Farm-level Irrigation Modernization Project - FIMP

Improved Agriculture Water Use Workshop

Mediterranean Agronomic Institute CIHEAM

28 to 31 Aug 2017

Presentation Outline

- Background of Water Resources in Egypt.
- Brief about Farm-Level Irrigation Modernization Project, objectives, command area
- Project Components
- Site activities
- Data collection sample
- Using GIS

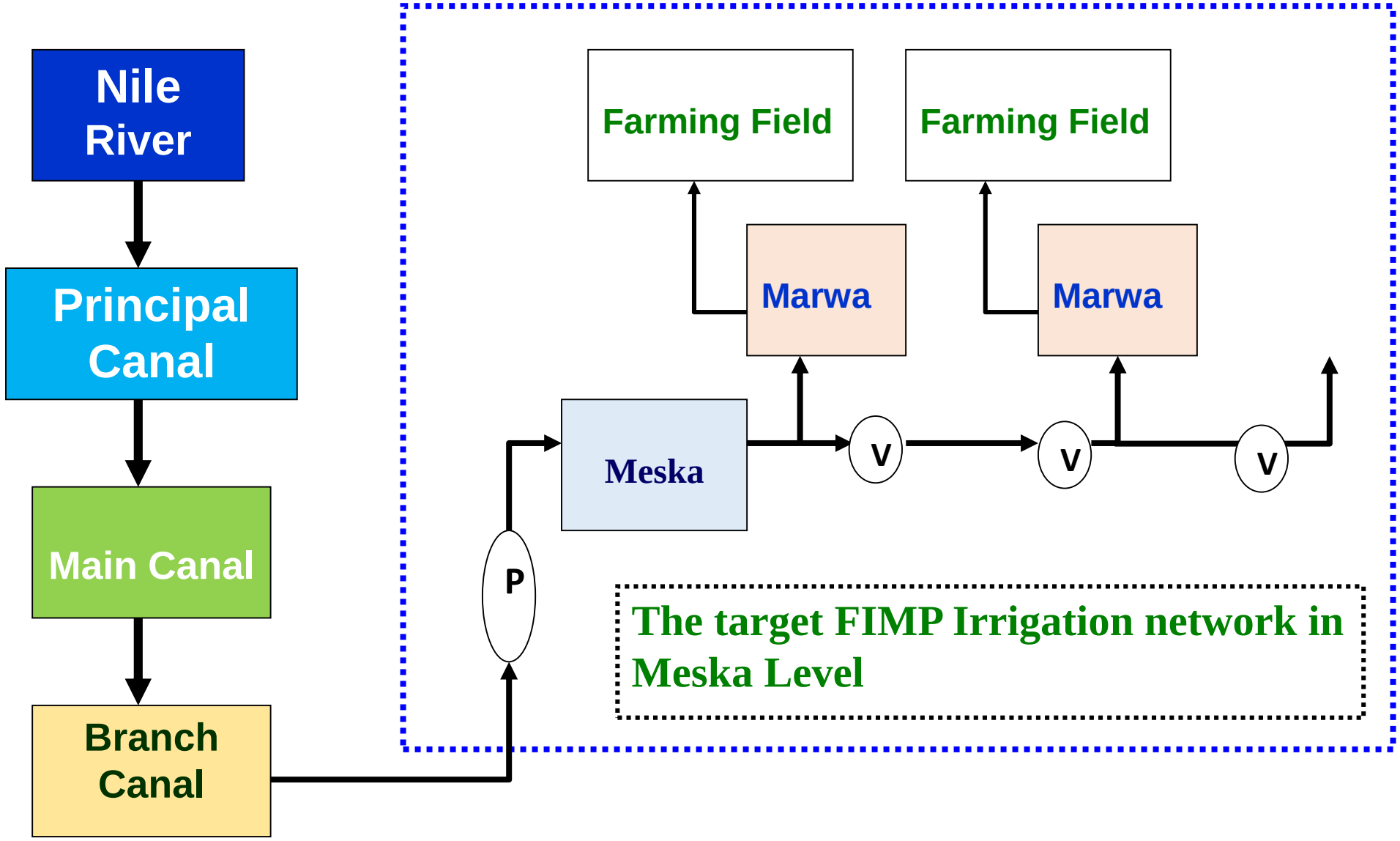
Background of Water Resources in Egypt

- Nile River is the main source of freshwater. It supplies 55.5 million m3 of freshwater every year. Which represents 97% renewable water resources in Egypt. The other resources from rainfall and groundwater.
- There are many water challenges facing Egypt. Which less than 700 m3/year/capita.
- Egypt is a country with strong water scarcity.

Farm-Level Irrigation Modernization Project

- The project co-financed by the International Bank for Reconstruction and Development, (AFD) and Government of Egypt (GOE).
- The World Bank and AFD will coordinate closely during implementation supervision. The Project was approved in 2011 and scheduled to close by Dec 31, 2017 after the period of extension.
- The Project is to Finance FIMP in Kafr El-Sheikh & El Beheira Governorate to cover 180 000 Fed. in favor of the Ministry of Agriculture & Land Reclamation a portion of this loan for Construction Supervision & Quality Control Works.

Irrigation system in Egypt

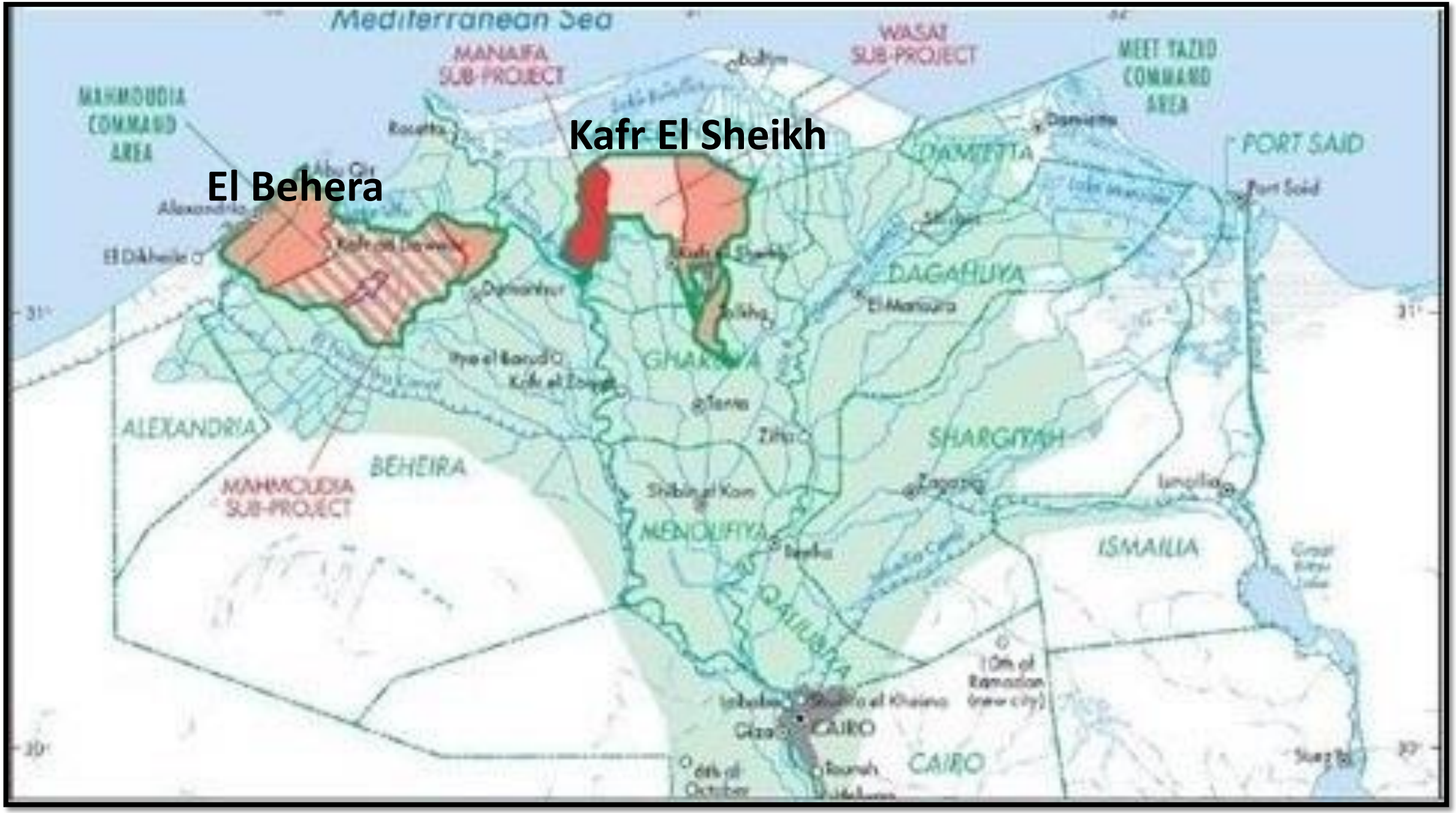


Project objective

- To improve equitable in the distribution of quality water to farmers,
- Improving the speed and efficiency of water conveyance, which will lower labor and pumping costs in the command areas of the Nile Delta,
- Enhancing farmer knowledge and awareness of innovative irrigation technology and associated cropping practices in two command area:

  1st command area El Manaifa and Meet Yazid main canals in Kafr-el-Sheikh governorate

  2nd command area El Mahmoudia in Beheira governorate,


Mediterranean Sea
MANAIFA SUB-PROJECT
WASAT SUB-PROJECT
MEET YAZID COMMAND AREA
MAHMOUDIA COMMAND AREA
Kafr El Sheikh
El Behera
DAMIETTA
PORT SAID
DAGAHUYA
GHARBIYA
ALEXANDRIA
BEHEIRA
MAHMOUDIA SUB-PROJECT
SHARQIYAH
MENOUFIYA
ISMAILIA
QALIUBIYA
CAIRO
CAIRO

Project Components

- Improvement of Marwas & Farm level Modernization,This will be achieved by the replacement of open channel marwas by buried UPVC pipes to decrease the water losses resulted from evaporation, seepage, weed growth, unregularly cross-section and un-proper water management.
- Make necessary modification for intake structures, replacement of diesel pumps by electrical ones or maintenance works and finally the rehabilitation of pump stations and associated works.
- Farm-level technology modernization, This would aim to enhance farmer acknowledge of efficient on farm irrigation methods and crop production technologies.

Farm-level Irrigation Modernization Site activities

Survey works for checking the excavation level under pipes.

Excavation for required level.

installation Marwas pipeline network and valves

Laying UPVC Pipe Works

Installation of
Butterfly Value works

Concrete Foundation for Hydrant Concrete Protection

Hydrant Valves to be installed

Works for Pump Room

Brick Works for Pump Room

Foundation Works for Electrical & Diesel Pumps

Plastering works

Steel works

Electrical Pumps Storage

Installation of 2 electrical Units and Diesel Unit

Model of Pressure test for Marwa butterfly control valve

Measured pressure at 2.0 bar.

After 30 minutes measured pressure 1.9 bar.

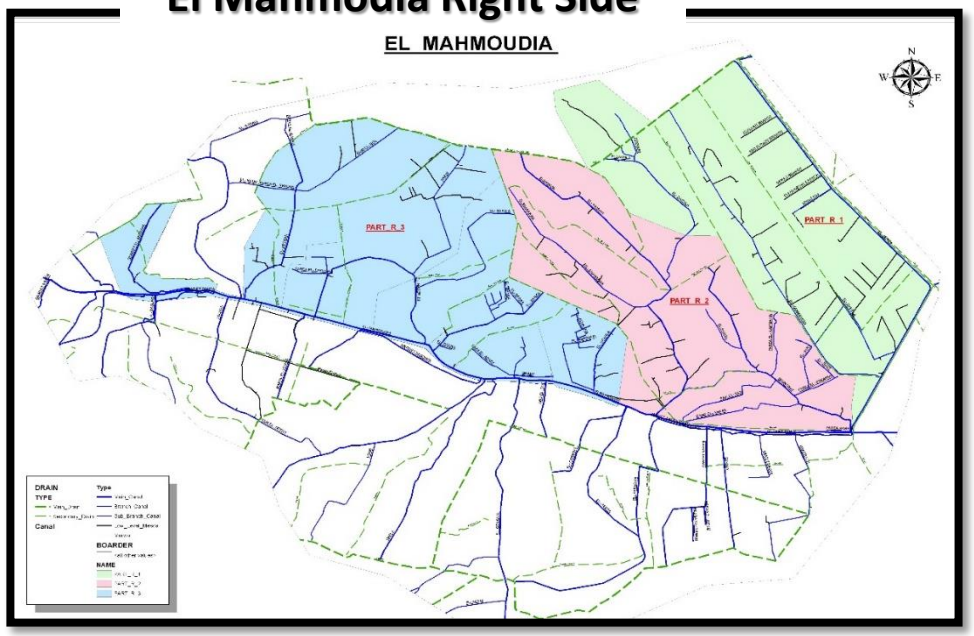
Start pressure 2.0 Bar- End of pressure after 30 minutes 1.9 Bar.

Data collection and Creating data base for each contract in project area

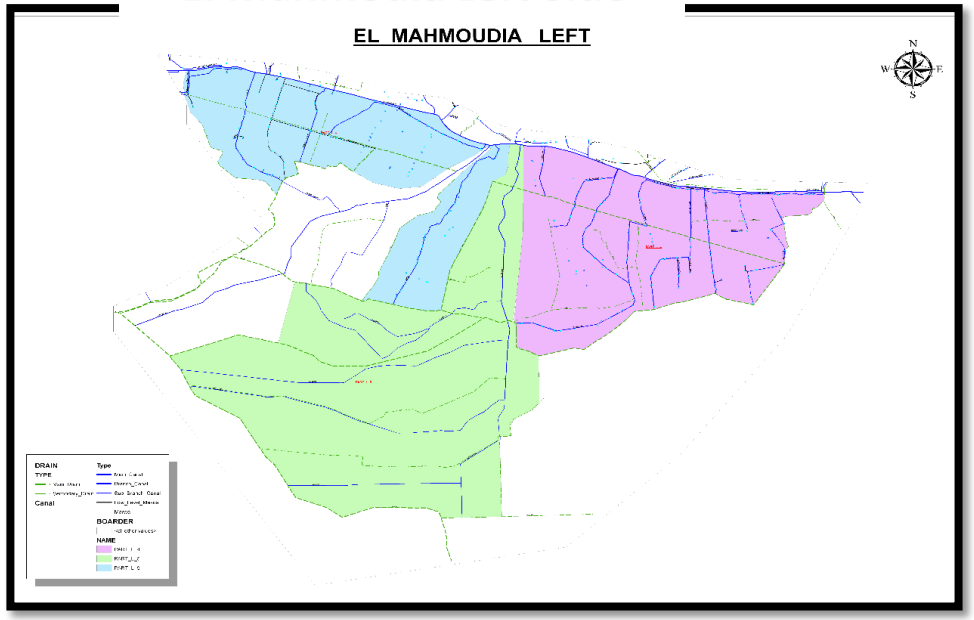
Serial #	Station Name (Eng.)	Station Name (Ar.)	Type of Mesqa	Location Km	Length (m)	Side	Area Served (Fed)	Status of Mesqa		No. of Butterfly Valve	No. of Hydrant Valve	No. of Air Valve	Binary Valve	Lengths of Marwas				
								Re Tender	Complete					Diameter 180 mm	Diameter 200 mm	Diameter 225 mm	Diameter 250 mm	Diam r 315
El Okresha Canal																		
23	EL-BERY	البري	Pipe line	4.700	874.36	R	127.33		Complete	15	352	21	2	3110	1270	2120	0	0
KOUM EL-NOS																		
24	EL-ABD (1)	العبد 1	Pipe line	0.750	879.67	R	61.25		Complete	7	198	6	2	2865	1085	0	0	0
25	EL-RAGAYBA	الرجايبه	Pipe line	1.025	703.40	L	68.00		Complete	12	294	33	2	1150	1950	2523	1000	0
26	EL-ABD (2)	العبد 2	Pipe line	1.200	343.64	R	59.75		Complete	9	194	9	2	1940	1660	1300	0	0
27	HARBY (1)	حرب 1	Pipe line	1.525	993.80	L	48.58		Complete	10	169	24	2	3340	750	0	0	0
28	HARBY (2)	حرب 2	Pipe line	1.800	1021.90	L	66.58		Complete	8	182	11	2	750	1550	1350	0	0
29	EL-GHARBY	كوم النص الغربي	Pipe line	1.810	1578.30	R	96.00		Complete	12	289	6	2	4945	1705	250	0	0
AT KM 1.800 EROM KOUM EL-NOS																		
30	EL-BEDA (1)	البيضا 1	Pipe line	0.485	301.50	L	37.00		Complete	6	156	9	2	675	950	900	0	0
31	EL-BEDA (2)	البيضا 2	Pipe line	0.885	758.40	L	152.50		Complete	12	336	14	2	2000	2100	1600	0	0
32	EL-BEDA (3)	البيضا 3	Pipe line	0.915	1500.00	L	95.00		Complete	12	292	12	2	2601	2950	1600	0	0
33	ABD EL-HALEM (1)	[illegible]	Pipe line	2.020	1272.26	R	74.00		Complete	4	101	15	2	558	760	800	0	0

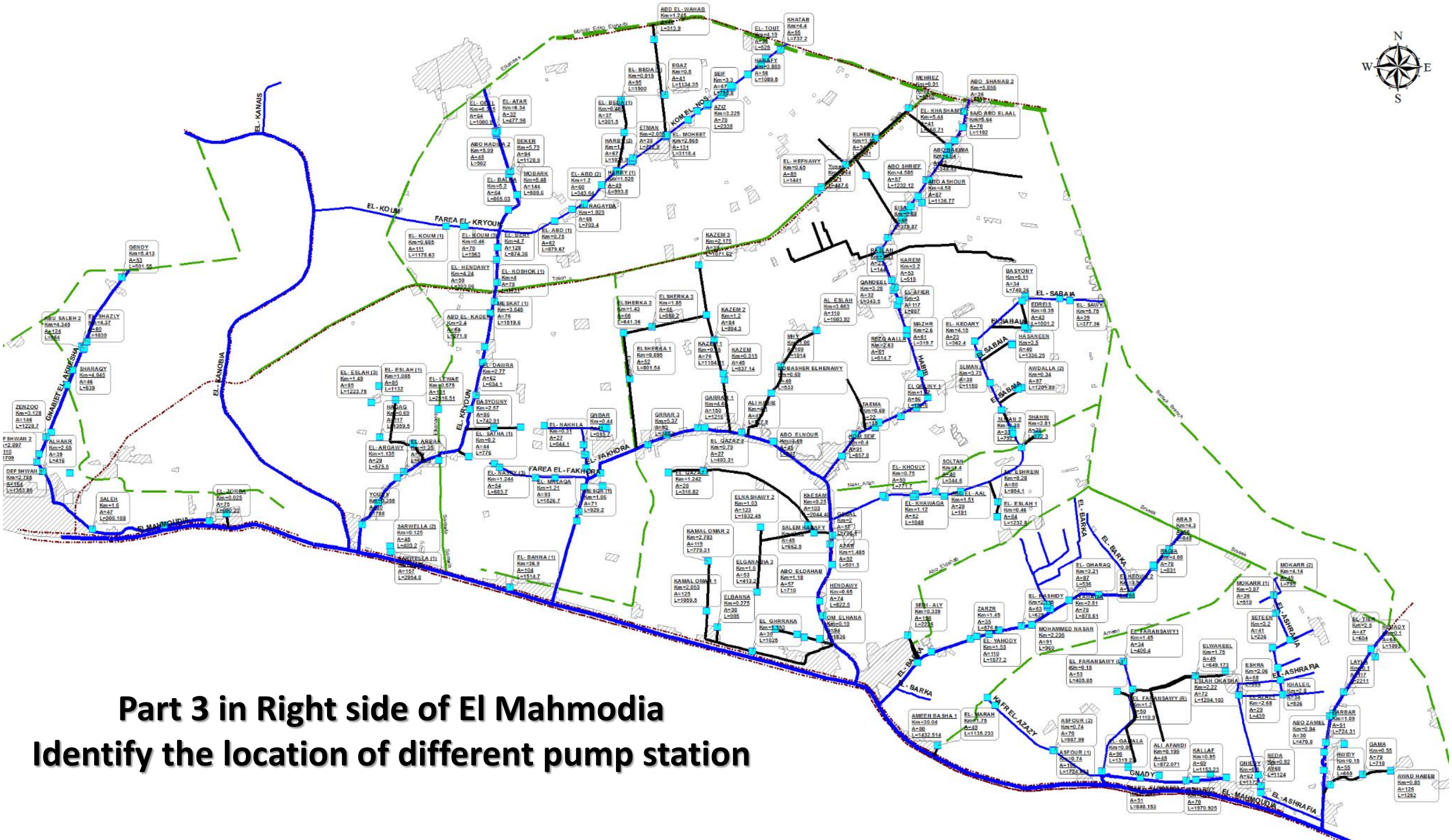
Using GIS

El Mahmodia Right Side



El Mahmodia Left Side




Part 3 in Right side of El Mahmodia
Identify the location of different pump station

Farm-Level Irrigation Modernization Project (FIMP) - Egypt

Kafer El Shiakh command area

Part 2

FAO – Consultant

30 August 2017

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2-4 Drawing
2-5 Sketch showing a path for some mesqa
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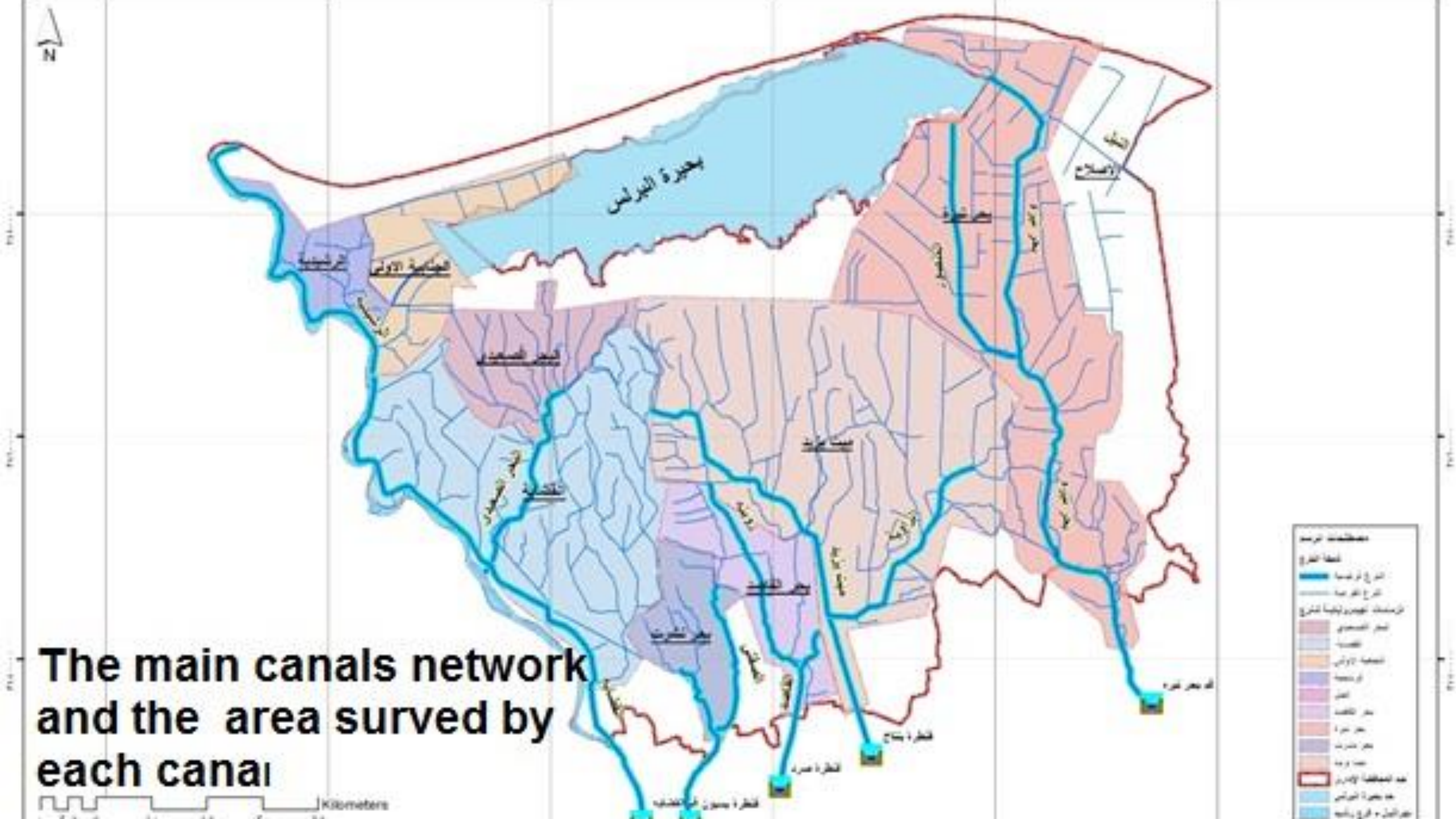
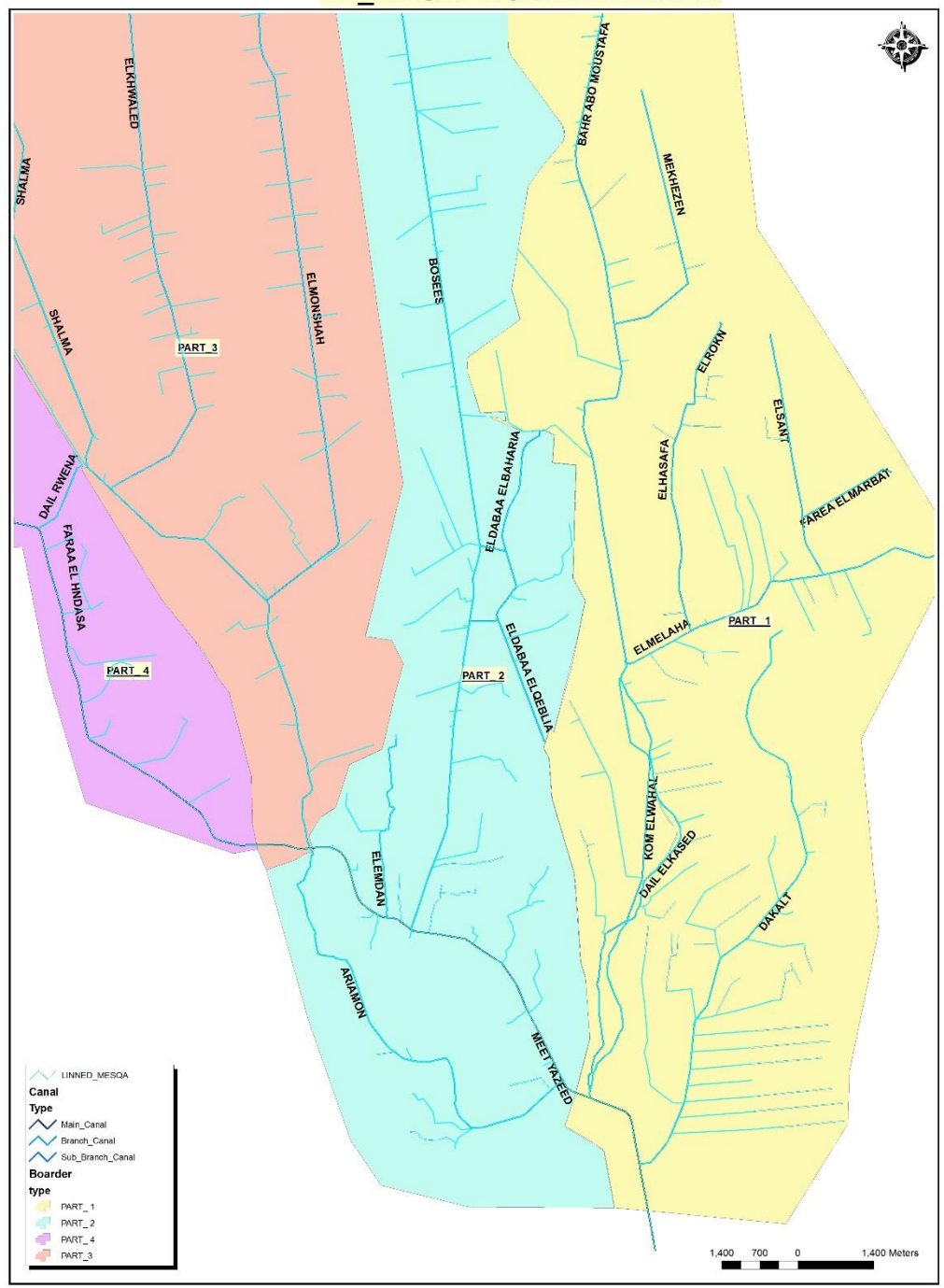


The main canals network and the area surved by each canal

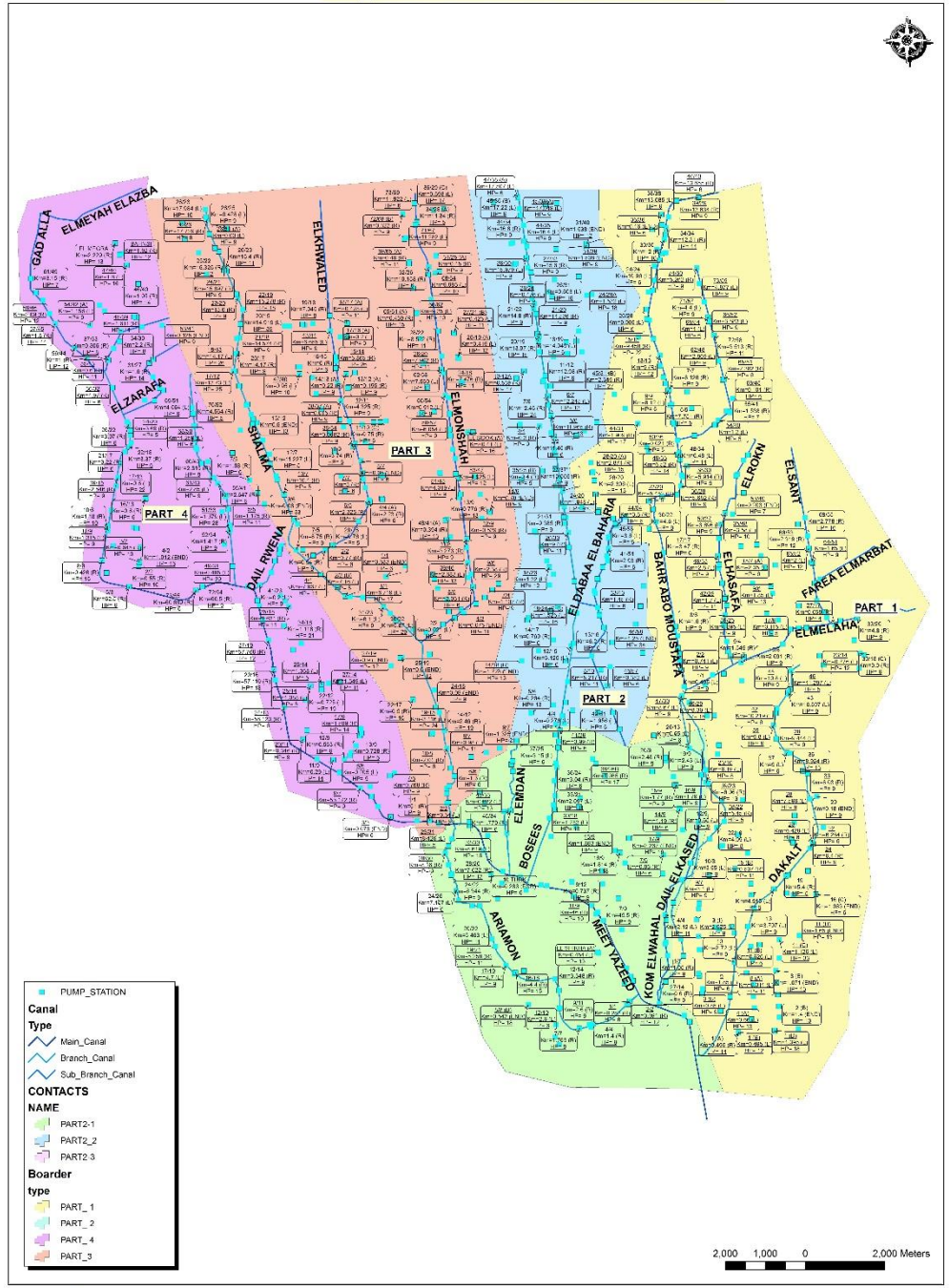
Drainge network Kafr El-Sheikh
governorate

1.El Wasat command area
1-3 Gis maps

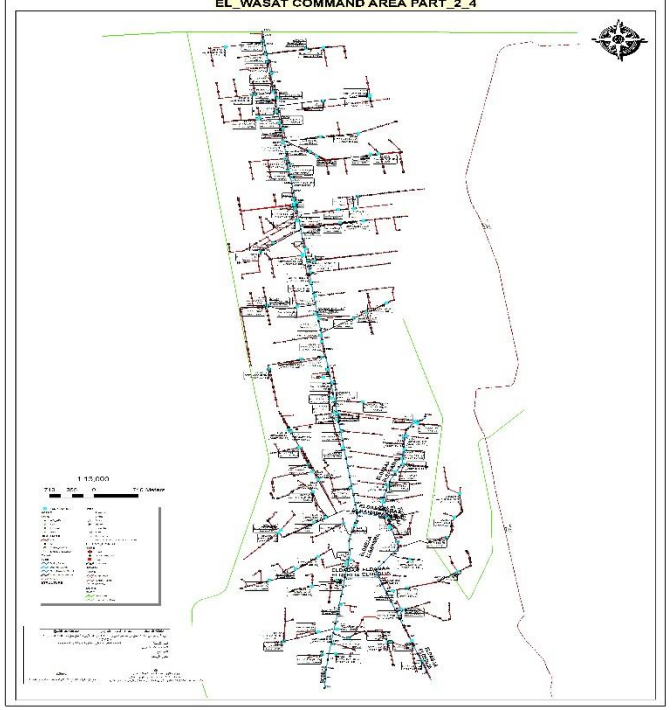
EL_WASAT COMMAND AREA



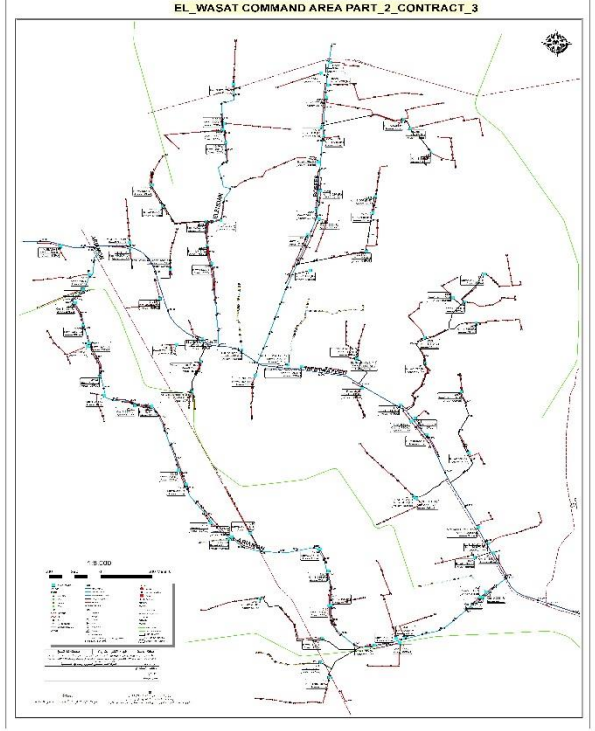
EL_WASAT COMMAND AREA



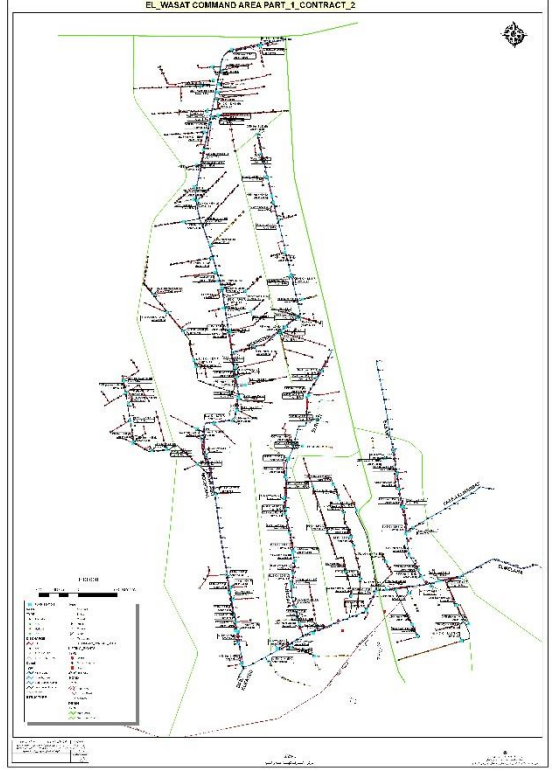
EL_WASAT COMMAND AREA PART_2_4



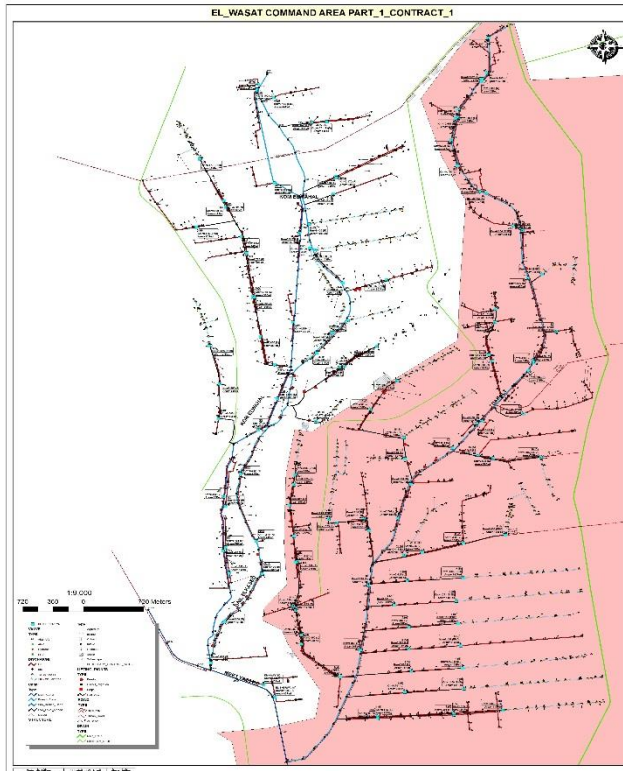
EL_WASAT COMMAND AREA PART_2_CONTRACT_3



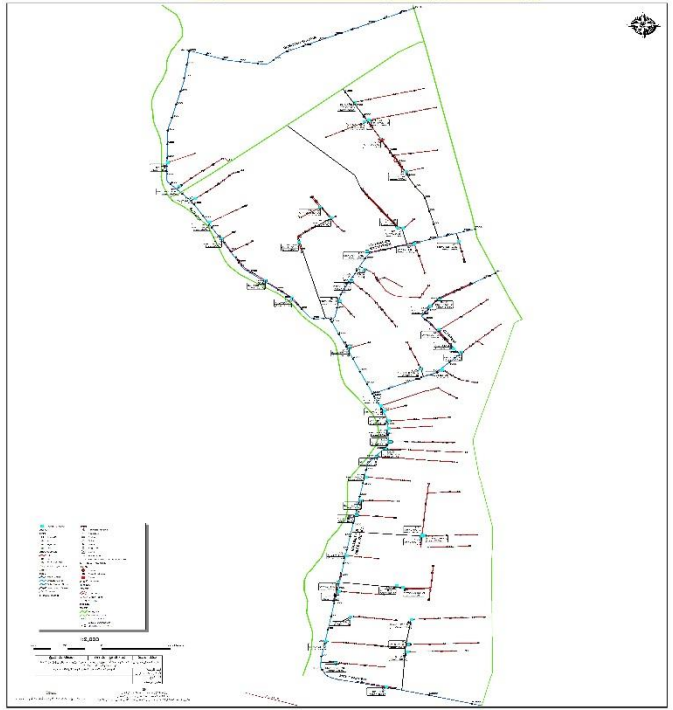
EL_WASAT COMMAND AREA PART_1_CONTRACT_2



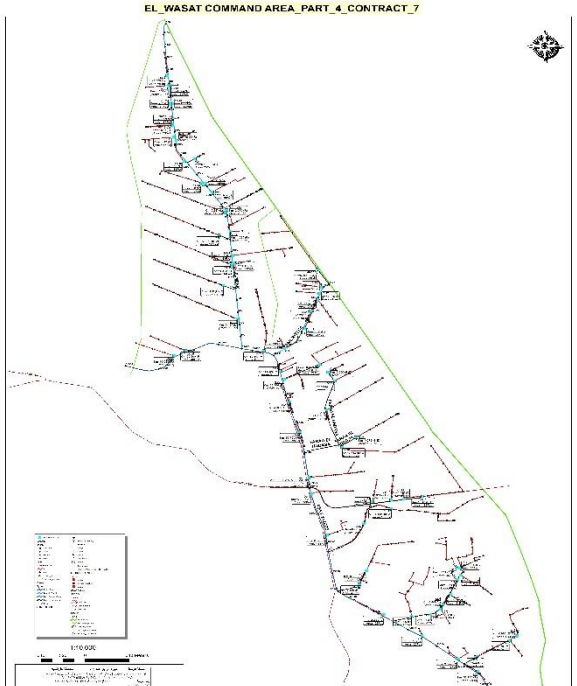
EL_WASAT COMMAND AREA PART_1_CONTRACT_1



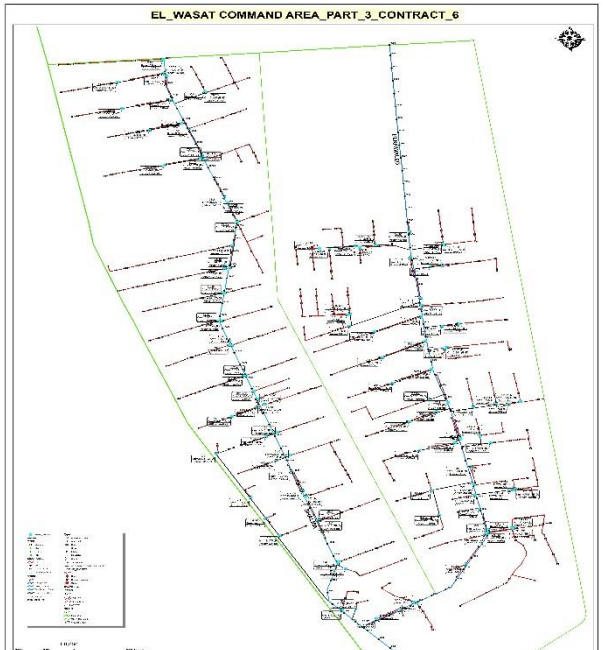
EL_WASAT COMMAND AREA_PART(4_CONTRACT_8)

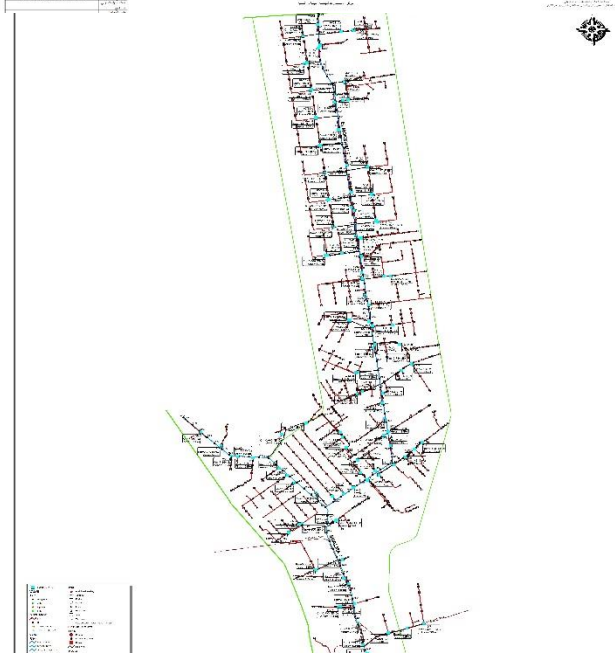


EL_WASAT COMMAND AREA_PART_4_CONTRACT_7



EL_WASAT COMMAND AREA_PART_3_CONTRACT_6





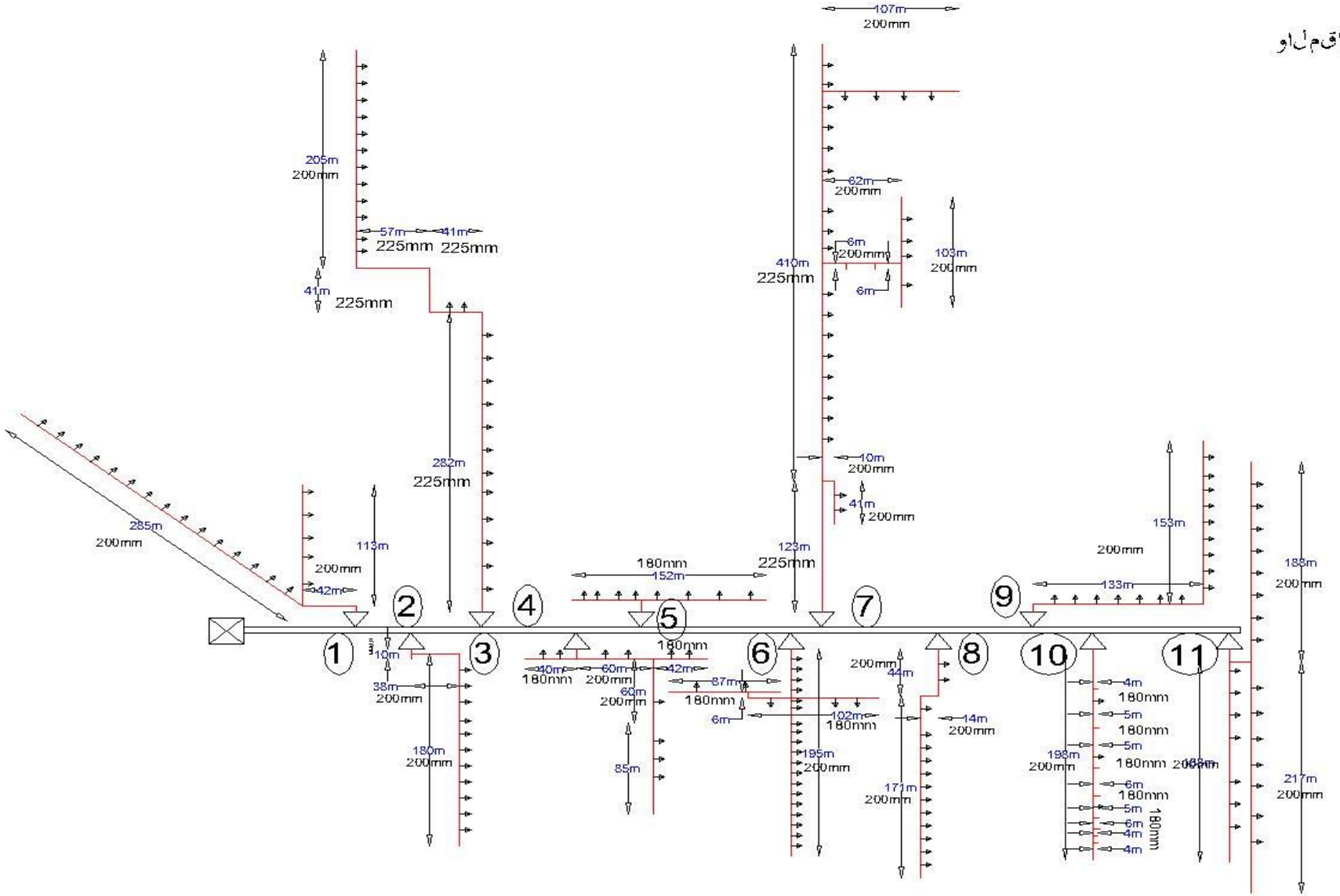
1. El Wasat command area

1-4 Drawing

الأراضي واستصلاح الزراعة وزارة
الحقلي الري تطوير مشروعات إدارة وحدة
الشيخ كفر

والمقاولات للتجارة الطنطاوي شركة / مقاولة

canal name	Edraga
Mesqa name	1/1
Area	82 fad
Location (km)	0.365
Coordinate	N
	E
Electric pump	
Disal pump	

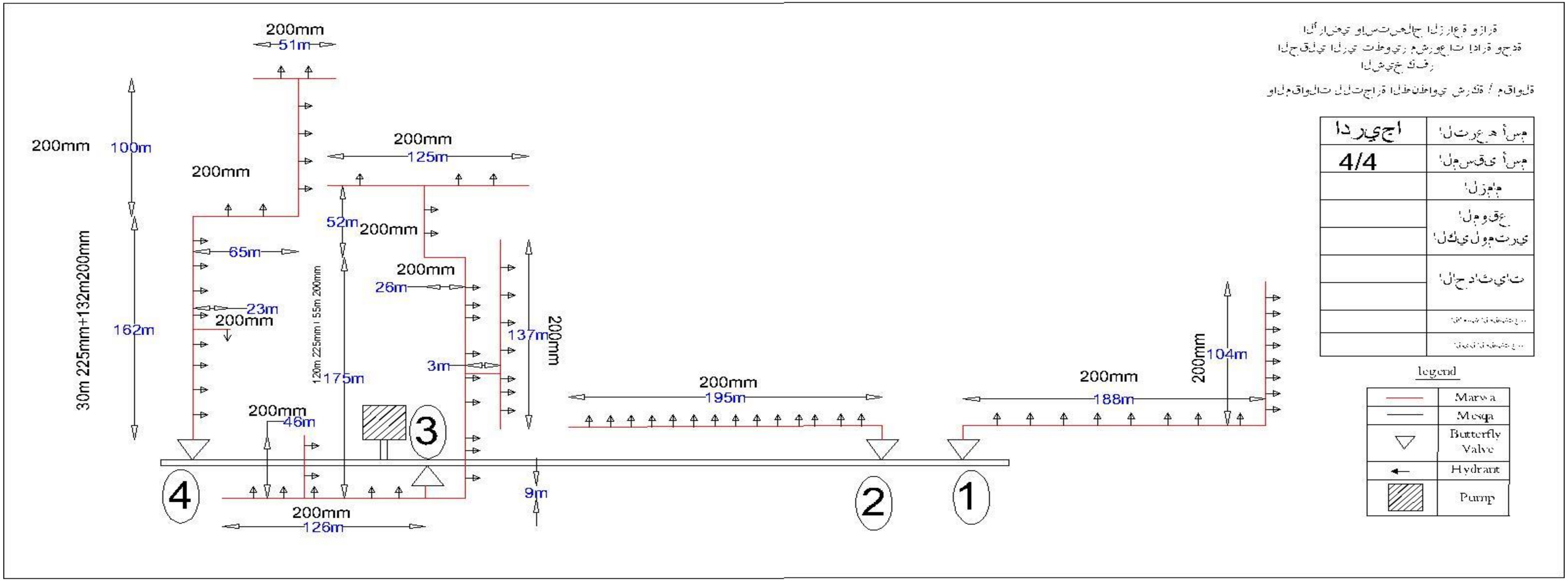


legend

	Marwa
	Mesqa
▽	Butterfly Valve
←	Hydrant
▨	Pump

Contract No. :		**38**								
Contracter name		EL Tantawy								
Canal name		Adriga canal								
Characteristics of Mesqa		**1-1**								

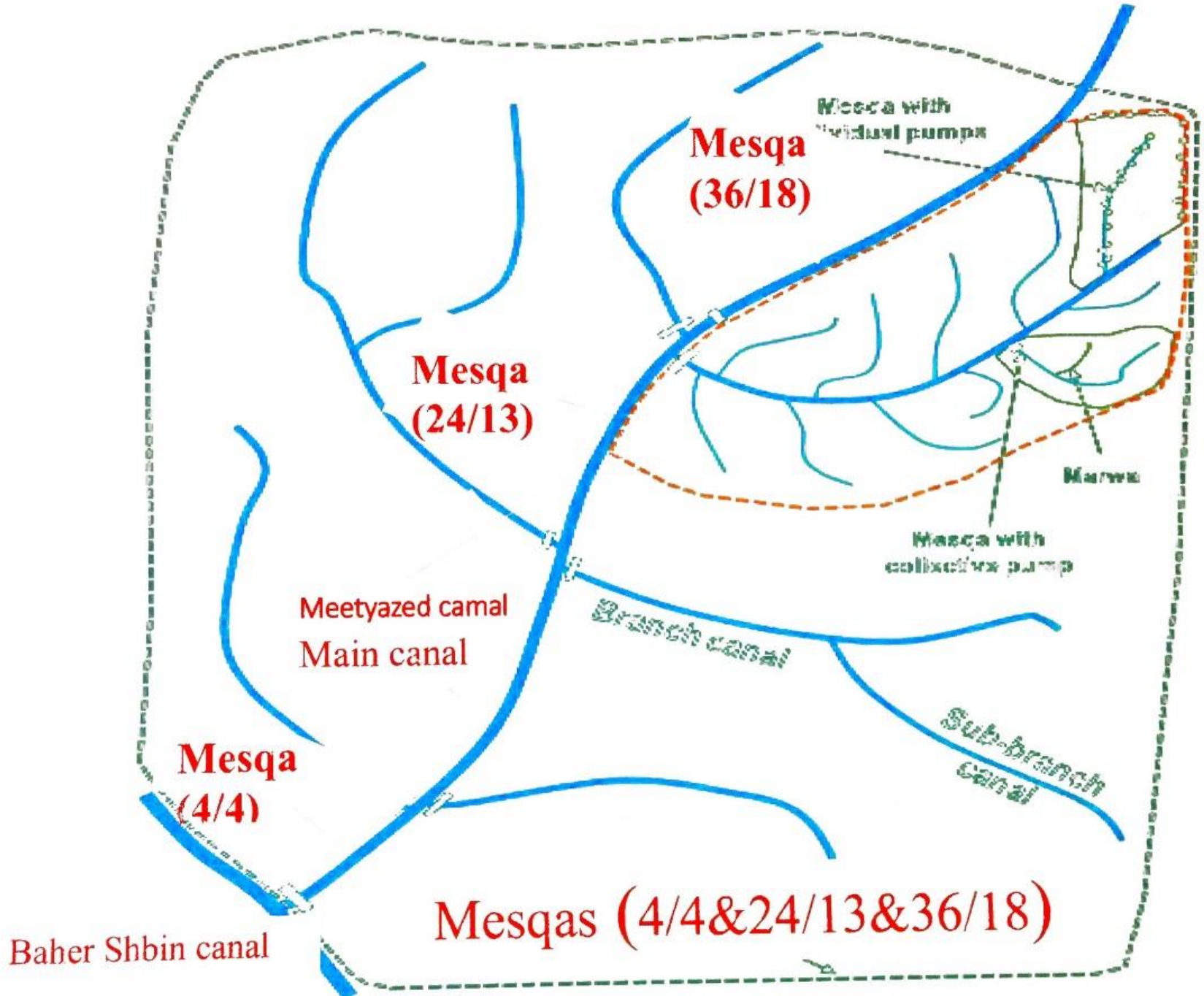
Marwa number	Total Length{M}	Lengths of Marwas			Side	Area Served (Fed)	No. of Butterfly		No. of Hydrant	No. of Air Valve
		Diameter 180 mm	Diameter 200 mm	Diameter 225 mm			Diameter 160 mm	Diameter 200 mm		
1	440		440		L			1	15	2
2	228	10	218		R			1	11	1
3	626		205	421	L			1	27	1
4	287	167	120		R			1	11	2
5	152	152			L		1		9	1
6	390	195	195		R			1	25	3
7	868		335	533	L			1	37	3
8	229		229		R			1	15	1
9	286		286		L			1	16	1
10	237	39	198		R			1	11	1
11	593		593		R			1	35	3
Total	4336	563	2819	954		82	1	10	212	19


200mm
51m
200mm
100m
200mm
125m
52m
200mm
65m
200mm
26m
23m
200mm
162m
30m 225mm+132m200mm
120m 225mm I 55m 200mm
175m
137m
200mm
3m
200mm
195m
200mm
188m
200mm
104m
200mm
46m
200mm
126m
9m
1
2
3
4
4/4
legend
Marwa
Mesqa
Butterfly Valve
Hydrant
Pump

Contracter name	EL Tantawy								
Canal name	Adriga canal								
Characteristics of Mesqa	**4=4**								

Marwa number	Total Length{ M}	Lengths of Marwas			Side	Area Served (Fed)	No. of Butterfly		No. of Hydrant	No. of Air Valve
		Diameter 180 mm	Diameter 200 mm	Diameter 225 mm			Diameter 160 mm	Diameter 200 mm		
1	292		292		R			1	16	1
2	195		195		R			1	14	1
3	699		570	129	R			1	33	3
4	401		371	30	L			1	22	1
Total	1587	0	1428	159		23	0	4	85	6

1. El Wasat command area
    1-3 Sketch showing a path for some mesqa

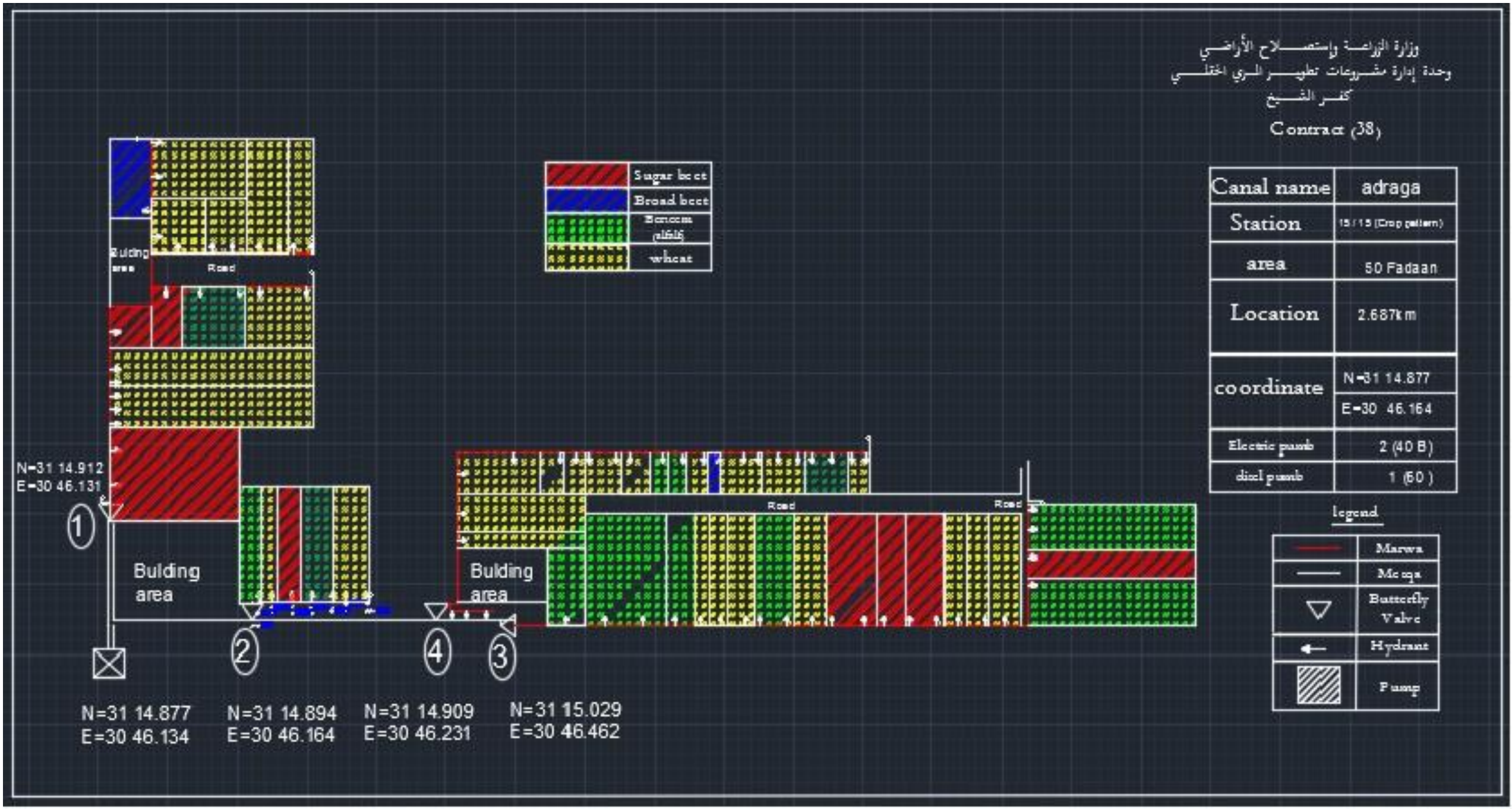

Mesqa
(36/18)
Mesqa
(24/13)
Mesqa
(4/4)
Meetyazed camal
Main canal
Baher Shbin canal
Mesqas (4/4&24/13&36/18)

El Wasat command area

1-6 Field Data

وزارة الزراعة واستصلاح الأراضي
وحدة إدارة مشروعات تطوير الري الحقلي
كفر الشيخ

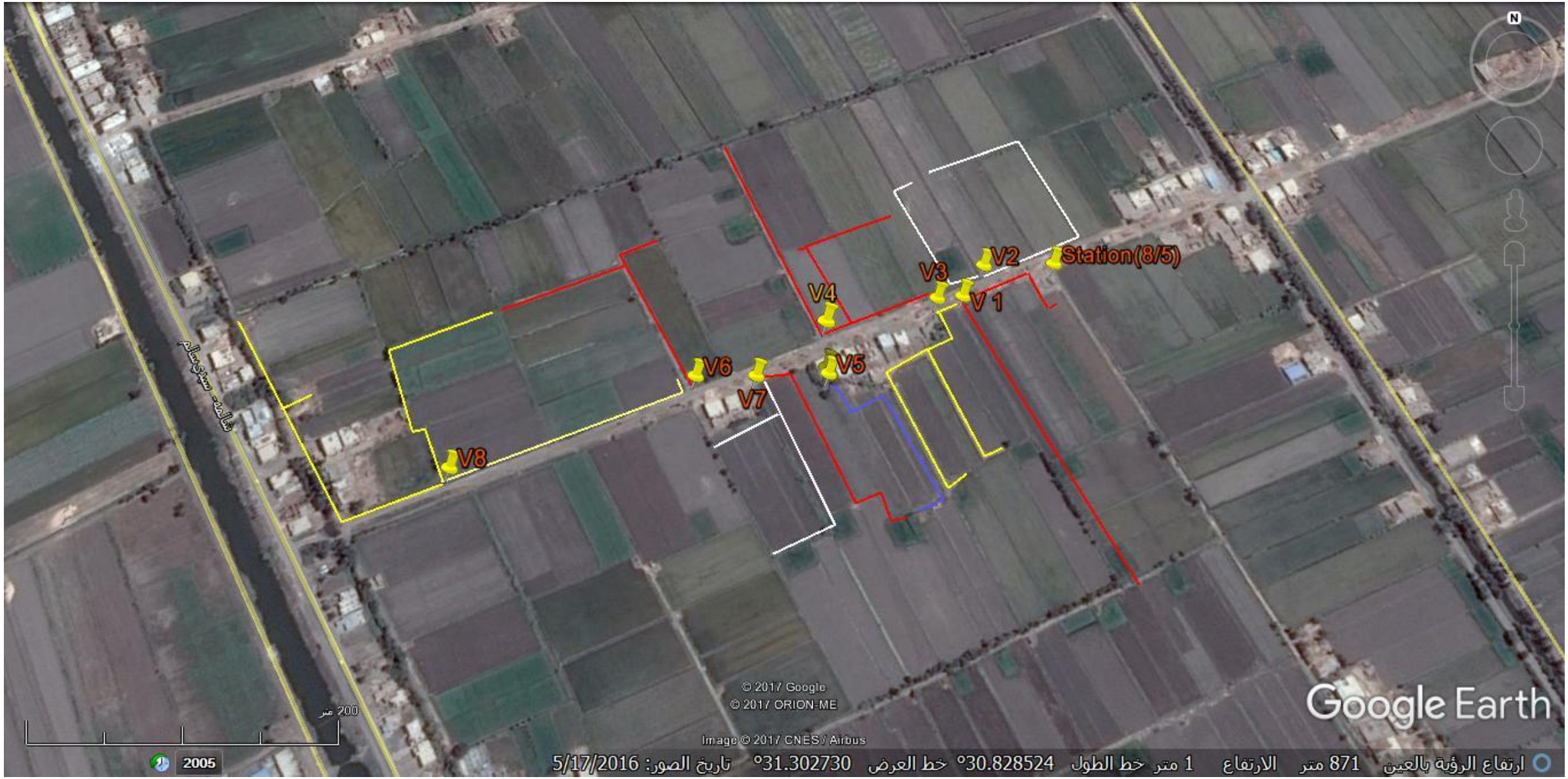
Contract (38)



Canal name	adraga
Station	15 / 15 (Crop pattern)
area	50 Fadaan
Location	2.687km
coordinate	N=31 14.877
	E=30 46.164
Electric pumb	2 (40 B)
diesl pumb	1 (60)

legend

	Marwa
	Mesqa
	Butterfly Valve
	Hydrant
	Pump


Station(8/5)
V1
V2
V3
V4
V5
V6
V7
V8
© 2017 Google
© 2017 ORION-ME
Image © 2017 CNES / Airbus
Google Earth
200 متر
2005
تاريخ الصور: 5/17/2016
خط العرض 31.302730°
خط الطول 30.828524° 1 متر
الارتفاع 871 متر
ارتفاع الرؤية بالعين

1. El Wasat command area

1-7 Fao data

Contract Number 38	Fully contract buried pipe line			contractor Name : El Tantawy
No financed by JICA.				

Canal	Location	Field	Total number of stations				Coordinates	
name	(km)	School	total	fineshed	Gong on	not start	N	E
Adriga	**AT KM (8.940) ON SHABA**	El Nwaiga	38	25	2	11	31 13 41.89	30 46 50.12
Shaba		EL GAMAILA	39	8	7	24	31 09 42.58	30 45 45.22
El karada	**AT KM (2.600) ON SHABA**	**no**	43	20	4	19	31 10 43.10	30 46 49.6
Koam el Faraeen		**no**	20	2		18	31 09 43.14	30 45 43.53
Ebto		Ebto	61	7		54	31 09 43.14	30 45 43.53
EL Sharqaya		Agalan and El Bakato	16	0		16	31 07 04.00	30 46 36.93
SANHOUR EL_QADEMA	**AT KM 5.385 L ELMANIFA CANA**	**no**	22	0		22	31 04 58.01	30 45 57.30
EL_MANAIFA		**no**	12	0		12	31 03 20 75	30 44 13.50
SANHOUR EL_SOGHRA	**AT KM (1.589) L DALEEL LASEFER & SANHOUR**	EL Safiah	40	0		40	31 06 48.49	30 45 32.23
ELHOMOSAH	**ELHOMOSAH AT KM (1.779) R SANHOUR EL_S**	**no**	23	0		23	31 06 44.41	30 44 27.54
Lasefer	**AT KM (1.589) DALEEL LASEFER**	**no**	24	0		24	31 06 49.65	30 45 34.55
DALEEL LASEFER	**KM (7.689) L ELMANIFA CANA**	**no**	5	0		5	31 06 06.01	30. 46 01.51
			343	62	13	268		

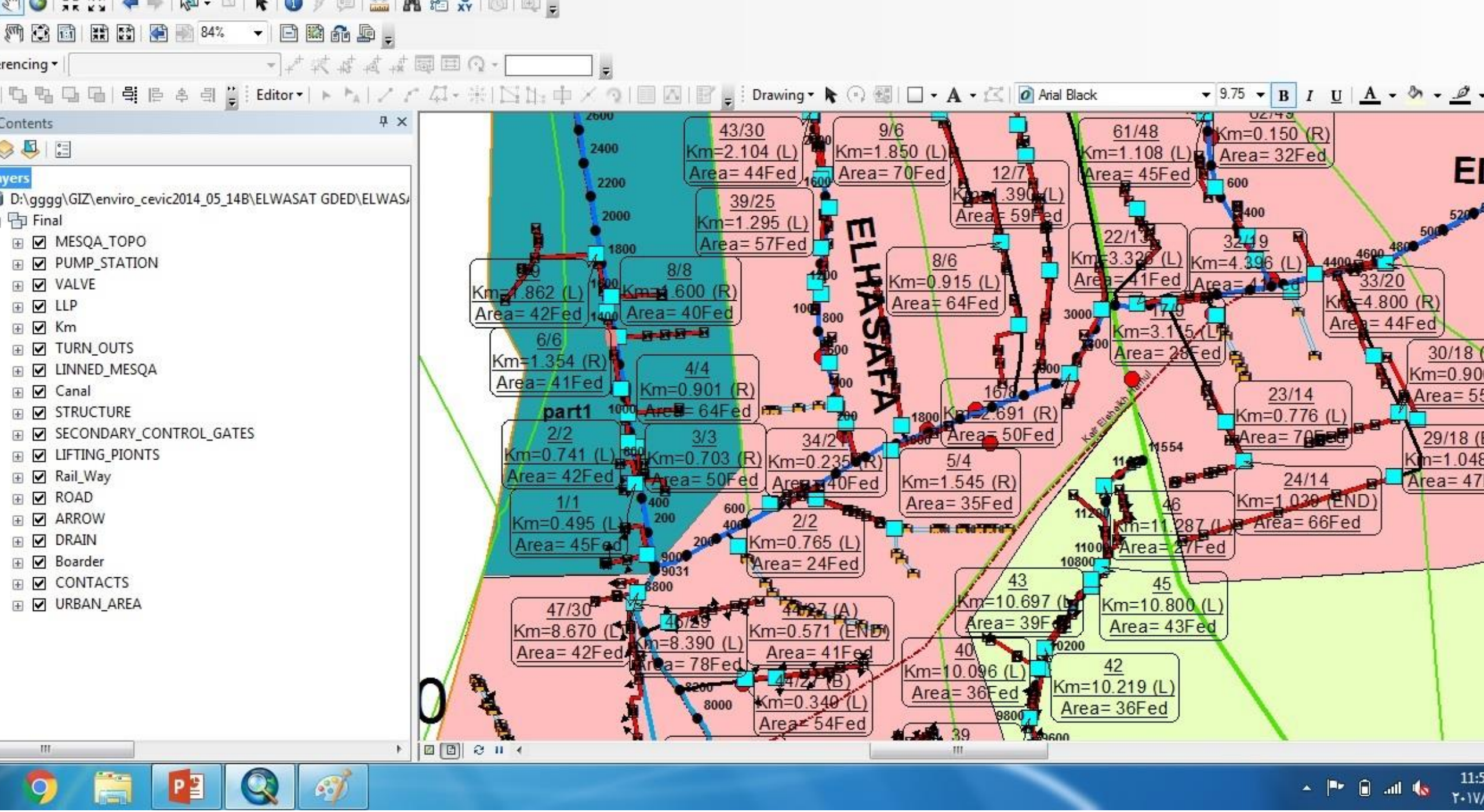
Adriga CANAL

NO	lesq nam (station)	Location (Km)	Side	No of Marwas	rea sarve feddan	Mesqa Status	Mesqa Lenth(M)	umber o Hudranty	Number o Butterfly	Coordinates N	Coordinates E	Marwa Lenth(M)
1	1/1	0.368	L	8	82	Finshed	585.00		8			2200
2	2/2	0.730	R	8	50	Not starter	716.00		8			2050
3	3/3	0.840	L	3	34	Finshed	487.00		3			140
4	4/4	0.877	L	3	23	Finshed	426.00		3			1700
5	5/5	1.200	R	5	25	Finshed	486.00		5			1390
6	6/6	1.235	L	4	35	Not starter	440.00		4			1000
7	8/8	1.705	R	6	41	Finshed	254.00		6			1120
8	7/7	1.705	L	4	40	Finshed	426.00		4			1800
9	9/9	1.964	R	8	65	Finshed	461.00		8			2530
10	10/10A	1.964(0.620	R	12	96	Not starter	976.00		12			2150
11	10/10	2.065	L	4	32	Finshed	216.00		4			2000
12	11/11A	2.143	L	5	43	Finshed	619.00		5			1000
13	11/11B	2.364	L	3	36	Finshed	449.00		3			1450
14	13/13	2.509	R	8	52	Going on	1024.00		8			2150
15	12/12	2.515	L	6	25	Finshed	497.00		6			400
16	14/14	2.644	R	6	25	Going on	568.00		6			1265
17	15/15	2.687	L	4	50	Finshed	230.00		4			2200
18	16/16-1	2.805	L	7	41	Finshed	548.00		7			1270
19	16/16-2	0.366	R	8	45	Not starter	1182.00		8			670
20	16/16-3	1.131	L	9	51	Not starter	482.00		9			1680
21	16/16-4	1.310	L	5	48	Not starter	642.00		5			1650
22	16/16-5	1.419	L	8	69	Finshed	770.00		8			1650
23	17/17	3.000	R	6	65	Finshed	681.00		6			2650
24	18/18A	0.012	R	10	71	Finshed	1103.00		10			1950
25	18/18B	0.484	R	9	66	Finshed	794.00		9			760
26	19/19	3.580	R	4	37	Finshed	455.00		4			550
27	20/20	3.688(0.052	L	9	87	Finshed	715.00		9			3400
28	21/21	3.734	R	8	43	Not starter	410.00		8			1500
29	22/22	3.806	R	3	35	Finshed	199.00		3			750
30	23/23	4.000	R	7	48	Going on	1240.00		7			800
31	24/24	4.424	R	5	50	Not starter	353.00		5			1130
32	25/25	4.513	R	8	66	Finshed	299.00		8			1508
33	26/26	4.722	L	11	86	Going on	1485.00		11			1670
34	27/27	4.903	L	5	43	Not starter	819.00		5			350
35	28/28	5.251	R	7	40	Going on	364.00		7			1800
36	2/2	0.899	L	8	74	Not starter	600.00		8			5800

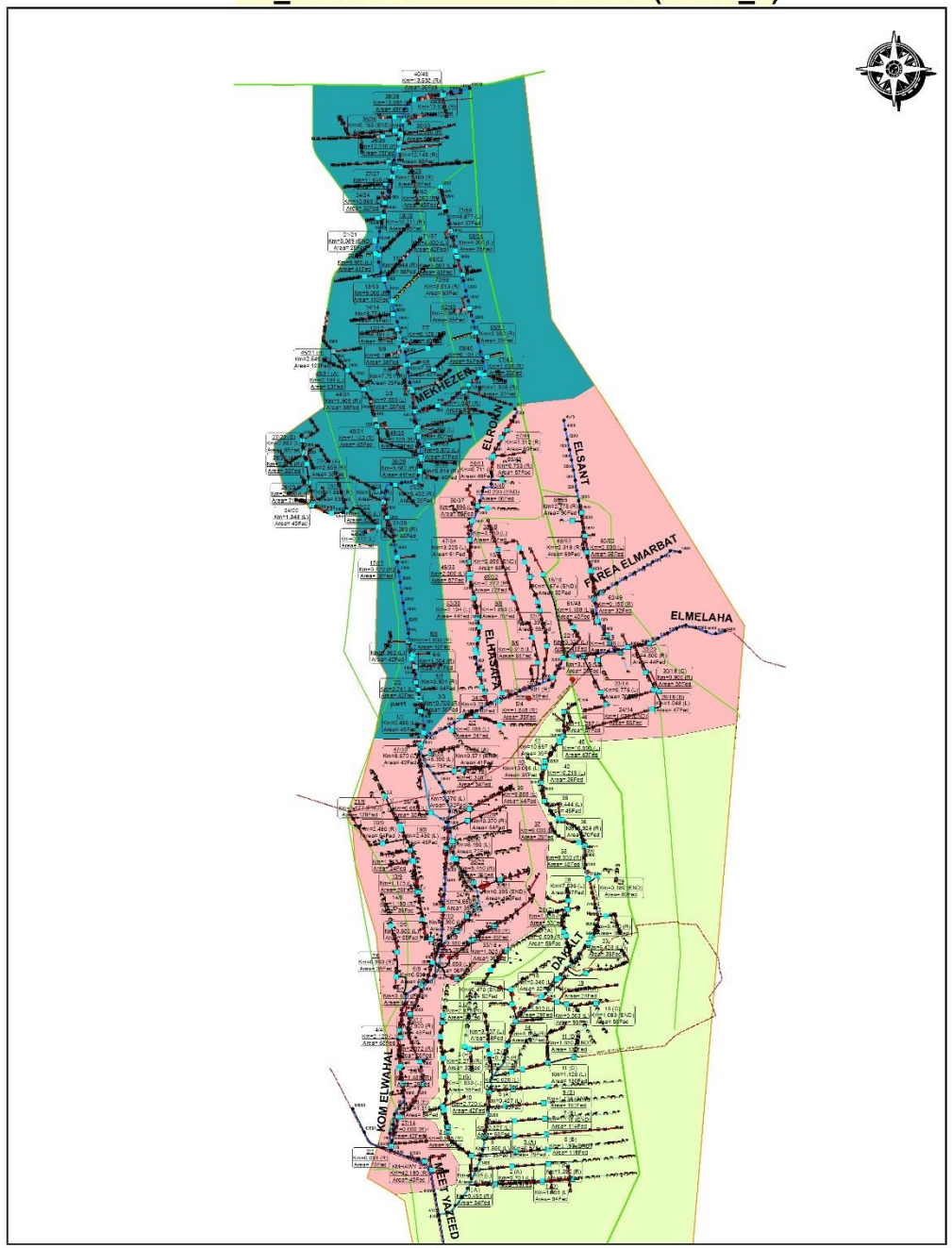
Contract No	Total Contract Value (LE)	Cost of completion (LE) end june	Budgetary Control Ratio	Total area /faddan	implamation area end june 2017	Implementation Control Ratio (area) %	tptal Marwa length (M)	implamation marwa end june 2017	Implementation Control Ratio (marwa}%
23	89766462	38904000	43.34	14600	5794	39.68	591232	235463	39.83
45	135000000	31105223	23.04	14400	2370	16.46	435000	44377	10.20
40	108964600	40422773	37.10	15000	6903	46.02	450923	105484	23.39
26	63743363	38525055	60.44	10894	5396	49.53	362500	223216	61.58
38	189912000	26000000	13.69	17000	3876	22.80	529000	127516	24.11
39	69550052	12300880	17.69	10000	1485	14.85	400911	52455	13.08

1. El Wasat command area

1-4 GIS analyses data


Contents
D:\gggg\GIZ\enviro_cevic2014_05_14B\ELWASAT GDED\ELWAS
Final
MESQA_TOPO
PUMP_STATION
VALVE
LLP
Km
TURN_OUTS
LINNED_MESQA
Canal
STRUCTURE
SECONDARY_CONTROL_GATES
LIFTING_PIONTS
Rail_Way
ROAD
ARROW
DRAIN
Boarder
CONTACTS
URBAN_AREA
ELHASAFA
part1
43/30 Km=2.104 (L) Area= 44Fed
9/6 Km=1.850 (L) Area= 70Fed
61/48 Km=1.108 (L) Area= 45Fed
Km=0.150 (R) Area= 32Fed
39/25 Km=1.295 (L) Area= 57Fed
12/7 Km=1.390 (L) Area= 59Fed
8/8 Km=1.600 (R) Area= 40Fed
8/6 Km=0.915 (L) Area= 64Fed
33/20 Km=4.800 (R) Area= 44Fed
6/6 Km=1.354 (R) Area= 41Fed
4/4 Km=0.901 (R) Area= 64Fed
16/8 Km=2.691 (R) Area= 50Fed
23/14 Km=0.776 (L) Area= 70Fed
2/2 Km=0.741 (L) Area= 42Fed
3/3 Km=0.703 (R) Area= 50Fed
34/2 Km=0.235 (R) Area= 40Fed
5/4 Km=1.545 (R) Area= 35Fed
24/14 Km=1.030 (END) Area= 66Fed
1/1 Km=0.495 (L) Area= 45Fed
2/2 Km=0.765 (L) Area= 24Fed
43 Km=10.697 (L) Area= 39Fed
45 Km=10.800 (L) Area= 43Fed
47/30 Km=8.670 (L) Area= 42Fed
46/29 Km=8.390 (L) Area= 78Fed
44/27 (A) Km=0.571 (END) Area= 41Fed
40 Km=10.096 (L) Area= 36Fed
42 Km=10.219 (L) Area= 36Fed
44/27 (B) Km=0.340 (L) Area= 54Fed

EL_WASAT COMMAND AREA (PART_1)



وزارة الزراعه و استصلاح الاراضى
وحدة ادارة مشروعات تطوير الرى الحقلى
مشروع عقد استشارات تطوير الرى الحقلى بمحافظتى البحيره و كفر الشيخ