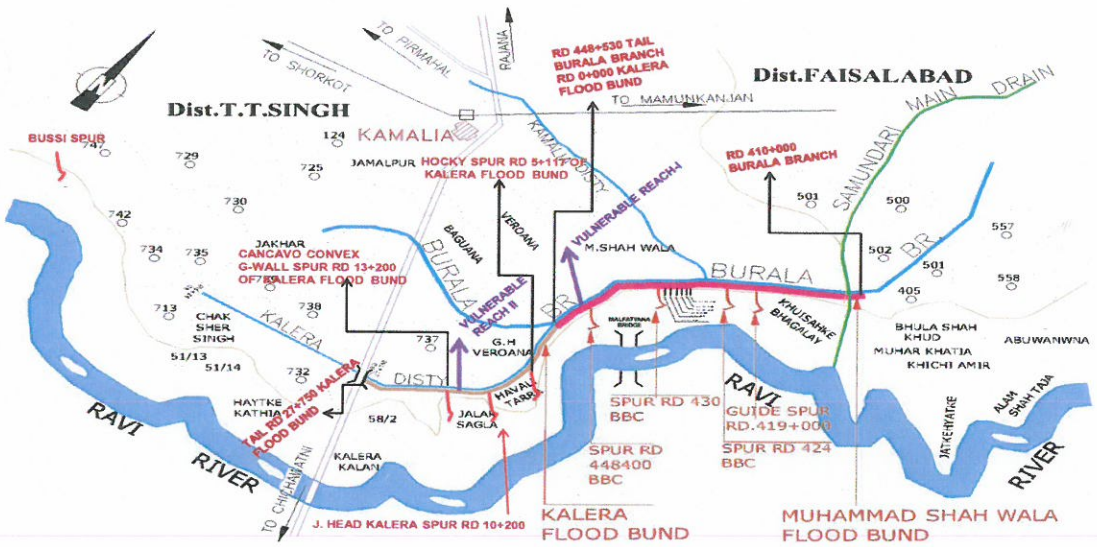
GOVERNMENT OF THE PUNJAB

Irrigation Department

FLOOD FIGHTING PLAN
FOR THE YEAR 2021.

RIVER RAVI
DISTRICT TOBA TEK SINGH



BURALA DIVISION, LCC (EAST)
FAISALABAD.

CR 125

OFFICE OF THE
CHIEF ENGINEER DRAINAGE & FLOOD ZONE
IRRIGATION DEPARTMENT
Government Engineering Academy Punjab, Canal Bank Road
Thokar Niazbaig, Lahore-53700,
E-mail: cednf@yahoo.comPh: 042-35291304,

To

The Executive Engineer,
Burala Division, LCC (East),
Faisalabad.

No.D&F/2021/1096/25/76 Dated 07/04/2021

Subject: **FLOOD FIGHTING PLAN 2021.**

Ref:- Your office letter No.1627/WII/2021/S/448/56, dated 19.03.2021

The Flood Fighting Plan 2021 received from your Division for vetting by this Zone has been scrutinized and found correct, therefore, you are requested to circulate the same copies of Flood Fighting Plan 2021, duly signed by CE / SE, to all stakeholders as well as 04-hard copies & soft copy 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.

DEPUTY DIRECTOR FLOOD
For Chief Engineer, Drainage & Flood Zone
Irrigation Department, Lahore

BURALA DIVISION
XEN 14/4/21
HC C.C. 14/4/21
DHD
DAG
RC
DA 199
DATE 14/04/21
CASE NO 39-W

C.C.

1. Chief Engineer, Irrigation Faisalabad Zone, Faisalabad
2. Superintending Engineer, Lower Chenab Canal East Circle, Faisalabad.

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EXECUTIVE ENGINEER
Burala Division LCC East
Faisalabad

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CHAPTER NO-1

SALIENT FEATURES OF THE CONCERNED DIVISION.

1.1 Location

Burala Division is responsible for the Operation and Maintenance (O&M) of Burala Canal System Irrigating **503147 Acres Area** located in District Faisalabad, and T.T. Singh. Burala Branch off-takes from Tail of Upper Gugera Branch at RD.282+000 at Head Buchiana falls in District Faisalabad and Tail of Burala Branch at RD 485+755 falls in District Toba Tek Singh. Muhammad Shahwala and Kalera flood bund are located in tehsil Kamalia District Toba Tek Singh. The Burala Branch Canal from RD: 410+000 to RD: 448+530 and head reach of Kalera Disty runs close to River Ravi on its right side. The River rises during monsoon season and the reach RD 410+000 to 449+000of Burala Branch is likely to be subjected threat of flood in River Ravi. Muhammad Shahwala flood embankment was constructed along Burala Branch from RD 410+000 to 448+530 during 1974 and Kalera Flood Bund along Kalera Disty from RD 0 to 27+750 during 1976 to save the canal system, villages and abadies from spill of the River. The Office of Burala Division exists at Faisalabad but during emergency of Flood, Executive Engineer Burala Division will shift his camp at Muhammad Shahwala Rest House.

1.2 General Description.

Muhammad Shahwala Flood Bund has been constructed on left bank of Burala Branch in its reach from RD. 0 TO 38+530. Kalera Flood Bund has been constructed along left bank of Kalera Distributary RD 0 to 27+750, which off-takes from RD 448+530 of Burala Branch on its left side.

As many as 6 number studs and 8No. Spurs have been constructed and tied with Flood Bund along Burala Branch and Kalera Distributary to protect the system as well as the adjoining Abadies, agricultural land and Kamalia Town from the threat of flood in River Ravi. These Studs/Spurs have behaved successfully to keep the River flow safely away from the

14/4/21

Bunds and canal system. Bussi Spurs near village shahabal shah on Right bank of River Ravi has also been constructed for the similar purpose.

The main object for Flood Fighting and Flood Protection in the event of flood will be to safeguard against any threat for the safety of the Flood Bunds and the Studs/Spurs etc which protect the Irrigation System as well as Kamalia Town.

1.3 ADMINISTRATIVE SETUP

Executive Engineer	Burala Division LCC (East).
Deputy Collector	1 No
Divisional Accounts Officer	1 No
C-Branch	
Drawing Branch	
Account Branch	
HVC Branch	

1. Tandlianwala Sub Division:-

Sub Divisional Officer	1. No
Sub Engineer	3 No
Earth Work Mistry	5 No
Mate	6 No
Beldars	39 No

2. Kanya Sub Division:-

Sub Divisional Officer.	1. No
Sub Engineer	4. No
Earth Work Mistry	4. No
Mate	3 No
Beldars	25 No

Sultanpur Sub Division

3.

Sub Divisional Officer.	1. No	**Flood Bund Related Sub Division**
Sub Engineer	3. No	
Earth Work Mistry	3 No	
Mate	3 No	
Beldars	27 No	

Executive Engineer
Burala Division LCC (East)
Faisalabad.

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CHAPTER NO-2

FLOOD PROTECTION AND RIVER TRAINING WORKS

2.1 DESIGN PARAMETERS OF RIVER TRAINING WORKS.

1. MUHAMMAD SHAHWALA FLOOD BUND.

Along Burala Branch RD 410+000 to 448+530.

a.	Total Length.	=	7.71 Miles.
b.	Top Width.	=	25 ft
c.	Side Slope (River Side)	=	(3:1)
	(Country Side)	=	(1.5:1)
d.	Top R.L.	=	538.40
e.	Free Board.	=	6.0 ft. above HFL 1988 (532.40)

2. KALERA FLOOD BUND.

Along Kalera Distributary RD 0 to 27+750.

a.	Total Length.	=	5.55 Miles.
b.	Top Width.	=	20 ft
c.	Side Slope (River Side)	=	2:1
	(Country Side)	=	1.5:1
d.	Top R.L.	=	532.60
e.	Free Board.	=	5.0 ft. above HFL of 1950.(527.60)

Executive Engineer
Burala Division LCC (East)
Faisalabad.

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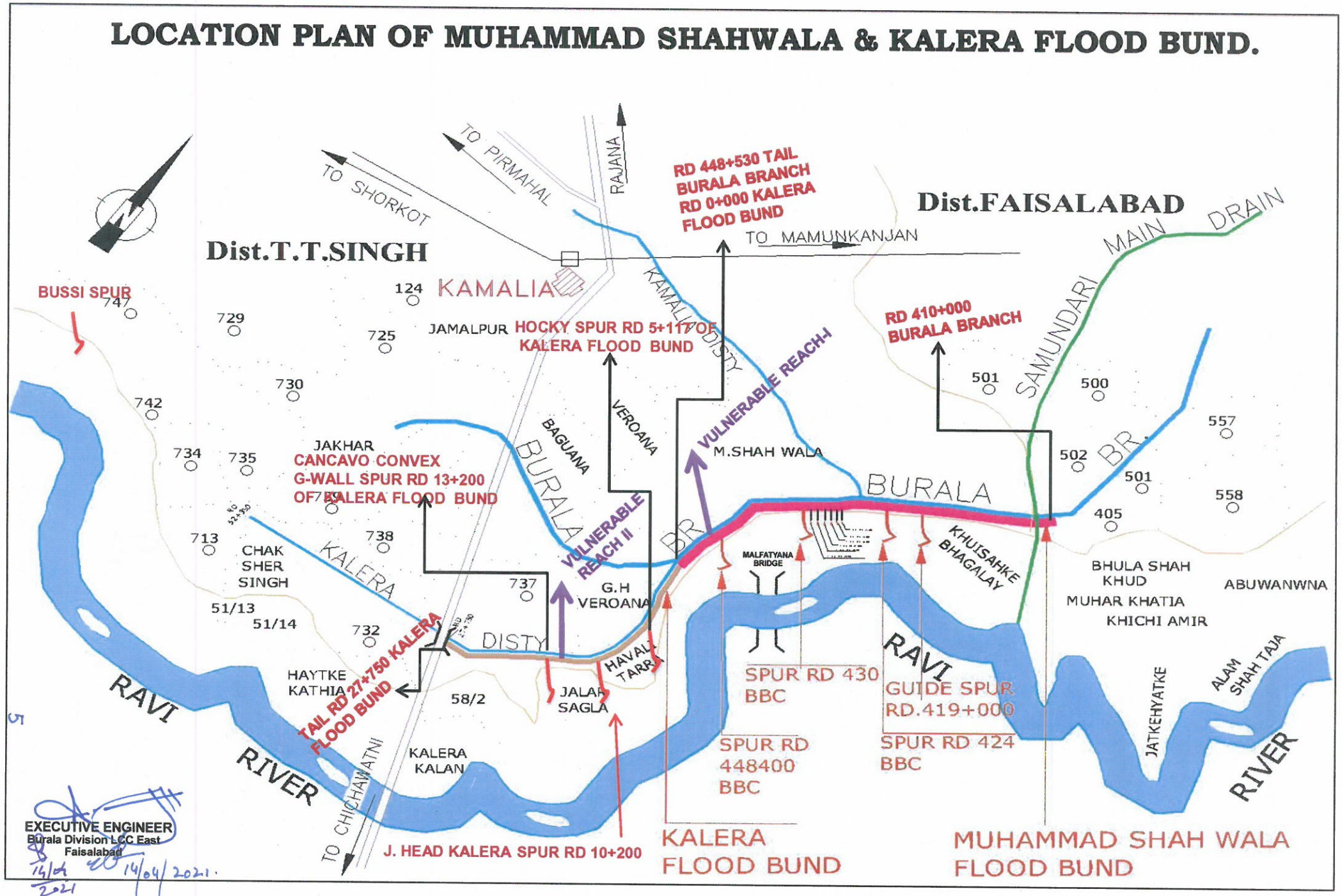
2.1 DESIGN PARAMETERS OF SPUR & STUD,s

Sr #	Name of Spur	Length	Top Width	Top R.L	Side Slope
1	Guide Spur RD 419+000 Burala Branch	1595ft	25	537.50	3:1/2:1
2	J.Head Spur RD 424+000 Burala Branch.	2400 ft	20	537.00	2:1
3	Spur / Stud RD 425+200	320 ft	15	536.88	2:1
4	Spur / Stud RD 425+800	156 ft	15	536.82	2:1
5	Spur / Stud RD 426+800	507 ft	20	536.72	2:1
6	Spur / Stud RD 427+800	190 ft	15	536.62	2:1
7	Spur / Stud RD 428+500	320 ft	15	536.55	2:1
8	Spur / Stud RD 429+000	200 ft	20	536.50	2:1
9	J Head Spur RD 430+000 Burala Branch	3050 ft	20	536.40	3:1
10	J. Head Spur RD 448+400 with Mole Prong	6630 ft 600 ft	25 25	534.52 534.52	3:1 2:1
11	J. Head Kalera Spur at RD 10+200 of Kalera Disty	5040 ft	25	530.85	2:1
12	Bussi Spur.	4858 ft	25	507.75	2:1
13.	Hockey Spur RD 5+117	5835 ft	25	533.12	3:1/2:1
14.	Guide wall spur RD 13+200	2893 ft	25	530.78	3:1/2:1

Executive Engineer
Burala Division LCC (East)
Faisalabad.

LOCATION PLAN OF MUHAMMAD SHAHWALA & KALERA FLOOD BUND.



EXECUTIVE ENGINEER
Burala Division LCC East
Faisalabad
14/04/2021

14/04/2021.

CHAPTER NO-3

BRIEF HISTORY OF PAST FLOOD EVENTS.

The Burala Branch Canal from RD:410+000 to RD:448+530 and head reach of Kalera Disty: run close to River Ravi on its right side. The River rises during Moonsoon and the reach RD 410+000 to 448+500of Burala Branch is likely to be subjected threat of flood in the River. Muhammad Shahwala Flood Embankment was constructed along Burala Branch from RD 410+000 to 448+530 and Kalera Flood Bund along Kalera Disty from RD 0 to 27+750 to save the canal system and village Abadies from spill of the River.

The past history of the action of the River Ravi on Burala Branch in this reach has been studied and it has been found that the River meandered dangerously and came close to the Branch Canal during the year 1927-28 since then the Burala Branch in reach RD 425+000 to 430+000 remained in a state of danger during floods. During every flood a lot of vigilance was exercised to protect Burala Branch from the River action and various protective measures were adopted in the past to protect the Branch and there has been recurring expenditure on the protective measures and repair of the damages caused to the Burala Branch in this particular reach.

After the flood of 1945, an emphasis was laid on the construction of Spur to keep the River permanently away from the canal in this reach. Four Nos. stone armored Spurs were constructed from 1945 to 1970.

FLOOD OF 1976.

In the year 1976, River Ravi again posed danger to the Burala Branch. There was very high flood in the River and when it started falling during 8/1976, the River adopted an unfavorable meandering pattern River flood shifted very close to Burala Branch. The Irrigation Department and the Civil Administration mobilized a lot of labour and did their best efforts to protect the Burala Branch and to check further erosion of the River. Principal Research Officer of Irrigation Research Institute, Lahore visited the site on request and in consultation with him, two points opposite to RD 425+000 to 425+800 were immediately selected along the bank under erosion where stone dumping was stared to check the River erosive action and to divert the main current. This work was Considered indispensable as no other alternative of checking the erosion was helpful despite fighting with the River round the clock with hundreds of labour and volunteers.

The distance between the River and the Burala Branch opposite reach RD 426+427 was left only 132 ft. The River however subsided and the threat was minimized.

After the floods of 1976, the case was referred to Irrigation Research Institute for giving advice. It was recommended to construct 2400 ft long J-type Spur at RD 424+000 and

excavation of a cunette to short circuit the loop of the River adopted during the last flood season.

The cunette was excavated near the Ghapu Nallah in the bela to short circuit the dangerous loop of 1976 before flood of 1977. The cunette was excavated in mid of July 1977 and on arrival of fresh supply in River, it developed at a very fast rate and in days and weeks the entire River started flowing through the cunette.

FLOOD OF 1977.

The flood of year 1977 in the River passed without causing any erosion to the right high edge of the River close to the Burala Branch. After flood of 1977, the River has been in threatening posture to Burala Branch in the reach RD 420+000 to 430+000.

The case was referred to Irrigation Department for study which recommended another Spur at RD 430+000 to keep the River away from the Burala Branch Canal.

FLOOD OF 1978.

DEVELOPMENT OF RIVER COURSE IN FLOOD OF 1978.

Due to paucity of funds even a single Spur at RD 424+000 could not be implemented before the flood of year 1978. The River meandered and shifted toward right side from its course of year. In the year 1978, the River formed a loop and meandered upstream of the cunette close to the toe of the Branch.

Despite all the above threats, the Burala Branch was luckily saved as the erosion subsided with the reduction of discharge in the River. The entire development of the River during the flood of 1978 and its dangerous trend of the Burala Branch between RD 426+000 to 430+000 and in the lower reach RD 445+000 to 446+000 necessitated immediate handling of the problem. The River survey of the year 1978 and the River survey plans of 9 years (super imposed) were discussed in Irrigation Research Institute.

It was finally finalized / agreed upon that advice of constructing Spur at RD 424+000 to 430+000 holds good and that the Spur be constructed before the flood of 1979. In the opinion of Irrigation Research Institute, the River loop opposite RD 446+000 to 448+000 of Burala Branch would automatically be inactive when the River will be straightened in the upper reach due to the construction of the 2 Spurs. For the dangerous approach of the River, it was desired to carry out a model study to examine necessity of the 3rd Spur. It was suggested that reserve stock of stone at RD 448 may be kept to meet the emergency there if situation so develops in the next floods. Accordingly the work on Spurs 424+000 and 430+000 was taken up in March 1979, having lengths 2400 & 3050 ft respectively. The diversion of River was also started to carry out work in dry conditions. The diversion could not work effectively and the work had to be carried out in River flow.

Spur at RD 424+000 could only be completed, the work on next Spur RD 430 +000 had to be curtailed by making a Mole Head in the flood 1979.The River did not rise in the year

1979, there were flood waves of minor magnitude in the whole flood season. The newly constructed Spur at RD 424+000 behaved effectively, it deflected the current and Burala Branch was saved from threat of the River.

FLOOD OF 1981.

A high flood of about 94000 CS. Was experienced at site on 30-07-1981 which was handled successfully and no further erosion took place. The River in the falling stage started to erosion and meander opposite to RD 446+000-448+000 Burala Branch.

The erosion was severe that by 17-08-1981 the distance opposite RD 447+700 Burala Branch was reduced from 450ft to 260 ft. Principal Research Officer, Hydraulic Irrigation Research Institute visited the site on 17-08-1981 and after a detail inspection and discussions he recommended a cunette and construction of a 20 ft long solid stone Spur/Stud at RD 446+500 to check further embayment.

FLOOD OF 1988.

During exceptionally high flood of September / October 1988, a maximum discharge of 381000 Cs passed D/S Balloki and water level was observed at Spur RD 430+000 Burala Branch as 530.00. The flood heights of water above N.S.L. were in the range of 7 to 15ft. Prior to flood of 1988, the maximum discharge recorded at RD 426+800 Burala Branch was 529.80.

During super flood of September/October 1988, River Ravi not only remained close to above mentioned sites but it breached Kalera Flood Bund, also over-topped, breached Kalera Disty and the water spread over a vast area and then damaged Kabirwala, Kalera, Waghi & Pir Mahal Disty systems. The damages to these channels were colossal and canal supply was badly disrupted.

The Spur RD 424+000, 430+000 and 448+400 Burala Branch were also damaged during 1988. All such damaged works were repaired to pre-flood condition.

FLOOD OF 1995.

During the flood 1995, River Ravi changed its course due to erosive action opposite RD 427+000-429+000 Burala Branch and 439+000-441+000, Muhammad Shahwala Flood Bund and a vast area was eroded, 2 no. J-Head Spurs had been proposed at RD 439+000 Burala Branch and 427+500 Burala Branch to save the Muhammad Shahwala Flood Bund and Burala Branch Irrigation system. Construction of Spur at RD 10+200 Kalera Flood Bund has already been completed to protect Kalera Flood Bund and Kalera Disty.

FLOOD OF 1996.

During flood 1996, the River started serious scouring action opposite RD 427+000-429+000 of Burala Branch and at the same time towards earthen shank of Spur RD 430+000. Extensive protective measures were adopted to check the erosion at these locations but only the rate of erosion could be reduced and ultimately a portion of earthen shank of Spur was washed away.

FLOOD OF 1997.

Due to washing away of spur RD 430+000 during 1996, the main creek of the River was shifted close to Burala Branch opposite RD 428+500 to 429+000 and distance of only 250 ft was left. It was proposed that the loop opposite RD 424+000 to 436+000 be short circuited by digging along with Cross-Bund and restoring the damaged portion of the Spur before flood 1997.

This work was included in the list of inescapable flood works to be executed before 30-06-1997 the expert Committee headed by Mr. Jafar Kabir Ansari visit the site to check the feasibility of work and to review the proposal. Due to short time limit, a part work was suggested which was completed before flood 1997.

In view of these recommendations, worthy Chief Engineer, Irrigation, Faisalabad allowed to take up the work to save the remaining Spur on 28-07-1997. Stone dumping and tree launching was started on the same day. This work continued till subsiding of this freshet. Further erosion at this point was checked.

The River also drifted towards J-Head of Spur at RD. 424+000 Burala Branch and Bussi Spur. The overall trend of the River was to adopt its old course, which was prior to construction of these Spurs. The River Ravi started rising again on 12-08-1997. This time the T-Head Spur at RD 448+400 and Mole Head prong at RD 5142 of spur at RD 448+400 were under direct hit of the River. Now these two structures were fighting with the flood due to which the stone apron was launched. The River kept its advancement towards Burala Branch opposite RD 430+000-435+000, 442+000-448+000 and towards shank of Spur RD 448+400. This freshet caused damaged to nose of Mole head prong of Spur RD 448+400 and the distance of the River from shank of Spur opposite RD. 4-5 of Kalera Flood Bund was reduced to 500 ft.

On 27-08-1997, the River re-started rising and the River was flowing parallel to earthen shank of Spur RD. 448+400 opposite RD. 3-5 of this Spur. The Mole head prong was under direct hit. All protective works already started were continued in view of incoming high flood. The River was coming very close to shank of Spur RD 448+400 by severe erosive action. At that time, the remaining distance from the shank was about 100 ft. Superintending Engineer, LCC (E) Circle Faisalabad allowed to take up protective work immediately by launching of trees tied with steal rope which was started on the same day.The worthy Chief Engineer, Irrigation Faisalabad and Superintending Engineer, LCC (E) Circle, Faisalabad visited the site on 30-08-1997 and ordered to expedite the work to hold the situation. All possible measures were adopted to hold the situation and up to 02-09-1997,
the high flood about 1,50,000 Cs. passed safely except causing some minor damages to the Spur RD. 448+400.

FLOOD OF 1998.

Prior to the flood season 2 major flood works were taken up

a Restoration of Spur at RD 430+000 & 448+000 Burala Branch

b Restoration of Bussi J-Head Spur.

Following works were executed before flood 1999.

i) Construction of 2 Nos. X-Bunds.

ii) Restoration of damaged shank portion of spur RD 430+000 and provision of stone pitching in a length of 300 ft in its most vulnerable portion.

iii) Restoration of damaged shank portion of spur RD 448+000 and mole prong.

All the above works were successfully completed except spur RD 430 +000 Subsequently, the work was assigned to the Machinery Division Lahore as per order of the Expert Committee which completed the earthwork with minor deficiency.

i) Restoration of damaged earthen shank portion.
The above work was also completed except the nose portion of Bhussi J-Head spur which entailed stone work.

FLOOD OF 1999.

There was only one No medium flood passed D/S Balloki with discharge 74780cs on 22-08-1999 and no remarkable changes occurred on the River Training works along River Ravi. The scheme of restoration of Bhussi J-Head spur could not be carried out before flood 1999. The same was freshly submitted to Government Flood Damaged Restoration Programme.

FLOOD OF 2000.

There was only a low flood pass D/S with a discharge of 46523 Cs is on 30-07-2000 and no remarkable change was observed in the River flow no threat was caused to the River Flood protection works. Funds were however provided for restoration of work which was completed well before onset of the flood season to safeguard, the structure against any possible threat.

FLOOD OF 2001.

There was only a low flood pass D/S with a discharge of 46940 Cs is on 17-08-2001 and neither remarkable change was observed in the River flow nor any threat was caused to the River Flood protection works.

FLOOD OF 2002.

There was only a low flood pass D/S with a discharge of **25280 Cs** is and nether remarkable change was observed in the River flow nor any threat was caused to the River Flood protection works.

FLOOD OF 2007.

There was only a low flood passed D/S Balloki with a discharge of **36643cs** and no remarkable change was observed in the River flow.

FLOOD OF 2008.

There was only a low flood passed D/S Balloki with a discharge of **57735** Cs and no remarkable change was observed in the River flow.

FLOOD OF 2009.

There was only a low flood passed D/S Balloki with a discharge of **41395** Cs and no remarkable change was observed in the River flow.

FLOOD OF 2010.

There was a low flood passed D/S Balloki with a discharge of **36015 Cs** and no remarkable change was observed in the River flow. The river started running very close to Burala Branch opposite RD: 419+000 – 421+000/Left.

FLOOD OF 2011.

A low flood passed D/S Balloki with a discharge of **23808 Cs** in the month of August and no remarkable change was observed in the River flow, except opposite RD 10-12/L of Kalera Flood Bund where the erosion to the right bank of river ravi near chak 58/3 Tukra which was in progress. The Protective measures work of construction of new Guid Spur at RD: 419+000 has been completed.

FLOOD OF 2012.

A low flood passed D/S Balloki with a discharge of **29264 Cs** in the month of August and no remarkable change was observed in the River flow, except opposite RD 419-421/L of Burala Branch and opposite RD: 10-13/L of Kalera Flood Bund. The some portion of apron of guide spur RD: 419+000 was launched and erosion towards Chak No.58/3 Tukra progressed and made shape of horse shoe during low supply in river.

FLOOD OF 2013

The high flood of **97970 Cs** passed on 22.08.2013 which was handled with success and some minors damages took place. The flood water touched Muhammad Shahwala Flood Bund in reach RD.0-38530 and Kalera Flood Bund RD.0-26200 The flood water not only touched the entire flood bunds i.e. MSW and Kalera but also tried to over top the banks of Kalera

Disty in the reach of about 700' beyond the Kalera Flood Bund. It is to clarify that MSW and Kalera flood bunds are not independent marginal flood bunds but these are actually left banks of Burala Branch canal and Kalera Disty and have been converted into flood bunds by raising their heights and widths and slopes so it must remain in mind that damage to these flood bunds not only will damage/ruin the kamalia city but also shall damage the entire irrigation system Irrigating the Kamalia Tehsil up to Sidhnai Barrage so protection of these two flood bunds is vital for food of the people and further for safety of their lives and other infrastructures of Irrigation System. It has also come to notice during conversation with the people residing near Kamalia,Chichawatni road X-ing that the raising of water with this road is not less than that the raising of water observed during flood 1988 that was four times the

present flood level. The water crossed the Kamalia-Chichawatni road through spill ways and damaged the Kacchi Abadies. The flood wter spread up to RD.39+000 of Kalera Disty and further changing its route touched RD.33-38 of Kabirwala disty and then started flowing along the RMB of Sidhnai Barrage. In addition, in reach RD.28-29 of Kalera Flood Bund the water level arase to the road level along the Kalera Disty. This is the effect of flood which was ¼th of the flood of 1988. It has been observed at site that if duration of flood with the maximum discharge of 97970Cs had remained constant for few hours, the flood water of this ¼ times less flood of 1988 would have over toped the left bank of Kalera Disty in the reach where the Kalera Flood Bund ends i.e. about 700' upstream the Kamalia, Chichawatni road. The matter is very serious and worth consideration that if flood equal to flood of 1988 had come, the Kalera Disty and further the Burala Branch would have been washed away and flood water would have entered the Kamalia Tehsil and even Pir Mahal Tehsil and both the Tehsils would have come under the hit of flood water. So the matter was brought on record for kind notice of the high ups with the request that the existing Kalera Flood Bund top width may be enhanced to 25ft against existing width of 20 ft and free board as 6 ft above HFL of 1988 against existing free board of 5ft above HFL of 1950 and this flood bund may kindly be extended and tied with the Right Marginal Bund of Sidhnai Barrage to save the Burala Branch canal Irrigation System and the Kamalia and Pir Mahal Tehsil of District T.T. Singh. Construction of bridge over river Ravi at Mal Fatyana is under construction at site and during the flood 2013, it has been observed that River showed its same behavior at its different stages exactly as observed in the documents of the model study. The water level of the natural flows corresponded the water levels recorded in the model study. Moreover, the flow conditions of the River were recorded as embodied in the model study report. The threat of flood to the Burala Branch downstream of the bridge was so severe that the department had to put its best efforts to save the irrigation infrastructure as well as the canal. The nature and gravity of the flood as reported in the model study was also discussed by the Expert Committee of the Irrigation Department and was found ideal site. The issue of the bridge was evaluated and optimized on scale model study carried out at the World renowned Hydraulic Research Station, Nandipur. Moreover, the concerned people of the NESPAK were kept on board during the course of model study. The study was completed on the basis of experiments and in presence of expertise of NESPAK. The recommendations of the model study are supposed to be honored and implemented accordingly because feedback of working of hydraulic structures constructed in the light of model recommendations is basing design criteria for the designers. Keeping in view the above facts, Irrigation Department is of the strong view that the implementation of all other structures proposed in model study No.1267 of the bridge is inevitable for the department in the best interest of public works.

FLOOD OF 2014.

A high flood of **118000 Cs** passed on 09.09.2014 D/S Balloki Head Works which was handled successfully. The flood water touched with Muhammad Shahwala Flood Bund. The spur at RD.419+000 Burala Branch and Bhusi Spur were under action due to direct hit of river during high flood. The apron at some places of Guide spur RD.419 was launched. Due to construction of PWD Road Bridge at Mal-Fatyana, the parallel flow of river was observed with upstream shank of Kalera Spur and RD.5-10 of Kalera Flood Bund. For protection of river training works, a scheme has been prepared and submitted to higher office which has been cleared by NESPAK amounting to Rs.413.795 millions, and is very essential for the safety of canal structures, Irrigated land and adjoining abadies of Tehsil Kamalia.

FLOOD OF 2015.

A low flood with discharge of **54650 Cs** passed on 25.09.2015 D/S Balloki Head Works due to parallel flow of river water the severe erosive action started and damaged the earthen Shank in reach RD: 1+900 to 3+800 of J-Head Spur Kalera. The estimate for its restoration has been sanctioned tender has been received and the work will be completed up to 30.06.2016.

FLOOD OF 2016.

There was only a low flood pass D/S with a discharge of **27325 Cs** is and nether remarkable change was observed in the River flow nor any threat was caused to the River Flood protection works.

FLOOD OF 2017.

There was only a low flood pass D/S with a discharge of **36790 Cs** is and nether remarkable change was observed in the River flow nor any threat was caused to the River Flood protection works.

FLOOD OF 2018.

There was only a low flood pass D/S with a discharge of **37680 Cs** is and nether remarkable change was observed in the River flow nor any threat was caused to the River Flood protection works.

FLOOD OF 2019.

There was only a low flood pass D/S with a discharge of **34900 Cs** is and nether remarkable change was observed in the River flow nor any threat was caused to the River Flood protection works.

FLOOD OF 2020.

There was only a low flood pass D/S with a discharge of **37250 Cs** is and nether remarkable change was observed in the River flow nor any threat caused to the River Flood protection works.

Executive Engineer
Burala Division LCC (East)
Faisalabad.
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CHAPTER # 4

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

4.1 FLOOD LIMITS.

The following are the flood limits for each stage flood for the stations mentioned below:-

Station	Low	Medium	High	Very High	Exceptionally
Jassar	50000Cs	75000 Cs	100000Cs	150000 Cs	200000 Cs
Shahdara	40000Cs	65000 Cs	90000 Cs	135000 Cs	180000 Cs
Balloki	40000Cs	65000 Cs	90000 Cs	135000 Cs	180000 Cs
Sidhnai	30000Cs	65000 Cs	60000 Cs	90000 Cs	120000 Cs

4.2 TIME LAG OF FLOODS

River	Sites		Distance in Kilo Meter	Time Lag in Hours.	
	From	To		Range	Indicative/ Average
RAVI	Jassar	Ravi Syphon	73	18-24	18
	Ravi Syphon	Shahdara	24	7-10	08
	Shahdara	Balloki	63	21-30	24
	Balloki	Muhammad Shahwala	128	30-42	36

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4.3 HIGHEST FLOODS.

The maximum discharge recorded down stream Balloki Head works in the past years.

Year	Discharge	Year	Discharge
1950	275000 Cs	2016	27325 Cs
1955	255000 Cs	2017	36790 Cs
1973	183000 Cs	2018	37680 Cs
1976	235000 Cs	2019	34900 Cs
1977	111000 Cs	2020	37250 Cs
1980	152000 Cs		
1981	94000 Cs		
1982	43000 Cs		
1983	48000 Cs		
1984	47010 Cs		
1985	67586 Cs		
1986	54590 Cs		
1987	109700 Cs		
1988	381000 Cs		
1989	114070 Cs		
1990	68375 Cs		
1991	73900 Cs		
1992	102157 Cs		
1993	104015 Cs		
1994	95335 Cs		
1995	222800 Cs		
1996	220000 Cs		
1997	156950 Cs		
1998	74780 Cs		
1999	46530 Cs		
2000	77300 Cs		
2001	46940 Cs		
2002	25280 Cs		
2003	43975 Cs		
2004	74005 Cs		
2005	40000 Cs		
2006	22020 Cs		
2007	36643 Cs		
2008	57735 Cs		
2009	41395 Cs		
2010	36015 Cs		
2011	23808 Cs		
2012	29264 Cs		
2013	97970 Cs		
2014	118000 Cs		
2015	54650 Cs		

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4.4 PEAK DISCHARGES.

The maximum discharge recorded downstream Balloki Head works in the past year and water level observed at spur along Burala Branch and Kalera spur was as under:-

Year	Discharge	Spur 419	Spur 424	Spur RD: 426+800	Spur RD: 430+000	Spur RD: 448+400	Kalera Spur.
1950	275000 Cs			529.80			
1955	255000 Cs			529.41			
1973	183000 Cs			528.00			
1976	235000 Cs			528.00			
1977	111000 Cs			520.00			
1980	152000 Cs			524.00			
1981	94000 Cs			522.12			
1982	43000 Cs			519.00			
1983	48000 Cs			519.06			
1984	47010 Cs			519.04			
1985	67586 Cs			519.50			
1986	54590 Cs			519.44			
1987	109700 Cs			519.98			
1988	381000 Cs			530.72			
1989	114070 Cs			520.13			
1990	68375 Cs			519.53			
1991	73900 Cs			579.75			
1992	102157 Cs			519.94			
1993	104015 Cs			519.98			
1994	95335 Cs			522.13	522.00	519.50	
1995	222800 Cs			527.94	527.00	524.60	521.61
1996	220000 Cs			527.90	527.00	524.60	521.60
1997	156950 Cs			525.20	525.00	523.00	
1998	74780 Cs			520.09	520.00	518.40	
1999	46530 Cs			519.14	519.00	516.20	
2000	77300 Cs			519.70	519.52	512.52	-
2001	46940 Cs			519.01	519.89	516.20	-
2002	25280 Cs			-	-	-	-
2003	43975 Cs			-	-	-	-
2004	74005 Cs			519.74	519.60	518.40	515.39
2005	40000 Cs			-	-	-	-
2006	22020 Cs			-	-	-	-
2007	36643 Cs			-	-	-	-
2008	57735 Cs			519.48	519.31	517.00	514.22
2009	41395 Cs			-	-	-	-
2010	36015 Cs	-	-	-	-	-	-
2011	23808 Cs	-	-	-	-	-	-
2012	29264 Cs	518.85	518.43	-	517.75	-	-
2013	97970Cs	525.00	524.90	-	524.70	524.10	521.70
2014	118000 Cs	525.20	525.10		524.80	523.40	522.30
2015	54650 Cs	518.25	518.10	-	517.60	516.80	514.40
2016	27325 Cs	-	-	-	-	514.80	512.70
2017	36790 Cs	-	-	-	-	-	-
2018	37680 Cs	-	-	-	-	-	-
2019	34900 Cs	-	-	-	-	-	-
2020	37250 Cs						

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CHAPTER # 5

FLOOD FIGHTING STRATEGY.

The Executive Engineer, Burala Canal Division, Faisalabad will be over all in-charge and will stay at Muhammad Shahwala Rest House during flood days. He will take appropriate action according to the severness of the emergency.

During emergency when the discharge down stream Balloki Head Works exceeds 90000 Cs and rising, the sub Divisional Officers, Kanya Sub Division, and all Sub Engineer of Kanya Sub Division, with 50% establishment will reach immediately at their temporary Headquarter fixed at Muhammad Shahwala Rest House, during floods. The Sub Divisional Officer will keep a proper record independently and separately. The three hourly gauges will be recorded in a gauge register for each spur and at every gauge along Muhammad Shahwala and Kallera Flood Bund.

Vulnerable points:-

i)	Spur RD 448+000 Burala Branch.	(Nose and Shank)
ii)	Kalera Spur. Flood Bund	(J-Head)
iii)	Guide wall spur RD 13+200 Kalera flood bund	(J-Head and Shank)

Vulnerable Reaches on Flood Bunds.

i)	Reach RD 30+000 To 33+000 (Muhammad Shahwala Flood Bund)	(site plan page No.35)
ii)	Reach Rd 5+000 To 13+000 (Kalera Flood Bund).	(site plan page No.40)

In case of alarming situation during emergency of Very High Flood, the field officers like Superintending Engineer, Executive Engineer and Sub Divisional Officer will be present to face and tackle the situation with the help of available Irrigation staff, Police Constables, Pak Army, Civil Defense and Public of adjoining area.

The following arrangements will be made during flood season.

i) Operation room will be opened and will start functioning with effect from 15 June. All wireless, telephone and other messages will be recorded and maintained in this emergency office. The duty charts of staff, plan of bund showing position liners, flood register and other arrangements for recording the Data will be available and any information called for by any agency will be supplied from this center.

ii) Duty chart will be prepared and supplied to all staff.

iii) Work charge establishment will be deployed/engaged against vacant post of flood bund staff for flood preparedness before the starting of flood season.

iv) Watching gangs will be deployed during monsoon season for flood emergency and further raised as per stages discharge received D/S Balloki Head works.

1) **Stage One. Low To Medium Flood**

One man per mile on duty for 2 shifts

2) **Stage Two. Medium Flood To High Flood**

2 Man per mile on duty for 3 Shifts

3) **Stage Three. High Flood To Very High Flood**

4 man per mile on duty for 3 Shifts

Detail at page No. 21.

4) **Stage Four. Very High Flood To Exceptionally High Flood**

6 man per mile on duty for 3 Shifts

Kalera Flood Bund ends at RD 27+750 and is connected with Kamalia Chechawatten Road In case of exceptional high Flood River; spill may go beyond it and inundate the area. Local Civil Administration will look after the situation.

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CHAPTER # 6

FLOOD DAMAGES RESTORATION WORKS.

Note:- No any damages during Flood 2020.

Executive Engineer
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CHAPTER # 7

FLOOD FIGHTING WATCHING ARRANGEMENT.

7.1 **PRE-FLOOD ARRANGEMENT.**

The following steps/arrangements have been taken for pre-flood arrangements.

i). Instruction issued by the higher authorities Superintending Engineer and Departmental committee have been noted and are on the way to be comply with well before the coming flood season.

ii). Meeting with Army authorities have been made.

DETAIL OF AVAILABLE RESERVE STOCK OF STONE DURING 2021.

Sr NO	Name of Structure	Location R,D. where stone is lying	Sanctioned Reserve Stock Limit	No of Stacks	Available Qty. of stone.	Balance Qty required (in L.Cft)
1	2	3	4	5	6	7
1	Mohammad Shah Wala Flood Bund	R.D. 13-33	0.75	Nos 1-77	0.75	0.00
2	Guide Spur RD 419+000 Burala Branch	RD 0-2	0.50	Nos 1-72	0.42	0.08
3	J- head Spur R.D. 424+000 Burala Branch	R.D. 0-1	0.50	Nos 1-4	0.04	0.46
4	J- head Spur R.D. 430+000 Burala Branch	R.D. 0-1	0.50	Nos 1-14	0.50	0.00
5	J- head Spur R.D. 448+000 Burala Branch	R.D. 1-6	0.50	Nos. 1-37	0.47	0.03
6	J- Head Kalera Spur	R.D. 0-5	0.50	No. 1-40	0.40	0.10
7	J- Head Bussi Spur	R.D. 1-5	0.50	Nos. 1-28	0.20	0.30
8	Hocky Spur at RD 5+117	-	0.50	-	0.00	0.50
9	Concavo Convex Guide wall spur	R.D. 1-22	0.50	Nos. 1-22	0.10	0.40
		TOTAL:-	**4.75**		**2.89**	**1.86**

7.2. WATCHING ESTABLISHMENT.

Watching establishment will be deployed during flood emergency.

Site	Length in mile	Stage I Low To Medium (1 man per mile)		Stage II High To Very High (4 man per mile)		Stage III Very High To Exceptionally High (6 man per mile)	
Muhammad Shahwala	7.71	8 Men	2 Shift	32 Men	3 Shift	47 Men	3 Shift
Spur RD 424	0.48	1 Men	2 Shift	4 Men	3 Shift	6 Men	3 Shift
Spur RD 430	0.61	1 Men	2 Shift	4 Men	3 Shift	6 Men	3 Shift
Spur RD 448	1.33	2 Men	2 Shift	6 Men	3 Shift	8 Men	3 Shift
Spur RD 419	0.32	1 Men	2 Shift	4 Men	3 Shift	6 Men	3 Shift
Kallera Flood Bund	5.55	6 Men	2 Shift	24 Men	3 Shift	33 Men	3 Shift
Kallera Spur	1.01	1 Men	2 Shift	4 Men	3 Shift	6 Men	3 Shift
Bussi Spur	0.97	1 Men	2 Shift	4 Men	3 Shift	6 Men	3 Shift
Hockey Spur at RD 5+117	1.17	6 Man	2 Shift	6 Men	3 Shift	6 Men	3 Shift
Concavo Convex Guide Wall Spur	0.58	4 man	2 Shift	6 Men	3 Shift	6 Men	3 Shift
Chowkidar for huts.		3 Men	2 Shift	12 Men	3 Shift	12 Men	3 Shift

Executive Engineer, Burala Division, Faisalabad may employ work charge establishment as per site situation after obtaining approval from Superintending Engineer, Lower Chenab Canal East Circle Faisalabad. Sub Divisional Officer, Sultanpur Sub Division, Kamalia shall employ watching establishment as per strength mentioned above subjected to approval from the Competent Authority.

7.3. ARRANGEMENT AT SENSITIVE SITES.

The following reaches are likely to be sensitive / vulnerable reaches.

1. **Muhammad Shahwala Flood Bund**

   Reach RD 30+000 to 33+000

2. **Kalera Flood Bund**

   Reach RD.5+000 to 13+000
   These reaches have been restored to their design parameter for flood season and will be strictly watched during flood season.

DETAIL OF SENSITIVE SITES AVAILABLE RESERVE STOCK OF STONE.

Sr NO	Name of Structure	Location R,D. where stone is lying	Sanctioned Reserve Stock Limit	No of Stacks	Available Qty. of stone.
1	2	3	4	5	6
1.	Mohammad Shah Wala Flood Bund	R.D. 13-33	0.75	Nos 1-77	0.75
2.	J- Head Kalera Spur	R.D. 0-5	0.50	No. 1-40	0.40

7.4. **WATCHING MATERIAL.**

The watching material will be available at vulnerable site.

Material for Site RD 30+000 to 33+000 Muhammad Shahwala Flood Bund

Sr.No	Description	Location	Unit	Qty Required	Qty Available	Balance Qty	Remarks.
1	Ballies	Muhammad Shahwala Rest House	No	500	50	450	Flood fighting material procured before coming flood session 2021.
2	Axes with handle		No	10	10	0	
3	Deisel Engine Chaina 4HP		No	1	0	1	
4	Baskets		No	15	15	0	
5	Chimney for lamps		No	25	0	25	
6	PVC bags 4-5 ft for send filing		No	1000	200	800	
7	Chouldaries		No	4	2	2	
8	E.G Bags.Gunny bags		No	2400	1000	1400	
9	Folding Chair		No	3	0	3	
10	Folding table		No	1	0	1	
11	Generator		No	1	1	0	
12	Sluice volve 10" dia		No	1	0	1	
13	Holder for lamp		No	25	0	25	
14	Kassi with Handles		No	25	15	10	
15	Kerosene Oil		Liter	200	0	200	
16	Wooden Killas		No	500	0	500	
17	Lanterns		No	15	0	15	
18	Manila Rope		Kg	100	0	100	
19	Munj/Patha/Trangers		No	500	0	500	
20	Needles		Dozen	10	0	10	
21	Steel Charpai		No	3	0	3	
22	Sutli		Kg	10	0	10	
23	Tarches 3 Cells		No	25	10	15	
24	Umbrella		No	6	0	6	
25	Electric cable 7/029		Ft	2000	0	2000	
26	Wooden Boards 10 x 12 with switches		No	10	0	10	
27	Khaji mat 6x4		No	250	0	250	
28	G.I Wire No.10		Kg	100	0	100	
29	Bamboos 8 to 10 ft for lighting		No	50	0	50	
30	Tent		No	2	0	2	
31	Send filling machine		No	1	1	0	
32	Polythene sheets		SFT	850	0	850	
33	Bucket		No	15	0	15	
34	Tractor with Trolley		No	1	1	0	

Material for Site RD 5+000 to 13+000 Kalera Flood Bund.

Sr.No	Description	Location	Unit	Qty Required	Qty Available	Balance Qty	Remarks
1	Ballies	Muhammad Shahwala Rest House	No	500	0	500	Flood fighting material procured before coming flood session 2021.
2	Axes with handle		No	10	05	05	
3	Deisel Engine Chaina 4HP		No	1	0	1	
4	Baskets		No	15	10	05	
5	Chimney for lamps		No	25	0	25	
6	PVC bags 4-5 ft for send filing		No	1000	600	400	
7	Chouldaries		No	4	2	2	
8	E.G Bags.Gunny bags		No	2400	400	2000	
9	Folding Chair		No	3	03	0	
10	Folding table		No	1	1	0	
11	Generator		No	1	0	1	
12	Sluice volve 10" dia		No	1	0	1	
13	Holder for lamp		No	25	0	25	
14	Kassi with Handles		No	25	10	15	
15	Kerosene Oil		Liter	200	0	200	
16	Wooden Killas		No	500	0	500	
17	Lanterns		No	15	0	15	
18	Manila Rope		Kg	100	0	100	
19	Munj/Patha/Trangers		No	500	0	500	
20	Needles		Dozen	10	0	10	
21	Steel Charpai		No	3	0	3	
22	Sutli		Kg	10	0	10	
23	Tarches 3 Cells		No	25	10	15	
24	Umbrella		No	6	0	6	
25	Electric cable 7/029		Ft	2000	0	2000	
26	Wooden Boards 10 x 12 with switches		No	10	0	10	
27	Khaji mat 6x4		No	250	0	250	
28	G.I Wire No.10		Kg	100	0	100	
29	Bamboos 8 to 10 ft for lighting		No	50	0	50	
30	Tent		No	2	2	0	
31	Send filling machine		No	1	1	0	
32	Polythene sheets		SFT	600	0	600	
33	Bucket		No	10	0	10	
34	Tractor with Trolley		No	1	0	1	

7.5. ARRANGEMENT FOR SOUNDING PROBING.

Necessary arrangements have been made at site.

7.6. LIGHTING ARRANGEMENT.

Necessary Lighting arrangement have been arranged at Muhammad Shahwala Flood Bund.

7.7 RATION ARRANGEMENT.

At the time of flood, local Administration will arrange ration.

7.8. **P.O.L ARRANGEMENT FOR VEHICLE.**

As per requirement, P.O.L will be arranged through Irrigation department during flood season.

7.9. **TRANSPORTATION.**

In case of real emergency, the requisite transportation will be provided by District Administration.

7.10 **LAW AND ORDER.**

The Executive Engineer Burala Division Faisalabad will inform Army Engineers and District Administration in written with reasonable reaction time.

7.11 **MEDICAL ARRANGEMENT.**

Necessary medicines are will be arranged by the Health Department for controlling epidemics in the entire field health unit.

7.12 **LIAISON WITH OTHER DEPARTMENT.**

Executive Engineer Burala Division Faisalabad and Sub Divisional Officer Sultanpur Sub Division Kamalia will keep liaison with their counterparts of other departments, higher authorities of the department and will constantly keep him informed about the flood situation through wireless and telephone etc.

7.13 **ROLE OF ARMY.**

In case of emergency, local Administration will call Army Engineer's.

7.14 **DUTIES OF TELEPHONE ATTENDANT.**

Executive Engineer Burala Division Faisalabad will be responsible for overall Implementation of flood fighting plan. The Divisional Office will remain open for 24 hours during flood days. The Head Clerk in the Divisional office will depute the clerical staff to attend the office telephone No. 041-9200275 promptly after office hours for flood season; duty roster will be prepared by him.

7.15 **WIRELESS ARRANGEMENTS.**

Flood Emergency Office will be set up at Faisalabad in the Office of Executive Engineer (Operation). The Telegraph Office at Faisalabad will remain open round the clock. This Office will collect information regarding flood warning from main flood warning station at Lahore and pass on to the Executive Engineer, Burala Division, LCC (E) Faisalabad and Sub Divisional Officer, Sultanpur Sub Division Kamalia immediately.

Sub Divisional Officer, Sultanpur Sub Division Office at Kamalia will be connected by Telegraph and Police wireless. He will communicate with Faisalabad Station and District Administration through these facilities.

NOTE.

Urgent messages can be delivered and received at Telephone Number 0301-7276923 of Sub Divisional Officer, Sultanpur Sub Division, Kamalia & Sub Engineer Muhammad Shahwala Section 0345-4048699 of Burala Canal Division.

Executive Engineer
Burala Division LCC East)
Faisalabad.
14/04/2021
14/04/2024.

CHAPTER # 8

DETAIL OF ENCROACHMENT

Sr NO	Total Encroachments	Removed	Remaining	Remarks
No encroachment exists on Muhammad Shahwala and Kalera Flood Bunds.				

CRITICAL ENCROACHMENT

Sr NO	Total Encroachments	Removed	Remaining	Remarks
No critical encroachment exists on Muhammad Shahwala and Kalera Flood Bunds.				

Executive Engineer
Burala Division LCC (East)
Faisalabad.

14/09/2021

14/09/2021.

CHAPTER # 9

DUTY ROSTER / FLOOD FIGHTING PROGRAM

Stage I. Low to Medium Flood.

The flood area under the control of this Division is divided into 3 sectors and Officer In-charge is Sub Divisional Officer Sultanpur Sub Division. Each sector will be assigned to one Sub Engineer, who will shift his headquarter in field. Detail of sectors given below:-

Site	Length in mile	Stage I (1 man per mile)		Name of Site In-charge	Cell No
Muhammad Shahwala Flood Bund	7.71	8 Men	2 Shift	**Adnan Nazir** Sub Engineer	0345-4048699
Spur RD 424	0.48	1 Men	2 Shift		
Spur RD 430	0.61	1 Men	2 Shift		
Spur RD 448	1.33	2 Men	2 Shift		
Spur RD 419	0.32	1 Men	2 Shift		
Kallera Flood Bund	5.55	6 Men	2 Shift	**Muhammad Yameen** Sub Engineer	0346-4855862
Kallera Spur	1.01	1 Men	2 Shift		
Hockey Spur at RD 5+117	1.17	6 Man	2 Shift		
Concavo Convex Guide Wall Spur	0.58	4 man	2 Shift		
Bussi Spur	0.97	1 Men	2 Shift	**Ijaz Hussain Khan** Sub Engineer	0302-6376704

Stage II. Medium to Very High Flood.

The flood area under the control of this Division is divided into 3 sectors and Officer In-charge is Executive Engineer, Burala Division with Sub Divisional Officer Sultanpur Sub Division. Each sector will be assigned to one Sub Engineer, who will shift his headquarter in field. Detail of sectors given below:-

Site	Length in mile	Stage I (1 man per mile)		Name of Site In-charge	Cell No
Muhammad Shahwala Flood Bund	7.71	32 Men	3 Shift	**Adnan Nazir** Sub Engineer	0345-4048699
Spur RD 424	0.48	4 Men	3 Shift		
Spur RD 430	0.61	4 Men	3 Shift		
Spur RD 448	1.33	6 Men	3 Shift		
Spur RD 419	0.32	4 Men	3 Shift		
Kallera Flood Bund	5.55	24 Men	3 Shift	**Muhammad Yameen** Sub Engineer	0346-4855862
Kallera Spur	1.01	6 Men	3 Shift		
Hockey Spur at RD 5+117	1.17	6 Man	3 Shift		
Concavo Convex Guide Wall Spur	0.58	6 man	3 Shift		
Bussi Spur	0.97	4 Men	3 Shift	**Ijaz Hussain Khan** Sub Engineer	0302-6376704

Stage III. Very High to Exceptionally High Flood

The flood area under the control of this Division is divided into 3 sectors and Officer In-charge is Superintending Engineer / Executive Engineer, Burala Division with Sub Divisional Officer Sultanpur Sub Division. Each sector will be assigned to one Sub Engineer, who will shift his headquarter in field. Detail of sectors given below:-

Site	Length in mile	Stage I (1 man per mile)		Name of Site In-charge	Cell No
Muhammad Shahwala Flood Bund	7.71	42 Men	3 Shift	**Adnan Nazir** Sub Engineer	0345-4048699
Spur RD 424	0.48	6 Men	3 Shift		
Spur RD 430	0.61	6 Men	3 Shift		
Spur RD 448	1.33	8 Men	3 Shift		
Spur RD 419	0.32	6 Men	3 Shift		
Kallera Flood Bund	5.55	30 Men	3 Shift	**Muhammad Yameen** Sub Engineer	0346-4855862
Kallera Spur	1.01	6 Men	3 Shift		
Hockey Spur at RD 5+117	1.17	6 Man	3 Shift		
Concavo Convex Guide Wall Spur	0.58	6 man	3 Shift		
Bussi Spur	0.97	12 Men	3 Shift	**Ijaz Hussain Khan** Sub Engineer	0302-6376704

The Sub Divisional Officer, Sultanpur Sub Division, Kamalia and Sub Engineer, Muhammad Shahwala Section will be the representative of Department in the field and are instructed with the job of supervision of flood works. The Sub Divisional Officer, Sultanpur with Headquarter at Kamalia will be the in charge of flood Sectors and will be responsible to implement the instructions received from the higher Authorities for the flood protective measures during flood and to take the initiative as the situation demand at site. He will give the information from Office Muhammad Shahwala and by Police wireless at Kamalia to following Officers stationed at Faisalabad and T.T. Singh.

1. Superintending Engineer, Lower Chenab Canal East Circle Faisalabad.
2. Executive Engineer, Burala Division, LCC (E) Faisalabad.
3. Flood Emergency Officer, Office of the Chief Engineer, Irrigation, Faisalabad.
4. Head Signaller, Faisalabad
5. District Coordination Officer, Toba Tek Singh.
6. Canal Telegraph Office, Faisalabad.

Note: Incase of very high flood in River Ravi, Executive Engineer Lower Gugara Division, Sub Divisional Officer Tandlianwala, Sub Divisional Officer Kanya, Sub Divisional Officer Tarkhani and Sub Divisional Officer Bhagat of adjoining Division will rush at Muhammad ShahWala Flood Bund and Kalera Flood Bund with their field establishment.

Executive Engineer
Burala Division LCC (East)
Faisalabad.
14/04/2021

CHAPTER # 10

FLOOD EMERGENCY TELEPHONE NUMBERS OF FAISALABAD IRRIGATION ZONE FAISALABAD.

Sr.No.	Designation	Office	Telephone	
			Office	Residence
1.	Secretary I & P	Secretariat	042-99212117-18	042-35731116
	IRRIGATION DEPARTMENT			
1.	Chief Engineer	Zonal Office Faisalabad. Fax	041-9200268 041-9200277	041-9200269
2.	Superintending Engineer	LCC (EAST) Faisalabad	041-9200273	041-2637118
3.	Executive Engineer	Burala Division Faisalabad.	041-9200275	0300-8199708
4.	Flood Emergency Officer/Executive Engineer (OP)/ Faisalabad	Office C.E Irrigation Faisalabad	041-9200270	0331-6353645
5.	Canal Telegraph Office Faisalabad	Canal Colony Faisalabad	041-9200774	0341-9533512
6.	Sub Divisional Officer	Sultanpur Sub Division Kamalia.		0301-7276923
7.	Sub Engineer Muhammad Shahwala.	Muhammad Shahwala at Kamalia		0345-4048699
8.	Sub Engineer Jhakar	Kamalia		0346-4855862
9.	Sub Engineer Jarola	Sultanpur		0302-6376704
10.	Chief Engineer D & F Irrigation Department	Lahore Fax No:	042-99230602 042-99230731	
11.	Director Flood/Secy; Punjab Flood commission LHR.	Lahore	042-99231614	
	CIVIL ADMINISTRATION.			
1.	District Coordination Officer Faisalabad.	-	041-9200205-6	041-9200208-9
2.	District Coordination Officer, (DCO) Toba Tek Singh	- Fax:-	046-9201001 046-9201002 046-9201004	046-9201003
3.	District Officer Coordination, (DOC) Toba Tek Singh	-	046-9201005	
4.	ADCG Toba Tek Singh	- -	046-92001013	
5.	Assistant Commissioner Kamalia.	-	046-3412371	0334-5107556
6.	Dist: Officer Revenue T.T. Singh.	-	046-9201011	
7.	Rescue T.T.Singh	-	1122	

CHAPTER # 11

STANDARD OPERATION PROCEDURE OF BREACHING SECTION.

11.1	History of the Breaching Section. Not Related.
11.2	Location, Quantity, Design and Variety of the Explosive Required for Detonation. Not Related.
11.3	Arrangements of Explosives and Security of Explosives Stores. Not Related.
11.4	List of Security Staff along with details of their trainings etc. Not Related.
11.5	Details of machinery means as standby arrangements in case of detonation failure. Not Related.
11.6	Duty roaster in case of critical situation. Not Related.
11.7	Breaching committee with their action plan (Notification). Not Related.
11.8	List of villages likely to be inundated in case of breach. Not Related.
11.9	Announcement and details of evacuation arrangements. Not Related.
11.10	Details of coordination with civil/ army authorities. Not Related.
11.11	Parallel communication arrangements. Not Related.
11.12	Index plan. Not Related.

It is certified that no Breaching Section exist at the Muhammad Shahwala and Kalera Flood Bunds falling in the jurisdiction of this Division.

Executive Engineer
Burala Division LCC
Faisalabad
14/04/2021.

Superintending Engineer
Lower Chenab Canal East Circle
Faisalabad
15.04.21

Chief Engineer
Faisalabad Irrigation Zone
Faisalabad
15/4/21

PART-B

CHAPTER # 12

Vulnerable sites on Flood Bund /Structures.

12.1 Apprehended breaches in Flood Bunds/Structures.

Sr No	Name of Structures	Locating of vulnerable sites	Reference	Remarks
1.	Muhammad Shahwala Flood Bund	RD 30+000 To RD 33+000	Page No 35	
2.	Kalera Flood Bund	RD 5+000 To RD 13+000	Page No 40	

12.2 Operation of breaching sections.

No Breaching Section in Muhammad Shahwala & Kalera Flood Bund.

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

No such occurrence.

Executive Engineer
Burala Division LCC (East)
Faisalabad.

13/04/2021

14/04/2021.

CHAPTER # 13

EMERGENCY CONTINGENCY PLAN FOR VULNERABLE SITE NO. 1, RD 30+000 TO 33+000 MUHAMMAD SHAHWALA FLOOD BUND.

13.1 Plan showing route of Flood water coming out of the breach supported with levels

Plan showing route of Flood water coming out of the breach is attached on page No. 35.

13.2 Detail of villages abadies likely to be affected.

The following villages abadies are likely to be affected Chak No.715,716,717, 718,719,722,729,730,736,737,742,747,744,750,752,754,755,756,761,762,763, 764,764,767,768/GB and Mouza Butti, Veroana, Jamal Pahar, 738,739,740, 741,742,743,745..

13.3 STRATEGY AND ACTION TAKEN

In case of alarming situation during emergency of high Flood, the field officers like Superintending Engineer, Executive Engineer and Sub Divisional Officer will be present to face and tackle the situation with the help of available Irrigation staff, Police Constables, Pak Army, Civil Defence and Public of adjoining area.

13.3.1 ARRANGEMENTS.

The following arrangements will be made during flood season.

I) Operation room will be opened and will start functioning with effect from 05 June. All wireless, telephone and other messages will be recorded and maintained in this emergency office. The duty charts of staff, plan of bund showing position liners, flood register and other arrangements for recording the data will be available and any information called for by any agency will be supplied from this centre.

II) Duty chart will be prepared and supplied to all staff.

III) Work charge establishment will be deployed/engaged against vacant post of flood bund staff for flood preparedness before the starting of flood season.

PILCHI PITCHING.

Sub Divisional Officer will keep the sources/quantity of supply of killas and pilchi pitching arrangements to check any sudden parallel flow etc.

EMPLOYMENT OF WATCHING ESTABLISHMENT.

Watching gangs will be deployed during monsoon season for flood emergency and further raised as per stages discharge received D/S Balloki Head works.

13.3.2 ESTABLISHMENT OF FLOOD FIGHTING CAMPS.

The Camps will be installed at following points:-

Sr No	Location	Name Of Camp In-charge	Designation / Cell No	Section
1	Spur RD:- 419+000	Adnan Nazir	Sub Engineer 0345-4048699	Muhammad Shah Wala
2	Spur RD:- 448+400			
3	Kalera J-Head Spur	Muhammad Yameen	Sub Engineer 0346-4855862	Jakhar
4	Bussi Spur	Ijaz Hussain Khan	Sub Engineer 0302-6376704	Jarola

Detail of establishment on page No. 21.

13.3.3 DUTIES OF OFFICERS/ OFFICIALS AND THEIR CAMP SITES.

Camp #	Location	Name Of Camp In-charge	Designation / Cell No	Section
1	Spur RD:- 419+000	Adnan Nazir	Sub Engineer 0345-4048699	Muhammad Shah Wala
2	Spur RD:- 448+400			
3	Kalera J-Head Spur	Muhammad Yameen	Sub Engineer 0346-4855862	Jakhar
4	Bussi Spur	Ijaz Hussain Khan	Sub Engineer 0302-6376704	Jarola

(a). To supervise, direct and control flood prevention measures and bunds protection activities, such as strengthening, maintenance, repair and construction of additional embankment.

(b). To operate gauge stations and provide information and data to authorities concerned for issuance of Alert and Danger warning messages.

(c). To coordinate survey, investigation of the extent of damage to flood Infrastructure, embankment, canals and Irrigation network.

(d). To assist and coordinate emergency require of public services.

(e). To subsequently restore damaged public service.

(f). To supervise and coordinate actions to save stock equipment, machinery etc, from damage.

13.3.4 DEPARTMENTAL MACHINERY AVAILABLE

NO -

13.3.5 **MACHINERY AVAILABLE FROM PRIVATE SOURCE .**

It will be arranged as per requirement through contractor during flood emergency. (Agreement Attached) On Page No.45.

13.3.6 **FLOOD FIGHTING MATERIAL REQUIRED FOR SITE NO 1.**

13.3.7 **FLOOD FIGHTING MATERIAL AVAILABLE FOR SITE NO 1.**

Sr.No	Description	Location	Unit	Qty Required	Qty Available	Balance Qty	Remarks
1	Ballies	Muhammad Shahwala Rest House	No	500	50	450	Flood fighting material procured before coming flood session 2021.
2	Axes with handle		No	10	10	0	
3	Deisel Engine Chaina 4HP		No	1	0	1	
4	Baskets		No	15	15	0	
5	Chimney for lamps		No	25	0	25	
6	PVC bags 4-5 ft for send filing		No	1000	200	800	
7	Chouldaries		No	4	2	2	
8	E.G Bags.Gunny bags		No	2400	1000	1400	
9	Folding Chair		No	3	0	3	
10	Folding table		No	1	0	1	
11	Generator		No	1	1	0	
12	Sluice volve 10" dia		No	1	0	1	
13	Holder for lamp		No	25	0	25	
14	Kassi with Handles		No	25	15	10	
15	Kerosene Oil		Liter	200	0	200	
16	Wooden Killas		No	500	0	500	
17	Lanterns		No	15	0	15	
18	Manila Rope		Kg	100	0	100	
19	Munj/Patha/Trangers		No	500	0	500	
20	Needles		Dozen	10	0	10	
21	Steel Charpai		No	3	0	3	
22	Sutli		Kg	10	0	10	
23	Tarches 3 Cells		No	25	10	15	
24	Umbrella		No	6	0	6	
25	Electric cable 7/029		Ft	2000	0	2000	
26	Wooden Boards 10 x 12 with switches		No	10	0	10	
27	Khaji mat 6x4		No	250	0	250	
28	G.I Wire No.10		Kg	100	0	100	
29	Bamboos 8 to 10 ft for lighting		No	50	0	50	
30	Tent		No	2	0	2	
31	Send filling machine		No	1	1	0	
32	Polythene sheets		SFT	850	0	850	
33	Bucket		No	15	0	15	
34	Tractor with Trolley		No	1	1	0	

Above cited material and Stone is required for Muhammad Shahwala & Kalera Flood Bund In Sultanpur Sub Division Kamalia.

13.4 Detail of other infrastructure like electric, sui gas, Telephone installations, road network, other building, Canals and drainage network.

i. A PWD bridge has been constructed at river Ravi near Moza Malfatyana .

ii. The work of pacca road is in progress from Kamalia to Harapa City.

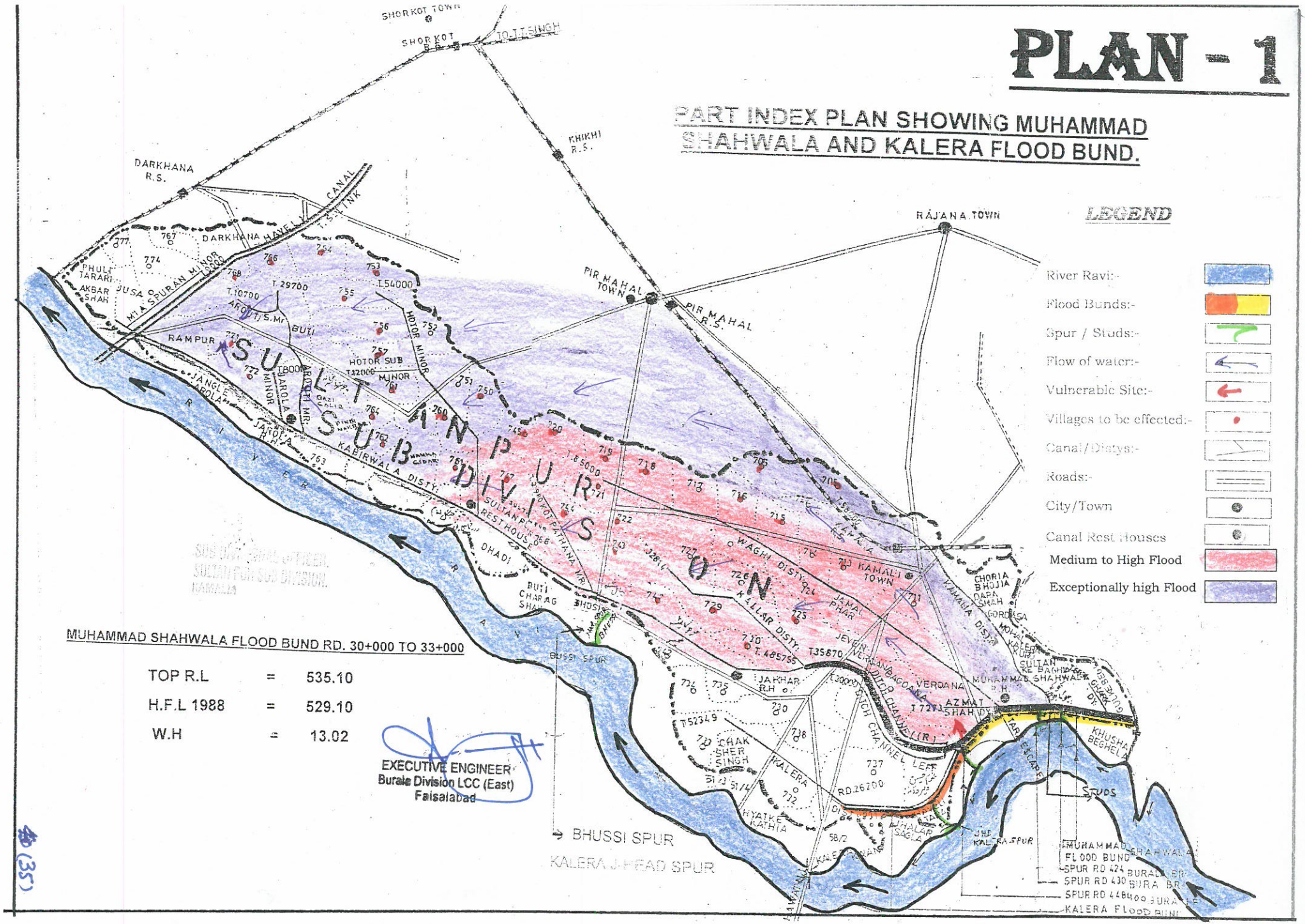
Executive Engineer
Burala Division LCC (East)
Faisalabad.

14/04/2021

14/04/2021.

PLAN - 1

PART INDEX PLAN SHOWING MUHAMMAD SHAHWALA AND KALERA FLOOD BUND.



LEGEND

- River Ravi:-
- Flood Bunds:-
- Spur / Studs:-
- Flow of water:-
- Vulnerable Site:-
- Villages to be effected:-
- Canal/Distys:-
- Roads:-
- City/Town
- Canal Rest Houses
- Medium to High Flood
- Exceptionally high Flood

MUHAMMAD SHAHWALA FLOOD BUND RD. 30+000 TO 33+000

TOP R.L	=	535.10
H.F.L 1988	=	529.10
W.H	=	13.02

EXECUTIVE ENGINEER
Burala Division LCC (East)
Faisalabad

(35)

EMERGENCY CONTINGENCY PLAN FOR VULNERABLE SITE NO. 2 RD 5+000 TO 13+200 KALERA FLOOD BUND.

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

Plan showing route of Flood water coming out of the breach is attached on page No. 40.

13.2 DETAIL OF VILLAGES ABADIES LIKELY TO BE AFFECTED

The following village's abadies are likely to be affected

Chak No. 762,763,764,767,768,771,772,774/GB and Mouza Buti Charag Shah Dhadi,Ghazi Galib,Akbar Shah,Nanka Gidar Pindi,Makbari,Chontra,Sirgana Phuli Tarari etc.

13.3 STRATEGY AND ACTION TAKEN

In case of alarming situation during emergency of high Flood, the field officers like Superintending Engineer, Executive Engineer and Sub Divisional Officer are already present to face and tackle the situation with the help of available Irrigation staff, Police Constables, Pak Army, Civil Defence and Public of adjoining area.

13.3.1 ARRANGEMENTS.

The following arrangements will be made during flood season.

i) Operation room will be opened and will start functioning with effect from 15 June. All wireless, telephone and other messages will be recorded and maintained in this emergency office. The duty charts of staff, plan of bund showing position liners, flood register and other arrangements for recording the data will be available and any information called for by any agency will be supplied from this centre.

ii) Duty chart will be prepared and supplied to all staff.

PILCHI PITCHING.

iii) Sub Divisional Officer will keep the sources/quantity of supply of killas and Pilchi Pitching arrangements to check any sudden parallel flow etc.

EMPLOYMENT OF WATCHING ESTABLISHMENT.

Watching gang will be employed or further raised during monsoon season flood emergency as per stages discharge received D/S Balloki

13.3.2 ESTABLISHMENT OF FLOOD FIGHTING CAMPS.

The Camps will be installed at following points:-

Camp #	Loction	Name Of Camp In-charge	Designation / Cell No	Section
1	Spur RD:- 419+000	Adnan Nazir	Sub Engineer 0345-4048699	Muhammad Shah Wala
2	Spur RD:- 448+400	Adnan Nazir	Sub Engineer 0345-4048699	Muhammad Shah Wala
3	Kalera J-Head Spur	Muhammad Yameen	Sub Engineer 0346-4855862	Jakhar
4	Bussi Spur	Ijaz Hussain Khan	Sub Engineer 0302-6376704	Jarola

Detail of establishment on page No. 21.

13.3.3 DUTIES OF OFFICERS/ OFFICIALS AND THEIR CAMP SITES.

(a). To supervise, direct and control flood prevention measures and bunds protection activities, such as strengthening, maintenance, repair and construction of additional embankment.

(b). To operate gauge stations and provide information and data to authorities concerned for issuance of Alert and Danger warning messages.

(c). To coordinate survey, investigation of the extent of damage to bunds, embankment, canals and Irrigation Tube wells.

(d). To assist and coordinate emergency require of public services.

(e). To subsequently restore damaged public service.

(f). To supervise and coordinate actions to save stock equipment, machinery etc, from damage.

13.3.3.1 DEPARTMENTAL MACHINERY AVAILABLE.

-NO -

13.3.5 MACHINERY AVAILABLE FROM PRIVATE SOURCE .

It will be arranged as per requirement through contractor.

(Agreement Attached On Page No 45)

13.3.6 FLOOD FIGHTING MATERIAL REQUIRED FOR SITE NO 2.

13.3.7 FLOOD FIGHTING MATERIAL AVAILABLE FOR SITE NO 2.

Sr.No	Description	Location	Unit	Qty Required	Qty Available	Balance Qty	Remarks
1	Ballies	Muhammad Shahwala Rest House	No	500	0	500	Flood fighting material procured before coming flood session 2021.
2	Axes with handle		No	10	05	05	
3	Deisel Engine Chaina 4HP		No	1	0	1	
4	Baskets		No	15	10	05	
5	Chimney for lamps		No	25	0	25	
6	PVC bags 4-5 ft for send filing		No	1000	600	400	
7	Chouldaries		No	4	2	2	
8	E.G Bags.Gunny bags		No	2400	400	2000	
9	Folding Chair		No	3	03	0	
10	Folding table		No	1	1	0	
11	Generator		No	1	0	1	
12	Sluice volve 10" dia		No	1	0	1	
13	Holder for lamp		No	25	0	25	
14	Kassi with Handles		No	25	10	15	
15	Kerosene Oil		Liter	200	0	200	
16	Wooden Killas		No	500	0	500	
17	Lanterns		No	15	0	15	
18	Manila Rope		Kg	100	0	100	
19	Munj/Patha/Trangers		No	500	0	500	
20	Needles		Dozen	10	0	10	
21	Steel Charpai		No	3	0	3	
22	Sutli		Kg	10	0	10	
23	Tarches 3 Cells		No	25	10	15	
24	Umbrella		No	6	0	6	
25	Electric cable 7/029		Ft	2000	0	2000	
26	Wooden Boards 10 x 12 with switches		No	10	0	10	
27	Khaji mat 6x4		No	250	0	250	
28	G.I Wire No.10		Kg	100	0	100	
29	Bamboos 8 to 10 ft for lighting		No	50	0	50	
30	Tent		No	2	2	0	
31	Send filling machine		No	1	1	0	
32	Polythene sheets		SFT	600	0	600	
33	Bucket		No	10	0	10	
34	Tractor with Trolley		No	1	0	1	

Above cited material and Stone is required for Muhammad Shahwala & Kalera Flood Bund In Sultanpur Sub Division Kamalia.

13.4 Detail of other infrastructure like electric, sui gas, Telephone installations, road network, other building, Canals and drainage network.

No infrastructure

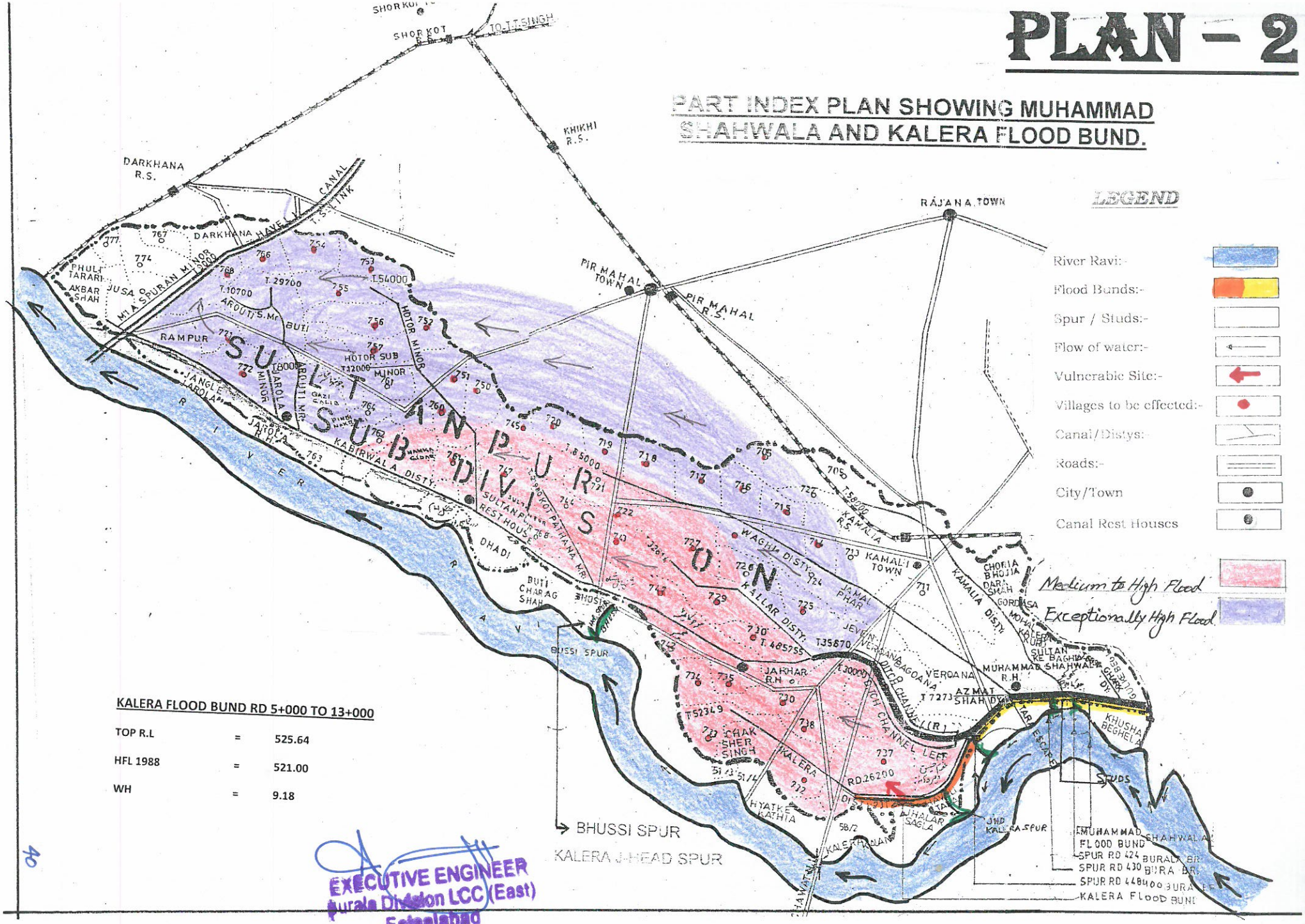
Executive Engineer
Burala Division LCC (East)
Faisalabad

14/04/2021

14/04/2021.

PLAN – 2

PART INDEX PLAN SHOWING MUHAMMAD SHAHWALA AND KALERA FLOOD BUND.



KALERA FLOOD BUND RD 5+000 TO 13+000

TOP R.L	=	525.64
HFL 1988	=	521.00
WH	=	9.18

EXECUTIVE ENGINEER
Burala Division LCC (East)
Faisalabad

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ADDITIONAL INFORMATION
CHAPTER-14
ACTION PLAN.

14.1 RESHUFFLING / RECOUPING OF RESERVE STOCK OF STONE DEPARTMENTALLY.

Reshuffling of stone will be done through Government Contractor. Whereas the recouping of reserve stock of stone will be done before flood season 2021.

(Agreement Attached ON Page No. 45)

{ **Detail of reserve stock of stone at page no.20.** }

14.2 DETAIL OF INLET/OUTLET CROSSING ALONG WITH CLOSING METHODOLOGY

Sr. No	Name of Embankment	Location of crossing /outlet	Discharge capcity	Methodology applied for crossing during flood.	Detail of crossing /outlet such B.D be the type of construction	Watching done during flood
1	2	3	4	5	6	7
1	Muhammad Shahwala Flood Bund	RD.413+000/L	2.11	Watching day and nights during flood seasons	PC/APM	Yes
		436+841/L	0.65	Watching day and nights during flood seasons	Pipe	Yes
		443+650/L	0.8	Watching day and nights during flood seasons	PC/APM	Yes
2	Kalera Flood Bund	RD 19+754/L	0.79	Watching day and nights during flood seasons	APM	Yes
		RD 21+630/L	1.55	Watching day and nights during flood seasons	PC/APM	Yes
		RD 23+078/L	1.66	Watching day and nights during flood seasons	PC/OF/RB	Yes

Executive Engineer
Burala Division LCC (East)
Faisalabad.

14/04/2021

14/04/2021.

14.3 DEPLOYMENT MACHINERY (MEDIUM TO HIGH FLOOD

Sr No.	Name structure	Length in C.Miles	Vulnerable Reach	Camp location	Site Incharge by name & Cell No.	Machinery Deployed Medium to High Flood					
						Excavator	Dozer	Trolleys / Dumpers	Tractor with front blade	Labour Beldar + Mate	Availability of Stone Cft
1	2	3	4	5	6	7	8	9	10	11	12
BURALA CANAL DIVISION LCC (EAST) FAISALABAD											
1	Muhammad Shah Wala Flood Bund RD. 0-38+000 including Spurs RD 419+000, 424+000, 430+000, 448+000 of Burala Branch	7.71	RD 30-33 MSW Flood Bund	RD 448 Burala Branch	Adnan Nazir Sub Engineer 0345-4048699	1	1	1	-	60+8	1.) 0.75 Lcft (Muhammad shah Wala Flood Bund.) 2.) 0.50 Lcft (J. Head Spur 430) 3.) 0.47 Lcft (J.head Spur 448.) 4.) 0.42 Lcft (Guide Spur 419) 5.) 0.04 Lcft (J Head Spur 424.)
2	Kalera Flood Bund	5.55	RD. 5 - 13 Kalera Flood Bund	RD 10 of Kalera Flood Bund	Muhammad Yaeen Sub Engineer 0346-4855862	1	-	1	-	48+6	0.40 Lcft J. Head Kalera Spur
3	J-Head Spur Bussi	0.97	J.Head Spur	J. head Spur	Ijaz Hussain Sub Engineer 0302-6376704	-	-	-	-	18+2	0.20 Lcft J.Head Spur
					TOTAL:-	**2**	**1**	**2**	-		

14.4 DEPLOYMENT MACHINERY (HIGH TO VERY HIGH FLOOD)

Sr No.	Name structure	Length in C.Miles	Vulnerable Reach	Camp location	Site Incharge by name & Cell No.	Machinery Deployed High to Very High Flood					
						Excavator	Dozer	Trolleys / Dumpers	Tractor with front blade	Labour Beldar + Mate	Availability of Stone Cft
1	2	3	4	5	6	7	8	9	10	11	12
1	Muhammad Shah Wala Flood Bund RD. 0-38+000 including Spurs RD 419+000, 424+000, 430+000, 448+000 of Burala Branch	7.71	RD 30-33 MSW Flood Bund	RD 448 Burala Branch	Adnan Nazir Sub Engineer 0345-4048699	1	1	3	-	100+14	1.) 0.75 Lcft (Muhammad shah Wala Flood Bund.) 2.) 0.50 Lcft (J. Head Spur 430) 3.) 0.47 Lcft (J.head Spur 448.) 4.) 0.42 Lcft (Guide Spur 419) 5.) 0.04 Lcft (J Head Spur 424.)
2	Kalera Flood Bund	5.55	RD. 5 - 13 Kalera Flood Bund	RD 10 of Kalera Flood Bund	Muhammad Yaeen Sub Engineer 0346-4855862	1	-	3	-	80+10	0.40 Lcft J. Head Kalera Spur
3	J-Head Spur Bussi	0.97	J.Head Spur	J. head Spur	Ijaz Hussain Sub Engineer 0302-6376704	-	-	-	-	20+3	0.20 Lcft J.Head Spur
					TOTAL:-	2	1	6	-		

14.5 DEPLOYMENT MACHINERY (HIGH TO EXCEPTIONALLY HIGH FLOOD)

Sr No.	Name structure	Length in C.Miles	Vulnerable Reach	Camp location	Site Incharge by name & Cell No.	Machinery Deployed Very High to Exceptionally High Flood					
						Excavator	Dozer	Trolleys / Dumpers	Tractor with front blade	Labour Beldar + Mate	Availability of Stone Cft
1	2	3	4	5	6	7	8	9	10	11	12
1	Muhammad Shah Wala Flood Bund RD. 0-38+000 including Spurs RD 419+000, 424+000, 430+000, 448+000 of Burala Branch	7.71	RD 30-33 MSW Flood Bund	RD 448 Burala Branch	Adnan Nazir Sub Engineer 0345-4048699	1	2	3	1	150+18	1.) 0.75 Lcft (Muhammad shah Wala Flood Bund.) 2.) 0.50 Lcft (J. Head Spur 430) 3.) 0.47 Lcft (J.head Spur 448.) 4.) 0.42 Lcft (Guide Spur 419) 5.) 0.04 Lcft (J Head Spur 424.)
2	Kalera Flood Bund	5.55	RD. 5 - 13 Kalera Flood Bund	RD 10 of Kalera Flood Bund	Muhammad Yaeen Sub Engineer 0346-4855862	1	1	3	1	108+13	0.40 Lcft J. Head Kalera Spur
3	J-Head Spur Bussi	0.97	J.Head Spur	J. head Spur	Ijaz Hussain Sub Engineer 0302-6376704	1	1	1	1	30+3	0.20 Lcft J.Head Spur
					TOTAL:-	3	4	7	3		

14.6 POLICE DEPLOYMENT PLAN

1 **Name of Zone:- Irrigation Zone, Faisalabad**

Sr. No.	Site breaching section	Concerned Canal Division	Concerned Police Station &	Police Personal to be		Remarks (if Any)
				Inspector / SI / ASI	Constables	
1	No Breaching Section	-	-	-	-	-

2-

Sr. No.	Vulnerable sites used for illegal cuts during floods	Concerned Canal Division	Concerned Police Station &	Police Personal to be		Remarks (if Any)
				Inspector / SI / ASI	Constables	
1	**Muhammad Shahwala Flood Bund** RD:30+000 to RD: 33+000 **Kalera Flood Bund** RD:0+000 to RD: 4+022 RD:5+000 to RD: 10+200 RD: 12+025 To 18+500 RD: 20+000 To RD: 26+200	Burala Canal Division LCC (East)	Kamalia	SI = 1 ASI =2	8	

14.7 DETAILS OF SYNTHETIC BAGS WITH CAPACITY OF 500 kg & 1000 kg

1. **MUHAMMAD SHAHWALA FLOOD BUND**

   I). Vulnerable site RD 30+000 TO 33+000 = 200 Bags.

2. **KALERA FLOOD PROTECTION BUND**

   I). Vulnerable site RD 5+000 TO 13+200 = 200 Bags.

TOTAL: =400 Bags

Qty Required	Qty Available	Balance Qty
400 bags	-	400 bags

DETAILS OF SYNTHETIC BAGS WITH CAPACITY OF 1000 KG

3. **KALERA FLOOD PROTECTION BUND**

   I). Vulnerable site RD 5+000 TO 13+200 = 80 Bags.

TOTAL: = 80 Bags

Qty Required	Qty Available	Balance Qty
80 bags	-	80 bags

14.8 DETAILS OF POLYTHENE SHEET OF BLACK COLOUR TO PROTECT UPSTREAM SLOPE AGAINST WAVE ACTION AND TO CONTROL SEEPAGE THROUGH EMBANKMENTS

Muhammad Shahwala Flood Bund = 1,000 Sft.

Kalera Flood Bund = 800 Sft.

Total = 1800 Sft.

Qty Required	Qty Available	Balance Qty
1800 sft	710 sft	1090 sft

Executive Engineer
Burala Division LCC (East)
Faisalabad.

14/04/2021 14/04/2021.

CHAPTER-15

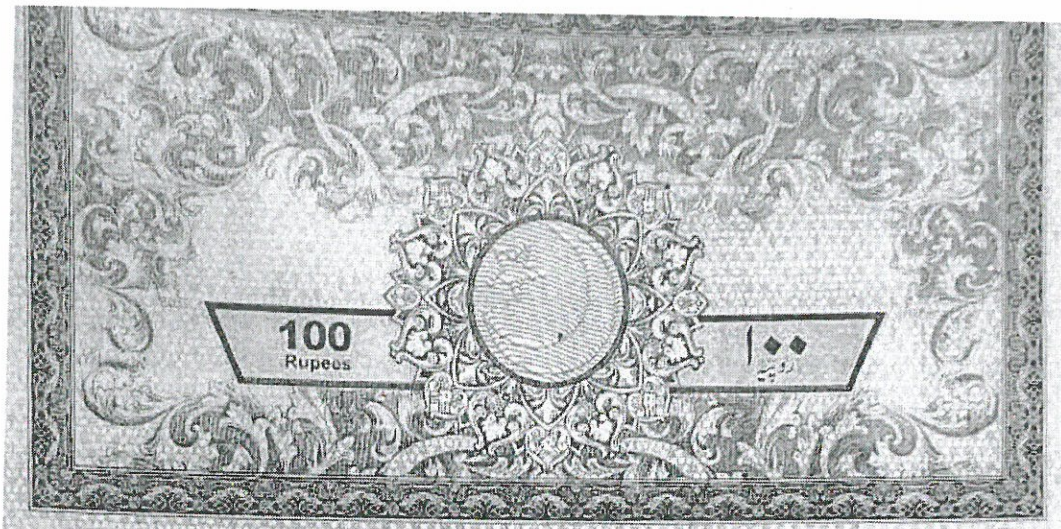
15 BACKUP DIVISIONS (IN CASE OF BREACH)

It is certified that there is no breaching section exist at the Muhammad Shahwala & Kalera Flood Bunds falling in the jurisdiction of this Division. In case of any breach of above said Flood Bunds there is a backup Division is Lower Gugera Division LCC (East) Faisalabad and Bhaghat Sub Division is adjoining Sub Division of Lower Gugera Division.

Executive Engineer
Burala Division LCC
Faisalabad

Superintending Engineer
Lower Chenab Canal East Circle
Faisalabad

Chief Engineer
Faisalabad Irrigation Zone
Faisalabad



AGREEMENT FOR DEPLOYING MACHINERY DURING FLOOD 2021

It is Agreed: -

1. That my firm will be bound for bound for deploying Machinery like Excavator, Dozer, Dumper and Tractor Trolleys during Flood 2021 on Muhammad Shahwala Flood Bund & Kalera Flood Bund as and when desired by the Executive Engineer, Burala Division, LCC (E), Faisalabad.
2. That my firm will follow the instructions issued as per the prescribed contract agreement.
3. That in case of failure, my firm will be held responsible for the consequences.
4. That my firm will make its own arrangement for the execution of work.
5. That my firm will faithfully carry out the work as per plan.

FAYYAZ & CO
Government Contractor
Faisalabad

GOVERNMENT OF THE PUNJAB
IRRIGATION DEPARTMENT
BURALA DIVISION LCC (EAST) FAISALABAD.
LOWER CHENAB CANAL EAST CIRCLE FAISALABAD.
FAISALABAD IRRIGATION ZONE FAISALABAD.