

梅州市塔牌集团蕉岭鑫达旋窑水泥有限公司

二〇一六年六月

1		1
2		2
2.1		2
2.2		2
3		4
3.1		4
3.2		10
3.3		13
3.4		14
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4.1		23
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2

2.1

2.1.1

2.1.2

2.1.3

2.2

2.2.1

12					45
13				[2010]	113
14		“	”	[2013]	20
15				2015	3 19 2015
6	1				
16					
2.2.2					
1				GB 18218-2009	
2				GB50016-2014	
3					

3

3.1

3.1.1

2013

200

300t/h

28438

2331

6000

250

150

5000t/d

5000t/d

41450

4600

70000

7000

3-1

3-1

	<u>116°11 28"</u>		<u>24°45 17"</u>
	0753-7522316		0753-7522315
	70000		320

3.1.2

205

		1170		1164
1150		1092	1057	1020
6				

6

3.1.4

39.2

-2.9

21.0

1.3m/s

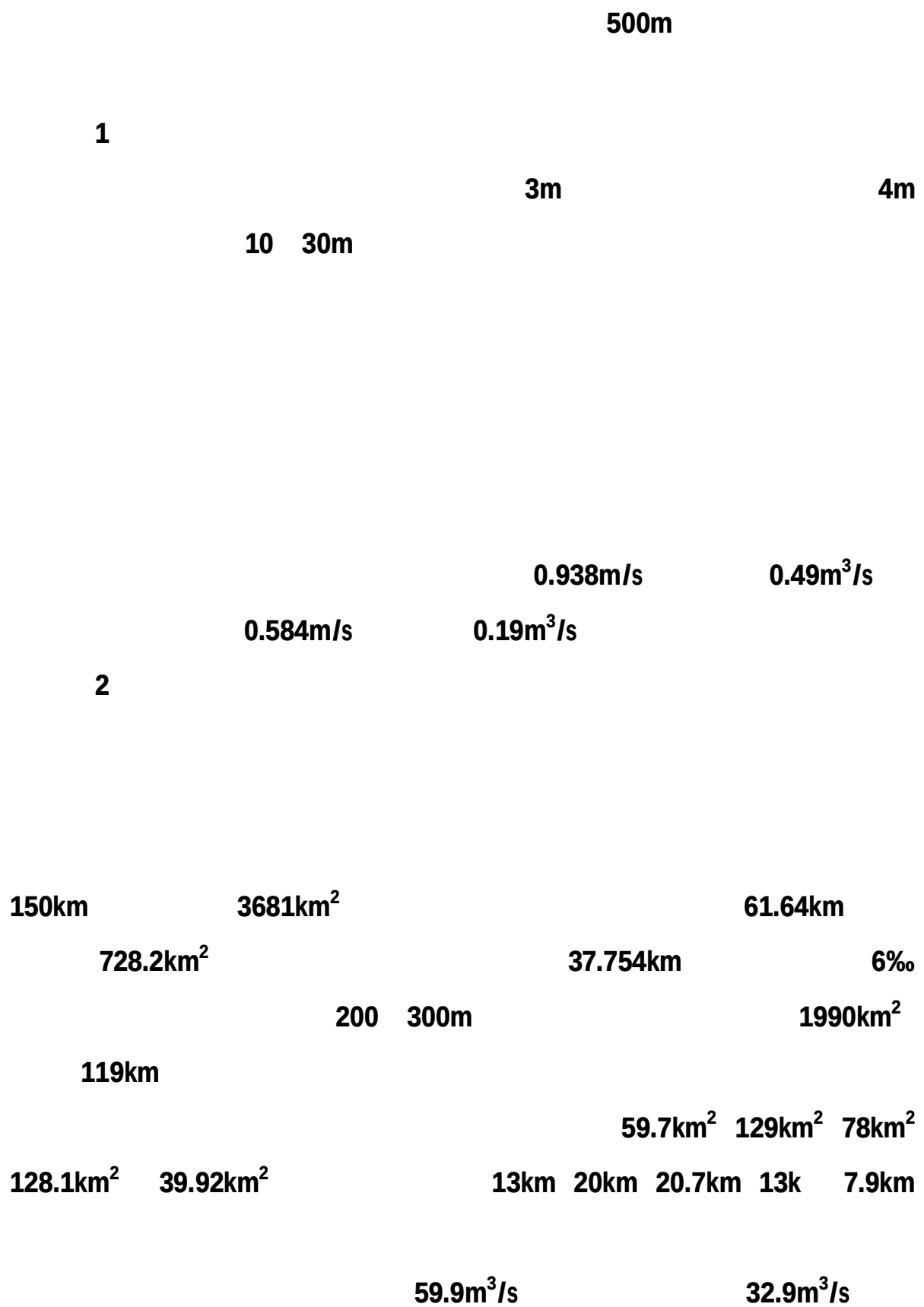
24m/s

1662.5mm

2488.6mm

137.1mm

3.1.5



3.006m³/s

1963 6 7

2650m³/s

1964 6 15

3-2

3-2

		km²	m³/s	m	km	‰
		745.5	58.16	71.3	61.64	1.2
		59.7	1.74	47	13	3.6
		129	3.35	442	20	22.1
		78	1.92	310.5	20.7	15
		128.1	25.09	17	13	1.3
		39.92	1.80	51.93	7.9	6.7

500m

1969

GB3838-2002		II	
1149.5	KWh	2002	2004
400		30	480
1160	KWh	3.5m	5000
6		6	3780KW
2292km ²		3363km ²	
3000KW		3.5m	
4		6	

3.2

3.2.1 10km

(GB3838-2002) II

3.2.2 500

500m

3.2.3

5km

3-3

			m	
	2126 621		100	
	1509 469		500	
	2777 831		1000	
	2635 740		2200	
	2961 907		2000	
	610 175		2500	
	200 60		400	
	5585.7ha ² 3		5000	
			2700	
	320		2000	
	100		1000	
	92		1200	



3-1 5km

3.3

3-4

3-4

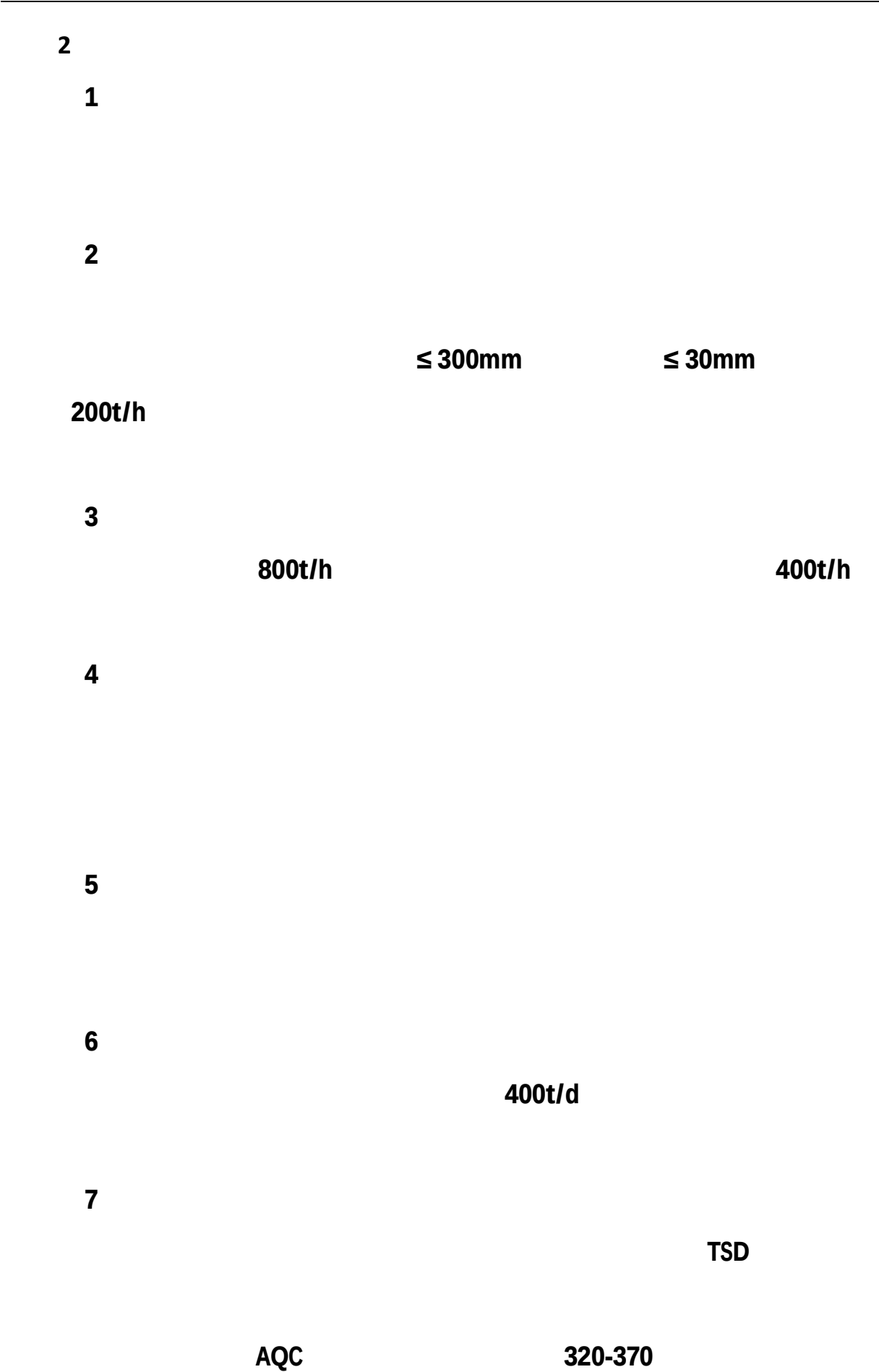
			/t		
1	20%	6000	83		
2		785	20		
3		1430	20		

4

3.4

1

200 /



90	SP	335-345
210		
8		
	Φ60m	
Φ18m×45m		13277
9		
	≤1000mm	≤25mm
		400t/h
	Φ8m×28m	
10		
	30	Φ8m×28m
		1 HMC-64
	26880m ³ /h	≥99.9
1 PPW64-7		10000 m ³ /h
	99.9	
11		
	V	
	Φ4.2×13m	

300t/h

2
100000 m³/h ≥99.9

12
2 Φ30×45m 2 Φ18×48m 8 Φ10×28m
109635

4
4×216=464 / 8 11%
18 7200 13000m³/h

≥99.9
13
6 180t/h

100t/h

6 PPW64-7

≥99.9%

3.5

1

2

3

4

5

6

3.6

3.6.1

1

2

294m³

3

4

5

“

+ + ”

6

7

8

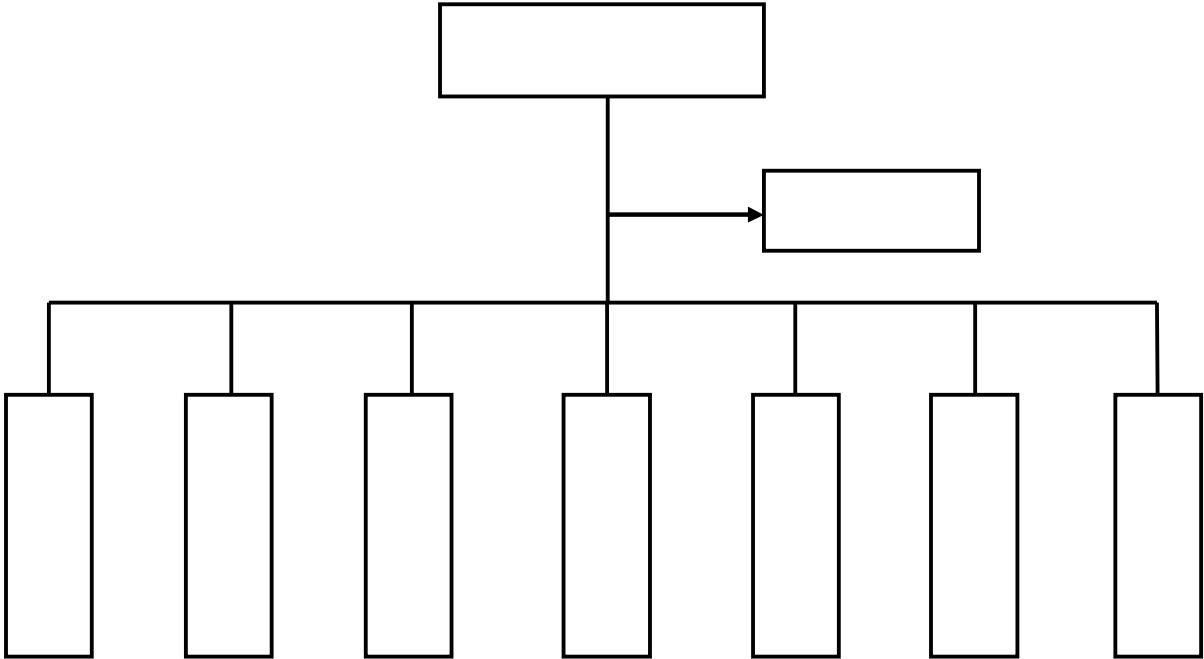
3.6.2

3.7

3.7.1

6

3-3



3-3

3.7.2

3-5

		2		
		140		
		8		
		3		
		8		
		28		
		2		
		8		
		28		
		20		
		8		
		275		
		23		
		23		
	CO ₂	1		
		1		
I		2		

4

4.1

4.1.1

1

2

3

4

“ + + ”

5

SO₂ NO₂ NH₃

4.2.3

3t 20 7kg 0.14t 294m³

4.2.4

3t 20 7kg 0.14t 83

4.3

3.6 3.7

4.4

1

1

28

4-1

4-1

+		

4-2

		Nm ³ /h	kg/h			
			SO ₂		NO _x	
		344185	0.85	1.14	1.68	H113m/Ø4.2m

4-3

m						
	SO ₂				NO _x	
	mg/m ³	%	mg/m ³	%	mg/m ³	%
100	6.19E-15	0	1.22E-14	0	8.31E-15	0
200	1.06E-05	0	2.10E-05	0.01	1.42E-05	0
300	0.000428	0.09	0.000846	0.35	0.000574	0.19
400	0.001537	0.31	0.003037	1.27	0.002061	0.69
500	0.002271	0.45	0.004488	1.87	0.003045	1.02
522	0.002299	0.46	0.004544	1.89	0.003083	1.03
600	0.002093	0.42	0.004137	1.72	0.002807	0.94
700	0.001707	0.34	0.003374	1.41	0.002289	0.76
800	0.00164	0.33	0.003241	1.35	0.002199	0.73
900	0.001728	0.35	0.003415	1.42	0.002317	0.77
1000	0.001715	0.34	0.003389	1.41	0.0023	0.77
1100	0.001644	0.33	0.003249	1.35	0.002205	0.74
1200	0.001545	0.31	0.003054	1.27	0.002073	0.69
1300	0.001438	0.29	0.002843	1.18	0.001929	0.64
1400	0.001382	0.28	0.002732	1.14	0.001854	0.62
1500	0.001419	0.28	0.002805	1.17	0.001903	0.63
1600	0.001432	0.29	0.002829	1.18	0.00192	0.64
1700	0.001425	0.29	0.002817	1.17	0.001912	0.64
1800	0.001405	0.28	0.002778	1.16	0.001885	0.63
1900	0.001376	0.28	0.002719	1.13	0.001845	0.62

m						
	SO ₂				NO _x	
	mg/m ³	%	mg/m ³	%	mg/m ³	%
2000	0.001339	0.27	0.002647	1.1	0.001796	0.6
2100	0.001299	0.26	0.002567	1.07	0.001700	1.0058

2			
		20%	
100 m ³	50		
	16m×13m×0.5m	104m ³	294m ³
	10min		
		HJ/T169-2004	
QL			
	$Q_L = C_d A \rho \sqrt{\frac{2(P - P_0)}{\rho} + 2gh}$		
Q _L ——	kg/s		
C _d ——	0.6~0.64	0.62	
A——	m ²		
ρ——	920kg/m ³		
P——	Pa		
P ₀ ——	Pa 101325Pa		
g——	9.8m/s ²		
h——	5.1m		
	100%	0.032m	
		18.3kg/s	10min
10.98t			

30

30

 Q_3

$$Q_3 = a \times p \times M / (R \times T_0) \times u^{(2-n)/(2+n)} \times r^{(4+n)/(2+n)}$$

 Q_3 — kg/s α n— 3.2-1 P — 1.59 Kpa R — 8.314J/mol · k M — 35kg/mol T_0 — 303k u — 1.1m/s r — 13m

4-4

kg/s

	A B	C D	E F
$u=1.1\text{m/s}$	0.0012	0.014	0.015

4-5

	n	α
A B	0.2	3.846×10^{-3}
D	0.25	4.685×10^{-3}
E F	0.3	5.285×10^{-3}

$$C(x,y,z) = \frac{Q}{(2\pi)^{3/2} \sigma_x \sigma_y \sigma_z} \exp\left[-\frac{(x-x_0)^2}{2\sigma_x^2}\right] \exp\left[-\frac{(y-y_0)^2}{2\sigma_y^2}\right] \exp\left[-\frac{z^2}{2\sigma_z^2}\right]$$

C x y o ————— x, y mg.m⁻³

x_o, y_o, z_o ———

Q—

σ_x σ_y σ_z ——— X Y Z m σ_x=σ_y

$$C_w^i(x,y,o,t_w) = \frac{Q}{(2\pi)^{3/2} \sigma_{x,eff} \sigma_{y,eff} \sigma_{z,eff}} \exp\left(-\frac{r_w^2}{2\sigma_{x,eff}^2}\right) \exp\left\{-\frac{(x-x_w^i)^2}{2\sigma_{x,eff}^2} - \frac{(y-y_w^i)^2}{2\sigma_{y,eff}^2}\right\}$$

C_wⁱ (x, y, o) ——— i t_w w (x,y,0)

Q'— mg Q'=QΔt; mg.s-1 t s

σ_{x,eff} σ_{y,eff} σ_{z,eff} — w x y z m

$$\sigma_{j,eff}^2 = \sum_{k=t-1}^w \sigma_{j,k}^2 \quad (j=x, y, z)$$

$$\sigma_{j,k}^2 = \sigma_{j,k}^2(t_k) = \sigma_{j,k}^2(t_{k-1})$$

x_wⁱ y_wⁱ — w i x y

$$x_w^i = u_{x,w}(t - t_{w-1}) + \sum_{k=1}^{w-1} u_{x,k}(t_k - t_{k-1})$$

$$y_w^i = u_{v,w}(t - t_{w-1}) + \sum_{k=1}^{w-1} u_{v,y,k}(t_{r_k} - t_{r_{k-1}}),$$

t

$$C(x,y,o,t) = \sum_{i=1}^n C_i(x,y,o,t)$$

n

$$C_{n+1}(x,y,o,t) \leq f \sum_{i=1}^n C_i(x,y,o,t)$$

f

1

3

C

4-6

4-6

C

mg/m³

m	1.1m/s C 5min	1.1m/s C 10min	1.1m/s C 15min	1.1m/s C 20min	1.1m/s C 25min	1.1m/s C 30min
0	10.1430	10.1444	0.0017	0.0004	0.0001	0.0001
100	0.3071	0.3114	0.0048	0.0006	0.0002	0.0001
200	0.0682	0.0769	0.0096	0.0011	0.0003	0.0001
300	0.0209	0.0329	0.0133	0.0016	0.0004	0.0002
400	0.0054	0.0171	0.0134	0.0022	0.0006	0.0002
500	0.0010	0.0094	0.0106	0.0027	0.0007	0.0003
600	0.0001	0.0052	0.0075	0.0030	0.0009	0.0003
700	0	0.0028	0.0051	0.0031	0.0010	0.0004
800	0	0.0014	0.0035	0.0029	0.0011	0.0004
900	0	0.0006	0.0023	0.0025	0.0012	0.0005
1000	0	0.0002	0.0015	0.0021	0.0012	0.0005
1100	0	0.0001	0.0010	0.0017	0.0012	0.0006
1200	0	0	0.0004	0.0013	0.0011	0.0006
1300	0	0	0.0004	0.0009	0.0010	0.0006
1400	0	0	0.0002	0.0007	0.0009	0.0006
1500	0	0	0.0001	0.0005	0.0007	0.0006
1600	0	0	0.0001	0.0003	0.0006	0.0005
1700	0	0	0	0.0002	0.0005	0.0005
1800	0	0	0	0.0002	0.0004	0.0004

m	1.1m/s C 5min	1.1m/s C 10min	1.1m/s C 15min	1.1m/s C 20min	1.1m/s C 25min	1.1m/s C 30min
1900	0	0	0	0.0001	0.0003	0.0004
2000	0	0	0	0.0001	0.0002	0.0003
2100	0	0	0	0	0.0002	0.0003
2200	0	0	0	0	0.0001	0.0002
2300	0	0	0	0	0.0001	0.0002
2400	0	0	0	0	0.0001	0.0001
2500	0	0	0	0	0	0.0001
2600	0	0	0	0	0	0.0001
2700	0	0	0	0	0	0.0001
2800	0	0	0	0	0	0.0001
2900	0	0	0	0	0	0
3000	0	0	0	0	0	0
3500	0	0	0	0	0	0
4000	0	0	0	0	0	0
4500	0	0	0	0	0	0
5000	0	0	0	0	0	0
C _{max} mg/m ³	27.06512	27.06656	0.0138	0.0031	0.0012	0.0006
L ₁ m	1	1	349	672.93	985	1273

4-6

C

5min

$$\text{CO}_2$$

100

CO

SO₂ CO

110-2000mg/m³

300-400 mg/m³

4-7

4-7

4-8

		Nm ³ /h	kg/h	
		22124	1.02	H30m/Ø0.6m

HJ2.2-2008 A

4-9

4-9

m		
	mg/m ³	%
100	0.0147	0.05
200	0.03128	0.10
300	0.03244	0.11
342	0.03346	0.11
400	0.03223	0.09
500	0.02757	0.09
600	0.02654	0.09
700	0.02627	0.09
800	0.02486	0.08
900	0.02302	0.08
1000	0.02110	0.07
1100	0.01928	0.06
1200	0.01766	0.06

m		
	mg/m ³	%
1300	0.01622	0.05
1400	0.01494	0.05
1500	0.01380	0.05
1600	0.01279	0.04
1700	0.01188	0.04
1800	0.01107	0.04
1900	0.01034	0.03
2000	0.00969	0.03
m	342	
mg/m ³	0.03346	
%	0.11	

4-9

GB3095-2012

4

3t

5

10m×7m×1m

10min

HJ/T169-2004

QL

$$Q_L = C_d A \rho \sqrt{\frac{2(P - P_0)}{\rho} + 2gh}$$

QL	kg/s
Cd	0.6~0.64 0.62,
A	m ²
ρ	810kg/m ³
P	Pa
Po	Pa 101325Pa
g	9.8m/s ²
h	5.1m

100% 0.02m

1.39kg/s 10min

0.834t

4-10

1			
2			
3			

4-10

6

3306.24t/d

11.16t/d 3124.8t/a

“

+ + ”

COD BOD

SS

294 m³

5

5.1

1

2

5.2

1

2

5.3

294m³

5.4

1

2

3

6

6-1

			3

7

7.1

Q

Q

$$\frac{q_1}{Q_1} + \frac{q_2}{Q_2} \wedge \wedge + \frac{q_n}{Q_n} \geq 1$$

$$q_1, q_2 \wedge \wedge q_n \text{ --}$$

t

$$Q_1, Q_2 \wedge \wedge Q_n \text{ --}$$

t

Q<1

Q

1≤Q

Q

1

1≤Q<10

2

10≤Q<100

3 Q≥100

Q1

Q2

Q3

7-1

		q	Q		
1	20%	16.6t	7.5t	2.2133	B “ ” “ ” _____ 1-C
2		0.14t	5t	0.028	
3		3t	2500t	0.0012	
4				2.2425	$q_1/Q_1 + q_2/Q_2 + \dots + q_n/Q_n > 1$

Q=2.2425

1≤Q<10

Q1

7.2

M

M

7.2.1

10

10

7.2.2

GB18218-2009

0

7.2.3

1

0

2

294m³

294m³

0

3

0

4

1

0

5

“

+

+

"

0

6

0

7

0

8

0

0

7.2.4

7.2.5

7-2

		20	10
		2	0
		2	0
		2	0
		2	0
		8	0
		8	0
		8	0
		8	0
		8	0
		8	0
		4	0
		10	0
		10	0

M

10+0+0+0+0+0=10

M<25

7-3

M	
M<25	M1
25≤M<45	M2
45≤M<60	M3
M≥60	M4

7-2

M=10

M<25

7-3

M1

7.3

E

7

7-4

1 E1	• 10 • • 24 • 5 1000 5 5 500
2 E2	• 10 • 5 500 1 1000 5 500
3 E3	• 10 • 5 500 1 1 2 500

10

5

1

5

7-4

2 E2

7.4

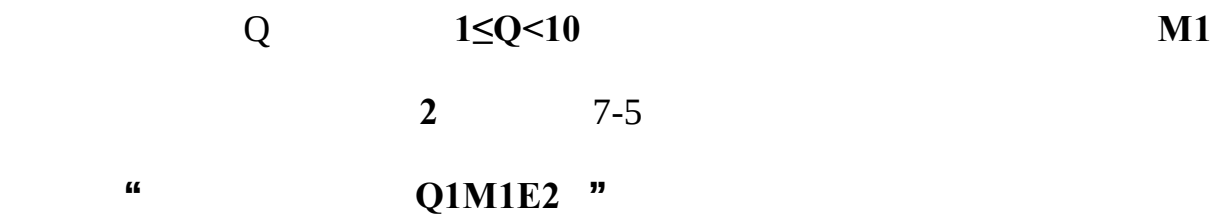
7.4.1



7-5 2 E2 —

Q	M			
	M1	M2	M3	M4
1≤Q<10				
10≤Q<100				
100≤Q				

7.4.2



8

8.1

8.2

8.3

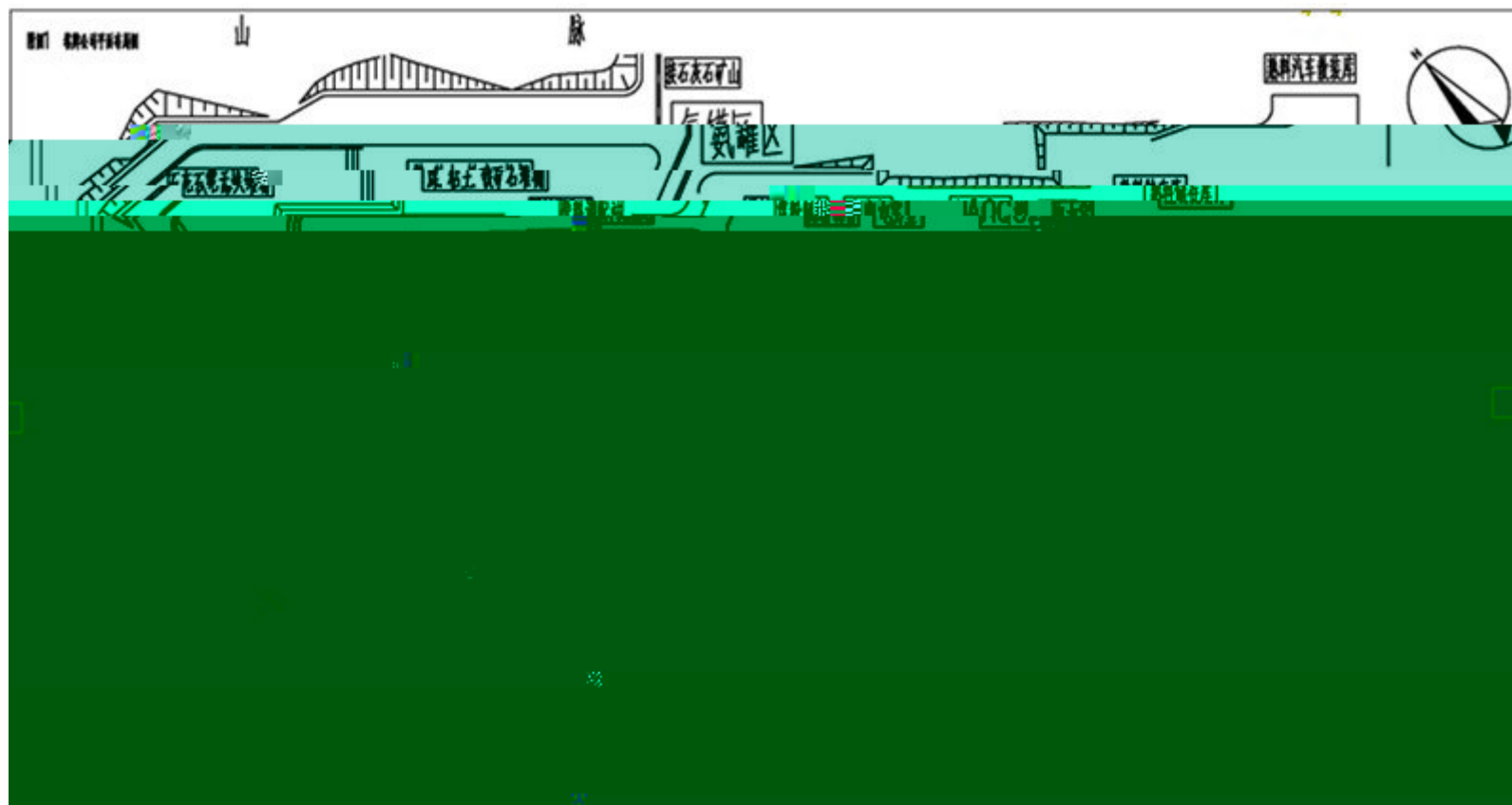
8.4

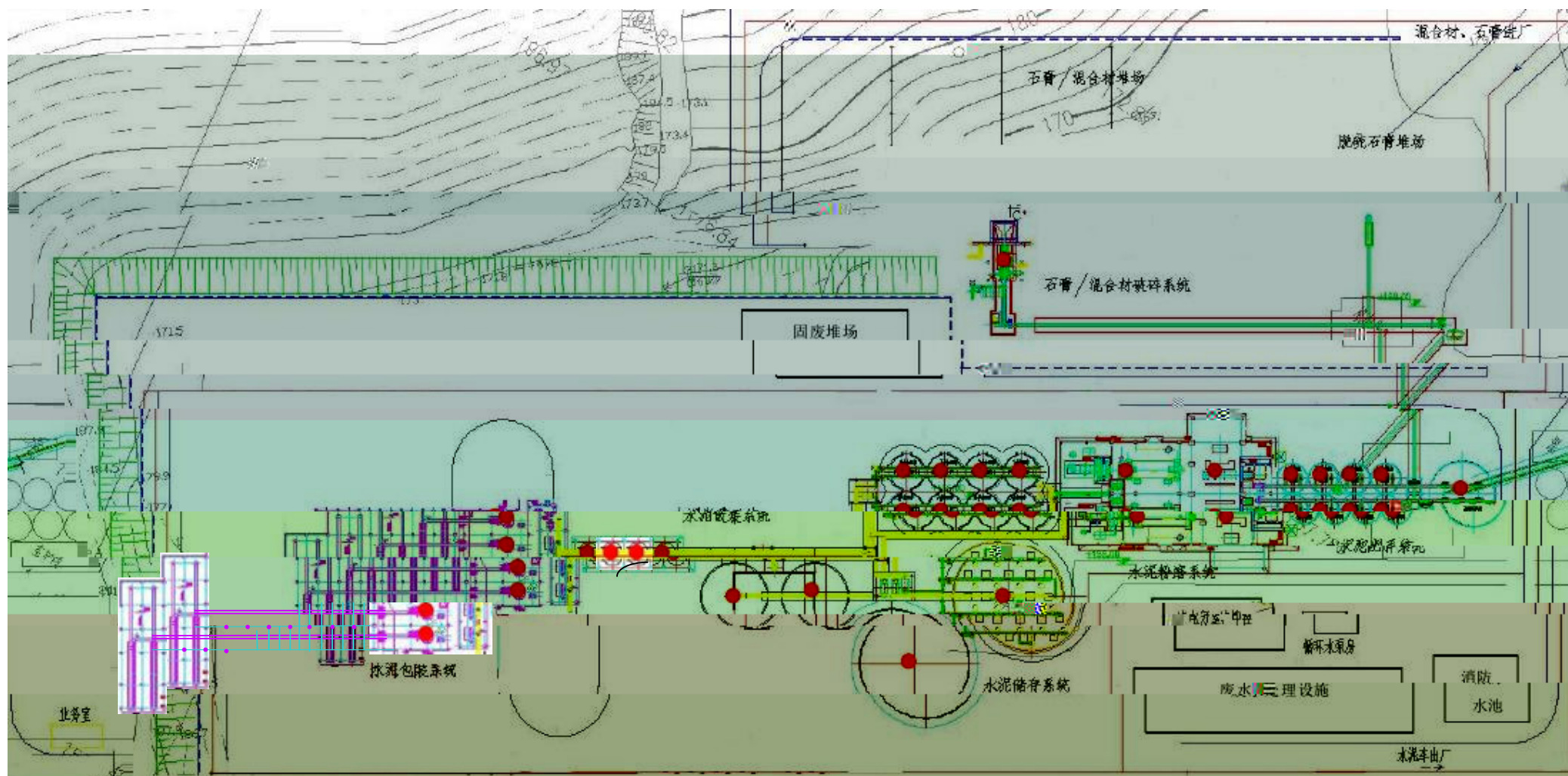
8.5

8.1

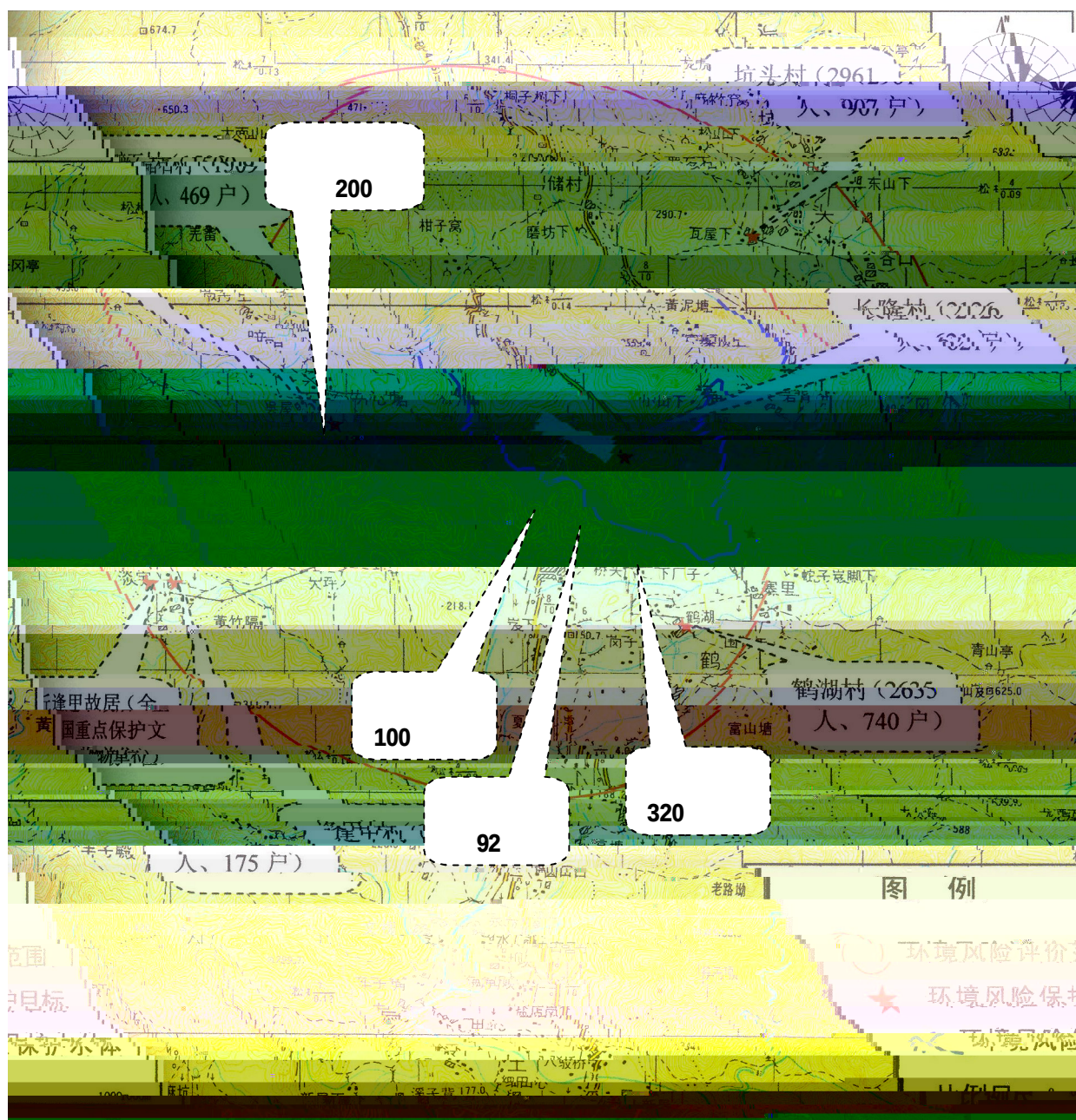


8.2

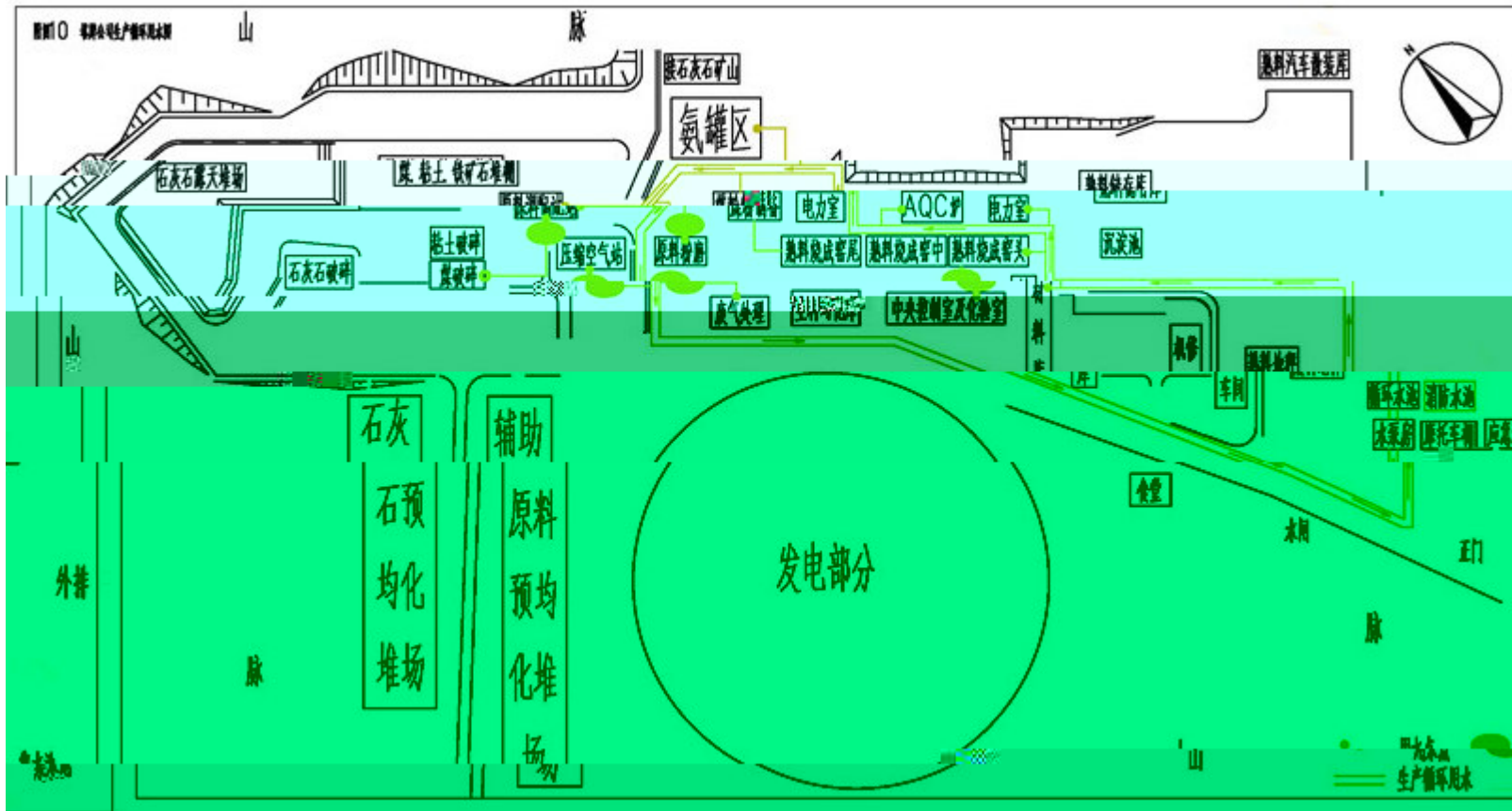


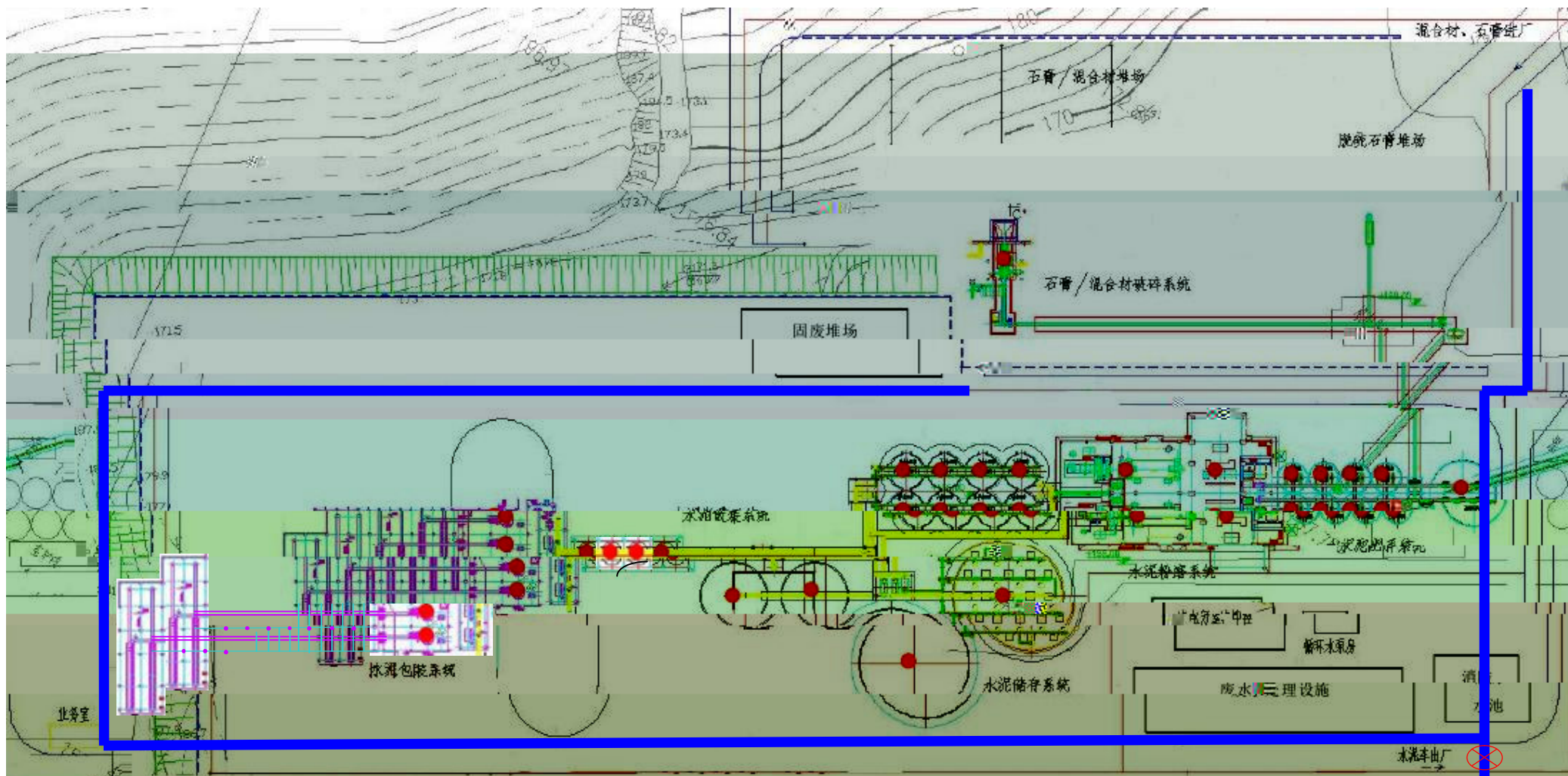


8.3



8.4





8.5

