भारत हेवी इलेक्ट्रिकल्स लिमिटेड
(भारत सरकार का उपक्रम)
**Bharat Heavy Electricals Limited**
(A Govt. of India Undertaking)
Power Sector - Southern Region
New No.690 (Old No.474), Anna Salai,
Nandanam, Chennai–600 035.
Phone : 2433 0015 (10 Lines)
Grams : BHELPOWER

**BHEL PSSR SCT 1417** **DATE: 08.11.2010**

# CORRIGENDUM-1 TO TENDER NOTICE SCT 1417

**TENDER SPECIFICATION NO BHEL: PSSR: SCT: 1417**

**Sub: Construction of General civil works in Main Plant and other allied structures including architectural works for units 1&2 of 2 x 500 MW at Tuticorin Thermal Power Project, Tuticorin**

**DUE DATE EXTENDED AS BELOW:-**

| | |
|---|---|
| TENDER SALE CLOSES ON | : 18.11.2010 |
| DUE DATE & TIME FOR TENDER SUBMISSION | :19.11.2010,15.00 HRS. |
| DUE DATE & TIME FOR OPENING OF TECHNICAL BIDS | :19.11.2010,15.30 HRS |

**Clarifications sought by some of the bidders during Pre-bid meeting in the tender specification are furnished below for your information**

**Please visit www.bhel.com to view corrigendum**

**ALL OTHER CONDITIONS REMAIN UNCHANGED**.

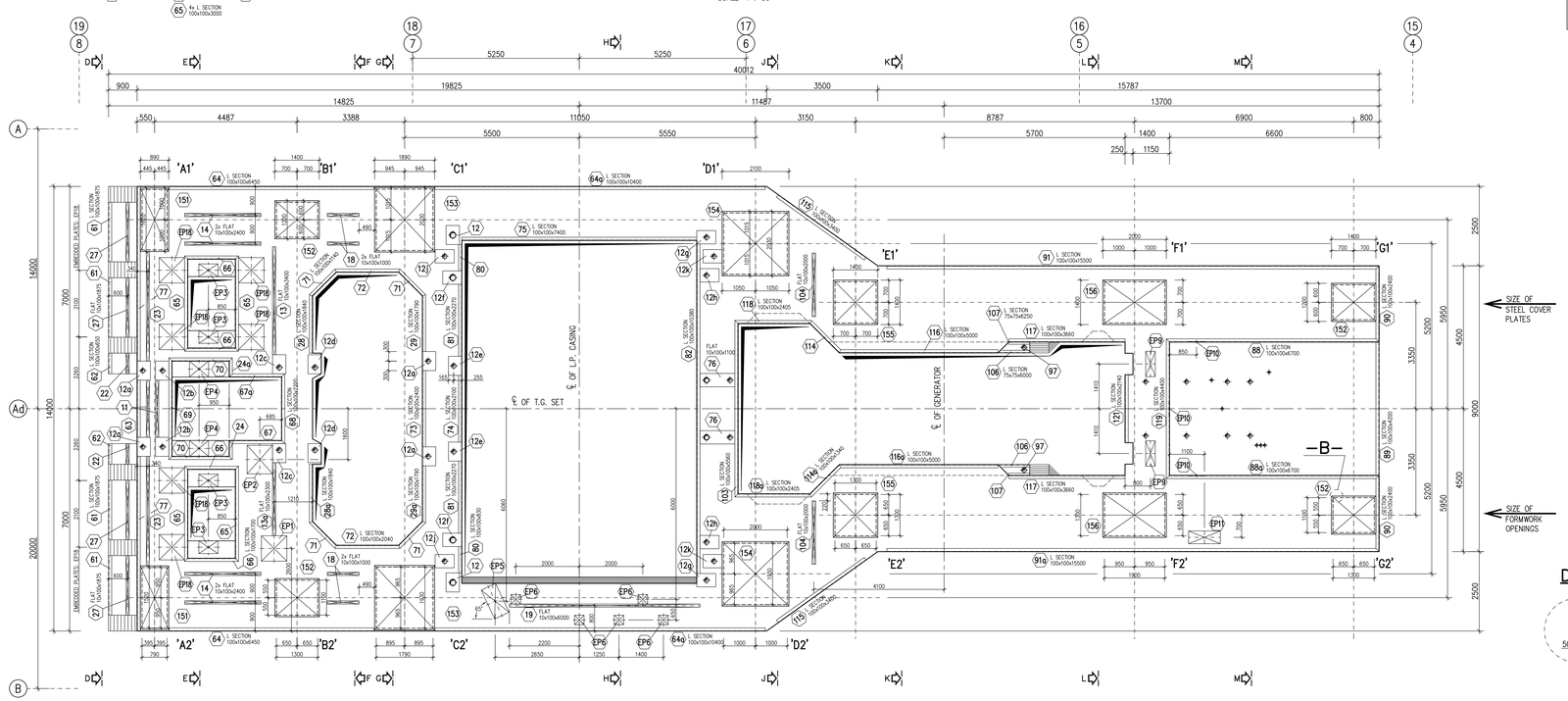
AGM / CONTRACTS
**BHEL/PSSR/CHENNAI**

**CORRIGENDUM-1 TO SCT 1417**

| TENDER SPECIFICATION BHEL PSSR SCT 1417 | | |
|---|---|---|
| **CLARIFICATIONS SOUGHT BY SOME OF THE BIDDERS IN PREBID DISCUSSIONS HELD AT BHEL PSSR ON 3/11/2010** | | |
| | | |
| SLNO | QUERY | BHEL CLARIFICATION |
| 1 | Order of precedence of documents for measurement of executed quantity may be provided | NTPL Technical specification prevails over BHEL specification for all technical details and BHEL Technical specification will be followed for measurements. |
| 2 | BOQ Item 909 Lock and Hydraulic closures will be measured under which item | As per BOQ item 911. ITEM 909 IS FOR ALUMINIUM WORKS. ITEM 911 IS FOR DOOR CLOSURES WITH ALL OTHER TYPES OF DOORS. |
| 3 | BOQ item 2426 ,Please specify the type of concrete | M20 |
| 4 | BOQ Item 1813 Provide the size of earth pit or provide the drawings | The Drawings attached below are for information only. This may undergo revision during execution. |
| 5 | Provide layout drawings | It can be referred during the office hours at this office. However the enclosed cross section of Main plant drawing for information only and this may undergo revision during execution. |
| 6 | Item 706 provide the spring size | Size of VIS and weight will be as per standard 500 mw power plant. The Drawings 57801-06E Rev 0,58222-02E Rev 0,58833-03E Rev 0, GA TDBFP N3869 -08 Rev o attached below are for information only. This may undergo revision during execution. |
| 7 | Item 705 provide the thickness/type of pipes for MS,PVC,UPVC | MS PIPE- MEDIUM CLASS<br>PVC/UPVC PIPES: CLASS:3 |
| 8 | Item 502 Provide the density of foam | 1-1.5 t/sqm |
| 9 | Item A 917 Please provide the thickness of MDF board | 12mm |
| 10 | Request to extend the bid submission by 15 days due to intervening festival holidays and collecting prices from sub vendors | Corrigendum issued above for due date extension. |

# BOTTOM VIEW EL +13.700 m

SCALE 1 : 50



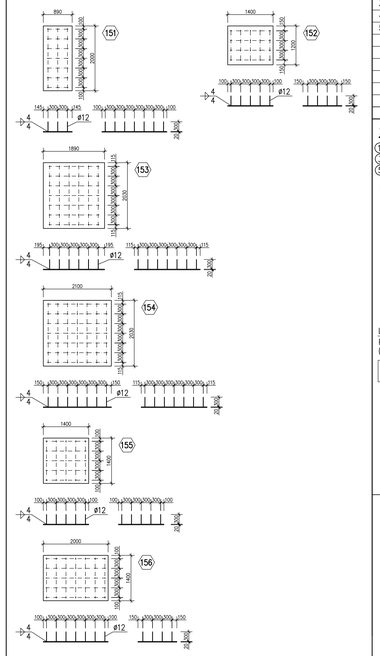

ALL MEASURES ARE "mm".
ELEVATIONS ARE "m".

▽ FINISHED LEVEL ▼ ROUGH CONCRETE

(350) COMPLEMENTARY DIMENSIONS

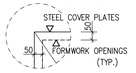
## EMBEDDMEND PARTS LIST

| ITEM No. | QTY | DESCRIPTION | | ANCHOR QTY ANCHOR ROD |
|---|---|---|---|---|
| (151) | 2 | STEEL COVER PLATE | 2000x890x20 | 279.460 kg 2x21 = 42ø12 L=300 |
| (152) | 4 | STEEL COVER PLATE | 1400x1200x20 | 263.760 kg 4x20 = 80ø12 L=300 |
| (153) | 2 | STEEL COVER PLATE | 2030x1890x20 | 602.362 kg 2x42 = 84ø12 L=300 |
| (154) | 2 | STEEL COVER PLATE | 2100x2030x20 | 669.291 kg 2x49 = 98ø12 L=300 |
| (155) | 2 | STEEL COVER PLATE | 1400x1400x20 | 307.720 kg 2x25 = 50ø12 L=300 |
| (156) | 2 | STEEL COVER PLATE | 2000x1400x20 | 439.600 kg 2x35 = 70ø12 L=300 |
| (-) | | | | |



## DETAIL -B-

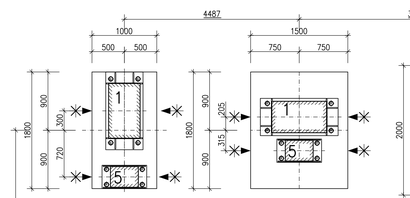
SCALE 1 : 10




## ARRANGEMENT OF SPRING ELEMENTS AND DIMENSIONS OF COLUMN HEADS EL +13.140m

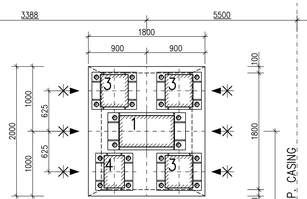
### COLUMN 'A1' and 'A2' / COLUMN 'B1' and 'B2'

(COLUMN 'A2' REFLECTED VERSION) (COLUMN 'B2' REFLECTED VERSION)



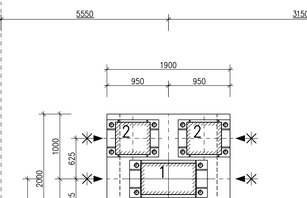
### COLUMN 'C1' and 'C2'

(COLUMN 'C2' REFLECTED VERSION)



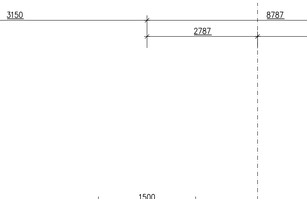
### COLUMN 'D1' and 'D2'

(COLUMN 'D2' REFLECTED VERSION)



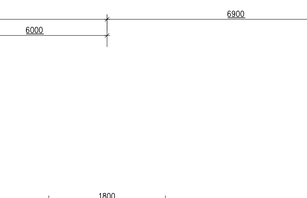
### COLUMN 'E1' and 'E2'

(COLUMN 'E2' REFLECTED VERSION)



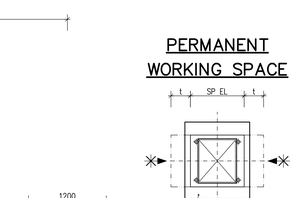
### COLUMN 'F1' and 'F2'

(COLUMN 'F2' REFLECTED VERSION)

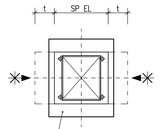


### COLUMN 'G1' and 'G2'

(COLUMN 'G2' REFLECTED VERSION)



## PERMANENT WORKING SPACE




SP EL= SPRING ELEMENTS
t = MIN. 300 mm
✱ = PERMANENT WORKING SPACE

| DSG.- PROJECT ENGINEERING MANAGEMENT(CIVIL) | |
|---|---|
| THIS DRAWING MARKED(✓) IS RELEASED FOR | |
| ☐ COMMENTS/APPROVAL | ☐ FABRICATION |
| ☐ PLANNING | ☐ INFORMATION |
| ☐ CONSTRUCTION | ☐ AS BUILT DRAWING |
| STAMP ALL PREVIOUS REVISION AS SUPERSEDED | |
| ISSUED BY | |
| NAME | |
| SIGNATURE | |
| DATE | |

## DESIGN COLUMN LOADS ( kN )

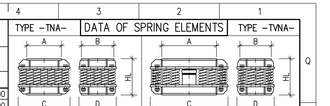
AT TOP OF COLUMNS

| | COLUMN | DESIGN LOAD (*1) |
|---|---|---|
| VERTICAL | A1 / A2 | 1988 |
| | B1 / B2 | 1988 |
| | C1 / C2 | 6178 |
| | D1 / D2 | 7042 |
| | E1 / E2 | 2290 |
| | F1 / F2 | 3586 |
| | G1 / G2 | 1988 |
| HORIZONTAL | A1 / A2 | 89 |
| | B1 / B2 | 90 |
| | C1 / C2 | 283 |
| | D1 / D2 | 327 |
| | E1 / E2 | 107 |
| | F1 / F2 | 160 |
| | G1 / G2 | 84 |

(*1) : VERTICAL LOADS = MAX. PERM. LOADS OF SPRING ELEMENTS
HORIZONTAL LOADS = 6 % OF VERTICAL LOAD
(DEAD LOAD FOUNDATION + MACHINE LOAD)

## DATA OF SPRING ELEMENTS

TYPE -TNA- TYPE -TVNA-



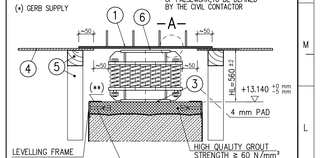
| ITEM | PCS. | TYPE | A mm | B mm | C mm | D mm | H mm | L mm | Kv kN/mm | Kh kN/mm | W kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 14 | TVNA | 845 | 485 | 1200 | 575 | 560 | | 37.8 | 7.56 | – |
| 2 | 6 | TNA–1 | 535 | 500 | 800 | 575 | 560 | | 47.25 | 9.45 | – |
| 3 | 10 | TNA–2 | 430 | 500 | 690 | 575 | 560 | | 40.5 | 8.10 | – |
| 4 | 6 | TNA–3 | 315 | 500 | 575 | 575 | 560 | | 33.75 | 6.75 | – |
| 5 | 6 | TNA–6 | 430 | 320 | 690 | 360 | 560 | | 24.3 | 4.86 | – |

H = LOADED HEIGHT W = WEIGHT PER ELEMENT A x B = PRESSURE AREA

## SETTING DETAILS FOR DECK SUPPORT SPRINGS

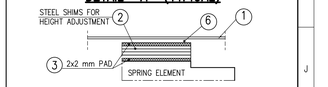
1. STEEL COVER PLATES WITH ANCHORS
2. STACK OF SHIMS AS REQD (*)
3. ADHESIVE PAD (*)
4. SOFFIT SHUTTERING
5. FALSEWORK
6. AIR GAP EQUAL TO COMPRESSION OF FALSEWORK,TO BE DEFINED BY THE CIVIL CONTACTOR

(*) GERB SUPPLY




(**) 75x75x6 PLATE TO BE WELDED AT FOUR CORNERS OF COLUMN HEAD

## DETAIL -A- (TYPICAL)




REFERENCE DRAWINGS:

| | | |
|---|---|---|
| E-57801-02-0 | GENERAL ARRANGEMENT PLAN | (GERB) |
| E-57801-03-0 | GENERAL ARRANGEMENT SECTION A-A, VIEW B-B AND C-C | (GERB) |
| E-57801-04-0 | GENERAL ARRANGEMENT VIEW D-D, SECTION E-E TO H-H, 1-1 AND 2-2 | (GERB) |
| E-57801-05-0 | GENERAL ARRANGEMENT VIEW N-N, O-O, SECTION J-J TO M-M | (GERB) |
| E-57801-07-0 | LIST OF EMBEDDED PARTS | (GERB) |
| E-57801-08-0 TO ... | REINFORCEMENT DRAWING | (GERB) |
| 0-13100-Q3152 | FOUNDATION PLAN | (BHEL DRAWING) |
| 0-13100-Q3153 | FOUNDATION PLAN | (BHEL DRAWING) |
| 0-13100-Q3154 | FOUNDATION PLAN | (BHEL DRAWING) |
| 1-13100-Q3155 | FOUNDATION PLAN | (BHEL DRAWING) |
| 2-13100-Q3156 | LIST OF EMBEDDED PARTS | (BHEL DRAWING) |

REVISION INDEX NOT INDICATED

IF IN DOUBT PLEASE CONTACT GERB.

| Index/Rev. | Datum/Date | Aenderung/Modification | ges./dm. | gepr./shd |
|---|---|---|---|---|


GERB Engineering GmbH
Ruhrallee 311 D-45136 Essen (Germany)
Phone +049-(0)201-26604-20
Fax +049-(0)201-26604-50
E-mail eng@gerb.de


Kunde/Client: BHARAT HEAVY ELECTRICALS LTD.

Titel/Drawing Title: GEN. ARRANGEMENT

Projekt: NLC TAMILNADU POWER LIMITED 2x500 MW POWER PLANT AT TUTICORIN

VIBRATION ISOLATION OF A STEAM TURBO GENERATOR FOUNDATION

Blatt/Structural Member: T/G-DECK FOUNDATION

ARRANGEMENT OF SPRING ELEMENTS AND STEEL COVER PLATES



Massstab/Scale: 1 : 25

| | Datum/Date | Name |
|---|---|---|
| gezeichnet/Drawn | 24.03.2010 | Bay |
| geprüft/Checked | 24.03.2010 | Gutberger |
| genehmigt/Approved | 24.03.2010 | Gutberger |

Zeichnungs Nr./Drawing No.: E-57801-06 0 0

PROJECT NLC TAMILNADU POWER LIMITED
2x500 MW POWER PLANT AT TUTICORIN

BHARAT HEAVY ELECTRICALS LTD POWER SECTOR PROJECT ENGINEERING MANAGEMENT NEW DELHI

| DEPT CODE | SIGN | NAME | SIGN | DATE |
|---|---|---|---|---|
| M | DSN | | | |
| | DRN | | | |
| | CHD | | | |
| | APPD | | | |

TITLE: GENERAL ARRANGEMENT OF T/G FOUNDATION
TOP DECK: ARRANGEMENT OF SPRING ELEMENTS

| MPL. | ELEC. | C&I | MSE | MAX |
|---|---|---|---|---|

DEPT. SIGN DATE

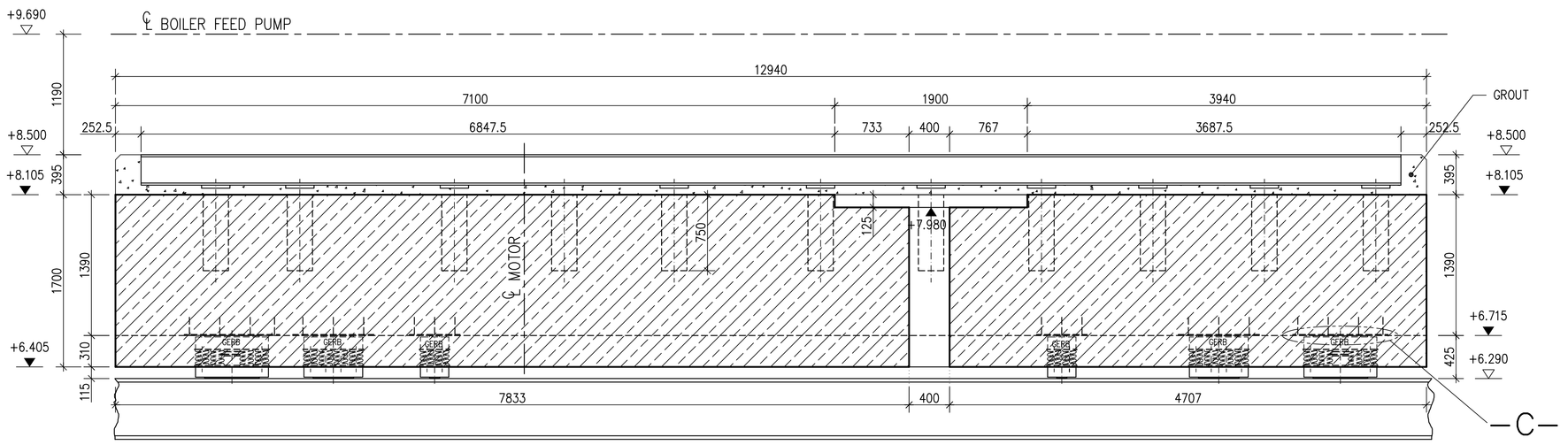
SCALE

DRAWING NO. PE-DG-331-613-C011

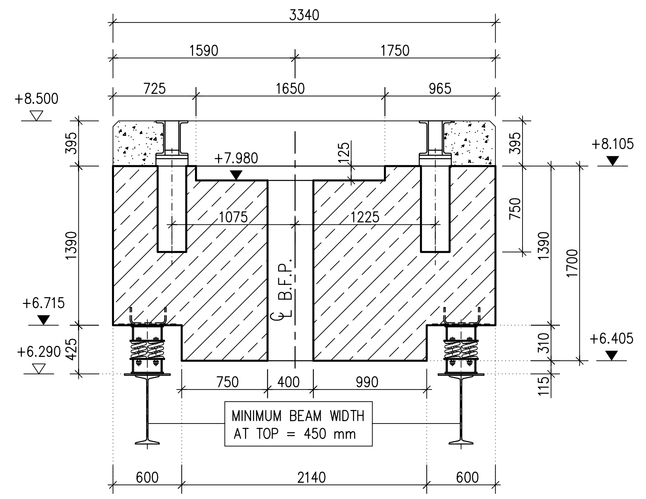
SHEET 1 OF 1 REV. 0

3301-06-Arr-Dwg

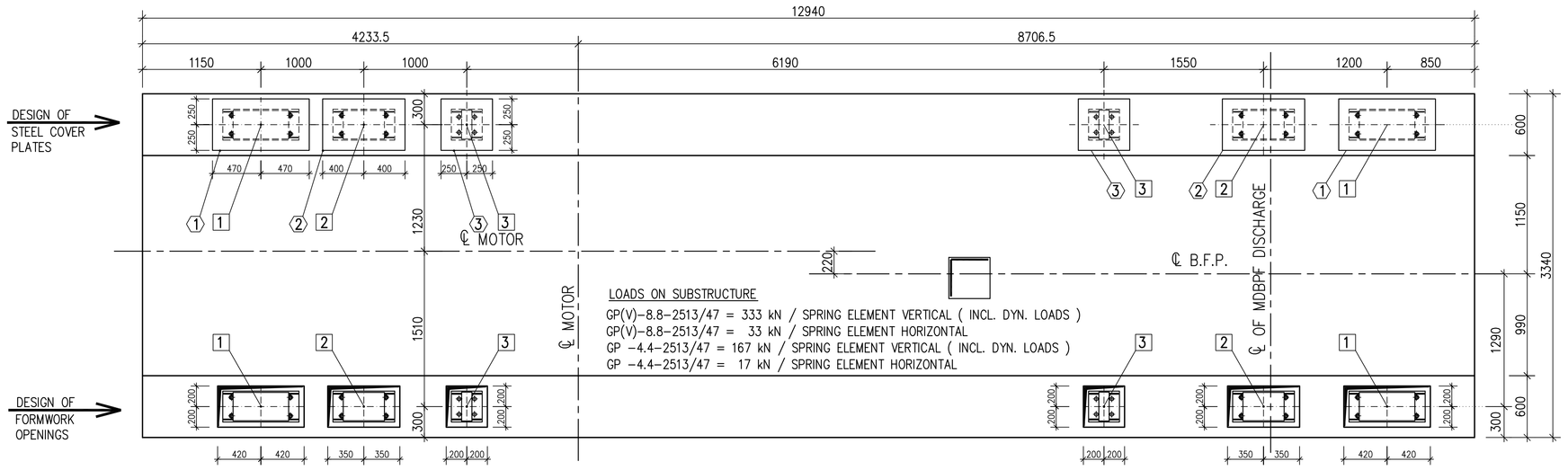
## SECTION A–A




## SECTION B –B

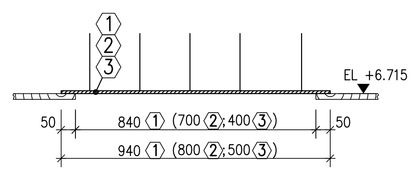



## ARRANGEMENT OF SPRING ELEMENTS
## PLAN – SOFFIT SHUTTERING EL +6.405M

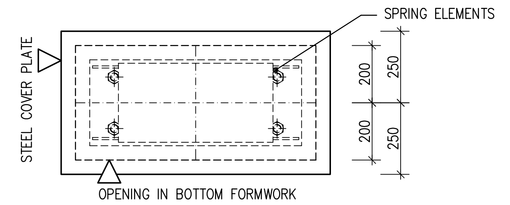



## DETAIL –C– (SCALE 1 : 10)

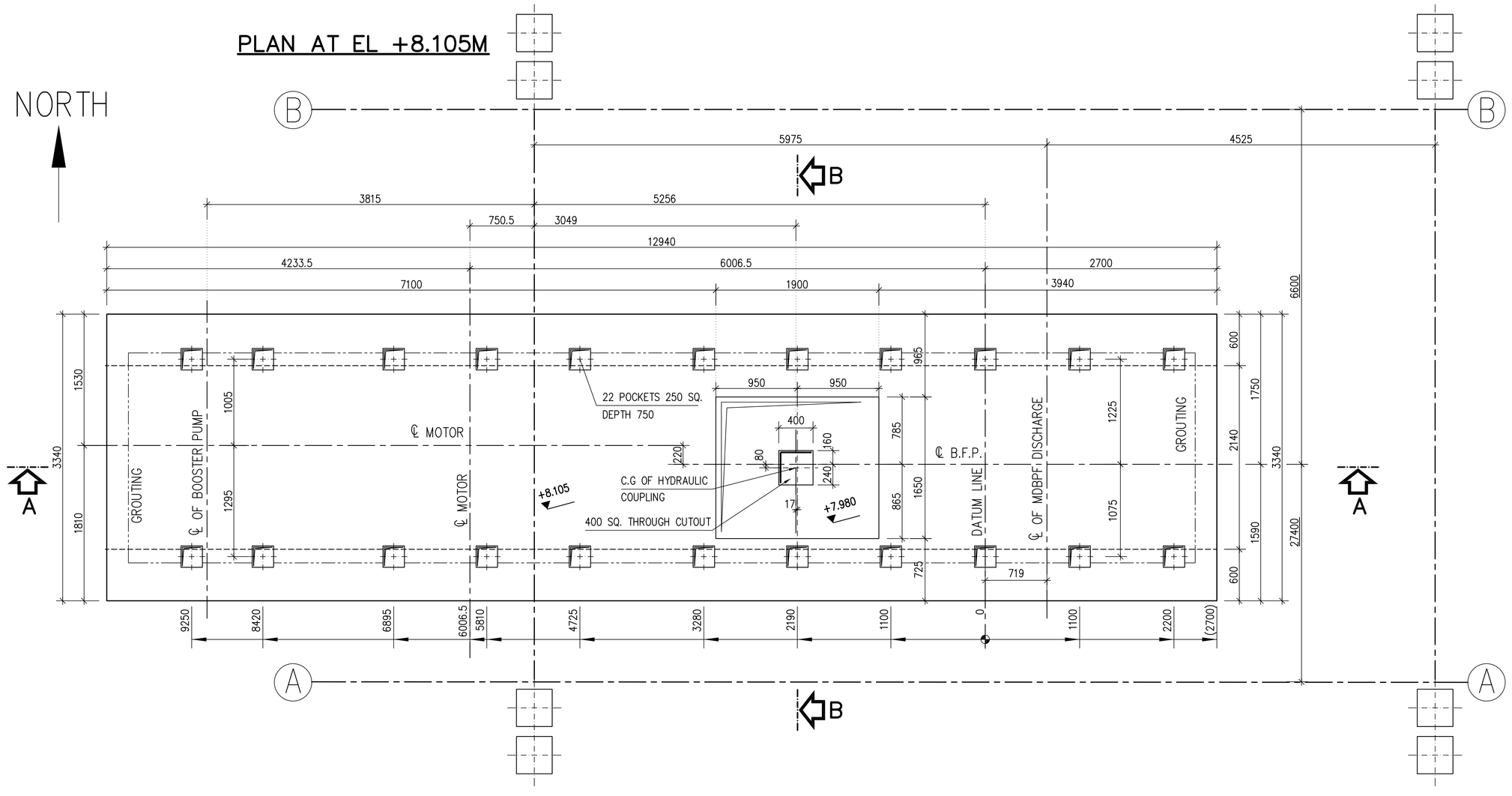
OPENING ABOVE SPRING ELEMENTS



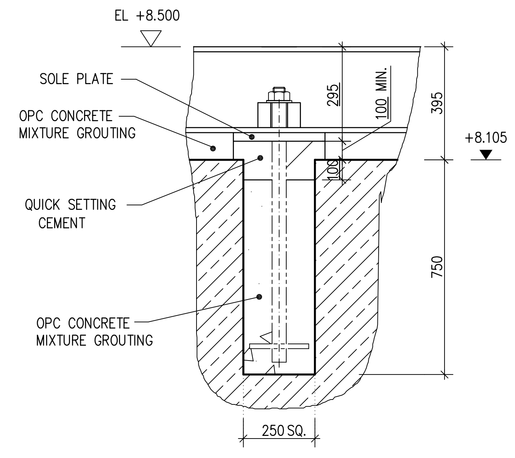

VIEW ON BOTTOM FORMWORK




## PLAN AT EL +8.105M

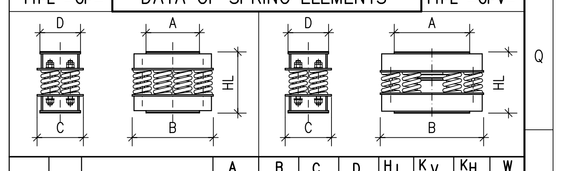



## TYPICAL FOUNDATION BOLT ARRANGEMENT FOR COMMON FOUNDATION FRAME SCALE 1 : 10



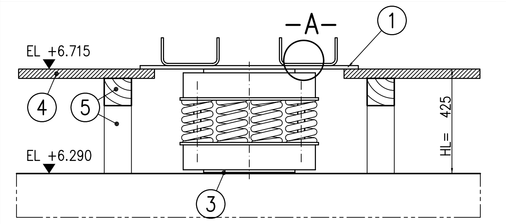

## DATA OF SPRING ELEMENTS

TYPE –GP– | TYPE –GPV–




| ITEM | PCS. | TYPE | A mm | B mm | C mm | D mm | $H_L$ mm | $K_V$ kN/mm | $K_H$ kN/mm | W kg |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4 | GPV–8.8–2513/47 | 540 | 740 | 300 | 280 | 425 | 7.09 | 4.38 | 185 |
| 2 | 4 | GP–8.8–2513/47 | 400 | 600 | 300 | 280 | 425 | 7.09 | 4.38 | 160 |
| 3 | 4 | GP–4.4–2513/47 | 125 | 300 | 300 | 280 | 425 | 3.54 | 2.19 | 81 |

$H_L$ = LOADED HEIGHT | W = WEIGHT PER ELEMENT | A x D = PRESSURE AREA

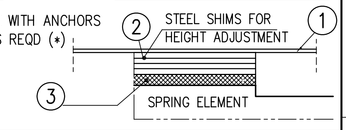



### SETTING DETAILS

1. STEEL COVER PLATE WITH ANCHORS
2. STACK OF SHIMS AS REQD (*)
3. ADHESIVE PAD (*)
4. SOFFIT SHUTTERING
5. SUPPORT

(*) GERB SUPPLY

### DETAIL –A– (TYPICAL)




### NOTES

GENERAL ARRANGEMENT OF MACHINE FOUNDATION IN THE BUILDING BY BHEL.

THE CORRECT HEIGHT OF THE FORMWORK FOR THE FOUNDATION BLOCK MUST BE RESPONSIBLY CHECKED BY THE SUPERVISOR ON SITE. ELEVATIONS REFER TO OPERATING CONDITION.
FOLLOW GERB CONSTRUCTION MANUAL!

TOLERANCES:

A) CONCRETE
- GENERAL: ±10 mm
- AT LOCATION OF SPRING ELEMENTS:
  - PER ELEMENT LENGTH: 2 mm
  - PER FOUNDATION LENGTH: 10 mm
  - VERT. SPACE BETWEEN SURFACES OF CONTACT: 3 mm

B) ANCHOR BOLTS, SLEEVES, HOLES, PIPES, ETC.,
- IF NOT NOTED OTHERWISE:
  - HORIZONTAL DISTANCE TO REFERENCE LINE: ± 5 mm
  - TILTING OF ANCHOR BOLTS, PIPES: 3 mm/m

EMBEDDED PARTS ARE TO BE SUPPLIED BY CIVIL CONTRACTOR UNLESS OTHERWISE NOTED. EMBEDMENTS TO BE PLACED AND CHECKED ACCORDING TO THIS DRAWING. THEY SHALL BE SECURED SAFELY AGAINST SHIFTING.

MACHINE ANCHORING DETAILS BY BHEL.

CONCRETE TO BE PLACED WITHOUT INTERRUPTION.
CONCRETE SURFACES TO BE PROTECTED AGAINST DETRIMENTAL OIL WHERE NECESSARY.

GROUTING ACCORDING TO MACHINE MANUFACTURER'S SPECIFICATION.

SPRING ELEMENTS ARE ATTACHED BY ADHESIVE PADS AT TOP AND BOTTOM.

MANUFACTURER OF THE VIBRATION ISOLATION SYSTEM:
GERB VIBRATION CONTROL SYSTEMS PVT. LTD. / INDIA

SCOPE OF DELIVERY:
- SPRING ELEMENTS
- ADHESIVE PADS
- STEEL SHIMS FOR HEIGHT ADJUSTMENT

ALL MEASURES ARE "mm".
ALL ELEVATIONS ARE "m".

FINISHED FLOOR ROUGH CONCRETE

NOTES:
(1) GRADE OF CONCRETE M30.

WEIGHT

FOUNDATION WEIGHT APPROX. 1700 kN
MACHINE WEIGHT APPROX. 586 kN

REFERENCES:

HY–DG–331–139–0001–REV.00 FOUNDATION ARRANGEMENT OF MOTOR DRIVEN B.F.P. UNIT (BHEL)

**1 NO. OFF THUS**

**THE PRESENT DRAWING E–58222–02 SUPERSEDES THE FORMER DRAWING N3870/08 !**

IF IN DOUBT PLEASE CONTACT GERB.

| Index/Rev. | Datum/Date | Aenderung/Modification | ges./dm. | ger./ind. |
|---|---|---|---|---|


GERB Engineering GmbH
Ruhrallee 311 D–45136 Essen (Germany)
Phone +049–(0)201–26604–20
Fax +049–(0)201–26604–50
E–mail eng@gerb.de


Kunde/Client: M/s BHARAT HEAVY ELECTRICALS LTD.

Titel/Dwg.Title: GEN. ARRANGEMENT

Projekt: NLC TAMILNADU POWER LTD.
2x500 MW TUTICORIN TPP

SPRING SUPPORTED
MDBFP FOUNDATION

Bauteil/Structural Member: FOUNDATION BLOCK

PLAN
SECTIONS, DETAILS

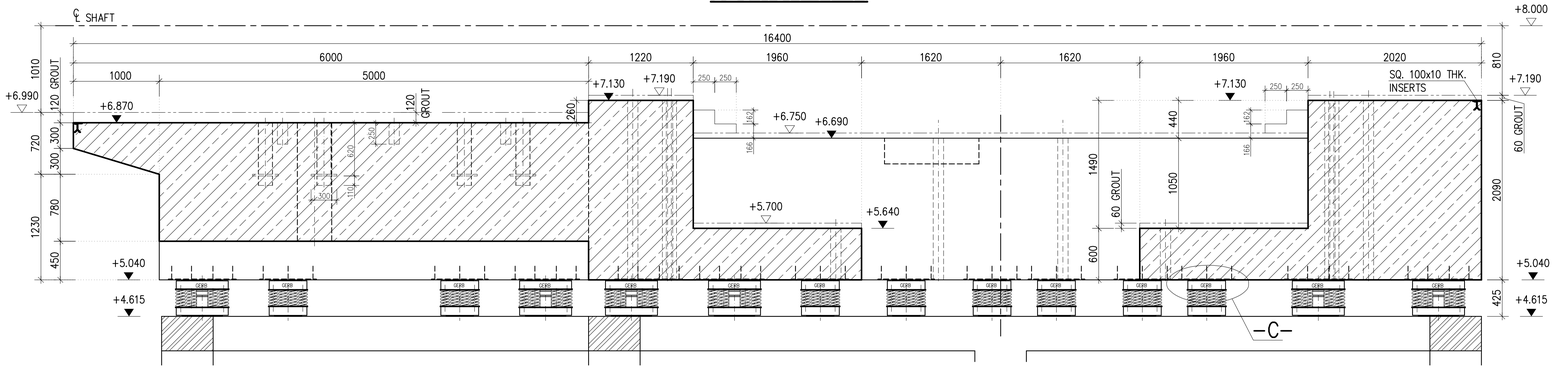


| Maßstab Scale | Datum/Date | Name | Zeichnung Nr./Drawing No. | | | |
|---|---|---|---|---|---|---|
| 1:25 | gezeichnet drawn 20.10.2010 | Fuchs | Objekt Nr. | Pos. Nr. | Format | Index |
| | bearbeitet coord. 20.10.2010 | Lukes | Job No. | Dwg.No. | Size | Rev. |
| | geprüft checked 20.10.2010 | Lukes | E–58222–02 | 0 | – | |

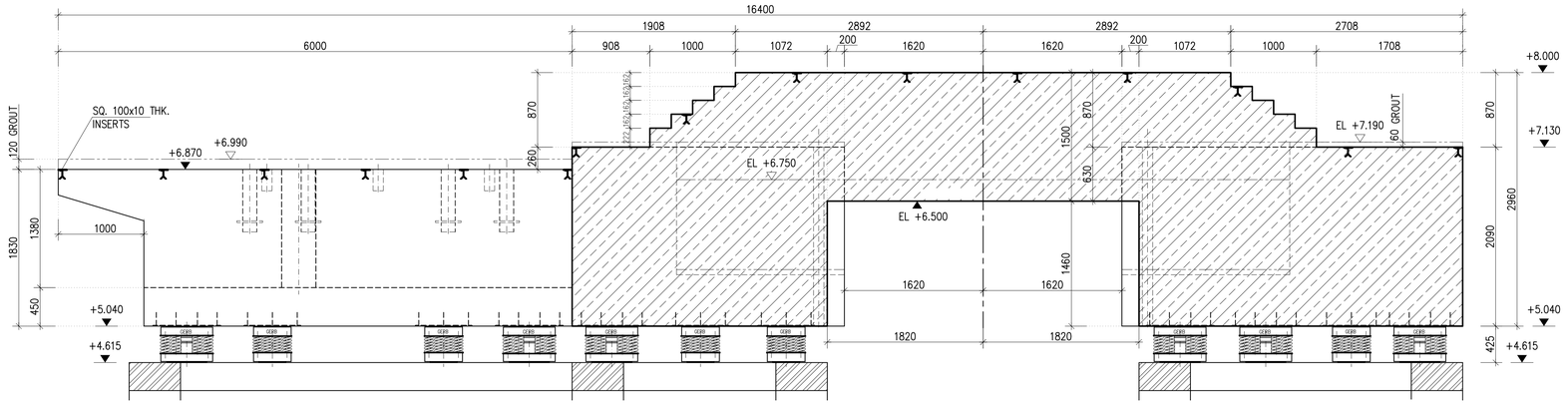
5822–02–Grund.dwg

A0 841x1189

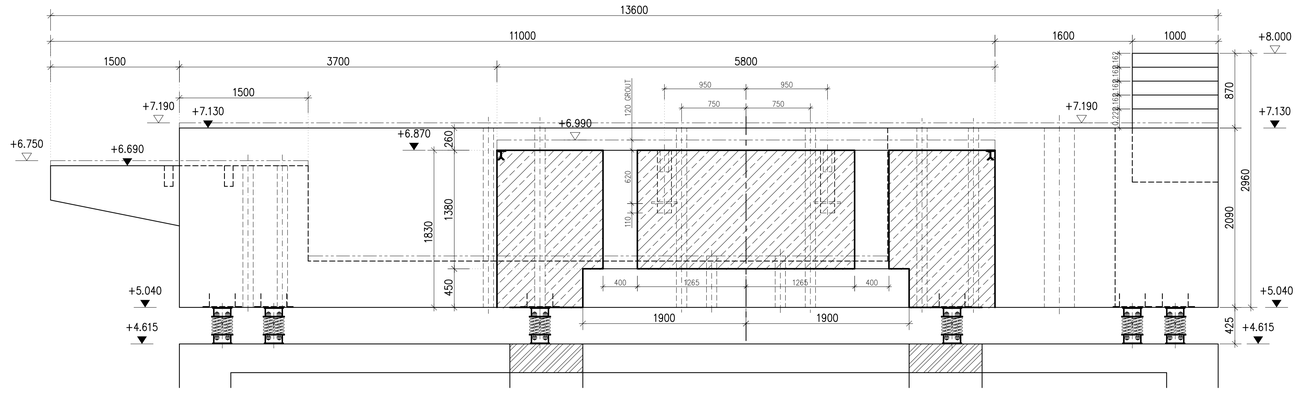
## SECTION A–A



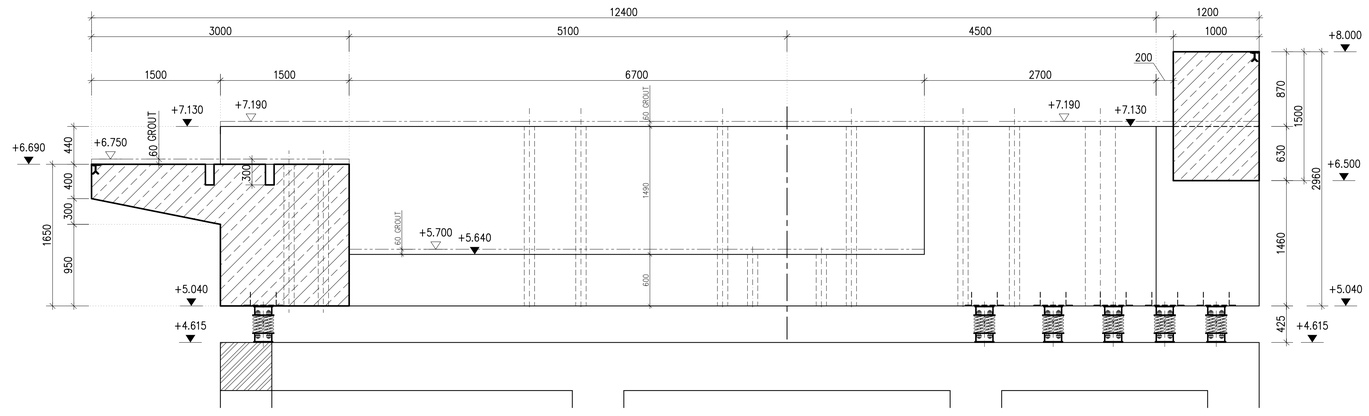

## SECTION B–B



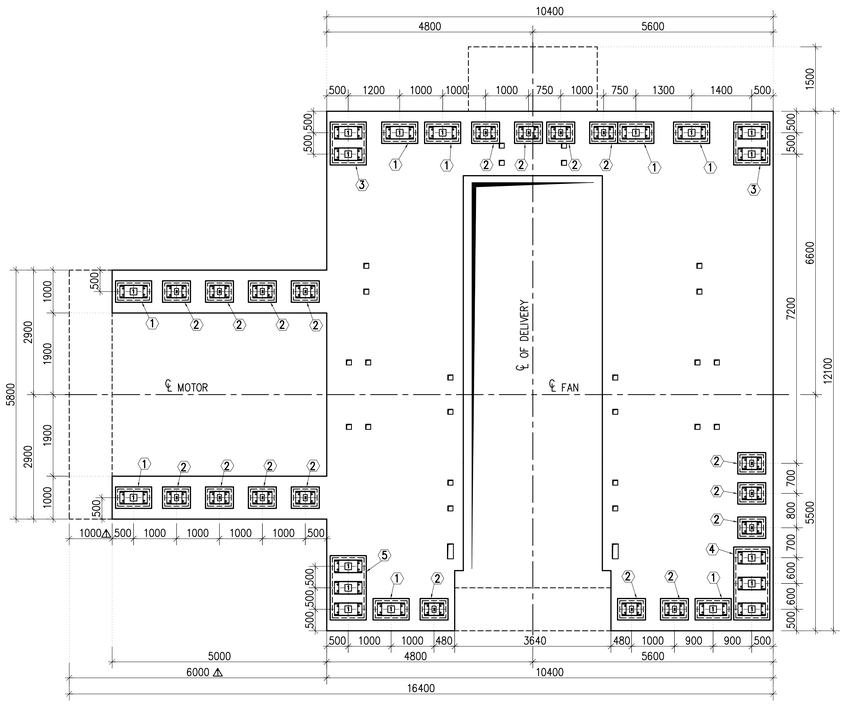

## SECTION C–C




## SECTION D–D




## ARRANGEMENT OF SPRING ELEMENTS
## PLAN AT BOTTOM OF RCC DECK (EL +5.040)

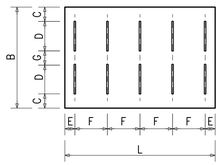



## STEEL COVER PLATE

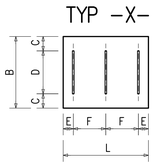
( mm, kg )

| MARK | TYPE | PCS. | L x B | THICKNESS A | C | D | E | F | G | H | SINGLE WEIGHT | TOTAL WEIGHT | CONNECTION STIRRUPS PCS. | BAR LENGTH | TOTAL LENGTH | TOTAL WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | –X– | 08 | 840x500 | 10 | 100 | 300 | 70 | 350 | – | – | 32.97 | 263.76 | 24 | 600 | 14400 | 12.74 |
| ② | –X– | 18 | 650x500 | 10 | 100 | 300 | 75 | 250 | – | – | 25.51 | 459.22 | 54 | 600 | 32400 | 28.67 |
| ③ | –Y– | 02 | 1000x840 | 10 | 70 | 300 | 100 | 200 | 100 | – | 65.94 | 131.88 | 20 | 600 | 12000 | 10.62 |
| ④ | –Y– | 01 | 1700x840 | 10 | 70 | 300 | 100 | 375 | 100 | – | 112.10 | 112.10 | 10 | 600 | 6000 | 5.31 |
| ⑤ | –Y– | 01 | 1500x840 | 10 | 70 | 300 | 100 | 325 | 100 | – | 98.91 | 98.91 | 10 | 600 | 6000 | 5.31 |
| NOTE: UNDERSIDE OF STEEL COVER PLATE TO BE PAINTED | | | | | | | | | | | TOTAL: | 1065.87 | 118 | | 70800 | 62.65 |

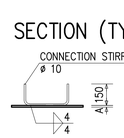
### TYP –Y–




### TYP –X–



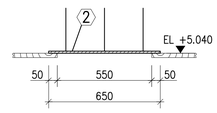

### SECTION (TYP.)



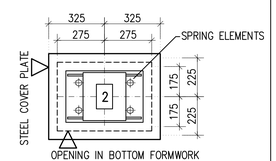

NOT TO SCALE

## DETAIL –C– (NOT TO SCALE)

OPENING ABOVE SPRING ELEMENTS




VIEW ON BOTTOM FORMWORK

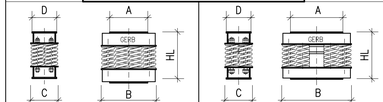



WEIGHTS :

FOUNDATION WEIGHT : 5349 kN.(APPROX.)
MACHINE WEIGHT : 1487 kN.(APPROX.)

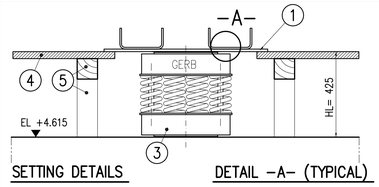
## DATA OF SPRING ELEMENTS

TYPE –GP– TYPE –GPV–




| ITEM | PCS. | TYPE | A mm | B mm | C mm | D mm | HL mm | KV kN/mm | KH kN/mm | W kg |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18 | GPV–6.6–2513/47 | 440 | 640 | 300 | 280 | 425 | 5.31 | 3.28 | |
| 2 | 18 | GP–6.6–2513/47 | 250 | 450 | 300 | 280 | 425 | 5.31 | 3.28 | |

HL= LOADED HEIGHT | W = WEIGHT PER ELEMENT | A x D = PRESSURE AREA

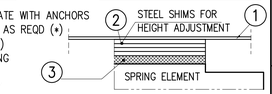



### SETTING DETAILS

1. STEEL COVER PLATE WITH ANCHORS
2. STACK OF SHIMS AS REQD (*)
3. ADHESIVE PAD (*)
4. SOFFIT SHUTTERING
5. SUPPORT

(*) GERB SUPPLY

### DETAIL –A– (TYPICAL)




N O T E S:

SPRING ELEMENTS ARE ATTACHED BY ADHESIVE PADS AT TOP AND BOTTOM.

MANUFACTURER OF THE VIBRATION ISOLATION SYSTEM:
GERB VIBRATION CONTROL SYSTEMS PVT. LTD. / INDIA

SCOPE OF DELIVERY:
- SPRING ELEMENTS
- ADHESIVE PADS
- STEEL SHIMS FOR HEIGHT ADJUSTMENT

ALL MEASURES ARE "mm".
ALL ELEVATIONS ARE "m".

FINISHED FLOOR ROUGH CONCRETE

REFERENCES:

1–00–099–21700 REV 02 GENERAL ARRANGEMENT FOR INDUCED DRAFT FAN NDZV 47 SIDOR (BHEL)

LOAD ON SUBSTRUCTURE

250 kN \ SPRING ELEMENT VERTICAL (INCL DYN.LOADS)
20 kN \ SPRING ELEMENT HORIZONTAL

THE PRESENT DRAWING 58833–02 SUPERSEDES THE FORMER DRAWING N3871/08–B–0–1 !!

4 NO. OFF THUS

IF IN DOUBT PLEASE CONTACT GERB.

| Index/Rev. | Datum/Date | Aenderung/Modification | ges./dm. | gepr./chd. |
|---|---|---|---|---|


GERB Engineering GmbH
Ruhrallee 311 / 45136 Essen (Germany)
Phone +049–(0)201–26604–20
Fax +049–(0)201–26604–50
E–mail eng@gerb.de


Kunde/Client: M/s BHARAT HEAVY ELECTRICALS LTD.

Titel/Drwg.Title: GEN. ARRANGEMENT

Projekt/Project: NLC TAMILNADU POWER LIMITED TUTICORIN TPP (2x500 MW)

SPRING SUPPORTED I.D. FAN FOUNDATION TYPE NDZV 47 SIDOR

Bauteil/Structural Member: FOUNDATION BLOCK

SECTION A–A, B–B, SECTION C–C, D–D, ARRANGEMENT OF SPRING ELEMENTS



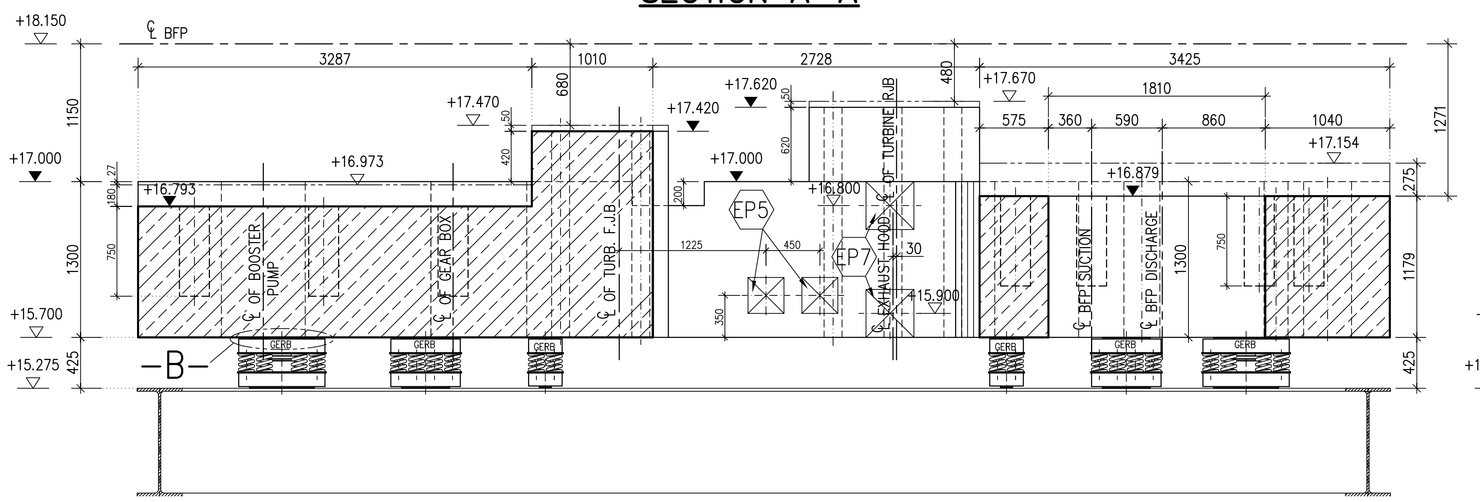
Massstab Scale 1:25

| | Datum/Date | Name |
|---|---|---|
| gezeichnet drawn | 15.10.2010 | Poppe |
| bearbeitet coord. | 15.10.2010 | LUKES |
| geprueft checked | 15.10.2010 | LUKES |

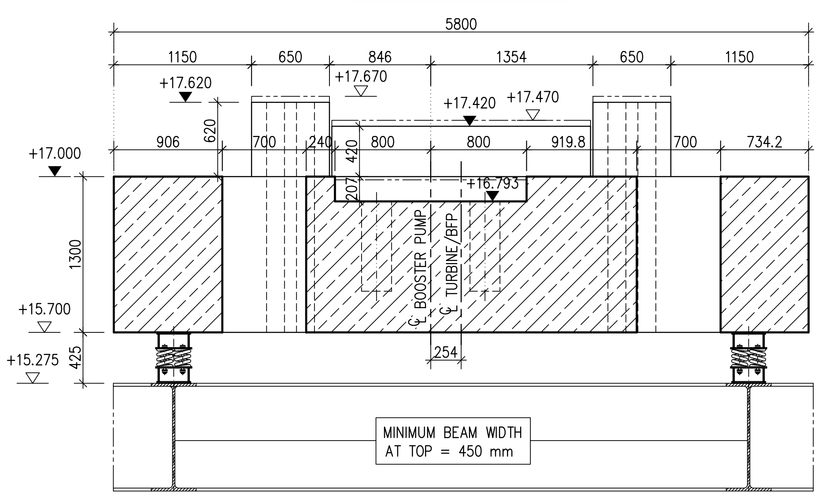
Zeichnung Nr./Drawing No. E–58833–03 | Plan Nr. Dwg. No. | Format Size | Index Rev. 0 | 0

58833–02E–03E–Rev0.dwg

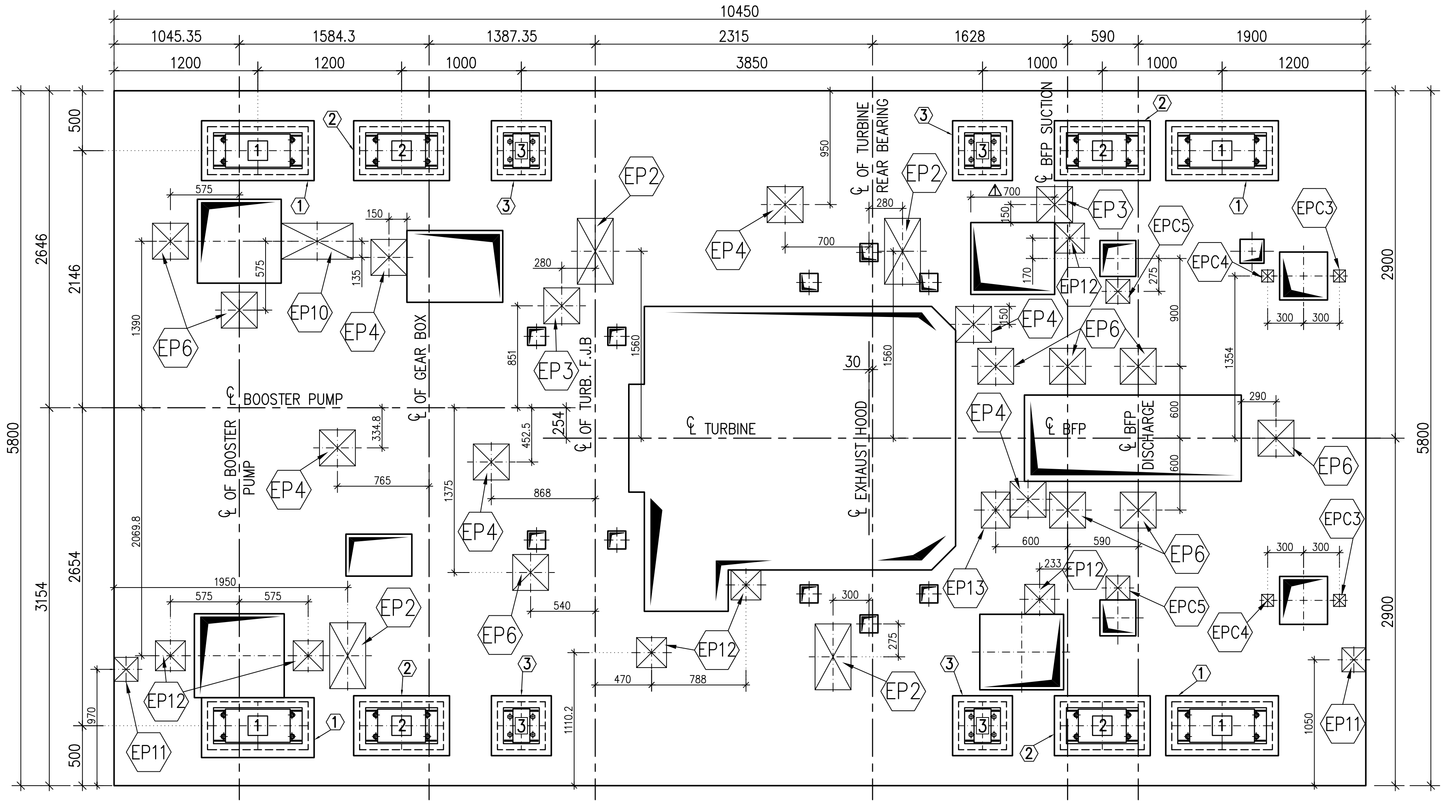
## SECTION A–A



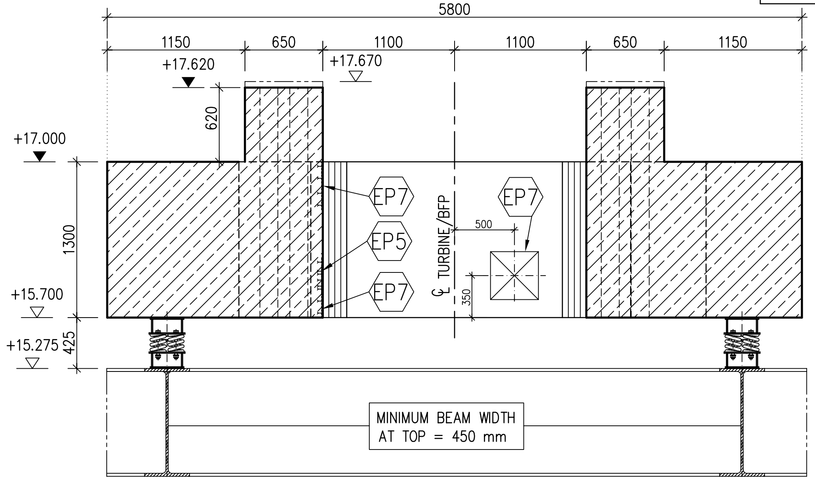

## SECTION B–B



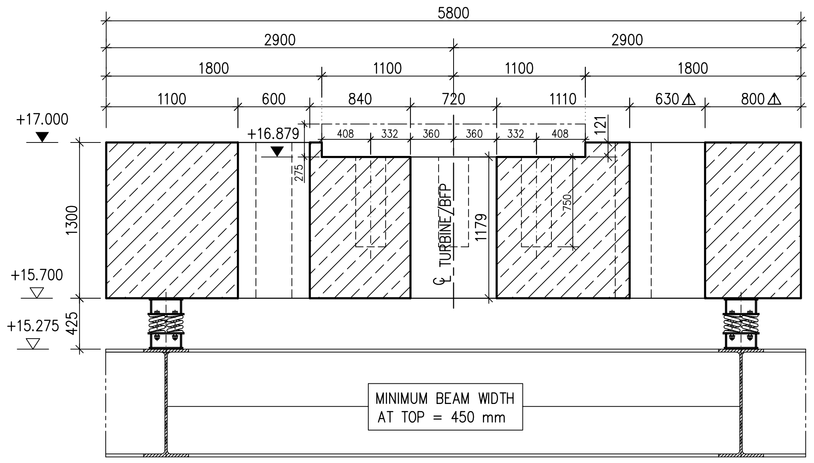

## VIEW ON BOTTOM FORMWORK EL +15.700 m
## EMBEDMENT PARTS, SPRING ELEMENTS



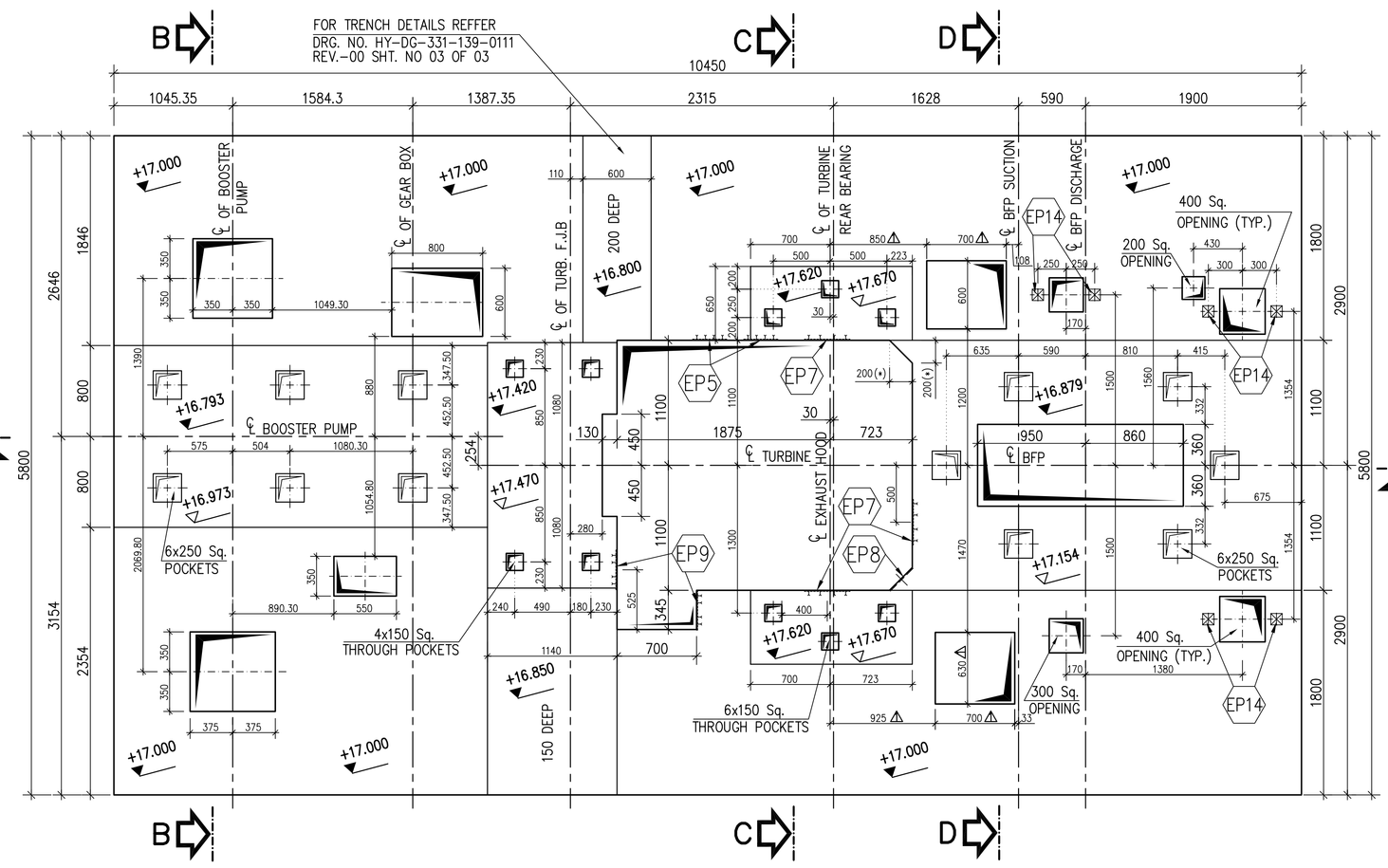

## SECTION C–C




## SECTION D–D




## PLAN AT EL.+17.620 M



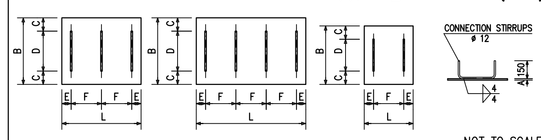

## NOTE: –

**CUSTOMER TO PROVIDE US THE DIMENSIONS MARKED " * "**

## STEEL COVER PLATES ( mm, kg )

| MARK | TYPE | PCS. | B x L | THICKNESS A | C | D | E | F | G | SINGLE WEIGHT | TOTAL WEIGHT | CONNECTION STIRRUPS PCS. | ⌀ 12 LENGTH | TOTAL LENGTH | TOTAL WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | –Y– | 4 | 500x940 | 16 | 100 | 300 | 50 | 280 | – | 59.03 | 236.12 | 16 | 600 | 9600 | 8.49 |
| ② | –X– | 4 | 500x800 | 16 | 100 | 300 | 100 | 300 | – | 50.24 | 200.96 | 12 | 600 | 7200 | 6.37 |
| ③ | –Z– | 4 | 300x300 | 16 | 50 | 200 | 50 | 200 | – | 11.30 | 45.21 | 08 | 500 | 4000 | 3.54 |
| | | | | | | | | | | | | | | | |
| NOTE: UNDERSIDE OF STEEL COVER PLATE TO BE PAINTED | | | | | | | | | | TOTAL | 482.29 | 36 | | 20800 | 18.40 |

TYP –X– TYP –Y– TYP –Z– SECTION (TYP.)



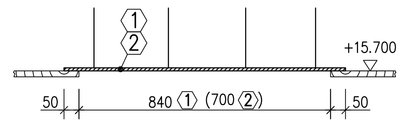

| SPRING TYPE | LOAD BELOW SPRING UNITS VERTICAL(kN) | HORIZONTAL(kN) |
|---|---|---|
| 1 | 294 | 29 |
| 2 | 294 | 29 |
| 3 | 167 | 17 |

WEIGHTS

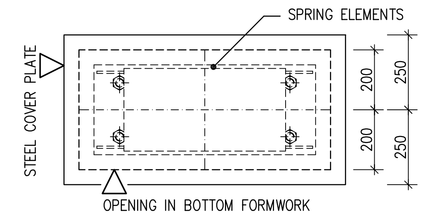
FOUNDATION WEIGHT APPROX. 1726 kN
MACHINE WEIGHT APPROX. 527 kN

## DETAIL –B– (NOT TO SCALE)

OPENING ABOVE SPRING ELEMENTS



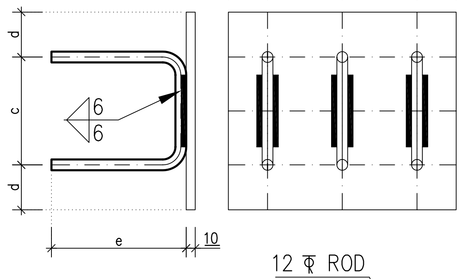

VIEW ON BOTTOM FORMWORK



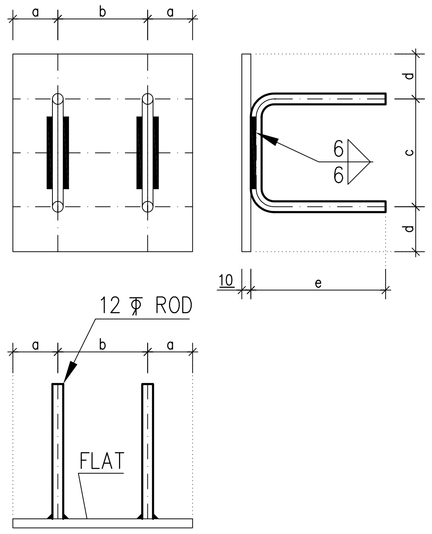

## LUGS DETAIL FOR INSERT PLATES: –

(NOT TO SCALE)

TYP –B–



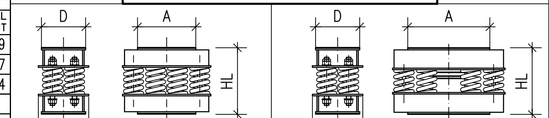

TYP –A–




## LIST OF EMBEDMENT:

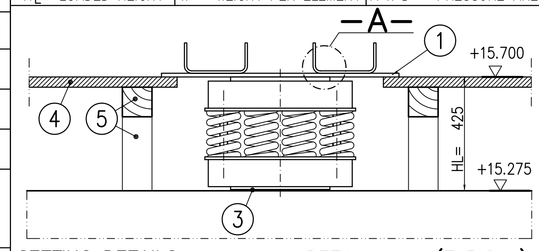
| PART NO | QTY | TYPE | DESCRIPTION | LOCATION | NUMBERS OF ANCHOR ⌀ 12 L=200 | ⌀ 12 L=300 | ⌀ 12 L=400 | (mm) a | b | c | d | e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EP2 | 04 | –B– | PLATE 550x300x10 | BOTTOM OF DECK | | | 12 | 75 | 200 | 200 | 50 | 200 |
| EP3 | 02 | | PLATE 300x300x10 | BOTTOM OF DECK | | | 04 | 50 | 200 | 200 | 50 | 200 |
| EPC3 | 02 | | PLATE 100x100x10 | BOTTOM OF DECK | 04 | | | 20 | 60 | 60 | 20 | 140 |
| EP4 | 06 | | PLATE 300x300x10 | BOTTOM OF DECK | | | 12 | 50 | 200 | 200 | 50 | 200 |
| EPC4 | 02 | | PLATE 100x100x10 | BOTTOM OF DECK | 04 | | | 20 | 60 | 60 | 20 | 140 |
| EP5 | 02 | | PLATE 300x300x10 | ℄ OF PLATE EL.+16.050 M | | | 04 | 50 | 200 | 200 | 50 | 200 |
| EPC5 | 02 | | PLATE 200x200x10 | BOTTOM OF DECK | | 04 | | 50 | 100 | 100 | 50 | 200 |
| EP6 | 09 | –A– | PLATE 300x300x10 | BOTTOM OF DECK | | | 18 | 50 | 200 | 200 | 50 | 200 |
| EP7 | 02 | | PLATE 400x400x10 | ℄ OF PLATE EL.+15.900 M | | | 04 | 100 | 200 | 200 | 100 | 200 |
| | 01 | | | ℄ OF PLATE EL.+16.050 M | | | 02 | 100 | 200 | 200 | 100 | 200 |
| | 02 | | | ℄ OF PLATE EL.+16.800 M | | | 04 | 100 | 200 | 200 | 100 | 200 |
| EP8 | 01 | | PLATE 280x400x10 | ℄ OF PLATE EL.+16.050 M | | | 02 | 40 | 200 | 200 | 100 | 200 |
| EP9 | 02 | | PLATE 350x350x10 | ℄ OF PLATE EL.+16.000 M | | | 04 | 75 | 200 | 200 | 75 | 200 |
| EP10 | 01 | –B– | PLATE 600x300x10 | BOTTOM OF DECK | | | 03 | 100 | 200 | 200 | 50 | 200 |
| EP11 | 02 | | PLATE 200x200x10 | BOTTOM OF DECK | | 04 | | 50 | 100 | 100 | 50 | 200 |
| EP12 | 06 | –A– | PLATE 250x250x10 | BOTTOM OF DECK | | 12 | | 75 | 100 | 100 | 75 | 200 |
| EP13 | 01 | | PLATE 240x300x10 | BOTTOM OF DECK | | | 02 | 70 | 100 | 200 | 50 | 200 |
| EP14 | 06 | | PLATE 100x100x10 | ℄ OF PLATE EL.+17.000 M | 12 | | | 20 | 60 | 60 | 20 | 140 |
| | | | | | | | | | | | | |
| | | | TOTAL No. OF LUGS | | 20 | 20 | 71 | | | | | |

## TYPE –GP– DATA OF SPRING ELEMENTS TYPE –GPV–



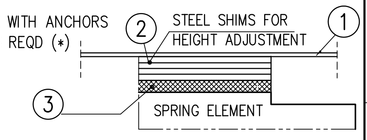

| ITEM | PCS. | TYPE | A mm | B mm | C mm | D mm | $H_L$ mm | $K_V$ kN/mm | $K_H$ kN/mm | W kg |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4 | GPV-8.4-2513/47 | 540 | 740 | 300 | 280 | 425 | 6.25 | 4.25 | |
| 2 | 4 | GP-8.4-2513/47 | 400 | 600 | 300 | 280 | 425 | 6.25 | 4.25 | |
| 3 | 4 | GP-4.4-2513/47 | 100 | 300 | 300 | 280 | 425 | 3.54 | 2.19 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

$H_L$ = LOADED HEIGHT | W = WEIGHT PER ELEMENT | A x D = PRESSURE AREA




## SETTING DETAILS

DETAIL –A– (TYPICAL)




① STEEL COVER PLATE WITH ANCHORS
② STACK OF SHIMS AS REQD (*)
③ ADHESIVE PAD (*)
④ SOFFIT SHUTTERING
⑤ SUPPORT
(*) GERB SUPPLY

N O T E S

ALL DIMENSIONS ARE SUBJECT TO VERIFICATION AGAINST THE FINAL DRAWING OF THE MACHINE MANUFACTURER AND THE ACTUAL ON–SITE SITUATION.

GENERAL ARRANGEMENT OF MACHINE FOUNDATION IN THE BUILDING BY CUSTOMER.

THE CORRECT HEIGHT OF THE FORMWORK FOR THE FOUNDATION BLOCK MUST BE RESPONSIBLY CHECKED BY THE SUPERVISOR ON SITE. ELEVATIONS REFER TO OPERATING CONDITION. FOLLOW GERB CONSTRUCTION MANUAL!

TOLERANCES:
A) CONCRETE
GENERAL: ±10 mm
AT LOCATION OF SPRING ELEMENTS:
PER ELEMENT LENGTH: 2 mm
PER FOUNDATION LENGTH: 10 mm
VERT. SPACE BETWEEN SURFACES OF CONTACT: 3 mm
B) ANCHOR BOLTS, SLEEVES, HOLES, PIPES, ETC.,
IF NOT NOTED OTHERWISE:
HORIZONTAL DISTANCE TO REFERENCE LINE: ± 5 mm
TILTING OF ANCHOR BOLTS, PIPES: 3 mm/m

EMBEDDED PARTS SHALL BE SUPPLIED BY CIVIL CONTRACTOR UNLESS OTHERWISE NOTED. EMBEDMENTS TO BE PLACED AND CHECKED ACCORDING TO THIS DRAWING. THEY SHALL BE SECURED SAFELY AGAINST SHIFTING.

MACHINE ANCHORING DETAILS BY BHEL.

CONCRETE TO BE PLACED WITHOUT INTERRUPTION.

CONCRETE SURFACES TO BE PROTECTED AGAINST DETRIMENTAL OIL WHERE NECESSARY.

GROUTING ACCORDING TO MACHINE MANUFACTURER'S SPECIFICATION.

SPRING ELEMENTS ARE ATTACHED BY ADHESIVE PADS AT TOP AND BOTTOM.

MANUFACTURER OF THE VIBRATION ISOLATION SYSTEM: GERB VIBRATION CONTROL SYSTEMS PVT. LTD. / INDIA

SCOPE OF DELIVERY:
– SPRING ELEMENTS
– ADHESIVE PADS
– STEEL SHIMS FOR HEIGHT ADJUSTMENT

ALL MEASURES ARE "mm".
ALL ELEVATIONS ARE "m".
ROUGH CONCRETE FINISHED FLOOR

REFERENCES:
HY–DG–331–139–0111 REV 0 (SHEET NO. 1~3) FOUNDATION ARRANGEMENT FOR (BHEL) BFP & DRIVE TURBINE

FOR APPROVAL STATUS: 16.08.2010

4 NO. OFF THUS

IF IN DOUBT PLEASE CONTACT GERB.

| Index/Rev. | Datum/Date | Aenderung/Modification | gez./drn. | gepr./chk. |
|---|---|---|---|---|
| 1 | 16.08.2010 | REVISED AS MARKED ⚠ | Kaushik | Giri |


GERB VIBRATION CONTROL SYSTEMS PVT. LTD.
3 rd Floor, J.O.P.–Plaza, P–2
Sector–18, Noida–201 301, (U.P.), India
Phone 0120–2511 601,2511 602
Fax 0120–2512 757
E–mail gerbindia@vsnl.com


Kunde/Client : M/s BHARAT HEAVY ELECTRICALS LTD.

Projekt : NLC TAMILNADU POWER LIMITED TUTICORIN TPP (2x500 MW)

SPRING SUPPORTED TDBFP FOUNDATION

Titel/Dwg Title : LAYOUT DRAWING

Bauteil/Structural Member : FOUNDATION BLOCK



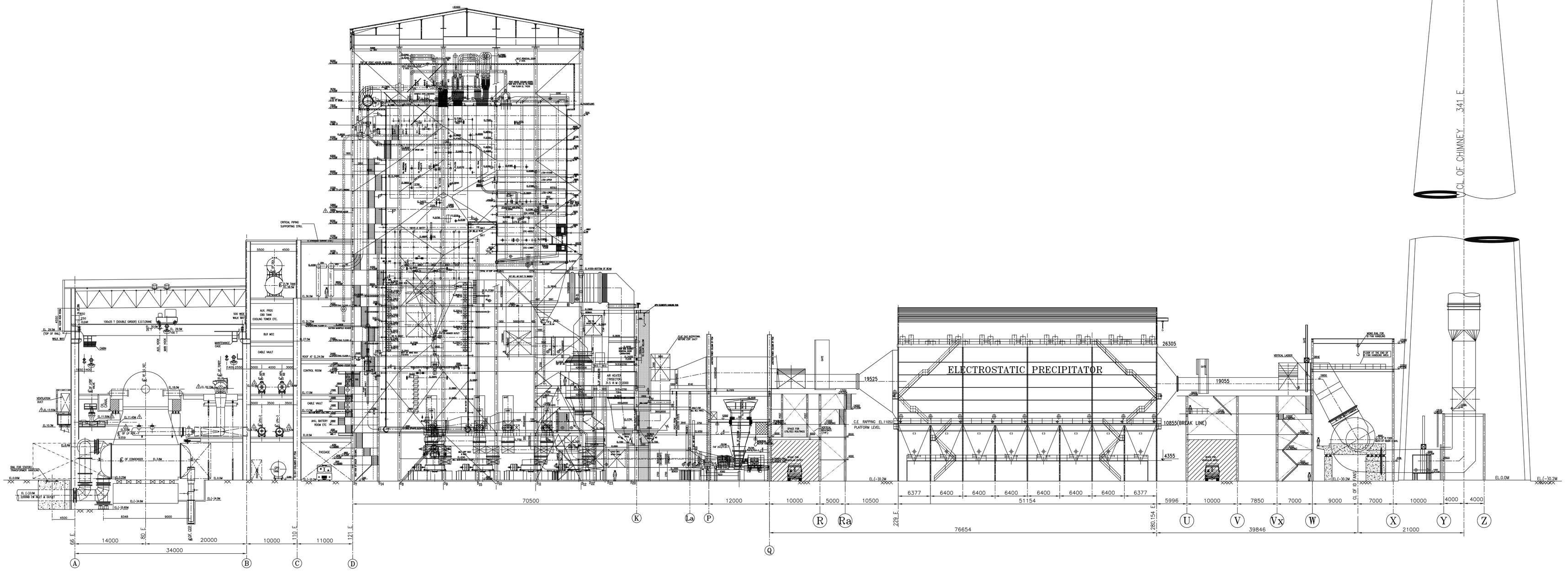
| Massstab Scale : | | Datum/Date | Name |
|---|---|---|---|
| 1:25 | gezeichnet drawn | 28.12.2009 | KAUSHIK |
| | bearbeitet coord. | 28.12.2009 | GIRI |
| | gepruft checked | 28.12.2009 | GIRI |

Zeichnung Nr./Drawing No.
Objekt Nr.: N3869/08 | Plan Nr. 0 | Format/Index 1
Job No. : | Dwg.No. | Size | Rev.

DRAWING NO. PE-DG-331-100-M010

FIRST ANGLE PROJECTION | ALL DIMENSIONS ARE IN MM






## NOTES:–

1. ± 0.0M CORROSPONDS TO TG HALL FINISHED FLOOR LEVEL (FFL) WHICH IS 2.9M ABSOLUTE ELEVATION AND FINISHED GROUND LEVEL (FGL) IS 2.4M ABSOLUTE.
2. ALL DIMENSIONS ARE IN MM AND ELEVATIONS IN METRES UNLESS STATED OTHER WISE.
3. THIS DRG. IS INTEGRATION OF TG BUILDING, BOILER, ESP, ID FAN AND CHIMNEY AREA. RESPECTIVE DRG. TO BE REFERRED FOR DETAILS.

## REFERENCE DRAWING:

| | |
|---|---|
| 1. MAIN PLANT EQUIPMENT LAYOUT AT 0.0M | PE-DG-331-100-M002 (PEM) |
| 2. TG BLDG. EQUIPMENT PLAN AT 0.0M | PE-DG-331-100-M003 (PEM) |
| 3. TG BLDG. EQUIPMENT PLAN AT 8.5M & 12.0M | PE-DG-331-100-M004 (PEM) |
| 4. TG BLDG. EQUIPMENT PLAN AT 17.0M | PE-DG-331-100-M005 (PEM) |
| 5. TG BLDG. EQUIPMENT PLAN AT 24.0M & 27.5M | PE-DG-331-100-M006 (PEM) |
| 6. TG BLDG. EQUIPMENT PLAN AT 31.75M, 36.0M & 47.5M | PE-DG-331-100-M007 (PEM) |
| 7. GA OF CONDENSER ASSEMBLY | 0-160-1070059 (HWR) 2 SHTS. |
| 8. GA OF BOILER SECTIONAL SIDE ELEVATION | 0-00-022-75038 (TRY) |
| 9. GA OF ELECTROSTATIC PRECIPITATOR | 0-00-111-27352 (SANIPET) |

BHEL – PROJECT ENGINEERING MANAGMENT
THIS DRAWING MARKED '—' IS RELEASED FOR:
( ) INFORMATION
( ) COMMENTS & APPROVAL
( ) FINAL PRINT
( ) AS BUILT DRG.
STAMP ALL PREVIOUS SIMILAR PRINTS AS SUPERSEDED
ISSUED BY
NAME: S. K. ANAND
SIGNATURE:
DATE:

NTPL — NLC TAMILNADU POWER LIMITED
MECON LIMITED
PACKAGE NO. TA1 – MAIN PLANT PACKAGE (SG & TG)

| REV. | DATE | ALTD | CHD | APPD |
|---|---|---|---|---|
| 2 | | | | |

| REV. | DATE | ALTD | CHD | APPD |
|---|---|---|---|---|
| 1 | 30.09.09 | D. RUHAL | S.K. ANAND | S.K. ANAND |

1. EQUIPMENTS ELEVATIONS ADDED, AS MARKED △.
2. DRG. REVISED AS PER MOM WITH NLC/MECON DTD. 18-19.09.09

JOB NO. 331
STATUS CONTRACT
DISTRIBUTION
TO
No. OF

PROJECT: NLC TAMILNADU POWER LIMITED
2x500 MW POWER PLANT AT TUTICORIN

BHARAT HEAVY ELECTRICALS LTD
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NEW DELHI

| DEPT CODE | | NAME | SIGN | DATE |
|---|---|---|---|---|
| M | DRN | AK SHARMA | | 03.07.2009 |
| | DESN | R PUROHIT | | 03.07.2009 |
| | CHD | R PUROHIT | | 03.07.2009 |
| | APPD | SK.ANAND | | 03.07.2009 |

TITLE: CROSS SECTION OF MAIN PLANT

DEPT. | SCALE: 1:250 | DRAWING NO. PE-DG-331-100-M010
SIGN | DATE | SHEET 1 OF 1 | REV. 1

FORMAT SIZE A0

ELECTRONIC FILE NAME: 331-100_M010_R0