IRRIGATION DEPARTMENT

FLOOD FIGHTING PLAN 2026
SULEIMANKI HEADWORKS DIVISION



SULEIMANKI HEADWORKS DIVISION

I N D E X

FLOOD FIGHTING PLAN 2026

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PART - A

CHAPTER – 1

SALIENT FEATURE OF SULEIMANKI DIVISION

1.1 LOCATION

Suleimanki Headwork Division is one out of three Canal Division of Nili Bar Circle Sahiwal, Sahiwal Irrigation Zone. The Division manages the regulation of Canal supplies of Suleimanki Barrage, maintenance of Barrage structure, Flood Routing and up-keeping it's allied River Training Works. Suleimanki Headwork was constructed under the Sutlej Valley Project during 1921-26 to provide Canal Irrigation to vast fertile tract of barren land. The design capacity of this barrage is 3,25,000 Cs.

Three Main Canals namely Eastern Sadiqia (6327-Cs), Fordwah Canal (3447-Cs) and Pakpattan Canal (6594-Cs) off-takes from Suleimanki Headwork. The Headwork is located 20-KM from Haveli Lakha Town of Tehsil Depalpur District Okara and it is very important for the irrigation of allied areas as well as strategic value.

1.2 GENERAL DESCRIPTION

Suleimanki Head works is located on River Sutlej at a distance of 20 KM East of Haveli Lakha Town in the Tehsil Depalpur District Okara. The origin of the River Sutlej is situated in TIBBET near MANASAR-OWAR LAKE. The major tributary of the river is BEAS having its confluence near HARIKE Head works which is 40 miles upstream of FEROZEPUR Head works. The Sutlej River enters in Pakistan territory just downstream of FEROZEPUR Head works and travels 127 Km to reach Suleimanki Head works. This Headwork is located only 1Km from Indo-Pak International Border and has vital role in defense of Pakistan for Suleimanki sector. The Irrigation Boundary of this Division up to Sahuka in Districts Vehari.

The river supply was cut off by India in 1960 according to Indus Water Treaty between Pakistan & India. A link Canal system was constructed from Mangla Reservoir to Suleimanki Headwork to feed the off taking canals of Suleimanki Headwork. The normal river supply was disconnected by the Indian Government after construction of storage dams on the upper reach of Sutlej River. The limited / restricted supply at Suleimanki Headwork started shoaling upstream Headwork resulting bela formation.

A huge and firm bela was formed all along the upstream left guide bund on the left side of Headwork. This bela had chocked almost two third water way upstream of Headwork and due to low discharges, the size of bela was increasing gradually. This bela was excavated mechanically under the mega project of "Rehabilitation and Up-gradation of Suleimanki Headwork" by proving trunch in bela formation but it did not work properly and bela remained present. During Flood 2025, this bela was removed by proper regulation at barrage. Now the approach of river is direct and sufficient ponding volume is available to feed off-taking channels up to their indents.

All the flood protection works are safe and sound to cope Flood Emergency except Malleki Spur which got damaged during flood 2025. Restoration of Malleki Spur is taken up and will be completed before flood 2026. The Pak Army base bund was constructed along River Sutlej from nose of left Guide bund to RD.12+000 upstream. The construction of this base bund will act as defence line against LMB. This Army base band was also got damaged during flood 2025 along with damaged of Upstream irland but it has no impact on the safety of headworks.

Design Capacity of Suleimanki Headwork.	=325000-Cs.
Total Length of Bunds and Spurs.	=44-Miles.
Total length of Main Canals.	=25-Miles.
Total length of Branch Canal.	=48-Miles.
Total length of Disty & Minor.	=168-Miles.
	G. Total=241-Miles.

Suleimanki Division comprises two Sub Divisions namely Headwork Sub Division Suleimanki and Pakpattan Sub Division which are headed by the Sub Divisional Officers stationed at Suleimanki and Pakpattan respectively.

Headwork Sub Division is responsible for regulation of the Barrage, Canals off taking from Suleimanki Headwork along with their maintenance up to 6000 feet each of Left side Canals as well as 112350 feet of Pakpattan Canal on right sides with its off takes. This Sub Division also maintains the Barrage allied structures and River training works.

Pakpattan Sub Division is responsible for maintenance of Khadir Branch up to 241000 feet along with its off taking Channels. Khadir Branch extends its Irrigation between the River Sutlej and Pakpattan Canal.

Three main Canals off-take from Suleimanki Headwork with total discharge of 16368-Cusecs and Irrigates 28 Lac Acres of land. Pakpattan Canal off takes from the Right flank which Irrigates the area in Okara, Pakpattan and Vehari Districts. Eastern Sadiqia and Fordwah Canals off take from the Left side and irrigate the area of Bahawalnagar and Bahawalpur Districts. After partition of Indo-Pak and as consequence of Indus Water treaty, the supply at Suleimanki Head works is maintained through Balloki Suleimanki Link (B.S.L). This Link Canal joins the Sutlej with its out fall structure 25 Kilometers upstream of Suleimanki Head works.

Area irrigated by the Suleimanki Headwork Division falls in the 3 Districts as under:-.

District	G.A (Acres)	C.C.A (Acres)
Okara	18113	16237
Pakpattan	167482	155973
Vehari	9901	8314
TOTAL	**195496**	**180524**

Major Crops in the command area are wheat, Sugar Cane, Cotton & Rice etc. Zamindars are taking keen interest in laser leveling of land and making Pacca water

courses to bring more area under command by using modern techniques and as a result irrigation is increasing day by day.

Right Marginal Bund & Left Marginal Bund with allied spurs have been raised 5.0 ft above the highest flood level of 1988. Pak Army has constructed pacca bunkers on the top of Left Marginal Bund for defense purpose. The Left Marginal Bund strengthened by providing ring bunds around the bunkers to cope the stress flood water.

INFRASTRUCTURES UNDER CONTROL OF SULEIMANKI HEADWORK

Headwork	1.No.Suleimanki Headwork
Main Canals	3.No
i. Pakpattan Canal (Upper) ii. Sadiqia Canal iii. Fordwah Canal	22.47 Canal Miles 01.20 Canal Miles 01.20 Canal Miles
Total: -	**24.87 Canal Miles**
Branches	1.No
i. Khadir Branch	48.20 Miles
Distributaries	21.No 140.74 Miles
Minors	6. No 27.10 Miles
Total No. of Channels	**27. No**
Total Length of Channels (Main Canals, Branches Disties and Minors)	241 Miles
Water Allowance i. Non-perennial	5.50 Cs Per 1000 Acres
Designed Intensity i. Non Perennial	60%
Total GCA	0.195 Million Acres
Total CCA	0.181 Million Acres
Total No. of Tails	27. No.
Total No of Outlets	419 No.
Total length of Flood Bunds	17.24 Miles

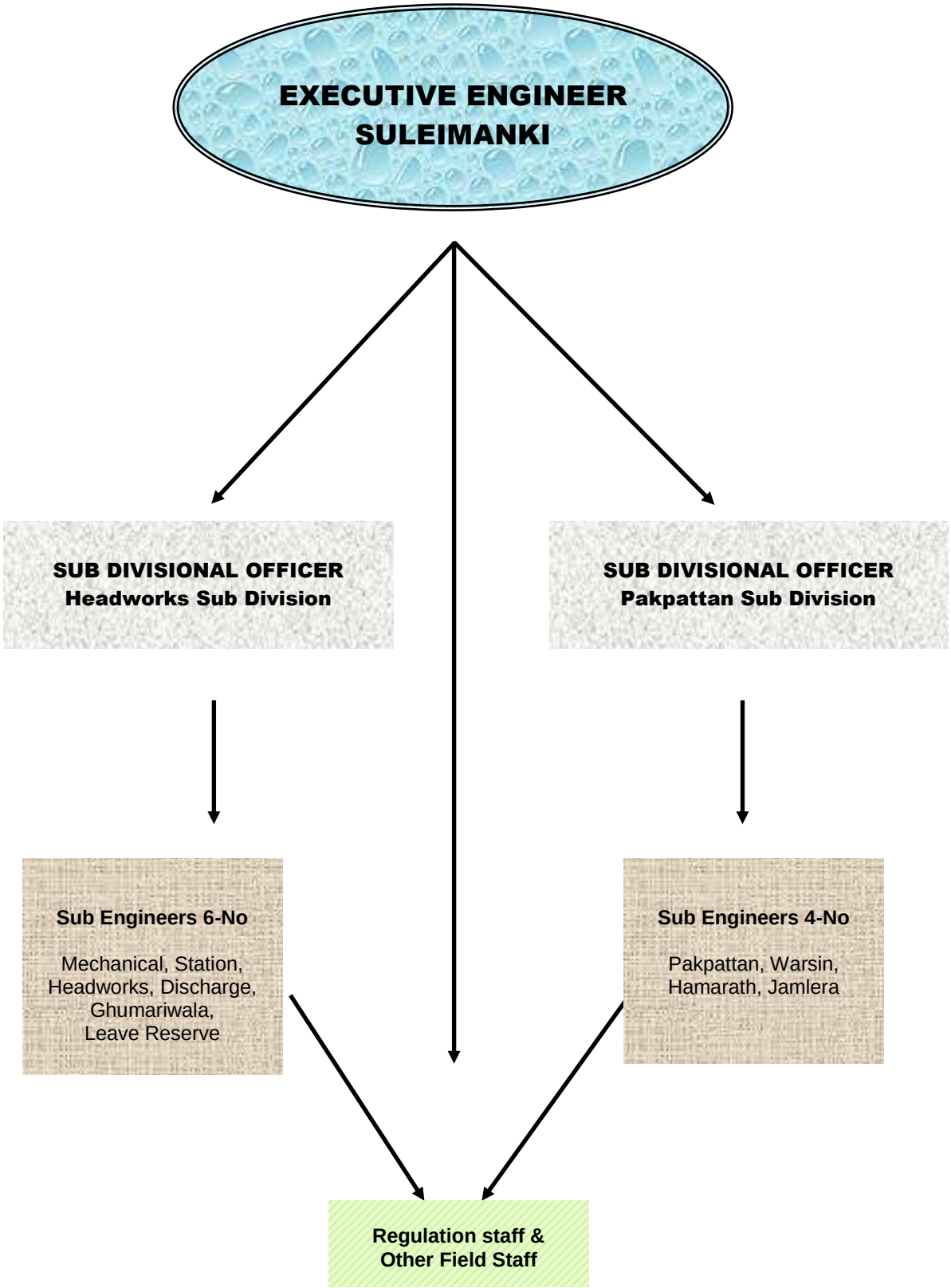
DISTRICT WISE LENGTH OF CHANNELS

Name of District	Main Canal (Canal Miles)	Branch (Canal Miles)	Disty (Canal Miles)	Minor (Canal Miles)	Total (Canal Miles)
Okara	18.40	-	14.90	1.20	34.50
Pakpattan	6.47	44.20	111.10	25.95	187.72
Vehari	-	4.0	14.75	-	18.75
Total	**24.87**	**48.20**	**140.75**	**27.15**	**240.97**

SALIENT FEATURES OF SULEIMANKI HEADWORK

1	Design discharge of main weir.	2.10	Lac Cs
2	Design discharge of under sluices.	1.15	Lac Cs
3	Total design capacity of Headwork.	3.25	Lac Cs
4	Design discharge of Pakpattan Canals.	6594	Cusecs
5	Design discharge of Sadiqia Canals.	6327	Cusecs
6	Design discharge of Fordwah Canals.	3447	Cusecs
7	Normal Pond Level	569.00	Feet
8	Highest flood level of 1988.	572.50	Feet.
9	Crest / Floor level of under sluices.	552.00	Feet.
10	Crest level of Head Regulator of Pakpattan Canal.	559.50	Feet.
11	Downstream floor level of weir.	549.75	Feet.
12	Upstream floor level of weir.	552.00	Feet.
13	Crest level of weir.	560.00	Feet.
14	Length of floor Upstream	20.00	Feet.
15	Length of stone apron upstream	30.00	Feet
16	Length of Floor Downstream	33.25	Feet.
17	Crest level of head Regulator of Eastern Sadiqia Canal.	559.50	Feet.
18	Crest level of head Regulator of Fordwah Canal.	561.50	Feet.
19	Length of the Headwork between abutments.	2223	Feet.
20	Water Way.	1920	Feet.
21	Number of bays of main weir.	24	Nos.
22	Width of each bay.	60	Feet.
23	Numbers of bays/gates with LCPs of under sluices (Left & Right).	16	Nos.
24	Width of Each Bay of under sluice	30	Feet.
25	Width of Pier of Under Sluice	5	Feet.
26	Width of Pier of Main Weir.	7	Feet.
27	Divide Wall Width	5	Feet.
28	Divide Wall Length.	700	Feet.
29	Number of bays / gates with LCPs of Pakpattan canal upper)	8	No.
30	Number of bays / gates with LCPs of Eastern Sadiqia canal	7	No.
31	Number of bays / gates with LCPs of Fordwah canal	5	No.
32	Width of Gates of Off-taking canals	20	Feet

1.3 ADMINISTRATIVE SETUP



CHAPTER – 2

FLOOD PROTECTION AND RIVER TRAINING WORKS

2.1 DESIGN PARAMETER OF TRAINING WORKS / FLOOD EMBANKMENTS.

Sr.	Name of Bund / Embankment	H.F.L in 1988		Reach	Length in Miles	Top Width	Slope	Top RL at source	Top RL at Tail
		At Head	At Tail						
1	Upstream Left Guide Bank	575.50	573.50	0-3500	0.70	30-56	1:2 1:3	579.50	582.00
2	Upstream Right Guide Bank	575.50	573.50	0-3500	0.70	30-56	1:2 1:3	579.00	582.00
3	Downstream Left Guide Bank	575.50	572.00	0-1000	0.20	30	1:2 1:3	578.00	574.00
4	Downstream Right Guide Bank	575.50	572.00	0-1000	0.20	30	1:2 1:3	578.00	574.00
5	Left Marginal Bund	577.10	585.20	0-47500	9.50	25	1:2 1:3	582.10	590.20
6	T.T. Bund	577.10	577.10	0-6000	1.20	20	1:2 1:2	582.10	582.10
7	Jhanger Spur	577.10	577.10	Shank =0-3300 Pitching Portion =400	0.74	20	1:3 1:3	582.30	582.20
8	New Hasta Spur	585.20	585.20	Shank =0-13000 Pitching portion =500	2.70	25	1:3 1:3	590.20	590.20
9	Right Marginal Bund	579.50	583.50	0-63000	12.60	25.20	1:3 1:2	584.50	588.50
10	Station Spur	529.50	579.50	Shank =0-4950 Pitching portion =1050	1.20	20	1:2 1:2	584.50	584.50
11	Dharanga Spur	580.60	580.60	Shank =0-11000 Pitching portion =525	2.31	20	1:2 1:2	585.60	585.60
12	Suleimanki Spur	569.50	569.50	Shank =0-1300 Pitching portion =200	0.30	20	1:2 1:2	574.50	574.50
13	Malleki Spur	568.00	568.00	Shank =0-1000 Pitching portion =200	0.24	20	1:2 1:2	573.00	573.00
14	Sujeki Spur	561.50	561.50	Shank =0-2700 Pitching portion =300	0.60	20	1:2 1:2	566.5	566.5
15	Jodheki Spur	567.00	567.00	Shank =0-1200 Pitching portion =300	0.30	20	1:2 1:2	572.00	572.00
16	Tulleki Spur	559.50	559.50	Shank =0-3770 Pitching portion =330	0.82	20	1:2 1:2	564.50	564.50
17	Ferozepur Flood Bund	530.17	523.76	0-28672	5.73	20	1:2 1:2	535.17	535.17
18	New Mari Amb Flood Bund	522.87	518.62	0-16035	3.20	20	1:2 1:2	527.82	527.82
19	Jamlera flood Bund	593.85	587.21	0-41500	8.30	25	1:2 1:3	498.85	498.85

DETAIL OF FLOOD PROTECTION AND RIVER TRAINING WORKS ALONGWITH THE DESIGN PARAMETERS AND LOCATION MAPS

The list of Flood Protection and River Training Works marked on the location plan is attaches. The detail of Flood Protection / Training works is as under:-

DETAIL OF RIVER TRAINING WORKS

NAME	Type	Off-Take RD	TOP WIDTH	LENGTH	TOP R.L	Slope
Upstream Right & Left Guide Bank.	J Head	Suleimanki Barrage	56	3500	579.50 582.00	1:2/1:3
Downstream Right and Left Guide Bank.	J Head	Suleimanki Barrage	30	1000	578.00 574.00	1:2/1:3
Right Marginal Bund	Earthen	Suleimanki Barrage	25/20	63000	584.50 588.50	1:3/1:2
Station Spurs	Armored Head	6000/RMB	20	6000	582.50	1:2/1:2
Dharang Spurs	T Head	16000/RMB	20	11525	583.50	1:2/1:2
Left Marginal Bund.	Earthen	Suleimanki Barrage	25	47500	582.10 590.20	1:3/1:2
T.T. Bund	Earthen	2000/LMB	20	6000	582.10	1:2/1:2
Jhangar Spurs.	Armored Head	13282/LMB	15	3700	580.85	1:2/1:2
New Hasta Spurs.	Armored Head	47500/LMB	25	13500	590.20	1:2/1:2
Suleimanki Spurs.	J Head	Opposite 5000/PC	20	1500	574.50	1:2/1:2
Malleki Spurs.	T Head	Opposite 15000/PC	20	1200	573.00	1:2/1:2
Jodheki Spurs.	T Head	Opposite 22000/PC	20	1500	572.00	1:2/1:2
Sujeiki Spurs.	T Head	Opposite 28000/PC	20	3000	566.50	1:2/1:2
Tulleki Spurs.	T Head	Opposite 38130/PC	20	4100	564.50	1:2/1:2
Ferozepur Flood Protection Bun	Earthen	40000/L of Ferozepur	20	28672	531.36	1:2 /1:3
New Mari Amb Flood Protection Bund	Earthen	68672/L of Ferozepur	25	16035	525.02	1:2 /1:3
Jamlera Flood Protection Bund	Earthen	Opposite 228000/L of KB	25	41500	495.33	1:2 /1:3

DETAIL OF LEFT GUIDE BUND UPSTREAM AT SULEIMANKI HEADWORK.

Length of Guide Bund	3500 Ft.	It is an earthen bund with river side stone pitched and is in satisfactory condition existing bund is as per design parameters. 6 in thick shingle is placed on top of bund up to RD 1+050=18ft & 1+050–3+500=10ft
Top R.L. of Apron	558.0 Ft.	
Width of Apron	30 Ft	
Side Slopes	1 : 2 - 1 : 3	

DETAIL OF LEFT GUIDE BUND DOWNSTREAM AT SULEIMANKI HEADWORK.

Length of Guide Bund	1000 Ft.	It is an earthen bund with river side stone pitched and is in satisfactory condition existing bund is as per design parameters.
Top R.L. of Apron	549/555 Ft.	
Width of Apron	30 Ft	
Side Slopes	1: 2 - 1:3	

DETAIL OF RIGHT GUIDE BUND UPSTREAM AT SULEIMANKI HEADWORK.

Length of Guide Bund	3500 Ft.	It is an earthen bund with river side stone pitched and is in satisfactory condition existing bund is as per design parameters. 6 in thick shingle is placed on top of bund up to RD.1+500=18ft & 1+500–3+500 =10ft
Top R.L. of Apron	558.0 Ft.	
Width of Apron	30 Ft	
Side Slopes	1: 2 - 1:3	

DETAIL OF RIGHT GUIDE BUND DOWNSTREAM AT SULEIMANKI HEADWORK.

Length of Guide Spur	1000 Ft.	It is an earthen bund with river side stone pitched and is in satisfactory condition existing bund is as per design parameters.
Top R.L. of Apron	549/554 Ft.	
Width of Apron	40 Ft	
Side Slopes	1: 2 - 1:3	

DETAIL OF RIGHT MARGINAL FLOOD PROTECTION BUND

Length of Bund	63000 Ft.	Overall condition is satisfactory.
To width	25-20 Ft.	
Free board	5.00 Ft	
Side slopes	1:2 - 1:3	

DETAIL OF ARMORED STATION SPUR

Length of spur	6000 Ft.	The work for provision of stone pitching as well as apron (Stone) from RD. 0+500 to RD. 1+500 has been taken up.
Free Board	5.0 Ft	
Top width	20.0 Ft	
Apron width	80 Ft	
Pitching length of spur	1150 Ft	
Side slopes	1:2 – 1:2.	

DETAIL OF T-HEAD DHRANGA SPUR

Length of spur	11525 Ft.	Overall condition is satisfactory.
Free Board	5.0 Ft	
Top width	20.0 Ft	
Apron width	80 Ft	
Pitching length of spur	600 Ft	
Side slopes	1:2 – 1:2	

DETAIL OF LEFT MARGINAL FLOOD PROTECTION BUND

Length of Bund	47500 Ft.	There are 82-Nos of Bunkers constructed by Pak Army for defense purpose. These places of bunkers were vulnerable. During the financial year 2023-24, the bund was protected by providing ring bunds around bunkers to cope the flood.
To width	25.00 Ft.	
Free board	5.00 Ft	
Side slopes	1:2 – 1:3	

DETAIL OF T.T BUND

Length of Bund	6000 Ft.	This bund is abundant since long as this bund was constructed at the time of construction of Headworks. It requires study for its necessity to restore it.
To width	20.00 Ft.	
Free board	5.00 Ft	
Side slopes	1:2 – 1:2	

DETAIL OF ARMORED JHANGAR SPUR

Length of spur	3700 Ft.	Overall condition is satisfactory.
Free Board	5.0 Ft	
Top width	25.0 Ft	
Apron width	80 Ft	
Pitching length of spur	600 Ft	
Side slopes	1:2 – 1:2	

DETAIL OF ARMORED NEW HASTA SPUR

Length of spur	13500 Ft.	Overall condition is satisfactory.
Free Board	5.0 Ft	
Top width	20.0 Ft	
Apron width	30 Ft	
Pitching length of spur	1500 Ft	
Side slopes	1:2 – 1:2	

DETAIL OF ARMORED SULEIMANKI SPUR

Length of spur	1500 Ft.	Overall condition is satisfactory.
Free Board	5.0 Ft	
Top width	25.0 Ft	
Apron width	50 Ft	
Pitching length of spur	200 Ft	
Side slopes	1:2 & 1:2	

DETAIL OF ARMORED MALLEKE SPUR

Length of spur	1200 Ft.	This spur got damaged during flood 2025 and restoration of this spur is taken up and tendering of this work is in progress.
Free Board	5.0 Ft	
Top width	20.0 Ft	
Apron width	50 Ft	
Pitching length of spur	200 Ft	
Side slopes	1:2 & 1:2	

DETAIL OF T-HEAD JODHEKE SPUR

Length of spur	1500 Ft.	Overall condition is satisfactory.
Free Board	5.0 Ft	
Top width	20.0 Ft	
Apron width	45 Ft	
Pitching length of spur	200 Ft	
Side slopes	1:2 & 1:2	

DETAIL OF T-HEAD SUJEKE SPUR

Length of spur	3000 Ft.	Overall condition is satisfactory.
Free Board	5.0 Ft	
Top width	20.0 Ft	
Apron width	50 Ft	
Pitching length of spur	200 Ft	
Side slopes	1:2 & 1:2	

DETAIL OF T-HEAD TULLEKE SPUR

Length of spur	4100 Ft.	Overall condition is satisfactory.
Free Board	5.0 Ft	
Top width	20.0 Ft	
Apron width	80 Ft	
Pitching length of spur	600 Ft	
Side slopes	1:2 & 1:2	

DETAIL OF FEROZEPUR FLOOD PROTECTION BUND

Length of Bund	28672 Ft.	This bund was restored during financial
To width	20 Ft.	year 2023-24 but its 10ft width is
Free board	5.00 Ft	maintained due to High Court cases.
Side slopes	1:2 – 1:3	

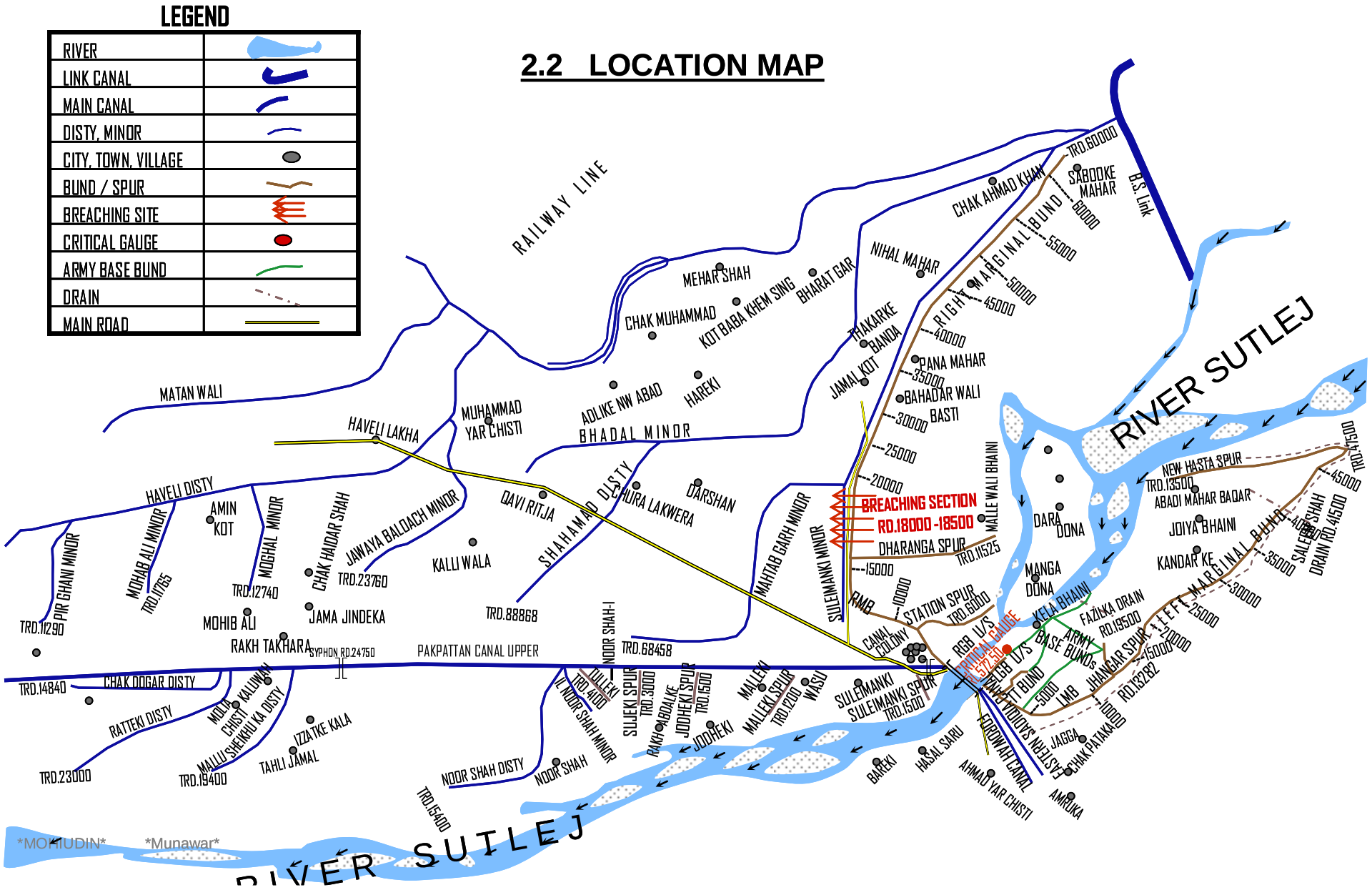
DETAIL OF NEW MARI AMB FLOOD PROTECTION BUND

Length of Bund	16035 Ft.	This bund was restored during financial
To width	20 Ft.	year 2023-24 but its 10ft width is
Free board	5.00 Ft	maintained due to High Court cases.
Side slopes	1:2 – 1:3	

DETAIL OF JAMLERA FLOOD PROTECTION BUND

Length of Bund	41500 Ft.	This bund was restored during financial
To width	25 Ft.	year 2023-24 to its design parameters.
Free board	5.00 Ft	
Side slopes	1:2 – 1:3	

2.2 LOCATION MAP



CHAPTER – 3

BRIEF HISTORY OF PAST FLOOD EVENTS

Three number exceptionally high floods have been experienced in River Sutlej at Suleimanki Headwork after partition of Indo-Pak 1947.

During 1955, an unprecedented flood was experienced when 4.22 Lac Cusecs passed through the Suleimanki Headwork at RL. 572.50 against the design high flood level of 572.00. In flood 1955, RMB breached at RD.20 and the area pocketed by Shahmad Disty, Pakpattan Canal and RMB was inundated. About 14 No breaches / cuts occurred on Pakpattan Canal and the water was disposed off into the Sutlej River Downstream to Suleimanki Headwork.

During 1988, flood of 4.0 Lac Cusecs passed through barrage while 1.0 Lac Cusecs through breaching section at RD.20+000 to 20+500 of RMB. In spite of operating breaching section RMB breached at RD. 16+000 to 17+000 and RD. 33+000 to 35+000 and the area pocketed by Shahamad Disty, Pakpattan Canal and RMB were inundated. About 20 No breaches / cuts were made on Pakpattan Canal and the water was disposed off into the Sutlej River. The LMB breached at RD.8+000 to 10+000, flood water entered in Eastern Sadiqia Canal and Fordwah Canal. This water was disposed off in River Sutlej by breaching both of canals at RD.14+000 and 17+000. The proposed breaching section of RMB has been changed after the flood 1988 and approved at RD. 18+000 to 18+500 instead of RD.20+000 to 20+500 of RMB.

During 1995 i.e. 3.0 Lac CS passed through barrage and no allied structure was damaged in 1995 upstream but downstream abadies / villages were affected and huge loss of crops, residential buildings, animals was experienced during flood 1995.

During 2023, the flood was started during the month of July with first peak during July and second peak during August which was also unusual as per previous record, river rises only one time but during 2023 river rises two times in same period of flood, 2023.

First flood peak of 114,260 cusecs reached at Ganda Singh Wala on 13th July 2023 and first flood peak of 83,570 cusecs reached at Suleimanki barrage at 16th July 2023. Second flood peak of 278,297 cusecs reached at Ganda Singh Wala on 19th August 2023 and likewise second flood peak of 191,053 cusecs reached at Suleimanki barrage on 22nd August 2023. This pattern shows that peak discharge remained sustained for similar time i.e. 03:00 hours at both points Ganda Singh Wala and Suleimanki barrage.

However, lag time was 72 hours which was considered 48 hours before this flood 2023. This early filling of Indian dams not resulted in early flood flows in Sutlej River but it is also produced continuous flows for period of two months which was not happened after construction of Indian Dams on Sutlej & Beas Rivers.

During Flood Season 2025, the flood was started during the month of August with first peak during August. First flood peak of 1,74,062 cusecs reached at Ganda Singh Wala on 25th Aug 2025 and first flood peak of 1,13,124 cusecs reached at Suleimanki barrage at 28th Aug 2025. Second flood peak of 3,85,569 cusecs reached at Ganda Singh Wala on 29th August 2025 and likewise second flood peak of 1,54,219 cusecs reached at Suleimanki barrage on 31st August 2025. This pattern shows that discharge measured at Ganda Singh Wala is not reliable which requires to rectify as only 1,54,219 cusecs received at Suleimanki Headworks against 3,85,569 Cusec which is only 40% of discharge observed at Ganda Singh Wala

However, lag time was 72 hours was observed initially which decreased upto 54 Hours during running flood conditions.

DISCHARGE AT SULEIMANKI HEADWORK FROM 1925 TO DATE

Date / Year	Maximum Discharge In Lac CS.	Condition
1925	1.90	High Flood
1926	2.07	Very High Flood
1927	1.76	High Flood
1928	1.35	High Flood
1929	2.67	Exceptionally High Flood
1930	2.71	Exceptionally High Flood
1931	1.41	High Flood
1932	2.40	Exceptionally High Flood
1933	2.02	Very High Flood
1934	1.74	High Flood
1935	1.95	Very High Flood
1936	2.07	Very High Flood
1937	1.55	High Flood
1938	2.14	Very High Flood
1939	1.24	High Flood
1940	1.16	Medium Flood
1941	1.72	High Flood
16.8.1942	**3.25**	**Exceptionally High Flood**
18.8.1943	**3.09**	**Exceptionally High Flood**
1944	2.05	Very High Flood
30.9.1945	2.57	Very High Flood
1946	2.10	Very High Flood
30.9.1947	**3.60**	**Exceptionally High Flood**
23.8.1948	1.70	High Flood
19.09.1949	1.29	High Flood
27.8.1951	2.86	Exceptionally High Flood
1952	2.62	Exceptionally High Flood
8.8.1953	2.72	Exceptionally High Flood
30.9.1954	2.39	Exceptionally High Flood
8.10.1955	**5.97**	**Exceptionally High Flood**
15.8.1956	1.76	Very High Flood
7.9.1957	2.10	Very High Flood
10.8.1958	2.44	Very High Flood
24.9.1959	1.52	High Flood
6.9.1960	2.68	Exceptionally High Flood
24.8.1961	2.65	Exceptionally High Flood
27.9.1962	2.26	Exceptionally High Flood
16.8.1963	1.52	High Flood
22.8.1964	1.71	High Flood
30.7.1965	0.92	Medium Flood
13.9.1966	2.03	Very High Flood
30.8.1967	1.90	Very High Flood
1.8.1968	1.01	High Flood
23.8.1969	1.51	High Flood
17.8.1970	1.09	Medium Flood
14.8.1971	2.28	Exceptionally High Flood
15.7.1972	0.93	Medium Flood
15.8.1973	1.77	Very High Flood
27.8.1974	0.17	No Flood
21.9.1975	0.49	No Flood
7.9.1976	1.18	Medium Flood
24.9.1977	0.53	Low Flood
26.8.1978	1.70	High Flood
8.10.1979	0.14	No Flood
19.7.1980	0.78	Low Flood
22.7.1981	0.11	No Flood
14.8.1982	0.17	No Flood
15.9.1983	0.67	Low Flood

6.9.1984	0.54	Low Flood
Date / Year	**Maximum Discharge In Lac CS.**	**Condition**
26.7.1985	0.36	No Flood
11.8.1986	0.21	No Flood
1987	-	-
1988	**4.99**	**Exceptionally High Flood**
1989	-	-
13.9.1990	1.62	High Flood
19.9.1991	0.36	No Flood
09.1992	1.97	Very High Flood
01.07.1993	1.60	High Flood
27.08.1994	1.38	High Flood
11.09.1995	**3.018**	**Exceptionally high Flood**
27.08.1996	0.625	Low Flood
31.08.1997	0.448	No Flood
27.08.1998.	0.91	Low Flood
16.08.1999	0.23	No Flood
05.08.2000	0.15	No Flood
04.08.2001	0.06	No Flood
17.08.2002	0.01	No Flood
02.10.2003	0.20	No Flood
16.10.2004	0.19	No Flood
13.08.2005	0.18	No Flood
10.09.2006	0.23	No Flood
09.09.2007	0.04	No Flood
19.08.2008	1.02	Medium Flood
27-08-2009	0.05	No Flood
30.09.2010	0.58	Low Flood
29.08.2011	0.70	Low Flood
23.09.2012	0.21	No Flood
22.08.2013	0.78	Low Flood
07.09.2014	0.21	No Flood
18.08.2015	0.49	No Flood
29.08.2016	0.24	No Flood
15.08.2017	0.21	No Flood
28.09.2018	0.35	No Flood
24.08.2019	0.67	Low Flood
24.07.2020	0.12	No Flood
15.09.2021	0.072	No Flood
20.07.2022	0.178	No Flood
22.08.2023	1.911	Very High Flood
15.08.2024	0.126	No Flood
31.08.2025	1.542	High Flood
15.08.2024	**0.013**	No Flood

CHAPTER – 4

DESIGN DATA, HISTORIC PEAK FLOOD DATA AND PREVIOUS FIVE YEARS FLOOD DATA OF HEADWORKS / BARRAGES AND OTHER CONTROL POINTS

1	Design discharge of main weir.	2.10	Lac Cs
2	Design discharge of under sluices.	1.15	Lac Cs
3	Total design capacity of Head works.	3.25	Lac Cs
4	Design discharge of Pakpattan Canals.	6594	Cusecs.
5	Design discharge of Sadiqia Canals.	6327	Cusecs.
6	Design discharge of Fordwah Canals.	3447	Cusecs.
8	Highest flood level of 1988.	575.0	Feet.
9	Floor level of under sluices.	552.00	Feet.
10	Crest level of Head Regulator of Pakpattan Canal.	559.50	Feet.
11	Downstream floor level of weir.	549.00	Feet.
12	Upstream floor level of weir.	552.00	Feet.
13	Crest level of weir.	560.00	Feet.
14	Length of floor Upstream	20.00	Feet.
15	Length of Floor Downstream	33.25	Feet.
16	Crest level of head Regulator of Eastern Sadiqia Canal.	559.50	Feet.
17	Crest level of head Regulator of Fordwah Canal.	561.50	Feet.
18	Total width of the Head works between abutments.	2223	Feet.
19	Water Way.	1920	Feet.
20	Number of bays of main weir.	24	Nos.
21	Width of each bay.	60	Feet.
22	Numbers of bays of under sluices (Left & Right).	16	Nos.
23	Type of Gate (Vertical Stony Gates)	--	--
24	Width of Pier of Under Sluice	5	Feet.
25	Width of Pier of Main Weir.	7	Feet.
26	Divide Wall Width	5	Feet.
27	Divide Wall Length.	700	Feet.

4.1 FLOOD LIMITS

Flood limits of Suleimanki Head works as approved by the technical committee during meeting held on 15.05.1989 are tabulated as under:-

Up to 50,000 Cs	Normal
50,000 Cs to 80,000 Cs	Low Flood.
80,000 Cs to 120,000 Cs	Medium Flood.
120,000 Cs to 175,000 Cs	High Flood.
175,000 Cs to 225,000 Cs	Very High Flood.
225,000 Cs and above	Exceptionally High Flood.

4.2 TIME LAGS OF RIVER SUTLEJ

The time lag depends on many factors such as flood intensity; weather conditions etc. however approximate time lags for the main stations on River Sutlej which experienced in past are given as below.

REACH	DISTANCE (Mile/Km)	TIME LAG (Hour)
Bhakra Dam to Ropper Barrage	51/8282	24
Ropper Barrage to Harike Barrage	80/128	48
Harike Headworks to Feroze Pur Headworks	40/64	24
Feroze Pur Headworks to Suleimanki Headworks	79/127	72
Suleimanki Headworks to Islam Headworks	121/193	72
Islam Headworks to Punjnad Headworks	149/238	72



4.3 HIGHEST FLOODS

Year	Through Weir (Cusecs)	Through Breaches in flood embankments (Cusecs)	Total (Cusecs)
1955	422000	175000	597000
1988	400000	100000	500000
1947	360000	NIL	360000
1950	332000	NIL	332000
1942	325000	NIL	325000
1943	309000	NIL	309000
1995	302000	NIL	302000

4.4 PEAK DISCHARGE (LAST FIVE YEARS)

Sr.	Year	Discharge in Cusecs.
1	2021	7,212
2	2022	17,876
3	2023	191,053
4	2024	12,578
5	**2025**	**154,219**

CHAPTER – 5

FLOOD FIGHTING STRATEGY

Flood Fighting Strategy is framed for Suleimanki Headworks by keeping in view basic principles mentioned in "*RULES & REGULATION OF SULEIMANKI HEADWORKS*" with main aim / object to pass any quantum of flood safely through barrage. Following flood fighting strategy will be adopted at Suleimanki Headworks.

In low flood, river water remains within the deep channel and does not cause any problem, if regulation of gates is done as per rules. Watching establishment employed for this purpose will remain busy in removing jungle, filling gharas and porcupine holes, if any.

When water increases beyond 80,000 cusecs, it will start spreading on adjoining area. Then it becomes necessary to be vigilant and watching of bunds will be started to avoid any leakage from bunds. Sub Engineers will shift their camps to sites as per duty roaster. Hourly gauges and discharges will be conveyed to Civil Administration and Flood Warning Centers to inform public accordingly

When river water enters into high flood range (1,20,000 CS – 1,75,000 CS) Sub Divisional Officer Headworks will shift his camp at Suleimanki Headworks to supervise staff working on LMB and downstream spurs. In whole period, regulation will be done in such a way that silt deposit in front of canals may be washed downstream of the river. Silt contents in water will be checked thrice a day and if it exceeds the permissible limit, canals will be closed accordingly.

Gauges of different sites especially gauge at Nose of LGB will be noted regularly and recorded. Executive Engineer will inform all agencies especially civil administration as well as Army about flood situation in rising position. In case of very high flood or exceptionally high flood (Beyond 1,75,000 CS), meetings will be held in Executive Engineer's office with Pak Army and Civil Administration to face the situation.

Two dozers will be kept ready at RD 18000 to 18500 RMB for making cuts and closing breaches as and when required according to the circumstances. When gauge at Nose of LGB touches level 575.00 and is found in rising position it will be the duty of Executive Engineer to request Army for operation of breaching section for the safety of Headworks. When water subsides the breaching sections will be closed (If operated) as soon as possible.

The flood water gushing out of the breaching section will immediately start rushing towards South-West and will follow the route marked on the inundation plan. It will over top the Mehtab Gharh Minor which is under the jurisdiction of Executive Engineer, Khanwah Canal Division who would be intimated accordingly. Then the flood water will over top. Suleimanki – Haveli Road (Dehli Multan road) from about 3-KM Suleimanki Headworks up to Jawaya Blouch (16 Km) which will carefully be repaired by Executive Engineer C&W Department. The flood water will flow towards South West and will hit Pakpattan Canal between RD.15000 to 60000 and will move downward. Currently Pakpattan Canal (upper) is under jurisdiction of Executive Engineer, Eastern Bar Division, Pakpattan. Executive Engineer Eastern Bar Division Pakpattan will be intimated about the breach and he will supervise the passage of flood water at over through Pakpattan Canal. The flood water will also enter into the Pakpattan Canal at various places. This Canal will be cut between RD.24-25, RD.29-30 and RD.46-47 to divert the water into the river, along with plugging the Canal at RD.52000 to stop excessive supply following downstream fall RD.52000. If the flood water along right bank of Pakpattan Canal below RD.52000 rises and enters into it. 3-No. additional cuts will be made between Rd.62-63, 67-68 and 99-100 of Pakpattan Canal. For the purpose of breaching Pakpattan Canal three No. dozers will be arranged by the District Administration from the Agriculture Department.

There is densely populated area just downstream side of the Breaching Section. The operation of Breaching Section has to be done very carefully with prior warning to the inhabitants of the area. The breach will severely affect the population and infrastructure coming in way of the water. It will affect village abadies comprising of village and scattered abadies. The cultivated land likely to effect is 80,000 acres (approximately).

The main infrastructure coming in the way and likely to be affected is as under: -

- Main Suleimanki-Haveli (Dehli –Multan) road in 3 Km to 16 Km from Suleimanki Headworks.
- District Roads Networks.
- School.
- Basic Health Unit.
- Telephone Network Nikki Maneki Exchange).
- Pakpattan canal in Reach 5000 to 100000.
- 10-No. Disty / Minor network of Khanwah Canal Division.

CHAPTER – 6

FLOOD DAMAGES RESTORATION WORKS

Flood magnitude of 154219 Cusecs (High Flood) passed during Flood 2025 on 31-08-2025 and following 4 No. damaged were occurred due to continuous flow of River. Three Flood restoration works were taken up in the Suleimanki Headworks Division in 2026 under following:-

Sr.	District (Location)	Flood Nature	Name of Structure Damaged	Infrast-ructure Type	Damage Category	Estimated Cost of Damages	Pictorial Evidence
1	Okara	Riverine Flood	Damage of Rd.13+000 to 23+000 tail of Ratteki disty (Exist in River Bed)	Public	1-No. Partially Damaged	0.944 Million	
2	Okara	Riverine Flood	Damage of Rd.2+000 to 6+400 of 1L- Noor Shah Minor (Exist in River Bed)	Public	1-No. Partially Damaged	0.975 Million	
3	Okara	Riverine Flood	Damage Nose of Malleki Spurs (T Head Spur) RD: 0+000 to 1+200	Public	1-No. Damaged of Nose	98.325 Million	
4.	Okara	Riverine Flood	Damage of abundant Pitched Irland located upstream of Headworks	Public	Fully damaged	No need to restore as this was the cause of Bela Formation.Its restoration is required deep study.	

CHAPTER – 7

FLOOD FIGHTING WATCHING ARRANGEMENTS

7.1 PRE FLOOD ARRANGEMENTS

A flood control center will be established in canal telegraph office Suleimanki and responsible staff will be available round the clock. One base high range wireless set will be installed at canal Telegraph Office, Suleimanki by the Police Department. 2 Nos. mobile Motorola sets of 30-kilometer range will be provided for installing in the vehicles of Executive Engineer, Suleimanki Division NBC, Sub Divisional Officer, Headworks Sub Division, Pakpattan to keep them vigilant all the time.

Three number Mobile wirelesses set (hand set) will be provided under acute emergency during very high flood at different vulnerable points. These arrangements should be made well in time by the telecommunication of Wing Police Department.

All the flood protection and river training works are required to be inspected during the month of May so as to identify weak points and if necessary, after repairing such sites, the certificate regarding hydraulic fitness of bunds is to be submitted. The Flood embankments are inspected by a committee constituted by the Secretary Irrigation Department in May every year. Fitness / health of bunds is ensured before the flood season; keeping in view the priorities are fixed according to resources.

FLOOD WARNING SYSTEM

The flood warning at Suleimanki Headworks is received from Ganda Singh Wala downstream Ferozepur Headworks through wireless installed or otherwise on telephone etc. The flood condition of the dams and Headworks on Sutlej in India is also received through Flood Warning Center Lahore. On receipt of flood warning about the stages of flow below Ferozepur Headworks, the Deputy Commissioner Okara and Army Engineer Battalion will be informed by the Executive Engineer / SDO Suleimanki Headworks to cope with the flood situation close liaison will be kept by the committee members during the flood emergency. The Chief Engineer Irrigation Sahiwal Zone will also be kept informed about the flood constantly.

The flood warning gauges will be received from the following centers: -

- Flood warning center Lahore
- Ganda sing wala

Police wireless control is responsible to collect these gauges 3 hourly in case of high flood and above and 6 hourly in case of low flood to medium flood. These gauges will be conveyed to Irrigation flood warning center at Suleimanki Canal Office and will be supplied promptly to Executive Engineer, Suleimanki.

During rainy / monsoon season, the organization of Suleimanki Division will remain very vigilant throughout the monsoon season. Staff of the Division will be set

on alert during day and night from 15th June to 15th October. The flood / watching camps will be established at vulnerable points.

7.2 WATCHING ESTABLISHMENT

Sr. No.	Structure Name	Length (Miles)	Flood Limits							
			Normal Flood Season		Low Flood		Medium/High Flood		Very High/ Exp. High Flood	
			Beldar	Shift	Beldar	Shift	Beldar	Shift	Beldar	Shift
			1 Person/ 2 mile (1 Shift)		1 Person/ mile (1 Shift)		2 Person/ mile (2 Shift)		5 Person/ mile (3 Shift)	
1	Headworks U/S & D/S Protection Bund Control room at L/S of Barrage	1.80	1	1	2	1	4	2	10	3
2	Left Marginal Bund RD 0 to 47+500 and its allied Spurs	14.14	7	1	14	1	28	2	70	3
3	Right Marginal Bund RD 0 to 63+000 and its allied Spurs	16.11	8	1	16	1	32	2	80	3
4	Jamlera Flood Bund RD 0 to 41+500	8.30	5	1	9	1	16	2	40	3
5	Malleki Spur for the 5-No D/S Spurs	2.26	1	1	2	1	4	2	10	3
Total			**22**		**43**		**168**		**630**	

Mate: 1 No. for every gang of 12 Beldars at all flood ranges.

7.3 ARRANGEMENT AT SENSITIVE SITES

Sr. No.	Structure Name	Length (Miles)	Vulnerable sites		No. of Camps Established Except Vulnerable Points		
					Normal Flood season/ Low Flood	Medium/ High Flood	Very High/Exp. High Flood
			Reach	No. of Camps	15 Miles	7 Miles	5 Miles
1	Right Marginal Bund RD 0 to 63+000 and its allied Spurs	16.11	RD 33+000 to 35+000	1	-	1	2
2	Left Marginal Bund RD 0 to 47+500 and its allied Spurs	14.14	RD 08+000 to 10+000	1	-	1	2
Total				**2**	**0**	**2**	**4**

POSITION OF RESERVE STOCK OF STONE ON EACH RIVER TRAINING COMPONENTS

Quantity in Lac Cft

Sr.	Name Of Structure	Reserve Stock Limit (as per Yard Stick)	Minimum Required 70%	Quantity Available	Balance Quantity Required
1	Dharanga Spur	1.000	0.700	0.360	0.640
2	Station Spur	1.000	0.700	0.580	0.420
3	Suleimanki Spur	0.500	0.350	0.530	-0.030
4	Malleki Spur	0.500	0.350	0.133	0.367
5	Jodheki Spur	0.000	0.000	0.033	-0.033
6	Sujeki Spur	0.500	0.350	0.355	0.145
7	Tulleki Spur	1.500	1.050	0.688	0.812
8	Left Guide Bund Upstream	1.500	1.050	0.990	0.510
9	Left Guide Bund Downstream	1.000	0.700	1.030	-0.030
10	Right Guide Bund Upstream & UPC Right	1.500	1.050	1.010	0.490
11	Right Guide Bund Downstream	1.000	0.700	0.870	0.130
Total		**10.00**	**7.00**	**6.579**	**3.421**

B. CONSOLIDATED STATUS OF RESERVE STOCK OF STONE.

Quantity in Lac Cft

Sanctioned Reserve Stock Limit	Minimum Quantity Required 70%	Available Quantity of Stone	Balance Quantity Required	Remarks
10.0	7.0	6.579	3.421	Balance quantity of reserve stock of stone will be procured before start of flood 2025 6 as this work is taken up and under tendering process.

7.4 WATCHING MATERIAL.

(Minimum requirement of Flood Fighting Materials for Permanent Camp (15 miles)

Sr. No.	Items	Unit	Required Quantity	Available Quantity	Balance Quantity	Remarks
1	Shouldari/Tent	No	01	0	01	A little Quantity of some items of T&P articles is available mostly items has been used during flood 2025 & balance Quantity will be purchased before flood 2026
2	Chairs	No	06	0	06	
3	Table	No	01	0	01	
4	Generator (2-3 KVA)	No	01	0	01	
5	Pedestal Fans	No	01	0	01	
6	Charpois	No	02	0	02	
7	Symbolic Jackets	No	50	0	50	
8	Polyethylene Sheet	Kg	100	0	100	
9	Bamboos (4" dia and 10 ft long)	No	100	0	100	
10	Water Cooler	No	01	0	01	
11	Portable Umbrella	No	02	0	02	
12	Life Jackets	No	05	0	05	
13	Utensils (10 person serving)	No	01	0	01	
14	14. Jute/Plastic bags	No	1000	0	1000	
15	Walkie Talkie Set	Sets	02	0	02	
16	16. Raincoats	No	10	0	10	
17	LED flood light	No	10	0	10	
18	Extension Cable (10 ft)	No	02	0	02	
19	Rechargeable torches	No	20	10	10	
20	Kassi	Kg	20	10	10	
21	Axes	No	20	0	20	
22	G.I. Buckets	No	05	05	0	
23	7/44 cable	Feet	500	0	500	
24	Sutli	Kg	02	0	02	
25	Sewing Needles	No	10	0	10	
26	Emergency Medical Kit	No	1	0	01	
27	Wire crates (3x3x3) (only at those camps near river action and where reserve stock exists)	No	100	0	100	

Minimum requirement of Flood Fighting Material for the Temporary Camp: (7 or 5 miles during medium to exceptionally high flood to be outsourced)

Sr. No.	Items	Unit	Required Quantity	Available Quantity	Balance Quantity	Remarks
1	Shouldari / Tent	No	01	0	01	Balance Quantity will be purchased before flood 2026
2	Walke Talkie Set	Sets	01	0	01	
3	Chairs	No	06	0	06	
4	Raincoats	No	10	0	10	
5	Table	No	01	0	01	
6	LED Flood light	No	10	0	10	
7	Generator (2-3KVA)	No	01	0	01	
8	Extension Cable (10 ft)	No	02	0	02	
9	Pedestal Fans	No	01	0	01	
10	Rechargeable torches	No	20	0	20	
11	Charpois	No	02	0	02	
12	Kassi	No	20	0	20	
13	Symbolic Jackets	No	50	0	50	
14	Axes	No	20	0	20	
15	Water Cooler	No	01	0	01	
16	G.I Buckets	No	05	0	05	
17	Portable umbrella	No	02	0	02	
18	7/44 cable	Feet	500	0	500	
19	Utensils (10 person serving)	No	01	0	01	
20	Sutli	Kg	02	0	02	
21	Jute/Plastic bags	No	500	0	500	
22	Sewing Needles	No	10	0	10	

7.5 ARRANGEMENT OF SOUNDING AND PROBING

In case of any situation on flood protection and River training works, sounding and probing arrangement will be made for which proper equipment is already available in this Division.

7.6 LIGHTING ARRANGEMENT

All the gates of the barrage and off-taking canals have electrically operated Local Control Panels in addition to the Provision of Mechanically operation which is provided under the Rehabilitation and Up gradation Project. The 11 KVA Transmission line have been laid to energize the installation provided at barrage. LESCO – WAPDA will ensure proper power supply to the headwork. A well-equipped squad of electrician will be directed to be present at Headworks for maintaining the proper lighting arrangement and to deal with any emergency related to the eclectic supply at the barrage.

Lighting arrangement is in good condition, 2 No. 50 KVA generators are also available to cope with the load shedding problem. Revolving lights are installed and lights are fixed on the gauge wells.

7.7 RATION ARRANGEMENT

The area along right side of River Sutlej entering from Ganda Sing wala to Suleimanki Barrage falls in two District, i – Kasur, ii- Okara. In case of high flood in River Sutlej a separate plan will be prepared by the concerned Distract Administration and Food department will mobilize their sources for supplying food for Human and cattle population.

Whereas, cooked food will be supplied to the on duty beldars and canal employees at site by this division.

7.8 POL ARRANGEMENT FOR VEHICLE

P.O.L facilities / arrangement of the Irrigation Officers on flood duties will be made by this division on necessity basis whereas POL of officers performed flood duties other than Irrigation Department will be arranged by Civil Administration.

7.9 TRANSPORTATION

Transportation facilities will be provided by the Civil Authorities

7.10 LAW AND ORDER

Law and order situation will be tackled by the Civil Administration with the help of Police Department.

7.11 MEDICAL ARRANGEMENT FOR LABOUR

Health Department will be responsible for mobilizing their sources for carrying out necessary operation for providing medical facilities to the labour performing flood

duties. Civil Administration will ensure medical facilities through Health Department at Suleimanki Headworks for the employees performing flood duties.

7.12 LIAISON WITH OTHER DEPARTMENT

The Executive Engineer, Suleimanki Division, Suleimanki will perform following functions within his administration jurisdiction.

- Periodic review of structural integrity of flood infrastructure over river Sutlej in order to ensure that no breach occurs in the event of heavy discharge of water. The Executive Engineer will share his observation with his supervisory officer as well as District Administration, well before on set of Flood season for necessary action to be taken accordingly.
- Identification of vulnerable points on river training works and flood protection works where breach may occur and specification of locations for positioning of requisite machinery / material near the vulnerable points.
- Maintenance and repair to flood protection and river training works infrastructures.
- Joint inspection of Flood protection infrastructure with District Administration.
- Collection and sharing of information regarding discharge in Sutlej, with the Military Authorities as well as District Administration on daily basis.
- Collection of information on discharge, from monitoring check points on River Sutlej as well as control center at Suleimanki.
- Improvement of existing instruction / gauges used for determination of water discharge (Cusecs) in Sutlej.
- Development of more effective early warning system.
- Liaison with flood forecasting center Lahore for collection of flood related information.
- Briefing of authorities concerned on Flood protection arrangements and development of an integrated departmental strategy, to be able to combat any situation during Floods.
- Stock piling of essential articles to combat any flood related contingency and arrangements of sufficient funds beforehand, for such purposes.
- Arrangements of labour along with machinery / equipment's for proper maintenance of the vulnerable pints on flood protections arrangements.

- ❖ Identification of points on road or otherwise, where breaches / cuts are required to be made to further facilitate discharge of water in order to avert larger catastrophe.
- ❖ Ascertainment of extent of damage caused to the protection bunds and other installation after flood water subsides.
- ❖ Initiation of criminal proceeding against elements involved in will full breach in flood protection arrangements on any canal, with consent of competent authority.
- ❖ Assistance and coordination with other departments for providing early relief to the public in emergency situation.

7.13 ROLE OF ARMY

During flood emergency, Deputy Commissioner, Okara in consultation with Executive Engineer, Suleimanki will inform 4-Corp Engineer Regiment Lahore about flood situation. Upon intimation, 4-Corp Engineer Regiment Lahore along with District Administration will perform activities to flood fight ~~flood~~ emergency during flood 20256.

7.14 DUTIES OF TELEPHONE ATTENDANT

The duty of telephone attendant is to apprise the Department / Civil Administration about the flood situation during the rain / flood season i.e. 15.06.20256 to 15.10.20256.

7.15 WIRELESS ARRANGEMENTS

Wireless system / arrangement will be made for the vehicles under use of Officers of Suleimanki Division of Nili Bar Circle during the period of 15 June 20256 to 15 October 20256.

CHAPTER – 8

DETAIL OF ENCROACHMENT

There is no encroachment on flood protection works and river training works as well as water ways in the jurisdiction of Suleimanki Headworks Division to hinder the movement of flood fighting machinery on or along the flood protection structures during any flood emergency.

Type of Encroachments	Total No of Encroachments	Encroachments Removed	Balance to be Removed	Action to be taken
Ordinary	NIL			
Critical	NIL			

CHAPTER – 9

DUTY ROSTER / FLOOD FIGHTING PROGRAMME

Duty establishment required for watching arrangements in 3 shifts round the clock will be under the control of in-charge Sub Engineer Station, Headworks Section & Mechanical Section. Sub Divisional Officer Headworks and Pakpattan will be overall in-charge and will exercise surprise check in their respective jurisdiction.

A. HEADWORKS UPSTREAM/DOWNSTREAM PROTECTION BUND

Flood Level	No. of Camps	Camp Location	Duty of Officer	Duty of Official	No of Shifts / Time
Control Room at left side of barrage for U/S & D/S protection bunds (1.80)					
Normal Flood	1	Control Room	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 1-No & Regulation staff.	1 Shift
Low Flood	1	Control Room	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 2-No & Regulation staff.	1 Shift
Medium Flood / High Flood	1	Control Room	Muhammad Riaz Executive Engineer 0302-3750100 Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 4-No & Regulation staff.	2 Shift
Very High Flood / Exceptionally Flood	1	Control Room	Muhammad Riaz Executive Engineer 0302-3750100 Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 10-No & Regulation staff.	3 Shift

B. LEFT MARGINAL BUND AND ITS ALLIED SPURS

Flood Level	No. of Camps	Camp Location	Duty of Officer	Duty of Official	No of Shifts / Time
Left Marginal Bund RD 0+000 to 47+500 and its allied spur (14.14 Mile)					
Normal Flood	1	LMB RD 10+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 7-No & Regulation staff.	1 Shift
Low Flood	1	LMB RD 10+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 14-No & Regulation staff.	1 Shift
Medium Flood / High Flood	2	LMB RD 10+000 LMB RD 20+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 2-No. Beldar = 28-No & Regulation staff.	2 Shift
Very High Flood / Exceptionally Flood	3	LMB RD 10+000 LMB RD 20+000 LMB RD 35+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 6-No. Beldar = 70-No & Regulation staff.	3 Shift

C. RIGHT MARGINAL BUND AND ITS ALLIED SPURS

Flood Level	No. of Camps	Camp Location	Duty of Officer	Duty of Official	No of Shifts / Time
Right Marginal Bund RD 0+000 to 63+000 and its allied spur (16.11 Mile)					
Normal Flood	1	RMB RD 18+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 8-No & Regulation staff.	1 Shift
Low Flood	1	RMB RD 18+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 16-No & Regulation staff.	1 Shift
Medium Flood / High Flood	2	RMB RD 18+000 RMB RD 35+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 3-No. Beldar = 32-No & Regulation staff.	2 Shift
Very High Flood / Exceptionally Flood	3	RMB RD 18+000 RMB RD 35+000 RMB RD 55+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 7-No. Beldar = 80-No & Regulation staff.	3 Shift

Note:-

* Executive Engineer Suleimanki is over all In-charge of the whole operation during very high and exceptionally high flood.
* All the Sub Engineer will perform their duties assigned above along with their establishment with necessary T & P.
* However the duties of remaining Sub Engineers with their establishment would be called any time any where and at any point as desired and required by the SDO's In-charge under intimation to Executive Engineer Suleimanki the In-charge of whole operation.
* Payment for work charge employees subject to verification by Third Party Monitoring / Departmental Committee.

CHAPTER – 10

EMERGENCY TELEPHONE NUMBERS

Sr. #	Name of Officers	Office	Residence
1	Secretary Irrigation Department Lahore	042-99212117 042-99212118 Fax-042-99212116	042-99200954
2	Deputy Secretary Operation Irrigation Lahore.	042-99112127	042-9212129
3	Chief Monitoring (PMIU) Lahore.	042-99213595 042-99213597	Toll Free No. 0800-11333
4	Chief Engineer Drainage & Flood Lahore	042-99230602	
5	Head / Project Director, PMO Punjab Barrages, Lahore.	042-99250351-52	-
6	Chief Engineer Irrigation Sahiwal.	040-9200221	-
7	Chief Engineer Irrigation Multan.	061-9200144	
8	Chief Engineer Irrigation Bahawalpur	0621-9250333	0621-9250334
9	Director Technical, PMO-Punjab Barrages, Lahore.	042-99250343	
10	Superintending Engineer Nili Bar Circle, Sahiwal.	040-9200217	040-9200216
11	Director Flood Lahore	042-99231614	
12	Deputy Director Flood Lahore	042-99230282	
13	Flood Warning Center Lahore.	042-99205157	042-99205158
14	Flood Control Center Okara.	044-9200251	044-9200251
15	Executive Engineer Suleimanki. (Muhammad Riaz)	0333-8082206	0302-3750100
16	Executive Engineer Balloki	049-4610300	
17	Executive Engineer Eastern Bar Division Pakpattan.	0457-373878	
18	Executive Engineer Western Bar Division Thingi.	067-3788114	
19	Executive Engineer Sadiqia Division	0631-9240223	
20	Executive Engineer Fordwah Division Bahawalnagar:	0631-9240225	
21	Sub Divisional Officer Suleimanki Headworks. (Syed Qasim Raza)		0313-3356484 0311-3356484
22	Sub Divisional Officer Pakpattan. (Syed Qasim Raza)		0313-3356484 0311-3356484
23	Sub Engineer, Headworks. (Sohaib Mushtaq)		0346-4880096
24	Sub Engineer, Station. (Shoaib Anwar)		0301-7998773

DISTRICTS ADMINISTRATION

Sr.#	Address	Office	Residence
1	Commissioner Sahiwal Division	040-9200491 Fax-040-9200492	
2	Deputy Commissioner Okara	044-9200025 044-2521925	044-9200144
3	Deputy Commissioner Pakpattan	0457-374198	0457-373033
4	District Officer Revenue Okara	044-9200025	044-9200027 044-9200028
5	Deputy District Officer Revenue Depalpur.	044-4540425	044-4542601
6	District Police Officer Okara.	044-9200351	044-9200352
7	District Police Officer Pakpattan.	0457-374016	0457-374265
8	District Police Officer Bahawalnagar	0631-73723	0631-74724 0631-73723
9	Deputy Commissioner Vehari	067-3363488	067-3362122
10	Deputy Commissioner Bahawal Nagar	0631-9240201-02	0631-9240203
11	NTO Dealing Official D.C Office Okara	0322-6943840	
12	RESCUE	1122	

CHAPTER – 11

STANDARD OPERATING PROCEDURE (SOP) FOR BREACHING SECTION

11.1 HISTORY OF THE BREACHING SECTION

During 1955 an unprecedented flood was experienced when 4.22 Lac Cusecs passed through the weir at R.L. 572.50 against a designed H.F.L of 572.0. Flood levels along marginal bunds exceeded the designed limits and the Bunds failed and caused huge devastation. During 1955 flood the RMB. Breached at RD 20 and the area pocketed by Shahamad disty, Pakpattan Canal and RMB was inundated. About 14 No. breaches / cuts occurred on Pakpattan Canal and the water was disposed off into the Sutlej River. During 1973 only a medium flood was experienced which did not cause any damage to the Headworks and other river training works except that the reach RD 17-25 of RMB was hit as usual. In case of higher floods, RMB breach in reach RD 30-63, the inundation is expected up to the left bank of lower Sohag Branch.

To keep the damages due to inundation minimum the breaching section is required to be relocated for passing extra discharge. For this purpose, the site at R.D. 18+000-18+500 R.M.B has been finally approved. It is decided that a cut will be made at R.D 18+000 of R.M.B when water level attained the value of R.L 575.00 and river is rising at upstream nose of LGB or discharge through the weir exceeds 3.25 Lac Cusecs whichever occurs earlier.

About 500 ft. Length of bund will have to be cut for releasing discharge of about 50,000 Cs as per calculation given below:

N.S.L. at RD 16	572.00
N.S.L. at RD 18	571.00
N.S.L. at RD 20	568.00
N.S.L. at RD 22	570.00
Average N.S.L.	569.00
H.F.L. at RD 18	580.60
Depth of water	-11.60

Mean velocity of flow in high flood-6.0 ft. per second

Q = A x V or 50000 = A x 6

A = 50000/6 = 8333

Area of Flow	=8333 ft^2
Average Depth of Breach	=11.6 ft
Width of Breaching Section required	=8333/11.6
	=720 ft

The water will go back to the river along the route shown on the plan. Pakpattan Canal will be cut between R.D 25-50 to lead the water to Sutlej River. Every 1000 ft. of cut in Pakpattan Canal will pass 2000 Cs. Suitable heading up will be arranged in Pakpattan Canal at bridge R. D 34100, 43000 and 52000 to minimize the damages to Pakpattan Canal of the main line R.D.18 RMB, and U/s nose of LGB will be connected with Headwork by telephone for prompt: communication of information about water levels and action regarding mark a cut. The possibility of connecting Jawaya Baloch or Shahamad disty with Pakpattan Canal to avoid large scale inundation needs to be explained.

The following in addition that will be strictly observed by all concerned that are connected with the maintenance and operation of the Headworks and the marginal bunds.

* The Executive Engineer or the Sub Division Officer whoever is present at site will be required to make the cut at the proposed site as soon as the flood level reaches the approved critical level at specified control site along the L.G.B. provided the river is expected to raise further.

* The deputy Commissioner or his representative is to be informed about the intended relief cut for the timely evacuation of people from the area to be affected.

* The Executive Engineer and his higher Officers will have the discretion to make relief cuts anywhere if so, required for the safety of the Barrage and the Marginal Bunds. Particularly the L.M.B. but in all cases, the Deputy Commissioner or his representative in to be informed about intended relief cut/cuts/for the purpose of evacuation.

* The length of cuts proposed to be made in R.M.B. should cater for the extra discharge to be passed through them.

* Explosives should be made for the maximum length of the cuts that may have to be made if the record flood was to repeat itself. For this the concerned Army authorities are being approached to arrange the requisite amount of explosive and keep the same ready for blowing up the bund at the appropriate moment.

Minimum Machinery Requirements at Breaching Section

At each breaching section, there should be an arrangement of two (2) excavators, one (1) dozer, and three (3) dumpers at exceptionally high flood levels.

Recommendations for Operation During Flood

I. The Superintendent Engineer (SE) will notify all vulnerable points on the recommendations of the Executive Engineer's (XEN) and if the vulnerable site falls within 15 miles of the embankment, then a camp will be established at the vulnerable site.

II. The Superintendent Engineer shall allow the deputation of one (1) excavator and four (4) trolleys during low flood at camps/vulnerable points and LMB/RMB.

III. The Superintendent Engineer (SE) shall approve one additional shift during low to high flood based on site necessity, but shall clearly mention the range where the additional shift is allowed.

IV. For emergency situations when very high flood levels are reached at lower flood discharges, additional camps may also be established with the approval of the Superintendent Engineer.

V. The concerned division shall procure flood fighting material as required by seasonal flood fighting camps.

VI. Jackets with the official employees of the PID should be purchased by the concerned division for use during the worst-case scenario, i.e. for exceptionally high flooding.

VII. All other camps and supplies, along with establishment personnel, i.e., Beldars and mates, shall be outsourced before the flood season for operational efficiency during flood fighting activities.

VIII. The above-mentioned yardstick of human resources includes 100% of the division's regular flood establishment at normal and low flood levels, and 50% of the division's total regular establishment and backup division for medium and above-average flood situations, as specified in the Flood Fighting Plan.

IX. The trigger point upstream of a canal division for commencing preparations shall be mentioned in the flood fighting plan and shall be such a point upstream with a lag time of 3 days/72 hours. The division shall initiate preparations corresponding to the discharge magnitude expected to be received at their jurisdiction with respect to discharge at trigger point with 2025 flood data.

X. Superintending Engineers shall approve additional resources above the approved FFP on the recommendations of the Executive Engineer based on site necessity, with a copy to TPM and the respective Chief Engineer, but must mention the scope and justify the reason for additional resources in the approval.

XI. Executive Engineers (XEN) shall decide the location and relocation of flood camps.

XII. The machinery mentioned above should be hired to remain on standby 24/7 to combat any extreme situation. The operation of deployed machinery during normal situations shall require prior approval from the Superintending Engineer.

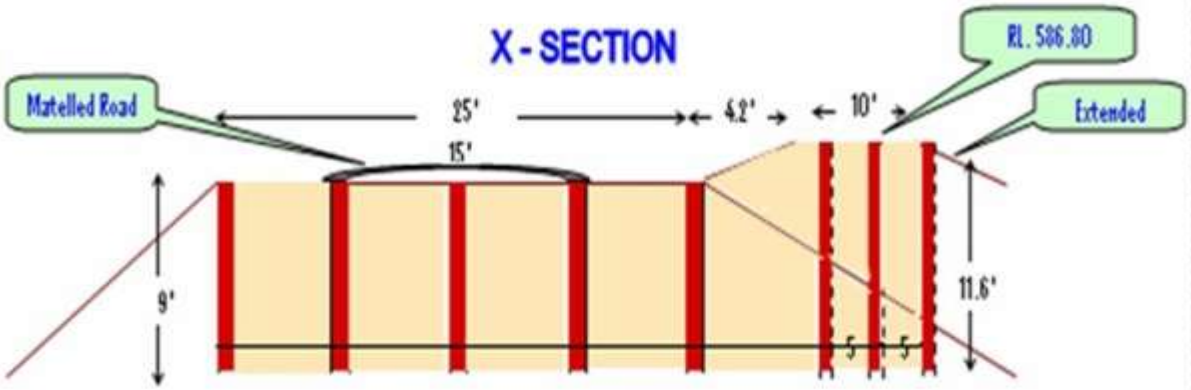
XIII. Communication means must be arranged through the Government. It is recommended to allocate a unique frequency for the irrigation department.

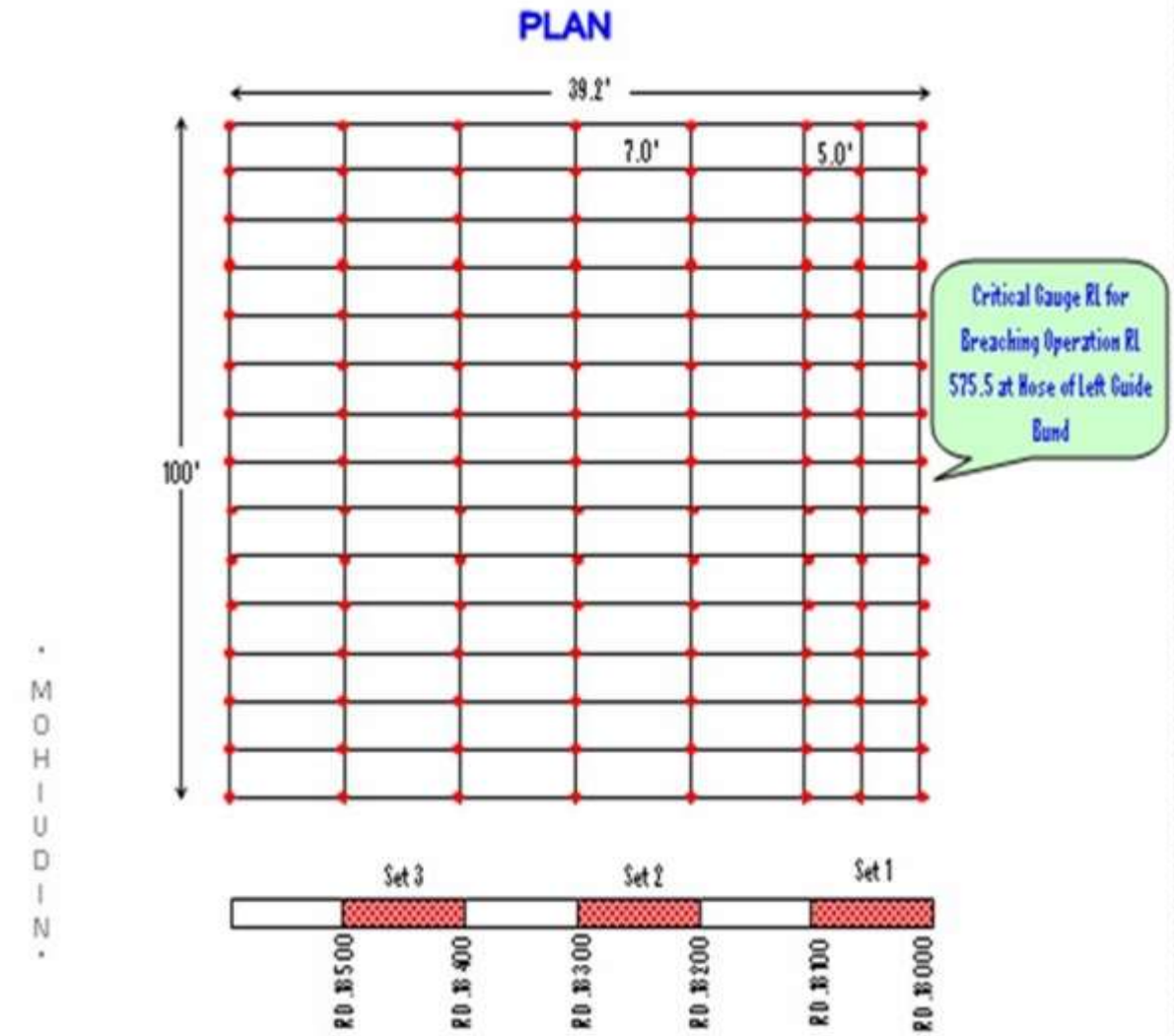
XIV. In the event that water levels reach the 'High Flood' threshold, even if the recorded discharge remains below established benchmarks, all field preparations and personnel deployments must immediately escalate to Critical Level protocols.

11.2 LOCATION, DESIGN, QUANTITY AND VARIETY OF THE EXPLOSIVE REQUIRED FOR DETONATION.

Location of breaching section is located at RD.18000-18500 of Right Marginal Bund of Suleimanki Head Works.

OPERATIVE PLAN OF BREACHING SECTION AT RD. 18+000 TO 18+500 RIGHT MARGINAL BUND OF SULEIMANKI HEADWORKS





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QUANTITY AND VARIETY OF THE EXPLOSIVE REQUIRED FOR DETONATION

The explosive store is situated in canal colony Suleimanki near by Pak Army cantonment at distance of 5-Km from breaching section. The explosive articles lying in the explosive store of Suleimanki Headworks are as under:-

Sr.	Article	Unit	Required Qty	Available Qty	Balance Qty	Location
1.	Wabox 80%(23+32mm)	Kg	4416	--	4416	Canal Colony Suleimanki
2.	Wobonite	Kg	7481	7481	--	
3.	Wabo Card	Meter	6850	6850	--	
4.	DET No 8 Electric	No.	53	53	--	
5.	M.S Electric Delay D.T	No.	12	12	--	
6.	Safety fuse	Meter	322	322	--	
7.	Det No 8 plan I & II	No.	53	53	--	
8.	Det No. 8/33 Elec	No.	12	12	--	
9.	E-I Cable	Meter	1980	1980	--	
10.	Electric Detonator 25 Millisecond	No.	10	10	--	
11.	Det instant	No	158	158	--	
12.	Det 25 Micro	No.	80	80	--	
13.	Explosive PE 3A	Kg.	10133	9981	-152	
14.	CE Primer		360	--	-360	

NOTE:

As discussed with the Army Officers, there is already sufficient quantity of explosive material and accessories available at Suleimanki and there is no further need of explosive to be procured for purpose of breaching operation.

11.3 ARRANGEMENTS OF EXPLOSIVE AND SECURITY OF EXPLOSIVE STORES

The explosive material for activation of breaching section of Suleimanki Headworks is lying in the explosive store in Canal Colony Suleimanki. At the time of activation of breaching section, 4-Core Regiment Lahore. Pak Army is responsible to mobilize the explosive from explosive store to breaching section site and fix in the boring holes of breaching section according to their procedure. 2-No. security guards are employed (on work charge basis) as requirement of Pak Army Authorities and 2-No regular departmental persons are deputed on the explosive store for security purpose round the clock.

11.4 LIST OF THE SECURITY STAFF ALONG WITH DETAIL OF THEIR TRAINING etc.

The explosive store is being watched round the clock through regular/work charge establishment and they are trained as per instructions received from time to time in this behalf. The explosive store is situated in the boundary of Pak Army Cantt: Suleimanki and the departmental staff is also deployed at explosive store for watching under the supervision of Army Formations.

11.5 DETAIL OF MECHANICAL MEANS AS A STANDBY ARRANGEMENTS IN CASE OF DETONATION FAILURE

Two No. Dozers will be kept ready as stand by arrangement for breaching Right Marginal Bund at the breaching site. 50-No. Kassi labours will also help for speedy operation and activation of the breaching section. The Dozers will be arranged through requisition from the Agriculture Department Distt: Okara and labour will be hired locally. In addition, 3-No. Dozers will be kept ready for breaching of Pakpattan Canal at different sites from RD. 24 to 25.

11.6 DUTY ROSTER IN CASE OF CRITICAL SITUATION

A. HEADWORKS UPSTREAM/DOWNSTREAM PROTECTION BUND

Flood Level	No. of Camps	Camp Location	Duty of Officer	Duty of Official	No of Shifts / Time
Control Room at left side of barrage for U/S & D/S protection bunds (1.80)					
Normal Flood	1	Control Room	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 1-No & Regulation staff.	1 Shift
Low Flood	1	Control Room	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 2-No & Regulation staff.	1 Shift
Medium Flood / High Flood	1	Control Room	Muhammad Riaz Executive Engineer 0302-3750100 Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 4-No & Regulation staff.	2 Shift
Very High Flood / Exceptionally Flood	1	Control Room	Muhammad Riaz Executive Engineer 0302-3750100 Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 10-No & Regulation staff.	3 Shift

B. LEFT MARGINAL BUND AND ITS ALLIED SPURS

Flood Level	No. of Camps	Camp Location	Duty of Officer	Duty of Official	No of Shifts / Time
Left Marginal Bund RD 0+000 to 47+500 and its allied spur (14.14 Mile)					
Normal Flood	1	LMB RD 6+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 7-No & Regulation staff.	1 Shift
Low Flood	1	LMB RD 6+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 14-No & Regulation staff.	1 Shift
Medium Flood / High Flood	2	LMB RD 6+000 LMB RD 20+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 2-No. Beldar = 28-No & Regulation staff.	2 Shift
Very High Flood / Exceptionally Flood	3	LMB RD 6+000 LMB RD 20+000 LMB RD 35+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 6-No. Beldar = 70-No & Regulation staff.	3 Shift

C. RIGHT MARGINAL BUND AND ITS ALLIED SPURS

Flood Level	No. of Camps	Camp Location	Duty of Officer	Duty of Official	No of Shifts / Time
Right Marginal Bund RD 0+000 to 63+000 and its allied spur (16.11 Mile)					
Normal Flood	1	RMB RD 18+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 8-No & Regulation staff.	1 Shift
Low Flood	1	RMB RD 18+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 16-No & Regulation staff.	1 Shift
Medium Flood / High Flood	2	RMB RD 18+000 RMB RD 35+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 3-No. Beldar = 32-No & Regulation staff.	2 Shift
Very High Flood / Exceptionally Flood	3	RMB RD 18+000 RMB RD 35+000 RMB RD 55+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 7-No. Beldar = 80-No & Regulation staff.	3 Shift

D. JAMLERA FLOOD BUND AND MARI AMB FLOOD BUND.

Flood Level	No. of Camps	Camp Location	Duty of Officer	Duty of Official	No of Shifts / Time
Jamlera Flood Bund RD 0+000 to 41+500 (8.30)					
Normal Flood	1	Jamlera RD 12+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 5-No & Regulation staff.	1 Shift
Low Flood	1	Jamlera RD 12+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 9-No & Regulation staff.	1 Shift
Medium Flood / High Flood	1	Jamlera RD 12+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 2-No. Beldar = 16-No & Regulation staff.	2 Shift
Very High Flood / Exceptionally Flood	2	Jamlera RD 12+000 Jamlera RD 30+000	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 4-No. Beldar = 40-No & Regulation staff.	3 Shift

11.7 BREACHING COMMITTEE WITH THEIR ACTION PLAN

The breaching committee notified by the Secretary Irrigation (Section Officer Floods), Notification No. SO (FLOODS) VI-33/97 dated 15th July 2015. Comprising of the following persons:

a. Responsibility for the maintenance and operation section shall rest upon the department owning the structure at which the breaching section is located.

b. Breaching section shall be operated on the orders of following committee: -

i.	Deputy Commissioner, Okara	Convener
ii.	Deputy Commissioner, Bahawalnagar & Pakpattan	Member
iii.	Executive Engineer Suleimanki Division	Member
iv.	Executive Engineer C&W Department	Member
v.	Executive Engineer Eastern Bar Division Pakpattan	Member
vi.	L.T. Colonel Pak Army	Member

c. The decision to operate a breaching section shall be taken by the committee keeping in view the technical advice of the Executive Engineer concerned of the Irrigation department. In case of any difference of opinion among the members, the final decision shall rest with the Deputy Commissioner.

d. In case of unavailability of the Deputy Commissioner or his inability to take decision, or in case of a difference of opinion between the Deputy Commissioner of the district in which the breaching section is located and the district which is likely to be affected by the operation of the breaching section, the decision to operate a breaching section shall be taken by the respective Commissioner.

e. Breaching section shall be operated when one or more of the following conditions are met: -

   i. The discharge capacity of the structure for which breaching section is located is exceeded and the safety of structure is threatened.

   ii. The critical gauge as indicated in the relevant Flood Fighting Plan is achieved or exceeded and is rising.

   iii. The safety of major population center-(s) is threatened due to high flood levels and in view of the Executive Engineer concerned of the Irrigation Department, operation of breaching section can help in reduction of flood levels.

f. Where, in view of the Executive Engineer concerned of the Irrigation department or the representative of the department owning the structure at which the breaching section is located, the aforesaid criteria is expected to be met after due consideration of all available technical and hydrological conditions, the aforesaid committee may operate the breaching section before the critical gauge is achieved or exceeded. In every such case, the view of the Executive Engineer concerned of the department or the representative of the department owning the structure shall be expressed in writing and shall be based on flood forecast by Pakistan Meteorological Department or other reliable sources, the trend of discharge in the relevant river at upstream locations, the lag times, estimated attenuation and expected inflows form tributaries, nullahs and streams on-route. Where advance breaching is planned, the committee may also consult professional experts and seek advice from the Superintending Engineer or Chief Engineer concerned of the Irrigation Department.

g. Breaching section shall be operated by the 4-Corp Engineer Regiment Lahore deputed by the Engineering-in-Chief Pakistan Army as indicated in the Flood Fighting Plan. Explosive method shall be preferred method for operation of breaching section. However, the department owning the structure on which the breaching section is located and in case of their failure to do so, Irrigation Department shall make available, in advance, necessary earth moving machinery and other equipment for affecting the breach through mechanical means in the shortest possible time.

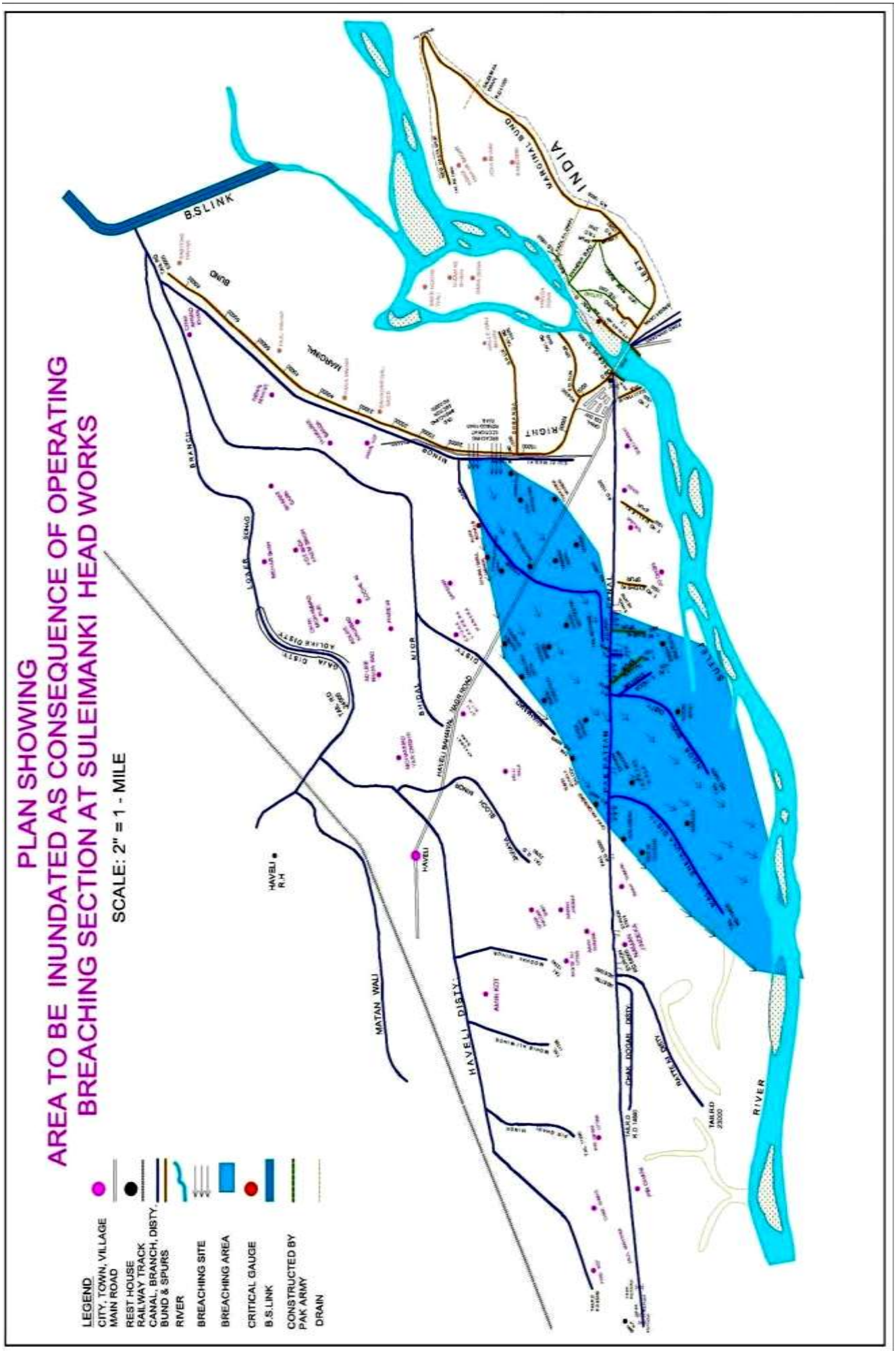
h. The Deputy Commissioner concerned and all other relevant agencies shall ensure all necessary arrangements for the safety and if required evacuation of population likely to be affected by the operation of breaching section.

11.8 LIST OF THE VILLAGE LIKELY TO BE INUNDATED IN CASE OF BREACH

Sr.#	Name of village	Population	Detail of Infrastructure		
			Boys School	Girls School	Health Center
1	Waso Salam Ka	1121	-	1	-
2	Sujeke	1300	1	1	-
3	Mallay Kay	898	-	-	-
4	Judhe ke	921	-	-	-
5	Dona Mathela Salam Ka	735	-	-	-
6	Kutab Saru	535	1	1	-
7	Qila Bhagela	315	-	-	-
8	Nathu Kay Abdal	1300	1	1	-
9	Kund Sardar Propia	325	-	-	-
10	Walla Sheikhu Ka	540	1	-	-
11	Tali Jamal	920	1	-	-
12	Sharin Rohela	950	-	-	-
13	Rakh Abdal kay	530	-	-	-
14	Abdal Kay	510	1	-	-
15	Daraz Kay	450	-	-	-
16	Nama Jinde Ka	1600	1	1	1
17	Kund Ameer Singh	300	-	-	-
18	Qaim Jinde Ka	1100	1	1	1
19	Rakh Thakra	1325	1	1	1
20	Mallu Sheikhu Ka	1112	1	-	-
21	Ezzat Kay Kala	750	-	-	-
22	Molia Chisti	1120	1	1	1
23	Noor Shah	840	-	-	-
24	Mohib Ali Utaar	1525	1	1	1
25	Ratte Kay	850	1	1	-
26	Chor Mahtam	450	-	-	-
27	Sojan Singh Wala	500	-	-	-
28	Lalu Guddar	560	1	-	-
29	Chak Lalu	360	-	-	-
30	Mahar Sona	300	-	-	-

31	Mohammad Yar Chisti	200	-	-	-
32	Gunj Bukhsh Sani	220	-	-	-
33	Thakar Kay Manga	320	1	-	-
34	Kund Thakar Kay Jagvera	370	1	-	-
35	Dara	340	1	-	-
36	Chak Dara	320	-	-	-
37	Kandar Kay	150	1	-	-
38	Jhangar	120	-	-	-
39	Pana Mahar	1200	1	1	-
40	Jamsher Mahar	750	-	-	-
41	Ali Kay	850	1	1	-
42	Dullay Kay Mahar	750	1	-	-
43	Qasim Kay Mahar	620	-	-	-
44	Nehal Mahar	525	1	1	-
45	Ali Kay Rohela	630	-	-	-
46	Moazzam	300	-	-	-
47	Menay Wali	350	-	-	-
48	Sattia Jhangar	150	-	-	-
49	Bhai Khan	480	-	-	-
50	Gunj Bukhsh Bodla	150	-	-	-
51	Ameera Tejay Ka	160	1	-	-
52	Thakar Kay Banda	600	1	-	-
53	Dharanga	5500	3	1	--
54	Nikki Maneki	980	1	1	1
55	Mehtab Garh	1200	1	1	--
56	Rakh Bholewal	300	--	--	--
57	Bholewal	1100	1	1	Union council
58	Churra Maneka	1500	1	1	--
59	Mahnant Darshan	1183	1	1	1
60	Mathela Bhidal	1551	1	1	--
61	Bukan Guddar Ka	738	1	1	--
62	Bhidal Uttar	2829	1	1	--
63	Chak Devi Datta	200	--	--	--
64	Rakh Jawaya Blouch	335	--	--	--
65	Bula Chisti	933	1	1	--
66	Kalu Wah	915	1	1	--

67	Noor Shah	833	1	1	--
68	Wan Nama Jindeka	448	--	--	--
69	Mohib Ali Uttar	2763	1	1	--
70	Pir Ghani	8038	1	1	1
71	39/Sp	3365	1	1	--
72	Frid Kot	3100	1	1	--
73	Rakh Abdal Ky	709	1	1	--
74	Izzat ky kala	763	1	1	--
75	Molia Chisti	965	1	1	--
76	Nama Jindeka	523	1	1	--
77	Billi Mar	908	1	1	--
78	Chak Dogar	818	1	1	--
79	Jalil Maneka	1500	1	1	--
Total		**77594**	**49**	**36**	**8**


PLAN SHOWING
AREA TO BE INUNDATED AS CONSEQUENCE OF OPERATING
BREACHING SECTION AT SULEIMANKI HEAD WORKS
SCALE: 2" = 1 - MILE
LEGEND
CITY, TOWN, VILLAGE
MAIN ROAD
REST HOUSE
RAILWAY TRACK
CANAL, BRANCH, DISTY.
BUND & SPURS
RIVER
BREACHING SITE
BREACHING AREA
CRITICAL GAUGE
B.S.LINK
CONSTRUCTED BY
PAK ARMY
DRAIN
B.S.LINK
INDIA
HAVELI
HAVELI DISTY.
MATAN WALI
RIVER

11.9 ANNOUNCEMENT AND DETAIL OF EVACUATION ARRANGEMENTS

Announcement for activation of breaching section will be made through siren installed in Canal Colony Suleimanki. Announcement will also be made through loud Speakers, Mega Phones etc. in the villages likely to be inundated by flood water. Evacuation will be made through local arrangements by the respective District Government, Army Units & Civil Defense persons. This task will mainly be accomplished by the District Government & Army authorities as the Irrigation staff will be busy in regulation of Headworks and watching of Bunds.

11.10 DETAILS OF COORDINATION WITH CIVIL / PAK ARMY AUTHORITIES

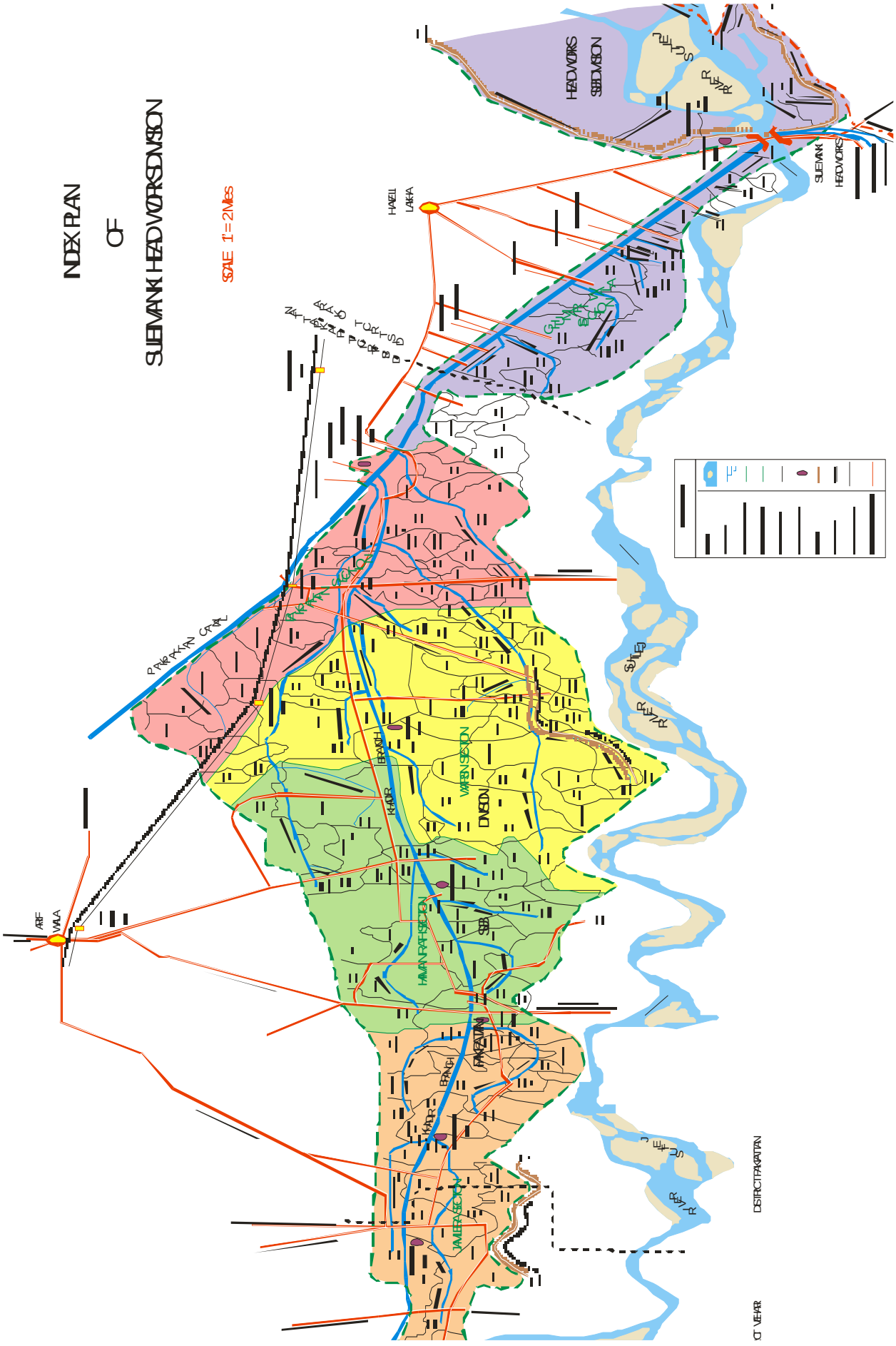
Flood monitoring cell will be maintained in the Executive Engineer office and in DCO office Pakpattan / Okara and the police staff will perform the duty to intimate daily gauges to all concerned authorities and related persons. Now the information through SMS on mobiles will be given to all concerned corner on every critical movement, Irrigation Department Suleimanki Division has a liaison with Army Authorities and Rangers. Engineer Corps of Army also will inform about the bridges and infrastructure condition of bunds / spurs. Meeting with Civil Authorities will be arranged as required and according to flood situation.

11.11 PARALLEL COMMUNICATION ARRANGEMENTS

The communication arrangements will be supplemented through police wireless network installation at various Headworks linked up with flood warning center, Lahore. The communication will help to receive the latest flood situation of all the respective sites. The information will be communicated to the District formation and Army authorities.

Executive Engineer
Suleimanki Headworks Division
Suleimanki

11.12 INDEX PLAN



PART - B

CHAPTER - 12

VULNERABLE SITES ON FLOOD BUNDS / STRUCTURE

12.1 APPREHENDED BREACHES IN FLOOD BUNDS / STRUCTURES.

1. Right Marginal Bund from RD: 33000-35000
2. Left Marginal Bund from RD:8000-10000

} **Vulnerable Sites**

12.2 OPERATION OF BREACHING SECTION.

Operation of breaching section has been discussed in detail in Chapter No.11.

12.3 BREACHES DUE TO RISE OF FLOOD WATER, DETERIORATION OF FLOOD BUNDS.

High Flood experienced during Flood 2025 i.e. 154,219 Cs but there is no breach occurred from flood water. The flood water safely passed from Headworks and all the infrastructures i.e. Flood Bunds as well as Headworks were safe during flood 2025 at Suleimanki Headworks Barrage River Sutlej.

CHAPTER - 13

EMERGENCY CONTINGENCY / PLAN FOR VULNERABLE SITES

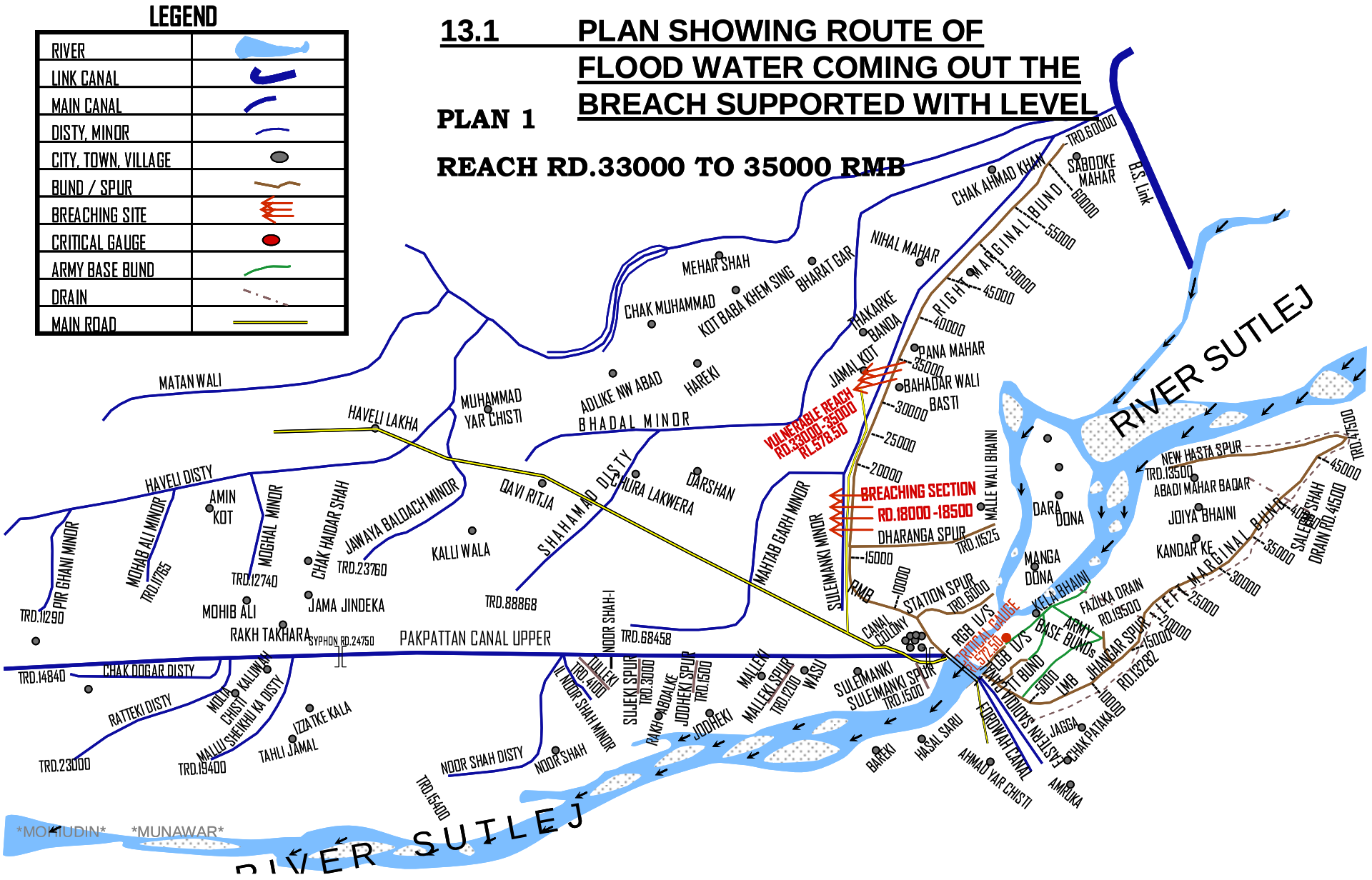
PLAN
A

EMERGENCY CONTINGENCY PLAN FOR VULNERABLE REACH RD. 33000-35000 RIGHT MARGINAL BUND

13.1 PLAN SHOWING ROUTE OF FLOOD WATER COMING OUT THE BREACH SUPPORTED WITH LEVEL

PLAN 1

REACH RD.33000 TO 35000 RMB



13.2 DETAIL OF VILLAGE ABADIES LIKELY TO BE AFFECTED AND THIS ALSO BE SHOWN ON THE PLAN

Pana Mahar, Jamal Kot, Jamal Kot, Bulleh Wal, Gudderke, Kili piran wali, Thakarka Maneki, Stia Jhangha, Dharanga, Alika Rohals, Rakh Bulewal, Mehtab Garh, Meneka Nikki, Gurwala Mehtab Garh, Mathila, Bhidal, Mahant darshan, Maneki, Ghura Ismail Maneki, Ghura Mehtab Rai, Chak Davi Ditta, Bukkan Guddar Ka, Boola Chishti, Rakh Jawaya Baluch, Kaluwah, Noor Shah, Chak Haiderabad, Bareet,

13.3 STRATEGY AND ACTION TAKEN

In case of breach occur in Right Marginal Bund of Suleimanki Headworks alert will be issued to Assistant Commissioner, Depalpur and Executive Engineer, Khanwah Division cuts will be made in road from Haveli to Suleimanki Headworks and Pakpattan Canal Upper to route flood water that to River Downstream of Suleimanki Headworks.

13.3.1 ARRANGEMENTS.

A flood control center will be established in canal telegraph office Suleimanki and responsible staff will be available round the clock. One base high range wireless set will be installed at canal Telegraph Office, Suleimanki by the Police Department. 2 Nos. mobile Motorola sets of 30-kilometer range will be provided for installing in the vehicles of Executive Engineer, Suleimanki Division NBC, Sub Divisional Officer, Headworks Sub Division, Pakpattan to keep them vigilant all the time.

Three No. Mobile wirelesses set (hand set) will be provided under acute emergency during very high flood at different vulnerable points. These arrangements will be made by the telecommunication of Wing Police Department.

13.3.2 ESTABLISHMENT OF FLOOD FIGHTING CAMPS

The Flood Fighting camps will be arranged at RD.33+000 of Right Marginal Bund as per requirements according to flood situation.

13.3.3 DUTIES OF OFFICER / OFFICIALS AND THEIR CAMP SITES

Flood Level	No. of Camps	Camp Location	Duty of Officer	Duty of Official	No of Shifts / Time
Control Room at left side of barrage for U/S & D/S protection bunds (1.80)					
Normal Flood	1	Control Room	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 1-No & Regulation staff.	1 Shift
Low Flood	1	Control Room	Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 2-No & Regulation staff.	1 Shift
Medium Flood / High Flood	1	Control Room	Muhammad Riaz Executive Engineer 0302-3750100 Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 4-No & Regulation staff.	2 Shift
Very High Flood / Exceptionally Flood	1	Control Room	Muhammad Riaz Executive Engineer 0302-3750100 Syed Qasim Raza Sub Divisional officer 0311-3356484	Sub Engr=2-No. Mate = 1-No. Beldar = 10-No & Regulation staff.	3 Shift

Note:-

* Executive Engineer Suleimanki will be the over all In-charge of the whole operation during very high and exceptionally high flood.
* All the Sub Engineer will perform their duties assigned above along with their establishment with necessary T & P.
* However, the duties of remaining Sub Engineers with their establishment would be called any time anywhere and at any point as desired and required by the Sub Divisional Officer In-charge under intimation to Executive Engineer Suleimanki the In-charge of whole operation.

13.3.4 DEPARTMENTAL MACHINERY AVAILABLE

One number Tractor with hydraulic Trolley & One number Tractor with Boozer, 1-No. Hooper-funnel, and 1-No. sand filling machine available.

13.3.5 MACHINERY AVAILABLE FROM PRIVATE SOURCE.

Machinery will be arranged if required from enlisted Government Contractors.
Machinery will be arranged if required from Government Contractors.

Name of Govt. Contractor	Contact Number	Remarks
MS Abdul Waheed	0309-4032020	
Muhammad Iqbal	0300-6940867	
MS Ramzan Enterprises	0300-6896737	
Muhammad Bukhsh Construction Co	0300-6689330	

Attached Contractor Agreement

13.3.6 & 13.3.7 DETAIL OF FLOOD FIGHTING MATERIAL FOR VULNERABLE SITE NO.1 (R.M.B)

Sr.	Item	Unit	Total Required Qty	Available Qty	Balance Qty	Remarks
1	Shouldari / Tent	No	1	1	0	Balance quantity of flood fighting material will be procured before the start of flood season 2026 and material stored in flood fighting store Suleimanki
2	Chairs	No	6	0	6	
3	Table	No	1	0	1	
4	Generator (2.3 KVA)	No	1	1	0	
5	Peddestal Fans	No	1	0	1	
6	Charpois	No	12	6	6	
7	Symbolic Jackets	No	50	0	50	
8	Polyethene Sheet	Kg	100	0	100	
9	Bamboos (4" dia and 10' Long)	No	100	0	100	
10	Water Cooler	No	1	0	1	
11	Portable Umbrella	No	2	0	2	
12	Life Jackets	No	20	20	0	
13	Utensils (10 person serving)	No	1	0	1	
14	Jute / Plastic bags	No	1000	200	800	
15	Walke Talkie Set	Sets	2	0	2	
16	Raincoats	No	10	0	10	
17	LED flood light	No	10	0	10	
18	Extension Cable (10')	No	2	0	2	
19	Rechargeable torches	No	20	0	20	
20	Kassi	No	20	0	20	
21	Axes	No	20	0	20	
22	GI Buckets	No	5	0	5	
23	7/44 Cable	Feet	500	0	500	
24	Sutli	Kg	2	0	2	
25	Sewing Needles	No	10	0	10	
26	Emergency medical kit	No	1	0	1	
27	Wire crates (3x3x3) (at only those camp near river action and reserve stock exists	No	100	0	100	
Previous Material						
28	Khaji Mates	No	0	500	500	

13.4 DETAIL OF OTHER INFRASTRUCTURE LIKE ELECTRICITY, SUI GAS, TELEPHONE INSTALLATION, ROAD NETWORK, OTHER BUILDING, CANAL AND DRAINAGE NETWORK

RIGHT MARGINAL BUND

The following Irrigation and roads networks shall be affected in case of breach on Right Marginal Bund.

DETAIL OF IRRIGATION NETWORK ON RIGHT SIDE

Sr.#	Name of Channel	From RD.	To RD.
1	Shahamid Disty	39000	88868
2	Matab Garh Minor	25000	68458
3	Suleimanki Sub Minor	0	16000
4	Bhidal Minor	0	13000
5	Haveli Disty	18000	65000
6	Jawaya Blouch Minor	8000	23750
7	Mughal Minor	6000	12745
8	Mohib Ali Minor	3000	11765
9	Pir Ghani Minor	2000	11290
10	Musewal Disty		Tail Reach
11	Noor Shah I Disty	0	1500 Tail
12	Noor Shah II Disty	0	15500 Tail
13	Mallushekuka Disty	0	19700 Tail
14	Ratteki Disty	7000	23000 Tail
15	Chack Dogar Disty	5000	14840 Tail

DETAIL OF ROAD NETWORK

Sr. #	Name of Village	Population	Detail of Infrastructure					
			Boys school	Girl school	Health Centers	Tel: Exchange	Misc:	Road
1	Dharanga	5500	3	1	--	--	--	1
2	Nikki Maneki	980	1	1	1	1	--	1
3	Mehtab Garh	1200	1	1	--	--	--	1
4	Rakh Bholewal	300	--	--	--	--	--	1
5	Bholewal	1100	1	1	--	--	U.C.	1
6	Churra Maneka	1500	1	1	--	--	--	1
7	Mahnant Darshan	1183	1	1	1	--	--	1
8	Mathela Bhidal	1551	1	1	--	--	--	1
9	Bukan Guddar Ka	738	1	1	--	--	--	1
10	Bhidal Uttar	2829	1	1	--	--	--	1
11	Chak Devi Datta	200	--	--	--	--	--	1
12	Rakh Jawaya Blouch	335	--	--	--	--	--	1
13	Bula Chisti	933	1	1	--	--	--	1
14	Kalu Wah	915	1	1	--	--	--	1
15	Noor Shah	833	1	1	--	--	--	1
16	Wan Nama Jindeka	448	--	--	--	--	--	1
17	Mohib Ali Uttar	2763	1	1	--	--	--	1
18	Pir Ghani	8038	1	1	1	1	--	1
19	39/Sp	3365	1	1	--	--	--	1
20	Frid Kot	3100	1	1	--	--	--	--
21	Rakh Abdal Ky	709	1	1	--	--	--	1
22	Izzat ky kala	763	1	1	--	--	--	1
23	Molia Chisti	965	1	1	--	--	--	1
24	Nama Jindeka	523	1	1	--	--	--	1
25	Billi Mar	908	1	1	--	--	--	1
26	Chak Dogar	818	1	1	--	--	--	1
27	Jalil Maneka	1500	1	1	--	--	--	--
Total		**43997**	**25**	**23**	**3**	**2**	**0**	**25**

LEFT MARGINAL BUND

The following Irrigation and roads networks shall be affected in case of breach on Left Marginal Bund.

DETAIL OF IRRIGATION NETWORK ON RIGHT SIDE

Sr	Name of Channel	From RD.	To RD.
1	Fordwah Canal	4000	6000
2	Sadiqia Canal	4000	6000
3	Saru Minor	0000	Tail
4	Awami Canal	2000	4000

DETAIL OF ROAD NETWORK

Sr	Name of Village	Population	Detail of Infrastructure					
			Boys school	Girl school	Health Centers	Tel: Exchange	Misc:	Road
1	Bareke	5500	2	1	1	1	--	-
2	Hasal Saru	980	1	1	--	--	--	-
3	Kutab Saru	1200	1	--	--	--	--	-
4	Dona	300	1	--	--	--	--	-
5	Amru ke	1800	1	1	1	--	Union Council	-
6	Chak Pataka	950	1	1	--	--	--	-
7	Ahmad yar Chisti	800	--	--	--	--	--	-
8	Ganj Bukhsh Sani	500	--	--	--	--	--	-
9	Suleimanki	738	1	--	--	--	--	-
10	Awana wali Bhani	2829	1	1	--	--	--	-
Total		**15597**	**9**	**5**	**2**	**1**	**--**	**--**

Note:-

These villages fall in district Bahawalnagar as well as canal network falls in Bahawalnagar Canal Circle of Bahawalpur Zone. Sister Division Sadiqia & Fordwah of Bahawalnagar Circle will assist in case of emergency on Left side.

CHAPTER - 14

ACTION PLAN

14.1 RE-SHUFFLING / RECOUPING PLAN OF RESERVE STOCK OF STONE DEPARTMENTALLY.

Shifting / Recouping of stone as and when required will be done through Government Contractor.

14.2 DETAIL OF INLET AND OUTLET CROSSING ALONGWITH CLOSING METHODOLOGY.

Sr.	Name of Bund / Spur	RD	Outlet / Inlet	Existing position	Closing Methodology
1	Left Marginal Bund	1+575	Inlet	Feeding pondage scheme by Pak Army	Will be closed on receipt of Flood Emergency with regulation karries, groves are provided in the structure
2	Left Marginal Bund	4+500	Inlet	Feeding pondage scheme by Pak Army	Will be closed on receipt of Flood Emergency with regulation karries, groves are provided in the structure
3	Right Marginal Bund	2+500	Tube well Water course crossing	18" dia pipe fixed by Pak Army for feeding fish pond	Will be closed on receipt of Flood Emergency with gunny bags which are available on stock for Flood Fighting Purpose.
4	Right Marginal Bund	4+500	Tube well Water course crossing	12" dia pipe fixed for irrigate to flower garden / grassy plot of rest house, residence of SDO, XEN & Divisional Office.	Will be closed on receipt of Flood Emergency with gunny bags which are available on stock for Flood Fighting Purpose.
5	Right Marginal Bund	6+500	Tube well Water course crossing	18" dia pipe fixed by Pak Army for feeding fish pond	Will be closed on receipt of Flood Emergency with gunny bags which are available on stock for Flood Fighting Purpose.

Sr.	Name of Bund / Spur	RD	Outlet / Inlet	Existing position	Closing Methodology
6	Right Marginal Bund	12+390	Tube well Water course crossing	12" Dia pipe fixed for irrigate to land of land owners.	Closed with earth.
7	Right Marginal Bund	12+500	Tube well Water course crossing	12" Dia pipe fixed for irrigate to land of land owners.	Closed with earth.
8	Right Marginal Bund	13+593	Nikki Nalah culverts	As per departmental design parameters	Closed by force.
9	Right Marginal Bund	14+610	Outlet Water course crossing	12" Dia pipe fixed for irrigate to land of land owners.	Closed with earth.
10	Right Marginal Bund	28+050 Shifted from original 27+935	Outlet Water course crossing	12" Dia pipe fixed for irrigate to land of land owners.	Closed with earth.
11	Right Marginal Bund	40+390	Outlet Water course crossing	12" Dia pipe illegally fixed for irrigate to land of land owners.	Closed with earth.
12	Right Marginal Bund	46+150	Outlet Water course crossing	12" Dia pipe illegally fixed for irrigate to land of land owners.	Closed with earth.
13	Right Marginal Bund	50+340	Outlet Water course crossing	12" Dia pipe fixed for irrigate to land of land owners.	Closed with earth.
14	Right Marginal Bund	57+500	Outlet Water course crossing	12" Dia pipe fixed for irrigate to land of land owners.	Closed with earth.
15	Dharanga Spur	1+040	Nikki Nalah culverts	As per departmental design parameters	It will be opened to release the hydraulic pressure on the bund.

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14.3 DEPLOYMENT OF MACHINERY (NORMAL TO LOW FLOOD)

Sr. No.	Structure Name	Length (Miles)	Excavators	Trolleys	Dumpers	Tractor with Front blade (1 per 15 mile reach)
1	Headworks U/S & D/S Protection Bund Control room at L/S of Barrage	1.80	S.E shall allow deputation of one (1) excavator & four (4) Trolleys during low flood at camps/vulnerable points & LMB / RMB.		-	0
2	Left Marginal Bund RD 0 to 47+500 and its allied Spurs	14.14			-	1
3	Right Marginal Bund RD 0 to 63+000 and its allied Spurs	16.11			-	1
4	Jamlera Flood Bund RD 0 to 41+500	8.30			-	0
5	Malleki Spur for the 5-No D/S Spurs	2.26			-	0

DEPLOYMENT OF MACHINERY (MEDIUM TO HIGH FLOOD)

Sr. No.	Structure Name	Length (Miles)	Excavators	Trolleys	Dumpers	Tractor with Front blade
			1 per 7 mile reach	4 per 7 mile reach	2 per 7 mile reach	1 per 7 mile reach
1	Headworks U/S & D/S Protection Bund Control room at L/S of Barrage	1.80	0	0	0	0
2	Left Marginal Bund RD 0 to 47+500 and its allied Spurs	14.14	2	8	4	2
3	Right Marginal Bund RD 0 to 63+000 and its allied Spurs	16.11	2	8	4	2
4	Jamlera Flood Bund RD 0 to 41+500	8.30	1	4	2	1
5	Malleki Spur for the 5-No D/S Spurs	2.26	0	0	0	0
Total			**5**	**20**	**10**	**5**

DEPLOYMENT OF MACHINERY (VERY HIGH TO EXCEPTIONALLY HIGH FLOOD)

Sr. No.	Structure Name	Length (Miles)	Excavators		Trolleys	Dumpers	Tractor with Front blade	
			Very High Flood	Exp. High Flood	4 per 5-mile reach	2 per 5-mile reach	Very High Flood	Exp. High Flood
			1 per 5-mile reach	2 per 5-mile reach			1 per 5-mile reach	2 per 5-mile reach
1	Headworks U/S & D/S Protection Bund Control room at L/S of Barrage	1.80	0	0	1	0	0	1
2	Left Marginal Bund RD 0 to 47+500 and its allied Spurs	14.14	3	5	11	5	3	6
3	Right Marginal Bund RD 0 to 63+000 and its allied Spurs	16.11	3	6	12	6	3	6
4	Jamlera Flood Bund RD 0 to 41+500	8.30	1	2	5	3	1	3
5	Malleki Spur for the 5-No D/S Spurs	2.26	0	0	1	0	0	1
Total			**7**	**13**	**30**	**14**	**7**	**17**

Note: - Payment for Machinery and Work Charge Employs subject to verification by M/S NES PAK / Departmental Committee.

- **Chaowkidar:** 1 per Flood camp 24/7 for all Flood levels

Note: -

Payment for machinery and work charge employees subject to verification by Third Party Monitoring / Departmental Committee.

14.4 POLICE DEPLOYMENT PLAN

Proforma – 1

Sr.	Site of Breaching Section	Concerned Canal Division	Concerned Police Station and District	Police Persons Deployed		Remarks (if any)
				Inspector / Sub Inspector / A.S.I	Constable	
1	RMB RD.18+000 to 18+500	Suleimanki	Haveli Lakha Police Station Distt: Okara	ASI=1	2	--

Proforma – 2

Sr.	Vulnerable sites used for illegal cuts during floods	Concerned Canal Division	Concerned Police Station and District	Police Persons Deployed		Remarks (if any)
				Inspector / Sub Inspector / A.S.I	Constable	
1	RMB RD.35-36 36-37	Suleimanki	Haveli Lakha Police Station Distt: Okara	ASI=1	2	--

Proforma – 3

Sr.	Name of Barrage	Concerned Canal Division	Concerned Police Station and District	Police Persons Deployed		Remarks (if any)
				Inspector / Sub Inspector / A.S.I	Constable	
1	Suleimanki	Suleimanki	Haveli Lakha Police Station Distt: Okara	ASI=1	4	--

14.5. DETAIL OF SYNTHETIC BAGS WITH CAPACITY OF 50 KG AND 100 KG.

Sr.	Synthetic Bags	Quantity Required	Available Quantity	Balance Quantity	Remarks
1	Capacity 500 KG	3000 No.	--	3000 No.	Will be procured before onset of Flood Season 20256
2	Capacity 1000 Kg	1500 No.	--	1500 No.	

14.6 DETAIL OF POLYTHENE SHEETS OF BLACK COLOUR TO PROTECT UPSTREAM SLOPE AGAINST WAVE ACTION AND TO CONTROL SEEPAGE THROUGH EMBANKMENT.

Sr.	Polythene Sheet	Quantity Required	Available Quantity	Balance Quantity	Remarks
1	Average 20 ft width	196647 Rft	--	196647 Rft	Will be procured before onset of Flood Season 20256

CHAPTER - 15

BACK UP DIVISIONS
(IN CASE OF EMERGENCY SITUATION/BREACH)

In case of emergency Easter Bar Canal Division of Nili Bar Canal Circle and Khanwah Canal Division of Sukhrawa Canal Circle will be back-up divisions for Right Flank of River Sutlej at Suleimanki Headworks while Eastern Sadiqia Canal Division and Fordwah Canal Division of Bahawalnagar Canal Circle will be back-up divisions for Left Flank of River Sutlej at Suleimanki Headworks. Further, B.S. Link Division will also be engaged on necessity basis at Suleimanki Headworks.

Executive Engineer
Suleimanki Headworks Division
Suleimanki

Subject – **REPORT OF COMMITTEE FOR FINALIZATION OF MACHINERY & HUMAN RESOURCE REQUIREMENTS FOR FLOOD FIGHTING PLAN (FFP)**

A committee was constituted by the Administrative Department vide No.SO(Floods)WII-22/2017 dated 26.12.2025 to standardize emergency response protocols and optimize the deployment of machinery and human resources across various irrigation infrastructures (river-wise) for the Flood Fighting Plan (FFP). The composition of the committee was as follow:

Chief Engineer, D&I Zone, Lahore	**Convener**
Superintending Engineer, Project Circle DG Khan	**Member / Rep. of DG Khan Zone**
Superintending Engineer, Bahawalpur Canal Circle	**Member / Rep. of Bahawalpur Zone**
Superintending Engineer, Multi Canal Circle, Multan	**Member / Rep. of Multan Zone**
Superintending Engineer, Sukhrawa Canal Circle, Sahiwal	**Member / Rep. of Sahiwal Zone**
Superintending Engineer, LCC(West) Canal Circle, Faisalabad	**Member / Rep. of Faisalabad Zone**
Superintending Engineer, Mandi Bahauddin Canal Circle	**Member / Rep. of Sargodha Zone**
Superintending Engineer, Link Circle, Lahore	**Member / Rep. of Lahore Zone**

2. The TORs of the committee are as follows:

i. The committee shall set the benchmark point relative to which the machinery and human resources will be deployed in case of flood for each river.

ii. The committee shall determine the specific number of human resources required per mile to ensure 24/7 monitoring for embankments / structures against different flood levels (low, medium, high, V.High & Ex-High) and immediate breach response.

iii. The committee shall define minimum number of work charge / manpower for watch and ward that must be hired via outsourcing for flood season.

iv. The committee shall determine the machinery requirement (excavators, dumpers, tractors with trolleys) for different irrigation infrastructures (embankments / structures), including standby locations against different flood levels (low, medium, high, V.High & Ex-High).

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Accordingly, a meeting of the committee was convened online on 30.12.2025. The meeting primarily focused on the criteria for deployment of human resources and machinery for effective flood fighting operations. During the discussion, it was emphasized on the importance of proper assessment and coordination at all levels. During the first meeting, it was decided that all SEs shall discuss the requirement of manpower, labor, equipment, and machinery with Executive Engineers of their zones of different rivers to assess the actual requirements for flood fighting plans. It was decided that the consolidated requirements, after due consultation, shall be submitted for further deliberations.

The second meeting was held on 12.01.2025 to deliberate on requirements gathered by the Superintending Engineers for developing a singlecriteria for the flood fighting plan. After detailed deliberations, the following criteria for establishment of camps, deployment of machinery and human resources, and material for each camp across various irrigation infrastructures (river-wise) for the Flood Fighting Plan (FFP) were agreed upon:

1. General Manpower Hiring (Maintenance Phase)

Total manpower requirement for watching and maintenance of flood embankment during the flood season from 15th June to 15th October (the entire flood season) as per the following criteria:

1.1 Watching Establishment Criteria

Normal Flood Season -	1 person/2 mile	(1 Shift)
Low Flood –	1 person/mile	(1 Shift)
Medium /High flood	2 person/mile/shift	(2 Shift)
Very High/Exceptionally High	5 person/mile/shift	(3 Shift)

- Beldar should be provided with hand tools (1 Kassie, 1 Axe and 1 Rechargeable Torch for night shift in case of flood above low flood limit)
- The activities of staff during normal flood season should be included but not limited to:
  - Removing Jungle and bushes from slopes and toe of embankment
  - Filling of rain cuts/ Gharas
  - Dressing of slopes
  - Filling porcupine and rat holes

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- Keeping the track motorable

Mate: 1 No. for every gang of 12 Beldars at all flood ranges.

1.2 Establishment of Camps criteria

Normal Flood Season:	15 miles/ Vulnerable points
Low Flood:	15 miles
Medium Flood/High flood	7 miles
Very High/Exceptionally High	5 miles

Note: The Superintending Engineer (SE) will notify all vulnerable points as per recommendations of Executive Engineer (XEN) and if the vulnerable site falls within 15 miles of embankment, then camp will be established at vulnerable site.

2. Flood Fighting Material:

Flood Fighting Material should be purchased on the basis of the worst-case scenario, i.e. for exceptionally high flood. The minimum requirement is as follows:

2.1 Minimum requirement of Flood Fighting Materials for Permanent Camp (15 miles)

SR. #	ITEM	UNIT	Total Required Qty	Available Qty	Balance Qty	Remarks
1.	Shouldari / Tent	No	01			
2.	Chairs	No	06			
3.	Table	No	01			
4.	Generator (2-3 KVA)	No	01			
5.	Pedestal Fans	No	01			
6.	Charpois	No	02			
7.	Symbolic Jackets	No	50			
8.	Polyethene Sheet	Kg	100			
9.	Bamboos (4" dia and 10 ft long)	No	100			
10.	Water Coller	No	01			
11.	Portable umbrella	No	02			
12.	Life Jackets	No	05			

SR. #	ITEM	UNIT	Total Required Qty	Available Qty	Balance Qty	Remarks
13.	Utensils (10 person serving)	No	01			
14.	Jute/Plastic bags	No	1000			
15.	Walke Talkie Set	Sets	02			
16.	Raincoats	No	10			
17.	LED flood light	No	10			
18.	Extension Cable (10 ft)	No	02			
19.	Rechargeable torches	No	20			
20.	Kassi	No	20			
21.	Axes	No	20			
22.	G.I Buckets	No	05			
23.	7/44 cable	Feet	500			
24.	Sutli	Kg	02			
25.	Sewing Needles	No	10			
26.	Emergency Medical Kit	No	1			
27.	Wire crates (3x3x3) (at only those camp near river action and reserve stock exists)	No	100			

2.2 Minimum requirement of Flood Fighting Materials for Temporary Camp: (7 or 5 miles during medium to exceptionally high flood to be outsourced)

SR. #	ITEM	UNIT	Total Required Qty	SR. #	ITEM	UNIT	Total Required Qty
1.	Shouldari / Tent	No	01	2.	Walke Talkie Set	Sets	01
3.	Chairs	No	06	4.	Raincoats	No	10
5.	Table	No	01	6.	LED flood light	No	10

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7.	Generator (2-3KVA)	No	01	8.	Extension Cable (10 ft)	No	02
9.	Pedestal Fans	No	01	10.	Rechargeable torches	No	20
11.	Charpois	No	02	12.	Kassi	No	20
13.	Symbolic Jackets	No	50	14.	Axes	No	20
15.	Water Coller	No	01	16.	G.I Buckets	No	05
17.	Portable umbrella	No	02	18.	7/44 cable	Feet	500
19.	Utensils (10 person serving)	No	01	20.	Sutli	Kg	02
21.	Jute/Plastic bags	No	500	22.	Sewing Needles	No	10

Machinery, Camps and Watching Establishment Requirements by Flood Level:

Flood Level	Flood Camp	Excavators	Trolleys	Dumpers	Tractor with Front blade	Beldars (per mile)	Mate
Normal	1 per 15 mile reach	As per recommendations (ii)		-	1 per 15 mile reach	1 person/2 mile (1 Shift)	1 mate per 12 beldars
Low						1 person/mile (1 Shift)	
Medium	1 per 7 mile reach	1 per 7 mile reach	4 per 7 mile reach	2 per 7 mile reach	1 per 7 mile reach	2 person/mile/shift (2 Shift)	
High							
Very High	1 per 5 mile reach	1 per 5 mile reach	4 per 5 mile reach	2 per 5 mile reach	1 per 5 mile reach	5 person/mile/shift (3 Shift)	
Exp. High		2 per 5 mile reach			2 per 5 mile reach		

*Chowkidar: 1 per flood camp (24/7) for all flood levels.

Minimum Requirement of Machinery at Breaching Section

At each breaching section there should be arrangement of two (2) Excavators, one (1) Dozer and three (3) Dumpers at Exceptionally high flood.

Recommendations for Operation During Flood

i. The Superintending Engineer (SE) will notify all vulnerable points on the recommendations of Executive Engineer (XEN) and if the vulnerable site falls within 15 miles of embankment, then camp will be established at vulnerable site.

ii. Superintending Engineer shall allow deputation of one (1) excavator and four (4) Trolleys during low flood at Campal vulnerable points and LMB/RMB.

iii. The Superintending Engineer (SE) shall approve one additional shift during low to high flood based on necessity of site but he shall clearly mention the reach where additional shift is allowed.

iv. For emergent situation when very high flood levels are attained at lower flood discharges, additional camps may also be established with the approval of Superintending Engineer.

v. The concerned division shall procure flood fighting material as per requirement of seasonal flood fighting camps.

vi. Jackets with official emblem of the PID should be purchased by the concerned Division, to be used during the worst-case scenario, i.e., for exceptionally high flood.

vii. All others camps and supplies along with establishment i.e. Beldars and mates shall be outsourced before the flood season for operational efficiency during the flood fighting activities.

viii. The above mentioned yard stick of human resource is inclusive of 100% of regular flood establishment of the division at normal and low flood and for medium and above flood situation 50% of total regular establishment of the division and backup division in Flood Fighting Plan.

ix. The **Trigger Point** upstream of a Canal Division for commencing preparations shall be mentioned in the flood fighting plan and it shall be such point upstream with lag time of 3 days / 72 hours. The division shall initiate preparation corresponding to discharge magnitude expected to receive at their jurisdiction with respect to discharge at trigger point with 2025 flood data.

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x. Superintending Engineers shall approve additional resources above the approved FFP on the recommendations of Executive Engineer based on site necessity with copy to TPM and respective Chief Engineer but must mentioned the reach and justify the reason for additional resources in approval.

xi. Executive Engineers (XEN) shall decide the location and relocation of flood camps.

xii. The machinery mentioned above should be hired to remain standby for 24/7 to fight any extreme situation. The working of deployed machinery during normal situation shall be with prior approval of Superintending Engineer.

xiii. Communication means must be arranged through the Government. It is recommended to allocate a unique frequency for irrigation department.

xiv. In the event that water levels reach the 'High Flood' threshold even if the recorded discharge remains below established benchmarks, all field preparations and personnel deployments must immediately escalate to Critical Level protocols.

(Zeeshan Ali)
Member SE, Project Circle
DG Khan

(Abdul Qayyum Qasrine)
Member / SE, Mailsi Canal
Circle, Multan

(Mohib Ullah Ali)
Member / SE, Sukhrawa
Canal Circle, Sahiwal

(Imtiaz Hussain)
Member / SE, Bahawalpur
Canal Circle

(Sarmad Iqbal)
Member / SE, LCC(West)
Canal Circle, Faisalabad

(Hafiz Jaz Ahmad)
Member / SE, Mandi
Bahauddin Canal Circle

(Mudassar Rehan)
Member / SE Link Circle,
Lahore

(Aburram Amin)
Convener / Chief Engineer,
Drainage & Flood Zone, Lahore.