

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION

OPTION 4a - PHASE I CONSTRUCTION PACKAGES

Package 1 - Zaqra Wastewater Pump Stations		Package 2 - Reinforcement & Rehabilitation of Existing Networks		Package 3 - Expantion of Collection Networks in Zarqa		Package 4 - Collection Networks for Sukhneh Zone	
West Zarqa PS System		West Zarqa PS System		West Zarqa PS System			
West Zarqa PS	5,986,405	Reinforcement of Existing Neworks	4,715,155	Expansion of Collection Networks	10,247,411		
		Rehabilitation of Existing Sewers	1,534,100				
East Zarqa PS System		East Zarqa PS System		East Zarqa PS System			
Upgrading of EZPS	2,109,000	Reinforcement of Existing Neworks	624,252	Expansion of Collection Networks	4,425,101		
		Rehabilitation of Existing Neworks	828,660				
Sukhneh PS System						Sukhneh PS System	
Sukhneh PS	2,167,000					Expansion of Collection Networks in Sukhneh	10,811,362
Pumping Main	4,012,800					House Connections and Sundry Items	1,445,196
						Trunk Lines	4,204,612
Total Capital Cost	14,275,205	Total Capital Cost	7,702,167	Total Capital Cost	14,672,512	Total Capital Cost	16,461,169
Preliminaries	285,504	Preliminaries	154,043	Preliminaries	293,450	Preliminaries	329,223
Engineering	856,512	Engineering	462,130	Engineering	880,351	Engineering	987,670
Land acquisition	475,000	Land acquisition	-	Land acquisition	1,025,000	Land acquisition	500,000
Environmental	188,146	Environmental	101,514	Environmental	193,383	Environmental	216,957
Contingencies	2,855,041	Contingencies	1,540,433	Contingencies	2,934,502	Contingencies	3,292,234
Total Cost	18,935,409	Total Cost	9,960,287	Total Cost	19,999,199	Total Cost	21,787,254

**EXPANSION AND REINFORCEMENT OF ZARQA WASTEWATER SYSTEMS
OPTION 4a - PHASE I IMPLEMENTATION PLAN CASH FLOW SCHEDULE**

Priority No.	Description of Works	Estimated Cost	2012												
			1	2	3	4	5	6	7	8	9	10	11	12	
1	West Zarqa PS System														
1.1	West Zarqa PS	5,986,405	598,641			359,184	359,184	359,184	359,184	359,184	359,184	359,184	359,184	359,184	359,184
1.1	Reinforcement of Existing Networks	4,715,155	471,515	212,182	212,182	212,182	212,182	212,182	212,182	212,182	212,182	212,182	212,182	212,182	212,182
1.1	Rehabilitation of Existing Sewers	1,534,100	153,410				345,173	345,173	345,173	345,173	345,173	345,173	345,173	345,173	345,173
1.2	Expansion of Collection Networks	10,247,411		1,024,741				354,718	354,718	354,718	354,718	354,718	354,718	354,718	354,718
	Subtotal (West Zarqa System)	22,483,071	1,223,566	1,236,923	212,182	571,366	1,271,257	1,271,257	1,271,257	1,271,257	926,084	926,084	926,084	926,084	926,084
2	East Zarqa PS System														
2.1	Upgrading of EZPS	2,109,000.00		210,900		189,810	189,810	189,810	189,810	189,810	189,810	189,810	189,810	189,810	189,810
2.2	Reinforcement of Existing Networks	624,252		62,425	112,365	112,365	112,365	112,365	112,365	112,365					
2.3	Rehabilitation of Existing Networks	828,660		82,866		124,299	124,299	124,299	124,299	124,299	124,299	124,299	124,299	124,299	124,299
2.4	Expansion of Collection Networks	4,425,101		442,510			199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130
	Subtotal (East Zarqa System)	7,987,013		798,701	112,365	426,474	625,604	625,604	625,604	513,239	513,239	388,940	388,940	388,940	388,940
3	Sukhneh PS System														
3.1	Sukhneh PS	2,167,000		216,700				216,700	216,700	216,700	216,700	216,700	216,700	216,700	216,700
3.1	Pumping Main	4,012,800		401,280					300,960	300,960	300,960	300,960	300,960	300,960	300,960
3.1	Trunk Lines	2,477,038		247,704					185,778	185,778	185,778	185,778	185,778	185,778	185,778
	Subtotal	8,656,838		865,684	0	0	216,700	703,438	703,438	703,438	703,438	703,438	703,438	703,438	703,438
3.1	Expansion of Collection Networks in Sukhneh	10,811,362				1,081,136			810,852	810,852	810,852	810,852	810,852	810,852	810,852
3.1	House Connections and Sundry Items	1,445,196						144,520						108,390	108,390
3.2	Trunk Lines	1,727,574		172,757											155,482
	Subtotal	13,984,131		172,757	1,081,136	0	144,520	810,852	810,852	810,852	810,852	810,852	919,242	1,074,723	1,074,723
	Subtotal (Sukhneh System)	22,640,969		1,038,441	1,081,136	0	361,220	1,514,290	1,514,290	1,514,290	1,514,290	1,514,290	1,622,680	1,778,161	1,778,161
	Total Capital Costs	53,111,053	1,223,566	2,035,624	1,362,989	2,078,977	1,896,861	2,258,080	3,411,151	3,298,785	2,953,613	2,829,314	2,937,704	3,093,185	3,093,185
	Preliminaries	1,062,221	265,555	265,555	265,555	265,555									
	Engineering	3,186,663	318,666	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896
	Land acquisition	2,000,000	2,000,000												
	Environmental	700,000	200,000	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241
	Total Contingencies	10,622,211	244,713	407,125	272,598	415,795	379,372	451,616	682,230	659,757	590,723	565,863	587,541	618,637	618,637
	Total Works	70,682,148	4,252,501	2,824,442	2,017,279	2,876,465	2,392,371	2,825,834	4,209,519	4,074,680	3,660,473	3,511,314	3,641,382	3,827,960	3,827,960

**EXPANSION AND REINFORCEMENT OF ZARQA WASTEWATER SYSTEMS
OPTION 4a - PHASE I IMPLEMENTATION PLAN CASH FLOW SCHEDULE**

Priority No.	Description of Works	2013											
		1	2	3	4	5	6	7	8	9	10	11	12
1	West Zarqa PS System												
1.1	West Zarqa PS	359,184	359,184	359,184	359,184	359,184	359,184						
1.1	Reinforcement of Existing Networks	212,182	212,182	212,182	212,182	212,182	212,182	212,182	212,182	212,182			
1.1	Rehabilitation of Existing Sewers												
1.2	Expansion of Collection Networks	354,718	354,718	354,718	354,718	354,718	354,718	354,718	354,718	354,718	354,718	354,718	354,718
	Subtotal (West Zarqa System)	926,084	926,084	926,084	926,084	926,084	926,084	566,900	566,900	566,900	354,718	354,718	354,718
2	East Zarqa PS System												
2.1	Upgrading of EZPS	189,810											
2.2	Reinforcement of Existing Networks												
2.3	Rehabilitation of Existing Networks												
2.4	Expansion of Collection Networks	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130
	Subtotal (East Zarqa System)	388,940	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130	199,130
3	Sukhneh PS System												
3.1	Sukhneh PS	216,700	216,700										
3.1	Pumping Main	300,960	300,960	300,960	300,960	300,960	300,960						
3.1	Trunk Lines	185,778	185,778	185,778	185,778	185,778	185,778						
	Subtotal	703,438	703,438	486,738	486,738	486,738	486,738	0	0	0	0	0	0
3.1	Expansion of Collection Networks in Sukhneh	810,852	810,852	810,852	810,852	810,852	810,852						
3.1	House Connections and Sundry Items	108,390	108,390	108,390	108,390	108,390	108,390	108,390	108,390	108,390	108,390		
3.2	Trunk Lines	155,482	155,482	155,482	155,482	155,482	155,482	155,482	155,482	155,482			
	Subtotal	1,074,723	1,074,723	1,074,723	1,074,723	1,074,723	1,074,723	263,871	263,871	263,871	108,390	0	0
	Subtotal (Sukhneh System)	1,778,161	1,778,161	1,561,461	1,561,461	1,561,461	1,561,461	263,871	263,871	263,871	108,390	0	0
	Total Capital Costs	3,093,185	2,903,375	2,686,675	2,686,675	2,686,675	2,686,675	1,029,901	1,029,901	1,029,901	662,237	553,848	553,848
	Preliminaries												
	Engineering	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896	98,896
	Land acquisition												
	Environmental	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241	17,241
	Total Contingencies	618,637	580,675	537,335	537,335	537,335	537,335	205,980	205,980	205,980	132,447	110,770	110,770
	Total Works	3,827,960	3,600,188	3,340,148	3,340,148	3,340,148	3,340,148	1,352,019	1,352,019	1,352,019	910,823	780,755	780,755

**EXPANSION AND REINFORCEMENT OF ZARQA WASTEWATER SYSTEMS
OPTION 4a - PHASE I IMPLEMENTATION PLAN CASH FLOW SCHEDULE**

Priority No.	Description of Works	2014					
		1	2	3	4	5	6
1	West Zarqa PS System						
1.1	West Zarqa PS						
1.1	Reinforcement of Existing Networks						
1.1	Rehabilitation of Existing Sewers						
1.2	Expansion of Collection Networks	354,718	354,718	354,718	354,718	354,718	354,718
	Subtotal (West Zarqa System)	354,718	354,718	354,718	354,718	354,718	354,718
2	East Zarqa PS System						
2.1	Upgrading of EZPS						
2.2	Reinforcement of Existing Networks						
2.3	Rehabilitation of Existing Networks						
2.4	Expansion of Collection Networks						
	Subtotal (East Zarqa System)	0	0	0	0	0	0
3	Sukhneh PS System						
3.1	Sukhneh PS						
3.1	Pumping Main						
3.1	Trunk Lines						
	Subtotal	0	0	0	0	0	0
3.1	Expansion of Collection Networks in Sukhneh						
3.1	House Connections and Sundry Items						
3.2	Trunk Lines						
	Subtotal	0	0	0	0	0	0
	Subtotal (Sukhneh System)	0	0	0	0	0	0
	Total Capital Costs	354,718	354,718	354,718	354,718	354,718	354,718
	Preliminaries						
	Engineering	98,896	98,896	98,896	98,896	98,896	98,896
	Land acquisition						
	Environmental	17,241	17,241	17,241	17,241	17,241	17,241
	Total Contingencies	70,944	70,944	70,944	70,944	70,944	70,944
	Total Works	541,800	541,800	541,800	541,800	541,800	541,800

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
CAPITAL COSTS FOR EXPANSION AND REINFORCEMENT OF COLLECTION NETWORKS AND CONVEYANCE SYSTEMS

Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai Ameerah Haya to Sukhneh - Phase I

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
1	West Zarqa PS System				
1.1	Collection Networks				
1.1.1	Expansion of Collection Networks				
A	Collection networks for expansion areas Dia. (mm)				
	Hai al-Qamar 200	m	3,764	100.00	376,396.90
	Hai Umm Bayadhah 200	m	21,494	100.00	2,149,361.50
	Hai al-Dweik 200	m	13,224	100.00	1,322,373.80
	Hai al-Falah 200	m	13,804	100.00	1,380,390.00
	Hai al-Razi 200	m	1,958	100.00	195,780.20
	Hai al-Rasheed al-Shamali 200	m	15,710	100.00	1,571,022.20
	Hai al-Jraiba 200	m	3,834	100.00	383,438.00
	Subtotal				7,378,762.60
B	Collection networks for filling gaps				
	Hai Ramzi 200	m	3,059	100.00	305,910.00
	Hai al-Zawahreh 200	m	1,404	100.00	140,360.00
	Hai al-Qadessiyah 200	m	9,469	100.00	946,880.00
	Hai Ja'far al-Tayyar 200	m	2,098	100.00	209,770.00
	Hai al-Malek Talal 200	m	481	100.00	48,056.80
	Hai al-Jundi 200	m	478	100.00	47,763.10
	Subtotal				1,698,739.90
C	House Connections				
	House connection pipe 150	m	10,893	80.00	871,440.24
	Subtotal				871,440.24
D	Trunk Lines				
	Subtotal				0.00
E	Sundry items				
	Sundry items for encasement and other construction costs at 3% of cost of collection network costs			3%	298,468.28
	Total expansion of collection networks				10,247,411.02
1.1.2	Reinforcement of Existing Networks				
A	Replacement of main lines				
	Replacement of main lines 200	m	330	120.00	39,600.00
	Main lines in Hai al-Zawahreh and other miscellaneous areas to replace existing 200 mm	300	1,628	156.00	253,968.00
	Main line in Hai Awajan to replace existing 300 mm line	400	661	200.40	132,464.40
	Main collector trunk in Wadi Zarqa to replace existing 400 mm line	500	590	264.00	155,760.00
	Main collector trunk in russeifa to replace existing 800 mm line with increased gradient	800	325	380.40	123,630.00
	Replace part of the existng 500 mm trunk runs from Hai Awjan al-Shamali to Hai al-Nuzha with 900 mm	900	6,235	423.90	2,643,016.50
	Replace part of the existng 1000 mm trunk in Wadi Zarqa with increased gradient 1000 mm	1000	280	489.00	136,920.00
	Main collector trunk to WZPS to replace existing 1000 mm line	1300	61	662.10	40,388.10
	Subtotal				3,525,747.00
B	Additional main lines				
	New 400 mm trunk in Hai Awajan and Hai Umm Jaradh 400	m	300	167.00	50,100.00
	New 900 mm trunk sewer in Wadi Zarqa 900	m	2,510	353.25	886,657.50
	New 1000 mm trunk sewer in Wadi Zarqa 1000	m	620	407.50	252,650.00
	Subtotal				1,189,407.50
	Total reinforcement of main trunks in West Zarqa				4,715,154.50

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
CAPITAL COSTS FOR EXPANSION AND REINFORCEMENT OF COLLECTION NETWORKS AND CONVEYANCE SYSTEMS

Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai Ameerah Haya to Sukhneh - Phase I

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
1.1.3	Rehabilitation of Existing Sewers				
A	<u>Replacement of blocked sewers</u>				
	in Zarqa Refugee Camp	m	300	156.00	67,860.00
	in Iskan Tadweer al-Hadari	m	300	156.00	183,300.00
	in Hai al-Zawahreh	m	300	156.00	53,040.00
	in Hai al-Jabal al-Abyad	m	300	156.00	56,940.00
	in Hai al-Nuzha	m	300	156.00	25,740.00
	Various sewers in Hettein Camp	m	300	156.00	234,000.00
	Subtotal				620,880.00
B	<u>Replacement of sewers that are in private properties</u>				
	in Hai Ramzi	m	200	120.00	14,400.00
	in Hai Hussein	m	200	120.00	12,600.00
	in Hai al-Dhubbat	m	200	120.00	37,800.00
	in Hai al-Thawra al-Arabiyah al-Kubra	m	200	120.00	72,000.00
	in Hai al-Thawra al-Arabiyah al-Kubra	m	300	156.00	92,820.00
	in Hai al-Zawahreh	m	200	120.00	22,200.00
	Hai al-Jabal al-Shamali	m	300	156.00	124,800.00
	Subtotal				376,620.00
C	<u>Raising of deep sewers</u>				
	in Hai al-Rasheed al-Shamali	m	300	156.00	210,600.00
	Raising of manhole covers	No.	800	120.00	96,000.00
	Subtotal				306,600.00
D	<u>Cleaning of sewers</u>				
	cleaning of sewers using bucket machine	m	0	22.00	0.00
	Subtotal				0.00
E	<u>Rehabilitation of Hitteen Camp Pumping Station</u>				
	Refurbishment of pumps and screens	LS	1	230,000.00	230,000.00
	Subtotal				230,000.00
	Total Rehabilitation of Sewers in West Zarqa system				1,534,100.00
	Total Collection Networks in West Zarqa system				16,496,665.52
1.2	<u>Conveyance Systems</u>				
1.2.1	Trunk Lines				
	Total Trunk Lines in West Zarqa System				0.00
1.2.2	Pumping Mains				
	from WZPS to As-Samra WwTP	m	700	814.00	0.00
	Total Pumping Mains in West Zarqa System				0.00
1.2.3	Pumping Stations				
	WZPS	[m ³ /hr]	5,200	5,986,405	5,986,405.00
	Total Pumping Stations in West Zarqa System				5,986,405.00
	Total Conveyance Systems in West Zarqa System				5,986,405.00
	Total West Zarqa System				22,483,070.52

Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai Ameerah Haya to Sukhneh - Phase I

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)	
2	East Zarqa PS System					
2.1	Collection Networks					
2.1.1	Expansion of Collection Networks					
A	Collection networks for expansion areas Dia. (mm)					
	Hai al-Batrawi 200	m	27,424	100.00	2,742,410.00	
	Subtotal				2,742,410.00	
B	Collection networks for filling gaps					
	Hai al-Batrawi 200	m	1,273	100.00	127,270.00	
	Hai al-Hashemeyah al-Janoubiyah 200	m	1,580	100.00	157,995.20	
	Subtotal				285,265.20	
C	House Connections					
	House connection pipe 150		3,633	80.00	290,656.82	
	Subtotal				290,656.82	
D	Trunk Lines					
	Hai Batrawi trunk	300	m	1,110	130.00	144,300.00
		400	m	669	167.00	111,723.00
		500	m	636	220.00	139,920.00
		600	m	2,196	265.00	581,940.00
	Subtotal				977,883.00	
E	Sundry items					
	Sundry items for encasement and other construction costs at 3% of cost of collection network costs			3%	128,886.45	
	Total expansion of collection networks				4,425,101.47	
2.1.2	Reinforcement of Existing Networks					
A	Replacement of main trunks					
	replacement of 200 mm sewers in Hai Batrawi 300	m	1,047	156.00	163,332.00	
	replacement of 200 mm in al-Karameh and al-Aqsa Streets sewers 400	m	2,300	200.40	460,920.00	
	Subtotal				624,252.00	
	Total reinforcement of main trunks in East Zarqa				624,252.00	
1.1.2	Rehabilitation of Existing Networks					
A	Replacement of blocked sewers					
	in Eskan al-Hashemeyiah 200	m	1,250	120.00	150,000.00	
	in Hashemeyiah (two lines) 200	m	495	120.00	59,400.00	
	in Hai al-Iskan (replacement of network) 200	m	4,620	120.00	554,400.00	
	Subtotal				763,800.00	
B	Replacement of sewers that are in private properties					
	in Hashemeyiah 300	m	185	156.00	28,860.00	
	Subtotal				28,860.00	
C	Raising of deep sewers					
	Raising of manhole covers	No.	300	120.00	36,000.00	
	Subtotal				36,000.00	
	Total Rehabilitation of Sewers in East Zarqa system				828,660.00	
	Total Collection Networks in East Zarqa system				5,878,013.47	
2.2	Conveyance Systems					
2.2.1	Trunk Lines					
	Total Trunk Lines in East Zarqa System				0.00	
2.2.2	Pumping Mains					
	from EZPS to AS-Samra WwTP 700	m	0	814.00	0.00	
	Total Pumping Mains in East Zarqa System				0.00	
2.2.3	Pumping Stations					
	Upgrading of EZPS 3,000 [m ³ /hr]	LS	1	2,109,000	2,109,000.00	
	Total Pumping Stations in East Zarqa System				2,109,000.00	
	Total Conveyance Systems in East Zarqa System				2,109,000.00	
	Total East Zarqa System				7,987,013.47	

Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai Ameerah
Haya to Sukhneh - Phase I

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)	
3	Sukhneh System					
3.1	Collection Networks					
3.1.1	Expansion of Collection Networks					
A	Collection networks for expansion areas Dia. (mm)					
	Sukhneh	200	m	24,393	100.00	2,439,335.00
	al-Salheyah	200	m	8,483	100.00	848,283.70
	Abu-Zeighan	200	m	0	100.00	0.00
	Ghareisa	201	m	0	100.00	0.00
	Umm Suleih	202	m	0	100.00	0.00
	Hai al-Bustan	200	m	0	100.00	0.00
	Hai Shomar	200	m	3,782	100.00	378,217.40
	Hai al-Hashemi	200	m	2,136	100.00	213,644.20
	Hai al-Jneineh	200	m	5,784	100.00	578,380.00
	Hai al-Jabr	200	m	7,659	100.00	765,942.00
	Hai al-Ameera Haya	200	m	23,111	100.00	2,311,126.00
	Hai Nassar	200	m	9,051	100.00	905,096.50
	Hai al-Ahmad	200	m	10,511	100.00	1,051,050.00
	Hai al-Madinah al-Munawarah	200	m	7,907	100.00	790,680.00
	Hai Makka al-Mukarramah	200	m	5,296	100.00	529,607.10
	Subtotal					10,811,361.90
B	House Connections					
	House connection pipe	150		12,974	80.00	1,037,890.74
	Subtotal					1,037,890.74
C	Trunk Lines					
		300	m	697	130.00	90,610.00
		400	m	1,064	167.00	177,688.00
	Hai al-Ameera Haya	600	m	1,870	265.00	495,550.00
		700	m	1,804	278.00	501,512.00
		400	m	602	167.00	100,534.00
	Hai Makka al-Mukarramah	500	m	1,644	220.00	361,680.00
	Subtotal					1,727,574.00
D	Sundry items					
	Sundry items for encasement and other construction costs at 3% of cost of collection network costs				3%	407,304.80
	Total expansion of collection networks					13,984,131.44
3.2	Conveyance Systems					
3.2.1	Trunk Lines					
	Sukhneh trunk from Hai Ameerah Haya to Sukhneh PS	800	m	7,814	317.00	2,477,038.00
	from Ghareisa to Sukhneh PS	300	m	0	130.00	0
	Total Trunk Lines in Sukhneh System					2,477,038.00
3.2.2	Pumping Mains					
	from Sukhneh PS to EZPS	500	m	7,040	570.00	4,012,800.00
	Total Pumping Mains in Sukhneh System					4,012,800.00
3.2.3	Pumping Stations					
	Sukhneh PS	990	[m ³ /hr]	1	2,167,000	2,167,000.00
	Total Pumping Stations in Sukhneh System					2,167,000.00
	Total Conveyance Systems in Sukhneh System					8,656,838.00
	Total Sukhneh System					22,640,969.44

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
CAPITAL COSTS FOR EXPANSION AND REINFORCEMENT OF COLLECTION NETWORKS AND CONVEYANCE SYSTEMS

**Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai Ameerah
Haya to Sukhneh - Phase I**

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
	Total				53,111,053.43
6	Other Costs				
6.1	Preliminaries			2%	1,062,221.07
6.2	Engineering			6%	3,186,663.21
6.3	Land acquisition	LS		LS	2,000,000.00
6.4	Environmental				
	Environmental Monitoring (Air, Water and soil)	LS		LS	450,000.00
	Environmental Rehabilitation	LS		LS	140,000.00
	Training and capacity Building	LS		LS	110,000.00
	Subtotal				700,000.00
	Total Other Costs				6,948,884.27
7	Contingencies				
				20%	10,622,210.69
	Total Contingencies				10,622,210.69
	Total Zarqa Wastewater Reinforcement and Expansion				70,682,148.40

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
SUMMARY OF CAPITAL COST

Option 4a - Phase I: Summary of Capital Costs (JD)

System	Collection Networks				Conveyance Systems					Total
	Expansion	Reinforcement	Rehabilitation	Sub-total	Trunk mains	Pumping mains	Pumping stations	Local WwTPs	Sub-total	
West Zarqa System	10,247,411	4,715,155	1,534,100	16,496,666	0	0	5,986,405	0	5,986,405	22,483,071
East Zarqa System	4,425,101	624,252	828,660	5,878,013	0	0	2,109,000	0	2,109,000	7,987,013
Sukhneh System	13,984,131	0	0	13,984,131	2,477,038	4,012,800	2,167,000	0	8,656,838	22,640,969
Total Collection Networks				36,358,810	Total Conveyance Systems				16,752,243	53,111,053

Preliminaries at 2%	1,062,221
Engineering at 6%	3,186,663
Land Acquisition	2,000,000
Environmental	700,000
Contingencies at 20%	10,622,211
Grand Total	70,682,148

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
CAPITAL COSTS FOR EXPANSION AND REINFORCEMENT OF COLLECTION NETWORKS AND CONVEYANCE SYSTEMS

**Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai
Ameerah Haya to Sukhneh - Phase II**

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
1	West Zarqa PS System				
1.1.2	Reinforcement of Existing Networks				
A	<u>Replacement of main lines</u>				
Phase 2	Main lines in Hitteen camp to replace existing 200 mm lines	300	m	382	156.00
Phase 2	Main collector trunk in russeifa to replace existing 700 mm line	800	m	1,450	380.40
Phase 2	Replace the 800 mm trunk runs in Hai al-Arateqa with 900 mm	900	m	1,025	423.90
	Subtotal				1,045,669.50
	Total reinforcement of main trunks in West Zarqa				1,045,669.50
1.1.3	Rehabilitation of Existing Sewers				
D	<u>Cleaning of sewers</u>				
	cleaning of sewers using bucket machine		m	150,000	22.00
	Subtotal				3,300,000.00
	Total Rehabilitation of Sewers in West Zarqa system				3,300,000.00
	Total Collection Networks in West Zarqa system				4,345,669.50
1.2	Conveyance Systems				
1.2.2	Pumping Mains				
	from WZPS to As-Samra WwTP	700	m	19,430	814.00
	Total Pumping Mains in West Zarqa System				15,816,020.00
1.2.3	Pumping Stations				
	WZPS	6,500	[m ³ /hr]	LS	1
	Total Pumping Stations in West Zarqa System				2,215,762.00
	Total Conveyance Systems in West Zarqa System			0	18,031,782.00
	Total West Zarqa System				22,377,451.50

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
CAPITAL COSTS FOR EXPANSION AND REINFORCEMENT OF COLLECTION NETWORKS AND CONVEYANCE SYSTEMS

**Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai
Ameerah Haya to Sukhneh - Phase II**

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
2	East Zarqa PS System				
2.1	<u>Collection Networks</u>				
2.1.1	Expansion of Collection Networks				
D	Cleaning of sewers				
	cleaning of sewers using bucket machine	m	50,000	22.00	1,100,000.00
	Subtotal				1,100,000.00
	Total Rehabilitation of Sewers in East Zarqa system				1,100,000.00
	Total Collection Networks in East Zarqa system				1,100,000.00
2.2	<u>Conveyance Systems</u>				
2.2.2	Pumping Mains				
	from EZPS to AS-Samra WwTP	m	700	814.00	5,269,022.00
	Total Pumping Mains in East Zarqa System				5,269,022.00
2.2.3	Pumping Stations				
	Upgrading of EZPS	LS	1	1,990,000	1,990,000.00
	Total Pumping Stations in East Zarqa System				1,990,000.00
	Total Conveyance Systems in East Zarqa System				7,259,022.00
	Total East Zarqa System				8,359,022.00

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
CAPITAL COSTS FOR EXPANSION AND REINFORCEMENT OF COLLECTION NETWORKS AND CONVEYANCE SYSTEMS

**Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai
Ameerah Haya to Sukhneh - Phase II**

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
3	Sukhneh System				
3.1	<u>Collection Networks</u>				
3.1.1	<u>Expansion of Collection Networks</u>				
A	<u>Collection networks for expansion areas</u> Dia. (mm)				
	Abu-Zeighan 200	m	16,629	100.00	1,662,870.00
	Ghareisa 201	m	4,969	100.00	496,870.00
	Umm Suleih 202	m	6,100	100.00	609,950.00
	Hai al-Bustan 200	m	5,793	100.00	579,343.60
	Subtotal				3,349,033.60
B	<u>House Connections</u>				
	House connection pipe 150		4,019	80.00	321,507.23
	Subtotal				321,507.23
D	<u>Sundry items</u>				
	Sundry items for encasement and other construction costs at 3% of cost of collection network costs			3%	110,116.22
	Total expansion of collection networks				3,780,657.05
3.2	<u>Conveyance Systems</u>				
	from Ghareisa to Sukhneh PS 300	m	5,784	130.00	751,920
	Total Trunk Lines in Sukhneh System				751,920.00
	Total Conveyance Systems in Sukhneh System				751,920.00
	Total Sukhneh System				4,532,577.05

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
CAPITAL COSTS FOR EXPANSION AND REINFORCEMENT OF COLLECTION NETWORKS AND CONVEYANCE SYSTEMS

**Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai
Ameerah Haya to Sukhneh - Phase II**

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
4	Dhuleil System				
4.1	<u>Collection Networks</u>				
4.1.1	<u>Expansion of Collection Networks</u>				
A	<u>Collection networks for expansion areas</u> Dia. (mm)				
	Dhuleil town networks 200	m	71,813	100.00	7,181,251.00
	Subtotal				7,181,251.00
B	<u>House Connections</u>				
	House Connections 150		8,618	80.00	689,400.10
	Subtotal				689,400.10
C	<u>Sundry items</u>				
	Sundry items for encasement and other construction costs at 3% of cost of collection network costs			3%	236,119.53
	Total expansion of collection networks				8,106,770.63
4.2	<u>Conveyance Systems</u>				
4.2.1	<u>Trunk Lines</u>				
	from Dhuleil to Wadi Dhuleil PS 500	m	12,740	220.00	2,802,800
	Total Trunk Lines in Dhuleil System				2,802,800.00
4.2.2	<u>Pumping Mains</u>				
	from Wadi Dhuleil PS to As Samra WwTP 400	m	3,128	450.00	1,407,600
	Total Pumping Mains in Dhuleil System				1,407,600.00
4.2.3	<u>Pumping Stations</u>				
	Wadi Dhuleil PS to As-Samra WwTP 678 [m ³ /hr]	LS	1	1,610,000	1,610,000
	Total Pumping Stations in Dhuleil System				1,610,000.00
	Total Conveyance Systems in Dhuleil System				5,820,400.00
	Total Dhuleil System				13,927,170.63

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
CAPITAL COSTS FOR EXPANSION AND REINFORCEMENT OF COLLECTION NETWORKS AND CONVEYANCE SYSTEMS

**Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai
Ameerah Haya to Sukhneh - Phase II**

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
	Total				<u>49,196,221.18</u>
6	Other Costs				
6.1	Preliminaries			2%	983,924.42
6.2	Engineering			6%	2,951,773.27
6.3	Land acquisition	LS		LS	3,000,000.00
6.4	Environmental				
	Environmental Monitoring (Air, Water and soil)	LS		LS	750,000.00
	Environmental Rehabilitation	LS		LS	340,000.00
	Training and capacity Building	LS		LS	210,000.00
	Subtotal				1,300,000.00
	Total Other Costs				<u>8,235,697.69</u>
7	Contingencies				
				20%	9,839,244.24
	Total Contingencies				<u>9,839,244.24</u>
	Total Zarqa Wastewater Reinforcement and Expansion				<u>67,271,163.11</u>

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
CAPITAL COSTS FOR EXPANSION AND REINFORCEMENT OF COLLECTION NETWORKS AND CONVEYANCE SYSTEMS

Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai Ameerah Haya to Sukhneh

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)	
1	West Zarqa PS System					
1.1	<u>Collection Networks</u>					
1.1.1	<u>Expansion of Collection Networks</u>					
A	<u>Collection networks for expansion areas</u> Dia. (mm)					
	Hai al-Qamar 200	m	3,764	100.00	376,396.90	
	Hai Umm Bayadhah 200	m	21,494	100.00	2,149,361.50	
	Hai al-Dweik 200	m	13,224	100.00	1,322,373.80	
	Hai al-Falah 200	m	13,804	100.00	1,380,390.00	
	Hai al-Razi 200	m	1,958	100.00	195,780.20	
	Hai al-Rasheed al-Shamali 200	m	15,710	100.00	1,571,022.20	
	Hai al-Jraiba 200	m	3,834	100.00	383,438.00	
	Subtotal				7,378,762.60	
B	<u>Collection networks for filling gaps</u>					
	Hai Ramzi 200	m	3,059	100.00	305,910.00	
	Hai al-Zawahreh 200	m	1,404	100.00	140,360.00	
	Hai al-Qadessiyah 200	m	9,469	100.00	946,880.00	
	Hai Ja'far al-Tayyar 200	m	2,098	100.00	209,770.00	
	Hai al-Malek Talal 200	m	481	100.00	48,056.80	
	Hai al-Jundi 200	m	478	100.00	47,763.10	
	Subtotal				1,698,739.90	
C	<u>House Connections</u>					
	House connection pipe 150	m	10,893	80.00	871,440.24	
	Subtotal				871,440.24	
D	<u>Trunk Lines</u>					
	Subtotal				0.00	
E	<u>Sundry items</u>					
	Sundry items for encasement and other construction costs at 3% of cost of collection network costs			3%	298,468.28	
	Total expansion of collection networks				10,247,411.02	
1.1.2	<u>Reinforcement of Existing Neworks</u>					
A	<u>Replacement of main lines</u>					
	Replacement of main lines 200	m	330	120.00	39,600.00	
Phase 2	Main lines in Hitteen camp to replace existing 200 mm lines	300	m	382	156.00	59,592.00
	Main lines in Hai al-Zawahreh and other miscellaneous areas to replace existing 200 mm	300	m	1,628	156.00	253,968.00
	Main line in Hai Awajan to replace existing 300 mm line	400	m	661	200.40	132,464.40
	Main collector trunk in Wadi Zarqa to replace existing 400 mm line	500	m	590	264.00	155,760.00
	Main collector trunk in russeifa to replace existing 800 mm line with increased gradient	800	m	325	380.40	123,630.00
Phase 2	Main collector trunk in russeifa to replace existing 700 mm line	800	m	1,450	380.40	551,580.00
	Replace part of the existitng 500 mm trunk runs from Hai Awjan al-Shamali to Hai al-Nuzha with 900 mm	900	m	6,235	423.90	2,643,016.50
Phase 2	Replace the 800 mm trunk runs in Hai al-Arateqa with 900 mm	900	m	1,025	423.90	434,497.50
	Replace part of the existitng 1000 mm trunk in Wadi Zarqa with increased gradient 1000 mm	1000	m	280	489.00	136,920.00
	Main collector trunk to WZPS to replace existing 1000 mm line	1300	m	61	662.10	40,388.10
	Subtotal				4,571,416.50	

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
CAPITAL COSTS FOR EXPANSION AND REINFORCEMENT OF COLLECTION NETWORKS AND CONVEYANCE SYSTEMS

Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai Ameerah Haya to Sukhneh

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
B	Additional main lines				
	New 400 mm trunk in Hai Awajan and Hai Umm Jaradh	400	300	167.00	50,100.00
	New 900 mm trunk sewer in Wadi Zarqa	900	2,510	353.25	886,657.50
	New 1000 mm trunk sewer in Wadi Zarqa	1000	620	407.50	252,650.00
	Subtotal				1,189,407.50
	Total reinforcement of main trunks in West Zarqa				5,760,824.00
1.1.3	Rehabilitation of Existing Sewers				
A	Replacement of blocked sewers				
	in Zarqa Refugee Camp	300	435	156.00	67,860.00
	in Iskan Tadweer al-Hadari	300	1,175	156.00	183,300.00
	in Hai al-Zawahreh	300	340	156.00	53,040.00
	in Hai al-Jabal al-Abyad	300	365	156.00	56,940.00
	in Hai al-Nuzha	300	165	156.00	25,740.00
	Various sewers in Hettein Camp	300	1,500	156.00	234,000.00
	Subtotal				620,880.00
B	Replacement of sewers that are in private properties				
	in Hai Ramzi	200	120	120.00	14,400.00
	in Hai Hussein	200	105	120.00	12,600.00
	in Hai al-Dhubbat	200	315	120.00	37,800.00
	in Hai al-Thawra al-Arabiyah al-Kubra	200	600	120.00	72,000.00
	in Hai al-Thawra al-Arabiyah al-Kubra	300	595	156.00	92,820.00
	in Hai al-Zawahreh	200	185	120.00	22,200.00
	Hai al-Jabal al-Shamali	300	800	156.00	124,800.00
	Subtotal				376,620.00
C	Raising of deep sewers				
	in Hai al-Rasheed al-Shamali	300	1,350	156.00	210,600.00
	Raising of manhole covers	No.	800	120.00	96,000.00
	Subtotal				306,600.00
D	Cleaning of sewers				
	cleaning of sewers using bucket machine	m	150,000	22.00	3,300,000.00
	Subtotal				3,300,000.00
E	Rehabilitation of Hitteen Camp Pumping Station				
	Refurbishment of pumps and screens	LS	1	230,000.00	230,000.00
	Subtotal				230,000.00
	Total Rehabilitation of Sewers in West Zarqa system				4,834,100.00
	Total Collection Networks in West Zarqa system				20,842,335.02
1.2	Conveyance Systems				
1.2.1	Trunk Lines				0.00
	Total Trunk Lines in West Zarqa System				0.00
1.2.2	Pumping Mains				
	from WZPS to As-Samra WwTP	700	19,430	814.00	15,816,020.00
	Total Pumping Mains in West Zarqa System				15,816,020.00
1.2.3	Pumping Stations				
	WZPS	6,500 [m ³ /hr]	1	8,202,167	8,202,167.00
	Total Pumping Stations in West Zarqa System				8,202,167.00
	Total Conveyance Systems in West Zarqa System				24,018,187.00
	Total West Zarqa System				44,860,522.02

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
CAPITAL COSTS FOR EXPANSION AND REINFORCEMENT OF COLLECTION NETWORKS AND CONVEYANCE SYSTEMS

Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai Ameerah Haya to Sukhneh

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)	
2	East Zarqa PS System					
2.1	<u>Collection Networks</u>					
2.1.1	<u>Expansion of Collection Networks</u>					
A	<u>Collection networks for expansion areas</u> Dia. (mm)					
	Hai al-Batrawi 200	m	27,424	100.00	2,742,410.00	
	Subtotal				2,742,410.00	
B	<u>Collection networks for filling gaps</u>					
	Hai al-Batrawi 200	m	1,273	100.00	127,270.00	
	Hai al-Hashemeyah al-Janoubiyah 200	m	1,580	100.00	157,995.20	
	Subtotal				285,265.20	
C	<u>House Connections</u>					
	House connection pipe 150		3,633	80.00	290,656.82	
	Subtotal				290,656.82	
D	<u>Trunk Lines</u>					
	Hai Batrawi trunk	300	m	1,110	130.00	144,300.00
		400	m	669	167.00	111,723.00
		500	m	636	220.00	139,920.00
		600	m	2,196	265.00	581,940.00
	Subtotal				977,883.00	
E	<u>Sundry items</u>					
	Sundry items for encasement and other construction costs at 3% of cost of collection network costs			3%	128,886.45	
	Total expansion of collection networks				4,425,101.47	
2.1.2	<u>Reinforcement of Existing Networks</u>					
A	<u>Replacement of main trunks</u>					
	replacement of 200 mm sewers in Hai Batrawi 300	m	1,047	156.00	163,332.00	
	replacement of 200 mm in al-Karameh and al-Aqsa Streets sewers 400	m	2,300	200.40	460,920.00	
	Subtotal				624,252.00	
	Total reinforcement of main trunks in East Zarqa				624,252.00	
1.1.2	<u>Rehabilitation of Existing Networks</u>					
A	<u>Replacement of blocked sewers</u>					
	in Eskan al-Hashemeyah 200	m	1,250	120.00	150,000.00	
	in Hashemeyah (two lines) 200	m	495	120.00	59,400.00	
	in Hai al-Iskan (replacement of network) 200	m	4,620	120.00	554,400.00	
	Subtotal				763,800.00	
B	<u>Replacement of sewers that are in private properties</u>					
	in Hashemeyah 300	m	185	156.00	28,860.00	
	Subtotal				28,860.00	
C	<u>Raising of deep sewers</u>					
	Raising of manhole covers	No.	300	120.00	36,000.00	
	Subtotal				36,000.00	
D	<u>Cleaning of sewers</u>					
	cleaning of sewers using bucket machine	m	50,000	22.00	1,100,000.00	
	Subtotal				1,100,000.00	
	Total Rehabilitation of Sewers in East Zarqa system				1,928,660.00	
	Total Collection Networks in East Zarqa system				6,978,013.47	
2.2	<u>Conveyance Systems</u>					
2.2.1	<u>Trunk Lines</u>					
	Total Trunk Lines in East Zarqa System				0.00	
2.2.2	<u>Pumping Mains</u>					
	from EZPS to AS-Samra WwTP 700	m	6,473	814.00	5,269,022.00	
	Total Pumping Mains in East Zarqa System				5,269,022.00	
2.2.3	<u>Pumping Stations</u>					
	Upgrading of EZPS 4,692 [m ³ /hr]	LS	1	4,099,000	4,099,000.00	
	Total Pumping Stations in East Zarqa System				4,099,000.00	
	Total Conveyance Systems in East Zarqa System				9,368,022.00	
	Total East Zarqa System				16,346,035.47	

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
CAPITAL COSTS FOR EXPANSION AND REINFORCEMENT OF COLLECTION NETWORKS AND CONVEYANCE SYSTEMS

Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai Ameerah Haya to Sukhneh

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
3	Sukhneh System				
3.1	<u>Collection Networks</u>				
3.1.1	<u>Expansion of Collection Networks</u>				
A	<u>Collection networks for expansion areas</u> Dia. (mm)				
	Sukhneh 200	m	24,393	100.00	2,439,335.00
	al-Salheyah 200	m	8,483	100.00	848,283.70
	Abu-Zeighan 200	m	16,629	100.00	1,662,870.00
	Ghareisa 201	m	4,969	100.00	496,870.00
	Umm Suleih 202	m	6,100	100.00	609,950.00
	Hai al-Bustan 200	m	5,793	100.00	579,343.60
	Hai Shomar 200	m	3,782	100.00	378,217.40
	Hai al-Hashemi 200	m	2,136	100.00	213,644.20
	Hai al-Jneineh 200	m	5,784	100.00	578,380.00
	Hai al-Jabr 200	m	7,659	100.00	765,942.00
	Hai al-Ameera Haya 200	m	23,111	100.00	2,311,126.00
	Hai Nassar 200	m	9,051	100.00	905,096.50
	Hai al-Ahmad 200	m	10,511	100.00	1,051,050.00
	Hai al-Madinah al-Munawarah 200	m	7,907	100.00	790,680.00
	Hai Makka al-Mukarramah 200	m	5,296	100.00	529,607.10
	Subtotal				14,160,395.50
B	<u>House Connections</u>				
	House connection pipe 150		16,992	80.00	1,359,397.97
	Subtotal				1,359,397.97
C	<u>Trunk Lines</u>				
			300	130.00	90,610.00
			400	167.00	177,688.00
	Hai al-Ameera Haya		600	265.00	495,550.00
			700	278.00	501,512.00
			400	167.00	100,534.00
	Hai Makka al-Mukarramah		500	220.00	361,680.00
	Subtotal				1,727,574.00
D	<u>Sundry items</u>				
	Sundry items for encasement and other construction costs at 3% of cost of collection network costs			3%	517,421.02
	Total expansion of collection networks				17,764,788.49
3.2	<u>Conveyance Systems</u>				
3.2.1	<u>Trunk Lines</u>				
	Sukhneh trunk from Hai Ameerah Haya to Sukhneh PS 800	m	7,814	317.00	2,477,038.00
	from Ghareisa to Sukhneh PS 300	m	5,784	130.00	751,920
	Total Trunk Lines in Sukhneh System				3,228,958.00
3.2.2	<u>Pumping Mains</u>				
	from Sukhneh PS to EZPS 500	m	7,040	570.00	4,012,800.00
	Total Pumping Mains in Sukhneh System				4,012,800.00
3.2.3	<u>Pumping Stations</u>				
	Sukhneh PS 990 [m ³ /hr]	LS	1	2,167,000	2,167,000.00
	Total Pumping Stations in Sukhneh System				2,167,000.00
	Total Conveyance Systems in Sukhneh System				9,408,758.00
	Total Sukhneh System				27,173,546.49

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
CAPITAL COSTS FOR EXPANSION AND REINFORCEMENT OF COLLECTION NETWORKS AND CONVEYANCE SYSTEMS

**Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai
Ameerah Haya to Sukhneh**

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
4	Dhuleil System				
4.1	<u>Collection Networks</u>				
4.1.1	<u>Expansion of Collection Networks</u>				
A	<u>Collection networks for expansion areas</u> Dia. (mm)				
	Dhuleil town networks 200	m	71,813	100.00	7,181,251.00
	Subtotal				7,181,251.00
B	<u>House Connections</u>				
	House Connections 150		8,618	80.00	689,400.10
	Subtotal				689,400.10
C	<u>Sundry items</u>				
	Sundry items for encasement and other construction costs at 3% of cost of collection network costs			3%	236,119.53
	Total expansion of collection networks				8,106,770.63
4.2	<u>Conveyance Systems</u>				
4.2.1	<u>Trunk Lines</u>				
	from Dhuleil to Wadi Dhuleil PS 500	m	12,740	220.00	2,802,800
	Total Trunk Lines in Dhuleil System				2,802,800.00
4.2.2	<u>Pumping Mains</u>				
	from Wadi Dhuleil PS to As Samra WwTP 400	m	3,128	450.00	1,407,600
	Total Pumping Mains in Dhuleil System				1,407,600.00
4.2.3	<u>Pumping Stations</u>				
	Wadi Dhuleil PS to As-Samra WwTP 678 [m ³ /hr]	LS	1	1,610,000	1,610,000
	Total Pumping Stations in Dhuleil System				1,610,000.00
	Total Conveyance Systems in Dhuleil System				5,820,400.00
	Total Dhuleil System				13,927,170.63

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
CAPITAL COSTS FOR EXPANSION AND REINFORCEMENT OF COLLECTION NETWORKS AND CONVEYANCE SYSTEMS

**Option 4a - Treatment at As Samra WWTP, Local Treatment for Birein Comms., Conveyance of Sukhneh Zone to EZPS, Hai
Ameerah Haya to Sukhneh**

No.	Item	Unit	Quantity	Unit Cost (JD)	Total Cost (JD)
	Total				<u>102,307,274.61</u>
6	Other Costs				
6.1	Preliminaries			2%	2,046,145.49
6.2	Engineering			6%	6,138,436.48
6.3	Land acquisition	LS		LS	5,000,000.00
6.4	Environmental				
	Environmental Monitoring (Air, Water and soil)	LS		LS	1,200,000.00
	Environmental Rehabilitation	LS		LS	480,000.00
	Training and capacity Building	LS		LS	320,000.00
	Subtotal				2,000,000.00
	Total Other Costs				<u>15,184,581.97</u>
7	Contingencies				
				20%	20,461,454.92
	Total Contingencies				<u>20,461,454.92</u>
	Total Zarqa Wastewater Reinforcement and Expansion				<u>137,953,311.50</u>

ZARQA GOVERNORATE WASTEWATER SYSTEM REINFORCEMENT AND EXPANSION
SUMMARY OF CAPITAL COST

Option 4a: Summary of Capital Costs (JD)

System	Collection Networks				Conveyance Systems					Total
	Expansion	Reinforcement	Rehabilitation	Sub-total	Trunk mains	Pumping mains	Pumping stations	Local WwTPs	Sub-total	
West Zarqa System	10,247,411	5,760,824	4,834,100	20,842,335	0	15,816,020	8,202,167	0	24,018,187	44,860,522
East Zarqa System	4,425,101	624,252	1,928,660	6,978,013	0	5,269,022	4,099,000	0	9,368,022	16,346,035
Sukhneh System	17,764,788	0	0	17,764,788	3,228,958	4,012,800	2,167,000	0	9,408,758	27,173,546
Dhuleil System	8,106,771	0	0	8,106,771	2,802,800	1,407,600	1,610,000	0	5,820,400	13,927,171
Total Collection Networks				53,691,908	Total Conveyance Systems				48,615,367	102,307,275

Preliminaries at 2%	2,046,145
Engineering at 6%	6,138,436
Land Acquisition	5,000,000
Environmental	2,000,000
Contingencies at 20%	20,461,455
Grand Total	137,953,312