

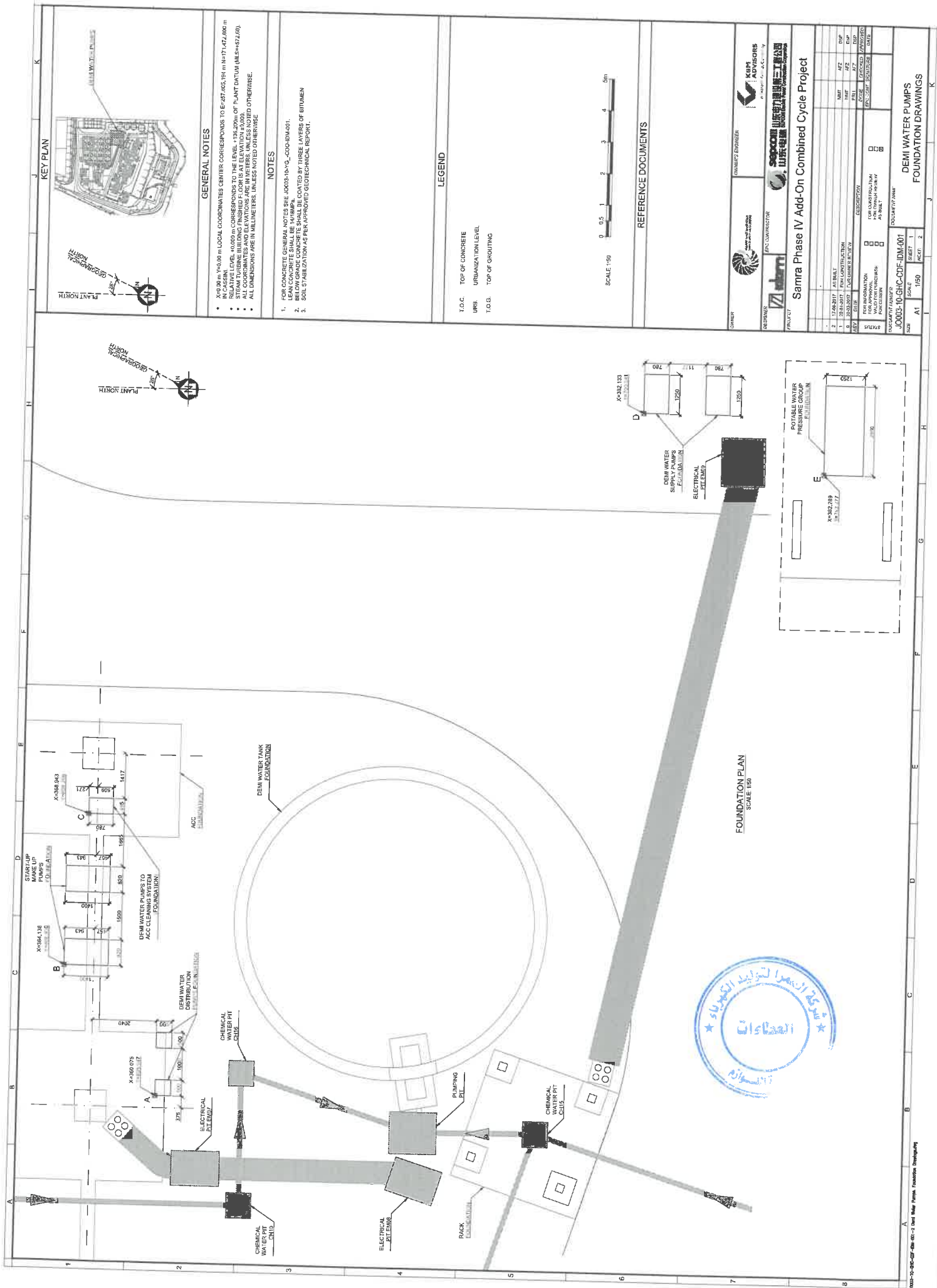
	UNITS	REQUESTED	PROVIDED BY VENDOR
1 GENERAL DATA			
1.1 Number of pumps		2x110%	
1.2 KKS numbers			
1.3 Manufacturer / Model		40GHC61 AP001 / 40GHC62 AP001	
1.4 Installation		(Note 1)	
1.5 Design and manufacturing codes		Outdoor	
1.6 Service		ISO 9905, 5199, 9908 or equivalent (Note 1)	
1.7 Pumped Fluid		Demineralized water distribution	
1.8 Temperature min / max		Demineralized water	
1.9 Density	°C	1 / 43	
2 PUMPS RATED POINT			
2.1 Flow per pump at discharge	kg/m3	1000 (at 5°C)	
2.2 Required Total Dinamic Head	m3/h	12.852	
2.3 NPSH available / required	m	35.96	
2.4 Suction pressure	m	7,209 / 4,758 maximum (Note 5)	
2.5 TDH at shutoff	bar a	0,762 to 1,836 (Note 6)	
2.6 Minimum flow	m	135% of rated TDH (Note 2)	
2.7 Design pressure / hydraulic test pressure	m3/h	30% of rated flow (Note 7)	
2.8 Efficiency at design point	bar g	(Note 1)	
2.9 Pump power	%	(Note 1)	
2.10 Pump Speed	kW	(Note 1)	
	rpm	(Note 1)	
3 TECHNICAL FEATURES			
3.1 Pump type		Horizontal centrifugal	
3.2 Pump model		(Note 1)	
3.3 Number of stages		1	
3.4 Impeller diameter			
3.4.1 Rated			
3.4.2 Max	mm	(Note 1)	
3.4.3 Min	mm	At least 4 mm bigger than rated impeller	
3.5 Mechanical seal	mm	(Note 1)	
3.6 Mechanical seal fluid		Included	
3.7 Motor-pump assembly first critical speed		Pumped fluid	
3.8 Max. reversal speed allowable for the motor-pump assembly	rpm	> 120% of nominal speed	
3.9 Motor-pump coupling	rpm	(Note 1)	
3.10 Radial bearing type		Flexible adjustable with spacer (Note 9)	
3.11 Axial bearing type		(Note 1)	
3.12 Lubrication		(Note 1)	
3.13 Lubrication piping		(Note 1)	
4 DRIVER			
4.1 Motor Type		(Note 1)	
4.2 Motor Manufacturer		TEFC	
4.3 Motor Voltage/Phase/Frequency		(Note 1)	
4.4 Motor Nominal power	(V / - / Hz)	400 / 3 / 50	
4.5 Motor Rated current / Ratio starting current - rated current	(kW)	(Note 1)	
4.6 Motor Speed	(A / -)	d starting current is not exceed 5.5 times rated current	
4.7 Enclosure Classification	rpm	Single speed	
4.8 Motor indoor/outdoor	IP		
4.9 Terminal boxes and other equipment		IP 54/IP 55	
4.10 Motor Insulation class / Maximum heating class		IP 65	
4.11 Motor Accessories		F / B	
5 MATERIALS (note 1)			
5.1 Pump-motor support base		Structural steel ASTM A36 or equivalent	
5.2 Pressure casing		AISI 316 or equivalent	
5.3 Inner case parts		AISI 316 or equivalent	
5.4 Impeller		AISI 316 or equivalent	
5.5 Wear rings		AISI 316 or equivalent	
5.6 Shaft		Hard faced AISI 316 or equivalent	
5.7 Bushings		AISI 316 or equivalent	
5.8 Case and gland studs		AISI 316 or equivalent	
5.9 Case gasket		AISI 4140 or equivalent	
		AISI 316 spiral wound	
6 ACCESSORIES			
6.1 Anchor (foundation) bolts		Included	
6.2 Vent/Drains valves in the casing		Included	
6.3 Motor winding temperature		(Note 1)	
6.4 Pressure gauge (suction and discharge)		Included	
6.5 Filters upstream pumps (one per each pump) including PDIT (Instruments)		Included (Note 10)	
6.7 Counter flange, gasket, bolts, nuts, washers in vendor scope		Included	
7 DIMENSIONS AND LOADS			
7.1 Pump size (length / width / height)	mm	(Note 1)	
7.2 Motor size (length / width / height)	mm	(Note 1)	
7.3 Total assembled group (length / width / height)	mm	(Note 1)	
7.4 Weights		(Note 1)	
7.5 Pump		(Note 1)	
7.6 Electric motor	kg	(Note 1)	
7.7 Total (empty)	kg	(Note 1)	
7.8 Total (full of water)	kg	(Note 1)	
	kg	(Note 1)	
8 CONNECTIONS			
8.1 Suction nozzle (diameter / type and class)		(Note 1) / flanged RF ASME B16.5 class 150	
8.2 Discharge nozzle (diameter / type and class)		(Note 1) / flanged RF ASME B16.5 class 150	
8.3 Max. forces on nozzles Fx/Fy/Fz	kg	2 times API 610 loads	
8.4 Max. moments on nozzles Mx/My/Mz	kg-m	2 times API 610 loads	



9 PAINTING	UNITS	REQUESTED	PROVIDED BY VENDOR
9.1 Painting		accordance with ISO 12944-5 for the appropriate environment category (C3, Im1, Im2 and Im3)	
14 SCOPE OF SUPPLY			
10.1 Mechanical/main scope		REQUIRED	OFFERED
10.2 Pump units (including electric driver, coupling and auxiliary systems)		By vendor	
10.3 Piping, valves and supports within the package		By vendor	
10.4 System integration into a skid mounted package		By vendor	
10.6 Anchor bolts and embedment parts		By vendor	
10.7 Electrical scope		By vendor	
10.8 Instrumentation and control scope			

- Notes:
- (1) Vendor to provide or verify.
 - (2) The pump head curve must be continuously rising with a shutoff head is 135% of rated head, and must be constantly decrease maintaining a uniform slope from the point of zero flow to the design point.
 - (3) The pump and driver shall be capable of continuous operation at 110% of rated flow.
 - (4) Minimum driver efficiency = 90 % @ rated point.
 - (5) NPSH required must be lower than 66% of available NPSH.
 - (6) Suction pressure will vary in the indicated range based on the level of the corresponding tank.
 - (7) The pump must be able to pump at least a minimum flow of 30% of rated flow. MCSF <=30% of rated flow
 - (8) All cooling needs of the pump must be satisfied with the pumped fluid.
 - (9) The pump and motor shall be coupled by a flexible coupling incorporating a spacer of sufficient length to allow dismantling of the pump bearings and shaft seals without disturbing the motor or piping.
 - (10) Pressure drop for pump filter has been estimated 0,3 bar. If pressure drop is higher shall be considered in the pump TDH and NPSHa
 - (11) The pump should operate within a Preferred Operating Region of 70 % to 120 % of best efficiency flowrate of the pump, and Rated flow shall be within the region of 80 % to 110 % of best efficiency flowrate of the pump, and the Allowable Region from MCSF to to halfway between the end of the POR and end of the curve or based on vibration within the upper limit of this International Standard or temperature rise or other limitation, specified by the manufacturer





FOUNDATION PLAN
SCALE: 1:50



REFERENCE DOCUMENTS

- T.O.C. TOP OF CONCRETE
- URS URSANIZATION LEVEL
- T.O.G. TOP OF GROUTING

LEGEND

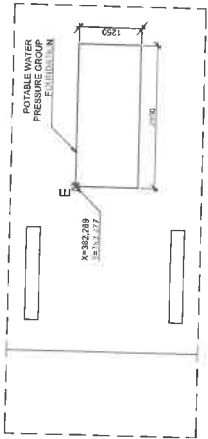
1. FOR CONCRETE GENERAL NOTES SEE J0003-10-03-000-010-01.
2. LEAN CONCRETE SHALL BE 14 MPa.
3. BELOW GRADE CONCRETE SHALL BE COATED BY THREE LAYERS OF BITUMEN.
4. SOIL PENETRATION AS PER APPROVED GEOTECHNICAL REPORT.

NOTES

- A 0.00 m = 0.00 m LOCAL COORDINATES CENTER CORRESPONDS TO E-257.803, 184 m N-171.472, 286 m
- RELATIVE LEVEL 10.000 m CORRESPONDS TO THE LEVEL +10% FROM OF PLANT DATUM (M.S.L.+427.000).
- STEAM TURBINE BUILDING FINISHED FLOOR IS AT ELEVATION 43.000.
- ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.

GENERAL NOTES

KEY PLAN



OWNER	KS&M ADVISORS
DESIGNER	KS&M ADVISORS
PROJECT	Samra Phase IV Add-On Combined Cycle Project
PROJECT NO.	J0003-10-GHC-CDF-IDM-001
SCALE	A1 1/50
SHEET	1
DATE	11/2017
PROJECT MANAGER	SAUD AL-SAYED
DESIGNER	SAUD AL-SAYED
CHECKER	SAUD AL-SAYED
APPROVER	SAUD AL-SAYED
DATE	11/2017
PROJECT NO.	J0003-10-GHC-CDF-IDM-001
SCALE	A1 1/50
SHEET	1
DATE	11/2017



GENERAL NOTES

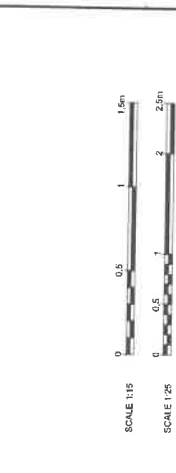
- 1. 30.00 m LOCAL COORDINATES CENTER CORRESPONDS TO E=427,805.194 N=171,472,890 m
- 2. RELATIVE LEVEL: 4.000 m CORRESPONDS TO THE LEVEL +138.200 m OF PLANT DATUM (M.S. = 132.80)
- 3. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.

NOTES

1. FOR CONCRETE GENERAL NOTES SEE JOB#-16-VG-CDD-03/04/01.
2. LEAN CONCRETE SHALL BE 1/4 RMP.
3. ALL CONCRETE SHALL BE COVERED BY THREE LAYERS OF BITUMEN SOLID STABILIZATION AS PER APPROVED GEO-TECHNICAL REPORT.

LEGEND

T.O.C. TOP OF CONCRETE
 URB. URBANIZATION LEVEL
 T.O.G. TOP OF GRAUING



REFERENCE DOCUMENTS

ENGINEERING FIRM: KGM GROUP

DESIGNER: KGM GROUP

PROJECT: Samra Phase IV Add-On Combined Cycle Project

FOUNDATION DRAWINGS

NO.	DATE	DESCRIPTION
1	17/08/2017	FOR CONSTRUCTION
2	22/08/2017	FOR CONSTRUCTION
3	23/08/2017	FOR CONSTRUCTION

PROJECT MANAGER: [Name]

DESIGNER: [Name]

CHECKER: [Name]

APPROVER: [Name]

SCALE: A1 VAR. SHEET 2 OF 3

