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20 METER WATER TOWER



U.S. Army Corps
OF Engineers
AFGHANISTAN ENGINEER DISTRICT
AFGHANISTAN, APO AE, 09356

17 DECEMBER 2009



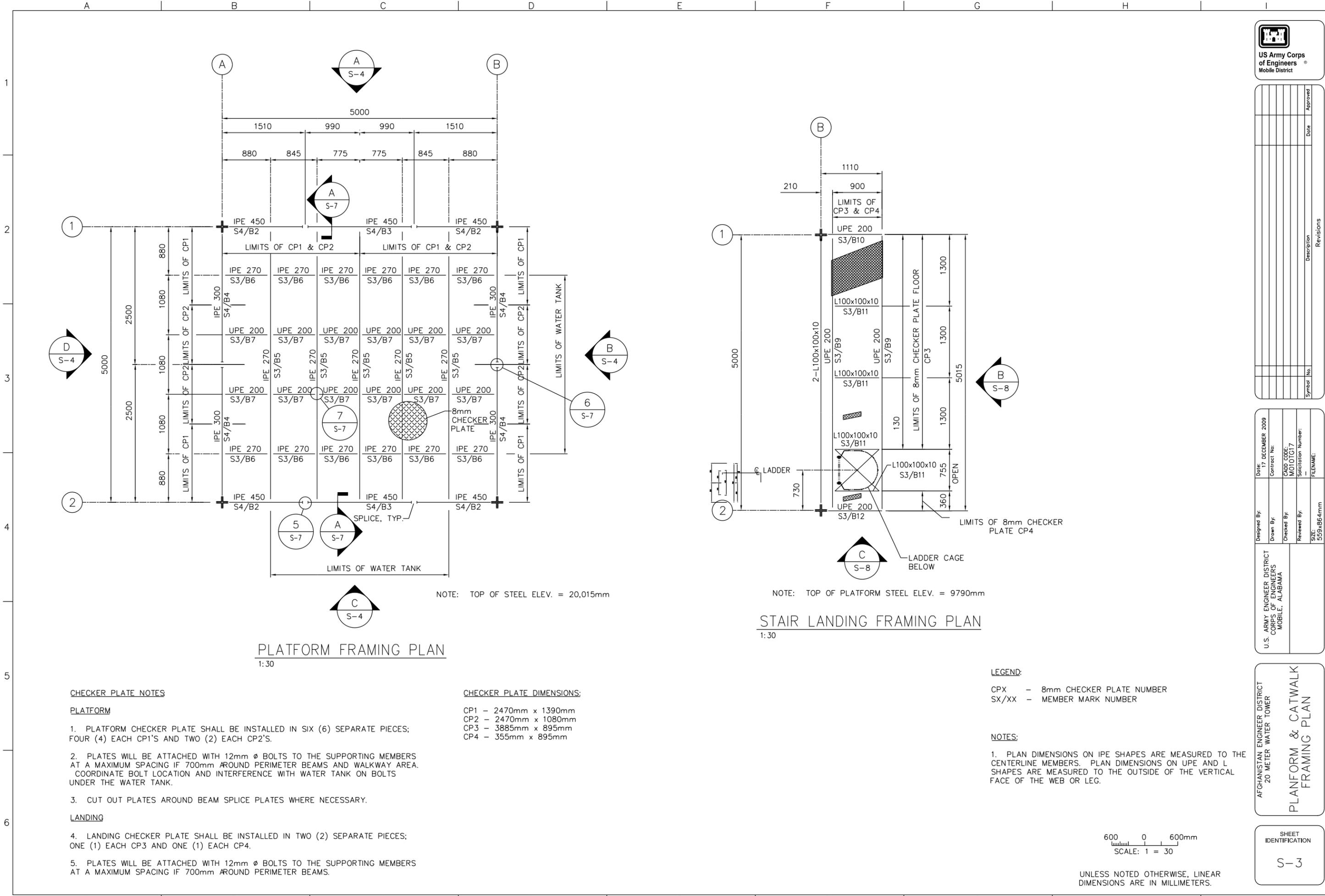
US Army Corps of Engineers
Mobile District

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| Designed By: | Date: | 17 DECEMBER 2009 |
| Drawn By: | Contract No: | |
| Checked By: | CADD CODE: | MO10TG17 |
| Reviewed By: | Solicitation Number: | |
| SIZE: | FILENAME: | |

AFGHANISTAN ENGINEER DISTRICT
20 METER WATER TOWER
PLANFORM & CATWALK
FRAMING PLAN

SHEET IDENTIFICATION
S-3



NOTE: TOP OF STEEL ELEV. = 20,015mm

NOTE: TOP OF PLATFORM STEEL ELEV. = 9790mm

PLATFORM FRAMING PLAN
1:30

STAIR LANDING FRAMING PLAN
1:30

CHECKER PLATE NOTES

PLATFORM

1. PLATFORM CHECKER PLATE SHALL BE INSTALLED IN SIX (6) SEPARATE PIECES; FOUR (4) EACH CP1'S AND TWO (2) EACH CP2'S.
2. PLATES WILL BE ATTACHED WITH 12mm Ø BOLTS TO THE SUPPORTING MEMBERS AT A MAXIMUM SPACING IF 700mm AROUND PERIMETER BEAMS AND WALKWAY AREA. COORDINATE BOLT LOCATION AND INTERFERENCE WITH WATER TANK ON BOLTS UNDER THE WATER TANK.
3. CUT OUT PLATES AROUND BEAM SPLICE PLATES WHERE NECESSARY.

LANDING

4. LANDING CHECKER PLATE SHALL BE INSTALLED IN TWO (2) SEPARATE PIECES; ONE (1) EACH CP3 AND ONE (1) EACH CP4.
5. PLATES WILL BE ATTACHED WITH 12mm Ø BOLTS TO THE SUPPORTING MEMBERS AT A MAXIMUM SPACING IF 700mm AROUND PERIMETER BEAMS.

CHECKER PLATE DIMENSIONS:

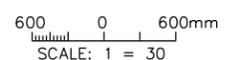
- CP1 - 2470mm x 1390mm
- CP2 - 2470mm x 1080mm
- CP3 - 3885mm x 895mm
- CP4 - 355mm x 895mm

LEGEND:

- CPX - 8mm CHECKER PLATE NUMBER
- SX/XX - MEMBER MARK NUMBER

NOTES:

1. PLAN DIMENSIONS ON IPE SHAPES ARE MEASURED TO THE CENTERLINE MEMBERS. PLAN DIMENSIONS ON UPE AND L SHAPES ARE MEASURED TO THE OUTSIDE OF THE VERTICAL FACE OF THE WEB OR LEG.



UNLESS NOTED OTHERWISE, LINEAR DIMENSIONS ARE IN MILLIMETERS.



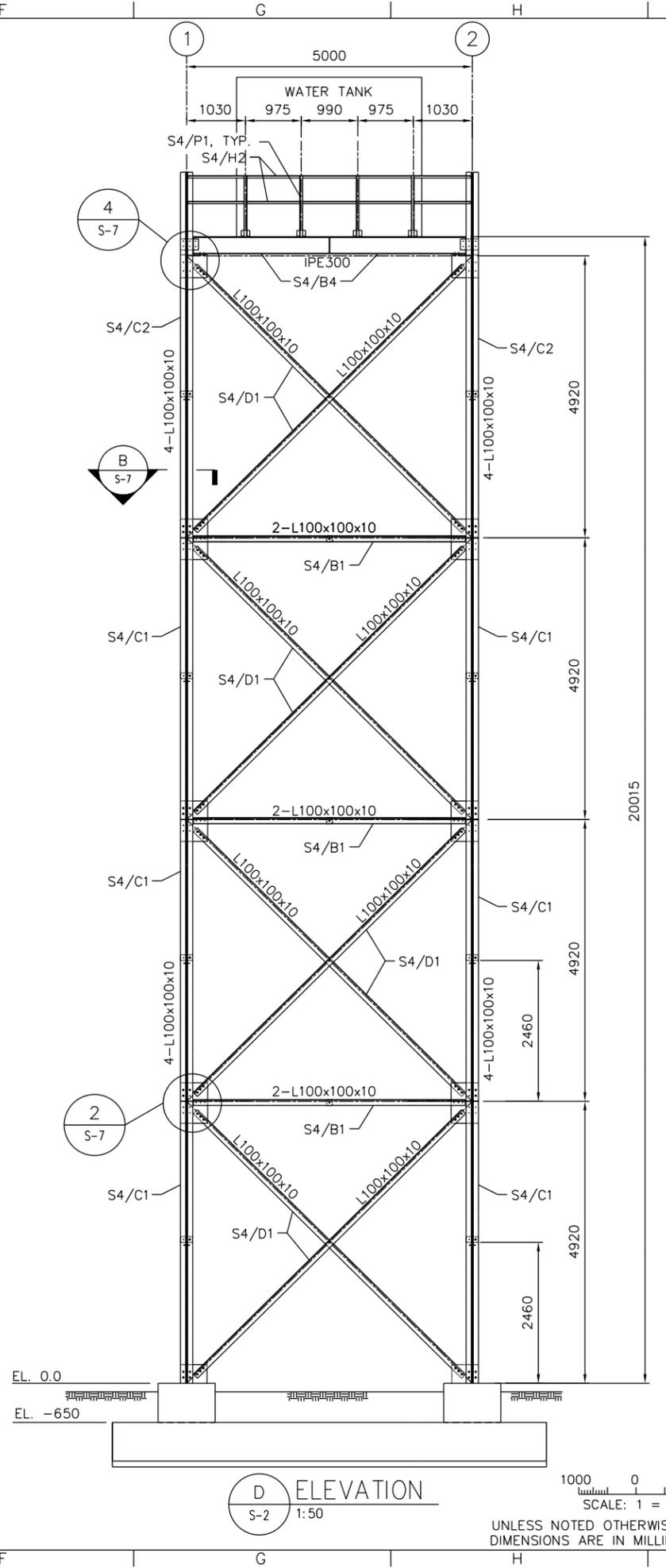
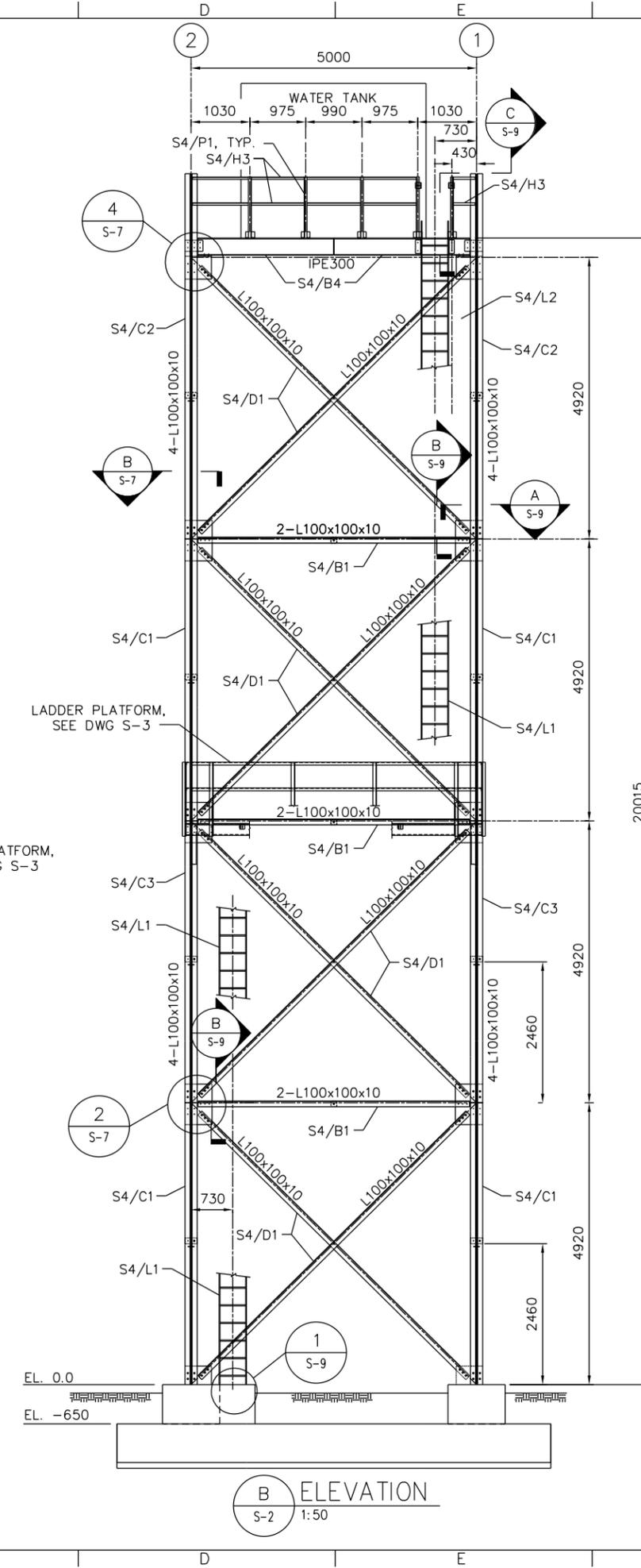
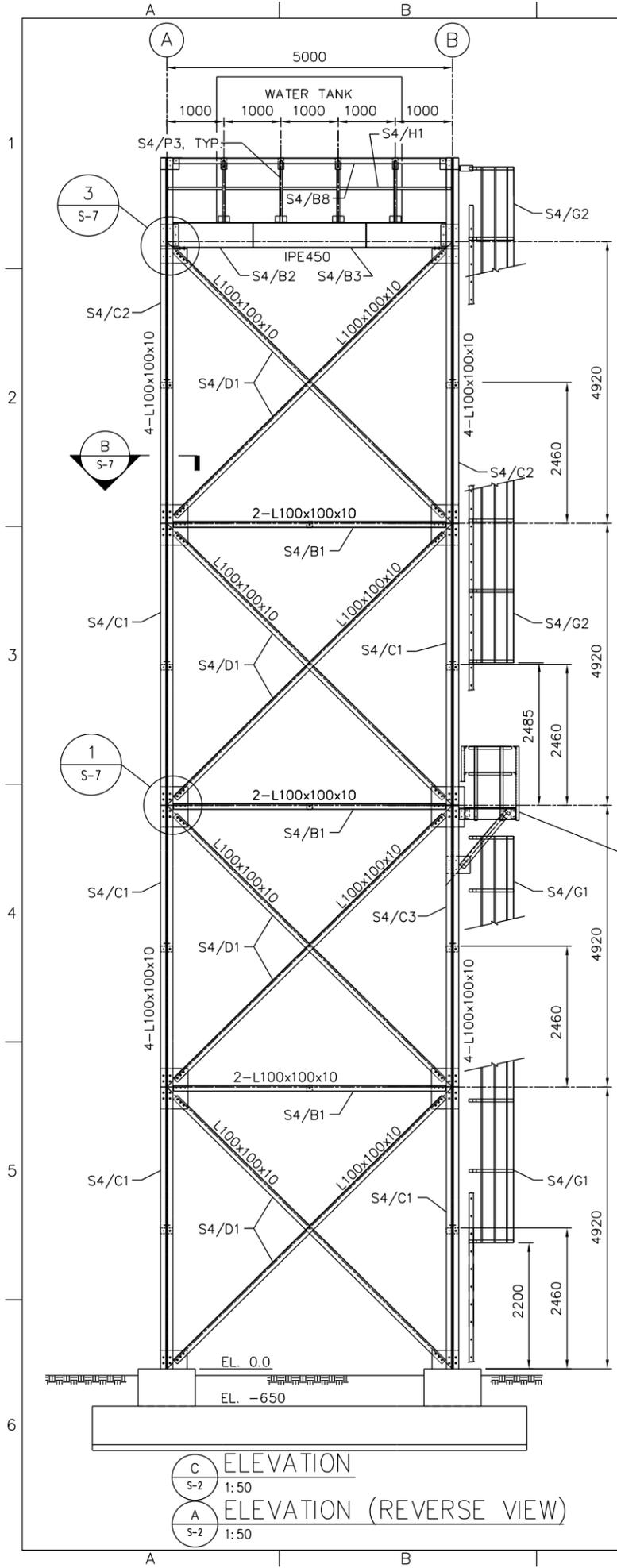
US Army Corps of Engineers
Mobile District

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| Designed By: | Date: 17 DECEMBER 2009 |
| Drawn By: | Contract No: |
| Checked By: | CADD CODE: M010TC17 |
| Reviewed By: | Solicitation Number: |
| SIZE: 559x864mm | FILENAME: |

AFGHANISTAN ENGINEER DISTRICT
20 METER WATER TOWER
ELEVATIONS

SHEET IDENTIFICATION
S-4



1000 0 1000mm
SCALE: 1 = 50

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US Army Corps of Engineers
Mobile District

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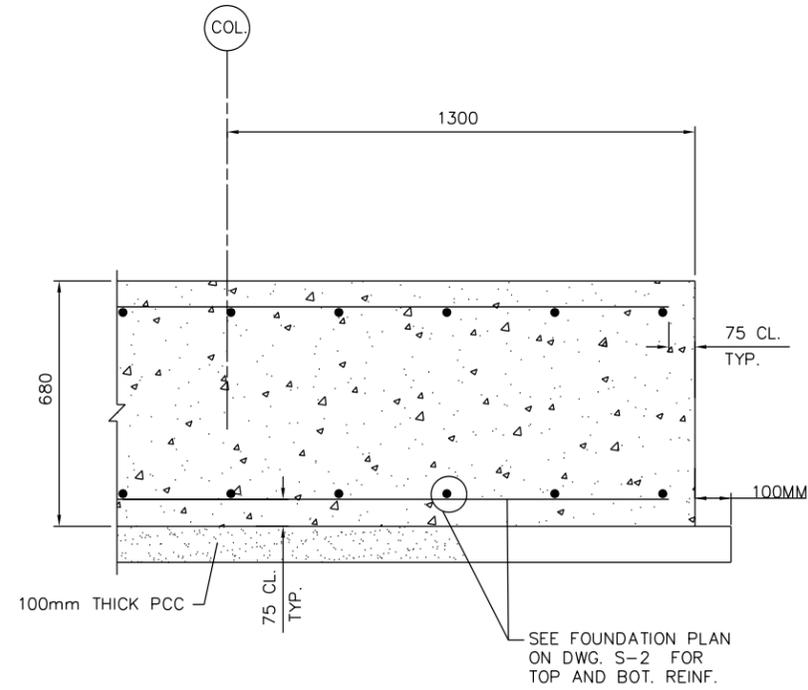
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| Designed By: | Date: | 17 DECEMBER, 2009 |
| Drawn By: | Contract No: | |
| Checked By: | CADD CODE: | MO10TG17 |
| Reviewed By: | Specification Number: | |
| | FILENAME: | |

AFGHANISTAN ENGINEER DISTRICT
20 METER WATER TOWER

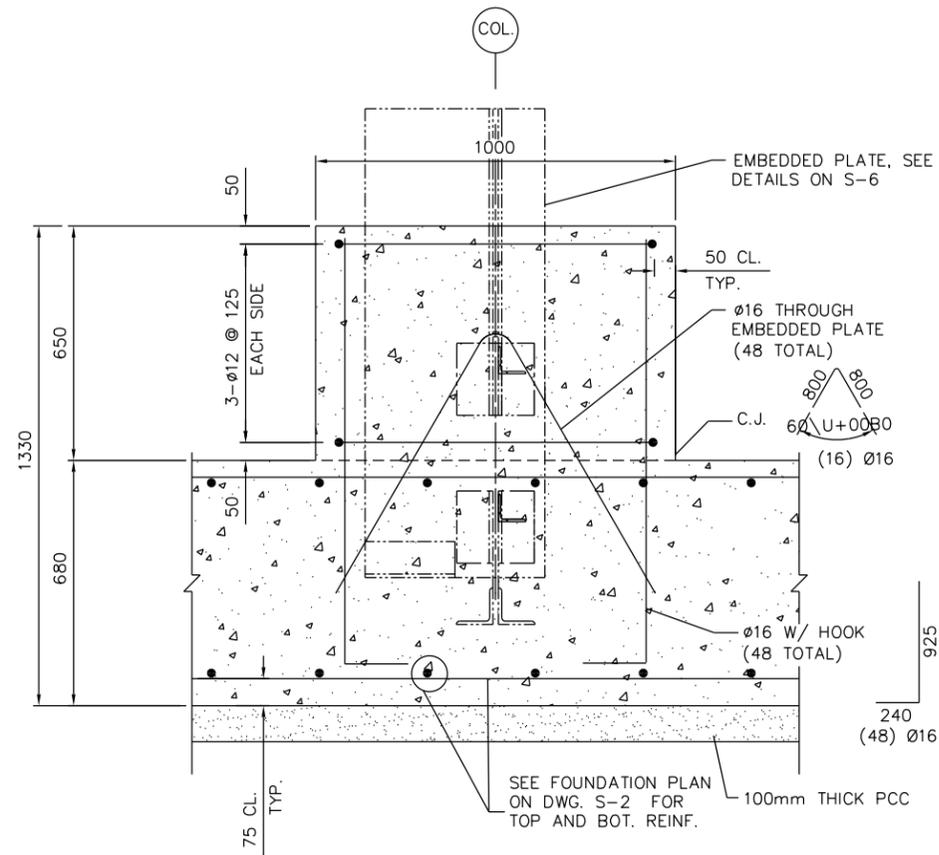
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
MOBILE, ALABAMA

FOUNDATION SECTIONS

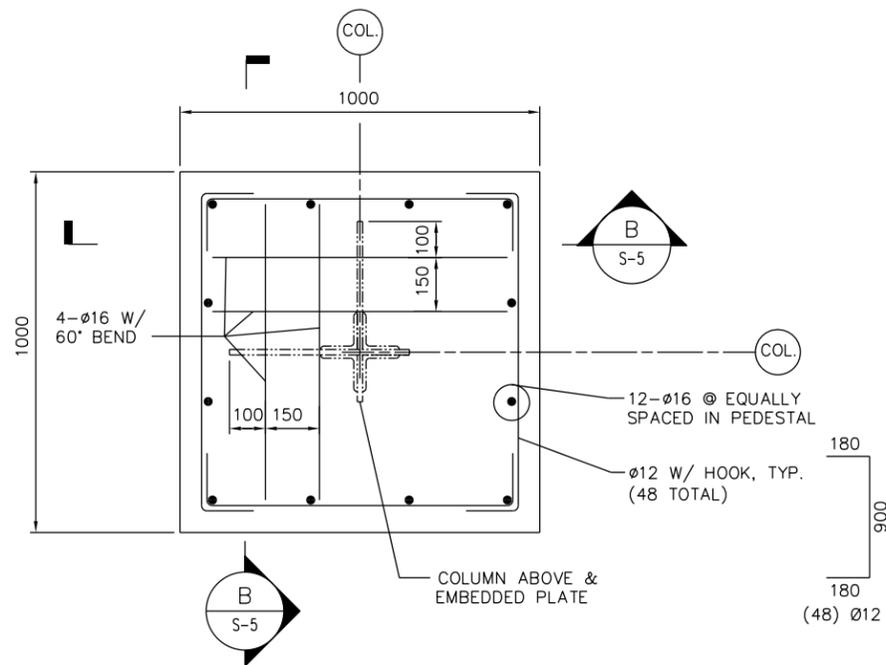
SHEET IDENTIFICATION
S-5



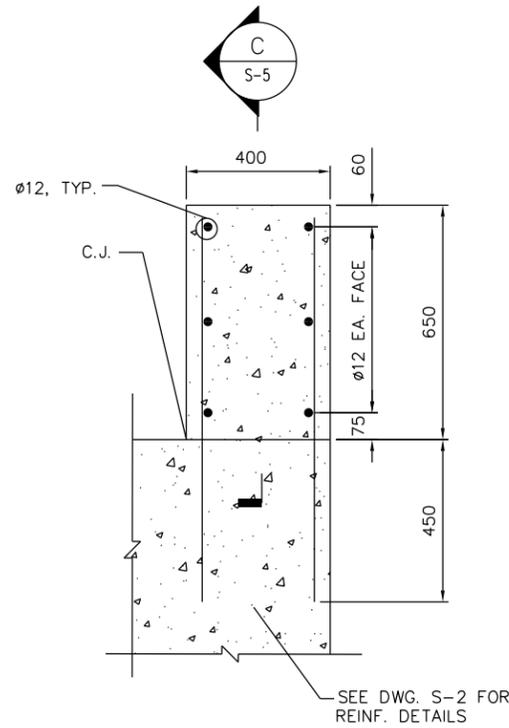
SECTION A
1:10
S-2



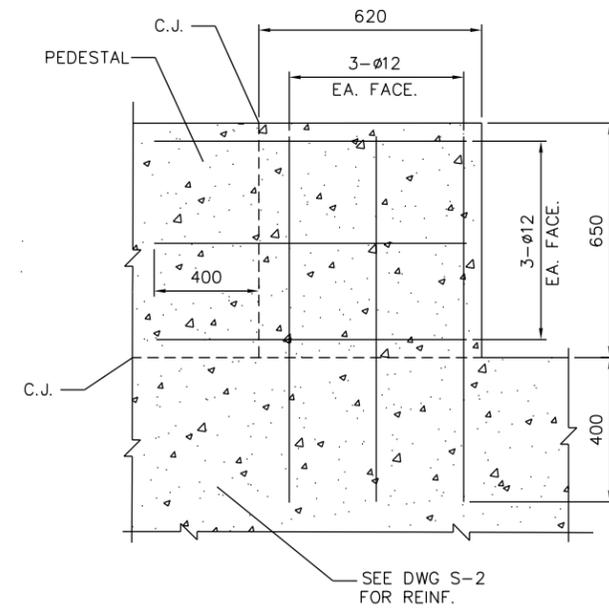
SECTION B
1:10
S-2
S-5



DETAIL 1
1:10
S-2



DETAIL 2
1:10
S-2



SECTION C
1:10
S-5

NOTE: SEPARATE CONCRETE PLACEMENT. SEE DETAIL 1 ON DRAWING S-9 FOR ANCHOR BOLT REQUIREMENTS.

200 0 200mm
SCALE: 1 = 10

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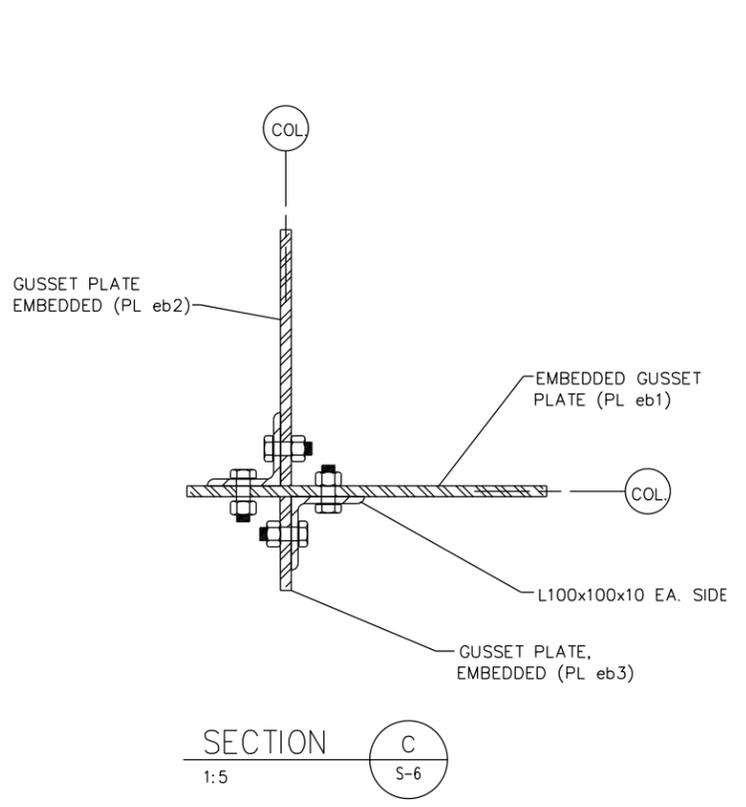
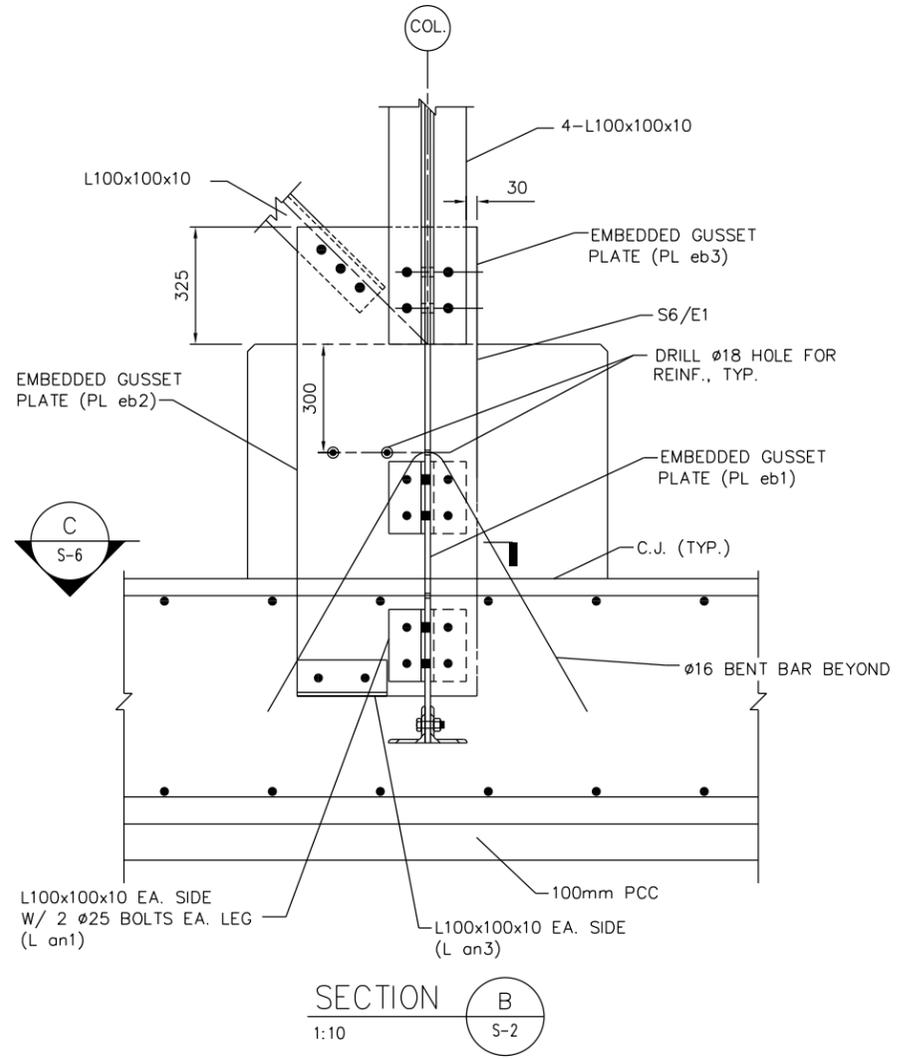
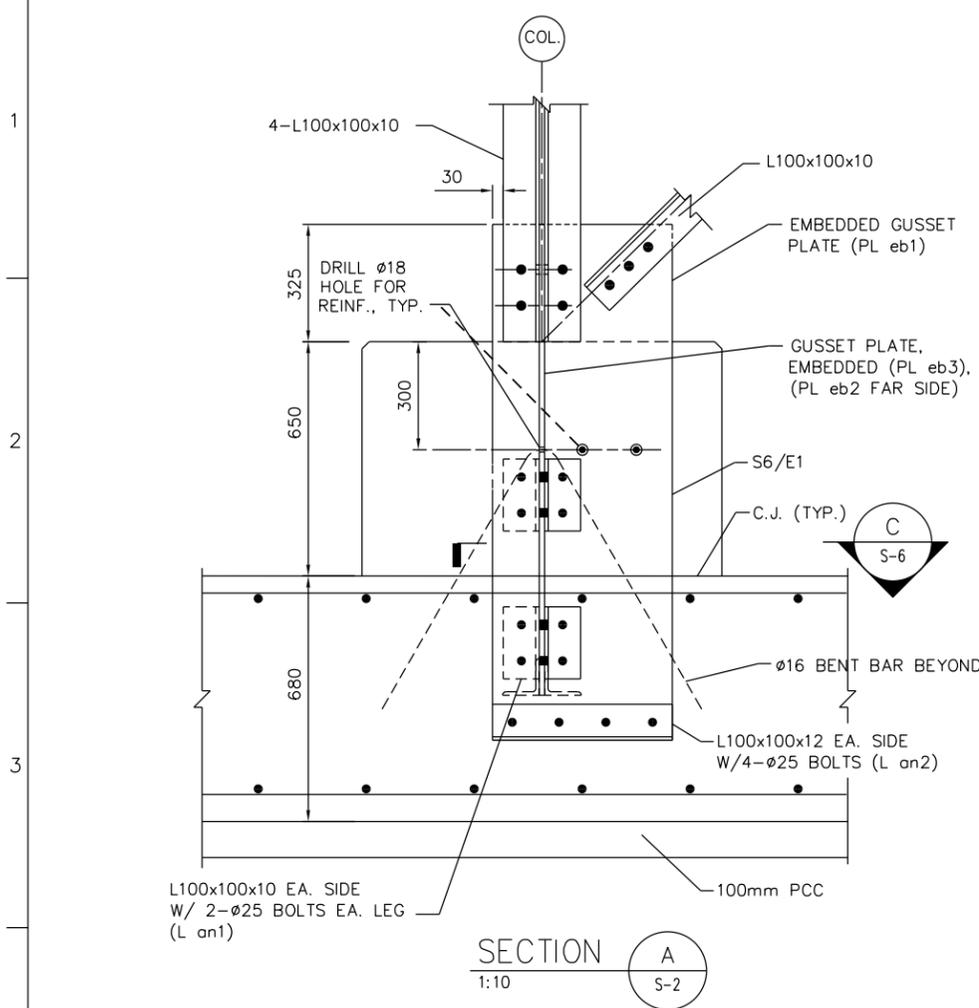


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AFGHANISTAN ENGINEER DISTRICT
20 METER WATER TOWER
FOUNDATION STEEL
FRAMING SECTIONS

SHEET IDENTIFICATION
S-6



UNLESS NOTED OTHERWISE, LINEAR DIMENSIONS ARE IN MILLIMETERS.

A B C D E F G H

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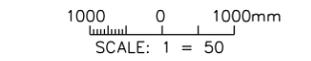
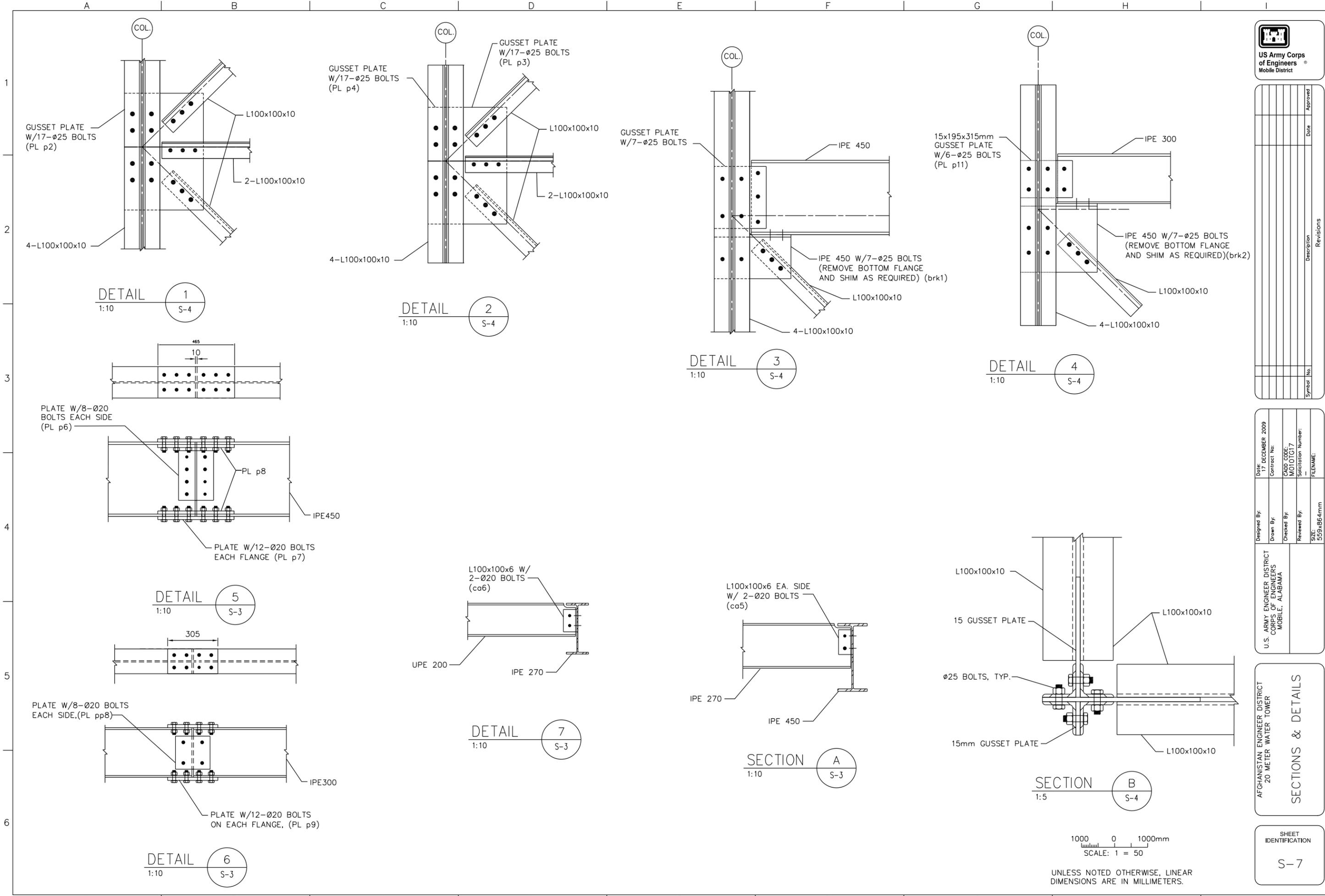
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| | FILENAME: | |
| | SIZE: | 559x864mm |

AFGHANISTAN ENGINEER DISTRICT
20 METER WATER TOWER

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
MOBILE, ALABAMA

SHEET IDENTIFICATION
S-7



UNLESS NOTED OTHERWISE, LINEAR DIMENSIONS ARE IN MILLIMETERS.



US Army Corps
of Engineers
Mobile District

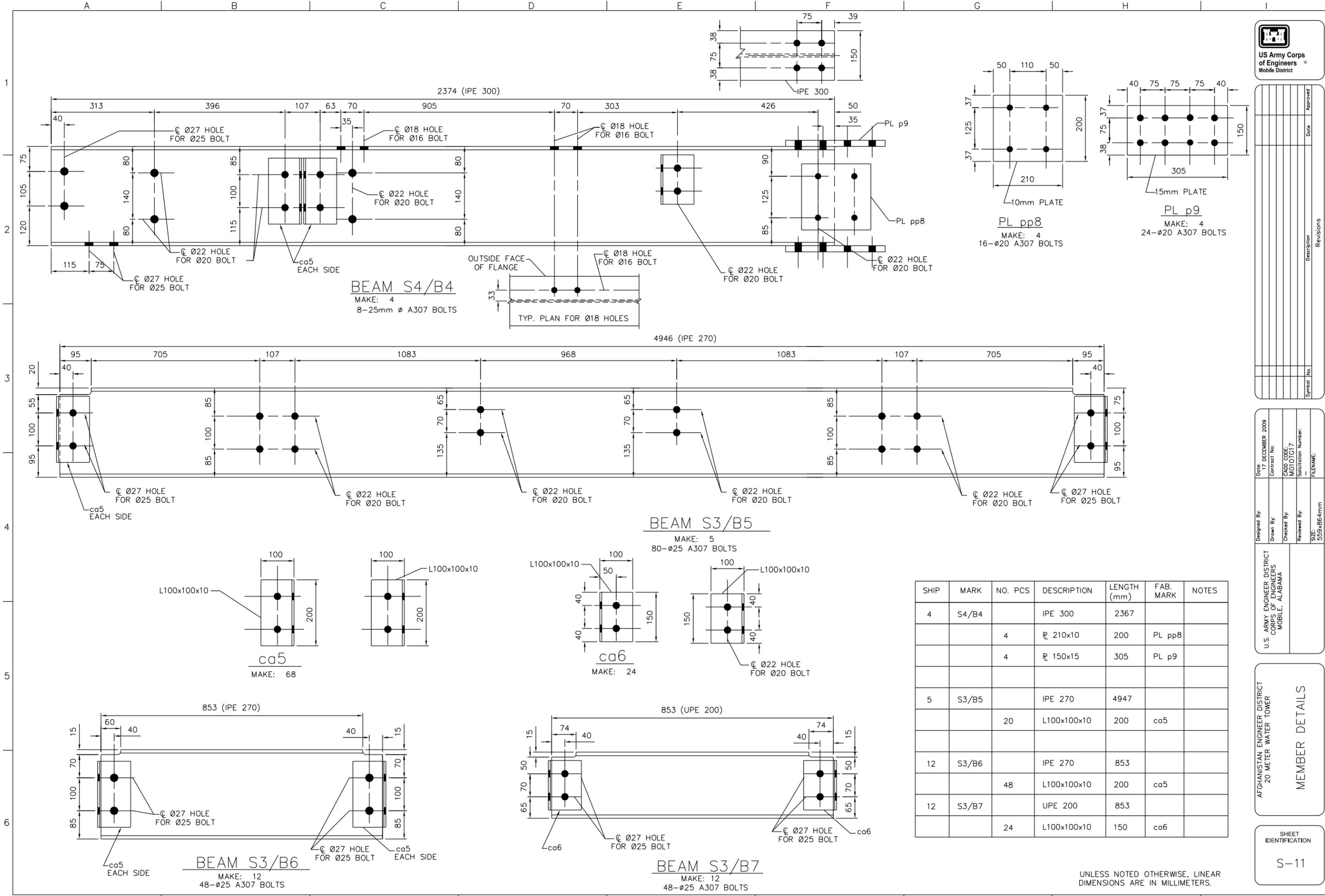
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| Designed By: | Date: | 7 DECEMBER 2009 |
| Drawn By: | Contract No: | |
| Checked By: | CADD CODE: | M010TG17 |
| Reviewed By: | Solicitation Number: | |
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AFGHANISTAN ENGINEER DISTRICT
20 METER WATER TOWER
MEMBER DETAILS

SHEET IDENTIFICATION

S-11



UNLESS NOTED OTHERWISE, LINEAR DIMENSIONS ARE IN MILLIMETERS.



US Army Corps
of Engineers
Mobile District

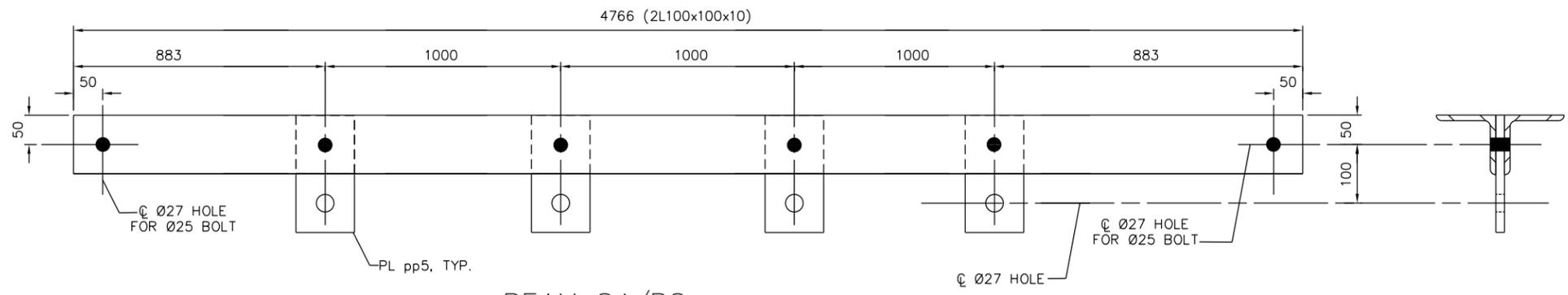
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| SIZE: | FILENAME: | |

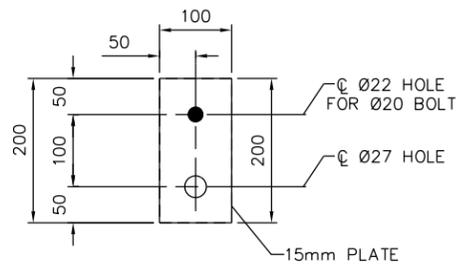
AFGHANISTAN ENGINEER DISTRICT
20 METER WATER TOWER

MEMBER DETAILS

SHEET IDENTIFICATION
S-12



BEAM S4/B8
MAKE: 2
4-Ø25 A307 BOLTS



PL pp5
MAKE: 8
8-Ø20 A307 BOLTS

| SHIP | MARK | NO. PCS | DESCRIPTION | LENGTH (mm) | FAB. MARK | NOTES |
|------|-------|---------|--------------|-------------|-----------|-------|
| 4 | S4/B8 | | 2L100x100x10 | 4766 | | |
| | | 4 | PL 15x100 | 200 | PL pp5 | |
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UNLESS NOTED OTHERWISE, LINEAR DIMENSIONS ARE IN MILLIMETERS.



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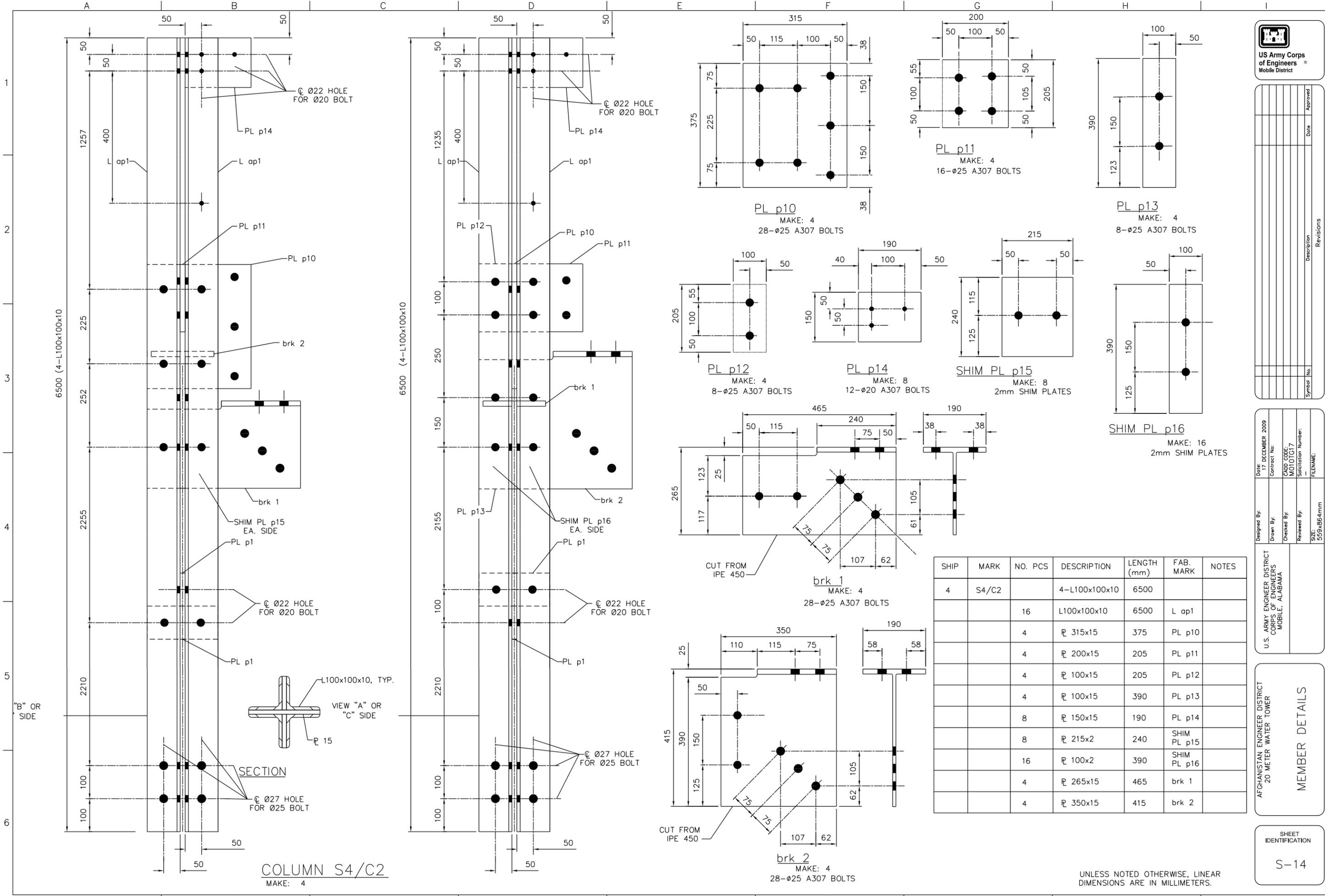
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| Drawn By: | 17 DECEMBER 2009 | |
| Checked By: | CADD CODE: | MO10TC17 |
| Reviewed By: | Solicitation Number: | |
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AFGHANISTAN ENGINEER DISTRICT
20 METER WATER TOWER

MEMBER DETAILS

SHEET IDENTIFICATION
S-14



| SHIP | MARK | NO. PCS | DESCRIPTION | LENGTH (mm) | FAB. MARK | NOTES |
|------|-------|---------|---------------|-------------|-------------|-------|
| 4 | S4/C2 | | 4-L100x100x10 | 6500 | | |
| | | 16 | L100x100x10 | 6500 | L op1 | |
| | | 4 | PL 315x15 | 375 | PL p10 | |
| | | 4 | PL 200x15 | 205 | PL p11 | |
| | | 4 | PL 100x15 | 205 | PL p12 | |
| | | 4 | PL 100x15 | 390 | PL p13 | |
| | | 8 | PL 150x15 | 190 | PL p14 | |
| | | 8 | PL 215x2 | 240 | SHIM PL p15 | |
| | | 16 | PL 100x2 | 390 | SHIM PL p16 | |
| | | 4 | PL 265x15 | 465 | brk 1 | |
| | | 4 | PL 350x15 | 415 | brk 2 | |

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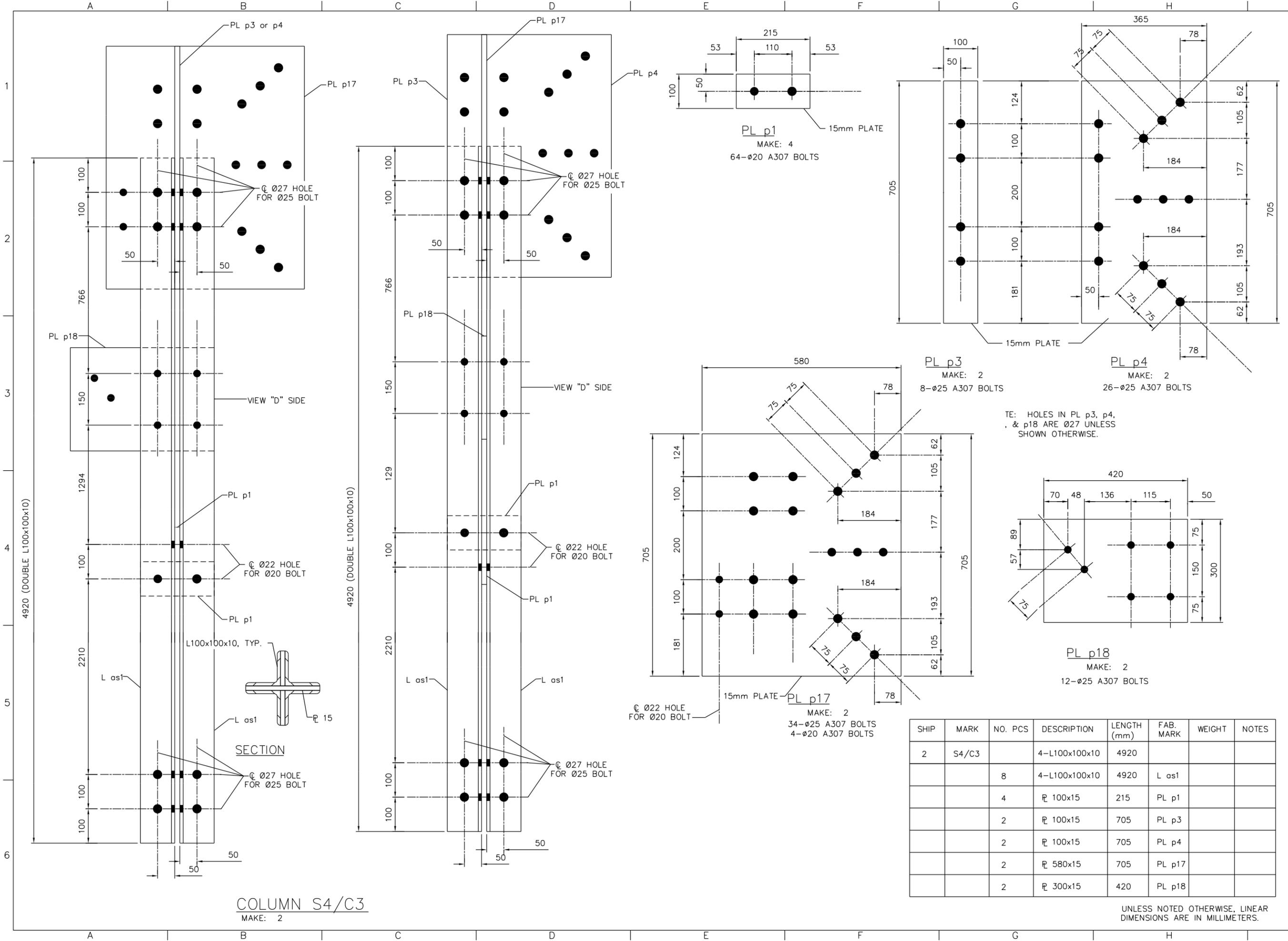
US Army Corps
of Engineers
Mobile District

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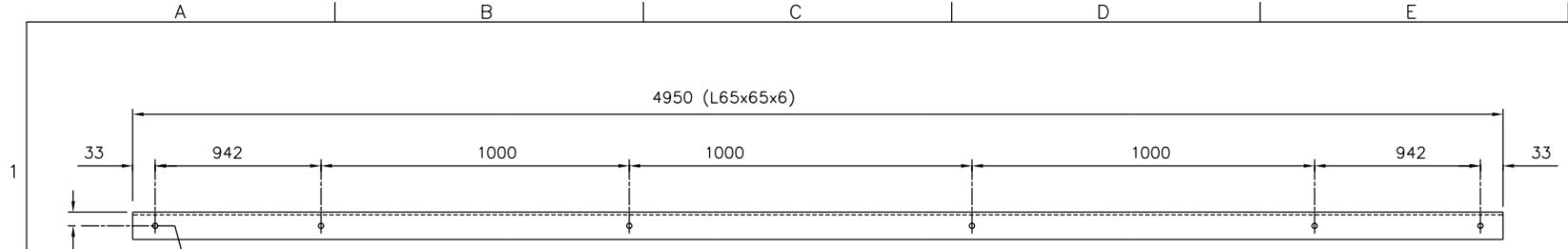
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| Checked By: | CADD CODE: | MO10TG17 |
| Reviewed By: | Solicitation Number: | |
| SIZE: | FILENAME: | 559-864mm |

AFGHANISTAN ENGINEER DISTRICT
20 METER WATER TOWER
MEMBER DETAILS

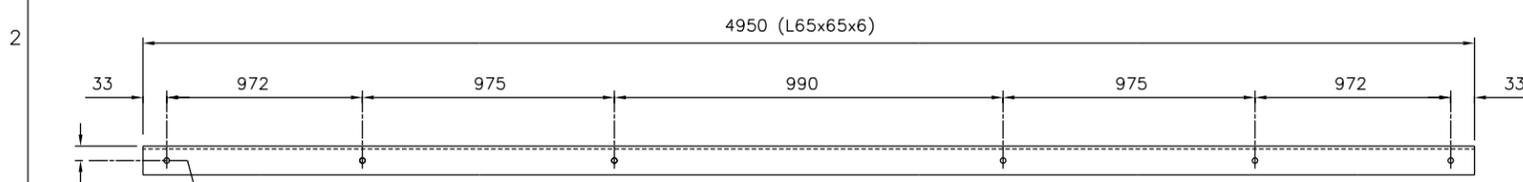
SHEET IDENTIFICATION
S-15



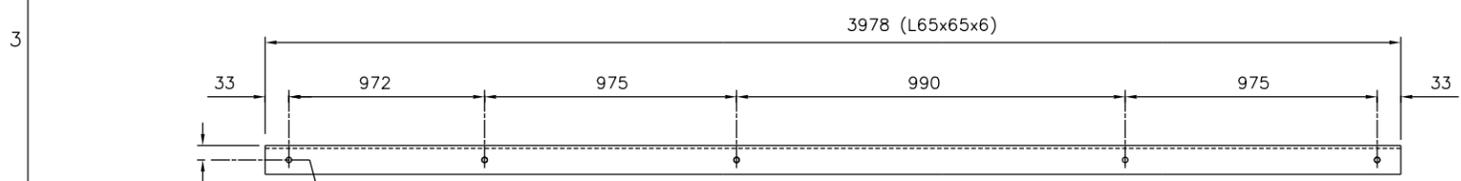
COLUMN S4/C3
MAKE: 2



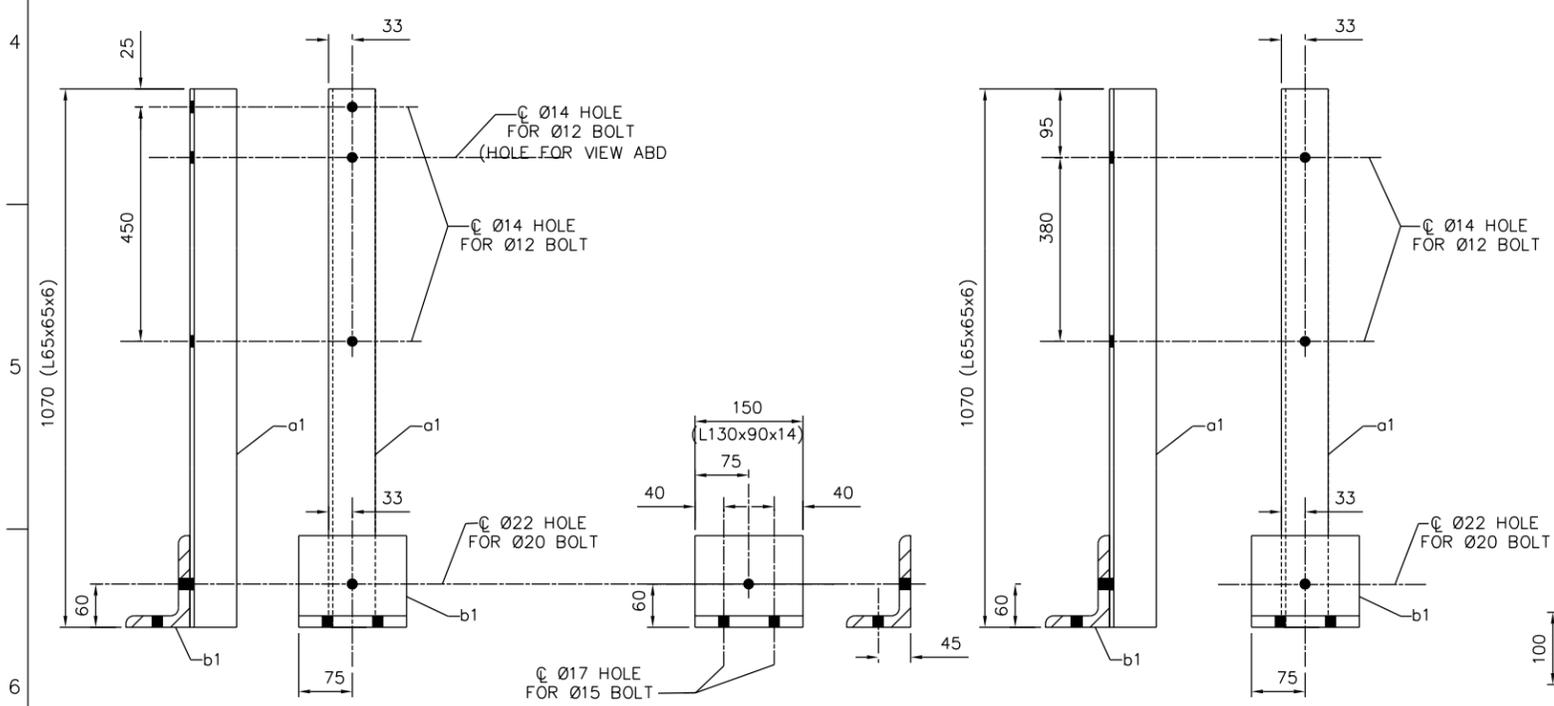
HANDRAIL S4/H1
MAKE: 2
24-Ø12 A307 BOLTS



HANDRAIL S4/H2
MAKE: 2
20-Ø12 A307 BOLTS

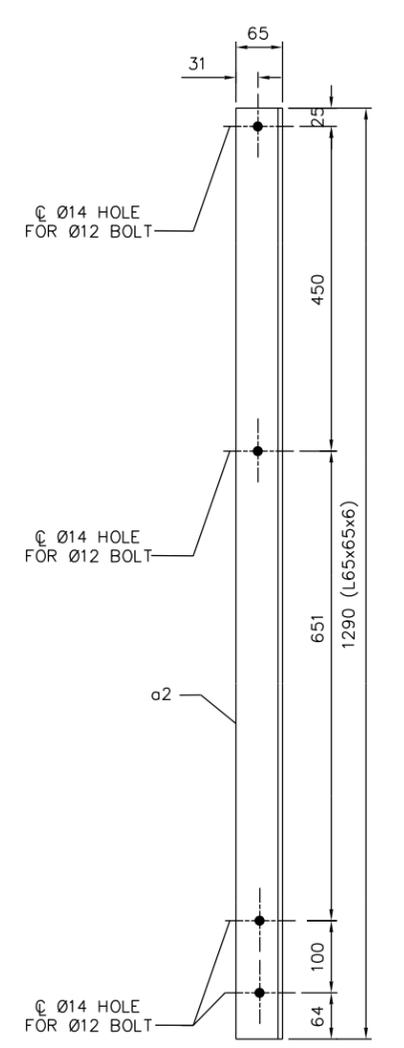


HANDRAIL S4/H3
MAKE: 2
10-Ø12 A307 BOLTS

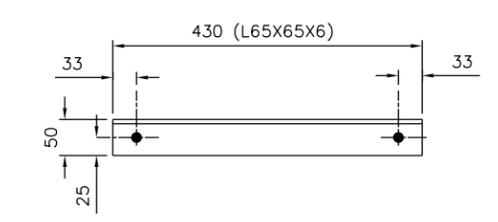


HANDRAIL POST S4/P1
MAKE: 9
28-Ø12 A307 BOLTS
42-Ø15 A307 BOLTS

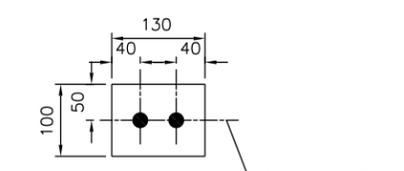
HANDRAIL POST S4/P3
MAKE: 8
28-Ø12 A307 BOLTS
42-Ø15 A307 BOLTS



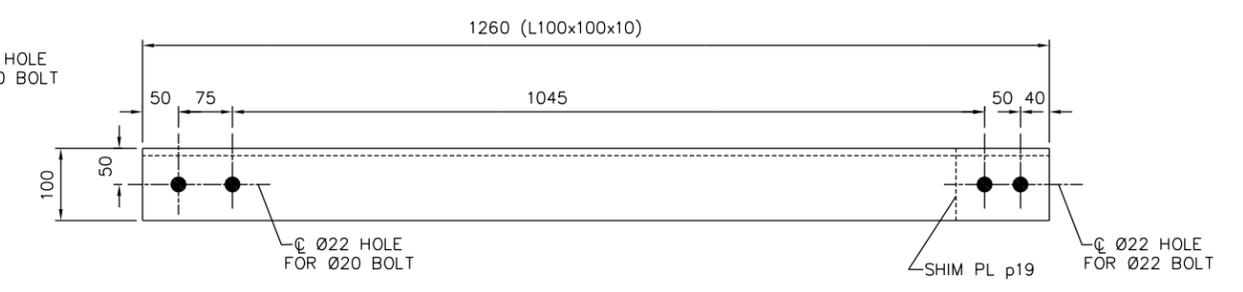
HANDRAIL POST S8/P2
MAKE: 12
48-12 Ø A307 BOLTS



HANDRAIL S4/H4
MAKE: 2
4-Ø12 A307 BOLTS



SHIM PL_p19
MAKE: 2
15mm SHIM PLATES



BEAM S8/BR1
MAKE: 2
4-Ø15 A307 BOLTS

| SHIP | MARK | NO. PCS | DESCRIPTION | LENGTH (mm) | FAB. MARK | NOTES |
|------|--------|---------|---------------|-------------|-----------|-------|
| 2 | S4/H1 | | L65x65x6 | 4950 | | |
| 2 | S4/H2 | | L65x65x6 | 4950 | | |
| 2 | S4/H3 | | L65x65x6 | 3978 | | |
| 2 | S4/H4 | | L65x65x6 | 3978 | | |
| 14 | S4/P1 | | L65x65x6 | 1070 | | |
| | | 14 | L130x90x14 | 150 | b1 | |
| 12 | S4/P2 | | HANDRAIL POST | 1290 | | |
| | | 14 | L65x65x6 | 1290 | a2 | |
| 2 | S8/BR1 | | L100x100x10 | 1260 | | |
| | | 2 | PL 100x15 | 130 | PL p19 | |



| Symbol No | Description | Date | Approved |
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AFGHANISTAN ENGINEER DISTRICT
20 METER WATER TOWER
MEMBER DETAILS

SHEET IDENTIFICATION
S-16

UNLESS NOTED OTHERWISE, LINEAR DIMENSIONS ARE IN MILLIMETERS.



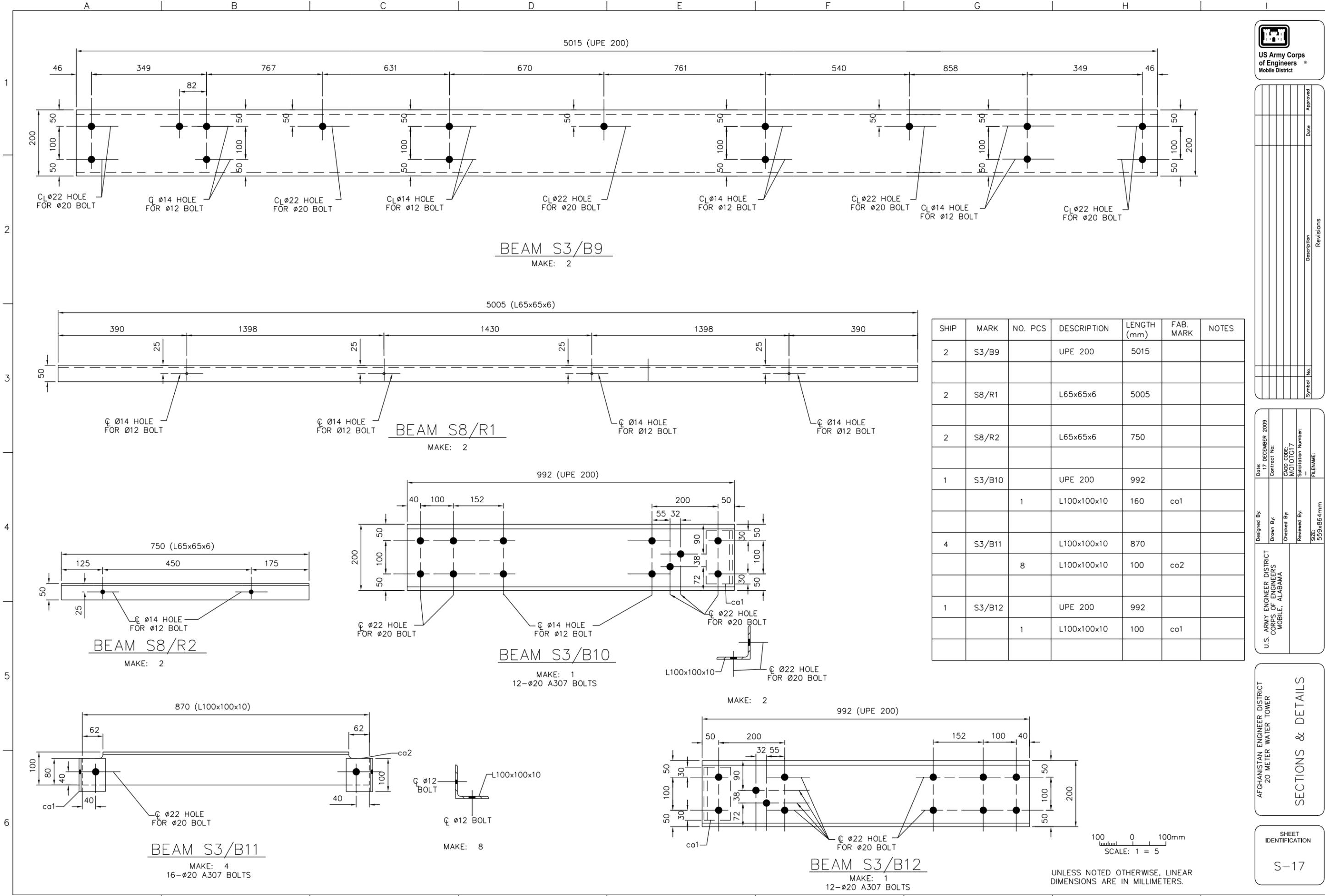
US Army Corps
of Engineers®
Mobile District

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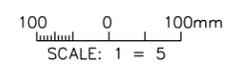
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| | FILENAME: | |
| | SIZE: | 559x864mm |

AFGHANISTAN ENGINEER DISTRICT
20 METER WATER TOWER

SHEET IDENTIFICATION
S-17



| SHIP | MARK | NO. PCS | DESCRIPTION | LENGTH (mm) | FAB. MARK | NOTES |
|------|--------|---------|-------------|-------------|-----------|-------|
| 2 | S3/B9 | | UPE 200 | 5015 | | |
| 2 | S8/R1 | | L65x65x6 | 5005 | | |
| 2 | S8/R2 | | L65x65x6 | 750 | | |
| 1 | S3/B10 | | UPE 200 | 992 | | |
| | | 1 | L100x100x10 | 160 | ca1 | |
| 4 | S3/B11 | | L100x100x10 | 870 | | |
| | | 8 | L100x100x10 | 100 | ca2 | |
| 1 | S3/B12 | | UPE 200 | 992 | | |
| | | 1 | L100x100x10 | 100 | ca1 | |



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US Army Corps
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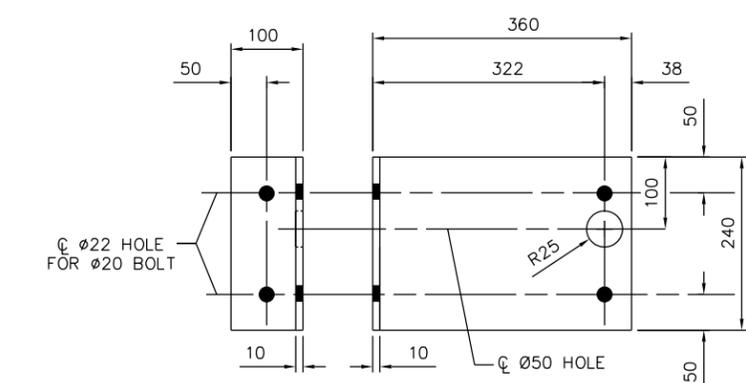
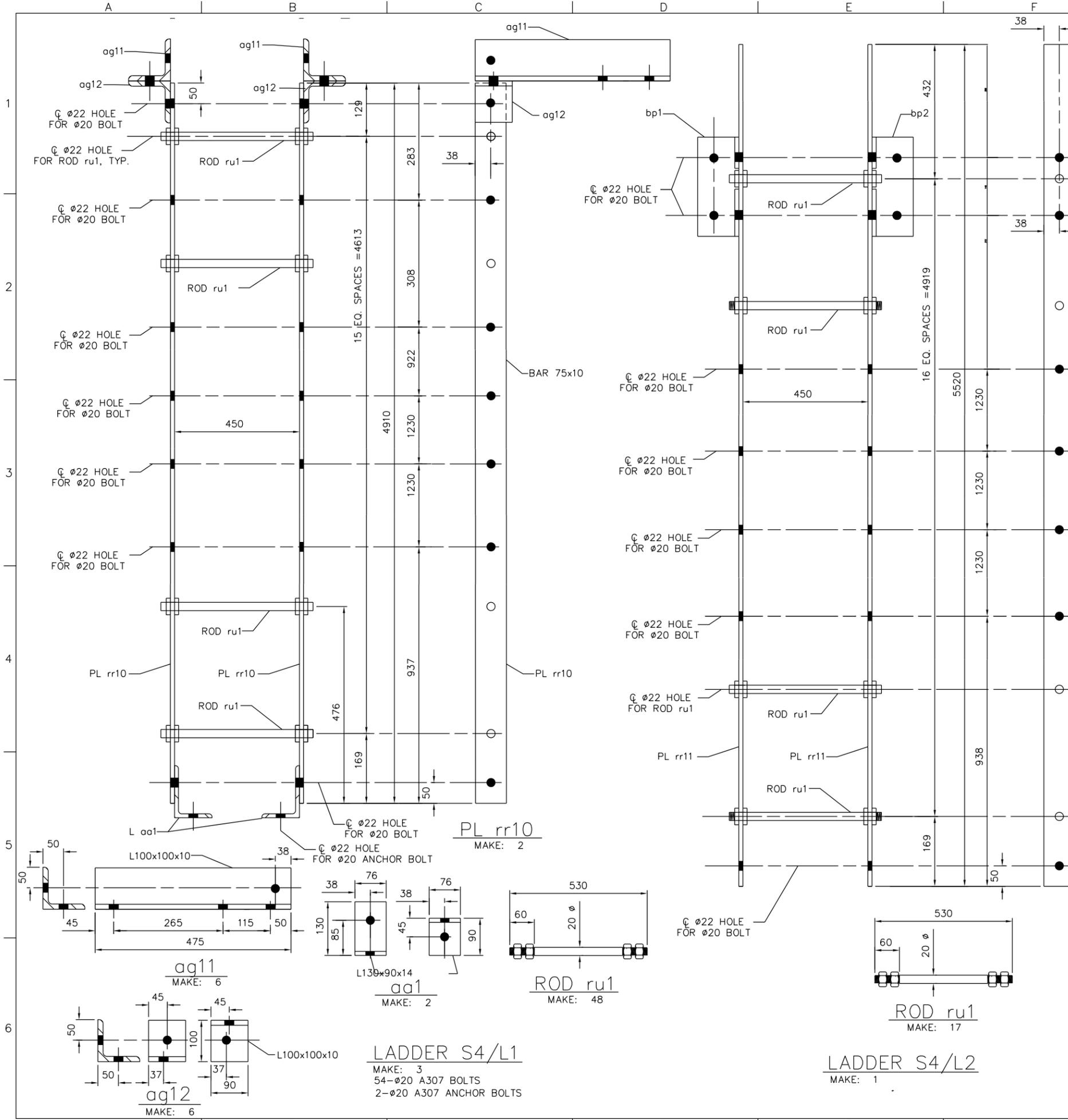
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AFGHANISTAN ENGINEER DISTRICT
20 METER WATER TOWER

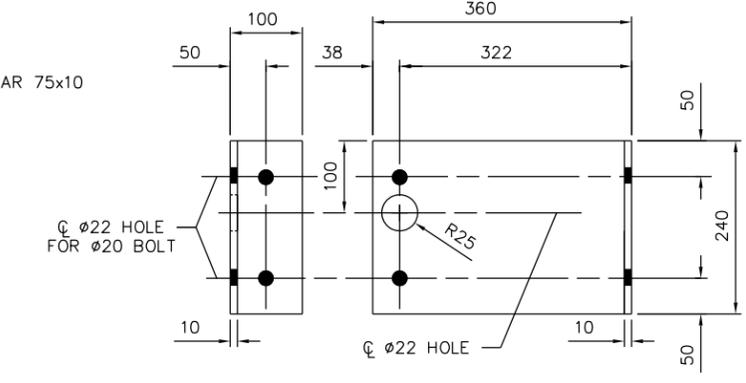
SECTIONS & DETAILS

SHEET IDENTIFICATION

S-18



bp1
MAKE: 1



bp2
MAKE: 1

| SHIP | MARK | NO. PCS | DESCRIPTION | LENGTH (mm) | FAB. MARK | WEIGHT | NOTES |
|------|-------|---------|-------------|-------------|-----------|--------|-------|
| 3 | S4/L1 | | LADDER | 4910 | | | |
| | | 6 | PL 10x75 | 4910 | PL rr10 | | |
| | | 48 | Ø20 | 530 | ROD ru1 | | |
| | | 2 | L130x90x14 | 75 | aa1 | | |
| | | 6 | L100x100x10 | 475 | ag11 | | |
| | | 6 | L100x100x10 | 76 | ag12 | | |
| 1 | S4/L2 | | LADDER | 4910 | | | |
| | | 2 | PL 10x75 | 5920 | PL rr11 | | |
| | | 17 | Ø20 | 530 | ROD ru1 | | |
| | | 1 | PL 10x460 | 240 | bp1 | | |
| | | 1 | PL 10x460 | 240 | bp2 | | |

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557



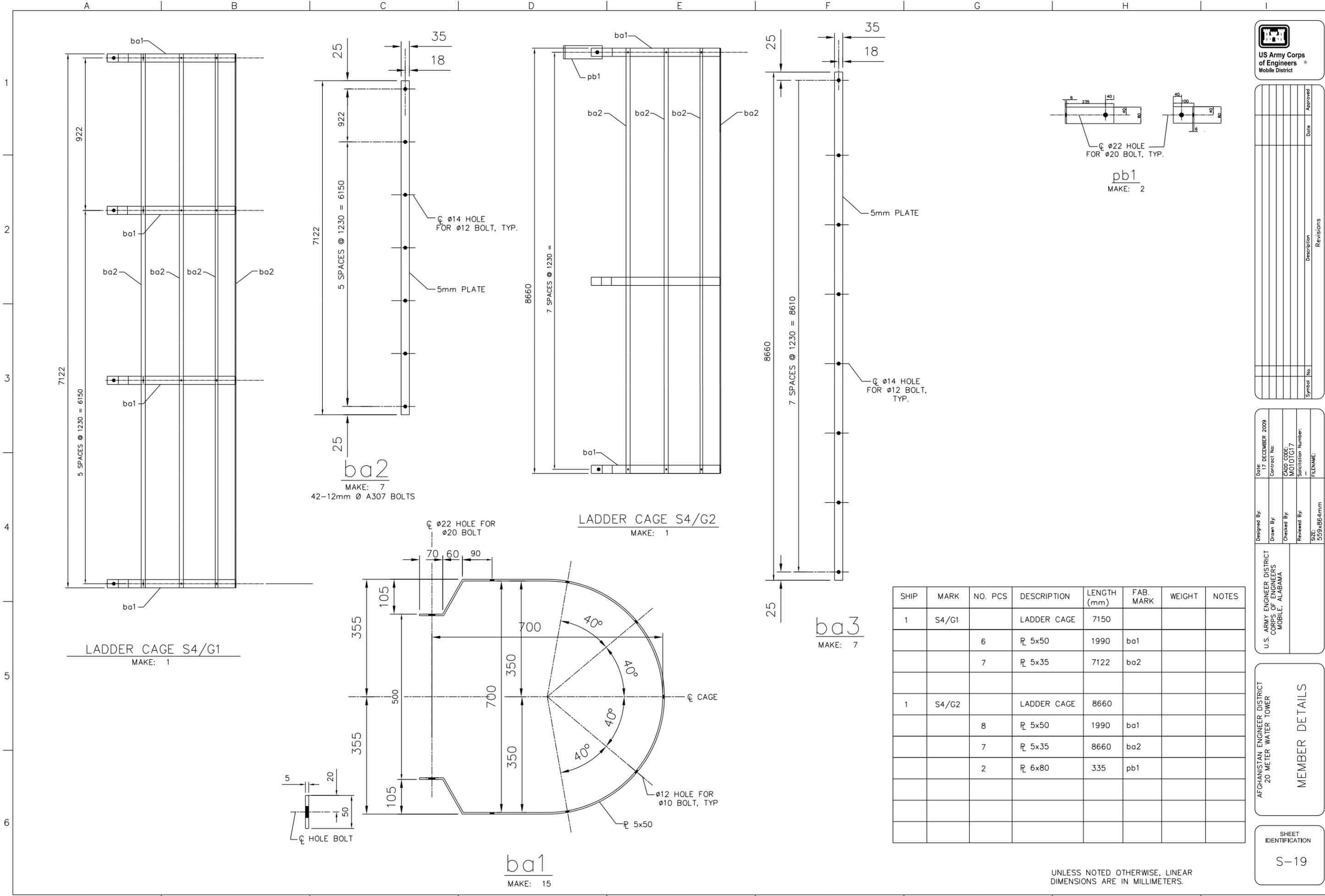
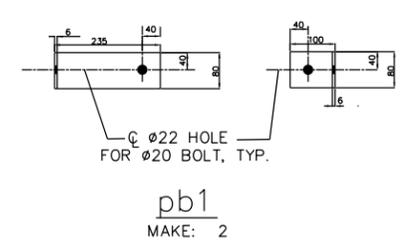
US Army Corps
of Engineers
Mobile District

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AFGHANISTAN ENGINEER DISTRICT
20 METER WATER TOWER
MEMBER DETAILS

SHEET IDENTIFICATION
S-19

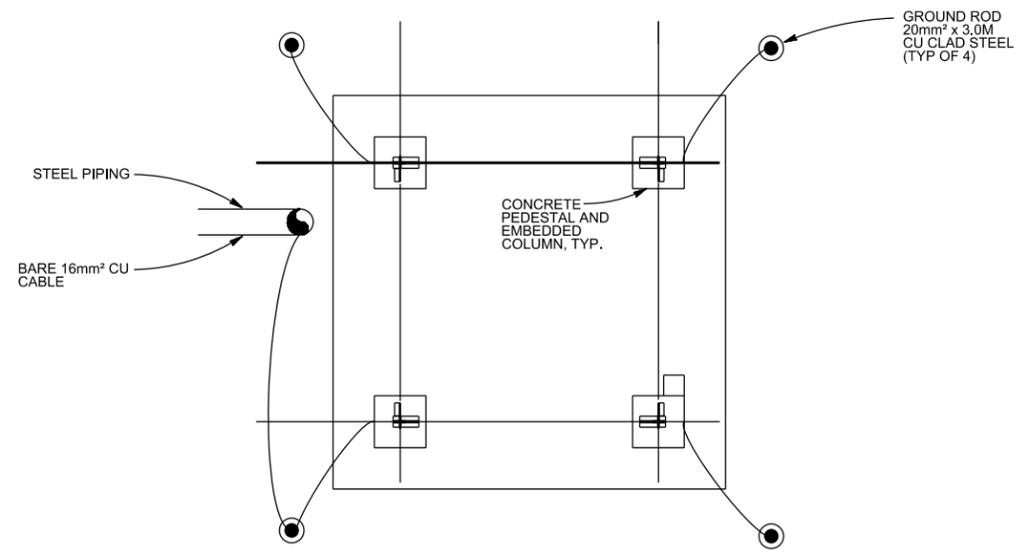


| SHIP | MARK | NO. PCS | DESCRIPTION | LENGTH (mm) | FAB. MARK | WEIGHT | NOTES |
|------|-------|---------|----------------|-------------|-----------|--------|-------|
| 1 | S4/G1 | | LADDER CAGE | 7150 | | | |
| | | 6 | \bar{r} 5x50 | 1990 | ba1 | | |
| | | 7 | \bar{r} 5x35 | 7122 | ba2 | | |
| 1 | S4/G2 | | LADDER CAGE | 8660 | | | |
| | | 8 | \bar{r} 5x50 | 1990 | ba1 | | |
| | | 7 | \bar{r} 5x35 | 8660 | ba2 | | |
| | | 2 | \bar{r} 6x80 | 335 | pb1 | | |

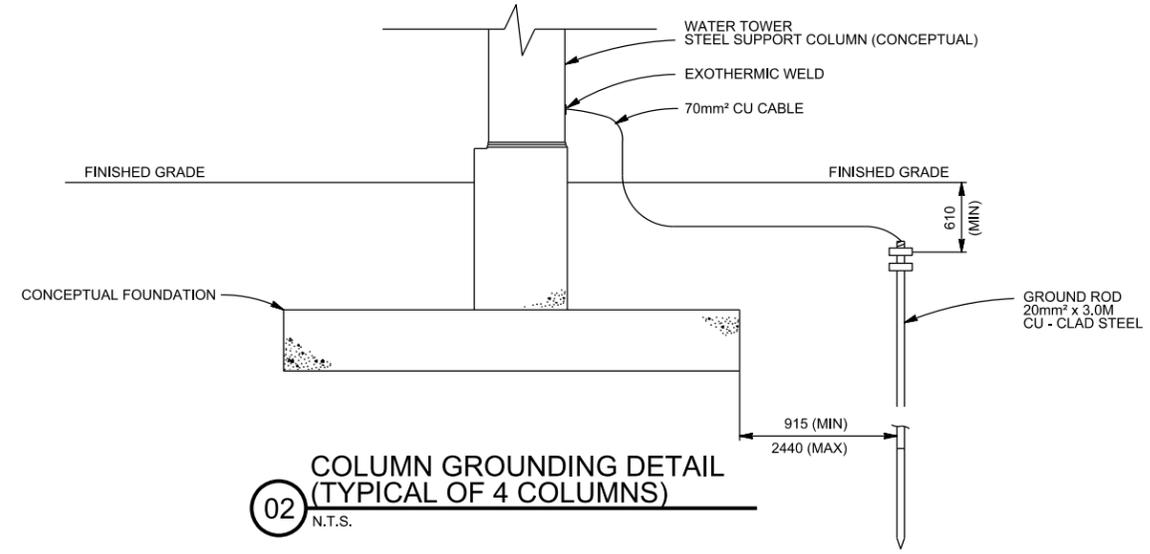
UNLESS NOTED OTHERWISE, LINEAR DIMENSIONS ARE IN MILLIMETERS.

A B C D E F G H

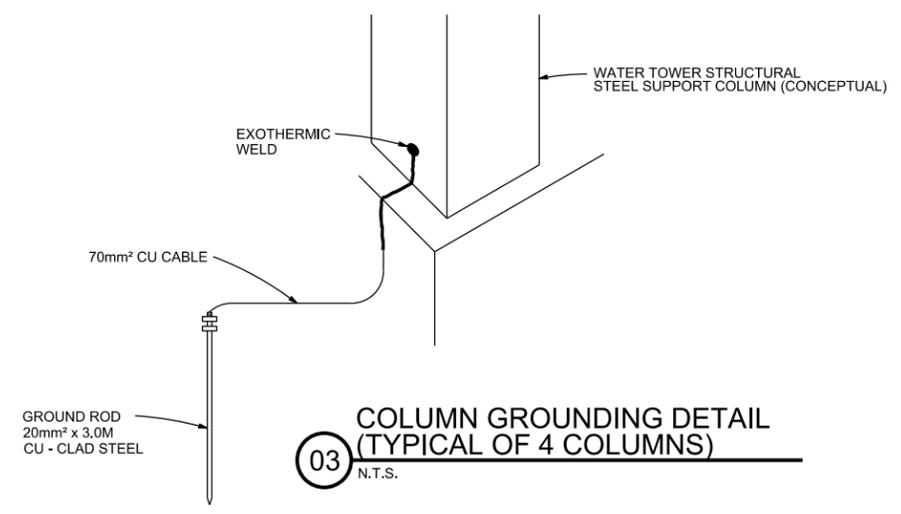
6
5
4
3
2
1



01 GROUNDING ELECTRODE PLAN
N.T.S.



02 COLUMN GROUNDING DETAIL (TYPICAL OF 4 COLUMNS)
N.T.S.



03 COLUMN GROUNDING DETAIL (TYPICAL OF 4 COLUMNS)
N.T.S.

LIGHTING PROTECTION PLANS AND DETAILS
N.T.S.

- NOTES:**
1. CONTRACTOR SHALL MAKE ALL METALLIC ELEMENTS OF WATER TOWER TANK AND SUPPORT STRUCTURE ELECTRICALLY CONTINUOUS BY BOLTING REINFORCEMENT STEEL SHALL BE MADE ELECTRICALLY CONTINUOUS BY METALLIC WIRE TIES.
 2. BOND EACH METALLIC UNDERGROUND PIPE TO AT LEAST ONE GROUND ROD WITH 16mm² CU CABLE.
 3. EACH COLUMN SHALL BE BONDED TO A 20mm² x 3.0M CU CLAD STEEL GROUND ROD VIA A BARE 70mm² CU CABLE. CABLE SHALL BE EXOTHERMIC ALLY WELDED TO COLUMN 150mm ABOVE CONCRETE FOUNDATION.



| SYMBOL | DESCRIPTION | DATE | APPR. | STATION | DATE | APPR. |
|--------|-------------|------|-------|---------|------|-------|
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|---------------|-----------------|------|
| DESIGNED BY: | DATE: | REV: |
| DRAWN BY: | 17 DEC 2010 | |
| CHECKED BY: | DESIGN FILE NO. | |
| REVIEWED BY: | DRAWING CODE: | |
| SUBMITTED BY: | FILE NAME: | |
| | PLOT SCALE: | |
| | PLOT DATE: | |
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| | | |
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| | | |

20 METER WATER TANK
AFGHANISTAN
LIGHTING PROTECTION
DETAILS

SHEET
REFERENCE
NUMBER:
E-01