Final Annexures to ESIA – ESMP (Volume-II)
(In continuation to "Annexures")

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Annexure- 30: Compiled Environmental and Social Management Plan (ESMP) for the Package- I to Package- IX

Sl. No.	Expected Impact	Project Stage	General Mitigation Measures	Implementing Entity	Total Quantity	Remarks	Budget for ESMP	Reference of GCC
1	Impact due to construction activity	Construction	Suggested in Management Plan For Construction related Issues (Refer to Annexure-38).	Contractor	——	No quantification, general modalities to be followed for all packages are at Annexure-38.	Deemed to have been included in all BoQ items of the respective Bid packages.	GCC 15
2	Impact on Community asset and Cultural properties Note: All the above structures would be partially affected and need not be fully demolished. Such partial damages are to be made good or reconstructed.	Pre-Construction	Re-examination of the list of Community asset and Cultural properties before commencement of the work and finalize the structures to be affected. Attempt is to be made in consultation with the affected community to minimize the impact by proposing suitable change of alignment of intervention and also modification of design to the Project Manager; Necessary permission shall be obtained from respective Authority;	Contractor	**88**	For Bid Package I to IV, refer to Annexure-39, Table 1for detail numbers. For Bid Package V to IX, there is no such case.	Consultative process and hence no budgeting required.	GCC 15
		Pre-Construction		Project Management Consultant				
3	Impact on public utility services/ amenities and disruption of services) Note:	Pre-Construction	Field verification and finalization of number of utility service structure to be relocated, with an aim to minimise disruption of public utility services. Causing issuance of advance notice to the concerned service providers regarding relocation	Contractor & Project Management Consultant/Employer	**436**	For Bid Package I to IV, refer to Annexure-39, Table 2 for detail	Included in the "Provisional Sum" of the respective Bid	GCC 15

Sl. No.	Expected Impact	Project Stage	General Mitigation Measures	Implementing Entity	Total Quantity	Remarks	Budget for ESMP	Reference of GCC
	All the above-mentioned utilities/ amenities would require relocation/ shifting by the concerned service providers.		of public utility service structures by the Project Manager/ Employer and depositing the fund to the concerned authorities as per their quotation. Informing the local community on such relocation			numbers. For Bid PackageV to IX, there is no such case.	Packages (I to IV)	
4	Impact due to disposal of C&D waste to be generated in various activities	Construction	Relevant provision of the Contractor's ESHS-MSIP to be prepared in accordance with the guidelines of waste management plan for C&D waste shall be implemented.	Contractor	**Summary of quantities generated and likely to be reutilized /disposed are also at Annexure-31.**	For all Packages, refer to Annexure-31 for quantity generated as well as likely to be reutilized /disposed. General guidelines for reutilization are at Annexure-32.	Included in the respective BoQ items / Provisional Sum of the respective Bid Packages (I to IX)	GCC 15
5	Top soil exposure due to denudation leading to soil erosion	Implementation	The vegetation will be cleared in sections of work stretch as per schedule indicated in the Contractor's EMP. The clearing of vegetation in sections will ensure only areas of the land to be developed at a particular time are exposed to agents of erosion. This will also ensure the cleared areas of the land are not left bare over long periods as development at the cleared areas will be carried out immediately. This will minimize erosion at the project site. Entire quantity of the top soil generated will be reutilized for levelling of side slope of embankments.	Contractor	**Approx. 633478.45 m2 area (volume 166696 cum)**	The total quantity refers to Bid Package I to IV. For Bid Package V to IX, there are no quantities.	Included in the respective BoQ items of the respective Bid Packages (I to IV)	GCC 15

Sl. No.	Expected Impact	Project Stage	General Mitigation Measures	Implementing Entity	Total Quantity	Remarks	Budget for ESMP	Reference of GCC
6	Impact on flora/ fauna during weed/ site cleaning operation	Implementation	Vegetation clearance shall be limited to portions of the embankment/ active work zone at a particular time. The entire land will not be cleared at a time and this will allow any fauna to migrate to adjoining areas. Contractor shall take reasonable and adequate precaution to prevent his workers from damaging any other flora or fauna of the area specially during vegetation clearance. Contractor shall take adequate precaution to prevent his workers from harming any fauna of the area specially during vegetation clearance. Contractor shall ensure adherence to Code of Conduct for workers.	Contractor	**Same as above.**	This clause is applicable for Bid Packages I to IV only.	Included in the respective BoQ items of the respective Bid Packages (I to IV)	GCC 15
7	Impact on fauna including Vulnerable mammal (Fishing Cat, Asian Small-clawed Otter) and Snake (King Cobra)	Implementation	The contractor and its workers will be educated / sensitized on endangered/ vulnerable species and its protection measures so as to enforce the provisions of Code of Conduct; Hunting or poaching of Vulnerable mammal (Fishing Cat, Asian Small-clawed Otter) and Snake (King Cobra) shall be strictly restricted. On observation, any such species shall be allowed to migrate in nearby area. Not using any threatened/ near threatened species for commercial purpose; Fishing cat which is State animal of West Bengal shall be protected from any kind of damage; occurrence of damage to any vulnerable, threatened species shall be reported to Dept. of Biodiversity on regular basis; Silencer shall be provided with all heavy noise generating machineries; Reducing the noise produced from a vibrating machine by vibration damping i.e. making a layer of damping material (rubber, neoprene, cork or plastic) beneath the machine;	Contractor	**Does not arise.**	No quantification.	Included in the relevant BoQ items.	GCC 15

Sl. No.	Expected Impact	Project Stage	General Mitigation Measures	Implementing Entity	Total Quantity	Remarks	Budget for ESMP	Reference of GCC
			Vibration measures shall be performed before initiation of desiltation work at to allow species to come out from their cave and migrate to surrounding places; Desiltation operation shall be carried out only during non-monsoon period when major portion of river/ drainage channel bed remains dry					
8	Soil deposition in ponds located adjacent to embankment where bullah piling work has been proposed (Refer to Annexure-40 for packagewise location of ponds within 50 m from embankments).	Pre-Implementation Implementation	Each pond owner shall be informed at least before 15 days from initiation of piling work to allow them to catch out fishes; Dewatering (if required at all) shall be done by the contractor at his own cost; Water should not be drained out to nearby habitation / dwelling / agricultural field with standing crops (if the crop does not require additional water) and other structures that have socio-cultural importance for the people. Water may be drained out to river / canal or can be stored in other suitable place for further use in agricultural or domestic purposes. Bullah piling work shall be carried out only during non-monsoon period when water level is relatively less; All deposited soil material shall be excavated immediately after completion of bullah piling work by the contractor at his own cost;	Contractor	**Pond 94 nos.**	The total quantity refers to Bid Package I to IV. For Bid Package V to IX, there are no quantities.		GCC 15
9	Organic pollution due to improper dumping of removed weeds, shrub stems, stumps,	Implementation	Relevant provision of the Contractor's ESHS-MSIP to be prepared in accordance with the guidelines of vegetation waste management plan shall be implemented. (Refer to Annexure -34 for quantity of vegetative waste generated & possible utilization / disposal options. General guidelines are at Annexure-35)	Contractor	**41.20 MT**	For Bid Package I to IV, total quantity refers to Vegetative waste generated due	Included in the respective BoQ items / Provisional Sum of the respective	GCC 15

Sl. No.	Expected Impact	Project Stage	General Mitigation Measures	Implementing Entity	Total Quantity	Remarks	Budget for ESMP	Reference of GCC
	roots, twigs and leave (excluding water hyacinth, that is considered separately) on country side embankment leading to inconvenience to local commuters, odour, etc.					to felling of trees and clearing of weeds. For Bid Package V to IX, there are no quantities.	Bid Packages (I to IV)	
10	Air Pollution due to Burning of weeds, shrub stems, stumps, roots, twigs and leave	Implementation	Contractor shall not adopt practice of burning weeds, shrub stems, stumps, roots, twigs and leaves in open place; Discouraging local community in burning of weeds, shrub stems, stumps, roots, twigs and leaves in open place;	Contractor	—	Quantification is not possible for all Packages.	Included in the respective BoQ items / Provisional Sum of the respective Bid Packages (I to IX)	GCC 15
11	Water and soil pollution due to coal tarring of bulah; health impact on workers	Implementation	Coal tarring of bullah on agricultural land or river bed/ bank shall be avoided to the possible extent; Impervious lining rangement shall be provided at coal tarring area; Worker shall use full set of protective gear (hand gloves shoes, mask, etc.) while handling coal tar; a first-aid kit will be available. Also Refer to Annexure-33 for general guidelines for preparation of hazardous waste management plan.	Contractor	—	Quantification is not possible for all Packages.	Included in the respective BoQ items of the respective Bid Packages (I to IX)	GCC 15
12	Felling of Trees due to		Chainage wise requirement of tree felling shall be counted with their species;	Project Manager	**Approx 788 nos, 508**	For Bid Package I to	Included in the	GCC 15

Sl. No.	Expected Impact	Project Stage	General Mitigation Measures	Implementing Entity	Total Quantity	Remarks	Budget for ESMP	Reference of GCC
	flood wall construction and embankment strengthening works	Pre-Construction & Construction	Consult with local community as well as forest departments in identifying suitable local indigenous tree species;	Project Manager	**nos with GBH= > 50 cm < 80 cm and 280 nos with GBH > 80 cm**	IV, total quantity refers to impact due to felling of trees. For Bid Package V to IX, there are no such cases.	Provisional Sum of the respective Bid Packages (I to IV)	
			Identifying available community land or Govt. vacant land for compensatory plantation.	Project Manager				
			Tree felling shall be commenced by the contractor only after obtaining permission from Dept. of Forest. Such permission is to be obtained by the Project Manager through Employer as per proposal of the Contractor.	Contractor & Project Manager/ Employer				
			Shrub stems, stumps, roots shall be uprooted properly to eliminate any chance of void.					
			Wood from the trees shall be auctioned as per Govt. norms .	Project Manager/ Employer				
			To compensate loss of tree and to improve the local aesthetic value, compensatory tree plantation at 1:5 ratio will be carried out in case of Package I to IV. Contractor, in association with the Project Manager shall make all arrangement in engaging Local Panchayat Authorities under social forestry programme / Dept. of Forest, Govt. of West Bengal for compensatory afforestation. Payment for afforestation and aftercare measures will be made by the contractor to the concerned authorities. Refer to Annexure - 36 for package wise compensatory afforestation plan. Bio-diversity to be maintained during compensatory afforestation and mono species plantation would be avoided;	Contractor, Project Manager/ Employer, Local Panchayat Dept. of Forest, Govt. of West Bengal				
13	Loss of top soil during excavation of foundation trenches	Implementation	Top soil will be removed due to excavation of foundation trenches in river side crest line. Generated small quantity of top soil shall be suitably spread over on country side slope of the embankment	Contractor	**Approx. 22891 sqm area, (volume 4578 cum)**	Total quantity refers to Bid Package I to IV. For Bid Package V to IX, there are no quantities.	Included in the respective BoQ items of the respective Bid Packages (I to IX)	GCC 15

Sl. No.	Expected Impact	Project Stage	General Mitigation Measures	Implementing Entity	Total Quantity	Remarks	Budget for ESMP	Reference of GCC
14	Dust pollution due to stacking of top soil/ excavated soil on embankment site;	Implementation	Regular water sprinkling shall be provided to maintain moisture content- which in turn will reduce dust pollution; In case of transportation of top soil, tarpaulin cover shall be provided to restrict dust pollution during transportation. Air quality testing shall be done at regular intervals as prescribed in the BoQ. Testing of environmental parameters is given in Annexure 42.	Contractor	—	Quantification is not possible for all Packages.	Included in the respective BoQ items of the respective Bid Packages (I to IV)	GCC 15
15	Littering on road due to transportation of earth from borrow areas; dust pollution	Implementation	All transportation vehicle shall have tarpaulin lining.	Contractor	—	Quantification is not possible for all Packages.	Included in the respective BoQ items of the respective Bid Packages (I to IV)	GCC 15
16	Accumulation of soil/ sand on pond where piling work is proposed	Implementation	Accumulated sand/ soil material shall be excavated from all pond site immediate after completion of piling work; Excavated soil/ sand material shall be reused for nearby embankment strengthening purpose	Contractor	—	Quantification is not possible for Bid Package I to IV. For Bid Package V to IX, there are no such case.	Included in the respective BoQ items of the respective Bid Packages (I to IV)	GCC 15
17	Generation of wood chips from cutting and shaping of bullah.	Implementation	Wood chips shall be collected and stored separately in available set-back zone (Govt. land) for temporary period; Wood chips generated shall be distributed to the local interested person in the nearby zone who will be	Contractor	**Approx. 436.20 cum**	The total quantity refers to all Packages.	Included in the respective BoQ items of the respective Bid	GCC 15

Sl. No.	Expected Impact	Project Stage	General Mitigation Measures	Implementing Entity	Total Quantity	Remarks	Budget for ESMP	Reference of GCC
			taking the material at their own cost, for using as fuel for their use. These wood chips are to be distributed to the local people for various domestic use.				Packages (I to IX)	
18	Generation of metal scrap (cut piece) from cutting of MS sheet and mesh wire	Implementation	Metal waste, if any, shall be collected and stored separately and sold to authorised recycler. Quantity would be nominal and cannot be assessed at this stage. Specific mitigation measures for handling may be seen at Management Plan for Construction related issues (Refer to Annexure -38)	Contractor	—	Quantification is not possible for all Packages.	Included in the respective BoQ items of the respective Bid Packages (I to IV)	GCC 15
19	Generation of waste of HDPE, Plastic, Nylon Cage, Polypropylene geotextile.	Implementation	Plastic (HDPE, plastic) waste shall be collected and stored separately and sold to authorised recycler.	Contractor	**Approx. 445 Kg**	Total quantity refers to Bid Package I to IV. For Bid Package V to IX, there are no quantities	Included in the respective BoQ items of the respective Bid Packages (I to IV)	GCC 15
20	Loss of top soil during box cutting of haul roads and excavation of earth from Borrowpits for construction of cross bundhs both in riverbed	Implementation	Top soil (practically river silt) that would be removed during the activities would be utilized for strengthening the flank of the haul roads and also for filling up the borrowpits, after removal of the cross bundhs on completion of the work. The road as well as the Borrowpits shall be on relatively high and barren berm land, free from weeds or vegetation and generally above GWT during the working period (non-monsoon dry months), to avoid any impact on flora and fauna.	Contractor	**Approx. 34037 cum over 170162 sqm**	Total quantity refers to Bid Package V to IX. For Bid Package I to IV there are no quantities.	Included in the respective BoQ items of the respective Bid Packages (V to IX)	GCC 15
21	Flooding of nearby agricultural field during dewatering	Implementation	Most of the desiltation work will be carried out when the river/ drainage channels bed is dry.In order to ensure that, two main terminal Cross Bundhs, would be erected initially, firstly the upstream Bundh and	Contractor	—	No quantification is possible for Bid Package V to IX. For	Included in the respective BoQ items / Provisional	GCC 15

Sl. No.	Expected Impact	Project Stage	General Mitigation Measures	Implementing Entity	Total Quantity	Remarks	Budget for ESMP	Reference of GCC
	before desiltation		then the downstream Bundh after flowing out of maximum water. Subsequently, intermediate bundhs will be constructed for making compartments and alternative set of compartments would be selected for work , while other compartments would be kept for storing water till completion of first set of pockets in active work zone; River/ drainage channels water shall not be pumped out for dewatering purpose to nearby agricultural field to avoid any kind of crop damage as well as agricultural land pollution (although probability of land/ soil pollution is very low; as this water is being used for irrigation purpose). Crop compensation shall be paid to affected farmers on occurrence of crop damaged due to dewatering.			Bid Package I to IV there are no such cases.	Sum of the respective Bid Packages (V to IX)	
22	Crop damage due to interrupted irrigation supply	Implementation	Local people will be notified well before commencement of Non-monsoon Rabi/Boro season about the non-availability of water for irrigation during execution of work, by issuing leaflets upto Gram Panchayat level and also in the locality. It has already been decided that the other State Government Departments, i.e Agriculture and Water Resources Investigation & Development (WRID) Departments would also sensitize the local farmers and alternative arrangement of installing new/ operationalizing defunct M.I. Installations would be made by the WRID Department to the extent feasible.	Employer	—	Quantification is not possible for Packages V to IX. For Bid Package I to IV there are no such cases.	Included in the respective BoQ items / Provisional Sum of the respective Bid Packages (V to IX)	GCC 15

Sl. No.	Expected Impact	Project Stage	General Mitigation Measures	Implementing Entity	Total Quantity	Remarks	Budget for ESMP	Reference of GCC
23	Sediment transport in river leading to increased TDS and turbidity.	Implementation	All Bundhs constructed for dewatering purpose and the desilted materials temporarily stored in riverbed shall be removed and entire work zone shall be levelled properly before monsoon period to maintain natural river/ drainage channel flow, and to minimise soil and sediment transportation to downstream and water pollution. Immediate clearance of excess sand/ muck/soil from river/ drainage channel bed to minimize the erosion potential and sediment transportation into river/drainage channel water which may cause increased water turbidity or TDS;	Contractor	—	Quantification is not possible for Packages V to IX. For Bid Package I to IV there are no such cases.	Included in the respective BoQ items / Provisional Sum of the respective Bid Packages (V to IX)	GCC 15
24	Over desiltation and/or desiltation in unplanned area / manner may aggravate environmental impact	Pre-Implementation	Contractors having prior experience executing earthwork as per designed sectional profiles e.g. Channel desiltation, embankment construction etc. would be selected.	Employer	—	Quantification is not possible for Packages V to IX. For Bid Package I to IV there are no such cases.	Included in the respective BoQ items / Provisional Sum of the respective Bid Packages (V to IX)	GCC 15
			Contractor shall conduct site specific testing of desilted materials to assess the appropriateness for different users. Preparation of Safety and Security plan by the Contractor before initiation of desiltation work.	Contractor				
			Preparation of Safety and Security plan by the Contractor before initiation of desiltation work					
			Preparation and submission desiltation plan including disposal plan with action time chart and risk management plan to the Project Manager for approval prior to carrying out desiltation operations. Desiltation plan should be prepared considering its location w.r.t environmental sensitive locations/ archaeological locations/ cultural festival/ pollution influx in the area/quality & texture					

Sl. No.	Expected Impact	Project Stage	General Mitigation Measures	Implementing Entity	Total Quantity	Remarks	Budget for ESMP	Reference of GCC
			of desilted material/ available depth etc. through local sources and past experience.					
25	Health impact on workers and local community due to desiltation operation	Implementation	Desilting contractor should follow the defined safety procedures to avoid accidents and spills. Inform local community prior to desiltation operation to avoid any conflict arising from desiltation operation.	Contractor	___	Quantification is not possible for Packages V to IX. For Bid Package I to IV there are no such cases.	Included in the respective BoQ items / Provisional Sum of the respective Bid Packages (V to IX)	GCC 15
			Inform local community prior to desiltation operation to avoid any conflict arising from desiltation operation.	Contractor / Project Manager				
26	Sediment release, transportation and mixing with water during desiltation	Implementation	No stacking of desilted material on channel bed or agricultural field during monsoon period;	Contractor	—	Quantification is not possible for Packages V to IX. For Bid Package I to IV there are no such cases.	Included in the respective BoQ items / Provisional Sum of the respective Bid Packages (V to IX)	GCC 15
			Immediate shifting of desilted materials from stream to temporary stacking point; Early evacuation of desilted material					
			Early evacuation of desilted material from set-back zone to next point to minimize the potential re-deposition into channel water which may cause soil and sediment transportation in downstream.					
			Proper levelling of work zone before monsoon.					
27	Soil pollution due to temporary stacking of desilted materials; on river set back	Implementation	Silt Disposal Plan (Refer to Annexure-37) shall be applied.	Contractor	**75,00,758 cum**	Total quantity refers to Bid Package V to IX. For Bid Package I to IV there are no quantities.	Included in the respective BoQ items / Provisional Sum of the respective	GCC 15
			Desiltation material will temporarily be stored on river set back zone located on one/ both side of river using bottom lining with thick tarpaulin sheet, in case of land where agricultural activity takes place. Crop					

Sl. No.	Expected Impact	Project Stage	General Mitigation Measures	Implementing Entity	Total Quantity	Remarks	Budget for ESMP	Reference of GCC
	zone (berm land within riverbed)		compensation to farmers for such temporary stacking, wherever agricultural activity takes place; Crop compensation to farmers for such temporary stacking, wherever agricultural activity takes place;				Bid Packages (V to IX)	
28	Disposal of desilted material- Impact on Soil quality.	Implementation	Silt Disposal Plan (Refer to Annexure-37) shall be applied. Desilted material should not permanently be disposed-off in river banks. Agriculture fields are also to be avoided to the extent feasible.; Channel bed materials with sediment test results exceeding the Probable Effect Levels as per USEPA, shall be treated as hazardous and disposal of these materials should be done as per provision of Hazardous Material/Waste Management Plan (Refer to Annexure-33). Materials that are not hazardous are to disposed (Refer to Annexure-37). Land already identified by the sand miners should be the first priority area for disposal. Land to be identified for community development projects, e.g. schools, health centres, playground etc should be the second priority area for disposal. Handing over to local PWD officials for reuse in their road projects in the nearby areas should be the third priority area for disposal, subject to maturing of their initial proposal.	Contractor & Project Manager/ Employer	**7500758 cum**	Total quantity refers to Bid Package V to IX. For Bid Package I to IV there are no quantities.	Included in the respective BoQ items of the respective Bid Packages (V to IX)	GCC 15

Sl. No.	Expected Impact	Project Stage	General Mitigation Measures	Implementing Entity	Total Quantity	Remarks	Budget for ESMP	Reference of GCC
			In case of having surplus after taking recourse to the three options stated above, such surplus materials would be disposed-off in Private Land (Refer to Annexure-37). Records of quantities of disposal by various means shall be preserved.					
29	Littering during transportation	Implementation	Transportation vehicle with bed lining arrangement while transporting desilted material to restrict littering on road.	Contractor	___	Quantification is not possible for Packages V to IX. For Bid Package I to IV there are no such cases.	Included in the respective BoQ items of the respective Bid Packages (V to IX)	GCC 15
30	Impact on aquatic fish and benthic communities	Implementation	Sequence of construction of cross bundh, particularly the final closure will be from upstream to downstream so that aquatic fish and benthic community can migrate downstream thereby minimising the impact. Provisions of Fish Conservation Plan (Annexure-41) are to be followed strictly and the related code of Conduct is to be adhered.	Contractor	___	Quantification is not possible for Packages V to IX. For Bid Package I to IV there are no such cases.	Included in the respective BoQ items of the respective Bid Packages (V to IX)	GCC 15
31	Disposal of C & D waste generated during removal of cross bundhs	Implementation	C &D waste materials in the form of taken out EUC Bullah, used wailing pieces, nylon crates and earth filled poly/ gunny bags are to be totally removed from site as per C & D Waste Management/ Disposal Plan (Refer to Annexure 31) before leaving the site or commencement of monsoon, whichever is earlier,	Contractor	**For Total quantity, refer to Annexure-31**	Total quantity refers to Bid Packages V to IX. For Bid Packages I to IV, there are no such cases.	Included in the respective BoQ items of the respective Bid Packages (V-IX)	GCC 15

Sl. No.	Expected Impact	Project Stage	General Mitigation Measures	Implementing Entity	Total Quantity	Remarks	Budget for ESMP	Reference of GCC
32	Generation of waste of empty & used cement poly bags, Nylon crates,	Implementation	Plastic/Polyethene/Nylon waste shall be collected and stored separately and sold to authorised recycler. Before disposing, filler earth inside the bags would be dumped in borrowpit areas and levelled.	Contractor	**6,98,404 bags & 1,680 crates**	Total quantity refers to Bid Packages V to IX. For Bid Packages I to IV, there are no such cases.	Included in the respective BoQ items of the respective Bid Packages (V to IX)	GCC 15
33	Organic Pollution due to improper dumping of removed Water Hyacinth on river bank	Implementation	Relevant provision of the Contractor's ESHS-MSIP prepared in accordance with the guidelines of vegetation waste management plan, which is given vide Annexure-34 (only water hyacinth is considered here), shall be implemented. Records shall be preserved for the quantity of water hyacinth removed from the channel and disposed as per various options stated in the vegetation waste management plan Composting pits to be excavated along the countryside toe of embankments shall be 15 m away from bore wells used for drinking water purposes.	Contractor	**246100 sq. m of total volume 73600 cum weighing a total of 11760 MT**	Total quantity refers to Bid Packages VI to VIII. For Bid Packages I to IV & IX, there are no such cases.	Included in the respective BoQ items of the respective Bid Packages (VI to VIII)	GCC 15

Annexure-31: C&D Waste Management Plan

Sl. No.	Generated C&D Waste	Reutilization Plan	Unit	Total Quantity	
				Generated	Reutilized /Disposed
1	Cement Concrete, Masonry and Flexible Pavement Materials	Making haul road	cum	19827	3000
2	Reinforced Cement Concrete	Restoration of village road	cum	60	7600
		Use in filling up of scour holes in the deep pockets of the adjoining river	cum	0	4900
		Consumption by the local people/ contractor for various purposes, materials to be taken by the users from identified storage location at their own cost	cum	0	4387
3	Reinforcement including metal waste	Reinforcement including metal waste are to be sold by the contractor to the local traders/ authorised recyclers and considering sale proceed to be the same as the cost of retrieving the reinforcement from the dismantled RCC, sum received by the contractor from such sale proceed will not be taken into project's accounts	MT	3.30	3.30
4	Old Euc Bullah Piles	All generated construction and demolition waste materials will be stored temporarily in storage areas under custody of the Contractor, in either identified river land (high berm land, on the countryside of the temporary spoil zone, which are not normally under cultivation) or any other land temporarily arranged by the contractor, on payment of required crop compensation or premium , if required, till further disposal. Wooden waste materials would be disposed of either by the Employer through open auction to be held on worksite or would be taken away by the Contractor on payment of the "Book Value"/ "Reserve Price. Plastic waste e.g. old & worn out cement bag or nylon crates would be sold to the authorized recyclers by the Contractor.	m	77508	Disposed of as per reutilization plan
5	Old Bullah wailing pieces		m	21413	Disposed of as per reutilization plan
6	Old 2nd hand cement poly bags		nos.	698404	Disposed of as per reutilization plan
7	Worn out Nylon Crates		nos.	1680	Disposed of as per reutilization plan

Annexure-32: Guidelines for preparing C&D Waste Management Plan

Planning Stage
Consult with IWD; decide number of different categories of structure to be demolished
Assessment of potentiality of reutilization of other project activities under WBMIFMP; Use of C&D waste in project will be first priority, distribution among local people/ contractor will be second priority. Left out portion of C&D waste if any shall be disposed-off in the nearby sanitary landfill (SLF) site.
Assessment of willingness of interested local people/ contractor in consuming generated C&D waste; assessment of source wise consumption capacity;
Identify available Govt. Land for temporary storing of C&D waste; capacity assessment of identified Govt. land; assessment of additional land for temporary storing of C&D waste required to be arranged by him from private owners on payment of requisite crop compensation and land premium; emphasize in identifying fallow or barren land located nearby; use of agriculture land shall be avoided to the possible extent, However, in case use of agriculture land becomes unavoidable, bed lining (by brick flat soling or thick polythene sheet) shall be provided to restrict impact on land fertility; C&D waste shall not be stored within 30 meter from deep channel of the river/ canal. All C&D waste deposited on berm land shall be removed before monsoon. C&D waste shall not be dumped at any water body or marsh or wetland at any circumstances; C&D waste shall not be stores within 100 m from any sensitive receptors like school/ hospital/ park/ playground
Consult with interested local person willing to provide land for temporary storing of C&D waste;
Identification and plotting of lands for temporary disposal in a suitable map
Prepare Contractor's ESHS-MSIP incorporating detail C&D waste management plan
Obtain permission/ NOC, wherever required, from respective Govt. Departments/ Entities for temporary storing of C&D waste; Obtain permission from nearby SLF authority regarding dumping of excess C&D waste material if any
Make agreement with private land owner for temporary storing of C&D waste
Pay compensation to affected land owner for any kind of loss including loss of mature crop and also pay for premium of land
Demolition
Demolish identified structures/ pavements
Segregate type wise C&D waste; Contractor shall ensure that other waste (such as solid waste) does not get mixed with this C&D waste and is stored and disposed separately.
Transport C&D waste in identified locations for temporary storage; While transporting, vehicle shall be covered from all site to restrict dust pollution and no littering or deposition so as to prevent obstruction to the traffic or the public or drains.
Grading of wastes for subsequent use as per reutilization plan. Concrete shall be used in scour hole filling to the possible extent; mortar, brick with mortar / brick shall be used to the possible extent in making haul road and restoration of village road
Evacuate C&D waste as per reutilization plan, on regular interval, within a period of maximum 1 month; Each demolition site as well temporary storage area shall be cleaned properly after removal of C&D waste;

Annexure-33: Guidelines for developing Hazardous Waste Management Plan

Listing down plant and machineries to be deployed; listing down bitumen, oil and lubricants to be used; bitumen/ oil/ lubricant purchase source;
Listing down permission required from regulatory authorities for execution of bituminous items, e.g consent to establish and operate hot-mix batching plant from WBPCB.
Plan for purchase and storing; frequency of purchase; quantity of purchase at a time;
Identification of activity involving use or generation of hazardous material/ waste;
Identification of impact on environment and health; proposed mitigation measures to minimize or restrict any adverse effect; Safe handling mechanism of hazardous waste;
Disposal mechanism of hazardous waste

Annexure-34: Vegetation Waste (including Water Hyacinth) Management Plan

Source of vegetation waste	Utilization Options			Total Quantity	Waste Material
1. Felling of big size tree (> 50 cm GBH) 2. Felling of small size tree (GBH < 50 cm.) 3. Clearing of bush, shrub 4. Clearing of terrestrial weed	Allow local community for domestic use, animal fodder or for composting			**41.20 MT**	Leaves
	Dumping into borrow pit for natural decomposition				
	Allow local community to use as fencing				Twings & Bough
	Allow local people for household use				Branch, Shrub, Stem
	Allow local community to use as fencing material				
	Allow local people for household use				Stumps
	Allow local community to use for domestic purpose				
	Allow local community to use for domestic purpose				Roots
	Allow local community to use for domestic purpose				Wood Chips and Logs
	Allow local community for domestic purpose, animal fodder or for composting				Weed
	Dumping of leafy material into borrow pit for natural decomposition				

Source of vegetation waste	Utilization Options			Total Quantity	Waste Material
5. Water Hyacinth	Description	Pros	Cons	**73600 cum (11760 MT approx.)**	Water Hyacinth
	Option I for disposal: Distribution among local farmers nearby (within 500m) who may take the material from worksite at their own cost, for use as animal fodder or fertilizers. (In order to make it happen the Contractor has to launch awareness campaign in nearby communities on availability of water hyacinth and its uses and to organize Farmer's training programme on conversion of water hyacinth to compost). The Contractor will be paid for awareness campaign and training out of 'Provisional Sum'	Most economical option	Demand may be limited to the farm plots adjacent to worksite, as with increasing distance cost of transportation would increase. It has been assessed that approximately 10% of the total quantity under the Lots may be disposed in this way.		
	Option II for disposal: Transportation by small tractors (that can ply easily on all village road) to the farmers' field beyond 500m from worksite and upto 3.0 km, for subsequent use by the farmers as fodder or fertilizer, to be done by the Contractor. (Contractor has first to launch awareness campaign in nearby communities on availability of water hyacinth and its uses and to organize Farmer's training programme on conversion of water hyacinth to compost. The Contractor has also to identify the willing farmers). Cost of awareness campaign, training and transportation of the water hyacinth would be paid out of "Provisional Sum").	An workable option, as farmers are not required to pay any additional sum for transportation.	Survey done in the locality indicates that there is some demand, however that is limited. Risk of identifying sites is on the Contractor. More or less 15% of the total quantity under the Lots can be disposed in this manner. Additional expenditure on the part of the Employer, due to transportation.		

Source of vegetation waste	Utilization Options			Total Quantity	Waste Material
	Option III for disposal: Permanent disposal on countryside farm land adjacent and along the toe of embankments to facilitate the process of natural decomposition, as stated below:	●The material thus decomposed, can be used as fertilizer by the local farmers later, after two and half month. ● No additional involvement for transportation.	Additional expenditure on the part of the Employer, due to various accounts but this is the only option for bulk use of water hyacinth and it is assessed that around 65% of the total quantity would have to be disposed off in this manner.		
	a) 3.5m wide stretches have been identified at country-side toe of embankment mostly on Govt. land, i. Bid Package-VI: Left Bank: 2.7 km, Right Bank: 2.4 km ii. Bid Package-VII: Left Bank: 2.1 km, Right Bank: 2.4 km iii. Bid Package-VIII: Left Bank: 3.0 km, Right Bank: 2.4 km				
	b) Decomposition pits of i. Bid Package-VI: 1.2m depth would be excavated in next stage along 5.1 km (2.7 km + 2.4 km) long stretch. ii. Bid Package-VII: 1.1m depth would be excavated in next stage along 4.5 km (2.1 km + 2.4 km) long stretch. iii. Bid Package-VIII: 1.2m depth would be excavated in next stage along 5.4 km (3.0 km + 2.4 km) long stretch.				

Source of vegetation waste	Utilization Options		Total Quantity	Waste Material
	c) Water hyacinth from temporary storage locations would be dumped in these pits upto a depth after nominal chopping, in two layers, and thin and diluted slurry of water, cow-dung, fine soil and nominal quantity of microbial consortium (so as to facilitate microbial culture) is to be sprinkled/sprayed over each layer. i. Bid Package-VI: 1.1 m ii. Bid Package-VII: 1.0 m iii. Bid Package-VIII: 1.1 m			
	d) The deposited mass would finally be covered with a topping of soil having thickness less than 0.1 m. Note: Payment for cutting and filling pits and for the crop compensation to be provided to the farmers' and arrangement for decomposition to be made to the Contractor out of "Provisional Sum". Cautionary note; These composting pits shall be at least 15 m away from any bore well that is being used for drinking water purpose.			

Annexure-35: Guideline for preparing Vegetation Waste Management Plan

Planning Stage
Enumeration survey of tree species with different Girth at Breast Height (GBH) and preparation of list of trees to be felled along with other schedules as per prescribed formats required for obtaining permission from Dept. of Forest, Govt. of West Bengal. This task needs to be performed jointly with the Project Manager.
Estimation of quantity of vegetation waste arising out of bush, shrub, weeds. Estimation of quantity of such waste generated from Leaves, Twigs & Bough, Branch, Shrub Stem, Stumps, Roots, Wood Chips and Logs, Weed should also be done to the extent possible, for the purpose of assessing requirement of area of storage.
Identification of probable sources of reuse against each type of vegetation waste;
Identification of areas within the Govt. land including embankment and berm land for temporary storage of Twigs & Bough, Branch, Shrub Stem, Stumps, Roots, Wood Chips and Logs for collection by the local community and identification of borrow pits/ areas on berm land for dumping of leaves for natural decomposition.

Implementation
Allow local people to collect vegetation waste at source
Collect and segregate type wise vegetation waste at source
Temporary storing of vegetation waste
Spreading of Leaves and Twigs material in borrow pit area for natural decomposing

Annexure-36: Arrangement of land for Compensatory Afforestation

Description	Chainage (in between)	Mouza	Length of strip (m)	Width of strip (m)	Area of strip (ha)
Bid Package-I	6.00 km to 8.10 km	Amarpur	700.00	2.00	0.140
	15.40 km to 16.10 km	Santoshpur	600.00	2.00	0.120
	29.8 km to 30.65 km	Laskarpur	700.00	2.00	0.140
	37.00 to 37.8 km	Pashpur	670.00	2.00	0.134
				Sub-total	**0.534**
Bid Package-II (On the left bank of Short Cut Channel)	0.00 km to 0.30 km	Mainan	300.00	2.00	0.060
	0.30 km to 1.21km	Shehagori	910.00	2.00	0.182
	1.21 km to 1.49 km	Dhainpur	280.00	2.00	0.056
	1.49 km to 3.24 km	Shehagori	1750.00	2.00	0.350
	3.24 km to 3.95 km	Sauria	710.00	2.00	0.142
	3.95 km to 4.275 km	Dakshin Jaypur	325.00	2.00	0.065
				Sub-total	**0.855**
Bid Package-III (On the left bank of Short Cut Channel)	4.275 km to 5.48 km	Uttar Khalna	1205.00	2.00	0.241
	5.48 km to 6.27 km	Khajurdaha	790.00	2.00	0.158
	6.27 km to 7.07 km	Paschim Khalna	800.00	2.00	0.160
				Sub-total	**0.559**
Bid Package-IV					
(On the left bank of Short Cut Channel)	7.07 km to 8.29 km	Paschim Khalna	1220.00	2.00	0.244
(On the right bank of Short Cut Channel)	0.00 km to 0.18 km	Thalia	180.00	2.00	0.036
				Sub-total	0.280
				TOTAL	**2.228**

Annexure-37: Desilted Material Disposal Plan

Table 1/1: Disposal Plan of Desilted Material for Bid Package-V									
Location of temporary storage of bed materials to be excavated from Mundeswari River									
Sl. No.	Chainage (in between)		Distance (in m)	Existing top width of river between bank to bank (in m)	Name of Mouzas	Average base width of temporary spoil bank (in m) (max)	Average height of temporary spoil bank (in m) (max)	Classification of plot as per RoR	Reference of typical cross section
	From (km)	To (km)							
1	5	5.5	500	1152	Sahapur-102 & Kurshimul-208	150	2	The lands mostly belong to River Land or Sikosti (part of river), land vested with the Collector	Type – II
2	5.5	6	500	1272	Sahapur-102 & Kurshimul-208	150	2		Type – II
3	6	6.5	500	605	Sahapur-102 & Kurshimul-208	150 & 75	2		Type – II & Type – III
4	6.5	7	500	899	Sahapur-102 & Kurshimul-208	150	2		Type – I
5	7	7.5	500	1199	Soaluk-04 & Purba Baharipur – 64	150	2		Type – I
6	7.5	8	500	1193	Chackbese-67 & Purba Baharipur-64	150	2		Type – I

Table 1/1: Disposal Plan of Desilted Material for Bid Package-V									
Location of temporary storage of bed materials to be excavated from Mundeswari River									
Sl. No.	Chainage (in between)		Distance (in m)	Existing top width of river between bank to bank (in m)	Name of Mouzas	Average base width of temporary spoil bank (in m) (max)	Average height of temporary spoil bank (in m) (max)	Classification of plot as per RoR	Reference of typical cross section
7	8	8.5	500	871	Soaluk-04 & Purba Baharipur – 64	150	2	The lands mostly belong to River Land or Sikosti (part of river), land vested with the Collector	Type – I
8	8.5	9	500	529	Purba Haripur-64 & Soaluk-04	150	2		Type – I
9	9	9.5	500	988	Purba Haripur- 64 & Balia-66	150	2		Type – I
10	9.5	10	500	694	Soaluk-04 & Bachanori-162	150	2		Type – I
11	10	10.5	500	1399	Ghorgowal-65 & Dulalbati-07	150	2		Type – I
12	10.5	11	500	808	Ghorgowal-65 & Ranbaghpur-08	75	2		Type – III
13	11	11.5	500	844	Ghorgowal-65 & Banomalipur-68	75	2		Type – III

Table 1/1: Disposal Plan of Desilted Material for Bid Package-V									
Location of temporary storage of bed materials to be excavated from Mundeswari River									
Sl. No.	Chainage (in between)		Distance (in m)	Existing top width of river between bank to bank (in m)	Name of Mouzas	Average base width of temporary spoil bank (in m) (max)	Average height of temporary spoil bank (in m) (max)	Classification of plot as per RoR	Reference of typical cross section
14	11.5	12	500	812	Ghorgowal-65	150	2	The lands mostly belong to River Land or Sikosti (part of river), land vested with the Collector	Type – II
					&				
					Banomalipur-68				
15	12	12.5	500	273	Balia-66,	150	2		Type – II
					Malaypur-69				
					&				
					Keshabpur-77				
16	12.5	13	500	670	Balia-66 &	150	2		Type – II
					Banomalipur-68				
17	13	13.5	500	748	Balia-66 &	150	2		Type – II
					Malaypur-69				
18	13.5	14	500	550	Banomalipur-68	75	2		Type – III\
					& Keshabpur-77				
19	14	14.5	500	275	Balia-66 &	75	2		Type – III
					Keshabpur-77				
20	14.5	15	500	275	Balia-66 &	75	2		Type – III
					Keshabpur-77				
21	15	15.5	500	273	Keshabpur-77 &	75	2		Type – III
					Ranbagpur-08				

Table 1/1: Disposal Plan of Desilted Material for Bid Package-V								
Location of temporary storage of bed materials to be excavated from Mundeswari River								
Sl. No.	Chainage (in between)		Distance (in m)	Existing top width of river between bank to bank (in m)	Name of Mouzas	Average base width of temporary spoil bank (in m) (max)	Average height of temporary spoil bank (in m) (max)	Classification of plot as per RoR	Reference of typical cross section
22	15.5	16	500	364	Purba Shibpur-81 & Purba Krishnapur-80	150	2	The lands mostly belong to River Land or Sikosti (part of river), land vested with the Collector	Type – I
23	16	16.5	500	643	Balia-66 & Purba Krishnapur-80	150	2		Type – I
24	16.5	17	500	743	Purba Shibpur- 81 & Purba Krishnapur-80	150	2		Type – I
25	17	17.5	500	305	Purba Shibpur- 81 & Purba Krishpur-80	150	2		Type – II
26	17.5	18	500	305	Purba Krishnapur-80 & Muzaffarpur-79	150	2		Type – II
27	18	18.5	500	402	Purba Shibpur-81 Arunbera-136 & Shyamgram-135	150	2		Type – II
28	18.5	19	500	358	Arunbera-136 & Shyamgram-135	150	2		Type – II

Table 1/2: Disposal Plan of Desilted Material for Bid Package-VI to IX
Location of temporary storage of bed materials to be excavated from Mundeswari River
Desilted materials which is not hazardous would be temporarily stored in the form of spoil bank at berm land (relatively high land in channel bed near the bank toe and acquired by / vested with the government), keeping a distance of at least 3 m from the designed section of the cutting zone to be adopted in the first and next phase, both sides of the designed cutting section, in the form of spoil bank, using a bottom lining with thick tarpaulin sheet, wherever such land is used for seasonal cultivation purpose.

Table 2: Disposal Plan of Desilted Material for Bid Package-V							
Location of Permanent Disposal of Desilted Materials							
Sl. No.	Block	Name of Mouza	Bank on which Located (Left/Right)	Total Area of Plots of Land		Plot/ Dag No.	Approximate Distance from the work site (km)
				Acre	Hectare		
1	PURSURAH	DEHIBATPUR - 12	LEFT	12.02	4.86	755 , 756, 770, 771, 790, 791, 794, 848, 845, 846, 876, 875, 788, 749, 852, 851, 928, 932, 1231, 1232, 1020, 1204, 1207, 1208, 2187, 1015, 1018, 1019, 1491, 1492, 1472, 1477, 1489, 1482, 1488, 2366, 1487, 1707, 1708, 1709, 1705, 1703, 1702, 2377, 1518, 1519, 1334, 1335, 1246, 562, 582/210, 582/2101, 1471, 1481	5.00

Table 2: Disposal Plan of Desilted Material for Bid Package-V							
Location of Permanent Disposal of Desilted Materials							
Sl. No.	Block	Name of Mouza	Bank on which Located (Left/Right)	Total Area of Plots of Land		Plot/ Dag No.	Approximate Distance from the work site (km)
				Acre	Hectare		
2	PURSURAH	DEULPARA -13	LEFT	8.01	3.24	1276, 1180, 1187/1683, 1477, 1448, 870, 875, 880, 881, 888, 889, 975, 1123, 983, 983/1515, 1123, 1126, 974, 1041, 1107, 1108, 1391, 1390, 1384, 1382, 1377, 1376, 1373, 1372, 1370, 1368, 1364, 1361, 1358, 1354, 1352, 1131, 1094 , 1084	3.00
3	PURSURAH	BAIKUNTHAPUR -05	LEFT	8.01	3.24	2085, 2086, 2051, 2052, 2053, 2055, 2054/6433, 2835, 2834, 2844, 2841, 2840, 4471, 4479, 4477, 4478, 4470, 4476, 2854/3029, 2855, 2833, 4819/7099, 5020, 5018, 519, 4468, 4966, 4965	4.00

Table 2: Disposal Plan of Desilted Material for Bid Package-V							
Location of Permanent Disposal of Desilted Materials							
Sl. No.	Block	Name of Mouza	Bank on which Located (Left/Right)	Total Area of Plots of Land		Plot/ Dag No.	Approximate Distance from the work site (km)
				Acre	Hectare		
4	PURSURAH	DEHIBATPUR - 12	LEFT	20.46	8.28	755 , 756, 770, 771, 790, 791, 794, 848, 845, 846, 876, 875, 788, 749, 852, 851, 928, 932, 1231, 1232, 1020, 1204, 1207, 1208, 2187, 1015, 1018, 1019, 1491, 1492, 1472, 1477, 1489, 1482, 1488, 2366, 1487, 1707, 1708, 1709, 1705, 1703, 1702, 2377, 1518, 1519, 1334, 1335, 1246, 562, 582/2101 , 582/2101, 1471, 1481	5.00

Table 2: Disposal Plan of Desilted Material for Bid Package-V							
Location of Permanent Disposal of Desilted Materials							
Sl. No.	Block	Name of Mouza	Bank on which Located (Left/Right)	Total Area of Plots of Land		Plot/ Dag No.	Approximate Distance from the work site (km)
				Acre	Hectare		
5	PURSURAH	DEULPARA -13	LEFT	9.45	3.82	1276, 1180, 1187,1683, 1477, 1448, 870, 875, 880, 881, 888,889, 975, 1123, 983, 1515, 1126, 1123, 974, 1041, 1107, 1108, 1391, 1390, 1384, 1382, 1377, 1376, 1373, 1372, 1370, 1368, 1364, 1361, 1358, 1354, 1352, 1131, 1094 , 1034	3.00
6	PURSURAH	BAIKUNTHAPUR-05	LEFT	9.70	3.93	2085, 2086, 2051, 2052, 2053, 2055, 2054,6433, 2335, 2834, 2844, 2841, 2840, 4471, 4479, 4477, 4478, 4470, 4476, 2854, 3029, 2855, 2833, 4819,7099, 5020, 5018, 519, 4468, 4966, 4965	4.00

Table 2: Disposal Plan of Desilted Material for Bid Package-V							
Location of Permanent Disposal of Desilted Materials							
Sl. No.	Block	Name of Mouza	Bank on which Located (Left/Right)	Total Area of Plots of Land		Plot/ Dag. No.	Approximate Distance from the work site (km)
				Acre	Hectare		
7	PURSURAH	SOALUK - 04	LEFT	15.21	6.16	3487, 3492, 3498, 3493, 774, 1425, 1429, 776, 791, 3497, 3507, 3545, 3546, 3570, 3575, 3592, 3599, 3615, 3616, 3620, 3621, 3664, 3668, 1397, 1585, 1588, 1626, 1606, 786, 787, 795, 1425, 1429, 1591, 727, 1039, 1057, 1074, 1149, 1150, 1165, 1192, 1313, 1629, 1630, 653, 699, 730, 733, 749	4.00
8	RAINA	PURBA HARIPUR-64	RIGHT	4.84	1.96	1858, 1897, 1859, 1860, 1912, 1914, 1915, 1922, 1835, 1836, 1785, 1786	5.00
9	ARAMBAGH	MALAYPUR - 69	RIGHT	3.46	1.4	8230, 8257, 8272, 8273, 8484, 1751, 1752, 1826, 1819, 1950, 1952, 1955 , 4533, 5770, 5771, 5800, 5805, 5825, 5895, 5896, 5898, 5949, 5951	4.00
			Sub-total	**91.16**	**36.89**		

Table 3: Disposal Plan of Desilted Material for Bid Package-VI							
Location of Permanent Disposal of Desilted Materials							
Sl. No.	Name of the locations of permanent disposal	Block	Mouza	Bank on which located	Total area of plots of land		Plot / Dag No.
					Acre	Ha	
1	Amta Playground	Amta-I	Amta, Jyoti-Kalyan, Gujarpur, Basantapur, Panpur	Left	23.55	9.53	168, 169, 173/4693, 173
2	Amta Pitamber High School						59, 65, 67, 3630
3	Amta Hospital Ground						2955
4	Amta Jyot-Kalyan Pushparani Vidyamandir						55
5	Panpur Shashi Bhusan High School						210
6	Basanta High School						731
7	Ramsaday College of Amta						482, 630
8	Amta Janakalyan Durgotsab Samity						1448, 2380
				Sub-total	**23.55**	**9.53**	

Table 4: Disposal Plan of Desilted Material for Bid Package-VII							
Location of Permanent Disposal of Desilted Materials							
Sl. No.	Name of the locations of permanent disposal	Block	Mouza	Bank on which located	Total area of plots of land		Plot / Dag No.
					Acre	Ha	
1	Udaynarayanpur Sarada Charan Institution	Udaynarayanpur	Udaynarayanpur, Jangalpara-Belgram, Garhbhabanipur	Right	23.57	9.54	428
2	Udaynarayanpur Madhabilata Mahavidyalaya						39,41 to 44, 71 to 80, 93
3	Raibaghini Bhabasankari Porjatan Kendra at Garh Bhabanipur						177 to 180, 306, 310 to 313, 316 to 321, 323, 326 to 340, 348 to 352, 355, 356, 358 to 363, 780
				Sub-total	**23.57**	**9.54**	

Table 5: Disposal Plan of Desilted Material for Bid Package-VIII							
Location of Permanent Disposal of Desilted Materials							
Sl. No.	Name of the locations of permanent disposal	Block	Mouza	Bank on which located	Total area of plots of land		Plot / Dag No.
					Acre	Ha	
1	Penro office compound	Udaynarayanpur & Amta-I	Garhbhabanipur and Basantapur	Right	0.89	0.36	205,206
2	Purash-Kanpur Haridas Nandi Mahavidyalaya	Amta-I	Purash, Kanpur	Left	1.8	0.728	760,536
3	Basatapur Ahmadia High Madrasah	Amta-I	Basantapur	Left	0.4	0.162	35,37
4	Raibaghini Bhabasankari Porjatan Kendra at Garhbhabanipur	Udaynarayanpur	Garhbhabanipur	Right	5.4	2.186	177 to 180, 306, 310 to 313, 316 to 321, 323, 326 to 340, 348 to 352, 355, 356, 358 to 363, 780
5	Purash-Kanpur Natabar Paul Vidyamandir	Amta-I	Purash	Left	1.36	0.55	757,758,759
				Sub-total	**9.85**	**3.986**	

Table 6: Disposal Plan of Desilted Material for Bid Package-IX							
Location of Permanent Disposal of Desilted Materials							
Sl. No.	Name of the locations of permanent disposal	Block	Mouza	Bank on which located (Left/Right)	Total area of plots of land		Plot / Dag No.
					Acre	Ha	
1	Jangipara Seed Farm	JANGIPARA	JANGIPARA, J.L. No.-67	LEFT	5.00	2.02	50, 51, 52, 53, 48, 47, 49, 46, 806, 73, 72, 805, 67, 66, 65, 80, 86, 85, 87, 88, 84, 99, 97, 90, 94, 95, 93, 92, 103, 109
2	Cremation Ground and adjoining vacant plots owned by the Government	JANGIPARA	BHIMPUR, J.L. NO.-99	LEFT	2.58	1.04	78/1361, 143, 126
3		JANGIPARA	CHAKBARDA, J.L. NO.- 108	LEFT	0.87	0.35	143/342, 146/341
				Sub-total	**8.45**	**3.41**	

Table 7: Disposal Plan of Desilted Material for Bid Package-V				
Percentage of Quantities of Desilted material as per Disposal options				
Lots in Package	Disposal Quantity	Disposal Options	Brief Description of Disposal Options (i to iv)	Disposed Quantity in %
	(cum)			
Lot 1	2611900	i)	**i)** Plots of land so far identified by the local sand miners within a maximum distance of 5 km from worksitesand communicated to the Employer. **ii)** Plots of land to be identified by the Project Manager / Employer for the purpose of community development projects or land development of community assets / infrastructure owned and managed by the government / private entities, i.e. schools, market place, hospital, playground, temples or other places worships, etc., subject to accessibility of such plots within a distance of 5 km from the worksites. **iii)** Plots of land to be identified by the Project Manager / Employer within 5 km from the worksite, in consultation with local WB Highway Development Corporation (WBHDC) officials for depositing desilted materials at those plots, for subsequent use by the WBHDC Contractors in the upcoming project of four laning of Arambagh-Champadanga Road (22 km length) including uthadanga Bypass (4 km length). **iv)** Plots of land to be identified by the Contractor within a distance of 5 km from the worksite and shown in the Contractor's ESHS-MSIP, on the basis of negotiation with the private landowners and on payment of compensation / premium to be paid by the Contractor to the private landowners if required.	73%
		ii)		5%
		iii)		2%
		iv)		20%
Lot 2	1137755	i)		73%
		ii)		5%
		iii)		2%
		iv)		20%
Lot 3	1049535	i)		73%
		ii)		5%
		iii)		2%
		iv)		20%
Sub-total	**4799190**			

Annexure 37

Table 8: Disposal Plan of Desilted Material for Bid Package-VI

Percentage of Quantities of Desilted material as per Disposal options

Lots in Package	Disposal Quantity	Disposal Options	Brief Description of Disposal Options (i & ii)	Disposed Quantity in %
	(cum)			
Lot 1	378292	i)	**i)** Plots of land to be identified by the Project Manager / Employer for the purpose of land development of community assets / infrastructure owned and managed by the government / private entities, i.e. schools, colleges, hospital and playground, all located within a distance of 5 km from the worksites. **ii)** Plots of land to be identified by the Contractor within a distance of 5 km from the worksite accessible by roads on both right and left embankments and shown in the Contractor's ESHS-MSIP, on the basis of negotiation with the private landowners and on payment of compensation / premium to be paid by the Contractor to the private landowners if required.	15%
		ii)		85%
Lot 2	199175	i)		15%
		ii)		85%
Lot 3	193242	i)		15%
		ii)		85%
Sub-total	**770709**			

Table 9: Disposal Plan of Desilted Material for Bid Package-VII				
Percentage of Quantities of Desilted material as per Disposal options				
Lots in Package	Disposal Quantity	Disposal Options	Brief Description of Disposal Options (i & ii)	Disposed Quantity in %
	(cum)			
Lot 1	196012	i)	**i)** Plots of land to be identified by the Project Manager / Employer for the purpose of land development of community assets / infrastructure owned and managed by the government / private entities, i.e. schools, colleges, hospital and playground, all located within a distance of 15 km from the worksites. **ii)** Plots of land to be identified by the Contractor within a distance of 5 km from the worksite accessible by roads on both right and left embankments and shown in the Contractor's ESHS-MSIP, on the basis of negotiation with the private landowners and on payment of compensation / premium to be paid by the Contractor to the private landowners if required.	15%
		ii)		85%
Lot 2	190498	i)		15%
		ii)		85%
Lot 3	387169	i)		15%
		ii)		85%
Sub-total	**773679**			

Table 10: Disposal Plan of Desilted Material for Bid Package-VIII				
Percentage of Quantities of Desilted material as per Disposal options				
Lots in Package	Disposal Quantity	Disposal Options	Brief Description of Disposal Options (i & ii)	Disposed Quantity in %
	(cum)			
Lot 1	167326	i)	**i)** Plots of land to be identified by the Project Manager / Employer for the purpose of land development of community assets / infrastructure owned and managed by the government / private entities, i.e. schools, colleges, hospital and playground, all located within a distance of 15 km from the worksites. **ii)** Plots of land to be identified by the Contractor within a distance of 5 km from the worksite accessible by roads on both right and left embankments and shown in the Contractor's ESHS-MSIP, on the basis of negotiation with the private landowners and on payment of compensation / premium to be paid by the Contractor to the private landowners if required.	15%
		ii)		85%
Lot 2	190938	i)		15%
		ii)		85%
Lot 3	387476	i)		31%
		ii)		69%
Sub-total	**745740**			

Table 11: Disposal Plan of Desilted Material for Bid Package-IX				
Percentage of Quantities of Desilted material as per Disposal options				
Lots in Package	Disposal Quantity	Disposal Options	Brief Description of Disposal Options (i & ii)	Disposed Quantity in %
	(cum)			
	411440	i)	**i)** Plots of land to be identified by the Project Manager / Employer for the purpose of land development of community assets / infrastructure owned and managed by the government / private entities, i.e. schools, colleges, hospital and playground, all located within a distance of 5 km from the worksites. **ii)** Plots of land to be identified by the Contractor within a distance of 5 km from the worksite accessible by roads on both right and left embankments and shown in the Contractor's ESHS-MSIP, on the basis of negotiation with the private landowners and on payment of compensation / premium to be paid by the Contractor to the private landowners if required.	25%
		ii)		75%
Sub-total	**411440**			

Annexure-38: Construction related issues Management Plan

Issues/ Expected Impact	Mitigation Measures	Implementing Entity
Workers safety and hygienic conditions		
Occupational Health and Safety (OHS) issues	Regular OHS trainings (Monthly) to construction staff. Organize Health camps on half yearly basis.	Contractor
	Providing appropriate Personal Protective Equipment (PPE) such as safety boots, rain coats, hand gloves, earplugs and nose masks to the working personnel and enforcing the use of these PPEs.	Contractor
	Making provision of first aid facilities and emergency vehicle. However, major cases will be referred to the nearest hospital or health centre.	Contractor
	Obligatory insurance of contractor's staff and laborers against accidents.	Contractor
	Contingency measures in case of accidents;	Contractor
	Making provision of primary medical care in case of sickness (specifically snake bites) and accidents.	Contractor
	Periodic health-check-ups (quarterly) of all laborers employed at the project site;	Contractor
	Providing safe drinking water supply and sanitation at the working places.	Contractor
Parking / repair of machinery and equipment		
Soil and water contamination with oil / grease spills	Restriction on repair of vehicles and equipment on working sites without impermeable top soil cover at the repairing site.	Contractor
	Avoiding washing of vehicles near the canal or river.	
	Ensuring proper storage and disposal of used oil etc.	
	Adoption of good housekeeping practices at workshop areas.	
	Avoiding waste oil spill into soil and adjoining water source.	
	Appropriate arrangements such as usage of concrete base and drip pans to avoid spills during 44ueling/oil change.	
	Collection of used oil, lubricants, cleaning materials, etc. from the maintenance of vehicles and machinery in holding tanks and removal from site by a specialized oil recycling company for disposal at an approved hazardous waste site.	Contractor
Procurement		
Construction material	Procurement of all construction material from authorized vendors having required permission.	Contractor

Issues/ Expected Impact	Mitigation Measures	Implementing Entity
Construction works		
Noise pollution	Use of PPEs such as earplugs and earmuffs by the workers; avoid night time activity.	Contractor
Land degradation; soil erosion; pooling of water and drainage problem	Temporary stacking in identified locations with preventive measures (covering, sprinkling water etc.)	Contractor
	Disposal of demolished / excavated materials, after reuse, as per the plan.	Contractor
Health impact during metal work (cutting and welding) and handling of metal scrap	Ensuring use of PPEs such as welding helmet, hand goggles, Respirators specially during cutting and welding operation	Contractor
	Enforcing wearing fire/flame resistant cloth and aprons during cutting and welding operation	Contractor
	Ensuring use of hand and forearm protecting leather gloves; safety goggles; steel-toed safety shoes; and upper foot guards to protect the instep area from impact or compression.	Contractor
Soil & Water contamination	Using techniques as berming or diversion during construction to limit the exposure of disturbed sediments to moving water.	Contractor
	Avoiding discharge of waste effluents to the nearby canal/ river.	Contractor
	Collection of wastewaters in a conservancy tank and removal from site on regular basis.	Contractor
	Safe disposal/sealing of wastewater collection tanks and septic tanks on completion of works.	Contractor
construction material waste	Remove any left-over construction material/wastes from the construction sites.	Contractor
Accident risks	Provision of PPEs; Provision of first aid kits and emergency vehicle.	Contractor
Loss of top soil	Preservation of top soil and reuse in slope or bank stabilisation/turfing activities. Distributing excess (if any) to farmers for use in the agricultural lands.	Contractor/ Project Manager
Stripping, stocking of construction material on agricultural field may cause damage to top soil	Storing of excavated material on agricultural field shall be avoided to the extent possible;	Contractor
	Providing tarpaulin lining to arrest any kind of leaching from stored excavated material on agricultural field.	Contractor
	Providing safe temporary routes for local people to access their farms during the construction period.	Contractor
	Compensating for crop and otherwise for temporary occupation of farmland;	Contractor
Use of water for construction and consumption		
Conflict with local water demand	Making own arrangements for meeting water required for construction ensuring that water availability and supply to nearby communities remain unaffected.	Contractor

Issues/ Expected Impact	Mitigation Measures	Implementing Entity
Storage, handling and transport of chemical/ hazardous materials		
Work safety and human health risks	Provision of double containment for storage of hazardous material (if any).	Contractor
	Storing chemicals appropriately and with labeling	Contractor
	Promptly informing any accidental spill or incident to the concerned Authority.	Contractor
	Providing a report explaining the reasons for the spill or incident, remedial action taken, consequences/damage from the spill, and proposed corrective actions.	Contractor
Work site sanitation		
Unhygienic construction site environment may have health impact on public and workers	Providing waste bins on site for collection and disposal of plastic waste, cans and food waste. These bins shall be frequently emptied at approved dump sites.	Contractor
	Regular removal and disposal of construction waste such as metal scrap, wood chippings, rubber seals, nails, etc. as per management plan.	
	Providing temporary toilet facilities at the construction sites for use by the construction workers. The workers will be educated against open defecation or "free range" defecation.	
	Providing potable water to workers at all time.	
	Appropriately and immediately covering trenches and/or excavations after they have served their purpose to prevent accidents and collection of stagnant water, which could serve as a breeding ground for disease causing vectors.	
Environmental damage during flood		
Environmental damage from accidental release of toxic, infectious, or otherwise harmful material from construction site during flooding	Finding alternative material handling sites that is located above flood plain, if possible.	Contractor
	Maintaining design features, such as drainage structures, during construction and operation.	
	Avoiding constructing sanitation or other facilities that stores harmful materials at floodprone areas.	
	Choosing dry sanitation options or closed disposal systems, instead of wet ones such as septic tanks or detention ponds.	

Issues/ Expected Impact	Mitigation Measures	Implementing Entity
Operation and movement of machinery and equipment including DG set		
Deterioration of air quality due to exhaust gases and dust emissions	Ensuring that excavators, tractors and other machinery hired for excavation and land levelling and development works are in good condition and are well serviced, and the operators are experienced and well trained. Good conditioned and well-maintained equipment will reduce frequent breakdowns, noise nuisance and smoke emissions which could affect the operators' and other workers' health and safety.	Contractor
	Proper engine tuning of machinery/equipment/ transport vehicle to avoid the exhaust emissions;	Contractor
	Protection of the exposed soil and material stockpiles against wind erosion and selection of the location of stockpiles in consideration of the prevailing wind directions and locations of sensitive receptors.	Contractor
	Water sprinkling at dust prone areas particularly at work sites near the communities.	Contractor
	prohibiting burning of waste or construction materials or cleared vegetation on site.	Contractor
	Setting up of construction material handling unit at minimum 500 m away from residential areas.	Contractor
	Covering material loads during transportation to prevent the scattering of soil, sand, materials' dust.	Contractor
Noise from vehicles, compaction rollers, concrete mixers and construction equipment	Ensuring valid Pollution Under Control (PUC) certificate for all vehicles and machineries.	Contractor
	Use of noise reduction devices; regular inspection, maintenance and lubrication of the construction vehicle and equipment.	Contractor
	Use muffles (silencers) in vehicles to minimize noise;	Contractor
	Avoiding or minimizing transportation though or material processing near community areas.	Contractor
	Avoid night time traffic particularly near communities.	Contractor

Issues/ Expected Impact	Mitigation Measures	Implementing Entity
Transportation of construction material		
Chance of accidents	Material transport in closed containers or covered with canvas (Tarpaulin) sheets.	Contractor
	Restricting vehicle speeds to 20km/h near habitations / settlements	
Damage to access roads/ infrastructure	Repairing of damaged roads/ infrastructure with full satisfaction of local community.	Contractor
Accident risks	Public consultation to maintain community integrity and social links;	Contractor
	Public awareness campaigns through displaying sign board at site and haulage routes;	
	Using warning signs at vantage points to indicate ongoing works. The contractor will guard all construction site including canals and drains with caution tapes.	
	Restriction on movement of machinery on the designated haulage routes for transportation of materials;	
	Ensuring that all haulage trucks comply with the approved speed limit of 20km/hr within the communities along the haulage road;	
	Adjusting haul times to ensure trucks do not move to the communities during mornings when school children may be crossing the road to school and during closing time.	
	Enforcing proper security at the project site during works to limit entry of unauthorized persons, nonworking persons, particularly children to the project site;	
	Adequate signage to manage traffic at sites, haulage and access roads;	

Issues/ Expected Impact	Mitigation Measures	Implementing Entity
Road impacts and traffic issues, Obstruction of access ways to communities		
Mobility inconvenience to the local community	Providing safe alternative access routes for access ways that are obstructed during construction works.	Contractor
	Providing sirens in vehicles to avoid any collision with human/animals	Contractor
	Erecting Sign posts at vantage points to manage traffic, guide community members through safe alternative access ways during construction works.	Contractor
	Repairing and maintaining damaged sections of the road located at project site throughout the construction period.	Contractor
Mobility inconvenience to the local community	Ensuring good condition of all haulage trucks hired/contracted to prevent breakdowns on roads. Not allowing parking of the vehicle in areas which may create inconvenience in mobility such as blind turning point or meeting point of village road with the embankment.	Contractor
Workforce, Camps and Site Management	Identify location for establishment of camp site and obtain permission from local GP.	Contractor
	Setting up of Workers 'camps at least 200 m away from schools and health care centres with proper arrangement of suitable and comfortable accommodations and safe portable water in the camps. These are to be maintained in clean and sanitary conditions.	Contractor
	Not setting up Site offices, workers' camps, mixing stations, and workshops within 100m from any water courses, 300 meters of existing residential area.	Contractor
	Engaging Safety and Environmental officer for environmental and safety issues including training for workers.	Contractor
	Providing Septic tank toilets at all construction camp areas where there will be concentration of labour, with separate toilet block for male and female.	Contractor
	First aid boxes shall be provided in each construction camp site.	Contractor
Chance of findingArchaeological property	While excavating or dismantling any structure, if any fossils, coins, articles of value / antiquity and remains of archaeological interest discovered on the site shall be the property of the Government and shall be dealt with as per the provisions of the relevant legislation.	Contractor/ Project Manager
	The Contractor shall take reasonable precautions to prevent his workforce or any other persons from damaging or removing any such articles. If any articles found shall be brought to the notice of the concerned Project Manager official and shall seek the direction of ASI before contractor recommencing the work.	

Annexure-39: List of Structures to be affected

Table 1: Community Asset & Cultural Properties						
Sl. No.	**Establishments**	**Number of Structures**				
		Bid Package-I	**Bid Package-II**	**Bid Package-III**	**Bid Package-IV**	**Total**
1	School	1	0	0	0	**1**
2	Anganwari	1	0	0	0	**1**
3	Club	17	1	0	1	**19**
4	Party Office	3	0	0	1	**4**
5	Bus Stop	4	0	0	0	**4**
6	Temple	16	0	6	9	**31**
7	Bedi	15	1	2	10	**28**
	Total	**57**	**2**	**8**	**21**	**88**

Table 2: Public Utility Services / Amenities						
Sl. No.	**Establishments**	**Number of Structures**				
		Bid Package-I	**Bid Package-II**	**Bid Package-III**	**Bid Package-IV**	**Total**
1	Burning Ghat	1	0	0	2	**3**
2	Transformer	1	0	5	3	**9**
3	Electric pole	6	49	147	194	**396**
4	Light post	4	0	0	1	**5**
5	RLI pump	1	0	5	3	**9**
6	Tube Well	0	8	0	4	**12**
7	Park Area	0	0	0	2	**2**
	Total	**13**	**57**	**157**	**209**	**436**

Table 3: Public/Private/Business Properties						
Sl. No.	**Establishments**	**Number of Structures**				
		Bid Package-I	**Bid Package-II**	**Bid Package-III**	**Bid Package-IV**	**Total**
1	Abandoned House	6	0	0	0	**6**
2	Kutcha/Semi Pucca/Pucca House	95	22	231	625	**973**
3	Under Construction House	3	0	0	0	**3**
4	Boundary wall (Pucca)	7	4	2	48	**61**
5	Shop (Pucca, Semi Pucca, Kutcha and Bamboo)	275	122	66	230	**693**
6	Shop cum House		14	9	55	**78**
7	Shed/Cattle Shed (Pucca, Semi Pucca and Bamboo)	33	82	91	303	**509**
8	Toilet (Pucca, Semi Pucca and Bamboo)	35	14	12	97	**158**
9	Cow House	1	0	0	0	**1**
10	Hut	22	0	0	0	**22**
11	Temporary shed	65	0	0	0	**65**
12	Nursery	1	0	0	0	**1**
13	Kutcha, Bamboo Shed, Asbestos Shed House etc.	0	20	0	0	**20**
	Total	**455**	**258**	**411**	**1358**	**2482**

Annexure-40: List of Water Bodies within 50 m of embankment

BID PACKAGE-I: Pond Locations of Damodar Left Embankment					
Sl. No.	**Position**	**Easting (X)**	**Northing (Y)**	**Chainage (M)**	**Length (M)**
1	STARTING	600154.897	2537714.823	7100	63.112
	ENDING	600216.2488	2537700.022	7163	
2	STARTING	600106.1833	2533815.948	11400	41.369
	ENDING	600125.3926	2533779.309	11441	
3	STARTING	600221.9802	2533639.921	11610	29.269
	ENDING	600235.5614	2533613.994	11639	
4	STARTING	600486.953	2532794.228	12505	20.137
	ENDING	600478.015	2532776.183	12525	
5	STARTING	600228.9858	2532506.183	12890	43.631
	ENDING	600195.5007	2532478.211	12934	
6	STARTING	599251.426	2524218.16	23840	55.104
	ENDING	599248.138	2524163.154	23895	
7	STARTING	599281.2909	2523755.614	24210	23.138
	ENDING	599286.7619	2523733.132	24233	
8	STARTING	599434.4465	2523171.175	24810	43.186
	ENDING	599449.1327	2523130.563	24853	
9	STARTING	599907.5646	2522055.542	26060	57.835
	ENDING	599944.2247	2522010.811	26118	
10	STARTING	600521.9956	2521220.071	27130	37.086
	ENDING	600550.8655	2521196.793	27167	
11	STARTING	600687.2248	2521033.006	27380	34.25
	ENDING	600717.1849	2521016.409	27414	
12	STARTING	601855.7416	2518740.287	30050	42.285
	ENDING	601851.9759	2518698.17	30092	
13	STARTING	602001.2543	2518113.074	30700	26.93
	ENDING	602010.5952	2518087.816	30727	
14	STARTING	602342.2951	2515038.271	33950	29.206
	ENDING	602325.6377	2515014.281	33979	
15	STARTING	602283.1698	2514962.37	34040	43.901
	ENDING	602253.3307	2514930.169	34084	
Total Length					**590.439**

BID PACKAGE-II: Pond Locations of Upper Rampur Khal						
Sl. No.	Position	Easting (X)	Northing (Y)	Chainage (M)		Length (M)
				From	To	
1	STARTING	599072.507	2518520.204	24	199	175
	ENDING	598902.863	2518557.355			
2	STARTING	598624.301	2518630.521	489	523	34
	ENDING	598602.905	2518657.937			
3	STARTING	598044.321	2518665.392	1226	1403	177
	ENDING	597883.309	2518602.816			
4	STARTING	595548.829	2510287.846	12199	12265	66
	ENDING	595487.156	2510262.396			
5	STARTING	595410.559	2510223.199	12354	12384	30
	ENDING	595385.962	2510209.606			
6	STARTING	595264.316	2510137.345	12526	12559	33
	ENDING	595238.171	2510115.716			
7	STARTING	595191.896	2510086.919	12613	12641	28
	ENDING	595170.291	2510074.053			
8	STARTING	595127.51	2510038.728	12694	12716	22
	ENDING	595108.482	2510028.768			
9	STARTING	594858.433	2509969.487	12988	13014	26
	ENDING	594847.696	2509947.863			
10	STARTING	594757.47	2509805.378	13181	13223	42
	ENDING	594739.171	2509769.868			
11	STARTING	594710.083	2509730.385	13271	13318	47
	ENDING	594677.257	2509695.308			
12	STARTING	594652.965	2509646.075	13380	13535	155
	ENDING	594592.28	2509506.574			
13	STARTING	594281.388	2509451.077	13985	14085	100
	ENDING	594183.855	2509469.418			
14	STARTING	594099.868	2509475.173	14168	14236	68
	ENDING	594034.623	2509486.641			
15	STARTING	593877.969	2509481.155	14398	14478	80
	ENDING	593843.053	2509423.617			
16	STARTING	593818.47	2509379.521	14541	14597	56
	ENDING	593852.015	2509344.392			
17	STARTING	593884.872	2509314.549	14638	14803	165
	ENDING	593821.032	2509162.423			
18	STARTING	593818.342	2509154.257	14811	15242	431
	ENDING	593653.532	2508761.548			
19	STARTING	593643.324	2508746.232	15255	15440	185
	ENDING	593492.442	2508649.85			
20	STARTING	593488.223	2508635.094	15457	15529	72
	ENDING	593465.958	2508575.543			
21	STARTING	593453.678	2508521.159	15576	15632	56
	ENDING	593423.261	2508469.247			
22	STARTING	593382.97	2508468.754	15667	15766	99
	ENDING	593286.931	2508447.194			
23	STARTING	593156.832	2508404.698	15908	15942	34

	ENDING	593123.551	2508396.561			
BID PACKAGE-II: Pond Locations of Upper Rampur Khal						
Sl. No.	**Position**	**Easting (X)**	**Northing (Y)**	**Chainage (M)**		**Length (M)**
				From	**To**	
24	STARTING	593058.992	2508322.791	16046	16164	118
	ENDING	592957.363	2508263.065			
25	STARTING	592866.081	2508205.248	16272	16438	166
	ENDING	592792.85	2508074.35			
26	STARTING	592789.068	2508072.05	16442	16534	92
	ENDING	592785.952	2507979.04			
27	STARTING	592698.877	2507754.32	16755	16968	213
	ENDING	592628.712	2507578.45			
28	STARTING	592641.663	2507532.46	17021	17071	50
	ENDING	592653.988	2507481.24			
Total Length						**2820**

BID PACKAGE-III: Pond Locations of Hurhura Khal						
Sl. No.	Position	Easting (X)	Northing (Y)	Chainage (M)		Length (M)
				From	To	
1	STARTING	592789.017	2506681.02	18052	18085	33
	ENDING	592799.699	2506665.5			
2	STARTING	592813.838	2506644.92	18096	18131	35
	ENDING	592823.064	2506624.83			
3	STARTING	592834.693	2506594.61	18150	18181	31
	ENDING	592841.082	2506571.74			
4	STARTING	592841.868	2506522.26	18223	18255	32
	ENDING	592841.142	2506496.12			
5	STARTING	592720.581	2506313.49	18475	18513	38
	ENDING	592692.338	2506287.85			
6	STARTING	593332.356	2504725.43	20545	20596	51
	ENDING	593365.61	2504720.75			
7	STARTING	593485.885	2504615.08	20758	20794	36
	ENDING	593502.718	2504588.27			
8	STARTING	593009.445	2503968.28	21915	21951	36
	ENDING	593004.723	2503937.53			
9	STARTING	593002.618	2503795.47	22090	22129	39
	ENDING	592992.26	2503761.95			
10	STARTING	589931.861	2501250.69	27060	27105	45
	ENDING	589917.503	2501211.37			
11	STARTING	589913.012	2501149.62	27163	27219	56
	ENDING	589909.504	2501100.3			
12	STARTING	589830.914	2500728.79	27600	27675	75
	ENDING	589775.835	2500670.9			
13	STARTING	589760.625	2500654.88	27703	27742	39
	ENDING	589736.133	2500624.81			
14	STARTING	589691.574	2500554.75	27827	27848	21
	ENDING	589688.921	2500539.88			
15	STARTING	589610.242	2500186.88	28206	28229	23
	ENDING	589606.641	2500167.91			
16	STARTING	589393.884	2499166.95	29303	29349	46
	ENDING	589394.287	2499127.16			
17	STARTING	589386.524	2498857.3	29612	29709	97
	ENDING	589376.453	2498762.71			
18	STARTING	589340.237	2498612.21	29862	29888	26
	ENDING	589334.608	2498593.3			
19	STARTING	593643.324	2508746.232	29923	29969	46
	ENDING	589306.45	2498515.21			
20	STARTING	589270.676	2498411.24	30064	30111	47
	ENDING	589264.513	2498376.03			
21	STARTING	589222.63	2497682.64	30821	30842	21
	ENDING	589224.435	2497667.03			
22	STARTING	589643.656	2496434.692	32161	32227	66
	ENDING	589655.709	2496375.965			

BID PACKAGE-III: Pond Locations of Hurhura Khal						
Sl. No.	**Position**	**Easting (X)**	**Northing (Y)**	**Chainage (M)**		**Length (M)**
				From	**To**	
23	STARTING	589674.77	2496124.618	32474	32525	51
	ENDING	589684.703	2496081.685			
24	STARTING	589631.175	2495901.843	32710	32889	179
	ENDING	589538.994	2495748.191			
Total Length						**1169**

BID PACKAGE-IV: Pond Locations of Damodar Left and Right Embankment						
Sl. No.	Position	Latitude	Longitude	Chainage (M)		Length (M)
				From	To	
1	STARTING	87°58′44.377″	22°37′44.675″			66
	ENDING	87°58′42.646″	22°37′43.244″			
2	STARTING	87°58′36.398″	22°37′39.195″			51
	ENDING	87°58′35.527″	22°37′37.969″			
3	STARTING	87°58′34.001″	22°36′23.253″			137
	ENDING	87°58′32.266″	22°36′20.834″			
4	STARTING	87°58′29.767″	22°36′17.122″			121
	ENDING	87°58′31.916″	22°36′19.742″			
5	STARTING	87°58′27.27″	22°35′57.348″			47
	ENDING	87°58′25.964″	22°35′57.881″			
6	STARTING	87°58′40.258″	22°35′53.748″			34
	ENDING	87°58′40.636″	22°35′53.732″			
7	STARTING	87°58′42.107″	22°35′53.69″			42
	ENDING	87°58′42.919″	22°35′53.559″			
8	STARTING	87°58′46.825″	22°35′51.17″			16
	ENDING	87°58′47.107″	22°35′50.794″			
9	STARTING	87°58′52.18″	22°35′50.892″			43
	ENDING	87°58′53.336″	22°35′51.005″			
10	STARTING	87°59′5.915″	22°35′49.293″			47
	ENDING	87°59′7.296″	22°35′49.691″			
11	STARTING	87°59′17.514″	22°35′47.442″			54
	ENDING	87°59′18.602″	22°35′46.936″			
12	STARTING	87°59′26.001″	22°35′38.284″			58
	ENDING	87°59′27.284″	22°35′37.146″			
13	STARTING	87°59′29.203″	22°35′35.293″			41
	ENDING	87°59′29.928″	22°35′35.141″			
14	STARTING	87°59′32.122″	22°35′35.956″			108
	ENDING	87°59′33.616″	22°35′37.117″			
15	STARTING	87°59′37.186″	22°35′35.814″			40
	ENDING	87°59′37.885″	22°35′35.279″			
16	STARTING	87°59′39.831″	22°35′33.607″			54
	ENDING	87°59′38.617″	22°35′34.65″			
17	STARTING	87°59′41.6″	22°35′30.717″			38
	ENDING	87°59′42.065″	22°35′29.759″			
18	STARTING	87°59′42.196″	22°35′29.447″			39
	ENDING	87°59′41.992″	22°35′28.404″			
19	STARTING	87°59′59.399″	22°35′10.426″			58
	ENDING	87°59′59.978″	22°35′8.823″			
20	STARTING	88°0′6.545″	22°34′47.031″			49
	ENDING	88°0′6.472″	22°34′45.81″			
21	STARTING	88°0′6.489″	22°34′49.258″			44
	ENDING	88°0′6.593″	22°34′47.868″			
22	STARTING	88°0′4.984″	22°34′39.609″			37
	ENDING	88°0′4.602″	22°34′38.654″			
23	STARTING	87°59′47.102″	22°33′55.806″			98

	ENDING	87°59′44.226″	22°33′54.301″			
BID PACKAGE-IV: Pond Locations of Damodar Left and Right Embankment						
Sl. No.	**Position**	**Latitude**	**Longitude**	**Chainage (M)**		**Length (M)**
				From	**To**	
24	STARTING	87°59′37.521″	22°33′43.472″			46
	ENDING	87°59′37.273″	22°33′42.176″			
25	STARTING	87°59′36.343″	22°33′36.891″			50
	ENDING	87°59′36.07″	22°33′35.448″			
26	STARTING	87°59′17.285″	22°31′55.774″			28
	ENDING	87°59′16.76″	22°31′55.226″			
27	STARTING	87°59′15.82″	22°31′50.966″			123
	ENDING	87°59′14.551″	22°31′47.419″			
Total Length						**1569**

Annexure-41: Fish Conservation Plan

As a part of Fish Management Plan, the Contractor will;	
i	Ensure that cross bundhs are constructed as per sequence as stated in Para 31 of Supplementary Information under Section VII-Works Requirements, so that fishes can safely migrate downstream.
ii	Keep water in the alternative compartments constructed by intermediate partition bundhs to the extent feasible so that any remnant of the fishing and benthic community can survive in those water filled components.
iii	Report to the Local officers of the Fishery Department within 12 hours in case any 'vulnerable', 'near threatened' or 'endangered' species of fish is found in the working zone, (The 'vulnerable' fishes are Punti, Aard and Garua and the 'Near Threatened" species are 'Techokha, Boal and Tepa). All works shall be suspended till Fishery Department has taken measures to preserve such species and provided permission to proceed with works.
iv	Adhere to the Code of Conduct in respect of conservation of fishes.
v	Organize worker awareness programs to make workers aware of the identification and protection of vulnerable species of fish and other animals.
vi	Undertake water quality testing 200 meters downstream from the last terminal bund

Annexure-42: Testing of environmental Parameters for Air, Surface & Ground Water, Soil & Sediment quality Monitoring during Project Implementation, to be done by the Contractor

(Location to be finalized by the contractor in consultation with the Project Manager)					
Sl. No.	**Inland Surface Water (Class C)**	**Sediment Quality Testing**	**Ground Water**	**Ambient Air Quality (AAQ)**	**Soil Quality Testing**
	(IS: 2296-1982)	**(US-EPA)**	**(BIS 10500: 1991)**	**(NAAQS)-2009**	
	Parameters	**Parameters**	**Parameters**	**Parameters**	**Parameters**
1	pH Value	Copper	Colour	PM10	pH
2	Dissolved Oxygen	Chromium	Odour	PM2.5	Electrical Conductivity
3	Biochemical Oxygen Demand (3 days at 27°C)	Zinc	Turbidity	Sulphur Dioxide (SO2)	Organic Carbon
4	Total Coliforms (TC)	Lead	pH	Nitrogen Dioxide (NO2)	Texture
5	Colour	Cadmium	Total Hardness	Ozone (O3)	Phosphorous as P
6	Fluoride (as F)		Iron (as Fe)	Lead (Pb)	Potassium as K
7	Cadmium (as Cd)		Chloride (as Cl)	Carbon Monoxide (CO)	Sulphur as S
8	Chloride (as Cl)		Residual Free Chlorine	Ammonia (NH3)	Calcium as Ca
9	Chromium (Cr 6+)		Dissolved Oxygen (DO)	Benzene (C6H6)	Magnesium as Mg
10	Total Dissolved Solid (TDS)		Calcium (as Ca)	Benzo(a)Pyrene (BaP)	Chromium as Cr
11	Sulphates (SO4)		Copper (as Cu)	Arsenic (As)	Lead as Pb
12	Lead (as Pb)		Manganese (as Mn)	Nickel (Ni)	Zinc as Zn
13	Copper (Cu)		Sulphate (as SO4)		Cadmium as Cd
14	Arsenic (as As)		Nitrate (as NO3)		Arsenic as As
15	Iron (as Fe)		Fluoride (as F)		Fluoride as F
16	Phenolic Compound (C6H5OH)		Cadmium (as Cd)		Nickel as Ni
17	Zinc (as Zn)		Arsenic (as As)		Mercury as Hg
18	Anionic detergent (MBAS)		Lead (as Pb)		Boron as B
19	Oil & Grease		Zinc (as Zn)		Copper as Cu
20	Nitrate (as NO3)		Chromium (Cr 6+)		Iron as Fe
			Boron (as B)		Manganese as Mn
					Molybednum as Mo

Note: (a) Above environmental parameters must be tested in an appropriate NABL/ MoEF& CC (earlier MoEF) approved environmental laboratory in consultation with the Project Manager.

(b) Base line Environmental Parameters must be assessed by the Contractor before the commencement of the Project in consultation with the Project Manager.

(c) Noise Level to be tested as per West Bengal Pollution Control Board (WBPCB)/ GoI norms and parameters.

(d) The Contractor needs to undertake quality testing of the sediment prior to commencement of the desiltation work as per US-EPA standards (refer to Project's ESIA-ESMP document). The sample for testing needs to be taken for every 1 km stretch of each lot /package starting at 0.0 chainage of respective lots / package.