



Irrigation Solution for Large Farm Operation.

Rainfine Irrigation Co., Ltd.

大连银帆农业喷灌机制造有限公司

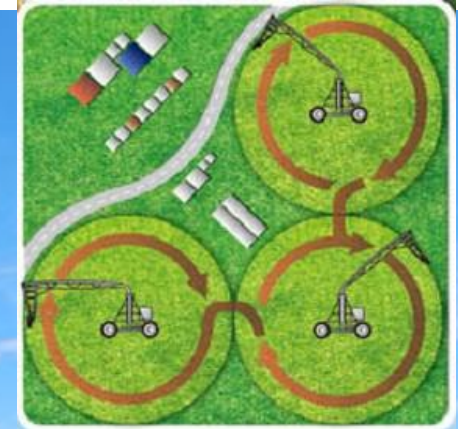
RAINFINE®
Irrigation Solution.

Part one: irrigation machine

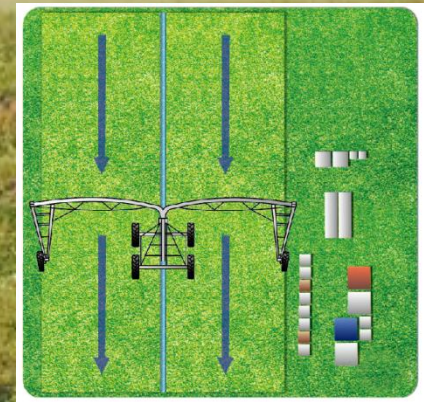
Center pivot irrigation machine



Towable pivot machine



Lateral move (linear system)



Pivot Irrigation in Sudan

Irrigation in U.S.A(1)

Satellite
mapping
chronicled the
center pivot's
steady climb in
U.S.A

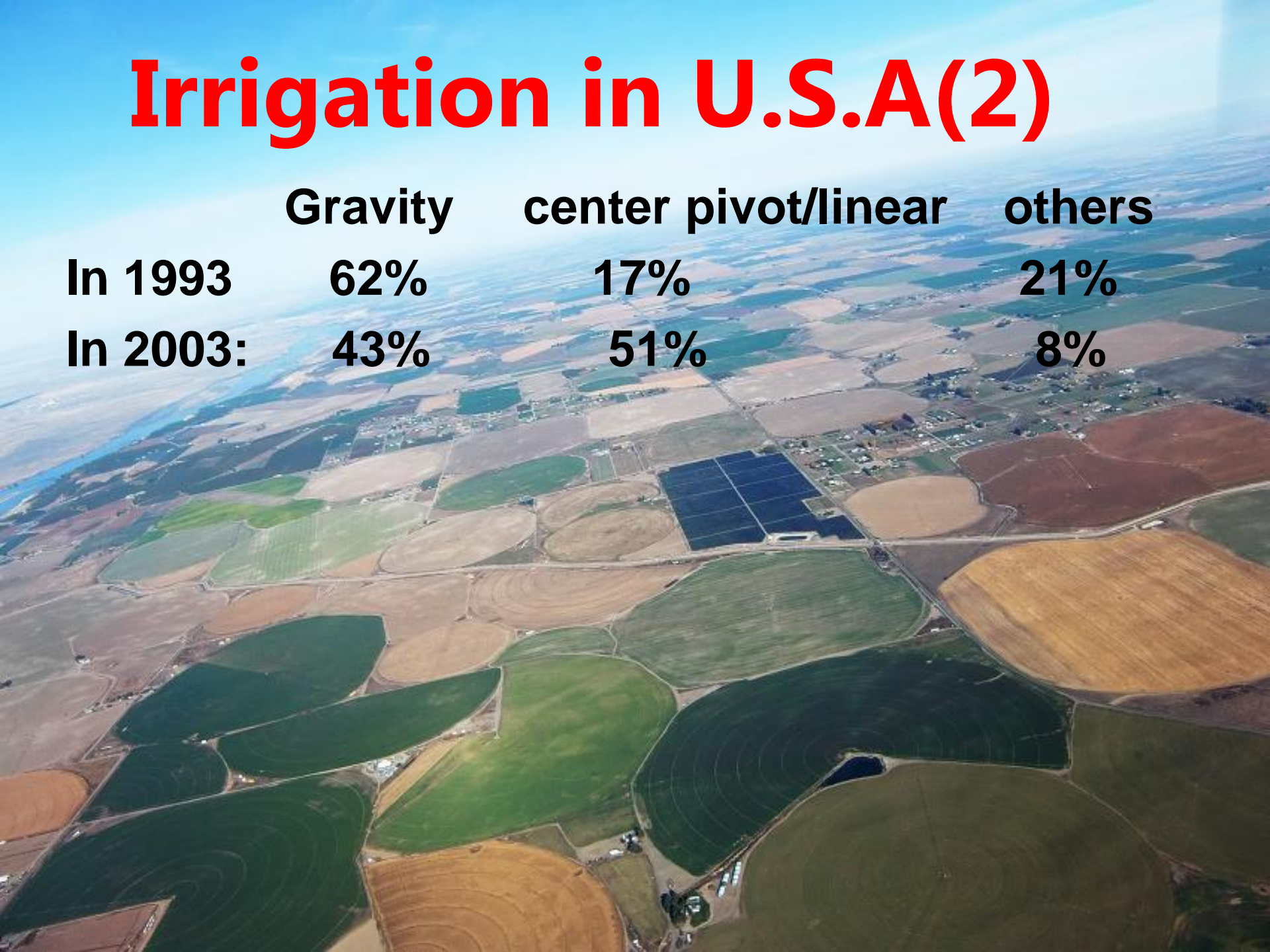
1972: 2,725

2002: 170,000



Irrigation in U.S.A(2)

	Gravity	center pivot/linear	others
In 1993	62%	17%	21%
In 2003:	43%	51%	8%



Irrigation in Nebraska U.S.A

72,000 center pivots now irrigate
about 5 million of that state's 8
million-plus irrigation acres



Irrigation in Saudi

International - Large Operations

21,000 pivot now is
working in Saudi



Irrigation in South Africa

15,000 center pivot system



Irrigation in Spain

8,500 pivot system in Spain



How many irrigation system in your country



Water is a big problem



**River is good , but it can
not use it properly**



**-Let me think
about it,
- Rainfine
can do some
help**



Rainfine is an irrigation company for irrigation solution

- Rainfine is an international company in China,partnership with American company for 11 years
- Rainfine is an irrigation manufacturing company for center pivot and linear system.
- Rainfine has top leading technology from U.S.A and Europe for irrigation design
- Rainfine has competitive price as it mainly made in China

Rainfine is working for irrigation projects all over the world

- Sudan Arawabi project: 50,000 ha
- Ghana 700 ha
- Russia: two projects 1500 ha and 800ha
- Kazakhstan: 750ha
- Ethiopia Omo river 2500ha
- Australia dairy project 240ha
- Zambia project 70ha

Part two : Why Africa

We Love Africa

Africa is the most beautiful land of the world



We Love Africa

Africa is the last land in the earth without pollution



We Love Africa

Africa has plentiful water not being used



We Love Africa

Africa has very kind people



We Love Africa

Africa has lovely children



We Love Africa

Africa has most beautiful animals



Africa need irrigation technology



Part three : Made in China

China is becoming the factory of the world



Everything is made in China(1)

There is a joke from American:

An American pastor is teaching Holy Bible to a group of young kids.

He asks a question to the children

“who created human being”

All the boys and girls answer:

“God”

Everything is made in China(2)

“you are right”

The pastor smile and forward another question:

“Where did the God create human being”

All the kids shout: “Made in China”

Everything is made in China(3)

The pastor gets angry and says:

“No, God made people in the Garden of Eden”

“But we have never seen it, what we have seen everyday is everything **is made in China**”

Part four : Rainfine's works

Our works(1)

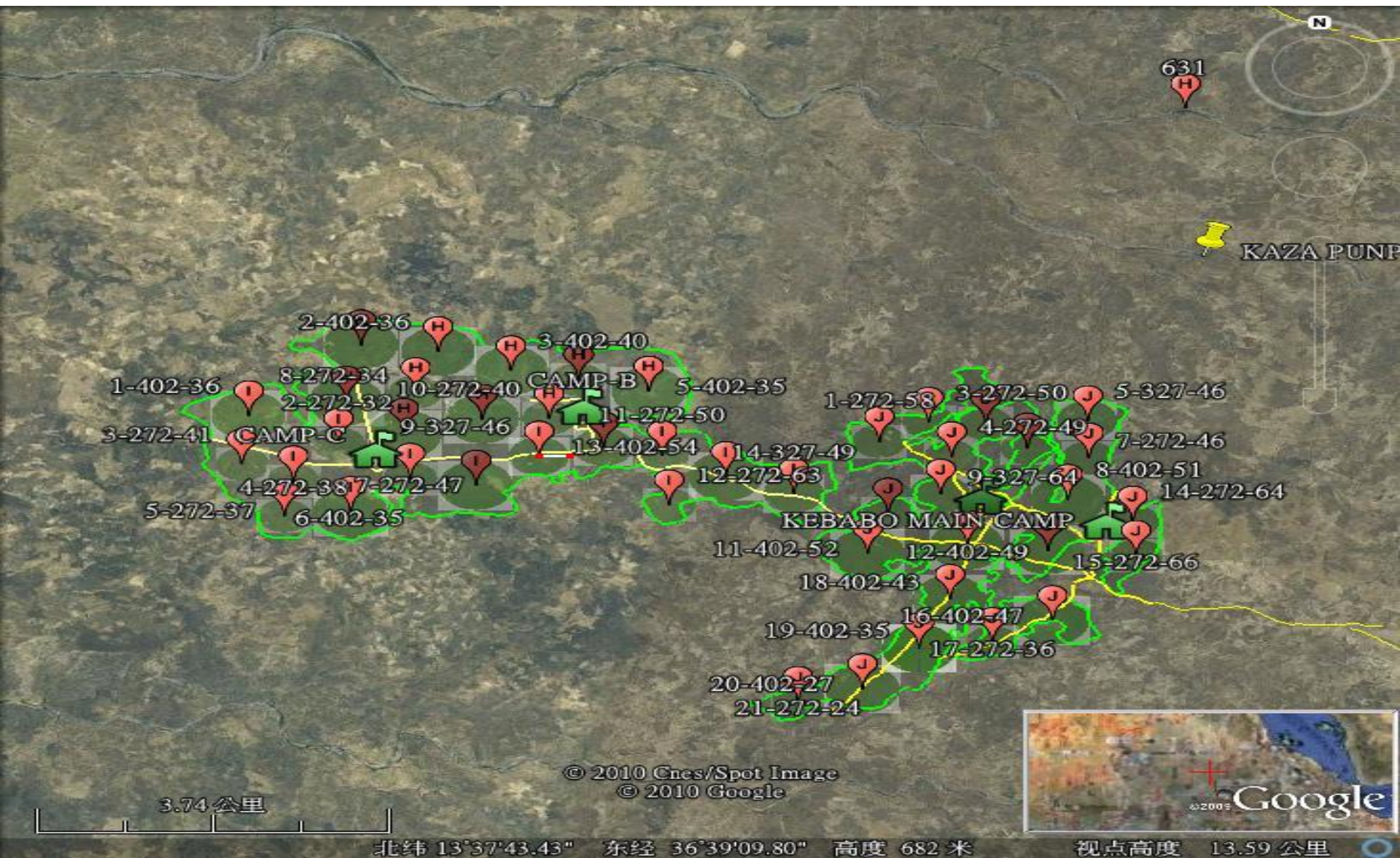
- land survey and plan
- Irrigation layout design
- Pipeline network layout calculation
- Pump station calculation and design
- Business proposal and budget plan for complete irrigation area.

Our works(2)

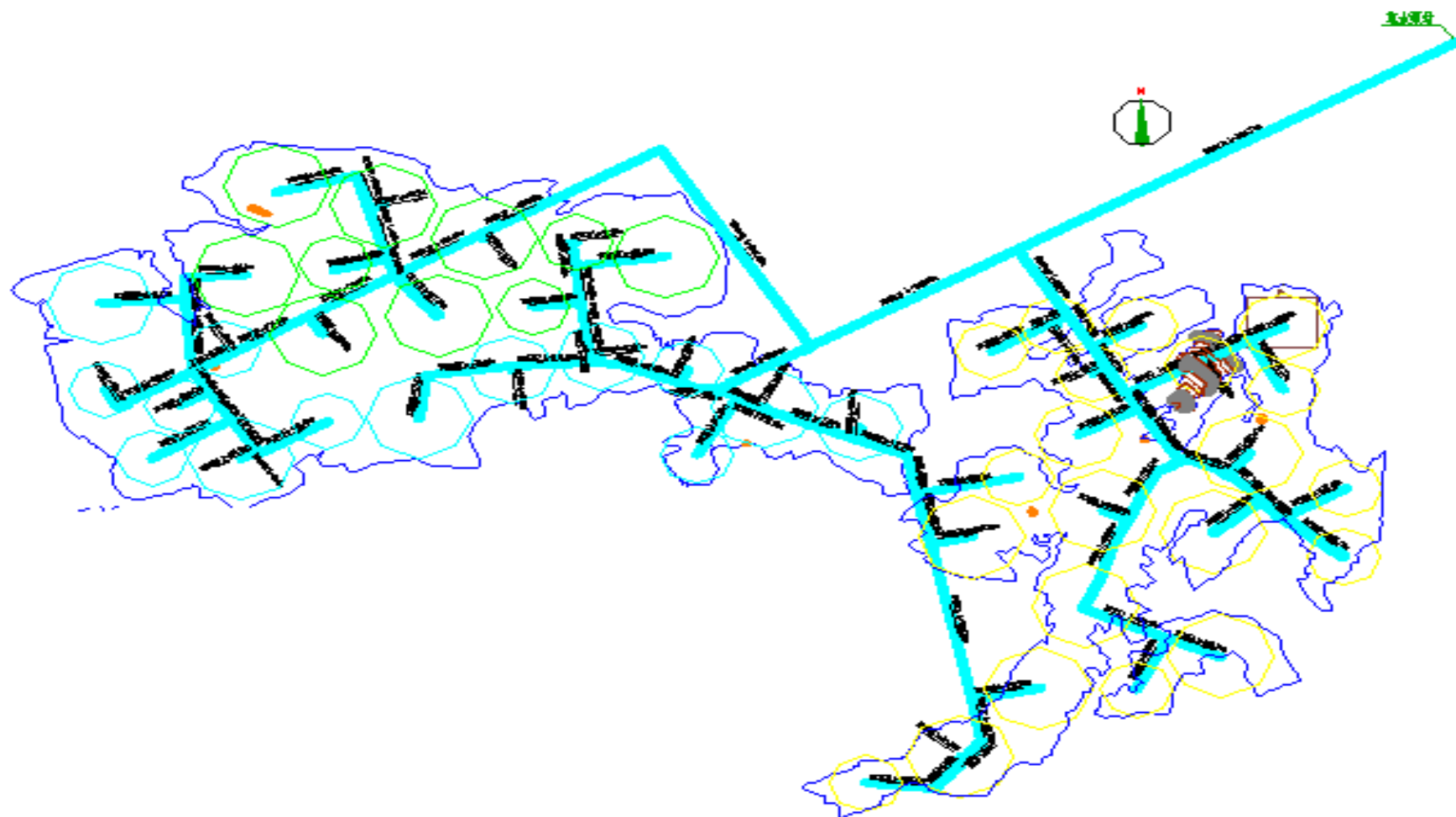
- Supply pumps, valves, irrigation machines
- Supply irrigation machine
- Installation and commissioning

Part five: sample projects

1. Ethiopia Kababo design(1)

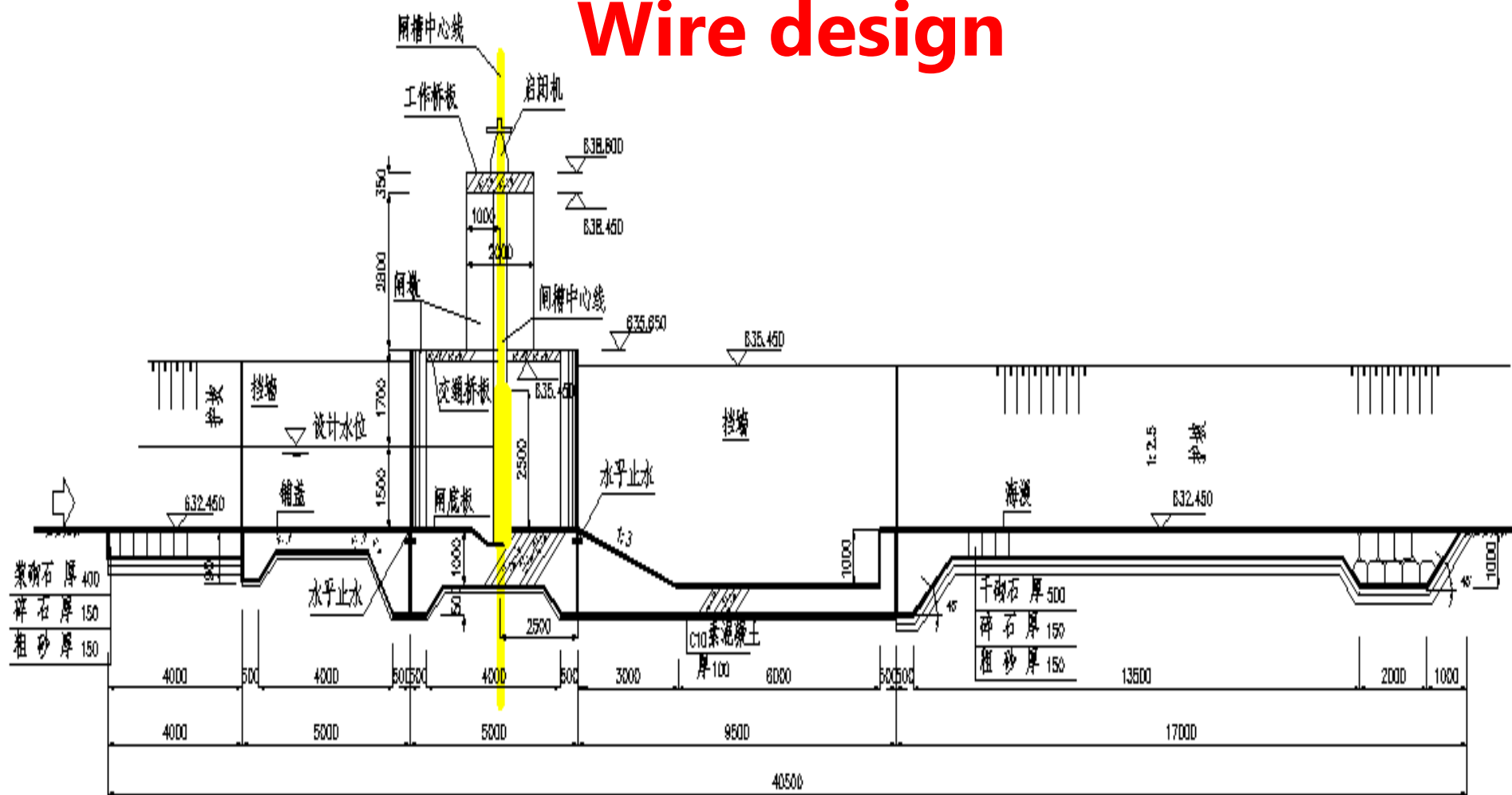


1.Ethiopia Kababo design(2)



1.Ethiopia Kababo design(3)

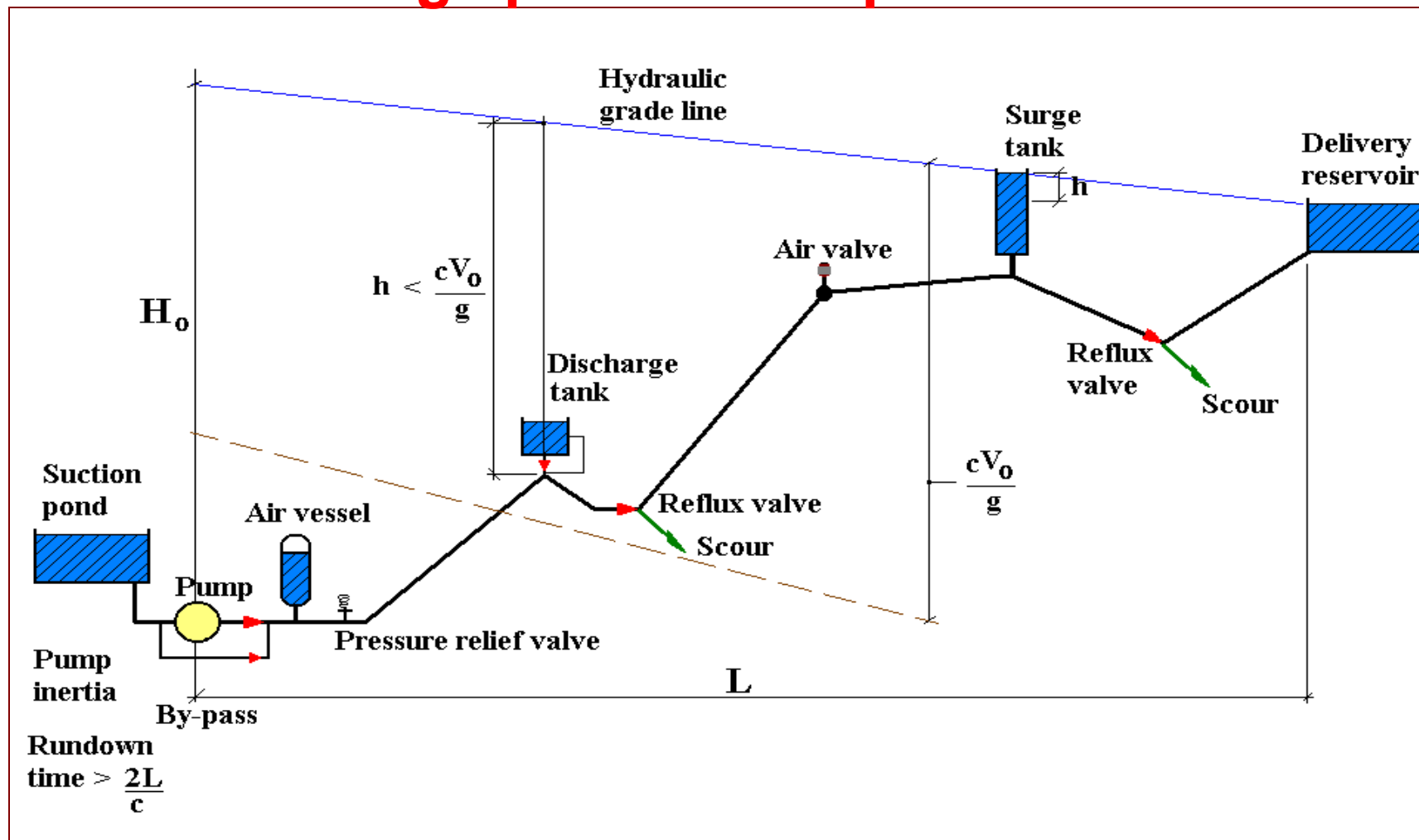
Wire design



闸室段纵断面

1. Ethiopia Kababo design(4)

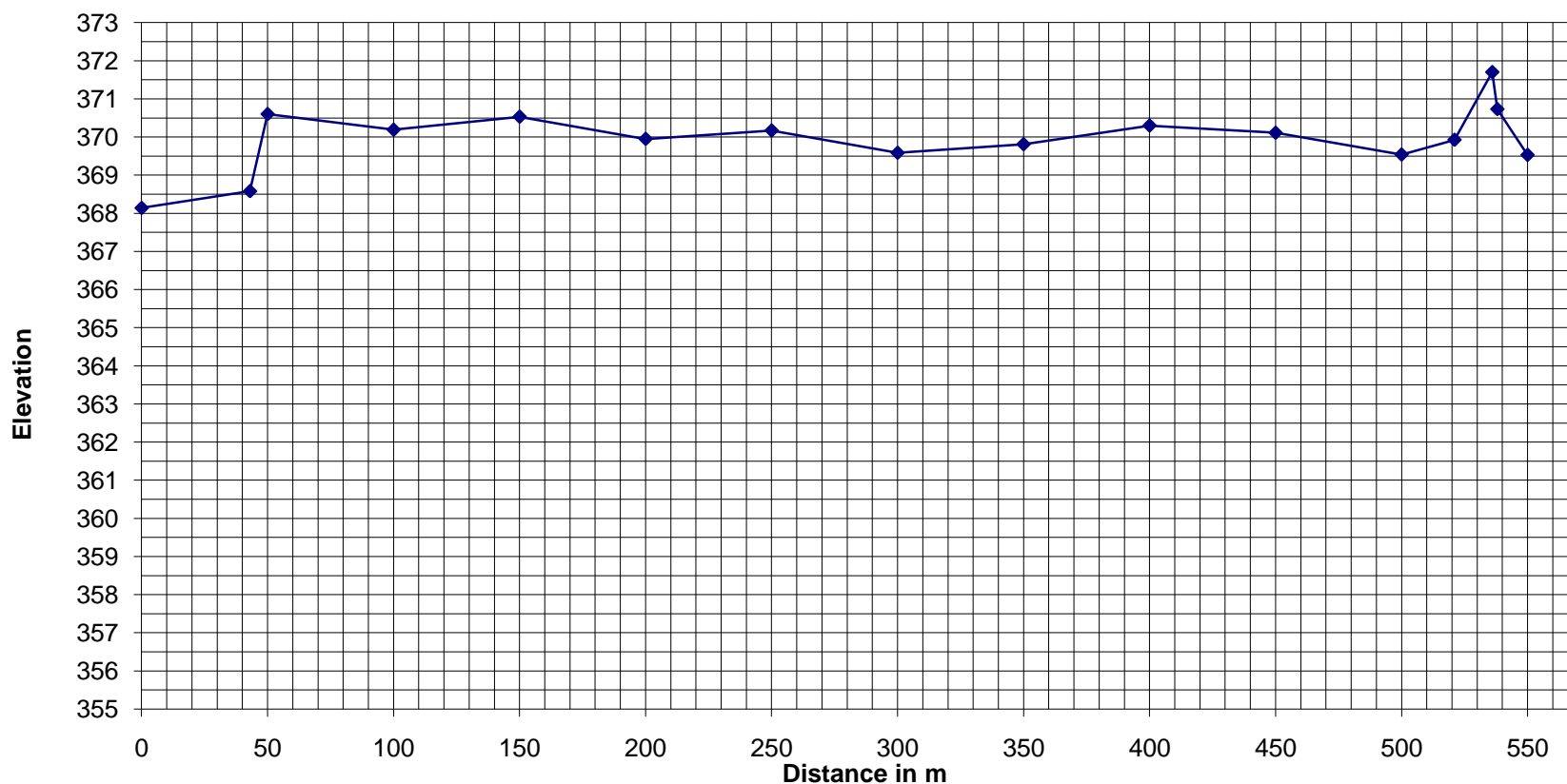
Surge protection options



1.Ethiopia Kababo design(5)

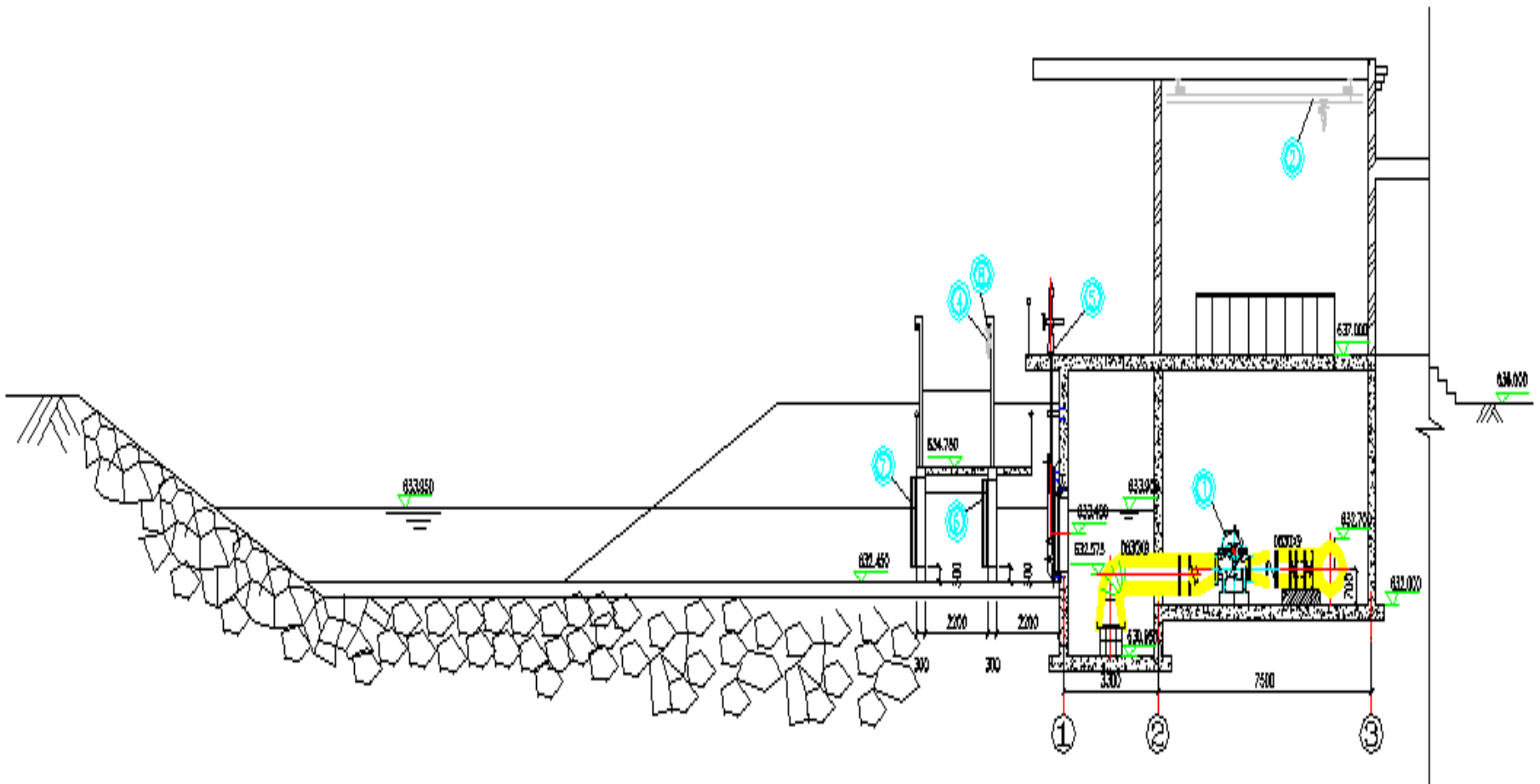
X- section pump site and alignment

X-sectional profile of the alternative pump site and pipe alignment for the Temporary cas



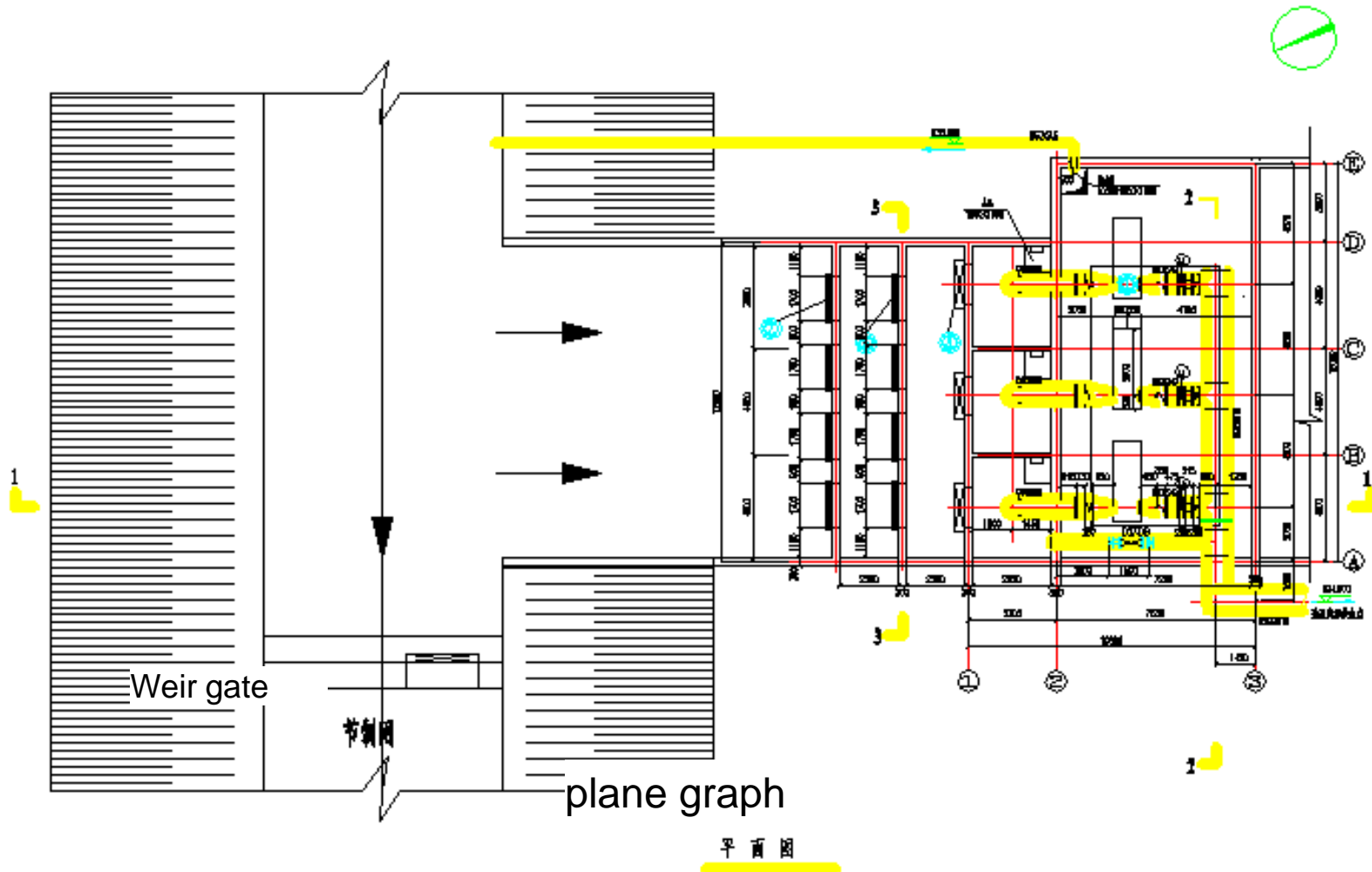
1.Ethiopia Kababo design(6)

Ethiopia Kababo design(2) Surge protection options station



1-1 Cross-section drawn

1.Ethiopia Kababo design(7)



1.Ethiopia Kababo design(8)

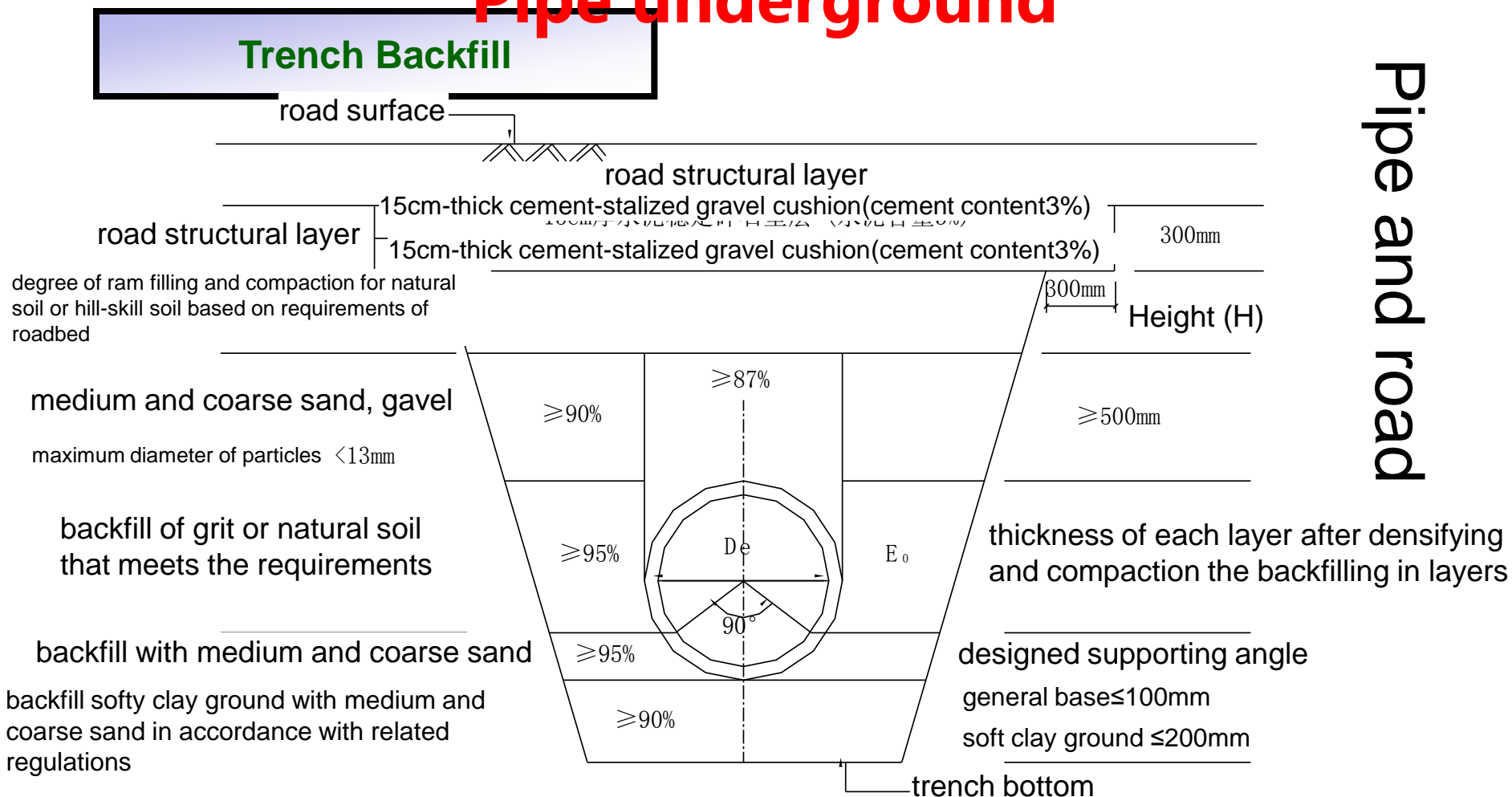
General Survey of Equipment in Water Intake Pump Station

No.	Name	Specification Model	Unit	QTY	Remark
1	Horizontal Centrifugal Pump	Q=1300m ³ /h H=110m N=710KW	Set	3	2 in use 1 in reserve
2	Electric Single-girder Overhead Traveling Crane	Lift Height: 10m Lk=7.5m 5t	Set	1	Outfitting Electric Hoist
3	Submersible Sewage Pump	Q=10m ³ /h H=10m	Set	1	
4	Chain Blocks	1t	Set	1	
5	Square Manual Gate Valve	1500X1500	Set	3	Outfitting Hand Hoist
6	Flat Grids	BXH=1800X1800	Set	4	
7	Flat Grids	BXH=1800X1800	Set	4	
8	Manual Monorail Car	1t	Set	1	

1.Ethiopia Kababo design(9)

Pipe underground

Pipe and road



section diagram of trench backfill

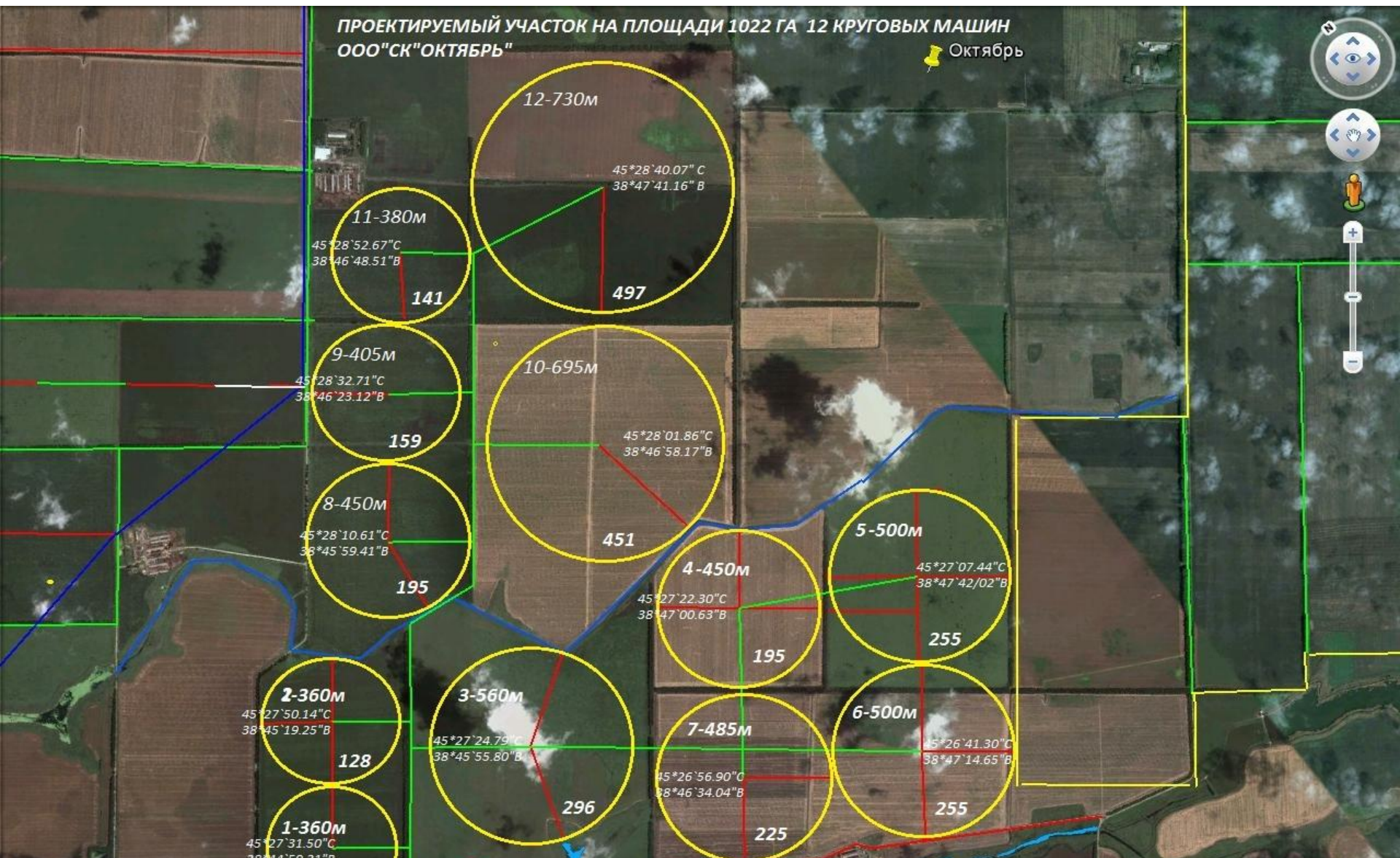
suitable under vehicular road

1.Ethiopia Kababo design(10)

Items for Electricity

No.	Item	Specification Model	Unit	QTY
Farm				
1	Power Cable	YJV22-1KV 4X50	Meter	42000
2	Times Parameter Compensation regulated Power Supply	JBW-60	Set	45
3	Diesel Generator	6CTA8.3G2 128KW	Set	4
4	Low Pressure Electricity Cabinet	GCS	Set	4
Pump Station				
1	In-Line Isolation cabinet	KYN28-12	Set	3
2	Motor Power distribution Cabinet	KYN28-12	Set	3
3	The power transformer cabinet	KYN28-12	Set	1
4	Low Voltage cabinet	GCS	Set	2
5	PLC Control panel		Set	1
6	Diesel Generator	KTA38G2A 736KW	Set	3

2.Russia project

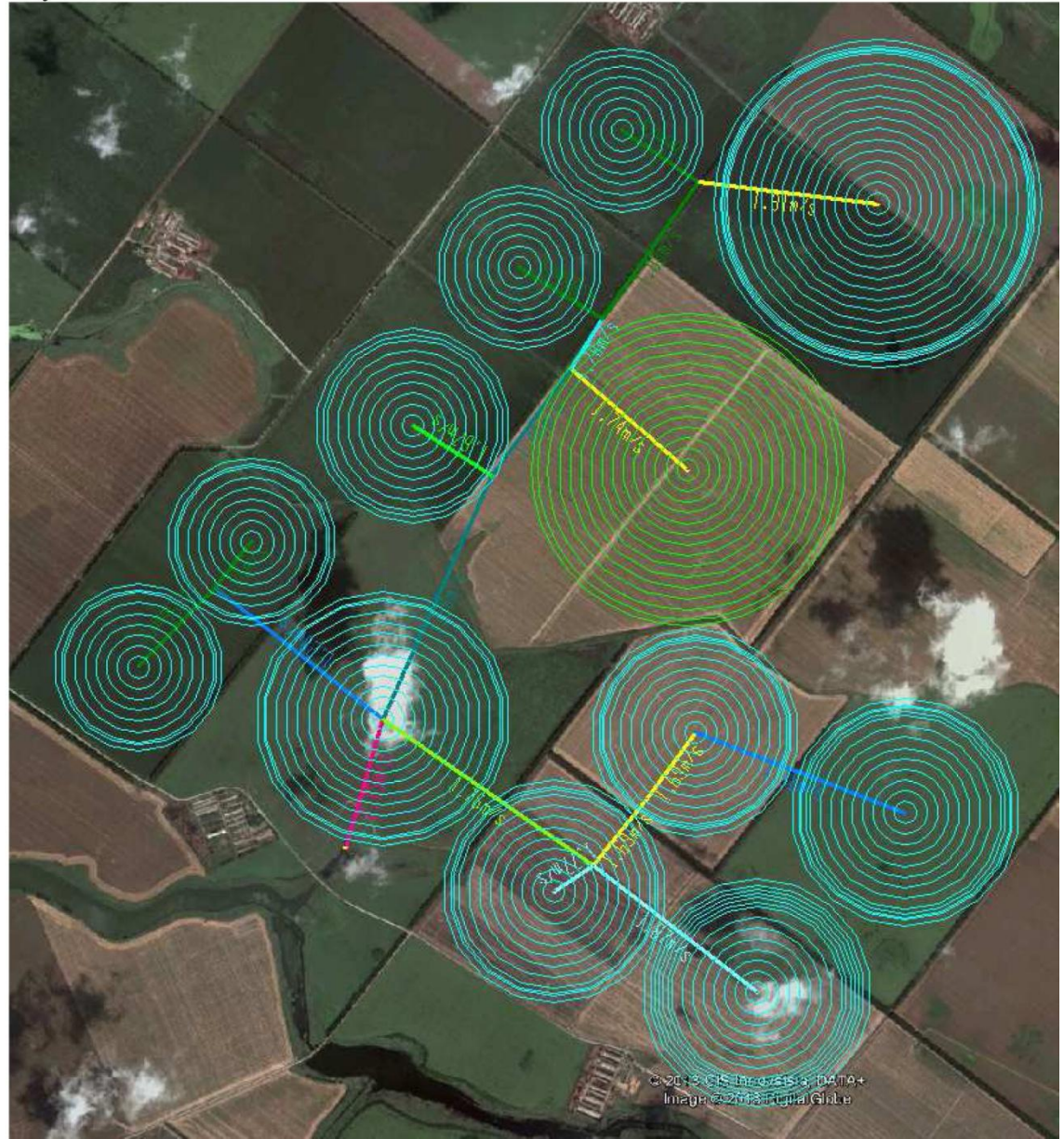


Pivot Irrigation System Presentation

for Wang Zhi

This system is designed to work in **1 shift**.
Each pivot will complete a **24hour, 7mm** shift every day.

Layout



2.Russia project

Design by Irrimaker

Pump Pressure : 7.5bar



Pivot Detail

No.	Name	Description	No. Spans	Pressure		Flow (l/s)	Length (m)
				In	End		
1	1	1	17	3.70	2.22	147.01	760.00
2	3	3	7	2.80	2.29	36.75	380.00
3	6	6	7	2.80	2.19	36.75	380.00
4	7	7	14	3.40	2.17	133.79	725.00
5	8	8	9	3.20	2.21	51.54	450.00
6	9	9	11	3.40	2.17	58.64	480.00
7	10	10	12	3.70	2.24	71.50	530.00
8	11	11	13	3.70	2.24	71.50	530.00
9	12	12	11	3.80	2.20	67.51	515.00
10	13	13	12	3.30	2.17	88.60	590.00
11	14	14	8	2.80	2.15	38.71	390.00
12	15	15	8	2.80	2.15	38.71	390.00

Pivot Pressures

Irrigation Filame :C:\Drox\My Dropbox\Access data\Prects\Wang\Oktyabr_3.mal (MIR)

NODES Main lin- Shift 1 Total Flow 841.01l/s

Date : 1/3/201 Time : 29

PUMP ELEVATION :10.21m

PUMP PRESSURE :7.50Bars

NODE	BLOCK	ELEVATION----		HEAD	LOSSES	Bar	----	-- PRESSURE Bars --	DISCHARGE	
		m	Elev.		Pipes	Fittings		Actual	Required	l/s
9	V1	14.34	0.41		2.50	0.00		4.59	3.70	-147.010
8	V3	13.01	0.28		2.54	0.00		4.68	2.80	-36.750
20	V11	13.22	0.30		2.22	0.00		4.98	3.70	-71.500
18	V10	13.54	0.33		1.96	0.00		5.20	3.70	-71.500
10	V6	12.83	0.26		1.98	0.00		5.26	2.80	-36.750
14	V15	12.48	0.23		1.88	0.00		5.39	2.80	-38.710
17	V9	13.62	0.34		1.51	0.00		5.65	3.40	-58.640
5	V7	12.93	0.27		1.48	0.00		5.74	3.40	-133.790
13	V14	13.01	0.28		1.38	0.00		5.84	2.80	-38.710
11	V8	13.05	0.28		1.28	0.00		5.93	3.20	-51.540
19	V12	13.25	0.30		1.19	0.00		6.01	3.80	-67.510
2	V13	13.22	0.30		0.28	0.00		6.92	3.30	-88.600

Flow Velocities

2.Russia project

Pump and pipe calculate

3.Ethiopia OMO river design(1)



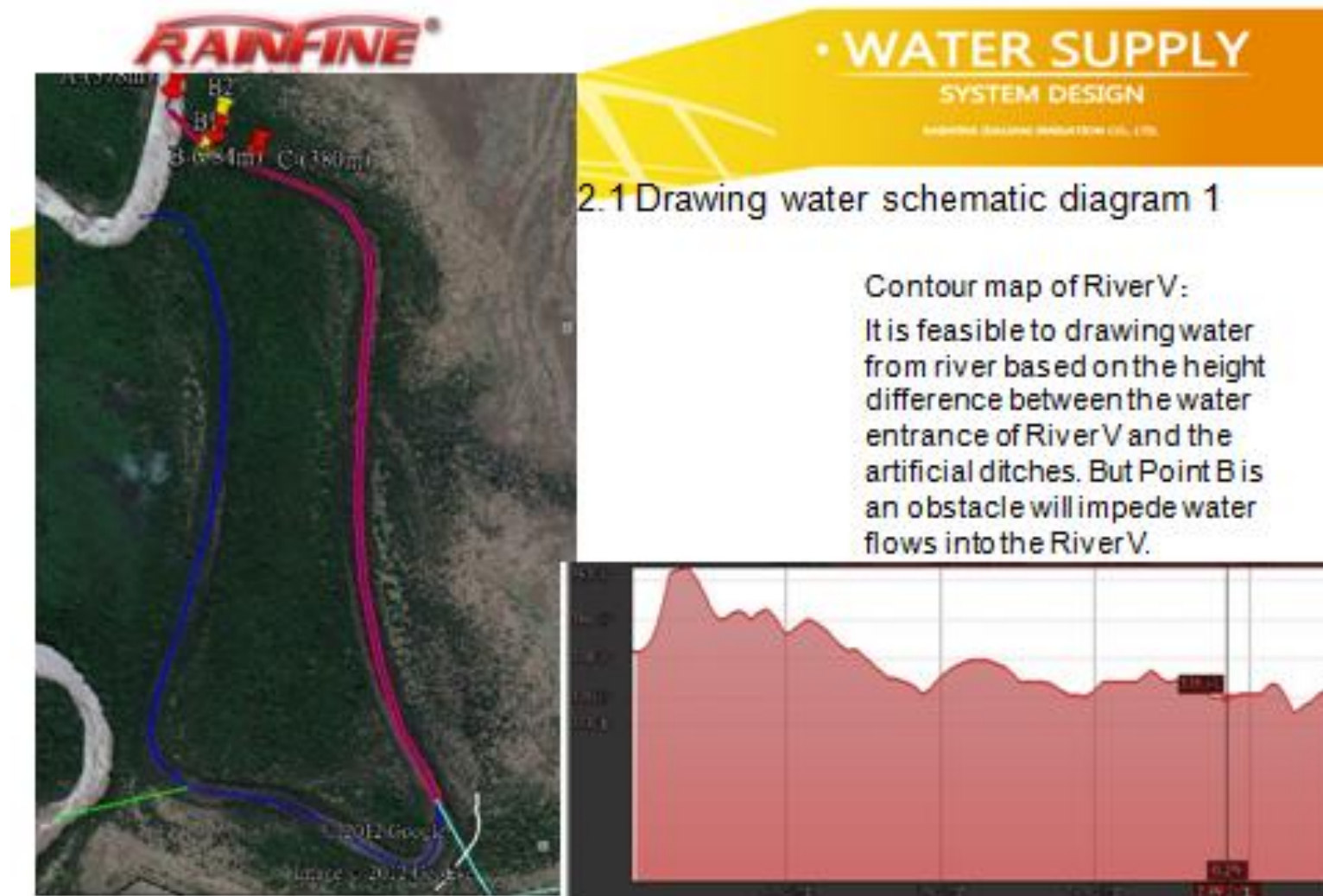
• **WATER SUPPLY**
SYSTEM DESIGN

Industria (Guangdong) Water Saving Co., Ltd.

**Ethiopia Omo river 2500ha
irrigation project design based
on center pivot irrigation system**

**Rainfine Irrigation Design Institute
Dalian China**

3.Ethiopia OMO river design (2)



3.Ethiopia OMO river design (3)



WATER SUPPLY SYSTEM DESIGN

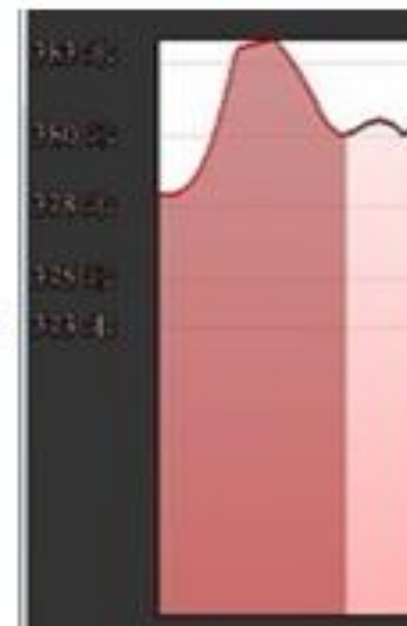
RAINFINE (SHANGHAI) IRRIGATION CO., LTD.

2.2 Drawing water schematic diagram 2



The red selected area in right scheme is the contour map of the left map. It shows B is the highest point. (Elevation 384m)

Drawing water into River V by punching through out Point B.



3.Ethiopia OMO river design (4)



3.Ethiopia OMO river design (5)

3.1 Restraint gate

The restraint gate at the entry of artificial ditch can control the water volume effectively.



3.Ethiopia OMO river design (6)

3.2 Restraint gate

When the water level is going up, the tank rise up and the other end get down to close the gate a little.

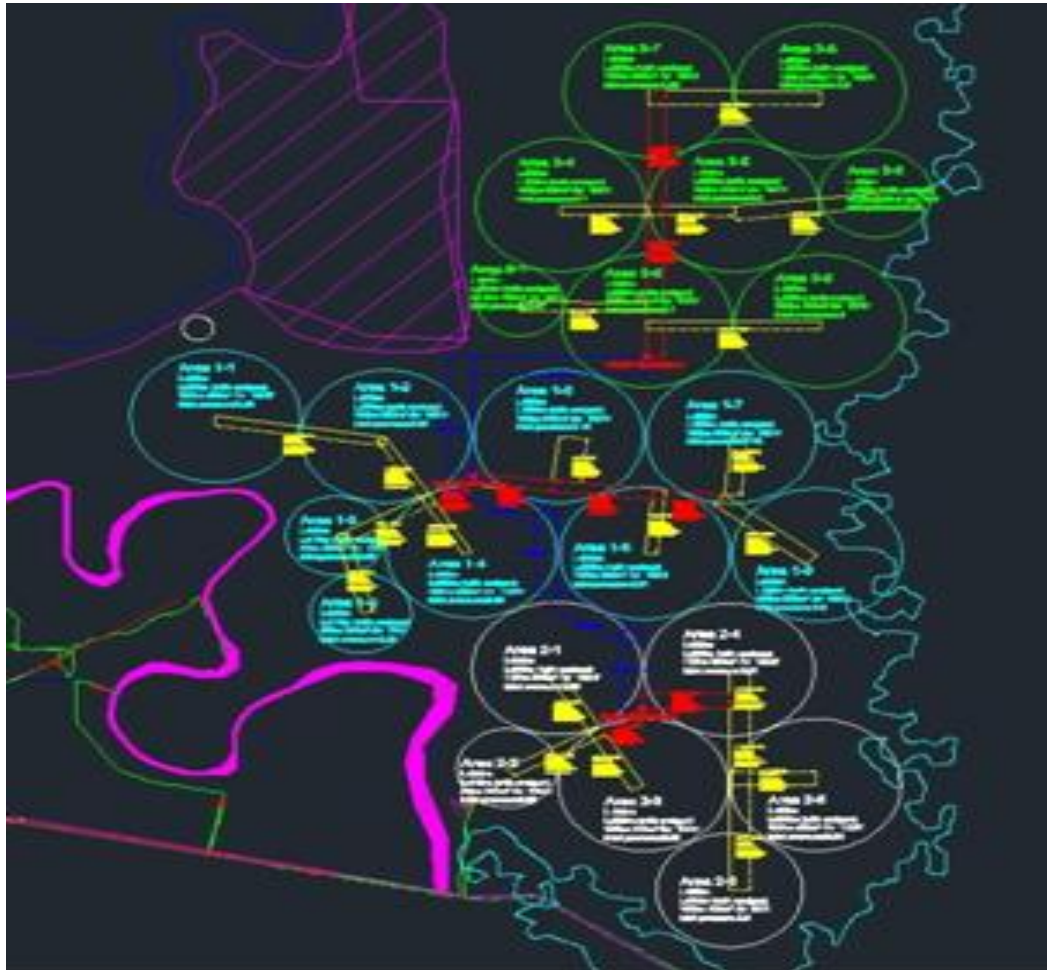
When the water level is getting down, the tank goes down and the other end get up to open the gate a little. In this way the water flow quantity can be controlled. When the big flood comes, the main valve in the gate can be closed to stop the water.

3.Ethiopia OMO river design (7)

DITCH AND GRID CHAMBER/ PUMP STATION



3.Ethiopia OMO river design (8)



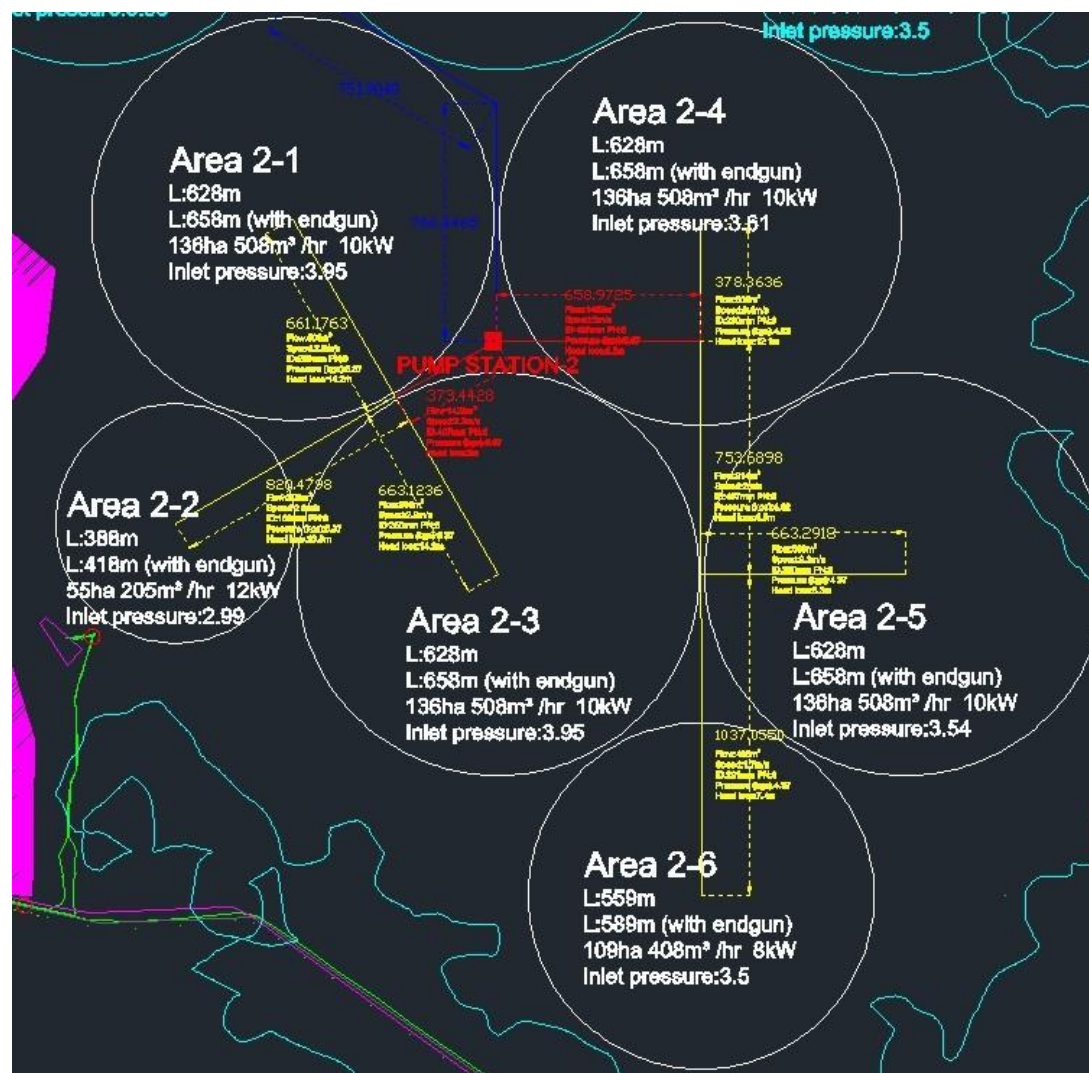
WATER SUPPLY SYSTEM DESIGN

Submitted: (Date) (Month) (Year) (Day) (Hour) (Min) (Sec) (MS)

4. Pivot machine design for irrigation areas

The pivots works in 2 shift, This idea can reduce the diameter of the water pipes and the size of the pump station. By our calculation, the total water requirement for this area is 5228m³/hr

3.Ethiopia OMO river design (9)



4.4 No.2 irrigation area

6 pivots in all, 4 of them cover 136ha each, 1 covers 55ha, 1 covers 109ha

Total coverage: 708ha

Total water demand:
1424m³/hr

No.2 pump station is built in the center of the irrigation area.

This design can reduce water supply volume and the size of the water pipes, it can also lower the pressure losses and thus reduce the pump power and lower energy costs.

4.Dujiangyan- the biggest irrigation system built in the year 256 BC(1) (2,236 years ago)



4.Dujiangyan- the biggest irrigation system built in the year 256 BC (2)



4.Dujiangyan- the biggest irrigation system built in the year 256BC(3)

Tourist Map of Dujiangyan Scenic Area

(Click to enlarge)

国家级重点风景名胜
State-level Main Scenic Spot

全国重点文物保护单位
National Protection Unit for Cultural Relics

国家AAAA级旅游区
National AAAA Tourist Destination

国家级文明风景区
State-level Civilized Scenic Spot



4. Dujiangyan- the biggest irrigation system built in the year 256BC (4)

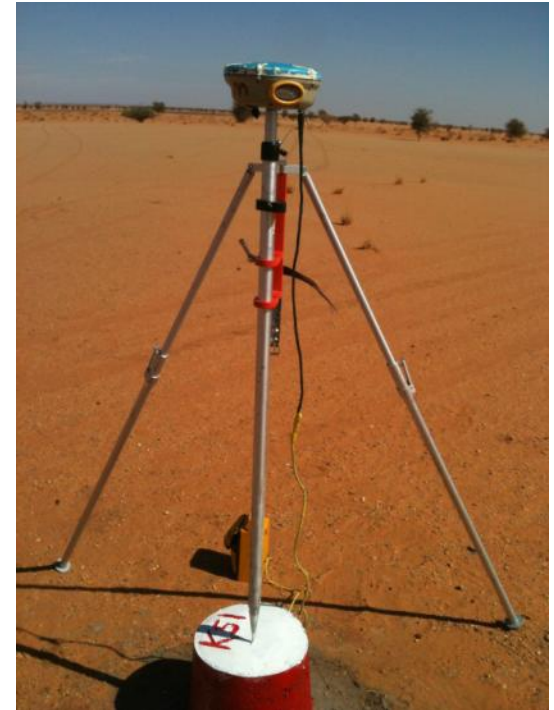
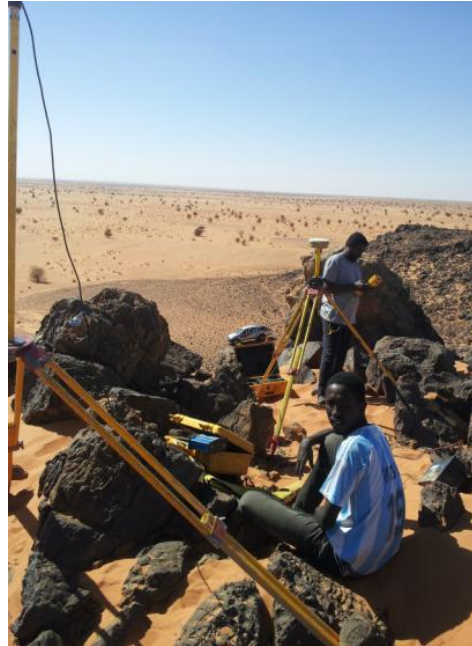
2,200 years ago, the city was threatened by the frequent floods caused by flooding of the Minjiang River (a tributary of the [Yangtze River](#)). Li Bing, a local official of Sichuan Province at that time, together with his son, decided to construct an irrigation system on the Minjiang River to prevent flooding. After a lengthy study and a lot of hard work by the local people, the great Dujiangyan Irrigation Project was completed. Since then, the Chengdu Plain has been free of flooding and the people have been living peacefully and affluently. Now, the project is honored as the 'Treasure of Sichuan', which still plays a crucial role in draining off floodwater, irrigating farms and providing water resources for more than 50 cities in the province.

4. Dujiangyan- the biggest irrigation system built in the year 256BC (5)

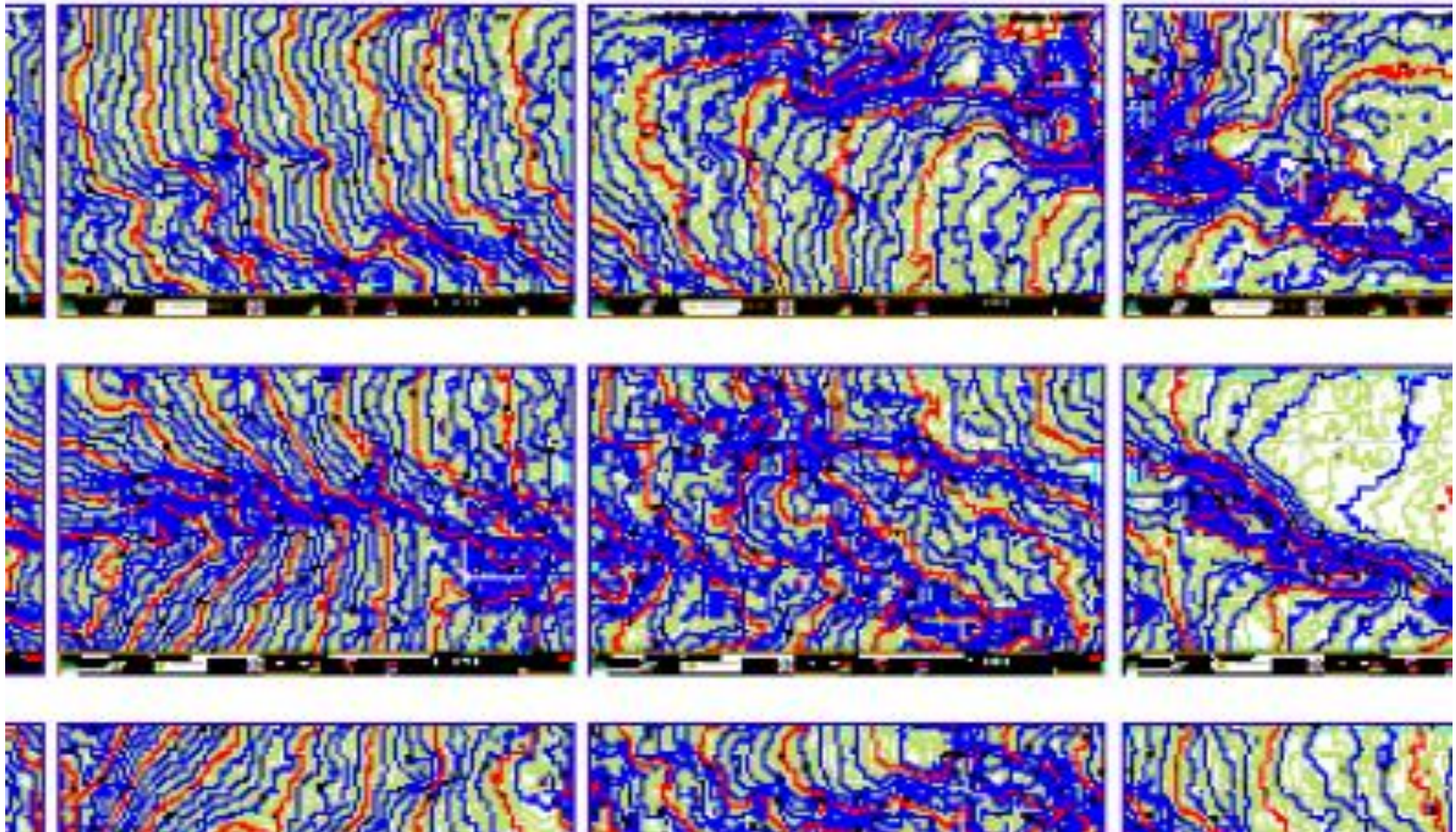
- Dujiangyan is the oldest and only surviving no-dam irrigation system in the world; and a wonder in the development of Chinese science. The project consists of three important parts, namely Yuzui, Feishayan and Baopingkou scientifically designed to automatically control the water flow of the rivers from the mountains to the plains throughout the year.

Part six: How to start a irrigation project

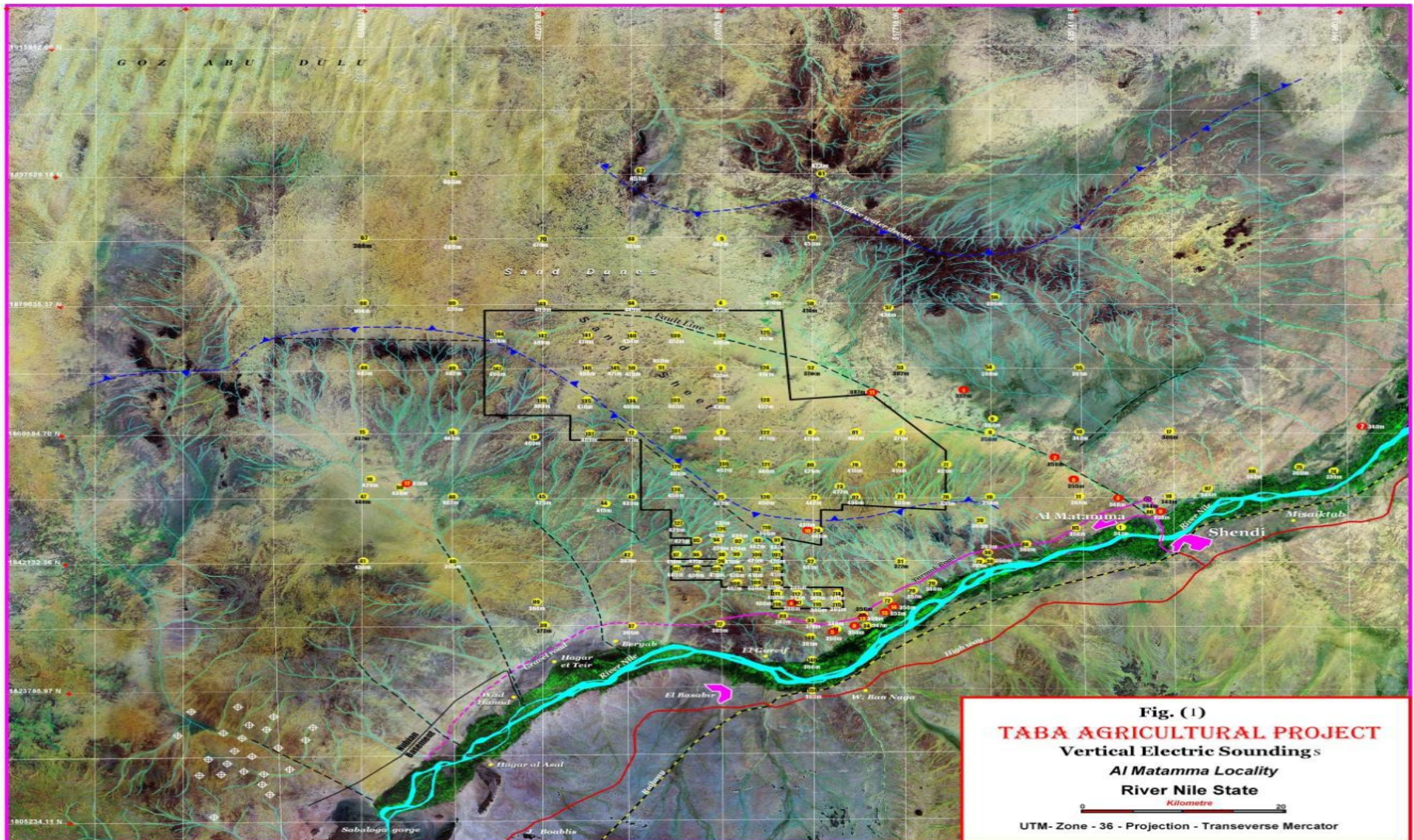
Step 1: Topographic survey



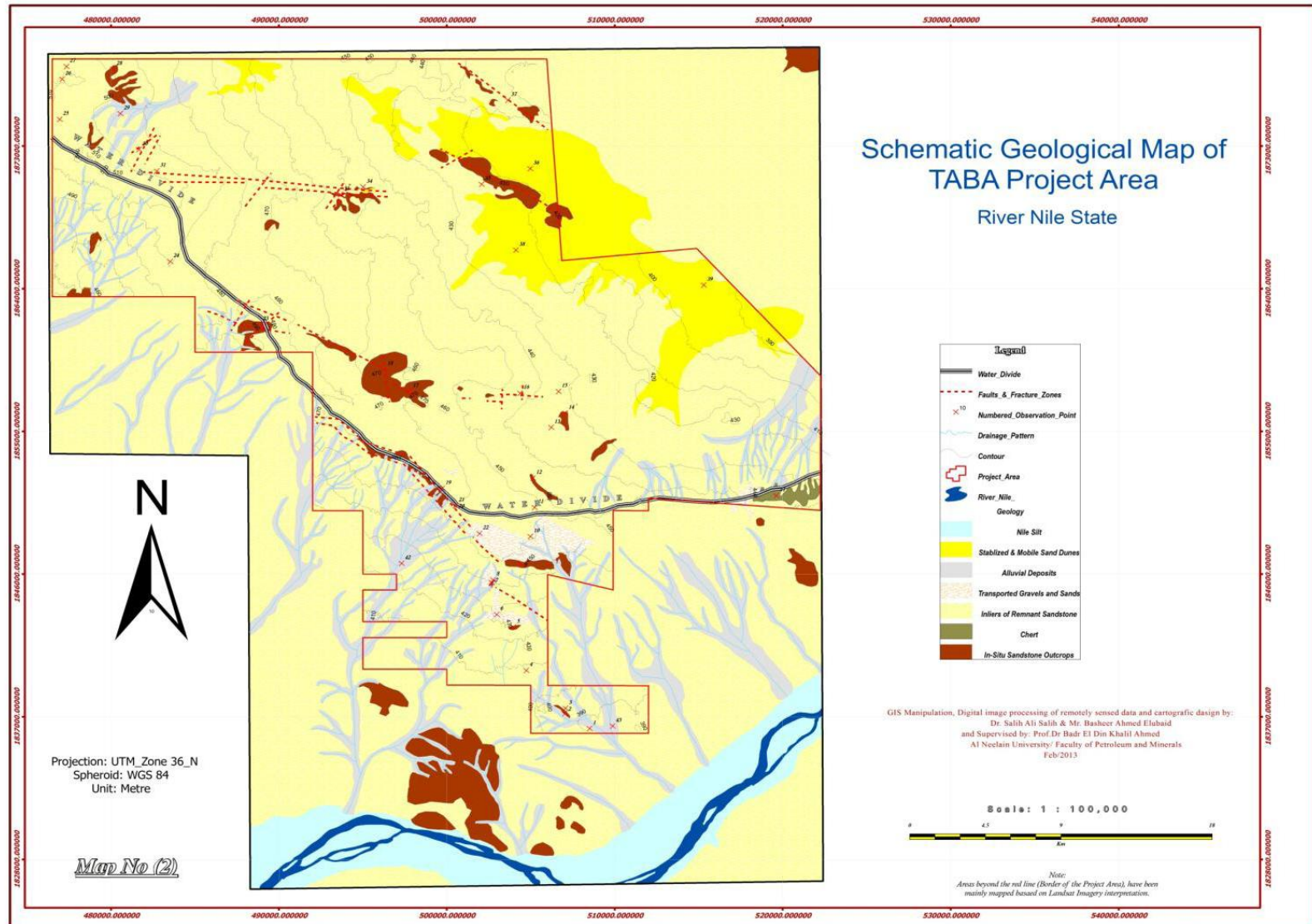
Step 2. Send us the topographic map by Auto CAD



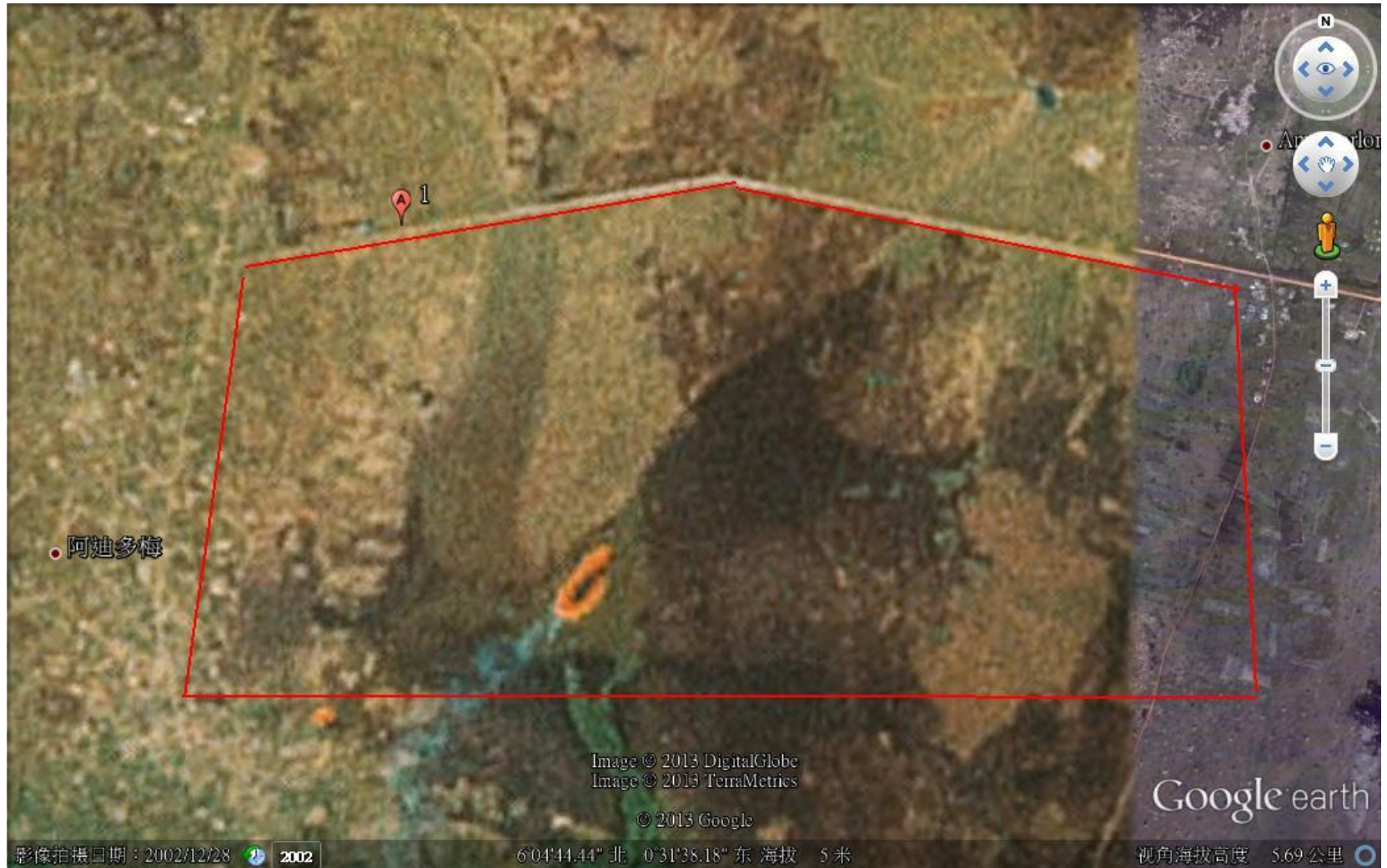
Step 3. Send us the satellite map with river position



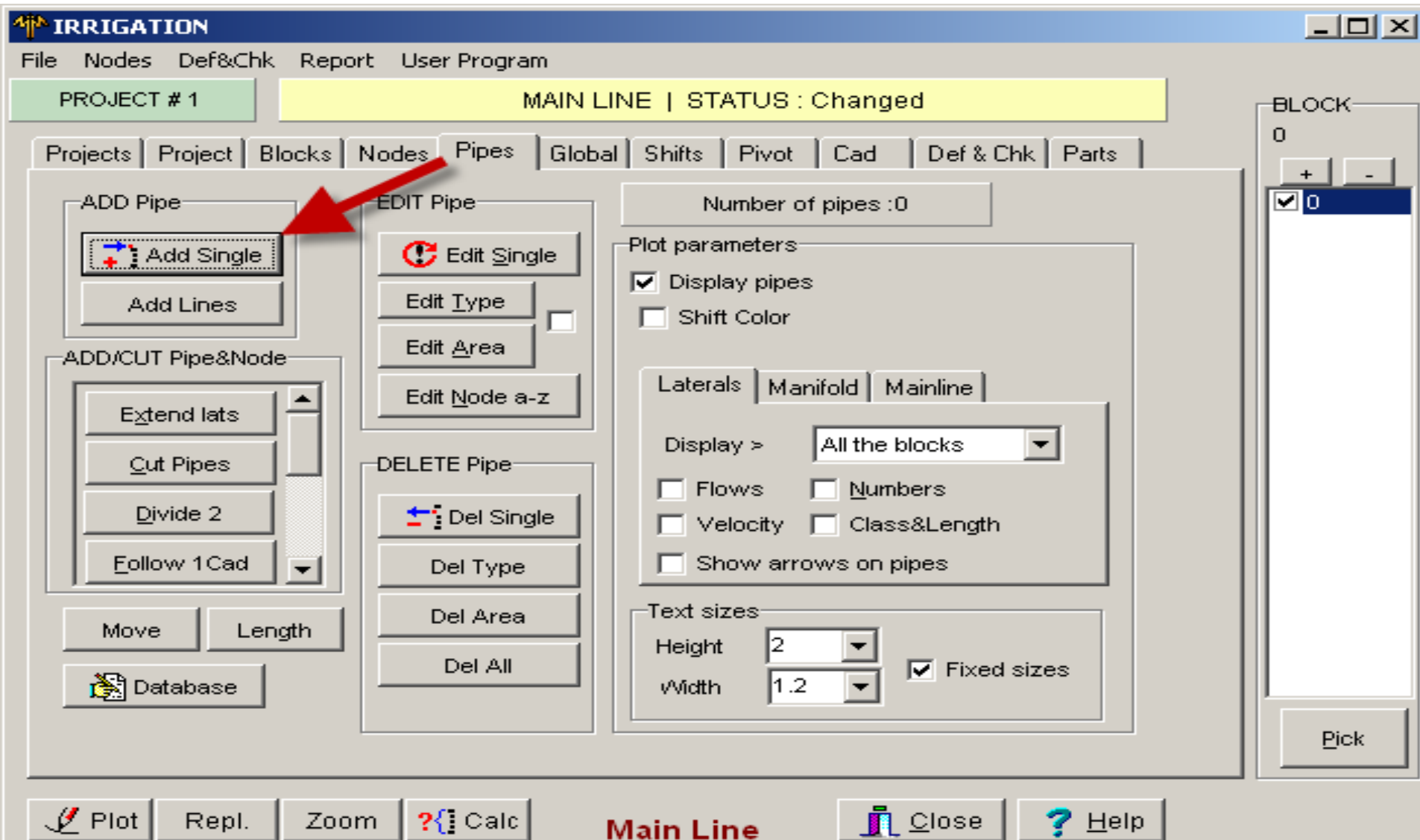
Step 4. send us the geological map of the project area



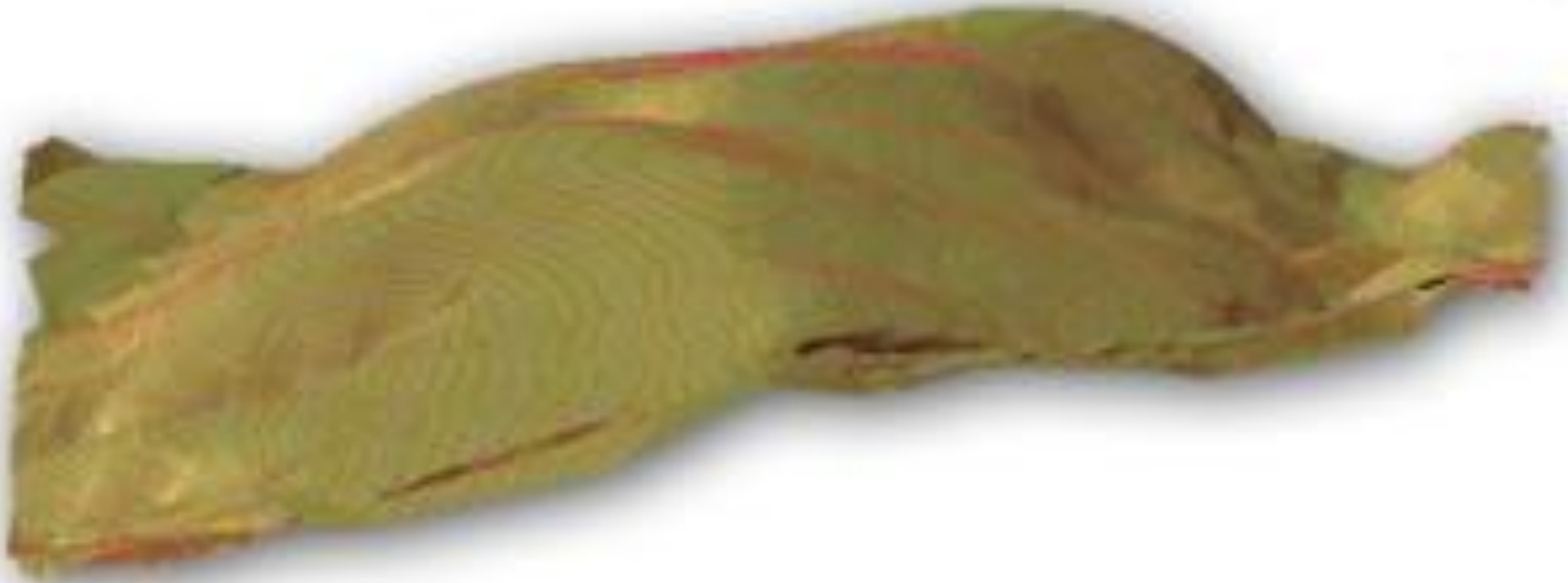
Step 5: Send us the boarder line from google earth with KMZ file



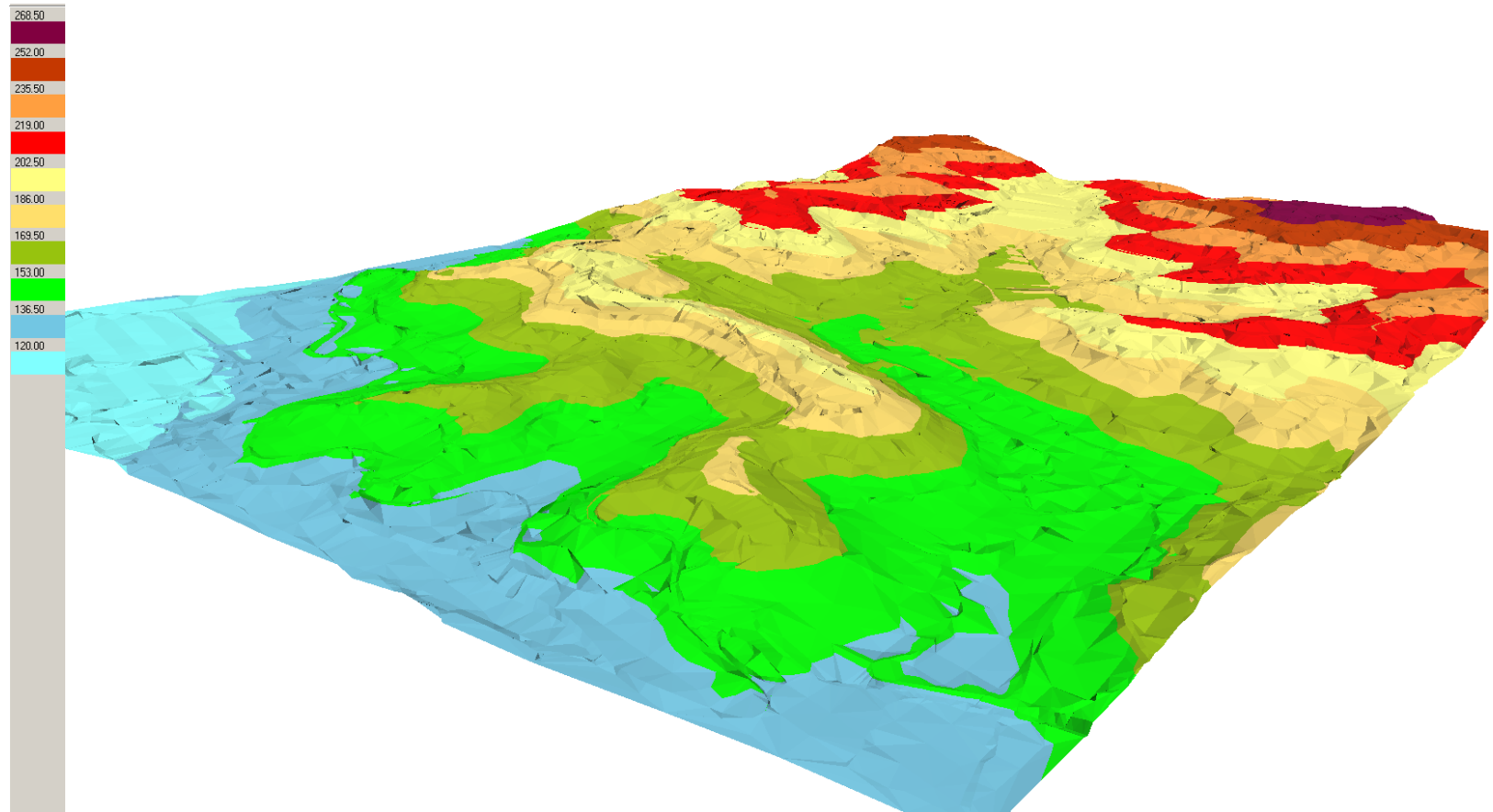
Step 6: Rainfine will start to design the irrigation area with software



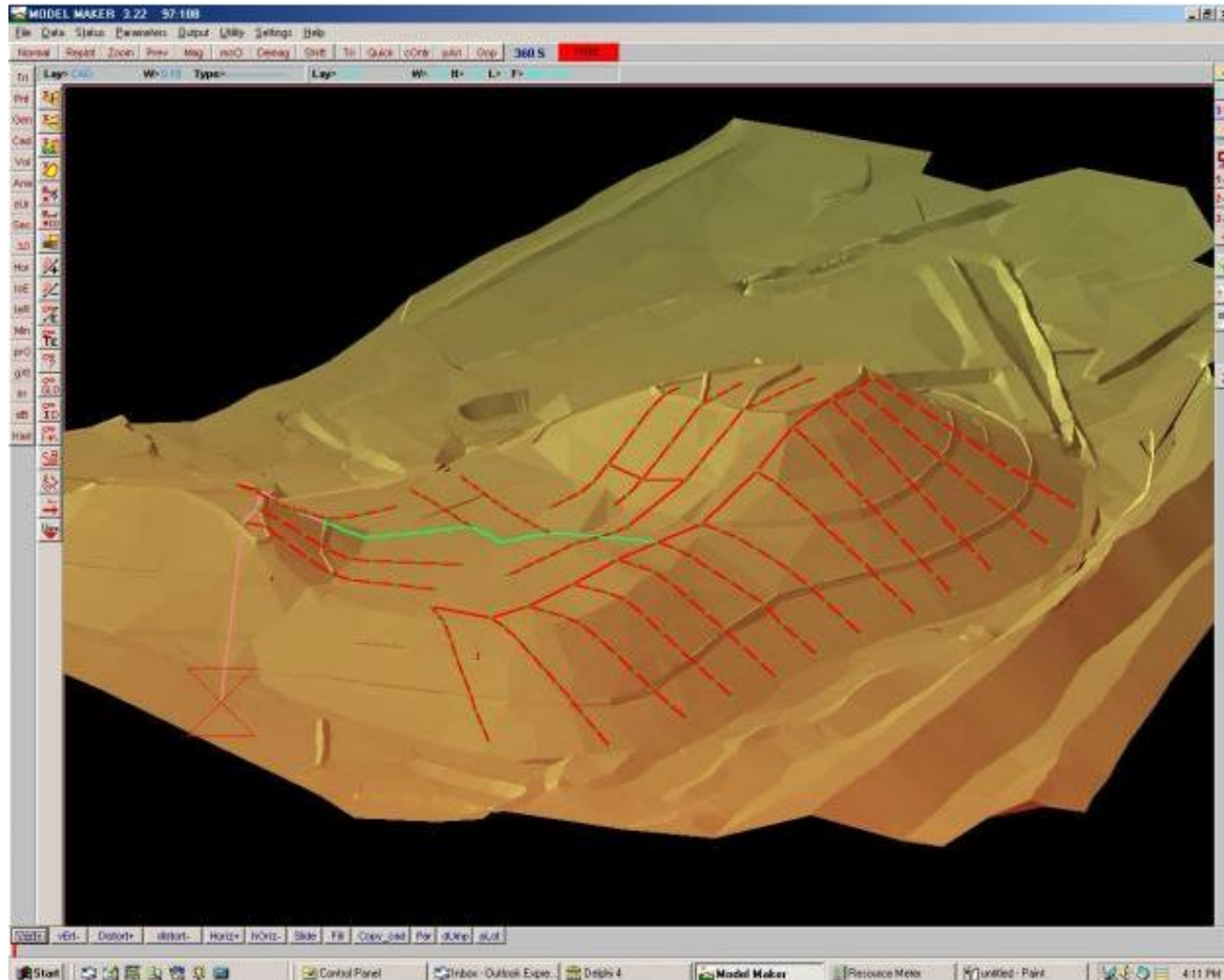
Step 7: Make the model and analysis the elevation data



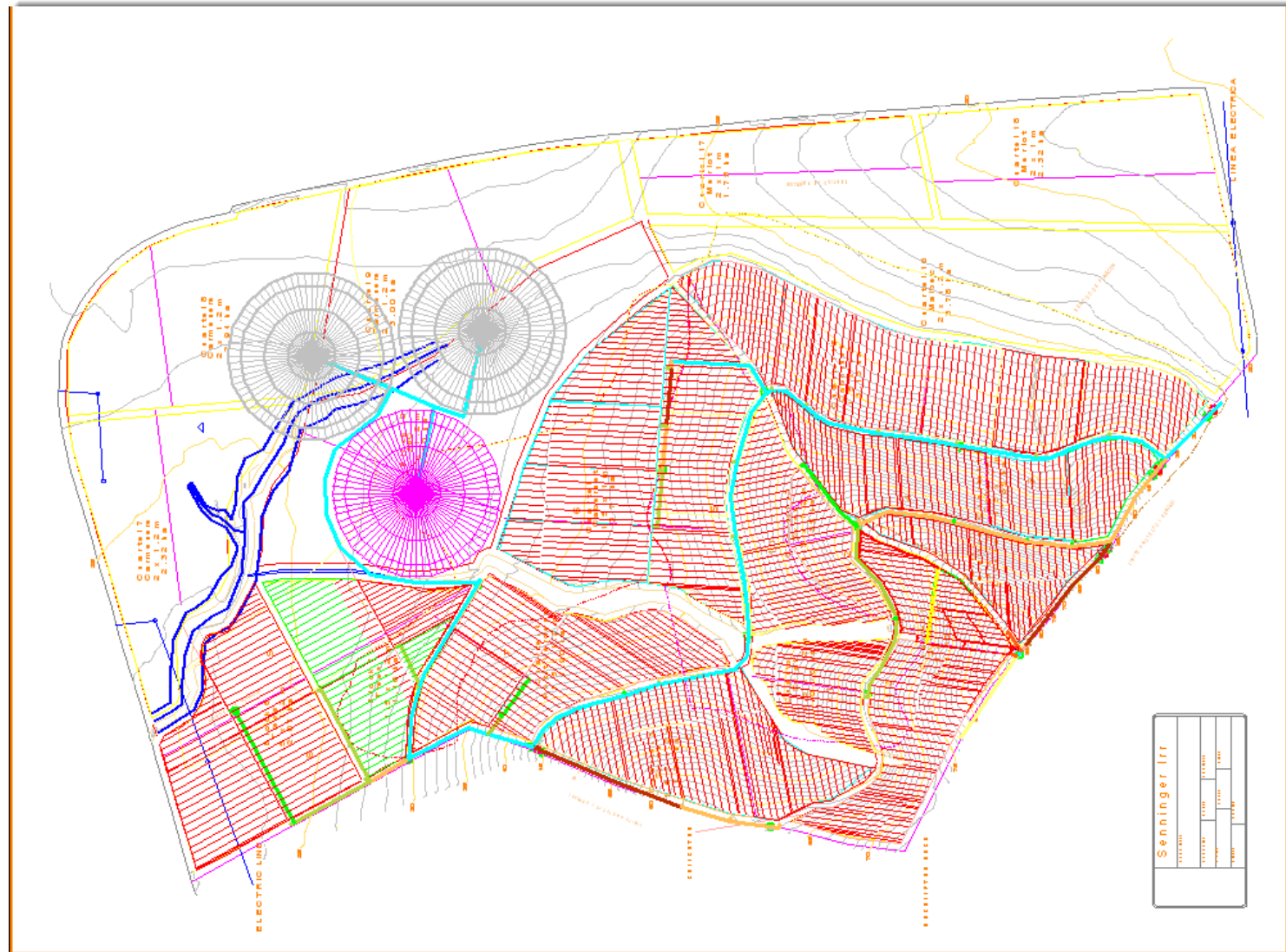
Step 8: Make the model and analysis the elevation data



Step 9: Make the model and analysis the elevation data



Step 10: Make the irrigation plan



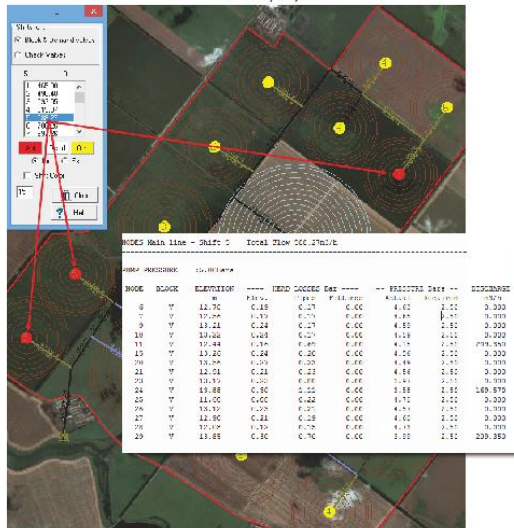
Step 11: make the reports

This system is designed to work in 7 separate shifts.
A shift is 24hrs of 9mm precipitation.

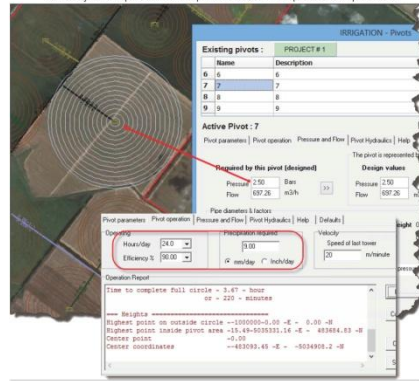
Assumptions "Each pivot will have a complete shift every 7 days".

Below are 3 examples of different shifts along with the flow required for each shift.

Pivots 5, 14, 15



Currently all the pivots are setup with a 2.5bar min pressure requirement.



List of the all the pipes needed with their dimensions.

Irrigation Filename :Desktop(NGR)	
List of Nodes & Pipes	
Date : 29/11/2012 Time : 19:58	
Materials for BLOCK # 0	
Please note, information regarding the block valves are shown in the mainline and also repeated in the individual blocks.	
-----Summary of total nodes-----	
Medium (500-1000gpm) Small (800gpm) pmp #	1
Valve Standard Valve	15
Fitting Standard fit	13
-----Detail of node sizes with OD pipe sizes-----	
Medium (500-1000gpm) Small (800gpm) pmp #	1 > End piece 457.20
Valve Standard Valve	4 > End piece 254.00
Valve Standard Valve	8 > End piece 203.20
Valve Standard Valve	2 > End piece 457.20
Valve Standard Valve	1 > End piece 304.80
Fitting Standard fit	3 > T Piece 203.20 457.20 457.20
Fitting Standard fit	1 > + Piece 203.20 304.80 457.20 457.20
Fitting Standard fit	1 > + Piece 254.00 254.00 304.80 304.80
Fitting Standard fit	1 > T Piece 203.20 254.00 304.80
Fitting Standard fit	2 > Reducer 457.20 457.20
Fitting Standard fit	1 > T Piece 254.00 457.20 457.20
Fitting Standard fit	1 > T Piece 203.20 203.20 457.20 457.20
Fitting Standard fit	1 > T Piece 203.20 203.20 203.20

PIPES	
OD Total length m (Slope Length)	
Main pvc MAIN PVC 8" SDR 41	203.20 # 4111.08
Main pvc MAIN PVC 10" SDR 32.5	254.00 # 1878.82
Main pvc MAIN PVC 12" SDR 26	304.80 # 3506.52
Main pvc MAIN PVC 18"	457.20 # 6100.30
Total 15596.71	

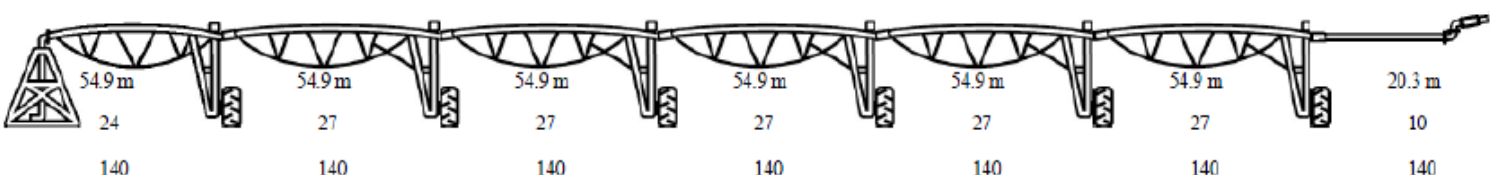
Required information:

How often should each pivot complete a 24hour shift?

What is the minimum required pressure at each pivot?

Step 12. Pivot machine design

350m Pivot

Machine		Pipes	Elevation																																
Mfg:	PIVOT	C Factor: 140	Difference above(+) piv Difference below(-) piv Elevation Rise included																																
Flow:	40.00 liter/s	Pipe 1: 349.8 m, 161.93 mm ID																																	
Pivot Pressure:	1.22 bar																																		
Base Press	1.53 bar																																		
End Pressure:	0.83 bar																																		
Spacing:	Span dependent																																		
Length:	349.83 m																																		
m3h / Hect:	1.04 liter/s																																		
Average Drop:	2.7 m																																		
End Gun:	No																																		
		Sprinklers	Regs																																
		169 LDN UP3 (50)C24 (119)C33	Position : Bottom 169 PSR-10																																
Spans # 6																																			
1.22 bar		161.93																																	
 <table border="1"> <thead> <tr> <th>Span</th> <th>Length (m)</th> <th>Wheels</th> <th>Sprinklers</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>54.9</td> <td>24</td> <td>140</td> </tr> <tr> <td>2</td> <td>54.9</td> <td>27</td> <td>140</td> </tr> <tr> <td>3</td> <td>54.9</td> <td>27</td> <td>140</td> </tr> <tr> <td>4</td> <td>54.9</td> <td>27</td> <td>140</td> </tr> <tr> <td>5</td> <td>54.9</td> <td>27</td> <td>140</td> </tr> <tr> <td>6</td> <td>54.9</td> <td>27</td> <td>140</td> </tr> <tr> <td>7</td> <td>20.3</td> <td>10</td> <td>140</td> </tr> </tbody> </table>				Span	Length (m)	Wheels	Sprinklers	1	54.9	24	140	2	54.9	27	140	3	54.9	27	140	4	54.9	27	140	5	54.9	27	140	6	54.9	27	140	7	20.3	10	140
Span	Length (m)	Wheels	Sprinklers																																
1	54.9	24	140																																
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5	54.9	27	140																																
6	54.9	27	140																																
7	20.3	10	140																																
1.53 bar																																			

Step 13: Rainfine will submit the offers (technical and financial)

Rainfine

Offer

for the Design, Supply,
Installation and Commissioning
of

Kebabo Irrigation Project
(Based on Center Pivot
Technology)

Project Owner: Hiwot Agricultural

Part One: Technical Offer

Rainfine

Offer

for the Design, Supply,
Installation and Commissioning
of

Kebaba Irrigation Project
(Based on Center Pivot
Technology)

Project Owner: Hiwot Agricultural

Part Two: Financial Offer

Step 14: Get approval from the investor

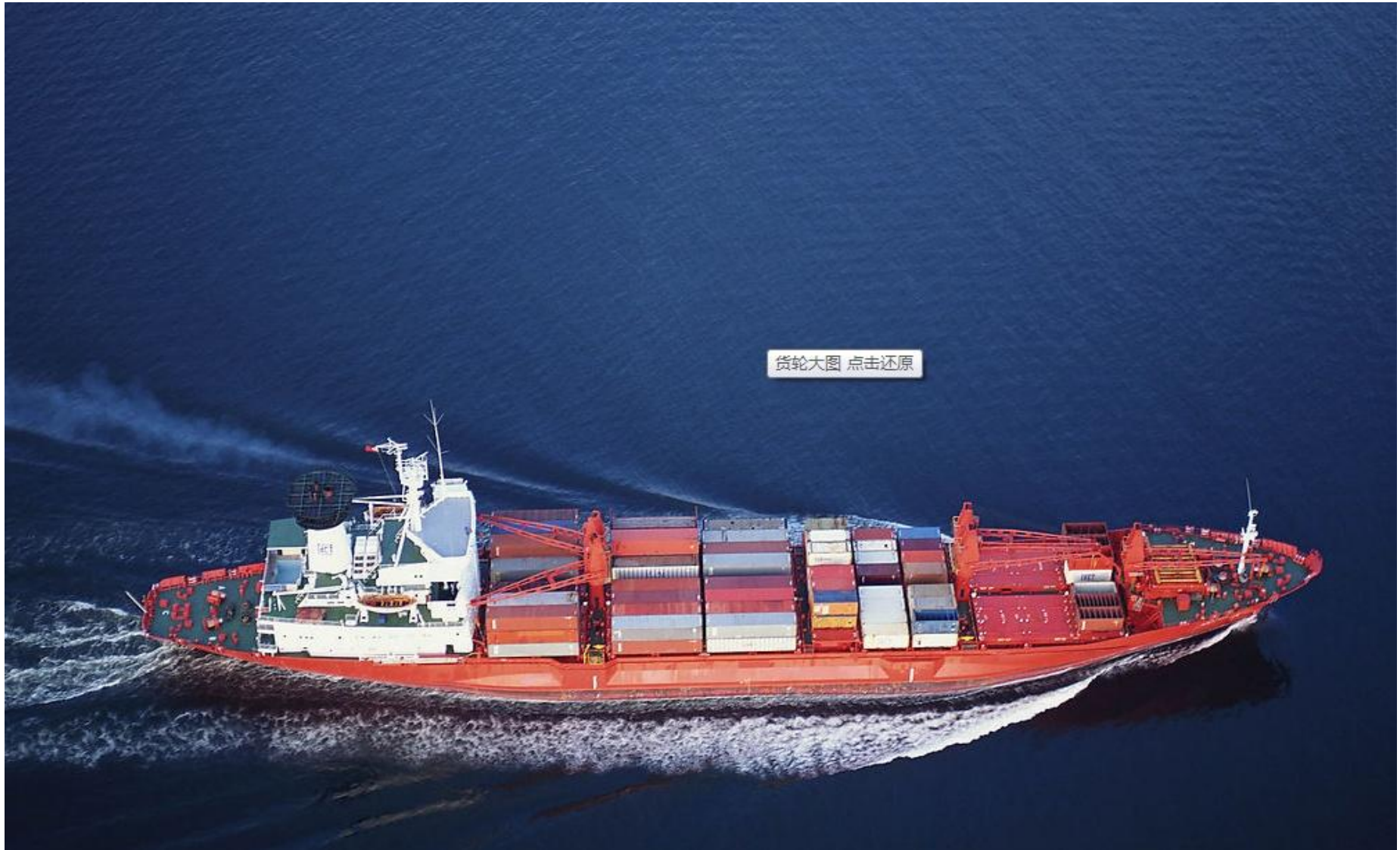
Part seven: Market

**In 2050 ,the total population of people
all over the world will be more than**

9,000,000,000



Jan-Nov, 2012, China's total grain import is 65 million tons/US\$105.8 billion which is 3 times of that in 2011



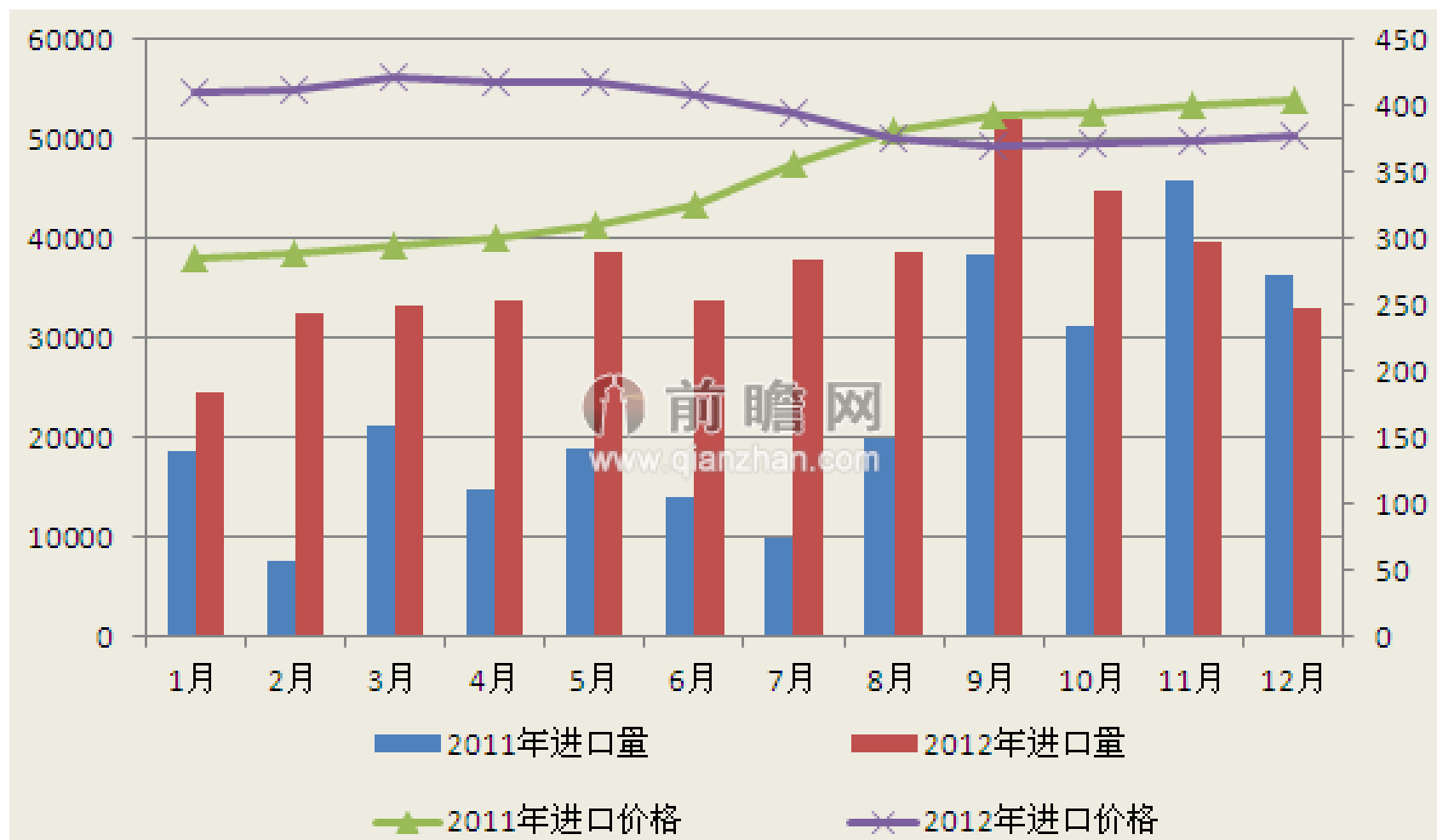
**The grain price in world market increased 29%
from Jan 2011 to Jan 2012**



China import Alfafa hey 440,000tons/US\$174 million in 2012, 60.46% increase than 2011



Blue is 2011, red is 2012.



China is the biggest market for grain

- China has 1.3 billion people
- 120 million hectare cultivated land only
- Industry development need more land
- Industry need more grain

China need Afria and Africa need China

- China need more land
 - China need cheaper food
 - Africa need good technology
 - Africa need cheaper machines
-
- If we work together, it will benefit us both

We are ready to be with you

Are you ready?

You are welcome to visit our factory

A large center pivot irrigation system is shown in a field at sunset. The long metal arm of the system stretches across the frame, supported by several truss-like structures. In the foreground, a dark pickup truck is parked on the left. On the right, a person is visible near the end of the system, silhouetted against the bright sunset. The sky is a mix of orange, yellow, and blue.

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Thank you

