
| ZB50         | Dist Heat Attemp CV Water CV Ready        | 150.B - 05 |
| BOLAF32AA401 | Dist Heat Attemp CV Water CV Drive        | <>> 40     |
| ZB51         | Dist Heat Attemp CV Water CV Ready & Auto | 150.C - 16 |
| BOLAF32AA401 | Dist Heat Attemp CV Water CV Drive        | <>> 41     |
| ZB51         | Dist Heat Attemp CV Water CV Ready & Auto | 164.A - 24 |
|              |   | 42         |
|              |   | 43         |
|              |   | 44         |
|              |   | 45         |
| BOLAF32AA401 | Dist Heat Attemp CV Water CV Protection   | <>> 46     |
| ZB17         | Dist Heat Attemp CV Water CV CLOSE        | 164.A - 19 |
|              |   | 47         |
| BOLAF32AA401 | Dist Heat Attemp CV Water CV Feedback     | 48         |
| XM13         | Dist Heat Attemp CV Water CV Anomaly      |            |
| BOLAF32AA401 | Dist Heat Attemp CV Water CV Discrp       | 49         |
| XM70         | Dist Heat Attemp CV Water CV Pos          |            |
| BOLAF32AA401 | Dist Heat Attemp CV Water CV Pos xtrmr    | 50         |
| XM30         | Dist Heat Attemp CV Water CV BQ           |            |
|              |   | 51         |
|              |   | 52         |
|              |   | 53         |
|              |   | 54         |
|              |   | 55         |
|              |   | 56         |
| BOLAF32AA401 | Dist Heat Attemp CV Water CV <>>          | 57         |
| ZB02         | Dist Heat Attemp CV Water CV Closed       | 166 - 20   |
|              |   | 58         |
|              |   | 59         |
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**Notes:**

1. To be adjusted during commissioning.

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PROJECT  
**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Water CV**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 164 CONT  
REV. P01

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**Control Diagram**

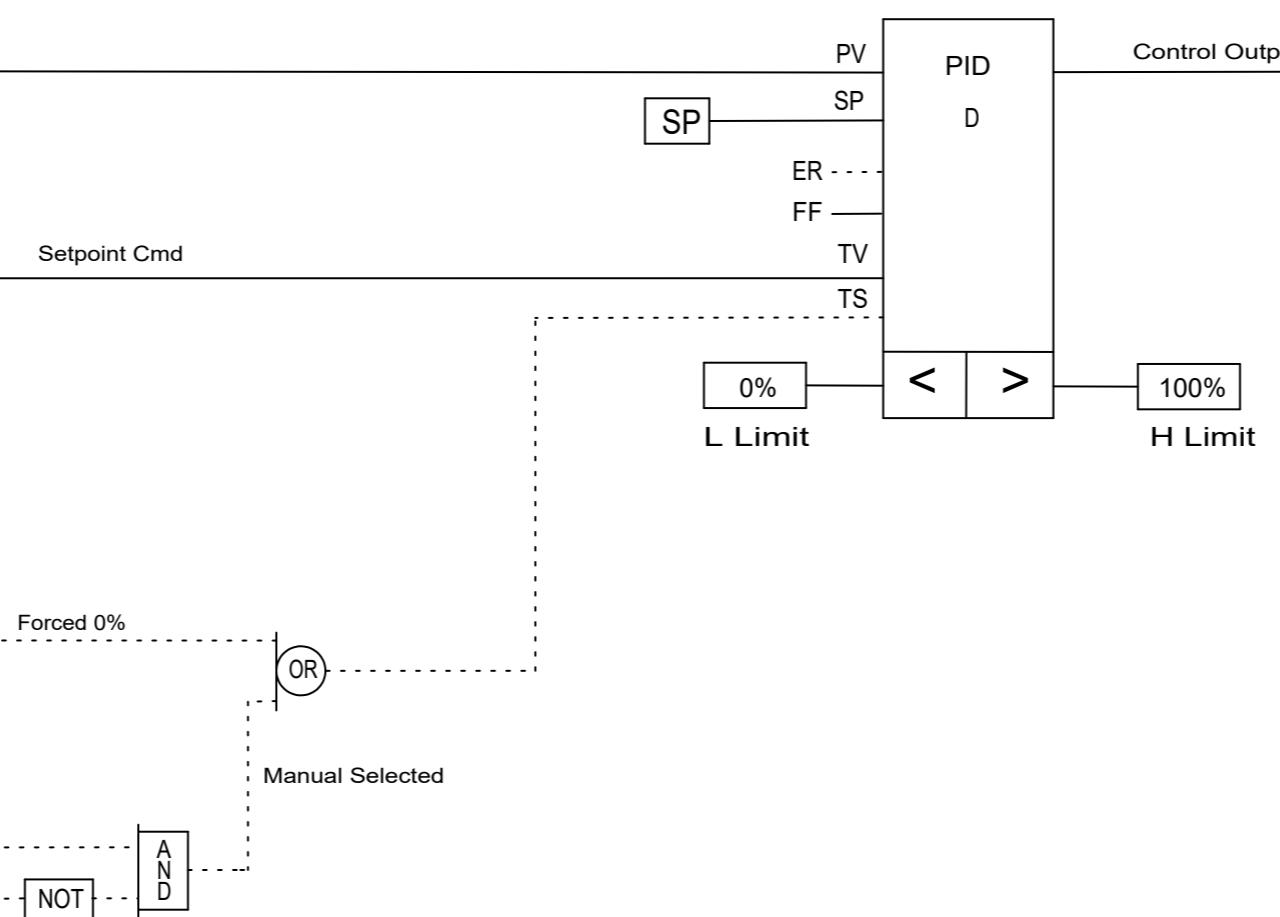
Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Water CV

|             |              |
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| LOOP:       | B0LAF32AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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| 7  |                 |                               |   |
| 8  | <>><br>222 - 35 | Dist Heat Attemp CV Outl Temp | xtrmr<br>B0LBG40CT901<br>XQ01                 |
| 9  |                 |                               |   |
| 10 |                 |                               |   |
| 11 |                 |                               |   |
| 12 | <>><br>164 - 36 | Dist Heat Attemp CV Water CV  | Position<br>Demand<br>B0LAF32AA401<br>YQ01    |
| 13 |                 |                               |   |
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| 18 |                 |                               |   |
| 19 | <>><br>164 - 46 | Dist Heat Attemp CV Water CV  | Protection<br>CLOSE<br>B0LAF32AA401<br>ZB17   |
| 20 |                 |                               |   |
| 21 |                 |                               |   |
| 22 |                 |                               |   |
| 23 | <>><br>164 - 38 | Dist Heat Attemp CV Water CV  | Drive<br>Ready<br>B0LAF32AA401<br>ZB50        |
| 24 | <>><br>164 - 41 | Dist Heat Attemp CV Water CV  | Drive<br>Ready & Auto<br>B0LAF32AA401<br>ZB51 |
| 25 |                 |                               |   |
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| 37 |              |                              |                                   |
| 38 | B0LAF32AA401 | Dist Heat Attemp CV Water CV | Setpoint <>><br>Position 164 - 09 |
| 39 | ZC01         |                              |                                   |
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PROJECT

**NORTH LONDON HEAT  
AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Water CV**

|  |                |
|--|----------------|
| NLWA CODE:                               | SHEET 164.ACNT |
| CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604 |                |
| INTERNAL CODE:                           | REV. P01       |

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**Control Diagram**

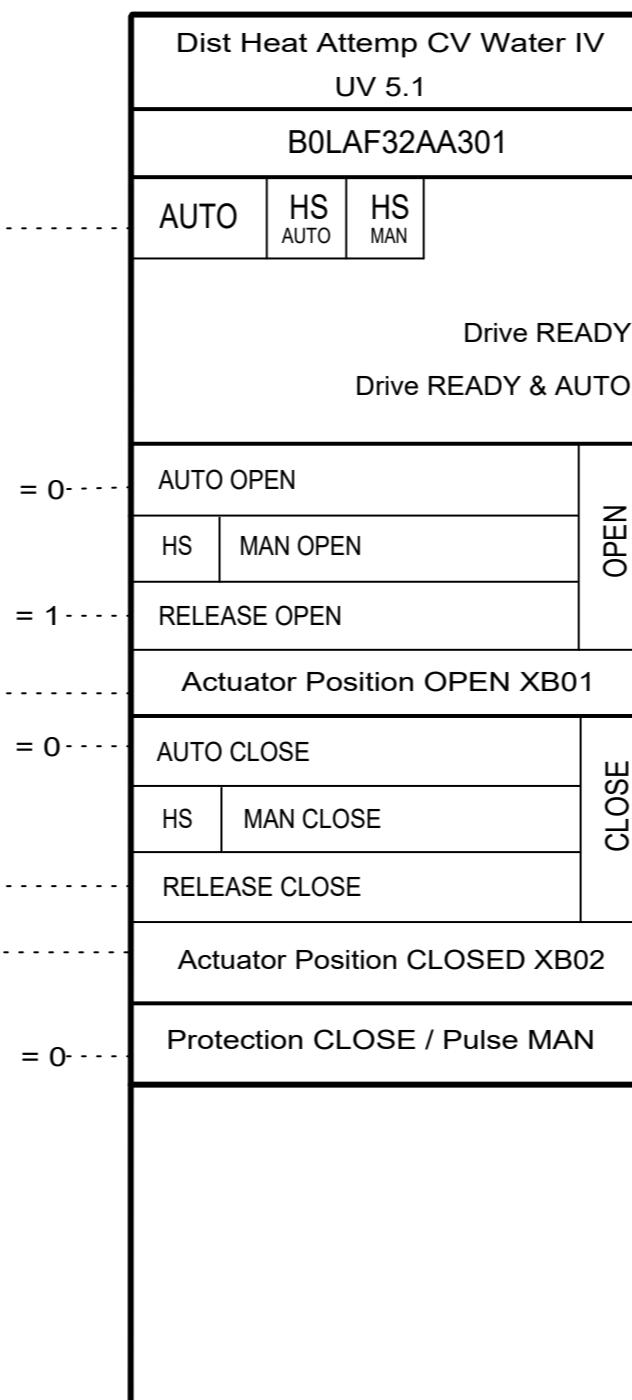
Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Water IV

|             |              |
|-------------|--------------|
| LOOP:       | BOLAF32AA301 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                         | DESCRIPTION  | CODE                 |
|----|------------------------------|--|----------------------|
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| 4  |                              |  |                      |
| 5  |                              |  |                      |
| 6  |                              |  |                      |
| 7  | <><br>150.A - 39             | MP Steam/Auxiliary Steam FSG<br>All drives to Auto | BOLBG10EA001<br>ZB13 |
| 8  |                              |  |                      |
| 9  |                              |  |                      |
| 10 |                              |  |                      |
| 11 |                              |  |                      |
| 12 |                              |  |                      |
| 13 |                              |  |                      |
| 14 |                              |  |                      |
| 15 |                              |  |                      |
| 16 | Dist Heat Attemp CV Water IV | Actuator Pos Open                                  | BOLAF32AA301<br>XB01 |
| 17 |                              |  |                      |
| 18 |                              |  |                      |
| 19 |                              |  |                      |
| 20 | <><br>164 - 57               | Dist Heat Attemp CV Water CV<br>Closed             | BOLAF32AA401<br>ZB02 |
| 21 | Dist Heat Attemp CV Water IV | Actuator Pos Close                                 | BOLAF32AA301<br>XB02 |
| 22 |                              |  |                      |
| 23 |                              |  |                      |
| 24 |                              |  |                      |
| 25 |                              |  |                      |
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| CODE         | DESCRIPTION                  | TO             |
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|              |                              | 31             |
|              |                              | 32             |
|              |                              | 33             |
|              |                              | 34             |
|              |                              | 35             |
|              |                              | 36             |
|              |                              | 37             |
|              |                              | 38             |
| BOLAF32AA301 | Dist Heat Attemp CV Water IV | Drive <>       |
| ZB50         | Ready                        | 150.B - 06     |
| BOLAF32AA301 | Dist Heat Attemp CV Water IV | Drive Ready <> |
| ZB51         | & Auto                       | 150.C - 17     |
|              |                              | 40             |
|              |                              | 41             |
|              |                              | 42             |
| BOLAF32AA301 | Dist Heat Attemp CV Water IV | Op Cmd         |
| YB01         |                              | 43             |
|              |                              | 44             |
|              |                              | 45             |
|              |                              | 46             |
|              |                              | 47             |
|              |                              | 48             |
|              |                              | 49             |
|              |                              | 50             |
|              |                              | 51             |
|              |                              | 52             |
| BOLAF32AA301 | Dist Heat Attemp CV Water IV | Prot Close     |
| XM17         | Pulse Man                    | 53             |
|              |                              | 54             |
| BOLAF32AA301 | Dist Heat Attemp CV Water IV | Cmd Op         |
| XM15         | Failure                      | 55             |
| BOLAF32AA301 | Dist Heat Attemp CV Water IV | Cmd Cl         |
| XM16         | Failure                      | 56             |
| BOLAF32AA301 | Dist Heat Attemp CV Water IV | Air Loss       |
| XM69         | Acted                        | 57             |
| BOLAF32AA301 | Dist Heat Attemp CV Water IV | Feedback       |
| XM33         | Anomaly                      | 58             |
|              |                              | 59             |
|              |                              | 60             |

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[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**Dist Heat Attemp CV Water IV**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 166 CONT

INTERNAL CODE:

REV. P01

A

B

C

D

E

A

B

C

D

E

**Control Diagram**

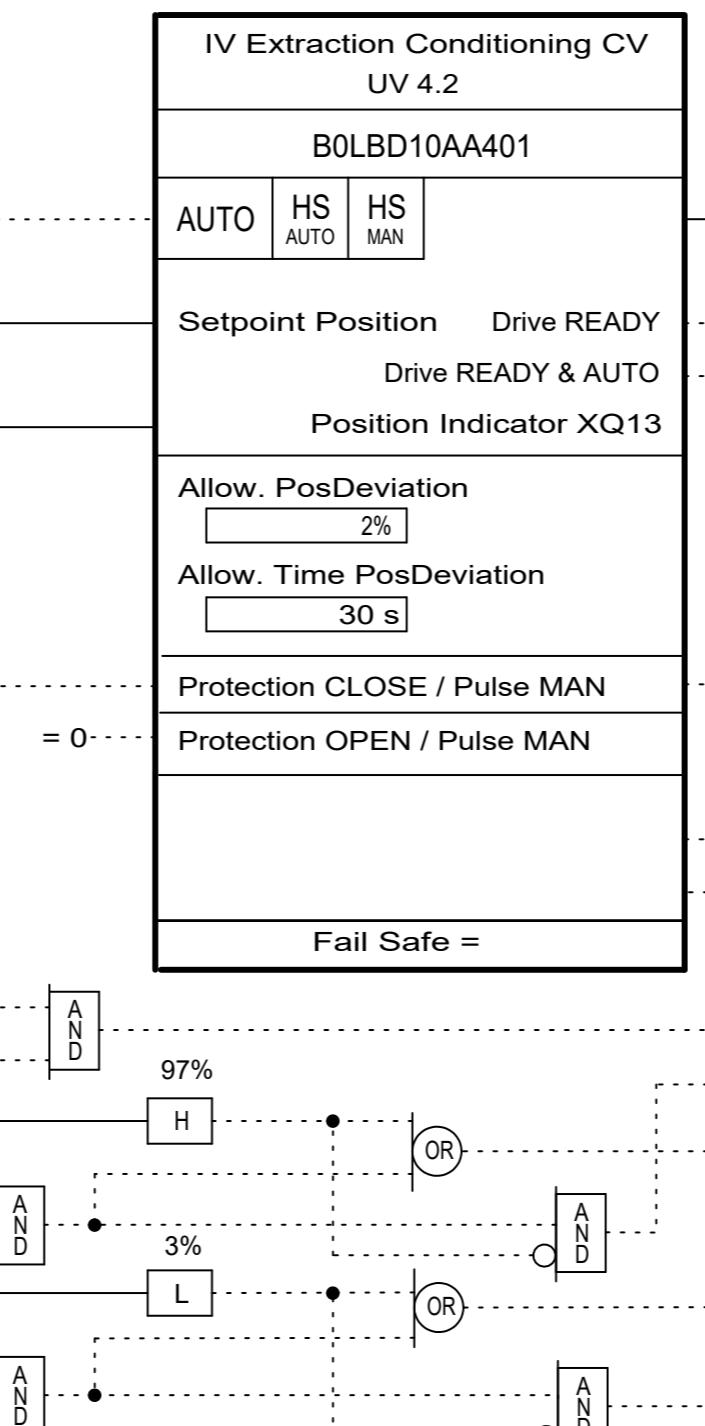
Main Steam, Extract Aux Steam & By-Pass System  
IV Extraction Conditioning CV

|             |              |
|-------------|--------------|
| LOOP:       | B0LBD10AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                          | DESCRIPTION  | CODE                 |
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| 5  |                               |  |                      |
| 6  |                               |  |                      |
| 7  | <><br>150.A - 42              | MP Steam/Auxiliary Steam FSG<br>All drives to Auto | B0LBG10EA001<br>ZB13 |
| 8  |                               |  |                      |
| 9  | <><br>172.A - 38              | IV Extraction Conditioning CV<br>Setpoint Position | B0LBD10AA401<br>ZC01 |
| 10 |                               |  |                      |
| 11 | <><br>172.B - 42              | IV Extraction Conditioning CV<br>Valve Position    | B0LBD10AA401<br>XQ13 |
| 12 |                               |  |                      |
| 13 |                               |  |                      |
| 14 |                               |  |                      |
| 15 |                               |  |                      |
| 16 | <><br>234 - 42                | IV Extn Condng CV Outl Temp H                      | B0LBG11CT901<br>ZB01 |
| 17 | <><br>232 - 43                | IV Extn Condng CV Outl Press H                     | B0LBG11CP901<br>ZB01 |
| 18 |                               |  |                      |
| 19 |                               |  |                      |
| 20 |                               |  |                      |
| 21 |                               |  |                      |
| 22 |                               |  |                      |
| 23 |                               |  |                      |
| 24 |                               |  |                      |
| 25 |                               |  |                      |
| 26 | IV Extraction Conditioning CV | FullyOp  | B0LBD10AA401<br>XB01 |
| 27 |                               |  |                      |
| 28 |                               |  |                      |
| 29 |                               |  |                      |
| 30 | IV Extraction Conditioning CV | FullyCl  | B0LBD10AA401<br>XB02 |



| CODE         | DESCRIPTION                                | TO         |
|--------------|--|------------|
|              |  | 31         |
|              |  | 32         |
|              |  | 33         |
|              |  | 34         |
|              |  | 35         |
| B0LBD10AA401 | IV Extraction Conditioning CV Position     | <>         |
| YQ01         | Demand                                     | 172.A - 12 |
| B0LBD10AA401 | IV Extraction Conditioning CV Position     | 36         |
| YQ01         | Demand                                     | 37         |
| B0LBD10AA401 | IV Extraction Conditioning CV Drive        | <>         |
| ZB50         | Ready                                      | 172.A - 23 |
| B0LBD10AA401 | IV Extraction Conditioning CV Drive        | 38         |
| ZB50         | Ready                                      | 150.B - 07 |
| B0LBD10AA401 | IV Extraction Conditioning CV Ready & Auto | 39         |
| ZB51         | Ready & Auto                               | 150.C - 18 |
| B0LBD10AA401 | IV Extraction Conditioning CV Drive        | <>         |
| ZB51         | Ready & Auto                               | 172.A - 24 |
|              |  | 42         |
|              |  | 43         |
|              |  | 44         |
|              |  | 45         |
| B0LBD10AA401 | IV Extraction Conditioning CV Protection   | <>         |
| ZB17         | CLOSE                                      | 172.A - 19 |
|              |  | 46         |
|              |  | 47         |
| B0LBD10AA401 | IV Extraction Conditioning CV Feedback     | 48         |
| XM13         | Anomaly                                    |            |
| B0LBD10AA401 | IV Extraction Conditioning CV Discrp       | 49         |
| XM70         | Pos  |            |
| B0LBD10AA401 | IV Extraction Conditioning CV Pos xtrmr    | 50         |
| XM30         | BQ   |            |
|              |  | 51         |
|              |  | 52         |
|              |  | 53         |
|              |  | 54         |
| B0LBD10AA401 | IV Extraction Conditioning CV Open         | 55         |
| ZB01         |  |            |
|              |  | 56         |
| B0LBD10AA401 | IV Extraction Conditioning CV <>           | 57         |
| ZB02         | Closed                                     | 174 - 16   |
| B0LBD10AA401 | IV Extraction Conditioning CV Closed       | 58         |
| ZB02         |  | 59         |
|              |  | 60         |

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PROJECT

**NORTH LONDON HEAT  
AND POWER PROJECT**

ISSUER



FORMAT

A3

SCALE



**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**IV Extraction Conditioning CV**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 172 CONT

REV. P01

A

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C

D

E

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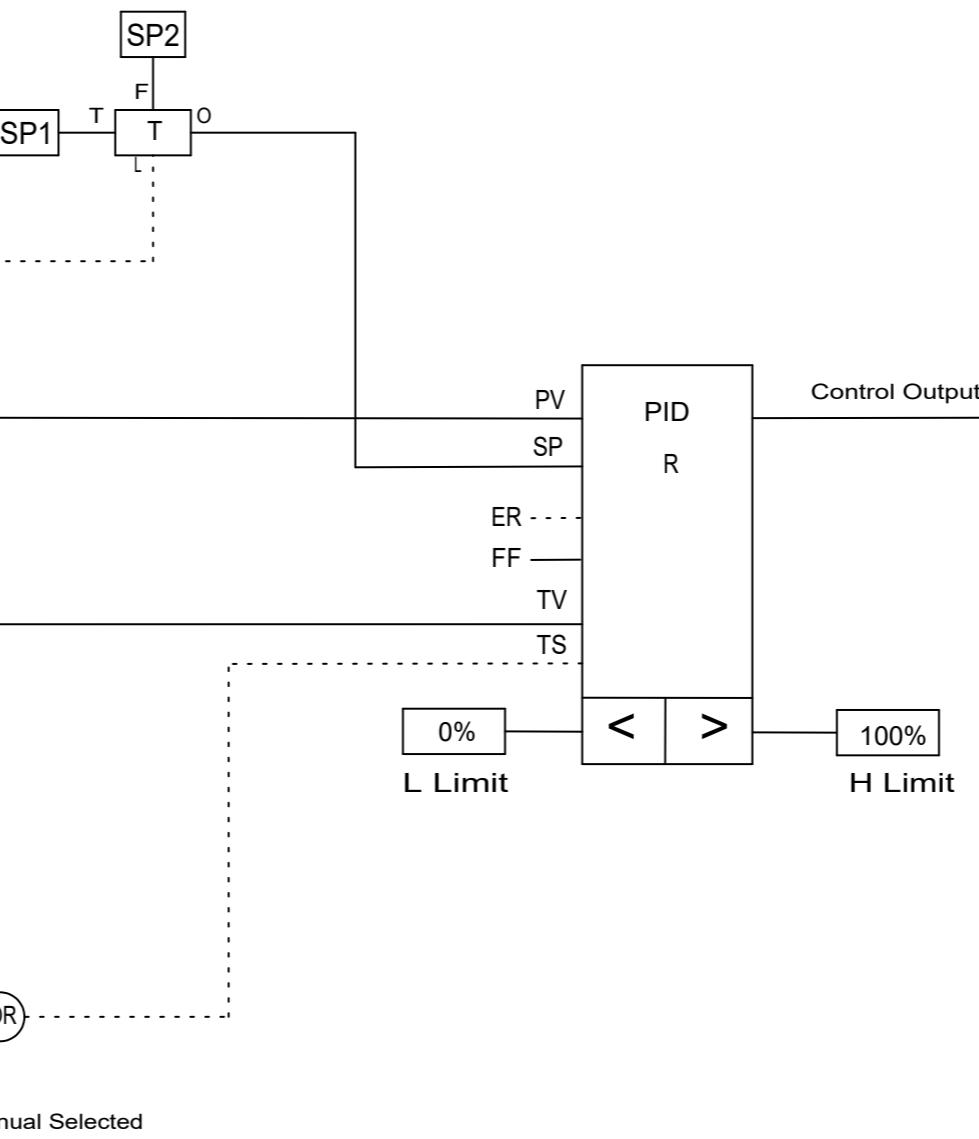
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**Control Diagram**

Main Steam, Extract Aux Steam & By-Pass System  
IV Extraction Conditioning CV

|    | FROM           | DESCRIPTION                   | CODE  |
|----|----------------|-------------------------------|---|
| 1  |                |                               |   |
| 2  |                |                               |   |
| 3  |                |                               |   |
| 4  |                |                               |   |
| 5  | <><br>702 - 32 | III Extn to MP Hdr Isol MOV   | FullyOp<br>B0LBD20AA302<br>XB01               |
| 6  |                |                               |   |
| 7  |                |                               |   |
| 8  | <><br>244 - 35 | AuxStm Hdr Press              | xtrmr<br>B0LBG10CP901<br>XQ01                 |
| 9  |                |                               |   |
| 10 |                |                               |   |
| 11 |                |                               |   |
| 12 | <><br>172 - 36 | IV Extraction Conditioning CV | Position<br>Demand<br>B0LBD10AA401<br>YQ01    |
| 13 |                |                               |   |
| 14 |                |                               |   |
| 15 |                |                               |   |
| 16 |                |                               |   |
| 17 |                |                               |   |
| 18 |                |                               |   |
| 19 | <><br>172 - 46 | IV Extraction Conditioning CV | Protection<br>CLOSE<br>B0LBD10AA401<br>ZB17   |
| 20 |                |                               |   |
| 21 |                |                               |   |
| 22 |                |                               |   |
| 23 | <><br>172 - 38 | IV Extraction Conditioning CV | Drive<br>Ready<br>B0LBD10AA401<br>ZB50        |
| 24 | <><br>172 - 41 | IV Extraction Conditioning CV | Drive<br>Ready & Auto<br>B0LBD10AA401<br>ZB51 |
| 25 |                |                               |   |
| 26 |                |                               |   |
| 27 |                |                               |   |
| 28 |                |                               |   |
| 29 |                |                               |   |
| 30 |                |                               |   |

|             |              |
|-------------|--------------|
| LOOP:       | B0LBD10AA401 |
| LOOP SHEET: |              |



| MODIFICATIONS |             |      |       |
|---------------|-------------|------|-------|
| REV.          | DESCRIPTION | DATE | DRAWN |
|               |             |      |       |

| CODE | DESCRIPTION                   | TO                                     |
|------|-------------------------------|--|
|      |                               | 31                                     |
|      |                               | 32                                     |
|      |                               | 33                                     |
|      |                               | 34                                     |
|      |                               | 35                                     |
|      |                               | 36                                     |
|      |                               | 37                                     |
|      |                               | 38                                     |
| ZC01 | IV Extraction Conditioning CV | Setpoint<br>Position<br><><br>172 - 09 |
|      |                               | 39                                     |
|      |                               | 40                                     |
|      |                               | 41                                     |
|      |                               | 42                                     |
|      |                               | 43                                     |
|      |                               | 44                                     |
|      |                               | 45                                     |
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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT

**A3**

SCALE



DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**IV Extraction Conditioning CV**

NLWA CODE:

CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 172.ACNT

REV. P01

A

B

C

D

E

A

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E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

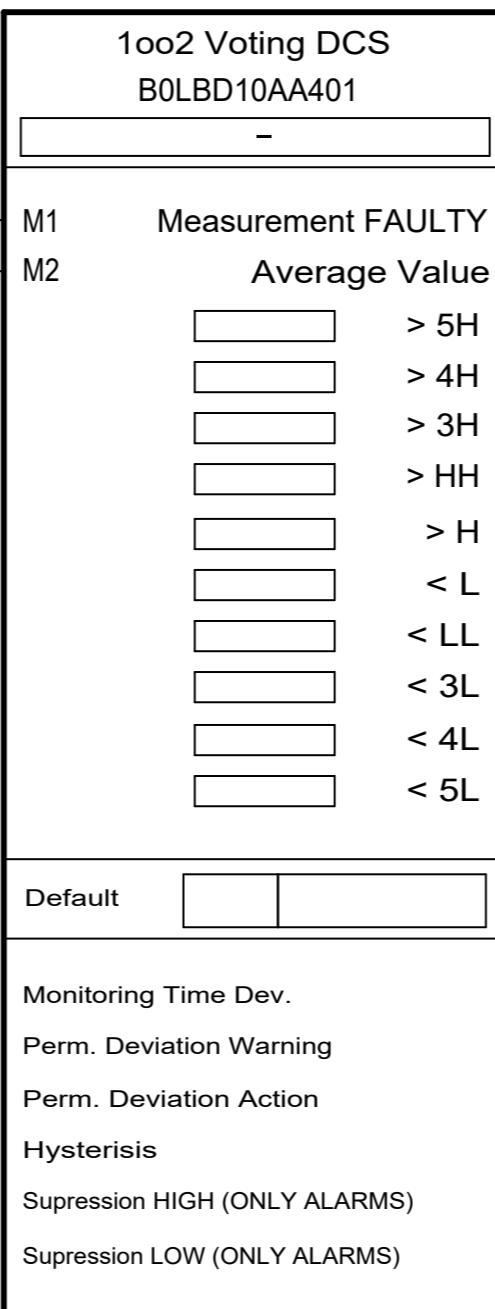
IV Extraction Conditioning CV

|             |              |
|-------------|--------------|
| LOOP:       | B0LBD10AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
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| 1  | FROM                          | DESCRIPTION | CODE                 |
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| 7  |                               |             |                      |
| 8  |                               |             |                      |
| 9  | IV Extraction Conditioning CV | Position1   | B0LBD10AA401<br>XQ01 |
| 10 | IV Extraction Conditioning CV | Position2   | B0LBD10AA401<br>XQ02 |
| 11 |                               |             |                      |
| 12 |                               |             |                      |
| 13 |                               |             |                      |
| 14 |                               |             |                      |
| 15 |                               |             |                      |
| 16 |                               |             |                      |
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| CODE         | DESCRIPTION                   | TO         |
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|              |                               | 31         |
|              |                               | 32         |
|              |                               | 33         |
|              |                               | 34         |
|              |                               | 35         |
|              |                               | 36         |
|              |                               | 37         |
|              |                               | 38         |
| B0LBD10AA401 | IV Extraction Conditioning CV | Vlv Discrp |
| XM80         | Pos                           | 39         |
| B0LBD10AA401 | IV Extraction Conditioning CV | Valve      |
| XQ13         | Position                      | 40         |
|              |                               | 41         |
| B0LBD10AA401 | IV Extraction Conditioning CV | Valve <>   |
| XQ13         | Position                      | 172 - 11   |
|              |                               | 42         |
|              |                               | 43         |
|              |                               | 44         |
|              |                               | 45         |
|              |                               | 46         |
|              |                               | 47         |
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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**IV Extraction Conditioning CV**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 172.BCONT

INTERNAL CODE:

REV. P01

A

B

C

D

E

A

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D

E

**Control Diagram**

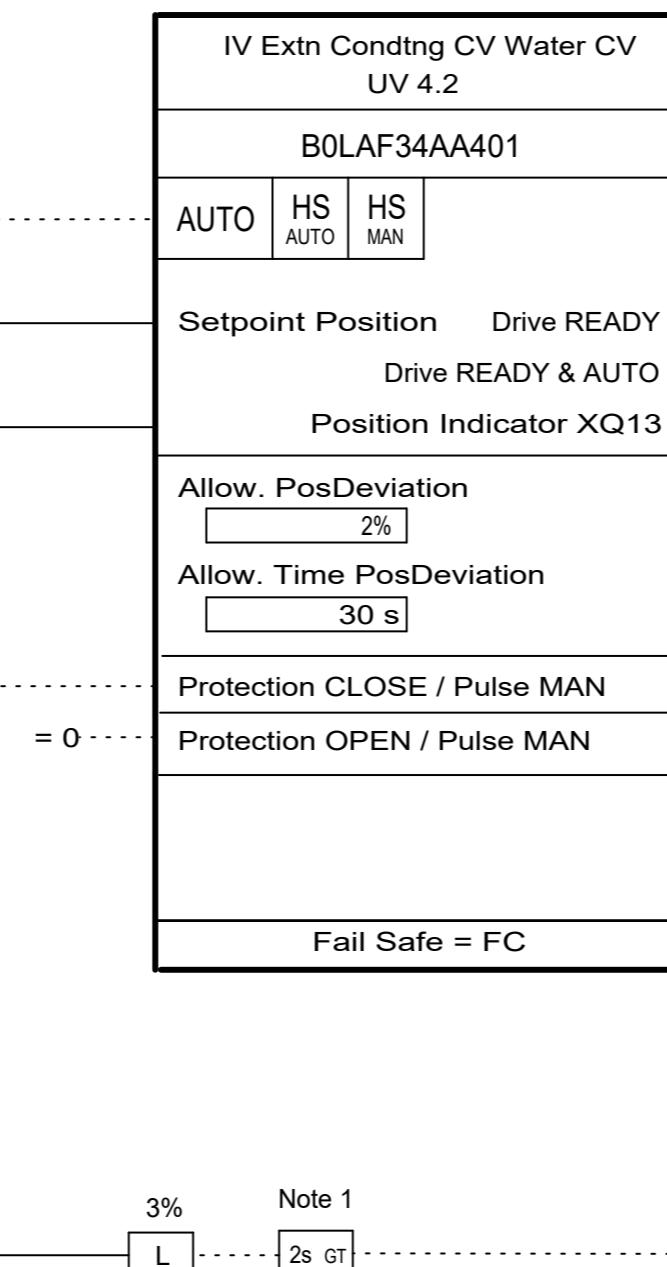
Main Steam, Extract Aux Steam & By-Pass System  
IV Extn Condng CV Water CV

|             |              |
|-------------|--------------|
| LOOP:       | B0LAF34AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                       | DESCRIPTION  | CODE                 |
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| 4  |                            |  |                      |
| 5  |                            |  |                      |
| 6  |                            |  |                      |
| 7  | <><br>150.A - 43           | MP Steam/Auxiliary Steam FSG<br>All drives to Auto | BOLBG10EA001<br>ZB13 |
| 8  |                            |  |                      |
| 9  | <><br>174.A - 38           | IV Extn Condng CV Water CV<br>Setpoint Position    | B0LAF34AA401<br>ZC01 |
| 10 |                            |  |                      |
| 11 | IV Extn Condng CV Water CV | Position Ind                                       | B0LAF34AA401<br>XQ13 |
| 12 |                            |  |                      |
| 13 |                            |  |                      |
| 14 |                            |  |                      |
| 15 |                            |  |                      |
| 16 | <><br>172 - 57             | IV Extraction Conditioning CV<br>Closed            | B0LBD10AA401<br>ZB02 |
| 17 | <><br>234 - 48             | IV Extn Condng CV Outl Temp<br>L                   | B0LBG11CT901<br>ZB52 |
| 18 |                            |  |                      |
| 19 |                            |  |                      |
| 20 |                            |  |                      |
| 21 |                            |  |                      |
| 22 |                            |  |                      |
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**Notes:**

1. To be adjusted during commissioning.

| CODE         | DESCRIPTION                             | TO         |
|--------------|---|------------|
|              |   | 31         |
|              |   | 32         |
|              |   | 33         |
|              |   | 34         |
|              |   | 35         |
| B0LAF34AA401 | IV Extn Condng CV Water CV Position     | <>         |
| YQ01         | IV Extn Condng CV Water CV Demand       | 174.A - 12 |
| B0LAF34AA401 | IV Extn Condng CV Water CV Position     | 37         |
| YQ01         | IV Extn Condng CV Water CV Demand       |            |
| B0LAF34AA401 | IV Extn Condng CV Water CV Drive        | <>         |
| ZB50         | IV Extn Condng CV Water CV Ready        | 174.A - 23 |
| B0LAF34AA401 | IV Extn Condng CV Water CV Drive        | <>         |
| ZB50         | IV Extn Condng CV Water CV Ready        | 150.B - 08 |
| B0LAF34AA401 | IV Extn Condng CV Water CV Drive        | <>         |
| ZB51         | IV Extn Condng CV Water CV Ready & Auto | 150.C - 19 |
| B0LAF34AA401 | IV Extn Condng CV Water CV Drive        | <>         |
| ZB51         | IV Extn Condng CV Water CV Ready & Auto | 174.A - 24 |
|              |   | 42         |
|              |   | 43         |
|              |   | 44         |
|              |   | 45         |
| B0LAF34AA401 | IV Extn Condng CV Water CV Protection   | <>         |
| ZB17         | IV Extn Condng CV Water CV CLOSE        | 174.A - 19 |
|              |   | 47         |
| B0LAF34AA401 | IV Extn Condng CV Water CV Feedback     | 48         |
| XM13         | IV Extn Condng CV Water CV Anomaly      |            |
| B0LAF34AA401 | IV Extn Condng CV Water CV Discrp       | 49         |
| XM70         | IV Extn Condng CV Water CV Pos          |            |
| B0LAF34AA401 | IV Extn Condng CV Water CV Pos xtmr     | 50         |
| XM30         | IV Extn Condng CV Water CV BQ           |            |
|              |   | 51         |
|              |   | 52         |
|              |   | 53         |
|              |   | 54         |
|              |   | 55         |
|              |   | 56         |
| B0LAF34AA401 | IV Extn Condng CV Water CV <>           |            |
| ZB02         | IV Extn Condng CV Water CV Closed       | 176 - 20   |
|              |   | 58         |
|              |   | 59         |
|              |   | 60         |

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT



SCALE



**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**IV Extn Condng CV Water CV**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 174 CONT

REV. P01

A

B

C

D

E

A

B

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D

E

**Control Diagram**

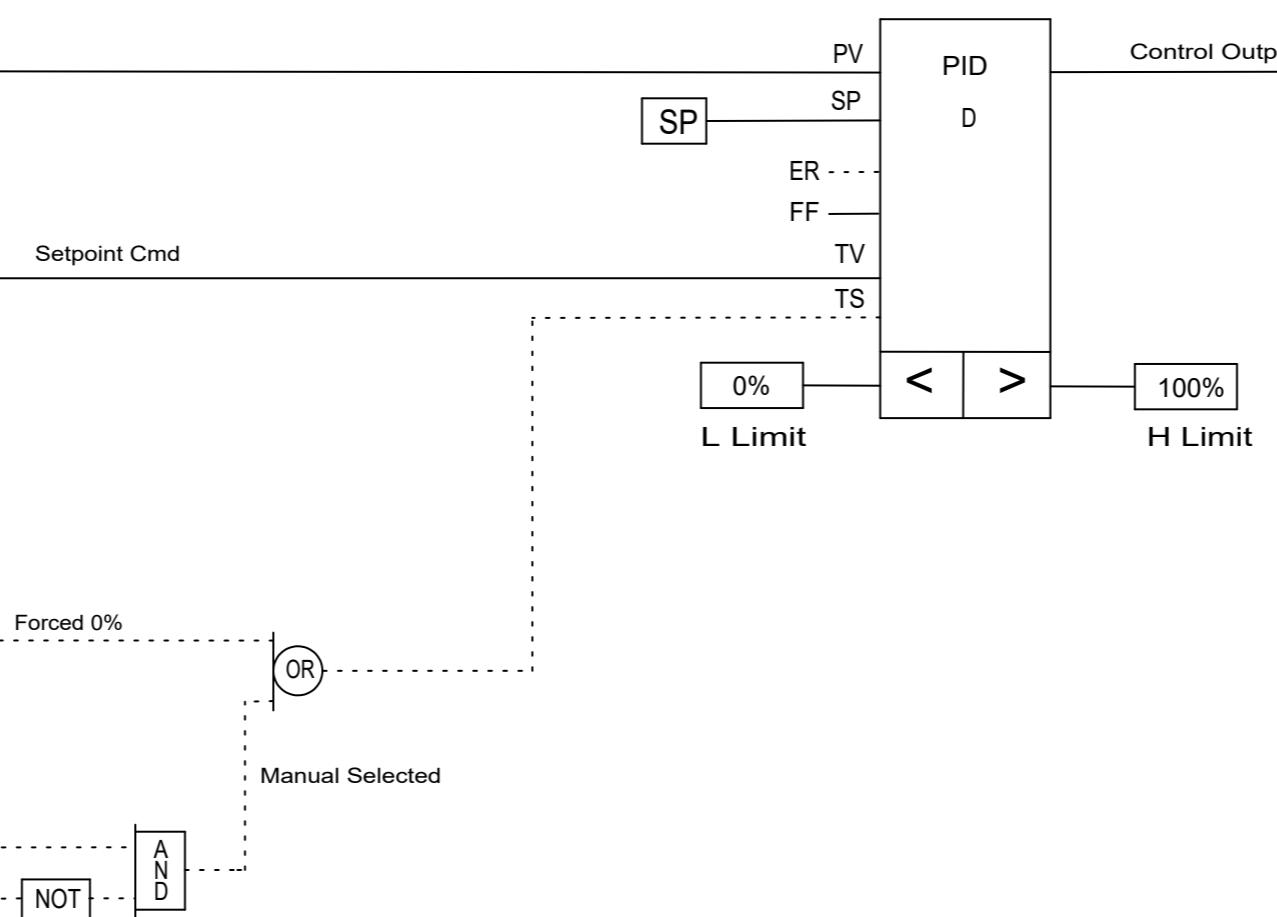
Main Steam, Extract Aux Steam & By-Pass System  
IV Extn Condng CV Water CV

|             |              |
|-------------|--------------|
| LOOP:       | B0LAF34AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM            | DESCRIPTION                 | CODE                                  |
|----|-----------------|-----------------------------|---------------------------------------|
| 1  |                 |                             |                                       |
| 2  |                 |                             |                                       |
| 3  |                 |                             |                                       |
| 4  |                 |                             |                                       |
| 5  |                 |                             |                                       |
| 6  |                 |                             |                                       |
| 7  |                 |                             |                                       |
| 8  | <>><br>234 - 35 | IV Extn Condng CV Outl Temp | xtrmr<br>B0LBG11CT901                 |
| 9  |                 |                             | XQ01                                  |
| 10 |                 |                             |                                       |
| 11 |                 |                             |                                       |
| 12 | <>><br>174 - 36 | IV Extn Condng CV Water CV  | Position<br>Demand<br>B0LAF34AA401    |
| 13 |                 |                             | YQ01                                  |
| 14 |                 |                             |                                       |
| 15 |                 |                             |                                       |
| 16 |                 |                             |                                       |
| 17 |                 |                             |                                       |
| 18 |                 |                             |                                       |
| 19 | <>><br>174 - 46 | IV Extn Condng CV Water CV  | Protection<br>CLOSE<br>B0LAF34AA401   |
| 20 |                 |                             | ZB17                                  |
| 21 |                 |                             |                                       |
| 22 |                 |                             |                                       |
| 23 | <>><br>174 - 38 | IV Extn Condng CV Water CV  | Drive<br>Ready<br>B0LAF34AA401        |
| 24 | <>><br>174 - 41 | IV Extn Condng CV Water CV  | Drive<br>Ready & Auto<br>B0LAF34AA401 |
| 25 |                 |                             | ZB50                                  |
| 26 |                 |                             | ZB51                                  |
| 27 |                 |                             |                                       |
| 28 |                 |                             |                                       |
| 29 |                 |                             |                                       |
| 30 |                 |                             |                                       |



| 1  | CODE         | DESCRIPTION                | TO           |
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| 31 |              |                            |              |
| 32 |              |                            |              |
| 33 |              |                            |              |
| 34 |              |                            |              |
| 35 |              |                            |              |
| 36 |              |                            |              |
| 37 |              |                            |              |
| 38 | B0LAF34AA401 | IV Extn Condng CV Water CV | Setpoint <>> |
| 39 | ZC01         | Position 174 - 09          | Position     |
| 40 |              |                            |              |
| 41 |              |                            |              |
| 42 |              |                            |              |
| 43 |              |                            |              |
| 44 |              |                            |              |
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[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT

A3

SCALE



**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**IV Extn Condng CV Water CV**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 174.ACNT

REV. P01

A

B

C

D

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A

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**Control Diagram**

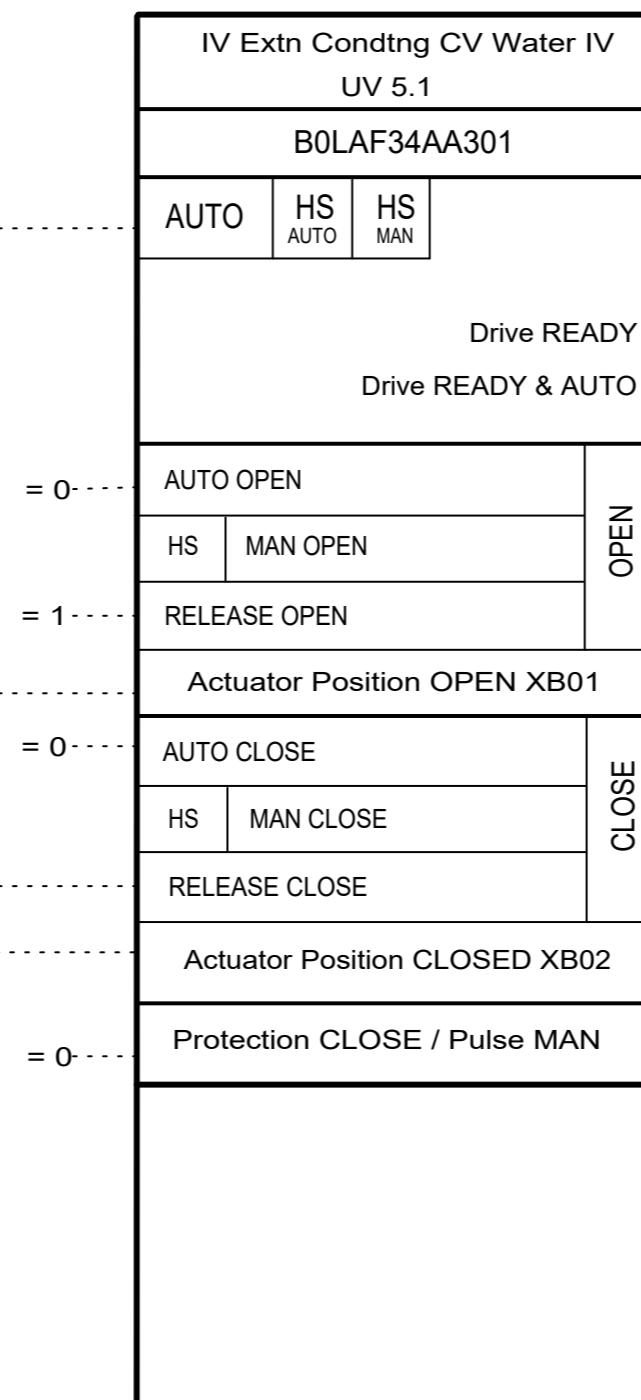
Main Steam, Extract Aux Steam & By-Pass System  
IV Extn Condng CV Water IV

|             |              |
|-------------|--------------|
| LOOP:       | B0LAF34AA301 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                       | DESCRIPTION  | CODE                 |
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| 6  |                            |  |                      |
| 7  | <><br>150.A - 44           | MP Steam/Auxiliary Steam FSG<br>All drives to Auto | BOLBG10EA001<br>ZB13 |
| 8  |                            |  |                      |
| 9  |                            |  |                      |
| 10 |                            |  |                      |
| 11 |                            |  |                      |
| 12 |                            |  |                      |
| 13 |                            |  |                      |
| 14 |                            |  |                      |
| 15 |                            |  |                      |
| 16 | IV Extn Condng CV Water IV | Actuator Pos Open                                  | B0LAF34AA301<br>XB01 |
| 17 |                            |  |                      |
| 18 |                            |  |                      |
| 19 |                            |  |                      |
| 20 | <><br>174 - 57             | IV Extn Condng CV Water CV<br>Closed               | B0LAF34AA401<br>ZB02 |
| 21 | IV Extn Condng CV Water IV | Actuator Pos Close                                 | B0LAF34AA301<br>XB02 |
| 22 |                            |  |                      |
| 23 |                            |  |                      |
| 24 |                            |  |                      |
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| CODE         | DESCRIPTION                | TO             |
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|              |                            | 34             |
|              |                            | 35             |
|              |                            | 36             |
|              |                            | 37             |
|              |                            | 38             |
| B0LAF34AA301 | IV Extn Condng CV Water IV | Drive <>       |
| ZB50         | Ready                      | 150.B - 09     |
| B0LAF34AA301 | IV Extn Condng CV Water IV | Drive Ready <> |
| ZB51         | & Auto                     | 150.C - 20     |
|              |                            | 41             |
| B0LAF34AA301 | IV Extn Condng CV Water IV | Op Cmd         |
| YB01         |                            | 43             |
|              |                            | 44             |
|              |                            | 45             |
|              |                            | 46             |
|              |                            | 47             |
|              |                            | 48             |
|              |                            | 49             |
|              |                            | 50             |
|              |                            | 51             |
|              |                            | 52             |
| B0LAF34AA301 | IV Extn Condng CV Water IV | Prot Close     |
| XM17         | Pulse Man                  | 53             |
|              |                            | 54             |
| B0LAF34AA301 | IV Extn Condng CV Water IV | Cmd Op         |
| XM15         | Failure                    | 55             |
| B0LAF34AA301 | IV Extn Condng CV Water IV | Cmd Cl         |
| XM16         | Failure                    | 56             |
| B0LAF34AA301 | IV Extn Condng CV Water IV | Air Loss       |
| XM69         | Acted                      | 57             |
| B0LAF34AA301 | IV Extn Condng CV Water IV | Feedback       |
| XM33         | Anomaly                    | 58             |
|              |                            | 59             |
|              |                            | 60             |

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT



SCALE



**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**IV Extn Condng CV Water IV**

|   |                |
|---|----------------|
| NLWA CODE:                                | SHEET 176 CONT |
| CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604 |                |
| INTERNAL CODE:                            | REV. P01       |

A

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**Control Diagram**

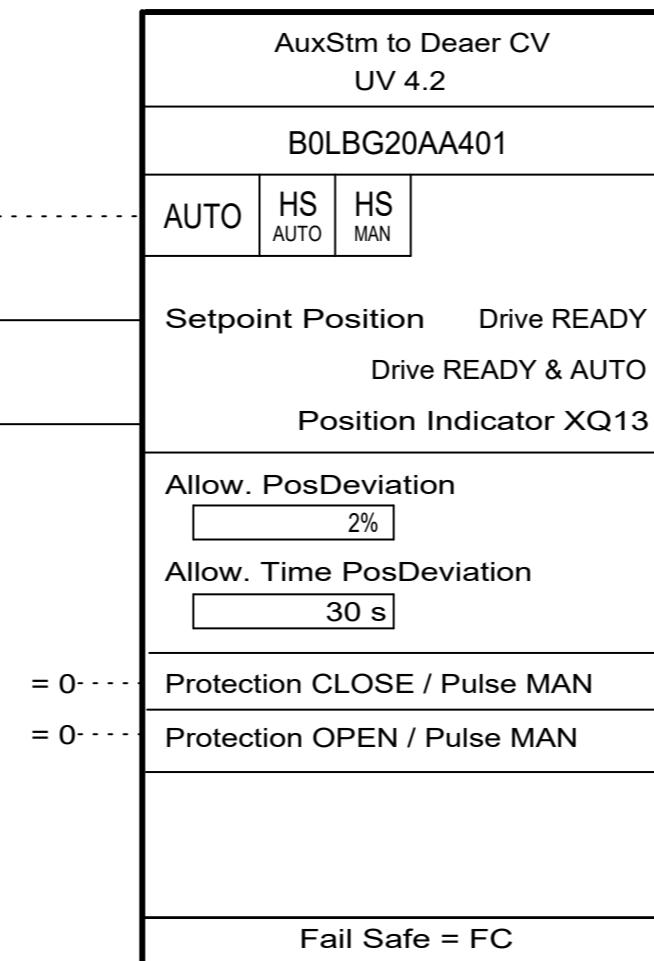
Main Steam, Extract Aux Steam & By-Pass System  
AuxStm to Deaer CV

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG20AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
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| 1  | FROM              | DESCRIPTION  | CODE                 |
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| 6  |                   |  |                      |
| 7  | <>><br>150.A - 48 | MP Steam/Auxiliary Steam FSG<br>All drives to Auto | B0LBG10EA001<br>ZB13 |
| 8  |                   |  |                      |
| 9  | <>><br>184.A - 38 | AuxStm to Deaer CV<br>Setpoint Position            | B0LBG20AA401<br>ZC01 |
| 10 |                   |  |                      |
| 11 |                   | AuxStm to Deaer CV<br>Position                     | B0LBG20AA401         |
| 12 |                   |  |                      |
| 13 |                   |  |                      |
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| CODE         | DESCRIPTION        | TO                      |
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|              |                    | 31                      |
|              |                    | 32                      |
|              |                    | 33                      |
|              |                    | 34                      |
|              |                    | 35                      |
| B0LBG20AA401 | AuxStm to Deaer CV | Position <>>            |
| YQ01         | AuxStm to Deaer CV | Demand 184.A - 12       |
| B0LBG20AA401 | AuxStm to Deaer CV | Position <>>            |
| YQ01         | AuxStm to Deaer CV | Demand <>>              |
| B0LBG20AA401 | AuxStm to Deaer CV | Drive <>>               |
| ZB50         | AuxStm to Deaer CV | Ready 184.A - 23        |
| B0LBG20AA401 | AuxStm to Deaer CV | Drive <>>               |
| ZB50         | AuxStm to Deaer CV | Ready <>>               |
| B0LBG20AA401 | AuxStm to Deaer CV | Ready & Auto 150.C - 21 |
| ZB51         | AuxStm to Deaer CV | Drive <>>               |
| B0LBG20AA401 | AuxStm to Deaer CV | Ready & Auto 184.A - 24 |
|              |                    | 42                      |
|              |                    | 43                      |
|              |                    | 44                      |
|              |                    | 45                      |
|              |                    | 46                      |
|              |                    | 47                      |
| B0LBG20AA401 | AuxStm to Deaer CV | Feedback                |
| XM13         | AuxStm to Deaer CV | Anomaly                 |
| B0LBG20AA401 | AuxStm to Deaer CV | Discrp                  |
| XM70         | AuxStm to Deaer CV | Pos                     |
| B0LBG20AA401 | AuxStm to Deaer CV | Pos xtmr                |
| XM30         | AuxStm to Deaer CV | BQ                      |
|              |                    | 51                      |
|              |                    | 52                      |
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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**AuxStm to Deaer CV**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 184 CONT

INTERNAL CODE:

REV. P01

A

B

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**Control Diagram**

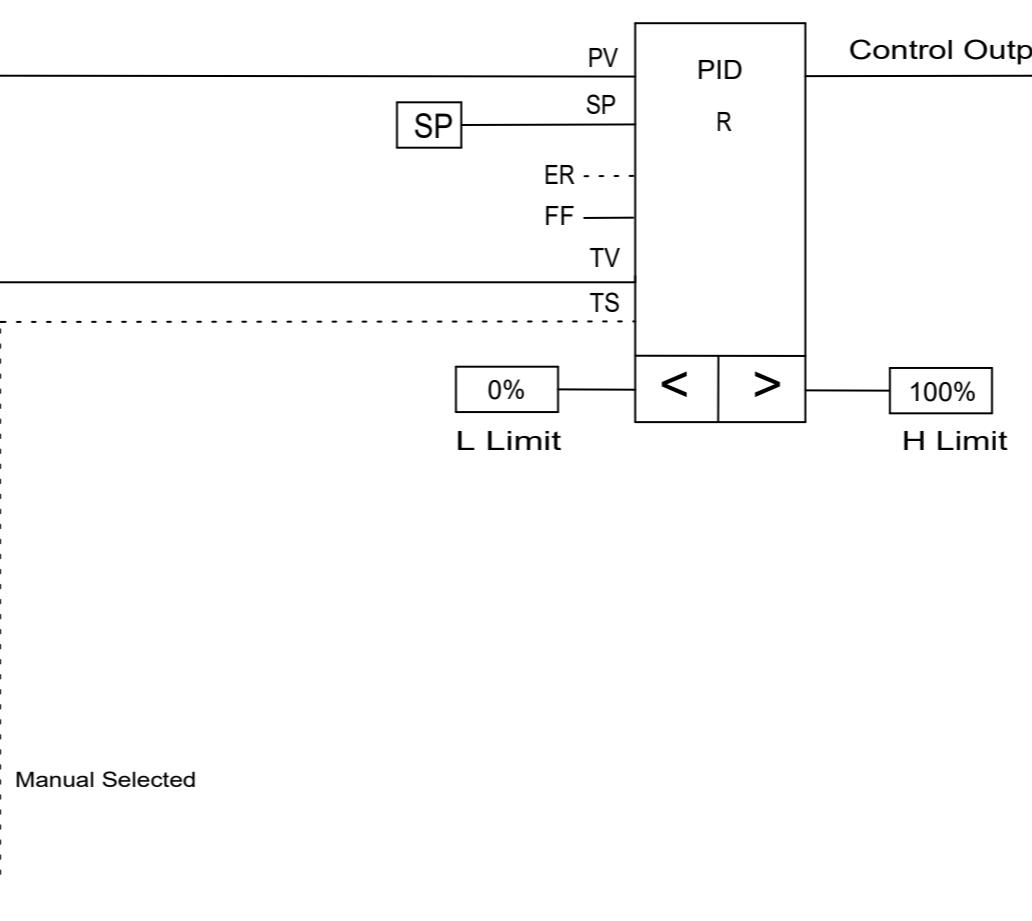
Main Steam, Extract Aux Steam & By-Pass System  
AuxStm to Deaer CV

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG20AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM            | DESCRIPTION                    | CODE                         |
|----|-----------------|--------------------------------|------------------------------|
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| 7  |                 |                                |                              |
| 8  | ...<br>708 - 35 | Deaerator Press<br>xtrmr       | B0LAA10CP901<br>XQ01         |
| 9  |                 |                                |                              |
| 10 |                 |                                |                              |
| 11 |                 |                                |                              |
| 12 | <><br>184 - 36  | AuxStm to Deaer CV<br>Position | B0LBG20AA401<br>Demand       |
| 13 |                 |                                |                              |
| 14 |                 |                                |                              |
| 15 |                 |                                |                              |
| 16 |                 |                                |                              |
| 17 |                 |                                |                              |
| 18 |                 |                                |                              |
| 19 |                 |                                |                              |
| 20 |                 |                                |                              |
| 21 |                 |                                |                              |
| 22 |                 |                                |                              |
| 23 | <><br>184 - 38  | AuxStm to Deaer CV<br>Drive    | B0LBG20AA401<br>Ready        |
| 24 | <><br>184 - 41  | AuxStm to Deaer CV<br>Drive    | B0LBG20AA401<br>Ready & Auto |
| 25 |                 |                                |                              |
| 26 |                 |                                |                              |
| 27 |                 |                                |                              |
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| 1  | CODE                 | DESCRIPTION                                | TO             |
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| 36 |                      |  |                |
| 37 |                      |  |                |
| 38 | B0LBG20AA401<br>ZC01 | AuxStm to Deaer CV<br>Setpoint<br>Position | <><br>184 - 09 |
| 39 |                      |  |                |
| 40 |                      |  |                |
| 41 |                      |  |                |
| 42 |                      |  |                |
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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT



SCALE



**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**AuxStm to Deaer CV**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 184.ACNT

REV. P01

A

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**Control Diagram**

Main Steam, Extract Aux Steam & By-Pass System  
AuxStm to Deaer Byp MOV

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG20AA301 |
| LOOP SHEET: |              |

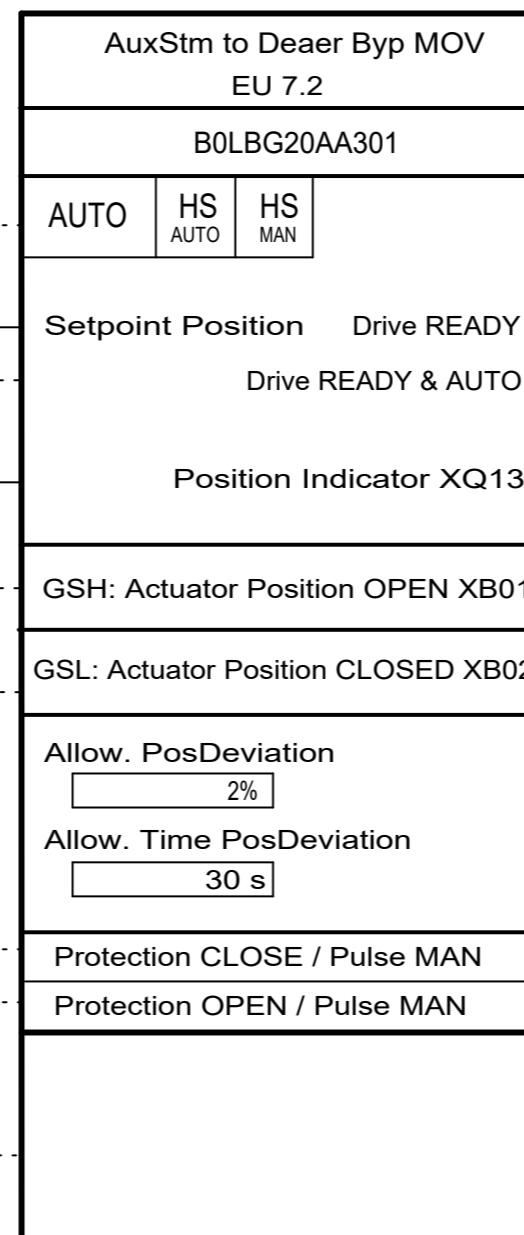
**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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| 1  | FROM                    | DESCRIPTION                  | CODE               |
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| 4  |                         |                              |                    |
| 5  |                         |                              |                    |
| 6  |                         |                              |                    |
| 7  | <><br>150.A - 49        | MP Steam/Auxiliary Steam FSG | All drives to Auto |
|    |                         |                              | ZB13               |
| 8  |                         |                              |                    |
| 9  | AuxStm to Deaer Byp MOV | Setpoint Position            | B0LBG20AA301 ZC01  |
| 10 | AuxStm to Deaer Byp MOV | Actuator Local Mode          | B0LBG20AA301 XB23  |
| 11 |                         |                              |                    |
| 12 | AuxStm to Deaer Byp MOV | Valve Position               | B0LBG20AA301 XQ13  |
| 13 |                         |                              |                    |
| 14 | AuxStm to Deaer Byp MOV | FullyOp                      | B0LBG20AA301 XB01  |
| 15 |                         |                              |                    |
| 16 | AuxStm to Deaer Byp MOV | FullyCl                      | B0LBG20AA301 XB02  |
| 17 |                         |                              |                    |
| 18 |                         |                              |                    |
| 19 |                         |                              |                    |
| 20 |                         |                              |                    |
| 21 |                         |                              |                    |
| 22 |                         |                              |                    |
| 23 |                         |                              |                    |
| 24 |                         |                              |                    |
| 25 | AuxStm to Deaer Byp MOV | Actuator Fault               | B0LBG20AA301 XB07  |
| 26 |                         |                              |                    |
| 27 |                         |                              |                    |
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| CODE              | DESCRIPTION   | TO |
|-------------------|---|----|
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|                   |   | 33 |
|                   |   | 34 |
|                   |   | 35 |
|                   |   | 36 |
| B0LBG20AA301 YQ01 | AuxStm to Deaer Byp MOV Position Demand               | 37 |
|                   |   | 38 |
| B0LBG20AA301 ZB50 | AuxStm to Deaer Byp MOV Drive Ready <> 150.B - 11     | 39 |
| B0LBG20AA301 ZB51 | AuxStm to Deaer Byp MOV Drive Ready & Auto 150.C - 22 | 40 |
|                   |   | 41 |
|                   |   | 42 |
|                   |   | 43 |
|                   |   | 44 |
|                   |   | 45 |
|                   |   | 46 |
|                   |   | 47 |
|                   |   | 48 |
|                   |   | 49 |
|                   |   | 50 |
| B0LBG20AA301 XM17 | AuxStm to Deaer Byp MOV Force Close                   | 51 |
| B0LBG20AA301 XM19 | AuxStm to Deaer Byp MOV Force Open                    | 52 |
|                   |   | 53 |
| B0LBG20AA301 XM13 | AuxStm to Deaer Byp MOV Feedback Anomaly              | 54 |
| B0LBG20AA301 XM07 | AuxStm to Deaer Byp MOV Actuator Fault                | 55 |
|                   |   | 56 |
|                   |   | 57 |
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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**AuxStm to Deaer Byp MOV**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 186 CONT

INTERNAL CODE:

REV. P01

A

B

C

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E

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**Control Diagram**

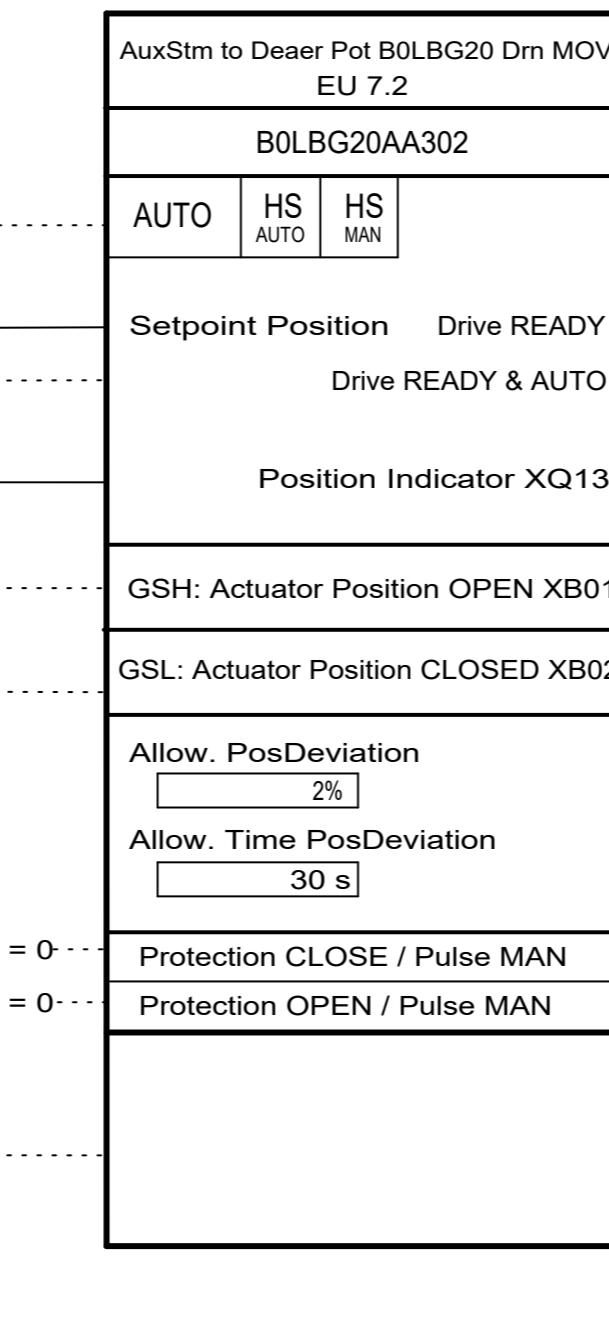
Main Steam, Extract Aux Steam & By-Pass System  
AuxStm to Deaer Pot B0LBG20 Drn MOV

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG20AA302 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
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| 5  |                   |                              |                             |
| 6  |                   |                              |                             |
| 7  | <>><br>150.A - 50 | MP Steam/Auxiliary Steam FSG | All drives to Auto          |
|    |                   |                              | B0LBG10EA001<br>ZB13        |
| 8  |                   |                              |                             |
| 9  | <>><br>188.A - 35 | AuxStm to Deaer Pot B0LBG20  | Setpoint Drn MOV Position   |
|    |                   |                              | B0LBG20AA302<br>ZC01        |
| 10 |                   | AuxStm to Deaer Pot B0LBG20  | Actuator Drn MOV Local Mode |
|    |                   |                              | B0LBG20AA302<br>XB23        |
| 11 |                   |                              |                             |
| 12 |                   | AuxStm to Deaer Pot B0LBG20  | Valve Drn MOV Position      |
|    |                   |                              | B0LBG20AA302<br>XQ13        |
| 13 |                   |                              |                             |
| 14 |                   | AuxStm to Deaer Pot B0LBG20  | FullyOn Drn MOV             |
|    |                   |                              | B0LBG20AA302<br>XB01        |
| 15 |                   |                              |                             |
| 16 |                   | AuxStm to Deaer Pot B0LBG20  | FullyCl Drn MOV             |
|    |                   |                              | B0LBG20AA302<br>XB02        |
| 17 |                   |                              |                             |
| 18 |                   |                              |                             |
| 19 |                   |                              |                             |
| 20 |                   |                              |                             |
| 21 |                   |                              |                             |
| 22 |                   |                              |                             |
| 23 |                   |                              |                             |
| 24 |                   |                              |                             |
| 25 |                   | AuxStm to Deaer Pot B0LBG20  | Actuator Fault              |
|    |                   |                              | B0LBG20AA302<br>XB07        |
| 26 |                   |                              |                             |
| 27 |                   |                              |                             |
| 28 |                   |                              |                             |
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| 30 |                   |                              |                             |



Notes:

- For Drain Pots controlled by temperature see sheet 900.A

| CODE                 | DESCRIPTION                                  | TO |
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|                      |  | 32 |
|                      |  | 33 |
|                      |  | 34 |
|                      |  | 35 |
|                      |  | 36 |
| B0LBG20AA302<br>YQ01 | AuxStm to Deaer Pot B0LBG20 Drn MOV Demand   | 37 |
|                      |  | 38 |
| B0LBG20AA302<br>ZB50 | AuxStm to Deaer Pot B0LBG20 Drn MOV Ready    | 39 |
| B0LBG20AA302<br>ZB51 | AuxStm to Deaer Pot B0LBG20 Drn MOV & Auto   | 40 |
|                      |  | 41 |
|                      |  | 42 |
|                      |  | 43 |
|                      |  | 44 |
|                      |  | 45 |
| B0LBG20AA302<br>XB02 | AuxStm to Deaer Pot B0LBG20 Drn MOV          | 46 |
|                      |  | 47 |
|                      |  | 48 |
|                      |  | 49 |
|                      |  | 50 |
|                      |  | 51 |
|                      |  | 52 |
|                      |  | 53 |
| B0LBG20AA302<br>XM13 | AuxStm to Deaer Pot B0LBG20 Drn MOV Anomaly  | 54 |
| B0LBG20AA302<br>XM07 | AuxStm to Deaer Pot B0LBG20 Drn MOV Fault    | 55 |
|                      |  | 56 |
|                      |  | 57 |
|                      |  | 58 |
| B0LBG20AA302<br>XQ13 | AuxStm to Deaer Pot B0LBG20 Drn MOV Position | 59 |
|                      |  | 60 |

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**AuxStm to Deaer Pot B0LBG20 Drn MOV**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 188 CONT  
REV. P01

A

B

C

D

E

A

B

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D

E

### Control Diagram

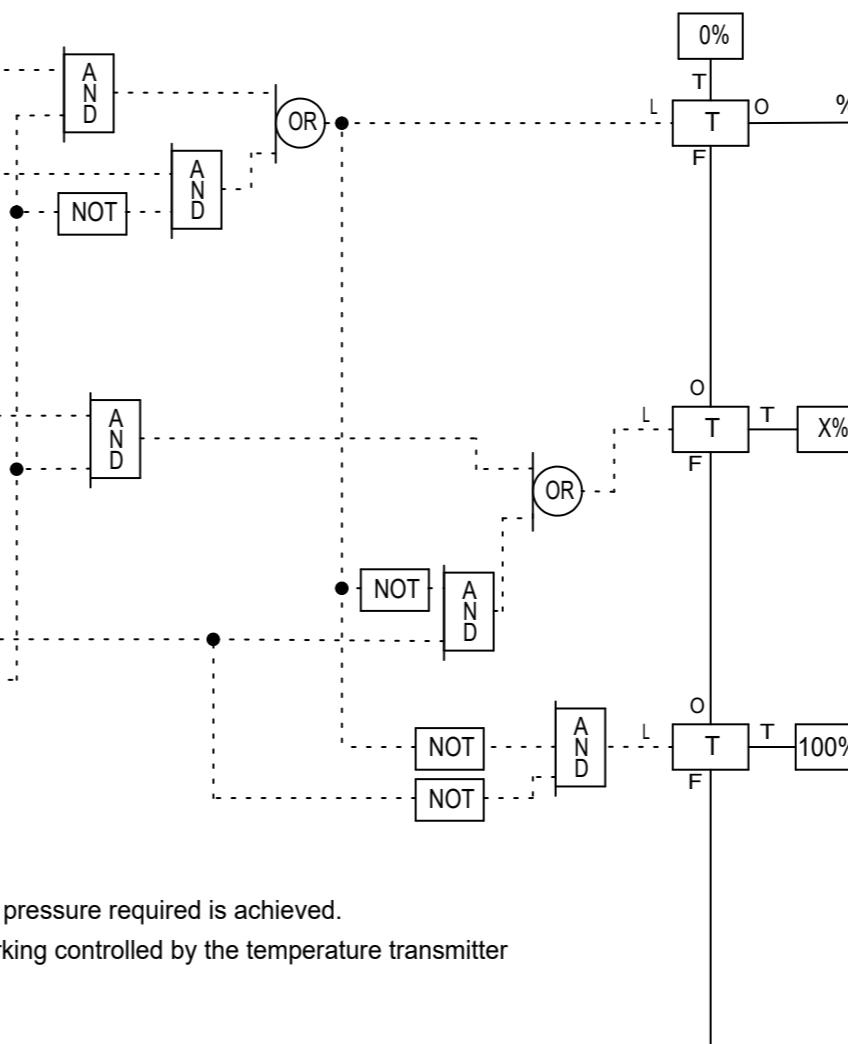
Main Steam, Extract Aux Steam & By-Pass System  
AuxStm to Deaer Pot B0LBG20 Drn MOV

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG20AA302 |
| LOOP SHEET: |              |

### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

|    | FROM            | DESCRIPTION                                  | CODE         |
|----|-----------------|--|--------------|
| 1  |                 |  |              |
| 2  |                 |  |              |
| 3  |                 |  |              |
| 4  | <>><br>248 - 32 | AuxStm to Deaer Pot B0LBG20 Temp             | B0LBG20CT001 |
| 5  |                 |  | ZB01         |
| 6  | <>><br>244 - 51 | AuxStm Hdr Press                             | L            |
| 7  |                 |  | B0LBG10CP901 |
| 8  |                 |  | ZB52         |
| 9  |                 |  |              |
| 10 |                 |  |              |
| 11 | <>><br>248 - 35 | AuxStm to Deaer Pot B0LBG20 Temp             | B0LBG20CT001 |
| 12 |                 |  | ZB52         |
| 13 |                 |  |              |
| 14 |                 |  |              |
| 15 | <>><br>244 - 42 | AuxStm Hdr Press                             | H            |
| 16 |                 |  | B0LBG10CP901 |
| 17 | <>><br>188 - 46 | AuxStm to Deaer Pot B0LBG20 Fully Cl Drn MOV | B0LBG20AA302 |
| 18 |                 |  | XB02         |
| 19 | <>><br>150 - 46 | MP Steam/Auxiliary Steam FSG in operation    | FG           |
| 20 |                 |  | B0LBG10EA001 |
| 21 |                 |  | ZB21         |
| 22 |                 |  |              |
| 23 | <>><br>188 - 59 | AuxStm to Deaer Pot B0LBG20 Drn MOV Position | B0LBG20AA302 |
| 24 |                 |  | XQ13         |
| 25 |                 |  |              |
| 26 |                 |  |              |
| 27 |                 |  |              |
| 28 |                 |  |              |
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| 30 |                 |  |              |



| CODE         | DESCRIPTION                                  | TO           |
|--------------|--|--------------|
|              |  | 31           |
|              |  | 32           |
|              |  | 33           |
|              |  | 34           |
| B0LBG20AA302 | AuxStm to Deaer Pot B0LBG20 Drn MOV Position | <>> 188 - 09 |
| ZC01         |  | 35           |
|              |  | 36           |
|              |  | 37           |
|              |  | 38           |
|              |  | 39           |
|              |  | 40           |
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|              |  | 60           |

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
AuxStm to Deaer Pot B0LBG20 Drn MOV**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 188.ACNT

INTERNAL CODE:

REV. P01

A

B

C

D

E

A

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D

E

**Control Diagram**

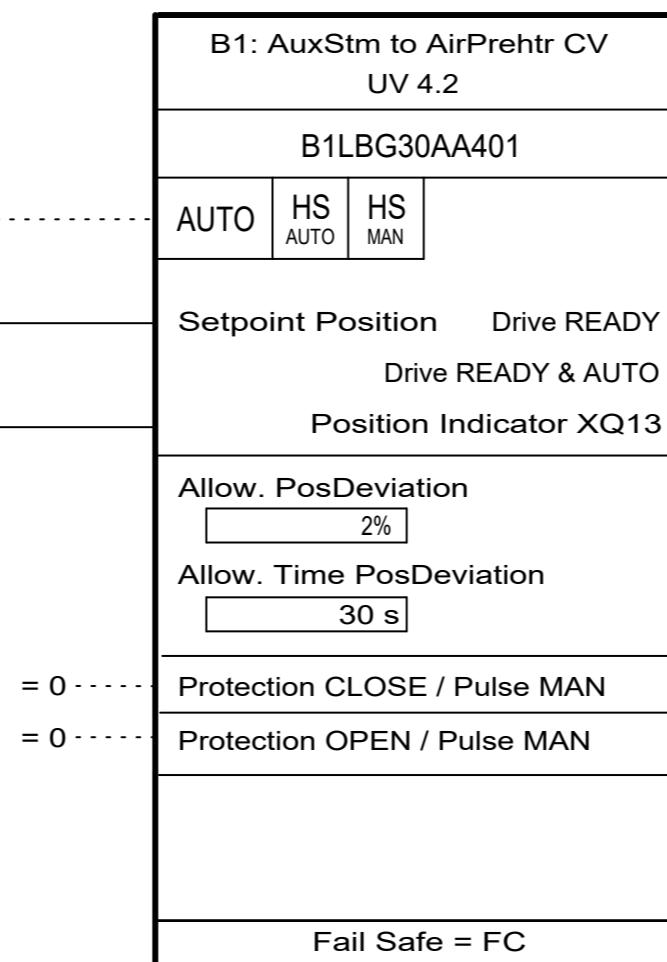
Main Steam, Extract Aux Steam & By-Pass System  
B1: AuxStm to AirPrehtr CV

|             |              |
|-------------|--------------|
| LOOP:       | B1LBG30AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM             | DESCRIPTION  | CODE                 |
|----|------------------|--|----------------------|
| 1  |                  |  |                      |
| 2  |                  |  |                      |
| 3  |                  |  |                      |
| 4  |                  |  |                      |
| 5  |                  |  |                      |
| 6  |                  |  |                      |
| 7  | <><br>150.A - 52 | MP Steam/Auxiliary Steam FSG<br>All drives to Auto | B0LBG10EA001<br>ZB13 |
| 8  |                  |  |                      |
| 9  | <><br>192.A - 38 | B1: AuxStm to AirPrehtr CV<br>Setpoint Position    | B1LBG30AA401<br>ZC01 |
| 10 |                  |  |                      |
| 11 |                  | B1: AuxStm to AirPrehtr CV<br>Position             | B1LBG30AA401         |
| 12 |                  |  |                      |
| 13 |                  |  |                      |
| 14 |                  |  |                      |
| 15 |                  |  |                      |
| 16 |                  |  |                      |
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| CODE         | DESCRIPTION                | TO                      |
|--------------|----------------------------|-------------------------|
|              |                            | 31                      |
|              |                            | 32                      |
|              |                            | 33                      |
|              |                            | 34                      |
|              |                            | 35                      |
| B1LBG30AA401 | B1: AuxStm to AirPrehtr CV | Position <>             |
| YQ01         | B1: AuxStm to AirPrehtr CV | Demand 192.A - 12       |
| B1LBG30AA401 | B1: AuxStm to AirPrehtr CV | Position                |
| YQ01         | B1: AuxStm to AirPrehtr CV | Demand                  |
| B1LBG30AA401 | B1: AuxStm to AirPrehtr CV | Drive <>                |
| ZB50         | B1: AuxStm to AirPrehtr CV | Ready 192.A - 23        |
| B1LBG30AA401 | B1: AuxStm to AirPrehtr CV | Drive <>                |
| ZB50         | B1: AuxStm to AirPrehtr CV | Ready 150.B - 12        |
| B1LBG30AA401 | B1: AuxStm to AirPrehtr CV | Drive <>                |
| ZB51         | B1: AuxStm to AirPrehtr CV | Ready & Auto 150.C - 23 |
| B1LBG30AA401 | B1: AuxStm to AirPrehtr CV | Drive <>                |
| ZB51         | B1: AuxStm to AirPrehtr CV | Ready & Auto 192.A - 24 |
|              |                            | 42                      |
|              |                            | 43                      |
|              |                            | 44                      |
|              |                            | 45                      |
|              |                            | 46                      |
|              |                            | 47                      |
| B1LBG30AA401 | B1: AuxStm to AirPrehtr CV | Feedback                |
| XM13         | B1: AuxStm to AirPrehtr CV | Anomaly                 |
| B1LBG30AA401 | B1: AuxStm to AirPrehtr CV | Discrp                  |
| XM70         | B1: AuxStm to AirPrehtr CV | Pos                     |
| B1LBG30AA401 | B1: AuxStm to AirPrehtr CV | Pos xtrmr               |
| XM30         | B1: AuxStm to AirPrehtr CV | BQ                      |
|              |                            | 51                      |
|              |                            | 52                      |
|              |                            | 53                      |
|              |                            | 54                      |
|              |                            | 55                      |
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|              |                            | 60                      |

**Notes:**

1. The logic depicted in this page should be replicated for equipment in Boiler line 2.

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**PROJECT****NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

**DRAWING TITLE**

**Main Steam, Extract Aux Steam & By-Pass System  
B1: AuxStm to AirPrehtr CV**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 192 CONT

REV. P01

A

B

C

D

E

A

B

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D

E

### Control Diagram

Main Steam, Extract Aux Steam & By-Pass System

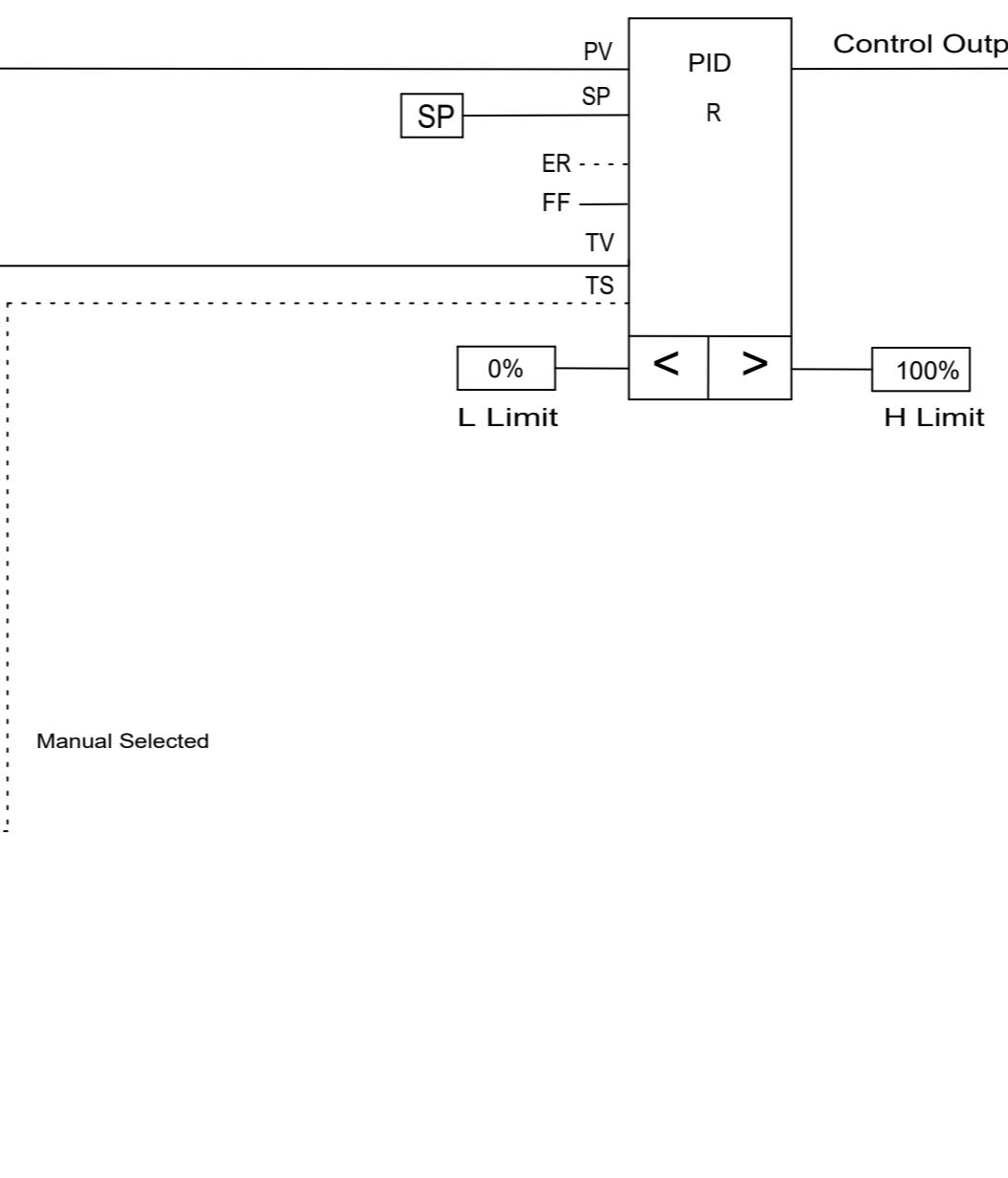
B1: AuxStm to AirPrehtr CV

|             |              |
|-------------|--------------|
| LOOP:       | B1LBG30AA401 |
| LOOP SHEET: |              |

### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

|    | FROM       | DESCRIPTION                  | CODE                    |
|----|------------|------------------------------|-------------------------|
| 1  |            |                              |                         |
| 2  |            |                              |                         |
| 3  |            |                              |                         |
| 4  |            |                              |                         |
| 5  |            |                              |                         |
| 6  |            |                              |                         |
| 7  |            |                              |                         |
| 8  | <>>        | B1: AuxStm to AirPrehtr Flow | flow value B1LBG30CF901 |
|    | 252.A - 33 |                              | ZQ10                    |
| 9  |            |                              |                         |
| 10 |            |                              |                         |
| 11 |            |                              |                         |
| 12 | <>>        | B1: AuxStm to AirPrehtr CV   | Position B1LBG30AA401   |
|    | 192 - 36   | Demand                       | YQ01                    |
| 13 |            |                              |                         |
| 14 |            |                              |                         |
| 15 |            |                              |                         |
| 16 |            |                              |                         |
| 17 |            |                              |                         |
| 18 |            |                              |                         |
| 19 |            |                              |                         |
| 20 |            |                              |                         |
| 21 |            |                              |                         |
| 22 |            |                              |                         |
| 23 | <>>        | B1: AuxStm to AirPrehtr CV   | Drive B1LBG30AA401      |
|    | 192 - 38   | Ready                        | ZB50                    |
| 24 | <>>        | B1: AuxStm to AirPrehtr CV   | Drive B1LBG30AA401      |
|    | 192 - 41   | Ready & Auto                 | ZB51                    |
| 25 |            |                              |                         |
| 26 |            |                              |                         |
| 27 |            |                              |                         |
| 28 |            |                              |                         |
| 29 |            |                              |                         |
| 30 |            |                              |                         |



### Notes:

- The logic depicted in this page should be replicated for equipment in Boiler line 2.

| CODE         | DESCRIPTION                | TO                |
|--------------|----------------------------|-------------------|
|              |                            | 31                |
|              |                            | 32                |
|              |                            | 33                |
|              |                            | 34                |
|              |                            | 35                |
|              |                            | 36                |
|              |                            | 37                |
| B1LBG30AA401 | B1: AuxStm to AirPrehtr CV | Setpoint <>>      |
| ZC01         | Position 192 - 09          | Position 192 - 09 |
|              |                            | 38                |
|              |                            | 39                |
|              |                            | 40                |
|              |                            | 41                |
|              |                            | 42                |
|              |                            | 43                |
|              |                            | 44                |
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|              |                            | 60                |

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PROJECT

NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE

Main Steam, Extract Aux Steam & By-Pass System  
B1: AuxStm to AirPrehtr CV



FORMAT  
A3

SCALE

NLWA CODE:  
CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 192.ACNT  
REV. P01

A

B

C

D

E

A

B

C

D

E

**Control Diagram**

Main Steam, Extract Aux Steam & By-Pass System  
B1: AuxStm to AirPrehtr Byp MOV

|             |              |
|-------------|--------------|
| LOOP:       | B1LBG30AA301 |
| LOOP SHEET: |              |

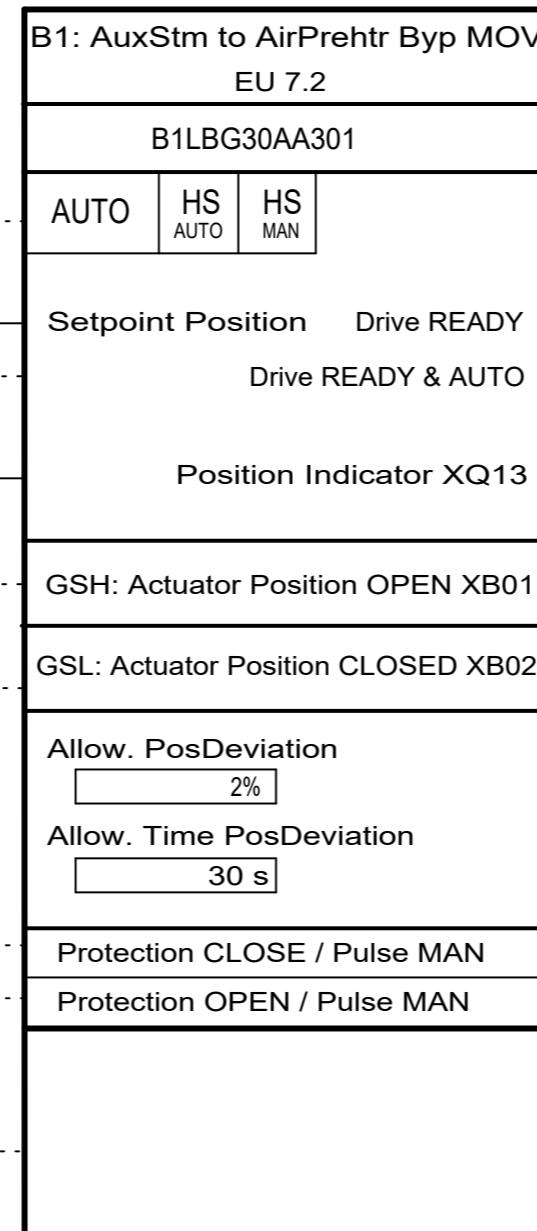
**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                            | DESCRIPTION  | CODE                 |
|----|---------------------------------|--|----------------------|
| 1  |                                 |  |                      |
| 2  |                                 |  |                      |
| 3  |                                 |  |                      |
| 4  |                                 |  |                      |
| 5  |                                 |  |                      |
| 6  |                                 |  |                      |
| 7  | <><br>150.A - 54                | MP Steam/Auxiliary Steam FSG<br>All drives to Auto | B0LBG10EA001<br>ZB13 |
| 8  |                                 |  |                      |
| 9  |                                 |  |                      |
| 10 | B1: AuxStm to AirPrehtr Byp MOV | Actuator Local Mode                                | B1LBG30AA301<br>XB23 |
| 11 |                                 |  |                      |
| 12 | B1: AuxStm to AirPrehtr Byp MOV | Valve Position                                     | B1LBG30AA301<br>XQ13 |
| 13 |                                 |  |                      |
| 14 | B1: AuxStm to AirPrehtr Byp MOV | FullyOp  | B1LBG30AA301<br>XB01 |
| 15 |                                 |  |                      |
| 16 | B1: AuxStm to AirPrehtr Byp MOV | FullyCl  | B1LBG30AA301<br>XB02 |
| 17 |                                 |  |                      |
| 18 |                                 |  |                      |
| 19 |                                 |  |                      |
| 20 |                                 |  |                      |
| 21 |                                 |  |                      |
| 22 |                                 |  |                      |
| 23 |                                 |  |                      |
| 24 | B1: AuxStm to AirPrehtr Byp MOV | Actuator Fault                                     | B1LBG30AA301<br>XB07 |
| 25 |                                 |  |                      |
| 26 |                                 |  |                      |
| 27 |                                 |  |                      |
| 28 |                                 |  |                      |
| 29 |                                 |  |                      |
| 30 |                                 |  |                      |

Notes:

1. The logic depicted in this page should be replicated for equipment in Boiler line 2.



| CODE         | DESCRIPTION  | TO |
|--------------|--|----|
|              |  | 31 |
|              |  | 32 |
|              |  | 33 |
|              |  | 34 |
|              |  | 35 |
|              |  | 36 |
| B1LBG30AA301 | B1: AuxStm to AirPrehtr Byp MOV Position Demand    | 37 |
|              |  | 38 |
| B1LBG30AA301 | B1: AuxStm to AirPrehtr Byp MOV Drive Ready        | 39 |
| ZB50         | 150.B - 14   |    |
| B1LBG30AA301 | B1: AuxStm to AirPrehtr Byp MOV Drive Ready & Auto | 40 |
| ZB51         | 150.C - 25   |    |
|              |  | 41 |
|              |  | 42 |
|              |  | 43 |
|              |  | 44 |
|              |  | 45 |
|              |  | 46 |
|              |  | 47 |
|              |  | 48 |
|              |  | 49 |
|              |  | 50 |
| B1LBG30AA301 | B1: AuxStm to AirPrehtr Byp MOV Force Close        | 51 |
| B1LBG30AA301 | B1: AuxStm to AirPrehtr Byp MOV Force Open         | 52 |
|              |  | 53 |
| B1LBG30AA301 | B1: AuxStm to AirPrehtr Byp MOV Feedback Anomaly   | 54 |
| B1LBG30AA301 | B1: AuxStm to AirPrehtr Byp MOV Actuator Fault     | 55 |
|              |  | 56 |
|              |  | 57 |
|              |  | 58 |
|              |  | 59 |
|              |  | 60 |

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**NORTH LONDON WASTE AUTHORITY**

CONTRACTOR  
**Acciona**

PROJECT

NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**B1: AuxStm to AirPrehtr Byp MOV**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 194 CONT

INTERNAL CODE:

REV. P01

A

B

C

D

E

A

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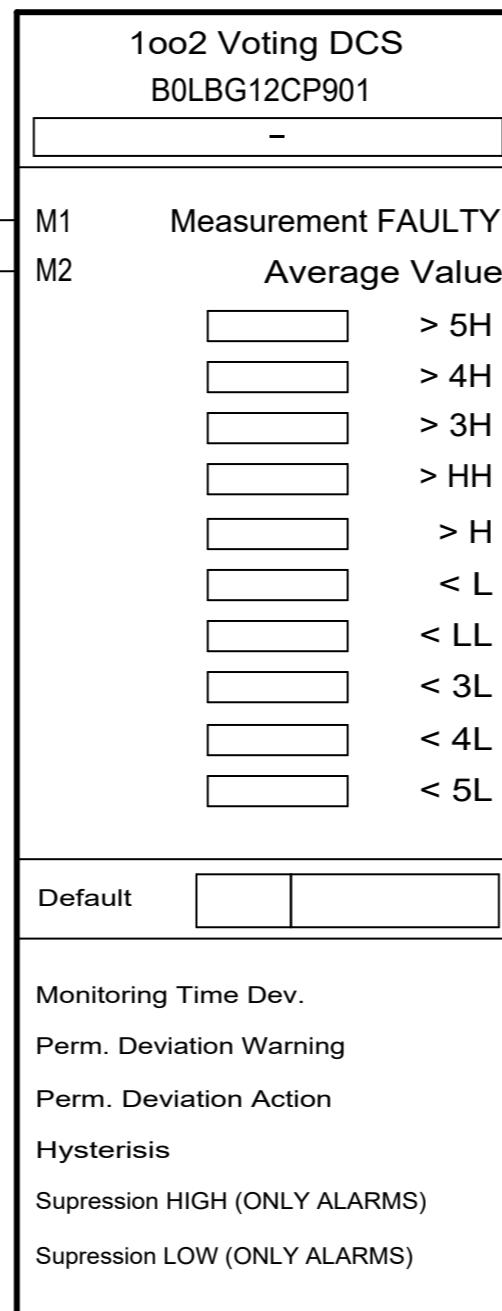
E

**Control Diagram**

Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Outl Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG12CP901 |
| LOOP SHEET: |              |

| 1  | FROM                      | DESCRIPTION | CODE          |
|----|---------------------------|-------------|---------------|
| 2  |                           |             |               |
| 3  |                           |             |               |
| 4  |                           |             |               |
| 5  |                           |             |               |
| 6  |                           |             |               |
| 7  |                           |             |               |
| 8  |                           |             |               |
| 9  | MS Attemp CV Outl Press 1 | xtrmr       | B0LBG12CP001A |
|    |                           |             | XQ01          |
| 10 | MS Attemp CV Outl Press 2 | xtrmr       | B0LBG12CP001B |
|    |                           |             | XQ01          |
| 11 |                           |             |               |
| 12 |                           |             |               |
| 13 |                           |             |               |
| 14 |                           |             |               |
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4

- If "Measurement FAULTY" (XM35) alarm appears with the output selected during 60 seconds (adjustable time) the Max / Min value will be selected.

| MODIFICATIONS |             |      |       |
|---------------|-------------|------|-------|
| REV.          | DESCRIPTION | DATE | DRAWN |
|               |             |      |       |

| CODE         | DESCRIPTION             | TO          |
|--------------|-------------------------|-------------|
|              |                         | 31          |
|              |                         | 32          |
|              |                         | 33          |
|              |                         | 34          |
|              |                         | 35          |
|              |                         | 36          |
|              |                         | 37          |
|              |                         | 38          |
| B0LBG12CP901 | MS Attemp CV Outl Press | Measurement |
| XM35         |                         | FAULTY      |
| B0LBG12CP901 | MS Attemp CV Outl Press | xtrmr       |
| XQ01         |                         |             |
|              |                         | 40          |
|              |                         | 41          |
| B0LBG12CP901 | MS Attemp CV Outl Press | H           |
| ZB01         |                         | <>>         |
|              |                         | 152 - 17    |
|              |                         | 42          |
| B0LBG12CP901 | MS Attemp CV Outl Press | H           |
| XM01         |                         |             |
| B0LBG12CP901 | MS Attemp CV Outl Press | L           |
| XM52         |                         |             |
|              |                         | 45          |
|              |                         | 46          |
|              |                         | 47          |
|              |                         | 48          |
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|              |                         | 59          |
|              |                         | 60          |

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Outl Press**

|   |                |
|---|----------------|
| NLWA CODE:                                | SHEET 210 CONT |
| CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604 |                |
| INTERNAL CODE:                            | REV. P01       |

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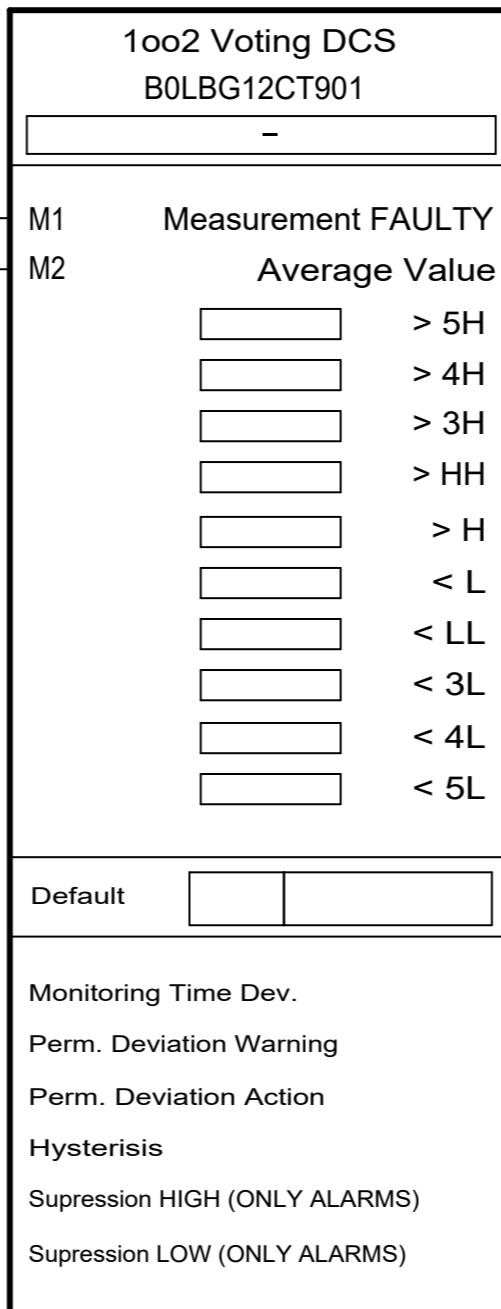
E

**Control Diagram**

Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Outl Temp

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG12CT901 |
| LOOP SHEET: |              |

| 1  | FROM                     | DESCRIPTION | CODE          |
|----|--------------------------|-------------|---------------|
| 2  |                          |             |               |
| 3  |                          |             |               |
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| 6  |                          |             |               |
| 7  |                          |             |               |
| 8  |                          |             |               |
| 9  | MS Attemp CV Outl Temp 1 | xtmr        | B0LBG12CT001A |
|    |                          |             | XQ01          |
| 10 | MS Attemp CV Outl Temp 2 | xtmr        | B0LBG12CT001B |
|    |                          |             | XQ01          |
| 11 |                          |             |               |
| 12 |                          |             |               |
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| MODIFICATIONS |             |      |       |
|---------------|-------------|------|-------|
| REV.          | DESCRIPTION | DATE | DRAWN |
|               |             |      |       |

| CODE         | DESCRIPTION            | TO          |            |
|--------------|------------------------|-------------|------------|
|              |                        |             | 31         |
|              |                        |             | 32         |
|              |                        |             | 33         |
|              |                        |             | 34         |
| B0LBG12CT901 | MS Attemp CV Outl Temp | xtmr        | <>>        |
| XQ01         |                        |             | 154.A - 08 |
|              |                        |             | 35         |
|              |                        |             | 36         |
|              |                        |             | 37         |
|              |                        |             | 38         |
| B0LBG12CT901 | MS Attemp CV Outl Temp | Measurement | 39         |
| XM35         |                        | FAULTY      |            |
| B0LBG12CT901 | MS Attemp CV Outl Temp | xtmr        | 40         |
| XQ01         |                        |             | 41         |
| B0LBG12CT901 | MS Attemp CV Outl Temp | H           | <>>        |
| ZB01         |                        |             | 152 - 16   |
|              |                        |             | 42         |
|              |                        |             | 43         |
|              |                        |             | 44         |
| B0LBG12CT901 | MS Attemp CV Outl Temp | H           | 45         |
| XM01         |                        |             |            |
| B0LBG12CT901 | MS Attemp CV Outl Temp | L           | 46         |
| XM52         |                        |             | 47         |
| B0LBG12CT901 | MS Attemp CV Outl Temp | L           | <>>        |
| ZB52         |                        |             | 154 - 17   |
|              |                        |             | 48         |
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[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT



SCALE



**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**MS Attemp CV Outl Temp**

NLWA CODE:

CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 212 CONT

REV. P01

A

B

C

D

E

A

B

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**Control Diagram**

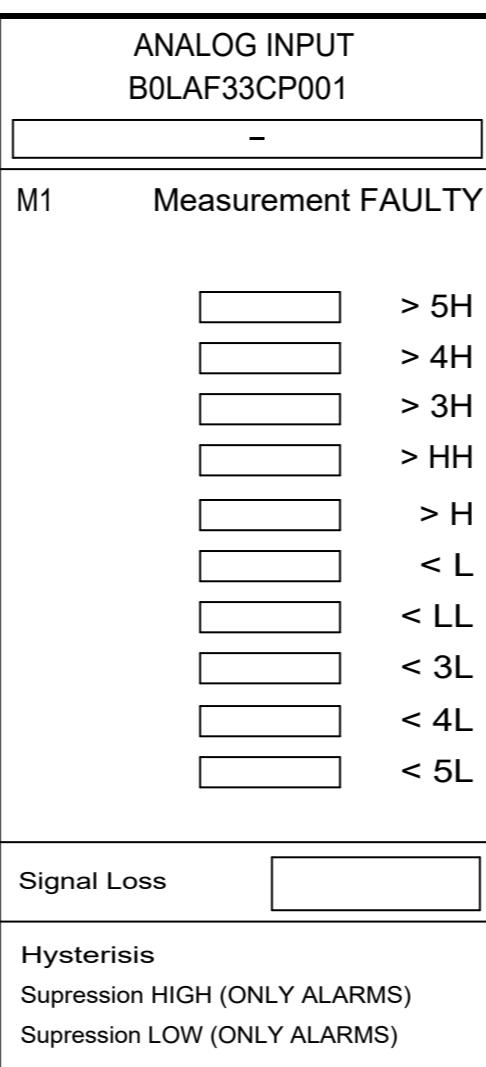
Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Water CV Inl Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LAF33CP001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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| 1  | FROM                            | DESCRIPTION | CODE         |
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| 11 | MS Attemp CV Water CV Inl Press | xtrmr       | B0LAF33CP001 |
|    |                                 |             | XQ01         |
| 12 |                                 |             |              |
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| CODE         | DESCRIPTION                     | TO          |
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|              |                                 | 39          |
|              |                                 | 40          |
| B0LAF33CP001 | MS Attemp CV Water CV Inl Press | Measurement |
| XM35         |                                 | FAULTY      |
| B0LAF33CP001 |                                 | xtrmr       |
| XQ01         | MS Attemp CV Water CV Inl Press |             |
|              |                                 | 41          |
|              |                                 | 42          |
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PROJECT

NORTH LONDON HEAT AND POWER PROJECT

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Water CV Inl Press**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 214 CONT

INTERNAL CODE:

REV. P01

A

B

C

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E

A

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D

E

**Control Diagram**

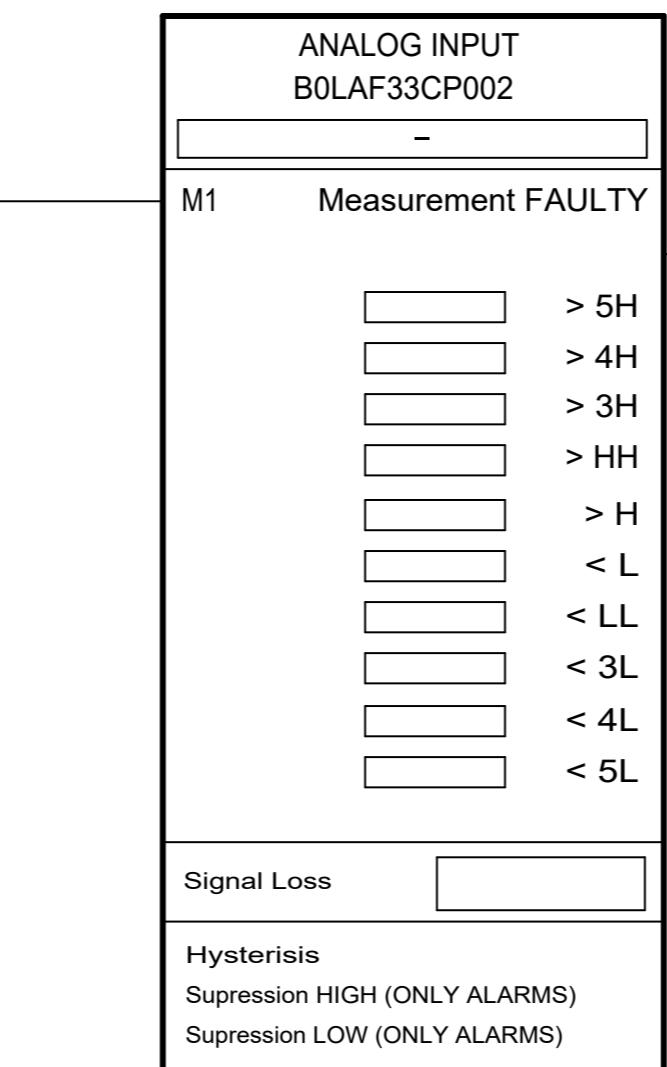
Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Water CV Outl Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LAF33CP002 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
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| 1  | FROM                             | DESCRIPTION        | CODE |
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| 11 | MS Attemp CV Water CV Outl Press | xtrmr B0LAF33CP002 | XQ01 |
| 12 |                                  |                    |      |
| 13 |                                  |                    |      |
| 14 |                                  |                    |      |
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| CODE         | DESCRIPTION                      | TO                 |
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|              |                                  | 36                 |
|              |                                  | 37                 |
|              |                                  | 38                 |
|              |                                  | 39                 |
|              |                                  | 40                 |
| B0LAF33CP002 | MS Attemp CV Water CV Outl Press | Measurement FAULTY |
| XM35         |                                  |                    |
| B0LAF33CP002 | MS Attemp CV Water CV Outl Press | xtrmr              |
| XQ01         |                                  |                    |
|              |                                  | 41                 |
|              |                                  | 42                 |
|              |                                  | 43                 |
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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT

A3

SCALE



**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**MS Attemp CV Water CV Outl Press**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 216 CONT  
INTERNAL CODE:  
REV. P01

A

B

C

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E

A

B

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D

E

**Control Diagram**

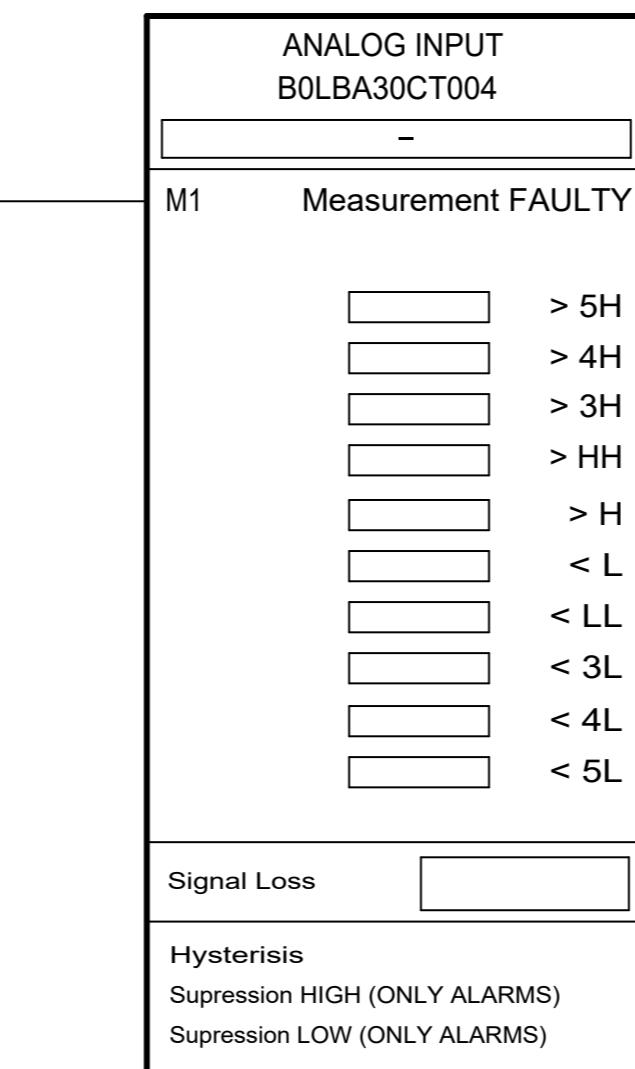
Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Pot B0LBA30#1 Temp

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA30CT004 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
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| 9    |                                 |                         |
| 10   |                                 |                         |
| 11   | MS Attemp CV Pot B0LBA30#1 Temp | xtrmr B0LBA30CT004 XQ01 |
| 12   |                                 |                         |
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| CODE         | DESCRIPTION                            | TO         |
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|              |  | 38         |
|              |  | 39         |
|              |  | 40         |
| B0LBA30CT004 | MS Attemp CV Pot B0LBA30#1 Temp FAULTY | 41         |
| XM35         |  |            |
| B0LBA30CT004 | MS Attemp CV Pot B0LBA30#1 Temp        | 42         |
| XQ01         |  |            |
|              |  | 43         |
| B0LBA30CT004 | MS Attemp CV Pot B0LBA30#1 Temp        | 44         |
| XQ01         |  | 158.B - 20 |
|              |  | 45         |
|              |  | 46         |
|              |  | 47         |
|              |  | 48         |
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Notes:

1. Orders and feedbacks cross references from Equipment 2, should be replicated.

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
MS Attemp CV Pot B0LBA30#1 Temp**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 218 CONT  
REV. P01

INTERNAL CODE:

A

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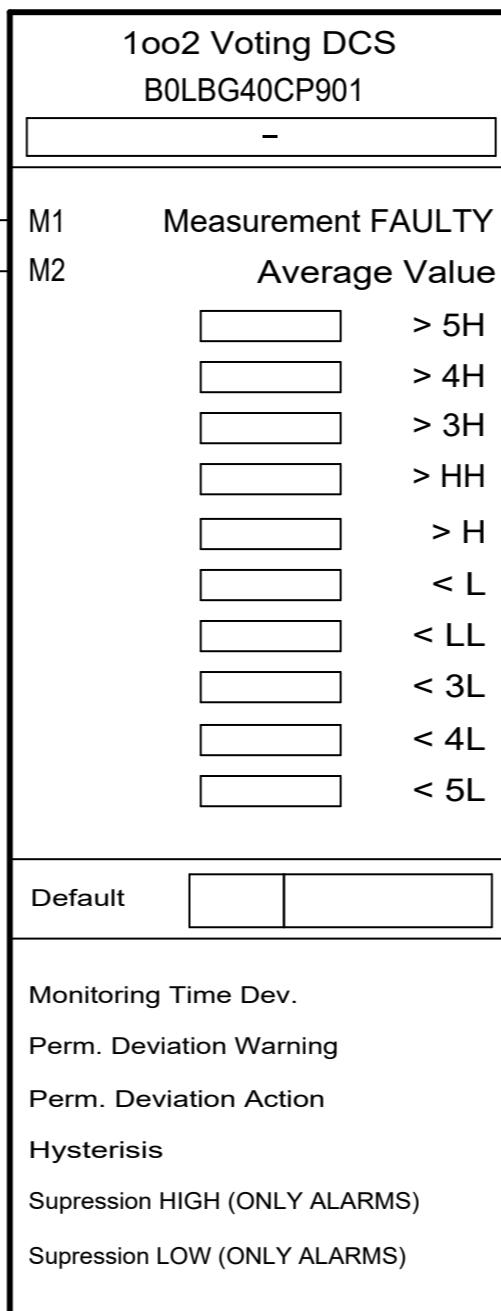
E

**Control Diagram**

Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Outl Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG40CP901 |
| LOOP SHEET: |              |

| FROM | DESCRIPTION                    | CODE                     |
|------|--------------------------------|--------------------------|
| 1    |                                |                          |
| 2    |                                |                          |
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| 8    |                                |                          |
| 9    | Dist Heat Attemp CV Outl Press | xtrmr B0LBG40CP001A XQ01 |
| 10   | Dist Heat Attemp CV Outl Press | xtrmr B0LBG40CP001B XQ01 |
| 11   |                                |                          |
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4

- If "Measurement FAULTY" (XM35) alarm appears with the output selected during 60 seconds (adjustable time) the Max / Min value will be selected.

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Outl Press**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 220 CONT  
REV. P01

| MODIFICATIONS |             |                             |
|---------------|-------------|-----------------------------|
| REV.          | DESCRIPTION | DATE DRAWN CHECKED APPROVED |
|               |             |                             |

| CODE         | DESCRIPTION                    | TO                  |
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|              |                                | 31                  |
|              |                                | 32                  |
|              |                                | 33                  |
|              |                                | 34                  |
| B0LBG40CP901 | Dist Heat Attemp CV Outl Press | xtrmr <> 162.A - 08 |
| XQ01         |                                |                     |
|              |                                | 35                  |
|              |                                | 36                  |
|              |                                | 37                  |
|              |                                | 38                  |
| B0LBG40CP901 | Dist Heat Attemp CV Outl Press | Measurement         |
| XM35         |                                | FAULTY              |
| B0LBG40CP901 | Dist Heat Attemp CV Outl Press | xtrmr               |
| XQ01         |                                |                     |
|              |                                | 40                  |
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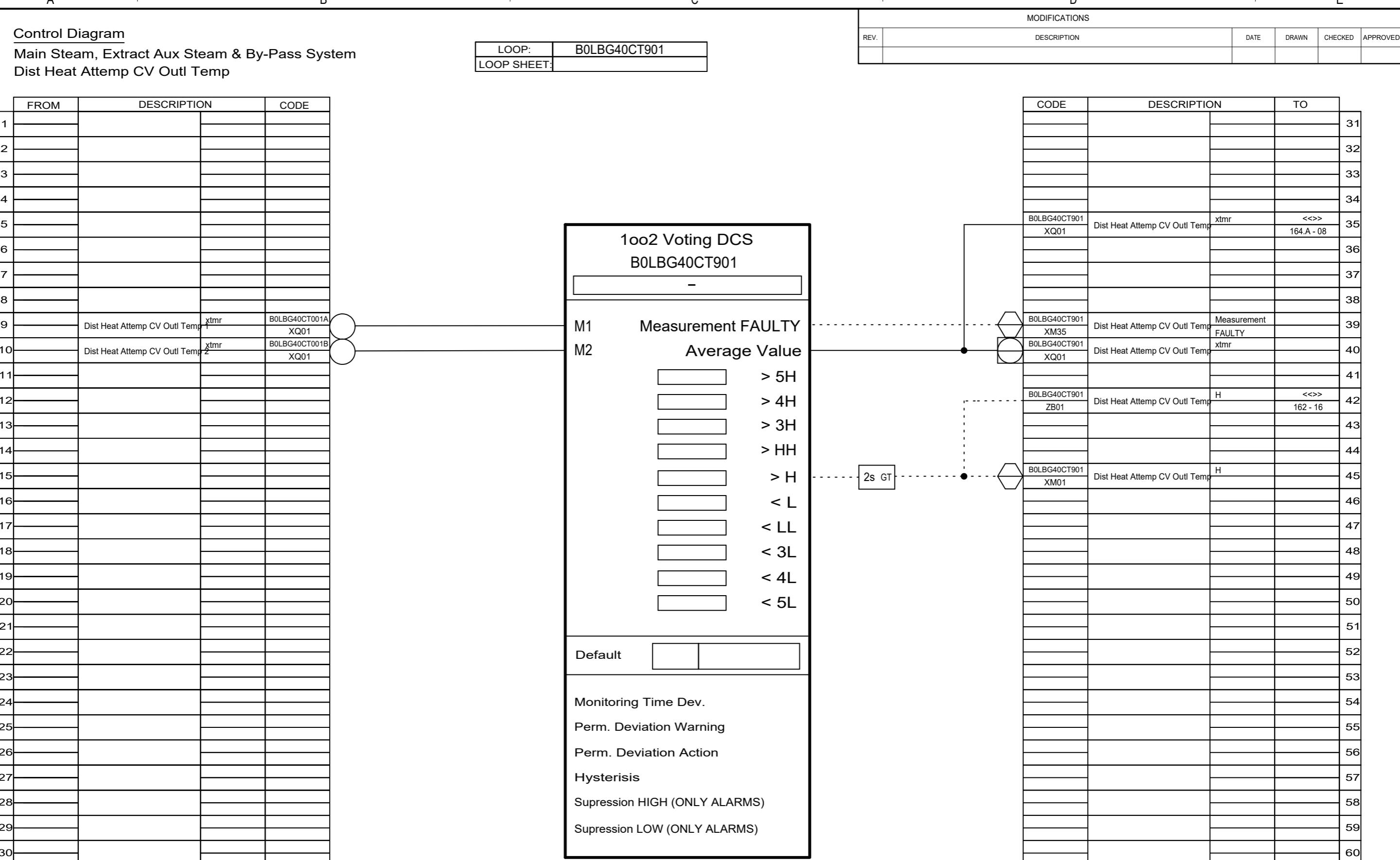
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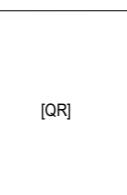


Notes:

1. If "Measurement FAULTY" (XM35) alarm appears with the output selected during 60 seconds (adjustable time) the Max / Min value will be selected.

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## PROJECT

# NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Outl Temp

NLWA CODE:

CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-760

INTERNAL CODE

SHEET 222 CONT

REV. P01

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**Control Diagram**

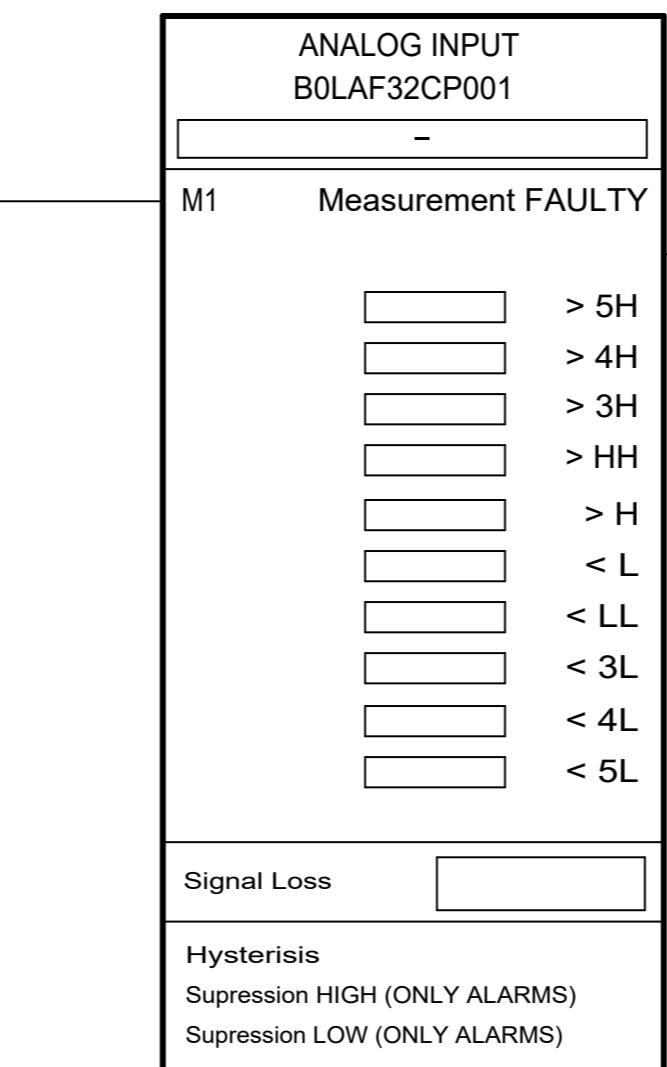
Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Wtr CV Inl Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LAF32CP001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
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| 10 |                                      |             |                   |
| 11 | Dist Heat Attemp CV Wtr CV Inl Press | xtrmr       | B0LAF32CP001 XQ01 |
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| CODE         | DESCRIPTION                          | TO                                   |
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|              |                                      | 37                                   |
|              |                                      | 38                                   |
|              |                                      | 39                                   |
|              |                                      | 40                                   |
| B0LAF32CP001 | Dist Heat Attemp CV Wtr CV Inl Press | Measurement Press FAULTY             |
| XM35         |                                      |                                      |
| B0LAF32CP001 |                                      | xtrmr                                |
| XQ01         |                                      | Dist Heat Attemp CV Wtr CV Inl Press |
|              |                                      | 41                                   |
|              |                                      | 42                                   |
|              |                                      | 43                                   |
|              |                                      | 44                                   |
|              |                                      | 45                                   |
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[QR]



PROJECT

NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE

Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Wtr CV Inl Press

FORMAT

A3

SCALE

NLWA CODE:  
CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 224 CONT

REV. P01

A

B

C

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E

A

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**Control Diagram**

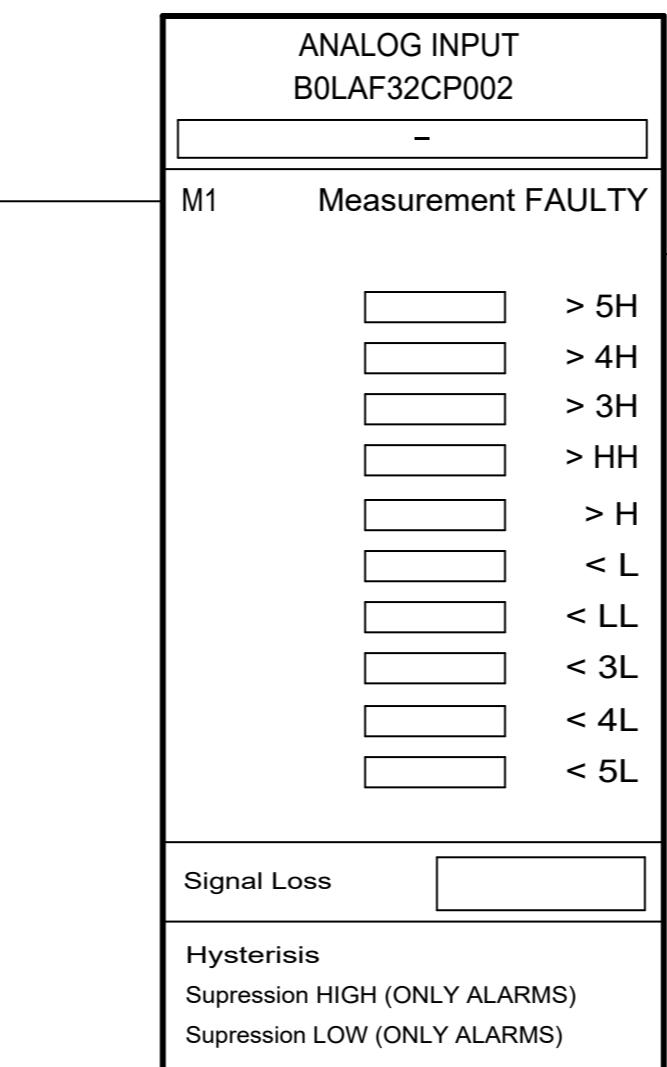
Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Wtr CV Outl Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LAF32CP002 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
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| 1  | FROM                                  | DESCRIPTION            | CODE |
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| 10 |                                       |                        |      |
| 11 | Dist Heat Attemp CV Wtr CV Outl Press | Xtmr B0LAF32CP002 XQ01 |      |
| 12 |                                       |                        |      |
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| B0LAF32CP002 | Dist Heat Attemp CV Wtr CV Outl Press | Measurement FAULTY |
| XM35         |                                       | 41                 |
| B0LAF32CP002 | Dist Heat Attemp CV Wtr CV Outl Press | xtrmr              |
| XQ01         |                                       | 42                 |
|              |                                       | 43                 |
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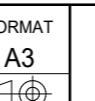
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[QR]



PROJECT  
NORTH LONDON HEAT AND POWER PROJECT

ISSUER  
**EMPRESARIOS AGRUPADOS**



**DRAWING TITLE**  
Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Wtr CV Outl Press

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 226 CONT

INTERNAL CODE:

REV. P01

A

B

C

D

E

**Control Diagram**

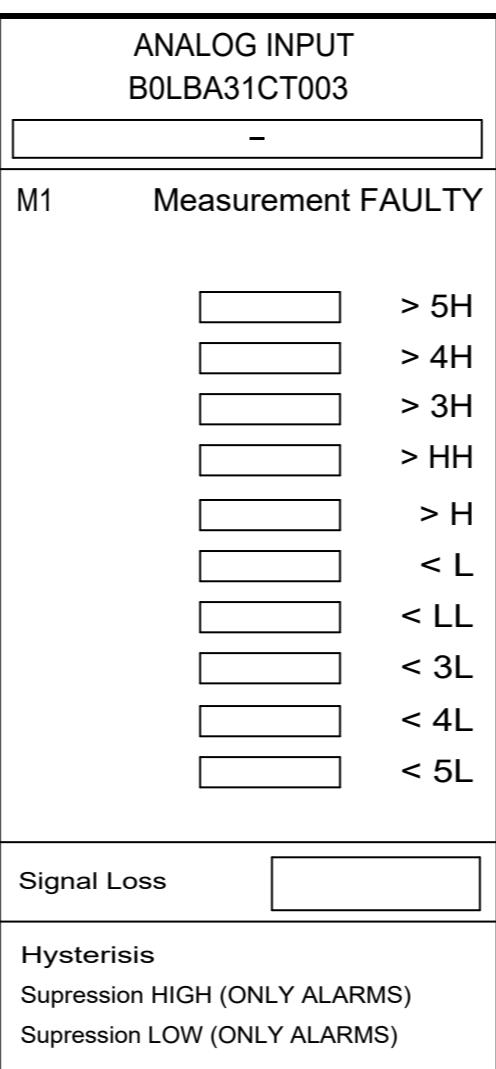
Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Inl Temp

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA31CT003 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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| 11 | Dist Heat Attemp CV Inl Temp | xtrmr       | B0LBA31CT003 |
|    |                              |             | XQ01         |
| 12 |                              |             |              |
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| CODE         | DESCRIPTION                  | TO          |
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|              |                              | 39          |
|              |                              | 40          |
| B0LBA31CT003 | Dist Heat Attemp CV Inl Temp | Measurement |
| XM35         |                              | FAULTY      |
| B0LBA31CT003 | Dist Heat Attemp CV Inl Temp | xtrmr       |
| XQ01         |                              |             |
|              |                              | 41          |
|              |                              | 42          |
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PROJECT

NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Inl Temp

|   |                |
|---|----------------|
| NLWA CODE:                                | SHEET 228 CONT |
| CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604 |                |
| INTERNAL CODE:                            | REV. P01       |

A

B

C

D

E

A

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**Control Diagram**

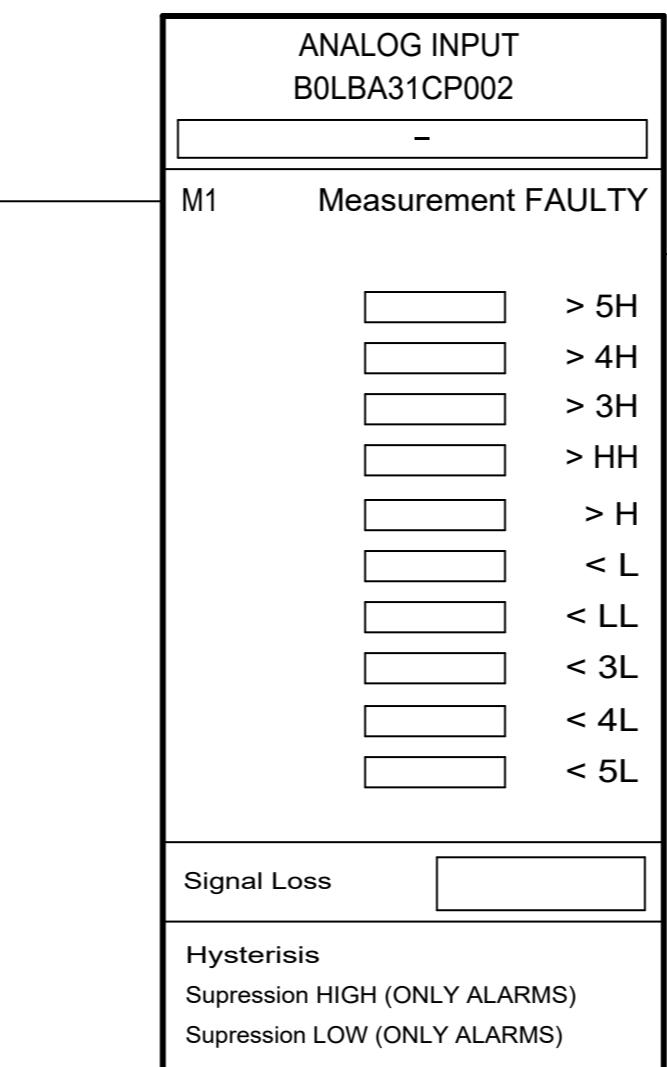
Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Inl Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA31CP002 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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| 10 |                               |             |              |
| 11 | Dist Heat Attemp CV Inl Press | xtrmr       | B0LBA31CP002 |
|    |                               |             | XQ01         |
| 12 |                               |             |              |
| 13 |                               |             |              |
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| CODE         | DESCRIPTION                   | TO          |
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|              |                               | 37          |
|              |                               | 38          |
|              |                               | 39          |
|              |                               | 40          |
| B0LBA31CP002 | Dist Heat Attemp CV Inl Press | Measurement |
| XM35         | Dist Heat Attemp CV Inl Press | FAULTY      |
| B0LBA31CP002 | Dist Heat Attemp CV Inl Press | xtrmr       |
| XQ01         | Dist Heat Attemp CV Inl Press |             |
|              |                               | 41          |
|              |                               | 42          |
|              |                               | 43          |
|              |                               | 44          |
|              |                               | 45          |
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PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

ISSUER



FORMAT

A3

SCALE



DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
Dist Heat Attemp CV Inl Press

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 230 CONT

REV. P01

A

B

C

D

E

A

B

C

D

E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

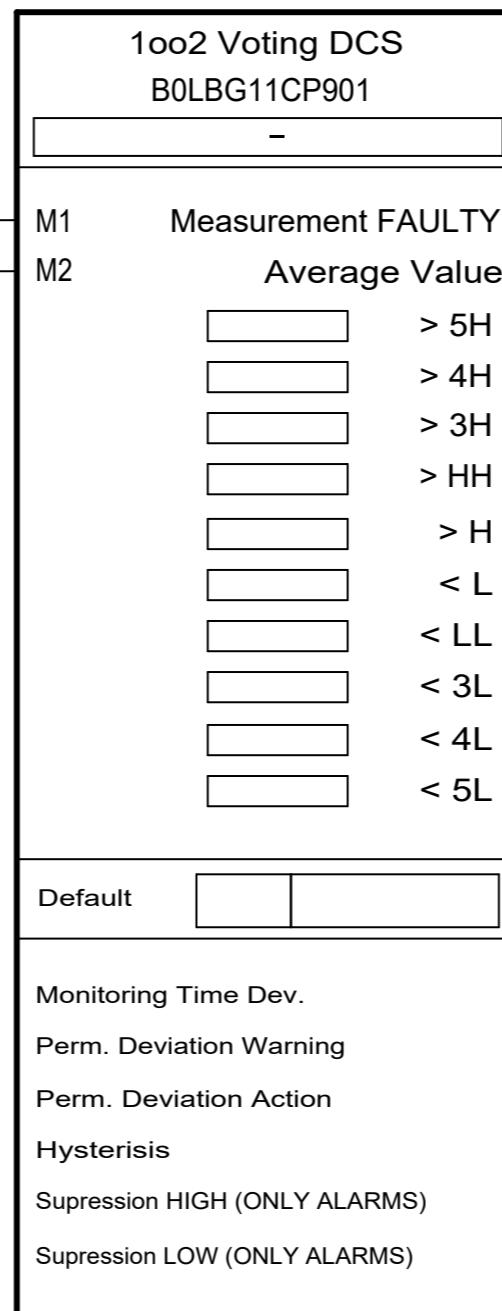
IV Extn Condng CV Outl Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG11CP901 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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| 1  | FROM                         | DESCRIPTION | CODE                  |
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| 8  |                              |             |                       |
| 9  | IV Extn Condng CV Outl Press | xtmr        | B0LBG11CP001A<br>XQ01 |
| 10 | IV Extn Condng CV Outl Press | xtmr        | B0LBG11CP001B<br>XQ01 |
| 11 |                              |             |                       |
| 12 |                              |             |                       |
| 13 |                              |             |                       |
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Notes:

- If "Measurement FAULTY" (XM35) alarm appears with the output selected during 60 seconds (adjustable time) the Max / Min value will be selected.

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**IV Extn Condng CV Outl Press**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 232 CONT

INTERNAL CODE:

REV. P01

| CODE         | DESCRIPTION                  | TO          |
|--------------|------------------------------|-------------|
|              |                              | 31          |
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|              |                              | 35          |
|              |                              | 36          |
|              |                              | 37          |
|              |                              | 38          |
| B0LBG11CP901 | IV Extn Condng CV Outl Press | Measurement |
| XM35         |                              | FAULTY      |
| B0LBG11CP901 | IV Extn Condng CV Outl Press | xtrmr       |
| XQ01         |                              |             |
|              |                              | 40          |
|              |                              | 41          |
| B0LBG11CP901 | IV Extn Condng CV Outl Press | H           |
| ZB01         |                              | <>>         |
|              |                              | 172 - 17    |
|              |                              | 42          |
| B0LBG11CP901 | IV Extn Condng CV Outl Press | H           |
| XM01         |                              |             |
| B0LBG11CP901 | IV Extn Condng CV Outl Press | L           |
| XM52         |                              |             |
|              |                              | 45          |
|              |                              | 46          |
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A

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**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

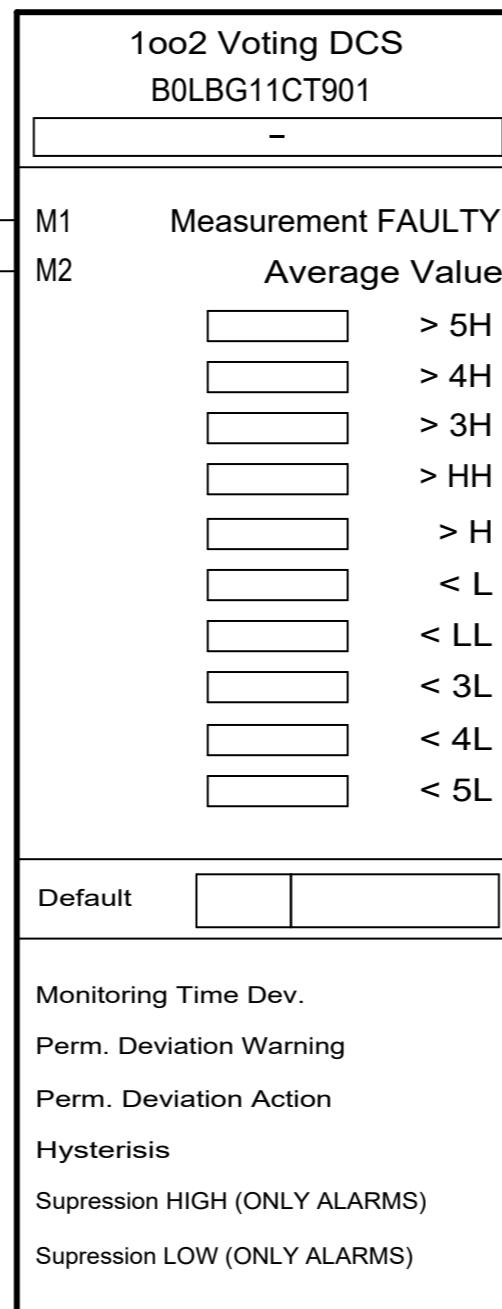
IV Extn Condng CV Outl Temp

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG11CT901 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
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| 8    |                             |                     |
| 9    | IV Extn Condng CV Outl Temp | xtrmr B0LBG11CT001A |
|      |                             | XQ01                |
| 10   | IV Extn Condng CV Outl Temp | xtrmr B0LBG11CT001B |
|      |                             | XQ01                |
| 11   |                             |                     |
| 12   |                             |                     |
| 13   |                             |                     |
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Notes:

- If "Measurement FAULTY" (XM35) alarm appears with the output selected during 60 seconds (adjustable time) the Max / Min value will be selected.

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**IV Extn Condng CV Outl Temp**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

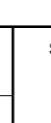
SHEET 234 CONT

INTERNAL CODE:

REV. P01

FORMAT  
A3

SCALE



A

B

C

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A

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E

**Control Diagram**

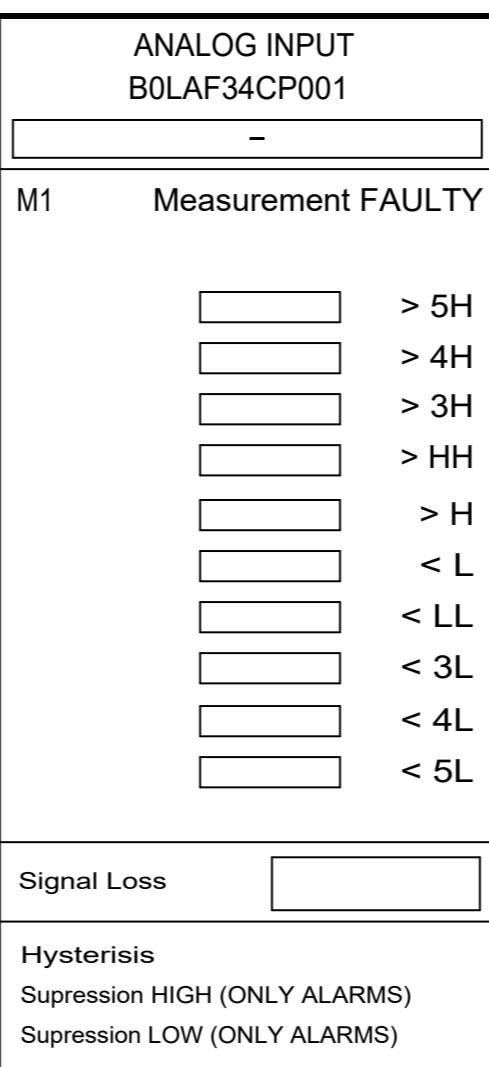
Main Steam, Extract Aux Steam & By-Pass System  
IV Extn Condng CV Wtr CV Inl Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LAF34CP001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
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| 11 | IV Extn Condng CV Wtr CV Inl Press | xtrmr       | B0LAF34CP001 XQ01 |
| 12 |                                    |             |                   |
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| CODE         | DESCRIPTION                        | TO                       |
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|              |                                    | 39                       |
|              |                                    | 40                       |
| B0LAF34CP001 | IV Extn Condng CV Wtr CV Inl Press | Measurement Press FAULTY |
| XM35         |                                    |                          |
| B0LAF34CP001 | IV Extn Condng CV Wtr CV Inl Press | xtrmr                    |
| XQ01         |                                    |                          |
|              |                                    | 41                       |
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PROJECT

NORTH LONDON HEAT AND POWER PROJECT

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
IV Extn Condng CV Wtr CV Inl Press**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 236 CONT

INTERNAL CODE:

REV. P01

A

B

C

D

E

A

B

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D

E

**Control Diagram**

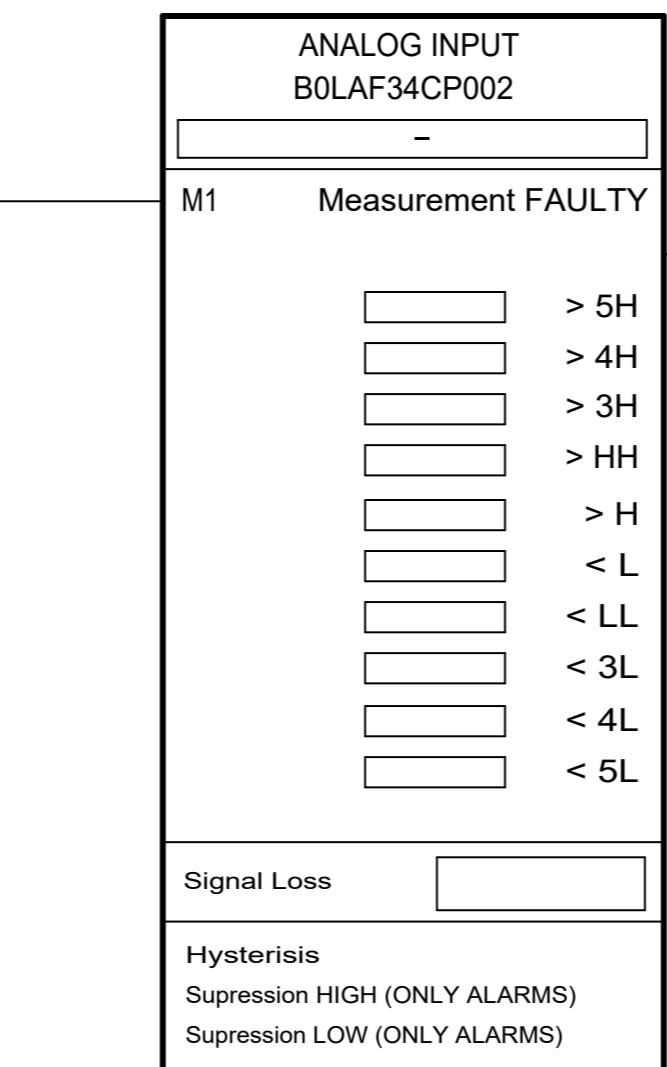
Main Steam, Extract Aux Steam & By-Pass System  
IV Extn Condng CV Wtr CV Outl Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LAF34CP002 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                                | DESCRIPTION | CODE              |
|----|-------------------------------------|-------------|-------------------|
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| 9  |                                     |             |                   |
| 10 |                                     |             |                   |
| 11 | IV Extn Condng CV Wtr CV Outl Press | xtrmr       | B0LAF34CP002 XQ01 |
| 12 |                                     |             |                   |
| 13 |                                     |             |                   |
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| CODE         | DESCRIPTION                         | TO                 |
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|              |                                     | 38                 |
|              |                                     | 39                 |
|              |                                     | 40                 |
| B0LAF34CP002 | IV Extn Condng CV Wtr CV Outl Press | Measurement FAULTY |
| XM35         |                                     | FAULTY             |
| B0LAF34CP002 | IV Extn Condng CV Wtr CV Outl Press | xtrmr              |
| XQ01         |                                     |                    |
|              |                                     | 41                 |
|              |                                     | 42                 |
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[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT

A3

SCALE

**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**IV Extn Condng CV Wtr CV Outl Press**

|   |                |
|---|----------------|
| NLWA CODE:                                | SHEET 238 CONT |
| CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604 |                |
| INTERNAL CODE:                            | REV. P01       |

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**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

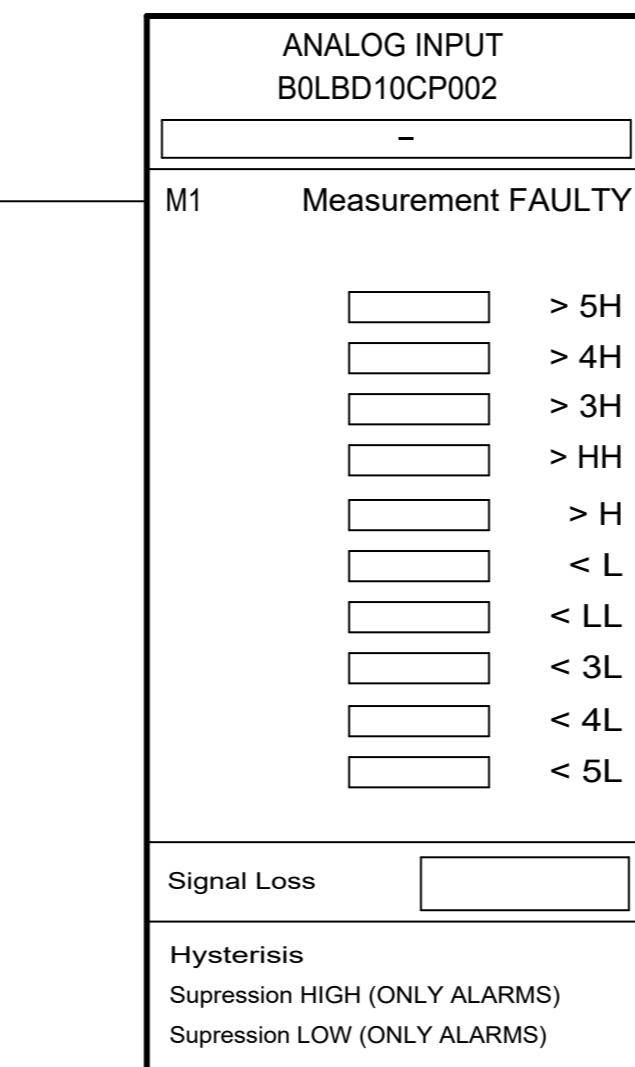
IV Extn Stm to Condng CV Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LBD10CP002 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
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| 1  | FROM                           | DESCRIPTION | CODE         |
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| 10 |                                |             |              |
| 11 | IV Extn Stm to Condng CV Press | xtrmr       | B0LBD10CP002 |
| 12 |                                |             | XQ01         |
| 13 |                                |             |              |
| 14 |                                |             |              |
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| CODE         | DESCRIPTION                    | TO                 |
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|              |                                | 36                 |
|              |                                | 37                 |
| B0LBD10CP002 | IV Extn Stm to Condng CV Press | xtrmr              |
| XQ01         |                                |                    |
|              |                                | 38                 |
|              |                                | 39                 |
|              |                                | 40                 |
| B0LBD10CP002 | IV Extn Stm to Condng CV Press | Measurement FAULTY |
| XM35         |                                |                    |
| B0LBD10CP002 | IV Extn Stm to Condng CV Press | xtrmr              |
| XQ01         |                                |                    |
|              |                                | 41                 |
|              |                                | 42                 |
|              |                                | 43                 |
|              |                                | 44                 |
| B0LBD10CP002 | IV Extn Stm to Condng CV Press | H                  |
| ZB01         |                                |                    |
|              |                                | 45                 |
|              |                                | 46                 |
| B0LBD10CP002 | IV Extn Stm to Condng CV Press | H                  |
| XM01         |                                |                    |
| B0LBD10CP002 | IV Extn Stm to Condng CV Press | L                  |
| XM52         |                                |                    |
|              |                                | 47                 |
|              |                                | 48                 |
|              |                                | 49                 |
|              |                                | 50                 |
|              |                                | 51                 |
|              |                                | 52                 |
| B0LBD10CP002 | IV Extn Stm to Condng CV Press | L                  |
| ZB52         |                                |                    |
|              |                                | 53                 |
|              |                                | 54                 |
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|              |                                | 57                 |
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|              |                                | 60                 |

**Notes:**

- Feedback and orders from B0LBD10 Pot #2 Drain MOV (B0LBD10AA304), B0LBD10 Pot #3 Drain MOV (B0LBD10AA305), equivalent to those for B0LBD10 #1 Drain MOV (B0LBD10AA303). See sheet 900

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[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**IV Extn Stm to Condng CV Press**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 240 CONT

INTERNAL CODE:

REV. P01

A

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**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

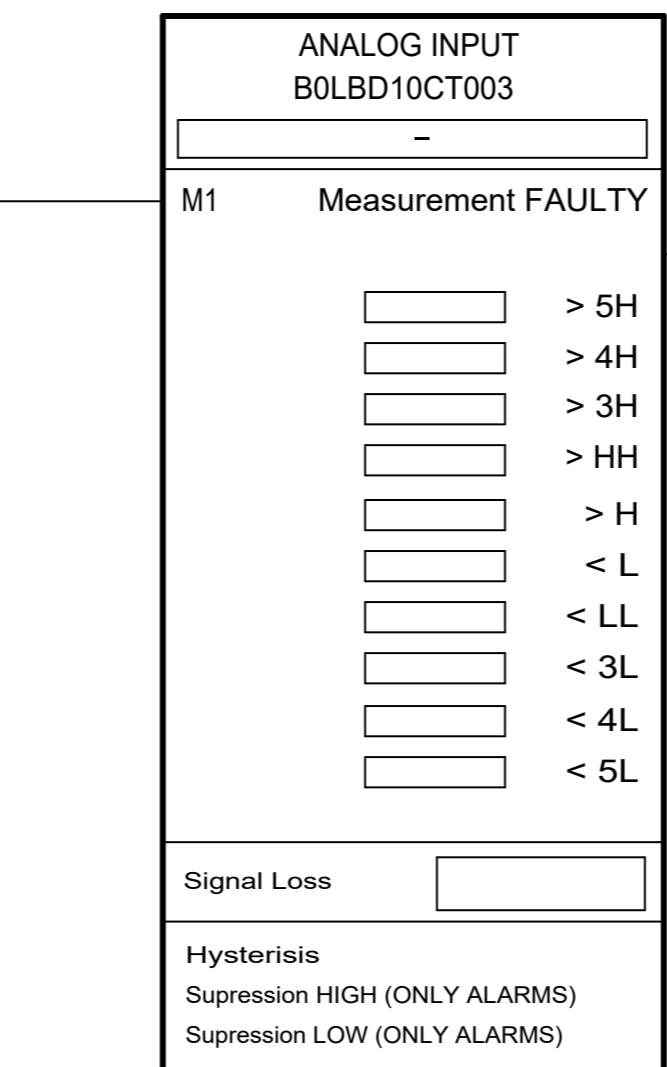
IV Extn Stm to Condng CV Temp

|             |              |
|-------------|--------------|
| LOOP:       | B0LBD10CT003 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| FROM | DESCRIPTION                   | CODE                          |
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| 9    |                               |                               |
| 10   |                               |                               |
| 11   | IV Extn Stm to Condng CV Temp | xtrmr<br>B0LBD10CT003<br>XQ01 |
| 12   |                               |                               |
| 13   |                               |                               |
| 14   |                               |                               |
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| CODE         | DESCRIPTION                   | TO          |
|--------------|-------------------------------|-------------|
|              |                               | 31          |
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|              |                               | 37          |
|              |                               | 38          |
|              |                               | 39          |
|              |                               | 40          |
| B0LBD10CT003 | IV Extn Stm to Condng CV Temp | Measurement |
| XM35         |                               | FAULTY      |
| B0LBD10CT003 |                               | xtrmr       |
| XQ01         | IV Extn Stm to Condng CV Temp |             |
|              |                               | 41          |
|              |                               | 42          |
|              |                               | 43          |
|              |                               | 44          |
|              |                               | 45          |
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|              |                               | 60          |

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System****IV Extn Stm to Condng CV Temp**

FORMAT

A3

SCALE



NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 242 CONT

REV. P01

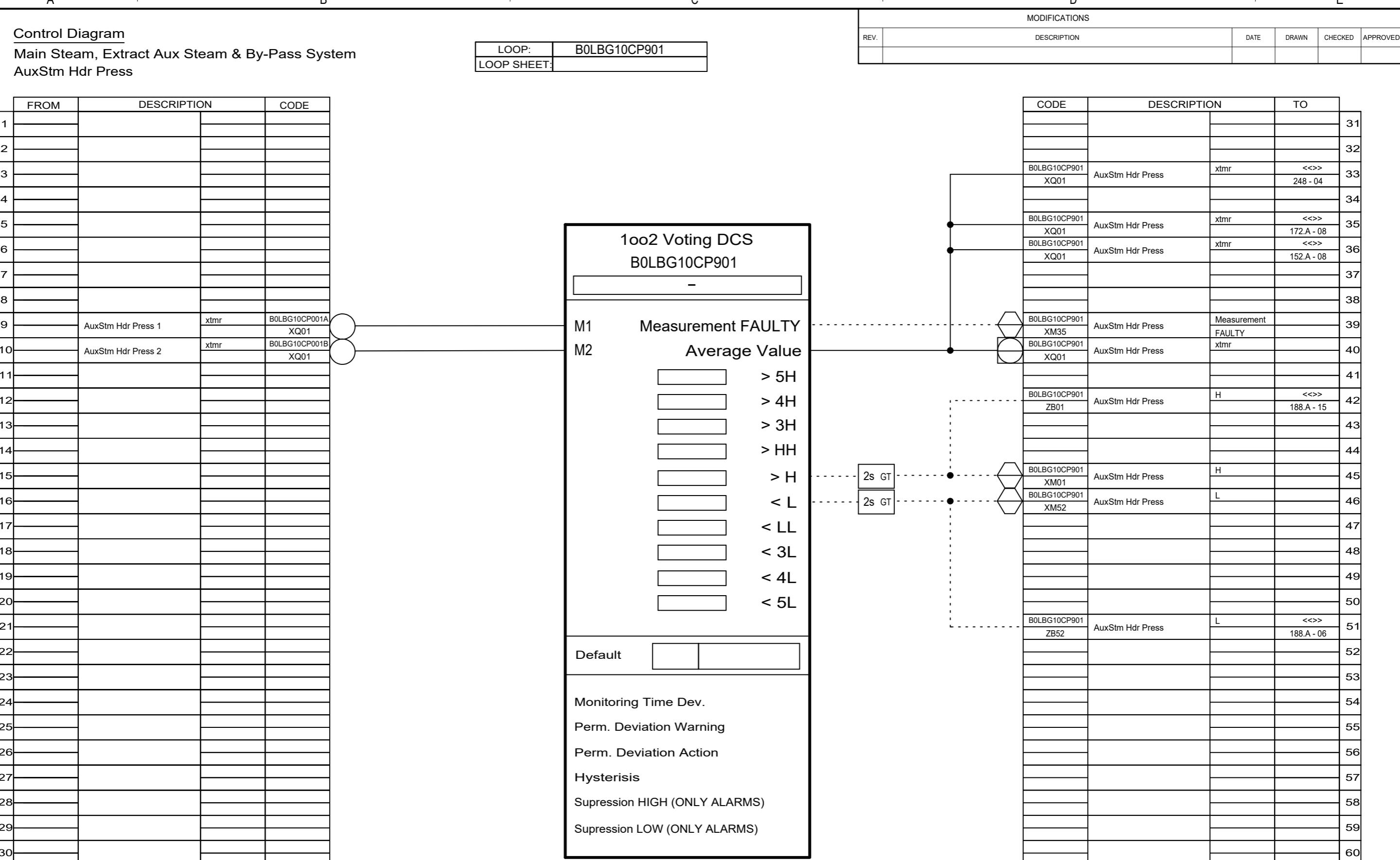
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Notes:

1. If "Measurement FAULTY" (XM35) alarm appears with the output selected during 60 seconds (adjustable time) the Max / Min value will be selected.

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## PROJECT

## NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**AuxStm Hdr Press**

NLWA CODE:

SHEET 244 CONT

CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-760

REV. P01

INTERNAL COD

REV. P01

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**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

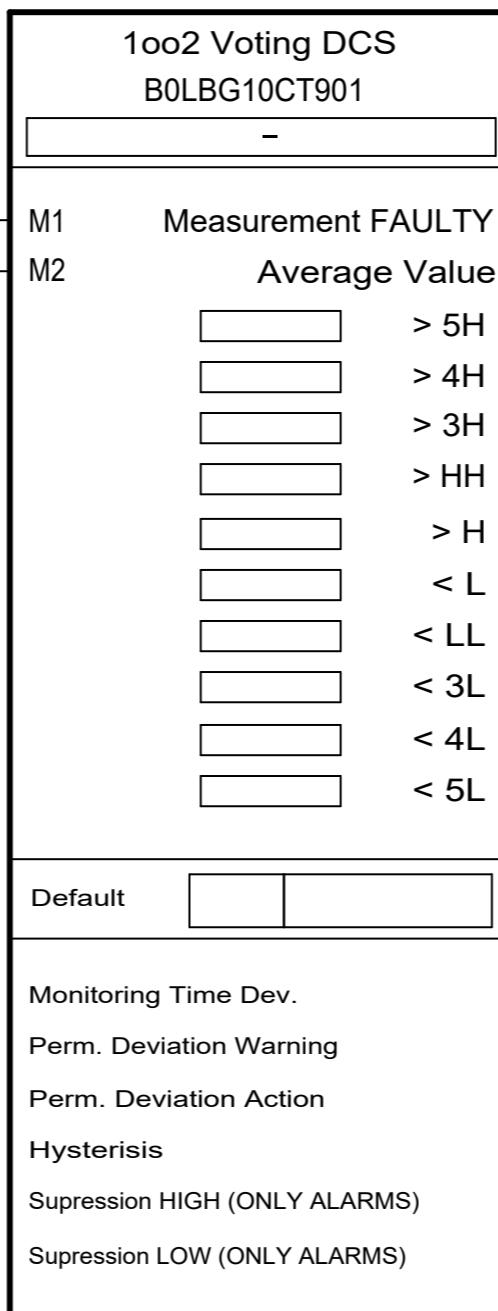
AuxStm Hdr Temp

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG10CT901 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
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| 1  | FROM              | DESCRIPTION | CODE                  |
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| 7  |                   |             |                       |
| 8  |                   |             |                       |
| 9  | AuxStm Hdr Temp 1 | xtmr        | B0LBG10CT001A<br>XQ01 |
| 10 | AuxStm Hdr Temp 2 | xtmr        | B0LBG10CT001B<br>XQ01 |
| 11 |                   |             |                       |
| 12 |                   |             |                       |
| 13 |                   |             |                       |
| 14 |                   |             |                       |
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Notes:

- If "Measurement FAULTY" (XM35) alarm appears with the output selected during 60 seconds (adjustable time) the Max / Min value will be selected.

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CLIENT



CONTRACTOR



PROJECT

**NORTH LONDON HEAT  
AND POWER PROJECT**

DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System  
AuxStm Hdr Temp**

ISSUER



FORMAT

A3

SCALE



NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 246 CONT

REV. P01

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**Control Diagram**

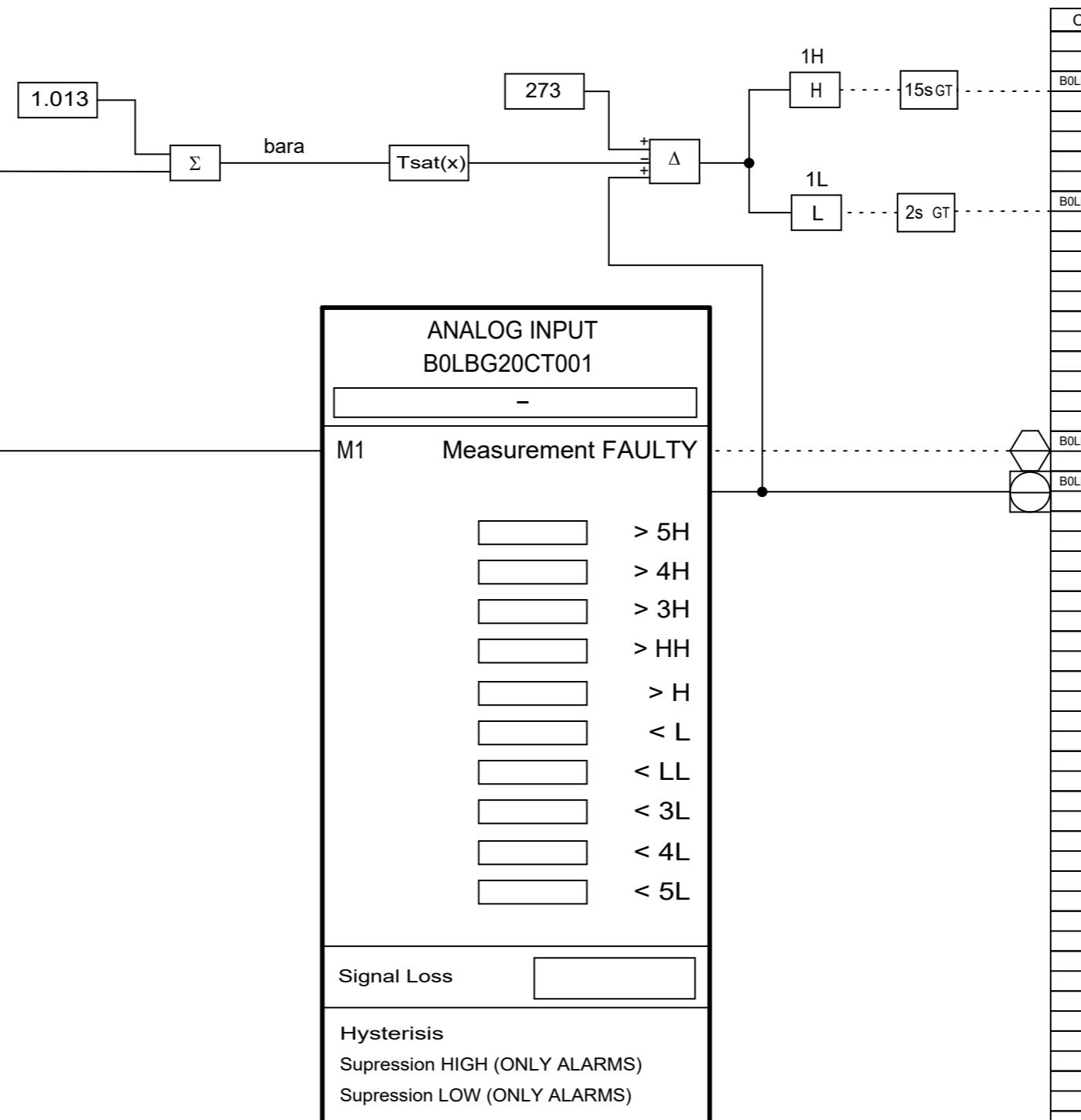
Main Steam, Extract Aux Steam & By-Pass System  
AuxStm to Deaer Pot B0LBG20 Temp

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG20CT001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM            | DESCRIPTION                         | CODE                          |
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| 1  |                 |                                     |                               |
| 2  |                 |                                     |                               |
| 3  |                 |                                     |                               |
| 4  | <>><br>244 - 33 | AuxStm Hdr Press<br>xtmr            | B0LBG10CP901<br>XQ01          |
| 5  |                 |                                     |                               |
| 6  |                 |                                     |                               |
| 7  |                 |                                     |                               |
| 8  |                 |                                     |                               |
| 9  |                 |                                     |                               |
| 10 |                 |                                     |                               |
| 11 |                 | AuxStm to Deaer Pot B0LBG20<br>Temp | xtrmr<br>B0LBG20CT001<br>XQ01 |
| 12 |                 |                                     |                               |
| 13 |                 |                                     |                               |
| 14 |                 |                                     |                               |
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| CODE         | DESCRIPTION                      | TO                  |
|--------------|----------------------------------|---------------------|
| B0LBG20CT001 | AuxStm to Deaer Pot B0LBG20 Temp | H <>><br>188.A - 04 |
| ZB01         |                                  | 32                  |
|              |                                  | 33                  |
| B0LBG20CT001 | AuxStm to Deaer Pot B0LBG20 Temp | <>><br>188.A - 11   |
| ZB52         |                                  | 35                  |
|              |                                  | 36                  |
|              |                                  | 37                  |
|              |                                  | 38                  |
|              |                                  | 39                  |
|              |                                  | 40                  |
| B0LBG20CT001 | AuxStm to Deaer Pot B0LBG20 Temp | Measurement FAULTY  |
| XM35         |                                  | 41                  |
| B0LBG20CT001 | AuxStm to Deaer Pot B0LBG20 Temp | xtrmr               |
| XQ01         |                                  | 42                  |
|              |                                  | 43                  |
|              |                                  | 44                  |
|              |                                  | 45                  |
|              |                                  | 46                  |
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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT

A3

SCALE



**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**AuxStm to Deaer Pot B0LBG20 Temp**

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 248 CONT

REV. P01

A

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**Control Diagram**

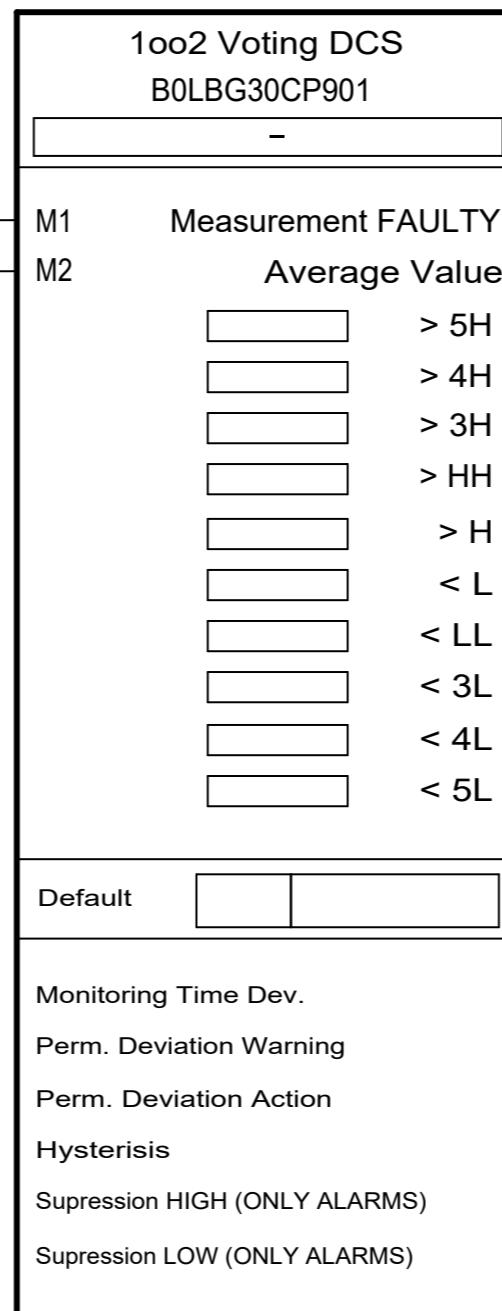
Main Steam, Extract Aux Steam & By-Pass System  
AuxStm to AirPreHtrs Press

|             |              |
|-------------|--------------|
| LOOP:       | B0LBG30CP901 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
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| 1  | FROM                         | DESCRIPTION | CODE          |
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| 6  |                              |             |               |
| 7  |                              |             |               |
| 8  |                              |             |               |
| 9  | AuxStm to AirPreHtrs Press 1 | xtrmr       | B0LBG30CP001A |
|    |                              |             | XQ01          |
| 10 | AuxStm to AirPreHtrs Press 2 | xtrmr       | B0LBG30CP001B |
|    |                              |             | XQ01          |
| 11 |                              |             |               |
| 12 |                              |             |               |
| 13 |                              |             |               |
| 14 |                              |             |               |
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4

- If "Measurement FAULTY" (XM35) alarm appears with the output selected during 60 seconds (adjustable time) the Max / Min value will be selected.
- Signals should be replicated for equipment in Boiler line 2.
- Feedback and orders from B0LBG30 Pot Drain MOV (B0LBG30AA301), B1LBG30 Pot Drain MOV (B1LBG30AA302), and B2LBG30 Pot Drain MOV (B2LBG30AA302), equivalent to those for B0LBG20 Drain MOV (B0LBG20AA302). See sheet 900.A

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CLIENT



CONTRACTOR



PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

DRAWING TITLE

Main Steam, Extract Aux Steam & By-Pass System  
AuxStm to AirPreHtrs Press

ISSUER  
EMPRESARIOS AGRUPADOS

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 250 CONT

REV. P01

A

B

C

D

E

A

B

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E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

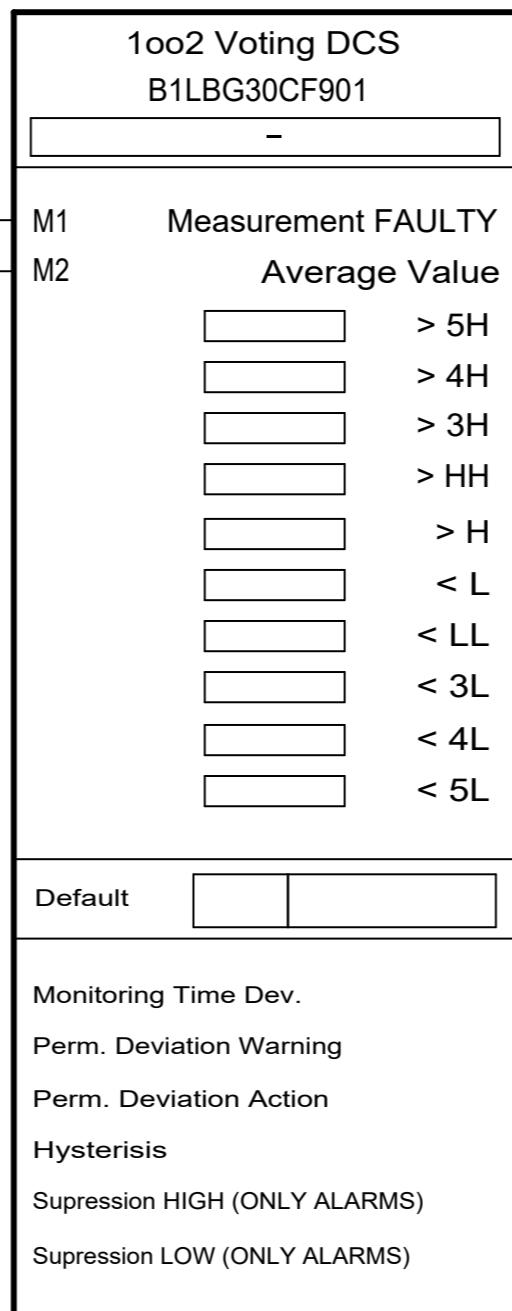
B1: AuxStm to AirPrehtr Flow

|             |              |
|-------------|--------------|
| LOOP:       | B1LBG30CF901 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                           | DESCRIPTION | CODE                  |
|----|--------------------------------|-------------|-----------------------|
| 1  |                                |             |                       |
| 2  |                                |             |                       |
| 3  |                                |             |                       |
| 4  |                                |             |                       |
| 5  |                                |             |                       |
| 6  |                                |             |                       |
| 7  |                                |             |                       |
| 8  |                                |             |                       |
| 9  | B1: AuxStm to AirPrehtr Flow 1 | xtmr        | B1LBG30CF001A<br>XQ01 |
| 10 | B1: AuxStm to AirPrehtr Flow 2 | xtmr        | B1LBG30CF001B<br>XQ01 |
| 11 |                                |             |                       |
| 12 |                                |             |                       |
| 13 |                                |             |                       |
| 14 |                                |             |                       |
| 15 |                                |             |                       |
| 16 |                                |             |                       |
| 17 |                                |             |                       |
| 18 |                                |             |                       |
| 19 |                                |             |                       |
| 20 |                                |             |                       |
| 21 |                                |             |                       |
| 22 |                                |             |                       |
| 23 |                                |             |                       |
| 24 |                                |             |                       |
| 25 |                                |             |                       |
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| 27 |                                |             |                       |
| 28 |                                |             |                       |
| 29 |                                |             |                       |
| 30 |                                |             |                       |



| CODE         | DESCRIPTION                  | TO                 |
|--------------|------------------------------|--------------------|
|              |                              | 31                 |
|              |                              | 32                 |
|              |                              | 33                 |
| B1LBG30CF901 | B1: AuxStm to AirPrehtr Flow | xtmr <> 252.A - 03 |
| XQ01         |                              | 34                 |
|              |                              | 35                 |
|              |                              | 36                 |
|              |                              | 37                 |
|              |                              | 38                 |
| B1LBG30CF901 | B1: AuxStm to AirPrehtr Flow | Measurement        |
| XM35         |                              | FAULTY             |
| B1LBG30CF901 | B1: AuxStm to AirPrehtr Flow | xtmr               |
| XQ01         |                              | 40                 |
|              |                              | 41                 |
|              |                              | 42                 |
|              |                              | 43                 |
|              |                              | 44                 |
|              |                              | 45                 |
|              |                              | 46                 |
|              |                              | 47                 |
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|              |                              | 49                 |
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|              |                              | 57                 |
|              |                              | 58                 |
|              |                              | 59                 |
|              |                              | 60                 |

ALARMAS: high / low ?

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System  
B1: AuxStm to AirPrehtr Flow**

FORMAT

A3

SCALE



NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 252 CONT

REV. P01

A

B

C

D

E

A

B

C

D

E

### Control Diagram

Main Steam, Extract Aux Steam & By-Pass System  
B1: AuxStm to AirPrehtr Flow

LOOP: B1LBG30CF901  
LOOP SHEET:

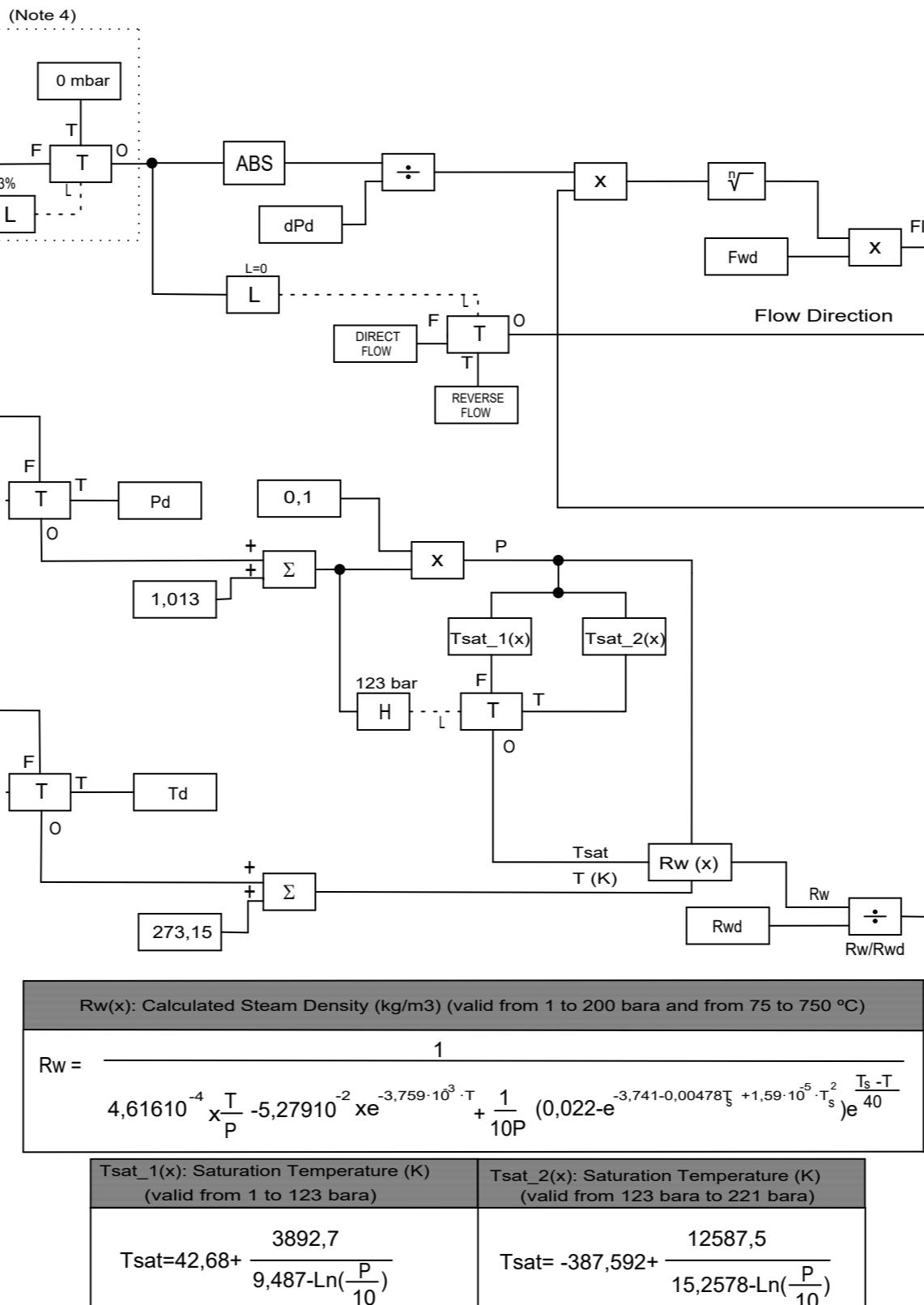
### MODIFICATIONS

REV.

DESCRIPTION

DATE DRAWN CHECKED APPROVED

|    | FROM           | DESCRIPTION   | CODE                 |
|----|----------------|---|----------------------|
| 1  |                |   |                      |
| 2  |                |   |                      |
| 3  | <><br>252 - 34 | B1: AuxStm to AirPrehtr Flow<br>xtmr                  | B1LBG30CF901<br>XQ01 |
| 4  |                |   |                      |
| 5  |                |   |                      |
| 6  |                |   |                      |
| 7  |                |   |                      |
| 8  |                |   |                      |
| 9  | <><br>250 - 42 | AuxStm to AirPreHtrs Press<br>xtmr                    | B0LBG30CP901<br>XQ01 |
| 10 |                |   |                      |
| 11 | <><br>250 - 38 | AuxStm to AirPreHtrs Press<br>Measurement<br>FAULTY   | B0LBG30CP901<br>XM35 |
| 12 |                |   |                      |
| 13 |                |   |                      |
| 14 |                |   |                      |
| 15 |                |   |                      |
| 16 | <><br>254 - 42 | B1: AuxStm to AirPrehtr Temp<br>xtmr                  | B1LBG30CT901<br>XQ01 |
| 17 |                |   |                      |
| 18 | <><br>254 - 38 | B1: AuxStm to AirPrehtr Temp<br>Measurement<br>FAULTY | B1LBG30CT901<br>XM35 |
| 19 |                |   |                      |
| 20 |                |   |                      |
| 21 |                |   |                      |
| 22 |                |   |                      |
| 23 |                |   |                      |
| 24 |                |   |                      |
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| 27 |                |   |                      |
| 28 |                |   |                      |
| 29 |                |   |                      |
| 30 |                |   |                      |



| CODE                 | DESCRIPTION                                | TO               |
|----------------------|--|------------------|
|                      |  | 31               |
|                      |  | 32               |
| B1LBG30CF901<br>ZQ10 | B1: AuxStm to AirPrehtr Flow<br>flow value | <><br>192.A - 08 |
|                      |  | 33               |
|                      |  | 34               |
| B1LBG30CF901<br>ZQ10 | B1: AuxStm to AirPrehtr Flow<br>flow value | 35               |
|                      |  | 36               |
|                      |  | 37               |
|                      |  | 38               |
|                      |  | 39               |
|                      |  | 40               |
|                      |  | 41               |
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|                      |  | 59               |
|                      |  | 60               |

Notes: 1.-Fwd: Design water flow, dPd: Design delta P (mbar), Td: Design temperature (°C), Pd: Design pressure (barg), Rwd: Steam design density (kg/m<sup>3</sup>), Tsat: Saturation Temperature (K), P: Steam Pressure (MPascal), T: SteamTemperature (K)  
2.-If the signal is in bad quality, the value will be Td or Pd.  
3.- Use the CMS thermodynamic functions if they exist. Otherwise use the formula depicted in this document.

4.- This logic will be use only if the flowmeter is unidirectional. Otherwise the dPd signal shall be connected directly.  
5. The logic depicted in this page should be replicated for equipment in Boiler line 2.

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[QR]



PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

ISSUER  
  
EMPRESARIOS AGRUPADOS

DRAWING TITLE

Main Steam, Extract Aux Steam & By-Pass System  
B1: AuxStm to AirPrehtr Flow

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 252.ACNT

REV. P01

A

B

C

D

E

A

B

C

D

E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

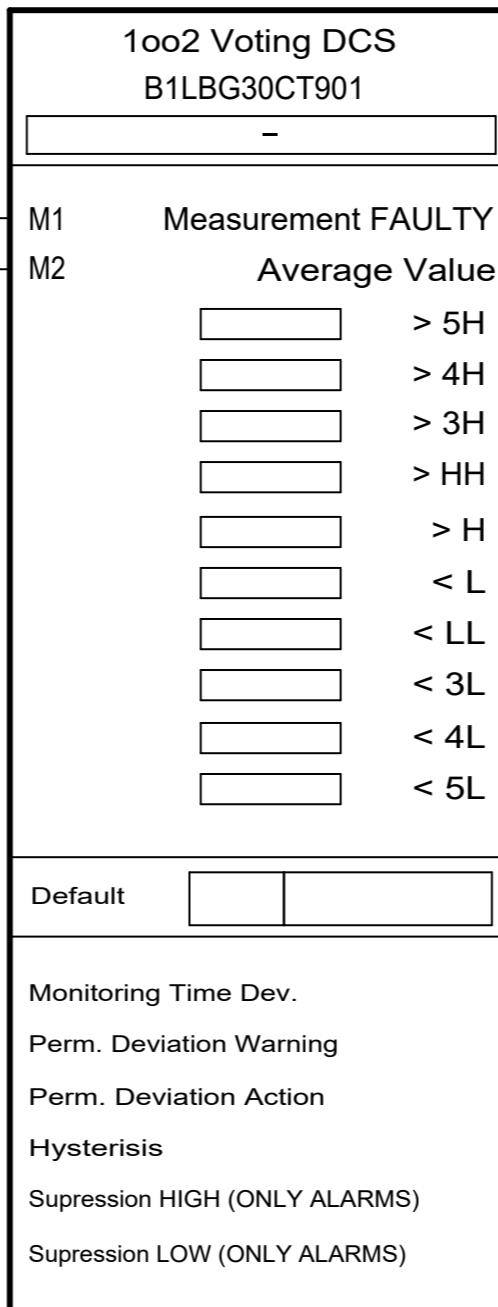
B1: AuxStm to AirPrehtr Temp

|             |              |
|-------------|--------------|
| LOOP:       | B1LBG30CT901 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                         | DESCRIPTION | CODE                  |
|----|------------------------------|-------------|-----------------------|
| 1  |                              |             |                       |
| 2  |                              |             |                       |
| 3  |                              |             |                       |
| 4  |                              |             |                       |
| 5  |                              |             |                       |
| 6  |                              |             |                       |
| 7  |                              |             |                       |
| 8  |                              |             |                       |
| 9  | B1: AuxStm to AirPrehtr Temp | xtmr        | B1LBG30CT001A<br>XQ01 |
| 10 | B1: AuxStm to AirPrehtr Temp | xtmr        | B1LBG30CT001B<br>XQ01 |
| 11 |                              |             |                       |
| 12 |                              |             |                       |
| 13 |                              |             |                       |
| 14 |                              |             |                       |
| 15 |                              |             |                       |
| 16 |                              |             |                       |
| 17 |                              |             |                       |
| 18 |                              |             |                       |
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| 23 |                              |             |                       |
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| 25 |                              |             |                       |
| 26 |                              |             |                       |
| 27 |                              |             |                       |
| 28 |                              |             |                       |
| 29 |                              |             |                       |
| 30 |                              |             |                       |



Notes:

ALARMAS: high / low ?

- If "Measurement FAULTY" (XM35) alarm appears with the output selected during 60 seconds (adjustable time) the Max / Min value will be selected.
- The logic depicted in this page should be replicated for equipment in Boiler line 2.

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**CLIENT****CONTRACTOR****PROJECT****NORTH LONDON HEAT  
AND POWER PROJECT****DRAWING TITLE**

Main Steam, Extract Aux Steam & By-Pass System  
B1: AuxStm to AirPrehtr Temp

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 254 CONT

REV. P01

ISSUER



FORMAT

A3

SCALE



E

A

B

C

D

E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

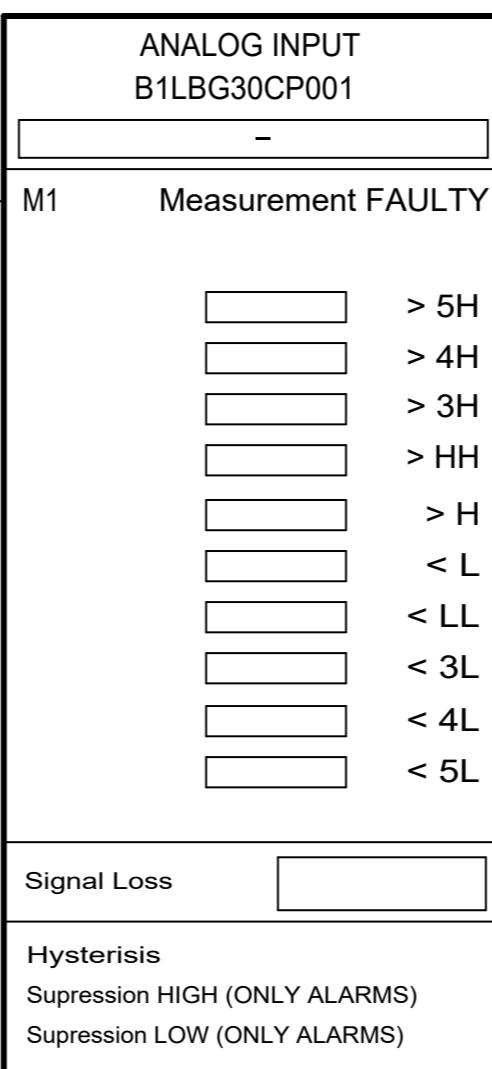
B1: AuxStm to AirPrehtr Press

|             |              |
|-------------|--------------|
| LOOP:       | B1LBG30CP001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| FROM | DESCRIPTION                   | CODE                    |
|------|-------------------------------|-------------------------|
| 1    |                               |                         |
| 2    |                               |                         |
| 3    |                               |                         |
| 4    |                               |                         |
| 5    |                               |                         |
| 6    |                               |                         |
| 7    |                               |                         |
| 8    |                               |                         |
| 9    |                               |                         |
| 10   |                               |                         |
| 11   | B1: AuxStm to AirPrehtr Press | xtrmr B1LBG30CP001 XQ01 |
| 12   |                               |                         |
| 13   |                               |                         |
| 14   |                               |                         |
| 15   |                               |                         |
| 16   |                               |                         |
| 17   |                               |                         |
| 18   |                               |                         |
| 19   |                               |                         |
| 20   |                               |                         |
| 21   |                               |                         |
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| 24   |                               |                         |
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| 26   |                               |                         |
| 27   |                               |                         |
| 28   |                               |                         |
| 29   |                               |                         |
| 30   |                               |                         |



| CODE         | DESCRIPTION                   | TO          |
|--------------|-------------------------------|-------------|
|              |                               | 31          |
|              |                               | 32          |
|              |                               | 33          |
|              |                               | 34          |
|              |                               | 35          |
|              |                               | 36          |
|              |                               | 37          |
|              |                               | 38          |
|              |                               | 39          |
|              |                               | 40          |
| B1LBG30CP001 | B1: AuxStm to AirPrehtr Press | Measurement |
| XM35         |                               | FAULTY      |
| B1LBG30CP001 | B1: AuxStm to AirPrehtr Press | xtrmr       |
| XQ01         |                               |             |
|              |                               | 41          |
|              |                               | 42          |
|              |                               | 43          |
|              |                               | 44          |
|              |                               | 45          |
|              |                               | 46          |
|              |                               | 47          |
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|              |                               | 49          |
|              |                               | 50          |
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|              |                               | 53          |
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|              |                               | 56          |
|              |                               | 57          |
|              |                               | 58          |
|              |                               | 59          |
|              |                               | 60          |

Notes:

1. The logic depicted in this page should be replicated for equipment in Boiler line 2.

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System****B1: AuxStm to AirPrehtr Press**

FORMAT

A3

SCALE



NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 256 CONT

REV. P01

A

B

C

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**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

B1: Bypass FSG

|             |              |
|-------------|--------------|
| LOOP:       | B1MAN10EA001 |
| LOOP SHEET: |              |

## MODIFICATIONS

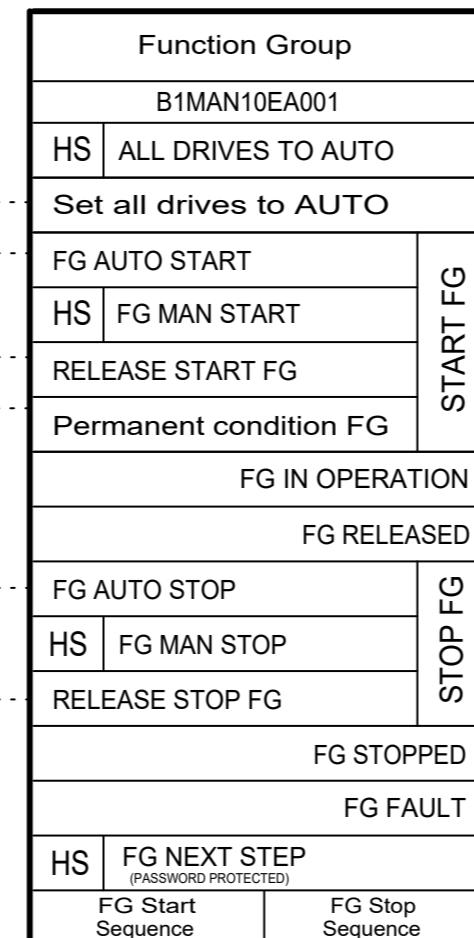
| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

1

| FROM | DESCRIPTION                           | CODE  |
|------|---------------------------------------|---|
| 1    |                                       |   |
| 2    |                                       |   |
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| 7    |                                       |   |
| 8    |                                       |   |
| 9    |                                       |   |
| 10   |                                       |   |
| 11   |                                       |   |
| 12   | <>><br>10 - 35<br>Steam and Bypass FG | All drives<br>to Auto<br>BOLBA10EA001<br>ZB13     |
| 13   | <>><br>10 - 43<br>Steam and Bypass FG | FG<br>in operation<br>BOLBA10EA001<br>ZB21        |
| 14   |                                       |   |
| 15   | <>><br>300.A - 35<br>B1: Bypass FSG   | Release<br>start FG<br>B1MAN10EA001<br>ZB45       |
| 16   | <>><br>300.A - 53<br>B1: Bypass FSG   | Permanent<br>Condition FG<br>B1MAN10EA001<br>ZB50 |
| 17   |                                       |   |
| 18   |                                       |   |
| 19   |                                       |   |
| 20   | <>><br>10 - 53<br>Steam and Bypass FG | FG Stopped<br>BOLBA10EA001<br>ZB22                |
| 21   |                                       |   |
| 22   |                                       |   |
| 23   |                                       |   |
| 24   |                                       |   |
| 25   |                                       |   |
| 26   |                                       |   |
| 27   |                                       |   |
| 28   |                                       |   |
| 29   |                                       |   |
| 30   |                                       |   |

Notes:

- Feedback and orders from B1LBA20 Pot Drain MOV (B1LBA20AA301), and B1MAN10 Pot Drain MOV (B1MAN10AA301), equivalent to those for B0LBG20 Pot Drain MOV (B0LBG20AA302). See sheet 900.A.
- The logic depicted in this page should be replicated for equipment in Boiler line 2.



| CODE | DESCRIPTION | TO |
|------|-------------|----|
|      |             | 31 |
|      |             | 32 |
|      |             | 33 |
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|      |             | 39 |
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|      |             | 60 |

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CLIENT  
**NORTH LONDON WASTE AUTHORITY**

CONTRACTOR  
**Acciona**  
EMPRESARIOS AGRUPADOS

PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**B1: Bypass FSG**

|                  |                          |
|------------------|--------------------------|
| NLWA CODE:       | SHEET 300 CONT           |
| CONTRACTOR CODE: | NLHP-41XX-IE-DI-EAI-7604 |
| INTERNAL CODE:   | REV. P01                 |

A

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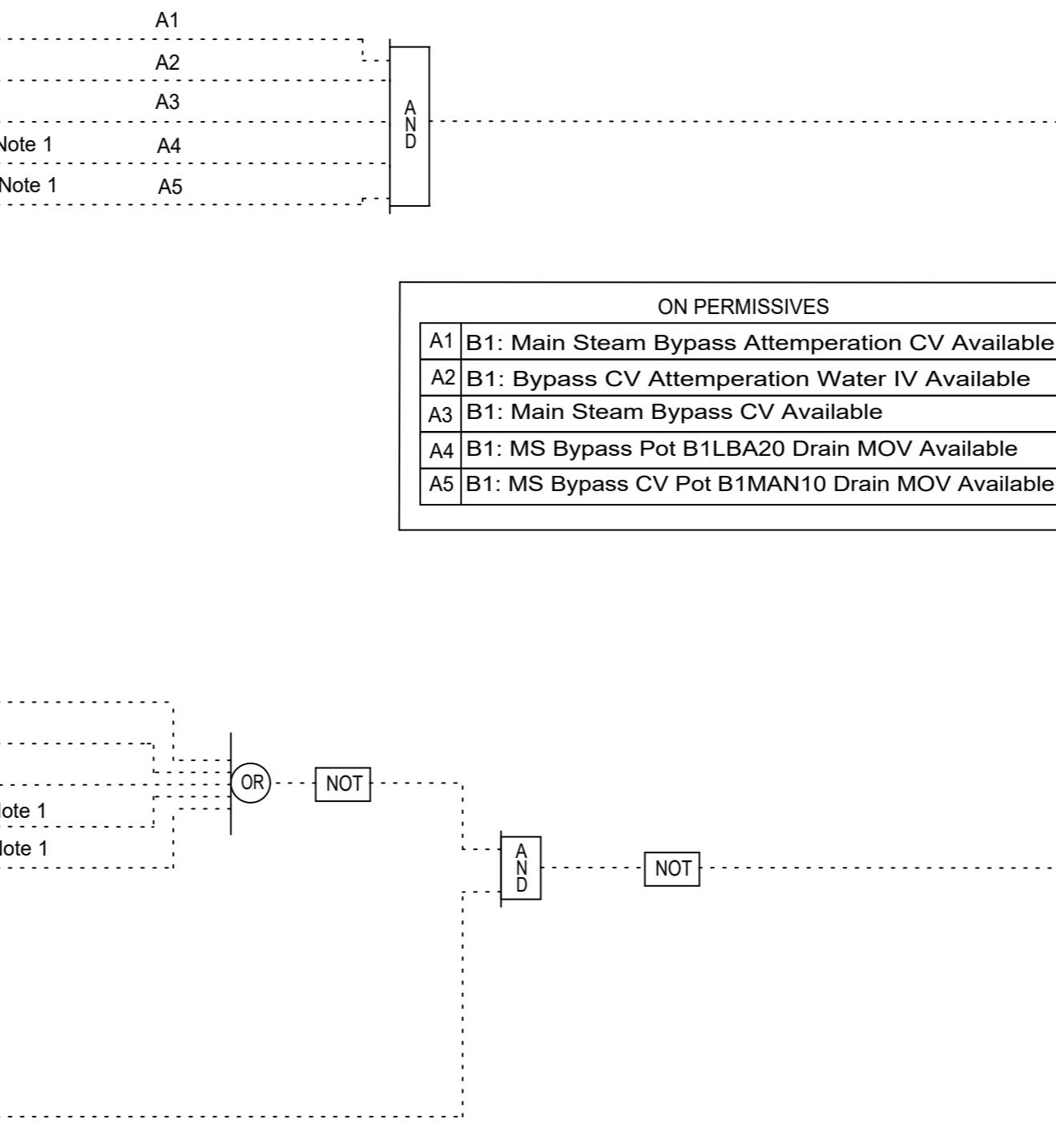
**Control Diagram****Main Steam, Extract Aux Steam & By-Pass System****B1: Bypass FSG**

|             |              |
|-------------|--------------|
| LOOP:       | B1MAN10EA001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| FROM | DESCRIPTION  | CODE                 |
|------|--|----------------------|
| 1    |  |                      |
| 2    |  |                      |
| 3    | <>><br>302 - 39<br>B1: Main Steam Bypass Attempt CV Ready        | B1LAF31AA401<br>ZB50 |
| 4    | <>><br>304 - 39<br>B1: Bypass CV Attemp Water IV Ready           | B1LAF31AA301<br>ZB50 |
| 5    | <>><br>306 - 39<br>B1: Main Steam Bypass CV Ready                | B1MAN10AA401<br>ZB50 |
| 6    | B1: MS Bypass Pot B1LBA20 Drain MOV Ready                        | B1LBA20AA301<br>ZB50 |
| 7    | B1: MS Bypass CV Pot B1MAN10 Drain MOV Ready                     | B1MAN10AA301<br>ZB50 |
| 8    |  |                      |
| 9    |  |                      |
| 10   |  |                      |
| 11   |  |                      |
| 12   |  |                      |
| 13   |  |                      |
| 14   |  |                      |
| 15   |  |                      |
| 16   |  |                      |
| 17   |  |                      |
| 18   |  |                      |
| 19   | <>><br>302 - 40<br>B1: Main Steam Bypass Attempt CV Ready & Auto | B1LAF31AA401<br>ZB51 |
| 20   | <>><br>304 - 40<br>B1: Bypass CV Attemp Water IV Ready & Auto    | B1LAF31AA301<br>ZB51 |
| 21   | <>><br>306 - 40<br>B1: Main Steam Bypass CV Ready & Auto         | B1MAN10AA401<br>ZB51 |
| 22   | B1: MS Bypass Pot B1LBA20 Drain MOV Ready & Auto                 | B1LBA20AA301<br>ZB51 |
| 23   | B1: MS Bypass CV Pot B1MAN10 Drain MOV Ready & Auto              | B1MAN10AA301<br>ZB51 |
| 24   |  |                      |
| 25   |  |                      |
| 26   |  |                      |
| 27   |  |                      |
| 28   |  |                      |
| 29   | <>><br>300 - 46<br>B1: Bypass FSG in operation                   | B1MAN10EA001<br>ZB21 |
| 30   |  |                      |



| CODE                 | DESCRIPTION                           | TO              |
|----------------------|---------------------------------------|-----------------|
|                      |                                       | 31              |
|                      |                                       | 32              |
|                      |                                       | 33              |
|                      |                                       | 34              |
| B1MAN10EA001<br>ZB45 | B1: Bypass FSG Release start FG       | <>><br>300 - 15 |
|                      |                                       | 35              |
|                      |                                       | 36              |
|                      |                                       | 37              |
|                      |                                       | 38              |
|                      |                                       | 39              |
|                      |                                       | 40              |
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|                      |                                       | 48              |
|                      |                                       | 49              |
|                      |                                       | 50              |
|                      |                                       | 51              |
|                      |                                       | 52              |
| B1MAN10EA001<br>ZB50 | B1: Bypass FSG Permanent Condition FG | <>><br>300 - 16 |
|                      |                                       | 53              |
|                      |                                       | 54              |
|                      |                                       | 55              |
|                      |                                       | 56              |
|                      |                                       | 57              |
|                      |                                       | 58              |
|                      |                                       | 59              |
|                      |                                       | 60              |

**Notes:**

- Feedback and orders from B1LBA20 Pot Drain MOV (B1LBA20AA301), and B1MAN10 Pot Drain MOV (B1MAN10AA301), equivalent to those for B0LBG20 Pot Drain MOV (B0LBG20AA302). See sheet 900.A.
- The logic depicted in this page should be replicated for equipment in Boiler line 2.

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**B1: Bypass FSG**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 300.ACNT  
REV. P01

A

B

C

D

E

A

B

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D

E

**Control Diagram**

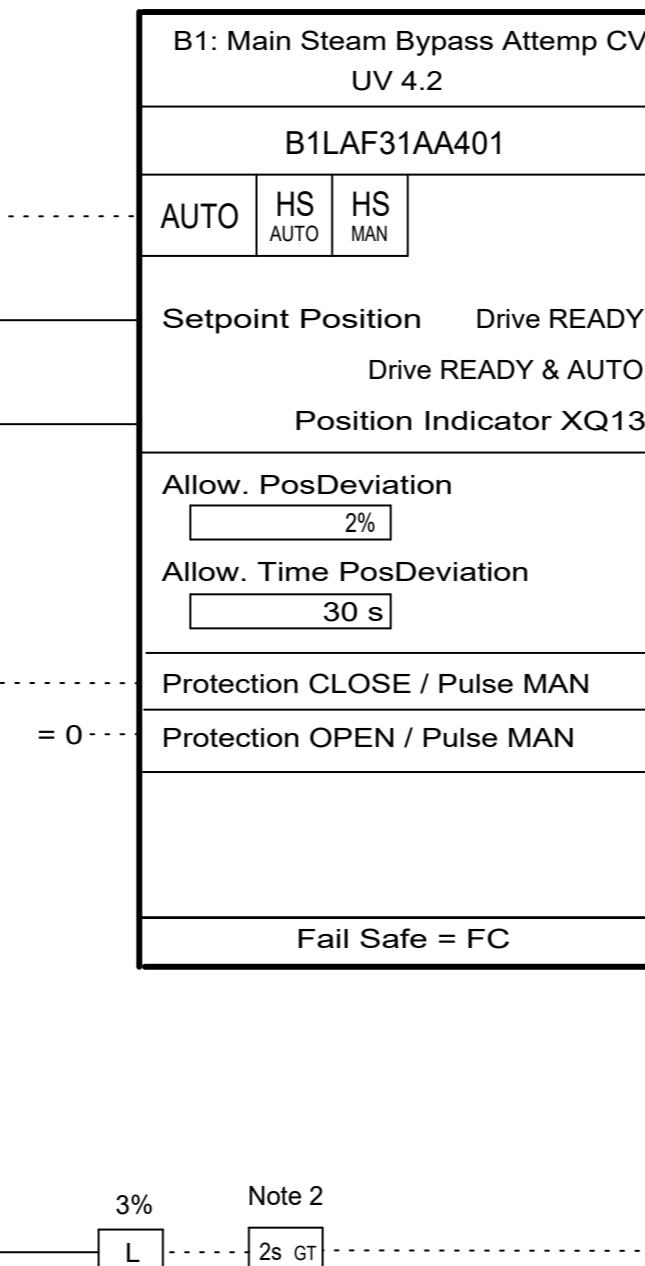
Main Steam, Extract Aux Steam & By-Pass System  
B1: Main Steam Bypass Attemp CV

|             |              |
|-------------|--------------|
| LOOP:       | B1LAF31AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM              | DESCRIPTION   | CODE                 |
|----|-------------------|---|----------------------|
| 1  |                   |   |                      |
| 2  |                   |   |                      |
| 3  |                   |   |                      |
| 4  |                   |   |                      |
| 5  |                   |   |                      |
| 6  |                   |   |                      |
| 7  | <>><br>300 - 41   | B1: Bypass FSG<br>All drives<br>to Auto                   | B1MAN10EA001<br>ZB13 |
| 8  |                   |   |                      |
| 9  | <>><br>302.A - 48 | B1: Main Steam Bypass Attemp<br>CV<br>Tracking<br>Value   | B1LAF31AA401<br>ZC63 |
| 10 |                   |   |                      |
| 11 |                   | B1: Main Steam Bypass Attemp<br>Position<br>CV<br>Ind     | B1LAF31AA401<br>XQ13 |
| 12 |                   |   |                      |
| 13 |                   |   |                      |
| 14 |                   |   |                      |
| 15 |                   |   |                      |
| 16 | <>><br>302.B - 50 | B1: Main Steam Bypass Attemp<br>CV<br>Protection<br>CLOSE | B1LAF31AA401<br>ZB17 |
| 17 |                   |   |                      |
| 18 |                   |   |                      |
| 19 |                   |   |                      |
| 20 |                   |   |                      |
| 21 |                   |   |                      |
| 22 |                   |   |                      |
| 23 |                   |   |                      |
| 24 |                   |   |                      |
| 25 |                   |   |                      |
| 26 |                   |   |                      |
| 27 |                   |   |                      |
| 28 |                   |   |                      |
| 29 |                   |   |                      |
| 30 |                   |   |                      |



| CODE         | DESCRIPTION  | TO         |
|--------------|--|------------|
|              |  | 31         |
|              |  | 32         |
|              |  | 33         |
|              |  | 34         |
| B1LAF31AA401 | B1: Main Steam Bypass Attemp CV Position Demand    | <>> 35     |
| YQ01         |  | 302.A - 20 |
|              |  | 36         |
| B1LAF31AA401 | B1: Main Steam Bypass Attemp CV Position Demand    | 37         |
| YQ01         |  |            |
| B1LAF31AA401 | B1: Main Steam Bypass Attemp CV Drive Ready        | <>> 38     |
| ZB50         |  | 302.A - 14 |
| B1LAF31AA401 | B1: Main Steam Bypass Attemp CV Drive Ready        | <>> 39     |
| ZB50         |  | 300.A - 03 |
| B1LAF31AA401 | B1: Main Steam Bypass Attemp CV Drive Ready & Auto | <>> 40     |
| ZB51         |  | 300.A - 19 |
| B1LAF31AA401 | B1: Main Steam Bypass Attemp CV Drive Ready & Auto | <>> 41     |
| ZB51         |  | 302.A - 15 |
|              |  | 42         |
|              |  | 43         |
|              |  | 44         |
|              |  | 45         |
| B1LAF31AA401 | B1: Main Steam Bypass Attemp CV Protection CLOSE   | <>> 46     |
| ZB17         |  | 302.A - 13 |
|              |  | 47         |
| B1LAF31AA401 | B1: Main Steam Bypass Attemp CV Feedback Anomaly   | 48         |
| XM13         |  |            |
| B1LAF31AA401 | B1: Main Steam Bypass Attemp CV Discrp Pos         | 49         |
| XM70         |  |            |
| B1LAF31AA401 | B1: Main Steam Bypass Attemp CV Pos xtrmr BQ       | 50         |
| XM30         |  |            |
|              |  | 51         |
|              |  | 52         |
|              |  | 53         |
|              |  | 54         |
|              |  | 55         |
|              |  | 56         |
| B1LAF31AA401 | B1: Main Steam Bypass Attemp CV Closed             | <>> 57     |
| ZB02         |  | 304 - 20   |
|              |  | 58         |
|              |  | 59         |
|              |  | 60         |

**Notes:**

1. The logic depicted in this page should be replicated for equipment in Boiler line 2.
2. To be adjusted during commissioning.

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**B1: Main Steam Bypass Attemp CV**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 302 CONT  
INTERNAL CODE:

REV. P01

A

B

C

D

E

A

B

C

D

E

## Control Diagram

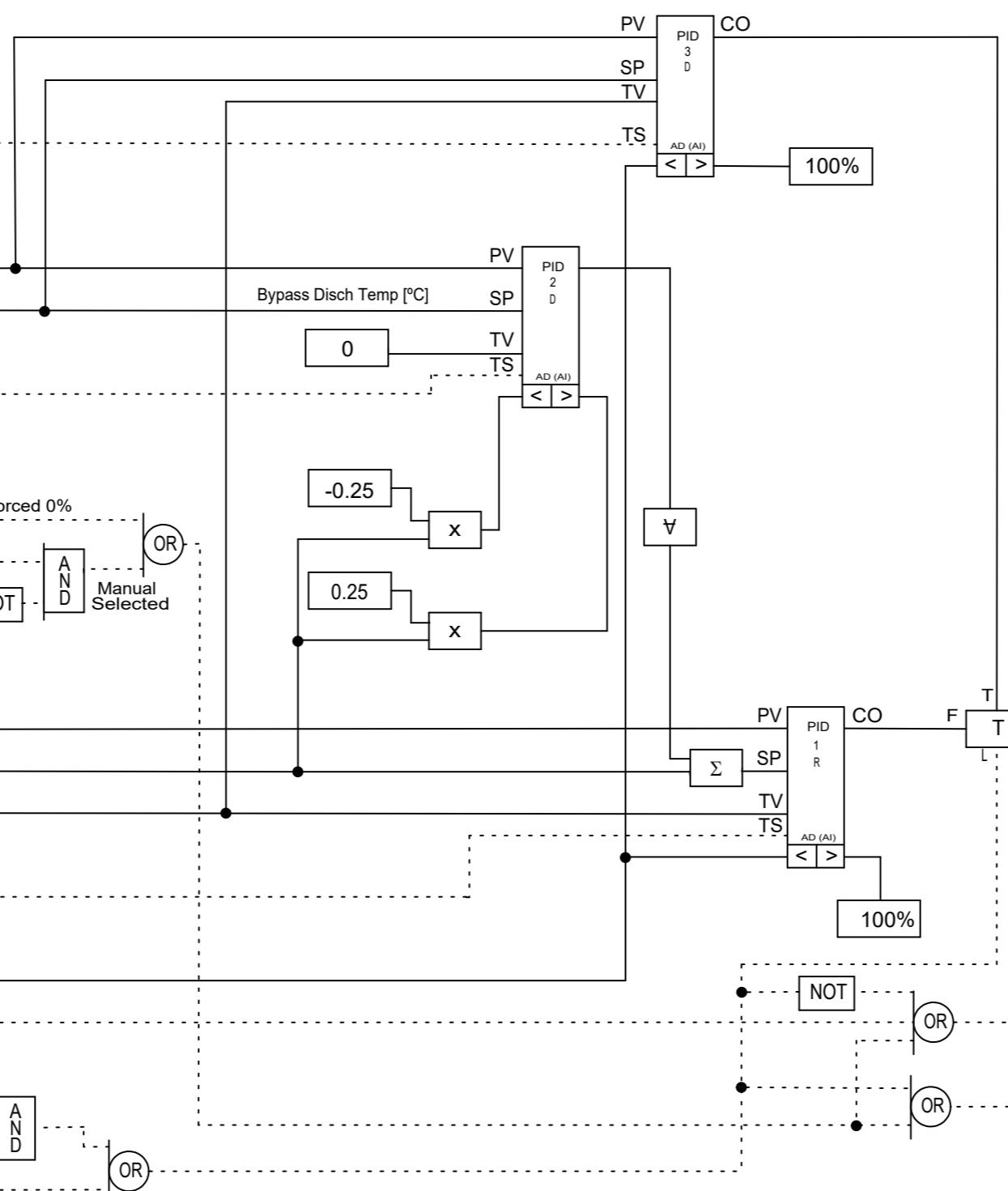
Main Steam, Extract Aux Steam & By-Pass System  
B1: Main Steam Bypass Attemp CV

LOOP: B1LAF31AA401  
LOOP SHEET:

### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

|    | FROM              | DESCRIPTION  | CODE                                    |
|----|-------------------|--|---|
| 1  |                   |  |   |
| 2  |                   |  |   |
| 3  |                   |  |   |
| 4  | <>><br>- 55       | B1: Main Steam Bypass Attemp Temp                  | Tracking B1LAF31AA401<br>Temp ZC84      |
| 5  |                   |  |   |
| 6  |                   |  |   |
| 7  | <>><br>320 - 42   | B1: MS Bypass to ACC Temp                          | xtrm B1MAN10CT901<br>XQ01               |
| 8  | <>><br>302.C - 41 | B1: Main Steam Bypass Attemp Setpoint              | Temp B1LAF31AA401<br>ZC70               |
| 9  |                   |  |   |
| 10 | <>><br>320 - 38   | B1: MS Bypass to ACC Temp                          | Measurement B1MAN10CT901<br>FAULTY ZB35 |
| 11 |                   |  |   |
| 12 |                   |  |   |
| 13 | <>><br>302 - 46   | B1: Main Steam Bypass Attemp Protection CLOSE      | B1LAF31AA401<br>ZB17                    |
| 14 | <>><br>302 - 38   | B1: Main Steam Bypass Attemp CV Drive Ready        | B1LAF31AA401<br>ZB50                    |
| 15 | <>><br>302 - 41   | B1: Main Steam Bypass Attemp CV Drive Ready & Auto | B1LAF31AA401<br>ZB51                    |
| 16 |                   |  |   |
| 17 |                   |  |   |
| 18 | <>><br>312.A - 35 | B1: MS Bypass Attemp Flow flow value               | B1LAF31CF901<br>ZQ10                    |
| 19 | <>><br>302.B - 38 | B1: Main Steam Bypass Attemp Required Wtr Flow     | B1LAF31AA401<br>ZC66                    |
| 20 | <>><br>302 - 35   | B1: Main Steam Bypass Attemp CV Position Demand    | B1LAF31AA401<br>YQ01                    |
| 21 |                   |  |   |
| 22 | <>><br>- 57       | B1: Main Steam Bypass Attemp CV Tracking Enthalpy  | B1LAF31AA401<br>ZC85                    |
| 23 |                   |  |   |
| 24 | <>><br>302.B - 35 | B1: Main Steam Bypass Attemp CV L Limit            | B1LAF31AA401<br>ZC73                    |
| 25 | <>><br>320 - 37   | B1: MS Bypass to ACC Temp Measurement              | B1MAN10CT901<br>FAULTY ZB35             |
| 26 |                   |  |   |
| 27 | <>><br>312.A - 40 | B1: MS Bypass Attemp Flow L Low                    | B1LAF31CF901<br>ZB52                    |
| 28 | <>><br>302.B - 42 | B1: Main Steam Bypass Attemp CV Wtr Flow           | B1LAF31AA401<br>ZC52                    |
| 29 | <>><br>312 - 38   | B1: MS Bypass Attemp Flow Measurement FAULTY       | B1LAF31CF901<br>XM35                    |
| 30 |                   |  |   |



| CODE         | DESCRIPTION                                    | TO                      |
|--------------|--|-------------------------|
|              |  | 31                      |
|              |  | 32                      |
|              |  | 33                      |
|              |  | 34                      |
|              |  | 35                      |
|              |  | 36                      |
|              |  | 37                      |
|              |  | 38                      |
|              |  | 39                      |
|              |  | 40                      |
|              |  | 41                      |
|              |  | 42                      |
|              |  | 43                      |
|              |  | 44                      |
|              |  | 45                      |
|              |  | 46                      |
|              |  | 47                      |
| B1LAF31AA401 | B1: Main Steam Bypass Attemp CV Tracking Value | <>> 48<br>ZC63 302 - 09 |
|              |  | 49                      |
|              |  | 50                      |
|              |  | 51                      |
|              |  | 52                      |
|              |  | 53                      |
|              |  | 54                      |
| B1LAF31AA401 | B1: Main Steam Bypass Attemp CV Temp           | <>> 55<br>ZC84 - 04     |
|              |  | 56                      |
| B1LAF31AA401 | B1: Main Steam Bypass Attemp CV Enthalpy       | <>> 57<br>ZC85 - 22     |
|              |  | 58                      |
|              |  | 59                      |
|              |  | 60                      |

### Notes:

1. The logic depicted in this page should be replicated for equipment in Boiler line 2.

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT



SCALE



DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System**  
**B1: Main Steam Bypass Attemp CV**

NLWA CODE:

CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 302.ACNT

REV. P01

A

B

C

D

E

A

B

C

D

E

### Control Diagram

Main Steam, Extract Aux Steam & By-Pass System  
B1: Main Steam Bypass Attemp CV

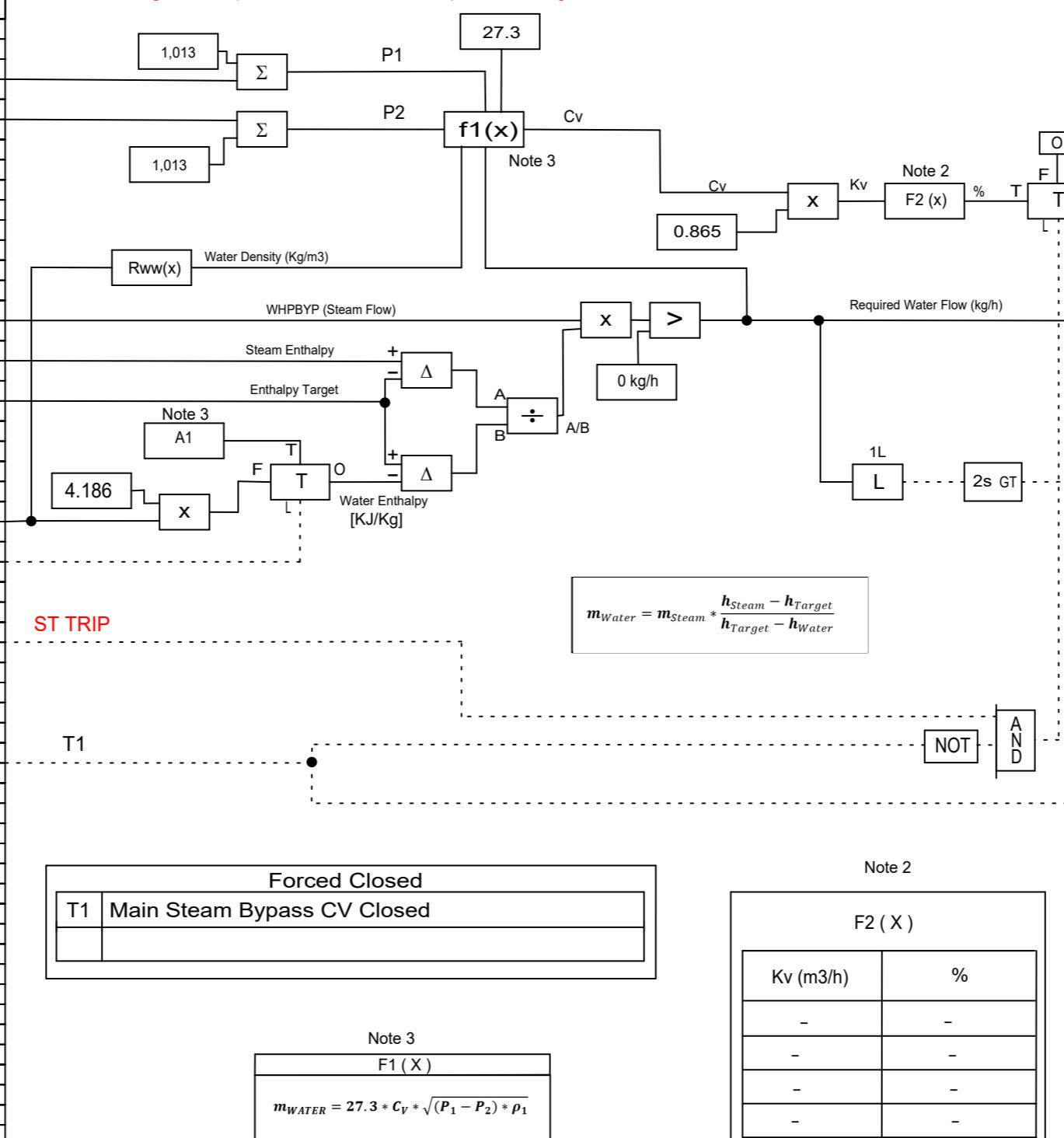
|             |              |
|-------------|--------------|
| LOOP:       | B1LAF31AA401 |
| LOOP SHEET: |              |

### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM              | DESCRIPTION                              | CODE                         |
|----|-------------------|--|------------------------------|
| 1  |                   |  |                              |
| 2  |                   |  |                              |
| 3  | <>><br>318 - 34   | B1: MS Bypass to ACC Press<br>xtmr       | B1MAN10CP901<br>XQ01         |
| 4  |                   |  |                              |
| 5  |                   |  |                              |
| 6  |                   |  |                              |
| 7  |                   |  |                              |
| 8  | <>><br>302.C - 33 | B1: Main Steam Bypass Attemp CV Flow     | B1LAF31AA401<br>ZB68         |
| 9  | <>><br>302.C - 47 | B1: Main Steam Bypass Attemp CV Enthalpy | B1LAF31AA401<br>ZC72         |
| 10 | <>><br>302.C - 35 | B1: Main Steam Bypass Attemp CV Target   | B1LAF31AA401<br>ZB69         |
| 11 |                   |  |                              |
| 12 |                   |  |                              |
| 13 | <>><br>708 - 39   | FW Pmps IP Disch Temp                    | xtmr<br>B0LAF30CT901<br>XQ01 |
| 14 | <>><br>708 - 42   | FW Pmps IP Disch Temp                    | Measurement<br>FAULTY        |
| 15 |                   |  |                              |
| 16 |                   |  |                              |
| 17 |                   |  |                              |
| 18 |                   |  |                              |
| 19 | <>><br>306 - 59   | B1: Main Steam Bypass CV                 | B1MAN10AA401<br>Closed       |
| 20 |                   |  |                              |
| 21 |                   |  |                              |
| 22 |                   |  |                              |
| 23 |                   |  |                              |
| 24 |                   |  |                              |
| 25 |                   |  |                              |
| 26 |                   |  |                              |
| 27 |                   |  |                              |
| 28 |                   |  |                              |
| 29 |                   |  |                              |
| 30 |                   |  |                              |

Presión descarga FW, o presión antes de la atemperadora ???



| CODE                 | DESCRIPTION                                       | TO                |
|----------------------|---|-------------------|
|                      |   | 31                |
|                      |   | 32                |
|                      |   | 33                |
|                      |   | 34                |
| B1LAF31AA401<br>ZC73 | B1: Main Steam Bypass Attemp CV LLimit            | <>><br>302.A - 24 |
|                      |   | 35                |
|                      |   | 36                |
|                      |   | 37                |
| B1LAF31AA401<br>ZC66 | B1: Main Steam Bypass Attemp CV Required Wtr Flow | <>><br>302.A - 19 |
|                      |   | 38                |
|                      |   | 39                |
|                      |   | 40                |
| B1LAF31AA401<br>ZC52 | B1: Main Steam Bypass Attemp CV Low Wtr Flow      | <>><br>302.A - 28 |
|                      |   | 42                |
|                      |   | 43                |
|                      |   | 44                |
|                      |   | 45                |
|                      |   | 46                |
|                      |   | 47                |
|                      |   | 48                |
|                      |   | 49                |
| B1LAF31AA401<br>ZB17 | B1: Main Steam Bypass Attemp CV Protection CLOSE  | <>><br>302 - 16   |
|                      |   | 50                |
|                      |   | 51                |
|                      |   | 52                |
|                      |   | 53                |
|                      |   | 54                |
|                      |   | 55                |
|                      |   | 56                |
|                      |   | 57                |
|                      |   | 58                |
|                      |   | 59                |
|                      |   | 60                |

### Notes:

- The logic depicted in this page should be replicated for equipment in Boiler line 2.
- F2(x): This function is defined by valve supplier (Kv vs valve stroke - Control Attemp Valve). Supplier valve curves (Pending)
- F1(x): Function to be confirmed by valve supplier.
- A1 KJ/Kg is the water Enthalpy in operating conditions.

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**B1: Main Steam Bypass Attemp CV**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 302.BCONT

INTERNAL CODE:

REV. P01

A

B

C

D

E

A

B

C

D

E

## Control Diagram

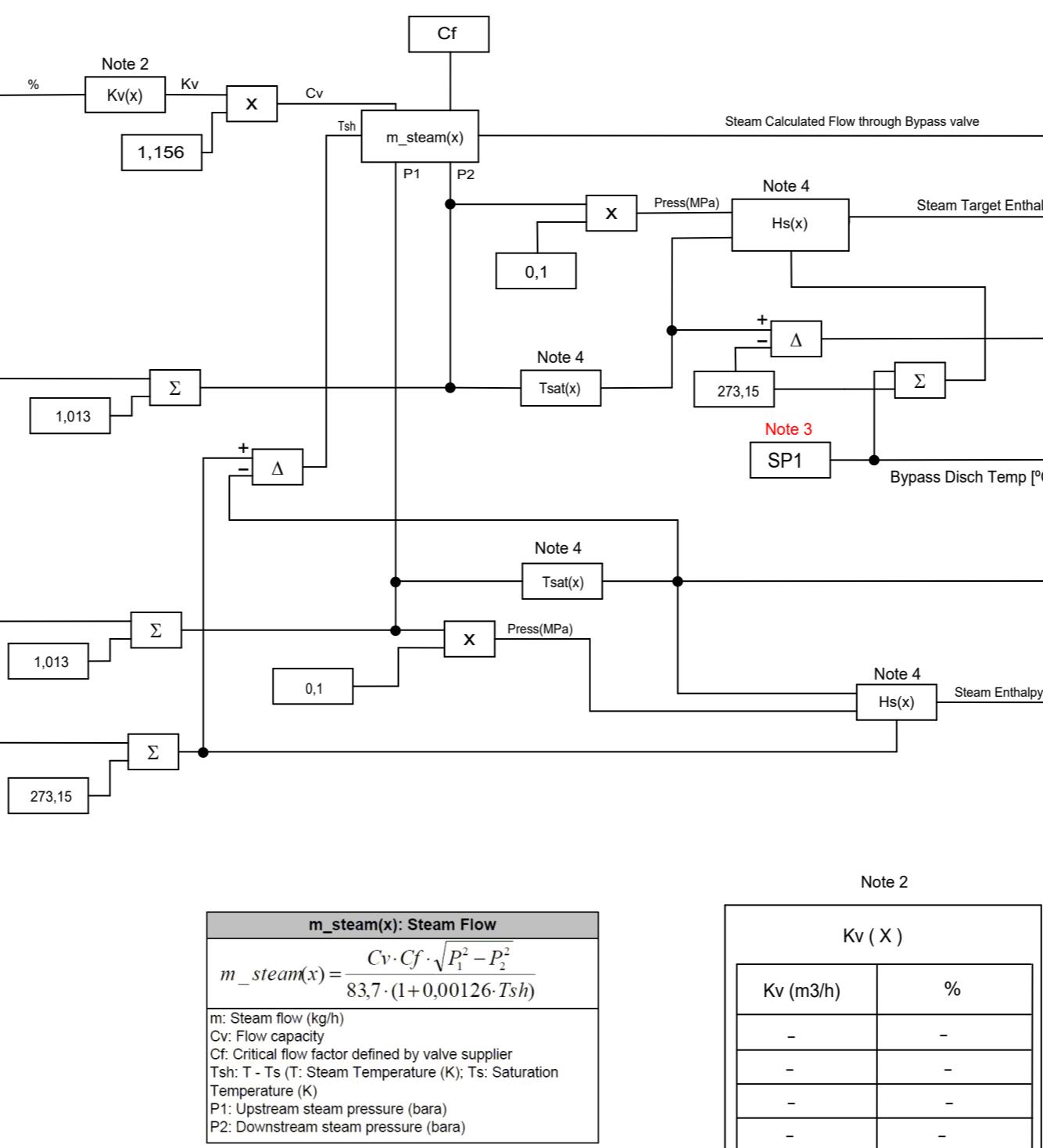
### B1: Main Steam Bypass Attemp CV

|    | FROM              | DESCRIPTION                                | CODE                 |
|----|-------------------|--|----------------------|
| 1  |                   |  |                      |
| 2  | <>><br>306.A - 44 | B1: Main Steam Bypass CV<br>Valve Position | B1MAN10AA401<br>XQ13 |
| 3  |                   |  |                      |
| 4  |                   |  |                      |
| 5  |                   |  |                      |
| 6  |                   |  |                      |
| 7  |                   |  |                      |
| 8  |                   |  |                      |
| 9  | <>><br>318 - 33   | B1: MS Bypass to ACC Press<br>xtmr         | B1MAN10CP901<br>XQ01 |
| 10 |                   |  |                      |
| 11 |                   |  |                      |
| 12 |                   |  |                      |
| 13 |                   |  |                      |
| 14 |                   |  |                      |
| 15 | <>><br>62 - 33    | B1: MS from Boiler Press<br>xtmr           | B1LBA10CP901<br>XQ01 |
| 16 |                   |  |                      |
| 17 |                   |  |                      |
| 18 |                   |  |                      |
| 19 |                   |  |                      |
| 20 |                   |  |                      |
| 21 |                   |  |                      |
| 22 |                   |  |                      |
| 23 |                   |  |                      |
| 24 |                   |  |                      |
| 25 |                   |  |                      |
| 26 |                   |  |                      |
| 27 |                   |  |                      |
| 28 |                   |  |                      |
| 29 |                   |  |                      |
| 30 |                   |  |                      |

LOOP: B1LAF31AA401  
LOOP SHEET:

## MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |



#### Notes:

- The logic depicted in this page should be replicated for equipment in Boiler line 2.
- Kv(x): Function to calculate the flow capacity. Supplier valve curves (Pending)
- Value of the Bypass Disch Temperature Set Point as a function of the required enthalpy at the ACC Duct..
- Function defined in the symbology, sheet 2.F.

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[QR]

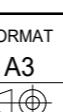
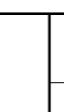


PROJECT

NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE

B1: Main Steam Bypass Attemp CV



NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 302.CCONT  
REV. P01

A

B

C

D

E

A

B

C

D

E

### Control Diagram

Main Steam, Extract Aux Steam & By-Pass System  
B1: Bypass CV Attemp Water IV

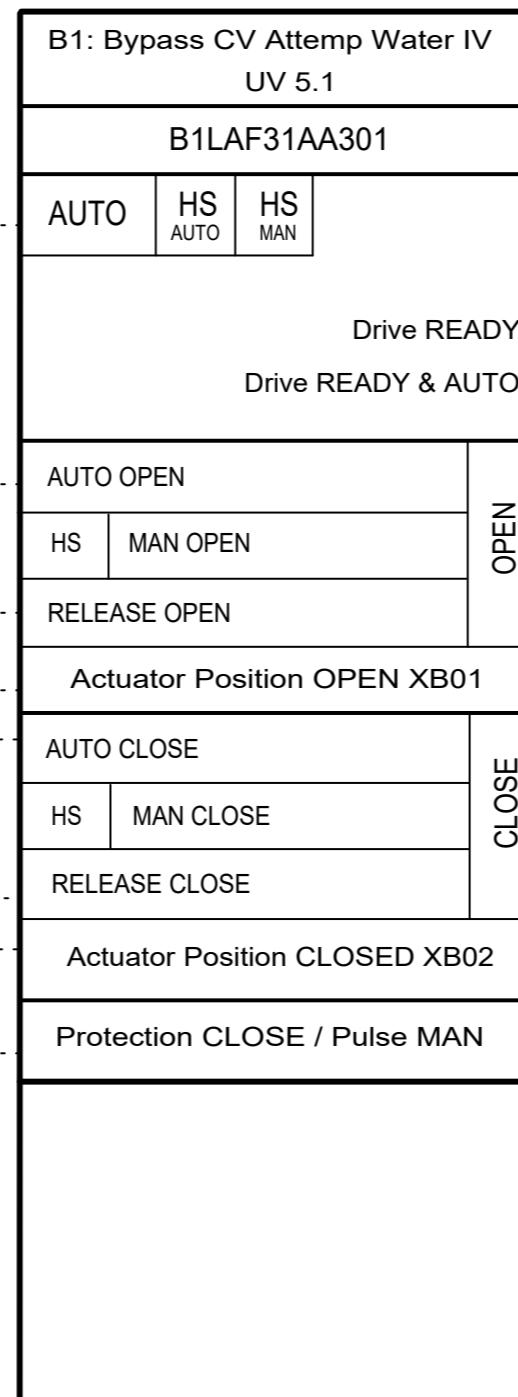
|    | FROM                          | DESCRIPTION                                  | CODE                 |
|----|-------------------------------|--|----------------------|
| 1  |                               |  |                      |
| 2  |                               |  |                      |
| 3  |                               |  |                      |
| 4  |                               |  |                      |
| 5  |                               |  |                      |
| 6  |                               |  |                      |
| 7  | <><br>300 - 40                | B1: Bypass FSG<br>All drives<br>to Auto      | B1MAN10EA001<br>ZB13 |
| 8  |                               |  |                      |
| 9  |                               |  |                      |
| 10 |                               |  |                      |
| 11 |                               |  |                      |
| 12 |                               |  |                      |
| 13 |                               |  |                      |
| 14 |                               |  |                      |
| 15 |                               |  |                      |
| 16 | B1: Bypass CV Attemp Water IV | Actuator<br>Pos Open                         | B1LAF31AA301<br>XB01 |
| 17 |                               |  |                      |
| 18 |                               |  |                      |
| 19 |                               |  |                      |
| 20 | <><br>302 - 57                | B1: Main Steam Bypass Attemp<br>CV<br>Closed | B1LAF31AA401<br>ZB02 |
| 21 | B1: Bypass CV Attemp Water IV | Actuator<br>Pos Close                        | B1LAF31AA301<br>XB02 |
| 22 |                               |  |                      |
| 23 |                               |  |                      |
| 24 |                               |  |                      |
| 25 |                               |  |                      |
| 26 |                               |  |                      |
| 27 |                               |  |                      |
| 28 |                               |  |                      |
| 29 |                               |  |                      |
| 30 |                               |  |                      |

|             |              |
|-------------|--------------|
| LOOP:       | B1LAF31AA301 |
| LOOP SHEET: |              |

### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| CODE         | DESCRIPTION                          | TO         |
|--------------|--------------------------------------|------------|
|              |                                      | 31         |
|              |                                      | 32         |
|              |                                      | 33         |
|              |                                      | 34         |
|              |                                      | 35         |
|              |                                      | 36         |
|              |                                      | 37         |
|              |                                      | 38         |
| B1LAF31AA301 | B1: Bypass CV Attemp Water IV        | Drive <>   |
| ZB50         | Ready                                | 300.A - 04 |
| B1LAF31AA301 | Drive Ready                          | <>         |
| ZB51         | B1: Bypass CV Attemp Water IV & Auto | 300.A - 20 |
|              |                                      | 41         |
| B1LAF31AA301 | B1: Bypass CV Attemp Water IV        | Op Cmd     |
| YB01         |                                      | 43         |
|              |                                      | 44         |
|              |                                      | 45         |
|              |                                      | 46         |
|              |                                      | 47         |
|              |                                      | 48         |
|              |                                      | 49         |
|              |                                      | 50         |
|              |                                      | 51         |
|              |                                      | 52         |
| B1LAF31AA301 | B1: Bypass CV Attemp Water IV        | Prot Close |
| XM17         | Pulse Man                            | 53         |
|              |                                      | 54         |
| B1LAF31AA301 | B1: Bypass CV Attemp Water IV        | Cmd Op     |
| XM15         | Failure                              | 55         |
| B1LAF31AA301 | B1: Bypass CV Attemp Water IV        | Cmd Cl     |
| XM16         | Failure                              | 56         |
| B1LAF31AA301 | B1: Bypass CV Attemp Water IV        | Air Loss   |
| XM69         | Acted                                | 57         |
| B1LAF31AA301 | B1: Bypass CV Attemp Water IV        | Feedback   |
| XM33         | Anomaly                              | 58         |
|              |                                      | 59         |
|              |                                      | 60         |



Notes:

- The logic depicted in this page should be replicated for equipment in Boiler line 2.

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT

A3

SCALE

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**B1: Bypass CV Attemp Water IV**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 304 CONT

INTERNAL CODE:

REV. P01

A

B

C

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1

E

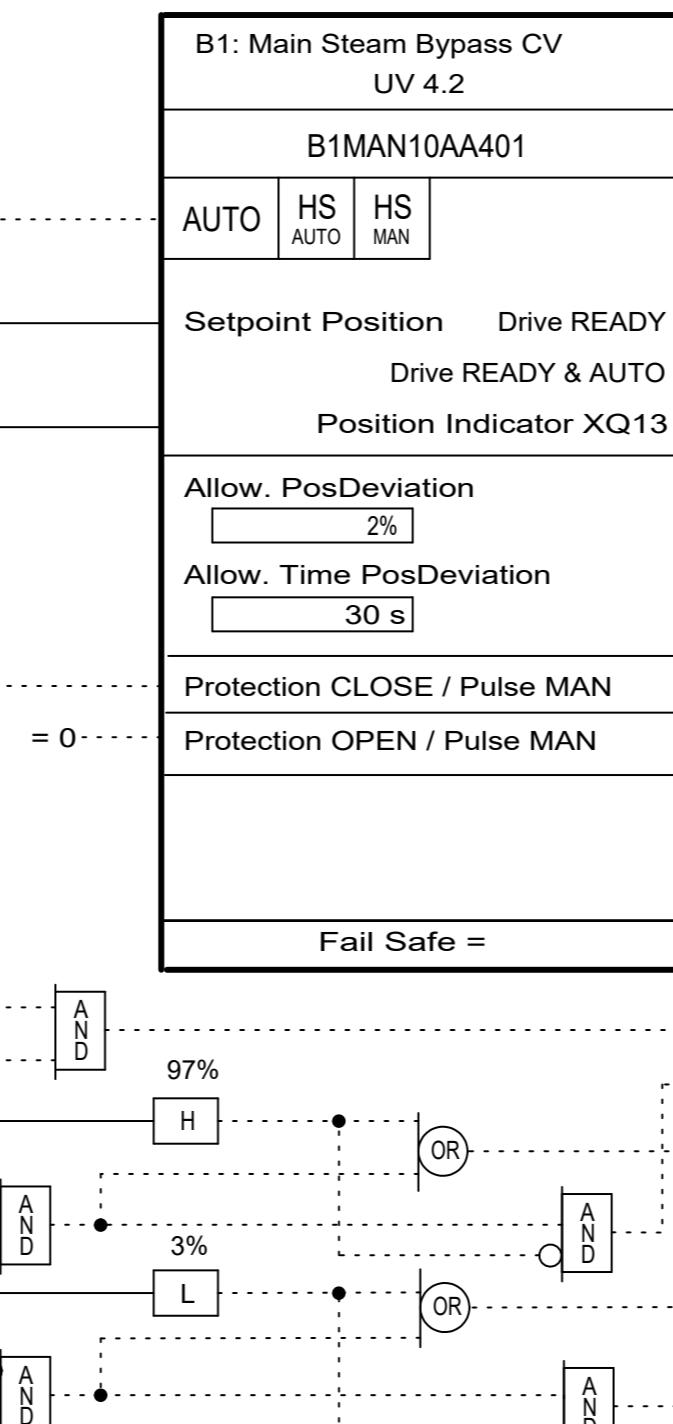
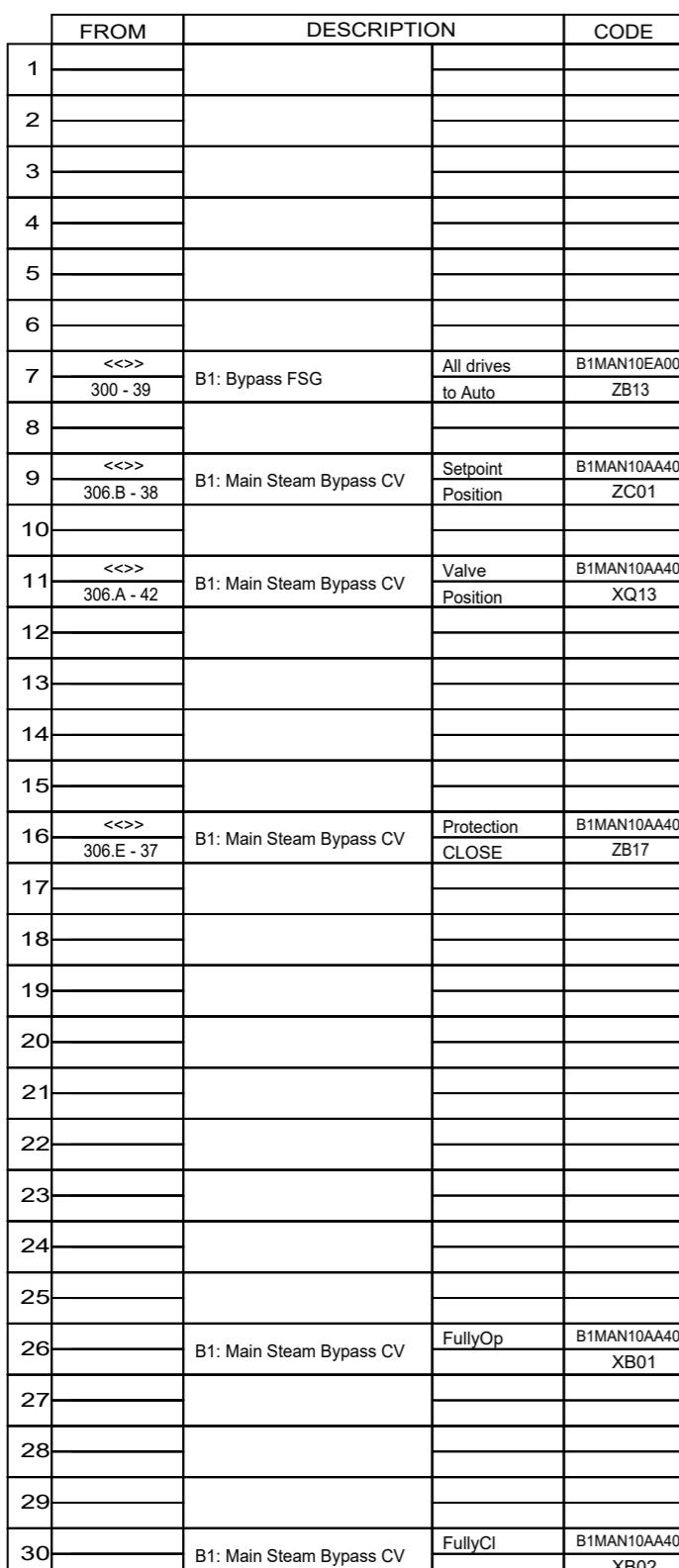
## Control Diagram

---

## Main Steam, Extract Aux Steam & By-Pass System

### B1: Main Steam Bypass CV

|             |              |
|-------------|--------------|
| LOOP:       | B1MAN10AA401 |
| LOOP SHEET: |              |



| MODIFICATIONS |             |      |       |         |          |
|---------------|-------------|------|-------|---------|----------|
| REV.          | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|               |             |      |       |         |          |

| CODE                 | DESCRIPTION                                       | TO                |
|----------------------|---|-------------------|
|                      |   | 31                |
|                      |   | 32                |
|                      |   | 33                |
|                      |   | 34                |
|                      |   | 35                |
| B1MAN10AA401<br>YQ01 | B1: Main Steam Bypass CV<br>Position<br>Demand    | <>><br>306.B - 12 |
| B1MAN10AA401<br>YQ01 | B1: Main Steam Bypass CV<br>Position<br>Demand    | 37                |
| B1MAN10AA401<br>ZB50 | B1: Main Steam Bypass CV<br>Drive<br>Ready        | <>><br>306.B - 23 |
| B1MAN10AA401<br>ZB50 | B1: Main Steam Bypass CV<br>Drive<br>Ready        | 300.A - 05        |
| B1MAN10AA401<br>ZB51 | B1: Main Steam Bypass CV<br>Drive<br>Ready & Auto | <>><br>300.A - 21 |
| B1MAN10AA401<br>ZB51 | B1: Main Steam Bypass CV<br>Drive<br>Ready & Auto | 40                |
|                      |   | 41                |
|                      |   | 42                |
|                      |   | 43                |
|                      |   | 44                |
|                      |   | 45                |
| B1MAN10AA401<br>ZB17 | B1: Main Steam Bypass CV<br>Protection<br>CLOSE   | <>><br>306.B - 19 |
|                      |   | 46                |
|                      |   | 47                |
| 2s GT                |   |                   |
| B1MAN10AA401<br>XM13 | B1: Main Steam Bypass CV<br>Feedback<br>Anomaly   | 48                |
| B1MAN10AA401<br>XM70 | B1: Main Steam Bypass CV<br>Discrp<br>Pos         | 49                |
| B1MAN10AA401<br>XM30 | B1: Main Steam Bypass CV<br>Pos xtmr<br>BQ        | 50                |
|                      |   | 51                |
|                      |   | 52                |
|                      |   | 53                |
|                      |   | 54                |
| OR                   |   |                   |
| B1MAN10AA401<br>ZB01 | B1: Main Steam Bypass CV<br>Open                  | 55                |
|                      |   | 56                |
|                      |   | 57                |
| B1MAN10AA401<br>ZB02 | B1: Main Steam Bypass CV<br>Closed                | 58                |
| B1MAN10AA401<br>ZB02 | B1: Main Steam Bypass CV<br>Closed                | <>><br>302.B - 19 |
|                      |   | 59                |
|                      |   | 60                |

## Notes:

1. The logic depicted in this page should be replicated for equipment in Boiler line 2.

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[OB1]



CONTRACTOR  
Accior

PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

ER  EMPRESARIOS AGRUPADOS

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
B1: Main Steam Bypass CV

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-760

INTERNAL CODE

SHEET 306 CONT

REV. P01

1

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**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

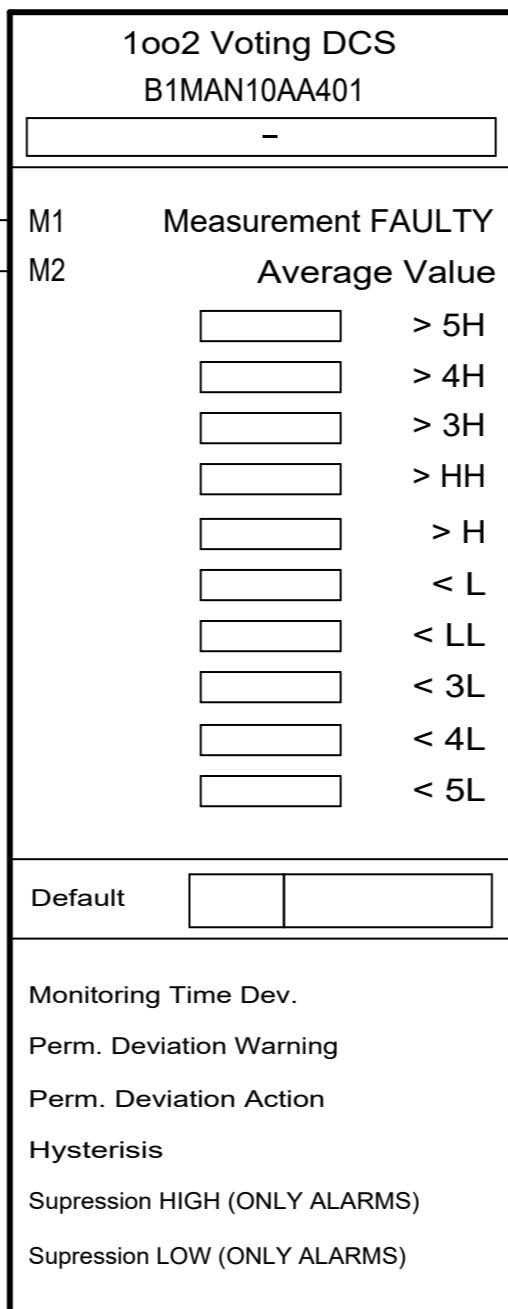
B1: Main Steam Bypass CV

|             |              |
|-------------|--------------|
| LOOP:       | B1MAN10AA401 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM                     | DESCRIPTION | CODE                 |
|----|--------------------------|-------------|----------------------|
| 1  |                          |             |                      |
| 2  |                          |             |                      |
| 3  |                          |             |                      |
| 4  |                          |             |                      |
| 5  |                          |             |                      |
| 6  |                          |             |                      |
| 7  |                          |             |                      |
| 8  |                          |             |                      |
| 9  | B1: Main Steam Bypass CV | Position1   | B1MAN10AA401<br>XQ01 |
| 10 | B1: Main Steam Bypass CV | Position2   | B1MAN10AA401<br>XQ02 |
| 11 |                          |             |                      |
| 12 |                          |             |                      |
| 13 |                          |             |                      |
| 14 |                          |             |                      |
| 15 |                          |             |                      |
| 16 |                          |             |                      |
| 17 |                          |             |                      |
| 18 |                          |             |                      |
| 19 |                          |             |                      |
| 20 |                          |             |                      |
| 21 |                          |             |                      |
| 22 |                          |             |                      |
| 23 |                          |             |                      |
| 24 |                          |             |                      |
| 25 |                          |             |                      |
| 26 |                          |             |                      |
| 27 |                          |             |                      |
| 28 |                          |             |                      |
| 29 |                          |             |                      |
| 30 |                          |             |                      |



| CODE         | DESCRIPTION              | TO                  |
|--------------|--------------------------|---------------------|
|              |                          | 31                  |
|              |                          | 32                  |
|              |                          | 33                  |
|              |                          | 34                  |
|              |                          | 35                  |
|              |                          | 36                  |
|              |                          | 37                  |
|              |                          | 38                  |
| B1MAN10AA401 | B1: Main Steam Bypass CV | Vlv Discrp          |
| XM80         |                          | Pos                 |
| B1MAN10AA401 | B1: Main Steam Bypass CV | Valve               |
| XQ13         | B1: Main Steam Bypass CV | Position            |
|              |                          | 41                  |
| B1MAN10AA401 | B1: Main Steam Bypass CV | Valve <>            |
| XQ13         | B1: Main Steam Bypass CV | Position 306 - 11   |
|              |                          | 43                  |
| B1MAN10AA401 | B1: Main Steam Bypass CV | Valve <>            |
| XQ13         | B1: Main Steam Bypass CV | Position 302.C - 02 |
|              |                          | 45                  |
|              |                          | 46                  |
|              |                          | 47                  |
|              |                          | 48                  |
|              |                          | 49                  |
|              |                          | 50                  |
|              |                          | 51                  |
|              |                          | 52                  |
|              |                          | 53                  |
|              |                          | 54                  |
|              |                          | 55                  |
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|              |                          | 57                  |
|              |                          | 58                  |
|              |                          | 59                  |
|              |                          | 60                  |

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[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT****DRAWING TITLE****Main Steam, Extract Aux Steam & By-Pass System**  
**B1: Main Steam Bypass CV**

ISSUER  
  
EMPRESARIOS AGRUPADOS

FORMAT  
A3

SCALE

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:  
SHEET 306.ACNT  
REV. P01

A

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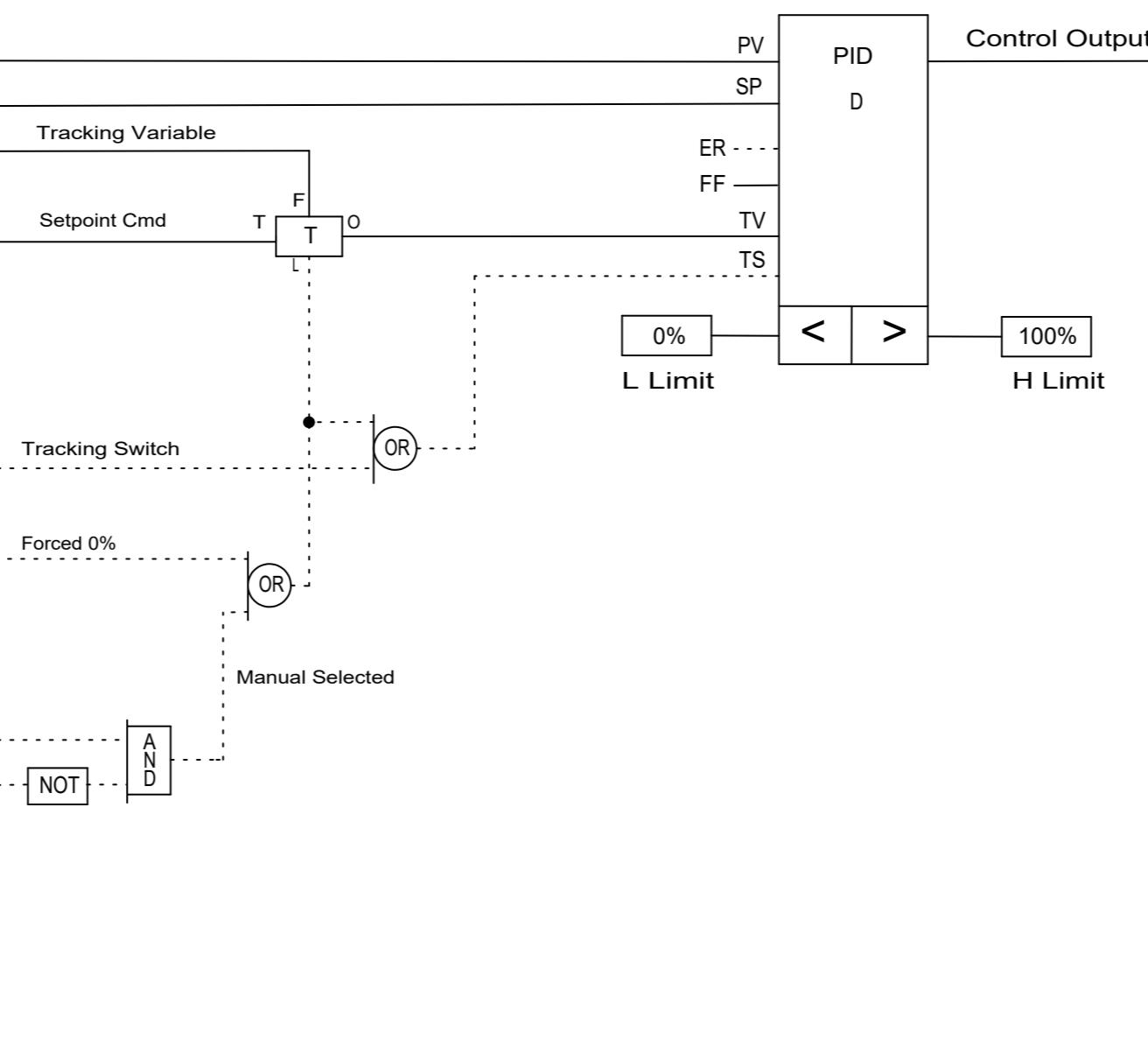
E

Control DiagramB1: Main Steam Bypass CV

|    | FROM              | DESCRIPTION                                       | CODE                 |
|----|-------------------|---|----------------------|
| 1  |                   |   |                      |
| 2  |                   |   |                      |
| 3  |                   |   |                      |
| 4  |                   |   |                      |
| 5  |                   |   |                      |
| 6  |                   |   |                      |
| 7  |                   |   |                      |
| 8  | <>><br>62 - 34    | B1: MS from Boiler Press<br>xtrm                  | B1LBA10CP901<br>XQ01 |
| 9  | <>><br>306.C - 38 | B1: Main Steam Bypass CV<br>Setpoint<br>Position  | B1MAN10AA401<br>ZC01 |
| 10 |                   |   |                      |
| 11 |                   |   |                      |
| 12 | <>><br>306 - 36   | B1: Main Steam Bypass CV<br>Position<br>Demand    | B1MAN10AA401<br>YQ01 |
| 13 |                   |   |                      |
| 14 |                   |   |                      |
| 15 |                   |   |                      |
| 16 |                   |   |                      |
| 17 |                   |   |                      |
| 18 |                   |   |                      |
| 19 | <>><br>306 - 46   | B1: Main Steam Bypass CV<br>Protection<br>CLOSE   | B1MAN10AA401<br>ZB17 |
| 20 |                   |   |                      |
| 21 |                   |   |                      |
| 22 |                   |   |                      |
| 23 | <>><br>306 - 38   | B1: Main Steam Bypass CV<br>Drive<br>Ready        | B1MAN10AA401<br>ZB50 |
| 24 | <>><br>306 - 41   | B1: Main Steam Bypass CV<br>Drive<br>Ready & Auto | B1MAN10AA401<br>ZB51 |
| 25 |                   |   |                      |
| 26 |                   |   |                      |
| 27 |                   |   |                      |
| 28 |                   |   |                      |
| 29 |                   |   |                      |
| 30 |                   |   |                      |

|             |              |
|-------------|--------------|
| LOOP:       | B1MAN10AA401 |
| LOOP SHEET: |              |

| MODIFICATIONS |             |  |  |                             |
|---------------|-------------|--|--|-----------------------------|
| REV.          | DESCRIPTION |  |  | DATE DRAWN CHECKED APPROVED |
|               |             |  |  |                             |



## Notes:

1. The logic depicted in this page should be replicated for equipment in Boiler line 2.

| CODE         | DESCRIPTION              | TO                |
|--------------|--------------------------|-------------------|
|              |                          | 31                |
|              |                          | 32                |
|              |                          | 33                |
|              |                          | 34                |
|              |                          | 35                |
|              |                          | 36                |
|              |                          | 37                |
| B1MAN10AA401 | B1: Main Steam Bypass CV | Setpoint <>>      |
| ZC01         | Position 306 - 09        | Position 306 - 09 |
|              |                          | 38                |
|              |                          | 39                |
|              |                          | 40                |
|              |                          | 41                |
|              |                          | 42                |
|              |                          | 43                |
|              |                          | 44                |
|              |                          | 45                |
|              |                          | 46                |
|              |                          | 47                |
|              |                          | 48                |
|              |                          | 49                |
|              |                          | 50                |
|              |                          | 51                |
|              |                          | 52                |
|              |                          | 53                |
|              |                          | 54                |
|              |                          | 55                |
|              |                          | 56                |
|              |                          | 57                |
|              |                          | 58                |
|              |                          | 59                |
|              |                          | 60                |

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## PROJECT

## NORTH LONDON HEAT AND POWER PROJECT

ISSUER  
**EMPRESARIOS AGRUPADOS**

## DRAWING TITLE

## B1: Main Steam Bypass CV

|                  |                          |
|------------------|--------------------------|
| NLWA CODE:       | SHEET 306.BCONT          |
| CONTRACTOR CODE: | NLHP-41XX-IE-DI-EAI-7604 |
| INTERNAL CODE:   | REV. P01                 |

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### Control Diagram

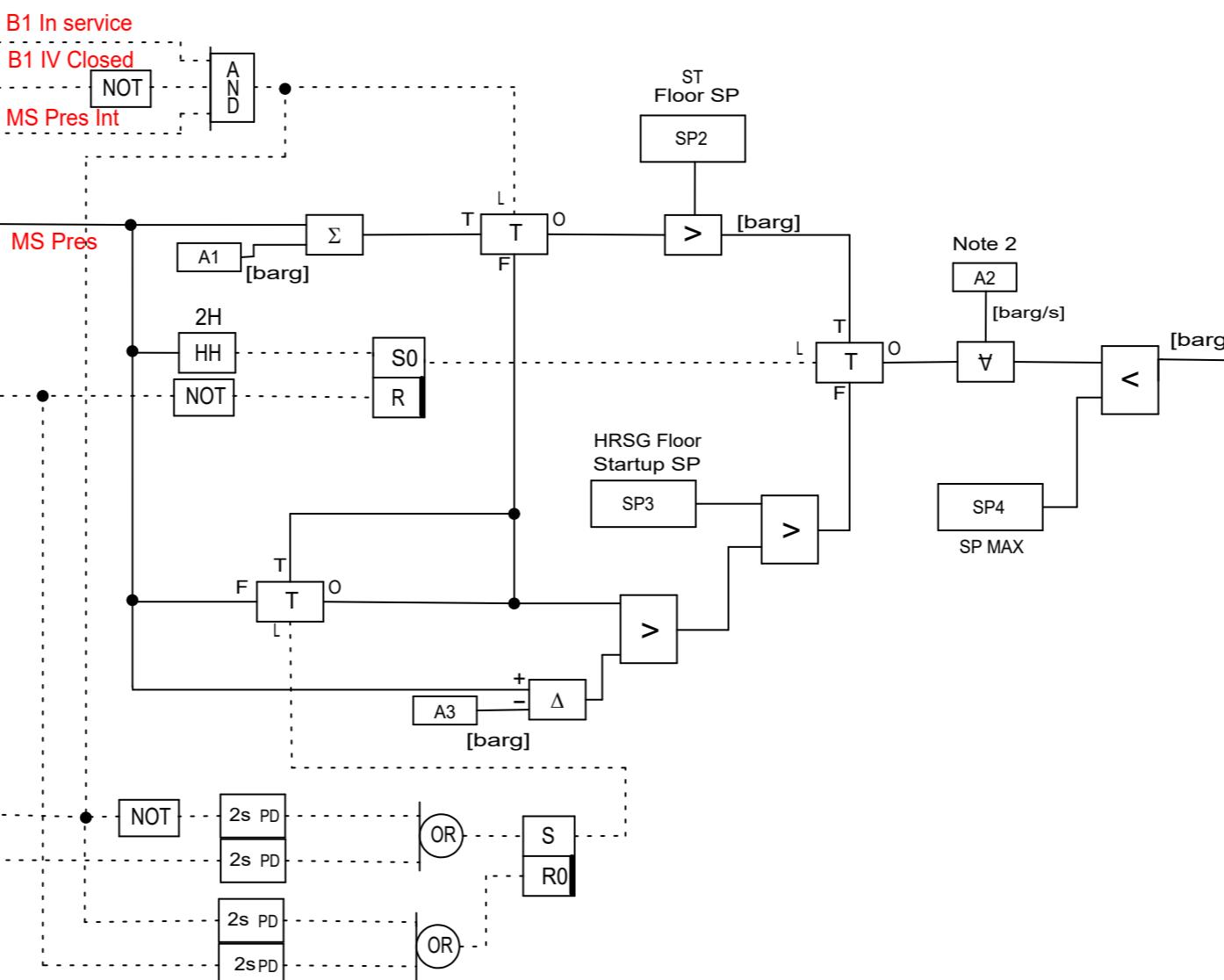
#### B1: Main Steam Bypass CV

|    | FROM | DESCRIPTION | CODE |
|----|------|-------------|------|
| 1  |      |             |      |
| 2  |      |             |      |
| 3  |      |             |      |
| 4  |      |             |      |
| 5  |      |             |      |
| 6  |      |             |      |
| 7  |      |             |      |
| 8  |      |             |      |
| 9  |      |             |      |
| 10 |      |             |      |
| 11 |      |             |      |
| 12 |      |             |      |
| 13 |      |             |      |
| 14 |      |             |      |
| 15 |      |             |      |
| 16 |      |             |      |
| 17 |      |             |      |
| 18 |      |             |      |
| 19 |      |             |      |
| 20 |      |             |      |
| 21 |      |             |      |
| 22 |      |             |      |
| 23 |      |             |      |
| 24 |      |             |      |
| 25 |      |             |      |
| 26 |      |             |      |
| 27 |      |             |      |
| 28 |      |             |      |
| 29 |      |             |      |
| 30 |      |             |      |

LOOP: B1MAN10AA401  
LOOP SHEET:

### MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |



| CODE         | DESCRIPTION              | TO                  |
|--------------|--------------------------|---------------------|
|              |                          | 31                  |
|              |                          | 32                  |
|              |                          | 33                  |
|              |                          | 34                  |
|              |                          | 35                  |
|              |                          | 36                  |
|              |                          | 37                  |
| B1MAN10AA401 | B1: Main Steam Bypass CV | Setpoint <>         |
| ZC01         |                          | Position 306.B - 09 |
|              |                          | 38                  |
|              |                          | 39                  |
|              |                          | 40                  |
|              |                          | 41                  |
|              |                          | 42                  |
|              |                          | 43                  |
|              |                          | 44                  |
|              |                          | 45                  |
|              |                          | 46                  |
|              |                          | 47                  |
|              |                          | 48                  |
|              |                          | 49                  |
|              |                          | 50                  |
|              |                          | 51                  |
|              |                          | 52                  |
|              |                          | 53                  |
|              |                          | 54                  |
|              |                          | 55                  |
|              |                          | 56                  |
|              |                          | 57                  |
|              |                          | 58                  |
|              |                          | 59                  |
|              |                          | 60                  |

#### Notes:

- The logic depicted in this page should be replicated for equipment in Boiler line 2.
- Set Point Ramp Value [barg/s], to be adjusted during commissioning

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[QR]

CLIENT  
**NORTH LONDON WASTE AUTHORITY**

CONTRACTOR  
**Acciona**

PROJECT

NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE

B1: Main Steam Bypass CV

ISSUER  
**EMPRESARIOS AGRUPADOS**

FORMAT  
**A3**

SCALE

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 306.CCONT  
REV. P01

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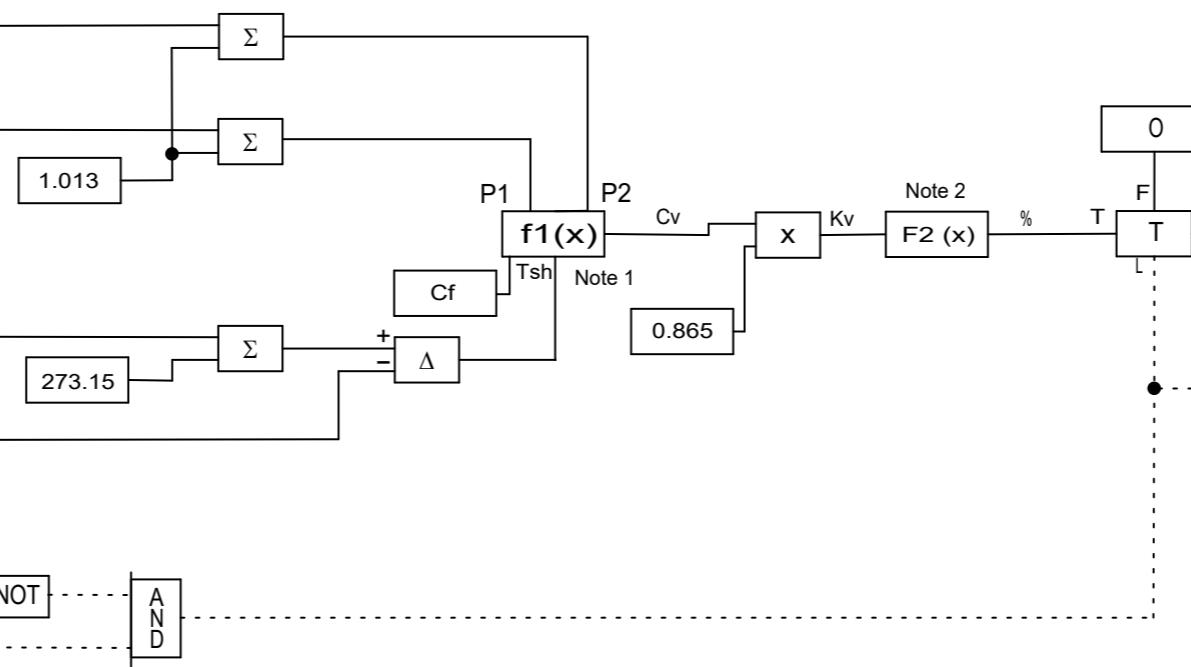
Control DiagramB1: Main Steam Bypass CV

|    | FROM              | DESCRIPTION                                  | CODE                 |
|----|-------------------|--|----------------------|
| 1  |                   |  |                      |
| 2  |                   |  |                      |
| 3  |                   |  |                      |
| 4  |                   |  |                      |
| 5  |                   |  |                      |
| 6  |                   |  |                      |
| 7  |                   |  |                      |
| 8  |                   |  |                      |
| 9  |                   |  |                      |
| 10 |                   |  |                      |
| 11 | <>><br>64 - 42    | B1: MS from Boiler Temp<br>xtmr              | B1LBA10CT901<br>XQ01 |
| 12 |                   |  |                      |
| 13 | <>><br>302.C - 44 | B1: Main Steam Bypass Attempt<br>Sat Temp CV | B1LAF31AA401<br>ZC71 |
| 14 |                   |  |                      |
| 15 |                   |  |                      |
| 16 |                   |  |                      |
| 17 |                   |  |                      |
| 18 |                   |  |                      |
| 19 |                   |  |                      |
| 20 |                   |  |                      |
| 21 |                   |  |                      |
| 22 |                   |  |                      |
| 23 |                   |  |                      |
| 24 |                   |  |                      |
| 25 |                   |  |                      |
| 26 |                   |  |                      |
| 27 |                   |  |                      |
| 28 |                   |  |                      |
| 29 |                   |  |                      |
| 30 |                   |  |                      |

|             |              |
|-------------|--------------|
| LOOP:       | B1MAN10AA401 |
| LOOP SHEET: |              |

## MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |



**m\_steam(x): Steam Flow**

$$m_{steam}(x) = \frac{Cv \cdot Cf \cdot \sqrt{P_1^2 - P_2^2}}{83,7 \cdot (1 + 0,00126 \cdot Tsh)}$$

m: Steam flow (kg/h)  
Cv: Flow capacity  
Cf: Critical flow factor defined by valve supplier  
Tsh: T - Ts (T: Steam Temperature (K); Ts: Saturation Temperature (K))  
P1: Upstream steam pressure (bara)  
P2: Downstream steam pressure (bara)

| F2 (X)    |   |
|-----------|---|
| Kv (m³/h) | % |
| -         | - |
| -         | - |
| -         | - |
| -         | - |

## Notes:

1. The logic depicted in this page should be replicated for equipment in Boiler line 2.
2. f1(x): This function is for calculation of Cv as a function of the rest of the parameters in attached formula.
3. F2(x): This function is defined by valve supplier (Cv vs valve stroke - Control Attemp Valve).

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PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

DRAWING TITLE

B1: Main Steam Bypass CV

ISSUER  
**EMPRESARIOS AGRUPADOS**

FORMAT  
A3SCALE  

NLWA CODE:  
CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 306.DCONT  
REV. P01

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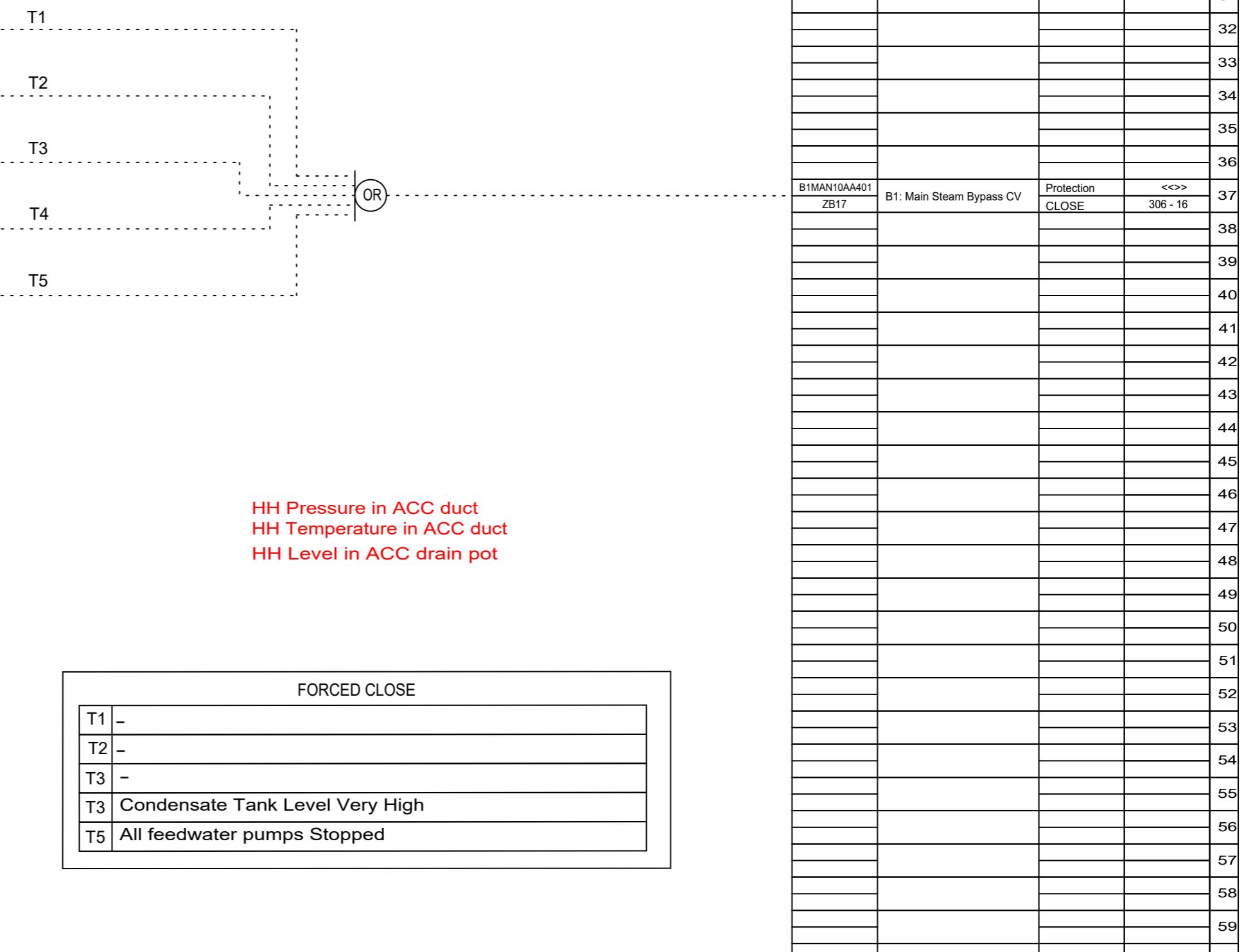
E

Control DiagramB1: Main Steam Bypass CV

|    | FROM            | DESCRIPTION                                  | CODE                    |
|----|-----------------|--|-------------------------|
| 1  |                 |  |                         |
| 2  |                 |  |                         |
| 3  |                 |  |                         |
| 4  |                 |  |                         |
| 5  |                 |  |                         |
| 6  |                 |  |                         |
| 7  |                 |  |                         |
| 8  | <>><br>706 - 34 | Condensate Tank Lvl                          | HH B0LCA10CL901<br>ZB03 |
| 9  |                 |  |                         |
| 10 | <>><br>708 - 32 | Feedwater FSG Sel<br>At least 1 pump running | B0LAC10EA002<br>ZB90    |
| 11 |                 |  |                         |
| 12 |                 |  |                         |
| 13 |                 |  |                         |
| 14 |                 |  |                         |
| 15 |                 |  |                         |
| 16 |                 |  |                         |
| 17 |                 |  |                         |
| 18 |                 |  |                         |
| 19 |                 |  |                         |
| 20 |                 |  |                         |
| 21 |                 |  |                         |
| 22 |                 |  |                         |
| 23 |                 |  |                         |
| 24 |                 |  |                         |
| 25 |                 |  |                         |
| 26 |                 |  |                         |
| 27 |                 |  |                         |
| 28 |                 |  |                         |
| 29 |                 |  |                         |
| 30 |                 |  |                         |

|             |              |
|-------------|--------------|
| LOOP:       | B1MAN10AA401 |
| LOOP SHEET: |              |

| MODIFICATIONS |             |      |       |
|---------------|-------------|------|-------|
| REV.          | DESCRIPTION | DATE | DRAWN |
|               |             |      |       |

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[QR]



PROJECT

NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE

B1: Main Steam Bypass CV

FORMAT  
A3

SCALE

NLWA CODE: SHEET 306.ECONT  
CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE: REV. P01

A

B

C

D

E

A

B

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D

E

**Control Diagram****B1: MS Byp Attemp Fltr DP**

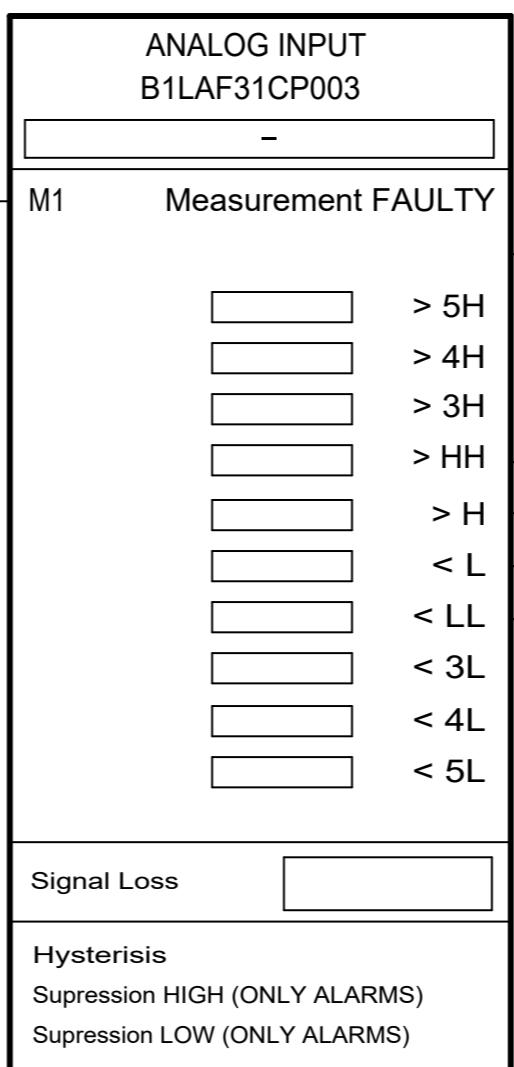
| 1  | FROM                      | DESCRIPTION                   | CODE |
|----|---------------------------|-------------------------------|------|
| 2  |                           |                               |      |
| 3  |                           |                               |      |
| 4  |                           |                               |      |
| 5  |                           |                               |      |
| 6  |                           |                               |      |
| 7  |                           |                               |      |
| 8  |                           |                               |      |
| 9  |                           |                               |      |
| 10 |                           |                               |      |
| 11 | B1: MS Byp Attemp Fltr DP | xtrmr<br>B1LAF31CP003<br>XQ01 |      |
| 12 |                           |                               |      |
| 13 |                           |                               |      |
| 14 |                           |                               |      |
| 15 |                           |                               |      |
| 16 |                           |                               |      |
| 17 |                           |                               |      |
| 18 |                           |                               |      |
| 19 |                           |                               |      |
| 20 |                           |                               |      |
| 21 |                           |                               |      |
| 22 |                           |                               |      |
| 23 |                           |                               |      |
| 24 |                           |                               |      |
| 25 |                           |                               |      |
| 26 |                           |                               |      |
| 27 |                           |                               |      |
| 28 |                           |                               |      |
| 29 |                           |                               |      |
| 30 |                           |                               |      |

|             |              |
|-------------|--------------|
| LOOP:       | B1LAF31CP003 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| CODE         | DESCRIPTION               | TO          |
|--------------|---------------------------|-------------|
|              |                           | 31          |
|              |                           | 32          |
|              |                           | 33          |
|              |                           | 34          |
|              |                           | 35          |
|              |                           | 36          |
|              |                           | 37          |
|              |                           | 38          |
|              |                           | 39          |
|              |                           | 40          |
| B1LAF31CP003 | B1: MS Byp Attemp Fltr DP | Measurement |
| XM35         |                           | FAULTY      |
| B1LAF31CP003 | B1: MS Byp Attemp Fltr DP | xtrmr       |
| XQ01         |                           |             |
|              |                           | 41          |
|              |                           | 42          |
|              |                           | 43          |
|              |                           | 44          |
|              |                           | 45          |
|              |                           | 46          |
|              |                           | 47          |
|              |                           | 48          |
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|              |                           | 50          |
|              |                           | 51          |
|              |                           | 52          |
|              |                           | 53          |
|              |                           | 54          |
|              |                           | 55          |
|              |                           | 56          |
|              |                           | 57          |
|              |                           | 58          |
|              |                           | 59          |
|              |                           | 60          |



Notes:

1. The logic depicted in this page should be replicated for equipment in Boiler line 2.

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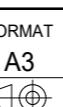
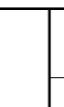
[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE

**B1: MS Byp Attemp Fltr DP**INTERNAL CODE:  
NLWA CODE:  
CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604SHEET 310 CONT  
REV. P01  
INTERNAL CODE:

A

B

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D

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A

B

C

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E

**Control Diagram****B1: MS Bypass Attemp Flow**

| 1  | FROM                        | DESCRIPTION | CODE                  |
|----|-----------------------------|-------------|-----------------------|
| 2  |                             |             |                       |
| 3  |                             |             |                       |
| 4  |                             |             |                       |
| 5  |                             |             |                       |
| 6  |                             |             |                       |
| 7  |                             |             |                       |
| 8  |                             |             |                       |
| 9  | B1: MS Bypass Attemp Flow 1 | xtmr        | B1LAF31CF001A<br>XQ01 |
| 10 | B1: MS Bypass Attemp Flow 2 | xtmr        | B1LAF31CF001B<br>XQ01 |
| 11 |                             |             |                       |
| 12 |                             |             |                       |
| 13 |                             |             |                       |
| 14 |                             |             |                       |
| 15 |                             |             |                       |
| 16 |                             |             |                       |
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| 27 |                             |             |                       |
| 28 |                             |             |                       |
| 29 |                             |             |                       |
| 30 |                             |             |                       |

|             |              |
|-------------|--------------|
| LOOP:       | B1LAF31CF901 |
| LOOP SHEET: |              |

| MODIFICATIONS |             |      |       |
|---------------|-------------|------|-------|
| REV.          | DESCRIPTION | DATE | DRAWN |
|               |             |      |       |

| CODE         | DESCRIPTION               | TO                |
|--------------|---------------------------|-------------------|
|              |                           | 31                |
|              |                           | 32                |
|              |                           | 33                |
|              |                           | 34                |
|              |                           | 35                |
|              |                           | 36                |
|              |                           | 37                |
| B1LAF31CF901 | B1: MS Bypass Attemp Flow | Measurement <>>   |
| XM35         |                           | FAULTY 302.A - 29 |
| B1LAF31CF901 | B1: MS Bypass Attemp Flow | Measurement       |
| XM35         |                           | FAULTY            |
| B1LAF31CF901 | B1: MS Bypass Attemp Flow | xtmr              |
| XQ01         |                           |                   |
| B1LAF31CF901 | B1: MS Bypass Attemp Flow | xtmr <>>          |
| XQ01         |                           | 312.A - 05        |
|              |                           | 41                |
|              |                           | 42                |
|              |                           | 43                |
|              |                           | 44                |
|              |                           | 45                |
|              |                           | 46                |
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|              |                           | 49                |
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|              |                           | 53                |
|              |                           | 54                |
|              |                           | 55                |
|              |                           | 56                |
|              |                           | 57                |
|              |                           | 58                |
|              |                           | 59                |
|              |                           | 60                |

**1oo2 Voting DCS**  
**B1LAF31CF901**

-

|                               |                    |
|-------------------------------|--------------------|
| M1                            | Measurement FAULTY |
| M2                            | Average Value      |
| > 5H                          |                    |
| > 4H                          |                    |
| > 3H                          |                    |
| > HH                          |                    |
| > H                           |                    |
| < L                           |                    |
| < LL                          |                    |
| < 3L                          |                    |
| < 4L                          |                    |
| < 5L                          |                    |
| Default                       |                    |
| Monitoring Time Dev.          |                    |
| Perm. Deviation Warning       |                    |
| Perm. Deviation Action        |                    |
| Hysteresis                    |                    |
| Supression HIGH (ONLY ALARMS) |                    |
| Supression LOW (ONLY ALARMS)  |                    |

Notes:

- If "Measurement FAULTY" (XM35) alarm appears with the output selected during 60 seconds (adjustable time) the Max / Min value will be selected.
- The logic depicted in this page should be replicated for equipment in Boiler line 2.

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[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE

**B1: MS Bypass Attemp Flow**FORMAT  
**A3**SCALE  

|                  |                          |
|------------------|--------------------------|
| NLWA CODE:       | SHEET 312 CONT           |
| CONTRACTOR CODE: | NLHP-41XX-IE-DI-EAI-7604 |
| INTERNAL CODE:   | REV. P01                 |

A

B

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D

E

A

B

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D

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## Control Diagram

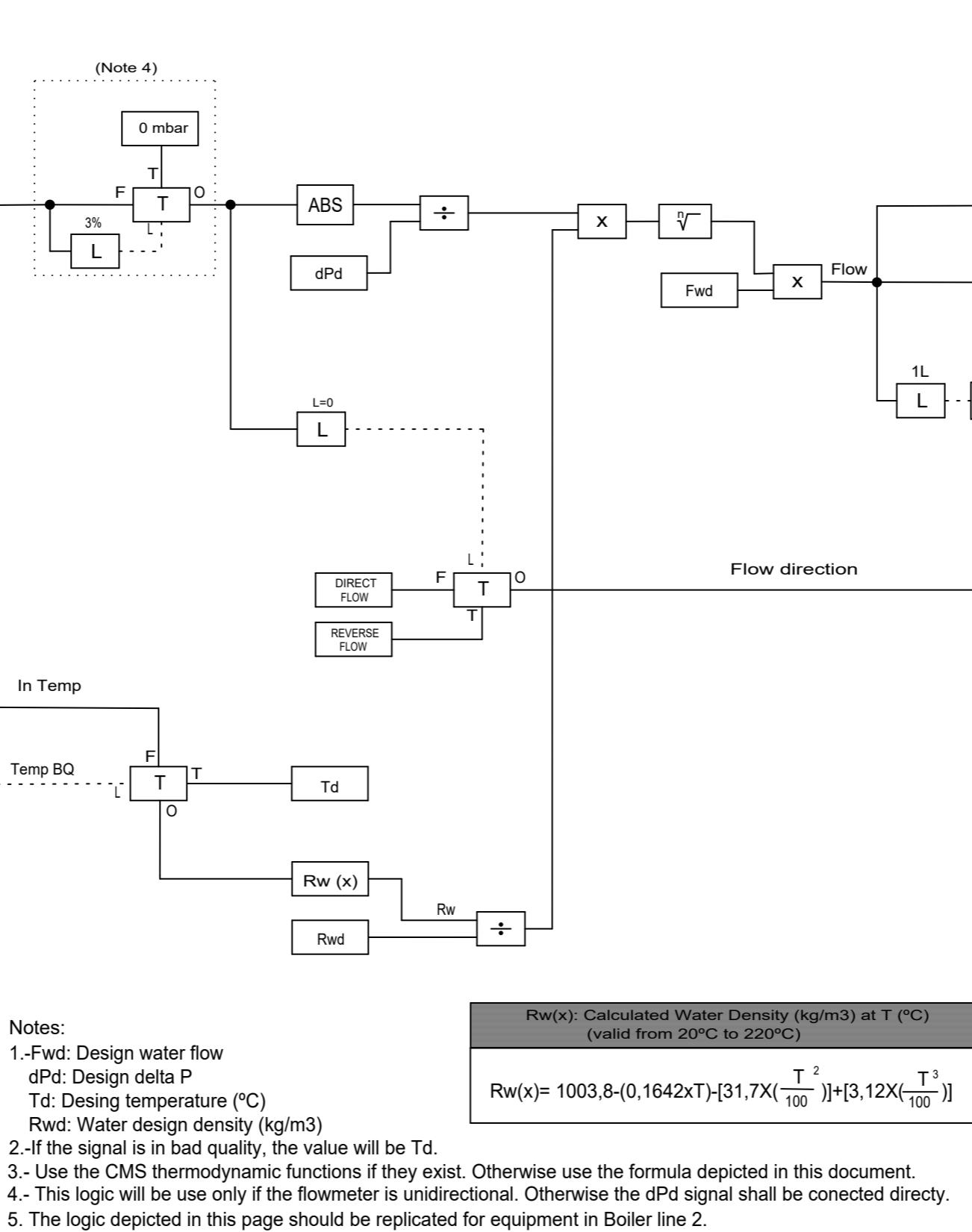
### B1: MS Bypass Attemp Flow

|    | FROM            | DESCRIPTION               | CODE  |
|----|-----------------|---------------------------|---|
| 1  |                 |                           |   |
| 2  |                 |                           |   |
| 3  |                 |                           |   |
| 4  |                 |                           |   |
| 5  | <>><br>312 - 41 | B1: MS Bypass Attemp Flow | xtmr<br>B1LAF31CF901<br>XQ01                  |
| 6  |                 |                           |   |
| 7  |                 |                           |   |
| 8  |                 |                           |   |
| 9  |                 |                           |   |
| 10 |                 |                           |   |
| 11 |                 |                           |   |
| 12 |                 |                           |   |
| 13 |                 |                           |   |
| 14 |                 |                           |   |
| 15 |                 |                           |   |
| 16 |                 |                           |   |
| 17 |                 |                           |   |
| 18 | <>><br>708 - 38 | FW Pmps IP Disch Temp     | xtmr<br>B0LAF30CT901<br>XQ01                  |
| 19 |                 |                           |   |
| 20 | <>><br>708 - 41 | FW Pmps IP Disch Temp     | Measurement<br>B0LAF30CT901<br>FAULTY<br>ZB35 |
| 21 |                 |                           |   |
| 22 |                 |                           |   |
| 23 |                 |                           |   |
| 24 |                 |                           |   |
| 25 |                 |                           |   |
| 26 |                 |                           |   |
| 27 |                 |                           |   |
| 28 |                 |                           |   |
| 29 |                 |                           |   |
| 30 |                 |                           |   |

LOOP: B1LAF31CF901  
LOOP SHEET:

## MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |



| CODE         | DESCRIPTION               | TO                |
|--------------|---------------------------|-------------------|
|              |                           | 31                |
|              |                           | 32                |
|              |                           | 33                |
|              |                           | 34                |
| B1LAF31CF901 | B1: MS Bypass Attemp Flow | flow value <>> 35 |
| ZQ10         |                           | 302.A - 18        |
|              |                           | 36                |
| B1LAF31CF901 | B1: MS Bypass Attemp Flow | flow value 37     |
| ZQ10         |                           |                   |
|              |                           | 38                |
| B1LAF31CF901 | B1: MS Bypass Attemp Flow | L <>> 40          |
| ZB52         |                           | 302.A - 27        |
|              |                           | 41                |
|              |                           | 42                |
|              |                           | 43                |
|              |                           | 44                |
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|              |                           | 59                |
|              |                           | 60                |

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CLIENT  
**North London Waste Authority**

CONTRACTOR  
**Acciona**

PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

DRAWING TITLE

B1: MS Bypass Attemp Flow

ISSUER  
**EMPRESARIOS AGRUPADOS**

FORMAT  
A3SCALE  

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 312.ACNT  
REV. P01

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**Control Diagram****B1: MS Byp Attemp CV Inl Press**

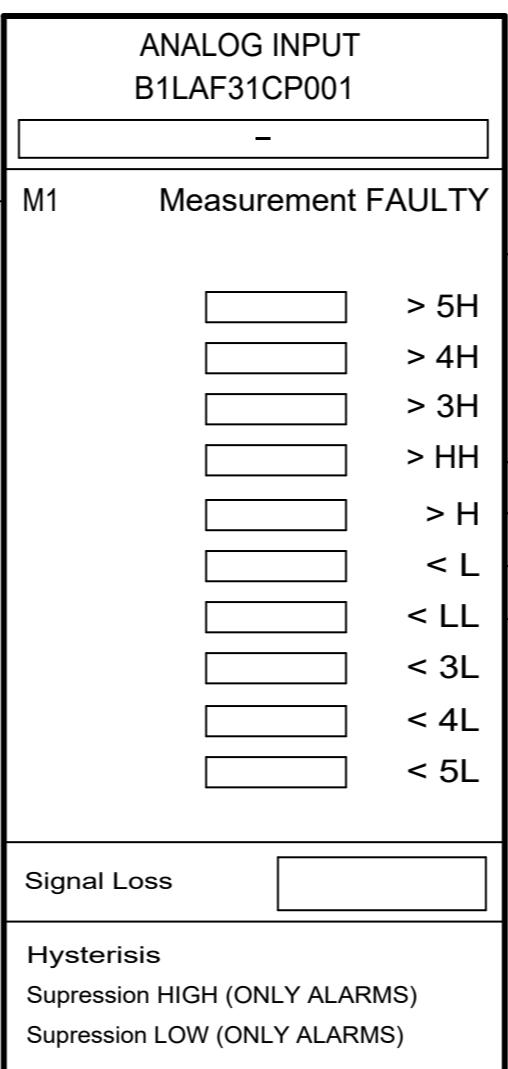
| FROM | DESCRIPTION                    | CODE                    |
|------|--------------------------------|-------------------------|
| 1    |                                |                         |
| 2    |                                |                         |
| 3    |                                |                         |
| 4    |                                |                         |
| 5    |                                |                         |
| 6    |                                |                         |
| 7    |                                |                         |
| 8    |                                |                         |
| 9    |                                |                         |
| 10   |                                |                         |
| 11   | B1: MS Byp Attemp CV Inl Press | xtrmr B1LAF31CP001 XQ01 |
| 12   |                                |                         |
| 13   |                                |                         |
| 14   |                                |                         |
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| 28   |                                |                         |
| 29   |                                |                         |
| 30   |                                |                         |

|             |              |
|-------------|--------------|
| LOOP:       | B1LAF31CP001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| CODE         | DESCRIPTION                    | TO          |
|--------------|--------------------------------|-------------|
|              |                                | 31          |
|              |                                | 32          |
|              |                                | 33          |
|              |                                | 34          |
|              |                                | 35          |
|              |                                | 36          |
|              |                                | 37          |
|              |                                | 38          |
|              |                                | 39          |
|              |                                | 40          |
| B1LAF31CP001 | B1: MS Byp Attemp CV Inl Press | Measurement |
| XM35         |                                | FAULTY      |
| B1LAF31CP001 | B1: MS Byp Attemp CV Inl Press | xtrmr       |
| XQ01         |                                |             |
|              |                                | 41          |
|              |                                | 42          |
|              |                                | 43          |
|              |                                | 44          |
|              |                                | 45          |
|              |                                | 46          |
|              |                                | 47          |
|              |                                | 48          |
|              |                                | 49          |
|              |                                | 50          |
|              |                                | 51          |
|              |                                | 52          |
|              |                                | 53          |
|              |                                | 54          |
|              |                                | 55          |
|              |                                | 56          |
|              |                                | 57          |
|              |                                | 58          |
|              |                                | 59          |
|              |                                | 60          |



Notes:

1. The logic depicted in this page should be replicated for equipment in Boiler line 2.

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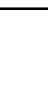
[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE

**B1: MS Byp Attemp CV Inl Press**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 314 CONT  
REV. P01

A

B

C

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E

A

B

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D

E

**Control Diagram****B1: MS Byp Attemp CV Outl Press**

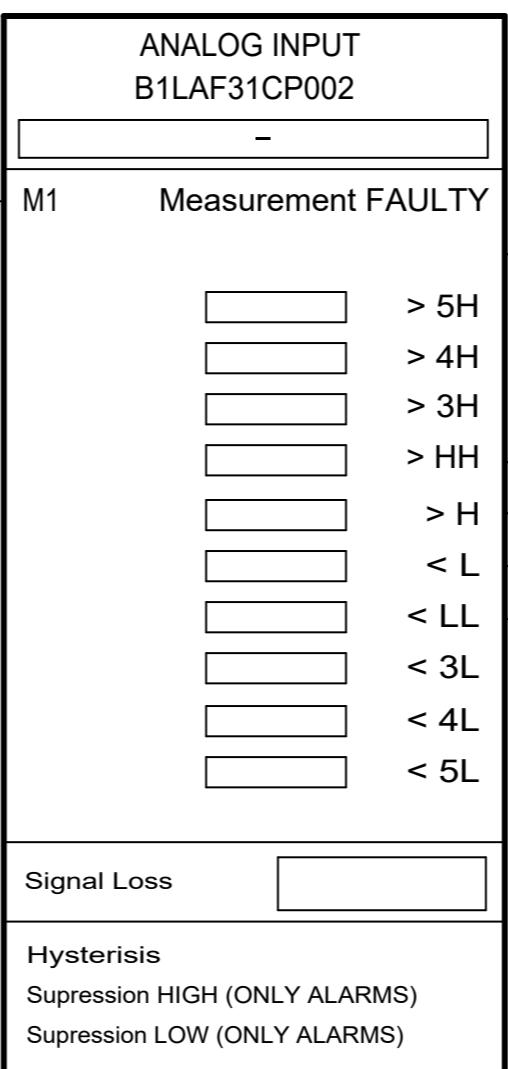
| FROM | DESCRIPTION                     | CODE                    |
|------|---------------------------------|-------------------------|
| 1    |                                 |                         |
| 2    |                                 |                         |
| 3    |                                 |                         |
| 4    |                                 |                         |
| 5    |                                 |                         |
| 6    |                                 |                         |
| 7    |                                 |                         |
| 8    |                                 |                         |
| 9    |                                 |                         |
| 10   |                                 |                         |
| 11   | B1: MS Byp Attemp CV Outl Press | xtrmr B1LAF31CP002 XQ01 |
| 12   |                                 |                         |
| 13   |                                 |                         |
| 14   |                                 |                         |
| 15   |                                 |                         |
| 16   |                                 |                         |
| 17   |                                 |                         |
| 18   |                                 |                         |
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| 21   |                                 |                         |
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| 24   |                                 |                         |
| 25   |                                 |                         |
| 26   |                                 |                         |
| 27   |                                 |                         |
| 28   |                                 |                         |
| 29   |                                 |                         |
| 30   |                                 |                         |

|             |              |
|-------------|--------------|
| LOOP:       | B1LAF31CP002 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| CODE         | DESCRIPTION                     | TO          |
|--------------|---------------------------------|-------------|
|              |                                 | 31          |
|              |                                 | 32          |
|              |                                 | 33          |
|              |                                 | 34          |
|              |                                 | 35          |
|              |                                 | 36          |
|              |                                 | 37          |
|              |                                 | 38          |
|              |                                 | 39          |
|              |                                 | 40          |
| B1LAF31CP002 | B1: MS Byp Attemp CV Outl Press | Measurement |
| XM35         |                                 | FAULTY      |
| B1LAF31CP002 | B1: MS Byp Attemp CV Outl Press | xtrmr       |
| XQ01         |                                 |             |
|              |                                 | 41          |
|              |                                 | 42          |
|              |                                 | 43          |
|              |                                 | 44          |
|              |                                 | 45          |
|              |                                 | 46          |
|              |                                 | 47          |
|              |                                 | 48          |
|              |                                 | 49          |
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|              |                                 | 51          |
|              |                                 | 52          |
|              |                                 | 53          |
|              |                                 | 54          |
|              |                                 | 55          |
|              |                                 | 56          |
|              |                                 | 57          |
|              |                                 | 58          |
|              |                                 | 59          |
|              |                                 | 60          |

**Notes:**

- The logic depicted in this page should be replicated for equipment in Boiler line 2.

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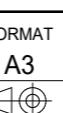
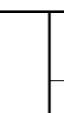
[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE

**B1: MS Byp Attemp CV Outl Press**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 316 CONT  
REV. P01

A

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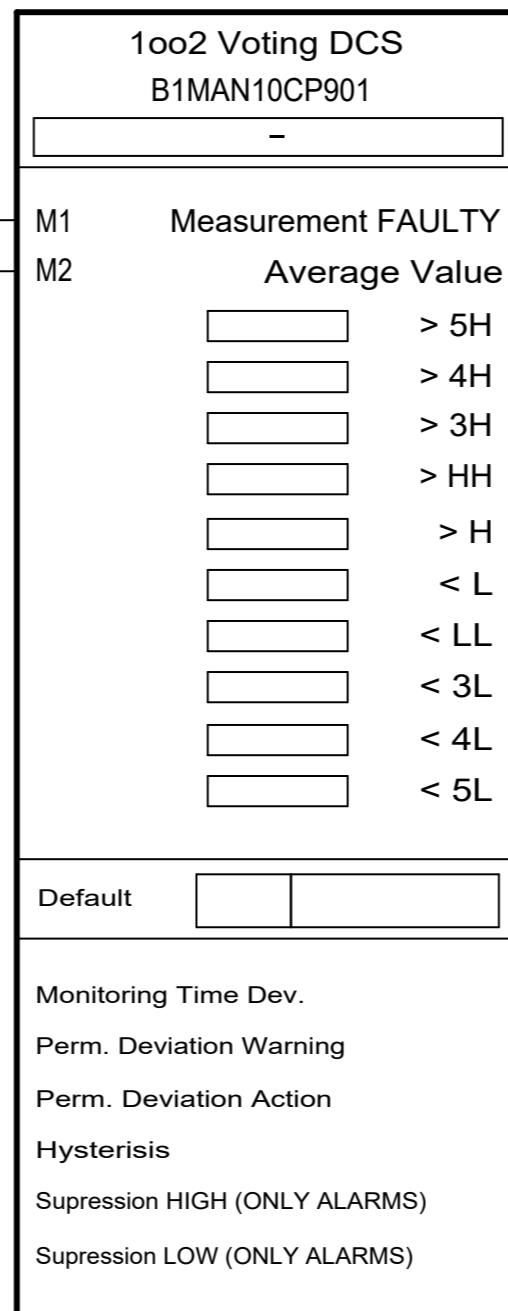
**Control Diagram****B1: MS Bypass to ACC Press**

| FROM | DESCRIPTION                | CODE                     |
|------|----------------------------|--------------------------|
| 1    |                            |                          |
| 2    |                            |                          |
| 3    |                            |                          |
| 4    |                            |                          |
| 5    |                            |                          |
| 6    |                            |                          |
| 7    |                            |                          |
| 8    |                            |                          |
| 9    | B1: MS Bypass to ACC Press | xtrmr B1MAN10CP001A XQ01 |
| 10   | B1: MS Bypass to ACC Press | xtrmr B1MAN10CP001B XQ01 |
| 11   |                            |                          |
| 12   |                            |                          |
| 13   |                            |                          |
| 14   |                            |                          |
| 15   |                            |                          |
| 16   |                            |                          |
| 17   |                            |                          |
| 18   |                            |                          |
| 19   |                            |                          |
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| 28   |                            |                          |
| 29   |                            |                          |
| 30   |                            |                          |

|             |              |
|-------------|--------------|
| LOOP:       | B1MAN10CP901 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |



Notes:

- If "Measurement FAULTY" (XM35) alarm appears with the output selected during 60 seconds (adjustable time) the Max / Min value will be selected.
- The logic depicted in this page should be replicated for equipment in Boiler line 2.

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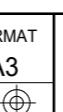
[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE

**B1: MS Bypass to ACC Press**

|  |                            |
|--|----------------------------|
| NLWA CODE:<br>CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604<br>INTERNAL CODE: | SHEET 318 CONT<br>REV. P01 |
|--|----------------------------|

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**Control Diagram**

B1: MS Bypass to ACC Temp

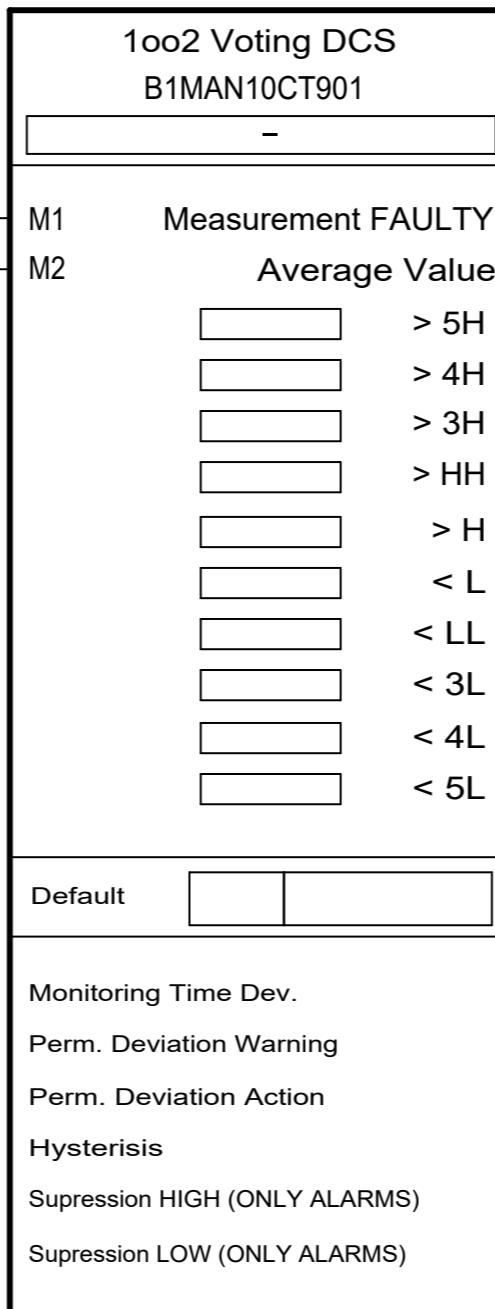
| FROM | DESCRIPTION                 | CODE                    |
|------|-----------------------------|-------------------------|
| 1    |                             |                         |
| 2    |                             |                         |
| 3    |                             |                         |
| 4    |                             |                         |
| 5    |                             |                         |
| 6    |                             |                         |
| 7    |                             |                         |
| 8    |                             |                         |
| 9    | B1: MS Bypass to ACC Temp 1 | xtmr B1MAN10CT001A XQ01 |
| 10   | B1: MS Bypass to ACC Temp 1 | xtmr B1MAN10CT001A XQ01 |
| 11   |                             |                         |
| 12   |                             |                         |
| 13   |                             |                         |
| 14   |                             |                         |
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|             |              |
|-------------|--------------|
| LOOP:       | B1MAN10CT901 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| CODE         | DESCRIPTION               | TO                |
|--------------|---------------------------|-------------------|
|              |                           | 31                |
|              |                           | 32                |
|              |                           | 33                |
|              |                           | 34                |
|              |                           | 35                |
|              |                           | 36                |
| B1MAN10CT901 | B1: MS Bypass to ACC Temp | Measurement <>>   |
| ZB35         |                           | FAULTY 302.A - 25 |
| B1MAN10CT901 | B1: MS Bypass to ACC Temp | Measurement <>>   |
| ZB35         |                           | FAULTY 302.A - 10 |
| B1MAN10CT901 | B1: MS Bypass to ACC Temp | Measurement       |
| XM35         |                           |                   |
| B1MAN10CT901 | B1: MS Bypass to ACC Temp | FAULTY            |
| XQ01         |                           | xtrm              |
| B1MAN10CT901 | B1: MS Bypass to ACC Temp | <>> 302.A - 07    |
| XQ01         |                           |                   |
| B1MAN10CT901 | B1: MS Bypass to ACC Temp | xtrm <>>          |
| XQ01         |                           | 302.A - 07        |
|              |                           | 41                |
|              |                           | 42                |
|              |                           | 43                |
|              |                           | 44                |
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|              |                           | 60                |



Notes:

- If "Measurement FAULTY" (XM35) alarm appears with the output selected during 60 seconds (adjustable time) the Max / Min value will be selected.
- The logic depicted in this page should be replicated for equipment in Boiler line 2.

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[QR]



PROJECT

NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE

B1: MS Bypass to ACC Temp

FORMAT  
A3

SCALE

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 320 CONT  
REV. P01

A

B

C

D

E

A

B

C

D

E

**Control Diagram**

Main Steam, Extract Aux Steam &amp; By-Pass System

B1: Air &amp; Flue Gas Exchrs FSG

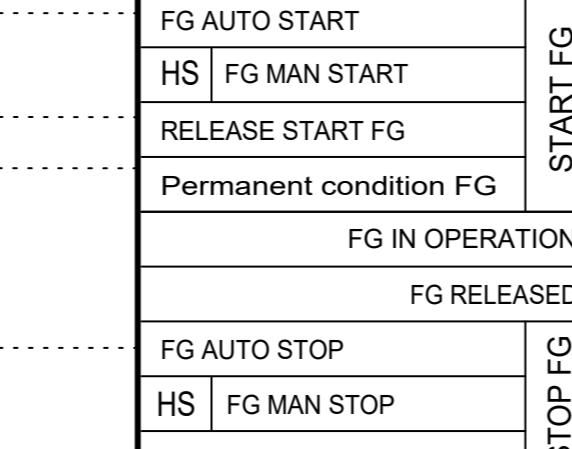
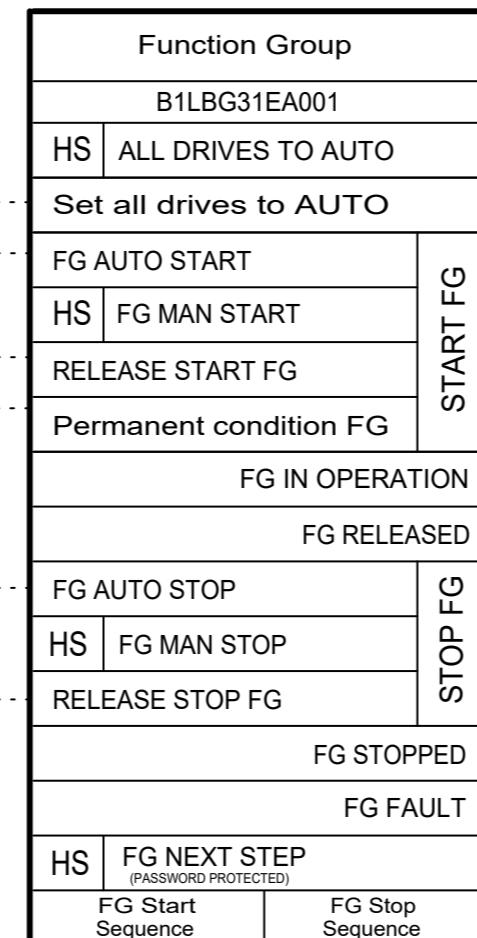
|             |              |
|-------------|--------------|
| LOOP:       | B1LBG31EA001 |
| LOOP SHEET: |              |

## MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

1

| FROM | DESCRIPTION                           | CODE  |
|------|---------------------------------------|---|
| 1    |                                       |   |
| 2    |                                       |   |
| 3    |                                       |   |
| 4    |                                       |   |
| 5    |                                       |   |
| 6    |                                       |   |
| 7    |                                       |   |
| 8    |                                       |   |
| 9    |                                       |   |
| 10   |                                       |   |
| 11   |                                       |   |
| 12   | <>><br>10 - 37<br>Steam and Bypass FG | All drives<br>to Auto<br>BOLBA10EA001<br>ZB13 |
| 13   | <>><br>10 - 45<br>Steam and Bypass FG | FG<br>in operation<br>BOLBA10EA001<br>ZB21    |
| 14   |                                       |   |
| 15   |                                       | ZB45  |
| 16   |                                       | ZB50  |
| 17   |                                       |   |
| 18   |                                       |   |
| 19   |                                       |   |
| 20   | <>><br>10 - 57<br>Steam and Bypass FG | FG Stopped<br>BOLBA10EA001<br>ZB22            |
| 21   |                                       |   |
| 22   |                                       |   |
| 23   |                                       |   |
| 24   |                                       |   |
| 25   |                                       |   |
| 26   |                                       |   |
| 27   |                                       |   |
| 28   |                                       |   |
| 29   |                                       |   |
| 30   |                                       |   |



## Notes:

1. Auto Order cross reference to Equipment 2, not depicted in logic control diagrams.
2. Feedback cross reference from Equipment 2, not depicted in logic control diagrams.  
To be replicated when programming
3. The logic depicted in this page should be replicated for equipment in Boiler line 2.

| CODE         | DESCRIPTION                   | TO                 |
|--------------|-------------------------------|--------------------|
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 31                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 32                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 33                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 34                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 35                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 36                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 37                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 38                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 39                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 40                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 41                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 42                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 43                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 44                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | All drives to Auto |
| ZB13         |                               | 45                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | FG <>>             |
| ZB21         | in operation                  | 400.B - 29         |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | FG Released <>>    |
| ZB25         |                               | 10 - 06            |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG | FG Fault           |
| XM35         |                               | 54                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG |                    |
|              |                               | 55                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG |                    |
|              |                               | 56                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG |                    |
|              |                               | 57                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG |                    |
|              |                               | 58                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG |                    |
|              |                               | 59                 |
| B1LBG31EA001 | B1: Air & Flue Gas Exchrs FSG |                    |
|              |                               | 60                 |

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[QR]



PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

ISSUER  
  
EMPRESARIOS AGRUPADOS

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**B1: Air & Flue Gas Exchrs FSG**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 400 CONT  
INTERNAL CODE:  
REV. P01

A

B

C

D

E

A

B

C

D

E

**Control Diagram**

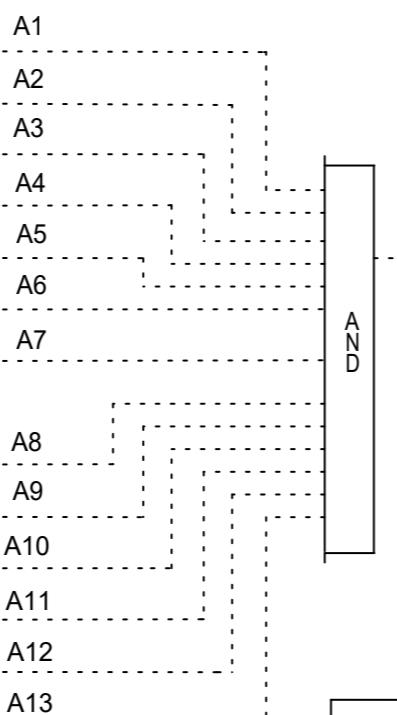
Main Steam, Extract Aux Steam & By-Pass System  
B1: Air & Flue Gas Exchrs FSG

|             |              |
|-------------|--------------|
| LOOP:       | B1LBG31EA001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| 1  | FROM | DESCRIPTION | CODE |
|----|------|-------------|------|
| 1  |      |             |      |
| 2  |      |             |      |
| 3  |      |             |      |
| 4  |      |             |      |
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| 14 |      |             |      |
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| 16 |      |             |      |
| 17 |      |             |      |
| 18 |      |             |      |
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| 21 |      |             |      |
| 22 |      |             |      |
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| 26 |      |             |      |
| 27 |      |             |      |
| 28 |      |             |      |
| 29 |      |             |      |
| 30 |      |             |      |



| ON PERMISSIVES |   |
|----------------|---|
| A1             | - |
| A2             | - |
| A3             | - |
| A4             | - |
| A5             | - |
| A6             | - |
| A7             | - |
| A8             | - |
| A9             | - |
| A10            | - |
| A11            | - |
| A12            | - |
| A13            | - |

**Notes:**

1. Auto Order cross reference to Equipment 2, not depicted in logic control diagrams.
2. Feedback cross reference from Equipment 2, not depicted in logic control diagrams.  
To be replicated when programming
3. The logic depicted in this page should be replicated for equipment in Boiler line 2.

| CODE | DESCRIPTION | TO |
|------|-------------|----|
|      |             | 31 |
|      |             | 32 |
|      |             | 33 |
|      |             | 34 |
|      |             | 35 |
| ZB45 |             | 36 |
|      |             | 37 |
|      |             | 38 |
|      |             | 39 |
|      |             | 40 |
|      |             | 41 |
|      |             | 42 |
|      |             | 43 |
|      |             | 44 |
|      |             | 45 |
|      |             | 46 |
|      |             | 47 |
|      |             | 48 |
|      |             | 49 |
|      |             | 50 |
|      |             | 51 |
|      |             | 52 |
|      |             | 53 |
|      |             | 54 |
|      |             | 55 |
|      |             | 56 |
|      |             | 57 |
|      |             | 58 |
|      |             | 59 |
|      |             | 60 |

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[QR]



PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

ISSUER



FORMAT

A3

SCALE



DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System**  
**B1: Air & Flue Gas Exchrs FSG**

NLWA CODE:

CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 400.ACNT

REV. P01

A

B

C

D

E

A

B

C

D

E

**Control Diagram**

Main Steam, Extract Aux Steam & By-Pass System  
B1: Air & Flue Gas Exchrs FSG

|             |              |
|-------------|--------------|
| LOOP:       | B1LBG31EA001 |
| LOOP SHEET: |              |

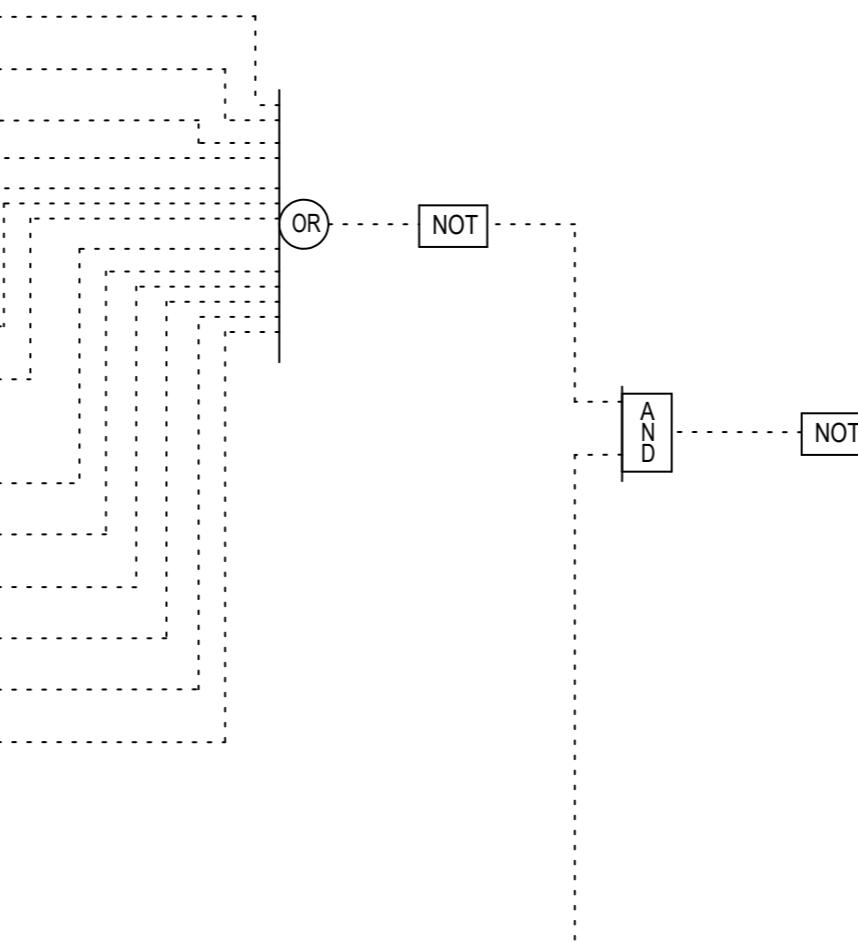
**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

|    | FROM            | DESCRIPTION   | CODE                 |
|----|-----------------|---|----------------------|
| 1  |                 |   |                      |
| 2  |                 |   |                      |
| 3  |                 |   |                      |
| 4  |                 |   |                      |
| 5  |                 |   |                      |
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| 8  |                 |   |                      |
| 9  |                 |   |                      |
| 10 |                 |   |                      |
| 11 |                 |   |                      |
| 12 |                 |   |                      |
| 13 |                 |   |                      |
| 14 |                 |   |                      |
| 15 |                 |   |                      |
| 16 |                 |   |                      |
| 17 |                 |   |                      |
| 18 |                 |   |                      |
| 19 |                 |   |                      |
| 20 |                 |   |                      |
| 21 |                 |   |                      |
| 22 |                 |   |                      |
| 23 |                 |   |                      |
| 24 |                 |   |                      |
| 25 |                 |   |                      |
| 26 |                 |   |                      |
| 27 |                 |   |                      |
| 28 |                 |   |                      |
| 29 | <>><br>400 - 46 | B1: Air & Flue Gas Exchrs FSG<br>FG<br>in operation | B1LBG31EA001<br>ZB21 |
| 30 |                 |   |                      |

**Notes:**

1. Auto Order cross reference to Equipment 2, not depicted in logic control diagrams.
2. Feedback cross reference from Equipment 2, not depicted in logic control diagrams.  
To be replicated when programming
3. The logic depicted in this page should be replicated for equipment in Boiler line 2.



| CODE | DESCRIPTION | TO |
|------|-------------|----|
|      |             | 31 |
|      |             | 32 |
|      |             | 33 |
|      |             | 34 |
|      |             | 35 |
|      |             | 36 |
|      |             | 37 |
|      |             | 38 |
|      |             | 39 |
|      |             | 40 |
|      |             | 41 |
|      |             | 42 |
|      |             | 43 |
|      |             | 44 |
|      |             | 45 |
|      |             | 46 |
|      |             | 47 |
|      |             | 48 |
| ZB50 |             | 49 |
|      |             | 50 |
|      |             | 51 |
|      |             | 52 |
|      |             | 53 |
|      |             | 54 |
|      |             | 55 |
|      |             | 56 |
|      |             | 57 |
|      |             | 58 |
|      |             | 59 |
|      |             | 60 |

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**ISSUER  
**EMPRESARIOS AGRUPADOS**

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System  
B1: Air & Flue Gas Exchrs FSG**

|                  |                          |
|------------------|--------------------------|
| NLWA CODE:       | SHEET 400.BCONT          |
| CONTRACTOR CODE: | NLHP-41XX-IE-DI-EAI-7604 |
| INTERNAL CODE:   | REV. P01                 |

A

B

C

D

E

A

B

C

D

E

**Control Diagram**

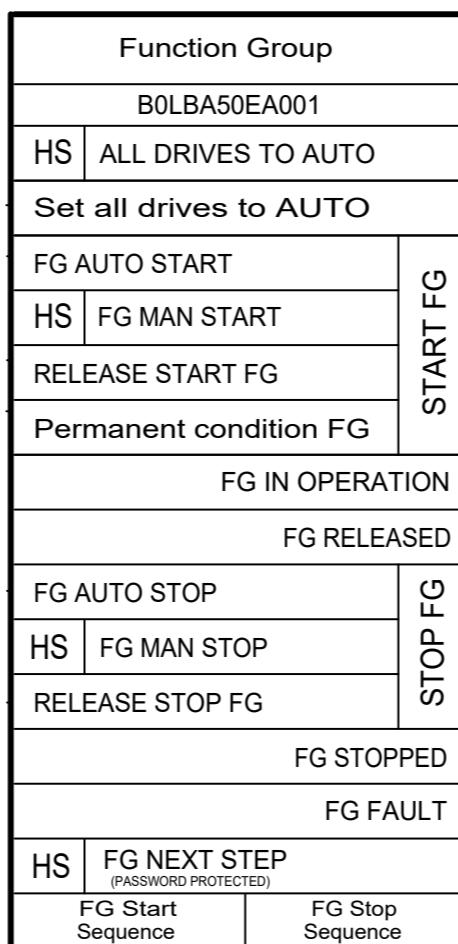
Main Steam, Extract Aux Steam & By-Pass System  
Ejectors Attemperation FSG

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA50EA001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

| FROM | DESCRIPTION                          | CODE  |
|------|--------------------------------------|---|
| 1    |                                      |   |
| 2    |                                      |   |
| 3    |                                      |   |
| 4    |                                      |   |
| 5    |                                      |   |
| 6    |                                      |   |
| 7    |                                      |   |
| 8    |                                      |   |
| 9    |                                      |   |
| 10   |                                      |   |
| 11   |                                      |   |
| 12   | <><br>10 - 39<br>Steam and Bypass FG | All drives<br>to Auto<br>BOLBA10EA001<br>ZB13 |
| 13   | <><br>10 - 47<br>Steam and Bypass FG | FG<br>in operation<br>BOLBA10EA001<br>ZB21    |
| 14   |                                      |   |
| 15   |                                      | ZB45  |
| 16   |                                      | ZB50  |
| 17   |                                      |   |
| 18   |                                      |   |
| 19   |                                      |   |
| 20   | <><br>10 - 59<br>Steam and Bypass FG | FG Stopped<br>BOLBA10EA001<br>ZB22            |
| 21   |                                      |   |
| 22   |                                      |   |
| 23   |                                      |   |
| 24   |                                      |   |
| 25   |                                      |   |
| 26   |                                      |   |
| 27   |                                      |   |
| 28   |                                      |   |
| 29   |                                      |   |
| 30   |                                      |   |



= 1 =

START FG

STOP FG

| CODE         | DESCRIPTION                | TO                 |
|--------------|----------------------------|--------------------|
|              |                            | 31                 |
|              |                            | 32                 |
|              |                            | 33                 |
|              |                            | 34                 |
|              |                            | 35                 |
| B0LBA50EA001 | Ejectors Attemperation FSG | All drives to Auto |
| ZB13         |                            | 36                 |
| B0LBA50EA001 | Ejectors Attemperation FSG | All drives to Auto |
| ZB13         |                            | 37                 |
| B0LBA50EA001 | Ejectors Attemperation FSG | All drives to Auto |
| ZB13         |                            | 38                 |
| B0LBA50EA001 | Ejectors Attemperation FSG | All drives to Auto |
| ZB13         |                            | 39                 |
| B0LBA50EA001 | Ejectors Attemperation FSG | All drives to Auto |
| ZB13         |                            | 40                 |
| B0LBA50EA001 | Ejectors Attemperation FSG | All drives to Auto |
| ZB13         |                            | 41                 |
|              |                            | 42                 |
|              |                            | 43                 |
|              |                            | 44                 |
|              |                            | 45                 |
|              |                            | 46                 |
|              |                            | 47                 |
| B0LBA50EA001 | Ejectors Attemperation FSG | FG Released <>     |
| ZB25         |                            | 48                 |
|              |                            | 10 - 08            |
|              |                            | 49                 |
|              |                            | 50                 |
|              |                            | 51                 |
|              |                            | 52                 |
|              |                            | 53                 |
| B0LBA50EA001 | Ejectors Attemperation FSG | FG Fault           |
| XM35         |                            | 54                 |
|              |                            | 55                 |
|              |                            | 56                 |
|              |                            | 57                 |
|              |                            | 58                 |
|              |                            | 59                 |
|              |                            | 60                 |

**Notes:**

1. Auto Order cross reference to Equipment 2, not depicted in logic control diagrams.
2. Feedback cross reference from Equipment 2, not depicted in logic control diagrams.  
To be replicated when programming
3. The logic depicted in this page should be replicated for equipment in Boiler line 2.

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**PROJECT****NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
  
EMPRESARIOS AGRUPADOS

**DRAWING TITLE****Main Steam, Extract Aux Steam & By-Pass System  
Ejectors Attemperation FSG**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 500 CONT  
REV. P01

A

B

C

D

E

A

B

C

D

E

**Control Diagram**

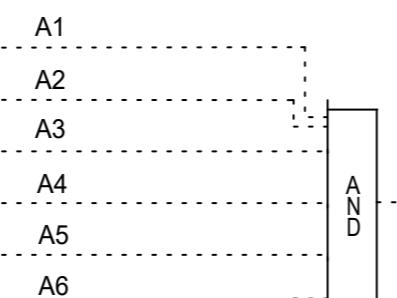
Main Steam, Extract Aux Steam & By-Pass System  
Ejectors Attemperation FSG

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA50EA001 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

|    | FROM                       | DESCRIPTION        | CODE                 |
|----|----------------------------|--------------------|----------------------|
| 1  |                            |                    |                      |
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| 23 |                            |                    |                      |
| 24 |                            |                    |                      |
| 25 |                            |                    |                      |
| 26 |                            |                    |                      |
| 27 |                            |                    |                      |
| 28 |                            |                    |                      |
| 29 | Ejectors Attemperation FSG | FG<br>in operation | B0LBA50EA001<br>ZB21 |
| 30 |                            |                    |                      |



| ON PERMISSIVES |   |
|----------------|---|
| A1             | - |
| A2             | - |
| A3             | - |
| A4             | - |
| A5             | - |
| A6             | - |

**Notes:**

1. Auto Order cross reference to Equipment 2, not depicted in logic control diagrams.
2. Feedback cross reference from Equipment 2, not depicted in logic control diagrams.  
To be replicated when programming

| CODE | DESCRIPTION | TO |
|------|-------------|----|
|      |             | 31 |
|      |             | 32 |
|      |             | 33 |
|      |             | 34 |
| ZB45 |             | 35 |
|      |             | 36 |
|      |             | 37 |
|      |             | 38 |
|      |             | 39 |
|      |             | 40 |
|      |             | 41 |
|      |             | 42 |
|      |             | 43 |
|      |             | 44 |
|      |             | 45 |
|      |             | 46 |
|      |             | 47 |
|      |             | 48 |
|      |             | 49 |
|      |             | 50 |
| ZB50 |             | 51 |
|      |             | 52 |
|      |             | 53 |
|      |             | 54 |
|      |             | 55 |
|      |             | 56 |
|      |             | 57 |
|      |             | 58 |
|      |             | 59 |
|      |             | 60 |

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[QR]



PROJECT

**NORTH LONDON HEAT  
AND POWER PROJECT**

ISSUER



FORMAT

A3

SCALE



**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**Ejectors Attemperation FSG**

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604

SHEET 500.ACNT

INTERNAL CODE:

REV. P01

A

B

C

D

E

## Notes:

1. Cross references pending. To be received from ST System.

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## PROJECT

## NORTH LONDON HEAT AND POWER PROJECT

DRAWING TITLE  
**Main Steam, Extract Aux Steam & By-Pass System**  
**Interface MS, Extractions, Aux Steam & Bypass - Steam Turbine**

NLWA CODE:

SHEET 703 - CONT

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

REV. P01

INTERNAL CODE:

REV. P01

A

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E

**Control Diagram****Main Steam, Extract Aux Steam & By-Pass System****Interface MS, Extractions, Aux Steam & Bypass - Boiler**

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA00EA007 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

|    | FROM    | DESCRIPTION | CODE |
|----|---------|-------------|------|
| 1  |         |             |      |
| 2  |         |             |      |
| 3  |         |             |      |
| 4  | PENDING |             |      |
|    | PENDING |             |      |
| 5  |         |             |      |
| 6  |         |             |      |
| 7  |         |             |      |
| 8  |         |             |      |
| 9  |         |             |      |
| 10 |         |             |      |
| 11 |         |             |      |
| 2  | 12      |             |      |
| 13 |         |             |      |
| 14 |         |             |      |
| 15 |         |             |      |
| 16 |         |             |      |
| 17 |         |             |      |
| 18 |         |             |      |
| 19 |         |             |      |
| 20 |         |             |      |
| 3  | 21      |             |      |
| 22 |         |             |      |
| 23 |         |             |      |
| 24 |         |             |      |
| 25 |         |             |      |
| 26 |         |             |      |
| 27 |         |             |      |
| 28 |         |             |      |
| 29 |         |             |      |
| 4  | 30      |             |      |

**Notes:**

1. Cross references pending. To be received from Boiler System.

| CODE | DESCRIPTION | TO |
|------|-------------|----|
|      |             | 31 |
|      |             | 32 |
|      |             | 33 |
|      |             | 34 |
|      |             | 35 |
|      |             | 36 |
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|      |             | 60 |

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PROJECT

**NORTH LONDON HEAT AND POWER PROJECT**

DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System**  
**Interface MS, Extractions, Aux Steam & Bypass - Boiler**



FORMAT

A3

SCALE



NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 704 CONT

REV. P01

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**Control Diagram****Main Steam, Extract Aux Steam & By-Pass System****Interface MS, Extractions, Aux Steam & Bypass - ACC**

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA00EA008 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

|    | FROM    | DESCRIPTION         | CODE            |
|----|---------|---------------------|-----------------|
| 1  |         |                     |                 |
| 2  |         |                     |                 |
| 3  |         |                     |                 |
| 4  | PENDING | Condensate Tank Lvl | HH B0LCA10CL901 |
|    | PENDING |                     | ZB03            |
| 5  |         |                     |                 |
| 6  |         |                     |                 |
| 7  |         |                     |                 |
| 8  |         |                     |                 |
| 9  |         |                     |                 |
| 10 |         |                     |                 |
| 11 |         |                     |                 |
| 12 |         |                     |                 |
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| 14 |         |                     |                 |
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| 21 |         |                     |                 |
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| 26 |         |                     |                 |
| 27 |         |                     |                 |
| 28 |         |                     |                 |
| 29 |         |                     |                 |
| 30 |         |                     |                 |

| CODE         | DESCRIPTION         | TO               |
|--------------|---------------------|------------------|
|              |                     | 31               |
|              |                     | 32               |
|              |                     | 33               |
| B0LCA10CL901 | Condensate Tank Lvl | HH <> 306.E - 08 |
| ZB03         |                     |                  |
|              |                     | 35               |
|              |                     | 36               |
|              |                     | 37               |
|              |                     | 38               |
|              |                     | 39               |
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|              |                     | 59               |
|              |                     | 60               |

**Notes:**

1. Cross references pending. To be received from ACC System.

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CLIENT



CONTRACTOR



PROJECT

**NORTH LONDON HEAT  
AND POWER PROJECT**

DRAWING TITLE

**Main Steam, Extract Aux Steam & By-Pass System  
Interface MS, Extractions, Aux Steam & Bypass - ACC**

ISSUER



FORMAT

A3

SCALE

NLWA CODE:

CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604

INTERNAL CODE:

SHEET 706 CONT

REV. P01

A

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**Control Diagram****Main Steam, Extract Aux Steam & By-Pass System****Interface MS, Extractions, Aux Steam & Bypass - Feedwater**

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA00EA010 |
| LOOP SHEET: |              |

**MODIFICATIONS**

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

|    | FROM                                       | DESCRIPTION                                    | CODE                 |
|----|--|--|----------------------|
| 1  |  |  |                      |
| 2  | NPE7-EAI-41XX-XXX-PP-XA-007606<br>20 - 59  | Feedwater FSG Sel<br>At least 1 pump running   | B0LAC10EA002<br>ZB90 |
| 3  |  |  |                      |
| 4  |  |  |                      |
| 5  | NPE7-EAI-41XX-XXX-PP-XA-007606<br>200 - 34 | Deaerator Press<br>xtmr                        | B0LAA10CP901<br>XQ01 |
| 6  |  |  |                      |
| 7  |  |  |                      |
| 8  | NPE7-EAI-41XX-XXX-PP-XA-007606<br>175 - 43 | FW Pmps IP Disch Temp<br>xtmr                  | B0LAF30CT901<br>XQ01 |
| 9  |  |  |                      |
| 10 |  |  |                      |
| 11 | NPE7-EAI-41XX-XXX-PP-XA-007606<br>175 - 36 | FW Pmps IP Disch Temp<br>Measurement<br>FAULTY | B0LAF30CT901<br>ZB35 |
| 12 |  |  |                      |
| 13 |  |  |                      |
| 14 |  |  |                      |
| 15 |  |  |                      |
| 16 |  |  |                      |
| 17 |  |  |                      |
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| 29 |  |  |                      |
| 30 |  |  |                      |

Notes:

1. Signals should be replicated for equipment in Boiler line 2.

| CODE                 | DESCRIPTION                                    | TO                |
|----------------------|--|-------------------|
|                      |  | 31                |
| B0LAC10EA002<br>ZB90 | Feedwater FSG Sel<br>At least 1 pump running   | <>><br>306.E - 10 |
|                      |  | 32                |
|                      |  | 33                |
|                      |  | 34                |
| B0LAA10CP901<br>XQ01 | Deaerator Press<br>xtmr                        | <>><br>184.A - 08 |
|                      |  | 35                |
|                      |  | 36                |
|                      |  | 37                |
| B0LAF30CT901<br>XQ01 | FW Pmps IP Disch Temp<br>xtmr                  | <>><br>312.A - 18 |
|                      |  | 38                |
| B0LAF30CT901<br>XQ01 | FW Pmps IP Disch Temp<br>xtmr                  | <>><br>302.B - 13 |
|                      |  | 39                |
| B0LAF30CT901<br>ZB35 | FW Pmps IP Disch Temp<br>Measurement<br>FAULTY | <>><br>312.A - 20 |
|                      |  | 41                |
| B0LAF30CT901<br>ZB35 | FW Pmps IP Disch Temp<br>Measurement<br>FAULTY | <>><br>302.B - 14 |
|                      |  | 42                |
|                      |  | 43                |
|                      |  | 44                |
|                      |  | 45                |
|                      |  | 46                |
|                      |  | 47                |
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|                      |  | 60                |

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**PROJECT****NORTH LONDON HEAT AND POWER PROJECT**

ISSUER  
**EMPRESARIOS AGRUPADOS**

**DRAWING TITLE**  
**Main Steam, Extract Aux Steam & By-Pass System**  
**Interface MS, Extractions, Aux Steam & Bypass - Feedwater**

|   |                |
|---|----------------|
| NLWA CODE:                                | SHEET 708 CONT |
| CONTRACTOR CODE: NLHP-41XX-IE-DI-EAI-7604 | REV. P01       |
| INTERNAL CODE:                            |                |

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**Control Diagram**

Main Steam, Extract Aux Steam & By-Pass System  
Drain Pot Logic

|    | FROM | DESCRIPTION | CODE |
|----|------|-------------|------|
| 1  |      |             |      |
| 2  |      |             |      |
| 3  |      |             |      |
| 4  |      |             |      |
| 5  |      |             |      |
| 6  |      |             |      |
| 7  |      |             |      |
| 8  |      |             |      |
| 9  |      |             |      |
| 10 |      |             |      |
| 11 |      |             |      |
| 12 |      |             |      |
| 13 |      |             |      |
| 14 |      |             |      |
| 15 |      |             |      |
| 16 |      |             |      |
| 17 |      |             |      |
| 18 |      |             |      |
| 19 |      |             |      |
| 20 |      |             |      |
| 21 |      |             |      |
| 22 |      |             |      |
| 23 |      |             |      |
| 24 |      |             |      |
| 25 |      |             |      |
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| 30 |      |             |      |

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA10AA999 |
| LOOP SHEET: |              |

## MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

**Control con Tsat + B1 / B2 in operation**

| Drain Pot | Valve        | Pressure        | Temperature Sensor |
|-----------|--------------|-----------------|--------------------|
| B1LBA10   | B1LBA10AA302 | B1LBA10CP001A/B | B1LBA10CT001       |
| B2LBA10   | B2LBA10AA302 | B2LBA10CP001A/B | B2LBA10CT001       |
| B0LBA10   | B0LBA10AA302 | B0LBA10CP002    | B0LBA10CT003       |
| B0LBW10   | B0LBW10AA301 | B0LBW10CP001    | B0LBW10CT002       |

This table describes what instrumentation needs each Pot that required Temperature Sensor

The logic to be applied is the same as used in B1LBA10 Drain Pot

**Control con Tsat + B1 / B2 in operation + Avg P1 P2**

| Drain Pot  | Valve        | Pressure   | Temperature Sensor |
|------------|--------------|--|--------------------|
| B0LBA30 #1 | B0LBA30AA303 | B1LBA10CP001A / B1LBA10CP001B<br>B2LBA10CP001A / B2LBA10CP001B | B0LBA30CT004       |
| B0LBA30 #2 | B0LBA30AA304 | B1LBA10CP001A / B1LBA10CP001B<br>B2LBA10CP001A / B2LBA10CP001B | B0LBA30CT005       |
| B0LBA31 #1 | B0LBA31AA302 | B1LBA10CP001A / B1LBA10CP001B<br>B2LBA10CP001A / B2LBA10CP001B | B0LBA31CT004       |
| B0LBA31 #2 | B0LBA31AA303 | B1LBA10CP001A / B1LBA10CP001B<br>B2LBA10CP001A / B2LBA10CP001B | B0LBA31CT005       |

This table describes what instrumentation needs each Pot that required Temperature Sensor

The logic to be applied is the same as used in B0LBA30 #1 Drain Pot

**Control con Tsat + ST in operation**

| Drain Pot  | Valve        | Pressure     | Temperature Sensor |
|------------|--------------|--------------|--------------------|
| B0LBD10 #1 | B0LBD10AA303 | B0LBD10CP001 | B0LBD10CT002       |
| B0LBD20    | B0LBD20AA303 | B0LBD20CP001 | B0LBD20CT002       |
| B0LBD10 #2 | B0LBD10AA304 | B0LBD10CP002 | B0LBD10CT004       |
| B0LBD10 #3 | B0LBD10AA305 | B0LBD10CP002 | B0LBD10CT005       |
| B0LBG10    | B0LBG10AA301 | B0LBD20CP001 | B0LBG10CT004       |

This table describes what instrumentation needs each Pot that required Temperature Sensor

The logic to be applied is the same as used in B0LBD10 Drain Pot

| CODE | DESCRIPTION | TO |
|------|-------------|----|
|      |             | 31 |
|      |             | 32 |
|      |             | 33 |
|      |             | 34 |
|      |             | 35 |
|      |             | 36 |
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PROJECT

NORTH LONDON HEAT  
AND POWER PROJECT

ISSUER



FORMAT



SCALE



DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
Drain Pot Logic

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 900 CONT  
REV. P01

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**Control Diagram**

Main Steam, Extract Aux Steam & By-Pass System  
Drain Pot Logic

|    | FROM | DESCRIPTION | CODE |
|----|------|-------------|------|
| 1  |      |             |      |
| 2  |      |             |      |
| 3  |      |             |      |
| 4  |      |             |      |
| 5  |      |             |      |
| 6  |      |             |      |
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| 27 |      |             |      |
| 28 |      |             |      |
| 29 |      |             |      |
| 30 |      |             |      |

|             |              |
|-------------|--------------|
| LOOP:       | B0LBA10AA999 |
| LOOP SHEET: |              |

## MODIFICATIONS

| REV. | DESCRIPTION | DATE | DRAWN | CHECKED | APPROVED |
|------|-------------|------|-------|---------|----------|
|      |             |      |       |         |          |

Control con Tsat

| Drain Pot | Valve        | Pressure         | Temperature Sensor |
|-----------|--------------|------------------|--------------------|
| B0LBG20   | B0LBG20AA302 | B0LBG10CP001/002 | B0LBG20CT001       |
| B0LBG30   | B0LBG30AA301 | B0LBG30CP001A/B  | B0LBG30CT001       |
| B1LBG30   | B1LBG30AA302 | B0LBG30CP001A/B  | B1LBG30CT002       |
| B2LBG30   | B2LBG30AA302 | B0LBG30CP001A/B  | B2LBG30CT002       |
| B1LBA20   | B1LBA20AA301 | B1LBA10CP001A/B  | B1LBA20CT001       |
| B1MAN10   | B1MAN10AA301 | B1LBA10CP001A/B  | B1MAN10CT001       |
| B2LBA20   | B2LBA20AA301 | B2LBA10CP001A/B  | B2LBA20CT001       |
| B2MAN10   | B2MAN10AA301 | B2LBA10CP001A/B  | B2MAN10CT001       |
| -         | -            | -                | -                  |
| -         | -            | -                | -                  |
| -         | -            | -                | -                  |

This table describes what instrumentation needs each Pot that required Temperature Sensor  
The logic to be applied is the same as used in B0LBG20 Drain Pot

| Drain Pot | Valve        | Pressure     | Switches (High / High High) |
|-----------|--------------|--------------|-----------------------------|
| B0LBS10   | B0LBS10AA303 | B0LBS10CP001 | B0LBS10CL301 / B0LBS10CL302 |
| B0LBS20   | B0LBS20AA303 | B0LBS20CP001 | B0LBS20CL301 / B0LBS20CL302 |
| -         | -            | -            | -                           |
| -         | -            | -            | -                           |
|           |              |              |                             |
|           |              |              |                             |

This table describes what instrumentation needs each Pot that required High and High switch  
The logic to be applied is the same as used in B0LBS10 Drain Pot

| CODE | DESCRIPTION | TO |
|------|-------------|----|
|      |             | 31 |
|      |             | 32 |
|      |             | 33 |
|      |             | 34 |
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PROJECT

NORTH LONDON HEAT AND POWER PROJECT

ISSUER  
  
EMPRESARIOS AGRUPADOS

DRAWING TITLE  
Main Steam, Extract Aux Steam & By-Pass System  
Drain Pot Logic

NLWA CODE:  
CONTRACTOR CODE:NLHP-41XX-IE-DI-EAI-7604  
INTERNAL CODE:

SHEET 900.ACNT  
REV. P01

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