



OFFICE OF THE  
CHIEF ENGINEER IRRIGATION  
SARGODHA ZONE SARGODHA  
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To

The Superintending Engineer,  
Drainage Circle, Sargodha.

No. 4622 W-II/VI-9

Dated 01/04/2024

Subject: - **FLOOD FIGHTING PLAN FOR THE YEAR 2024.**

The flood fighting plan for the year 2024 pertaining to Executive Engineer, Bhalwal Drainage Division, Bhalwal has been signed by worthy Chief Engineer Sargodha and enclosed herewith.

You are requested to please ensure the submission of Flood Fighting Plan 2024 to the following concerned quarters:-

1. The Secretary,  
Government of the Punjab,  
Irrigation Department, Lahore.
2. The Secretary,  
Punjab Flood Commission,  
Drainage & Flood Zone,  
Engineers Academy, Thokar Niaz Baig,  
Lahore.
3. The Chief Engineer,  
Drainage & Flood Zone,  
Engineers Academy, Thokar Niaz Baig,  
Lahore.
4. The Flood Relief Commissioner,  
Board of Revenue (Punjab) Lahore.
5. The Deputy Director (Hydraulics)  
HSSEU D&F Zone Lahore.
6. The Assistant Director (Technical),  
Relief & Crisis Management Department,  
40/A Lawrence Road, Lahore.

10/1/24

3-14/24

- |        |                  |
|--------|------------------|
| 196365 | Work in Progress |
| 201500 | Work             |
8. The Commanding Officer,  
(Rachna warriors ) 29 Radar,  
Controlled Gun Air Defence Regiment,  
Sargodha Garrison.
  9. The Commissioners Concerned.
  10. The D.C. Concerned.
  11. The Additional District Collector, Concerned.
  12. The Director General Provincial Disaster  
Management Authority,  
40/A Lawrence Road, Lahore.

The flood fighting plan 2024 must reach in above offices as well as 02 copies to this office and 04 copies to Chief Engineer D&F Zone Lahore within 02-days positively.

D.A. as above

Assistant Design Engineer,  
for Chief Engineer Irrigation Zone,  
Sargodha.

9/4/2024

No. AS8 dt. 15/4 /2024

copy of above alongwith F.F plan 2024 is forwarded to XEN D&F Zone Sargodha. you are requested to please circulate the F.F plan 2024 to all agencies/offices as desired by Chief Engineer D&F Zone Sargodha within 02 days positively under intimation to this office.

Superintending Engineer  
Sargodha Drainage Circle  
SARGODHA

D.A  
As above.



OFFICE OF THE  
CHIEF ENGINEER DRAINAGE & FLOOD ZONE  
IRRIGATION DEPARTMENT

Government Engineering Academy Punjab, Canal Bank Road  
Thokar Niaz Beg, Lahore - 53700. E-mail: cednf@yahoo.com Ph.042-99233551-52

To

The Executive Engineer,  
Bhalwal Drainage Division,  
Bhalwal

No.D&F/2024/ 566 /25/76,

Dated 25/03/2024.

**SUBJECT: - FLOOD FIGHTING PLANS FOR FLOOD SEASON 2024.**

Ref:- Your office letter No.166/ Dated 05.03.2024.

The Flood Fighting Plan 2024 received from your Division under above reference is hereby vetted and returned.

Therefore, it is requested, to circulate the same copies of Flood Fighting Plan 2024, after approved by the competent authority to all stakeholders as well as 04 copies (soft copy of Flood Fighting Plans through E-mail:cednf@yahoo.com) to this office and 01 copy to Director Hydraulic Structure Safety Evaluation Cell situated at Government Engineering Academy Punjab, Thokar Niaz Baig, Lahore.

For DEPUTY DIRECTOR FLOOD  
Chief Engineer Drainage & Flood Zone  
Irrigation Department Punjab, Lahore.  
(Sh)

C.C.,

1. The Chief Engineer, Irrigation Sargodha Zone, Sargodha.
2. The Superintending Engineer, Drainage Circle, Sargodha.



**FLOOD FIGHTING PLAN 2024**  
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# **FLOOD FIGHTING PLAN 2024**

## **PART - A**

**BHALWAL DRAINAGE DIVISION BHALWAL**



# FLOOD FIGHTING PLAN 2024

## PART-A

### CHAPTER – 1

#### SALIENT FEATURE OF THE BHALWAL DRAINAGE DIVISION BHALWAL.

##### 1.1 Location.

The Bhalwal Drainage Division has its jurisdiction mostly between two Rivers, the Chenab and the Jhelum in Districts Sargodha & Chiniot. The River Jhelum runs along the northwestern boundary of Tehsil Bhalwal and covering a distance of about 25-55 miles. The river in tract of Bhalwal. The River Chenab enters into the area of this Division in the villages Bhabra and Midh Ranjha (Upstream of Talibwala Bridge) of District Sargodha and flows through vast area of this Division situated in Districts Sargodha and Chiniot located on its right bank. All the drainage systems of this Division have their outfalls in River Chenab.

##### 1.2 General Description.

There are two major Drainage systems which fall in Bhalwal Drainage Division, Bhalwal with almost 250.57 miles total length of drains. These drainage systems provide the drainage facilities to an area Sargodha, Chiniot and Bhalwal. If these Drainage systems do not function properly then the rain / storm water takes much time in discharging into basin from the catchment areas. As a result of longer detention, the water percolates into the soil and causes rise in sub soil water level. In the absence of effective Drainage Systems, water remains stagnant in the fields and damages standing crops and Abadie's in low lying areas. The stagnancy of water in drains results into the growth of different weeds due to which the drains get choked up to a larger extent and their discharging capacity is reduced considerably. Therefore, the sub soil water level of highly fertile agricultural land in the catchment area rises up to dangerous level. Such abnormal situation may be controlled by execution of rehabilitation / reconditioning works for all Drainage Systems.

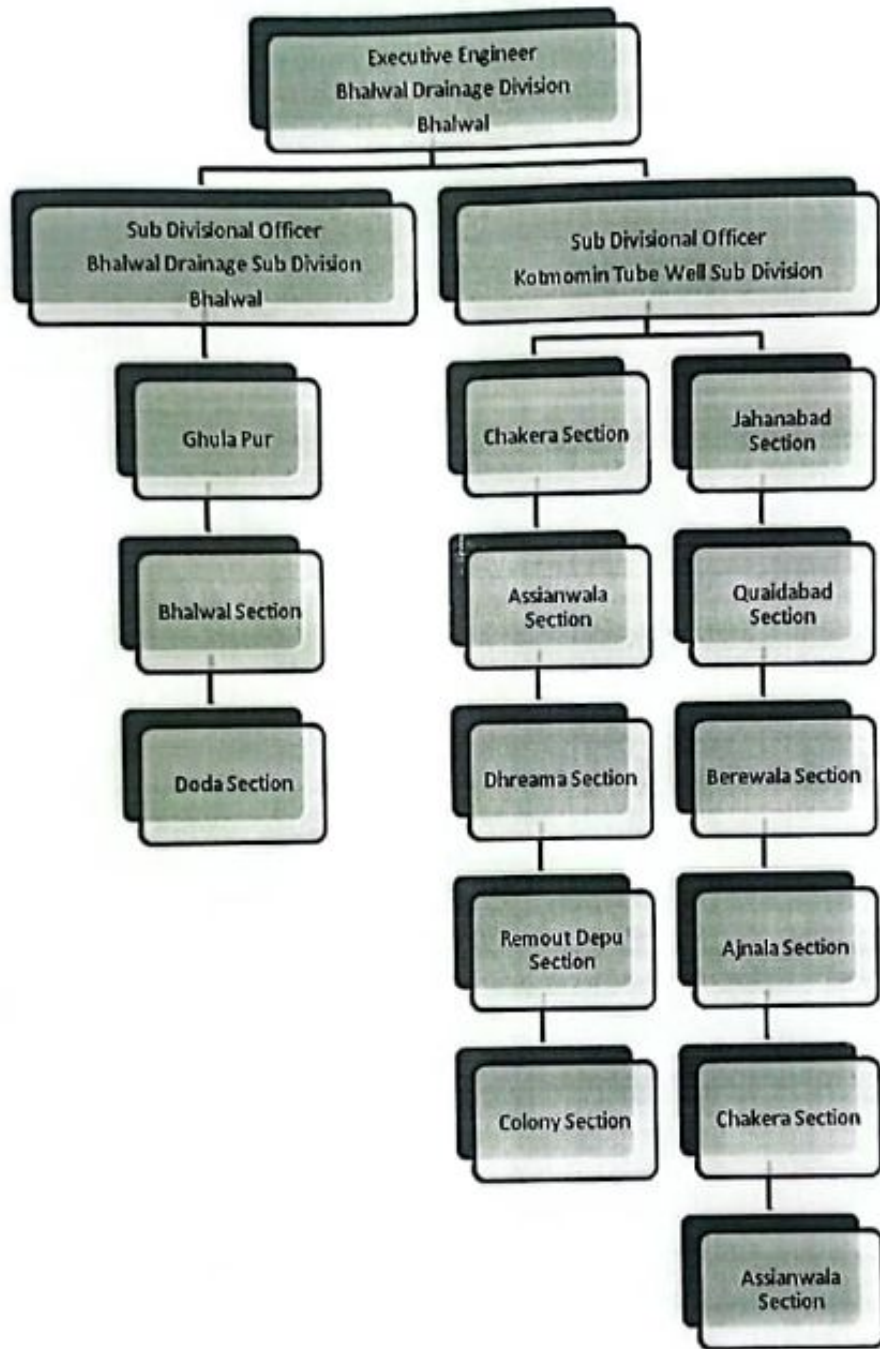
The Main Drainage systems are listed below.

- 1- F.S. Drainage system [RD:204+000 to 345+750]
- 2- L.B.N Drainage system

  
XEN: / BHL DRG

### 1.3 Administrative Set-up

Administratively, setup plan of Bhalwal Drainage Division, Bhalwal is as under.



  
XEN: / BHL DRG



## CHAPTER – 2

### FLOOD PROTECTION AND RIVER TRAINING WORKS.

#### 2.1 Design Parameter of Training Works.

The Bhalwal Drainage Division Bhalwal is affected by River Chenab. The Chenab runs on its East. The kacha area along the sides of the rivers is usually in the principal hit of the floods. In addition to flood water, the drains during rainy season are also prone to over flow and cause much damage to life and property, as is the case for river flood. Thus, constant vigilance and supervision over Drainage systems becomes necessary during rainy season. The catchment areas located near out-fall reaches of the drain is badly affected due to backwater flows and spills during flood in the river.

The Division is responsible for maintenance of Drainage Systems, Flood Protection Works and River Training Works.

#### PARAMETERS OF FLOOD EMBANKMENTS & RIVER TRAINING WORKS

Description	Total length Miles	Discharge Cs	Top width (Feet)	Top R.L (Feet)	Side Slop	
					River Side	Country Side
<b>A. Flood Embankments</b>						
Flood embankments along F.S. Drain RD 258+591-270+500	2.38	130	15'.0	645.30	1.5:1	1:5:1
Flood embankment along L.B.N Drain RD 0-20+000	4.0	766	20'.0	611.0	2:1	2:1
Tie Flood Bund RD 0-4850	0.97	8,00,000	20'.0	611.0	3:1	2:1
Gunda Bund Near Maddokana RD:0-5+000	1.00	8,00,000	25'.0	613.00	2:1	2:1
<b>B. Training Works</b>						
Maddokana Guide wall J-Head Spur RD 0-6+776 at Maddokana	1.35	8,00,000	25	613.0	3:1	2:1

Guide wall J-Head spur near Madokana village in District Chiniot on Right bank of River Chenab and Tied with the L.B.N Flood Bund through Tie Flood Bund.

#### DRAINAGE SYSTEMS

Sr. No.	Name of Drainage System	Drains likely to be over spilled	Total mile length	Discharge Cs	Out falling points
1	LBN Drainage System	L.B.N Drain RD 20-34	41.20	668	River Chenab

#### 2.2 LOCATION MAP.

Map has been attached for Bhalwal Drainage Division Bhalwal.

  
 XEN: / BHL DRG

## CHAPTER – 3

### BRIEF HISTORY OF PAST FLOOD EVENTS

Bhalwal Drainage Division is new created Division on 01.07.2021.

Flood causes enormous economic losses to both urban & rural communities throughout the Bhalwal Drainage Division. Torrential rains and flood in the River affected the whole Drainage Network, Flood Embankments and River Training Works. Bhalwal, Chiniot Tehsils were badly affected by floods in the river Chenab and heavy rainfall during monsoon season. Bhalwal Town was cut off from east of the District by hit of flood and rain water. A large number of villages were inundated and remained in deplorable condition for over six months till depletion of the accumulated water as result of which colossal damage was caused to livestock. Houses, infrastructures and other properties. Means of communication were disrupted and roads were badly damaged.

The rain water accumulated in the area during 1997, and made its flow into drains. The drains were flooded. Main Drainage system i.e. F.S (Faquirian - Sillanwali), posed immense threat due to rise in water levels in drains, causing damage to systems as well as to the areas of their influence as a whole. The outfall reaches of F.S. and L.B.N drains were badly affected due to backwater effect.

However, the strenuous and zealous efforts of the department reduced the losses to the flood hit area.

In 2005, maximum discharge recorded D/S Qadirabad Barrage on 08-07-2005, was 369847 Cs. Only 1.00 ft free board was left on Flood Embankment along L.B.N Drain and all existing bridges were submerged.

During 2006 maximum discharge was recorded D/S Qadirabad Barrage as 443206 Cs. At the same duration two number deliberate cuts were made by the inhabitants of villages situated on the country side in between RD 7000 to 8000 & 13000 to 14000 of Flood Embankment along LBN drain, which were repaired just after the passing of freshet.

In 2007 maximum discharge recorded D/S Qadirabad Barrage was 311382 & there was no mentionable damage.

In 2008 maximum discharge 31,419 Cs and 190,438 Cs were passed D/S Rasul Barrage and D/S Qadirabad Barrage respectively and as no reportable damages were occurred there. No abnormal situation was observed during flood season 2008, as almost all drains of Drainage Division, have flowed with very normal discharge or remained dry. In 2009, no significant event took place due to lesser rainfall in the country.



In 2010 maximum discharge recorded D/S Qadirabad Barrage was 3,19,733 Cs and D/S Rasul Barrage was 2,63,795 Cs during July and August 2010 due to the heavy rain fall and flood the rain water accumulated in the area and made its flow into the Drains. The drains were flooded. Main Drainage System i.e. F.S. Drainage System, due to rise in water levels in drains caused damage to the system.

In 2011, a maximum discharge of D/S Qadirabad Barrage was 164604 Cs

In 2012, a maximum discharge of D/S Qadirabad Barrage was 180789 Cs

In 2013, a maximum discharge of D/S Qadirabad Barrage was 403403 Cs

In 2014, a maximum discharge of D/S Qadirabad Barrage was 903504 Cs and during September 2014 exceptionally high flood passed in river Chenab, Guide Wall J-Head Spur at Madokana, Tie Flood Bund and LBN Flood Bund were directly under threat of Flood. The flood water rose up to top of flood bund in many reaches. Horizontal creeks were developed on the top of bund all along its length. The drain over flowed between RD 20-50, due to back water in drain.

In 2015 a maximum discharge of D/S Qadirabad Barrage was 161054 Cs

In 2016 a maximum discharge of D/S Qadirabad Barrage was 405542 Cs

In 2017 a maximum discharge of D/S Qadirabad Barrage was 154420 Cs

In 2018 a maximum discharge of D/S Qadirabad Barrage was 172031 Cs,

In 2019 a maximum discharge of D/S Qadirabad Barrage was 159544 Cs

In 2020 a maximum discharge of D/S Qadirabad Barrage was 258954 Cs

In 2021 a maximum discharge of D/S Qadirabad Barrage was 167812, Cs

In 2022 a maximum discharge of D/S Qadirabad Barrage was 202149 Cs,

In 2023 a maximum discharge of D/S Qadirabad Barrage was 185749 Cs, there were no flood damages.

  
XEN: / BHL DRG



## CHAPTER - 4

### DESIGN DATA, HISTORIC PEAK FLOOD DATA AND PAST FIVE YEARS DATA OF HEAD WORKS / BARRAGES AND OTHER CONTROL POINTS.

The terminology of different kinds of floods i.e., Low, Medium, High and exceptionally high and they will be taken as such in the light of any wireless message received from respective warning centers.

#### 4.1 FLOOD LIMITS.

Head Works	Lac Cs:				
	Low	Medium	High	Very High	Exceptionally High
Marala	1.00 to 1.50	1.50 to 2.00	2.00 to 4.00	4.00 to 6.00	More than 6.00
Khanki	1.00 to 1.50	1.50 to 2.00	2.00 to 4.00	4.00 to 6.00	More than 6.00
Qadirabad	1.00 to 1.50	1.50 to 2.00	2.00 to 4.00	4.00 to 6.00	More than 6.00

Source: Federal Flood Commission Islamabad.

#### 4.2 TIME LAGS OF FLOODS

Following are the time lags for high flood condition in River Chenab.

Location		Distance (Km)	Time Lag (Hour)		Remarks
From	To		Range	Indicative Average	
Marala	Khanki	56	10-14	12	I) Indicative average time lags values may vary in view of conditions / factors prevalent at the time of flood flows. II) These values are for high flood conditions and may be used by the concerned agencies for rescue / evacuation purposes.
Khanki	Qadirabad	30	06-10	7	
Qadirabad	Trimmu.	214	60-84	72	
Qadirabad	MainaHazara.	40	-	12	
MainaHazara.	ChiniotBridge	80	-	24	

Source: Federal Flood Commission Islamabad.

#### 4.3 HIGHEST FLOODS.

The highest flood discharges recorded downstream Qadirabad Barrage during last five year are as under:

Year	D/S Qadirabad Barrage (In Cs)
2017	154420 Cs
2018	172031 Cs
2019	159544 Cs
2020	258954 Cs
2021	167812 Cs
2022	202149 Cs
2023	185749 Cs

  
XEN: / BHL DRG

4.4 PEAK DISCHARGES (HISTORICAL PEAK FLOOD DATA)

Date	Discharge (Cs)	Pond Level (ft.)
<b>Downstream Qadirabad Barrage</b>		
08.08.1985	321917	696.50
05.08.1986	342758	695.70
27.07.1987	97879	691.40
26.09.1988	892299	700.30
31.07.1989	498474	697.60
22.03.1990	347205	695.90
15.04.1991	249663	694.50
11.09.1992	948530	700.50
11.07.1993	434754	697.30
21.07.1994	425567	697.00
29.07.1995	644397	699.00
24.08.1996	853231	700.50
28.08.1997	873442	700.80
05.03.1998	259713	694.50
08.08.1999	122447	691.60
23.07.2000	291349	693.70
08.08.2001	136575	691.70
14.08.2002	226398	694.60
19.02.2003	367408	696.20
18.08.2004	90043	691.50
06.07.2005	369847	697.00
04.09.2006	443206	699.10
14.03.2007	289002	693.05
01.08.2008	190438	692.05
17.08.2009	55535	690.85
07.08-2010	319733	696.01
17-09-2011	164604	691.85
05-08-2012	180789	691.97
15-08-2013	403403	696.90
07-09-2014	903504	701.70
13-07-2015	161054	694.50
08-08-2016	405542	696.95
03-08-2017	154420	694.00
14-08-2018	172031	692.80
01-08-2019	159544	684.70
29-08-2020	258954	693.00
29-07-2021	167812	688.25
12-08-2022	202149	694.00
2023	185749	692.70

XEN: / BHL DRG

# CHAPTER – 5

## FLOOD FIGHTING STRATEGY

In view of the experience of the past flood history, constant watch is required to meet the onslaughts of floods in rainy season.

Constant vigilance and caution will be required at all levels particularly on spots for relief and flood fighting on Drains, Flood Embankments and River Training works.

### BATTLE STATIONS

The department proposes to install the following battle stations for protection of irrigation structures, flood fighting and watching to minimize the losses.

#### THE PROPOSED CAMPS SITES ON DRAINS.

(Low Flood)

Drains	Reach	Length in Mils	Battle Station
L.B.N Drain	20-34	2.8	RD- 24

#### CAMP SITES ON FLOOD EMBANKMENT AND RIVER TRAINING WORKS.

Name of Embankment	Reach	Watching length (In miles)	Camp site
L.B.N Drain	0-20	4.0	RD- 9
Guide Wall J-Head Spur	0-6+776	1.35	RD- 4+500
Tie Flood Bund	0- 4+850	0.919	RD- 0
Gunda Bund Near Maddokana Guide Wall Spur	0-5+380	1.018	RD- 4+000

#### THE PROPOSED CAMPS SITES ON DRAINS.

(Medium Flood)

Drains	Reach	Length in Mils	Battle Station
L.B.N Drain	20-34	2.8	RD- 24

#### CAMP SITES ON FLOOD EMBANKMENT AND RIVER TRAINING WORKS.

Name of Embankment	Reach	Watching length (In miles)	Camp site
L.B.N Drain	0-20	4.0	RD- 9
Guide Wall J-Head Spur	0-6+776	1.35	RD- 4+500
Tie Flood Bund	0- 4+850	0.919	RD- 0
Gunda Bund Near Maddokana Guide Wall Spur	0-5+380	1.018	RD- 4+000

  
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**THE PROPOSED CAMPS SITES ON DRAINS.  
(High Flood)**

Drains	Reach	Length in Mils	Battle Station
L.B.N Drain.	20-34	2.8	RD- 24

**CAMP SITES ON FLOOD EMBANKMENT AND RIVER TRAINING WORKS.**

Name of Embankment	Reach	Watching length (In miles)	Camp site
L.B.N Drain	0-20	4.0	RD- 9
Guide Wall J-Head Spur	0-6+776	1.35	RD- 4+500
Tie Flood Bund	0- 4+850	0.919	RD- 0
Gunda Bund Near Maddokana Guide Wall Spur	0-5+380	1.018	RD- 4+000

**THE PROPOSED CAMPS SITES ON DRAINS.**

(Exceptionally High Flood)

Drains	Reach	Length in Mils	Battle Station
L.B.N Drain	20-34	2.8	RD- 24

**CAMP SITES ON FLOOD EMBANKMENT AND RIVER TRAINING WORKS.**

Name of Embankment	Reach	Watching length (in miles)	Camp site
Guide Wall J-Head Spur	0-6+776	1.35	RD- 4+500
L.B.N Drain	0-20	4.0	RD- 9
Tie Flood Bund	0- 4+850	0.919	RD- 0
Gunda Bund Near Maddokana Guide Wall Spur	0- 5+380	1.018	RD- 4+000

The above-mentioned camps will be installed on above sites for controlling the protection activities during emergency. For all spots, sufficient quantity of flood fighting material with manpower will be made available in all these camps.

Engagement of work charge establishment to supplement the efforts through regular establishment will be made in accordance with the demand of the situation.

At the stage of very high flood, the strength of watching establishment will be enhanced. Executive Engineer, will be authorized to engage labour and purchase material up to any requirement in consultation with the Superintending Engineer.

**The following Sub Divisional Officers will supervise all the operations in their Respective Sub Divisions.**

Designation of Officer	Sub Division
Sub Divisional Officer	Bhalwal Drainage Sub Division, Bhalwal

The Executive Engineer is fully competent to assign and change duty of the Officer/ Officials working under him.

A flood emergency Sub Office will be established within the Divisional Office, which will become operative with effect from 15-06-2022, and remain functional through the flood season till 15-10-2022. A duty clerk along with a messenger would be available and deliver messages about flood warning emergency and any eventuality, which may arise.

**i. LOW FLOOD DISCHARGE 100000 – 150000 Cs.**

No extra labour will be employed. The labour arranged for preparedness will continue as such.

**ii. MEDIUM FLOOD DISCHARGE 150000 – 200000 Cs**

The flood water flows within river bank. No extra labour will be employed. The labour arranged for preparedness will continue as such.

**iii. HIGH FLOOD DISCHARGES 200000 – 400000 Cs.**

The flood water spills out and inundates the low-lying areas and touches the flood bund. The watching is necessary to be arranged. Therefore, four men for day & night for two miles are employed, including the existing gang, for watching purposes.

**iv. VERY HIGH FLOOD DISCHARGES 400000 – 600000 Cs.**

All activities will remain as such. The watching establishment will be raised to two men per mile on Drains and three men per mile per shift for three shifts on Flood Bund.

**v. EXCEPTIONALLY HIGH FLOOD ABOVE 600000 Cs.**

This stage warrants alarming situation. The watching labour will be raised to three men per mile per shift on Drains and five men per mile per shift for three shifts on bund. On receipt of exceptionally high flood warning, Sub Divisional Officer, Bhalwal Drainage Sub Division along with concerned Sub Engineer will shift their camp at L.B.N Drain, Guide Wall J-Head Spur, Tie Flood Bund, Gunda Bund Near Maddokana Guide Wall Spur

  
XEN: / BHL DRG

## CHAPTER-6

### 6. Flood Damages Restoration Works.

No flood damage was occurred during the flood season 2023 and no flood restoration work in Bhalwal Drainage Division.

  
XEN: / BHL DRG



## CHAPTER - 7 FLOOD FIGHTING WATCHING ARRANGEMENTS

### 7.1 Pre-Flood Arrangements.

Sr.#	Activity	Target Dates	Compliance Report
I.	<b>Preparation of Flood Fighting Plans</b>		
	a) Submission of Draft Divisional Plans by Zonal Chief to Chief Engineer Drainage And Flood (After scrutiny by SE/CE).	01-03-2024	within target date
	b) Review by Chief Engineer D&F.	31-03-2024	Reviewed
	c) Final submission of Flood Fighting Plan.	15-04-2024	within target date
II.	<b>Inspection of Flood Works.</b>		
	a) By XEN's		-
	b) Checking / Inspection by SE's/CE)		-
	c) Inspection by Departmental & Army Team.		-
III.	Identification of encroachments on bunds and spurs to the Civil Administration.	31-03-2024	No encroachment on flood bund / spur
IV.	Painting Gauges, RD Marks, Data Boards and repair to Flood Bunds etc.	31-05-2024	within target date
V.	<b>Replenishment of Reserve Stock of Stone and Flood fighting materials.</b>		
	a) Identification of needs.	28-02-2024	Sanctioned = 0.35 Lac. Cft Available = 0.089 Lac. Cft Balance = 0.261 Lac. Cft
	b) Funding/Procurement Arrangements.	15-03-2024	Sanction of estimate is under progress.
	c) Procurement, Stacking, Prescribed field Checks.	31-05-2024	It will be completed within target date
VI.	Installation of wireless sets	15-06-2024	It will be completed within target date
VII.	<b>Opening of Zonal Flood Cells</b>		
	a) Duty Rosters.	01-06-2024	It will be opened on target date
	b) Operative.	15-06-2024	It will be operated on target date

#### STRUCTURE WISE DETAIL OF STOCK STONE

J-Head Spur at Madokana			
Sanctioned	Available	Balance	Remarks
0.35 Lac. Cft	0.089 Lac. Cft	0.261 Lac. Cft	Estimate sanctioned.

  
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## CONSOLIDATED STATUS OF RESERVE STOCK STONE

Sanctioned Reserve Stock	Available Quantity	Balance Quantity	Status of procurements of balance quantity
0.35 Lac Cft.	0.089 Lac Cft	0.261 Lac Cft	Estimate sanctioned.

### 7.2 WATCHING ESTABLISHMENT

Following are the main spots where watching Huts will be established on temporary basis. During medium floods for Spurs and high floods for Flood Bund, the tents/shouldered will be erected and Flood. watching material will be shifted in the huts. One Chowkidar for each Hut will be employed from the report of receipt of medium Flood and will remain employed till end of flood season. The scale / engagement of work charge labour on flood bunds and Spur will be required on work charge basis.

In addition to the existing field establishment, extra manpower will be engaged during the flood season on work charge basis for watching and general maintenance of banks of drains, Flood Embankments, and River Training works in whole of the Division. The engagement of labour would however will be subject to the intensity of rains / flood as the situation could warrant.

Site	Flood Limits										
	Low		Medium		High		Very High		Exceptionally High		
	Men	Shift	Men	Shift	Men	Shift	Men	Shift	Men	Shift	
RD- 20000-34000	No extra labor will be required at the stage	0	03	03	03	06	02	06	02	12	3
RD- 0-75000		0	03	03	11	02	11	02	22	3	
RD- 0-60000		0	03	03	05	02	05	02	10	3	
RD-176000-280000		0	03	03	11	02	11	02	22	3	
RD- 19000-20000		0	03	03	03	02	03	02	06	3	
RD- 0-10000		0	03	03	05	02	05	02	10	3	
RD- 0-22000		0	03	03	06	02	06	02	12	3	
RD- 0-20000		0	03	03	11	02	11	02	22	3	
RD- 0-6700		0	03	03	13	02	13	02	14	3	
RD- 0-4850		0	03	03	05	02	05	02	10	3	

### 7.3 Arrangement at Sensitive Sites.

The guide wall spur exists in Bhalwal Drainage Division, Bhalwal. Sanctioned stone of this spur is 50,000 Cft. Status of reserve stock of stone available at site 8860 Cft Stack plan attached.

Name of Embankment	Reach	Watching length (in miles)	Camp site
L.B.N Drain	0- 20	4.0	RD- 9
Guide Wall Spur	0- 6+776	1.35	RD- 4+500
Tie Bund	0- 4+850	0.97	RD- 0
Gunda Bund	0- 5+380	1.018	RD- 4+000



The above-mentioned camps will be installed on above sites for controlling the protection activities during emergency. For all spots, sufficient quantity of flood fighting material with manpower will be made available in all these camps.

Engagement of work charge establishment to supplement the efforts through regular establishment will be made in accordance with the demand of the situation.

At the stage of very high flood, the strength of watching establishment may be enhanced. Executive Engineer, will be authorized to engage labour and purchase material upto any requirement in consultation with the Superintending Engineer.

#### 7.4 WATCHING MATERIAL

There will be two No. watching centers on flood embankment along L.B.N Drain, Guid Wall Spur & Tie Bund. Flood material will be arranged and stored at Bhalwal village. The material will be shifted to watching Hut as soon as the intimation of medium / high flood limit is received.

Sr. No.	Name of Item	Unit	Total Required Quantity	Available Quantity	Balance Quantity	Remarks
01	Gunney Bages	No	2100	0	2100	Subject to availability of funds, the materials shall be purchased before start of flood season 2024
02	Chouldari	No	02	0	02	
03	Kassies	No	17	0	17	
04	Baskets	No	15	15	0	
05	Torch	No	11	0	11	
06	Cell of torches (Dozen)	Dozen	08	0	08	
07	Folding Chairs	No	04	4	0	
08	Folding Table	No	02	1	1	
09	Bamboos	No	50	0	50	
10	Energy Saver	No	10	0	10	
11	G.I.Buckets	No	05	0	5	
12	Hand Saw	No	02	2	0	
13	Handle for Kassis	No	17	0	17	
14	Killas	No	10	0	10	
15	Life Jecket	No	05	0	5	
16	M.Oil	Ltr	05	0	5	
18	Axes	No	05	0	5	
19	Petrol	Ltr	50	0	50	
20	Steel charpai	No	04	0	4	
21	Solti (KG)	Kg	05	0	5	
22	Umbrella	No	03	0	3	
23	Briefing board 10x12	No	02	1	1	
24	Wooden Hammer	No	03	0	3	

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- 7.5 Arrangement for Sounding & Probing.**  
This item relates to barrage / Head works Canal Divisions.
- 7.6 Lighting Arrangement.**  
Sufficient numbers of emergencies lights, lanterns and petromax lamps have already been provided. Petrol generators have been arranged and available for lighting arrangements.
- 7.7 Ration Arrangement.**  
The establishment and supervisory staff will make their own food arrangements. However, in the event of dearth of commodities, the Civil Authorities will be approached to store sufficient ration.
- 7.8 P.O.L. Arrangement for Vehicle.**  
Respective Deputy District Officer (Revenue) will be requested by the Sub Divisional Officer in-charge to provide help for reserve at the nearest petrol pumps to keep the vehicles on. Any obstruction found there will be pointed out by the Sub Divisional Officer.
- 7.9 Transportation.**  
Vehicles will available for transportation during flood season.
- 7.10 Law and order.**  
There is no likelihood of any interruption by anyone except cutting of LBN flood bund between RD 0-40. In case of necessity. District Coordination Officer Chinlot will be contacted by the Executive Engineer, Bhalwal Drainage Division Bhalwal to take decision at site.
- 7.11 Medical Arrangement for Labour.**  
It will be responsibility of District Government to provide Medical Facilities in flood areas where will be required.
- 7.12 Liaison with another Department.**  
Executive Engineer, Bhalwal Drainage Division Bhalwal will keep liaison with the Civil and Army Authorities and will keep the Superintending Engineer Drainage Circle Sargodha fully apprised of the flood situation in Bhalwal Drainage Division.
- 7.13 Role of the Army.**  
Role of the Army is very important in case of any emergent situation arising due to high floods. A continuous liaison with the Army Authorities will be maintained during floods and if required necessary help will be sought.
- 7.14 Duties of Telephone Attendant.**  
Phone and cell No of all officers / officials have been given in Flood Fighting Plan 2023 to make immediate contact at any emergency during flood.

Sr. No.	Name of officer / official	Period	Time	
			From	To
1	Umair Tanveer (Executive Engineer) 0300-8199708	During flood Season 2024.	24 Hours	
2	Nasir Mehmood (Sub Divisional Officer) 0300-8876005	During flood Season 2024.	24 Hours	
3	Telegraph Office Sargodha 048-9230408	During flood Season 2024.	24 Hours	

**7.15 Wireless Arrangements.**

Wireless system will be installed w.e.f. 01.06.2023 in the vehicle of XEN Drainage Bhalwal No. GBA - 488, SDO Bhalwal Drainage Sub Division Jeep No. SGP-3004.

  
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**CHAPTER – 8**  
**DETAIL OF ENCROACHMENT**  
**DETAILS OF ENCROACHMENTS ON FLOOD WORKS**

Presently there is no encroachment exists on any flood works of Bhalwal Drainage Division, Bhalwal.

**A. Detail of Encroachment.**

Sr #.	Total Encroachment	Removed	Remaining	Remarks
-----NIL-----				

**B. Detail of Critical Encroachment.**

Sr #.	Total Encroachment	Removed	Remaining	Remarks
-----NIL-----				

  
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CHAPTER – 9

Duty Roster/Flood Fighting Program

DUTY ROSTER OF KEY PERSONAL DURING FLOOD SEASON 2024

SITE	LENGTH	STAGE-I DISCHARGE	LABOUR REQUIRE D	LABOUR FOR WATCHING BE DEPUTED (PER SHIFT)		STAGE-II DISCHARGE	LABOUR REQUIRED	LABOUR FOR WATCHING BE DEPUTED (PER SHIFT)		STAGE-III DISCHARGE	LABOUR REQUIRED	ESTABLISHMENT TO BE DEPUTED (PER SHIFT)				STAGE-IV DISCHARGE EXCEEDING 8 LAC Cs.	
				MATE	BELDA R			MATE	BELDAR			SDO	SUB ENGINEER	MATE	BAULDAR		
Flood Embankment along LBN Drain RD-20	4			1	25			1	30		three men per mile per shift on Drains and five men per mile per shift for three shifts on bund. On receipt of exceptionally high flood warning, Sub Divisional Officer, Bhalwal along with concerned Sub Engineer will shift their camp at LBN Drain.		4	40			Establishment will be deputed as per stage-III
Tie Flood Bund RD 0-4850	0.97	2.0 lac Cs to 4.0 lac Cs.	Four men for day & night for two mile	1	4	4.0 lac Cs To 6.0 lac Cs.	Three men per mile per shift for Three shifts on Flood Bund.	1	6	6.0 lac Cs. To 8.0 lac Cs.			2	12			
Maddokana Guide Wall J-Head Spur RD 0-6776 near Maddokana	1.355			1	4			1	6				2	12			
Gunda Bund Near Maddokana RD: 0-5-380 (Work in Progress)	1.018			1	3			1	8				2	12			

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**CHAPTER – 10**  
**Emergency Telephone Nos.**


Sr. No.	Designation	Telephone / Cell. No.	
		Office	Residence
1	Minister of Irrigation Punjab Lahore.	042-99212809 042-99211761 Fax 042-99212810	-
2	Secretary Irrigation Department, Punjab Lahore.	042-99212117 042-99212118 Fax 042-99212116	042-99200286
3	Chief Engineer, Irrigation Sargodha Zone.	048-9230445 Fax 048-9230414	03336941690 048-9230451
4	Flood Emergency Officer Sargodha Irrigation Zone Sargodha.	048-9230446 Fax 048-9230414	03006363739
5	Chief Engineer Drainage and Flood Zone Lahore.	042-99233551 Fax 042-35291304	03018448709
6	Director, Flood Drainage and Flood Zone Lahore.	042-99231614 Fax-042-35862081	0300-6999490
7	Deputy Director, Drainage and Flood Lahore.	042-99230282	03234864378
8	Flood Warning Center Jail Road Lahore.	042-99230282	-
9	Superintending Engineer Lower Jhelum Canal Circle Sargodha.	048-9230413 Fax 048-9230832	048-9230463 03007743313
10	Superintending Engineer Drainage Circle Sargodha.	048-9230450	03088637291
11	Executive Engineer, Sargodha Division L.J.C, Sargodha.	048-9230409 Fax 048-9230918	03336752753
12	Executive Engineer, Kirana Division L.J.C, Sargodha.	048-9230399 Fax 048-9230649	03336752753
13	Executive Engineer, Shahpur Division L.J.C, Sargodha.	048-9230447 Fax 048-9230836	03444132393
14	Executive Engineer, Rasul Division L.J.C, Rasul.	0546-553211	-
15	District Coordination Officer Sargodha.	048-9230025 048-9230026	048-9230046
16	District Coordination Officer Chinlot.	0476-330071-2	-
17	District Coordination Officer Jhang	047-9200081	-
18	Executive Engineer, Drainage Division Bhalwal.	--	0300-4283627
19	In-charge Vigilance Cell Irrigation & Power Department Punjab Lahore.	042-9213157	-
20	Telegraph Office Sargodha (Flood Emergency Center Sargodha).	048-9230408	-
21	Sub Divisional Officer Bhalwal Drainage Division Bhalwal		0300-8876005

  
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# CHAPTER – 11

## Standard operating procedure (SOP) for Breaching Sections

- 11.1 History of the breaching section.  
No breaching section in Bhalwal Drainage Division Bhalwal.
- 11.2 Location, Design, Quantity and Variety of the explosive required for detonation.  
Does not relate.
- 11.3 Arrangement of explosives and security of explosive stores.  
Does not relate.
- 11.4 List of the security staff along with detail of their training etc  
Does not relate.
- 11.5 Detail of mechanical means as a standby arrangement in case of detonation failure.  
Does not relate.
- 11.6 Duty Roster in case of critical situation.  
Does not relate.
- 11.7 Breaching Committee with their action plan.  
Does not relate.
- 11.8 List of the villages likely to be inundated in case of breach.  
Does not relate.
- 11.9 Announcement and detail of evacuation arrangements.  
Does not relate.
- 11.10 Details of coordination with Civil/Army Authorities  
Does not relate.
- 11.11 Parallel communication arrangements.  
Does not relate.
- 11.12 Index Plan.  
Does not relate.

  
Sub Divisional Officer,  
Bhalwal Drainage Sub Division,  
Bhalwal.

  
Executive Engineer,  
Bhalwal Drainage Division,  
Bhalwal

  
Chief Engineer  
Sargodha Irrigation Zone  
Sargodha  
5/04/24

  
24/03/24  
Superintending Engineer  
Sargodha Drainage Circle  
SARGODHA

# **FLOOD FIGHTING PLAN 2024**

## **PART - B**

**BHALWAL DRAINAGE DIVISION BHALWAL**



## CHAPTER-12

### 12. Vulnerable sites on Flood Bund/Structures:

#### 12.1 Apprehended breach sites In Flood Bunds/Structures

There is no vulnerable site in Bhalwal Drainage Division.

#### 12.2 Operation of breaching sections.

There is no breaching section in Bhalwal Drainage Division.

#### 12.3 Breaches due to rising of flood water, deterioration of flood bunds etc.

No such

  
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## CHAPTER – 13

### SITE PLAN NO. 1 (Tie flood bund between RD 2+000 to 4+850.)

Emergency Contingency Plan for vulnerable sites listed below. Emergency Contingency Plan must include: -

13.1 Plan showing the route of expected flood water coming out of the breach supported with level.

A plan showing the rout of accepted flood water coming out of mishap site situated Tie flood bund between RD 2+000 to 4+850.

13.2 Detail of villages Abadie's likely to be affected and this should also be shown on the plan

Hambuwana	RD: 9+000
Dhun Hurilian (Tie Bund)	RD: 0+000
Dera Ilyana (Tie Bund)	RD: 0+000
Dera Sardar Wala	RD:0+000

  
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13.3

**Strategy and action taken be explained in detail.**

As explained above at Sr. No. 13.4, there are no vital installations in this area like oil refineries, power houses and other important infrastructure

13.3.1

**Arrangements.**

The in-charge of Sub Sector, Sub Divisional Officer, Bhalwal Drainage Sub Division Bhalwal & Executive Engineer Bhalwal Drainage Division Bhalwal taking the cognizance of situation will make liaison with the civil administration and police department and also arrange.

- i. Proclamation on loudspeakers etc for evacuation of Abadie's inside the route of flood water.
- ii. Flood hut has been proposed to be established at RD 9+000 of LBN Flood Bund at high level to monitor the emergent flood situation. If any obstruction found coming out in the way of flood water, it would be removed by deploying establishment and machines such like tractors excavator machine and bulldozers as per situation prevailing at site. Efforts would be made that flood water may not stand in crops as well as Abadie's, to minimize the loss/ damages and ultimately fall again the same way in river Chenab from the shortest possible time.
- iii. Keep a close liaison with Civil Administration Public Representatives. Army authorities. List of phone numbers of above authorities have been mentioned in this flood fighting plan (chapter No. 10)

**13.3.2 Establishment of Flood Fighting Camps.****Drains**

Drains	Reach	Length In Mils	Battle Station
L.B.N Drain	20000-34000	2.8	RD- 24000

**CAMP SITES ON FLOOD EMBANKMENT AND RIVER TRAINING WORKS.**

Name of Embankment	Reach	Watching length (in miles)	Camp site
L.B.N Drain	0-20	4.0	RD- 9
Guide Wall J-Head Spur	0-6+776	1.35	RD- 4+500
Tie Flood Bund	0- 4+850	0.919	RD- 0
Gunda Bund Near Maddokana Guide Wall Spur	0-5+380	1.018	RD- 4+000

  
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13.3.3 Duties of Officers/Officials and their camp sites.

Camp No.	Location	Officer's Name, Designation & Cell #	Official's Name, Designation & Cell #
01	Tie flood bund between RD 2+000 to 4+850	Nasir Mehmood, Sub Divisional Officer 0300-8876005	Riaz Lali Sub Engineer 0343-4146841

13.3.4 Departmental Machinery available.

There is no Tractor & Trolley available in the control of Bhalwal Drainage Division Bhalwal. If machinery is needed, it will be arranged / hired from private source

13.3.5 Machinery available from Private Source.

If machinery is needed, it will be arranged / hired from private source. (The machinery can be hired in case of emergency).

13.3.6 Flood Fighting Material Required.

13.3.7 Flood Fighting Material Available.

Sr. No.	Name of Item	Unit	Total Required Quantity	Available Quantity	Balance Quantity	Remarks
01	Gunney Bages	No	2100	0	2100	Subject to availability of funds, the materials shall be purchased before start of flood season 2024
02	Chouldari	No	02	0	02	
03	Kassies	No	17	0	177	
04	Baskets	No	15	15	15	
05	Torch	No	11	0	11	
06	Cell of torches (Dozen)	Dozen	08	0	08	
07	Folding Chairs	No	04	4	0	
08	Folding Table	No	02	1	1	
09	Bamboos	No	50	0	50	
10	Energy Saver	No	10	0	10	
11	G.I.Buckets	No	05	0	5	
12	Hand Saw	No	02	2	0	
13	Handle for Kassis	No	10	0	10	
14	Killas	No	10	0	10	
15	Life Jacket	No	05	0	5	
16	M.Oil	Ltr	05	0	5	
18	Axes	No	05	0	5	
19	Petrol	Ltr	50	0	50	
20	Steel charpai	No	04	0	4	
21	Solti (KG)	Kg	05	0	5	
22	Umbrella	No	03	0	3	
23	Briefing board 10x12	No	03	1	2	
24	Wooden Hammer	No	03	0	3	

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## SITE PLAN NO. 2 (LBN Flood Bund Reach RD 0-15+000.)

Emergency Contingency Plan for vulnerable sites listed above

Emergency Contingency Plan must include: -

13.1 Plan showing the route of expected flood water coming out of the breach supported with level.

A plan showing the rout of accepted flood water coming out of mishap site situated LBN Flood bund reach RD 0-15+000.

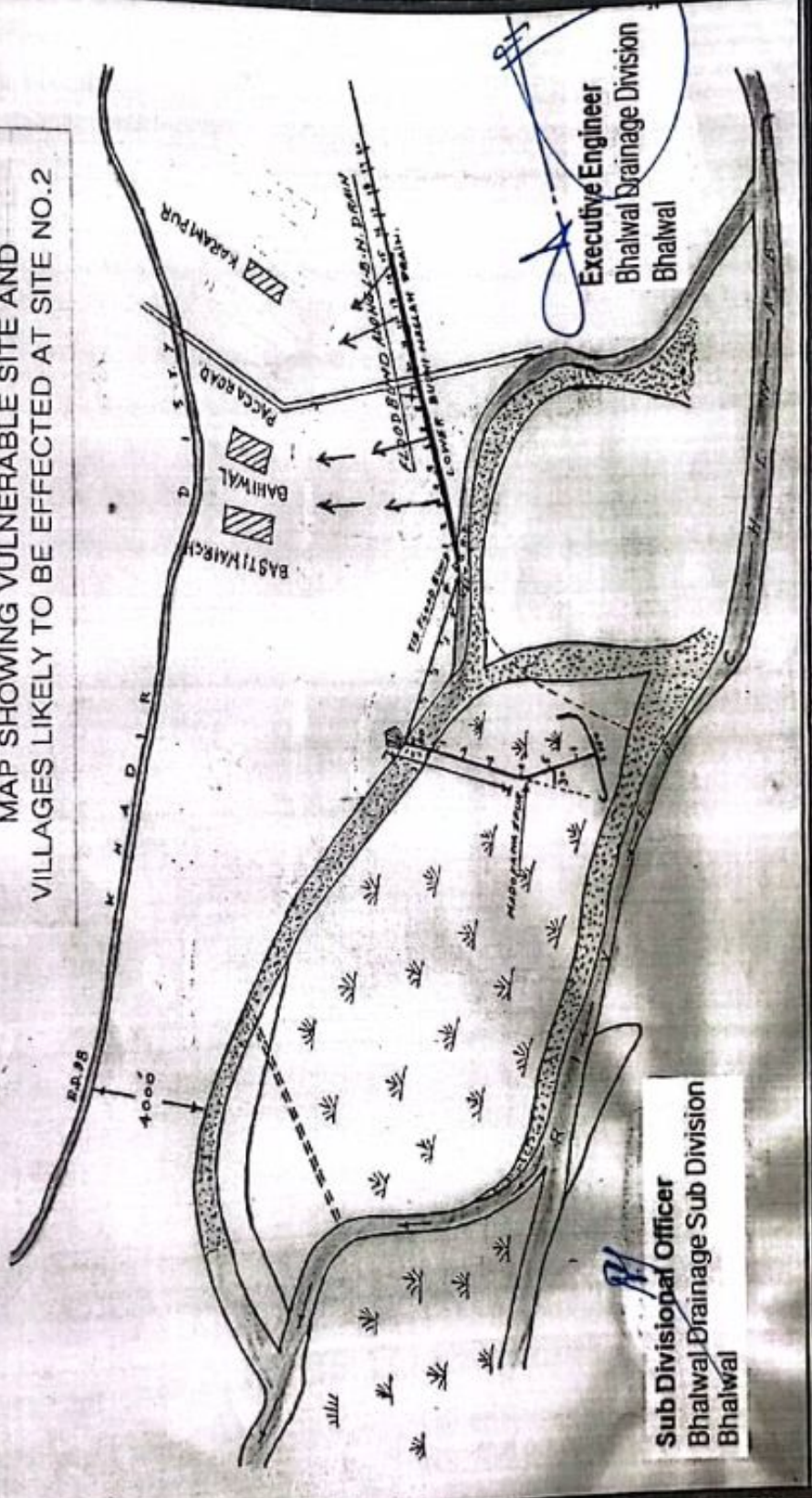
13.2 Detail of villages Abadie's likely to be affected mentioned as under (to be shown on the plan).

Bahiwal	RD:15+000
Karaam Pur	RD:15+000
Basti Warriachan	RD:15+000

  
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MAP SHOWING VULNERABLE SITE AND VILLAGES LIKELY TO BE EFFECTED AT SITE NO.2



Executive Engineer  
Bhalwal Drainage Division  
Bhalwal

Sub Divisional Officer  
Bhalwal Drainage Sub Division  
Bhalwal

### 13.3 Strategy and action taken be explained in detail.

As explained above at Sr. No. 13.4, there are no vital installations in this area like oil refineries, power houses and other important infrastructure

#### 13.3.1 Arrangements.

The incharge of Sub Sector, Sub Divisional Officer, Bhalwal Drainage Sub Division Bhalwal & Executive Engineer Drainage Division Bhalwal taking the cognizance of situation will make liaison with the civil administration and police department and also arrange.

- iv. Proclamation on loudspeakers etc for evacuation of abadies inside the route of flood water.
- v. Flood hut has been proposed to be established at RD 9+000 of LBN Flood Bund at high level to monitor the emergent flood situation. If any obstruction found coming out in the way of flood water, it would be removed by deploying establishment and machines such like tractors excavator machine and bulldozers as per situation prevailing at site. Efforts would be made that flood water may not stand in crops as well as abadies, to minimize the loss/ damages and ultimately fall again the same way in river Chenab from the shortest possible time.
- vi. Keep a close liaison with Civil Administration Public Representatives. Army authorities. List of phone numbers of above authorities have been mentioned in this flood fighting plan (chapter No. 10)

#### 13.3.2 Establishment of Flood Fighting Camps.

##### CAMP SITES ON DRAINS

Drains	Reach	Length in Mils	Battle Station
L.B.N Drain	20000-34000	2.8	RD- 24000

##### CAMP SITES ON FLOOD EMBANKMENT AND RIVER TRAINING WORKS.

Name of Embankment	Reach	Watching length (In miles)	Camp site
L.B.N Drain	0-20	4.0	RD- 9
Guide Wall J-Head Spur	0-6+776	1.35	RD- 4+500
Tie Flood Bund	0- 4+850	0.919	RD- 0
Gunda Bund Near Maddokana Guide Wall Spur	0-5+380	1.018	RD- 4+000

#### 13.3.3 Duties of Officers/Officials and their camp sites.

Camp No.	Location	Officer's Name, Designation & Cell #	Official's Name, Designation & Cell #
01	LBN Flood bund reach RD 0-15+000	Nasir Mehmood, Sub Divisional Officer 0300-8876005	Riaz Lali Sub Engineer 0343-4146841

**13.3.4 Departmental Machinery available.**

There is no machinery available in the control of Bhalwal Drainage Division Bhalwal.

**13.3.5 Machinery available from Private Source.**

If machinery is needed, it will be arranged / hired from private source. (The machinery can be hired in case of emergency).

**13.3.6 Flood Fighting Material Required.**

Detail of flood fighting material Required at Sr # 13.3.6

**13.3.7 Flood Fighting Material Available.**

Detail of flood fighting material available at Sr # 13.3.7 (Page No. 24)

  
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**SITE PLAN NO. 3 (Guide Wall J-Head Spur RD: 2+500 - 3+500.)**

**Emergency Contingency Plan for vulnerable sites listed above**

**Emergency Contingency Plan must include: -**

**13.1 Plan showing the route of expected flood water coming out of the breach supported with level.**

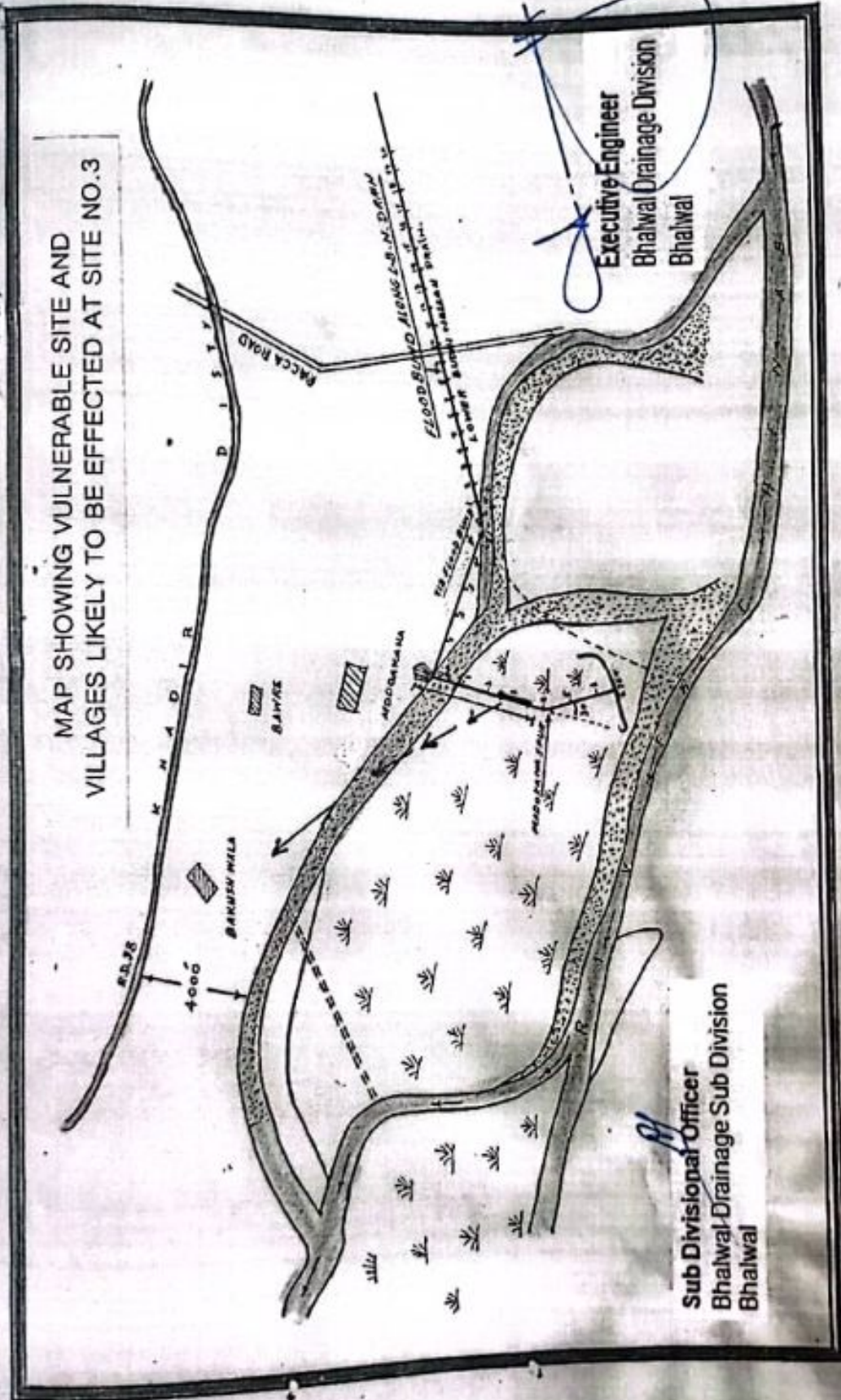
A plan showing the rout of accepted flood water coming out of mishap site situated **Guide Wall J-Head Spur RD: 2+500 - 3+500.**

**13.2 Detail of villages abadies likely to be affected mentioned as under (to be shown on the plan).**

Bakhshawala	RD: 2+500
Maddokana	RD: 2+500

  
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MAP SHOWING VULNERABLE SITE AND VILLAGES LIKELY TO BE EFFECTED AT SITE NO.3



**13.3.4 Duties of Officers/Officials and their camp sites.**

Camp No.	Location	Officer's Name, Designation & Cell #	Official's Name, Designation & Cell #
01	Guide Wall J-Head Spur RD: 2+500 - 3+500	Nasir Mehmood, Sub Divisional Officer 0300-8876005	Riaz Lali Sub Engineer 0343-4146841

**13.3.5 Departmental Machinery available.**

There is no machinery available in the control of Bhalwal Drainage Division Bhalwal.

**13.3.6 Machinery available from Private Source.**

If machinery is needed, it will be arranged / hired from private source. (The machinery can be hired in case of emergency).

**13.3.7 Flood Fighting Material Required.**

Detail of flood fighting material Required at Sr # 13.3.6

**13.3.7 Flood Fighting Material Available.**

Detail of flood fighting material available at Sr # 13.3.7 (Page No. 24)

  
XEN: / BHL DRG



**SITE PLAN NO. 4 (Ganda Bund near Maddokana RD: 0+2000.)**

**Emergency Contingency Plan for vulnerable sites listed above**

**Emergency Contingency Plan must include: -**

**13.1 Plan showing the route of expected flood water coming out of the breach supported with level.**

A plan showing the rout of accepted flood water coming out of mishap site situated Ganda Bund near Maddokana RD: 0+2000. Work in progress at site

**13.2 Detail of villages abadies likely to be affected mentioned as under(to be shown on the plan).**

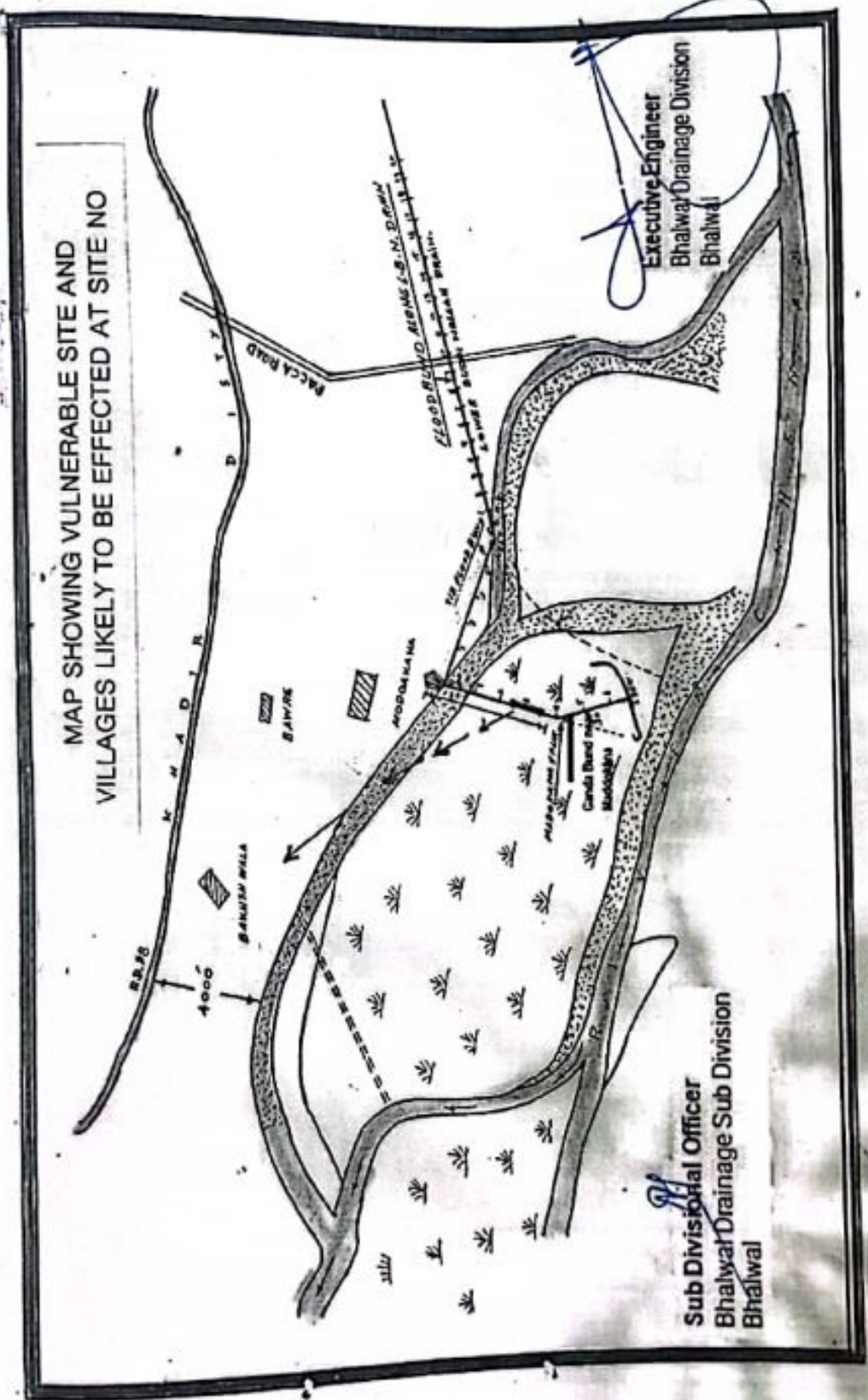
Bakhshawala	RD: 2+500
Maddokana	RD: 4+300

*24/03/24*  
Superintending Engineer  
Sargodha Drainage Circle  
SARGODHA

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*15/04/24*  
Chief Engineer  
Sargodha Irrigation Zone  
Sargodha

MAP SHOWING VULNERABLE SITE AND VILLAGES LIKELY TO BE EFFECTED AT SITE NO



Executive Engineer  
Bhalwar Drainage Division  
Bhalwar

Sub Divisional Officer  
Bhalwar Drainage Sub Division  
Bhalwar

**13.3.3 Duties of Officers/Officials and their camp sites.**

Camp No.	Location	Officer's Name, Designation & Cell #	Official's Name, Designation & Cell #
01	Gunda Bunda Near Maddokana Guide Spur	Nasir Mehmood, Sub Divisional Officer 0300-8876005	Riaz Lali Sub Engineer 0343-4146841

**13.3.4 Departmental Machinery available.**

There is no machinery available in the control of Bhalwal Drainage Division Bhalwal.

**13.3.5 Machinery available from Private Source.**

If machinery is needed, it will be arranged / hired from private source. (The machinery can be hired in case of emergency). Govt Contractor is working at Gunda Bund site can be deputed from contractor in case of emergency.

**13.3.6 Flood Fighting Material Available.**

Detail of flood fighting material available and stored at Bakhshawala is given as (Sr. # 13.3.7)

**13.3.7 Flood Fighting Material Available.**

Detail of flood fighting material available at Sr # 13.3.7 (Page No. 24)

**13.4 Detail of other infrastructure like electric, Sui gas, Telephone Installations, Road Network, other buildings, Canals and Drainage network.**

The details of infrastructure which may be affected.

1. Pacca Road Bhalwal to River Chenab
2. Khadir Disty.
3. Electric installation of village.

There is no such huge infrastructure like Grid station, Sui Gas station exists in this area. It is expected that minor damages may occur.

  
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# ACTION PLAN

## CHAPTER – 14

### **ACTION PLAN**

**14.1 Re-shuffling /recouping plan of reserve stone departmentally.**

Reshuffling of stone not required as there is only one structure namely **Guld Wall J-Head Spur at Madokana**, whereas the minimum limit has been fixed as 35000 Cft. Anyhow, 8860 Cft stone has been available at site (attached) and the balance 26141 Cft will be recouped after sanction of estimate and availability of funds before start of flood season 2024.

**14.2 Detail of Inlet/Outlet Crossing Along with Closing Methodology.**

\_\_\_\_\_ Nil \_\_\_\_\_

  
XEN: / BHL DRG

14.3 DEPLOYMENT OF MACHINERY.

MEDIUM TO HIGH FLOOD IN BHALWAL DRAINAGE DIVISION BHALWAL.

Sr.No.	Name of Structure	Length in Mile	Vulnerable / Reach	Camp Location	Site Incharge by Name & Cell No.	Machinery Deployed				Labour Beldar + Mate	Availability of Stone (Lac Cft)
						Excavator	Dozer	Trolleys/ Dumpers	Tractor with front blade		
1	2	3	4	5	6	7	9	10	11	12	
<b>FLOOD BUND ALONG RIVER CHENAB IN BHALWAL DRAINAGE DIVISION BHALWAL</b>											
1	Flood Embankment along LBN Drain RD-20	4	RD: 0+000-15+000	RD: 9+000	Riaz Lali Sub Engineer 0343-4146841	1	-	3	3	35+2	-
2	Tie Flood Bund RD 0+4850	0.97	2+000 to 4+850	0+000	Riaz Lali Sub Engineer 0343-4146842	1	-	1	1	6+1	-
3	Guid Wall J-Head Spur RD 0+6776 near Maddokana	1.355	2+500 to 3+500	0+000	Riaz Lali Sub Engineer 0343-4146843	-	1	-	-	5+1	0.089
4	Gunda Bund Near Maddokana RD:0-5+380	1.018	0-5+380	-	Riaz Lali Sub Engineer 0343-4146844	-	-	-	1	3+1	-
Total						2	1	4	5	49+5	0.089

Payment for machinery & work charge employees will be made subject to verification by TPM / consultant

  
XEN: / BHL DRG



14.4. DEPLOYMENT OF MACHINERY.

HIGH TO VERY HIGH FLOOD IN BHALWAL DRAINAGE DIVISION BHALWAL.

Sr.No.	Name of Structure	Length in Mile	Vulnerable / Reach	Camp Location	Site Incharge by Name & Cell No.	Machinery Deployed				Labour		Availability of Stone (Lac Cft)
						Excavator	Dozer	Trolleys/ Dumpers	Tractor with front blade	Beldar + Mate		
1	2	3	4	5	6	7	9	10	11	12		
<b>FLOOD BUND ALONG RIVER CHENAB IN BHALWAL DRAINAGE DIVISION BHALWAL</b>												
1	Flood Embankment along LBN Drain RD-20	4	RD: 0+000-15+000	RD: 9+000	Riaz Lali Sub Engineer 0343-4146841	1	-	4	4	40+2	-	
2	Tie Flood Bund RD 0+4850	0.97	2+000 to 4+850	0+000	Riaz Lali Sub Engineer 0343-4146842	1	-	1	1	8+1	-	
3	Guid Wall J-Head Spur RD 0+6776 near Maddokana	1.355	2+500 to 3+500	0+000	Riaz Lali Sub Engineer 0343-4146843	-	1	-	-	10+1	0.089	
4	Gunda Bund Near Maddokana RD: 0-5+380	1.018	0- 5+380	-	Riaz Lali Sub Engineer 0343-4146844	-	-	-	1	8+1	-	
Total						2	1	5	6	66+5	0.089	

Payment for machinery & work charge employees verify by TPM / consultant

XEN: / BHL DRG

**14.5 DEPLOYMENT OF MACHINERY (HIGH TO EXCEPTIONALLY HIGH FLOOD).  
VERY HIGH TO EXCEPTIONALLY HIGH FLOOD IN BHALWAL DRAINAGE DIVISION BHALWAL.**

St.No.	Name of Structure	Length in Mile	Vulnerable / Reach	Camp Location	Site Incharge by Name & Cell No.	Machinery Deployed				Labour	Availability of Stone (Lac Cft)
						Excavator	Dozer	Trolleys/ Dumpers	Tractor with front blade		
1	2	3	4	5	6	7	9	10	11	12	
<b>FLOOD BUND ALONG RIVER CHENAB IN BHALWAL DRAINAGE DIVISION BHALWAL</b>											
1	Flood Embankment along LBN Drain RD-20	4	RD: 0+000-15+000	RD: 9+000	Riaz Lali Sub Engineer 0343-4146841	2	1	5	5	50+4	-
2	Tie Flood Bund RD 0+4850	0.97	2+000 to 4+850	0+000	Riaz Lali Sub Engineer 0343-4146842	3	-	2	2	15+2	-
3	Guid Wall J-Head Spur RD 0+6776 near Maddokana	1.355	2+500 to 3+500	0+000	Riaz Lali Sub Engineer 0343-4146843	1	1	1	1	18+2	0.069
4	Gunda Bund Near Maddokana RD:0-5+380	1.018	0- 5+380	-	Riaz Lali Sub Engineer 0343-4146844	-	-	-	1	17+2	-
Total						6	2	8	9	100+10	0.069

payment for machinery & work charge employees verify by TPM / consultant



### 14.6 POLICE DEPLOYMENT PLAN.

Sr. No.	Vulnerable sites used for illegal cuts during floods	Concerned Division	Concerned Police Station & Distt	Police Persons Deployed		Remarks (if any)
				Inspector/ Sub Inspector/ASI	Constable	
01	Tie Flood Bund RD:2+000 – 4+850	Drainage Division Bhalwal	Kandiwal Distt Chiniot	ASI = 01	03	-
02	LBN Flood Bund RD:0+000 – 15+000	Drainage Division Bhalwal	Kandiwal Distt Chiniot	Sub Inspector = 01	02	-
03	Guide Wall J-Head Spur RD:2+500 – 3+500	Drainage Division Bhalwal	Kandiwal Distt Chiniot	Inspector = 01	04	-
04	Gunda Bund near Maddokana RD: 0-5+380	Drainage Division Bhalwal	Kandiwal Distt Chiniot	Inspector = 01	04	-

LBN Drain Flood bund falls within the administrative jurisdiction of District Sargodha

Proportionately, in case of observing any sort of law-and-order situation from the public sides; it shall immediately be contacted by the Sub Divisional Officer, concerned with the respective authority of civil administration to maintain the situation at site to avoid any mishap.

  
XEN: / BHL DRG



**14.7 DETAIL OF SYNTHETIC BAGS WITH CAPACITY OF 500 KG AND 1000 KG.**

Sr.No.	Name of Structure	Length in Mile	Vulnerable Reach	Camp / Location	Site Incharge by name & Cell No.	No. of Synthetic bags				Remarks
						500 Kg	1000 Kg	Required	Available	
1	2	3	4	5	6	7	8	9		
<b>FLOOD BUNDS ALONG RIVER CHENAB IN DRAINAGE DIVISION BHALWAL</b>										
1	Flood embankment along LBN drain RD 0 + 20	4	0+000 to 15+000	9+000	Riaz Lali Sub Engineer 0343-4146843	80	Nil	30	Nil	Not available at stock and will be procured in emergency.
2	Tie Flood bund RD 0 - 4850	0.97	2+000 to 4+850	0+000	Riaz Lali Sub Engineer 0343-4146843	80	Nil	30	Nil	
3	Guid Wall J-Head Spur RD: 0 - 6776 near Madokana	1.355	2+500 to 3+500	0+000	Riaz Lali Sub Engineer 0343-4146843	80	Nil	30	Nil	
4	Gunda Bund near Maddokana RD: 0-5+380	1.018	0 - 5+380	-	Riaz Lali Sub Engineer 0343-4146841	35	Nil	15	Nil	

  
XEN: / BHL DRG

**14.8 DETAIL OF POLYTHENE SHEETS OF BLACK COLOR TO PROTECT UPSTREAM SLOP AGAINST WAVW ACTION AND TO CONTROL SEEPAGE THROUGH EMBANKMENTS.**


S No.	Name of Structure	Length in Mile	Vulnerable Reach	Camp / Location	Site Incharge by name & Cell No.	Plastic Sheet (Sft)		Remarks
						Required	Available	
1	2	3	4	5	6	7	8	9
<b>FLOOD BUNDS ALONG RIVER CHENAB IN DRAINAGE DIVISION BHALWAL</b>								
1	Flood embankment along LBN drain RD 0+20	4	0+000 to 15+000	9+000	Riaz Lali Sub Engineer 0343-4146841	130	Nil	Not available at stock and will be procured in emergency.
2	Tie Flood bund RD 0-4850	0.97	2+000 to 4+850	0+000	Riaz Lali Sub Engineer 0343-4146841	130	Nil	
3	Guid Wall J-Head Spur RD:0-6776 near Maddokana	1.355	2+500 to 3+500	0+000	Riaz Lali Sub Engineer 0343-4146841	130	Nil	
4	Gunda Bund near Maddokana RD:0-5+380	1.018	0- 5+380	-	Riaz Lali Sub Engineer 0343-4146841	35	Nil	


  
XEN: / BHL DRG

## CHAPTER-15

### **BACK UP DIVISIONS (IN CASE OF BREACH).**

In case of breach or during emergency, Sargodha Drainage Division Sargodha and his field staff will act as sister Division.

  
Sub Divisional Officer,  
Bhalwal Drainage Sub Division,  
Bhalwal.

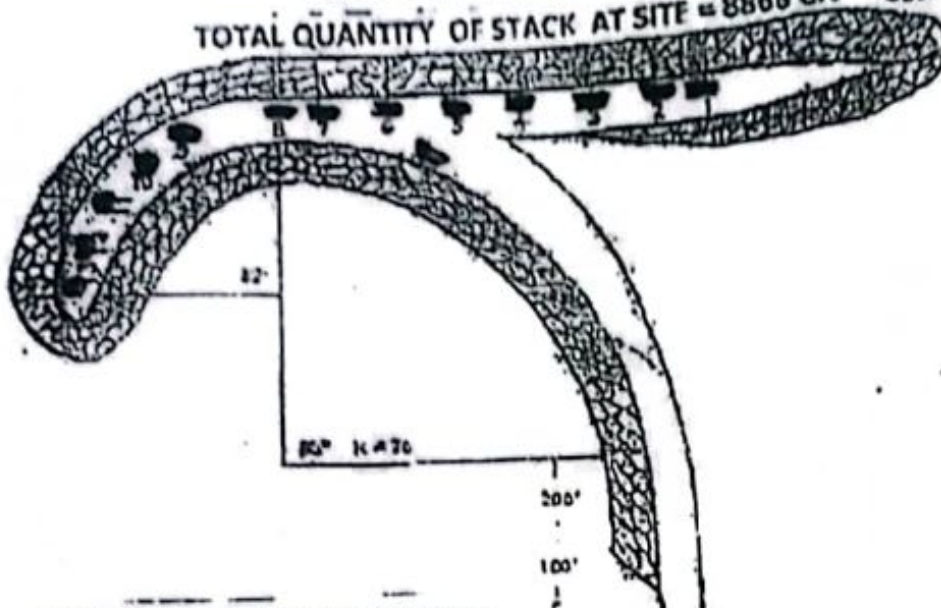
  
Executive Engineer,  
Bhalwal Drainage Division,  
Bhalwal.



# GUIDE WALL SPUR

NEAR MODOKANA VILLAGE

TOTAL QUANTITY OF STACK AT SITE = 8868 Cft SLOPE



DETAIL OF QUANTITY OF STACK PLAN AT SITE

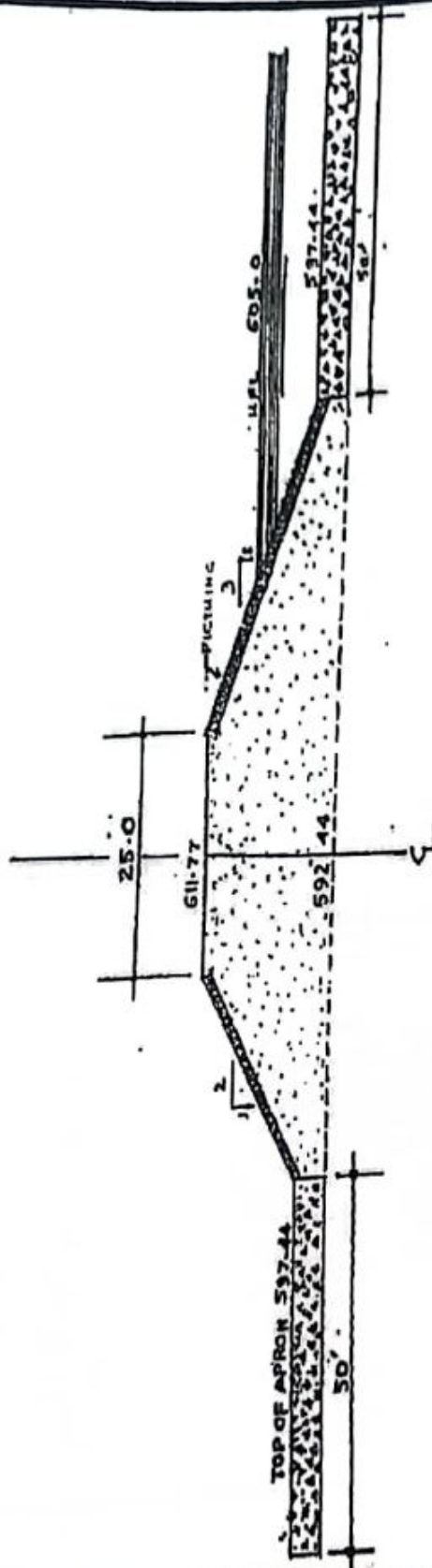
Stack No.	size of stack			QTY: CFT
	Length	Breadth	Depth	
1	33	10.00	2.4	792.0
2	23	10.00	2.5	920.0
3	31	11.00	2.5	852.5
4	27	11.00	2.5	742.5
5	23	12.00	2.5	690.0
6	29	11.00	2.4	768.0
7	12	11.00	2.5	330.0
8	30	14.00	2.5	1050.0
9	27	11.00	2.4	712.8
10	25	12.00	2.0	600.0
11	21	11.00	2.0	462.0
12	27	11.00	2.4	712.8
13	24	11.00	2.0	528.0
TOTAL AMOUNT				9428.20
Deduction for voids @ 6%				565.69
G.Total				8862.51
SAY TOTAL.				8868.00

Sub Divisional Officer  
Bhalwal Drainage Sub Division  
Bhalwal

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Executive Engineer  
Bhalwal Drainage Division  
Bhalwal

**TYPICAL X-SECTION OF GUIDE WALL & SPUR  
NEAR MODOKANA WILLAGE.**



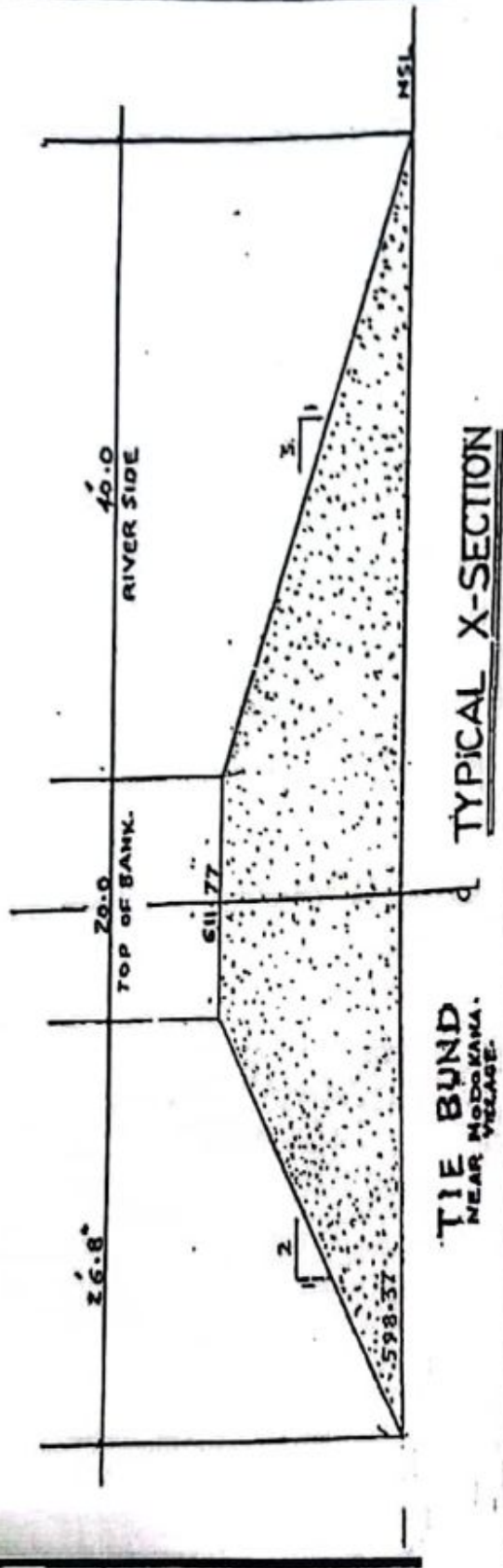
**TYPICAL X SECTION  
GUIDE WALL SPUR  
NEAR MODOKANA  
VILLAGE**

*[Signature]*  
Sub Divisional Officer  
Bhalwal Drainage Sub Division  
Bhalwal

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*[Signature]*  
Executive Engineer  
Bhalwal Drainage Division  
Bhalwal

TYPICAL X-SECTION OF TIE FLOOD BUND  
NEAR MODOKANA WILLAGE.



TIE BUND  
 NEAR MODOKANA  
 NEAR VILLAGE.

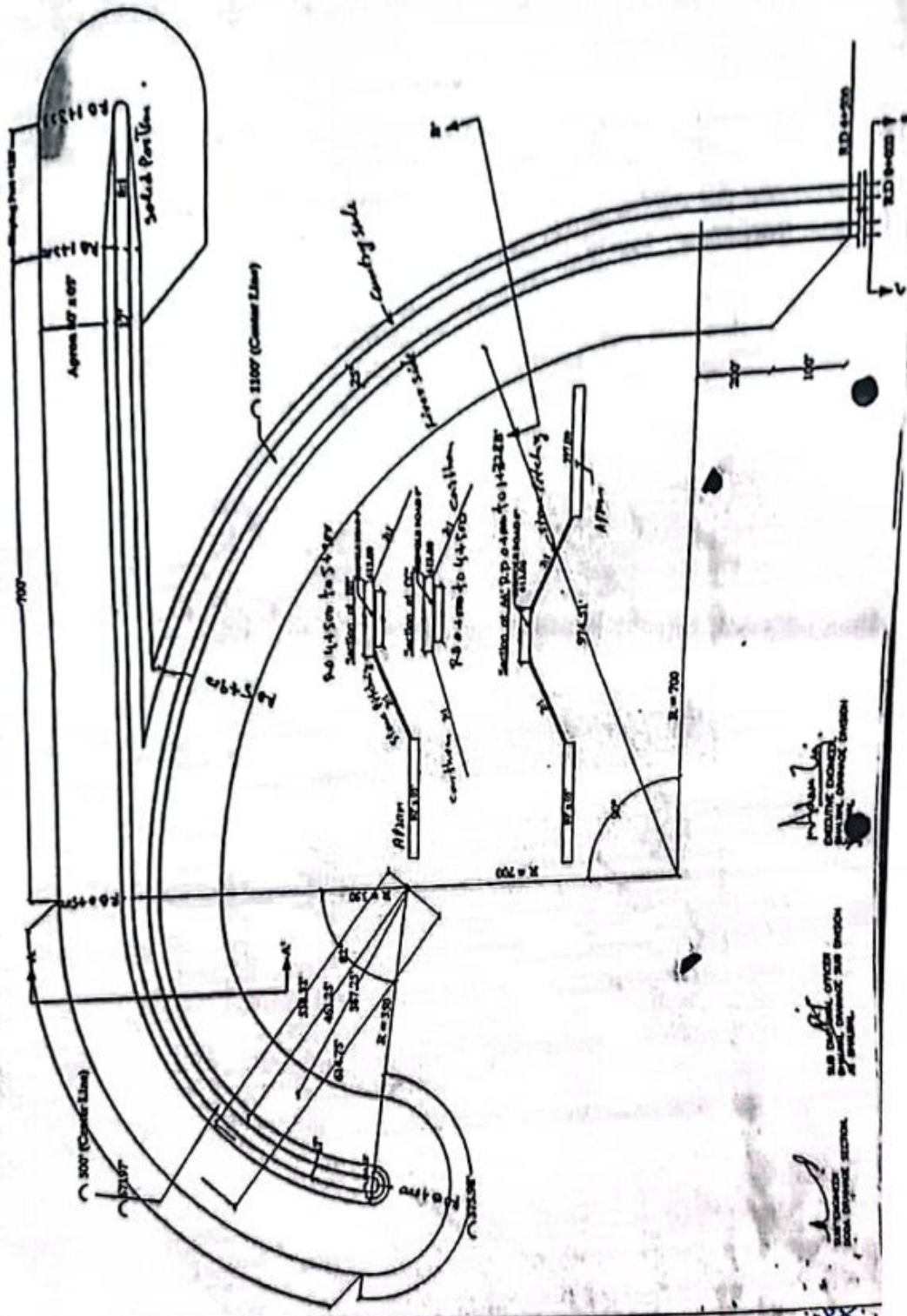
TYPICAL X-SECTION

*AS*  
 Sub Divisional Officer  
 Bhalwal Drainage Sub Division  
 Bhalwal

*[Signature]*  
 Executive Engineer  
 Bhalwal Drainage Division  
 Bhalwal



**REVISED PLAN OF MODOKANA GUIDE WALL SPUR TO PROTECT MODOKANA VILLAGE**

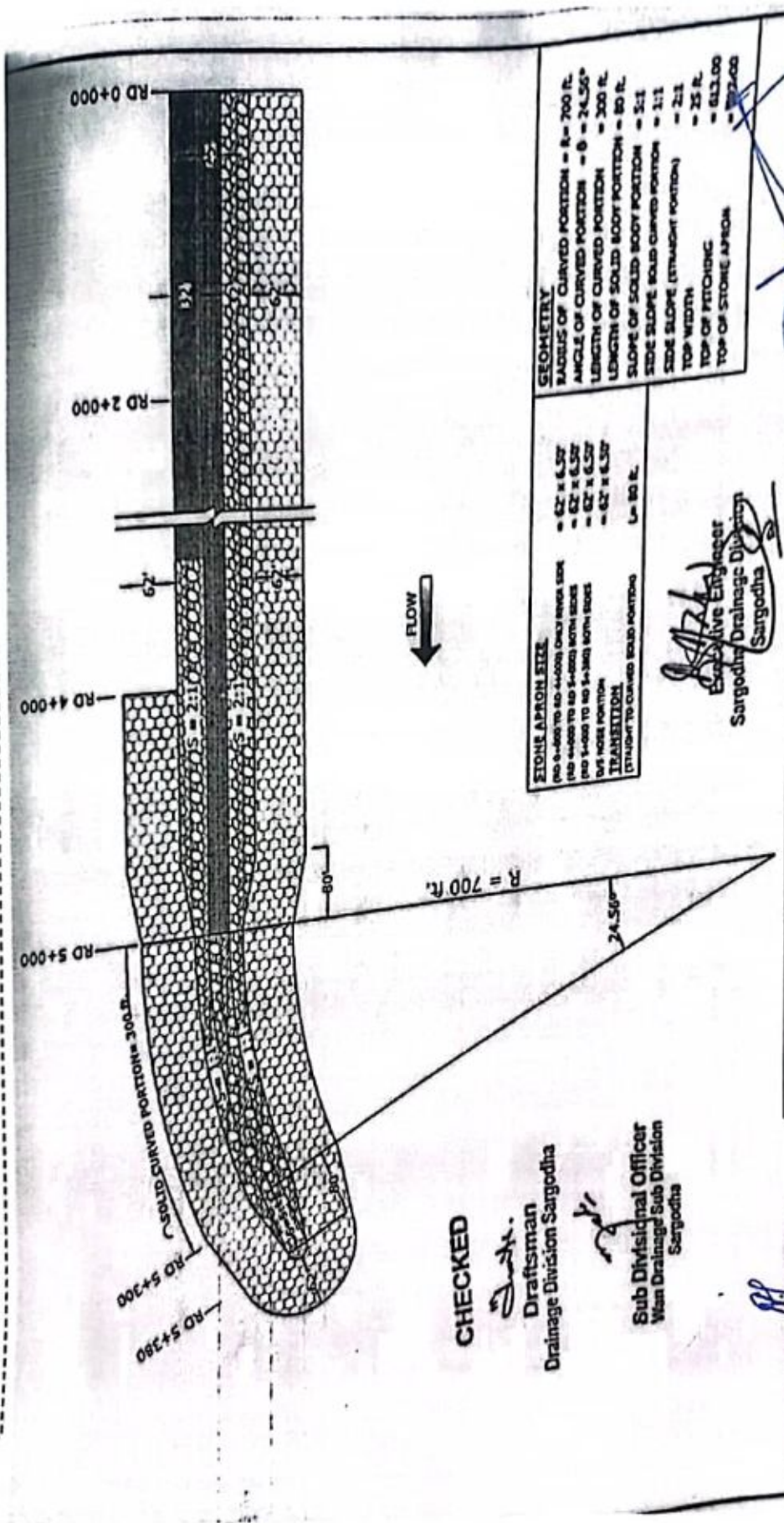


Sub Divisional Officer  
Bhalwal Drainage Sub Division  
Bhalwal

46

Executive Engineer  
Bhalwal Drainage Division  
Bhalwal

PLAN OF GUNDA BUND NEAR MADDOKANA GUIDE WALL SPUR.



**GEOMETRY**

RADIUS OF CURVED PORTION	= R = 700 FT.
ANGLE OF CURVED PORTION	= $\theta = 24.56^\circ$
LENGTH OF CURVED PORTION	= 300 FT.
LENGTH OF SOLID BODY PORTION	= 80 FT.
SLOPE OF SOLID BODY PORTION	= 5:1
SIDE SLOPE SOLID CURVED PORTION	= 1:1
SIDE SLOPE (STRAIGHT PORTION)	= 2:1
TOP WIDTH	= 25 FT.
TOP OF FITTING	= 83.00
TOP OF STONE APRON	= 82.00

**STONE APRON SITE**

(RD 0+000 TO RD 4+000) ONLY REVER SIDE	= 62" x 6.57'
(RD 4+000 TO RD 5+000) BOTH SIDES	= 62" x 6.57'
(RD 5+000 TO RD 5+390) BOTH SIDES	= 62" x 6.57'
DWS PORTION	L = 80 FT.
TRANSITION (STRAIGHT TO CURVED SOLID PORTIONS)	

*[Signature]*  
 Executive Engineer  
 Sargodha Drainage Division  
 Sargodha

**CHECKED**  
*[Signature]*  
 Draftsman  
 Drainage Division Sargodha

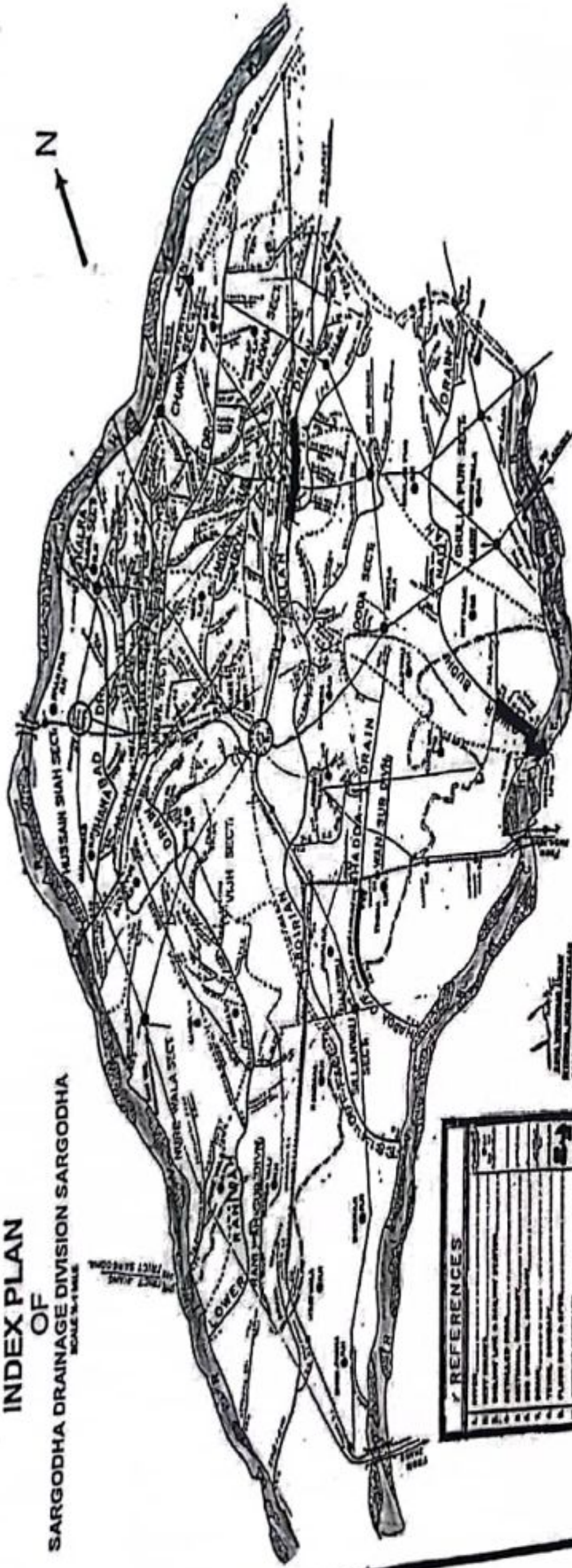
*[Signature]*  
 Sub Divisional Officer  
 Water Drainage Sub Division  
 Sargodha

*[Signature]*  
 Sub Divisional Officer  
 Bhalwal Drainage Sub Division  
 Bhalwal

*[Signature]*  
 Executive Engineer  
 Bhalwal Drainage Division  
 Bhalwal



**INDEX PLAN  
OF  
SARGODHA DRAINAGE DIVISION SARGODHA**  
SCALE 1:10000



REFERENCES	
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7	Survey of India, Sargodha District, 1940
8	Survey of India, Sargodha District, 1940
9	Survey of India, Sargodha District, 1940
10	Survey of India, Sargodha District, 1940

*AS*  
Sub Divisional Officer  
Bhalwal Drainage Sub Division  
Bhalwal

Executive Engineer  
Bhalwal Drainage Division  
Bhalwal