

CHAPTER - 4

IRRIGATION AND FLOOD CONTROL

INTRODUCTION

Irrigation & Flood Control Department is entrusted with the responsibility of providing irrigation facilities to the farmers of rural villages of Delhi through Effluent received from Sewage Treatment Plant as well as through a Network of State tube-wells available in the rural areas, maintaining the embankments constructed on both sides of river Yamuna in the jurisdiction of Govt. of NCT of Delhi, maintenance of 63 nos. of major storm water drains e.g. Supplementary drain, Najafgarh Drain, Trunk Drain No. I & Trunk Drain No. II, Gazipur drain, Pankha Road Drain, Palam Drain, Nasirpur Drain, Mungeshpur Drain, Nangloi Drain etc., including construction of bridges over these drains. Besides this, Irrigation & Flood Control Department is also equipped with machinery such as draglines, bulldozers, dredger and heavy duty electrical and diesel pump sets which are utilized for removal of drainage congestion during monsoon from low lying areas.

MINOR IRRIGATION

Irrigation in Delhi mainly depends upon ground water and partly upon surface water. Irrigation from the ground water is provided through shallow cavity tube-wells, whereas surface irrigation by way of utilizing treated effluent water in North, South and West Districts from the existing sewage treatment plants located at Burari (Coronation Pillar), Okhla and Keshopur. Western Yamuna canal system under the control of Haryana Government is also being utilized for irrigation purposes in North-West District.

FLOOD CONTROL

The National Capital Territory of Delhi has experienced floods in the past, mainly from Sahibi Nadi (Passing through Najafgarh Drain in Delhi) and Yamuna River. Local Drainage system has also been found inadequate to meet the requirement when there is heavy rain fall in the catchments of these drains or during inflow of flood water from adjoining states through Yamuna River in Delhi. Several flood mitigating measures like raising and strengthening of Yamuna marginal embankments, remodeling and lining of various drains have been taken up over the years to avoid repetition of flood.

Revised Outlay & Expenditure of Annual Plan 2014-15, Approved Outlay & Revised outlay of Annual plan 2015-16 and Outlay for Annual Plan 2016-17 for Minor Irrigation & Flood Control Sector are as under:

[₹ in crore]

Sector	Annual Plan 2014-15		Annual Plan 2015-16		Annual Plan 2016- 17
	Revised Outlay	Expenditure	Approved Outlay	Revised Outlay	
I & FC	84.00	81.45	65.00	52.00	63.00

MINOR IRRIGATION:

Ground Water Recharge & Water Conservation

Annual Plan Outlay 2016-17 : ₹ 28.00 Lakh (Capital)

i) Water conservation, Recharge of ground water and Creation of water detention basin etc.

Due to uncontrolled exploitation of ground water resources and inadequate ground water re-charge measure, the ground water in Delhi has been continuously depleting over the last several years. The groundwater situation in Mehrauli and Najafgarh Block and Alipur Block are critical. In order to reverse this trend, the Dept. has taken-up number of water harvesting schemes such as creating pondage in the bed of N.G. Drain, making recharging pits/trenches in Mungeshpur Drain, Bawana Escape, Mundella Bund etc.

ii) Construction of artificial recharge well in the existing ponds in villages in NCT of Delhi.

- a) Construction of artificial recharge well in the bed of Sultanpur Drain, Bajitpur Drain Bawana Drain and Madanpur Drain.

Estimated cost of ₹ 37.00 lakh

- b) Widening & strengthening of inspection road at right bank of Saleempur Minor irrigation channel from RD 0 m to 3000 m.

Estimated cost of ₹ 291.00 lakh

Saleempur Minor is an irrigation channel of CTP network in Burari area of 3 km length. The bank of the channel is used for inspection as well as connecting road by the residents along the channel. The width of the inspection path is not sufficient to accommodate the additional traffic, hence, and it has been decided that the width of the inspection path be increased by widening and strengthening by resurfacing the same.

- c) Construction of brick masonry wall for protection of land at Saleempur Minor irrigation channel from RD 0 m to RD 3000 m.

Estimated cost of ₹ 216.00 lakh

Saleempur Minor is an irrigation channel of CTP network in Burari area having a total length of 3000 m. The land for this minor was acquired by the Govt. a long back for construction of irrigation channel.

The surplus land along the channel is unprotected and required protection to avoid any encroachment, it has been decided that a boundary wall may be constructed to protect it.

FLOOD CONTROL

1. Embankment schemes including Access Roads & Bridges, Anti Erosion Works and Beautification works

Annual Plan Outlay 2016-17 : ₹ 5350.00 Lakh (Capital)

1.1 Embankment schemes

The embankment schemes envisage construction, strengthening and beautifications of embankments of river/drains under the jurisdiction of I&FC Deptt. Schemes which have been completed, in progress, likely to spill over and new inclusion in 2016-17 are as under.

- 1.1.1 Providing plinth protection and drainage chutes on inner side slope of left and right side banks and wheel guards on outer side on N.G. Drain from Amberahi Bridge to Kakraula bridge. (Spill over to FY 2016-17)

Estimated Cost of ₹ 377.00 lakh

New Schemes

- 1.1.2 Widening and Strengthening of carriage way of Right Marginal Embankment from RD 0 m to RD 10500 m. (Spill over to FY 2016-17)

Estimated cost of ₹ 860.00 lakh

The existing 4.00 m road width on RME is not sufficient for free movement of two vehicles while crossing each other at the same time. So, it has been decided to widen this road from existing 4.00 m to 9.50 m by utilizing the earth to be received from Drain No. 6.

- 1.1.3 Widening, Raising /Strengthening of Jagatpur bund from RD 0M to RD 4388M. (City Side). (Spill over to FY 2016-17)

Estimated cost of ₹ 939.00 lakh

This scheme comprises provision of earth filling for widening of embankment upto 5 mtr. and to achieved the top level of 211.270 m of widened portion by constructing RCC retaining wall to retain the earth on toe of embankment on city side the earth shall be made available from remodeling of drain no. 6. The existing embankment being used as a public road, shall be raised in second phase.

- 1.1.4 Widening, Raising/ Strengthening of RME from RD. 11000M to RD. 16500 M. (City Side). (Spill over to FY 2016-17)

Estimated cost of ₹ 965.00 lakh

The work comprising Provision of earth filling for widening of embankment upto 5 mtr. and to achieved the top level of 213.28 m of widened portion. The earth shall be made available from remodeling of drain no. 6 between RD 7000 to RD 9000 m. It has been decided to widen RME in the above mentioned reach as the existing embankment being used as a public road.

1.2 REMODELING / IMPROVEMENT OF EXISTING DRAINS

Remodeling/improvement of existing drains are being carried out to accommodate additional discharge generated on account of new habitation/township/industrial park as these drains are passing through rural areas which was not developed and now under development/likely to be developed. The schemes under this sub-head are as under:-

- 1.2.1 Remodeling of Kirari Suleman Nagar Drain from RD 3700 to 6100 (By constructing RCC through section 3700 to 6090m). (Likely to be completed)

Estimated Cost of ₹ 889.00 lakh (Revised)

- 1.2.2 Remodeling of Kirari Suleman Nagar Drain by constructing RCC trough section from RD 3700 m to RD 2445 m. (Likely to be completed)

Estimated Cost of ₹ 570.32 lakh (Revised)

New Schemes

- 1.2.3 Construction of Sump and pump house with regulator near RD 400m of Escape Drain No. 1.

Estimated Cost of ₹ 857.00 lakh

The Karawal Nagar area in Trans Yamuna is low lying and always flooded during monsoon season as the escape drain in which Bihari pur drain, Bund Drain catering to the area falls has been constructed by reversing its slope. Due to flat gradient of these drains, the detention period of storm water is 6 to 8 hours in these colonies which is a cause of serious concern. To solve this problem, it has been decided to construct sump well at escape drain near outfall point with TD No. 1 and thereafter, it will be pumped into the TD No. 1 to check the back flow of water and speedy disposal.

- 1.2.4 Improvement of Trunk Drain No.I from RD 6150m to RD 5300m.

Estimated Cost of ₹ 992.00 lakh

Width of Trunk Drain No. I in these reach is 20m and there is no space along the side of the drains to deploy machine & stack the desilted material. Presently the drain is being desilted manually by constructing longitudinal earthen bundies for diverting the flow of drain resulting in reduction of carrying capacity of drain. Keeping in view the above facts the earthen bundies is being replaced by RCC divide wall for diverting the flow and expeditious desilting.

1.2.5 Remodeling of Molarbund Drain from RD 615m to 1335m.

Estimated Cost of ₹ 263.00 lakh

The existing section of the drain is not sufficient to accommodate the additional discharge generated due to unauthorized colony developed in the area resulted in water logging in the area. There is no outfall, the water is pumped during the rainy season to Agra canal. A proposal has been framed to remodel the section of this drain including widening of inspection path for maintenance purpose in future.

1.2.6 Remodeling of Sarita Vihar Drain from RD 0m to 1250m.

Estimated cost ₹ 366.00 lakh

This drain was constructed to discharge the storm water from sarita vihar as well as unauthorized colonies developed along this drain. The existing section of the drain is not sufficient to accommodate the additional discharge generated by these colonies. It has been decided to remodel this drain by lining etc., so that water logging problem of the area may be solved.

1.2.7 Remodeling of Ali Drain from RD 0m to RD 2780m.

Estimated Cost of ₹ 863.00 lakh

Ali drain was constructed to drain out the waste water of Badarpur Thermal Plant. Due to urbanization of the area, numbers of unauthorized colony has come up along this drain resulted in increase in discharge manifold. The right bank as well as side slopes of drain is in dilapidated condition and require remodeling and construction of wall. For the safety of the residents and to check the garbage dumping in the drain, since, the bank is also being used as a road.

1.2.8 Construction of RCC box type drain along Devli Bund.

Estimated Cost of ₹ 894.00 lakh

Along Devli Bund number of unauthorized colonies have developed. The Govt. of NCT of Delhi, has already provided basic amenities in the colonies, such as street pavement & side drains, however, there is no outfall drains to drain off the storm water discharge of these colonies. As the drainage system

is inadequate to cater the discharge the RCC box type drain along Devli bund is required. This drain will discharge its water into MCD drain.

- 1.2.9 Construction of two out fall structures at RD 21900m & 22060m on left bank in U/S of Sultan pur Majra Bridge and D/S of Rohtak Railway Bridge of Supplementary Drain.

Estimated Cost of ₹ 67.00 lakh

Two internal drains constructed by MCD in Sultanpuri and Mangol puri area are without outfall structure resulted in erosion of side slopes and bank of the drain. It has been decided that in outfall has to be constructed to check the drainage congestions and through way fare for inspection.

1.3 OTHER SMALL DRAINAGE IMPROVEMNET SCHEMES

- 1.3.1 Improvement of Trunk Drain No. 1 from RD 6265m to RD 5900 and 6650m to RD 6345m. (likely to be completed)

Estimated Cost of ₹ 398.00 lakh

- 1.3.2 Demolition of pipe culverts and reconstruction of RCC box culverts at RD 1508m to RD 1534m, RD 1662m, RD 1788m, RD 1872m of Burari Creek. (Completed)

Estimated Cost of ₹150.00 Lakh

- 1.3.3 Development of Bhalswa Nursery on left bank of Supplementary Drain. (Completed)

Estimated Cost of ₹175.54 Lakh

- 1.3.4 Extension of Nasirpur drain on DDA land up to Railway line (off take point). (Likely to be completed)

Estimated Cost of ₹ 40.87 Lakh

1.4 ACCESS ROADS & BRIDGES

- 1.4.1 Construction of inspection path right side of KSN drain by constructing RCC wall from RD 6090m to RD 7850m. (likely to be completed)

Estimated Cost of ₹ 262.00 Lakh

- 1.4.2 Construction of two lane RCC bridges at RD 2117m (Sarangpur) on N.G. Drain. (Spill over to FY 2016-17)

Estimated Cost of ₹ 719.00 Lakh

- 1.4.3 Construction of RCC double lane bridge at RD 23800m, U/S of existing foot Bridge, across Supplementary Drain. (likely to be completed)

Estimated Cost of ₹ 356.50 Lakh

- 1.4.4 Demolition of existing pipe culverts and reconstruction of RCC box culverts at RD 1181m, 1266m, 1337m, 1419m & 1478m of Burari Creeks. (completed)

Estimated Cost of ₹ 192.93 Lakh

- 1.4.5 Construction of two no. steel truss foot bridge on NG drain upstream and downstream of Bharat Nagar at RD 57232m. (Spill over to FY 2016-17)

Estimated Cost of ₹ 133.70Lakh

- 1.4.6 Construction of double lane RCC bridge at RD 12740m of supplementary drain. (likely to be completed)

Estimated Cost of ₹ 356.00 Lakh

- 1.4.7 Demolishing and reconstruction of single lane RCC bridge at RD 4919m of (Ghummenhera) on Najafgarh Drain. (Spill over to FY 2016-17)

Estimated Cost of ₹ 487.00 Lakh

- 1.4.8 Construction of additional RCC double lane bridge across Supplementary drain (U/S of existing bridge at RD 23218m). (likely to be completed)

Estimated Cost of ₹ 295.00 Lakh

- 1.4.9 Construction of double lane steel grader bridge D/S of existing Mughal bridge across old course of N.G drain. (Spill over to FY 2016-17)

Estimated Cost of ₹ 494.00 Lakh

- 1.4.10 Construction of Double lane R.C.C. Bridge on up stream of existing Lagat Pur B\bridge at RD 1670m of Supplementary drain. (Spill over to FY 2016-17)

Estimated Cost of ₹ 422.10 Lakh

- 1.4.11 Demolihsing of single lane bride and reconstruction of double lane bridge at RD 34849m at Mungeshpur drain. (Spill over to FY 2016-17)

Estimated Cost of ₹ 81.00 Lakh

- 1.4.12 Construction of inspection path on right bank of N.G. Drain from RD 48315m (Rohtak Road) to RD 46870m. (Spill over to FY 2016-17)

Estimated Cost of ₹ 235.43 Lakh

- 1.4.13 Construction of single lane RCC bridge at RD 20360m and RD 20690m of Supplementary Drain (U/S and Downstream of adjoining existing foot brides). (Spill over to FY 2016-17)

Estimated Cost of ₹ 388.28 Lakh

1.4.14 Construction of steel girder bridge D/S for Riffle Range bridge at RD 55516 of N.G Drain. (Spill over to FY 2016-17)

Estimated Cost of ₹ 239.92 Lakh

1.4.15 Construction of RCC retaining wall between RD 21450m to RD 21660m of Supplementary Drain. (Spill over to FY 2016-17)

Estimated Cost of ₹ 465.61 Lakh

1.4.16 Demolition and Reconstruction of bridges at RD 670m, 890m, 7285m and 8690m at Bawana Drain. (Spill over to FY 2016-17)

Estimated Cost of ₹ 256.00 Lakh

New Schemes (Spill over to next financial year cleared by TAC A/A & E/S yet to be issued)

1.4.17 Dismantling and reconstruction of two lane bridge at RD 21000m of Supplementary Drain.

Estimated Cost of ₹ 427.40 Lakh

1.4.18 Construction of two lane RCC skew bridge across Pankha road drain at RD 3015m at C-I, Janakpuri, Red Light improvement of T-Junction at Pankha road, Janakpuri, New Delhi. (West Distt.)

Estimated Cost of ₹ 175 .00 Lakh

There is sharp Z-shape turn for the vehicular traffic moving from C-1, Block, Janakpuri (Mata Chanan Devi hospital road). to Pankha Road through the existing bridge at RD 3000m (across Pankha Road drain) and vice-vers and create congestion/traffic jam making this junction accident prone area. For improvement of T-Junction at Pankha Road, the present proposal has been framed. As per the scope of work, a two lane RCC skew bridge is proposed to be constructed across Pankha Road drain at RD 3015m. The construction of this bridge will provide the facility of crossing of Pankha road drain via two separate bridges in different directions.

1.4.19 Construction of two lane R.C.C Bridge at near Kendriya Vidhyalya at RD 2870m of T.D. No. 1. (Spill over to FY 2016-17)

Estimated Cost of ₹ 228.85 Lakh

There is an Institutional area (DIET) in on eastern side of Trunk Drain No.1 between RD 1940m to RD 3130m having only one connectivity through a Foot bridge at RD2870m, being used as a pedestrian bridge by the people working in DIET. The people visiting the institutional area with Light vehicular traffic also used this foot bridge instead of using existing two bridges at RD 1940m (Karkari more) and RD 3130m (Karkardooma Court bridge) across the Drain and create congestion on Swami Dayanand Marg in front of Foot bridge at RD 2870m. In order avoid this congestion and any untoward incident, construction of two lane RCC Bridge has been decided.

- 1.4.20 Construction of two lane R.C.C bridge in between RD 3960m and RD 3970m of T.D. No. I near Bhikam Singh Colony. (Spill over to FY 2016-17)

Estimated Cost of ₹ 258.00 Lakh

There are two foot bridges in existence at RD 3960m and RD 3970m across T.D. No.1 and local residents of Bhikam Singh Colony use these bridges as pedestrian and traffic of Bhikam Singh Colony uses 60 foota road to reach on Swami Dayanand Marg. Due to which in peak hours a jam problem is being faced by the traffic using Swami Dayanand Marg. In order to provide direct connectivity of Bhikam Singh Colony to Swami Dayanand Marg, construction of a two lane bridge is required. The proposed bridge will reduce this distance and also reduces the traffic congestion at the crossing of 60 foota road and Swami Dayanand Marg.

- 1.4.21 Construction of guard wall on common bank of supplementary drain and NG Drain from RD. 26165 to 27870m, RD. 28350 to 30650m and RD 31050 to 34300m of Supplementary drain. (Spill over to FY 2016-17)

Estimated Cost of ₹ 405.00 Lakh

25% works has been completed and an expenditure of ₹ 50.62 lakhs has been incurred, so far. Work will spill over to next financial year.

- 1.4.22 Construction of Double Lane RCC bridge on Sarita Vihar Drain at RD 900 mt. & 1200mtr.

Estimated Cost of ₹ 134.00 Lakh

- 1.4.23 Widening of two lane bridge at RD 8750m TD No. 1 at Babbarpur.

Estimated Cost of ₹ 2.30 Lakh

- 1.4.24 Improvement of inspection path on left bank of Mungeshpur drain between RD 36789 M to RD 26550 M of Mungeshpur drain.

Estimated Cost of ₹ 250.00 Lakh

- 1.4.25 Demolishing and Reconstruction of culvert at RD 6090 M of Kirari Suleman Nagar drain.

Estimated Cost of ₹ 27.00 Lakh

- 1.4.26 Providing and laying bricks on edge flooring from RD 4150 M to RD 7850 M of KSN drain.

Estimated Cost of ₹ 85.00 Lakh

- 1.4.27 Raising of wall of trough section from RD 4150 M to RD 7850 M of KSN drain

Estimated Cost of ₹ 84.00 Lakh

- 1.4.28 Raising of existing service road and remodelling of side drain on cite side from RD 900m to 3800m along L.F. Bund.

Estimated Cost of ₹ 787.00 Lakh

- 1.4.29 Demolishing & reconstruction of two lane RCC bridge at RD 1260m of New Drain.

Estimated Cost of ₹ 365.00 Lakh

- 1.4.30 Resurfacing of inspection road of Right marginal embankment from RD 0m to 10500m.

Estimated Cost of ₹ 475.00 Lakh

- 1.4.31 Construction of bridges at RD 9250m, RD 9730m, RD 9980m including resurfacing of service road along Trunk Drain No.1.

Estimated Cost of ₹ 872.00 Lakh

- 1.4.32 Construction of slip Road bridge 4.25m wide U/S existing bridge at RD 3600 M at Trunk Drain No. 2.

Estimated Cost of ₹ 188.00 Lakh

- 1.4.33 Re-construction of 1 no. Four Lane Bridge at RD 12230m, and construction of 2 no. Double Lane Bridge at RD 12687m and RD 11110 m of Trunk Drain No.1.

Estimated Cost of ₹ 833.00 Lakh

- 1.4.34 Demolishing and reconstruction of two lane RCC bridge at RD 2850m (Mahendra Park) across Pankha road drain.

Estimated Cost of ₹ 118.00 Lakh

- 1.4.35 Demolition and Re-Construction of culvert on Bund Drain Near RD 90m, RD 460m, RD 490m, RD 560m, RD655m, RD 1165, RD 1360m, RD 1900m, RD 2447m, RD 2800m and RD 3075m.

Estimated Cost of ₹ 135.00 Lakh

- 1.4.36 Resurfacing & Widening on right bank of Madanpur drain from RD 4100 m to RD 4770 m.

Estimated Cost of ₹ 62.00 Lakh

- 1.4.37 Resurfacing of Inspection path/ approach Road on Right Bank of Mungeshpur drain RD 23000 M to RD 15850 M.

Estimated Cost of ₹ 310.00 Lakh

- 1.4.38 Resurfacing & Widening of existing inspection path on right bank of Bajitpur drain from RD 3018 M to RD 110 M.

Estimated Cost of ₹ 262.00 Lakh

- 1.4.39 Improvement of existing damaged drain by reconstructing of RCC drain from RD 3220 M to RD 3760 M of Jatkhore link drain in Distt. North.

Estimated Cost of ₹ 102.00 Lakh

- 1.4.40 Demolishing/reconstruction of 8 Nos. existing pipe culverts with RCC box at RD 230m, 380m, 470m, 640m, 870m, 970m, 1665m & 4110m on Khera Khurd drain.

Estimated Cost of ₹ 383.00 Lakh

- 1.4.41 Demolition and construction of 1 no. Four Lane Bridge at RD 1700m, and 2 no. Single Lane Bridge at RD 600m and RD 1600m of Karawal Nagar Drain.

Estimated Cost of ₹ 632.00 Lakh

1.4.42 Demolishing of Existing Culvert and Reconstruction of Double Lane RCC Bridge at RD 5010 M on Khera Khurd Link Drain.

Estimated Cost of ₹ 97.00 Lakh

1.4.43 Demolishing & Reconstruction of bridge across Bawana Escape at RD14190m.

Estimated Cost of ₹ 402.00 Lakh

1.4.44 Restoration of inspection road and strengthening of Bawana Escape from RD 19000m to RD 19500m.

Estimated Cost of ₹ 176.00 Lakh

1.4.45 Construction of inspection path and boundary wall on Right Bank of Khera Kalan drain from Railway Crossing to Kherakhurd drain.

Estimated Cost of ₹ 156.00 Lakh

1.4.46 Restoration of inspection road from RD 10555 m to RD 13555 m on left bank of Bawana Escape Drain.

Estimated Cost of ₹ 116.00 Lakh

1.4.47 Demolition and reconstruction of existing bridge at RD 4400m on T.D.No.I near Swarn cinema.

Estimated Cost of ₹ 210.00 Lakh

1.4.48 Demolition and Re-construction of bridge at RD 5800m of Trunk Drain No.I.

Estimated Cost of ₹ 295.00 Lakh

1.4.49 Re-surfacing of inspection path and down at Dhansa bund from RD 0m to RD 3660 m in Najafgarh Block.

Estimated Cost of ₹ 164.00 Lakh

1.4.50 Re-surfacing of existing path from RD 0 m to RD 17905m i.e. (from Dhansa Regulator to Chhawla bridge on left bank of Najafgarh drain.

Estimated Cost of ₹ 525.00 Lakh

1.4.51 Resurfacing of inspection path on right bank of Najafgarh drain from Kakraula Regulator to Pankha Road drain outfall point.

Estimated Cost of ₹ 328.00 Lakh

1.4.52 Providing & laying Pitching on city side slope of N.G. Drain on left bank from nose point RD-55904m to Timarpur Bridge RD-56704m Bridge.

Estimated Cost of ₹ 62.00 Lakh

1.4.53 Construction of double lane RCC bridge at RD 19310m of Supplementary Drain.

Estimated Cost of ₹ 452.00 Lakh

- 1.4.54 Demolishing of single lane bridge and reconstruction of single lane RCC bridge at RD 27941 M and RD 26550 M of Mungeshpur drain.

Estimated Cost of ₹107.00 Lakh

1.5 Anti Erosion Works in River Yamuna

To protect the embankments on both the sides of river Yamuna effected on account of heavy discharge from Tajiawala head works during the monsoon the existing river training works has been effected due to change in course of river yamuna, hence, to channelizing the flow the river Yamuna, it has become imperative to strengthen the damage river training structures by erecting ballie screening and constructing bed bars etc. The following works will be taken up in the next financial year i.e. 2016-17 for execution are as under:-

New Schemes (Spill over to FY 2016-17)

- 1.5.1 Strengthening/Restoration of ramp no. 2 of Jagatpur Bund at RD 1450.

Estimated Cost of ₹ 92.00 Lakh

- 1.5.2 Construction of 6 Nos. Ballie Screens between RD 2000 to 4000m & between RD 13100 to 13300 of RME.

Estimated Cost of ₹ 303.00 Lakh

- 1.5.3 Restoration/Strengthening of studs and bed bar along left bank of river Yamuna between RD 1000 m to RD 1400 m at L.F. Bund by laying stone filled wire crates.

Estimated Cost of ₹ 487.00 Lakh

- 1.5.4 Construction of 6 no. ballie screen i.e. 2 no. at RME and 4 no. at Jagatpur bund.

Estimated Cost of ₹ 371.00 Lakh

- 1.5.5 Restoration / strengthening of nose portion of Shank No. 7, 16, 17 at RD. 3650, 6000, 6300, of RME.

Estimated Cost of ₹ 235.00 Lakh

- 1.5.6 Strengthening / Restoration of Nose portion of ramp No. 1 of Jagatpur Bund at RD. 1450M.

Estimated Cost of ₹ 86.00 Lakh

- 1.5.7 Construction of boulder bars in the up stream of Shank No. 7, 17 & 24 at RD 3700, 6500, 10000 & 10200M. of R.M.E.

Estimated Cost of ₹ 223.00 Lakh

1.6 Protection of Government Land.

Construction of drains with proper embankments and space for movement, land had been acquired by Irrigation & Flood Control Department for construction of a large number of major and minor drains. As such it has become essential to protect the Government land belonging to Irrigation & Flood Control Department from encroachment by suitable measures viz. constructing walls, fencing along the boundaries of drains wherever required and feasible.

- 1.6.1 Restoration of roads and construction of protection wall on both banks inner as on Mungeshpur drain RD 0m to 2740m. (likely to be completed)

Estimated Cost of ₹ 453.00 lakh

- 1.6.2 Construction of boundary wall between RD 4150m to RD 6090m of KSN Drain. (spill over to FY 2016-17)

Estimated Cost of ₹ 172.90 lakh

- 1.6.3 Raising repairing of boundary wall R/S & L/S with providing and fixing concertina coil fencing at TD No. II between RD 0m to 4580m. (completed)

Estimated Cost of ₹ 52.19 lakh

- 1.6.4 Construction of Boundary wall on right marginal embankment from RD 0m to RD 3000m.(likely to be completed)

Estimated Cost of ₹ 225.00 lakh

- 1.6.5 Construction of Boundary wall on left side of NG drain from Goela Outfall to Kakraula village bridge. (spill over to FY 2016-17)

Estimated Cost of ₹ 240.00 lakh

- 1.6.6 Raising of existing boundary wall along L/B of Supplementary drain from RD 12418m to RD 13800m (spill over to FY 2016-17)

Estimated Cost of ₹ 126.00 lakh

- 1.6.7 Construction of boundary wall on country side along the land boundary from RD 10500 to RD 18360 of RME to protect the Govt. land from unauthorized construction of neary area. (spill over to FY 2016-17)

Estimated Cost of ₹ 584.00 lakh

- 1.6.8 Construction of boundary wall along the road on the left bank of Supplementary Drain from Vikaspuri bridge (RD 28080m) to MID Aquaduct (RD 26060m) (spill over to FY 2016-17)

Estimated Cost of ₹ 127.21 lakh

- 1.6.9 Construction of Boundary wall on right bank/ left bank between RD 10700m to RD 11270m/RD 103330m to RD 10700m respectively at Trunk Drain No.1. (spill over to FY 2016-17)

Estimated Cost of ₹ 401.00 lakh

- 1.6.10 Construction of boundary wall on the right bank and left bank of Bund Drain between RD between RD 700m to RD 3480m. (spill over to FY 2016-17)

Estimated Cost of ₹ 174.00 lakh

- 1.6.11 Demolishing of existing R.R masonry wall and replacing with R.C.C. wall on left side bank of Escape drain no. 2. (spill over to FY 2016-17)

Estimated Cost of ₹ 156.00 lakh

- 1.6.12 Construction of boundary wall along both sides of bank of Bawana Escape from RD 13560m to RD 15570m & 18260m to 19000 (left bank/Right Bank). (spill over to FY 2016-17)

Estimated Cost of ₹ 368.00 lakh

- 1.6.13 Construction of protection wall on left Bank of Karawal Nagar Drain between RD 1700m to RD 2400m. (spill over to FY 2016-17)

Estimated Cost of ₹ 214.00 lakh

- 1.6.14 Construction of boundary wall on left bank of T.D.No.I between RD 0m to RD 1940m. (spill over to FY 2016-17)

Estimated Cost of ₹ 155.00 lakh

- 1.6.15 Construction of boundary wall on both side along the land boundary of drain No.6 from RD 5000 M to RD 1725 M. (spill over to FY 2016-17)

Estimated Cost of ₹ 503.00 lakh

- 1.6.16 Construction of boundary wall on both side along the land boundary of drain no. 6 from (spill over to FY 2016-17)

Estimated Cost of ₹ 354.00 lakh

- 1.6.17 Construction of boundary wall on country side along the land boundary from RD 0 M to RD 10500 M of RME. (spill over to FY 2016-17)

Estimated Cost of ₹ 874.00 lakh

- 1.6.18 Construction of Boundary wall on both banks of Bijwasan Drain from RD 0m to RD 900m. (spill over to FY 2016-17)

Estimated Cost of ₹ 182.00 lakh

- 1.6.19 Construction of Boundary Wall on Right Bank of N.G. Drain from Karampura Bridge RD 46800m to Rohtak Road Bridge RD 48314m. (spill over to FY 2016-17)

Estimated Cost of ₹ 200.00 lakh

New Schemes likely to be taken up in the FY 2016-17:

- 1.6.20 Construction of boundary wall from RD 10500 M to RD 18360 M along land boundary towards countryside of RME to protect the Government land from unauthorized construction in nearby area

Estimated Cost of ₹ 584.00 lakh

- 1.6.21 Construction of boundary wall along the road on the left bank of Supplementary drain from Vikaspuri Bridge (RD 28080m) to MID Aquaduct (RD 26060m).

Estimated Cost of ₹ 127.00 lakh

2. MAJOR DRAINAGE SCHEME

Annual Plan Outlay 2016-17 : ₹ 800.00 Lakh (Capital)

2.1 Construction/ Drainage Work

- 2.1.1 Covering of Irrigation Channel from Okhla Treatment Plant to main road of village Jasola in Okhla Constituency.

Estimated Cost of ₹ 209.00 lakh

Open Irrigation Channel carrying treated effluent available from of Okhla Treatment Plant, passing through Abadi area of village Jasola creates unhygienic insanitary condition, foul smell and has become place for mosquito breeding and health hazards to the local residents. The covering of channel is being carried out to use this space as internal road by residents of the area. The A/A & E/S is yet to be issued and work will spill over to next financial year.

- 2.1.2 Providing plinth protection and drainage chutes on inner side slope of left and right side banks and wheel guards on outer side of N.G. drain from Amberahi Bridge to Kakraula Bridge. (likely to be completed)

Estimated Cost of ₹ 376.72 lakh

2.2 Procurement of Machinery/ equipments

- 2.2.1 **Procurement of Heavy Machinery such as Bulldozers, Hydraulic Excavators, Dredger, Draglines, Pump Sets, Gen. Sets etc.**

Procurement of Machines for desilting & maintenance of Drains

S. No.	Name of the Machinery	Cost (₹ in crore)
1	(a) Big size dredger (b) Amphibious Excavator	21.00
2	Hydraulic Excavator with Extended Boom	6.00
3	Hydra Crane (16 Tonne)	0.49
4	J.C.B Machine	0.62
	Total Amount	28.11

9 nos. machines has already been procured and balanced 40 no. is under process of procurement with the DGS&D Govt. of India. The process of procurement spill over to next financial year i.e. 2016-17.

3. Charged Expenditure

Annual Plan Outlay 2016-17 : ₹ 10.00 Lakh (Capital)

Expenditure attributed to the directive of force of law will be met under this head.

4. Survey Model Studies/ Preparation of Master Plan for Drainage & flood Control/ Water Development Schemes

Annual Plan Outlay 2016-17 : ₹ 112.00 Lakh (Revenue)

- 4.1 Survey, Model Study and Hydrological Data Collection & Investigation for new Schemes (Covering of Drains/Nallahs)
- 4.2 Preparation of Master Plan for Drainage for N.C.T. of Delhi. The Department of Civil Engineering, IIT, Delhi has been appointed as consultant for preparation of Master Plan for Drainage 2021 and work is in progress.
- 4.3 Establishment of Quality Control and Material Testing Laboratory