CONTRACT NO.	JOB ORDER NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
[redacted]	-	Q	[redacted]	[redacted]	01 OF _	01

PIER FOUNDATION SCHEDULE FOR 'HC-SPSA10' TOWERS:

TOWER TYPE	TOWER NOS.	GROUP NUMBER	SHAFT DIAMETER (mm) "D"	DESIGNED DEPTH (mm) "L"	OVERALL LENGTH (mm) "OL"	DEPTH OF CONSTRUCTION JOINT "DJ" (mm)	DEPTH OF PIER FROM CONSTRUCTION JOINT "DPJ" (mm)	DEPTH OF ROCK LAYER "LR"	DEPTH OF SOIL LAYER "LS"	EXPOSED HEIGHT FROM G.L "EH"	STRUCTURE PAD "Tsp"	SOIL TYPE	STUB MARKING DISTANCE (mm) "X"	STUB MARKING DISTANCE (mm) "M"	STUB ANGLE DATA: SIZE OF STUB ANGLES	STUB ANGLE DATA: SIZE OF CLEAT	STUB ANGLE DATA: DEPTH OF STUB "H" (mm)	FOUNDATION LOADS EXCLUDING STRUCTURE OCF: COMPRESSION (KN)	FOUNDATION LOADS EXCLUDING STRUCTURE OCF: UPLIFT (KN)	FOUNDATION LOADS EXCLUDING STRUCTURE OCF: SHEAR (KN) TRANS.	FOUNDATION LOADS EXCLUDING STRUCTURE OCF: SHEAR (KN) LONG.	REMARKS
HC-SPSA10	3/1, 3/2, 5/1, 7/2, 7/3 and 22/1	01	1500	7000	7750	2900	4850	7000	-	450	300	LIMESTONE BEDROCK	206.94	146.33	L250x250x35H	L150x150x14H	2400	6150.18	5567.51	971.61	870.35	FOUNDATION IS DESIGNED FOR EQUAL LEG EXTENSION

STEEL REINFORCEMENT REQUIREMENTS

VERTICAL BARS (BAR MARK A)							TIE BARS (BAR MARK B)								
ASTM BAR DESIGNATION (GR.80)	BAR SIZE (mm)	QUANTITY REQUIRED	BAR MARK	BAR LENGTH b (mm)	LAP LENGTH "Lap1"	ARC LENGTH	ASTM BAR DESIGNATION (GR.60) No.	BAR SIZE (mm)	QUANTITY REQUIRED	BAR MARK	TIE DIAMETER "J" (mm)	BAR LENGTH (mm)	LAP LENGTH "Lap2" (mm)	TIE REBAR SPACING "S1"	TIE REBAR SPACING "S2"
32	32	58 BUNDLE	A	7500	-	142.78	12	12	32	B	1318	4594	454	12mm TIES EQUALLY SPACED AT 150mm	12mm TIES EQUALLY SPACED AT 300mm

SUMMARY OF CRITICAL SOIL PARAMETERS

BH.NO	DEPTH BELOW GL (m)	LAYER THICKNESS (m)	SOIL DESCRIPTION	SPT " N" (RQD) AVE.	UNIT WEIGHT (kN/m³)	ANGLE OF INTERNAL FRICTION (ø)	UCS (N/mm²)	Ka
22/1	0.00 - 13.0	13.00	LIMESTONE BEDROCK	0-48%	26	36	9	1

REMARKS /CONC. EXPOSURE	
SEVERE EXPOSURE TOWER GROUP.	MODERATE EXPOSURE TOWER GRP.
-	GROUP 01

PIT MARKING DETAILS FOR F-LA60 TOWER

TOWER DESCRIPTION	FDN. C/C DIMENSIONS REFER KEY PLAN B (mm)	FDN. C/C DIMENSIONS REFER KEY PLAN Q (mm)
HC-SPSA10 BB + L2	10917.66	15440.94
HC-SPSA10 BB + L4	11468.33	16219.70
HC-SPSA10 BB + L6	12019.00	16998.48
HC-SPSA10 BB + L8	12569.67	17777.24
HC-SPSA10 12BE + L2	14221.68	20113.54
HC-SPSA10 12BE + L4	14722.35	20892.30
HC-SPSA10 12BE + L6	15323.03	21671.17
HC-SPSA10 12BE + L8	15873.69	22449.83

NOTE: REFER AND VERIFY AS TO STRUCTURE DATA LIST FOR THE TOWER DESCRIPTION & AS PER APPROVED ROUTE PLAN.

BAR SCHEDULE

DIMENSIONS	REMARKS	BAR MARK
454 MIN. OVERLAP	TIES	B
LENGTH (b)	VERTICAL BARS	A

b = (OL-250)

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. TOP SURFACE OF CONCRETE SHALL BE CROWNED AND GIVEN A STEEL TROWEL FINISH.
3. TOWER ERECTION STARTS ATLEAST 10 DAYS AFTER POURING OF THE CONCRETE FOUNDATION HAS BEEN COMPLETED.
4. TOP OF MARL PAD SHALL BE GRADED TO PROVIDE DRAINAGE AWAY FROM FOUNDATIONS.
5. THOROUGHLY COMPACT THE SOIL AROUND THE TOWER FOUNDATION IN LAYERS OF NOT MORE THAN 200mm AND TESTED AS PER THE REQUIREMENTS OF TCS-0-113.02 REV.01.
6. STUB ANGLES SHALL BE SET BY TEMPLATES FURNISHED BY TOWER STEEL MANUFACTURER.
7. NO LOAD TO BE APPLIED TO TOWER UNTIL THE CONCRETE HAS REACHED 28 DAYS.
8a. IF CONSTRUCTION JOINT IS NOT REQUIRED, CONCRETE SHALL BE POURED IN ONE STAGE OR MONOLITHICALLY.
8b. IF CONSTRUCTION JOINT IS REQUIRED, CONCRETE SHALL BE POURED IN TWO (2) STAGES. AT THE CONSTRUCTION JOINT THE SURFACE SHALL BE SUITABLY PREPARED AND APPLIED WITH APPROVED BONDING AGENT (SIKA) BEFORE SECOND STAGE OF CONCRETING. THE DEPTH OF CONSTRUCTION JOINT IN CASE OF SECOND STAGE CONCRETE SHALL BE 500mm FROM THE TOE OF THE STUB ANGLE.
9. DEVELOPMENT AND SPLICES OF REINFORCEMENT ALL DEVELOPMENT LENGTH OF DEFORMED BARS SHALL BE AS PER ACI 318-14 CODE AND APPLICABLE NATIONAL GRID STANDARD WHICH IS 47db (db = DIAMETER OF REBAR).
10. REINFORCING STEEL SHALL CONFORM TO ASTM A615M OR SASO STANDARD SSA-2/79 WITH MIN. YIELD STRESS OF 420MPa (GR. 60). DEFORMATIONS SHALL BE IN ACCORDANCE WITH ASTM A615M.
11a. TYPE - I CEMENT {WITH TRICALCIUM ALUMINATE (C A) CONTENT OF 8% TO 14%} PLUS POZZOLANIC MATERIALS {SILICA FUME SHALL BE USED FOR ALL CONCRETE SUBJECT TO SEVERE EXPOSURE WITH MINIMUM COMPRESSIVE STRENGTH OF CONCRETE 38.0MPa (5500psi) AT 28 DAYS CONFORMING WITH 70-TMSS-03 REV.01.
11b. TYPE - I or V CEMENT SHALL BE USE WITH A MIN. COMPRESSIVE STRENGTH OF CONCRETE 28.0 Mpa(4000psi) AT 28 DAYS CONFORMING WITH 70-TMSS-03 Rev.0. (Moderate Expose condition).
12. TREMIE/HOSE SHALL BE USED TO POUR CONCRETE AND HEIGHT OF POUR SHALL NOT EXCEED 1.5m.
13. THE STEEL STUB ANGLE/CONCRETE FOUNDATION INTERFACE SHALL BE COVERED WITH POLYURETHANE COATING MEMBRANE AND IT SHALL EXTENDED 500mm ABOVE THE TOP OF FOUNDATION.
14. COAL TAR EPOXY SHALL BE APPLIED 500mm BELOW THE STRUCTURE PAD FINISHED GRADE LEVEL.
15. PROTECTIVE COATING.
   A) ABOVE GRADE SURFACES
   BASE COAT-AROMATIC POLYURETHANE
   700 MICRON DRY FILM THICKNESS.
   TOP COAT-ALIPHATIC POLYURETHANE
   400 MICRON DRY FILM THICKNESS.
   B) BELOW GRADE SURFACES
   TAR EPOXY COATING
   TWO-COMPONENT, HIGH BUILT-SOLID HIGH SOLID (@ LEAST 90%) COAL TAR & EPOXY RESIN.

NOTES CONTINUED

16. THE POLYURETHANE COATING AND COAL TAR EPOXY COATING SHALL BE APPLIED AS PER TCS-P-122.05.
17. THE EXPOSED FOUNDATION SHALL BE CURED FOR 28 DAY IN MOIST CONDITION.
18. STUB ANGLES SHALL BE CONNECTED BY (7#5 OR 19#7, AS APPLICABLE) COPPER CLAD GROUNDING CONDUCTOR THROUGH COMPRESSION CONNECTOR AND REBARS EXOTHERMALLY WELDED AT LEAST TWO (2) LOCATIONS FOR EACH TOWER LEG.
19. CONSTRUCTION JOINT DETAIL DIMENSION IS 300X300X75mm AS PER SEC STANDARD TCS-P-122.21. REFER "DETAIL A" OF THIS DRAWING.
20. THE TIES SHALL BE FASTENED WITH WIRES OF MINIMUM 1.31mm STEEL WIRES AT LEAST TWO (2) WRAPS AND TWICE.THE TIE WIRES SHALL HAVE TWO WIRES MINIMUM.
21. SOIL DATA SHALL BE VERIFIED AT SITE DURING AUGURING AND IN CASE OF ANY CONFLICT THE SAME SHALL BE INFORMED TO SEC REPRESENTATIVE.
22. PIER DRILLING SHALL BE DONE WITHOUT STEEL CASING.
23. MINIMUM DEPTH OF BOREHOLE SHALL BE AT LEAST 3.0 METERS BELOW THE BOTTOM OF THE ANTICIPATED DEPTH.

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING NO.
DRAWING CONTROL SHEET	[redacted]
SCOPE OF WORKS (PTS NUMBER)	[redacted]
CLEARANCE & LAYOUT DWG. FOR HC-SPSA10	[redacted]
STUB & SETTING TEMPLATE FOR HC-SPSA10	[redacted]
FOUNDATION DESIGN CALCULATIONS	[redacted]

TOWERS ADDED AS REVISION [redacted]

ISSUED FOR APPROVAL

AS-BUILT BY _____ DATE _____

REV. NO.	DATE	BY	DESCRIPTION	DSN'R.	APP'D.
01	19.06.24	MDG	ISSUED FOR APPROVAL	[redacted]	[redacted]
00	24.04.24	MDG	ISSUED FOR APPROVAL	[redacted]	[redacted]

[redacted]

DRAWN BY [redacted] CHECKED BY [redacted] SCALE AS SHOWN
DATE STARTED 31.03.24 DATE COMPLETED 18.08.2024
DPR'G DEPT. _____ ENG. DEPT. _____

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION OR FOR ORDERING MATERIAL UNTIL CERTIFIED AND DATED

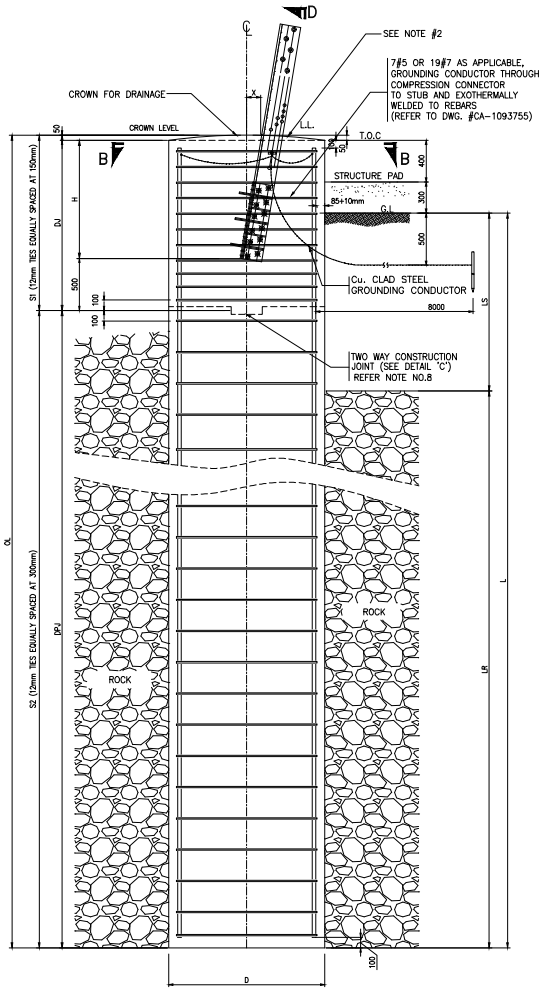
APPROVAL/CERTIFICATION INFORMATION
IDC NO. _____ REV. NO. _____

ROCK PIER FDN. PLAN AND DET. FOR HC-SPSA10 TOWER

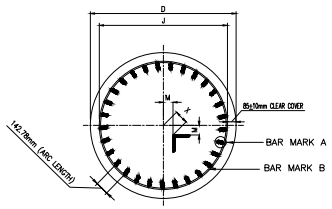
[redacted]

RIYADH SAUDI ARABIA

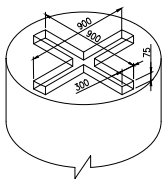
SEC CAD-A (2004/042)
DMS | VECTOR CADA04



A UNCASED PIER ELEVATION
SCALE 1:20



B SECTION B-B (1)
SCALE NTS



C TWO WAY CONSTRUCTION JOINT
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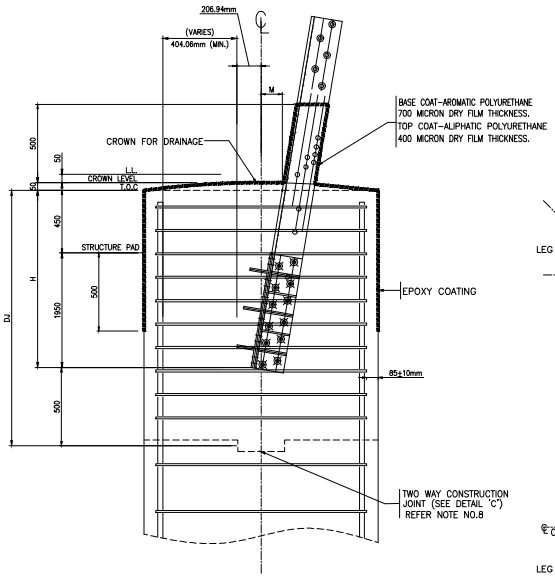
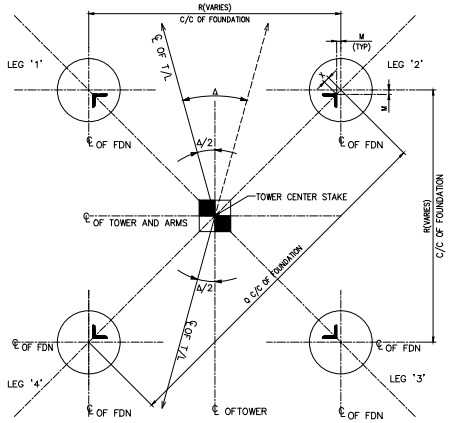


ENLARGED PIER ELEVATION DET.
SCALE 1:30



KEY PLAN
FOUNDATION CONFIGURATION

DEFLECTION ANGLE:
HC-SPSA10 : 2°-10"
NTS

SLOPE DIAGRAM
HC-SPSA10
NTS

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