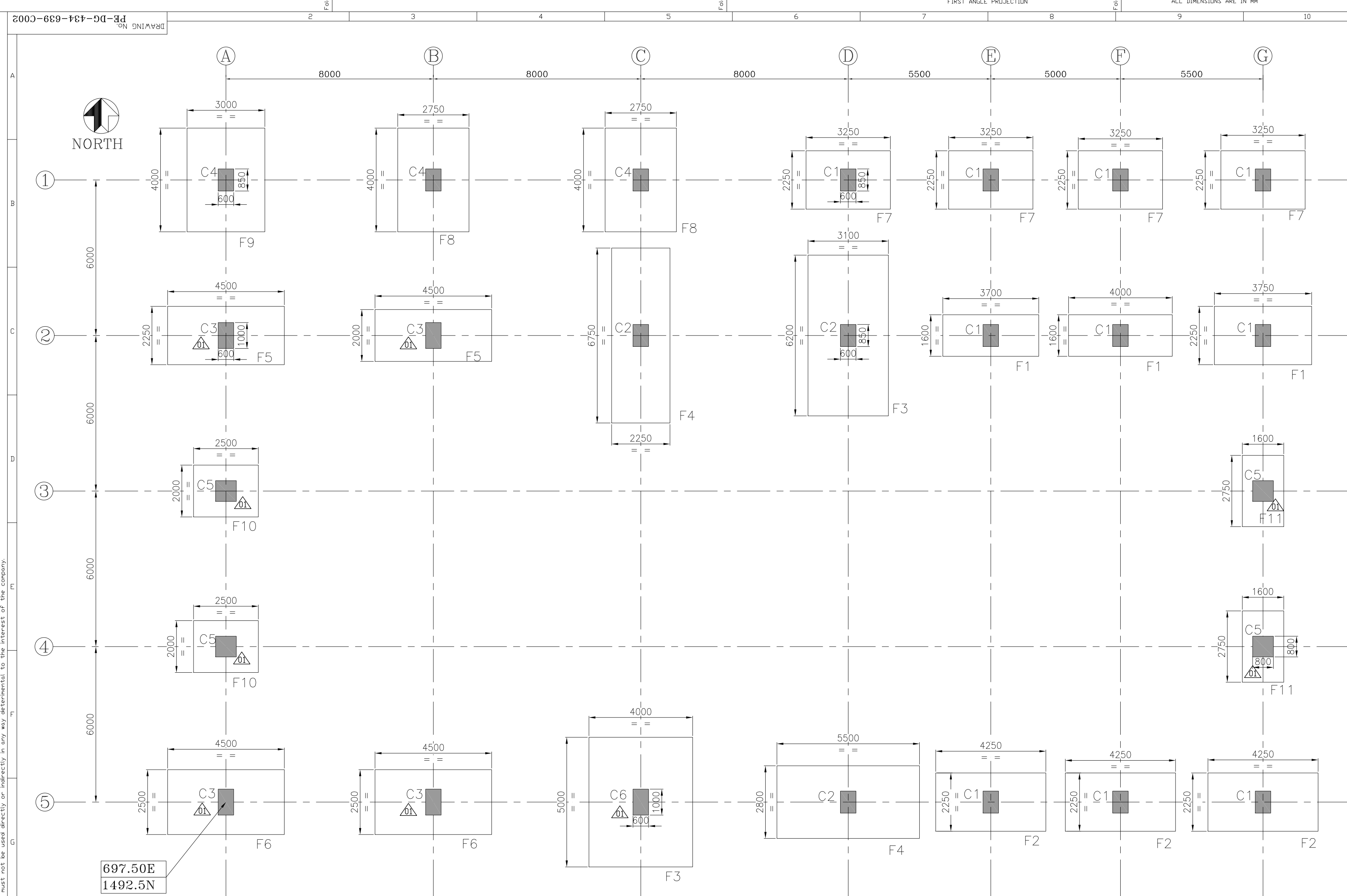


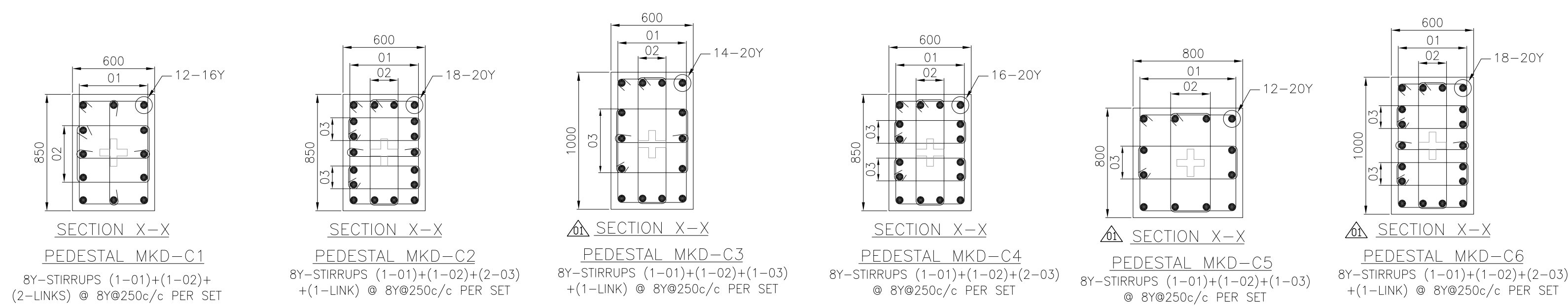
| 3 X 800 MW PATRATU STPP                                   |  |   |
|---|--|---|
| COMPLIANCE REPORT   |  |   |
| NTPC Comments Dated : 07/04/2020                          |  |   |
| CPU REGN BLDG- GA & RC DETAILS OF FOUNDATIONS & PEDESTALS |  |   |
| Drg. No.: 9585-001-315-PVC-C-0616-00                      |  |   |
| Sl no.  | NTPC Comments  | BHEL's reply  |
| 1   | As per approved geo-technical report, founding level is EL(-)0.5m and net SBC is 30 T/sqm.<br>Please check and revise. | Please note that as per approved geotechnical report and as per location of CPU regeneration building in latest plot plan, the nearest bore hole is BH-134. Accordingly, Net SBC considered for foundation design of CPU Regeneration Building is 30T/sqm at 2m depth below FGL (refer page 97/230 of approved geotechnical report). Drawing and design of foundation has been revised as per same. Please note that due this revision there is no change in foundation size & reinforcement details. |



FOUNDATION AND PEDESTAL LAYOUT

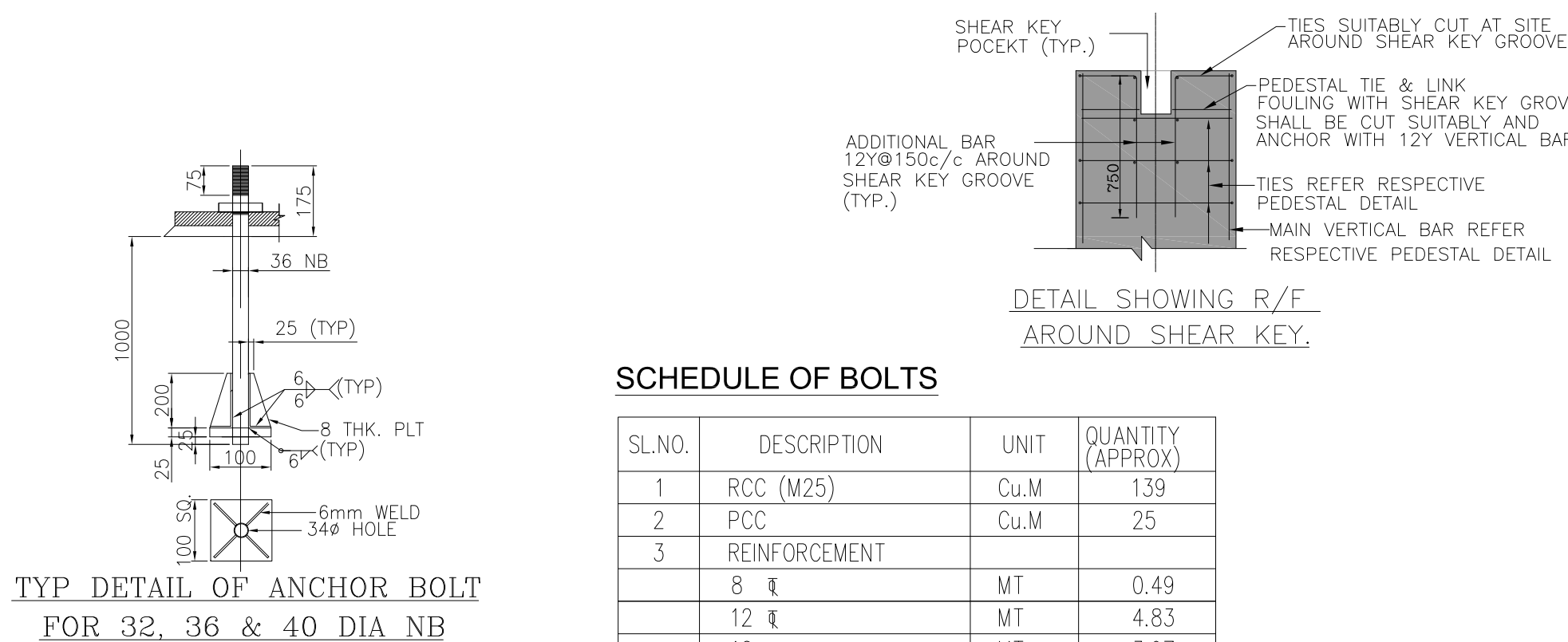
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B.O.F. @ EL(+).050M



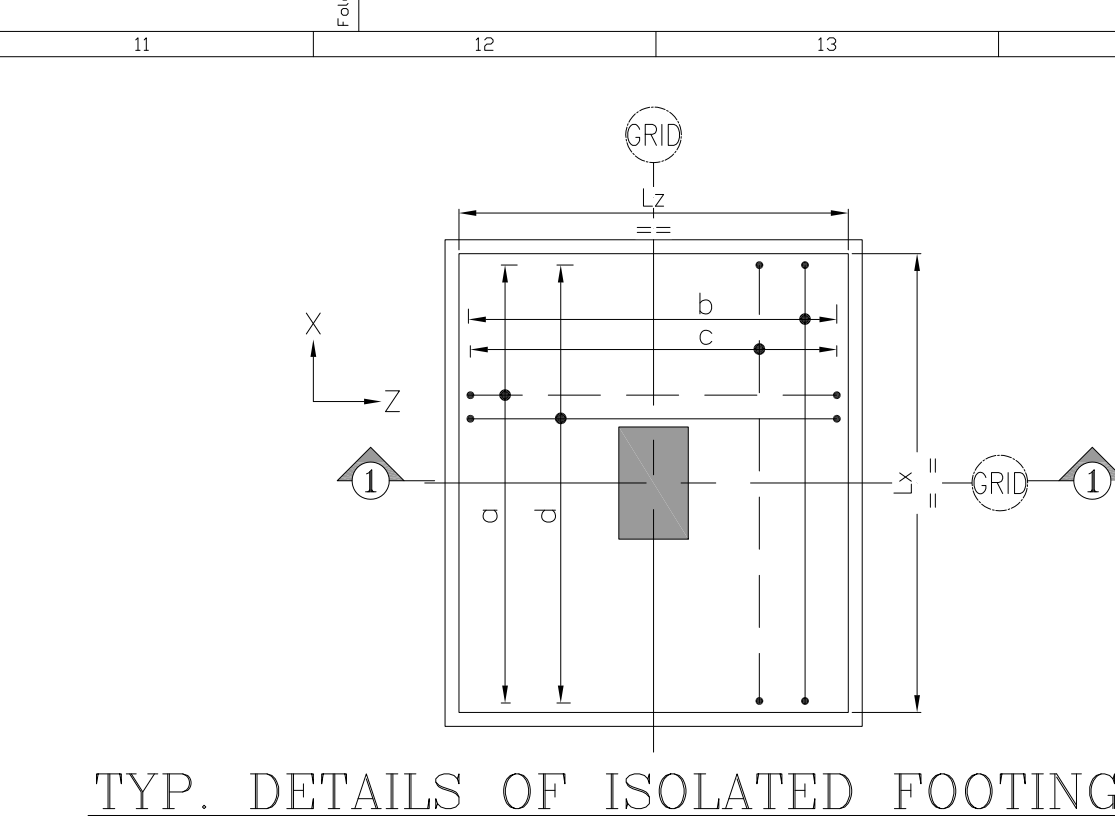
TABLE— A  
SCHEDULE OF FOOTING REINFORCEMENT

| Group Marked | FOOTING SIZE |             |           | REINFORCEMENT           |                      |                         |                      |
|--------------|--------------|-------------|-----------|-------------------------|----------------------|-------------------------|----------------------|
|              | Lz           | Lx          | Depth     | Along Z-Z               |                      | Along X-X               |                      |
|              | mm<br>(N-S)  | mm<br>(E-W) | (D)<br>mm | BAR MKD.'a'<br>(BOTTOM) | BAR MKD.'d'<br>(TOP) | BAR MKD.'c'<br>(BOTTOM) | BAR MKD.'b'<br>(TOP) |
| F1           | 2250         | 3750        | 450       | 12 Y 175                | 12 Y 175             | 12 Y 175                | 12 Y 175             |
| F2           | 2250         | 4250        | 400       | 12 Y 200                | 12 Y 200             | 12 Y 200                | 12 Y 200             |
| F4           | 1600         | 4000        | 450       | 12 Y 175                | 12 Y 175             | 12 Y 175                | 12 Y 175             |
| F12          | 1600         | 3700        | 450       | 12 Y 175                | 12 Y 175             | 12 Y 175                | 12 Y 175             |
| F13          | 6200         | 3100        | 600       | 16 Y 200                | 16 Y 200             | 16 Y 200                | 16 Y 200             |
| F14          | 2800         | 5500        | 550       | 16 Y 200                | 16 Y 250             | 16 Y 200                | 16 Y 250             |
| F15          | 6750         | 2250        | 850       | 16 Y 150                | 16 Y 150             | 16 Y 150                | 16 Y 150             |
| F3           | 5000         | 4000        | 500       | 12 Y 150                | 12 Y 150             | 12 Y 150                | 12 Y 150             |
| F16          | 2000         | 4500        | 500       | 12 Y 150                | 12 Y 150             | 12 Y 150                | 12 Y 150             |
| F6           | 2500         | 4500        | 550       | 16 Y 250                | 16 Y 250             | 16 Y 250                | 16 Y 250             |
| F5           | 2250         | 4500        | 500       | 12 Y 150                | 12 Y 150             | 12 Y 150                | 12 Y 150             |
| F7           | 2250         | 3250        | 400       | 12 Y 200                | 12 Y 250             | 12 Y 200                | 12 Y 200             |
| F8           | 4000         | 2750        | 400       | 12 Y 200                | 12 Y 200             | 12 Y 200                | 12 Y 200             |
| F9           | 4000         | 3000        | 400       | 12 Y 200                | 12 Y 200             | 12 Y 200                | 12 Y 200             |
| F10          | 2000         | 2500        | 400       | 12 Y 200                | 12 Y 200             | 12 Y 200                | 12 Y 200             |
| F11          | 2750         | 1600        | 400       | 12 Y 200                | 12 Y 200             | 12 Y 200                | 12 Y 200             |

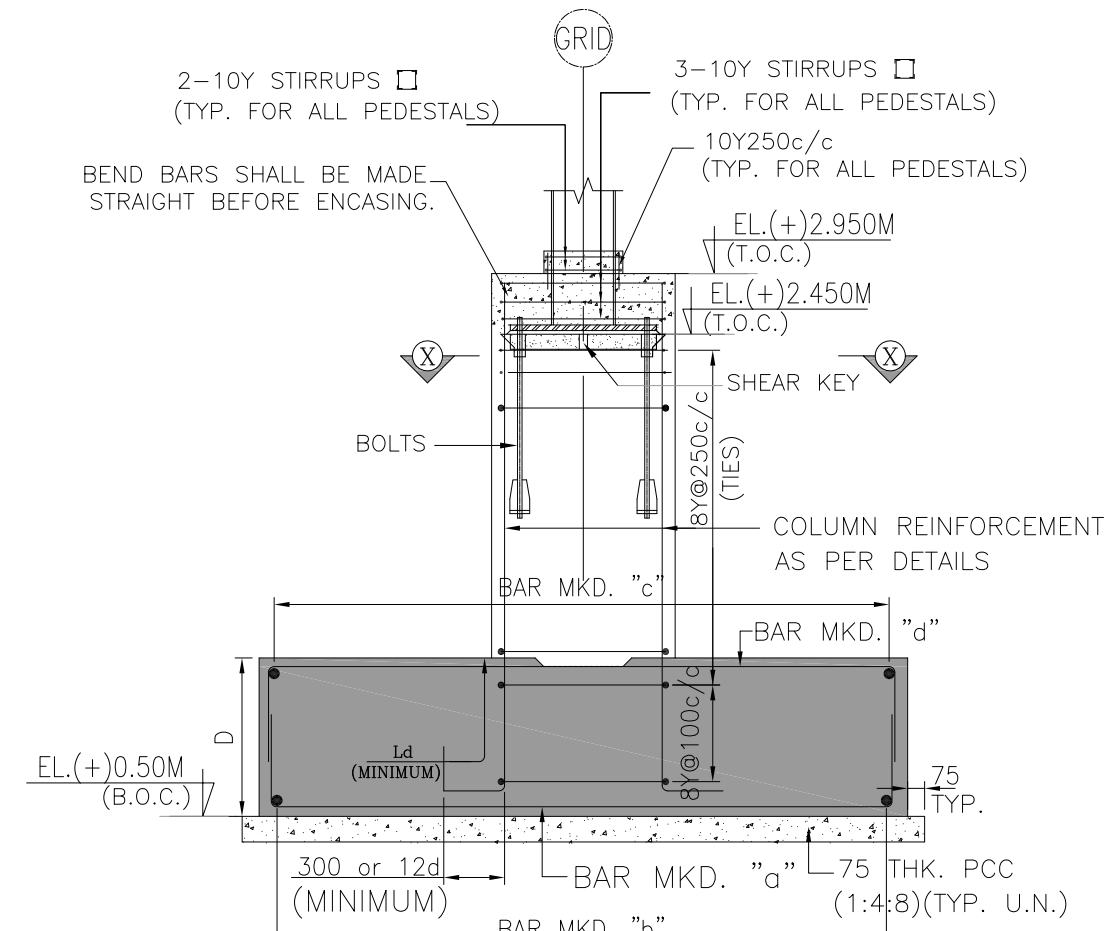


### SCHEDULE OF BOLTS

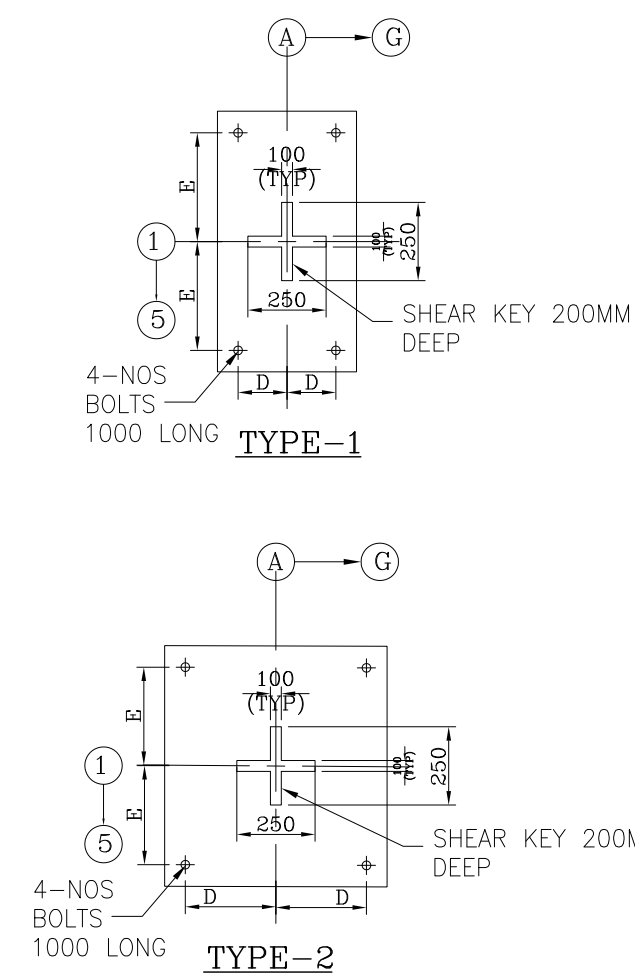
| SL.NO. | DESCRIPTION         | UNIT | QUANTITY (APPROX) |
|--------|---------------------|------|-------------------|
| 1      | RCC (M25)           | Cu.M | 139               |
| 2      | PCC                 | Cu.M | 25                |
| 3      | REINFORCEMENT       |      |                   |
|        | 8 $\Phi$            | MT   | 0.49              |
|        | 12 $\Phi$           | MT   | 4.83              |
|        | 16 $\Phi$           | MT   | 3.97              |
|        | 20 $\Phi$           | MT   | 0.75              |
|        | 25 $\Phi$           | MT   | —                 |
|        | 28 $\Phi$           | MT   | —                 |
|        | 32 $\Phi$           | MT   | —                 |
|        | TOTAL REINFORCEMENT |      | 10.04             |



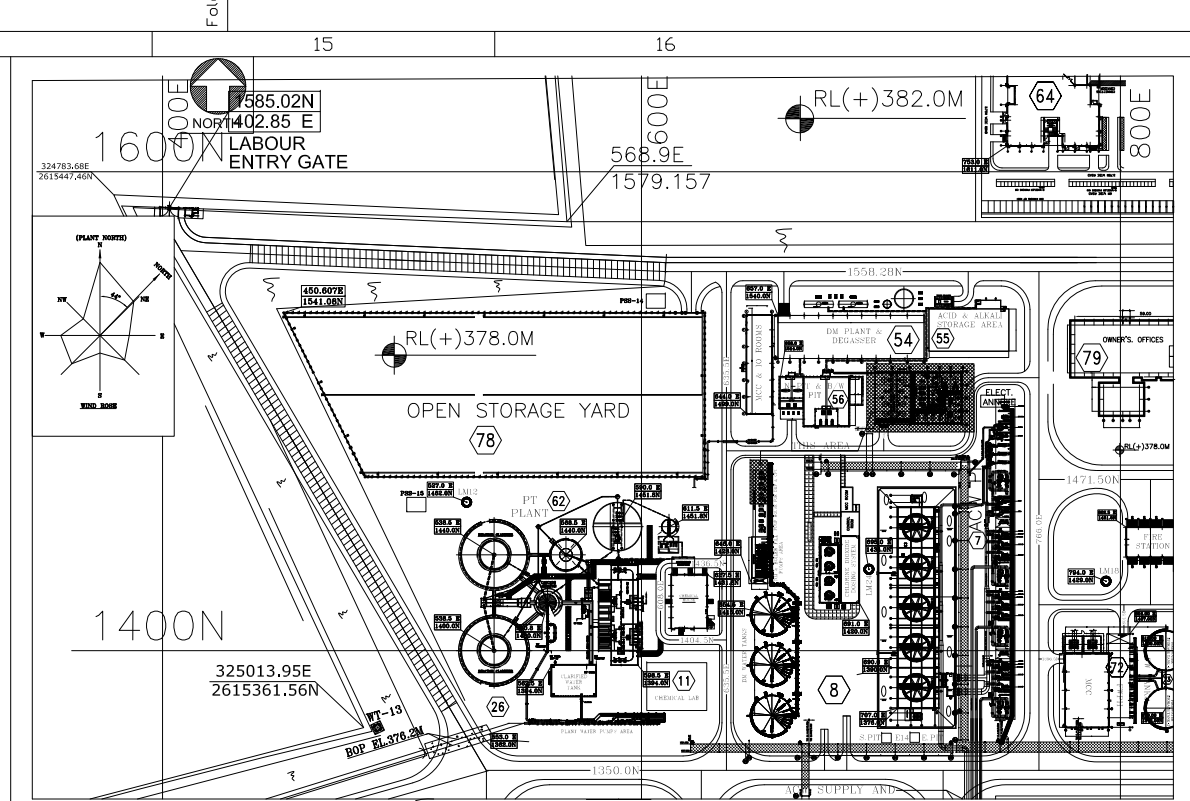
TYP. DETAILS OF ISOLATED FOOTING



TYP. SECTION 1-1  
(REFER TABLE-A)



BOLT AND SHEAR KEY DETAILS  
(REFER TABLE-B)



KEY PLAN

NOTES:-

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH CONTRACT TERMS AND CONDITIONS, TECHNICAL SPECIFICATIONS AND SCHEDULE OF ITEMS.
2. ALL DIMENSIONS ARE IN MM & ELEVATIONS IN METERS UNLESS STATED OTHERWISE.
3. ALL ELEVATIONS ARE REFERRED TO THE FINISHED FLOOR LEVEL OF POWER HOUSE BUILDING AS EL. 0.00 M WHICH CORRESPONDS TO RL.(+/-) 375.50 M.
4. THE FFL OF THE BUILDING IS EL.(+/-)3.0 M CORRESPOND TO RL.(+/-)378.5 M.
5. NO DIMENSIONS FROM THIS DRAWING ARE TO BE SCALED OFF AND ONLY FIGURED DIMENSIONS SHALL BE FOLLOWED.
6. CHECK ALL DIMENSIONS, CO-ORDINATES & ELEVATIONS IMMEDIATELY. REPORT ANY DISCREPANCIES CONFLICTS OR ERROR FOR CLARIFICATION PRIOR TO COMMENCING WORK.
7. NET SBC CONSIDERED IS 30T/SQM. AT FOUNDING LEVEL AT EL.(+/-)0.50M
8. FOR CLEAR COVER TO OUTERMOST REINFORCEMENT (INCLUDING TIES) REFER STANDARD DRG NO. 9585-001-315-PVC-C-0451B.
9. REINFORCED CONCRETE USED SHALL BE OF GRADE M25 CONFORMING TO IS:456-2000.
10. REINFORCEMENT USED AT SITE SHALL BE GRADE Fe 500D (TMT) CONFORMING TO IS:1786 WITH MINIMUM ELONGATION OF 14.5%.
11. BACK FILLING SHALL HAVE TO BE DONE ENSURING PROPER COMPACTION AND AS PER SPECIFICATION USING EARTH SOIL. BACK FILLING SHALL BE CARRIED IN LAYERS NOT EXCEEDING 300 MM. AND EACH LAYER TO BE COMPACTED SO AS TO ACHIEVE ATLEAST 90% COMPACTION AS PER STANDARD PROCTOR DENSITY TEST.
12. LAPS SHALL BE STAGGERED AS FAR AS POSSIBLE, MINIMUM LENGTH OF LAP SHALL BE 50d WHERE 'd' IS THE DIA OF THE BAR U.N.O.


### ENGINEERING REFERENCE DRAWINGS :-

- |  |   |   |
|--|---|---|
| 1. PE-DG-434-100-M001-R4<br>(9585-001-999-POC-F-001)     | - | PLOT PLAN   |
| 2. PE-DG-434-100-E034-R2<br>(9585-001-200-PVE-F-026)     | - | ELECTRICAL EQUIPMENTS & CABLING LAYOUT<br>IN DM PLANT SWGR ROOM |
| 3. PE-VO-434-163-A004-R1<br>(9585-001-136-PWM-F-104)(R1) | - | EQUIPMENT LAYOUT PLAN OF DM PLANT                               |

STRUCTURAL REFERENCE DRAWINGS :-

1. PE-DG-434-639-C003 - CPU REGN BLDG-  
(9585-001-315-PVC-C-0617) STRUCTURAL DETAIL OF BASE PLATE & COLUMNS
2. PE-DG-434-639-C001 - CPU REGENERATION BLDG-  
(9585-001-315-PVC-C-0615) ARCHITECTURAL PLANS, ELEVATIONS & SECTIONS


LEGENDS.:-

- |     |                        |   |
|-----|------------------------|---|
| EL  | - CENTER LINE          |  <u>EL(+)X.XXX</u> - LEVEL TAG |
| FFL | - ELEVATION            |   |
| TYP | - FINISHED FLOOR LEVEL |   |
| TOS | - TYPICAL              |   |
| TOC | - TOP OF STEEL         |   |
|     | - TOP OF CONCRETE      | UNO - UNLESS NOTED OTHERWISE<br>BOC - BOTTOM OF CONCRETE  |

### SPECIAL NOTE

DRAWINGS / DOCUMENTS ARE BEING SUBMITTED FOR INFORMATION. BHEL HEREBY CONFIRMS FULL COMPLIANCE TO ALL THE SPECIFIED REQUIREMENTS OF THE CONTRACT SPECIFICATION, WITHOUT ANY DEVIATION, WHATSOEVER, IN CASE DURING THE TENURE OF THE CONTRACT, IT IS OBSERVED/FOUND THAT THE DATA/ INFORMATION IN THE RELEASED DRAWING/DOCUMENT IS NOT MEETING THE CONTRACT SPECIFICATION, BHEL/ITS VENDOR(S) WILL MODIFY/ RECTIFY/REPLACE THE SAME TO MEET THE SPECIFICATION WITHOUT ANY COMMERCIAL IMPLICATION OR ANY TIME EXTENSION TO PUNJL/NTPC IN THIS REGARD.

Founding level of minimum 0.5m embedment in to the rock shall be ensured at site


|  |   |
|--|---|
| BH&L-PROJECT ENGINEERING MANAGEMENT(CIVIL)       |   |
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| <input type="checkbox"/> PLANNING                | <input type="checkbox"/> INFORMATION  |
| <input checked="" type="checkbox"/> CONSTRUCTION |   |
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| ISSUED BY  |   |
| NAME   | ABHIJAY KUMAR   |
| SIGNATURE  | For  |
| DATE   | 15/04/2020  |

|   |             |
|---|-------------|
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| NAME  | ABHAY KUMAR |
| SIGNATURE   | -Sd-        |
| DATE  | 08/04/2020  |

NTPC NO.- 9585-001-315-PVC-C-0616

CUSTOMER PATRATU VIDYUT UTPADAN NIGAM LIMITED  
(A SUBSIDIARY OF NTPC LTD)

3x800MW PATRATU SUPER THERMAL POWER PROJECT

|              |     |   |   |
|--------------|-----|---|---|
| JOB NO.      | 434 |  | <b>BHARAT HEAVY ELECTRICALS LTD</b><br><b>POWER SECTOR</b><br><b>PROJECT ENGINEERING MANAGEMENT</b><br><b>NOIDA</b> |
| STATUS       |     |   |   |
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| TITLE   |  | CPU REGN BUILDING         |   |
|---|--|---------------------------|---|
| GA & RC DETAIL OF FOUNDATION & PEDESTAL   |  | PE-DB-434-639-C002        |   |
| PEDestal DETAILS AS<br>LEVATION A2, A4, C2, G4, B2,<br>B3, C3, A2 & A5 ARE<br>UPDATED TO ACCOMMODATE<br>BASE PLATE SIZES AND<br>MARKED AS <b>AS</b> |  | DEPT<br>C<br>DESM<br>APPD | NAME<br>SINGH<br>SHARADHA<br>SACHIN PATEL |
|   |  | SIGN                      | DATE                                      |
|   |  | SCALE: 1:80               | DRAWING NO                                |
|   |  | SHEET 1 OF 1              | REV. 01                                   |

**From:** "Mani Bhushan Kumar" <[manibhushankumar@ntpc.co.in](mailto:manibhushankumar@ntpc.co.in)>  
**To:** "Anil Kumar Verma, Sr Manager/CIV/PS-PEM" <[anilverma@bhel.in](mailto:anilverma@bhel.in)>  
**Cc:** [jitendrakumar07@ntpc.co.in](mailto:jitendrakumar07@ntpc.co.in), [dkmishra@bhel.in](mailto:dkmishra@bhel.in), "TMS RAO, PEM" <[tmsrao@bhel.in](mailto:tmsrao@bhel.in)>, "pankaj\_kumar" <[pankaj\\_kumar@bhel.in](mailto:pankaj_kumar@bhel.in)>, "Abhay Kumar, Dy GM/CIV/PS-PEM" <[abhay\\_kumar@bhel.in](mailto:abhay_kumar@bhel.in)>, "SABYASACHI DEGHURIA, PEM" <[sdeghuria@bhel.in](mailto:sdeghuria@bhel.in)>, "Subhramani Khadanga" <[skhadanga@ntpc.co.in](mailto:skhadanga@ntpc.co.in)>  
**Sent:** Tuesday, April 7, 2020 4:24:31 PM  
**Subject:** Re: PATRATU 3X800MW STPP\_CPU REGN BLDG

Sir,

This is w.r.t. trailing mail.

Based on geotechnical investigation report, SBC of 30t/sq.m @ 2.0m depth below FGL may be considered for CPU regeneration building. However, minimum 0.5m embedment in rock shall be ensured at site for 30 t/m2 SBC.

With Regards,  
Mani Bhushan Kumar  
Sr. Manager (PE-Civil)  
EOC, NTPC Ltd,  
Sector-24, Noida, UP-201301,  
Tel: 01204946414  
Mob: 9650997962

----- Original Message -----

From: Anil Kumar Verma(Sr Manager/CIV/PS-PEM) <[anilverma@bhel.in](mailto:anilverma@bhel.in)>  
To: [manibhushankumar@ntpc.co.in](mailto:manibhushankumar@ntpc.co.in), [jitendrakumar07@ntpc.co.in](mailto:jitendrakumar07@ntpc.co.in)  
Cc: DHANANJAY MISHRA, PEM <[dkmishra@bhel.in](mailto:dkmishra@bhel.in)>, TMS RAO, PEM <[tmsrao@bhel.in](mailto:tmsrao@bhel.in)>, pankaj\_kumar <[pankaj\\_kumar@bhel.in](mailto:pankaj_kumar@bhel.in)>, Abhay Kumar(Dy GM/CIV/PS-PEM) <[abhay\\_kumar@bhel.in](mailto:abhay_kumar@bhel.in)>, Sabyasachi Deghuria, Dy Manager/CIV/PS-PEM <[sdeghuria@bhel.in](mailto:sdeghuria@bhel.in)>  
Sent: Mon, 06 Apr 2020 16:56:52 +0530 (IST)  
Subject: PATRATU 3X800MW STPP\_CPU REGN BLDG

-----Email received from [External domain] from Internet. Actual Sender:-- [anilverma@bhel.in](mailto:anilverma@bhel.in)-----

Dear Sir

The location of CPU Regeneration building has been shifted from earlier location considered during Geotechnical Investigation of 3x800 MW Patratu project. With reference to the latest plot plan enclosed, nearest bore hole to CPU Regeneration building is BH-134 for which Net SBC recommendation as per approved soil report is 30 T/m2 at a depth of 2m below FGL. Hence the design of CPU building has been done by adopting Net SBC of 30T/m2 at 2m depth below FGL.

This is for your information and acceptance please.

ANIL KUMAR VERMA  
Sr. Mgr (Civil)  
BHEL, PEM, NOIDA  
9425019680