# CHAPTER-1

# SALIENT FEATURES OF KHUSHAB IRRIGATION DIVISION KHUSHAB

## Location.

Khushab Canal Division Khushab is at District Head Quarter Khushab.

## General Description.

Khushab Canal Division Khushab has been functioning since 01-07-2012 under the administrative control of Executive Engineer.

This Division comprises of Four Sub Division as under:-

1. Drainage Sub Division at Khushab.
2. Quaidabad Sub Division at Quaidabad.
3. Jauharabad Sub Division at Khushab.
4. Mechanical Sub Division at Khushab.

For assessment of water rates, Executive Engineer is assisted by one Deputy Collector Headquarter at Khushab. Jurisdiction of Khushab Irrigation Division starts from Tail RD: 157+662 Main Line Upper (Head Pacca).

**Channels.**

|  |  |  |
| --- | --- | --- |
| I | Main Canal and Branches | 40.37-Miles |
| II | Ditsy: and Minors | 374.49-Miles. |
| III | No. of Outlets. | 1033-Nos |

**Area.**

|  |  |
| --- | --- |
| G.A | 476458-Acres |
| C.C.A. | 428337-Acres |
| Intensity | 79% |

**Major Crops.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **KHARIF CROPS.** | |  | **RABI CROPS.** | |
| Cotton. | 3.54% |  | Wheat. | 58.59% |
| Sugar Cane. | 17.23% |  | Barley. | 15.26% |
| Jawar & Chari. | 10.20% |  | Gram. | 0.17% |
| Bajra. | 22.47% |  | Mixed Grain | 0.71% |
| Garden, Fodder & others | 27.43% |  | Garden & others | 21.18% |
| Rice. | 14.57% |  | Oil Seeds. | 3.38% |
| Maize. | 2.31% |  | Mixed. | 0.71% |
| Oil Seeds. | 2.25% |  | XEN KHUSHAB |  |

**Drainage System.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No** | **Name of Drainage system** | **No of Drains**  **Included in the system.** | **Total Length in Canal Miles** | **Authorized Discharge**  **in Cs at out fall** | **Catchments area Sq Mile** |
| **KUSHAB DRAINAGE SECTION** | | | | | |
| 1 | Khushab Drainage System | 8 No | 34.67 | 284 | 105 |
| 2 | Sandral Drainage System | 1 No | 7.37 | 27 | 6.75 |
| **DHAK DRAINAGE SECTION** | | | | | |
| 1 | Dhak Drainage system | 1 No | 12.50 | 516 | 129 |
| 2 | Ghag Drainage system | 5 No | 21.20 | 160 | 72.25 |
| 3 | Rajar Pond Drainage system | 1 No | 1.60 | 20 | 5 |
| **BOLA DRAINAGE SECTION** | | | | | |
| 1 | Bola Drainage system | 14 No | 72.44 | 10.84 | 602.33 |
| 2 | Hamoka Drainage system | 1 No | 11.40 | 60 | 9 |
| 3 | Jauharabad Drainage system | 1 No | 8.42 | 80 | 20 |
| 4 | Kaka Drainage system | 1 No | 1.70 | 4 | 1 |
| 5 | Mitha Tiwana Drg system | 4 No | 51.95 | 665 | 188.10 |
| **Total** | | 37 No | 223.25 Canal Miles  or 338.25 KM | 2900 Cs | 1138.43 |

## Administrative Setup

EXECUTIVE ENGINEER

EXECUTIVE WING

Mechanical Sub Division Drainage Sub Division Jauharabad Sub Division Quaidabad Sub Division

XEN KHUSHAB

Tile Drainage I

Dhurian Section

Khushab Section

Wan Section

Nurpur Section

Bandial Section

Gunjial Section

Adhisargal Section

Khushab Section

Nurewala Section

Hamoka Section

Mithatiwana Section

Bola Section

Dhak Section

Tile Drainage II

Mohar Lift Irrigation Scheme “A&B”

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# CHAPTER-2

# FLOOD PROTECTION AND RIVER TRAINING WORKS

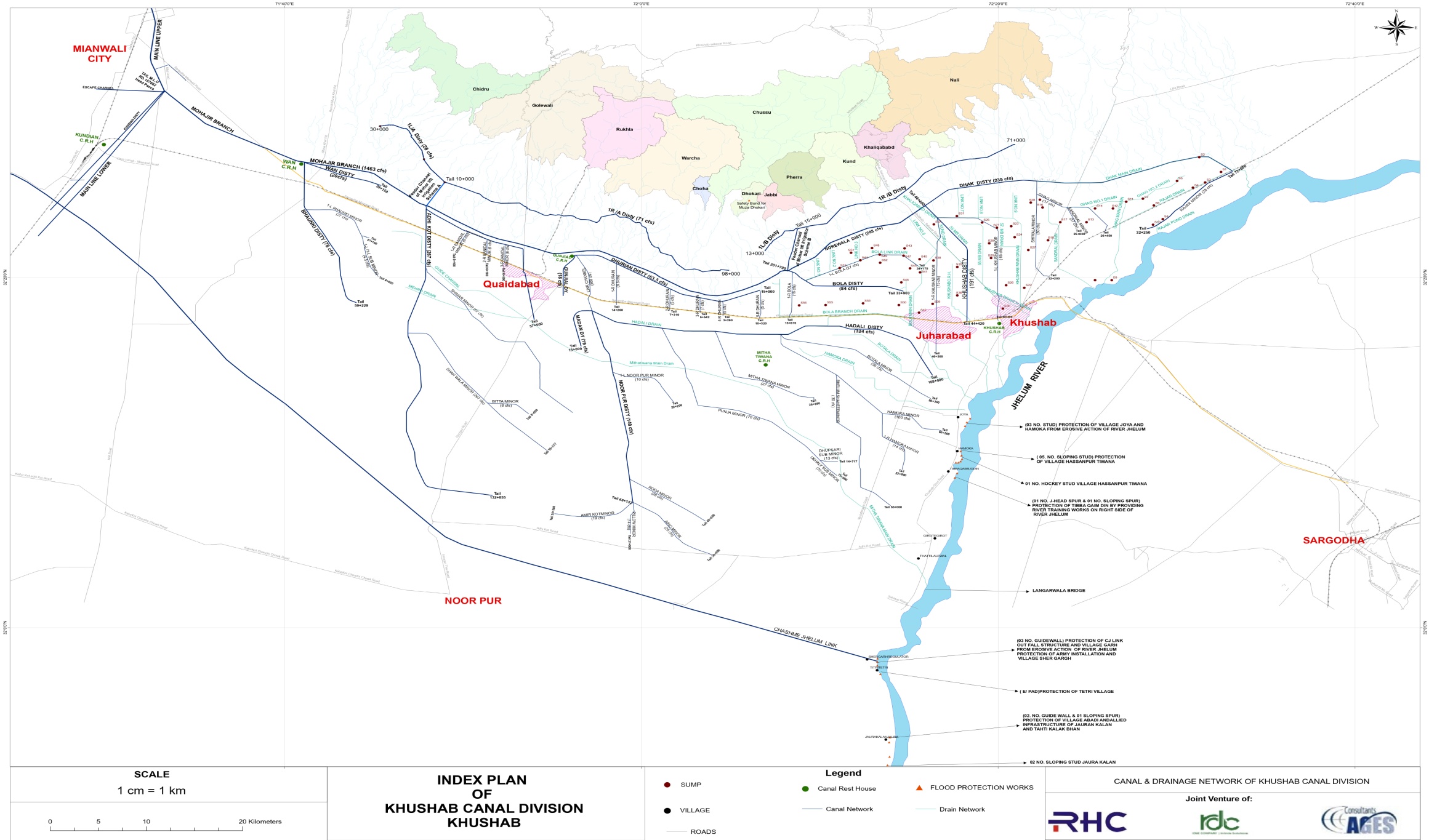
## Design parameter of Training Works

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sr. #** | **Name of structure** | | **Length** | | **Year of Construction** | **Design Para Meters** | | | | | | | | | | | | | | **Side Slope** | | **Tehsil / District** |
| **RD** | **Miles** | **Top Width** | **Apron** | | | | | | **Free Board above HFL** | | **Pitching** | | | | |
| **Length** | **Width** | | **R.L** | | **Depth** | **Length** | | **Thickness** | | **Top R.L** | **River Side** | **Country Side** |
| 1 | 2 | | 3 | 4 | 5 | 6 | 7 | 8 | | 9 | | 10 | 11 | | 12 | | 13 | | 14 | 15 | 16 | 17 |
| 1 | **Protection of Village Joya & Hamoka.** | | | | | | | | | | | | | | | | | | | | | |
| i. | Stud No.1 | 0+163 | | 0.03 | 2004-05 | 8' | 450' | 75' | 573.65' | | 5' | | 2' | | 210' | 1.5' | | 589.2 | | 2:1 | 2:1 | Khushab |
| ii. | Stud No.2 | 0+163 | | 0.03 | 2004-05 | 8' | 450' | 75' | 573.60' | | 5' | | 2' | | 210' | 1.5' | | 589.15 | | 2:1 | 2:1 | Khushab |
| iii. | Stud No.3 | 0+158 | | 0.03 | 2004-05 | 8' | 450' | 43' | 573.53' | | 8' | | 2' | | 210' | 1.5' | | 589.08 | | 2:1 | 2:1 | Khushab |
| 2 | **Protection of Village Hassan Pur Tiwana** | | | | | | | | | | | | | | | | | | | | | |
| i. | Sloping Stud No.1 | | 0+035 | 0.007 | 2015-16 | 15' | 0.070 | - | | - | | - | 5' | 70' | | - | | 578.35 | | 1:1 | 1:1 | Khushab |
| ii. | Sloping Stud No.2 | | 0+035 | 0.007 | 2015-16 | 15' | 0.070 | - | | - | | - | 5' | 70' | | - | | 578.35 | | 1:1 | 1:1 | Khushab |
| iii. | Sloping Stud No.3 | | 0+035 | 0.007 | 2015-16 | 15' | 0.070 | - | | - | | - | 5' | 70' | | - | | 578.35 | | 1:1 | 1:1 | Khushab |
| iv. | Sloping Stud No.4 | | 0+035 | 0.007 | 2015-16 | 15' | 0.070 | - | | - | | - | 5' | 70' | | - | | 578.35 | | 1:1 | 1:1 | Khushab |
| v. | Sloping Stud No.5 | | 0+035 | 0.007 | 2015-16 | 15' | 0.070 | - | | - | | - | 5' | 70' | | - | | 578.35 | | 1:1 | 1:1 | Khushab |
| vi | Hockey Stud | | 0+200 | 0.04 | 2019-20 | 15’ | 349’ | - | | - | | -’ | 5’ | 349’ | | 1.0 | | 578.35 | | 1:1 | 1:1 | Khushab |
| 3 | **Protection of Tibba Qaim Din.** | | | | | | | | | | | | | | | | | | | | | |
| i. | J-Head Spur. | 1+200 | | 0.24 | 2004-05 | 30' | 1906' | 20' to 50' | | 571.30' | 7' to 10' | | 6' | 1850' | | 1.0' | | 590.1  XEN KHUSHAB | | 2:1 | 2:1 | Khushab |
| ii. | Sloping Spur. | 0+238 | | 0.05 | 2004-05 | 10' | 268' | 20' | | 571.35' | 13' | | 6' | 250' | | 1.0' | | 590.15 | | 2:1 | 2:1 | Khushab |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | **Protection of C.J Link out fall structure & Village Shergarh.** | | | | | | | | | | | | | | | | | |
| i. | Guide Wall Spur No.1 | 0+723 | 0.14 | 2002-03 | 30' | 1500' | 20' | 551.86' | 15' | | 6' | 1500' | 1.0' | 574.16 | 2:1 | 2:1 | Khushab | |
| ii. | Guide Wall Spur No.2 | 0+723 | 0.14 | 2001-02 | 30' | 1500' | 20' | 552.16' | 15' | | 6' | 1500' | 1.0' | 574.46 | 2:1 | 2:1 | Khushab | |
| iii. | Guide Wall Spur No.3 | 0+723 | 0.14 | 2001-02 | 30' | 1500' | 20' | 552.50' | 15' | | 6' | 1500' | 1.0' | 574.7 | 2:1 | 2:1 | Khushab | |
| 5 | **Protection of Army Installation & Village Sher Garh** | | | | | | | | | | | | | | | | | |
| i. | Sloping Stud No.1 | 0+080 | 0.02 | 2015-16 | 20' | - | - | - | | - | 3' | - | - | - | 1:1 | 1:1 | | Khushab |
| ii. | Sloping Stud No.2 | 0+093 | 0.02 | 2015-16 | 20' | - | - | - | | - | 3' | - | - | - | 1:1 | 1:1 | | Khushab |
| 6 | **Protection of Tetri Village** | | | | | | | | | | | | | | | | | |
| i. | Apron with E/Pad | 2+000 | 0.40 | 2015-16 | 10' | 2000 | 10 | 570.50 | | 25 | 2' | - | - | - | 1.1 | 1:1 | | Khushab |
| 7 | **Protection of Jaura Kalan & Thatti Kalak Bhan.** | | | | | | | | | | | | | | | | | |
| i. | Guide Wall Spur No.1 | 1+000 | 0.2 | 2006-07 | 25' | 1300' | 40' | 550.68' | | 9.5' | 6' | 1200' | 1.0' | 569.78 | 2:1 | 2:1 | | Khushab |
| ii. | Guide Wall Spur No.II | 1+000 | 0.2 | 2006-07 | 25' | 1300' | 20' | 550.26' | | 18' | 6' | 1200' | 1.0' | 569.36 | 2:1 | 2:1 | | Khushab |
| iii. | Sloping Spur. | 0+167 | 0.03 | 2006-07 | 10' | 900' | 20' | 549.60' | | 18' | 6' | 750' | 1.0' | 568.7 | 2:1 | 2:1 | | Khushab |
| 8 | **Safety Bund Mouza Dhokary** | | | | | | | | | | | | | | | | | |
| i. | Safety Bund | 3+200 | 0.64 | 1993-94 | 10' | N.A | - | - | | - | 3' to 6' | - | - | - | 2:1 | 2:1 | | Khushab |

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## Location map



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# CHAPTER-3

# BRIEF HISTORY OF PAST FLOOD EVENTS.

The Major Flood from 1959 to 2016 was in 1992. The discharge at downstream Rasul Barrage on 10/09/1992 in river Jhelum was 952170 Cs. And no damage of flood protection works of Khushab Canal Division occurred as well as from 1993 to 2009. In the flood 2010, Guide wall No. II Jaura Kalan was damaged. The discharge of River Jhelum on 13/07/2010 D/S Rasul Barrage was 233292 Cs which shacked the guide wall No. I Jaura KalanThatti Kalak Bhan badly & Sloping Stud No.1, Army installation & Village Sher Garh Partially damaged due to erosion of River Jhelum.

The discharge at downstream Rasul Barrage on 04.09.2020 in river Jhelum was 114604 Cs and no damage of flood protection works of Khushab Canal Division Khushab occurred in the flood 2020.

Khushab Canal Division experienced a very high magnitude flash flooding event caused due to hill torrents emerging from the salt range in 2020.

From 31.08.2020 to 04.09.2020 there was very heavy rainfall happened in all Tehsils of District Khushab, due to which exceptionally high hill torrents emerged from the salt range mountains and overtopping Mohajir Branch canal in various reaches entered in abadies, drains and canal infrastructure.

**RAIN FALL DATA OF 05 DAYS FROM 31.08.2020 TO 04.09.2020.**

|  |  |
| --- | --- |
| **Name of Tehsil** | **Rain fall (mm)** |
| Naushera | 401 |
| Khushab | 312 |
| Quaidabad | 301 |
| Nurpur Thal | 250 |
| **TOTAL=** | **1264** |

Whereas total annual rainfall of district Khushab is 524 mm (Approx) and rainfall during just in 05 days (i.e. 31.08.2020 to 04.09.2020) is more than twice to that annual rainfall in district Khushab. It was ever high rainfall recorded in the history of district Khushab.

.During flood season 2023, flow in River Jhulem D/S Rasul Barrage remained normal and maximum discharge reached up to 19220 cs .As per as torrential floods are concerned, no major event of rainfall occurred. Some local events of rainfall were reported in Tehsil Quaidabad but situation remained under controlled.

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# CHAPTER-4

# DESIGNED DATA, HISTORIC PEAK FLOOD DATA AND PREVIOUS FIVE YEARS FLOOD DATA OF HEAD WORKS / BARRAGES AND OR OTHER CONTROL POINTS.

Since no Head work / Barrage falls in the Jurisdiction of Khushab Canal Division, therefore this Division has to become active with discharge gauge at River Jhelum Downstream Rasul Barrage.

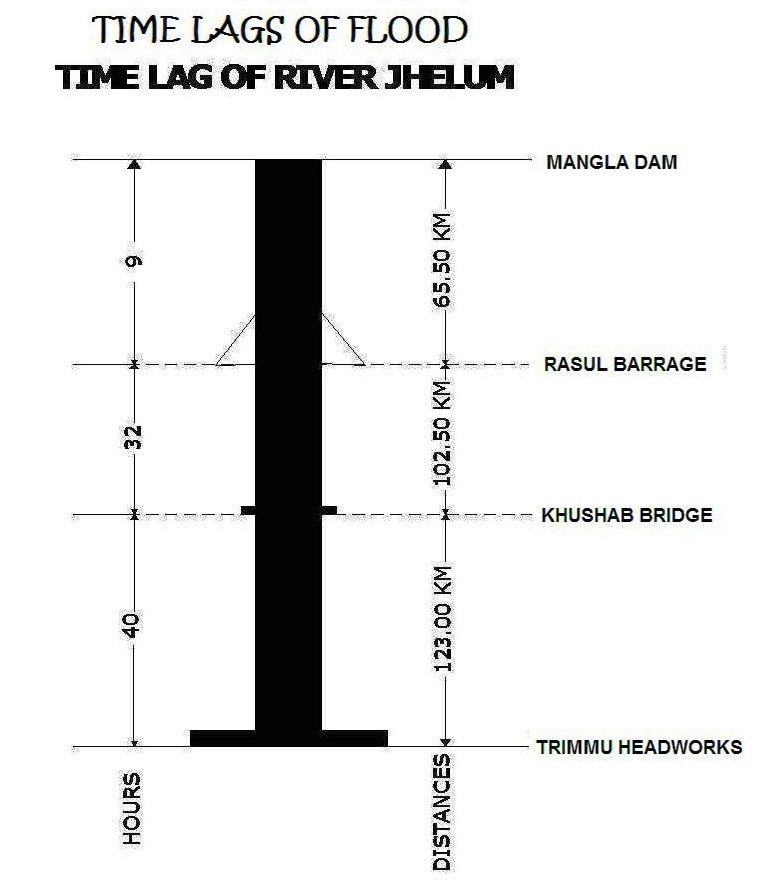
## Flood Limits.

Flood limits for River Jhelum down Stream Rasul Barrage are as under:-

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Normal | = | 00000 | to | 75000 | Cs |
| Low Flood | = | 75000 | to | 110000 | Cs |
| Medium Flood | = | 110000 | to | 150000 | Cs |
| High Flood | = | 150000 | to | 225000 | Cs |
| Very high Flood | = | 225000 | to | and above | Cs |

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## Time Lags of Floods



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## Highest Floods:-

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr.#** | **Date** | **Discharge** | | **Remarks** |
| 1 | 10.07.1972 | 105150-Cfs | D/S Rasul Barrage | No Damage |
| 2 | 04.08.1976 | 269330-Cfs | D/S Rasul Barrage | No Damage |
| 3 | 10.09.1992 | 952170-Cfs | D/S Rasul Barrage | No Damage |
| 4 | 27.08.1997 | 549598-Cfs | D/S Rasul Barrage | No Damage |
| 5 | 13.07.2010 | 233292-Cfs | D/S Rasul Barrage | Guide Wall No. II Jaura Kalan Thati KalakBhan, Tiba Qaim Din, SherGharh |
| 6 | 06.09.2014 | 516387-Cfs | D/S Rasul Barrage | No Damage |

## Peak Discharge.

|  |  |  |
| --- | --- | --- |
| **Date** | **Discharge (Cfs)** | **Pond Level (Ft)** |
| 14.07.1993 | 100998 | 718.00 |
| 28.07.1994 | 129312 | 717.00 |
| 23.08.1995 | 285071 | 715.00 |
| 27.06.1996 | 136712 | 716.00 |
| 27.08.1997 | 549598 | 716.00 |
| 18.05.1998 | 73597 | 719.00 |
| 17.07.2005 | 92246 | 719.00 |
| 13.07.2006 | 165947 | 720.00 |
| 15.08.2007 | 23608 | 719.00 |
| 03.05.2008 | 27515 | 719.00 |
| 06.08.2009 | 56794 | 718.00 |
| 13.07.2010 | 233292 | 718.00 |
| 17.09.2011 | 96864 | 718.00 |
| 04.07.2012 | 27515 | 718.00 |
| 24-07-2013 | 35325 | 719.00 |
| 06-09-2014 | 516387 | 720.40 |
| 29-07-2015 | 99103 | 718.20 |
| 24.06.2016 | 43135 | 719.00 |
| 30-08-2017 | 31420 | 719.00 |
| 13.07.2108 | 25580 | 592.00 |
| 24.06.2019 | 90120 | 596.90 |
| 04.09.2020 | 114604 | 596.10 |
| 15.08.2021 | 18000 | 590.00 |
| 24.06.2022 | 21050 | 590.50 |
| 11.09.2023 | 24100 | 591.00 |

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# CHAPTER-5

# FLOOD FIGHTING STRATEGY

The Sub Divisional Officer Jauharabad Sub Division will work as flood emergency officer. The flood emergency center will run under his supervision with the following officials / staff.

* Signaler Khushab Division.
* Electrician Jauharabad Sub Division.
* Peon = 2-Nos.

During flood days, leave will be granted to above official with the permission of Executive Engineer Khushab Canal Division Khushab only and in such case an alternate arrangements shall be made.

A flood emergency center will be opened in the Telegram office Khushab Canal Division Khushab under the supervision of Sub Divisional Officer Jauharabad Sub Division having Telephone No. 0454-711847 which will remain open 24 Hours from 15.06.2024 to 15.10.2024 on all working days as well as Sunday and all public holidays. This emergency center will have a liaison with flood control room established in the office of Deputy Commissioner Officer Khushab to take appropriate remedial measure. A gauge and discharge register shall be maintained in the flood emergency center.

**River-in Flood**

**STAGE-I**

1. **Low Flood Discharge 75000-Cs.- 110000 Cs.**

The Sub Engineers In-charge will shift their camps at Flood Fighting campus Tibba Qaim Din, Shair Gharh C.J Link Outfall, Thatti Kalak Bhan (Jaura Kalan) and safety bund at Mouza Dhokary.

**STAGE-II**

1. **Low Flood Discharge 75000-Cs.- 110000 Cs.**

No extra labour will be employed. The labour arranged for preparedness will continue as such. The Sub Engineers In-charge will shift their camps at Flood Fighting campus Tibba Qaim Din, Shair Gharh C.J Link Outfall, Thati Kalak Bhan(Jaura Kalan) and safety bund at Mouza Dhokary.

**STAGE-III**

1. **Medium Flood Discharge 110000-Cs- 150000Cs.**

The flood water flows within River banks. No extra labour will be employed on Structures / Flood Bund. However, the labour on Spurs will be doubled i.e. two men per Spur for day and four for night. Sub Divisional Officer Jauharabad will also shift his camp to site where, the situation so warrants and will minutely watch the River action.

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**STAGE-IV**

1. **High Flood Discharge 150000-Cs -225000 Cs.**

Day and night watching on structures will be maintained in three shifts. In case of any emergency Sub Divisional Officer will contact the Executive Engineer Khushab and will suggest / take Fighting measures with prior concurrence of Superintending Engineer, Thal Canal Circle, Mianwali. He will keep a close liaison with Flood Centre of Deputy Commissioner Officer Khushab and Flood Emergency Officer of Sargodha Irrigation Zone Sargodha.

**STAGE-V**

1. **High and Exceptionally High Flood 225000- Cs. & above.**

This stage warrants alarming situation. The watching labour will be raised to 6 men per Structures per shift.

The Sub Divisional Officer, Telephone will keep Telephone in working order so that the flood messages are expeditiously conveyed to all concerned. The Punjab Police department (wireless control wing) District Khushab will provide Two station wireless set for installing on the bund and at Khushab Railway Bridge Gauge so as to communicate the gauges and other emergency messages to Irrigation, Civil, and any other Officers.

Deputy Commissioner / District Police Officer will convey instruction relating to protection of Khushab District through Police Wireless set.

**Hill torrent flood**

There are no well established gauges in the catchment area of hill torrent. However the response of department will be followed by the rain flood provided by Pakistan Metrological Department (PMD) and events of rainfall in catchment area of hill torrent.

Day and night watching on structures will be maintained in three shifts. In case of any emergency Sub Divisional Officer will contact the Executive Engineer Khushab and will suggest / take Fighting measures with prior concurrence of Superintending Engineer, Thal Canal Circle, Mianwali. He will keep a close liaison with Flood Centre of Deputy Commissioner office Khushab and Flood Emergency Officer of Sargodha Irrigation Zone Sargodha.

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**Detail of Hill Torrents.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sr No. | Hill Torrent Passing  villages | Name of Canal | Location RD: | Calculated Original Design Discharge (cs) |
| 1 | Chidru | Mohajir Branch | 30+568 | 420.86 |
| 2 | 45+938 | 364.09 |
| 3 | 53+267 | 880.60 |
| 4 | 55+293 | 406.87 |
| 5 | 58+500 | 461.52 |
| 6 | 64+000 | 555.56 |
| 7 | 71+800 | 1073.53 |
| 8 | Golewali, | 82+465 | 899.87 |
| 9 | 86+687 | 73.00 |
| 10 | 94+753 | 689.90 |
| 11 | 99+267 | 1114.08 |
| 12 | 100+980 | 358.39 |
| 13 | 105+900 | 291.38 |
| 14 | 110+600 | 337.50 |
| 15 | 112+100 | 317.44 |
| 16 | 119+100 | 777.12 |
| 17 | Rukhle, | 123+480 | 700.00 |
| 18 | Warcha | 125+510 | 363.98 |
| 19 | 129+054 | 350.00 |
| 20 | 135+220 | 1441.06 |
| 21 | 139+760 | 700.00 |
| 22 | 146+780 | 1085.29 |
| 23 | Choha | 157+000 | 450.00 |
| 24 | Chussu | 162+900 | 351.48 |
| 25 | 167+975 | 708.56 |
| 26 | Dhokri | 174+475 | 767.23 |
| 27 | 180+875 | 1474.19 |
| 28 | 188+770 | 719.18 |
| 29 | Jabbi | 195+300 | 450.00 |
| 30 | 198+500 | 1080.00 |
| 31 | Phera | Nurewala Disty | 7+900 | 300.00 |
| 32 | 15+000 | 300.00 |
| 33 | Kund | 23+200 | 1327.61 |
| 34 | 31+350 | 1031.16 |
| 35 | Khaliqabad | 40+140 | 972.87 |
| 36 | 46+000 | 825.00 |
| 37 | Waheer, | Dhak Disty | 10+150 | 457.54 |
| 38 | Nali | 15+200 | 1080.00 |
| 39 | 26+500 | 700.00 |
| 40 | 38+000 | 800.00 |
| 41 | 39+800 | 1452.00 |

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# CHAPTER-6

# FLOOD DAMAGES RESTORATION WORKS.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr. No** | **Name of Work** | **T.S Cost (Million)** | **Expected Completion Time** | **Remarks / Status** |
| **1** | **2** | **3** | **4** | **5** |
| 1 | Restoration of sloping spur at village Thatti Kalak Bhan | 9.205 | 30.06.2024 | Work is in progress |
| 2 | Restoration of Guide Wall No.I & II at Sher Ghar on right bank of river Jhelum in District Khushab | 24.160 | 30.06.2024 | Work is in progress |

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# CHAPTER-7

# FLOOD FIGHTING WATCHING ARRANGEMENT.

## Pre- Flood Arrangement

The flood activities in the jurisdiction of Khushab Canal Division Khushab have been divided into two Sub Sectors i.e. Sub Sector No. 01, and Sub Sector No. 02. The in-charge of Sub Sectors are Sub Divisional Canal Officers Quaidabad and Jauharabad Sub Division as per following detail:-

|  |  |  |
| --- | --- | --- |
| **Sub Divisional Officer**,  Quaidabad Canal Sub Division  Quaidabad  (**In-charge Sub Sector No. 01**) |  | **Sub Divisional Officer**,  Jauharabad Canal Sub Division  Jauharabad  (**In-charge Sub Sector No. 02**) |

**In-charge Sub Sector No. 01** will monitor the flood fighting / watching activities in the part area of Tehsil & District Khushab relating torrential & flood water & river flood.

**Structure Wise status of reserve stock of stone**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sr.#** | **Name of site / location** | | **Reserve Stock Limit** | **Total Qty available** | Balance Quantity | **Remarks** |
|
| 1 | **Protection of Village Joya & Hamoka.** | | | | | Reserve Stock of stone out of total sanction quantity 7.48 Lac Cft, 4.57 Lac Cft Stone is available at Sher Ghar, Tibba Qaim Dain & Jaura Kalan,Thatti Kalan Bhan. For procurement of minimum @70% remaining 0.670 Lac Cft is being considered requirements because there is no land/space available for stacking reserve stock of stone at some structures. |
| i. | Stud No.1 | | -- | -- | Not required |
| ii. | Stud No.2 | | -- | -- | Not required |
| iii. | Stud No.3 | | -- | -- | Not required |
| 2 | **Protection of Tibba Qaim Din.** | | | | |
| i. | J-Head Spur | | 1.25 | 1.25 |  |
| ii. | Sloping Spur | | -- |  |  |
| 3 | **Protection of C.J Link out fall structure & Village Sher Garh.** | | | | |
| i. | Guide Wall Spur No.1 | | 1.00 | 1.00 | Not required |
| ii. | Guide Wall Spur No.2 | | 0.41 | 0.41 | Not required |
| iii. | Guide Wall Spur No.3 | | 0.41 | 0.41 | Not required |
| 4 | **Protection of Jaura Kalan &Thatti Kalak Bhan.** | | | | |
| i. | Guide Wall Spur No.1 | | 1.50 | -- | 1.50 |
| ii. | Guide Wall Spur No.II | | 1.50 | 1.50 | Not required |
| iii. | Sloping Spur. | | -- | -- | -- |
| 5 | **Protection of Army Installation & Village Sher Garh** | | | | |
|  | Sloping Stud 2 No. | | 0.24 | **--** | 0.24 |
| 6 | | **Protection of Village Hassan Pur Tiwana** | | | |
|  | | Sloping Stud 5 No. | 0.22 | -- | 0.22 |
| 7 | | **Protection of Tetri Village** | | | |
|  | | Apron with E/Pad | 0.95 | -- | 0.95 |
| 8 | | **Safety Bund Mouza Dhokary** | | | Not required |
| **G. Total** | | | **7.480** | **4.570** | **2.91** |  |

**Consolidated status of reserve stock of stone**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Reserve stock Limit (cft) | | | Minimum requirement @70% | Available Quantity (cft) | Balance Quantity(cft) | Remarks | | |
| 7.480 | | | 5.240 | 4.570 | 0.670 | The balance requirement is being considered w.r.t to minimum requirements. Because there is no land/space available for stacking reserve stock of stone at some structures.  XEN KHUSHAB | | |
| **Sr.#** | **Flood Bund** | | | | | **Reach.** | **Length.** | |
| 1. | Safety bund for Mouza Dhokary District Khushab | | | | | RD: 0-3200 | 0.64 mile | |
| **Total:-.** | | | | | | | **0.64 mile** | |

1. **Low Flood**
   * + Sub Engineer Dhurian Section (Dhokary Flood Bund)
2. **Medium Flood**

At medium flood stage, the water spills out from river Jhelum & Canal and inundates the low lying areas. It also hits the Abadies at some places. The watching of canal system is necessary to be arranged. Therefore, one man for day and one for night per mile are employed, including the existing gang, for watching.

1. **High Flood.**

The watching establishment will be raised to one man per mile for three shifts a day, including existing gang. The Sub Divisional Officer Quaidabad will be over all in-charge of torrential flood.

1. **High And Exceptionally High Flood.**

At this stage, the Sub Divisional Officer Quaidabad will be overall in-charge of all the watching/fighting activities of torrential flood water. He will manage the activities, keeping in view the demand of site and consultation with Deputy District Officer (Revenue) Khushab and Assistance Commissioner, Tehsil Quaidabad.

**In-charge Sub Sector No. 02** will monitor the flood fighting / watching activities in the area of Tehsil & District Khushab on the Right side of the River Jhelum. The Flood Bund Spurs in Jauharabad Sub Division are as following.

|  |  |  |
| --- | --- | --- |
| **Sr.#** | **Description** | **Structure** |
| 1. | Protection of village Joya & Hamoka. | 3-No. Studs |
| 2. | Protection of Tibba Qaim Din | 1-No. J-Head Spur  1-No. Sloping Spur |
| 3. | Protection of C.J Link Outfall | 3-No. J-Head Spurs |
| 4. | Protection of Jaura Kalan & Thatti Kalak Bhan. | 1-No. Sloping Spur 2-No. Guide Walls |
| 5 | Protection of Tetri Village | 1-No. J-Head Spur |
| 6 | Protection of Army Installation & Village Sher Garh | 2-No. Sloping Spur |
| 7 | Protection of Village Hassan Pur Tiwana | 5-No. Sloping Spur |
| 8 | Safety Bund for Mouza Dhokary | Safety Bund  XEN KHUSHAB |

For watching River Training Works one No. beldar will be employed on each structure in three shifts i.e. 1st June to 30th September. There is no regular establishment on river training works and Spurs. The establishment will take care of all preparations like filling depressions, rain cuts/gharas, clearance of slopes up to10 feet beyond toe of Structures, Opening/pudding holes etc.

1. **Low Flood Discharge 75000-Cs.- 110000 Cs.**

No extra labour will be employed. The labour arranged for preparedness will continue as such. The Sub Engineers In-charge will shift their camps at Flood Fighting campus Tibba Qaim Din, Shair Gharh C.J Link Outfall, Thati Kalak Bhan (Jaura Kalan) and safety bund at Mouza Dhokary.

1. **Medium Flood Discharge 110000-Cs- 150000Cs.**

The flood water flows within River banks. No extra labour will be employed on Structures / Flood Bund. However, the labour on Spurs will be doubled i.e. one men per Spur for day night. Sub Divisional Officer Jauharabad will also shift his camp to site where, the situation so warrants and will minutely watch the River action.

1. **High Flood Discharge 150000-Cs -225000 Cs.**

Day and night watching on structures will be maintained in three shifts. In case of any emergency Sub Divisional Officer will contact the Executive Engineer Khushab and will suggest / take Fighting measures with prior concurrence of Superintending Engineer, Thal Canal Circle, Mianwali. He will keep a close liaison with Flood Centre office of the Deputy Commissioner Khushab and Flood Emergency Officer of Sargodha Irrigation Zone Sargodha.

1. **High and Exceptionally High Flood 225000- Cs. & above.**

This stage warrants alarming situation. The watching labor will be raised to 6 men per Structures per shift. The Sub Divisional Officer, Telephone will keep Telephone in working order so that the flood messages are expeditiously conveyed to all concerned. The Punjab Police department (wireless control wing) District Khushab will provide Two station wireless set for installing on the bund and at Khushab Railway Bridge Gauge so as to communicate the gauges and other emergency messages to Irrigation, Civil, and any other Officers. Deputy Commissioner / Distinct Police Officer will convey instruction relating to protection of Khushab District through Police Wireless set.

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## Watching Establishment for 4 Months (w.e.f. 15.06.2024 to 15.10.2024)

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sr.#** | **Description** | **Structure** | **Flood Limits** | | | | | | | | **Remarks** |
| **Stage-I Low Flood** | | **Stage-II Medium Flood** | | **Stage-III High Flood** | | **Stage-IV High & Exceptionally High** | |
| **Man** | **Shift** | **Man** | **Shift** | **Man** | **Shift** | **Man** | **Shift** |
| 1 | Protection of Village Joya & Hamoka | 3-No. Studs | -- | -- | 3 | 1 | 18 | 3 | As per stage-III | |  |
| 2 | Protection of Village Hassan Pur Tiwana | 5-No. Sloping Spur | -- | -- | 5 | 1 | 30 | 3 |  |
| 3 | Protection of TibbaQaim Din. | 1-No. J-Head Spur  1-No. Sloping Spur | -- | -- | 1 | 1 | 6 | 3 |  |
| -- | -- | 1 | 1 | 6 | 3 |  |
| 4 | Protection of C.J Link out fall structure & Village Shergarh. | 3-No. J-Head Spurs | -- | -- | 3 | 1 | 18 | 3 |  |
| 5 | Protection of Army Installation & Village Sher Garh | 2-No. Sloping Spur | -- | -- | 2 | 1 | 12 | 3 |  |
| 6 | Protection of Tetri Village | 1-No. J-Head Spur | -- | -- | 1 | 1 | 6 | 3 |  |
| 7 | Protection of Jaura Kalan & Thatti Kalak Bhan. | 1-No. Sloping Spur 2-No. Guide Walls | -- | -- | 3 | 1 | 18 | 3 |  |
| 8 | Safety Bund Mouza Dhokary | Safety Bund | -- | -- | 1 | 1 | 6 | 3 |  |

## Arrangement at Sensitive Sites.

The Sub Engineer will establish their camps at sensitive site on 24-hours along with establishment and will look after the sites 24-hours and in any emergency case he will contact with higher officer / civil administration.

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**Hill torrent flood**

Day and night watching on structures will be maintained in three shifts. In case of any emergency Sub Divisional Officer will contact the Executive Engineer Khushab and will suggest / take Fighting measures with prior concurrence of Superintending Engineer Thal Canal Circle Mianwali. He will keep a close liaison with Flood Centre of Deputy Commissioner Khushab and Flood Emergency Officer of Sargodha Irrigation Zone Sargodha.

|  |  |  |  |
| --- | --- | --- | --- |
| **Name of Sub Division** | **Description** | **Unit** | **QTY** |
| Quaidabad Canal Sub Division, Quaidabad | Beldars | No | 20 |
| Mate | No | 02 |
| Mistari | No | 01 |
| Jauharabad Canal Sub Division, Jauharabad | Beldars | No | 20 |
| Mate | No | 02 |
| Mistari | No | 01 |
| Khushab Drainage Sub Division, Khushab | Beldars | No | 20 |
| Mate | No | 02 |
| Mistari | No | 01 |

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| **Sr.#** | **Description** | **unit** | **Total**  **Required** | **Available** | **Balance Required** | **Remarks** |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | Chair Plastic Set at camps | Set | 06 | 01 | 05 | Balance Quantity will be procured before flood season 2024.  Flood Fighting Material available at Khushab Canal Rest House, Khushab. |
| 2 | Generator 3500-Watts | No. | 02 | 01 | 01 |
| 3 | Gas Cylinder | No. | 02 | 01 | 01 |
| 4 | Gas Stove | No. | 02 | 01 | 01 |
| 5 | Water Set | set | 06 | -- | 06 |
| 6 | Tea Set | set. | 06 | -- | 06 |
| 7 | Dinner Set Plastic | set. | 06 | -- | 06 |
| 8 | Life Jackets | No. | 20 | 06 | 14 |
| 9 | Iron Charpai | No. | 12 | 03 | 09 |
| 10 | Boat, Engine and Trolley | No. | 02 | 01 | 01 |
| 11 | Kassies | No. | 60 | 10 | 50 |
| 12 | Torches rechargeable | No. | 20 | -- | 20 |
| 13 | Tent | No. | 06 | 03 | 03 |
| 14 | Banner for flood camps | No. | 24 | -- | 24 |
| 15 | Petrol for Generator | Ltr | 400 | -- | 400 |
| 16 | Nylon Rope | Kg | 60 | 06 | 54 |
| 17 | Wooden pegs | No. | 100 | -- | 100 |
| 18 | Gunny Bags | No. | 600 | 50 | 550 |
| 19 | Plastic Nylon Bags | No. | 1500 | -- | 1500 |
| 20 | Sutli | Kg | 17 | 2 | 15 |
| 21 | Synthetic bags 500Kg and 1000 Kg Capacity | No. | 2000 | -- | 2000 |
| 22 | Polythene sheets black color | Rft | 1500 | -- | 1500 |
| 23 | Flood Lights along with accessories | No. | 10 | -- | 10 |
| 24 | Axes | No. | 20 | -- | 20 |
| 25 | Wooden cutter machine | No. | 02 | -- | 02 |
| 26 | Fist Aid Box | No. | 07 | -- | 07 |
| 27 | Rain coats | No. | 20 | -- | 20 |

## Watching Material

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## Arrangement for Sounding & Probing.

One number boat is available for sounding and probing purpose for one camp. On other camps Boats will be hired from private sources if needed.

## Lighting Arrangement.

For lighting purpose One No. Generator 3500-Watts is available at watching camp, especially on sensitive site of Guide Wall No. II Jaura KalanThatti Kalak Bhan. On other camps generator will be hired from private sources if needed.

## Ration Arrangement.

Ration will be procured from Market on Emergency basis by Khushab Canal Division Khushab.

## P.O.L Arrangement for Vehicle.

P.O.L will be arranged as per sanctioned estimate of Vehicle and already used in Khushab Canal Division, Khushab.

## Transportation.

Due to any emergency, vehicles will be hired locally.

## Law and Order.

Law and order situation will be handled by the Deputy Commissioner, Khushab & District Police Officer Khushab. A close liaison will be maintained with the Punjab Police Department.

## Medical Arrangement for Labour.

The Chief Executive Officer, District Health Authority, Khushab will arrange Medical Relief Center/ Camp at different sites.

## Liaison with Other Department.

The Irrigation Department will contact with all the concerned Departments of Khushab District.

## Role of the Army.

In case of any emergency, Flood Military Controlling Officer will be informed through Deputy Commissioner, Khushab for the Rescue purpose.

## Duties of Telephone Attendant.

The Telephone Attendant and Signaler will collect River Gauges, from Rasul Barrage, Mangla Head Works & Khushab Bridge and will convey to all concerned.

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Shift No.** | **Name of Officials** | **Cell No.** | **Time** | |
| **From** | **To** |
| Shift-1 | Muhammad Akram(Signaler) | 0306-3968589 | 07:00 AM | 03:00PM |
| Ghulam Raza ( store coli ) | 0303-6038584 |
| Shift-2 | Tasawar Sultan (Beldar) | 0307-7656512 | 03:00 PM | 11:00 PM |
| Mukhtar Ahmad (Electrician) | 0333-9825964 |
| Shift-3 | Nasir (Beldar) | 0302-4656866 | 11:00 PM | 07:00 AM |
| Javed Iqbal (Beldar) | 0306-7282178 |
| Telephone Number of Telegraph Office Drainage Colony Khushab.   * Flood Emergency Center 0454-711847 * Fax No. (Divisional Office) 0454-713747 | | | | |

## Wireless Arrangements.

Punjab Police Department (wireless control wing) will provide Two No. Station Wireless set to communicate the gauges and other emergency massages to Irrigation, Civil and any other Officers.

Deputy Commissioner, Khushab & District Police Officer Khushab shall convey instruction relating to protection of Khushab District through Police Wireless set.

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# CHAPTER-8

# DETAIL OF ENCROACHMENT.

There is no Encroachment on all the River Training Works in the Jurisdiction of Khushab Canal Division Khushab.

# Detail of encroachment.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr #** | **Total Encroachment** | **Removed Encroachment** | **Remaining Encroachment** | **Remarks** |
|  | Nil | Nil | Nil |  |

# 

# Detail of critical encroachment.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr #** | **Total Encroachment** | **Removed Encroachment** | **Remaining Encroachment** | **Remarks** |
|  | Nil | Nil | Nil |  |

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# CHAPTER-9

# DUTY ROSTER/ FLOOD FIGHTING PROGRAM

The Sub Divisional Officer, Jauharabad and Quaid Abad Sub Division after anticipated Hill Torrents discharge coming due to rain fall will contact on Telephone Sub Divisional Officer Kundian, to reduce or close Mohajir Branch. In case of defect in the Telephone, the Sub Divisional Officer will rush to tail Main Line Upper for getting reduction through escape Channel. The Sub Divisional Officer, Quaidabad and Jauharabad will take immediate steps to close the Channels under the Hit of Hill Torrents and open the Escapes existing in Mohajir Branch System. These Officers and staff will shift their head quarters as under:-

|  |  |  |
| --- | --- | --- |
| **Sr.#** | **Name of officer/ Official** | **Duty Place During Flood** |
| 1 | Sub Divisional Officer, Quaidabad / Jauharabad / Drainage | At Gunjial & Khushab |
| 2 | Sub Engineer, Gunjial | At Gunjial. |
| 3 | Sub Engineer Bandial | At Gunjial. |
| 4 | Sub Engineer Wan | Head 87+000 Mohajir Branch |
| 5 | Sub Engineer Dhurian | RD: 201+700 Tail Mohajir Branch |
| 6 | Sub Engineer Nurewala | RD: 46+400 Tail Nurewala Disty |
| 7 | Sub Engineer MithaTiwana. | Head Punja Minor |
| 8 | Sub Engineer Khushab | RD: 34+230 Dhak Disty |
| 9 | Sub Engineer Hamoka | RD: 56+000 Hadali Disty |
| 10 | Sub Engineer AdhiSargal | Quaidabad |

The Duties of the Officers and staff will be that the Torrential flood water may pass with minimum possible damage to the Irrigation Network. Regular Establishment will be deployed at vulnerable sites and in case of necessity; employment of extra gang on muster Roll will be done with permission of the Executive Engineer, at the vulnerable sites. The Sub Divisional Officer Drainage will be responsible for passage of hill torrent flood from Drains. The will keep closed laic on all with District Admin, Executive Engineer, and all other Sub Divisional Officers during Flood event.

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **DUTY ROSTER OF KEY PERSONAL DURING FLOOD SEASON 2024.** | | | | | | | | | | | | | | | | |
| **Site** | | **Stage-i discharge** | **Labour required** | **Labour for watching be deputed** | | **Stage-ii discharge** | **Labour required** | **Labour for watching be deputed** | | **Stage-iii discharge** | **Labour required** | **Establishment to be deputed** | | | | **Stage-iv discharge exceeding** | **Establishment to be deputed** |
| **(per shift)** | | **(per shift)** | | **(Per shift)** | | | | **(per shift)** |
| **Mate** | **Beldar** | **Mate** | **Beldar** | **Sdo** | **Sub engineer** | **Mate** | **Beldar** |
| 1 | Protection of Village Joya & Hamoka | 75000 cs to 110000 cs | 25 | 1 | 3 | 110000 cs to 150000 cs | 45 | 1 | 6 | 150000 cs to 225000 cs | 131 | 1 | 1 | 1 | 18 | 225000 cs and above | As Per Stage III |
| 2 | Protection of Village Hassan Pur Tiwana | 5 | 10 | 30 |
| 3 | Protection of TibbaQaim Din. | 1 | 2 | 1 | 4 | 1 | 1 | 12 |
| 4 | Protection of C.J Link out fall structure & Village Shergarh. | 1 | 3 | 1 | 6 | 1 | 1 | 18 |
| 5 | Protection of Army Installation & Village Sher Garh | 2 | 4 | 12 |
| 6 | Protection of Tetri Village | 1 | 2 | 6 |
| 7 | Protection of Jaura Kalan & Thatti Kalak Bhan. | 1 | 3 | 1 | 6 | 1 | 1 | 18 |
| 8 | Safety Bund Mouza Dhokary | 1 | 1 | 1 | 2 | 1 | 1 | 6 |

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# CHAPTER-10

# EMERGENCY TELEPHONE NOS.

| **Sr.**  **No.** | **Name of Post/Designation** | **Head quarter.** | **Telephone.** | |
| --- | --- | --- | --- | --- |
| **Office.** | **Res / Mobile** |
| 1 | Secretary Irrigation. | Lahore. | 042-99212117-1  042-99212118 | 042-99204595 |
| 2 | Chief Engineer D & F. | Lahore. | 042-35291304  042-99233551 | -- |
| 3 | Director Flood. | Lahore. | 042-99233552 | -- |
| 4 | Deputy Director Flood. | Lahore. | 042-99233553 | -- |
| 5 | Flood Warning Center. | Lahore. | 042-99205371  042-99205372  042-99205373 | -- |
| 6 | Chief Engineer, Irrigation. | Sargodha | 048-9230445 | \_ |
| 7 | Superintending Engineer Thal Canal Circle. | Mianwali | 0459-920182 | 0459-920183 |
| 8 | D.C | Khushab | 0454-920202 | 0454-720470 |
| 9 | D.P.O | Khushab | 0454-920020 | \_ |
| 10 | Executive Engineer, (Operation) | Sargodha | 048-9230446 | \_ |
| 11 | Executive Engineer, Khushab Division. | Khushab | 0454-711747 | 0321-1198672 |
| 12 | Sub Divisional Officer | Quaidabad | 0454-770367 | 0300-8608545 |
| 13 | Sub Divisional Officer | Jauharabad | 0454-710334 | 0301-6766966 |
| 14 | Sub Divisional Officer Drainage | Khushab | 0454-711847 | 0300-6025758 |
| 15 | Sub Divisional Officer Mechanical | Khushab | 0454-711847 | 0300-6003042 |
| 16 | District Chairman. | Khushab | 0454-920002-4 | 0454-720100 |
| 17 | Canal Telegraph Office. | Khushab | 0454-711847 | 0306-3968589 |

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# CHAPTER-11

# STANDARD OPERATING PROCEDURE (SOP) FOR BREACHING SECTIONS

## History of the Breaching Section

No breaching Section in Khushab Canal Division Khushab

## Location, Design, Quantity and Variety of the Explosive Required For Detonation

Not Applicable.

## Arrangement of Explosives and Security Explosive Stores

Not Applicable.

## List of the Security Staff Along With Detail of Their Training etc.

Not Applicable.

## Detail of Mechanical Means as a Standby Arrangements In Case Of Detonation Failure

Not Applicable.

## Duty Roster in Case Of Critical Situation

In order to ensure timely completion of activities, certain SOPs have been developed and all agencies have been directed to strictly adhere to their functions delineated in the SOP, which explicitly indicates roles and responsibilities of each functionary of the officers and officials of the Irrigation department.

1. Executive Engineer Canal Division Khushab.

Executive Engineer will be the overall in-charge of flood activities in the jurisdiction of Khushab Canal Division Khushab. The flood protection works falling in the areas of the District Khushab, are in the administrative control of Executive Engineer, Khushab Canal Division Khushab. He is responsible for maintenance and supervision of flood protection / watching arrangement during flood season. He will also keep liaison with the Civil and Army Authorities and will keep the Superintending Engineer Thal Canal Circle Mianwali, fully apprised of the flood situation in Khushab Canal Division Khushab.

1. Sub Divisional Officer Jauharabad Canal Sub Division.

Sub Divisional Officer Jauharabad Canal Sub Division will be the in-charge of flood activities in the jurisdiction of Jauharabad Sub Division.

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The flood protection works falling in the areas of Tehsil Khushab on Right Side River Jhelum Town are under the administrative control of SDO Jauharabad. He will also be responsible for maintenance, supervision and watching arrangements of flood protection Structures of District Khushab. He will also keep close liaison with the Executive Engineer Khushab Canal Division Khushab.

1. **Sub Engineer Dhurian Canal Section.**

Sub Engineer Dhurian Canal Section will shift his camp at Dhokary Flood Bund and watch all Torrential flood activities and will remain present round the clock with a gang of labour of his section.

1. **Sub Engineer Hamoka Canal Section.**

Sub Engineer Hamoka Canal Section will shift his camp at Tibba Qaim Din; He will watch river training works for Protection of Tibba Qaim Din and village Joya & Hamoka. He will watch all flood activities and will remain present round the clock with a gang of labour of his section.

1. **Sub Engineer Nurewala Canal Section.**

Sub Engineer Nurewala Canal Section will shift his camp at Sher Garh. He will watch river training works for Protection of Village Sher Garh, C.J Link outfall and village Tetteri. He will watch all flood activities and will remain present round the clock with a gang of labour of his section.

1. **Sub Engineer Khushab Canal Section.**

Sub Engineer Khushab Canal Section will shift his camp at Thati Kalak Bhan Jaura Kalan. He will watch all flood activities and will remain present round the clock with a gang of labour of his section.

## Breaching Committee With Their Action Plan

There are five Guide wall spurs, three sloping / J head spur and three studs. On these structures no breaching section is required. However one safety bund has been constructed along Dhokary village which is at the bottom of salt range hills. This bund protects the village from hills torrent and there is no need of breaching section.

## List of The Villages Likely To Be Inundated In Case Of Breach

Villages and abadies Mouza Dhokary, Choha, Dhokary, Jabbi, Pehra, Khaliqabad, Waheer, Nali, Jahurabad, Shabeer Colony, Awan Tawon, Mundial Tawon, Civil Line, Hadali, Bottala, Punja, Hamoka, Mitha Tiwana, 39,40,41,42,43,44,45,46,48,50,51,52,53 MB, Pir Baksh, Jallal Pur, Rang Pur Khdhi, Girot, Lal Hussain, Watto, Chab Pur & Rakh Roda.

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## Announcement and Detail of Evacuation Arrangements

If there happens any mishap where the River is in trend to erode the agriculture lands located on the Right bank of River Jhelum, the in charge sub sector No.2 that is Sub Divisional Officer Jauharabad will monitor the all situation. He will arrange.

1. Proclamation on loudspeakers etc for evacuation of abadies inside the flood plain With the Help of Police Department.
2. Prepare maps for the areas inundated and carry out immediate survey for damages to flood starting & erosive action.
3. Keep a close liaison with Civil Administration, Public representatives and the Executive Engineer Khushab Canal Division Khushab.

## Details of Coordination with Civil / Army Authorities

Executive Engineer, Khushab Canal Division Khushab in case of high flood in the River Jhelum will camp at Divisional Office Khushab and will be overall in-charge of all watching and fighting activities. He will maintain interaction with public, public representatives, administration & related departments, police and Pak Army etc. He will launch Flood fighting activities on river training works after Consultation/ Concurrence of Superintending Engineer, Thal Canal Circle Mianwali.

## Parallel Communication Arrangements

The communication System of Irrigation Department is linked with the District Administrative Departments and the District Police Officers.

## Index Plan

Not Related.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Executive Engineer,**  Khushab Canal Division,  Khushab |  | **Superintending Engineer,**  Thal Canal Circle,  Mianwali |  | **Chief Engineer,**  Sargodha Irrigation Zone Sargodha |

# CHAPTER-12

# VULNERABLE SITES ON FLOOD BUND/ STRUCTURES.

## Apprehended Breach Sites In Flood Bunds/ Structures

Nil

## Operation of Breaching Sections.

# Nil

## Breaches Due To Rising of Flood Water, Deterioration of Flood Bunds Etc.

# Hill torrent water originating from salt range approaches Mohajir Branch from its left side and accumulates on left bank. Due to further rise in water level caused by rain fall in catchment area of hill torrents water may enter in to canal by overtopping its banks. There are a number of siphons constructed over Mohajir Branch for cross drainage of hill torrent water. But in case of high flooding event relief cuts are made at various locations to drain out hill torrent water. The proposed relief cuts / breaches will be made it required by Irrigation Department on the request of beneficiary Department such as Railway, Highway in consultation with Assistant Commissioner of respective Tehsil. The help of police will be sought it required avoid any untoward situation. The following location on Mohajir and other irrigation channels are proposed breach sites.

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr. No** | **Name of Channel** | **Location of relied cut / breach (RD)** | **Tehsil** |
| 1 | Mohajir Branch  (Left Side | 91+000-92+000, 95+000-96+000, 97+000-98+000, 99+000-100+000, 101+000-102+000, 104+000-105+000, 106+000-107+000, 118+000-119+000, 121+000-122+000, 126+000-127+000 & 130+000-132+000 | Quaidabad |
| 2 | Adhikot Disty  (Left Side | 7+000-8+000 | Quaidabad |
| 3 | Link Channel  (Right Side) | 15+000-16+000 | Quaidabad |
| 4 | Mitha Tiwana  (Left Side) | 20+000 – 21+000 | Khushab |
| 5 | Hadali (Left Side) | 70+000-71+000 | Khushab |
| 6 | Bhelum Shaheed (Right Side) | 9+000-10+000 | Khushab |
| 7 | 1-R Hamoka Minor (Right (Right Side) | 5+000-6+000 | Khushab |

# 

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# CHAPTER-13

# EMERGENCY CONTINGENCY PLAN FOR VULNERABLE SITES

# LISTED ABOVE. EMERGENCY CONTINGENCY PLAN MUST INCLUDE.

## Plan Showing Route Of Flood Water Coming Out Of The Breach Supported With Levels.

Plan showing route of flood water safety bund Mouza Dhokary. RD:1+800 & cut / breaches of channel is attached at page No. 34.

## Detail Of Villages Abadies Likely To Be Affected And This Should Also Be Shown On The Plan.

* Village & Abadi Mouza Dhokary

(Village Dhokary is situated in the foot of salt range hill)

Safety bund MouzaDhokary has been constructed in the foot of salt range to save the village’s abadies from the threat of hill torrential water. In case of failure of the structure, the Flood Fighting will be exercised by stone dumping to hold the situation and to keep the structure intact.

## Strategy And Action Taken Be Explained In Detail. This May Include.

Such situation may not arise as all abadies exists Village Dhokary is situated in the foot of salt range hill.

### Arrangement.

One No flood emergency center is established in telegraph office Khushab Canal Division. 7 No Flood fighting camps are established at River training works and hill torrential floods.

### Establishment of Flood Fighting Camps.

1. Camp No. 1

At RD: 1+200 J-Head Spur Tibba Qaim Din District Khushab.

* Malik Talha Ali Sub Engineer Hamoka Section.
* Shouqat Belder
* Nimat Beldar.
* Ansar Beldar.

1. Camp No.2

At RD: 1+800 Safety Bund for Mouza Dhokary District Khushab as per following establishment.

* Rana Nusrullah Sub Engineer Dhurian Section.
* Muhammad Saeed Mate.
* Muhammad Zakir Beldar.

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* Muhammad Fazal Beldar.

1. Camp No. 3

At RD: 0+000 Guide Spur No. II Sher Garh District Khushab.

* Rameez Hassan Sub Engineer Nurewala Section.
* Ameer Afzal Beldar.
* Shahdat Khan Beldar.
* Muhammad Tasawar Beldar

1. Camp No. 4

At RD: 0+000 Guide Wall No. II Thatti Kalak Bhan & Jaura Kalan District Khushab.

* Khalil Ullah Senior Sub Engineer Khushab Section.
* Muhammad Yaqoob Mistry.
* Abdul Ghafar Beldar.
* Muhammad Mumtaz Beldar.

Three No flood fighting camps will be established in case of Hill Torrent Floods.

5 Camp No. 5

At RD: 133+800 Mohajir Branch in Quaidabad Sub Division.

* Nazar Hayat Sub Divisional Officer Quaidabad.
* Muhammad Aghar Senior Sub Engineer.
* Muhammad Sikandar Hayat Sub Engineer.

6 Camp No. 6

At RD: 0+000 Hadali Main Drain.

* Nazar Hayat Sub Divisional Officer Quaidabad
* Malik Saeed Sub Engineer.
* Muhammad Asghar Senior Sub Engineer.

**7 Camp No. 7**

At RD: 56+000 Head Regulator Hadali Disty.

* Mehar Khalid Hayat Sub Divisional Officer Jauharabad.
* Khalil Ullah Senior Sub Engineer.
* Malik Talah Ali Sub Engineer.

### Duties of Officers/ Officials and Their Camp Sites.

Establishment of above mentioned Camps will watch the structures on 24 Hours basis regularly in the flood season & inform the position of river and torrential flood to their higher officers. They will also keep closed liaison and coordination with the civil & Administrative

Authorities. In Case of any emergency, all Sub Divisional establishments will be shifted at site for dumping of stone and other protection activities.

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|  |  |  |  |
| --- | --- | --- | --- |
| **Sr #** | **Location** | **Name of Officer, Designation**  **/ Mobile No,** | **Name of Official, Designation /**  **Mobile No,** |
| 1 | At RD: 1+200 J-Head Spur Tibba Qaim Din | Mehar Khalid Hayat  Sub Divisional Officer  0301-6766966 | Malik Talha Ali,  Sub Engineer  0302-0824032 |
| 2 | At RD: 1+800 Safety Bund for Mouza Dhokary | Mehar Khalid Hayat  Sub Divisional Officer  0301-6766966 | Rana Nusrullah,  Sub Engineer  0302-6770301 |
| 3 | At RD: 0+000 Guide Wall No. I Thatti Kalak Bhan & Jaura Kalan | Mehar Khalid Hayat  Sub Divisional Officer  0301-6766966 | Khalil Ullah,  Senior Sub Engineer  0300-0677870 |
| 4 | At RD: 0+000 Guide Wall No. II Thatti Kalak Bhan & Jaura Kalan | Mehar Khalid Hayat  Sub Divisional Officer  0301-6766966 | Rameez Hassan,  Sub Engineer  0304-6351330 |
| 5 | At RD: 133+800 Mohajir Branch in Quaidabad Sub Division | Nazar Hayat,  Sub Divisional Officer ,  0300-8608545 | Muhammad Asghar  Senior Sub Engineer,  0300-6074729 |
| 6 | At RD: 0+000 Hadali Main Drain. | Nazar Hayat,  Sub Divisional Officer ,  0300-8608545 | Muhammad Ali Humayoun  Sub Engineer,  0302-9211523 |
| 7 | At RD: 56+000 Head Regulator Hadali Disty. | Nazar Hayat,  Sub Divisional Officer ,  0300-8608545 | Sikandanr Hayat Watoo  Senior Sub Engineer,  0307-5324801 |

### Departmental Machinery Available.

Machinery is available in Drainage Sub Division Khushab

### Machinery Available From Private Source.

In Case of any emergency, the machinery will be hired through Government Contractors. i.e. Tractor Trolley & Excavator, Motor Boats etc.

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### Flood Fighting Material Required.

### Flood Fighting Material Available.

| **Sr.#** | **Description** | **unit** | **Total**  **Required** | **Available** | **Balance Required** | **Remarks** |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | Chair Plastic Set at camps | Set | 06 | 01 | 05 | Balance Quantity will be procured before flood season 2024.  Flood Fighting Material available at Khushab Canal Rest House, Khushab. |
| 2 | Generator 3500-Watts | No. | 02 | 01 | 01 |
| 3 | Gas Cylinder | No. | 02 | 01 | 01 |
| 4 | Gas Stove | No. | 02 | 01 | 01 |
| 5 | Water Set | Set | 06 | -- | 06 |
| 6 | Tea Set | Set. | 06 | -- | 06 |
| 7 | Dinner Set Plastic | Set. | 06 | -- | 06 |
| 8 | Life Jackets | No. | 20 | 06 | 14 |
| 9 | Iron Charpai | No. | 12 | 03 | 09 |
| 10 | Boat, Engine and Trolley | No. | 02 | 01 | 01 |
| 11 | Kassies | No. | 60 | 10 | 50 |
| 12 | Torches rechargeable | No. | 20 | -- | 20 |
| 13 | Tent | No. | 06 | 03 | 03 |
| 14 | Banner for flood camps | No. | 24 | -- | 24 |
| 15 | Petrol for Generator | Ltr | 400 | -- | 400 |
| 16 | Nylon Rope | Kg | 60 | 06 | 54 |
| 17 | Wooden pegs | No. | 100 | -- | 100 |
| 18 | Gunny Bags | No. | 600 | 50 | 550 |
| 19 | Plastic Nylon Bags | No. | 1500 | -- | 1500 |
| 20 | Sutli | Kg | 17 | 2 | 15 |
| 21 | Synthetic bags 500Kg and 1000 Kg Capacity | No. | 2000 | -- | 2000 |
| 22 | Polythene sheets black color | Rft | 1500 | -- | 1500 |
| 23 | Flood Lights along with accessories | No. | 10 | -- | 10 |
| 24 | Axes | No. | 20 | -- | 20 |
| 25 | Wooden cutter machine | No. | 02 | -- | 02 |
| 26 | Fist Aid Box | No. | 07 | -- | 07 |
| 27 | Rain coats | No. | 20 | -- | 20 |

## 

## Detail of other infrastructure like electric, sui gas, telephone installation, road net work, other buildings, canal & drainage net work.

Jabbi to Warcha Road and Village Dhokary, energy lines, telephone exchange and Schools buildings etc.

XEN KHUSHAB

# C:\Users\ZAIN\Desktop\MAp showing Roughtes Mouza Dhoukri-Model.jpgCHAPTER - 14

# ACTION PLAN

## Re-shuffling / recouping plan of reserve stock of stone departmentally.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr. No | Name of site/ Location | Sanctioned Limit  (cft) | Minimum Requirement i.e. 70%  (cft) | Available Quantity  (cft) | Remarks |
| 1 | Sher Grah | 182000 | 127400 | 182000 | Reserve Stock of stone out of total sanction quantity 7.48 Lac Cft 4.57 Lac Cft Stone is available at Sher Ghar, Tibba Qaim Dain & Jaura Kalan,Thatti Kalan Bhan. For procurement of minimum @70% remaining 0.670 Lac Cft is being considered requirements because there is no land/space available for stacking reserve stock of stone at some structures. |
| 2 | Tibba Qaim Din | 125000 | 87500 | 125000 |
| 3 | Jaura Kalan & Thatti Kalan Bhan | 300000 | 210000 | 150000 |
| 4 | Army Installation | 24000 | 16800 | - |
| 5 | Hassan Pur Tiwana | 22000 | 15400 | - |
| 6 | Village Tetri | 95000 | 66500 | - |
| Total | | 748000 | 523600 | 457000 |  |
| Total in Lac Cft | | 7.480 | 5.236 | 4.570 |  |

## Detail of inlet and outlet crossing along-with closing methodology.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr. | Name of Bund / Spur | RD | Outlet / Inlet | Existing position | Closing Methodology |
| N.A  XEN KHUSHAB | | | | | |

## Deployment of machinery (medium to high flood).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Name of Structure | Length in Mile | Vulnerable Reach | Camp Location | Site In-charge by name & Cell No. | Machinery Deployed | | | | | Availability of Stone Cft |
| Excavator | Dozer | Trolleys / Dumpers | Tractor with front blade | Labour (Beldar + Mate) per shift |
| Tibba Qaim Din | 0.24 | RD.1+200 | RD. 1+200 | Malik Talha Ali  0302-0824032 | - | -- | - | - | 4+1 | - |
| Guide Wall Spur No. II SherGarh | 0.14 | RD:0 | RD: 0+000 | Rameez Ul Hassan 0304.6351330 | 1 | - | - | 1 | 6+1 | 1.82 |
| Guide Wall No. II Thatti Kalak Bhan & Juran Kalan | 0.20 | RD.0 | RD.0+000 | Khalil Ullah,  0300-0677870 | 1 | 0 | 2 | 1 | 6+1 | 1.50 |
| Total | | | | | 2 | 0 | 2 | 2 | 19 | 3.32 |

* Payment for machinery & work charge employees subject to verification by TPM/consultants.

**Deployment of machinery (hill torrent flood)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Name of Sub Division | Camp Location | Site In-charge by name & Cell No. | Machinery Deployed | | | | | Availability of Stone Cft |
| Excavator | Dozer | Trolleys / Dumpers | Tractor with front blade | Labour  (Beldar + Mate) per shift |
| Quaidabad | Quaidabad | Nazar Hayat  0300-8608545 | 1 | - | 2 | 1 | 20+2 | - |
| Jauharabad | Khushab | Khalid Hayat  0301-6766966 | 1 | - | 2 | 1 | 20+2 | - |
| Drainage | Khushab | Nazar Hayat  0300-8608545 | 2 | - | 4 | 2 | 20+2 | - |
| Total | | | 4 | - | 8 | 4 | 66 | - |

* Payment for machinery & work charge employees subject to verification by TPM/consultants.

## Deployment of machinery (high to very high flood).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Name of Structure | Length in Mile | Vulnerable Reach | Camp Location | Site In-charge by name & Cell No. | Machinery Deployed | | | | | Availability of Stone Lac Cft |
| Excavator | Dozer | Trolleys / Dumpers | Tractor with front blade | Labour (Beldar + Mate) per shift |
| Tibba Qaim Din | 0.24 | RD.1+200 | RD. 1+200 | Malik Talha Ali  03020824032 | - | - | - | 1 | 12+1 | - |
| Guide Wall Spur No. II Sher Garh | 0.14 | RD:0 | RD: 0 | Rameez Ul Hassan 03046351330 | 1 | - | 1 | 1 | 18+1 | 1.82 |
| Guide Wall No. II Thatti Kalak Bhan & Juran Kalan | 0.20 | RD.0 | RD.0 | Khalil Ullah,  03000677870 | 1 | 1 | 1 | 1 | 18+1 | 1.50 |
| Total | | | | | 2 | 1 | 2  XEN KHUSHAB | 4 | 51 | 3.32 |

* Payment for machinery & work charge employees subject to verification by TPM/consultants.

## Deployment of machinery (high to exceptionally high flood).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Name of Structure | Length in Mile | Vulnerable Reach | Camp Location | Site In-charge by name & Cell No. | Machinery Deployed | | | | | Availability of Stone Lac Cft |
| Excavator | Dozer | Trolleys / Dumpers | Tractor with front blade | Labour (Beldar + Mate) per shift |
| Tibba Qaim Din | 0.24 | RD.1+200 | RD. 1+200 | Talha Ali  03020824032 | 1 | - | - | 1 | 12+1 | - |
| Guide Wall Spur No. II Sher Garh | 0.14 | RD:0 | RD: 0 | Rameez Ul Hassan 03046351330 | 1 | - | 2 | 1 | 18+1 | 1.82 |
| Guide Wall No. II Thatti Kalak Bhan & Juran Kalan | 0.20 | RD.0 | RD.0 | Khalil Ullah,  03000677870 | 1 | - | 1 | 1 | 18+1 | 1.50 |
| Total | | | | | 4 | - | 3 | 4 | 51 | 3.32 |

* Payment for machinery & work charge employees subject to verification by TPM/consultants.

**List of local contractors**

|  |  |  |
| --- | --- | --- |
| Name of Govt. Contractor | Contact Number | Remarks |
| M/S Al-Zakria Construction | 0300-6072161 | Excavators and other machinery may be made available through these contractors. |
| Maqsood Ahmad Govt, & CO | 0312-9207692 |
| Muhammad Islam Govt & Co | 0301-6775449 |
| Atif Mehmood Govt & Co | 0300-6775200 |
| M Muhammad Aslam | 0302-6083725 |
| M/S Jahan Khan | 03003895032 |

## Police deployment plan

**Performa – 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 |
| N.A | | | | | | |

**Performa – 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 |
| N.A | | | | | | |

**Performa – 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 |
| N.A  XEN KHUSHAB | | | | | | |

## Detail of synthetic bags with capacity of 500 kg and 1000 kg.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr #** | **Description** | **Required** | **Available** | **Remarks** |
| 1 | Synthetic Bags with capacity 500 KG | 1500 | -- | Required Quantity will be procured before flood season 2024. |
| 2 | Synthetic Bags with capacity 1000 KG | 500 | -- |

## Detail of polythene sheets of black colour to protect upstream slope against wave action and to control seepage through embankment.

Polythene sheets of black color for protecting upstream slopes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr #** | **Description** | **Required** | **Available** | **Remarks** |
| 1 | waves and control to seepage (Average 20 FT Width) | 1500 Rft | -- | Required Quantity will be procured before flood season 2024. |

XEN KHUSHAB

# CHAPTER-15

# BACK UP DIVISIONS (IN CASE OF BREACH)

Mianwali Canal Division, Mianwali will be backup Division in case of any damaged of Structure/ Safety Bund.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Executive Engineer,**  Khushab Canal Division,  Khushab |  | **Superintending Engineer,**  Thal Canal Circle,  Mianwali |  | **Chief Engineer,**  Sargodha Irrigation Zone Sargodha |