

Table.1. Basic information of Yi, Luo, Chan, Jian and Ganshui rivers

River name	Channel length (km)	Number of river sections	Average distance of section (m)
Yi river	23.2	32	725.0
Luo river	44.5	84	529.7
Chan river	10.4	31	322.6
Jian river	19.2	32	600.0
Ganshui river	7.6	16	475.0

Table.2. Table of simulation results of flooding depth of water accumulation point in storm 1

Site number	Road section name	Simulated water depth	Measured water depth	Absolute error	Relative error
		(m)	(m)	(m)	(%)
1	Anju Road Railway Bridge Culvert	0.60	0.50	0.10	20.0
2	Luobai Road Anju Road Railway Bridge Culvert	0.60	0.50	0.10	20.0
3	Low-lying area of Taxi Village, Hanhe Hui District	0.65	0.60	0.05	8.3
4	Taikang Road Wangcheng Avenue Intersection to Xinyue Intersection	0.65	0.50	0.05	10.0
5	Niepan Road Jiaozhi Railway Bridge Culvert	0.35	0.60	0.25	41.7
6	Changchun Road, Jianxi District	0.50	0.60	0.10	16.7
7	Wanda Intersection	0.60	0.60	0.05	8.3
8	Sui-Tangcheng Road Longhai Railway Line Culvert	0.20	0.20	0.01	5.0
9	Guanlin Station Bridge, Erguang Expressway, Yibin District	0.55	0.20	0.35	175.0
10	Pingdeng Street Overpass, Chanhe District	0.35	0.20	0.15	75.0
11	Houzaimen Street, Yiren Road	1.20	1.00	0.20	20.0
12	Qiming East Road Jiaoliu Railway Bridge Culvert	1.40	1.00	0.40	40.0
13	Yiren Road, New District	1.20	1.00	0.20	20.0
14	East Huatan Overpass, Yanhe District	0.90	1.00	0.10	10.0
15	Longmen Avenue, Longmen North Bridge	1.30	1.40	0.10	7.1
16	Evergrande Oasis Section of East Zhongzhou Road	0.60	0.50	0.10	20.0

Table.3. Table of simulation results of flooding depth of water accumulation point in storm 2

Site number	Road section name	Simulated water depth	Measured water depth	Absolute error	Relative error
		(m)	(m)	(m)	(%)
1	Anju Road Railway Bridge Culvert	0.30	0.30	0.05	16.7
2	Luobai Road Anju Road Railway Bridge Culvert	0.30	0.30	0.05	16.7
3	Low-lying area of Taxi Village, Chanhe District	0.40	0.40	0.05	12.5
4	Taikang Road Wangcheng Avenue Intersection to Xinyue Intersection	0.25	0.30	0.05	16.7
5	Niepan Road Jiaozhi Railway Bridge Culvert	0.25	0.20	0.05	0.25
6	Changchun Road, Jianxi District	0.25	0.20	0.05	0.25
7	Wanda Intersection	0.35	0.40	0.05	12.5
8	Sui-Tangcheng Road Longhai Railway Line Culvert	0.25	0.30	0.05	16.7
9	Guanlin Station Bridge, Erguang Expressway, Yibin District	0.85	1.20	0.35	29.2
10	Pingping Street Overpass, Yanhe District	0.30	0.30	0.05	16.7
11	Houzaimen Street, Yiren Road	0.18	0.15	0.03	20.0
12	Qiming East Road Jiaoliu Railway Bridge Culvert	0.45	0.50	0.05	10.0
13	Yiren Road, New District	0.20	0.30	0.10	33.3
14	East Huatan Overpass, Yanhe District	0.90	1.00	0.10	10.0
15	Longmen Avenue, Longmen North Bridge	1.30	1.40	0.10	7.1
16	Evergrande Oasis Section of East Zhongzhou Road	0.60	0.50	0.10	20.0

Table.4. Peak volumes of all the rainstorm scenarios.

Peak volumes (m<sup>3</sup>)

Return period	1a	2a	5a	10a	20a	50a	100a
Rain duration							
60min	1804911.66	1941154.2	3244379.67	4553029.98	8109544.59	18603459.18	24064675.2
120min	2091859.56	3674307.24	6409150.11	8108518.32	9922175.64	21460579.2	31751228.07
360min	3943031.4	4255403.85	5380177.77	8371173.33	10816143.84	22848784.38	44463856.5
720min	3875545.08	4327303.77	8824576.32	11479946.49	18666670.05	29493651.6	54559375.68

Table.5. Average submerged depth of all the rainstorm scenarios. Average submerged depth (m)

Return period	1a	2a	5a	10a	20a	50a	100a
Rain duration							
60min	0.1242	0.1245	0.1901	0.2514	0.4039	0.8014	1.0040
120min	0.1246	0.2108	0.3179	0.3826	0.4108	0.8408	1.2123
360min	0.1635	0.1731	0.2101	0.3211	0.3946	0.7769	1.2425
720min	0.1564	0.1577	0.2968	0.3623	0.5635	0.8365	1.4817

Table.6. Inundation area of all the rainstorm scenarios. Inundation area (km<sup>2</sup>)

Return period	1a	2a	5a	10a	20a	50a	100a
Rain duration							
60min	14.5323	15.5916	17.0667	18.1107	20.0781	23.2137	23.9688
120min	16.7886	17.4303	20.1609	21.1932	24.1533	25.5240	26.1909
360min	24.1164	24.5835	25.6077	26.0703	27.4104	29.4102	35.7858
720min	24.7797	27.4401	29.7324	31.6863	33.1263	35.2584	36.8217